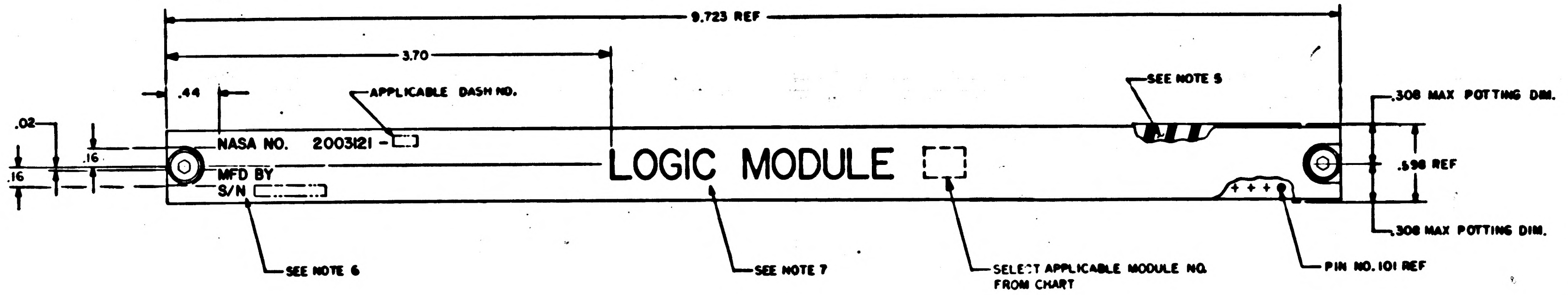
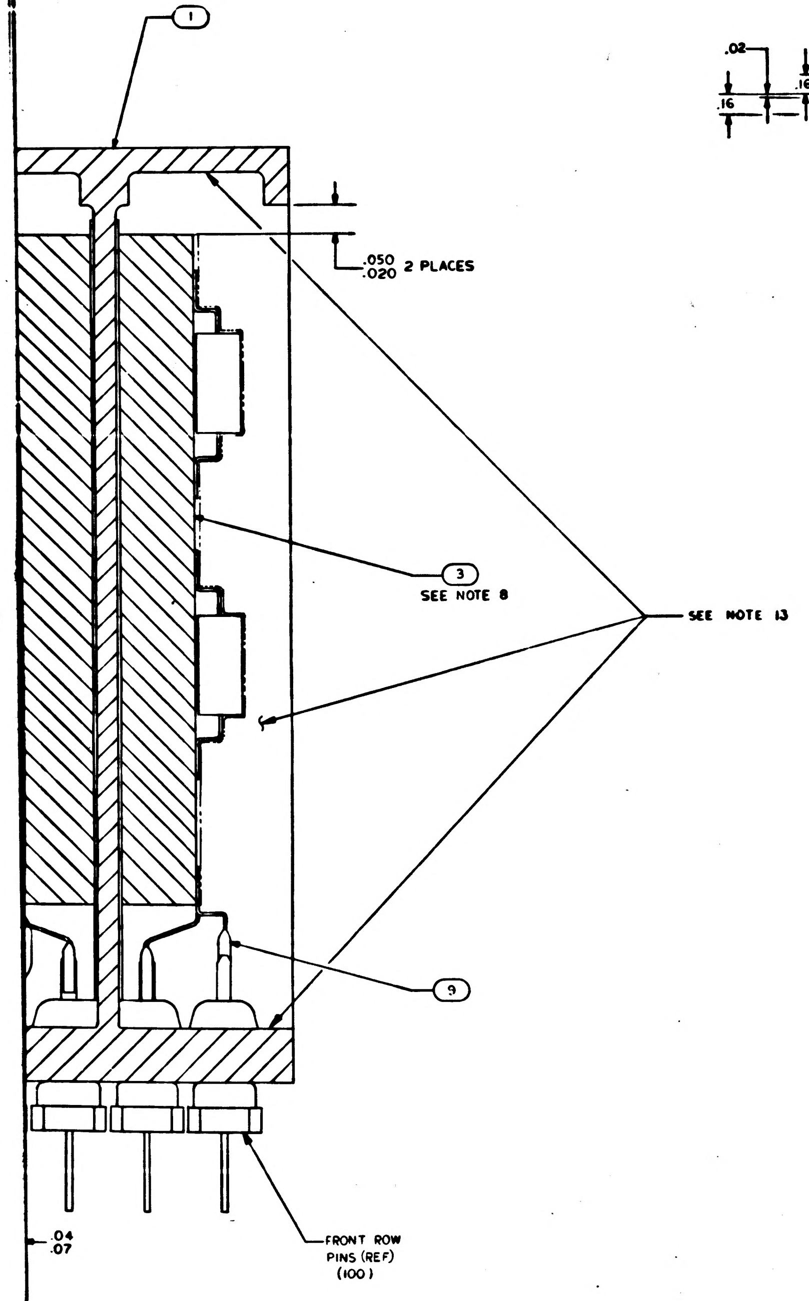
SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
③ A		REVISED PER TDRR 27309	JPT		5/4/66	

REVISIONS 25981



9.723 REF
3.70
.44
APPLICABLE DASH NO.
SEE NOTE 5
.308 MAX POTTING DIM.
.02
.16
.16
NASA NO. 2003121 -
MFD BY
S/N
LOGIC MODULE
.598 REF
.308 MAX POTTING DIM.
SEE NOTE 6
SEE NOTE 7
SELECT APPLICABLE MODULE NO. FROM CHART
PIN NO. 101 REF

MARKING VIEW
SCALE 2/1



1
.050
.020 2 PLACES
3
SEE NOTE 8
SEE NOTE 13
9
FRONT ROW PINS (REF) (100)
.04
.07

SECTION A-A
SCALE 10/1

REF MOD NO.	PART NO.	FIND NO.2	FIND NO.3
A1	2003121-011	2003086-021	2003086-011
A2	-021	-041	-031
A3	-031	-061	-051
A4	-041	-081	-071
A5	-051	-111	-091
A6	-061	-131	-121
A7	-071	-151	-141
A8 -11	-081	-171	-161
A12	-091	-261	-251
A13	-111		-271
A14	-121	-311	-291
A15	-131	-331	-321
A16	-141	-351	-341
A17	-151	-371	-361
A18	-161	-391	-381
A19	-171	-421	-411
A20	-181	-441	-431
A21	-191	-461	-451
A22	-211	-481	-471
A23	-221	-511	-491
A24	2003121 231	2003086 531	2003086-521

*SEE NOTE 14

QTY. APPLY TO EACH PART NO. SEE CHART

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006757-20	WIRE, ELECTRICAL	9
AR	1006757-8	WIRE, ELECTRICAL	8
2	2004984-003	WASHER, FLAT	7
2	2004984-001	WASHER, FLAT	6
2	1004579-1	SCREW, JACKING	5
2	MS16633-4015	RING, RETAINING	4
1	SEE CHART	CIRCUIT BOARD ASSEMBLY	3
1	SEE CHART	CIRCUIT BOARD ASSEMBLY	2
1	2003000-021	HEADER HOUSING ASSEMBLY	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003200	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — XX±.02 ± —
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

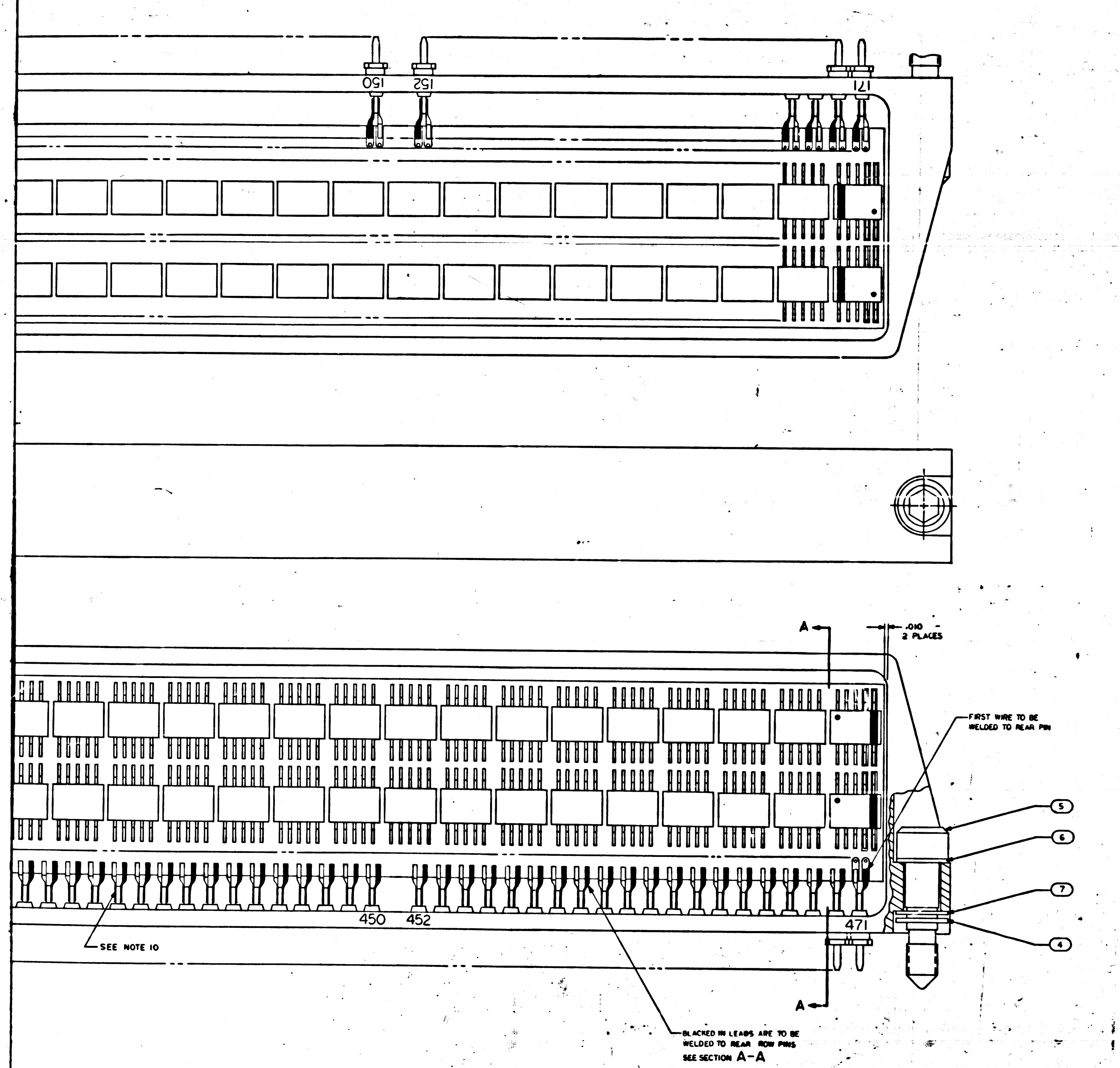
DRAWN Louis A Cole 7 Feb 66
CHECKED
APPROVED
APPROVED Eldon C Hall
APPROVED MIT A/C METZGER
APPROVED MSC
DATE

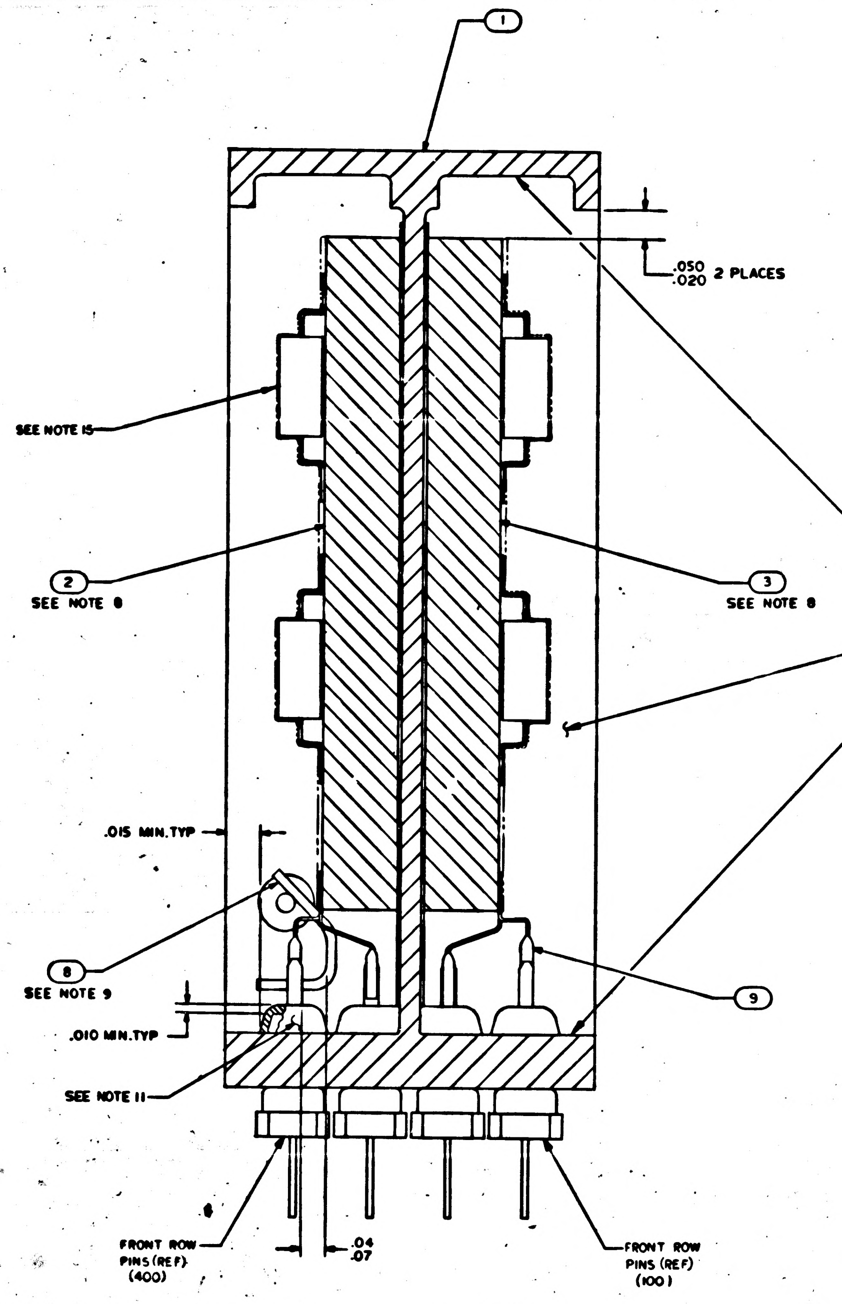
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC MODULE ASSY
(TABULATED)

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003121
SCALE 5/1
SHEET 1 OF 1

8 7 6 5 4


150
152
171
A
.010
2 PLACES
FIRST WIRE TO BE
WELDED TO REAR PIN
5
6
7
4
450
452
471
SEE NOTE 10
A
BLACKED IN LEADS ARE TO BE
WELDED TO REAR ROW PINS
SEE SECTION A-A

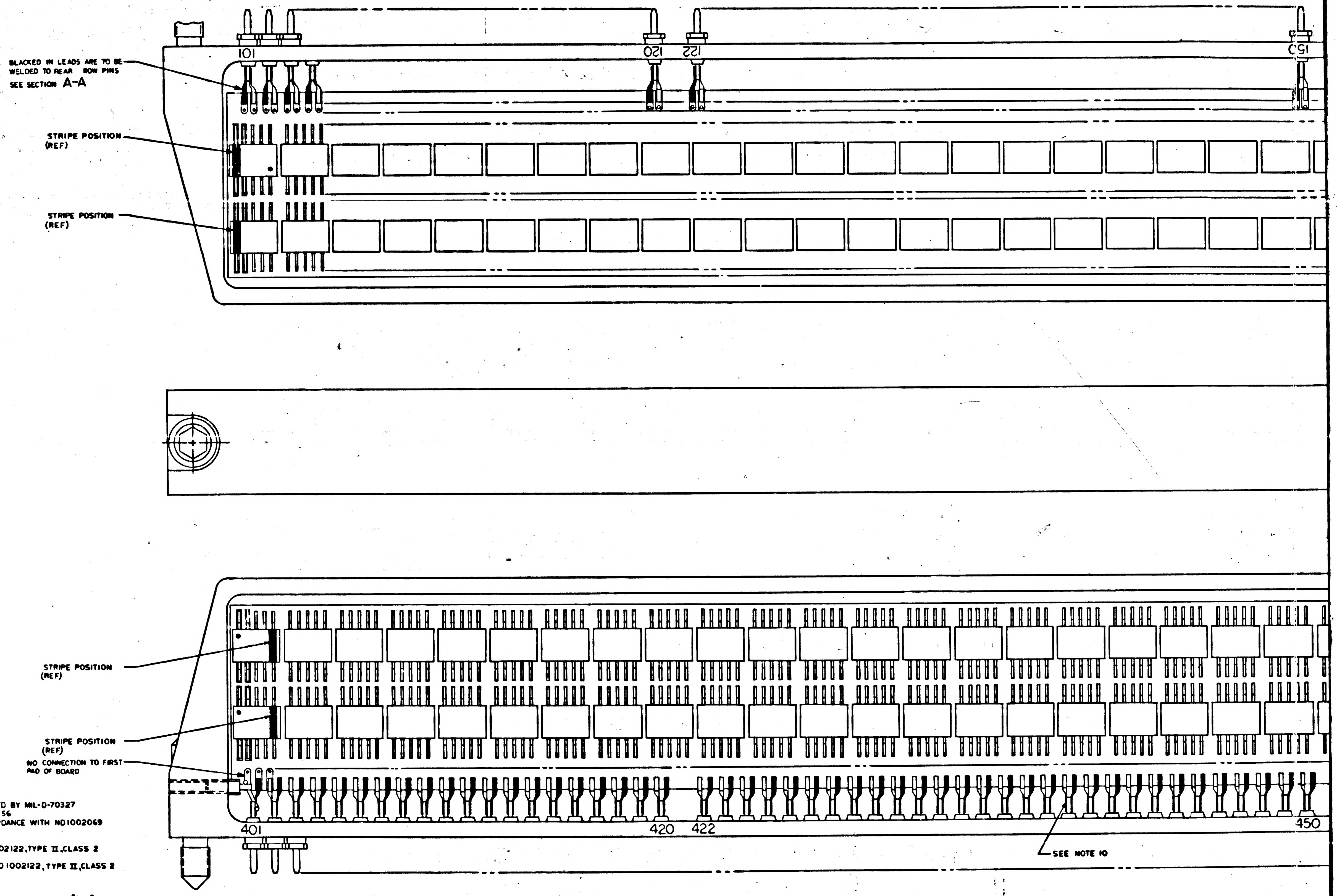

1
.050
.020 2 PLACES
SEE NOTE 15
2
SEE NOTE 8
3
SEE NOTE 8
SEE NOTE 13
.015 MIN.TYP
8
SEE NOTE 9
.010 MIN.TYP
SEE NOTE 11
9
FRONT ROW
PINS (REF)
(400)
.04
.07
FRONT ROW
PINS (REF)
(100)

SECTION A-A
SCALE 10/1

2003121 | A

6 5 4

2003121 A E 2/3


D
C
B
A
101
120
122
150
BLACKED IN LEADS ARE TO BE WELDED TO REAR ROW PINS SEE SECTION A-A
STRIPE POSITION (REF)
STRIPE POSITION (REF)
STRIPE POSITION (REF)
STRIPE POSITION (REF)
NO CONNECTION TO FIRST PAD OF BOARD
401
420
422
450
SEE NOTE 10

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. WELD FIND NO. 9 TO FIND NO. 2 AND FIND NO. 3 PER ND1002256
3. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
4. AR DENOTES AS REQUIRED
5. ENCAPSULATE PER ND1002002. REMOVE FLASHING
6. MARK .10/.08 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271-1
7. MARK .26/.24 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 USING INK 1006271-1
8. BOND FIND 2 AND 3 TO FIND NO. 1 PER ND1002004 TYPE I.
9. WELD FIND NO 8 TO FIND NO. 1. PER ND1002005
10. WELD PER ND1002005 EXCEPT THAT THE ANGLE OF THE JOINT SHALL BE 180° ± 45°. 180° ± 45° SAMPLES SHALL BE USED FOR TENSILE PULL TESTS
11. SEAL INSULATORS AND TERMINALS TO HEADER PER ND1002004 TYPE VI
12. COMPLETED ASSEMBLIES SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF P.S. 2003121
13. COAT INDICATED SURFACES, BOTH ENDS, TOP AND BOTTOM, BOTH SIDES, PER ND1002187, TYPE II
14. NO CONNECTION BETWEEN PIN 232 AND ASSOCIATED PAD (-061 CONFIGURATION ONLY)
15. SPRAY COAT INDICATED SURFACES WITH .005 MINIMUM THICKNESS UNPIGMENTED COATING PER ND1002035

APOLLO G&N Specification
PS 2003121 Rev. A
Original Issue Date: 4-26-66
Release Authority: TDRR 28256
Class Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

LOGIC MODULE ASSEMBLIES

(MODULES A1-A24)

DRAWING NO. 2003121

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
Ⓜ 5/24/66	A	29052	1,4,6,7, and 8		

This specification consists of pages 1 to 8 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	MIT/IL	25 MAR 66 4-1-66 RAY

4.1.2 Nonconformance. Failure of the unit to pass any examination or test of this specification shall automatically classify the unit as nonconforming. Each nonconforming unit corrected by the contractor shall be reinspected. Reinspection may be limited to the test or examination which defined the nonconformance, or, when directed by the cognizant inspector, a complete retest and re-examination may be required. Nonconforming units which have not been corrected will be considered for acceptance only upon formal application by the contractor to the cognizant NASA representative.

4.2 TESTS

4.2.1 Drawing Compl[illegible] modules shall be examined for compliance with the requirements of [illegible] Drawing 2003121. Particular attention shall be given to inspection for [illegible], pin misalignments, legibility and appearance of marking, and [illegible] surfaces, structure and equipment.

4.2.2 Thermal Conditio[illegible] [illegible]rify that the module was subjected to two complete thermal cycles as s[illegible]d in paragraph 3.1.1 prior to performing the acceptance tests specified he[illegible]

4.2.3 Insulation Resistance. Using test equipment with a test potential of 50 VDC limited to a short circuit current of 50 microamperes, measure the resistance between all unconnected (spare) pins and all other pins connected together and between pin 401 and all other pins connected together. Verify that the resistance complies with that specified in paragraph 3.1.2.

4.2.4 Continuity. Verify that the resistances measured between connected pins, and between chassis ground pin 401 and chassis comply with that specified in paragraph 3.1.3.

4.2.5 Input-Output. Make 4.0 ± 0.1 VDC connections (connect 0 VDC to chassis ground). Apply logic input program as derived from the Logic Flow Diagrams and read outputs to determine compliance with Paragraph 3.1.3. All gate inputs, singly or in combination, shall be exercised with the outputs monitored and compared to the expectant value. In cases of isolated circuitry, where inputs are not accessible, the combination shall be considered as a chain of logic flow from the input to the output pins of the module. Simulated loading shall be as indicated in Table IV. Perform this test at 25°C.

4.2.6 WORKMANSHIP. The following tests shall be performed under the conditions specified as a verification of good workmanship.

4.2.6.1 Vibration. Install the module in a computer. Subject the computer subsystem to the vibration tests specified in the applicable JDC. Verify that the computer subsystem meets the requirements of the applicable specification.

4.2.6.2 Thermal Extremes and Marginal Voltages. Repeat the Input-Output test as specified in Paragraph 4.2.5 at 0°C and +70°C and at +4.8 VDC and +3.4 VDC to determine compliance with Paragraph 3.1.3. Modules shall be stabilized at thermal extremes for ½ hour minimum before testing.

4.2.6.3 Weight. Weigh the module to the nearest .01 pound. Verify that the weight does not exceed the maximum allowable weight specified in section 3.2.2.

5.0 PREPARATION FOR DELIVERY

5.1 GENERAL. Preparation for delivery shall be in accordance with Specification ND 1002214.

6. NOTES. None.

APOLLO G&N Specification
PS 2003121 Rev. B
Original Issue Date: 4-26-66
Release Authority: **TDRR** 28256
Class Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

LOGIC MODULE ASSEMBLIES

(MODULES A1-A24)

DRAWING NO. 2003121

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
Ⓜ 5/24/66	A	29052	1,4,6,7, and 8		
Ⓜ 7/1/66	B	29909	1,6, & 8		

This specification consists of pages 1to 8 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	EC Hall MIT/IL	D. W. Sleeper 25 MAR 66 4-1-66 RAY

4.2.6.2 Thermal Extremes and Marginal Voltages. Repeat the Input-Output test as specified in Paragraph 4.2.5 at 0°C and +70°C and at +4.8 VDC and +3.4 VDC to determine compliance with Paragraph 3.1.4. Modules shall be stabilized at thermal extremes for ½ hour minimum before testing.

4.2.6.3 Weight. Weigh the module to the nearest .01 pound. Verify that the weight does not exceed the maximum allowable weight specified in section 3.2.2.

5.0 PREPARATION FOR DELIVERY

5.1 GENERAL. Preparation for delivery shall be in accordance with Specification ND 1002214.

6. NOTES. None.

APOLLO G&N Specification
PS 2003121 Rev. C
Original Issue Date: 4-26-66
Release Authority: TDRR 28256
Class Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

LOGIC MODULE ASSEMBLIES

(MODULES A1-A24)

DRAWING NO. 2003121

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
Ⓜ 5/24/66	A	29052	1,4,6,7, and 8		
Ⓜ 7/1/66	B	29909	1,6, & 8		
Ⓜ 9/1/66	C	30873	1, 5		

This specification consists of pages 1to 8 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	EC Hall MIT/IL	25 MAR 66 4-1-66 RAY

3.2 PRODUCT CONFIGURATION

3.2.1 Drawings. The module configuration shall be in accordance with APOLLO G&N Drawing 2003121 and all drawings and engineering data referenced thereon. Logic configuration shall be in accordance with APOLLO G&N Drawings listed in Table I.

3.2.2 Weight. Maximum allowable weight of the module shall be 0.45 pounds.

4.0 QUALITY ASSURANCE PROVISIONS

4.1 GENERAL. The contractor responsible for the manufacture of the module shall be responsible for accomplishing the tests required herein. See Table III for Product Performance and Configuration Requirement/Quality Verification Cross Reference Index.

TABLE III

REQUIREMENT	VERIFICATION
3.1.1	4.2.2.
3.1.2	4.2.3.2
3.1.3	4.2.4.3
3.1.4	4.2.5 & 4.2.6.2
3.2.1	4.2.1
3.2.2	4.2.6.3
3.1.5	4.2.6.1

4.1.1 Test Conditions. Unless otherwise specified, modules shall be tested under the following ambient conditions:

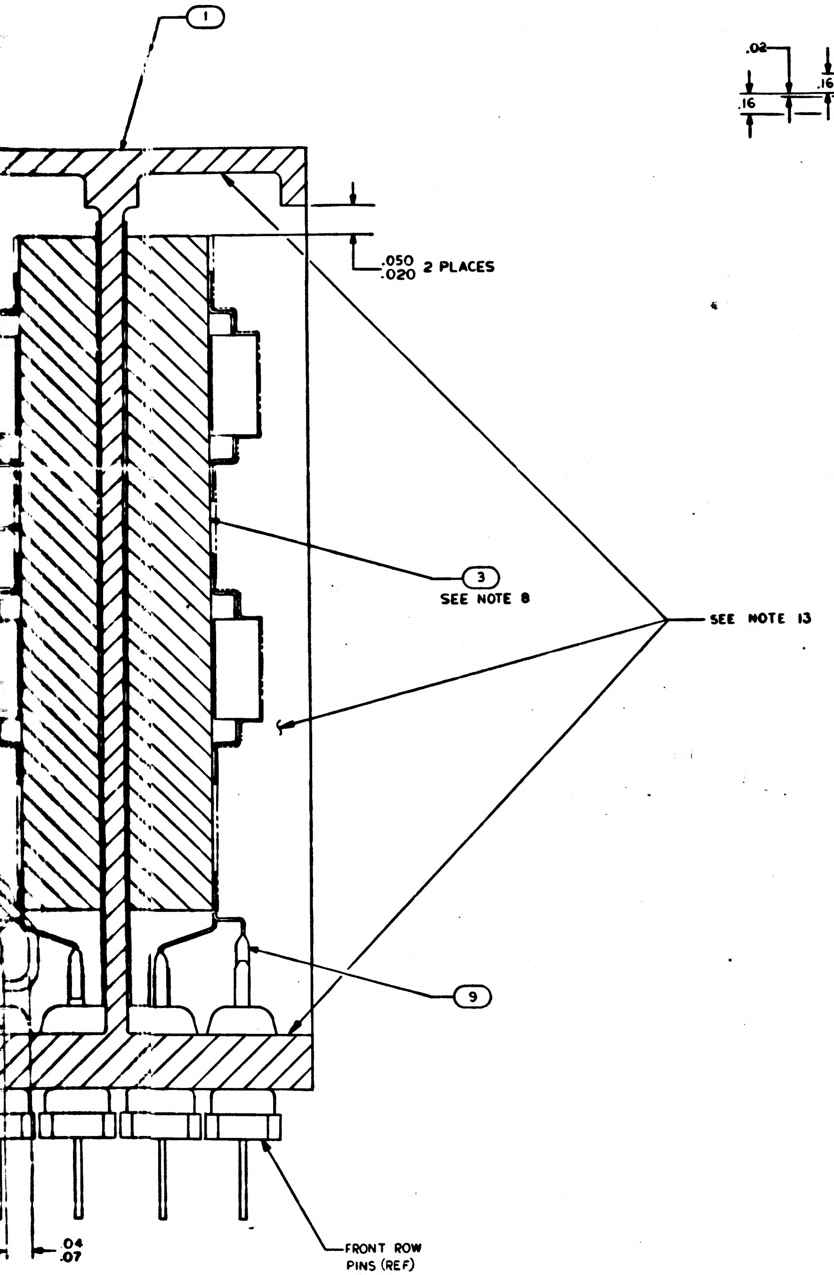
(a) Temperature: 25° ± 10°C

(b) Relative Humidity: 90% maximum

(c) Barometric Pressure: between 28 and 32 inches of mercury

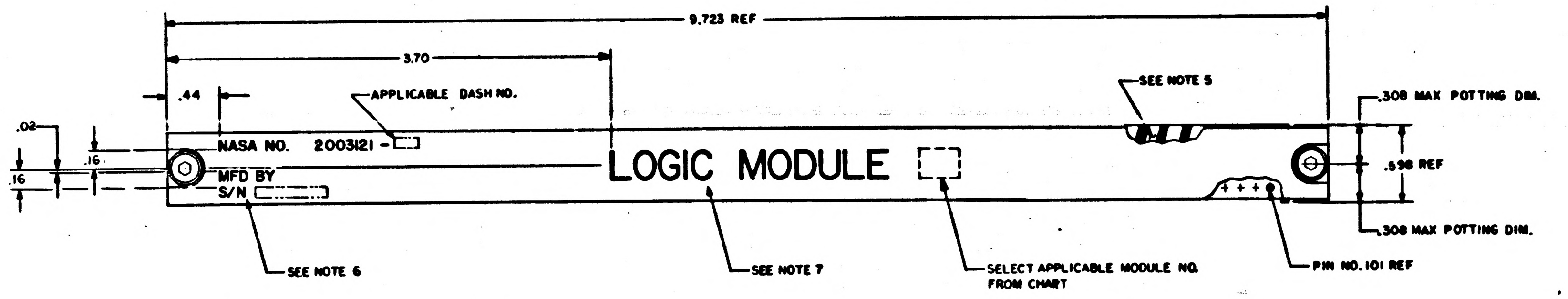
REVISIONS 25971

SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED



1
.050
.020 2 PLACES
3
SEE NOTE 8
SEE NOTE 13
9
.04
.07
FRONT ROW
PINS (REF)
(100)

SECTION A-A
SCALE 10/1



9.723 REF
3.70
.44
APPLICABLE DASH NO.
SEE NOTE 5
.308 MAX POTTING DIM.
.02
.16
.16
NASA NO. 2003121 -
MFD BY
S/N
LOGIC MODULE
.598 REF
.308 MAX POTTING DIM.
SEE NOTE 6
SEE NOTE 7
SELECT APPLICABLE MODULE NO.
FROM CHART
PIN NO. 101 REF

MARKING VIEW
SCALE 2/1

REF MOD NO.	PART NO.	FIND NO.2	FIND NO.3
A1	2003121-011	2003086-021	2003086-011
A2	-021	-041	-031
A3	-031	-061	-051
A4	-041	-081	-071
A5	-051	-111	-091
A6	-061	-131	-121
A7	-071	-151	-141
A8 -11	-081	-171	-161
A12	-091	-261	-251
A13	-111		-271
A14	-121	-311	-291
A15	-131	-331	-321
A16	-141	-351	-341
A17	-151	-371	-361
A18	-161	-391	-381
A19	-171	-421	-411
A20	-181	-441	-431
A21	-191	-461	-451
A22	-211	-481	-471
A23	-221	-511	-491
A24	2003121 231	2003086 531	2003086-521

* SEE NOTE 14

QTY. APPLY TO EACH PART NO. SEE CHART

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006757-20	WIRE, ELECTRICAL	9
AR	1006757-8	WIRE, ELECTRICAL	8
2	1004546-3	WASHER, FLAT	7
2	1004546-1	WASHER, FLAT	6
2	1004579-1	SCREW, JACKING	5
2	MS16633-4015	RING RETAINING	4
1	SEE CHART	CIRCUIT BOARD ASSEMBLY	3
1	SEE CHART	CIRCUIT BOARD ASSEMBLY	2
1	2003000-021	HEADER HOUSING ASSEMBLY	1

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — XX±.02 ± —
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN Louis A Cote 7 Feb
CHECKED
APPROVED
APPROVAL Eldon C. Hall
APPROVED MIT
A. C. METZGER
APPROVED MSC

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC MODULE ASSY
(TABULATED)

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003121
SCALE 5/1
SHEET 1 OF 1

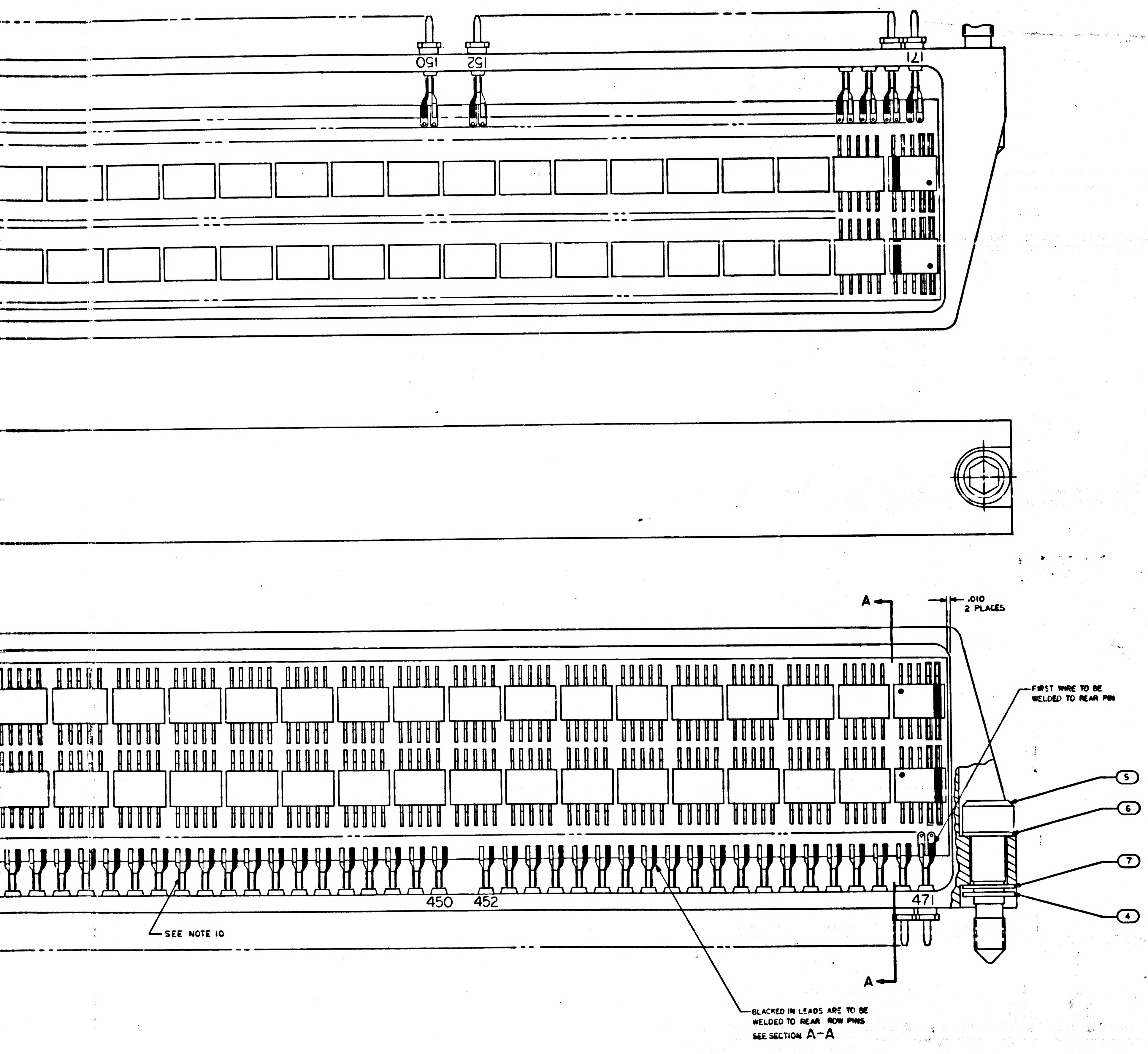
NEXT ASSY	USED ON
2003200	

APPLICATION

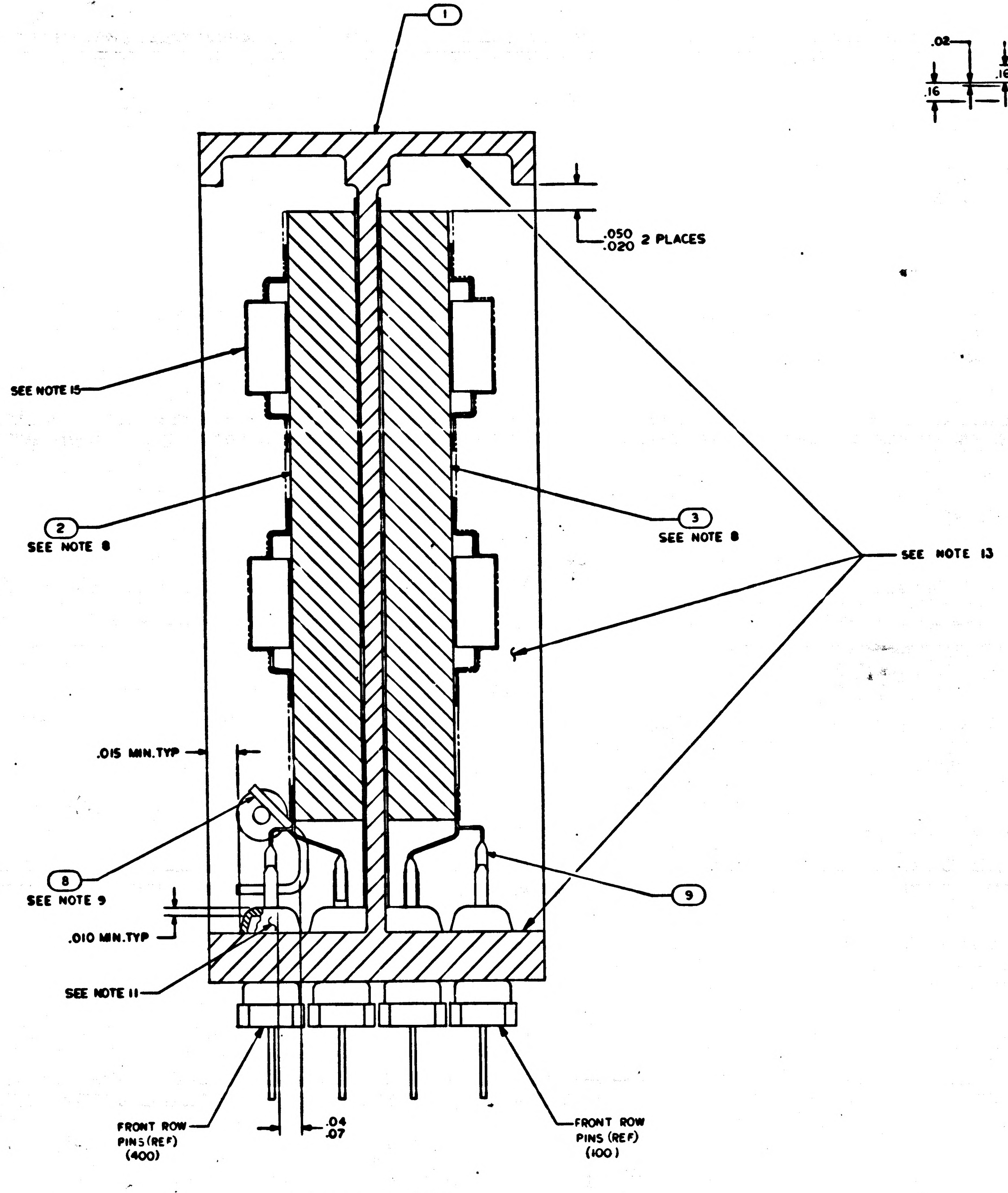
F3

3H

2003121

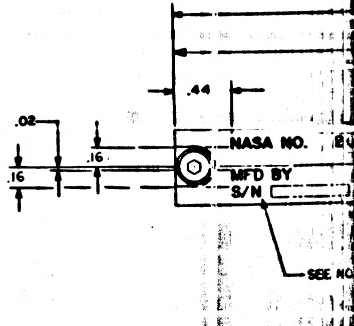


150
152
171
A
.010
2 PLACES
FIRST WIRE TO BE WELDED TO REAR PIN
5
6
7
4
450
452
471
SEE NOTE 10
A
BLACKED IN LEADS ARE TO BE WELDED TO REAR ROW PINS SEE SECTION A-A



1
.050
.020 2 PLACES
SEE NOTE 15
2
SEE NOTE 8
3
SEE NOTE 8
SEE NOTE 13
.015 MIN.TYP
8
SEE NOTE 9
.010 MIN.TYP
SEE NOTE 11
9
FRONT ROW PINS (REF) (400)
.04
.07
FRONT ROW PINS (REF) (100)

SECTION A-A
SCALE 10/1



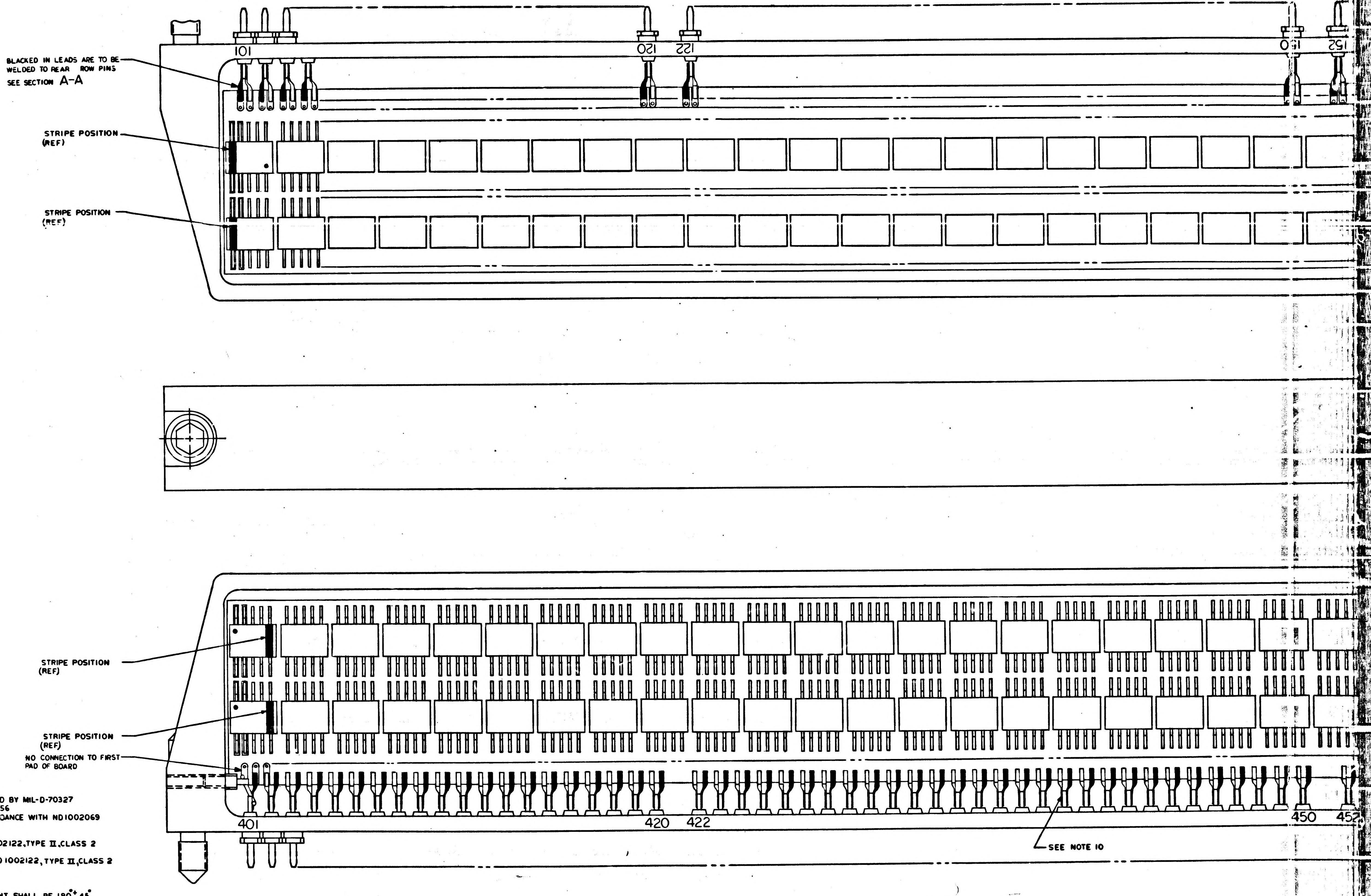
.44
.02
.16
.16
NASA NO.
MFD BY
S/N
SEE NO

F2

2003121

11 10 9 8

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


BLACKED IN LEADS ARE TO BE WELDED TO REAR ROW PINS SEE SECTION A-A
101
120
122
150
152
STRIPE POSITION (REF)
STRIPE POSITION (REF)
STRIPE POSITION (REF)
STRIPE POSITION (REF)
NO CONNECTION TO FIRST PAD OF BOARD
401
420
422
450
452
SEE NOTE 10

D
C
B
A

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. WELD FIND NO. 9 TO FIND NO. 2 AND FIND NO. 3 PER ND1002256
3. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
4. AR DENOTES AS REQUIRED
5. ENCAPSULATE PER ND1002002. REMOVE FLASHING
6. MARK .10/.08 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271-1
7. MARK .26/.24 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 USING INK 1006271-1
8. BOND FIND 2 AND 3 TO FIND NO. 1 PER ND1002004 TYPE I.
9. WELD FIND NO 8 TO FIND NO. 1. PER ND1002005
10. WELD PER ND1002005 EXCEPT THAT THE ANGLE OF THE JOINT SHALL BE 180° ± 45°. 180° ± 45° SAMPLES SHALL BE USED FOR TENSILE PULL TESTS
11. SEAL INSULATORS AND TERMINALS TO HEADER PER ND1002004 TYPE VI
12. COMPLETED ASSEMBLIES SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF P.S. 2003121
13. COAT INDICATED SURFACES, BOTH ENDS, TOP AND BOTTOM, BOTH SIDES, PER ND1002187. TYPE II
14. NO CONNECTION BETWEEN PIN 232 AND ASSOCIATED PAD (–061 CONFIGURATION ONLY)
15. SPRAY COAT INDICATED SURFACES WITH .005 MINIMUM THICKNESS UNPIGMENTED COATING PER ND1002035

F-1

MASTER

2003121

11 10 9 8

4.2.6.2 Thermal Extremes and Marginal Voltages. Repeat the Input-Output test as specified in Paragraph 4.2.2.3 at 0°C and +70°C and at +4.8 VDC and +3.4 VDC to determine compliance with Paragraph 3.1.3. Modules shall be stabilized at thermal extremes for ½ hour minimum before testing.

4.2.6.3 Weight. Weigh the module to the nearest .01 pound. Verify that the weight does not exceed the maximum allowable weight specified in section 3.2.2.

5.0 PREPARATION FOR DELIVERY

5.1 GENERAL. Preparation for delivery shall be in accordance with Specification ND 1002214.

6. NOTES. None.

APOLLO G&N Specification
PS 2003121 Rev. -
Original Issue Date: 4-26-66
Release Authority: TDRR 28256
Class Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

LOGIC MODULE ASSEMBLIES

(MODULES A1-A24)

DRAWING NO. 2003121

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA

This specification consists of pages 1 to 8 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	E C Hall MIT/IL	25 MAR 66 4-1-66 RAY

3.0 REQUIREMENTS

3.1 PERFORMANCE

3.1.1 Thermal Conditioning. The module shall be subjected to two complete thermal cycles, as specified below, prior to acceptance testing:

> 25°C down to -10°C ± 3°C in NLT 20 minutes, held at -10°C ± 3°C for NLT 30 minutes, raised to +70°C ± 3°C in NLT 40 minutes, held at +70°C ± 3°C for NLT 30 minutes, lowered to 25°C in NLT 20 minutes.

3.1.2 Insulation Resistance. The insulation resistance between all unconnected (spare) pins and all other pins and between chassis ground and all other pins shall be 100 megohms minimum.

3.1.3 Continuity. The resistance between all connected pins, between chassis ground pin 401 and chassis shall be 0.5 ohms maximum.

3.1.4 Input-Output. The modules shall function as specified in Table II. When supplied with the nominal and marginal voltages specified, the outputs shall be within the limits specified.

TABLE II

			OUTPUTS	
LOGIC INPUT VDC	TEMP 0°C	+4 VDC	LOGIC "1" VDC	LOGIC "0" VDC
LOGIC "0" = 350 ± 50 mv LOGIC "1" = 850 ± 30 mv	25° ± 10°	4.0 ± 0.1	.87 to 1.20	335 mv max
	$70^{\circ}\,^{+2.8^{\circ}}_{-0^{\circ}}$	4.8 ± 0.1	.93 to 1.47	
		3.4 ± 0.1	.77 to 1.20	
	$0^{\circ}\,^{+0^{\circ}}_{-2.8^{\circ}}$	3.4 ± 0.1	.77 to 1.31	

3.1.5 Vibration. The module shall perform as specified in paragraphs 3.1.2 through 3.1.4 when installed in an operating computer which is being subjected to the vibration requirements specified in the applicable specifications for the computer subsystem. Acceptance criteria for the module shall be the compliance of the computer subsystem with its applicable specifications.

3.2 PRODUCT CONFIGURATION

3.2.1 Drawings. The module configuration shall be in accordance with APOLLO G&N Drawing 2003121 and all drawings and engineering data referenced thereon. Logic configuration shall be in accordance with APOLLO G&N Drawings listed in Table I.

3.2.2 Weight. Maximum allowable weight of the module shall be 0.40 pounds.

4.0 QUALITY ASSURANCE PROVISIONS

4.1 GENERAL. The contractor responsible for the manufacture of the module shall be responsible for accomplishing the tests required herein. See Table III for Product Performance and Configuration Requirement/Quality Verification Cross Reference Index.

TABLE III

REQUIREMENT	VERIFICATION
3.1.1	4.2.2.1
3.1.2	4.2.3.2
3.1.3	4.2.4.3
3.1.4	4.2.5 & 4.2.6.2
3.2.1	4.2.1
3.2.2	4.2.6.3
3.1.5	4.2.6.1

4.1.1 Test Conditions. Unless otherwise specified, modules shall be tested under the following ambient conditions:

(a) Temperature: 25° ± 10°C

(b) Relative Humidity: 90% maximum

(c) Barometric Pressure: between 28 and 32 inches of mercury

4.1.2 Nonconformance. Failure of the unit to pass any examination or test of this specification shall automatically classify the unit as nonconforming. Each nonconforming unit corrected by the contractor shall be reinspected. Reinspection may be limited to the test or examination which defined the nonconformance, or, when directed by the cognizant inspector, a complete retest and re-examination may be required. Nonconforming units which have not been corrected will be considered for acceptance only upon formal application by the contractor to the cognizant NASA representative.

4.2 TESTS

4.2.1 Drawing Compliance. The modules shall be examined for compliance with the requirements of APOLLO G&N Drawing 2003121. Particular attention shall be given to inspection for contaminants, pin misalignments, legibility and appearance of marking, and damage to surfaces, structure and equipment.

4.2.2 Thermal Conditioning. Verify that the module was subjected to two complete thermal cycles as specified in paragraph 3.1.1 prior to performing the acceptance tests specified herein.

4.2.3 Insulation Resistance. Using test equipment with a test potential of 50 VDC limited to a short circuit current of 50 microamperes, measure the resistance between all unconnected (spare) pins and all other pins connected together and between pin 401 and all other pins connected together. Verify that the resistance complies with that specified in paragraph 3.1.2.

4.2.4 Continuity. Verify that the resistances measured between pin numbers within the groups 122 and 150, 222 and 250, 322 and 350, 422 and 450, 124 and 148, 224 and 248, 324 and 348, 424 and 448, 112 and 136 and 160, 212 and 236 and 260, 312 and 336 and 360, 412 and 436 and 460.and between chassis ground pin 401 and chassis comply with that specified in paragraph 3.1.3.

4.2.5 Input-Output. Make 4.0 ± 0.1 VDC connections (connect 0 VDC to chassis ground). Apply logic input program as derived from the Logic Flow Diagrams and read outputs to determine compliance with Paragraph 3.1.3. All gate inputs, singly or in combination, shall be exercised with the outputs monitored and compared to the expectant value. In cases of isolated circuitry, where inputs are not accessible, the combination shall be considered as a chain of logic flow from the input to the output pins of the module. Simulated loading shall be as indicated in Table IV. Perform this test at 25°C.

4.2.6 WORKMANSHIP. The following tests shall be performed under the conditions specified as a verification of good workmanship.

4.2.6.1 Vibration. Install the module in a computer. Subject the computer subsystem to the vibration tests specified in the applicable JDC. Verify that the computer subsystem meets the requirements fo the applicable specification.

TABLE IV

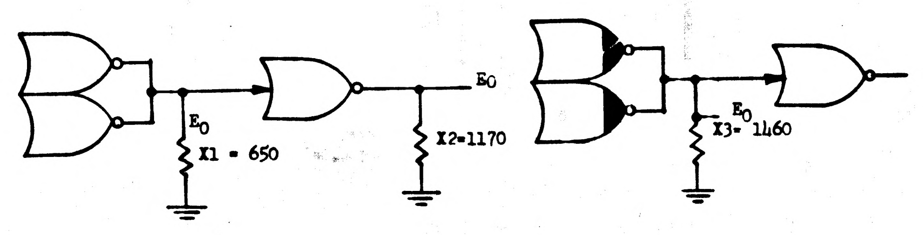
RESISTIVE LOGIC LOADS (X) vs CIRCUIT CONFIGURATION

Bases Driven / No. of Drivers	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
One Driver	X2 1170	X3 1460	1980	3020	6352	NO LOAD										
Two Drivers	585	X1 650	730	840	980	1250	1500	2040	3000	7250						
Three Drivers	390	418	450	489	534	590	658	739	840	985	1230	1550	2120	3360	8140	NO LOAD
Four Drivers	292	308	325	346	368	387	415									
Five Drivers	233															
Six Drivers	195	202	209	217												

*Resistance values are to have a ± 1% tolerance.

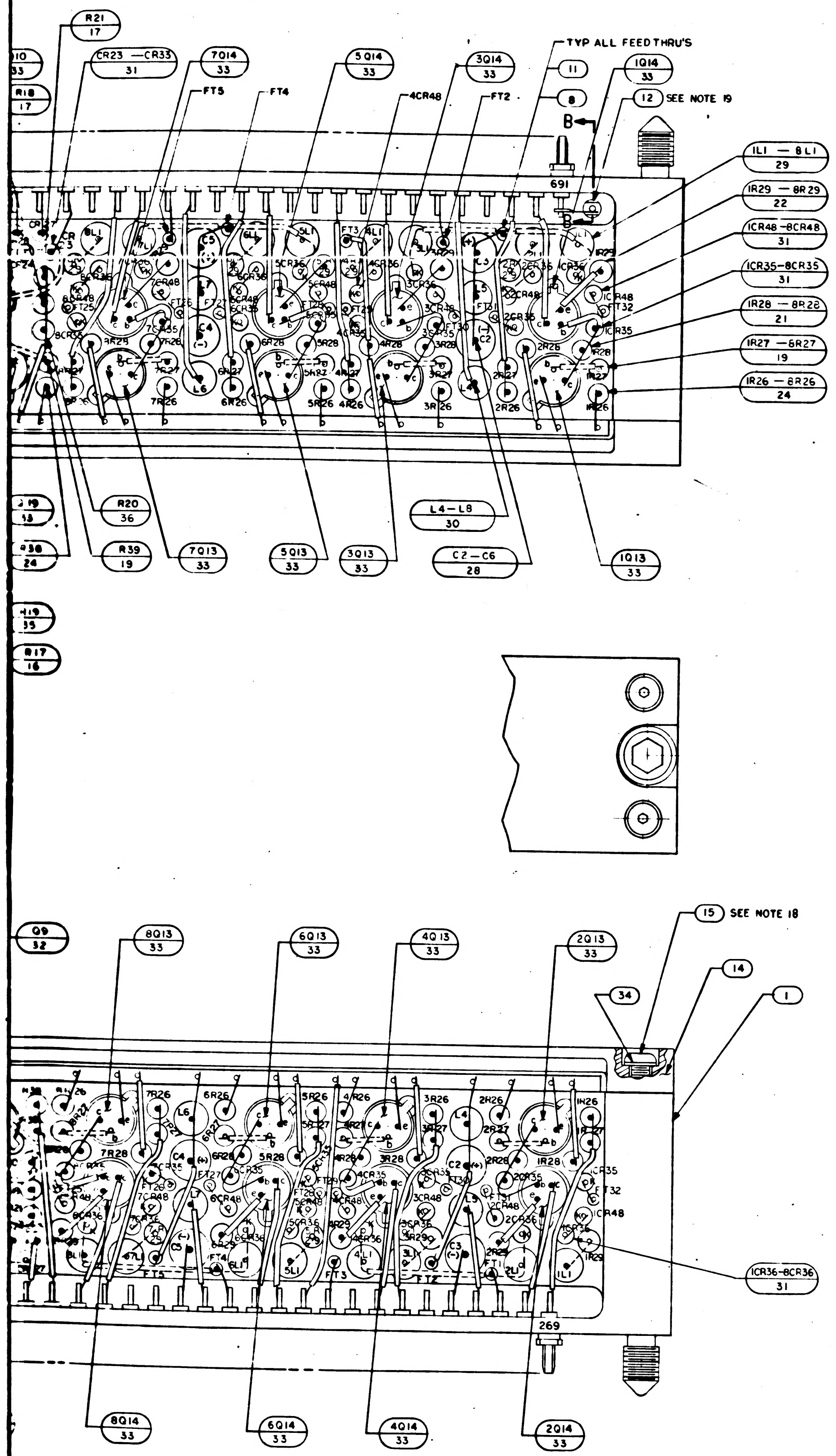
Example:

NOTE: Blacknose gates shall be loaded as a function of "bases driven" only, rather than by the number of drivers employed.

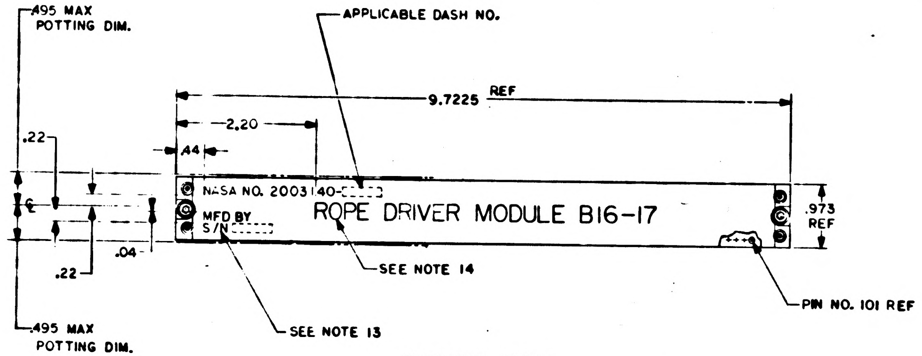


SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 27309	SPT		3/9/66	

REVISIONS 25980



R21 17
CR23 — CR33 31
7Q14 33
5Q14 33
3Q14 33
1Q14 33
TYP ALL FEEDTHRU'S
11
8
12 SEE NOTE 19
B
FT5
FT4
4CR48
FT2
691
1L1 — 8L1 29
1R29 — 8R29 22
SEE NOTE 11
1CR48 — 8CR48 31
1CR35 — 8CR35 31
1R28 — 8R28 21
1R27 — 8R27 19
1R26 — 8R26 24
R18 17
R20 36
R39 19
7Q13 33
5Q13 33
3Q13 33
L4 — L8 30
C2 — C6 28
1Q13 33
Q9 32
8Q13 33
6Q13 33
4Q13 33
2Q13 33
15 SEE NOTE 18
34
14
1
1CR36 — 8CR36 31
269
8Q14 33
6Q14 33
4Q14 33
2Q14 33



.495 MAX POTTING DIM.
APPLICABLE DASH NO.
9.7225 REF
2.20
.44
.22
NASA NO. 2003140-
MFD BY
S/N
ROPE DRIVER MODULE B16-17
.973 REF
.04
.22
SEE NOTE 14
SEE NOTE 13
PIN NO. 101 REF
.495 MAX POTTING DIM.

MARKING VIEW
SCALE 1/1

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO.
	2005100	SCHEMATIC	REF
8	1010406-11	COIL, RF, CHOKE	37
4	1006750-29	RESISTOR	36
4	1006750-24	RESISTOR	35
4	NAS620A-2	WASHER, FLAT	34
39	2004004-001	TRANSISTOR, POTTED	33
8	2004004-002	TRANSISTOR, POTTED	32
86	2004103-001	DIODE	31
9	1010406-7	COIL, RF, CHOKE	30
8	1010406-10	COIL, RF, CHOKE	29
9	1006755-79	CAPACITOR	28
1	1006755-69	CAPACITOR	27
4	1006788-9	RESISTOR	26
4	1006750-32	RESISTOR	25
21	1006750-49	RESISTOR	24
8	SEE NOTE 11	RESISTOR	23
8	SEE NOTE 11	RESISTOR	22
8	1006750-22	RESISTOR	21
1	1006750-43	RESISTOR	20
22	1006750-15	RESISTOR	19
2	1006750-39	RESISTOR	18
6	1006750-35	RESISTOR	17
3	1006750-36	RESISTOR	16
4	1006783-10	SCREW, BUTTON HEAD, HEX SOCKET	15
1	2004032	COVER	14
1	2003142-011	MATRIX ASSEMBLY	13
1	2004039	TERMINAL, THREADED	12
AR	1006776-22	INSULATION, SLEEVING	11
AR	1006776-21	INSULATION, SLEEVING	10
AR	1006757-1	WIRE, ELECTRICAL	9
AR	1006757-8	WIRE, ELECTRICAL	8
2	MS16633-4015	RING, RETAINING, EXTERNAL, "E"	7
2	2004984-003	WASHER, FLAT	6
2	2004984-001	WASHER, FLAT	5
2	1004579-1	SCREW, JACKING	4
1	2003085	INSULATOR (B) ASSY	3
1	2004157	INSULATOR (A)	2
1	2003084-011	HEADER HOUSING ASSEMBLY	1

-011 LIST OF MATERIALS

2003140 A

NEXT ASSY	USED ON
2003200	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS XX±.02 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

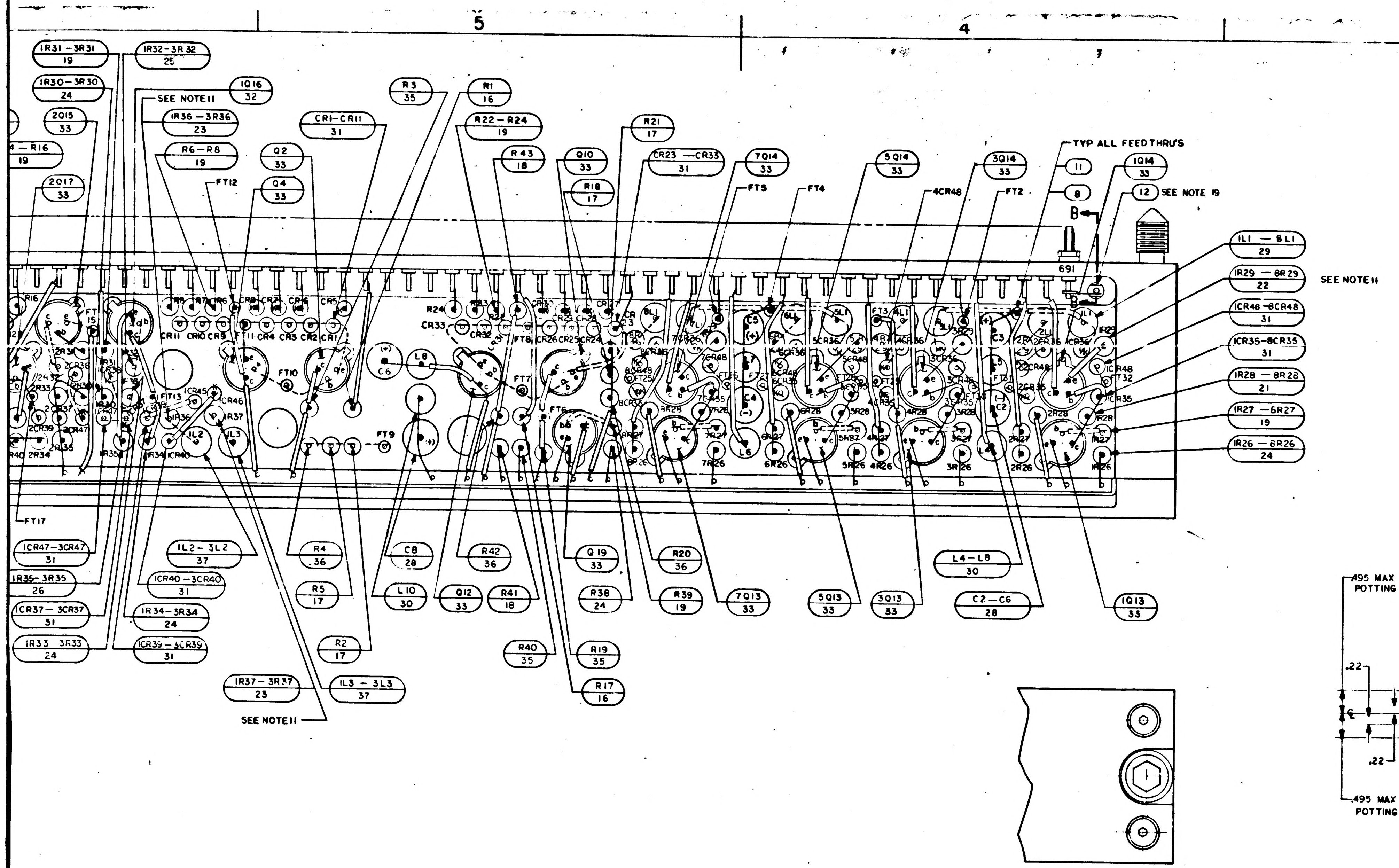
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN 29OCT65
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

ROPE DRIVER MODULE
B16-17
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003140
SCALE 4/1
SHEET 1 OF 1

203140 A


5
4
3
2
1R31-3R31 19
1R32-3R32 25
1R30-3R30 24
SEE NOTE 11
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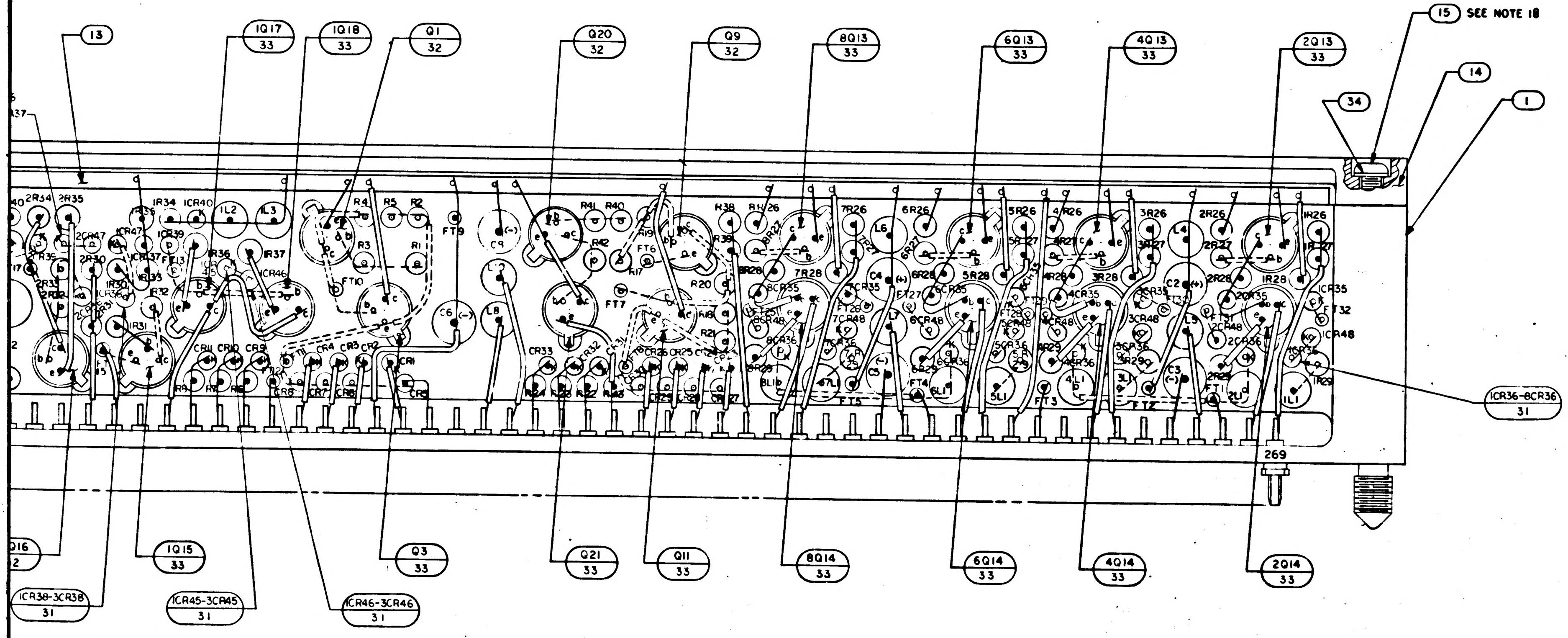
2Q15 33
1R36-3R36 23
R3 35
R1 16
CR1-CR11 31
R22-R24 19
4-R16 19
R6-R8 19
Q2 33
R21 17
2Q17 33
FT12
Q4 33
R43 18
Q10 33
CR23-CR33 31
7Q14 33
5Q14 33
3Q14 33
TYP ALL FEEDTHRU'S
11
1Q14 33
R18 17
FT5
FT4
4CR48
FT2
8
12 SEE NOTE 19
B
691
1L1-8L1 29
1R29-8R29 22
SEE NOTE 11
1CR48-8CR48 31
1CR35-8CR35 31
1R28-8R28 21
1R27-6R27 19
1R26-8R26 24
FT17
1CR47-3CR47 31
1R35-3R35 26
1L2-3L2 37
1CR40-3CR40 31
1CR37-3CR37 31
1R34-3R34 24
1R33-3R33 24
1CR39-3CR39 31
R4 36
C8 28
R42 36
Q19 33
R20 36
L4-L8 30
R5 17
L10 30
Q12 33
R41 18
R38 24
R39 19
7Q13 33
5Q13 33
3Q13 33
C2-C6 28
1Q13 33
R2 17
R40 35
R19 35
1R37-3R37 23
1L3-3L3 37
R17 16
SEE NOTE 11


13
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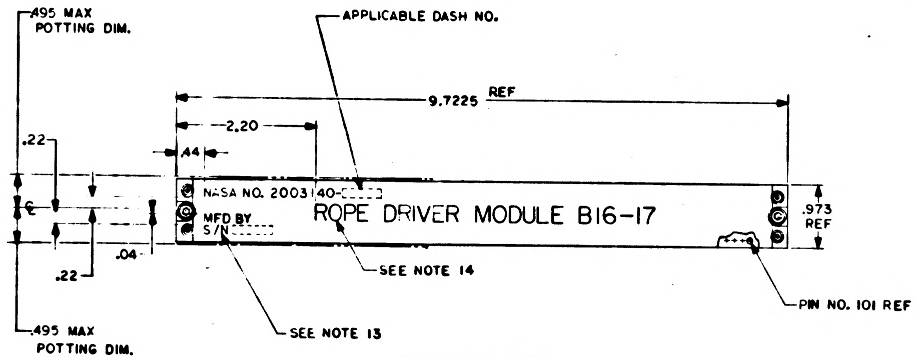
1Q18 33
Q1 32
Q20 32
Q9 32
8Q13 33
6Q13 33
4Q13 33
2Q13 33
15 SEE NOTE 18
14
34
1
1CR36-8CR36 31
269
1Q16 32
1Q15 33
Q3 33
Q21 33
Q11 33
8Q14 33
6Q14 33
4Q14 33
2Q14 33
1CR38-3CR38 31
1CR45-3CR45 31
1CR46-3CR46 31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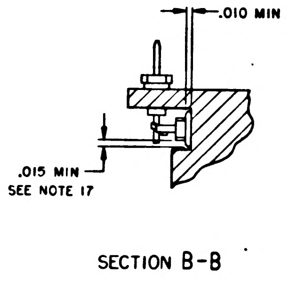
APPLICABLE DASH NO.
9.7225 REF
2.20
.44
.22
NASA NO. 2003140-
MFD BY
S/N
ROPE DRIVER MODULE B16-17
.973 REF
.04
.22
SEE NOTE 14
SEE NOTE 13
PIN NO. 101 REF
.495 MAX POTTING DIM.

MARKING VIEW
SCALE 1/1

2003200
NEXT ASSY
APPL

2003140 A

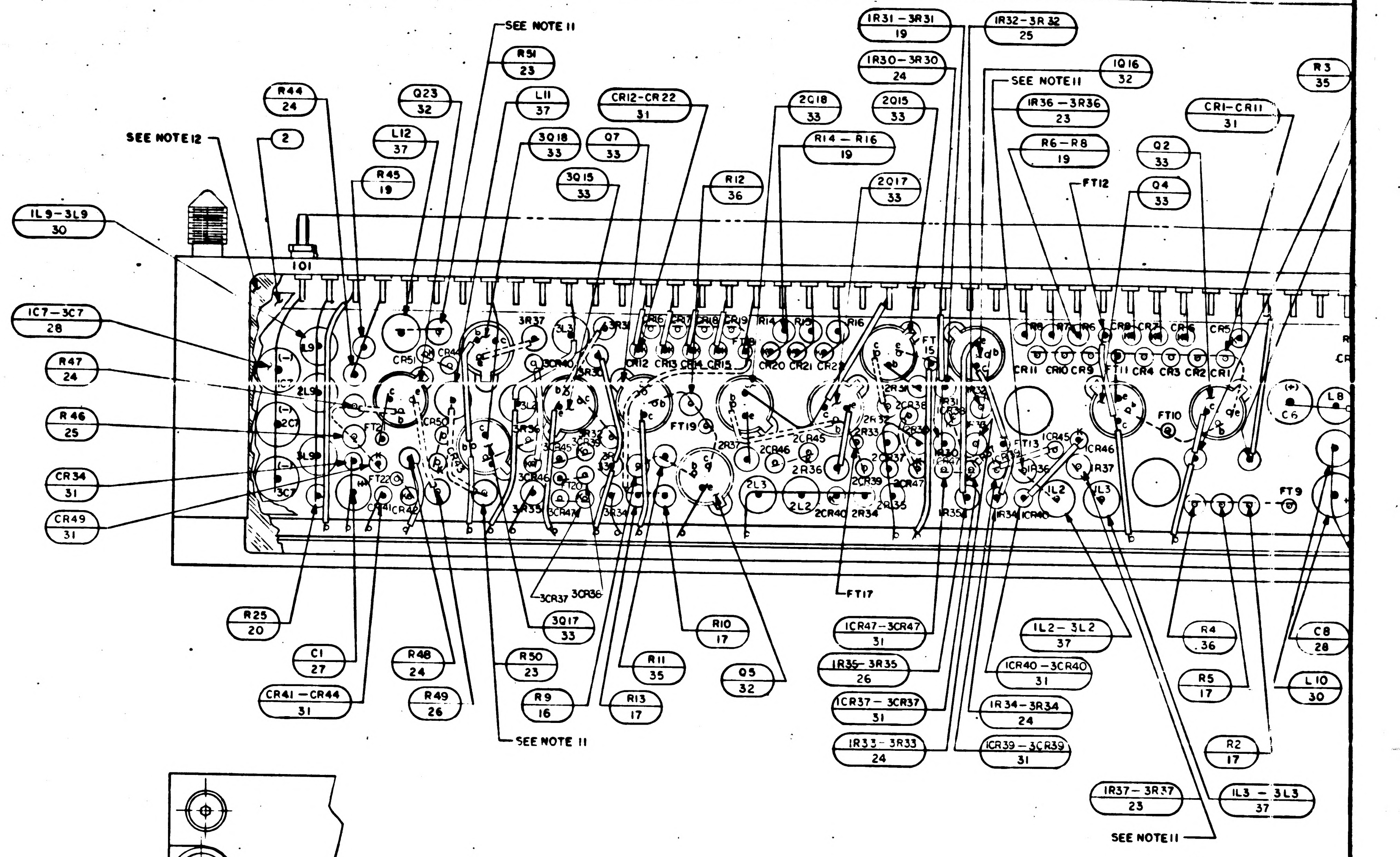
2003140-A F2/31


.010 MIN
.015 MIN
SEE NOTE 17

SECTION B-B

R36,R37	
PART NO.	VALUE
1006788-29	2.5
-30	2.6
-31	2.7
-32	2.8
-33	2.9
-34	3.0
-35	3.1
-36	3.2
-37	3.3
-38	3.4
-39	3.5
-40	3.6
-41	3.7
-42	3.8
-43	3.9
-44	4.0
-45	4.1
-46	4.2
-47	4.3
-48	4.4
1006788-49	4.5

R29,R50,R51	
PART NO.	VALUE
1006788- 51	1.5
- 53	1.6
- 16	1.7
- 18	1.8
- 20	1.9
- 22	2.0
- 24	2.1
- 26	2.2
- 28	2.3
- 15	2.4
- 29	2.5
- 30	2.6
- 31	2.7
- 32	2.8
- 73	2.75
- 72	2.65
- 71	2.55
- 70	2.45
- 69	2.35
- 27	2.25
- 25	2.15
- 23	2.05
- 21	1.95
- 19	1.85
- 17	1.75
- 54	1.65
1006788- 52	1.55


SEE NOTE 11
SEE NOTE 12
IL9–3L9 30
IC7–3C7 28
R47 24
R46 25
CR34 31
CR49 31
R44 24
Q23 32
R51 23
L11 37
L12 37
R45 19
3Q18 33
Q7 33
3Q15 33
CR12–CR22 31
2Q18 33
2Q15 33
R14–R16 19
R12 36
2Q17 33
1R31–3R31 19
1R30–3R30 24
1R32–3R32 25
1Q16 32
1R36–3R36 23
R6–R8 19
Q2 33
Q4 33
FT12
R3 35
CR1–CR11 31
101
FT17
R25 20
C1 27
CR41–CR44 31
R48 24
R49 26
R50 23
R9 16
R11 35
R13 17
3Q17 33
R10 17
Q5 32
3CR37
3CR36
1CR47–3CR47 31
1R35–3R35 26
1CR37–3CR37 31
1R33–3R33 24
1L2–3L2 37
1CR40–3CR40 31
1R34–3R34 24
1CR39–3CR39 31
1R37–3R37 23
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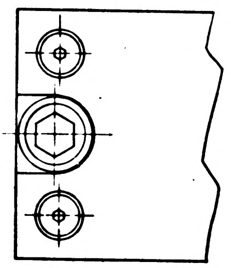
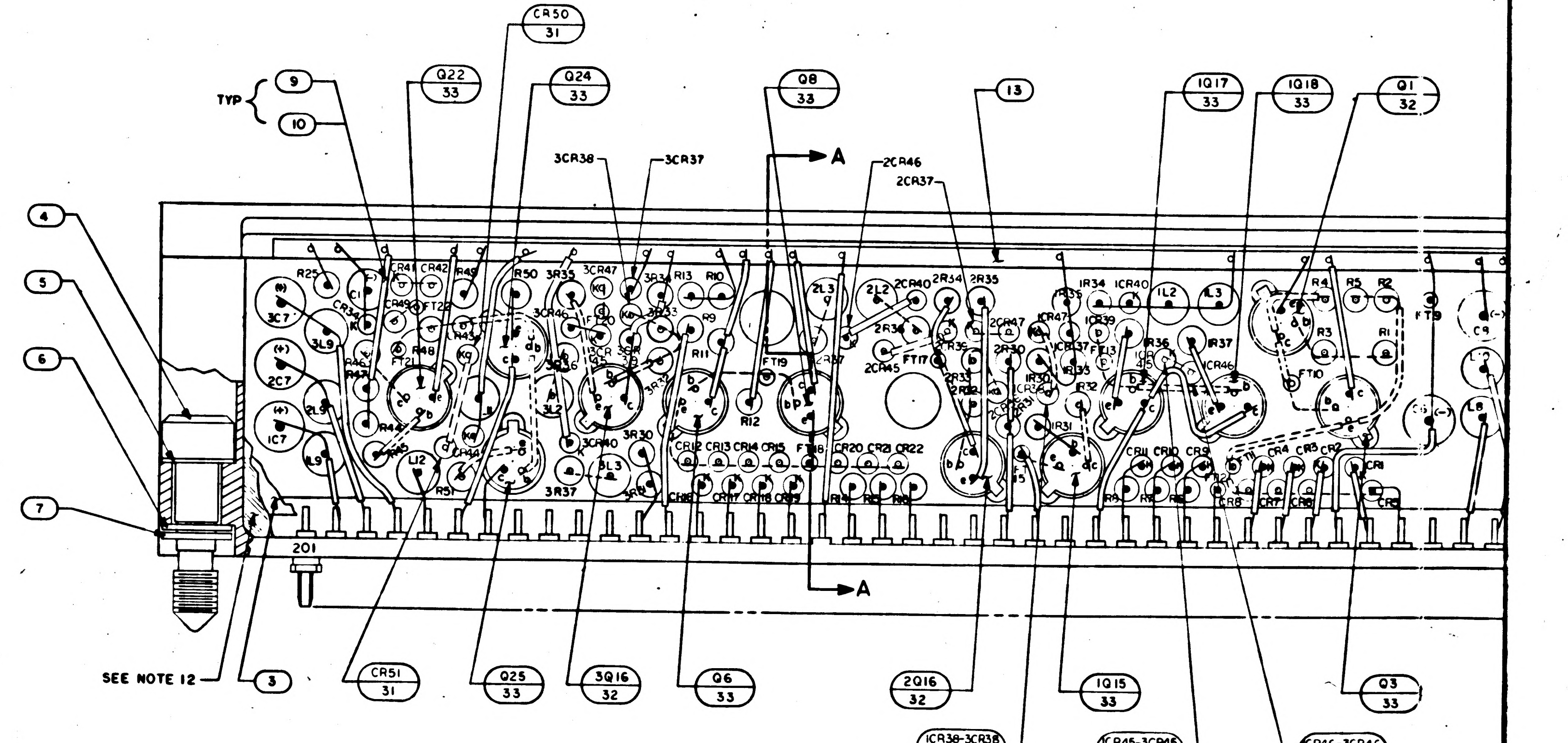
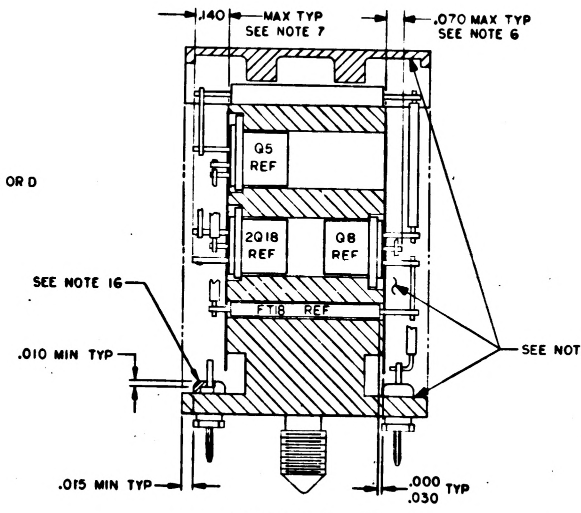
R4 36
R5 17
R2 17
C8 28
L10 30




TYP
9
10
4
5
6
7
Q22 33
Q24 33
CR50 31
Q8 33
13
1Q17 33
1Q18 33
Q1 32
3CR38
3CR37
2CR46
2CR37
A
A
201
SEE NOTE 12
3
CR51 31
Q25 33
3Q16 32
Q6 33
2Q16 32
1Q15 33
Q3 33
1CR38–3CR38 31
1CR45–3CR45 31
1CR46–3CR46 31

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. + DENOTES POSITIVE SIDE OF CAPACITOR
5. K DENOTES CATHODE SIDE OF DIODE
6. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
7. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
8. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND 1002069
9. WELD PER ND 1002005
10. STAKE FIND NO. 16 THRU FIND NO. 33, 35, 36 AND 37 TO FIND NO. 1 PER ND1002009, METHOD C OR D
11. SELECT R29, R36, R37, R50 AND R51 PER APPLICABLE PS FROM APPROPRIATE CHART
12. ENCAPSULATE PER ND 1002002. REMOVE FLASHING
13. MARK .10/.08 HIGH WHITE CHARACTERS PER ND 1002019 AND ND 1002122 TYPE II, CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
14. MARK .26/.24 HIGH WHITE CHARACTERS PER ND 1002019 AND ND 1002122 TYPE II, CLASS 2 USING INK 1006271-1
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS 2003140
16. SEAL INSULATORS AND TERMINALS TO HEADER PER ND1002004, TYPE VI
17. SEAL FIND NO. 12 TO HEADER PER ND1002004, TYPE VI
18. MOUNTING TORQUE FOR FIND NO. 15 TO BE 2.0 –2.5 INCH POUNDS
19. MOUNTING TORQUE FOR FIND NO. 12 TO BE 15-20 INCH OUNCES
20. BOND FIND NO. 13 TO FIND NO. 1 PER ND1002004, TYPE I
21. COAT INDICATED SURFACES, BOTH ENDS, TOP AND BOTTOM, BOTH SIDES, PER ND1002187, TYPE II


.140
MAX TYP
SEE NOTE 7
.070 MAX TYP
SEE NOTE 6
Q5 REF
2Q18 REF
Q8 REF
FT18 REF
SEE NOTE 16
.010 MIN TYP
SEE NOTE 21
.015 MIN TYP
.000 .030 TYP

SECTION A-A

2003140 A

APOLLO G&N Specification
PS 2003140 - A
Original Issue Date: 6-1-66
Release Authority: TDRR 29205
Class A **Release**

PROCUREMENT SPECIFICATION

FOR

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

ROPE DRIVER MODULE (B16-B17)

DRAWING NO. 2003140

Record of Revisions

	Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
					MIT	NASA
Ⓜ	7-1-66	A	29924	1, 4, 7, 10, 12, 13, 17	FA	FA

This specification consists of pages 1 to 18 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	E C Hall 6/1/66 6-1-66 5-24-66 MIT/IL	R Dettloff May 4, 1966 5/4/66 5/4/66 RAY

3.1.9. **Inhibit Drivers.** The input and output signals shall conform to the characteristics specified in table 3-3 and figure 3-2.

Table 3-3

Characteristic	Input at pin A	Output at pin B
Level (A_1) high	2.10 ± 0.25 volts	----
Level (A_2) low	0.8 ± 0.1 volt	2.0 ma max
Amplitude (A)	------	225 ± 5 ma*
Rise Time (T_r)	100 nsec max	0.65 usec ± 30%
Fall Time (T_f)	100 nsec max	----
Pulse Width (PW)	3 usec ± 5%	----
Period (T)	16 usec ± 5%	----
Time Delay (T_d)	----	0.5 usec max
T off	----	1.0 usec max

* At 25°C.

* at [illegible] °C

3.1.11 Clear Driver. The input and output waveforms shall comply with Table 3-5 and Figure 3-2 with the output measured across the output load resistor. The amplitude (A) limit has been established for an ambient temperature of 25°C.

Table 3-5

Parameter	Input	Output
Level (A_2) low	0.8 ± 0.1 volt	2.0 ma, max
Level (A_1) high	2.1 ± 0.25 volts	--------
Amplitude (A)	--------	350 ± 5 ma*
Rise Time (T_r)	100 nsec max	1.3 ± 0.3 usec
Fall Time (T_f)	100 nsec max	--------
Pulse Width (PW)	3 usec ± 5%	--------
Period (T)	16 usec ± 5%	--------
TD	--------	0.20 usec max
T OFF	--------	1.75 usec max

* at 25°C

3.1.13 Marginal Voltage and Temperature Extremes. The module shall perform as described in paragraphs 3.1.8 through 3.1.12 under each of the two combinations (temperature and input voltage) of operating extremes.

3.1.13.1 Low Operating Extreme:

a. Voltage: 4.8 ± 0.1 vdc and 12.2 ± 0.1 vdc

b. Temperature: $-10^{\circ}C\,{}^{+0C^{\circ}}_{-2.8C^{\circ}}$:

Under the low operating extremes the following output (amplitude A) deviations shall apply:

Set and Reset Driver	Clear Driver	Inhibit Driver
Amplitude A = 475 ± 15 ma	Amplitude A = 350 ± 10 ma	Amplitude A = 220 ± 10 ma
Tr $0.6\,{}^{+0.3}_{-0.2}$		

3.1.13.2 High Operating Extreme

a. Voltage: 3.4 ± 0.1 vdc and 16.5 ± 0.1 vdc

b. Temperature: $70^{\circ}C\,{}^{+2.8C^{\circ}}_{-0C^{\circ}}$

Under the high operating extreme the following output (amplitude A) deviations shall apply.

Set and Reset Driver	Clear Driver	Inhibit Driver
Amplitude A = 425 ± 15 ma	Amplitude A = 345 ± 10 ma	Amplitude A = 225 ± 10 ma
[illegible]	Tr $1.3\,{}^{+0.5}_{-0.3}$	
	T off NMT 1.9 us	

ROPE GATE: A_1 NMT 1.8V below B+

NOTE: Input high amplitudes will not be within the room temperature limits.

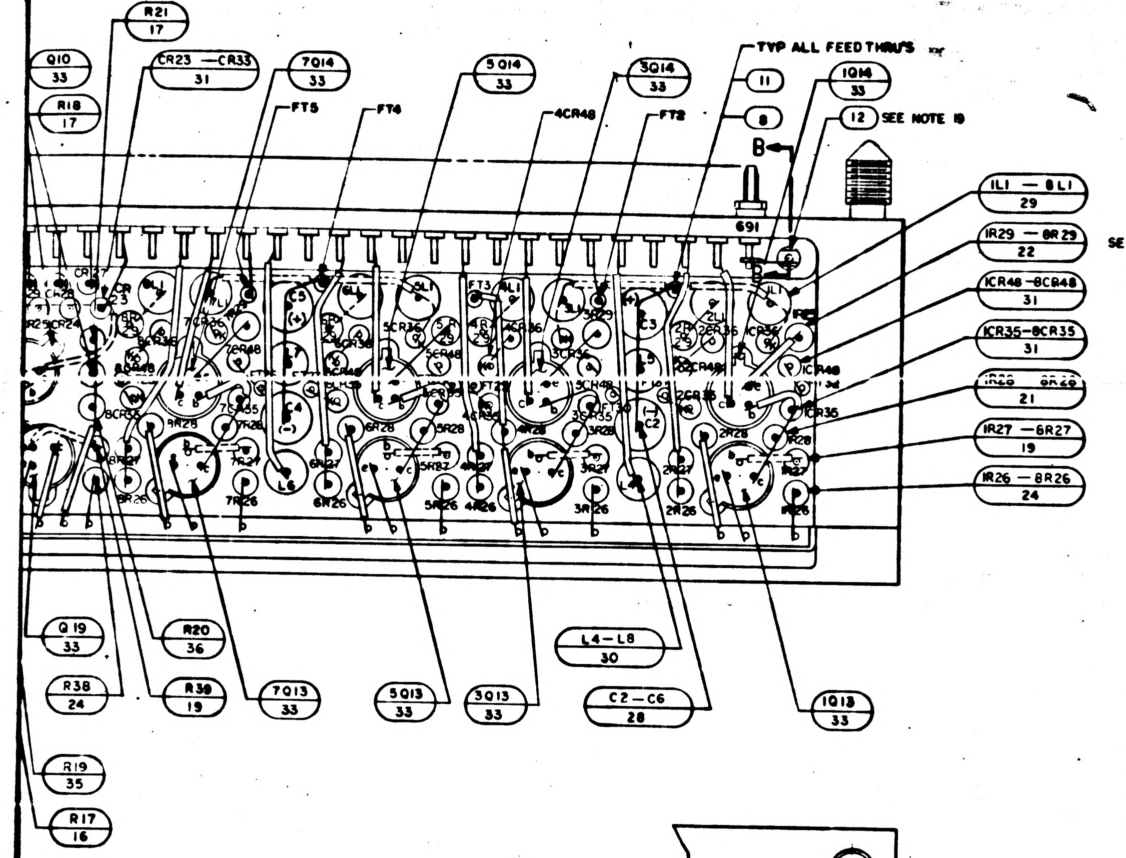
3.1.13.3 Inhibit and Clear Drivers Outputs Under Low Conditions. With input voltages of 3.4 ± 0.1 vdc and 16.5 ± 0.1 vdc and with an ambient temperature of $-10\ C\,{}^{+0^{\circ}C}_{-2.9^{\circ}C}$ amplitude A for the inhibit drivers shall be 255 ± 10 ma and for the clear drivers shall be 380 ± 10 ma.

3.1.13.4 Inhibit and Clear Drivers Outputs Under High Conditions. With input voltages of 4.8 ± 0.1 vdc and 12.2 ± 0.1 vdc and in an ambient temperature of 70°C amplitude A for inhibit drivers shall be 190 ± 10 ma and for the clear drivers shall be 315 ± 10 ma.

3.1.14 Vibration. The module shall perform as specified in paragraphs 3.1.8 through 3.1.12 when installed in an operating computer which is being subjected to the vibration requirements specified in the applicable specifications for the computer subsystem. Acceptance criteria for the module shall be compliance of the computer subsystem with its applicable specifications.

REVISIONS 259

SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
A		REVISED PER TDRR 27309				
B		REVISED PER TDRR 27079				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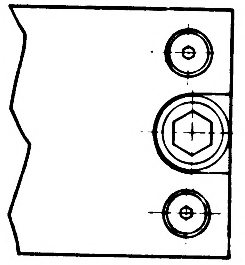
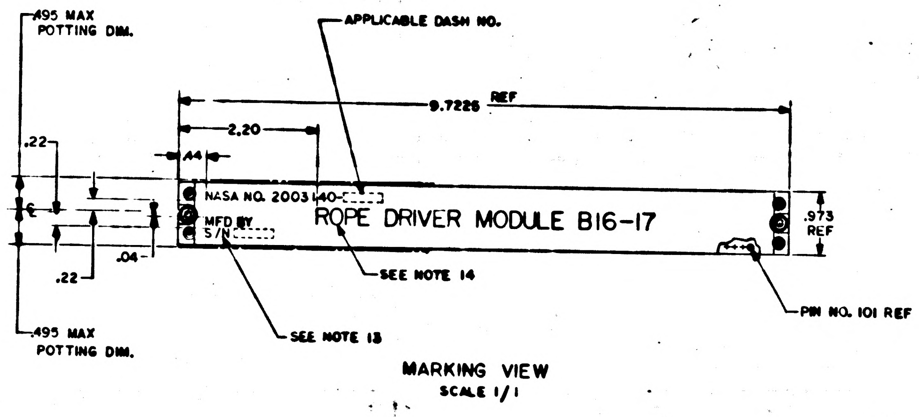
Q10
33
R18
17
CR23 — CR33
31
7Q14
33
FT5
FT4
5Q14
33
4CR48
3Q14
33
FT2
TYP ALL FEED THRU'S
11
8
1Q16
33
12 SEE NOTE 10
B
691
1L1 — 8L1
29
1R29 — 8R29
22
SEE NOTE 11
1CR48 - 8CR48
31
1CR35 - 8CR35
31
1R28 — 8R28
21
1R27 — 8R27
19
1R26 — 8R26
24
Q19
33
R20
36
R38
24
R39
19
7Q13
33
5Q13
33
3Q13
33
L4 — L8
30
C2 — C6
28
1Q13
33
R19
35
R17
16

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NASA NO. 2003140-
MFD BY
S/N
ROPE DRIVER MODULE B16-17
.973
REF
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SEE NOTE 14
PIN NO. 101 REF
SEE NOTE 13
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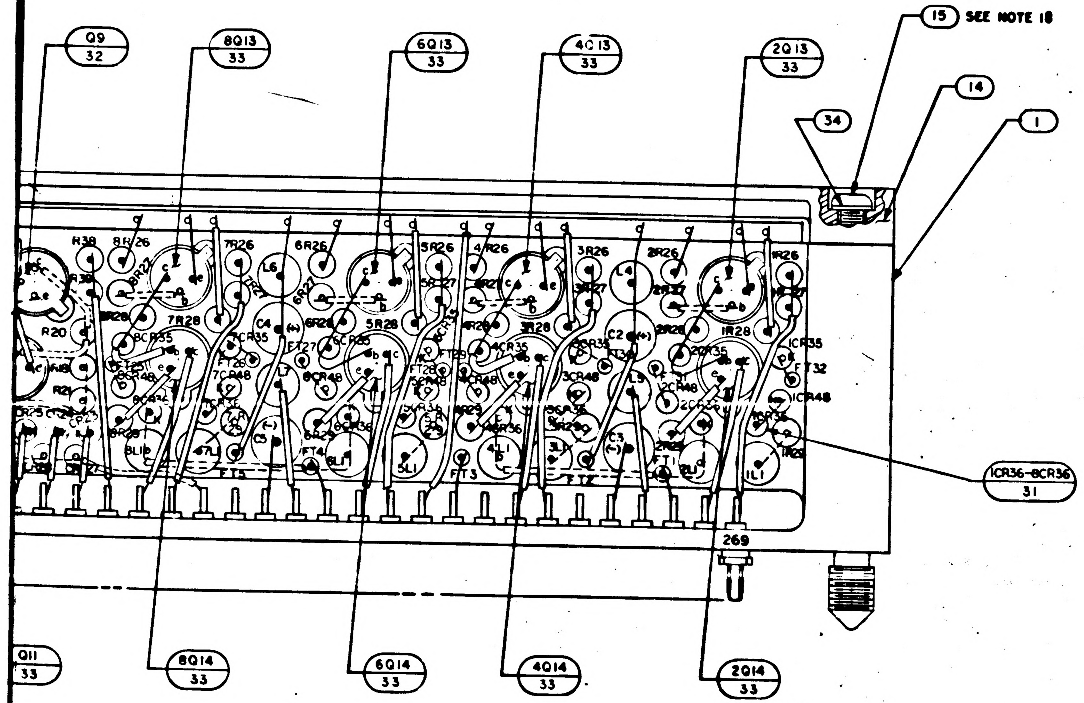
POTTING DIM.

MARKING VIEW
SCALE 1/1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2Q13
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31
269
Q11
33
8Q14
33
6Q14
33
4Q14
33
2Q14
33

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
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4	1006750-29	RESISTOR	36
4	1006750-24	RESISTOR	35
4	NAS620A-2	WASHER, FLAT	34
39	2004004-001	TRANSISTOR, POTTED	33
8	2004004-002	TRANSISTOR, POTTED	32
86	2004103-001	DIODE	31
9	1010406 -7	COIL, RF, CHOKE	30
8	1010406 -10	COIL, RF, CHOKE	29
9	1006755 -79	CAPACITOR	28
1	1006755 -69	CAPACITOR	27
4	1006788 -9	RESISTOR	26
4	1006750 -32	RESISTOR	25
21	1006750 -49	RESISTOR	24
8	SEE NOTE 11	RESISTOR	23
8	SEE NOTE 11	RESISTOR	22
8	1006750 -22	RESISTOR	21
1	1006750 -43	RESISTOR	20
22	1006750 -15	RESISTOR	19
2	1006750 -39	RESISTOR	18
6	1006750 -35	RESISTOR	17
3	1006750 -36	RESISTOR	16
4	1006783-10	SCREW, BUTTON HEAD, HEX SOCKET	15
1	2004032	COVER	14
1	2003142-011	MATRIX ASSEMBLY	13
1	2004039	TERMINAL, THREADED	12
A R	1006776-22	INSULATION, SLEEVING	11
A R	1006776-21	INSULATION, SLEEVING	10
A R	1006757-1	WIRE, ELECTRICAL	9
A R	1006757-8	WIRE, ELECTRICAL	8
2	MS16633-4015	RING, RETAINING, EXTERNAL, "E"	7
2	2004984-003	WASHER, FLAT	6
2	2004984-001	WASHER, FLAT	5
2	1004579-1	SCREW, JACKING	4
1	2003085	INSULATOR (B) ASSY	3
1	2004157	INSULATOR (A)	2
1	2003084-011	HEADER HOUSING ASSEMBLY	1

-011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003200	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS XX±.02 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

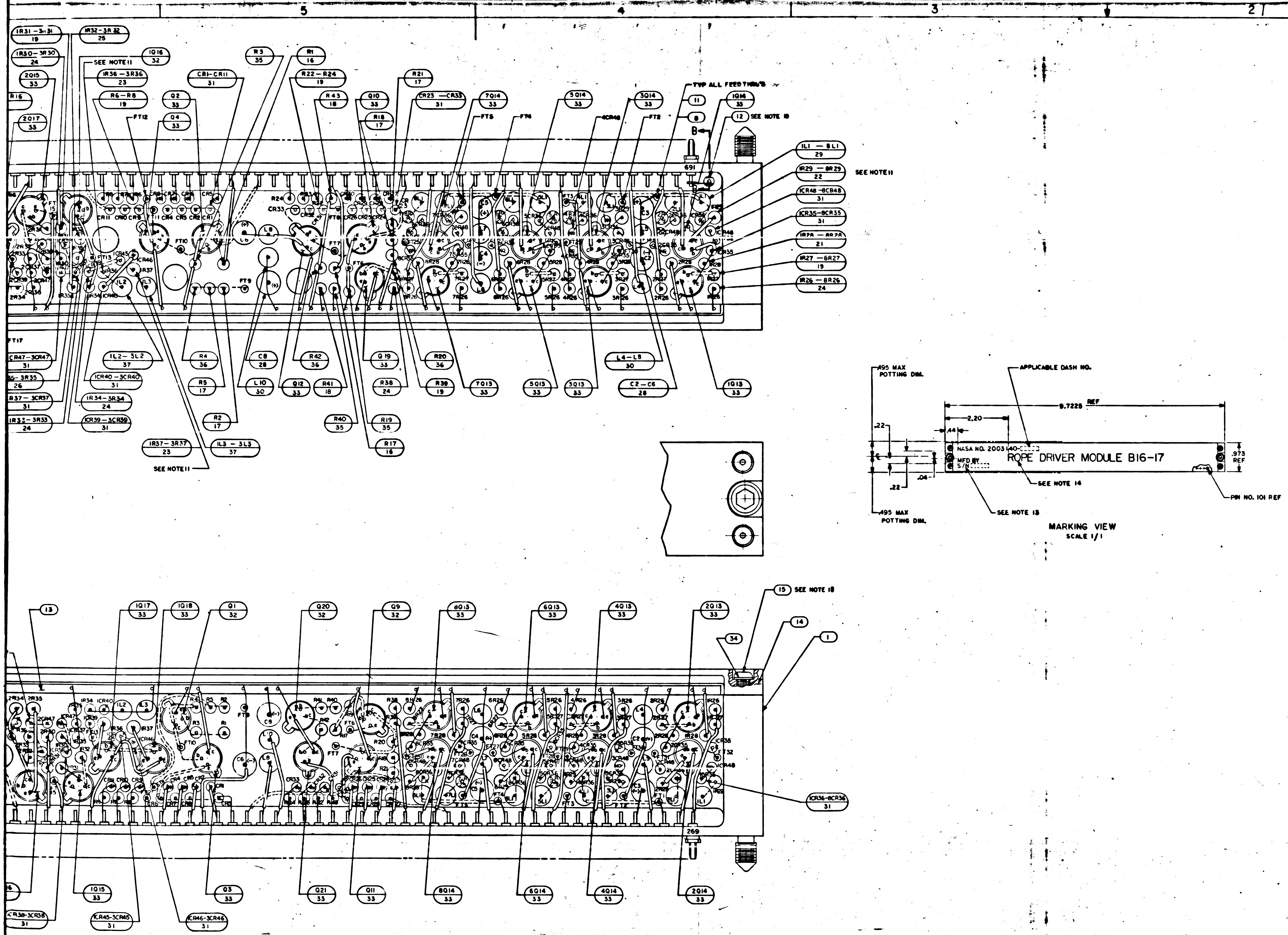
ROPE DRIVER MODULE
B16-17
ASSEMBLY

CODE IDENT NO. 80230 SIZE J DRAWING NO. 2003140
SCALE 4/1 SHEET 1 OF 1

2003140 B

2003140

F3-43


5
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3
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R16
2017 33
SEE NOTE 11
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1R36 – 3R36 23
R6 – R8 19
FT12
Q2 33
Q4 33
CR1 – CR11 31
R3 35
R1 16
R22 – R24 19
R43 18
Q10 33
R18 17
R21 17
CR23 – CR33 31
7Q14 33
FT5
FT6
5Q14 33
4CR48
3Q14 33
FT2
TYP ALL FEEDTHRU'S
11
8
1Q16 33
12 SEE NOTE 10
B
691
1L1 – 8L1 29
1R29 – 8R29 22
SEE NOTE 11
1CR48 – 8CR48 31
1CR35 – 8CR35 31
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1R27 – 6R27 19
1R26 – 8R26 24
FT17
1CR47 – 3CR47 31
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1L2 – 3L2 37
1CR40 – 3CR40 31
1R34 – 3R34 24
1CR39 – 3CR39 31
R4 36
R5 17
R2 17
C8 28
L10 30
R42 36
Q12 33
R41 18
Q19 33
R38 24
R40 35
R19 35
R17 16
R20 36
R39 19
7Q13 33
5Q13 33
3Q13 33
L4 – L8 30
C2 – C6 28
1Q13 33
1R37 – 3R37 23
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SEE NOTE 11
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APPLICABLE DASH NO.
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.44
.22
.04
.22
.973 REF
NASA NO. 2003140-
ROPE DRIVER MODULE B16-17
MFD BY
S/N
SEE NOTE 14
SEE NOTE 13
PIN NO. 101 REF
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13
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Q1 32
Q20 32
Q9 32
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6Q13 33
4Q13 33
2Q13 33
15 SEE NOTE 18
14
34
1
1CR36 – 8CR36 31
269
1Q15 33
1CR38 – 3CR38 31
1CR45 – 3CR45 31
1CR46 – 3CR46 31
Q3 33
Q21 33
Q11 33
8Q14 33
6Q14 33
4Q14 33
2Q14 33

2003140	B

2003200
NEXT ASSY

4 3 2

2003140 B F2/3

R29	
PART NO.	VALUE
1006788-218	5.62
-219	5.69
-220	5.76
-221	5.83
-222	5.90
-223	5.97
-224	6.04
-225	6.12
-226	6.19
-227	6.26
-228	6.34
-229	6.42
-230	6.49
-231	6.57
-232	6.65
-233	6.73
-234	6.81
-235	6.90
-236	6.98
-237	7.06
-238	7.15
-239	7.23
-240	7.32
-241	7.41
1006788-242	7.50

~~R36,R37~~	
~~PART NO.~~	~~VALUE~~
~~1006788-29~~	~~2.5~~
~~-30~~	~~2.6~~
~~-31~~	~~2.7~~
~~-32~~	~~2.8~~
~~-33~~	~~2.9~~
~~-34~~	~~3.0~~
~~-35~~	[illegible]
~~-36~~	~~3.2~~
~~-37~~	~~3.3~~
~~-38~~	~~3.4~~
[illegible]	[illegible]
~~-40~~	~~3.6~~
~~-41~~	~~3.7~~
~~-42~~	~~3.8~~
[illegible]	[illegible]
~~-44~~	~~4.0~~
~~-45~~	~~4.1~~
~~-46~~	~~4.2~~
~~-47~~	~~4.3~~
~~-48~~	~~4.4~~
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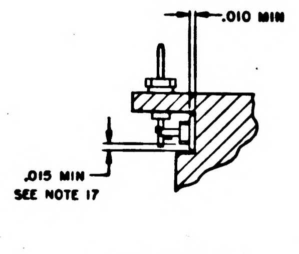
.010 MIN
.015 MIN
SEE NOTE 17

SECTION B-B

R36,R37	
PART NO.	VALUE
1006788-261	9.42
-262	9.53
-264	9.76
-265	9.88
-266	10.0
-267	10.1
-268	10.2
[illegible]	[illegible]
-270	10.5
-271	10.6
-272	10.7
-273	10.9
-274	11.0
-275	11.1
-276	11.3
-277	11.4
-278	11.5
1006788-279	11.7

~~R29,R50,R51~~

R50,R51	
PART NO.	VALUE
1006788-240	7.32
-241	7.41
-242	7.50
-243	7.59
-244	7.68
-245	7.77
-246	7.87
-247	7.96
-248	8.06
-249	8.16
-250	8.25
-251	8.35
-252	8.45
-253	8.56
-254	8.66
-255	8.76
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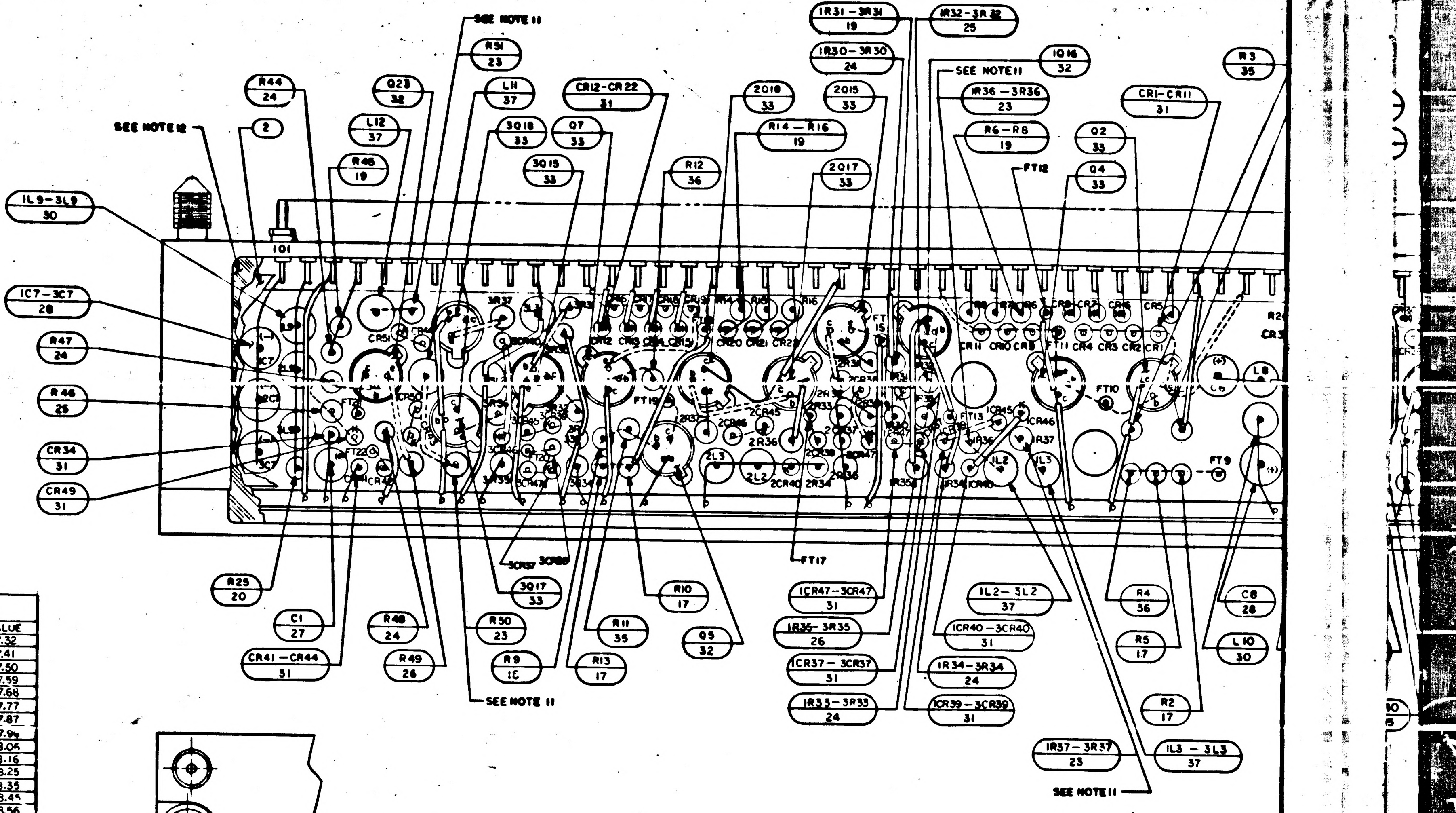
-257	8.98
-258	9.09
1006788-259	9.20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R51 23
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1R32-3R32 25
1Q16 32
SEE NOTE 11
1R36-3R36 23
R3 35
CR1-CR11 31
SEE NOTE 12
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L12 37
3Q18 33
Q7 33
R14-R16 19
R6-R8 19
Q2 33
R45 19
3Q15 33
R12 36
2Q17 33
FT12
Q4 33
1L9-3L9 30
101
1C7-3C7 28
R47 24
R46 25
CR34 31
CR49 31
FT17
R25 20
3CR37
3CR39
3Q17 33
R10 17
1CR47-3CR47 31
1L2-3L2 37
R4 36
C8 28
C1 27
R48 24
R50 23
R11 35
Q5 32
1R35-3R35 26
1CR40-3CR40 31
R5 17
L10 30
CR41-CR44 31
R49 26
R9 16
R13 17
1CR37-3CR37 31
1R34-3R34 24
SEE NOTE 11
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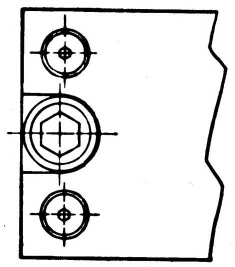
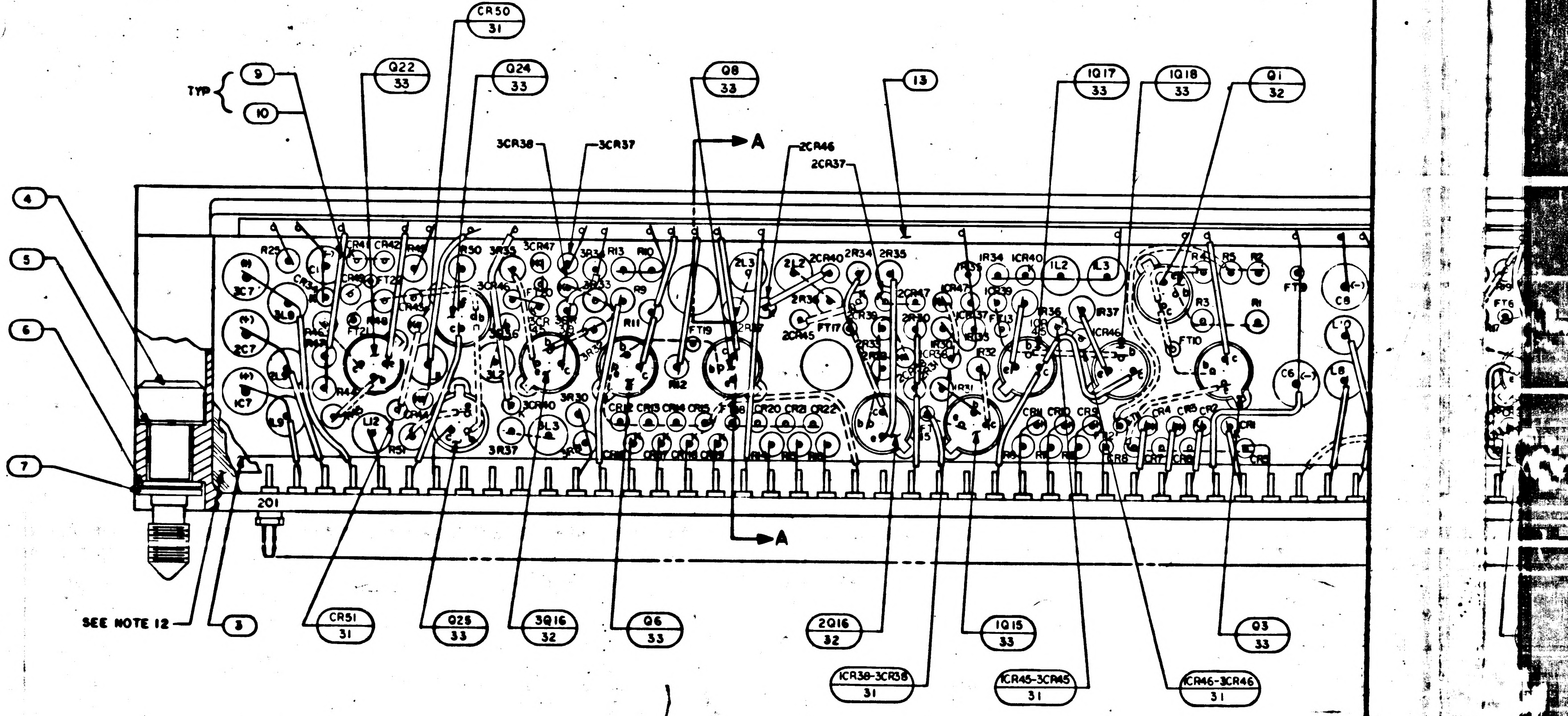
SEE NOTE 11

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2CR46
2CR37
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7
201
A
SEE NOTE 12
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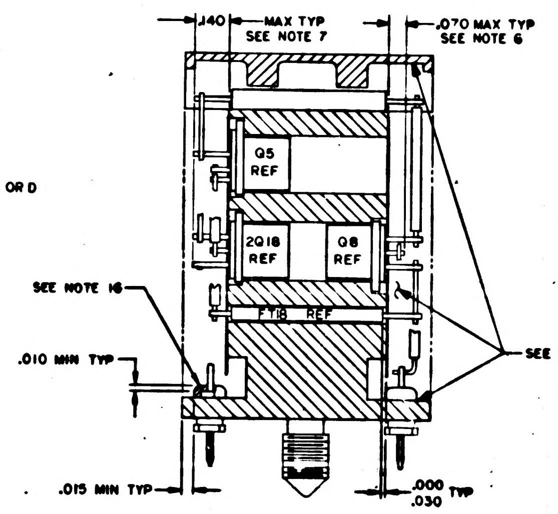
CR51 31
Q25 33
3Q16 32
Q6 33
2Q16 32
1Q15 33
Q3 33
1CR38-3CR38 31
1CR45-3CR45 31
1CR46-3CR46 31

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. + DENOTES POSITIVE SIDE OF CAPACITOR
5. K DENOTES CATHODE SIDE OF DIODE
6. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
7. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
8. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND 1002069
9. WELD PER ND 1002005
10. STAKE FIND NO. 16 THRU FIND NO. 33, 35, 36 AND 37 TO FIND NO. 1 PER ND1002009, METHOD C OR D
11. SELECT R29, R36, R37, R50 AND R51 PER APPLICABLE PS FROM APPROPRIATE CHART
12. ENCAPSULATE PER ND 1002002. REMOVE FLASHING
13. MARK .10/.08 HIGH WHITE CHARACTERS PER ND 1002019 AND ND 1002122 TYPE II, CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
14. MARK .26/.24 HIGH WHITE CHARACTERS PER ND 1002019 AND ND 1002122 TYPE II, CLASS 2 USING INK 1006271-1
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS 2003140
16. SEAL INSULATORS AND TERMINALS TO HEADER PER ND1002004, TYPE VI
17. SEAL FIND NO. 12 TO HEADER PER ND1002004, TYPE VI
18. MOUNTING TORQUE FOR FIND NO. 15 TO BE 2.0 -2.5 INCH POUNDS
19. MOUNTING TORQUE FOR FIND NO. 12 TO BE 15-20 INCH OUNCES
20. BOND FIND NO. 13 TO FIND NO. 1 PER ND1002004, TYPE I
21. COAT INDICATED SURFACES, BOTH ENDS, TOP AND BOTTOM, BOTH SIDES, PER ND1002187, TYPE II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MAX TYP
SEE NOTE 7
.070 MAX TYP
SEE NOTE 6
Q5 REF
2Q18 REF
Q8 REF
FT18 REF
SEE NOTE 16
.010 MIN TYP
SEE NOTE 21
.015 MIN TYP
.000
.030
TYP

SECTION A-A

2003140 B

APOLLO G&N Specification
PS 2003140 B
Original Issue Date: 6-1-66
Release Authority: TDRR 29205
Class A Release

PROCUREMENT SPECIFICATION
FOR
PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS
ROPE DRIVER MODULE (B16-B17)
DRAWING NO. 2003140

Record of Revisions

	Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
					MIT	NASA
Ⓜ	7-1-66	A	29924	1, 4, 7, 10, 12, 13, 17	FH	FA
Ⓜ	8/25/66	B	30752	1, 13	FH	F

This specification consists of pages 1 to 18 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	E C Hall 6/1/66 6-1-66 8-29-66 MIT/IL	May 4 1966 5/4/66 5/4/66 RAY

3.1.13 **Marginal Voltage and Temperature Extremes.** The module shall perform as described in paragraphs 3.1.8 through 3.1.12 under each of the two combinations (temperature and input voltage) of operating extremes.

3.1.13.1 **Low Operating Extreme:**

a. **Voltage:** 4.8 ± 0.1 vdc and 12.2 ± 0.1 vdc

b. **Temperature:** $-10^{\circ}C\,^{+0C^{\circ}}_{-2.8C^{\circ}}$;

Under the low operating extremes the following output (amplitude A) deviations shall apply:

Set and Reset Driver	Clear Driver	Inhibit Driver
Amplitude A = 475 ± 15 ma	Amplitude A = 345 ± 10 ma	Amplitude A = 220 ± 10 ma
Tr $0.6\,^{+0.3}_{-0.2}$		

3.1.13.2 **High Operating Extreme**

a. **Voltage:** 3.4 ± 0.1 vdc and 16.5 ± 0.1 vdc

b. **Temperature:** $70^{\circ}C\,^{+2.8C^{\circ}}_{-0C^{\circ}}$

Under the high operating extreme the following output (amplitude A) deviations shall apply.

Set and Reset Driver	Clear Driver	Inhibit Driver
Amplitude A = 425 ± 15 ma	Amplitude A = 350 ± 10 ma	Amplitude A = 225 ± 10 ma
Tr [illegible] $^{+0.5}_{-0.3}$, T off NMT 1.[illegible]	Tr $1.3\,^{+0.5}_{-0.3}$ T off NMT 1.9 us	

ROPE GATE: A_1 NMT 1.8V below B+

NOTE: Input high amplitudes will not be within the room temperature limits.

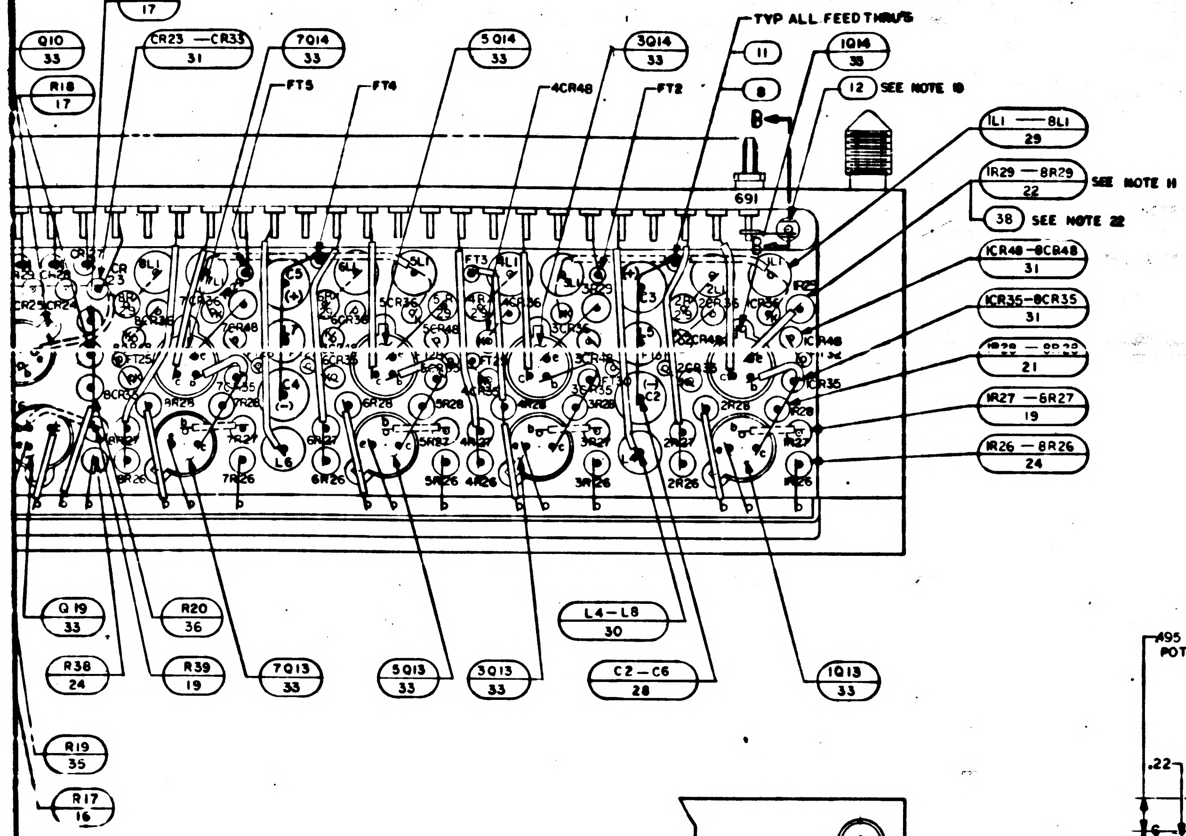
3.1.13.3 **Inhibit and Clear Drivers Outputs Under Low Conditions.** With input voltages of 3.4 ± 0.1 vdc and 16.5 ± 0.1 vdc and with an ambient temperature of $-10\,C\,^{+0^{\circ}C}_{-2.8^{\circ}C}$ amplitude A for the inhibit drivers shall be 255 ± 10 ma and for the clear drivers shall be 375 ± 10 ma.

3.1.13.4 **Inhibit and Clear Drivers Outputs Under High Conditions.** With input voltages of 4.8 ± 0.1 vdc and 12.2 ± 0.1 vdc and in an ambient temperature of 70°C amplitude A for inhibit drivers shall be 190 ± 10 ma and for the clear drivers shall be 320 ± 10 ma.

3.1.14 **Vibration.** The module shall perform as specified in paragraphs 3.1.8 through 3.1.12 when installed in an operating computer which is being subjected to the vibration requirements specified in the applicable specifications for the computer subsystem. Acceptance criteria for the module shall be compliance of the computer subsystem with its applicable specifications.

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 27309	APT			
B		REVISED PER TDRR 27079				
C		REVISED PER TDRR 28162	APT	JFJ		

REVISIONS 25980



TYP ALL FEED THRU'S
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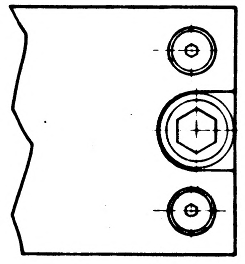
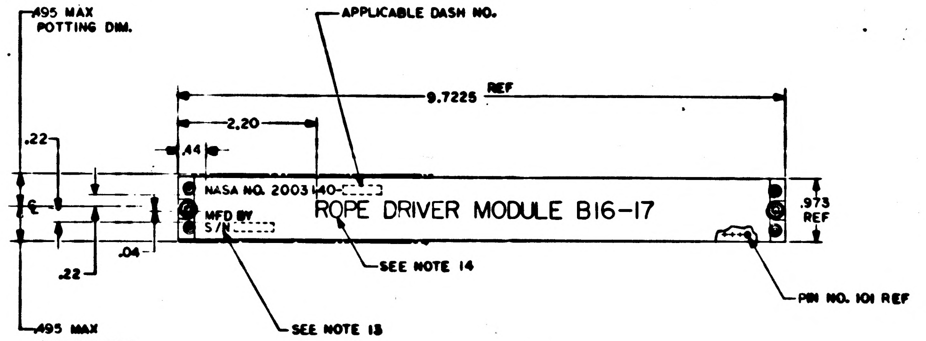
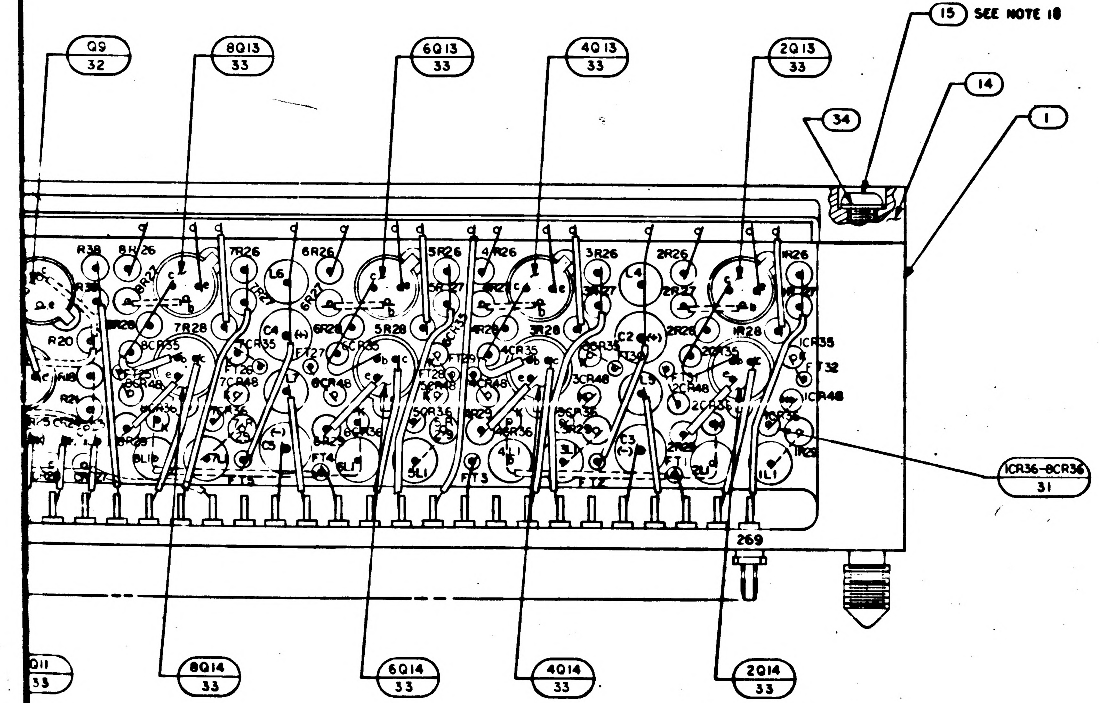
CR23 — CR33 31
7Q14 33
5Q14 33
3Q14 33
11
1Q14 33
R18 17
FT5
FT4
4CR48
FT2
8
12 SEE NOTE 18
1L1 — 8L1 29
1R29 — 8R29 22 SEE NOTE 11
38 SEE NOTE 22
1CR48 — 8CR48 31
1CR35 — 8CR35 31
1R28 — 8R28 21
1R27 — 8R27 19
1R26 — 8R26 24
691
Q19 33
R20 36
L4 — L8 30
R38 24
R39 19
7Q13 33
5Q13 33
3Q13 33
C2 — C6 28
1Q13 33
R19 35
R17 16





.495 MAX POTTING DIM.
APPLICABLE DASH NO.
9.7225 REF
2.20
.44
.22
NASA NO. 2003140-
ROPE DRIVER MODULE B16-17
MFD BY
S/N
.973 REF
.04
.22
SEE NOTE 14
SEE NOTE 13
PIN NO. 101 REF
.495 MAX POTTING DIM.

MARKING VIEW
SCALE 1/1



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8Q13 33
6Q13 33
4Q13 33
2Q13 33
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1CR36 — 8CR36 31
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Q11 33
8Q14 33
6Q14 33
4Q14 33
2Q14 33

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
⊠	2005100	SCHEMATIC	REF
16	2004074	INSULATOR, WASHER	38
8	1010406-11	COIL, RF, CHOKE	37
4	1006750-29	RESISTOR	36
4	1006750-24	RESISTOR	35
4	NAS620A-2	WASHER, FLAT	34
39	2004004-001	TRANSISTOR, POTTED	33
8	2004004-002	TRANSISTOR, POTTED	32
86	2004103-001	DIODE	31
9	1010406-7	COIL, RF, CHOKE	30
8	1010406-10	COIL, RF, CHOKE	29
9	1006755-79	CAPACITOR	28
1	1006755-69	CAPACITOR	27
4	1006788-9	RESISTOR	26
4	1006750-32	RESISTOR	25
21	1006750-49	RESISTOR	24
8	SEE NOTE 11	RESISTOR	23
8	SEE NOTE 11	RESISTOR	22
8	1006750-22	RESISTOR	21
1	1006750-43	RESISTOR	20
22	1006750-15	RESISTOR	19
2	1006750-39	RESISTOR	18
6	1006750-35	RESISTOR	17
3	1006750-36	RESISTOR	16
4	1006783-10	SCREW, BUTTON HEAD, HEX SOCKET	15
1	2004032	COVER	14
1	2003142-011	MATRIX ASSEMBLY	13
1	2004039	TERMINAL, THREADED	12
AR	1006776-22	INSULATION, SLEEVING	11
AR	1006776-21	INSULATION, SLEEVING	10
AR	1006757-1	WIRE, ELECTRICAL	9
AR	1006757-8	WIRE, ELECTRICAL	8
2	MS16633-4015	RING, RETAINING, EXTERNAL, "E"	7
2	2004984-003	WASHER, FLAT	6
2	2004984-001	WASHER, FLAT	5
2	1004579-1	SCREW, JACKING	4
1	2003085	INSULATOR (B) ASSY	3
1	2004157	INSULATOR (A)	2
1	2003084-011	HEADER HOUSING ASSEMBLY	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003200	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS XX±.02 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN E.W. Jensen
CHECKED
APPROVED
APPROVED
APPROVED MIT
A. G. METZGER
APPROVED MSC

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

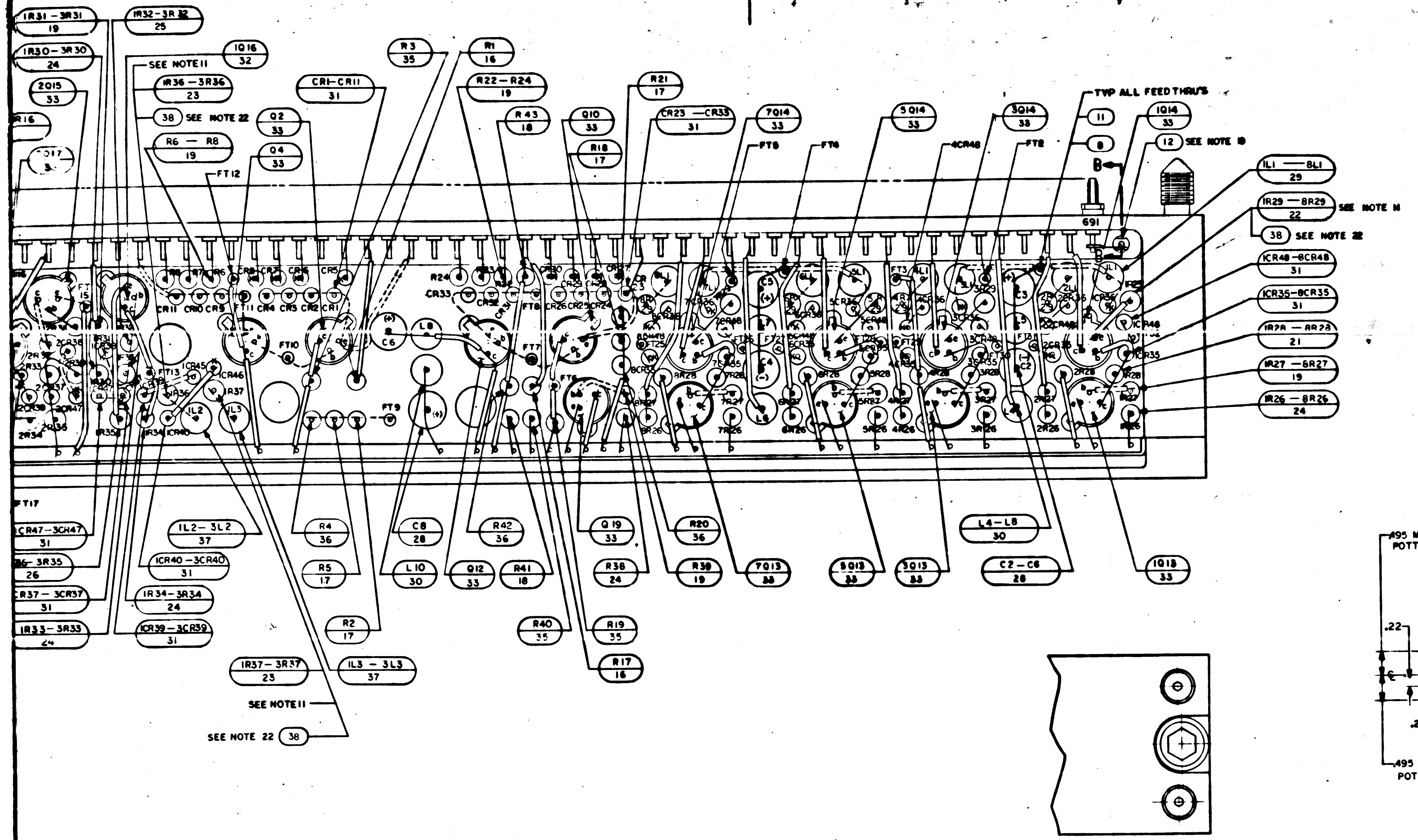
ROPE DRIVER MODULE B16-17 ASSEMBLY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003140
SCALE 4/1
SHEET 1 OF 1

2003140 C

MASTER

F3/43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R6 — R8
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CR1 — CR11
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Q2
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Q4
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FT12
R3
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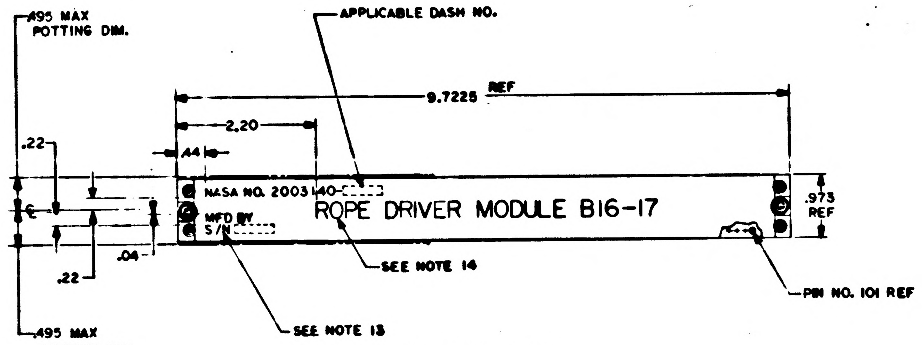
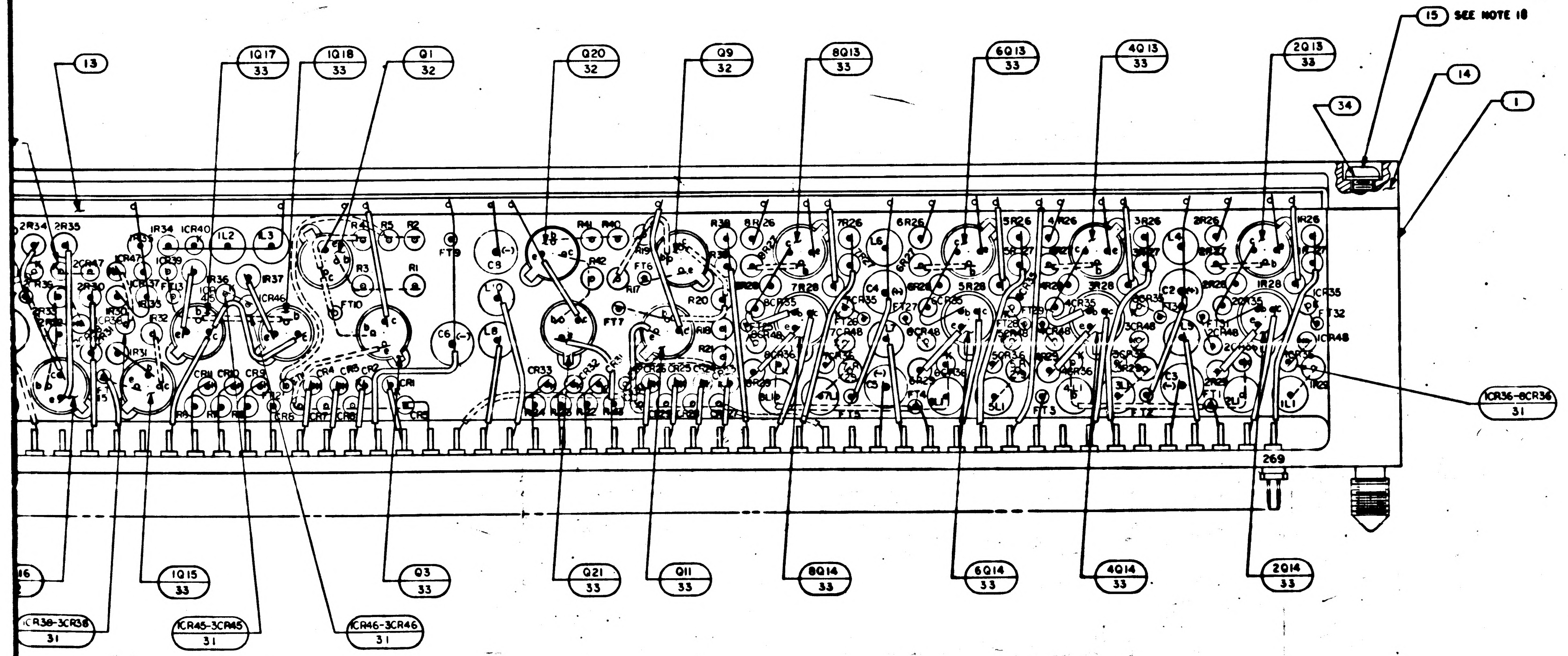
R1
16
R22 — R24
19
R43
18
Q10
33
R18
17
R21
17
CR23 — CR33
31
7Q14
33
FT9
FT6
5Q14
33
4CR48
FT2
3Q14
33
TYP ALL FEEDTHRU'S
11
8
1Q14
33
12 SEE NOTE 19
1L1 — 8L1
29
1R29 — 8R29
22
SEE NOTE 11
38 SEE NOTE 22
1CR48 — 8CR48
31
1CR35 — 8CR35
31
1R28 — 8R28
21
1R27 — 8R27
19
1R26 — 8R26
24
691
B
FT17
1CR47 — 3CR47
31
1R35 — 3R35
26
1CR37 — 3CR37
31
1R33 — 3R33
24
1L2 — 3L2
37
1CR40 — 3CR40
31
1R34 — 3R34
24
1CR39 — 3CR39
31
R4
36
R5
17
R2
17
1R37 — 3R37
23
1L3 — 3L3
37
SEE NOTE 11
SEE NOTE 22 38
C8
28
L10
30
Q12
33
R42
36
R41
18
R40
35
R19
35
R17
16
Q19
33
R38
24
R20
36
R39
19
7Q13
33
8Q13
33
5Q13
33
L4 — L8
30
C2 — C6
28
1Q13
33
FT9
FT10
FT11
FT13
FT7
FT8
CR33
R24
C6
L9


.495 MAX
POTTING DIM.
APPLICABLE DASH NO.
9.7225 REF
2.20
.44
.22
.22
.04
.973
REF
NASA NO. 2003140-
ROPE DRIVER MODULE B16-17
MFD BY
S/N
SEE NOTE 14
SEE NOTE 13
PIN NO. 101 REF
.495 MAX
POTTING DIM.

MARKING VIEW
SCALE 1/1


13
1Q17
33
1Q18
33
Q1
32
Q20
32
Q9
32
8Q13
33
6Q13
33
4Q13
33
2Q13
33
15 SEE NOTE 18
14
34
1
1CR36 — 8CR36
31
269
16
1CR38 — 3CR38
31
1Q15
33
1CR45 — 3CR45
31
1CR46 — 3CR46
31
Q3
33
Q21
33
Q11
33
8Q14
33
6Q14
33
4Q14
33
2Q14
33

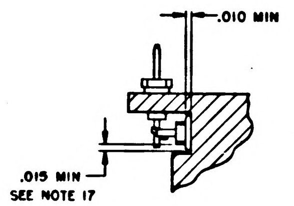
2003140	C

2003200

NEXT ASSY

R29	
PART NO.	VALUE
1006788-205	4.81
-206	4.87
-207	4.93
-208	4.99
-209	5.05
-210	5.11
-211	5.17
-212	5.23
-213	5.30
-214	5.36
-215	5.42
-216	5.49
-217	5.56
-218	5.62
-219	5.69
-220	5.76
-221	5.83
-222	5.90
-223	5.97
-224	6.04
-225	6.12
-226	6.19
-227	6.26
-228	6.34
-229	6.42
-230	6.49
-231	6.57
-232	6.65
-233	6.73
-234	6.81
-235	6.90
-236	6.98
-237	7.06
-238	7.15
-239	7.23
-240	7.32
-241	7.41
1006788-242	7.50

~~R36,R37~~	
~~PART NO.~~	~~VALUE~~
~~1006788-29~~	~~2.5~~
~~-30~~	~~2.6~~
~~-31~~	~~2.7~~
~~-32~~	~~2.8~~
~~-33~~	~~2.9~~
~~-34~~	~~3.0~~
~~-35~~	~~3.1~~
~~-36~~	~~3.2~~
~~-37~~	~~3.3~~
~~-38~~	~~3.4~~
~~-39~~	~~3.5~~
~~-40~~	~~3.6~~
~~-41~~	~~3.7~~
~~-42~~	~~3.8~~
~~-43~~	~~3.9~~
~~-44~~	~~4.0~~
~~-45~~	~~4.1~~
~~-46~~	~~4.2~~
~~-47~~	~~4.3~~
~~-48~~	~~4.4~~
~~1006788-49~~	~~4.5~~


.010 MIN
.015 MIN
SEE NOTE 17

SECTION B-B

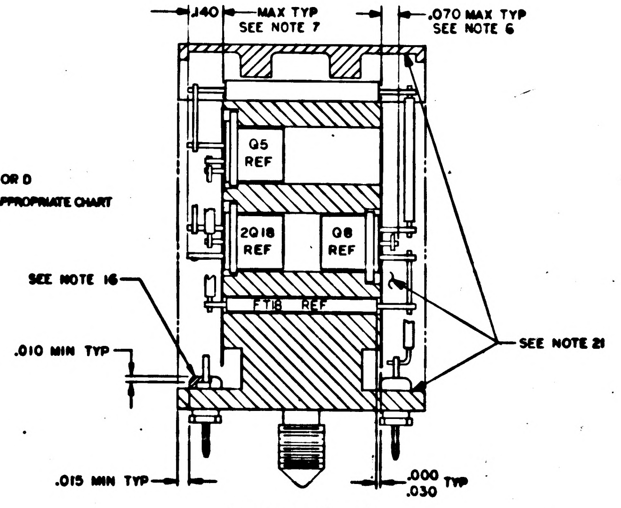
R36,R37	
PART NO.	VALUE
1006788-261	9.42
-262	9.53
-264	9.76
-265	9.88
-266	10.0
-267	10.1
-268	10.2
-269	10.4
-270	10.5
-271	10.6
-272	10.7
-273	10.9
-274	11.0
-275	11.1
-276	11.3
-277	11.4
-278	11.5
1006788-279	11.7

~~R29,R50,R51~~	
~~PART NO.~~	~~VALUE~~
~~1006788-[illegible]~~	~~1.5~~
~~-33~~	~~1.6~~
~~-16~~	~~1.7~~
~~-18~~	~~1.8~~
~~-20~~	~~1.9~~
~~-22~~	~~2.0~~
~~-24~~	~~2.1~~
~~-26~~	~~2.2~~
~~-28~~	~~2.3~~
~~-15~~	~~2.4~~
~~-29~~	~~2.5~~
~~-30~~	~~2.6~~
~~-31~~	~~2.7~~
~~-32~~	~~2.8~~
~~-73~~	~~2.75~~
~~-72~~	~~2.65~~
~~-71~~	~~2.55~~
~~-70~~	~~2.45~~
~~-69~~	~~2.35~~
~~-27~~	~~2.25~~
~~-25~~	~~2.15~~
~~-23~~	~~2.05~~
~~-21~~	~~1.95~~
~~-19~~	~~1.85~~
~~-17~~	~~1.75~~
~~-54~~	~~1.65~~
~~1006788-52~~	~~1.55~~

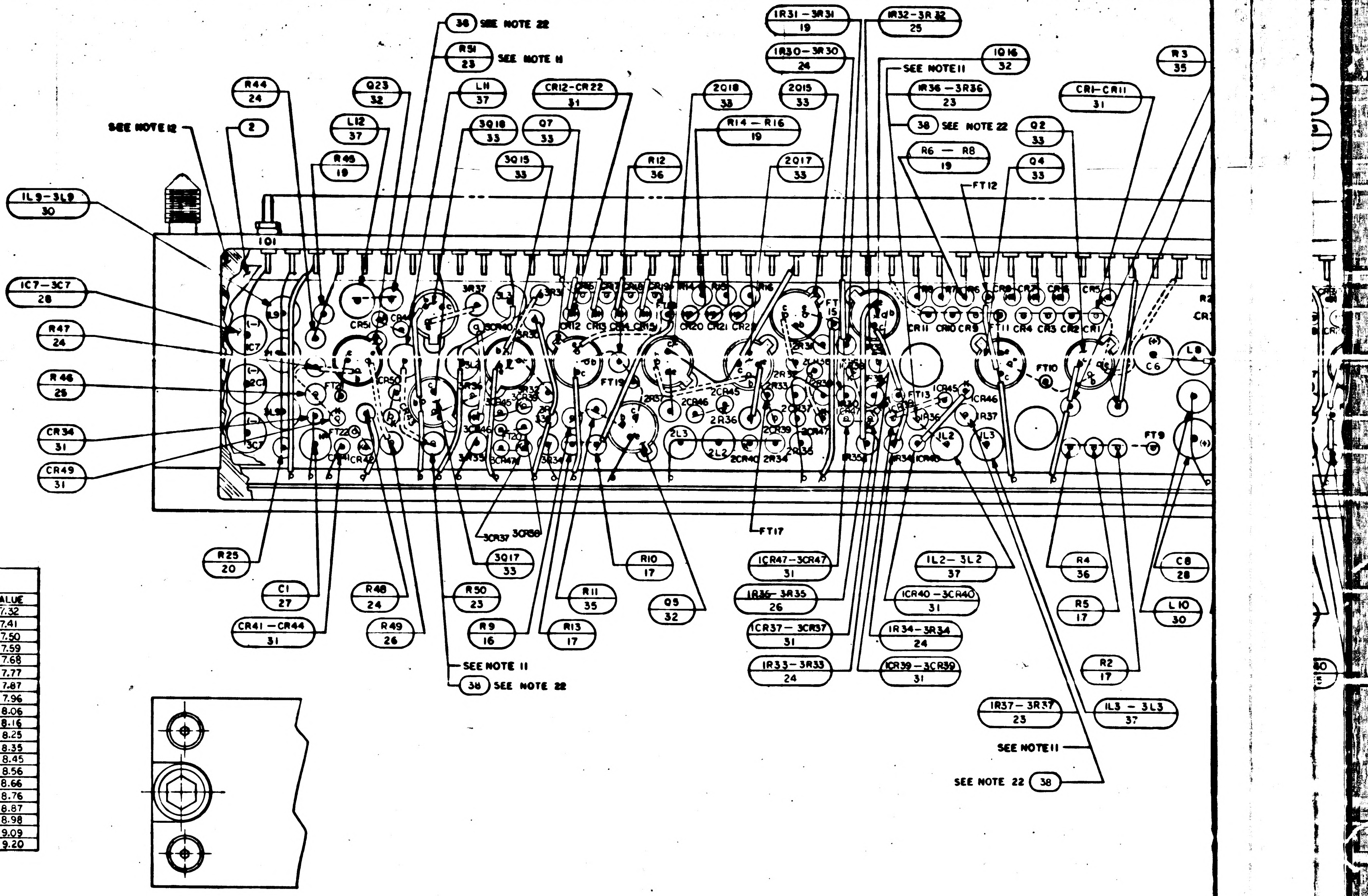
R50,R51	
PART NO.	VALUE
1006788-240	7.32
-241	7.41
-242	7.50
-243	7.59
-244	7.68
-245	7.77
-246	7.87
-247	7.96
-248	8.06
-249	8.16
-250	8.25
-251	8.35
-252	8.45
-253	8.56
-254	8.66
-255	8.76
-256	8.87
-257	8.98
-258	9.09
1006788-259	9.20

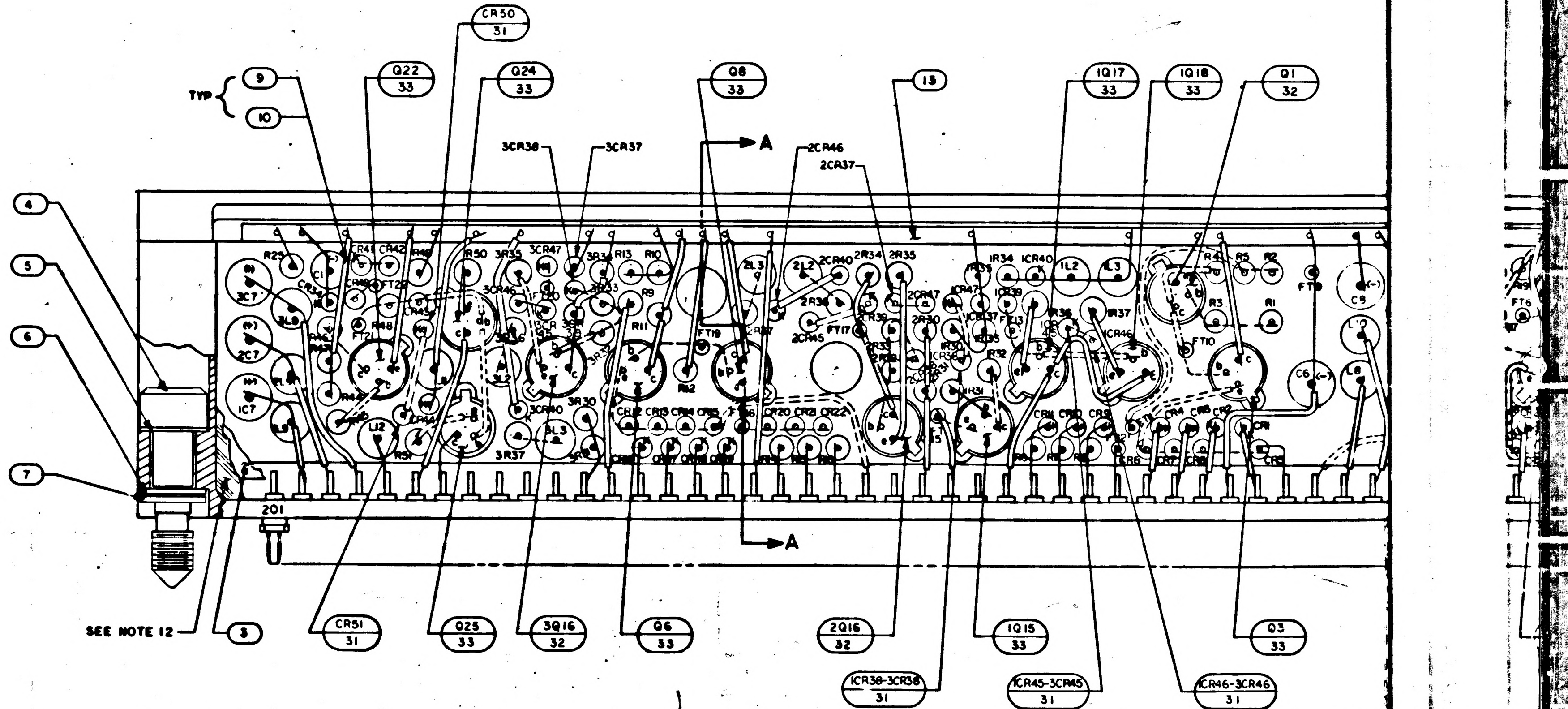
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. + DENOTES POSITIVE SIDE OF CAPACITOR
5. K DENOTES CATHODE SIDE OF DIODE
6. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
7. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
8. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND 1002069
9. WELD PER ND 1002005
10. STAKE FIND NO. 16 THRU FIND NO. 33, 35, 36 AND 37 TO FIND NO. 1 PER ND 1002009, METHOD C OR D
11. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST. R29, R36, R37, R50 AND R51 TO BE SELECTED FROM APPROPRIATE CHART
12. ENCAPSULATE PER ND 1002002. REMOVE FLASHING
13. MARK .10/.08 HIGH WHITE CHARACTERS PER ND 1002019 AND ND 1002122 TYPE II, CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
14. MARK .26/.24 HIGH WHITE CHARACTERS PER ND 1002019 AND ND 1002122 TYPE II, CLASS 2 USING INK 1006271-1
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS 2003140
16. SEAL INSULATORS AND TERMINALS TO HEADER PER ND1002004, TYPE VI
17. SEAL FIND NO. 12 TO HEADER PER ND1002004, TYPE VI
18. MOUNTING TORQUE FOR FIND NO. 15 TO BE 2.0 -2.5 INCH POUNDS
19. MOUNTING TORQUE FOR FIND NO. 12 TO BE 15-20 INCH OUNCES
20. BOND FIND NO. 13 TO FIND NO. 1 PER ND1002004, TYPE I
21. COAT INDICATED SURFACES, BOTH ENDS, TOP AND BOTTOM, BOTH SIDES, PER ND1002187, TYPE II
22. ASSEMBLE FIND NO. 38 TO MODULE AFTER SELECTED VALUE HAS BEEN DETERMINED


.140
MAX TYP
SEE NOTE 7
.070 MAX TYP
SEE NOTE 6
Q5 REF
2Q18 REF
Q8 REF
FT18 REF
SEE NOTE 16
.010 MIN TYP
SEE NOTE 21
.015 MIN TYP
.000
.030 TYP

SECTION A-A


38 SEE NOTE 22
R51 23 SEE NOTE 11
R44 24
Q23 32
LH 37
CR12-CR22 31
2Q18 33
2Q15 33
1R31-3R31 19
1R30-3R30 24
1R32-3R32 25
1Q16 32
R3 35
SEE NOTE 12
2
L12 37
3Q18 33
Q7 33
R14-R16 19
SEE NOTE 11
1R36-3R36 23
38 SEE NOTE 22
CR1-CR11 31
Q2 33
R45 19
3Q15 33
R12 36
2Q17 33
R6 - R8 19
Q4 33
FT12
1L9-3L9 30
101
1C7-3C7 28
R47 24
R46 25
CR34 31
CR49 31
3CR37
3CR38
FT17
R25 20
C1 27
CR41-CR44 31
R48 24
R49 26
R50 23
3Q17 33
R9 16
R11 35
R13 17
R10 17
Q5 32
1CR47-3CR47 31
1R35-3R35 26
1CR37-3CR37 31
1R33-3R33 24
1L2-3L2 37
1CR40-3CR40 31
1R34-3R34 24
1CR39-3CR39 31
R4 36
R5 17
R2 17
C8 28
L10 30
1R37-3R37 23
1L3 - 3L3 37
SEE NOTE 11
SEE NOTE 11
38 SEE NOTE 22
SEE NOTE 22 38


CR50 31
TYP
9
10
Q22 33
Q24 33
3CR38
3CR37
Q8 33
A
2CR46
2CR37
13
1Q17 33
1Q18 33
Q1 32
4
5
6
7
201
A
SEE NOTE 12
3
CR51 31
Q25 33
3Q16 32
Q6 33
2Q16 32
1Q15 33
Q3 33
1CR38-3CR38 31
1CR45-3CR45 31
1CR46-3CR46 31

APOLLO G&N Specification
PS 2003140 C
Original Issue Date: 6-1-66
Release Authority: TDRR 29205
Class A **Release**

PROCUREMENT SPECIFICATION

FOR

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

ROPE DRIVER MODULE (B16-B17)

DRAWING NO. 2003140

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
Ⓜ 7-1-66	A	29924	1, 4, 7, 10, 12, 13, 17	FA	FA
Ⓜ 8/25/66	B	30752	1, 13	FA	FA
Ⓜ 12/15/66	C	32345	1,2, 10, 13	FA	FA

This specification consists of pages 1 **to** 18 **inclusive.**

APPROVALS	A. C. METZGER NASA/MSC	E C Hall 6/1/66 W O Hurley 6-1-66 5-24-66 MIT/IL	R Dettloff May 4 1966 5/4/66 A Smith 5/4/66 RAY

1. SCOPE

This specification establishes the detail requirements for complete identification and acceptance of the Rope Driver Module Part No. 2003140-011. and 2003140-021.

2. APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein.

2.1 EFFECTIVE ISSUES. Unless otherwise specified herein, Military and Government Standards and specifications shall be the issue in effect on the date of request for proposal or invitation to bid.

SPECIFICATIONS

APOLLO G&N

ND 1002214	General Specification for Preservation, Packaging, Packing and Container Marking of APOLLO Guidance and Navigation Major Assemblies, Assemblies, Subassemblies, Parts and Associated Ground Support Equipment.

DRAWINGS

APOLLO G&N

2003140	ROPE DRIVER MODULE (B16-B17)

Copies of Specifications, Standards, Drawings, Bulletins and Publications required by suppliers in connection with specific procurement functions should be obtained from the Procuring Activity or as directed by the Contracting Officer.

2.2 CONFLICTING REQUIREMENTS. In the event of conflict between the requirements of the contract, this Specification and the documents listed in this section, the following order of precedence shall apply and the contractor shall notify MIT Apollo Management of the conflict as soon as it is determined.

a. The contract
b. This Specification
c. Documents listed in this section

3.1.11 **Clear Driver.** The input and output waveforms shall comply with Table 3-5 and Figure 3-2 with the output measured across the output load resistor. The amplitude (A) limit has been established for an ambient temperature of 25°C.

Table 3-5

Parameter	Input	Output
Level (A_2) low	0.8 ± 0.1 volt	2.0 ma, max
Level (A_1) high	2.1 ± 0.25 volts	--------
Amplitude (A)	--------	350 ± 5 ma*
Rise Time (T_r)	100 nsec max	1.3 ± 0.3 usec
Fall Time (T_f)	100 nsec max	--------
Pulse Width (PW)	4 usec ± 5%	--------
Period (T)	32 usec ± 5%	--------
TD	--------	0.20 usec max
T OFF	--------	1.75 usec max

* at 25°C

3.1.13 **Marginal Voltage and Temperature Extremes.** The module shall perform as described in paragraphs 3.1.8 through 3.1.12 under each of the two combinations (temperature and input voltage) of operating extremes.

3.1.13.1 **Low Operating Extreme:**

a. **Voltage:** 4.8 ± 0.1 vdc and 12.2 ± 0.1 vdc

b. **Temperature:** $-10^\circ C\ ^{+0C^\circ}_{-2.8C^\circ}$:

Under the low operating extremes the following output (amplitude A) deviations shall apply:

Set and Reset Driver	Clear Driver	Inhibit Driver
Amplitude A = 475 ± 15 ma Tr $0.6^{+0.3}_{-0.2}$	Amplitude A = 350 ± 10 ma	Amplitude A = 220 ± 10 ma

3.1.13.2 **High Operating Extreme**

a. **Voltage:** 3.4 ± 0.1 vdc and 16.5 ± 0.1 vdc

b. **Temperature:** $70^\circ C\ ^{+2.8C^\circ}_{-0C^\circ}$

Under the high operating extreme the following output (amplitude A) deviations shall apply.

Set and Reset Driver	Clear Driver	Inhibit Driver
Amplitude A = 425 ± 15 ma [illegible]	Amplitude A = 350 ± 10 ma Tr $1.3^{+0.5}_{-0.3}$ T off NMT 1.9 us	Amplitude A = 225 ± 10 ma

ROPE GATE: A_1 NMT 1.8V below B+

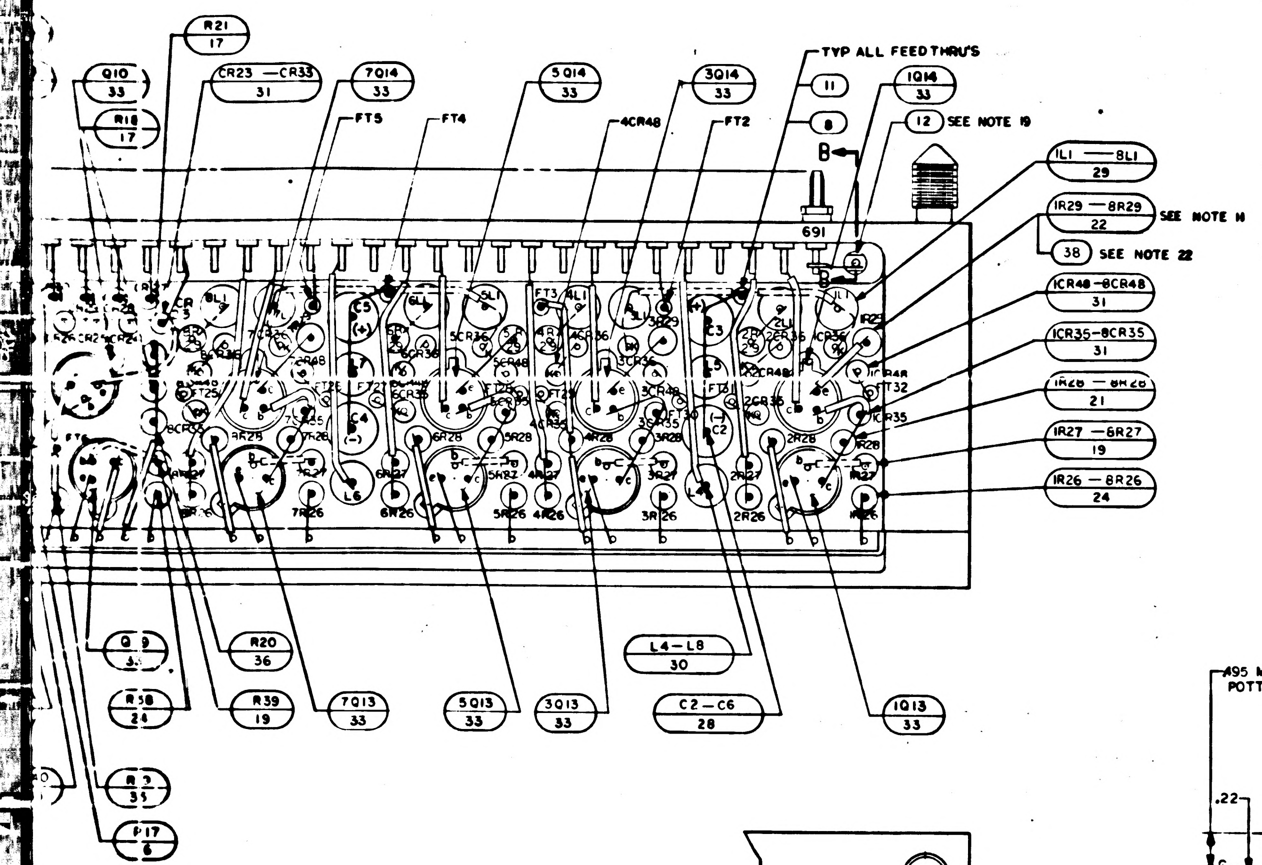
NOTE: Input high amplitudes will not be within the room temperature limits.

3.1.13.3 Inhibit and Clear Drivers Outputs Under Low Conditions. With input voltages of 3.4 ± 0.1 vdc and 16.5 ± 0.1 vdc and with an ambient temperature of $-10\ C\ ^{+0^\circ C}_{-2.8^\circ C}$ amplitude A for the inhibit drivers shall be 255 ± 10 ma and for the clear drivers shall be 379 ± 10 ma.

3.1.13.4 Inhibit and Clear Drivers Outputs Under High Conditions. With input voltages of 4.8 ± 0.1 vdc and 12.2 ± 0.1 vdc and in an ambient temperature of 70°C amplitude A for inhibit drivers shall be 190 ± 10 ma and for the clear drivers shall be 329 ± 10 ma.

3.1.14 **Vibration.** The module shall perform as specified in paragraphs 3.1.8 through 3.1.12 when installed in an operating computer which is being subjected to the vibration requirements specified in the applicable specifications for the computer subsystem. Acceptance criteria for the module shall be compliance of the computer subsystem with its applicable specifications.

REVISIONS 25980						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 27309	DPT	[illegible]	[illegible]	[illegible]
B		REVISED PER TDRR 27079	[illegible]	[illegible]	[illegible]	[illegible]
C		REVISED PER TDRR 28162	DPT	JCJ	[illegible]	[illegible]
D		REVISED PER TDRR 29079	[illegible]	[illegible]	6-4-66	JFC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17
Q10
33
R18
17
CR23 — CR33
31
7Q14
33
FT5
FT4
5Q14
33
4CR48
3Q14
33
FT2
TYP ALL FEEDTHRU'S
11
8
1Q14
33
12 SEE NOTE 19
B
691
1L1 — 8L1
29
1R29 — 8R29
22
SEE NOTE 11
38 SEE NOTE 22
1CR48-8CR48
31
1CR35-8CR35
31
1R28 — 8R28
21
1R27 — 8R27
19
1R26 — 8R26
24
Q9
33
R20
36
L4—L8
30
R58
24
R39
19
7Q13
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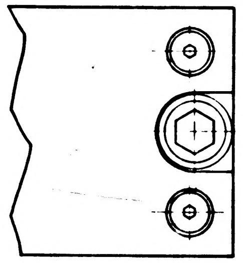
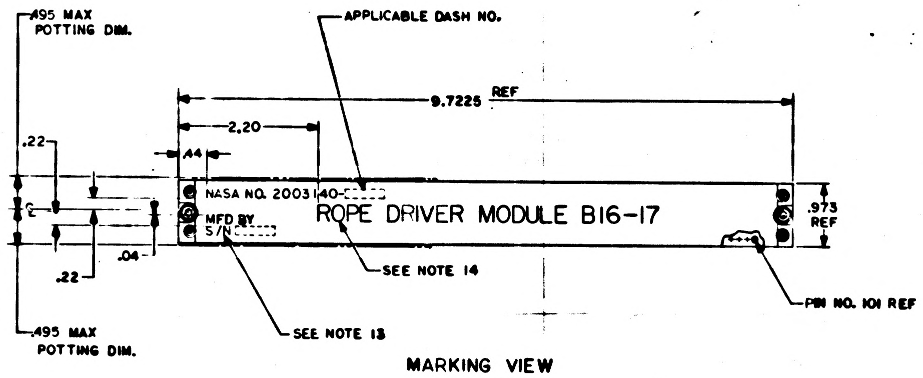
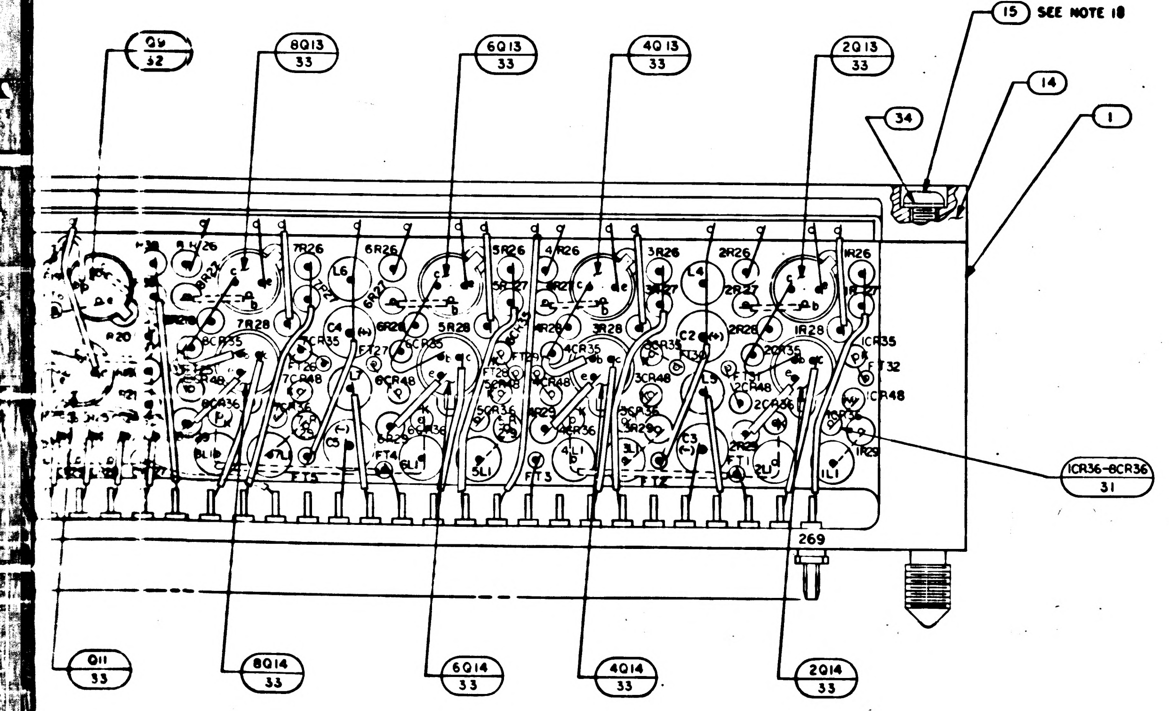
5Q13
33
3Q13
33
C2 — C6
28
1Q13
33
R3
33
P17
6




.495 MAX
POTTING DIM.
APPLICABLE DASH NO.
9.7225 REF
2.20
.44
.22
.22
.04
.973
REF
NASA NO. 2003140-
MFD BY
S/N
ROPE DRIVER MODULE B16-17
SEE NOTE 14
SEE NOTE 13
PIN NO. 101 REF
.495 MAX
POTTING DIM.

MARKING VIEW
SCALE 1/1


15 SEE NOTE 18
14
34
1
Q9
32
8Q13
33
6Q13
33
4Q13
33
2Q13
33
1CR36-8CR36
31
269
Q11
33
8Q14
33
6Q14
33
4Q14
33
2Q14
33

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2005100	SCHEMATIC	REF
16	2004074	INSULATOR, WASHER	38
8	1010406 - 11	COIL, RF, CHOKE	37
4	1006750 - 29	RESISTOR	36
4	1006750 - 24	RESISTOR	35
4	NAS620A-2	WASHER, FLAT	34
39	2004004-001	TRANSISTOR, POTTED	33
8	2004004-002	TRANSISTOR, POTTED	32
86	2004103 -001	DIODE	31
9	1010406 —7	COIL, RF, CHOKE	30
8	1010406 — 10	COIL, RF, CHOKE	29
9	1006755 —79	CAPACITOR	28
1	1006755 —69	CAPACITOR	27
4	1006788 —9	RESISTOR	26
4	1006750 —32	RESISTOR	25
21	1006750 —49	RESISTOR	24
8	SEE NOTE 11	RESISTOR	23
8	SEE NOTE 11	RESISTOR	22
8	1006750 —22	RESISTOR	21
1	1006750 —43	RESISTOR	20
22	1006750 — 15	RESISTOR	19
2	1006750 — 39	RESISTOR	18
6	1006750 —35	RESISTOR	17
3	1006750 — 36	RESISTOR	16
4	1006783 — 10	SCREW, BUTTON HEAD, HEX SOCKET	15
1	2004032	COVER	14
1	2003142-011	MATRIX ASSEMBLY	13
1	2004039	TERMINAL, THREADED	12
A R	1006776 —22	INSULATION, SLEEVING	11
A R	1006776 —21	INSULATION, SLEEVING	10
A R	1006757—1	WIRE, ELECTRICAL	9
A R	1006757—8	WIRE, ELECTRICAL	8
2	MS16633—4015	RING, RETAINING, EXTERNAL, "E"	7
2	2004984-003	WASHER, FLAT	6
2	2004984-001	WASHER, FLAT	5
2	1004579-1	SCREW, JACKING	4
1	2003085	INSULATOR (B) ASSY	3
1	2004157	INSULATOR (A)	2
1	2003084—011	HEADER HOUSING ASSEMBLY	1
-011	LIST OF MATERIALS		

2003200	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS XX±.02 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN E.W. [illegible]
CHECKED [illegible]
APPROVED
APPROVED E. [illegible]
APPROVED MIT [illegible]
A. C. METZGER
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ROPE DRIVER MODULE
B16-17
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003140
SCALE 4/1
SHEET 1 OF 1

2003140 D

3H

R37
VALUE
2.5
2.6
2.7
2.8
2.9
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3.1
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3.3
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3.5
3.6
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4.4
4.5

0,R51
VALUE
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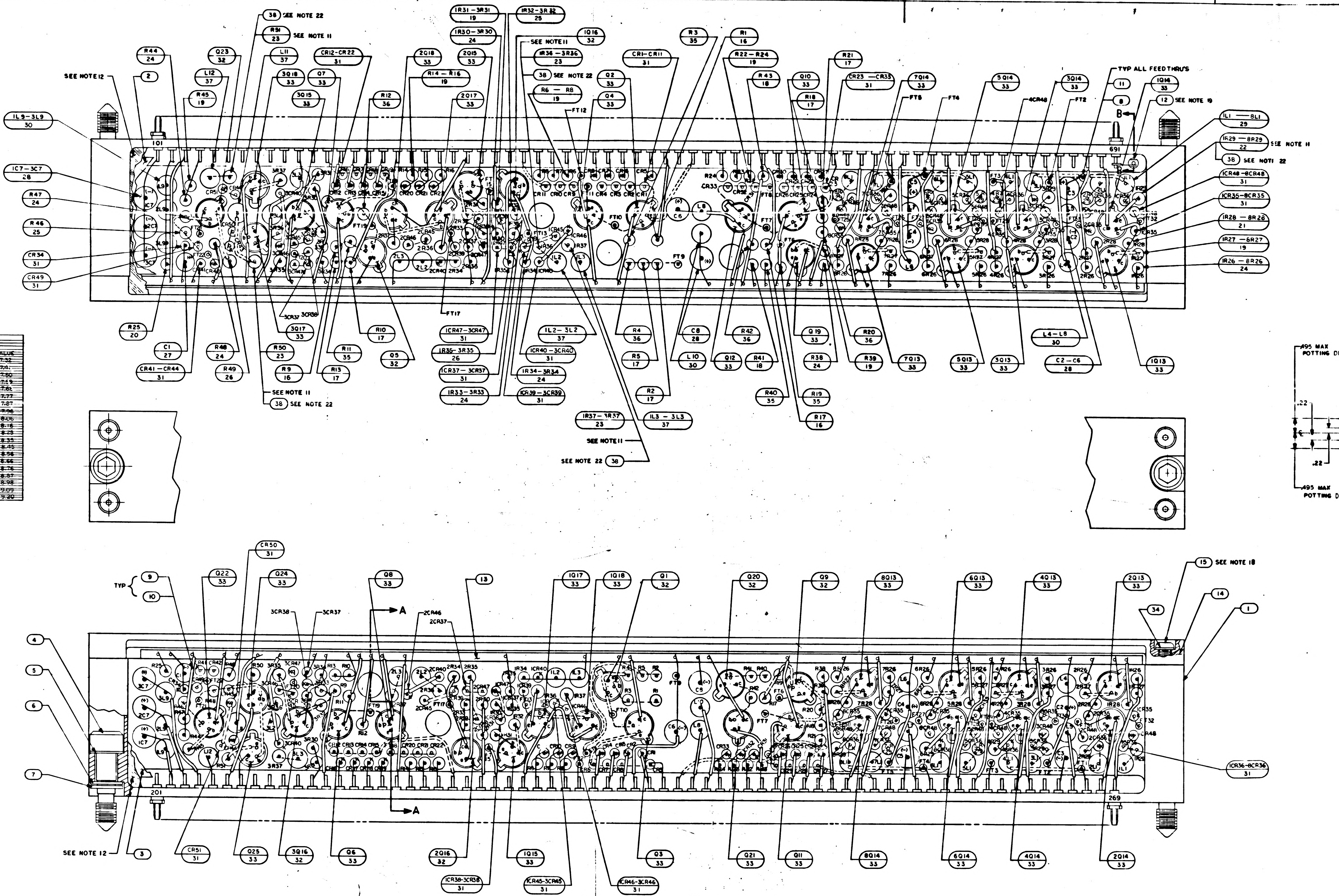
1.85
1.75
1.69
[illegible]

R50,R51	
PART NO.	VALUE
1006788-240	7.32
-241	7.41
-242	7.50
-243	7.59
-244	7.68
-245	7.77
-246	7.87
-247	7.96
-248	8.06
-249	8.16
-250	8.25
-251	8.35
-252	8.45
-253	8.56
-254	8.66
-255	8.76
-256	8.87
-257	8.98
258	9.09
1006788-259	9.20


7
6
5
4
38 SEE NOTE 22
R51 23 SEE NOTE 11
IR31-3R31 19
IR32-3R32 25
IR30-3R30 24
IQ16 32
SEE NOTE 11
R3 35
R1 16
R44 24
Q23 32
L11 37
CR12-CR22 31
2Q18 33
2Q15 33
IR36-3R36 23
CR1-CR11 31
R22-R24 19
R21 17
SEE NOTE 12
2
L12 37
3Q18 33
Q7 33
R14-R16 19
38 SEE NOTE 22
Q2 33
R43 18
Q10 33
CR23-CR33 31
7Q14 33
5Q14 33
3Q14 33
TYP ALL FEEDTHRU'S
11
IQ14 33
R45 19
3Q15 33
R12 36
2Q17 33
R6-R8 19
Q4 33
R18 17
FT8
FT4
4CR48
FT2
8
12 SEE NOTE 19
FT12
B
IL9-3L9 30
IL1-8L1 29
IR29-8R29 22 SEE NOTE 11
38 SEE NOTE 22
101
691
IC7-3C7 28
ICR48-8CR48 31
R47 24
ICR35-8CR35 31
R46 25
IR28-8R28 21
CR34 31
IR27-6R27 19
CR49 31
IR26-8R26 24
R25 20
C1 27
CR41-CR44 31
R48 24
R49 26
R50 23
R9 16
3Q17 33
R11 35
R13 17
R10 17
Q5 32
FT17
ICR47-3CR47 31
IR35-3R35 26
ICR37-3CR37 31
IR33-3R33 24
IL2-3L2 37
ICR40-3CR40 31
IR34-3R34 24
ICR39-3CR39 31
R4 36
R5 17
R2 17
C8 28
L10 30
Q12 33
R42 36
R41 18
R40 35
Q19 33
R38 24
R20 36
R39 19
R19 35
R17 16
7Q13 33
5Q13 33
3Q13 33
L4-L8 30
C2-C6 28
IQ13 33
3CR37
3CR38
SEE NOTE 11
38 SEE NOTE 22
IR37-3R37 23
IL3-3L3 37
SEE NOTE 11
SEE NOTE 22 38
.495 MAX POTTING D
.22
.22
.495 MAX POTTING D
CR50 31
TYP 9 10
Q22 33
Q24 33
Q8 33
13
IQ17 33
IQ18 33
Q1 32
Q20 32
Q9 32
8Q13 33
6Q13 33
4Q13 33
2Q13 33
15 SEE NOTE 18
14
1
34
3CR38
3CR37
A
2CR46
2CR37
4
5
6
7
201
269
A
ICR36-8CR36 31
SEE NOTE 12
3
CR51 31
Q25 33
3Q16 32
Q6 33
2Q16 32
IQ15 33
Q3 33
Q21 33
Q11 33
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6Q14 33
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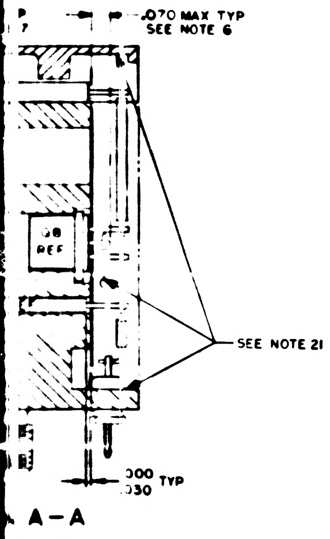
2Q14 33
ICR38-3CR38 31
ICR45-3CR45 31
ICR46-3CR46 31


.070 MAX TYP
SEE NOTE 6
REF
SEE NOTE 21
.300
.030 TYP
A-A

2003140 D

F 2/43

R29, R50, R51	
PART NO.	VALUE
1006788-205	4.91
-206	4.87
-207	4.93
-208	4.99
-209	5.05
-210	5.11
-211	5.17
-212	5.23
-213	5.30
-214	5.36
-215	5.42
-216	5.49
-217	5.56
-218	5.62
-219	5.69
-220	5.76
-221	5.83
-222	5.90
-223	5.97
-224	6.04
-225	6.12
-226	6.19
-227	6.26
-228	6.34
-229	6.42
-230	6.49
-231	6.57
-232	6.65
-233	6.73
-234	6.81
-235	6.90
-236	6.98
-237	7.06
-238	7.15
-239	7.23
-240	7.32
-241	7.41
1006788-242	7.50

R36, R37	
PART NO.	VALUE
1006788-255	8.76
-256	8.87
-257	8.98
-258	9.09
-259	9.20
-260	9.31
-261	9.42
-262	9.53
-264	9.76
-265	9.88
-266	10.0
-267	10.1
-268	10.2
-269	10.4
-270	10.5
-271	10.6
-272	10.7
-273	10.9
-274	11.0
-275	11.1
-276	11.3
-277	11.4
-278	11.5
1006788-279	11.7

~~R36, R37~~	
~~PART NO.~~	~~VALUE~~
~~1006788-29~~	~~2.5~~
~~-30~~	~~2.6~~
~~-31~~	~~2.7~~
~~-32~~	~~2.8~~
~~-33~~	~~2.9~~
~~-34~~	~~3.0~~
~~-35~~	~~3.1~~
~~-36~~	~~3.2~~
~~-37~~	~~3.3~~
~~-38~~	~~3.4~~
~~-39~~	~~3.5~~
~~-40~~	~~3.6~~
~~-41~~	~~3.7~~
~~-42~~	~~3.8~~
~~-43~~	~~3.9~~
~~-44~~	~~4.0~~
~~-45~~	~~4.1~~
~~-46~~	~~4.2~~
~~-47~~	~~4.3~~
~~-48~~	~~4.4~~
~~1006788-49~~	~~4.5~~

~~R29, R50, R51~~	
~~PART NO.~~	~~VALUE~~
~~1006788-[illegible]~~	~~1.5~~
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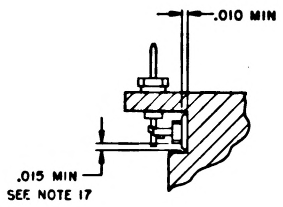
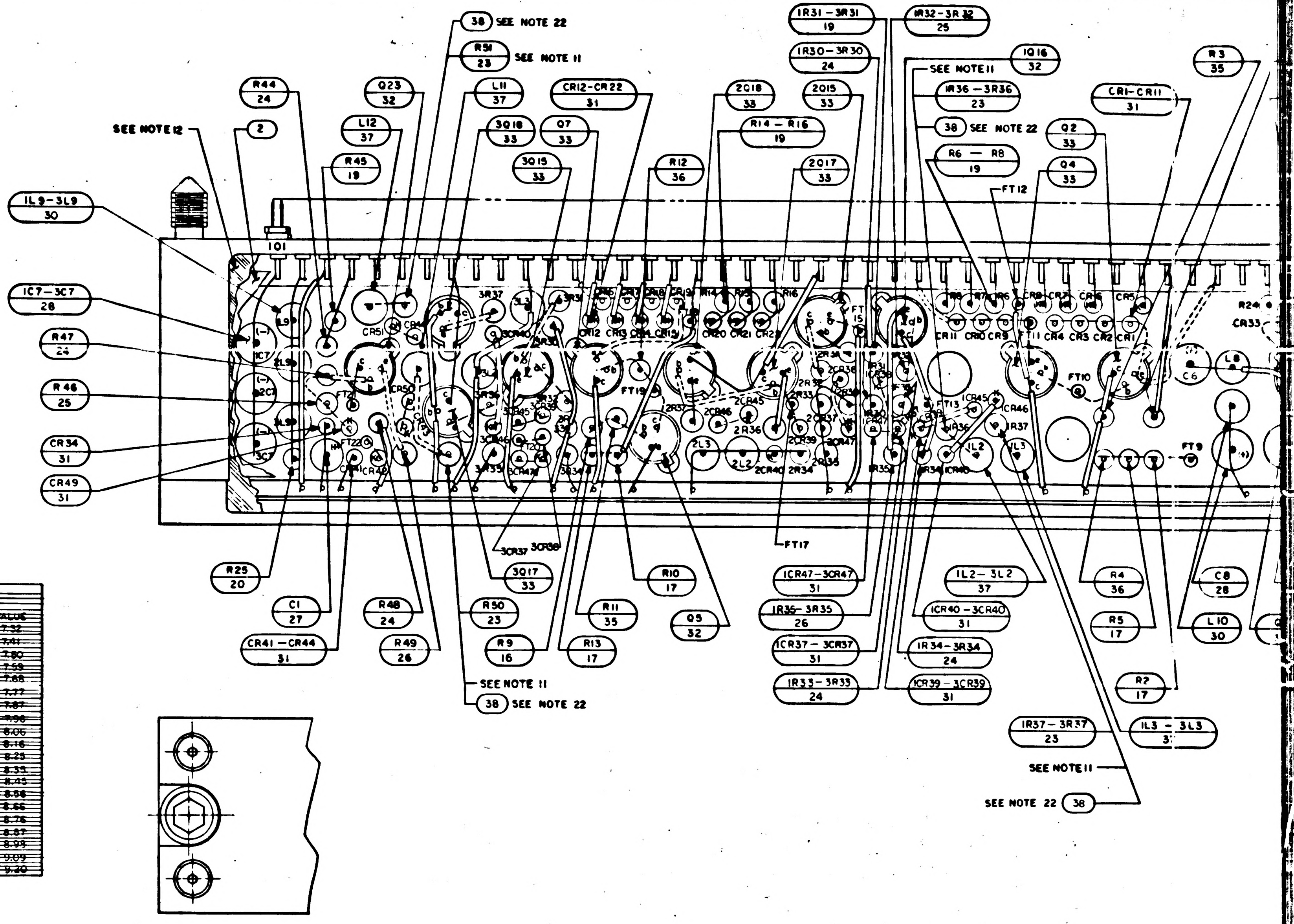
[illegible]	~~1.7~~
[illegible]	~~1.8~~
[illegible]	~~1.9~~
[illegible]	~~2.0~~
[illegible]	~~2.1~~
[illegible]	~~2.2~~
[illegible]	~~2.3~~
[illegible]	~~2.4~~
[illegible]	~~2.5~~
~~-30~~	~~2.6~~
~~-31~~	~~2.7~~
~~-32~~	~~2.8~~
~~-73~~	~~2.79~~
~~-72~~	~~2.69~~
~~-71~~	~~2.56~~
~~-70~~	~~2.49~~
[illegible]	~~2.39~~
~~-27~~	~~2.29~~
~~-25~~	~~2.19~~
~~-23~~	~~2.09~~
~~-21~~	~~1.95~~
~~-19~~	~~1.85~~
~~-17~~	~~1.75~~
~~-54~~	~~1.65~~
~~1006788-52~~	~~1.55~~

~~R50, R51~~	
~~PART NO.~~	~~VALUE~~
~~1006788-240~~	~~7.32~~
~~-241~~	~~7.41~~
~~-242~~	~~7.50~~
~~-243~~	~~7.59~~
~~-244~~	~~7.68~~
~~-245~~	~~7.77~~
~~-246~~	~~7.87~~
~~-247~~	~~7.96~~
~~-248~~	~~8.06~~
~~-249~~	~~8.16~~
~~-250~~	~~8.25~~
~~-251~~	~~8.35~~
~~-252~~	~~8.45~~
~~-253~~	~~8.56~~
~~-254~~	~~8.66~~
~~-255~~	~~8.76~~
~~-256~~	~~8.87~~
~~-257~~	~~8.98~~
~~-258~~	~~9.09~~
~~1006788-260~~	~~9.20~~

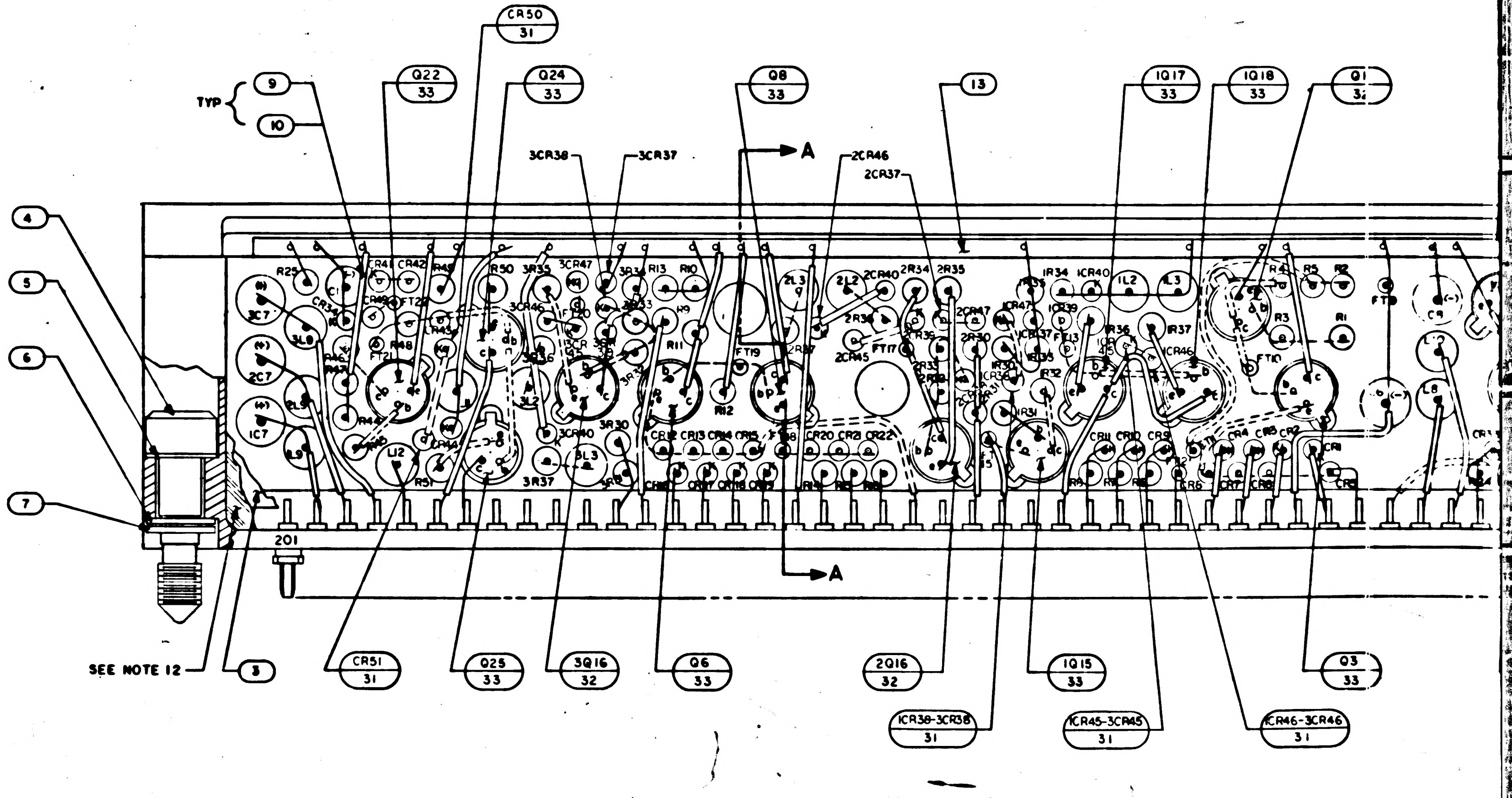


.010 MIN
.015 MIN
SEE NOTE 17

SECTION B-B



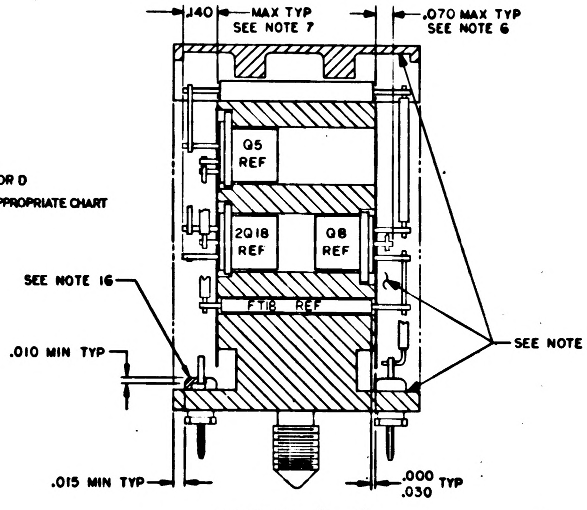
38 SEE NOTE 22
R51 23 SEE NOTE 11
1R31-3R31 19
1R32-3R32 25
1R30-3R30 24
SEE NOTE 11
1Q16 32
1R36-3R36 23
38 SEE NOTE 22
R3 35
CR1-CR11 31
R44 24
Q23 32
L11 37
CR12-CR22 31
2Q18 33
2Q15 33
Q2 33
Q4 33
R6 - R8 19
FT12
SEE NOTE 12
2
L12 37
3Q18 33
Q7 33
R14 - R16 19
R45 19
3Q15 33
R12 36
2Q17 33
1L9-3L9 30
101
1C7-3C7 28
R47 24
R46 25
CR34 31
CR49 31
R24
CR33
FT17
R25 20
C1 27
CR41-CR44 31
R48 24
R49 26
3CR37
3CR39
3Q17 33
R50 23
R9 16
R11 35
R13 17
R10 17
Q5 32
1CR47-3CR47 31
1R35-3R35 26
1CR37-3CR37 31
1R33-3R33 24
1L2-3L2 37
1CR40-3CR40 31
1R34-3R34 24
1CR39-3CR39 31
R4 36
R5 17
R2 17
C8 28
L10 30
SEE NOTE 11
38 SEE NOTE 22
1R37-3R37 23
1L3-3L3 37
SEE NOTE 11
SEE NOTE 22 38



CR50 31
TYP
9
10
Q22 33
Q24 33
Q8 33
13
1Q17 33
1Q18 33
Q1 32
3CR38
3CR37
A
2CR46
2CR37
4
5
6
7
201
A
SEE NOTE 12
3
CR51 31
Q25 33
3Q16 32
Q6 33
2Q16 32
1Q15 33
Q3 33
1CR38-3CR38 31
1CR45-3CR45 31
1CR46-3CR46 31

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. + DENOTES POSITIVE SIDE OF CAPACITOR
5. K DENOTES CATHODE SIDE OF DIODE
6. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
7. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
8. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND 1002069
9. WELD PER ND 1002005
10. STAKE FIND NO. 16 THRU FIND NO. 33, 35, 36 AND 37 TO FIND NO. 1 PER ND 1002009, METHOD C OR D
11. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST. R29, R36, R37, R50 AND R51 TO BE SELECTED FROM APPROPRIATE CHART
12. ENCAPSULATE PER ND 1002002. REMOVE FLASHING
13. MARK .10/.08 HIGH WHITE CHARACTERS PER ND 1002019 AND ND 1002122 TYPE II, CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
14. MARK .26/.24 HIGH WHITE CHARACTERS PER ND 1002019 AND ND 1002122 TYPE II, CLASS 2 USING INK 1006271-1
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS 2003140
16. SEAL INSULATORS AND TERMINALS TO HEADER PER ND1002004, TYPE VI
17. SEAL FIND NO. 12 TO HEADER PER ND1002004, TYPE VI
18. MOUNTING TORQUE FOR FIND NO. 15 TO BE 2.0 -2.5 INCH POUNDS
19. MOUNTING TORQUE FOR FIND NO. 12 TO BE 15-20 INCH OUNCES
20. BOND FIND NO. 13 TO FIND NO. 1 PER ND1002004, TYPE I
21. COAT INDICATED SURFACES, BOTH ENDS, TOP AND BOTTOM, BOTH SIDES, PER ND1002187, TYPE II
22. ASSEMBLE FIND NO. 38 TO MODULE AFTER SELECTED VALUE HAS BEEN DETERMINED



.140
MAX TYP
SEE NOTE 7
.070 MAX TYP
SEE NOTE 6
Q5 REF
2Q18 REF
Q8 REF
FT18 REF
SEE NOTE 16
.010 MIN TYP
SEE NOTE 21
.015 MIN TYP
.000
.030 TYP

SECTION A—A

2003140	D

APOLLO G&N Specification
PS 2003140 D
Original Issue Date: 6-1-66
Release Authority: TDRR 29205
Class A Release

PROCUREMENT SPECIFICATION

FOR

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

ROPE DRIVER MODULE (B16-B17)

DRAWING NO. 2003140

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
7-1-66	A	29924	1, 4, 7, 10, 12, 13, 17	FA	FA
8/25/66	B	30752	1, 13	FA	FA
12/15/66	C	32345	1,2, 10, 13	FA	FA
1/5/67	D	32563	1 & 2	FA	FA

This specification consists of pages 1 to 18 inclusive.

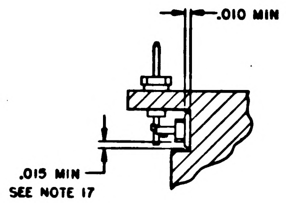
APPROVALS	A. C. METZGER NASA/MSC	E C Hall 6/1/66	6-1-66 MIT/IL	8-29-66	May 4 1966 5/4/66 RAY

R29, R50, R51

PART NO.		VALUE
1006788-205		4.81
	-206	4.87
	-207	4.93
	-208	4.99
	-209	5.05
	-210	5.11
	-211	5.17
	-212	5.23
	-213	5.30
	-214	5.36
	-215	5.42
	-216	5.49
	-217	5.56
	-218	5.62
	-219	5.69
	-220	5.76
	-221	5.83
	-222	5.90
	-223	5.97
	-224	6.04
	-225	6.12
	-226	6.19
	-227	6.26
	-228	6.34
	-229	6.42
	-230	6.49
	-231	6.57
	-232	6.65
	-233	6.73
	-234	6.81
	-235	6.90
	-236	6.98
	-237	7.06
	-238	7.15
	-239	7.23
	-240	7.32
	-241	7.41
1006788-242		7.50

R36, R37

PART NO.		VALUE
1006788-255		8.76
	-256	8.87
	-257	8.98
	-258	9.09
	-259	9.20
	-260	9.31
	-261	9.42
	-262	9.53
	-264	9.76
	-265	9.88
	-266	10.0
	-267	10.1
	-268	10.2
	-269	10.4
	-270	10.5
	-271	10.6
	-272	10.7
	-273	10.9
	-274	11.0
	-275	11.1
	-276	11.3
	-277	11.4
	-278	11.5
1006788-279		11.7


.010 MIN
.015 MIN
SEE NOTE 17

SECTION B-B

~~R36, R37~~

~~PART NO.~~		~~VALUE~~
~~1006788-29~~		~~2.5~~
	~~-30~~	~~2.6~~
	~~-31~~	~~2.7~~
	~~-32~~	~~2.8~~
	~~-33~~	~~2.9~~
	~~-34~~	~~3.0~~
	~~-35~~	~~3.1~~
	~~-36~~	~~3.2~~
	~~-37~~	~~3.3~~
	~~-38~~	~~3.4~~
	~~-39~~	~~3.5~~
	~~-40~~	~~3.6~~
	~~-41~~	~~3.7~~
	~~-42~~	~~3.8~~
	~~-43~~	~~3.9~~
	~~-44~~	~~4.0~~
	~~-45~~	~~4.1~~
	~~-46~~	~~4.2~~
	~~-47~~	~~4.3~~
	~~-48~~	~~4.4~~
~~1006788-49~~		~~4.5~~

~~R29, R50, R51~~

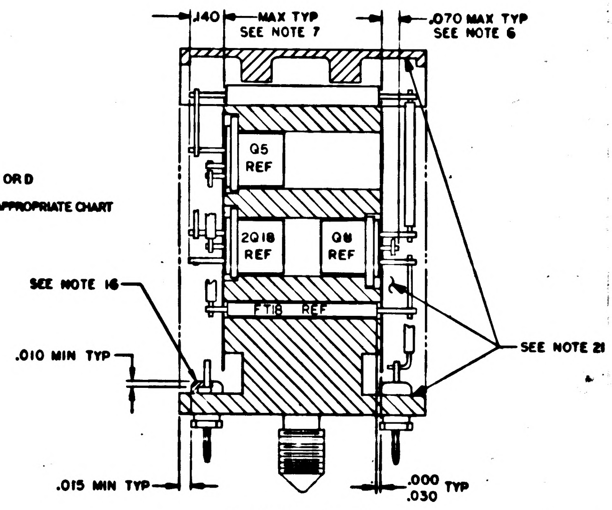
~~PART NO.~~		~~VALUE~~
~~1006788-[illegible]~~		~~1.5~~
	~~-[illegible]~~	~~1.6~~
	~~-16~~	~~1.7~~
	~~-18~~	~~1.8~~
	~~-20~~	~~1.9~~
	~~-22~~	~~2.0~~
	~~-24~~	~~2.1~~
	~~-26~~	~~2.2~~
	~~-28~~	~~2.3~~
	~~-15~~	~~2.4~~
	~~-29~~	~~2.5~~
	~~-30~~	~~2.6~~
	~~-31~~	~~2.7~~
	~~-32~~	~~2.8~~
	~~-33~~	~~2.75~~
	~~-[illegible]~~	~~2.65~~
	~~-71~~	~~2.55~~
	~~-70~~	~~2.45~~
	~~-[illegible]~~	~~2.35~~
	~~-27~~	~~2.25~~
	~~-25~~	~~2.15~~
	~~-23~~	~~2.05~~
	~~-21~~	~~1.95~~
	~~-19~~	~~1.85~~
	~~-17~~	~~1.75~~
	~~-54~~	~~1.65~~
~~1006788-[illegible]~~		~~1.55~~

~~R50, R51~~

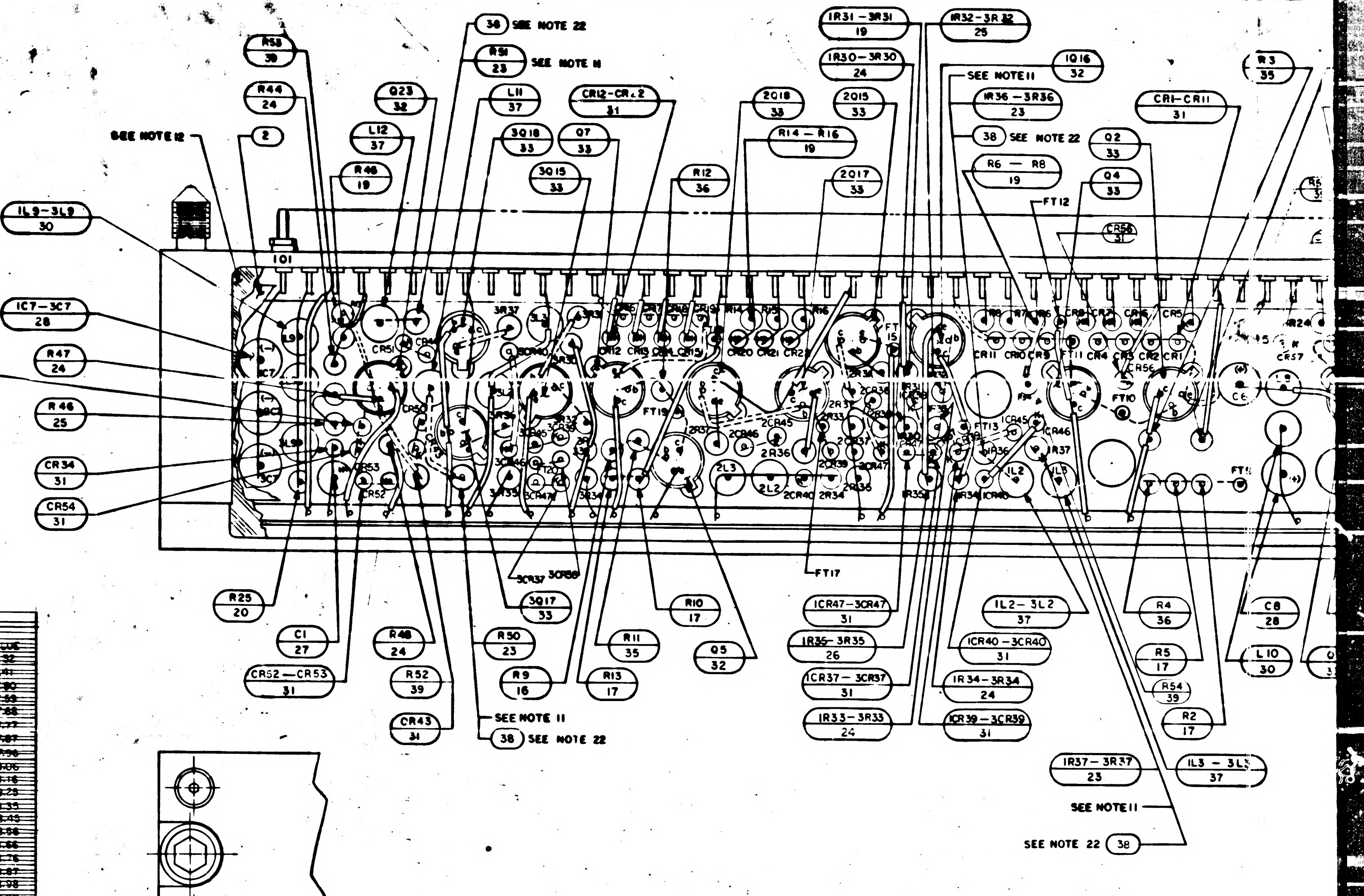
~~PART NO.~~		~~VALUE~~
~~1006788-240~~		~~7.32~~
	~~-241~~	~~7.41~~
	~~-242~~	~~7.50~~
	~~-243~~	~~7.59~~
	~~-244~~	~~7.68~~
	~~-245~~	~~7.77~~
	~~-246~~	~~7.87~~
	~~-247~~	~~7.96~~
	~~-248~~	~~8.06~~
	~~-249~~	~~8.16~~
	~~-250~~	~~8.25~~
	~~-251~~	~~8.35~~
	~~-252~~	~~8.45~~
	~~-253~~	~~8.56~~
	~~-254~~	~~8.66~~
	~~-255~~	~~8.76~~
	~~-256~~	~~8.87~~
	~~-257~~	~~8.98~~
	~~-258~~	~~9.09~~
~~1006788-259~~		~~9.20~~

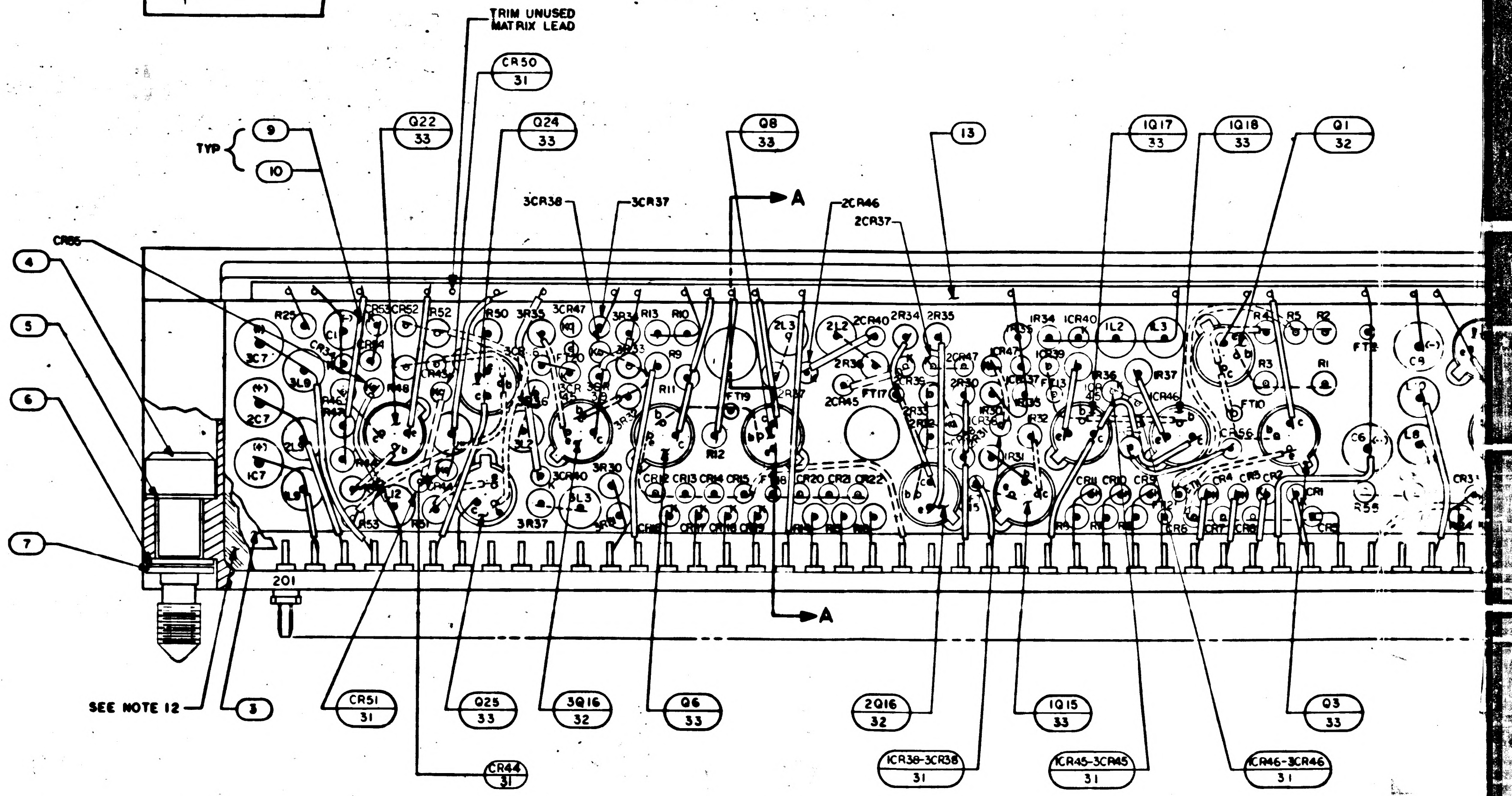
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. + DENOTES POSITIVE SIDE OF CAPACITOR
5. K DENOTES CATHODE SIDE OF DIODE
6. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
7. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
8. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND 1002069
9. WELD PER ND 1002005
10. STAKE FIND NO. 16 THRU FIND NO. 33, 35, 36, 37 AND 39 TO FIND NO. 1 PER ND 1002009, METHOD CORD
11. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST. R29, R36, R37, R50 AND R51 TO BE SELECTED FROM APPROPRIATE CHART
12. ENCAPSULATE PER ND 1002002. REMOVE FLASHING
13. MARK .10/.08 HIGH WHITE CHARACTERS PER ND 1002019 AND ND 1002122 TYPE II, CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
14. MARK .26/.24 HIGH WHITE CHARACTERS PER ND 1002019 AND ND 1002122 TYPE II, CLASS 2 USING INK 1006271-1
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS 2003140
16. SEAL INSULATORS AND TERMINALS TO HEADER PER ND1002004, TYPE VI
17. SEAL FIND NO. 12 TO HEADER PER ND1002004, TYPE VI
18. MOUNTING TORQUE FOR FIND NO. 15 TO BE 2.0 -2.5 INCH POUNDS
19. MOUNTING TORQUE FOR FIND NO. 12 TO BE 15-20 INCH OUNCES
20. BOND FIND NO. 13 TO FIND NO. 1 PER ND1002004, TYPE I
21. COAT INDICATED SURFACES, BOTH ENDS, TOP AND BOTTOM, BOTH SIDES, PER ND1002187, TYPE II
22. ASSEMBLE FIND NO. 38 TO MODULE AFTER SELECTED VALUE HAS BEEN DETERMINED

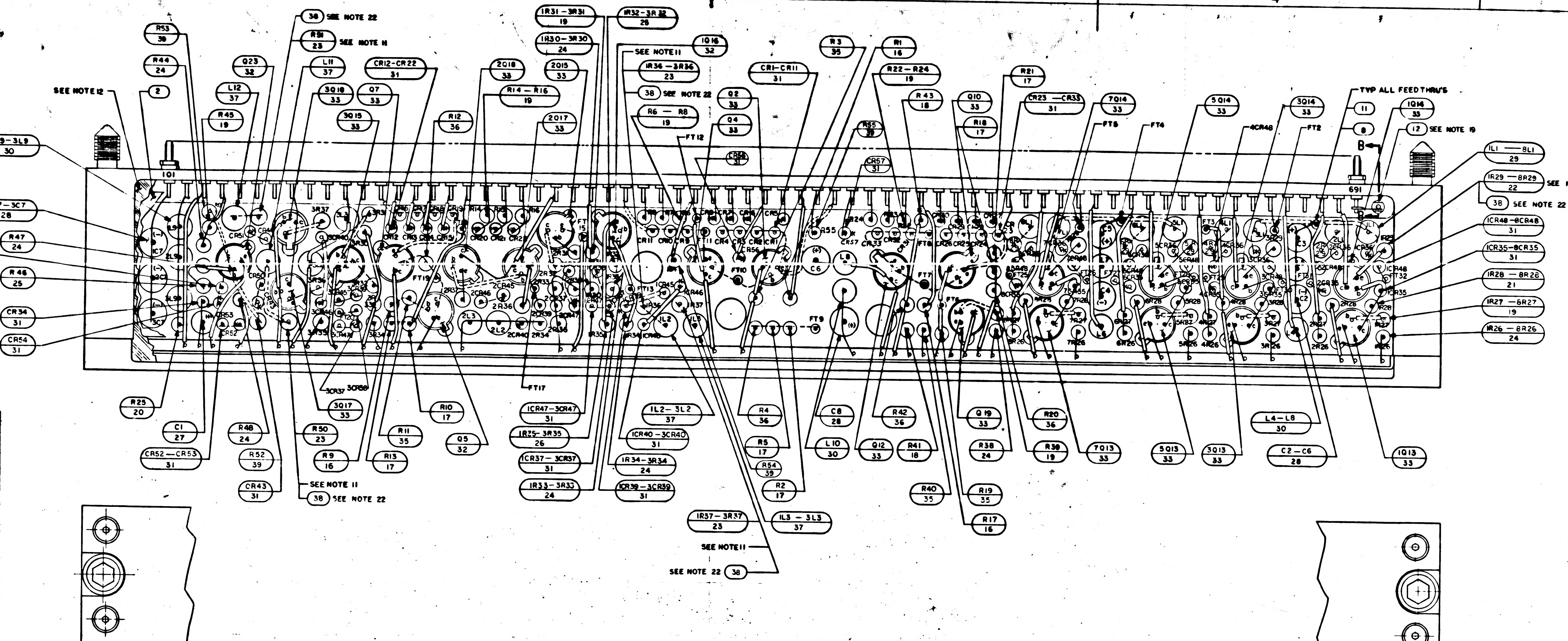

.140
MAX TYP
SEE NOTE 7
.070 MAX TYP
SEE NOTE 6
Q5 REF
2Q18 REF
Q8 REF
FT8 REF
SEE NOTE 16
.010 MIN TYP
SEE NOTE 21
.015 MIN TYP
.000
.030 TYP

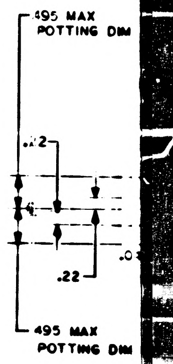
SECTION A-A


38 SEE NOTE 22
R53 30
R51 23 SEE NOTE 11
R44 24
Q23 32
L11 37
CR12-CR22 31
2Q18 33
2Q15 33
1R31-3R31 19
1R30-3R30 24
1R32-3R32 25
SEE NOTE 11
1Q16 32
1R36-3R36 23
38 SEE NOTE 22
R3 35
CR1-CR11 31
SEE NOTE 12
2
L12 37
3Q18 33
Q7 33
R14-R16 19
R6 - R8 19
Q2 33
Q4 33
R46 19
3Q15 33
R12 36
2Q17 33
FT12
CR56 31
1L9-3L9 30
101
1C7-3C7 28
R47 24
CR55 31
R46 25
CR34 31
CR54 31
R25 20
C1 27
CR52-CR53 31
R48 24
R52 39
CR43 31
3CR37 3CR38
3Q17 33
R50 23
R9 16
SEE NOTE 11
38 SEE NOTE 22
R11 35
R13 17
R10 17
Q5 32
FT17
1CR47-3CR47 31
1R35-3R35 26
1CR37-3CR37 31
1R33-3R33 24
1L2-3L2 37
1CR40-3CR40 31
1R34-3R34 24
1CR39-3CR39 31
R4 36
R5 17
R54 39
R2 17
C8 28
L10 30
1R37-3R37 23
1L3 - 3L3 37
SEE NOTE 11
SEE NOTE 22 38

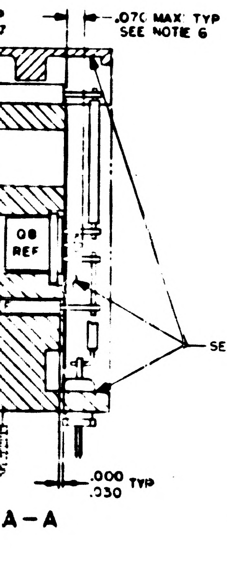

TRIM UNUSED MATRIX LEAD
CR50 31
TYP 9 10
Q22 33
Q24 33
Q8 33
13
1Q17 33
1Q18 33
Q1 32
3CR38
3CR37
A
2CR46
2CR37
CR65
4
5
6
7
201
A
SEE NOTE 12
3
CR51 31
Q25 33
3Q16 32
Q6 33
2Q16 32
1Q15 33
Q3 33
CR44 31
1CR38-3CR38 31
1CR45-3CR45 31
1CR46-3CR46 31

2003140 E


7
6
5
4
R53 30
R44 24
SEE NOTE 12
2
38 SEE NOTE 22
R51 23 SEE NOTE 11
Q23 32
L12 37
R45 19
L11 37
3Q18 33
3Q15 33
Q7 33
CR12-CR22 31
R12 36
2Q18 33
R14 — R16 19
2Q17 33
2Q15 33
1R31 — 3R31 19
1R30 — 3R30 24
1R32 — 3R32 25
1Q16 32
SEE NOTE 11
1R36 — 3R36 23
38 SEE NOTE 22
R6 — R8 19
FT12
Q2 33
Q4 33
CR56 31
CR1-CR11 31
R3 35
R1 16
R55 39
CR57 31
R22 — R24 19
R43 18
Q10 33
R18 17
R21 17
CR23 — CR33 31
7Q14 33
FT8
FT4
5Q14 33
4CR48
3Q14 33
FT2
TYP ALL FEED THRU'S
11
8
1Q14 33
12 SEE NOTE 19
B
1L9 - 3L9 30
1C7 — 3C7 28
R47 24
R46 25
CR34 31
CR54 31
101
691
1L1 — 8L1 29
1R29 — 8R29 22 SEE NOTE 11
38 SEE NOTE 22
1CR48 — 8CR48 31
1CR35 — 8CR35 31
1R28 — 8R28 21
1R27 — 8R27 19
1R26 — 8R26 24
3CR37
3CR38
FT17
R25 20
C1 27
CR52 — CR53 31
R48 24
R52 39
CR43 31
R50 23
SEE NOTE 11
38 SEE NOTE 22
3Q17 33
R9 16
R11 35
R13 17
R10 17
Q5 32
1CR47 — 3CR47 31
1R35 — 3R35 26
1CR37 — 3CR37 31
1R33 — 3R33 24
1L2 — 3L2 37
1CR40 — 3CR40 31
1R34 — 3R34 24
1CR39 — 3CR39 31
1R37 — 3R37 23
1L3 — 3L3 37
SEE NOTE 11
SEE NOTE 22 38
R4 36
R5 17
R54 39
R2 17
C8 28
L10 30
Q12 33
R42 36
R41 18
R40 35
Q19 33
R38 24
R20 36
R39 19
R19 35
R17 16
7Q13 33
5Q13 33
3Q13 33
L4 — L8 30
C2 — C6 28
1Q13 33


.495 MAX POTTING DIM
.2
.22
.495 MAX POTTING DIM

R50,R51	
PART NO.	VALUE
1006788-240	7.32
-241	7.41
-242	7.80
-243	7.59
-244	7.68
-245	7.77
-246	7.87
-247	7.96
-248	8.06
-249	8.16
-250	8.25
-251	8.35
-252	8.45
-253	8.56
-254	8.66
-255	8.76
-256	8.87
-257	8.98
-258	9.09
1006789-259	9.20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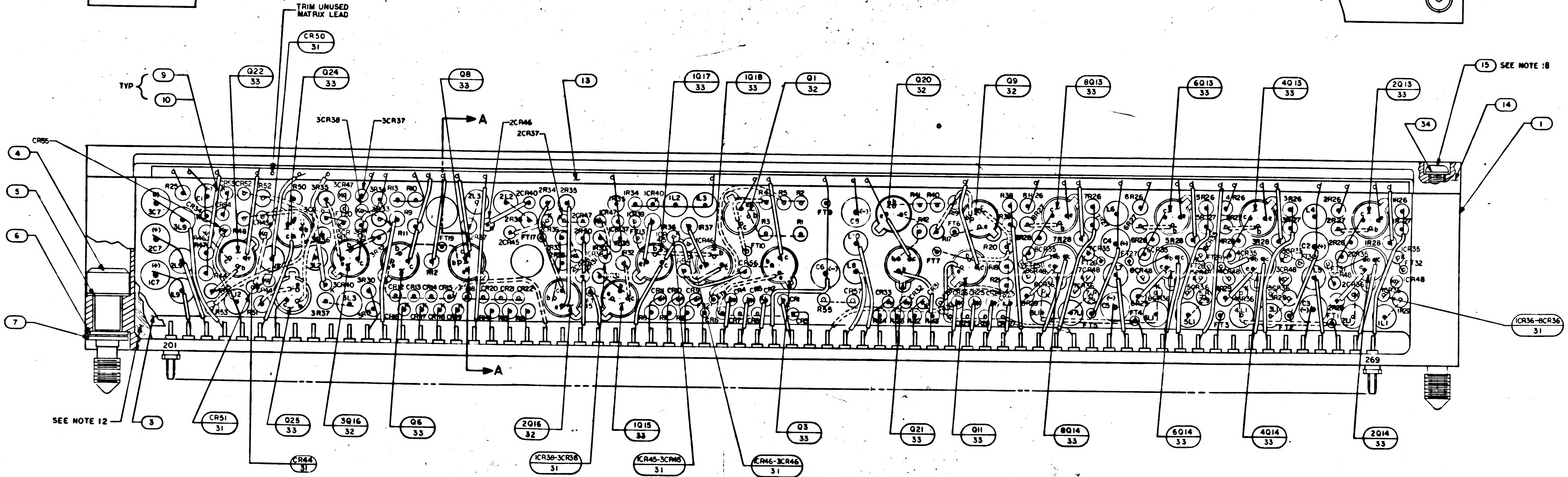
Q8 REF
.000 .030 TYP
A - A

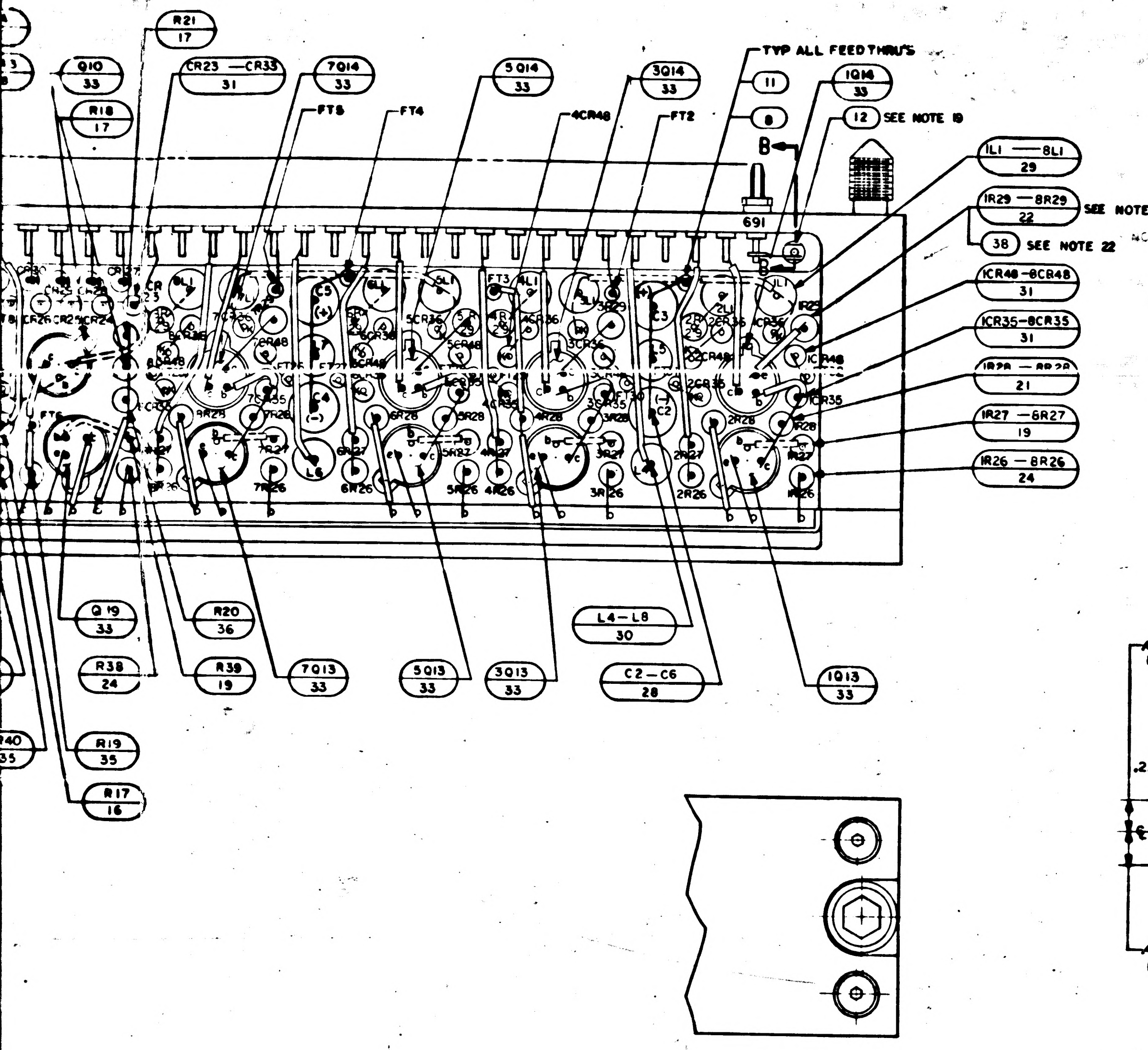

TRIM UNUSED MATRIX LEAD
CR50 31
TYP
9
10
Q22 33
Q24 33
3CR38
3CR37
Q8 33
A
2CR46
2CR37
13
1Q17 33
1Q18 33
Q1 32
Q20 32
Q9 32
8Q13 33
6Q13 33
4Q13 33
2Q13 33
15 SEE NOTE 18
14
34
1
CR55
4
5
6
7
SEE NOTE 21
201
269
A
SEE NOTE 12
3
CR51 31
CR44 31
Q25 33
3Q16 32
Q6 33
2Q16 32
1CR38-3CR38 31
1Q15 33
1CR45-3CR45 31
1CR46-3CR46 31
Q3 33
Q21 33
Q11 33
8Q14 33
6Q14 33
4Q14 33
2Q14 33
1CR36-8CR36 31
7
6
5
4

2003140 E

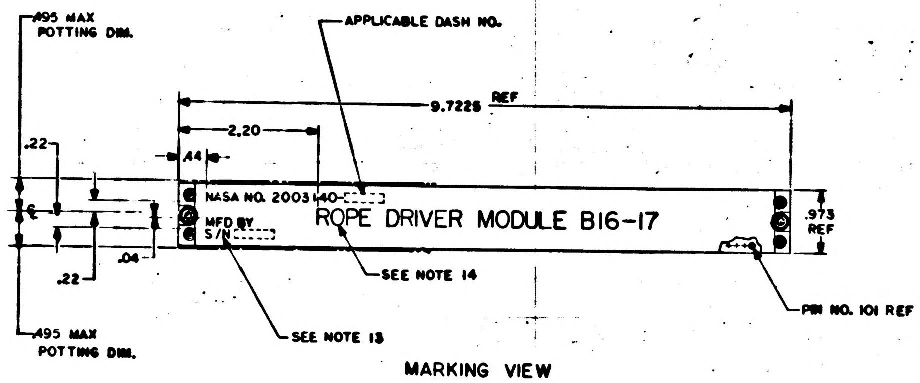
F2/3

REVISIONS 2598

SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
A		REVISED PER TDRR 27309	[illegible]	[illegible]	[illegible]	[illegible]
B		REVISED PER TDRR 27079	[illegible]	[illegible]	[illegible]	[illegible]
C		REVISED PER TDRR 28162	[illegible]	[illegible]	[illegible]	[illegible]
D		REVISED PER TDRR 29079	[illegible]	[illegible]	[illegible]	[illegible]
E		REVISED PER TDRR 30864	JJX	[illegible]	2/20/6[illegible]	F.S.R

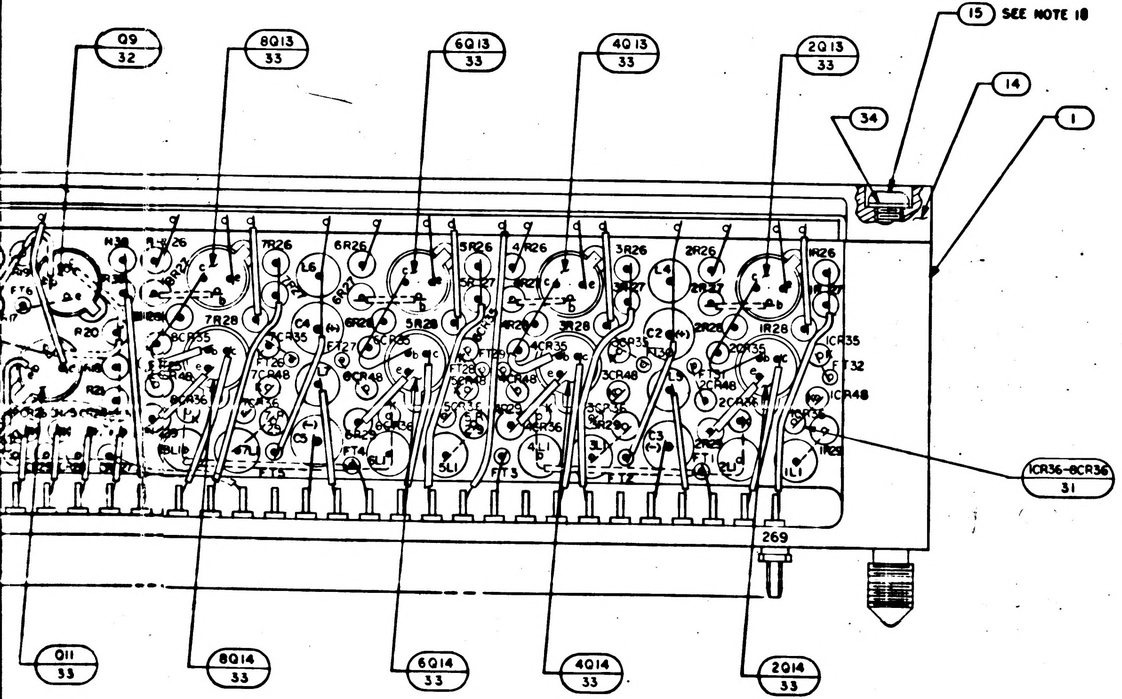


R21
17
Q10
33
R18
17
CR23 —CR35
31
7Q14
33
5Q14
33
3Q14
33
TYP ALL FEEDTHRU'S
11
8
1Q16
33
12 SEE NOTE 10
FT5
FT4
4CR48
FT2
B
691
1L1 — 8L1
29
1R29 — 8R29
22
SEE NOTE 11
38 SEE NOTE 22
1CR48 - 8CR48
31
1CR35 - 8CR35
31
1R28 — 8R28
21
1R27 — 6R27
19
1R26 — 8R26
24
Q19
33
R20
36
L4 — L8
30
R38
24
R38
19
7Q13
33
5Q13
33
3Q13
33
C2 — C6
28
1Q13
33
R19
35
40
35
R17
16



.495 MAX
POTTING DIM.
APPLICABLE DASH NO.
9.7225 REF
2.20
.22
.44
NASA NO. 2003140-
ROPE DRIVER MODULE B16-17
MFD BY
S/N
.973
REF
.04
.22
SEE NOTE 14
PIN NO. 101 REF
SEE NOTE 13
.495 MAX
POTTING DIM.

MARKING VIEW
SCALE 1/1



Q9
32
8Q13
33
6Q13
33
4Q13
33
2Q13
33
15 SEE NOTE 18
34
14
1
1CR36-8CR36
31
269
Q11
33
8Q14
33
6Q14
33
4Q14
33
2Q14
33

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2005100	SCHEMATIC	REF
4	1006750-16	RESISTOR	39
16	2004074	INSULATOR, WASHER	38
8	1010406 - 11	COIL, RF, CHOKE	37
4	1006750 - 29	RESISTOR	36
4	1006750 - 24	RESISTOR	35
4	NAS620A-2	WASHER, FLAT	34
39	2004004-001	TRANSISTOR, POTTED	33
8	2004004-002	TRANSISTOR, POTTED	32
89	2004103 -001	DIODE	31
9	1010406 —7	COIL, RF, CHOKE	30
8	1010406 — 10	COIL, RF, CHOKE	29
9	1006755 —79	CAPACITOR	28
1	1006755 —69	CAPACITOR	27
3	1006788 — 9	RESISTOR	26
4	1006750 —32	RESISTOR	25
21	1006750 —49	RESISTOR	24
8	SEE NOTE 11	RESISTOR	23
8	SEE NOTE 11	RESISTOR	22
8	1006750 —22	RESISTOR	21
1	1006750 —43	RESISTOR	20
22	1006750 — 15	RESISTOR	19
2	1006750 — 39	RESISTOR	18
6	1006750 —35	RESISTOR	17
3	1006750 —36	RESISTOR	16
4	1006783 — 10	SCREW, BUTTON HEAD, HEX SOCKET	15
1	2004032	COVER	14
1	2003142-011	MATRIX ASSEMBLY	13
1	2004039	TERMINAL, THREADED	12
A R	1006776—22	INSULATION, SLEEVING	11
A R	1006776 - 21	INSULATION, SLEEVING	10
A R	1006757—1	WIRE, ELECTRICAL	9
A R	1006757—8	WIRE, ELECTRICAL	8
2	MS16633—4015	RING, RETAINING, EXTERNAL, "E"	7
2	2004984-003	WASHER, FLAT	6
2	2004984-001	WASHER, FLAT	5
2	1004579-1	SCREW, JACKING	4
1	2003992	INSULATOR (B) ASSY	3
1	2004720	INSULATOR (A)	2
1	2003084—011	HEADER HOUSING ASSEMBLY	1

-011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003200	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS XX ±.02 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN E.W. [illegible]
CHECKED [illegible] 13 [illegible]
APPROVED
APPROVED [illegible]
APPROVED MIT [illegible]
A. G. METZGER
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ROPE DRIVER MODULE
B16-17
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003140
SCALE 4/1
SHEET 1 OF 1

2003140 E

34

E 3/3

3.1.11 Clear Driver. The input and output waveforms shall comply with Table 3-5 and Figure 3-2 with the output measured across the output load resistor. The amplitude (A) limit has been established for an ambient temperature of 25°C.

Table 3-5

Parameter	Input	Output
Level (A_2) low	0.6 ± 0.1 volt	2.0 ma, max
Level (A_1) high	2.1 ± 0.25 volts	--------
Amplitude (A)	--------	350 ± 5 ma*
Rise Time (T_r)	100 nsec max	* $1.3^{+0.5}_{-0.3}$ usec.
Fall Time (T_f)	100 nsec max	--------
Pulse Width (PW)	4 usec ± 5%	--------
Period (T)	32 usec ± 5%	--------
TD	--------	0.20 usec max
T OFF	--------	1.75 usec max

* at 25°C

3.1.13 **Marginal Voltage and Temperature Extremes.** The module shall perform as described in paragraphs 3.1.8 through 3.1.12 under each of the two combinations (temperature and input voltage) of operating extremes.

3.1.13.1 Low Operating Extreme:

a. Voltage: 4.8 ± 0.1 vdc and 12.2 ± 0.1 vdc

b. Temperature: $-10^{\circ}C{}^{+0C^{\circ}}_{-2.8C^{\circ}}$:

Under the low operating extremes the following output (amplitude A) deviations shall apply:

Set and Reset Driver	Clear Driver	Inhibit Driver
Amplitude A = 475 ± 15 ma	Amplitude A = 350 ± 10 ma	Amplitude A = 220 ± 10 ma
Tr $0.6{}^{+0.3}_{-0.2}$		

3.1.13.2 High Operating Extreme

a. Voltage: 3.4 ± 0.1 vdc and 16.5 ± 0.1 vdc

b. Temperature: $70^{\circ}C{}^{+2.8C^{\circ}}_{-0C^{\circ}}$

Under the high operating extreme the following output (amplitude A) deviations shall apply.

Set and Reset Driver	Clear Driver	Inhibit Driver
Amplitude A = 425 ± 15 ma	Amplitude A = 350 ± 10 ma	Amplitude A = 225 ± 10 ma
[illegible]	Tr $1.3{}^{+0.6}_{-0.3}$ usec.	
	T off NMT 1.9 us	

ROPE GATE: A_1 NMT 1.8V below B+

NOTE: Input high amplitudes will not be within the room temperature limits.

3.1.13.3 Inhibit and Clear Drivers Outputs Under Low Conditions. With input voltages of 3.4 ± 0.1 vdc and 16.5 ± 0.1 vdc and with an ambient temperature of $-10\,C{}^{+0^{\circ}C}_{-2.8^{\circ}C}$ amplitude A for the inhibit drivers shall be 255 ± 10 ma and for the clear drivers shall be 370 ± 10 ma.

3.1.13.4 Inhibit and Clear Drivers Outputs Under High Conditions. With input voltages of 4.8 ± 0.1 vdc and 12.2 ± 0.1 vdc and in an ambient temperature of 70°C amplitude A for inhibit drivers shall be 190 ± 10 ma and for the clear drivers shall be 320 ± 10 ma.

3.1.14 **Vibration.** The module shall perform as specified in paragraphs 3.1.8 through 3.1.12 when installed in an operating computer which is being subjected to the vibration requirements specified in the applicable specifications for the computer subsystem. Acceptance criteria for the module shall be compliance of the computer subsystem with its applicable specifications.

R29, R50, R51

PART NO.		VALUE
1006788-205		4.91
	-206	4.87
	-207	4.93
	-208	4.99
	-209	5.05
	-210	5.11
	-211	5.17
	-212	5.23
	-213	5.30
	-214	5.36
	-215	5.42
	-216	5.49
	-217	5.56
	-218	5.62
	-219	5.69
	-220	5.76
	-221	5.83
	-222	5.90
	-223	5.97
	-224	6.04
	-225	6.12
	-226	6.19
	-227	6.26
	-228	6.34
	-229	6.42
	-230	6.49
	-231	6.57
	-232	6.65
	-233	6.73
	-234	6.81
	-235	6.90
	-236	6.98
	-237	7.06
	-238	7.15
	-239	7.23
	-240	7.32
	-241	7.41
1006788-242		7.50

R36, R37

PART NO.		VALUE
1006788-255		8.76
	-256	8.87
	-257	8.98
	-258	9.09
	-259	9.20
	-260	9.31
	-261	9.42
	-262	9.53
	-264	9.76
	-265	9.88
	-266	10.0
	-267	10.1
	-268	10.2
	-269	10.4
	-270	10.5
	-271	10.6
	-272	10.7
	-273	10.9
	-274	11.0
	-275	11.1
	-276	11.3
	-277	11.4
	-278	11.5
1006788-279		11.7

L2, L3

PART NO.	VALUE
1010406 - 11	3.9 UH
1010406 - 20	2.7 UH
1010406 - 21	3.3 UH

~~R36, R37~~

~~PART NO.~~		~~VALUE~~
~~1006788-29~~		~~2.5~~
	~~-30~~	~~2.6~~
	~~-31~~	~~2.7~~
	~~-32~~	~~2.8~~
	~~-33~~	~~2.9~~
	~~-34~~	~~3.0~~
	~~-35~~	~~3.1~~
	~~-36~~	~~3.2~~
	~~-37~~	~~3.3~~
	~~-38~~	~~3.4~~
	~~-39~~	~~3.5~~
	~~-40~~	~~3.6~~
	~~-41~~	~~3.7~~
	[illegible]	[illegible]
	~~-43~~	~~3.9~~
	~~-44~~	~~4.0~~
	~~-45~~	~~4.1~~
	~~-46~~	~~4.2~~
	~~-47~~	~~4.3~~
	~~-48~~	~~4.4~~
~~1006788-49~~		[illegible]

~~R29, R50, R51~~

~~PART NO.~~		~~VALUE~~
[illegible]		~~1.5~~
	[illegible]	~~1.6~~
	[illegible]	~~1.7~~
	[illegible]	~~1.8~~
	[illegible]	~~1.9~~
	[illegible]	~~2.0~~
	[illegible]	~~2.1~~
	[illegible]	[illegible]
	[illegible]	[illegible]
	[illegible]	~~2.4~~
	[illegible]	~~2.5~~
	~~-30~~	~~2.6~~
	~~-31~~	~~2.7~~
	~~-32~~	~~2.8~~
	~~-73~~	~~2.75~~
	~~-72~~	~~2.65~~
	~~-71~~	~~2.55~~
	~~-70~~	~~2.45~~
	[illegible]	~~2.35~~
	~~-27~~	~~2.25~~
	~~-25~~	~~2.15~~
	~~-23~~	~~2.05~~
	~~-21~~	~~1.95~~
	~~-19~~	~~1.85~~
	~~-17~~	~~1.75~~
	~~-54~~	~~1.65~~
[illegible]		~~1.55~~

~~R50, R51~~

~~PART NO.~~		~~VALUE~~
~~1006788-240~~		~~7.32~~
	~~-241~~	~~7.41~~
	~~-242~~	~~7.50~~
	~~-243~~	~~7.59~~
	~~-244~~	~~7.68~~
	~~-245~~	~~7.77~~
	~~-246~~	~~7.87~~
	~~-247~~	~~7.96~~
	~~-248~~	~~8.06~~
	~~-249~~	~~8.16~~
	~~-250~~	~~8.25~~
	~~-251~~	~~8.35~~
	~~-252~~	~~8.45~~
	~~-253~~	~~8.56~~
	~~-254~~	~~8.66~~
	~~-255~~	~~8.76~~
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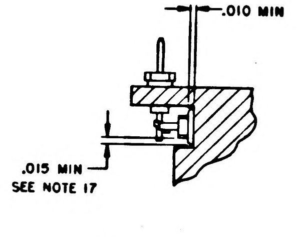
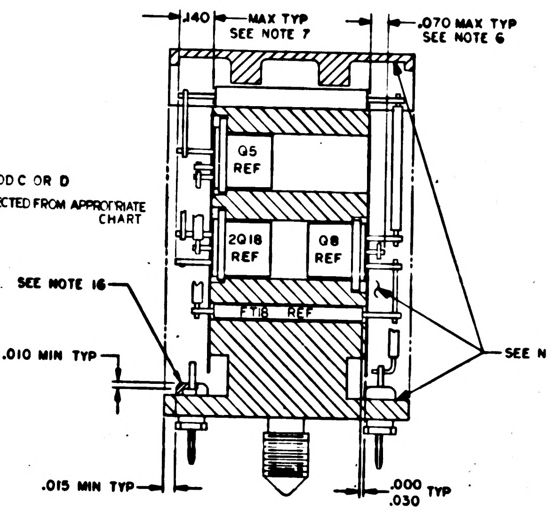
	~~-258~~	~~9.09~~
~~1006788-259~~		~~9.20~~


.010 MIN
.015 MIN
SEE NOTE 17

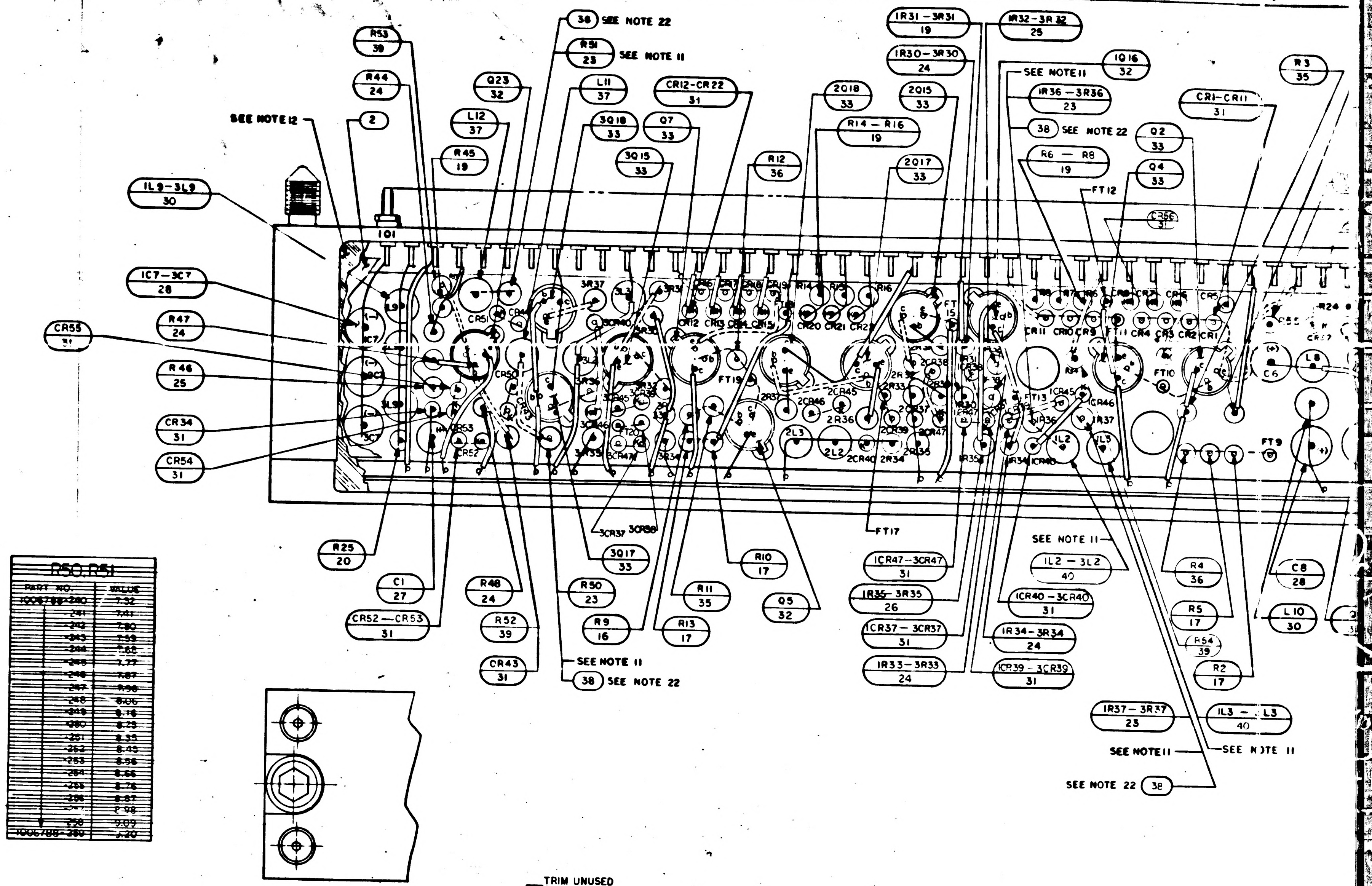
SECTION B-B

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. + DENOTES POSITIVE SIDE OF CAPACITOR
5. K DENOTES CATHODE SIDE OF DIODE
6. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
7. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
8. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND 1002069
9. WELD PER ND 1002005
10. STAKE FIND NO. 16 THRU FIND NO. 33, 35, 36,37,39 AND 40 TO FIND NO.1 PER ND1002009, METHOD C OR D
11. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST. R29,R36,R37,R50, R51 AND L2 & L3 TO BE SELECTED FROM APPROPRIATE CHART
12. ENCAPSULATE PER ND 1002002. REMOVE FLASHING
13. MARK .10/.08 HIGH WHITE CHARACTERS PER ND 1002019 AND ND 1002122 TYPE II, CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
14. MARK .26/.24 HIGH WHITE CHARACTERS PER ND 1002019 AND ND 1002122 TYPE II, CLASS 2 USING INK 1006271-1
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS 2003140
16. SEAL INSULATORS AND TERMINALS TO HEADER PER ND1002004, TYPE VI
17. SEAL FIND NO. 12 TO HEADER PER ND1002004, TYPE VI
18. MOUNTING TORQUE FOR FIND NO. 15 TO BE 2.0 -2.5 INCH POUNDS
19. MOUNTING TORQUE FOR FIND NO. 12 TO BE 15-20 INCH OUNCES
20. BOND FIND NO. 13 TO FIND NO. 1 PER ND1002004, TYPE I
21. COAT INDICATED SURFACES, BOTH ENDS, TOP AND BOTTOM, BOTH SIDES, PER ND1002187, TYPE II
22. ASSEMBLE FIND NO. 38 TO MODULE AFTER SELECTED VALUE HAS BEEN DETERMINED


.140
MAX TYP
SEE NOTE 7
.070 MAX TYP
SEE NOTE 6
Q5 REF
2Q18 REF
Q8 REF
FT8 REF
SEE NOTE 16
.010 MIN TYP
SEE NOTE 21
.015 MIN TYP
.000
.030 TYP

SECTION A-A


38 SEE NOTE 22
R53 39
R51 23 SEE NOTE 11
R44 24
Q23 32
L11 37
CR12-CR22 31
2Q18 33
2Q15 33
1R31-3R31 19
1R30-3R30 24
1R32-3R32 25
1Q16 32
SEE NOTE 11
1R36-3R36 23
R3 35
CR1-CR11 31
SEE NOTE 12
2
L12 37
3Q18 33
Q7 33
R14-R16 19
38 SEE NOTE 22
Q2 33
R45 19
3Q15 33
R12 36
2Q17 33
R6-R8 19
Q4 33
1L9-3L9 30
FT12
CR56 31
101
1C7-3C7 28
CR55 31
R47 24
R46 25
CR34 31
CR54 31
R25 20
C1 27
CR52-CR53 31
R48 24
R52 39
CR43 31
R50 23
R9 16
SEE NOTE 11
38 SEE NOTE 22
3CR37
3CR38
3Q17 33
R11 35
R13 17
R10 17
Q5 32
FT17
1CR47-3CR47 31
1R35-3R35 26
1CR37-3CR37 31
1R33-3R33 24
SEE NOTE 11
1L2-3L2 40
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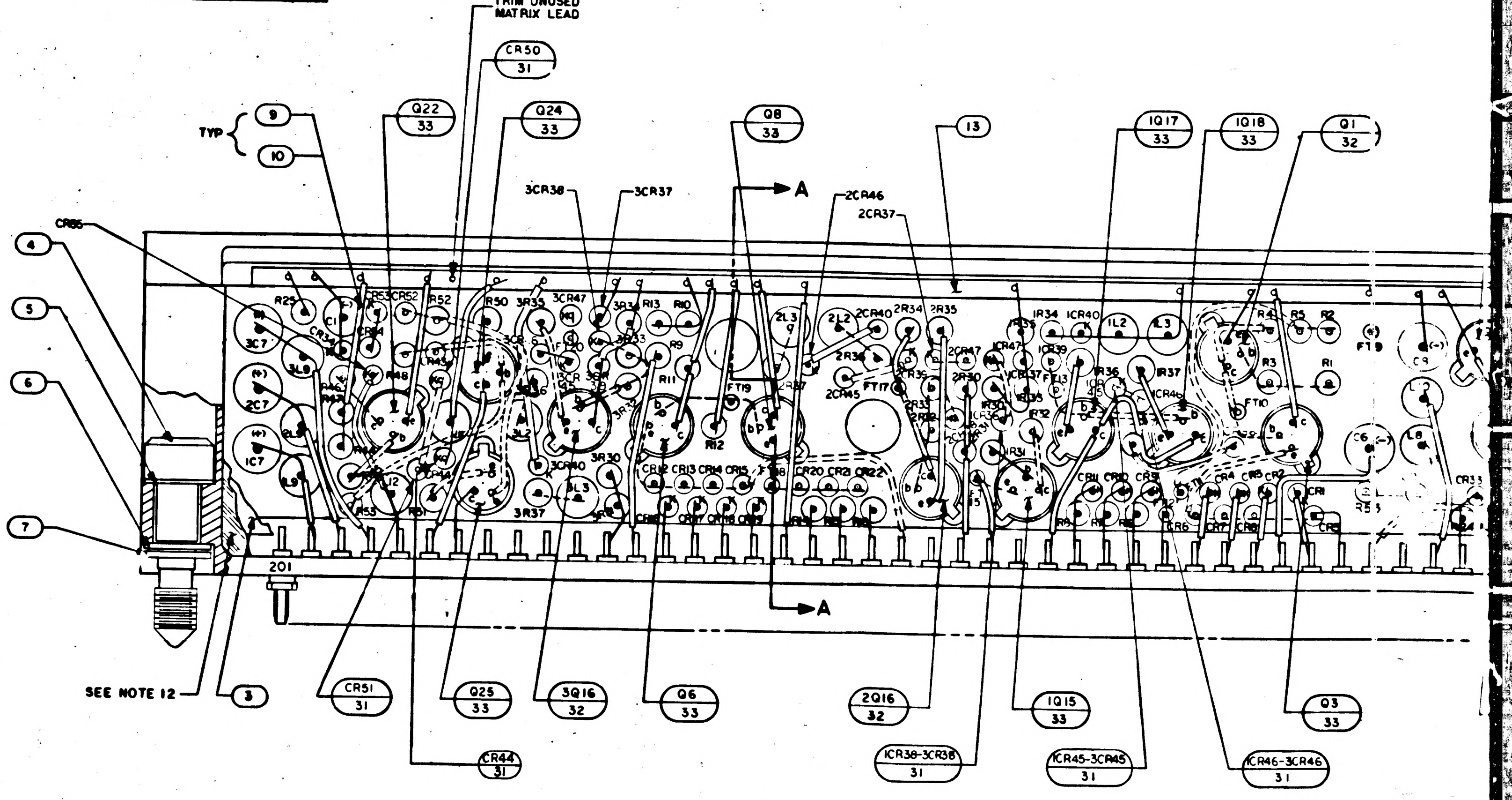
1R34-3R34 24
1CR39-3CR39 31
R4 36
R5 17
R54 39
R2 17
C8 28
L10 30
1R37-3R37 23
1L3-3L3 40
SEE NOTE 11
SEE NOTE 11
SEE NOTE 22 38
FT9
FT10
FT11
FT13
FT19
FT20


TRIM UNUSED MATRIX LEAD
CR50 31
TYP
9
10
Q22 33
Q24 33
Q8 33
13
1Q17 33
1Q18 33
Q1 32
3CR38
3CR37
A
2CR46
2CR37
CR85
4
5
6
7
201
A
SEE NOTE 12
3
CR51 31
Q25 33
3Q16 32
Q6 33
2Q16 32
1Q15 33
Q3 33
CR44 31
1CR38-3CR38 31
1CR45-3CR45 31
1CR46-3CR46 31

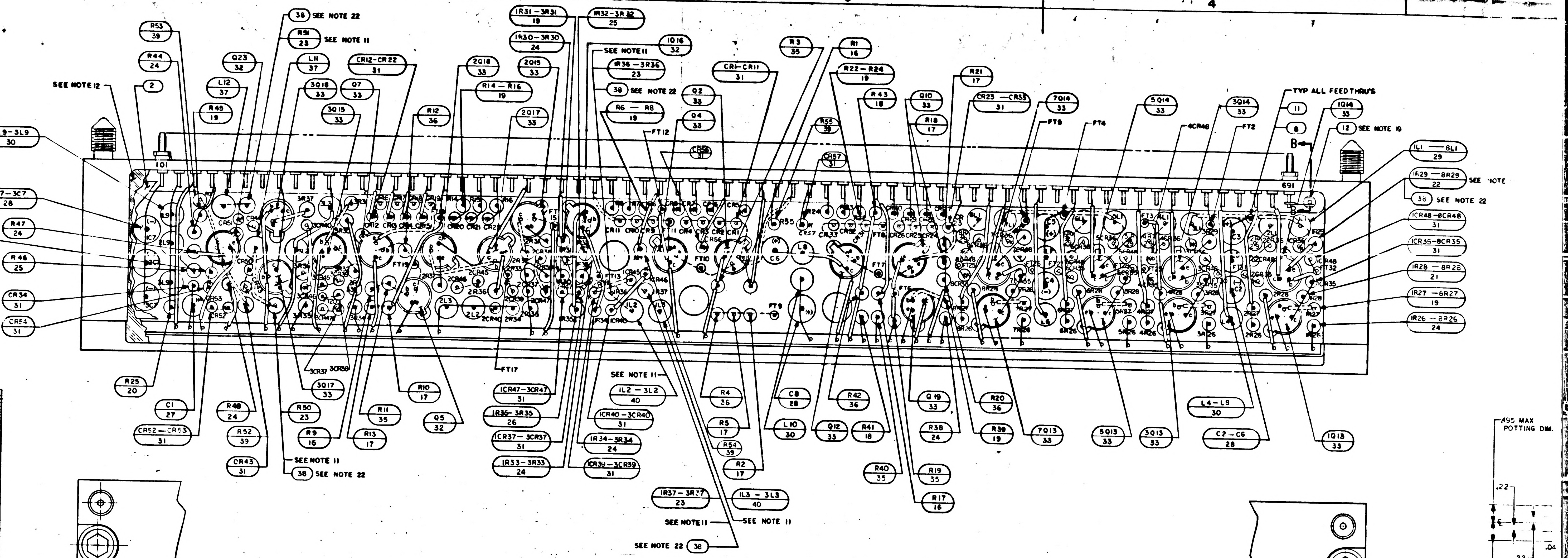
2003140	F

F1/3

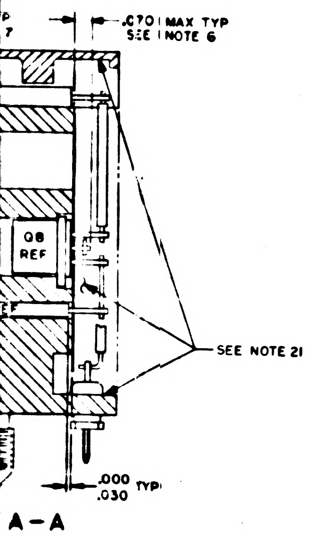
R37
VALUE
2.5
2.6
2.7
2.8
2.9
3.0
3.1
3.2
3.3
3.4
3.5
3.6
3.7
3.8
3.9
4.0
4.1
4.2
4.3
4.4
4.5

50,R51
VALUE
[illegible]
1.6
[illegible]
1.8
1.9
2.0
2.1
2.2
2.3
2.4
2.5
2.6
2.7
2.8
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]

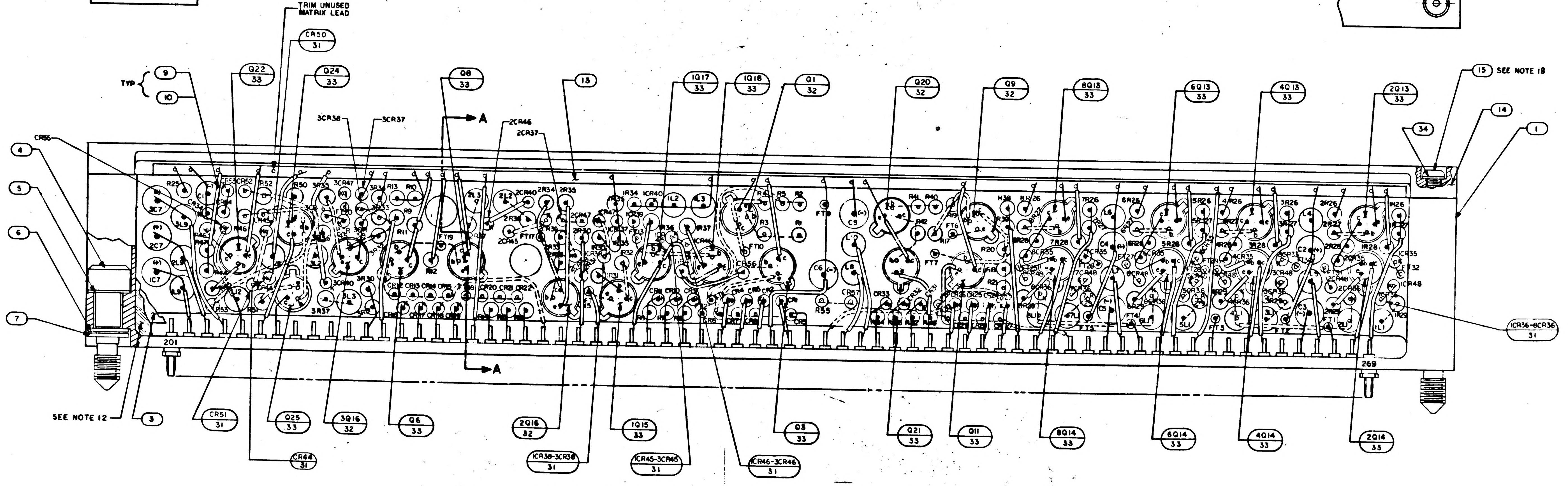
R50,R51	
PART NO.	VALUE
1006788-240	7.32
-241	7.41
-242	7.50
-243	7.59
-244	7.68
-245	7.77
-246	7.87
-247	7.96
-248	8.06
-249	8.16
-250	8.25
-251	8.35
-252	8.45
-253	8.56
-254	8.66
-255	8.76
-256	8.87
-257	8.98
258	9.09
1006788-259	9.20



7
6
5
4
R53 39
R44 24
Q23 32
38 SEE NOTE 22
R51 23 SEE NOTE 11
L11 37
CR12-CR22 31
L12 37
3Q18 33
Q7 33
3Q15 33
R45 19
R12 36
2Q18 33
2Q15 33
R14-R16 19
2Q17 33
1R31-3R31 19
1R30-3R30 24
1R32-3R32 25
1Q16 32
SEE NOTE 11
1R36-3R36 23
38 SEE NOTE 22
R6-R8 19
Q2 33
Q4 33
CR1-CR11 31
R3 35
R1 16
R22-R24 19
R43 18
Q10 33
R18 17
R21 17
CR23-CR33 31
7Q14 33
5Q14 33
3Q14 33
TYP ALL FEEDTHRU'S
11
8
1Q14 33
12 SEE NOTE 19
SEE NOTE 12
2
IL9-3L9 30
101
IC7-3C7 28
R47 24
R46 25
CR34 31
CR54 31
CR55 31
FT12
CR58 31
CR57 31
R55 39
FT5
FT4
4CR48
FT2
B
691
IL1-8L1 29
IR29-8R29 22 SEE NOTE
38 SEE NOTE 22
ICR48-8CR48 31
ICR35-8CR35 31
IR28-8R28 21
IR27-8R27 19
IR26-8R26 24
R25 20
C1 27
CR52-CR53 31
R48 24
R52 39
CR43 31
R50 23
R9 16
SEE NOTE 11
38 SEE NOTE 22
3Q17 33
3CR37
3CR38
R11 35
R13 17
R10 17
Q5 32
FT17
ICR47-3CR47 31
IR35-3R35 26
ICR37-3CR37 31
IR33-3R33 24
SEE NOTE 11
IL2-3L2 40
ICR40-3CR40 31
IR34-3R34 24
ICR39-3CR39 31
R4 36
R5 17
R54 39
R2 17
C8 28
L10 30
R42 36
Q12 33
R41 18
Q19 33
R38 24
R20 36
R39 19
R40 35
R19 35
R17 16
7Q13 33
5Q13 33
3Q13 33
L4-L8 30
C2-C6 28
1Q13 33
IR37-3R37 23
IL3-3L3 40
SEE NOTE 11
SEE NOTE 11
SEE NOTE 22 38
.495 MAX POTTING DIM.
.22
.22
.04
.495 MAX POTTING DIM.



.070 MAX TYP SEE NOTE 6
Q8 REF
SEE NOTE 21
.000 .030 TYP
A-A

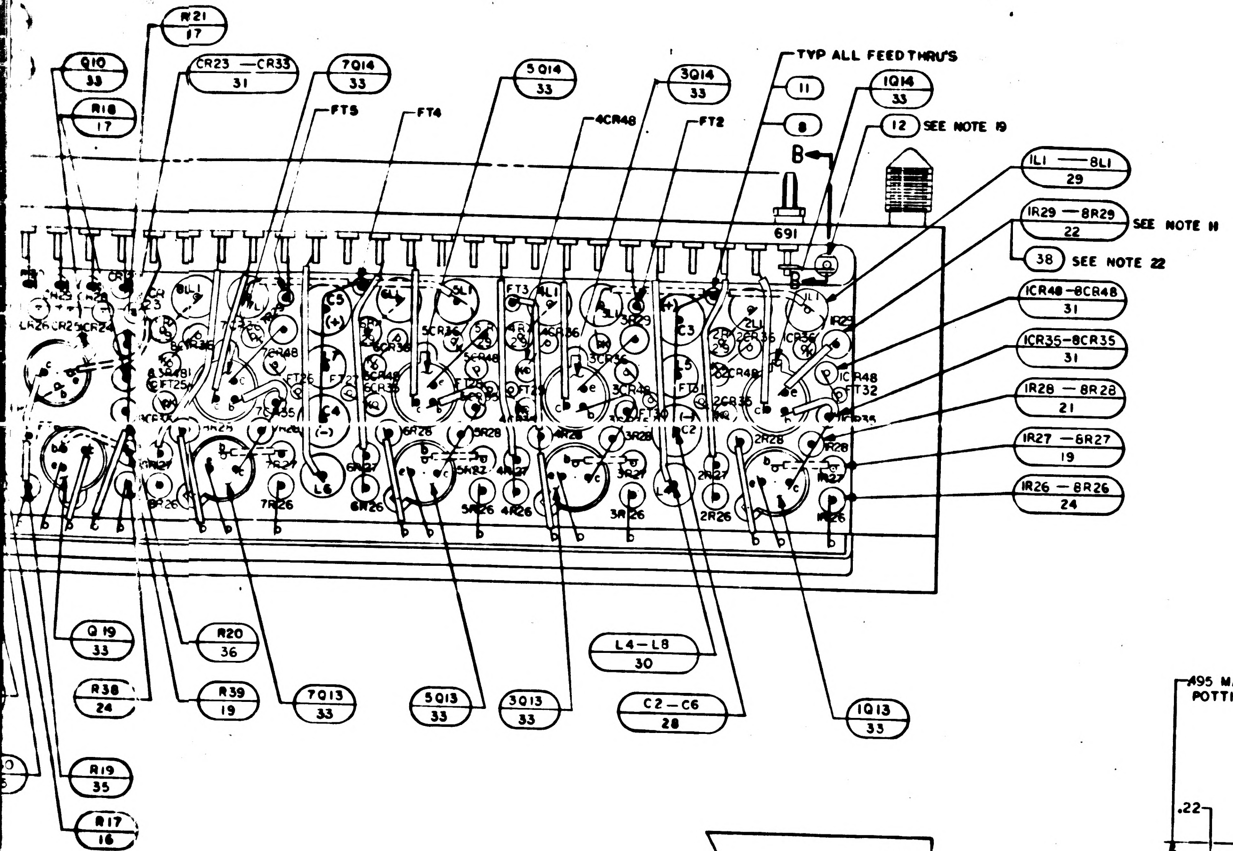


TRIM UNUSED MATRIX LEAD
CR50 31
TYP 9 10
Q22 33
Q24 33
3CR38
3CR37
Q8 33
A
2CR46
2CR37
13
1Q17 33
1Q18 33
Q1 32
Q20 32
Q9 32
8Q13 33
6Q13 33
4Q13 33
2Q13 33
15 SEE NOTE 18
14
34
1
CR55
4
5
6
7
201
269
A
ICR36-8CR36 31
SEE NOTE 12
3
CR51 31
Q25 33
3Q16 33
Q6 33
2Q16 32
1Q15 33
Q3 33
Q21 33
Q11 33
8Q14 33
6Q14 33
4Q14 33
2Q14 33
CR44 31
ICR38-3CR38 31
ICR45-3CR45 31
ICR46-3CR46 31

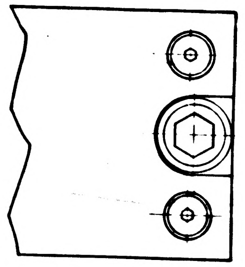
7 6 5 4

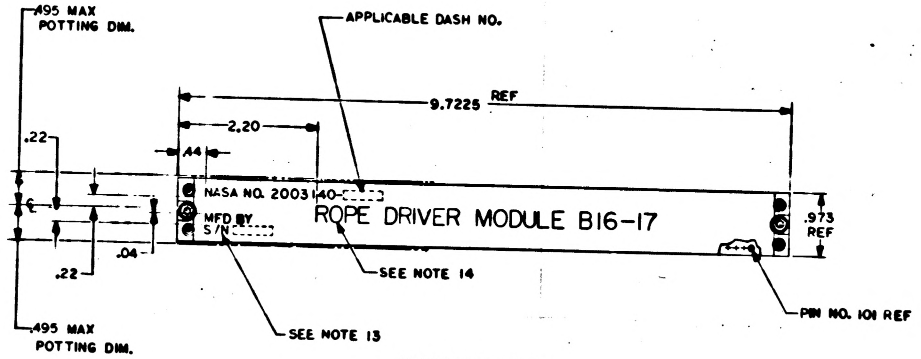
2003140 F

E2/3



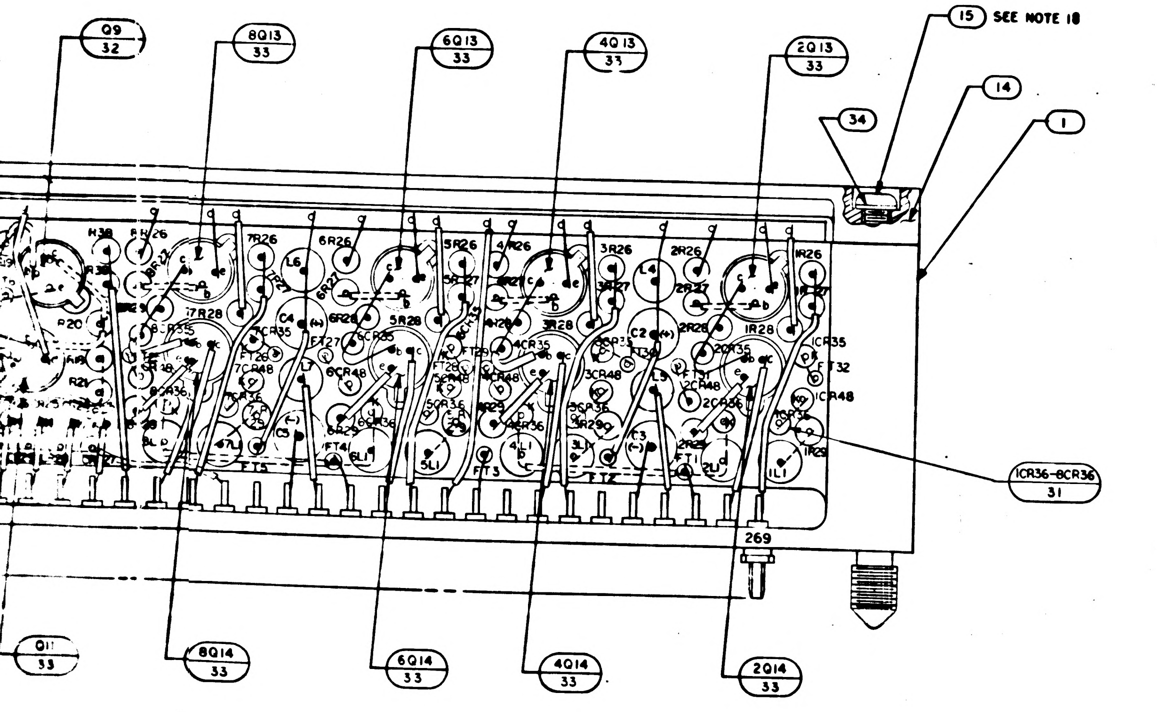
Q10
33
R18
17
R21
17
CR23 —CR33
31
7Q14
33
FT5
FT4
4CR48
5Q14
33
3Q14
33
FT2
TYP ALL FEEDTHRU'S
11
8
1Q14
33
12 SEE NOTE 19
B
691
1L1 — 8L1
29
1R29 — 8R29
22
SEE NOTE 11
38 SEE NOTE 22
1CR48 - 8CR48
31
1CR35 - 8CR35
31
1R28 — 8R28
21
1R27 — 6R27
19
1R26 — 8R26
24
Q19
33
R20
36
R38
24
R39
19
7Q13
33
5Q13
33
3Q13
33
L4 — L8
30
C2 — C6
28
1Q13
33
R19
35
R17
16





.495 MAX
POTTING DIM.
APPLICABLE DASH NO.
9.7225 REF
2.20
.44
.22
.04
.973
REF
NASA NO. 2003140-
MFD BY
S/N
ROPE DRIVER MODULE B16-17
SEE NOTE 14
SEE NOTE 13
PIN NO. 101 REF
.495 MAX
POTTING DIM.

MARKING VIEW
SCALE 1/1



Q9
32
8Q13
33
6Q13
33
4Q13
33
2Q13
33
15 SEE NOTE 18
14
1
34
1CR36-8CR36
31
269
Q11
33
8Q14
33
6Q14
33
4Q14
33
2Q14
33

REVISIONS 25980						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 27309	SPT		3-9-66	
B		REVISED PER TDRR 27079			5/16/66	
C		REVISED PER TDRR 28162	SPT	JFJ		
D		REVISED PER TDRR 29079				
E		REVISED PER TDRR 30864			4/20/66	
F		REVISED PER TDRR 31827			/14/67	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2005100	SCHEMATIC	REF
6	SEE NOTE 11	COIL, RF, CHOKE	40
4	1006750-16	RESISTOR	39
16	2004074	INSULATOR, WASHER	38
2	1010406 - 11	COIL, RF, CHOKE	37
4	1006750 - 29	RESISTOR	36
4	1006750 - 24	RESISTOR	35
4	NAS620A-2	WASHER, FLAT	34
39	2004004-001	TRANSISTOR, POTTED	33
8	2004004-002	TRANSISTOR, POTTED	32
89	2004103 -001	DIODE	31
9	1010406 —7	COIL, RF, CHOKE	30
8	1010406 — 10	COIL, RF, CHOKE	29
9	1006755 —79	CAPACITOR	28
1	1006755 —69	CAPACITOR	27
3	1006788 — 9	RESISTOR	26
4	1006750 —32	RESISTOR	25
21	1006750 —49	RESISTOR	24
8	SEE NOTE 11	RESISTOR	23
8	SEE NOTE 11	RESISTOR	22
8	1006750 —22	RESISTOR	21
1	1006750 —43	RESISTOR	20
22	1006750 — 15	RESISTOR	19
2	1006750 — 39	RESISTOR	18
6	1006750 — 35	RESISTOR	17
3	1006750 — 36	RESISTOR	16
4	1006783 — 10	SCREW, BUTTON HEAD, HEX SOCKET	15
1	2004032	COVER	14
1	2003142-011	MATRIX ASSEMBLY	13
1	2004039	TERMINAL, THREADED	12
A R	1006776—22	INSULATION, SLEEVING	11
A R	1006776-21	INSULATION, SLEEVING	10
A R	1006757-1	WIRE, ELECTRICAL	9
A R	1006757—8	WIRE, ELECTRICAL	8
2	MS16633—4015	RING, RETAINING, EXTERNAL, "E"	7
2	2004984-003	WASHER, FLAT	6
2	2004984-001	WASHER, FLAT	5
2	1004579-1	SCREW, JACKING	4
1	2003992	INSULATOR (B) ASSY	3
1	2004720	INSULATOR (A)	2
1	2003084—011	HEADER HOUSING ASSEMBLY	1
-011		LIST OF MATERIALS	

2003200	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS XX±.02 ANGLES ± ——
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN 8 Oct 65
CHECKED 13 Oct 65
APPROVED
APPROVED
APPROVED MIT A. G. METZGER
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ROPE DRIVER MODULE
B16-17
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003140
SCALE 4/1
SHEET 1 OF 1

2003140	F

34

E3/3

APOLLO G&N Specification
PS 2003140 F
Original Issue Date: 6-1-66
Release Authority: TDRR 29205
Class A Release

PROCUREMENT SPECIFICATION

FOR

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

ROPE DRIVER MODULE (B16-B17)

DRAWING NO. 2003140

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
7-1-66	A	2992[illegible]	1, 4, 7, 10, 12, 13, 17	FA	FA
8/25/66	B	3075[illegible]	1, 13	FA	FA
12/1[illegible]/66	C	[illegible]2345	1,2, 10, 13	FA	FA
1/5/67	D	32563	1 & 2	FA	FA
[illegible]-9-67	E	3[illegible]950	1,9,10,13	FA	FA
3-8-67	F	33140	1, 7	FA	FA

This specification consists of pages 1 to 18 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	E C Hall 6/1/66 · 6-1-66 · 5-24-66 MIT/IL	May 4 1966 · 5/4/66 · 5/4/66 RAY

3.1.9. **Inhibit Drivers.** The input and output signals shall conform to the characteristics specified in table 3-3 and figure 3-2.

Table 3-3

Characteristic	Input at pin A	Output at pin B
Level (A_1) high	2.10 ± 0.25 volts	----
Level (A_2) low	0.8 ± 0.1 volt	2.0 ma max
Amplitude (A)	------	225 ± 5 ma*
Rise Time (T_r)	100 nsec max	700 ± 250 ns
Fall Time (T_f)	100 nsec max	----
Pulse Width (PW)	3 usec ± 5%	----
Period (T)	16 usec ± 5%	----
Time Delay (T_d)	----	0.5 usec max
T off	----	1.0 usec max

* At 25°C.

R29, R50, R51

PART NO.	VALUE
1006788-205	4.91
-206	4.87
-207	4.93
-208	4.99
-209	5.05
-210	5.11
-211	5.17
-212	5.23
-213	5.30
-214	5.36
-215	5.42
-216	5.49
-217	5.56
-218	5.62
-219	5.69
-220	5.76
-221	5.83
-222	5.90
-223	5.97
-224	6.04
-225	6.12
-226	6.19
-227	6.26
-228	6.34
-229	6.42
-230	6.49
-231	6.57
-232	6.65
-233	6.73
-234	6.81
-235	6.90
-236	6.98
-237	7.06
-238	7.15
-239	7.23
-240	7.32
-241	7.41
1006788-242	7.50

R36, R37

PART NO.	VALUE
1006788-255	8.76
-256	8.87
-257	8.98
-258	9.09
-259	9.20
-260	9.31
-261	9.42
-262	9.53
-264	9.76
-265	9.88
-266	10.0
-267	10.1
-268	10.2
-269	10.4
-270	10.5
-271	10.6
-272	10.7
-273	10.9
-274	11.0
-275	11.1
-276	11.3
-277	11.4
-278	11.5
1006788-279	11.7

L2, L3

PART NO.	VALUE
1010406 - 11	3.9 UH
1010406 - 20	2.7 UH
1010406 - 21	3.3 UH

~~R36, R37~~

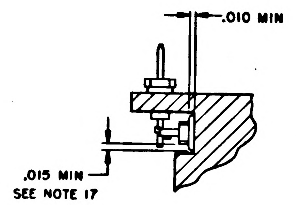
~~PART NO.~~	~~VALUE~~
~~1006788-29~~	[illegible]
~~-30~~	~~2.6~~
~~-31~~	~~2.7~~
~~-32~~	~~2.8~~
~~-33~~	~~2.9~~
~~-34~~	~~3.0~~
~~-35~~	~~3.1~~
~~-36~~	~~3.2~~
~~-37~~	~~3.3~~
~~-38~~	~~3.4~~
~~-39~~	~~3.5~~
~~-40~~	~~3.6~~
[illegible]	[illegible]
~~-42~~	~~3.8~~
~~-43~~	~~3.9~~
~~-44~~	~~4.0~~
~~-45~~	~~4.1~~
~~-46~~	~~4.2~~
~~-47~~	~~4.3~~
~~-48~~	~~4.4~~
~~1006788-49~~	~~4.5~~

~~R29, R50, R51~~

~~PART NO.~~	~~VALUE~~
~~1006788-81~~	~~1.5~~
~~-55~~	~~1.6~~
~~-16~~	~~1.7~~
~~-18~~	~~1.8~~
~~-20~~	~~1.9~~
~~-22~~	~~2.0~~
~~-24~~	~~2.1~~
~~-26~~	~~2.2~~
~~-28~~	~~2.3~~
~~-15~~	~~2.4~~
~~-29~~	~~2.5~~
~~-30~~	~~2.6~~
~~-31~~	~~2.7~~
~~-32~~	~~2.8~~
~~-73~~	~~2.79~~
~~-72~~	~~2.69~~
~~-71~~	~~2.55~~
~~-70~~	~~2.49~~
~~-69~~	~~2.39~~
~~-27~~	~~2.25~~
~~-25~~	~~2.15~~
~~-23~~	~~2.05~~
~~-21~~	~~1.95~~
~~-19~~	~~1.85~~
~~-17~~	~~1.75~~
~~-54~~	~~1.65~~
~~1006788-52~~	~~1.55~~

~~R50, R51~~

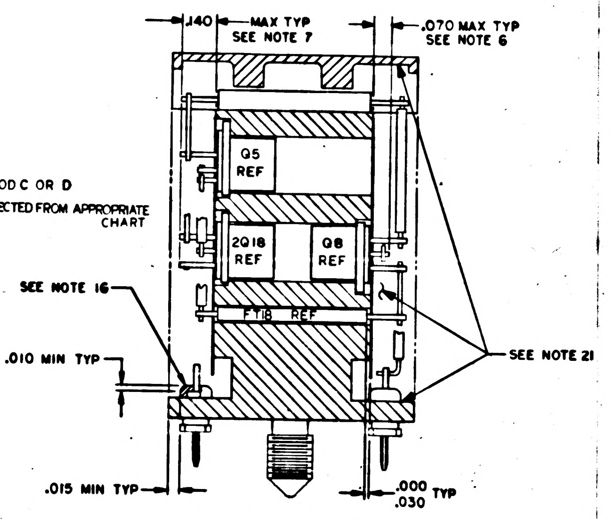
~~PART NO.~~	~~VALUE~~
~~1006788-240~~	~~7.32~~
~~-241~~	~~7.41~~
~~-242~~	~~7.50~~
~~-243~~	~~7.59~~
~~-244~~	~~7.68~~
~~-245~~	~~7.77~~
~~-246~~	~~7.87~~
~~-247~~	~~7.96~~
~~-248~~	~~8.06~~
~~-249~~	~~8.16~~
~~-250~~	~~8.25~~
~~-251~~	~~8.35~~
~~-252~~	~~8.45~~
~~-253~~	~~8.56~~
~~-254~~	~~8.66~~
~~-255~~	~~8.76~~
~~-256~~	~~8.87~~
~~-257~~	~~8.98~~
~~-258~~	~~9.09~~
~~1006788-259~~	~~9.20~~


.010 MIN
.015 MIN
SEE NOTE 17

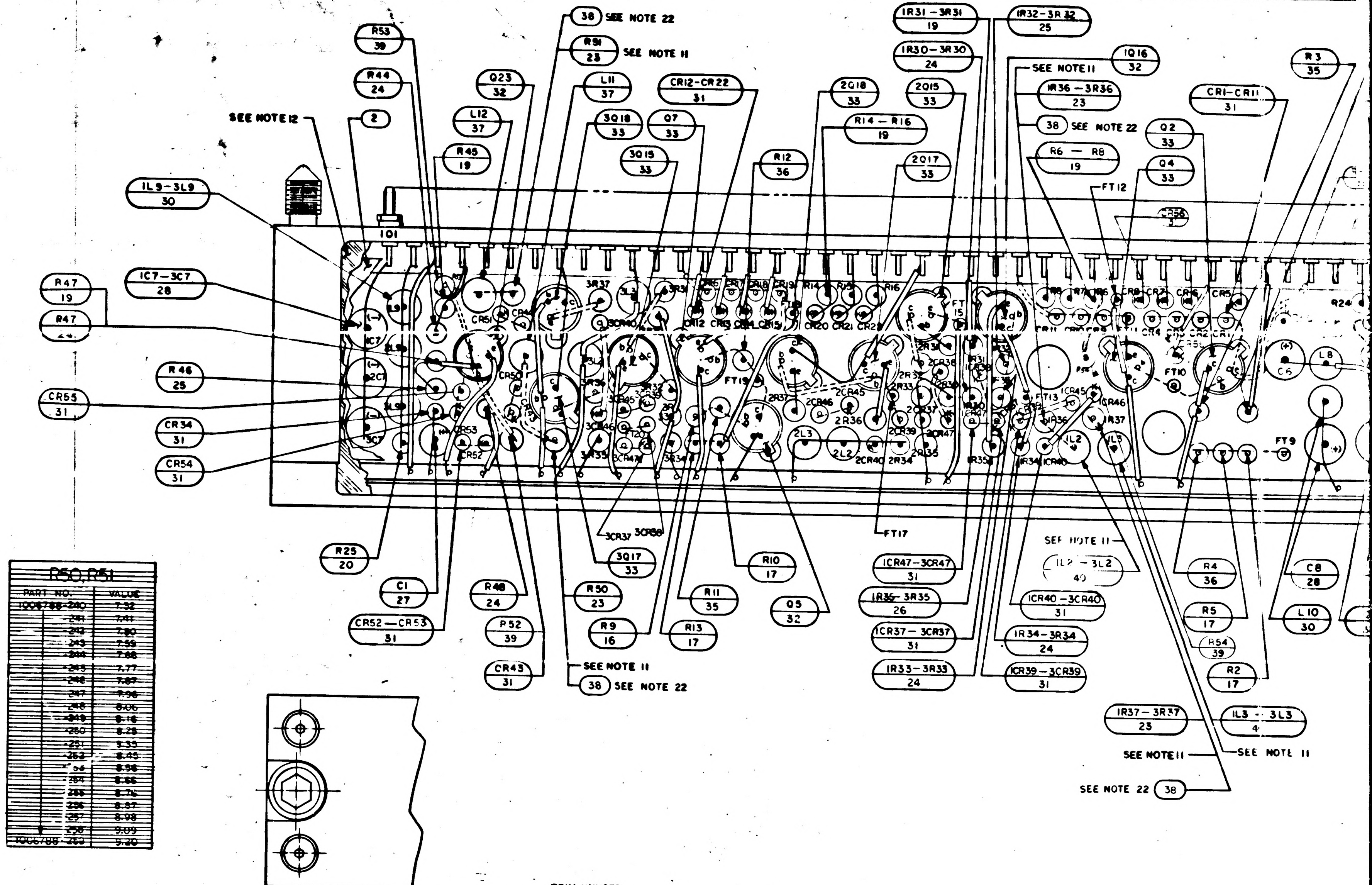
SECTION B-B

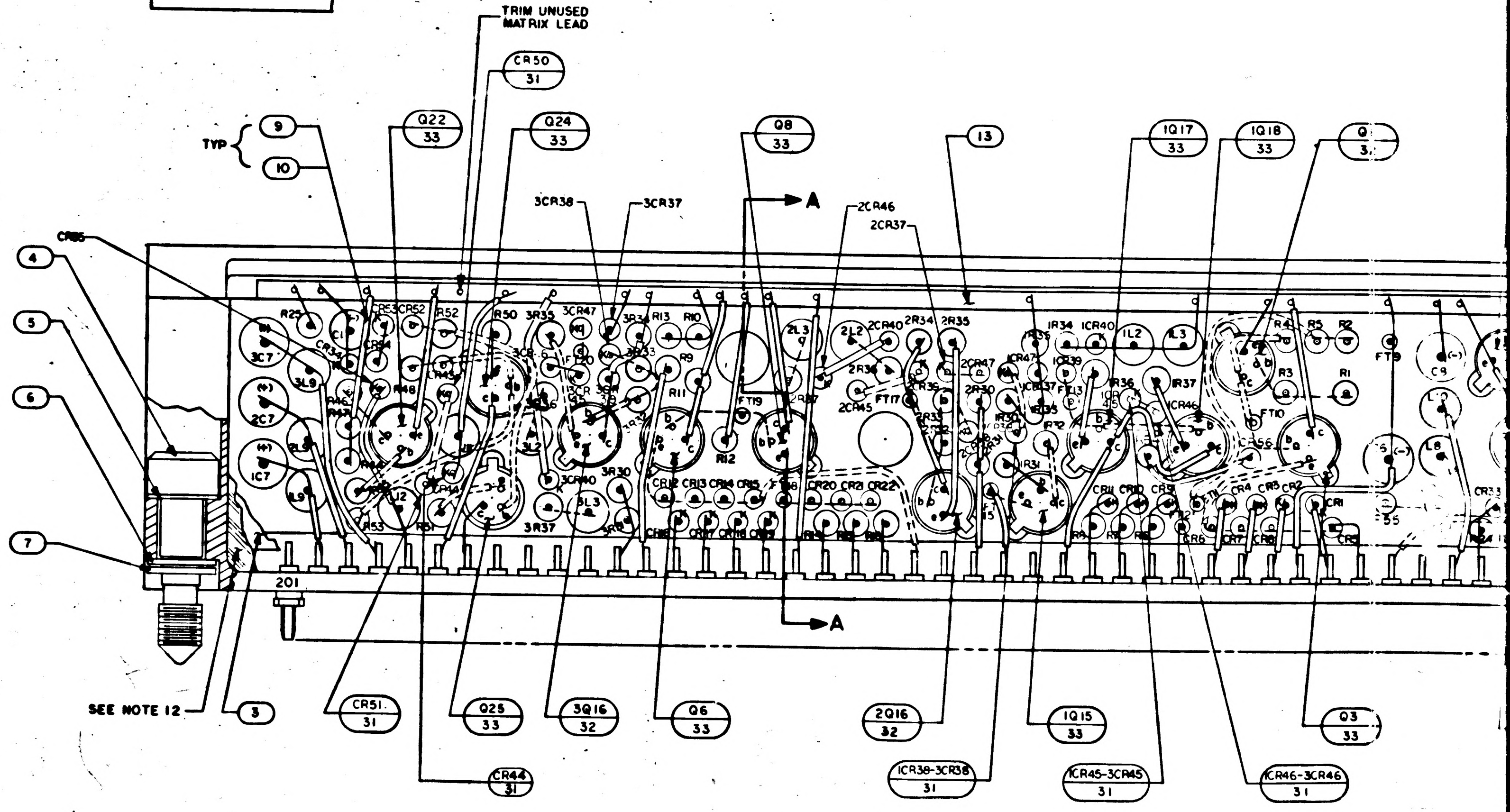
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. + DENOTES POSITIVE SIDE OF CAPACITOR
5. K DENOTES CATHODE SIDE OF DIODE
6. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
7. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
8. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND 1002069
9. WELD PER ND 1002005
10. STAKE FIND NO. 16 THRU FIND NO. 33, 35, 36,37,39 AND 40 TO FIND NO.1 PER ND1002009, METHOD C OR D
11. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST. R29,R36,R37,R50, R51 AND L2 & L3 TO BE SELECTED FROM APPROPRIATE CHART
12. ENCAPSULATE PER ND 1002002. REMOVE FLASHING
13. MARK .10/.08 HIGH WHITE CHARACTERS PER ND 1002019 AND ND 1002122 TYPE II, CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
14. MARK .26/.24 HIGH WHITE CHARACTERS PER ND 1002019 AND ND 1002122 TYPE II, CLASS 2 USING INK 1006271-1
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS 2003140
16. SEAL INSULATORS AND TERMINALS TO HEADER PER ND1002004, TYPE VI
17. SEAL FIND NO. 12 TO HEADER PER ND1002004, TYPE VI
18. MOUNTING TORQUE FOR FIND NO. 15 TO BE 2.0 -2.5 INCH POUNDS
19. MOUNTING TORQUE FOR FIND NO. 12 TO BE 15-20 INCH OUNCES
20. BOND FIND NO. 13 TO FIND NO. 1 PER ND1002004, TYPE I
21. COAT INDICATED SURFACES, BOTH ENDS, TOP AND BOTTOM, BOTH SIDES, PER ND1002187, TYPE II
22. ASSEMBLE FIND NO. 38 TO MODULE AFTER SELECTED VALUE HAS BEEN DETERMINED


.140
MAX TYP
SEE NOTE 7
.070 MAX TYP
SEE NOTE 6
Q5
REF
2Q18
REF
Q8
REF
FT18 REF
SEE NOTE 16
.010 MIN TYP
SEE NOTE 21
.015 MIN TYP
.000
.030 TYP

SECTION A-A


38 SEE NOTE 22
R53 38
R51 23 SEE NOTE H
R44 24
Q23 32
L11 37
CR12-CR22 31
IR31-3R31 19
IR32-3R32 25
IR30-3R30 24
1Q16 32
R3 35
SEE NOTE 11
IR36-3R36 23
CR1-CR11 31
SEE NOTE 12
2
L12 37
3Q18 33
Q7 33
2Q18 33
2Q15 33
38 SEE NOTE 22
Q2 33
R45 19
R14-R16 19
R6 - R8 19
Q4 33
3Q15 33
R12 36
2Q17 33
FT12
IL9-3L9 30
101
R47 19
IC7-3C7 28
R47 24
R46 25
CR55 31
CR34 31
CR54 31
FT17
SEE NOTE 11
IL2-3L2
R25 20
C1 27
R48 24
R50 23
R11 35
R10 17
Q5 32
3Q17 33
3CR37
3CR38
ICR47-3CR47 31
IR35-3R35 26
ICR40-3CR40 31
R4 36
C8 28
CR52-CR53 31
R52 39
R9 16
R13 17
ICR37-3CR37 31
IR34-3R34 24
R5 17
L10 30
R54 39
CR43 31
SEE NOTE 11
38 SEE NOTE 22
IR33-3R33 24
ICR39-3CR39 31
R2 17
IR37-3R37 23
IL3-3L3
SEE NOTE 11
SEE NOTE 11
SEE NOTE 22 38


TRIM UNUSED MATRIX LEAD
CR50 31
TYP
9
10
Q22 33
Q24 33
Q8 33
13
1Q17 33
1Q18 33
3CR38
3CR37
A
2CR46
2CR37
4
CR55
5
6
7
201
A
SEE NOTE 12
3
CR51 31
Q25 33
3Q16 32
Q6 33
2Q16 32
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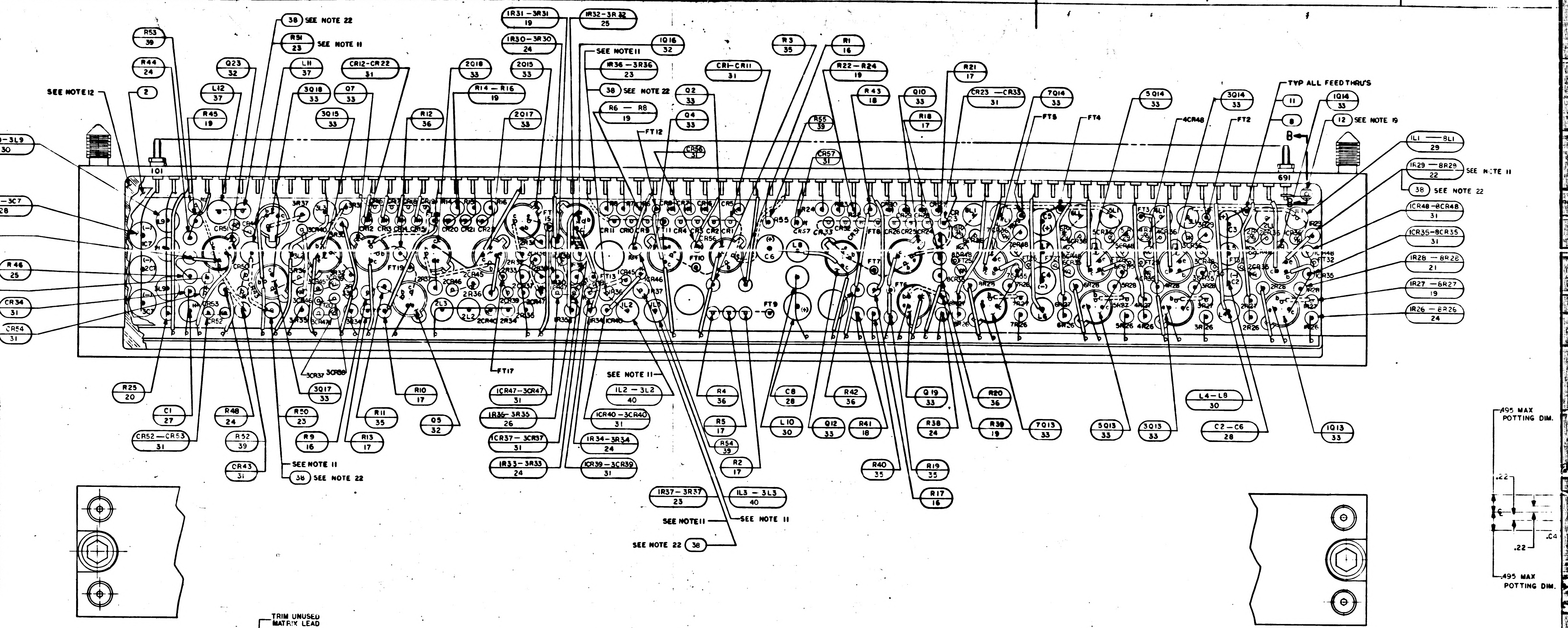
Q3 33
CR44 31
ICR38-3CR38 31
ICR45-3CR45 31
ICR46-3CR46 31

2003140 G



R53 39
R44 24
R45 19
L12 37
Q23 32
LH 37
38 SEE NOTE 22
R51 23 SEE NOTE 11
3Q18 33
Q7 33
3Q15 33
CR12-CR22 31
R12 36
2Q18 33
2Q15 33
R14 — R16 19
2Q17 33
1R31 —3R31 19
1R30—3R30 24
1R32—3R32 25
SEE NOTE 11
1R36 —3R36 23
38 SEE NOTE 22
R6 — R8 19
1Q16 32
CR1—CR11 31
Q2 33
Q4 33
R3 35
R1 16
R22—R24 19
R43 18
R55 39
CR56 31
CR57 31
Q10 33
R18 17
R21 17
CR23 —CR33 31
7Q14 33
5Q14 33
3Q14 33
1Q14 33
TYP ALL FEEDTHRU'S
11
8
12 SEE NOTE 19
FT12
FT5
FT4
4CR48
FT2
B
SEE NOTE 12
2
IL9—3L9 30
1C7—3C7 28
R46 25
CR34 31
CR54 31
101
691
IL1 — 8L1 29
1R29 — 8R29 22 SEE NOTE 11
38 SEE NOTE 22
1CR48—8CR48 31
1CR35—8CR35 31
1R28 — 8R28 21
1R27 — 6R27 19
1R26 — 8R26 24
R25 20
C1 27
R48 24
CR52—CR53 31
R52 39
CR43 31
R50 23
R9 16
SEE NOTE 11
38 SEE NOTE 22
3Q17 33
3CR37
3CR38
R11 35
R13 17
R10 17
Q5 32
FT17
1CR47—3CR47 31
1R35—3R35 26
1CR37 — 3CR37 31
1R33—3R33 24
SEE NOTE 11
1L2 — 3L2 40
1CR40 —3CR40 31
1R34—3R34 24
1CR39—3CR39 31
1R37 — 3R37 23
1L3 — 3L3 40
SEE NOTE 11
SEE NOTE 11
SEE NOTE 22 38
R4 36
R5 17
R54 39
R2 17
C8 28
L10 30
Q12 33
R42 36
R41 18
R40 35
Q19 33
R38 24
R17 16
R19 35
R20 36
R39 19
7Q13 33
5Q13 33
3Q13 33
L4 — L8 30
C2 — C6 28
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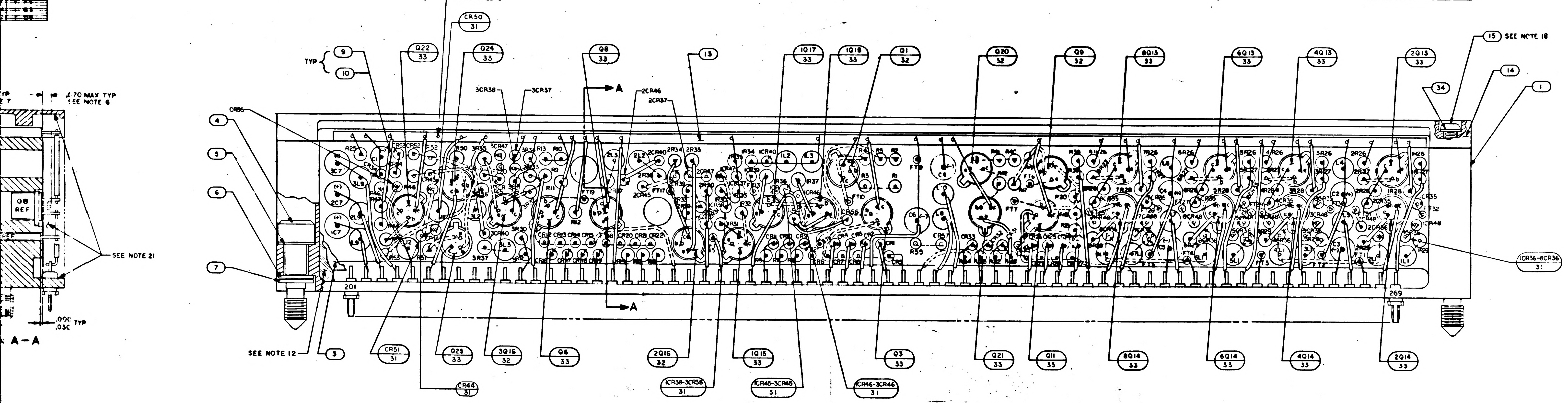
.495 MAX POTTING DIM.
.22
.22
.04
.495 MAX POTTING DIM.

TRIM UNUSED MATRIX LEAD



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TYP 9
10
Q22 33
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3CR37
Q8 33
A
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2CR37
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1Q18 33
Q1 32
Q20 32
Q9 32
8Q13 33
6Q13 33
4Q13 33
2Q13 33
15 SEE NOTE 18
14
34
1
4.70 MAX TYP SEE NOTE 6
CR55
4
5
6
7
Q8 REF
SEE NOTE 21
.000 .030 TYP
A — A
201
269
A
1CR36-8CR36 31
SEE NOTE 12
3
CR51 31
Q25 33
3Q16 32
Q6 33
CR44 31
2Q16 32
1CR38-3CR38 31
1Q15 33
1CR45-3CR45 31
1CR46-3CR46 31
Q3 33
Q21 33
Q11 33
8Q14 33
6Q14 33
4Q14 33
2Q14 33

R37

50,R51

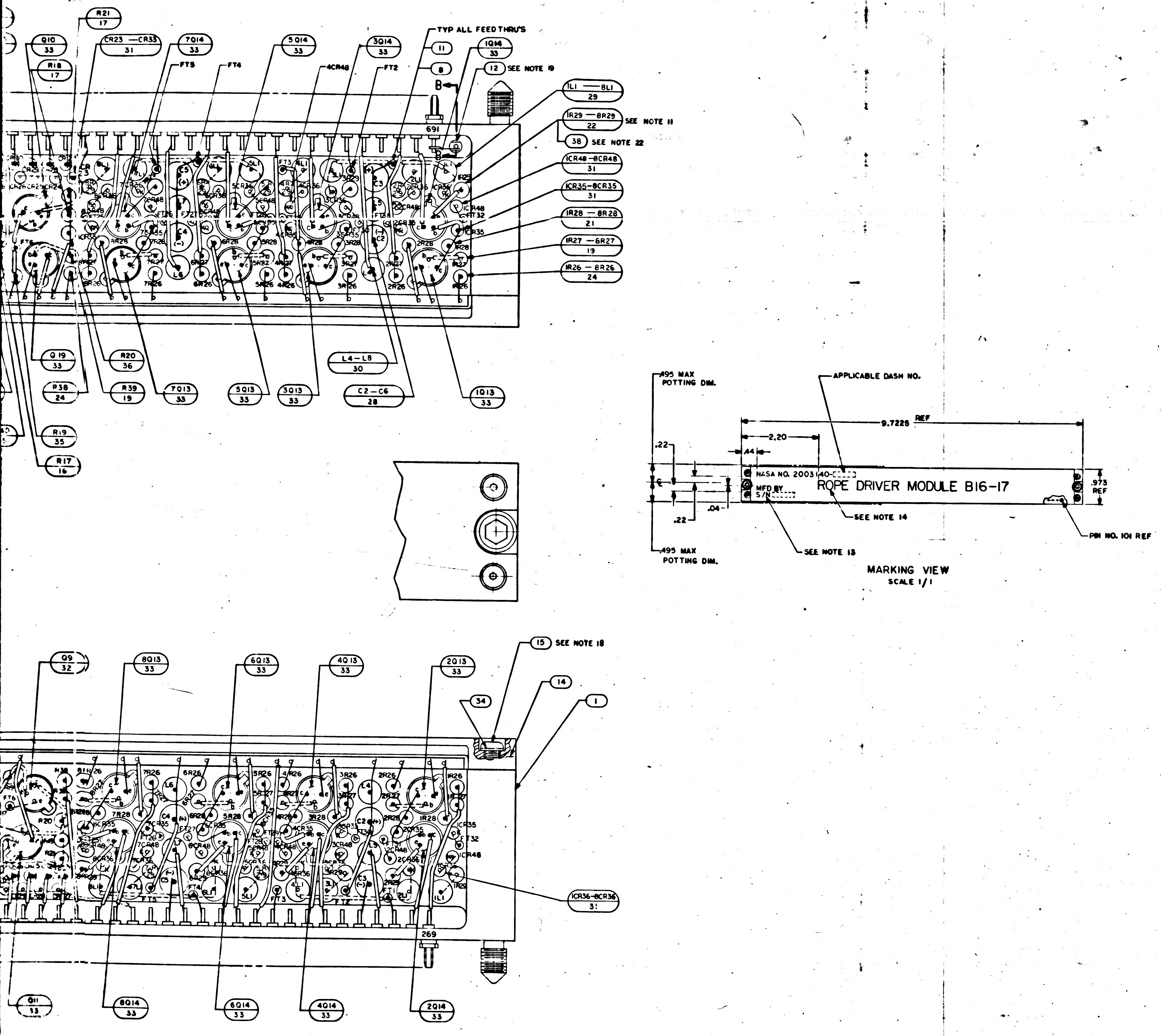
R50,R51	
PART NO.	VALUE
1006788-240	7.32
-241	7.41
-242	7.50
-243	7.59
-244	7.68
-245	7.77
-246	7.87
-247	7.96
-248	8.06
-249	8.16
-250	8.25
-251	8.35
-252	8.45
-253	8.56
-254	8.66
-255	8.76
-256	8.87
-257	8.98
-258	9.09
1006788-259	9.20

7 6 5 4

2003140	G

F243

		REVISIONS 25980				
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 27309	BPT	[illegible]	3/9/64	[illegible]
B		REVISED PER TDRR 27079	[illegible]	[illegible]	5/[illegible]	[illegible]
C		REVISED PER TDRR 28162	BPT	FJ	5/[illegible]	[illegible]
D		REVISED PER TDRR 29079	[illegible]	[illegible]	6-[illegible]	[illegible]
E		REVISED PER TDRR 30864	[illegible]	[illegible]	[illegible]/20/66	[illegible] R
F		REVISED PER TDRR 31827	[illegible]	[illegible]	[illegible]/14/67	[illegible]
G		REVISED PER TDRR 32346	APG	J.C.	[illegible]/7/[illegible]	[illegible]



R21
17
Q10
33
CR23 —CR33
31
7Q14
33
5Q14
33
3Q14
33
1Q14
33
R18
17
FT5
FT4
4CR48
FT2
TYP ALL FEED THRU'S
11
8
12 SEE NOTE 19
B
691
1L1 — 8L1
29
1R29 — 8R29
22
SEE NOTE 11
38 SEE NOTE 22
1CR48 —8CR48
31
1CR35 —8CR35
31
1R28 — 8R28
21
1R27 — 6R27
19
1R26 — 8R26
24
Q19
33
R20
36
L4 — L8
30
P38
24
R39
19
7Q13
33
5Q13
33
3Q13
33
C2 — C6
28
1Q13
33
R19
35
R17
16
.495 MAX
POTTING DIM.
APPLICABLE DASH NO.
9.7225 REF
2.20
.44
.22
NASA NO. 2003140-
MFD BY
S/N
ROPE DRIVER MODULE B16-17
.973 REF
.04
.22
SEE NOTE 14
SEE NOTE 13
PIN NO. 101 REF
.495 MAX
POTTING DIM.
MARKING VIEW
SCALE 1/1
15 SEE NOTE 18
Q9
32
8Q13
33
6Q13
33
4Q13
33
2Q13
33
14
34
1
1CR36 —8CR36
31
269
Q11
33
8Q14
33
6Q14
33
4Q14
33
2Q14
33

☒	—	2005942	SCHEMATIC	REF
—	☒	2005100	SCHEMATIC	REF
6	6	SEE NOTE 11	COIL, RF, CHOKE	40
4	4	1006750-16	RESISTOR	39
16	16	2004074	INSULATOR, WASHER	38
2	2	1010406 -11	COIL, RF, CHOKE	37
4	4	1006750 - 29	RESISTOR	36
4	4	1006750 - 24	RESISTOR	35
4	4	NAS620A-2	WASHER, FLAT	34
39	39	2004004-001	TRANSISTOR, POTTED	33
8	8	2004004-002	TRANSISTOR, POTTED	32
89	89	2004103 -001	DIODE	31
9	9	1010406 —7	COIL, RF, CHOKE	30
8	8	1010406 — 10	COIL, RF, CHOKE	29
9	9	1006755 —79	CAPACITOR	28
1	1	1006755 —69	CAPACITOR	27
3	3	1006788 — 9	RESISTOR	26
4	4	1006750 —32	RESISTOR	25
20	21	1006750 —49	RESISTOR	24
8	8	SEE NOTE 11	RESISTOR	23
8	8	SEE NOTE 11	RESISTOR	22
8	8	1006750 —22	RESISTOR	21
1	1	1006750 —43	RESISTOR	20
23	22	1006750 — 15	RESISTOR	19
2	2	1006750 — 39	RESISTOR	18
6	6	1006750 — 35	RESISTOR	17
3	3	1006750 — 36	RESISTOR	16
4	4	1006783 — 10	SCREW, BUTTON HEAD, HEX SOCKET	15
1	1	2004032	COVER	14
1	1	2003142-011	MATRIX ASSEMBLY	13
1	1	2004039	TERMINAL, THREADED	12
AR	AR	1006776 —22	INSULATION, SLEEVING	11
AR	AR	1006776 — 21	INSULATION, SLEEVING	10
AR	AR	1006757 — 1	WIRE, ELECTRICAL	9
AR	AR	1006757—8	WIRE, ELECTRICAL	8
2	2	MS16633—4015	RING, RETAINING, EXTERNAL, "E"	7
2	2	2004984-003	WASHER, FLAT	6
2	2	2004984 001	WASHER, FLAT	5
2	2	1004579-1	SCREW, JACKING	4
1	1	2003992	INSULATOR (B) ASSY	3
1	1	2004720	INSULATOR (A)	2
1	1	2003084—011	HEADER HOUSING ASSEMBLY	1
QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-021	-011	LIST OF MATERIALS		

2003200	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS XX±.02 ANGLES ± ——
DO NOT SCALE THIS DRAWING

MATERIAL ——————

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN [illegible] [illegible]
CHECKED [illegible] [illegible]
APPROVED
APPROVED [illegible] [illegible]
APPROVED MIT [illegible] [illegible]
A. G. METZGER
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ROPE DRIVER MODULE
B16-17
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003140
SCALE 4/1
SHEET OF

2003140 G

34

F3/13

3.1.13 Marginal Voltage and Temperature Extremes. The module shall perform as described in paragraphs 3.1.8 through 3.1.12 under each of the two combinations (temperature and input voltage) of operating extremes.

3.1.13.1 Low Operating Extreme:

a. Voltage: 4.8 ± 0.1 vdc and 12.2 ± 0.1 vdc

b. Temperature: $-10^{\circ}C\ ^{+0C^{\circ}}_{-2.8C^{\circ}}$

Under the low operating extremes the following output (amplitude A) deviations shall apply:

Set and Reset Driver	Clear Driver	Inhibit Driver
Amplitude A = 475 ± 15 ma	Amplitude A = 350 ± 15 ma	Amplitude A = 220 ± 10 ma
$Tr\ 0.6\ ^{+0.3}_{-0.2}$		

3.1.13.2 High Operating Extreme

a. Voltage: 3.4 ± 0.1 vdc and 16.5 ± 0.1 vdc

b. Temperature: $70^{\circ}C\ ^{+2.8C^{\circ}}_{-0C^{\circ}}$

Under the high operating extreme the following output (amplitude A) deviations shall apply.

Set and Reset Driver	Clear Driver	Inhibit Driver
Amplitude A = 425 ± 15 ma	Amplitude A = 350 ± 15 ma	Amplitude A = 225 ± 10 ma
	$Tr\ 1.3\ ^{+0.6}_{-0.3}$ usec.	
	T off NMT 1.9 us	

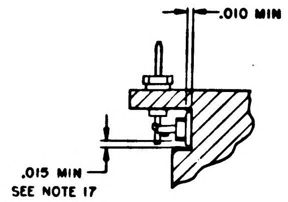
ROPE GATE: A_1 NMT 1.8V below B+

NOTE: Input high amplitudes will not be within the room temperature limits.

3.1.13.3 Inhibit and Clear Drivers Outputs Under Low Conditions. With input voltages of 3.4 ± 0.1 vdc and 16.5 ± 0.1 vdc and with an ambient temperature of $-10\ C\ ^{+0^{\circ}C}_{-2.8^{\circ}C}$ amplitude A for the inhibit drivers shall be 255 ± 10 ma and for the clear drivers shall be 370 ± 15 ma.

3.1.13.4 Inhibit and Clear Drivers Outputs Under High Conditions. With input voltages of 4.8 ± 0.1 vdc and 12.2 ± 0.1 vdc and in an ambient temperature of 70°C amplitude A for inhibit drivers shall be 190 ± 10 ma and for the clear drivers shall be 325 ± 15 ma.

3.1.14 Vibration. The module shall perform as specified in paragraphs 3.1.8 through 3.1.12 when installed in an operating computer which is being subjected to the vibration requirements specified in the applicable specifications for the computer subsystem. Acceptance criteria for the module shall be compliance of the computer subsystem with its applicable specifications.


.010 MIN
.015 MIN
SEE NOTE 17

SECTION B-B

R29, R50, R51	
PART NO.	VALUE
1006788-205	4.81
-206	4.87
-207	4.93
-208	4.99
-209	5.05
-210	5.11
-211	5.17
-212	5.23
-213	5.30
-214	5.36
-215	5.42
-216	5.49
-217	5.56
-218	5.62
-219	5.69
-220	5.76
-221	5.83
-222	5.90
-223	5.97
-224	6.04
-225	6.12
-226	6.19
-227	6.26
-228	6.34
-229	6.42
-230	6.49
-231	6.57
-232	6.65
-233	6.73
-234	6.81
-235	6.90
-236	6.98
-237	7.06
-238	7.15
-239	7.23
-240	7.32
-241	7.41
1006788-242	7.50

R36, R37	
PART NO.	VALUE
1006788-255	8.76
-256	8.87
-257	8.98
-258	9.09
-259	9.20
-260	9.31
-261	9.42
-262	9.53
-264	9.76
-265	9.88
-266	10.0
-267	10.1
-268	10.2
-269	10.4
-270	10.5
-271	10.6
-272	10.7
-273	10.9
-274	11.0
-275	11.1
-276	11.3
-277	11.4
-278	11.5
1006788-279	11.7

L2, L3	
PART NO.	VALUE
1010406-11	3.9 UH
1010406-20	2.7 UH
1010406-21	3.3 UH

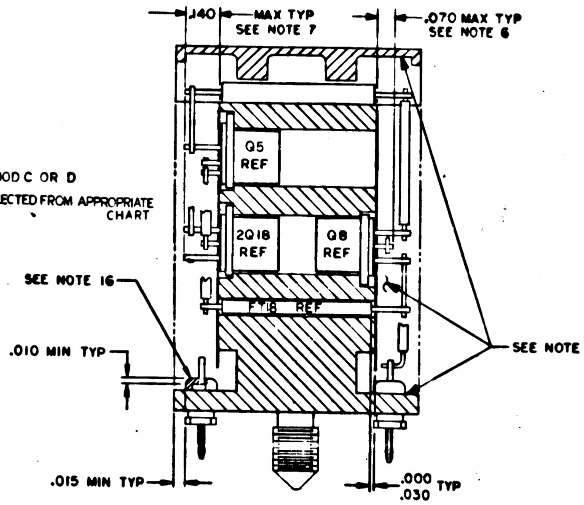
~~R36, R37~~	
~~PART NO.~~	~~VALUE~~
~~1006788-29~~	~~2.5~~
~~-30~~	~~2.6~~
~~-31~~	~~2.7~~
~~-32~~	~~2.8~~
~~-33~~	~~2.9~~
~~-34~~	~~3.0~~
~~-35~~	~~3.1~~
~~-36~~	~~3.2~~
~~-37~~	~~3.3~~
~~-38~~	~~3.4~~
~~-39~~	~~3.5~~
~~-40~~	~~3.6~~
~~-41~~	~~3.7~~
~~-42~~	~~3.8~~
~~-43~~	~~3.9~~
~~-44~~	~~4.0~~
~~-45~~	~~4.1~~
~~-46~~	~~4.2~~
~~-47~~	~~4.3~~
~~-48~~	~~4.4~~
~~1006788-49~~	~~4.5~~

~~R29, R50, R51~~	
~~PART NO.~~	~~VALUE~~
~~1006788-51~~	~~1.5~~
~~-53~~	~~1.6~~
~~-16~~	~~1.7~~
~~-18~~	~~1.8~~
~~-20~~	~~1.9~~
~~-22~~	~~2.0~~
~~-24~~	~~2.1~~
~~-26~~	~~2.2~~
~~-28~~	~~2.3~~
[illegible]	~~2.4~~
~~-29~~	~~2.5~~
~~-30~~	~~2.6~~
~~-31~~	~~2.7~~
~~-32~~	~~2.8~~
~~-73~~	~~2.79~~
~~-72~~	~~2.69~~
~~-71~~	~~2.55~~
~~-70~~	~~2.45~~
~~-69~~	~~2.35~~
~~-27~~	~~2.25~~
~~-25~~	~~2.15~~
~~-23~~	~~2.05~~
~~-21~~	~~1.95~~
~~-19~~	~~1.85~~
~~-17~~	~~1.75~~
~~-54~~	~~1.65~~
~~1006788-52~~	~~1.55~~

~~R50, R51~~	
~~PART NO.~~	~~VALUE~~
~~1006788-240~~	~~7.32~~
~~-241~~	~~7.41~~
~~-242~~	~~7.50~~
~~-243~~	~~7.59~~
~~-244~~	~~7.68~~
~~-245~~	~~7.77~~
~~-246~~	~~7.87~~
~~-247~~	~~7.96~~
~~-248~~	~~8.06~~
~~-249~~	~~8.16~~
~~-250~~	~~8.25~~
~~-251~~	~~8.35~~
~~-252~~	~~8.45~~
~~-253~~	~~8.55~~
~~-254~~	~~8.66~~
~~-255~~	~~8.76~~
~~-256~~	~~8.87~~
~~-257~~	~~8.98~~
~~-258~~	~~9.09~~
[illegible]	~~9.20~~

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. + DENOTES POSITIVE SIDE OF CAPACITOR
5. K DENOTES CATHODE SIDE OF DIODE
6. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
7. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
8. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND 1002069
9. WELD PER ND 1002005
10. STAKE FIND NO. 16 THRU FIND NO. 33, 35, 36,37,39,40,41&42 TO FIND NO.1 PER ND1002009, METHOD C OR D
11. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST. R29, R36, R37, R50, R51 AND L2 & L3 TO BE SELECTED FROM APPROPRIATE CHART
12. ENCAPSULATE PER ND 1002002. REMOVE FLASHING
13. MARK .10/.08 HIGH WHITE CHARACTERS PER ND 1002019 AND ND 1002122 TYPE II, CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
14. MARK .26/.24 HIGH WHITE CHARACTERS PER ND 1002019 AND ND 1002122 TYPE II, CLASS 2 USING INK 1006271-1
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS 2003140
16. SEAL INSULATORS AND TERMINALS TO HEADER PER ND1002004, TYPE VI
17. SEAL FIND NO. 12 TO HEADER PER ND1002004, TYPE VI
18. MOUNTING TORQUE FOR FIND NO. 15 TO BE 2.0 - 2.5 INCH POUNDS
19. MOUNTING TORQUE FOR FIND NO. 12 TO BE 15-20 INCH OUNCES
20. BOND FIND NO. 13 TO FIND NO. 1 PER ND1002004, TYPE I
21. COAT INDICATED SURFACES, BOTH ENDS, TOP AND BOTTOM, BOTH SIDES, PER ND1002187, TYPE II
22. ASSEMBLE FIND NO. 38 TO MODULE AFTER SELECTED VALUE HAS BEEN DETERMINED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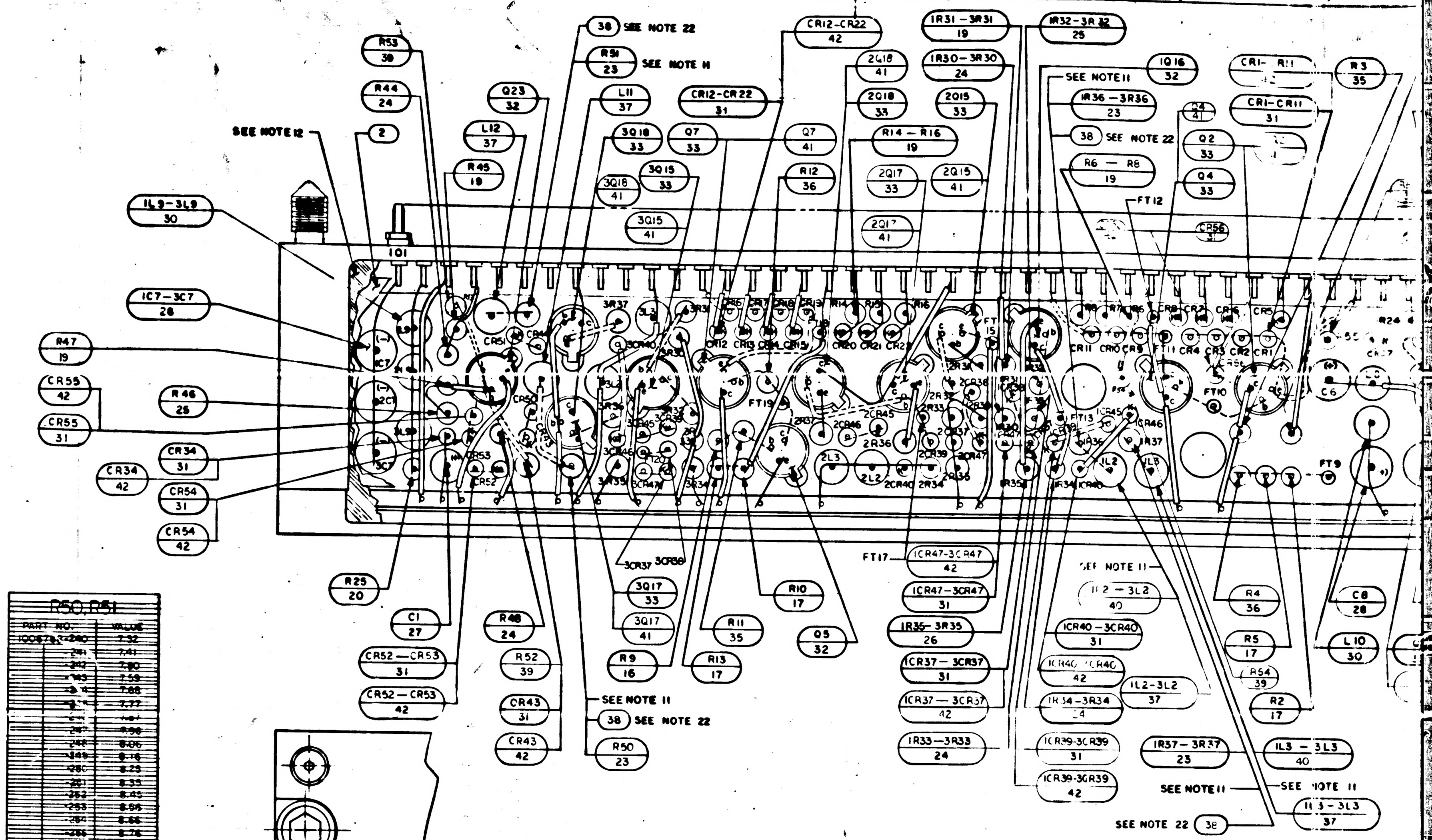
MAX TYP
SEE NOTE 7
.070 MAX TYP
SEE NOTE 6
Q5 REF
2Q18 REF
Q8 REF
FT18 REF
SEE NOTE 16
.010 MIN TYP
SEE NOTE 21
.015 MIN TYP
.000
.030 TYP

SECTION A-A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R44 24
SEE NOTE 12
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R45 19
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IC7-3C7 28
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CR34 42
CR54 31
CR54 42
101
R25 20
C1 27
CR52-CR53 31
CR52-CR53 42
R48 24
R52 39
CR43 31
CR43 42
SEE NOTE 11
38 SEE NOTE 22
R50 23
R9 16
R13 17
R11 35
R10 17
Q5 32
3Q17 33
3Q17 41
3CR37
3CR38
Q23 32
L12 37
L11 37
38 SEE NOTE 22
R51 23 SEE NOTE 11
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3Q18 41
3Q15 33
3Q15 41
Q7 33
Q7 41
CR12-CR22 31
CR12-CR22 42
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R12 36
R14 - R16 19
2Q17 33
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2Q15 33
2Q15 41
1R31-3R31 19
1R30-3R30 19
1R32-3R32 25
SEE NOTE 11
1Q16 32
1R36-3R36 23
38 SEE NOTE 22
R6 - R8 19
Q2 33
Q4 33
FT12
CR1-R11 42
CR1-CR11 31
R3 35
FT17
1CR47-3CR47 42
1CR47-3CR47 31
1R35-3R35 26
1CR37-3CR37 31
1CR37-3CR37 42
1R33-3R33 24
SEE NOTE 11
1L2-3L2 40
1CR40-3CR40 31
1CR40-3CR40 42
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1CR39-3CR39 31
1CR39-3CR39 42
1L2-3L2 37
1R37-3R37 23
SEE NOTE 11
R4 36
R5 17
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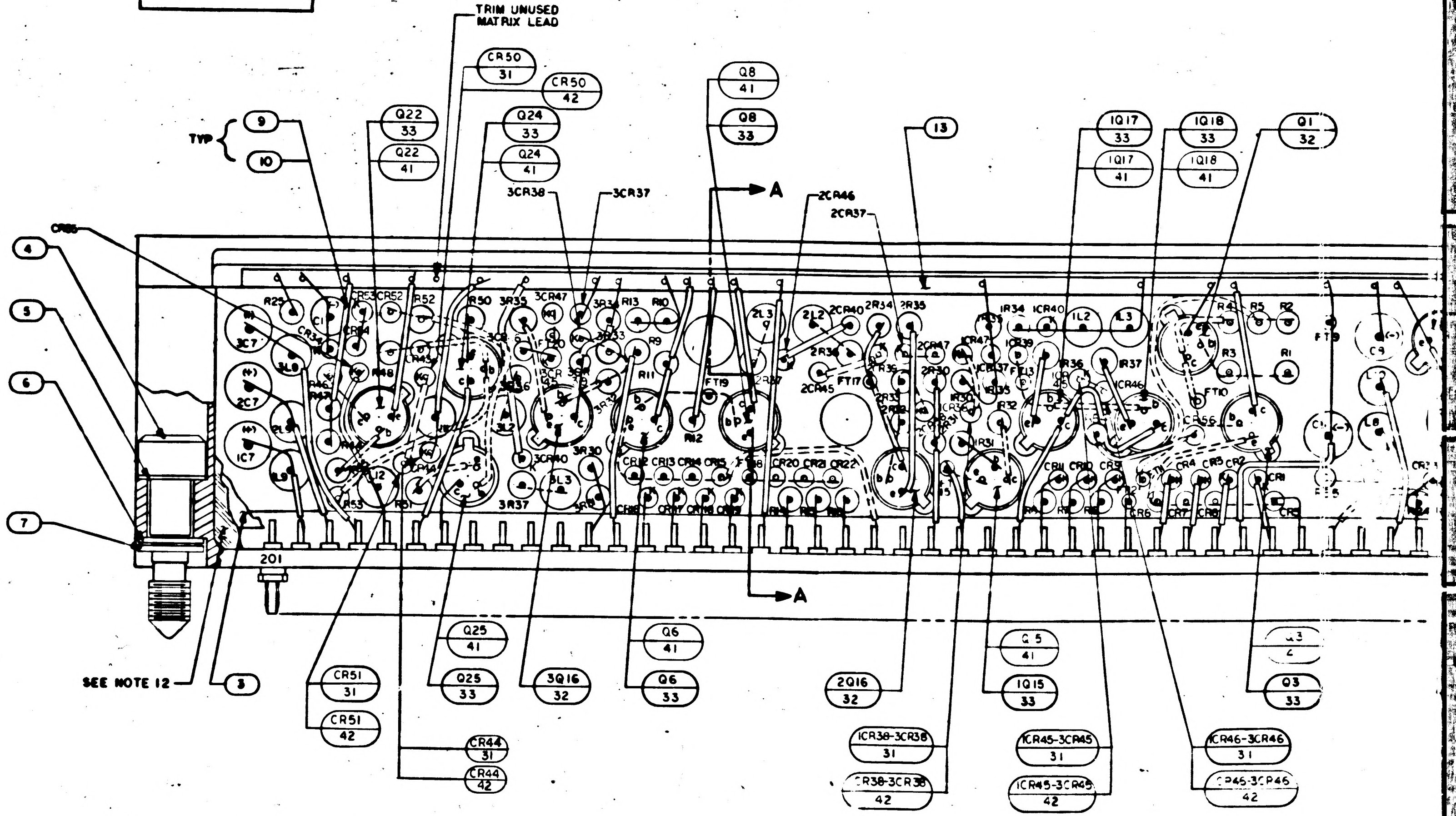
C8 28
L10 30
1L3-3L3 40
SEE NOTE 11
1L3-3L3 37
SEE NOTE 22 38
FT9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Q22 41
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1Q18 33
1Q18 41
Q1 32
TYP 9 10
3CR38
3CR37
A
2CR46
2CR37
CR55
4
5
6
7
201
SEE NOTE 12
3
CR51 31
CR51 42
Q25 41
Q25 33
3Q16 32
Q6 41
Q6 33
CR44 31
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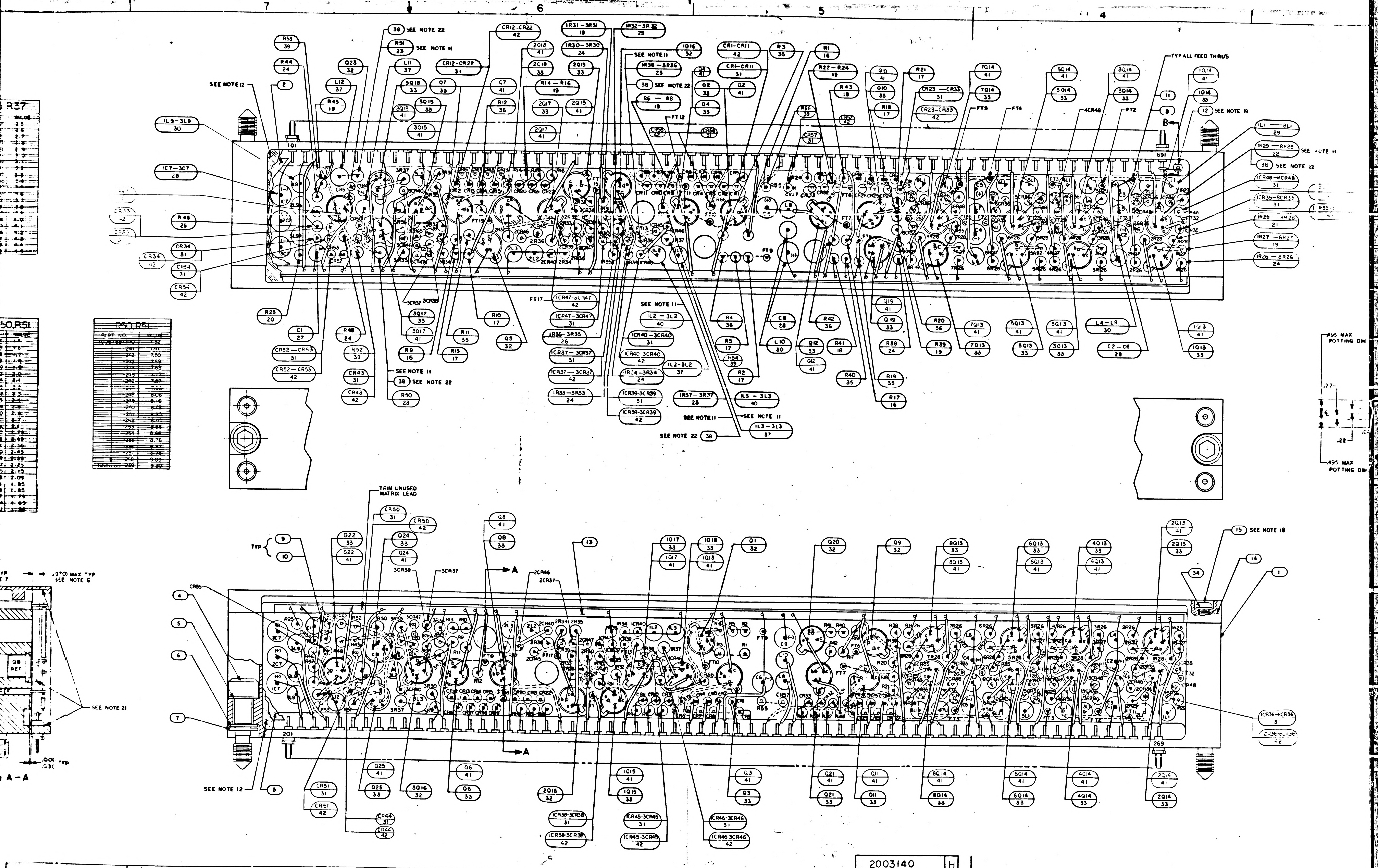
1CR46-3CR46 42

2003140	H


7
6
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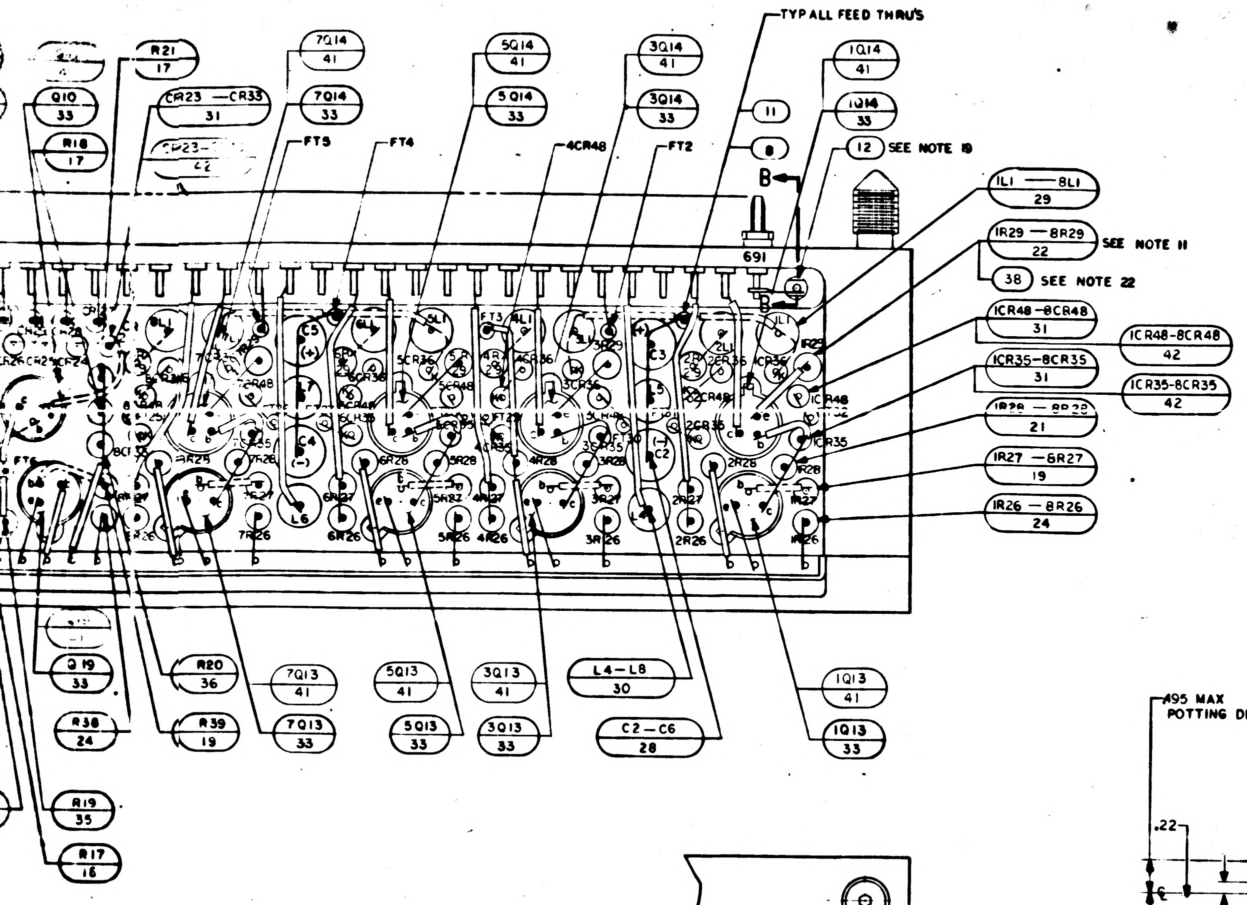
4
SEE NOTE 12
TYP ALL FEED THRUS
SEE NOTE 11
SEE NOTE 22
SEE NOTE 19
SEE NOTE 18
SEE NOTE 21
SEE NOTE H
R53 39
R44 24
Q23 32
L12 37
L11 37
R51 23
CR12-CR22 42
CR12-CR22 31
1R31-3R31 19
1R30-3R30 24
1R32-3R32 26
1R36-3R36 23
CR1-CR11 42
CR1-CR11 31
R3 35
R1 16
R22-R24 19
R21 17
R43 18
R18 17
CR23-CR33 31
CR23-CR33 42
7Q14 41
7Q14 33
5Q14 41
5Q14 33
3Q14 41
3Q14 33
1Q14 41
1Q14 33
1L9-3L9 30
1C7-3C7 28
R46 25
CR34 31
CR34 42
CR54 31
CR54 42
1L1-8L1 29
1R29-8R29 22
1CR48-8CR48 31
1CR35-8CR35 31
1R28-8R28 21
1R27-6R27 19
1R26-8R26 24
R25 20
C1 27
R48 24
R52 39
CR52-CR53 31
CR52-CR53 42
CR43 31
CR43 42
R50 23
3Q17 33
3Q17 41
R9 16
R10 17
R11 35
R13 17
Q5 32
1CR47-3CR47 42
1CR47-3CR47 31
1R35-3R35 26
1CR37-3CR37 31
1CR37-3CR37 42
1R33-3R33 24
1L2-3L2 40
1CR40-3CR40 31
1CR40-3CR40 42
1R34-3R34 24
1CR39-3CR39 31
1CR39-3CR39 42
1L2-3L2 37
1R37-3R37 23
1L3-3L3 40
1L3-3L3 37
R4 36
R5 17
R54 39
R2 17
C8 28
L10 30
Q12 33
Q12 41
R42 36
R41 18
R40 35
R38 24
R39 19
R19 35
R17 16
Q19 41
Q19 33
R20 36
7Q13 41
7Q13 33
5Q13 41
5Q13 33
3Q13 41
3Q13 33
L4-L8 30
C2-C6 28
1Q13 41
1Q13 33
.495 MAX POTTING DIM
.22
TRIM UNUSED MATRIX LEAD
CR50 31
CR50 42
Q22 33
Q22 41
Q24 33
Q24 41
Q8 41
Q8 33
1Q17 33
1Q17 41
1Q18 33
1Q18 41
Q1 32
Q20 32
Q9 32
8Q13 33
8Q13 41
6Q13 33
6Q13 41
4Q13 33
4Q13 41
2Q13 41
2Q13 33
TYP
A
.070 MAX TYP
A-A
CR51 31
CR51 42
Q25 41
Q25 33
3Q16 32
Q6 41
Q6 33
2Q16 32
1Q15 41
1Q15 33
Q3 41
Q3 33
Q21 41
Q21 33
Q11 41
Q11 33
8Q14 41
8Q14 33
6Q14 41
6Q14 33
4Q14 41
4Q14 33
2Q14 41
2Q14 33
1CR36-8CR36 31
1CR36-8CR36 42
1CR38-3CR38 31
1CR38-3CR38 42
1CR45-3CR45 31
1CR45-3CR45 42
1CR46-3CR46 31
1CR46-3CR46 42
CR44 31
CR44 42
101
201
269
691

R50,R51	
PART NO.	VALUE
1006788-240	7.32
-241	7.41
-242	7.50
-243	7.59
-244	7.68
-245	7.77
-246	7.87
-247	7.56
-248	8.06
-249	8.16
-250	8.25
-251	8.35
-252	8.45
-253	8.56
-254	8.66
-255	8.76
-256	8.87
-257	8.98
-258	9.09
1006788-259	9.20

2003140	H

2003140 H F2/3

REVISIONS 25980						
SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
A		REVISED PER TDRR 27309			5/9/66	
B		REVISED PER TDRR 27079			5/16/66	
C		REVISED PER TDRR 28162				
D		REVISED PER TDRR 29079				
E		REVISED PER TDRR 30864			9/20/66	
F		REVISED PER TDRR 31827			1-4-67	
G		REVISED PER TDRR 32346				
H		REVISED PER TDRR 32561			11/28/67	


TYP ALL FEED THRUS
R21 17
7Q14 41
5Q14 41
3Q14 41
1Q14 41
Q10 33
CR23 — CR33 31
7Q14 33
5Q14 33
3Q14 33
1Q14 33
R18 17
CR23 — 22
11
8
12 SEE NOTE 19
FT5
FT4
4CR48
FT2
B
691
1L1 — 8L1 29
1R29 — 8R29 22 SEE NOTE 11
38 SEE NOTE 22
1CR48 - 8CR48 31
1CR48 - 8CR48 42
1CR35 - 8CR35 31
1CR35 - 8CR35 42
1R28 — 8R28 21
1R27 — 8R27 19
1R26 — 8R26 24
Q19 33
R20 36
7Q13 41
5Q13 41
3Q13 41
L4 — L8 30
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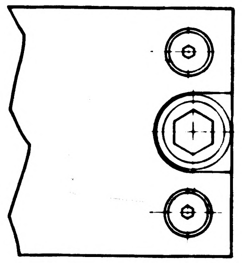
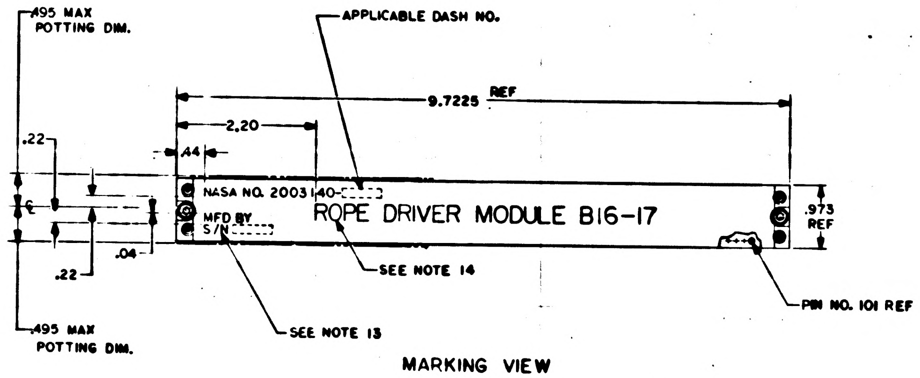
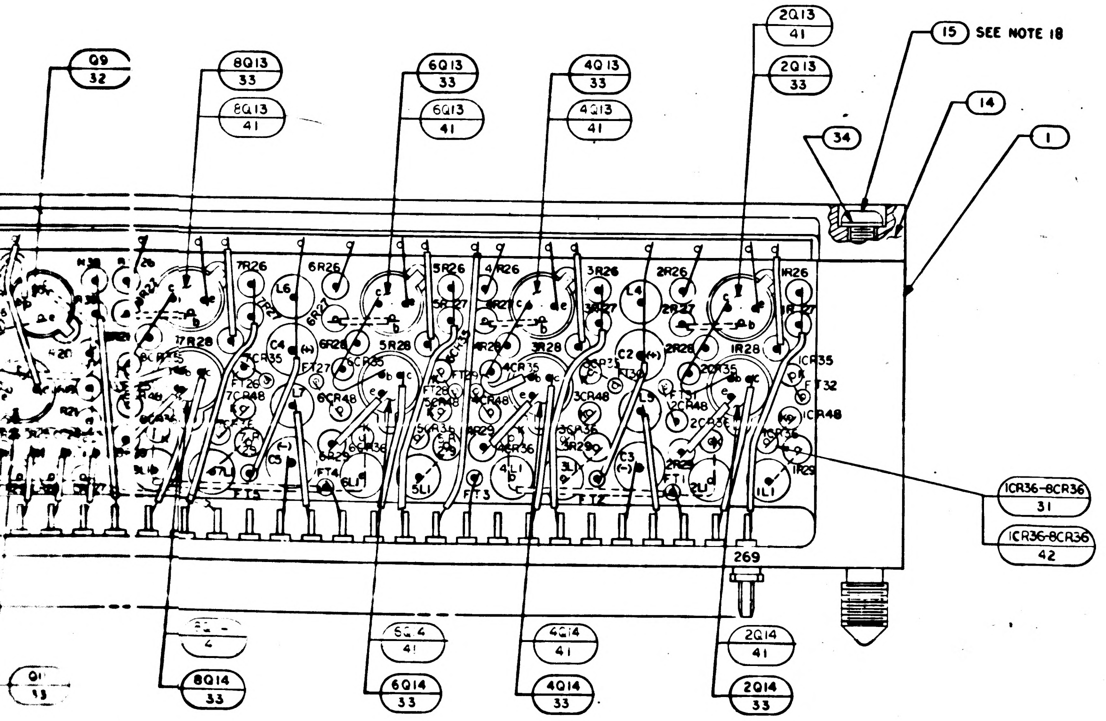
R38 24
R39 19
7Q13 33
5Q13 33
3Q13 33
C2 — C6 28
1Q13 33
R19 35
R17 16




.495 MAX POTTING DIM.
APPLICABLE DASH NO.
9.7225 REF
2.20
.44
.22
.04
NASA NO. 2003140-
MFD BY S/N
ROPE DRIVER MODULE B16-17
SEE NOTE 14
SEE NOTE 13
.973 REF
PIN NO. 101 REF
.495 MAX POTTING DIM.

MARKING VIEW
SCALE 1/1


2Q13 41
15 SEE NOTE 18
2Q13 33
Q9 32
8Q13 33
6Q13 33
4Q13 33
8Q13 41
6Q13 41
4Q13 41
14
1
34
1CR36-8CR36 31
1CR36-8CR36 42
269
4
6Q14 41
4Q14 41
2Q14 41
8Q14 33
6Q14 33
4Q14 33
2Q14 33

☒	—	—	2005938	SCHEMATIC	REF
—	—	☒	2005100	SCHEMATIC	REF
—	☒	—	2005942	SCHEMATIC	REF
89	—	—	2004183-001	DIODE	42
39	—	—	2004184-001	TRANSISTOR, POTTED	41
6	6	6	SEE NOTE 11	COIL, RF, CHOKE	40
4	4	4	1006750-16	RESISTOR	39
16	16	16	2004074	INSULATOR, WASHER	38
2	2	2	1010406-11	COIL, RF, CHOKE	37
4	4	4	1006750-29	RESISTOR	36
4	4	4	1006750-24	RESISTOR	35
4	4	4	NAS620A-2	WASHER, FLAT	34
—	39	39	2004004-001	TRANSISTOR, POTTED	33
8	8	8	2004004-002	TRANSISTOR, POTTED	32
—	89	89	2004103-001	DIODE	31
9	9	9	1010406 —7	COIL, RF, CHOKE	30
8	8	8	1010406 —10	COIL, RF, CHOKE	29
9	9	9	1006755 —79	CAPACITOR	28
1	1	1	1006755 —69	CAPACITOR	27
3	3	3	1006788 —9	RESISTOR	26
4	4	4	1006750 —32	RESISTOR	25
20	20	21	1006750 —49	RESISTOR	24
8	8	8	SEE NOTE 11	RESISTOR	23
8	8	8	SEE NOTE 11	RESISTOR	22
8	8	8	1006750 —22	RESISTOR	21
1	1	1	1006750 —43	RESISTOR	20
23	23	22	1006750 —15	RESISTOR	19
2	2	2	1006750 —39	RESISTOR	18
6	6	6	1006750 —35	RESISTOR	17
3	3	3	1006750 —36	RESISTOR	16
4	4	4	1006783-10	SCREW, BUTTON HEAD, HEX SOCKET	15
1	1	1	2004032	COVER	14
1	1	1	2003142-011	MATRIX ASSEMBLY	13
1	1	1	2004039	TERMINAL, THREADED	12
AR	AR	AR	1006776-22	INSULATION, SLEEVING	11
AR	AR	AR	1006776-21	INSULATION, SLEEVING	10
AR	AR	AR	1006757-1	WIRE, ELECTRICAL	9
AR	AR	AR	1006757-8	WIRE, ELECTRICAL	8
2	2	2	MS16633-4015	RING, RETAINING, EXTERNAL, "E"	7
2	2	2	2004984-003	WASHER, FLAT	6
2	2	2	2004984-001	WASHER, FLAT	5
2	2	2	1004579-1	SCREW, JACKING	4
1	1	1	2003992	INSULATOR (B) ASSY	3
1	1	1	2004720	INSULATOR (A)	2
1	1	1	2003084-011	HEADER HOUSING ASSEMBLY	1
QTY REQD	QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-031	-021	-011			

LIST OF MATERIALS

H

2003140

34

2003993	
2003200	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS XX±.02 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT A. C. METZGER
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ROPE DRIVER MODULE
B16-17
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003140
SCALE 4/1
SHEET OF

2003140 | -

F3/3

APOLLO G&N Specification
PS 2003140 CH
Original Issue Date: 6-1-66
Release Authority: TDRR 29205
Class A Release

PROCUREMENT SPECIFICATION

FOR

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

ROPE DRIVER MODULE (B16-B17)

DRAWING NO. 2003140

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
7-1-66	A	[illegible]	1, [illegible], 10, 12, 13, [illegible]	FA	FA
8/25/66	B	30752	1, 13	FA	FA
12/1[illegible]/66	C	32345	1, 2, 10, 13	FA	FA
1/5/67	D	3[illegible]563	1 & 2	FA	FA
[illegible]-9-6[illegible]	E	3[illegible]950	1, 9, 10, 13	FA	FA
3-8-67	F	33140	1, 7	FA	FA
4-17-67	G	33435	1, 10, 13	FA	FA
4-6-67	H	33542	1, 14, 18	FA	FA

This specification consists of pages 1 to 18 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	E C Hall 6/1/66 6-1-66 5-24-66 MIT/IL	May 4, 1966 5/4/66 5/4/66 RAY

R29, R50, R51	
PART NO.	VALUE
1006788-205	4.51
-206	4.87
-207	4.93
-208	4.99
-209	5.05
-210	5.11
-211	5.17
-212	5.23
-213	5.30
-214	5.36
-215	5.42
-216	5.49
-217	5.56
-218	5.62
-219	5.69
-220	5.76
-221	5.83
-222	5.90
-223	5.97
-224	6.04
-225	6.12
-226	6.19
-227	6.26
-228	6.34
-229	6.42
-230	6.49
-231	6.57
-232	6.65
-233	6.73
-234	6.81
-235	6.90
-236	6.98
-237	7.06
-238	7.15
-239	7.23
-240	7.32
-241	7.41
1006788-242	7.50

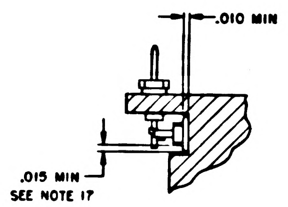
R36, R37	
PART NO.	VALUE
1006788-255	8.76
-256	8.87
-257	8.98
-258	9.09
-259	9.20
-260	9.31
-261	9.42
-262	9.53
-264	9.76
-265	9.88
-266	10.0
-267	10.1
-268	10.2
-269	10.4
-270	10.5
-271	10.6
-272	10.7
-273	10.9
-274	11.0
-275	11.1
-276	11.3
-277	11.4
-278	11.5
1006788-279	11.7

L2, L3	
PART NO.	VALUE
1010406 - 11	3.9 UH
1010406 - 20	2.7 UH
1010406 - 21	3.3 UH

~~R36, R37~~

~~R29, R50, R51~~

~~R50, R51~~

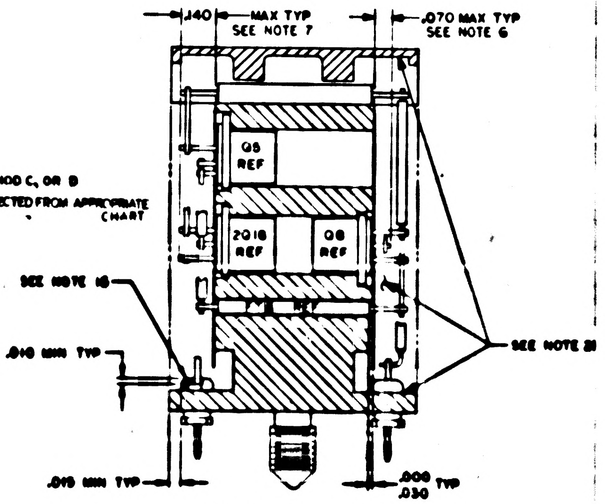


.010 MIN
.015 MIN
SEE NOTE 17

SECTION B-B

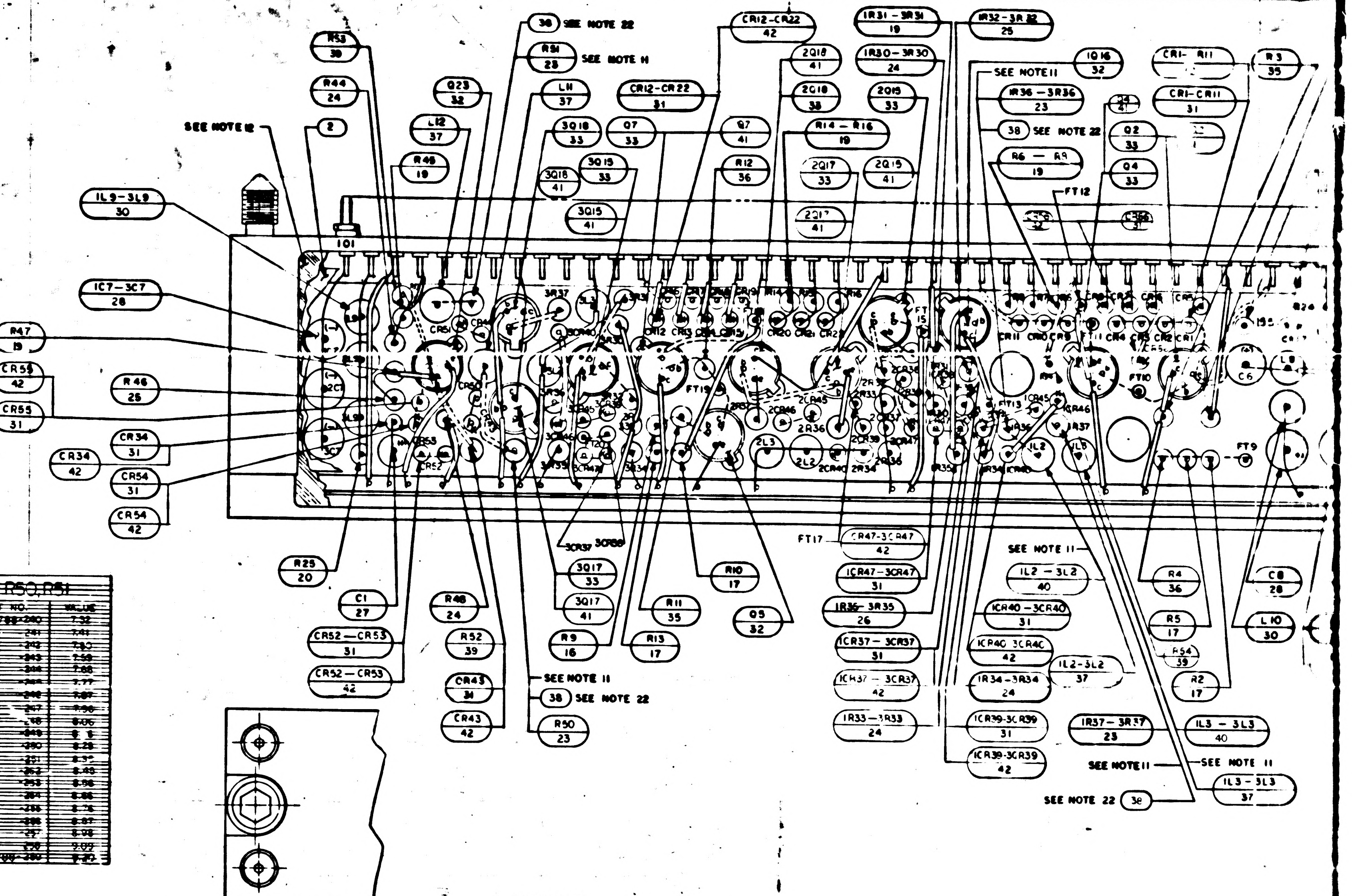
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. + DENOTES POSITIVE SIDE OF CAPACITOR
5. K DENOTES CATHODE SIDE OF DIODE
6. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
7. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
8. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND 1002069
9. WELD PER ND 1002005
10. STAKE FIND NO. 16 THRU FIND NO. 33, 35, 36,37,39,40,41,42&43 TO FIND NO.1 PER ND 1002009, METHOD C, OR D
11. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST R29,R36,R37,R50,R51 AND L2 & L3 TO BE SELECTED FROM APPROPRIATE CHART
12. ENCAPSULATE PER ND 1002002. REMOVE FLASHING
13. MARK .10/.08 HIGH WHITE CHARACTERS PER ND 1002019 AND ND 1002122 TYPE II, CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
14. MARK .26/.24 HIGH WHITE CHARACTERS PER ND 1002019 AND ND 1002122 TYPE II, CLASS 2 USING INK 1006271-1
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS 2003140
16. SEAL INSULATORS AND TERMINALS TO HEADER PER ND1002004, TYPE III
17. SEAL FIND NO. 12 TO HEADER PER ND1002004, TYPE III
18. MOUNTING TORQUE FOR FIND NO. 15 TO BE 2.0 -2.5 INCH POUNDS
19. MOUNTING TORQUE FOR FIND NO. 12 TO BE 15-20 INCH OUNCES
20. BOND FIND NO. 13 TO FIND NO. 1 PER ND1002004, TYPE I
21. COAT INDICATED SURFACES, BOTH ENDS, TOP AND BOTTOM. BOTH SIDES, PER ND1002187, TYPE II
22. ASSEMBLE FIND NO. 38 TO MODULE AFTER SELECTED VALUE HAS BEEN DETERMINED

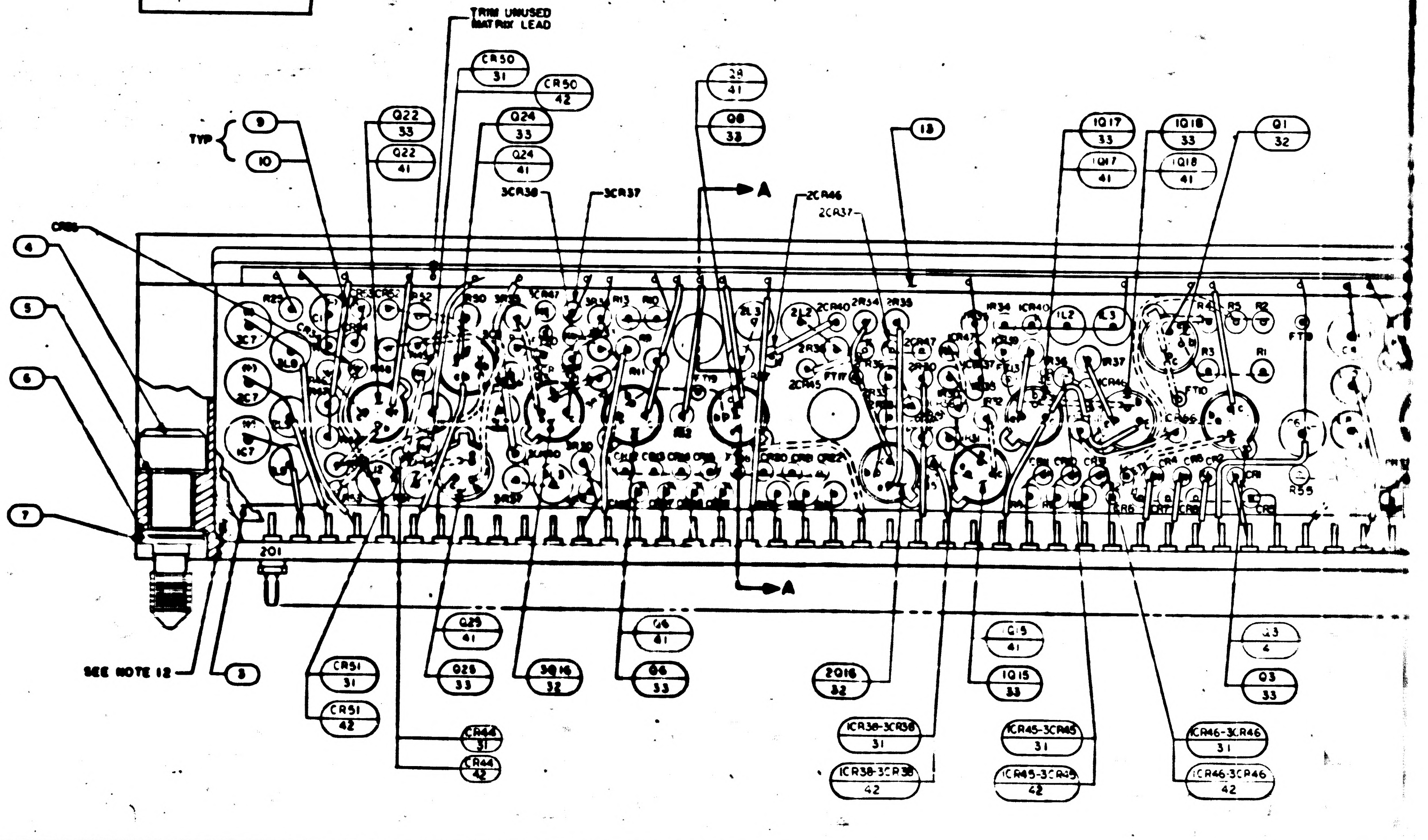


.140
MAX TYP
SEE NOTE 7
.070 MAX TYP
SEE NOTE 6
Q6 REF
2Q18 REF
Q8 REF
SEE NOTE 16
.010 MIN TYP
SEE NOTE 21
.010 MIN TYP
.000 .030 TYP

SECTION A-A



SEE NOTE 12
1L9-3L9 30
1C7-3C7 28
R47 19
CR55 42
CR55 31
CR34 42
CR34 31
CR54 31
CR54 42
R46 25
R53 38
R44 24
2
Q23 32
R51 23 SEE NOTE 11
36 SEE NOTE 22
L11 37
L12 37
R48 19
3Q18 33
3Q18 41
3Q15 33
3Q15 41
Q7 33
Q7 41
CR12-CR22 42
CR12-CR22 31
2Q18 41
2Q18 33
R14-R16 19
R12 36
2Q17 33
2Q15 41
2Q17 41
1R31-3R31 19
1R30-3R30 24
2Q15 33
1R32-3R32 25
SEE NOTE 11
1R36-3R36 23
38 SEE NOTE 22
R6-R9 19
1Q16 32
CR1-R11
CR1-CR11 31
Q2 33
Q4 33
R3 35
FT12
101
R25 20
C1 27
R48 24
R52 39
CR52-CR53 31
CR52-CR53 42
CR43 31
CR43 42
SEE NOTE 11
38 SEE NOTE 22
R50 23
3Q17 33
3Q17 41
R9 16
R10 17
R11 35
R13 17
Q5 32
FT17
1CR47-3CR47 42
1CR47-3CR47 31
1R35-3R35 26
1CR37-3CR37 31
1CR37-3CR37 42
1R33-1R33 24
1CR40-3CR40 31
1CR40-3CR40 42
1R34-3R34 24
1CR39-3CR39 31
1CR39-3CR39 42
SEE NOTE 11
1L2-3L2 40
1L2-3L2 37
1R37-3R37 23
SEE NOTE 11
R4 36
R5 17
R54 39
R2 17
C8 28
L10 30
1L3-3L3 40
SEE NOTE 11
1L3-3L3 37
SEE NOTE 22 38



TRIM UNUSED MATRIX LEAD
CR50 31
CR50 42
Q22 33
Q22 41
Q24 33
Q24 41
2R 41
Q8 33
13
1Q17 33
1Q17 41
1Q18 33
1Q18 41
Q1 32
TYP
9
10
3CR38
3CR37
2CR46
2CR37
A
A
4
5
6
7
CR56
201
SEE NOTE 12
3
CR51 31
CR51 42
Q25 41
Q25 33
3Q16 32
CR44 31
CR44 42
Q6 41
Q6 33
2Q16 32
Q3 41
1Q15 33
Q3 4
Q3 33
1CR38-3CR38 31
1CR38-3CR38 42
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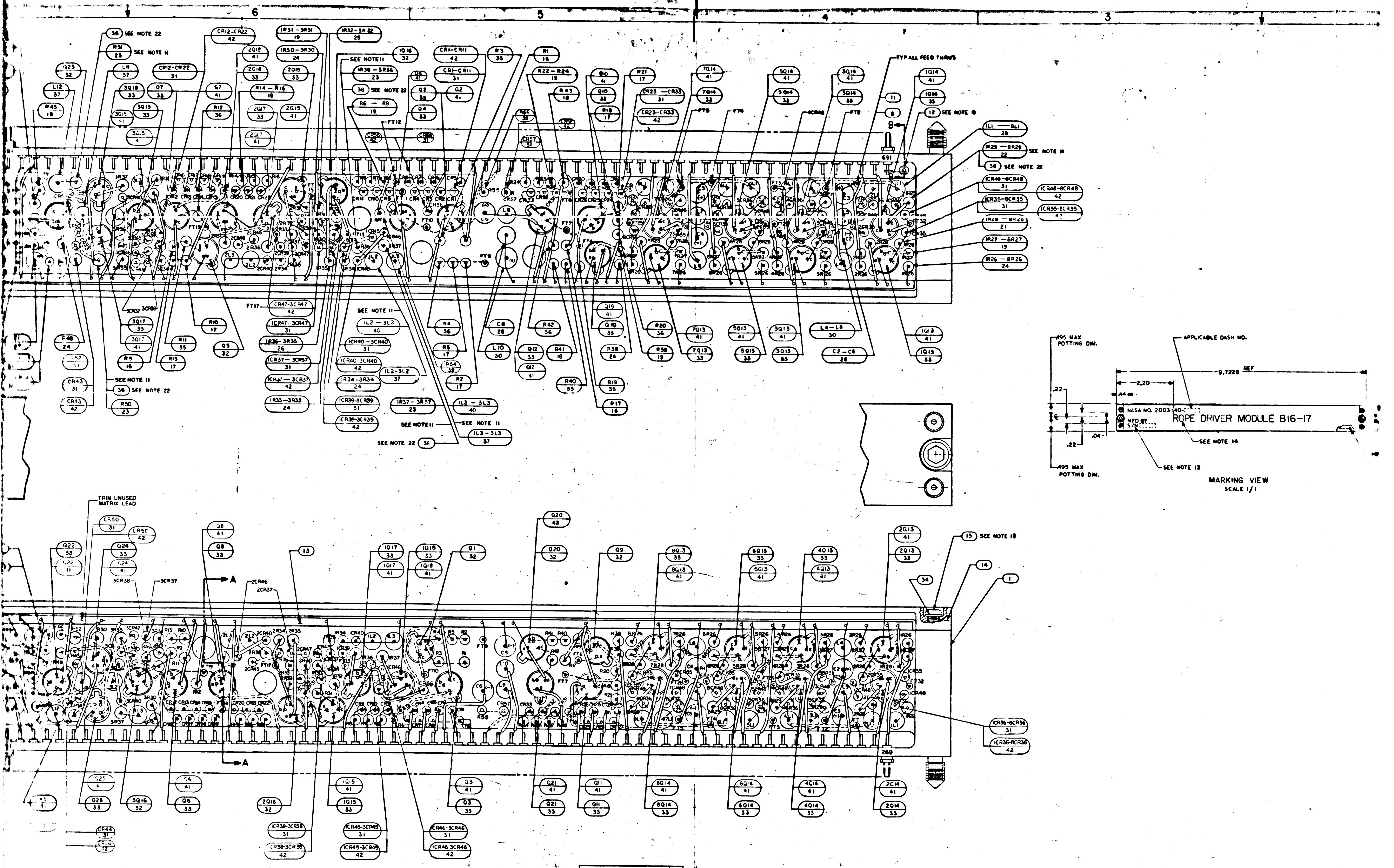
1CR45-3CR45 42
1CR46-3CR46 31
1CR46-3CR46 42

F1/3


6
5
4
3
38 SEE NOTE 22
R51 23 SEE NOTE H
CR12-CR22 42
IR31-3R31 19
IR30-3R30 24
IR32-3R32 25
1Q16 32
CR1-CR11 42
R3 35
R1 16
Q23 32
L11 37
2Q18 41
CR12-CR22 31
2Q18 33
2Q15 33
SEE NOTE 11
IR36-3R36 23
CR1-CR11 31
R22-R24 19
Q10 41
R21 17
7Q14 41
5Q14 41
3Q14 41
1Q14 41
TYP ALL FEED THRU'S
L12 37
3Q18 33
Q7 33
Q7 41
R14-R16 19
Q4 41
Q2 33
Q2 41
R43 18
Q10 33
CR23-CR33 31
7Q14 33
5Q14 33
3Q14 33
1Q14 33
R45 19
3Q15 41
3Q15 33
R12 36
2Q17 33
2Q15 41
38 SEE NOTE 22
R6-R8 19
Q4 33
R18 17
CR23-CR33 42
FT8
FT6
4CR48
FT2
11
6
12 SEE NOTE 18
3Q15 4
2Q17 41
FT12
CR56 42
CR56 31
R55 38
CR57 31
IL1-8L1 29
IR29-8R29 22 SEE NOTE H
38 SEE NOTE 22
ICR48-8CR48 31
ICR48-8CR48 42
ICR35-8CR35 31
ICR35-8CR35 42
IR28-8R28 21
IR27-8R27 19
IR26-8R26 24
B
691
FT17
ICR47-3CR47 42
ICR47-3CR47 31
SEE NOTE 11
IL2-3L2 40
ICR40-3CR40 31
ICR40-3CR40 42
IL2-3L2 37
IR34-3R34 24
ICR39-3CR39 31
ICR39-3CR39 42
IR37-3R37 23
IL3-3L3 40
SEE NOTE 11
SEE NOTE 11
IL3-3L3 37
SEE NOTE 22 38
IR35-3R35 26
ICR37-3CR37 31
ICR37-3CR37 42
IR33-3R33 24
3CR37
3CR38
R48 24
3Q17 33
3Q17 41
R10 17
R11 35
Q5 32
R9 16
R13 17
SEE NOTE 11
38 SEE NOTE 22
CR43 31
CR43 42
R50 23
R4 36
C8 28
R42 36
Q19 41
Q19 33
R20 36
7Q13 41
5Q13 41
3Q13 41
L4-L8 30
1Q13 41
R5 17
R54 39
R2 17
L10 30
Q12 33
Q12 41
R41 18
R38 24
R39 19
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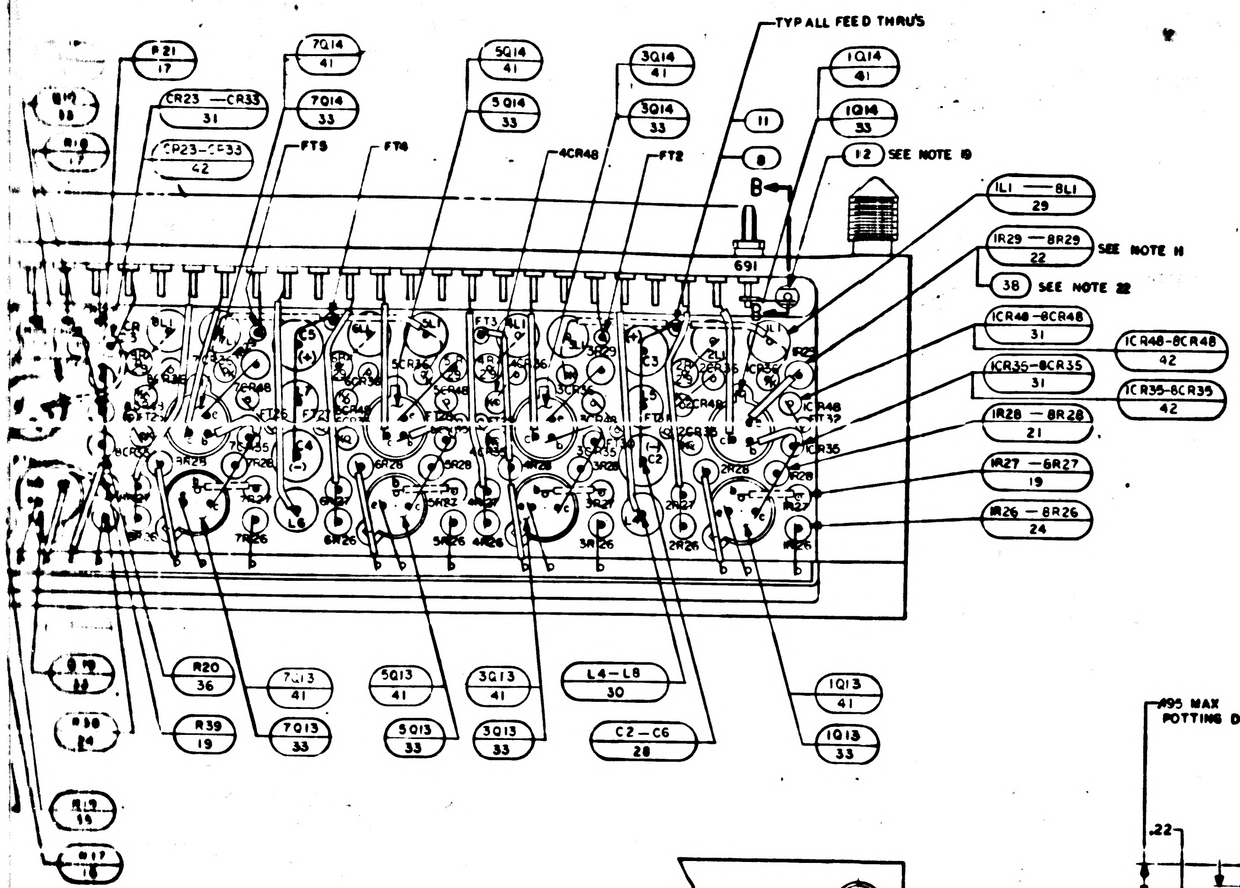
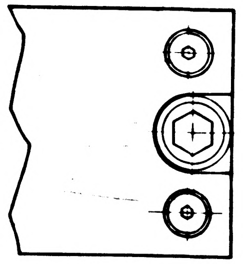
5Q13 33
3Q13 33
C2-C6 28
1Q13 33
R40 35
R19 35
R17 16
.495 MAX POTTING DIM.
APPLICABLE DASH NO.
9.7225 REF
2.20
.44
.22
.22
.04
NASA NO. 2003140-
MFD BY
S/N
ROPE DRIVER MODULE B16-17
SEE NOTE 14
SEE NOTE 13
.495 MAX POTTING DIM.
MARKING VIEW
SCALE 1/1
TRIM UNUSED MATRIX LEAD
CR50 31
CR50 42
Q8 41
Q8 33
Q22 33
Q22 41
Q24 33
Q24 41
3CR38
3CR37
2CR46
2CR37
13
A
1Q17 33
1Q17 41
1Q18 33
1Q18 41
Q1 32
Q20 43
Q20 32
Q9 32
8Q13 33
8Q13 41
6Q13 33
6Q13 41
4Q13 33
4Q13 41
2Q13 41
2Q13 33
15 SEE NOTE 18
34
14
1
ICR36-8CR36 31
ICR36-8CR36 42
269
A
Q25 4
Q25 33
3Q16 32
Q6 41
Q6 33
2Q16 32
1Q15 41
1Q15 33
Q3 41
Q3 33
Q21 41
Q21 33
Q11 41
Q11 33
8Q14 41
8Q14 33
6Q14 41
6Q14 33
4Q14 41
4Q14 33
2Q14 41
2Q14 33
CR44 31
CR44 42
ICR38-3CR38 31
ICR38-3CR38 42
ICR45-3CR45 31
ICR45-3CR45 42
ICR46-3CR46 31
ICR46-3CR46 42
6
5
4
3

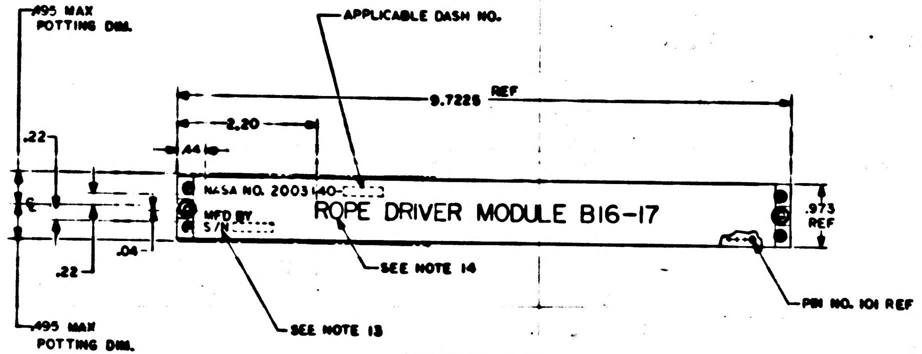
2003140 J

F 2/3

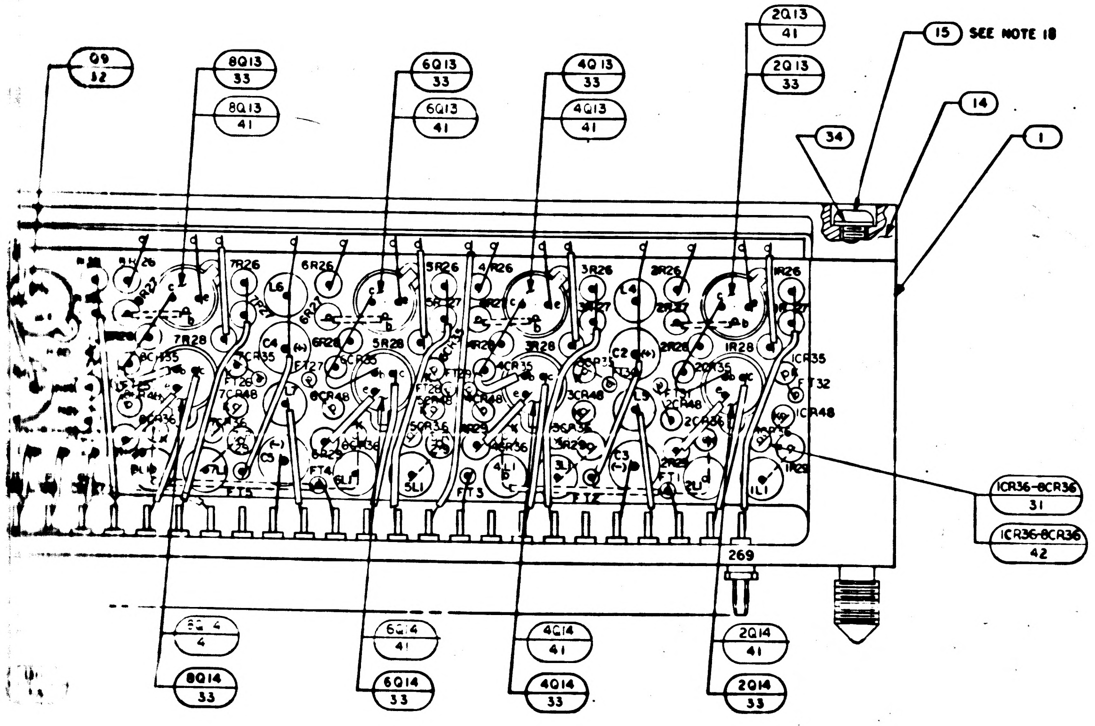
REVISIONS 2598						
SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
A		REVISED PER TDRR 27309	[illegible]	[illegible]	[illegible]	[illegible]
B		REVISED PER TDRR 27079	[illegible]	[illegible]	[illegible]	[illegible]
C		REVISED PER TDRR 28162	[illegible]	[illegible]	[illegible]	[illegible]
D		REVISED PER TDRR 29079	[illegible]	[illegible]	[illegible]	[illegible]
E		REVISED PER TDRR 30864	[illegible]	[illegible]	[illegible]	T.S.R.
F		REVISED PER TDRR 31827	[illegible]	[illegible]	[illegible]	T.S.R.
G		REVISED PER TDRR 32346	[illegible]	[illegible]	[illegible]	T.S.R.
H		REVISED PER TDRR 32561	[illegible]	[illegible]	[illegible]	T.S.R.
J		REVISED PER TDRR 32951	[illegible]	[illegible]	[illegible]	T.S.R.


TYP ALL FEED THRUS
P21
17
7Q14
41
7Q14
33
5Q14
41
5Q14
33
3Q14
41
3Q14
33
1Q14
41
1Q14
33
CR23 — CR33
31
CR23 — CR33
42
FT6
FT4
4CR48
FT2
11
8
12 SEE NOTE 10
B
691
1L1 — 8L1
29
1R29 — 8R29
22
SEE NOTE 11
38 SEE NOTE 12
1CR48-8CR48
31
1CR48-8CR48
42
1CR35-8CR35
31
1CR35-8CR35
42
1R28 — 8R28
21
1R27 — 6R27
19
1R26 — 8R26
24
R20
36
R39
19
7Q13
41
7Q13
33
5Q13
41
5Q13
33
3Q13
41
3Q13
33
L4 — L8
30
C2 — C6
28
1Q13
41
1Q13
33




.495 MAX
POTTING DIM.
APPLICABLE DASH NO.
9.7225 REF
2.20
.44
.22
.22
.04
NASA NO. 2003140-
ROPE DRIVER MODULE B16-17
MFD BY
S/N
.973
REF
SEE NOTE 14
SEE NOTE 13
PIN NO. 101 REF
.495 MAX
POTTING DIM.

MARKING VIEW
SCALE 1/1


Q9
32
8Q13
33
8Q13
41
6Q13
33
6Q13
41
4Q13
33
4Q13
41
2Q13
41
2Q13
33
15 SEE NOTE 18
14
34
1
1CR36-8CR36
31
1CR36-8CR36
42
269
8Q14
4
8Q14
33
6Q14
41
6Q14
33
4Q14
41
4Q14
33
2Q14
41
2Q14
33

QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
1	—	—	2004004-006	TRANSISTOR, POTTED	43
☒	—	—	2005938	SCHEMATIC	REF
—	—	☒	2005100	SCHEMATIC	REF
—	☒	—	2005942	SCHEMATIC	REF
89	—	—	2004183-001	DIODE	42
39	—	—	2004184-001	TRANSISTOR, POTTED	41
6	6	6	SEE NOTE 11	COIL, RF, CHOKE	40
4	4	4	1006750-16	RESISTOR	39
16	16	16	2004074	INSULATOR, WASHER	38
2	2	2	1010406-11	COIL, RF, CHOKE	37
4	4	4	1006750-29	RESISTOR	36
4	4	4	1006750-24	RESISTOR	35
4	4	4	NAS620A-2	WASHER, FLAT	34
—	39	39	2004004-001	TRANSISTOR, POTTED	33
7	8	8	2004004-002	TRANSISTOR, POTTED	32
—	89	89	2004103-001	DIODE	31
9	9	9	1010406-7	COIL, RF, CHOKE	30
8	8	8	1010406-10	COIL, RF, CHOKE	29
9	9	9	1006755-79	CAPACITOR	28
1	1	1	1006755-69	CAPACITOR	27
3	3	3	1006788-9	RESISTOR	26
4	4	4	1006750-32	RESISTOR	25
20	20	21	1006750-49	RESISTOR	24
8	8	8	SEE NOTE 11	RESISTOR	23
8	8	8	SEE NOTE 11	RESISTOR	22
8	8	8	1006750-22	RESISTOR	21
1	1	1	1006750-43	RESISTOR	20
23	23	22	1006750-15	RESISTOR	19
2	2	2	1006750-39	RESISTOR	18
6	6	6	1006750-35	RESISTOR	17
3	3	3	1006750-36	RESISTOR	16
4	4	4	1006783-10	SCREW, BUTTON HEAD, HEX SOCKET	15
1	1	1	2004032	COVER	14
1	1	1	2003142-011	MATRIX ASSEMBLY	13
1	1	1	2004039	TERMINAL, THREADED	12
AR	AR	AR	1006776-22	INSULATION, SLEEVING	11
AR	AR	AR	1006776-21	INSULATION, SLEEVING	10
AR	AR	AR	1006757-1	WIRE, ELECTRICAL	9
AR	AR	AR	1006757-8	WIRE, ELECTRICAL	8
2	2	2	MS16633-4015	RING, RETAINING, EXTERNAL, "E"	7
2	2	2	2004984-003	WASHER, FLAT	6
2	2	2	2004984-001	WASHER, FLAT	5
2	2	2	1004579-1	SCREW, JACKING	4
1		1	2003992	INSULATOR (B) ASSY	3
1	1	1	2004720	INSULATOR (A)	2
1	1	1	2003084-011	HEADER HOUSING ASSEMBLY	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003993	
2003200	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS XX±.02 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN E. Wimpey 9/20/65
CHECKED
APPROVED
APPROVED
APPROVED MIT
A. G. MILLER
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ROPE DRIVER MODULE
B16-17
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003140
SCALE 4/1
SHEET OF

2003140 J

003140

34

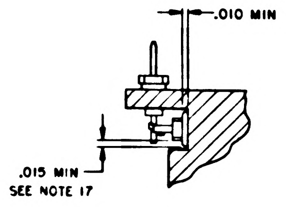
F 3 X 3

R29, R50, R51	
PART NO.	VALUE
1006788-205	4.81
-206	4.87
-207	4.93
-208	4.99
-209	5.05
-210	5.11
-211	5.17
-212	5.23
-213	5.30
-214	5.36
-215	5.42
-216	5.49
-217	5.56
-218	5.62
-219	5.69
-220	5.76
-221	5.83
-222	5.90
-223	5.97
-224	6.04
-225	6.12
-226	6.19
-227	6.26
-228	6.34
-229	6.42
-230	6.49
-231	6.57
-232	6.65
-233	6.73
-234	6.81
-235	6.90
-236	6.98
-237	7.06
-238	7.15
-239	7.23
-240	7.32
-241	7.41
1006788-242	7.50

R36, R37	
PART NO	VALUE
1006788-255	8.76
-256	8.87
-257	8.98
-258	9.09
-259	9.20
-260	9.31
-261	9.42
-262	9.53
-264	9.76
-265	9.88
-266	10.0
-267	10.1
-268	10.2
-269	10.4
-270	10.5
-271	10.6
-272	10.7
-273	10.9
-274	11.0
-275	11.1
-276	11.3
-277	11.4
-278	11.5
1006788-279	11.7
1006788-263	9.65

L2, L3	
PART NO.	VALUE
1010406 - 11	3.9 UH
1010406 - 20	2.7 UH
1010406 - 21	3.3 UH

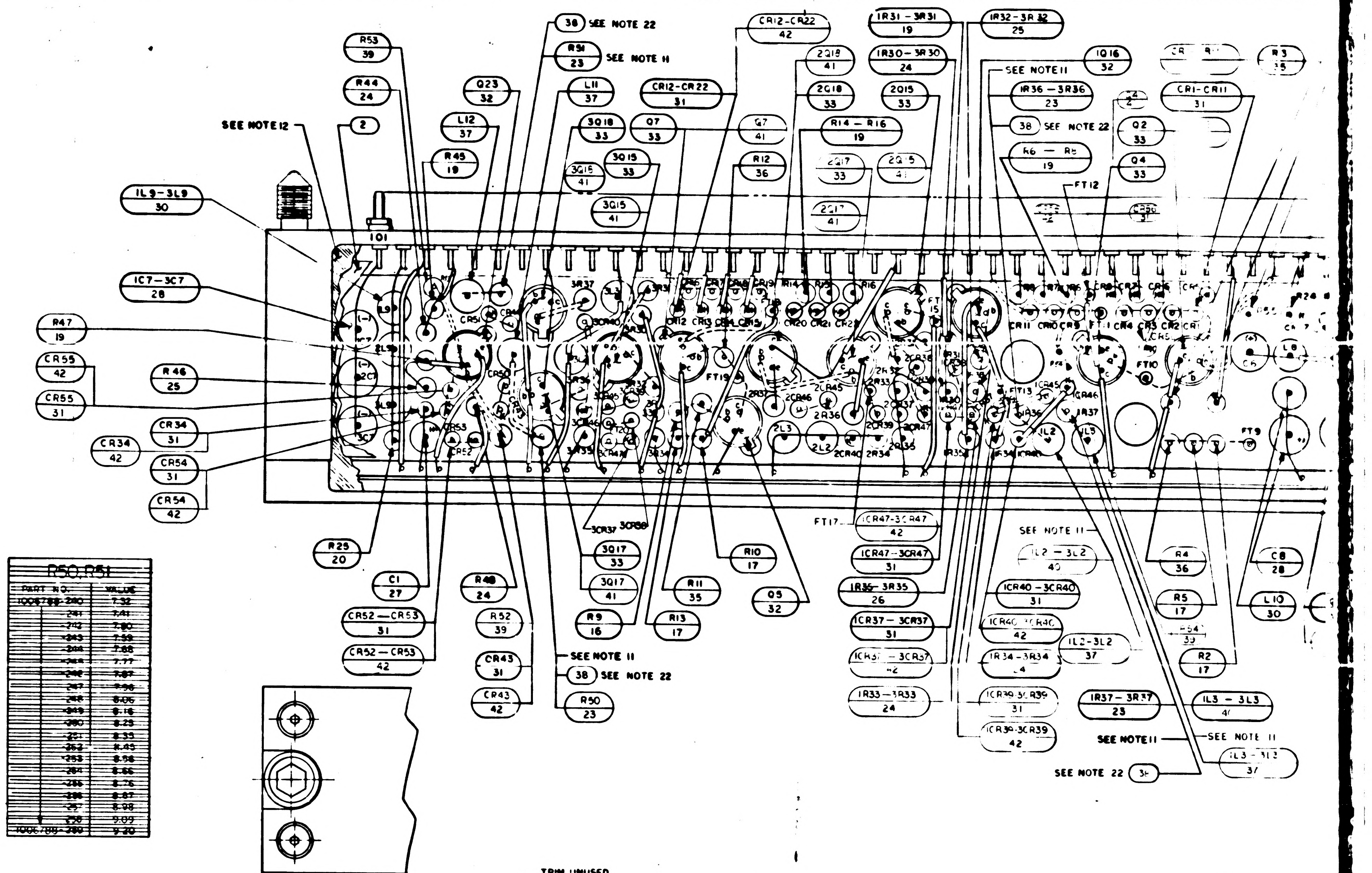
~~R36, R37~~	
~~PART NO.~~	~~VALUE~~
~~1006788-29~~	~~2.5~~
~~-30~~	~~2.6~~
~~-31~~	~~2.7~~
~~-32~~	~~2.8~~
~~-33~~	~~2.9~~
~~-34~~	~~3.0~~
~~-35~~	~~3.1~~
~~-36~~	~~3.2~~
~~-37~~	~~3.3~~
~~-38~~	~~3.4~~
~~-39~~	~~3.5~~
~~-40~~	~~3.6~~
~~-41~~	~~3.7~~
~~-42~~	~~3.8~~
~~-43~~	~~3.9~~
~~-44~~	~~4.0~~
~~-45~~	~~4.1~~
~~-46~~	~~4.2~~
~~-47~~	~~4.3~~
~~-48~~	~~4.4~~
~~1006788-49~~	~~4.5~~

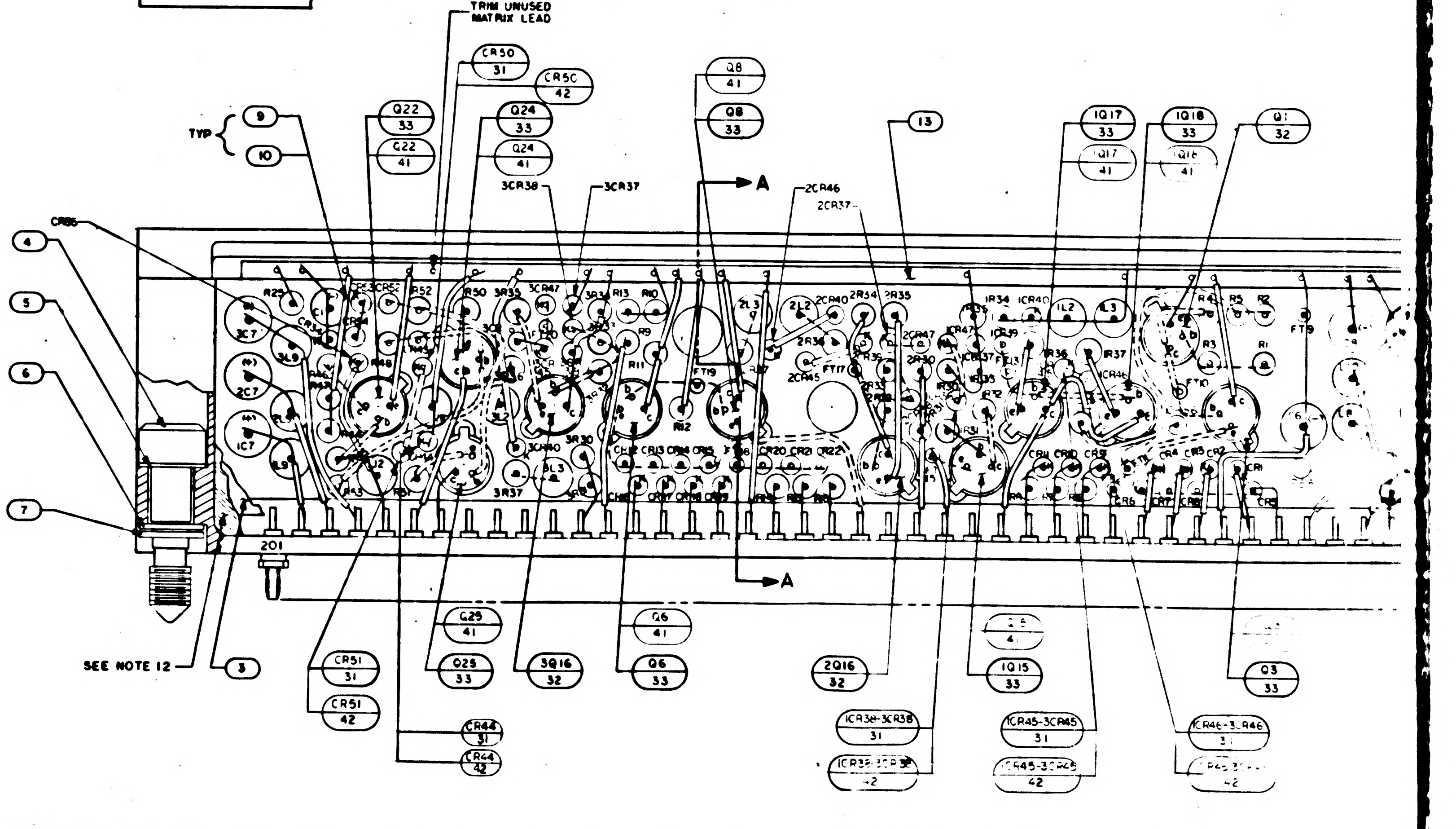

.010 MIN
.015 MIN
SEE NOTE 17

SECTION B-B

~~R29, R50, R51~~	
~~PART NO.~~	~~VALUE~~
~~1006788-37~~	~~1.5~~
~~-35~~	~~1.6~~
~~-16~~	~~1.7~~
~~-18~~	~~1.8~~
~~-20~~	~~1.9~~
~~-22~~	~~2.0~~
~~-24~~	~~2.1~~
~~-26~~	~~2.2~~
~~-28~~	~~2.3~~
[illegible]	~~2.4~~
~~-29~~	~~2.5~~
~~-30~~	~~2.6~~
~~-31~~	~~2.7~~
~~-32~~	~~2.8~~
~~-73~~	~~2.75~~
~~-72~~	~~2.65~~
~~-71~~	~~2.55~~
~~-70~~	~~2.45~~
~~-69~~	~~2.35~~
~~-27~~	~~2.25~~
~~-25~~	~~2.15~~
~~-23~~	~~2.05~~
~~-21~~	~~1.95~~
~~-19~~	~~1.85~~
~~-17~~	~~1.75~~
~~-34~~	~~1.65~~
~~1006788-33~~	~~1.55~~

~~R50, R51~~	
~~PART NO.~~	~~VALUE~~
~~1006788-240~~	~~7.32~~
~~-241~~	~~7.41~~
~~-242~~	~~7.50~~
~~-243~~	~~7.59~~
~~-244~~	~~7.68~~
[illegible]	~~7.77~~
~~-246~~	~~7.87~~
~~-247~~	~~7.96~~
~~-248~~	~~8.06~~
~~-249~~	~~8.16~~
~~-250~~	~~8.25~~
~~-251~~	~~8.35~~
~~-252~~	~~8.45~~
~~-253~~	~~8.56~~
~~-254~~	~~8.66~~
~~-255~~	~~8.76~~
~~-256~~	~~8.87~~
~~-257~~	~~8.98~~
~~-258~~	~~9.09~~
~~1006788-259~~	~~9.20~~


38 SEE NOTE 22
R51 23 SEE NOTE H
R53 39
R44 24
SEE NOTE 12
2
Q23 32
L12 37
L11 37
R45 19
3Q18 33
3Q16 41
3Q15 33
3Q15 41
Q7 33
Q7 41
CR12-CR22 31
CR12-CR22 42
R12 36
2Q18 41
2Q18 33
R14 - R16 19
2Q17 33
2Q15 41
2Q15 33
2Q17 41
1R31 - 3R31 19
1R30 - 3R30 24
1R32 - 3R32 25
SEE NOTE 11
1R36 - 3R36 23
38 SEE NOTE 22
R6 - R5 19
1Q16 32
R3 35
CR1-CR11 31
Q2 33
Q4 33
FT12
CR56 31
IL9-3L9 30
IC7-3C7 28
101
R47 19
CR55 42
CR55 31
R46 25
CR34 31
CR34 42
CR54 31
CR54 42
R25 20
C1 27
CR52-CR53 31
CR52-CR53 42
R48 24
R52 39
CR43 31
CR43 42
3CR37
3CR38
3Q17 33
3Q17 41
R9 16
R11 35
R13 17
R10 17
Q5 32
SEE NOTE 11
38 SEE NOTE 22
R50 23
FT17
1CR47-3CR47 42
1CR47-3CR47 31
1R35-3R35 26
1CR37-3CR37 31
1CR37-3CR37 42
1R33-3R33 24
1CR40-3CR40 31
1CR40-3CR40 42
1R34-3R34 24
1CR39-3CR39 31
1CR39-3CR39 42
SEE NOTE 11
IL2 - 3L2 40
IL2-3L2 37
1R37-3R37 23
IL3 - 3L3 40
SEE NOTE 11
IL3 - 3L3 37
SEE NOTE 22 38
R4 36
R5 17
R54 39
R2 17
C8 28
L10 30
FT9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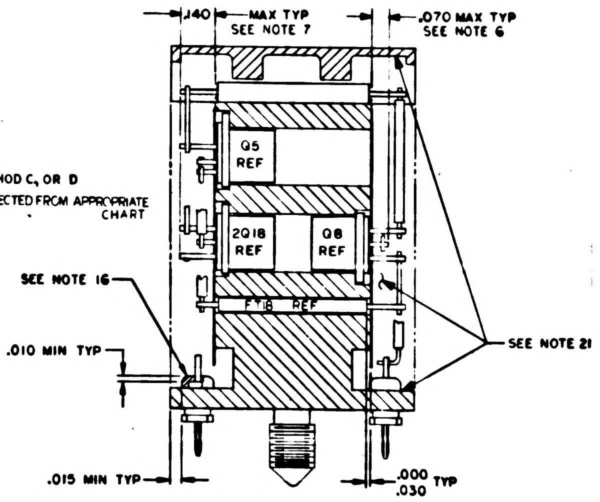
CR50 31
CR50 42
TYP
9
10
Q22 33
Q22 41
Q24 33
Q24 41
3CR38
3CR37
Q8 41
Q8 33
A
2CR46
2CR37
13
1Q17 33
1Q17 41
1Q18 33
1Q18 41
Q1 32
CR55
4
5
6
7
201
SEE NOTE 12
3
A
CR51 31
CR51 42
Q25 41
Q25 33
CR44 31
CR44 42
3Q16 32
Q6 41
Q6 33
2Q16 32
1CR38-3CR38 31
1CR38-3CR38 42
1Q15 41
1Q15 33
1CR45-3CR45 31
1CR45-3CR45 42
1CR46-3CR46 31
1CR46-3CR46 42
Q3 33

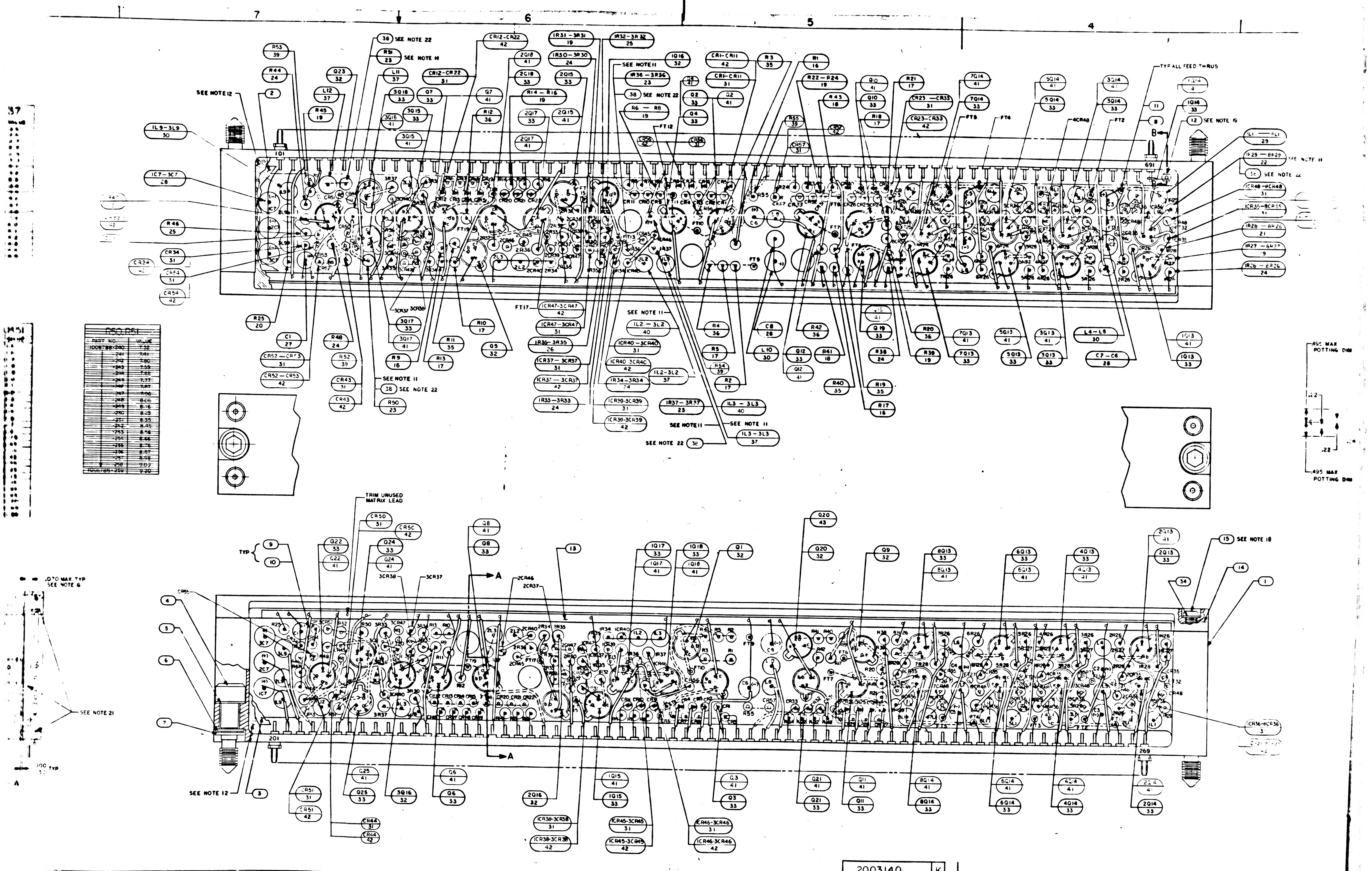
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. + DENOTES POSITIVE SIDE OF CAPACITOR
5. K DENOTES CATHODE SIDE OF DIODE
6. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
7. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
8. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND 1002069
9. WELD PER ND 1002005
10. STAKE FIND NO. 16 THRU FIND NO. 33, 35, 36,37,39,40,41,42&43 TO FIND NO.1 PER ND 1002009, METHOD C, OR D
11. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST R29,R36,R37,R50,R51 AND L2 & L3 TO BE SELECTED FROM APPROPRIATE CHART
12. ENCAPSULATE PER ND 1002002. REMOVE FLASHING
13. MARK .10/.08 HIGH WHITE CHARACTERS PER ND 1002019 AND ND 1002122 TYPE II, CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
14. MARK .26/.24 HIGH WHITE CHARACTERS PER ND 1002019 AND ND 1002122 TYPE II, CLASS 2 USING INK 1006271-1
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS 2003140
16. SEAL INSULATORS AND TERMINALS TO HEADER PER ND1002004, TYPE VI
17. SEAL FIND NO. 12 TO HEADER PER ND1002004, TYPE VI
18. MOUNTING TORQUE FOR FIND NO. 15 TO BE 2.0 -2.5 INCH POUNDS
19. MOUNTING TORQUE FOR FIND NO. 12 TO BE 15-20 INCH OUNCES
20. BOND FIND NO. 13 TO FIND NO. 1 PER ND1002004, TYPE I
21. COAT INDICATED SURFACES, BOTH ENDS, TOP AND BOTTOM, BOTH SIDES, PER ND1002187, TYPE II
22. ASSEMBLE FIND NO. 38 TO MODULE AFTER SELECTED VALUE HAS BEEN DETERMINED


.140
MAX TYP
SEE NOTE 7
.070 MAX TYP
SEE NOTE 6
Q5 REF
2Q18 REF
Q8 REF
FT8 REF
SEE NOTE 16
.010 MIN TYP
SEE NOTE 21
.015 MIN TYP
.000
.030
TYP

SECTION A-A

2003140	K


7
6
5
4
SEE NOTE 12
SEE NOTE 22
SEE NOTE 11
SEE NOTE 15
SEE NOTE 18
SEE NOTE 21
TYP ALL FEED THRUS
TRIM UNUSED MATRIX LEAD
.495 MAX POTTING DIM
.22
.070 MAX TYP SEE NOTE 6
.200 TYP
TYP
A
B
101
201
269
691
FT2
FT4
FT8
FT12
FT17

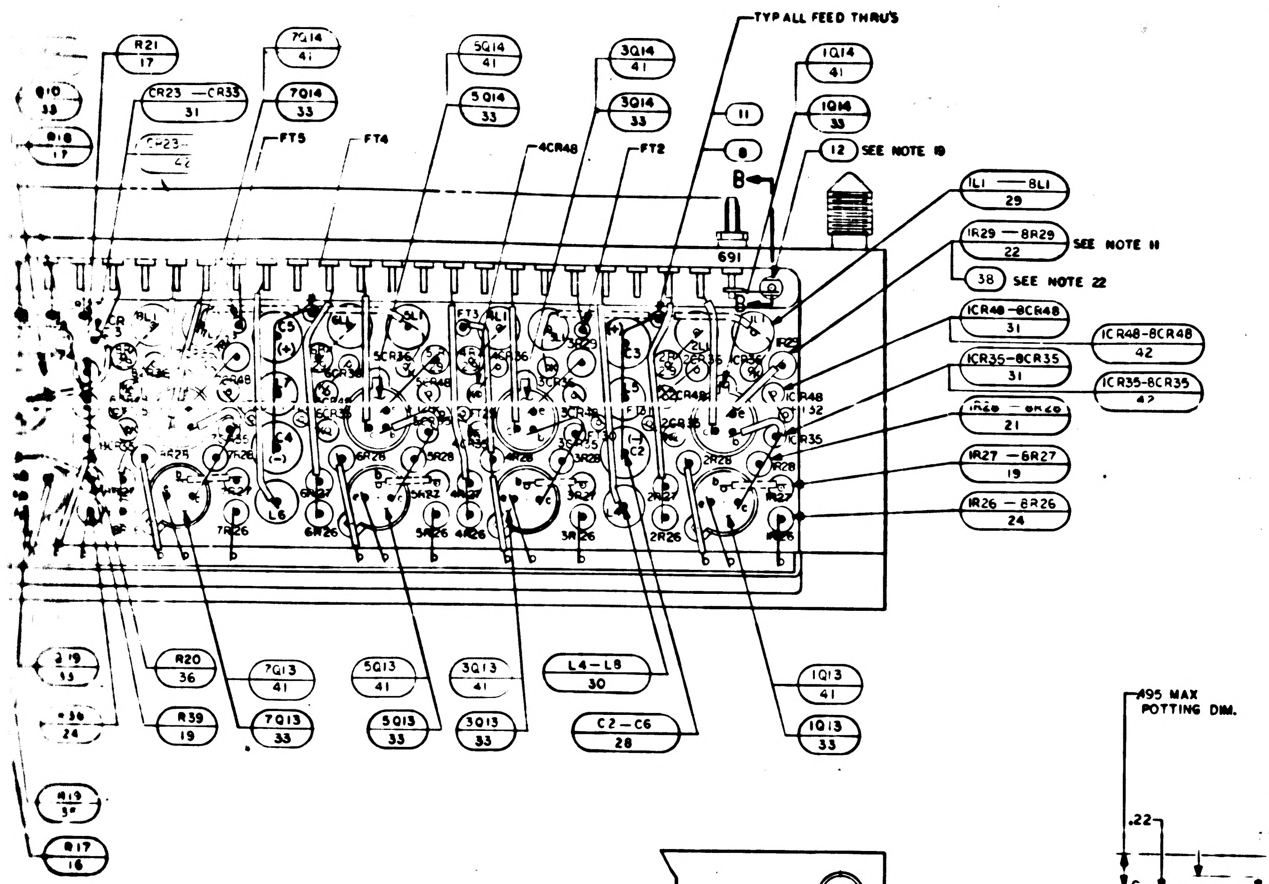
R50, R51	
PART NO.	VALUE
1006788-240	7.32
-241	7.41
-242	7.50
-243	7.59
-244	7.68
-245	7.77
-246	7.87
-247	7.96
-248	8.06
-249	8.16
-250	8.25
-251	8.35
-252	8.45
-253	8.56
-254	8.66
-255	8.76
-256	8.87
-257	8.98
-258	9.07
1006788-259	9.20

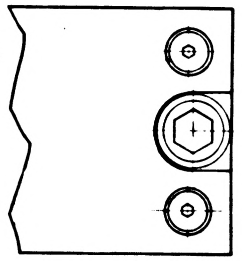
2003140 K

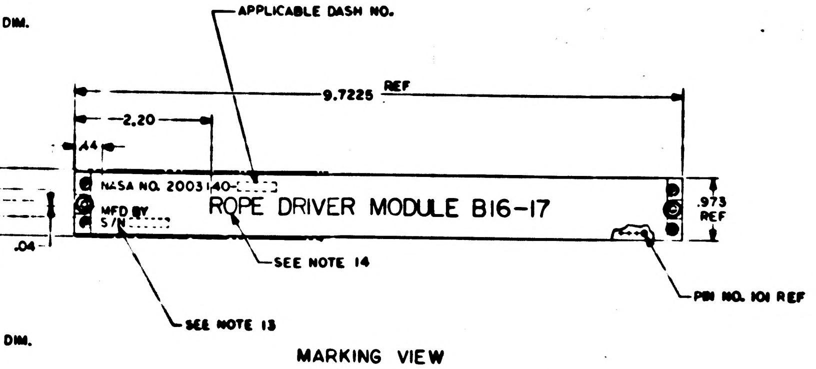
F2/3

REVISIONS 25980

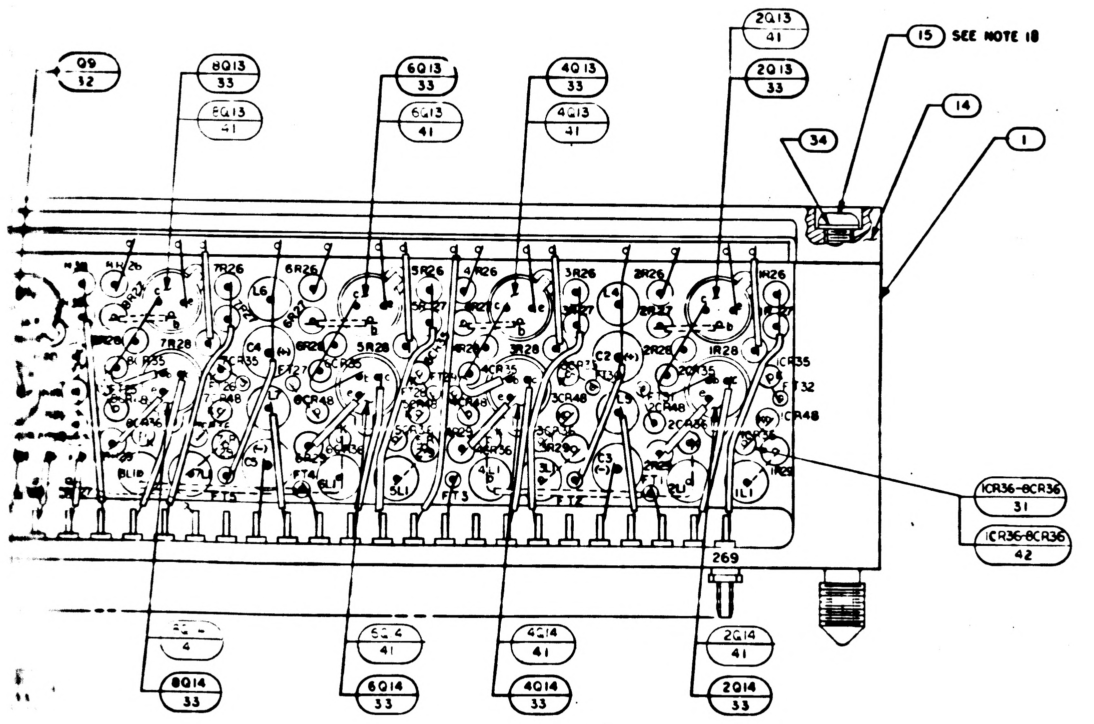
SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
A		REVISED PER TDRR 27309	DPT			
B		REVISED PER TDRR [illegible]				
C		REVISED PER TDRR 28162	DPT			
D		REVISED PER TDRR 29079				
E		REVISED PER TDRR 30864				
F		REVISED PER TDRR 31827				
G		REVISED PER TDRR 32346				
H		REVISED PER TDRR 32561			1/23/67	
J		REVISED PER TDRR 32951				
K		REVISED PER TDRR 33496				


TYP ALL FEED THRU'S
R21 17
CR23 — CR33 31
CR23 — 42
7Q14 41
7Q14 33
5Q14 41
5Q14 33
3Q14 41
3Q14 33
1Q14 41
1Q14 33
11
8
12 SEE NOTE 19
FT5
FT4
4CR48
FT2
B
691
1L1 — 8L1 29
1R29 — 8R29 22 SEE NOTE 11
38 SEE NOTE 22
1CR48 — 8CR48 31
1CR48 — 8CR48 42
1CR35 — 8CR35 31
1CR35 — 8CR35 42
1R28 — 8R28 21
1R27 — 8R27 19
1R26 — 8R26 24
R20 36
R39 19
7Q13 41
7Q13 33
5Q13 41
5Q13 33
3Q13 41
3Q13 33
L4 — L8 30
C2 — C6 28
1Q13 41
1Q13 33
R17 16




.495 MAX POTTING DIM.
APPLICABLE DASH NO.
9.7225 REF
2.20
.44
.22
.22
.04
.973 REF
NASA NO. 2003140-
MFD BY
S/N
ROPE DRIVER MODULE B16-17
SEE NOTE 14
SEE NOTE 13
PIN NO. 101 REF
.495 MAX POTTING DIM.

MARKING VIEW
SCALE 1/1


Q9 32
8Q13 33
8Q13 41
6Q13 33
6Q13 41
4Q13 33
4Q13 41
2Q13 41
2Q13 33
15 SEE NOTE 18
14
34
1
1CR36 — 8CR36 31
1CR36 — 8CR36 42
269
6Q14 41
6Q14 33
4Q14 41
4Q14 33
2Q14 41
2Q14 33
8Q14 33

QTY REQD	QTY REQD	QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
1	—	—	2004004-006	TRANSISTOR, POTTED	43
X	—	—	2005958	SCHEMATIC	REF
—	—	X	2005100	SCHEMATIC	REF
—	X	—	2005942	SCHEMATIC	REF
89	—	—	2004183-001	DIODE	42
39	—	—	2004184-001	TRANSISTOR, POTTED	41
6	6	6	SEE NOTE 11	COIL, RF, CHOKE	40
4	4	4	1006750-16	RESISTOR	39
16	16	16	2004074	INSULATOR, WASHER	38
2	2	2	1010406-11	COIL, RF, CHOKE	37
4	4	4	1006750-29	RESISTOR	36
4	4	4	1006750-24	RESISTOR	35
4	4	4	NAS620A-2	WASHER, FLAT	34
—	39	39	2004004-001	TRANSISTOR, POTTED	33
7	8	8	2004004-002	TRANSISTOR, POTTED	32
—	89	89	2004183-001	DIODE	31
9	9	9	1010406-7	COIL, RF, CHOKE	30
8	8	8	1010406-10	COIL, RF, CHOKE	29
9	9	9	1006755-79	CAPACITOR	28
1	1	1	1006755-69	CAPACITOR	27
3	3	3	1006788-9	RESISTOR	26
4	4	4	1006750-32	RESISTOR	25
20	20	21	1006750-49	RESISTOR	24
8	8	8	SEE NOTE 11	RESISTOR	23
8	8	8	SEE NOTE 11	RESISTOR	22
8	8	8	1006750-22	RESISTOR	21
1	1	1	1006750-43	RESISTOR	20
23	23	22	1006750-15	RESISTOR	19
2	2	2	1006750-39	RESISTOR	18
6	6	6	1006750-35	RESISTOR	17
3	3	3	1006750-36	RESISTOR	16
4	4	4	1006783-10	SCREW, BUTTON HEAD, HEX SOCKET	15
1	1	1	2004032	COVER	14
1	1	1	2003142-011	MATRIX ASSEMBLY	13
1	1	1	2004039	TERMINAL, THREADED	12
AR	AR	AR	1006776-22	INSULATION, SLEEVING	11
AR	AR	AR	1006776-21	INSULATION, SLEEVING	10
AR	AR	AR	1006757-1	WIRE, ELECTRICAL	9
AR	AR	AR	1006757-8	WIRE, ELECTRICAL	8
2	2	2	MS16633-4015	RING, RETAINING, EXTERNAL, "E"	7
2	2	2	2004984-003	WASHER, FLAT	6
2	2	2	2004984-001	WASHER, FLAT	5
2	2	2	1004579-1	SCREW, JACKING	4
1	1	1	2003992	INSULATOR (B) ASSY	3
1	1	1	2004720	INSULATOR (A)	2
1	1	1	2003084-011	HEADER HOUSING ASSEMBLY	1
-031	-021	-011			

LIST OF MATERIALS

NEXT ASSY	USED ON
2003993	
2003200	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS XX±.02 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
A. G. METZ
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

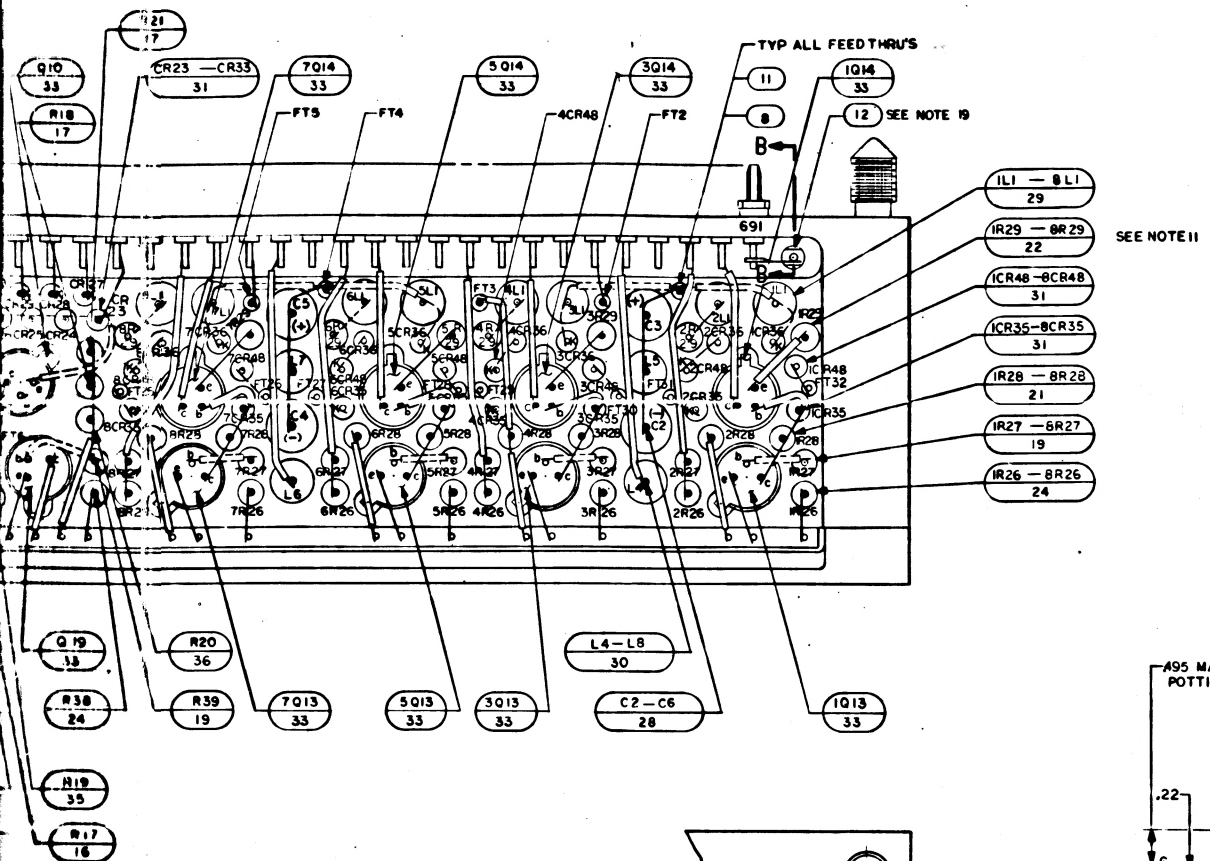
ROPE DRIVER MODULE B16-17 ASSEMBLY

CODE IDENT NO 80230 | SIZE J | DRAWING NO. 2003140

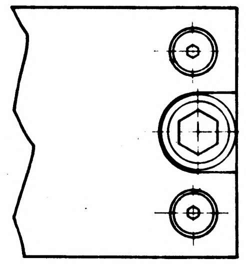
SCALE 4/1 | SHEET | OF

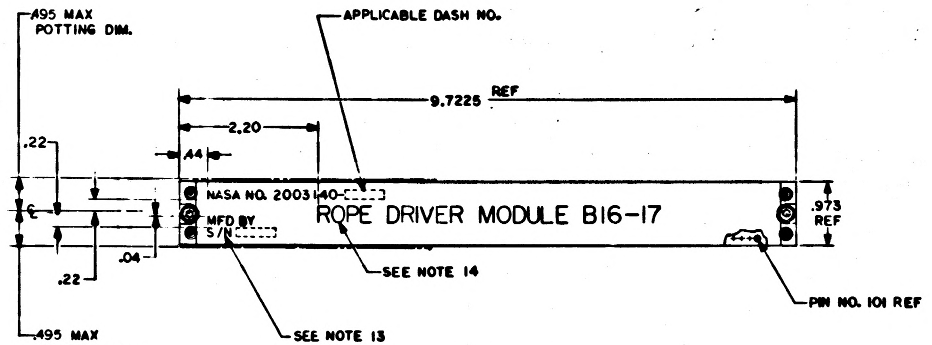
REVISIONS 2598

SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED



Q21
17
Q10
33
R18
17
CR23 — CR33
31
7Q14
33
5Q14
33
3Q14
33
1Q14
33
TYP ALL FEEDTHRU'S
11
8
12 SEE NOTE 19
FT5
FT4
4CR48
FT2
B
691
IL1 — 8L1
29
IR29 — 8R29
22
SEE NOTE 11
ICR48 - 8CR48
31
ICR35 - 8CR35
31
IR28 — 8R28
21
IR27 — 8R27
19
IR26 — 8R26
24
Q19
13
R38
24
R20
36
R39
19
7Q13
33
5Q13
33
3Q13
33
L4 — L8
30
C2 — C6
28
1Q13
33
R19
35
R17
16





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APPLICABLE DASH NO.
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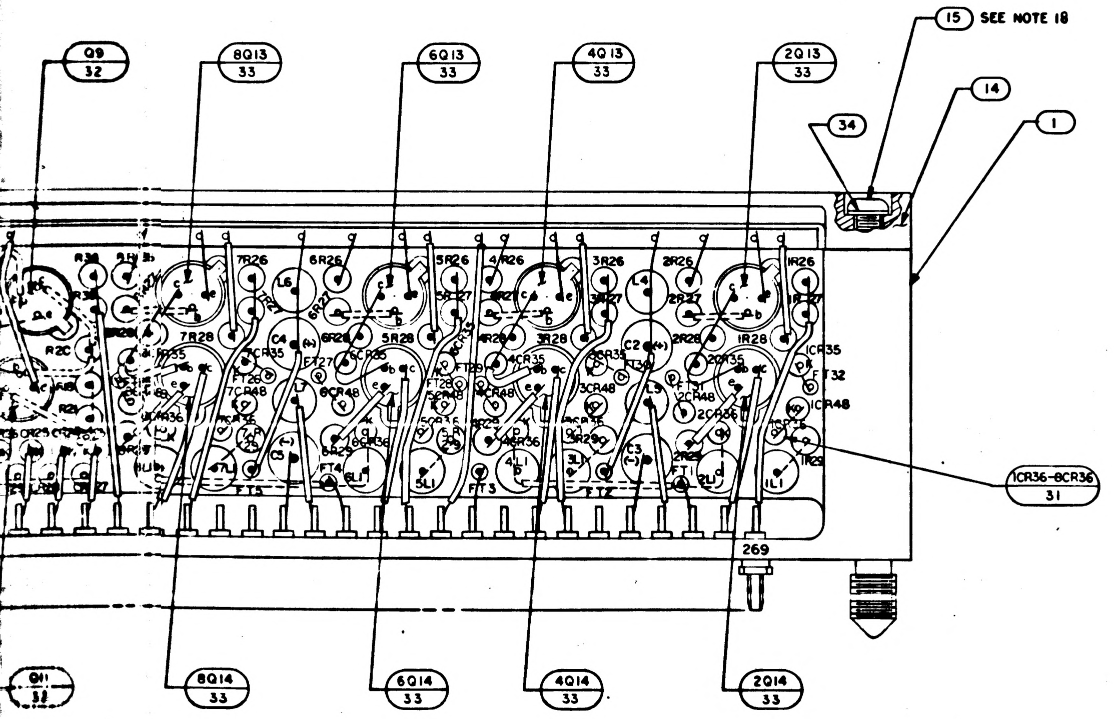
.44
.22
NASA NO. 2003140-
MFD BY
S/N
ROPE DRIVER MODULE B16-17
.973
REF
SEE NOTE 14
.04
.22
SEE NOTE 13
PIN NO. 101 REF
.495 MAX
POTTING DIM.

MARKING VIEW
SCALE 1/1



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6Q13
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4Q13
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2Q13
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15 SEE NOTE 18
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ICR36 - 8CR36
31
269
Q11
33
8Q14
33
6Q14
33
4Q14
33
2Q14
33

QTY REQ'D	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2005100	SCHEMATIC	REF
8	1010406 - 11	COIL, RF, CHOKE	37
4	1006750 - 29	RESISTOR	36
4	1006750 - 24	RESISTOR	35
4	NAS620C-2	WASHER, FLAT	34
39	2004004-001	TRANSISTOR, POTTED	33
8	2004004-002	TRANSISTOR, POTTED	32
86	2004103 -001	DIODE	31
9	1010406 —7	COIL, RF, CHOKE	30
8	1010406 — 10	COIL, RF, CHOKE	29
9	1006755 —79	CAPACITOR	28
1	1006755 —69	CAPACITOR	27
4	1006788 —9	RESISTOR	26
4	1006750 —32	RESISTOR	25
21	1006750 —49	RESISTOR	24
8	SEE NOTE 11	RESISTOR	23
8	SEE NOTE 11	RESISTOR	22
8	1006750 —22	RESISTOR	21
1	1006750 —43	RESISTOR	20
22	1006750 — 15	RESISTOR	19
2	1006750 — 39	RESISTOR	18
6	1006750 —35	RESISTOR	17
3	1006750 — 36	RESISTOR	16
4	1006783 — 10	SCREW, BUTTON HEAD, HEX SOCKET	15
1	2004032	COVER	14
1	2003142-011	MATRIX ASSEMBLY	13
1	2004039	TERMINAL, THREADED	12
A R	1006776—22	INSULATION, SLEEVING	11
A R	1006776 - 21	INSULATION, SLEEVING	10
A R	1006757—1	WIRE, ELECTRICAL	9
A R	1006757—8	WIRE, ELECTRICAL	8
2	MS16633—4015	RING, RETAINING, EXTERNAL, "E"	7
2	2004984-003	WASHER, FLAT	6
2	2004984-001	WASHER, FLAT	5
2	1004579-1	SCREW, JACKING	4
1	2003085	INSULATOR (B) ASSY	3
1	2004157	INSULATOR (A)	2
1	2003084—011	HEADER HOUSING ASSEMBLY	1
-011	LIST OF MATERIALS		

F3

2003200	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS XX±.02 ANGLES ± ——
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN E.W. Jensen
CHECKED
APPROVED
APPROVED E. C. Hall
APPROVED MIT W. Kupfer
A. O. METZGER
APPROVED NASA

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

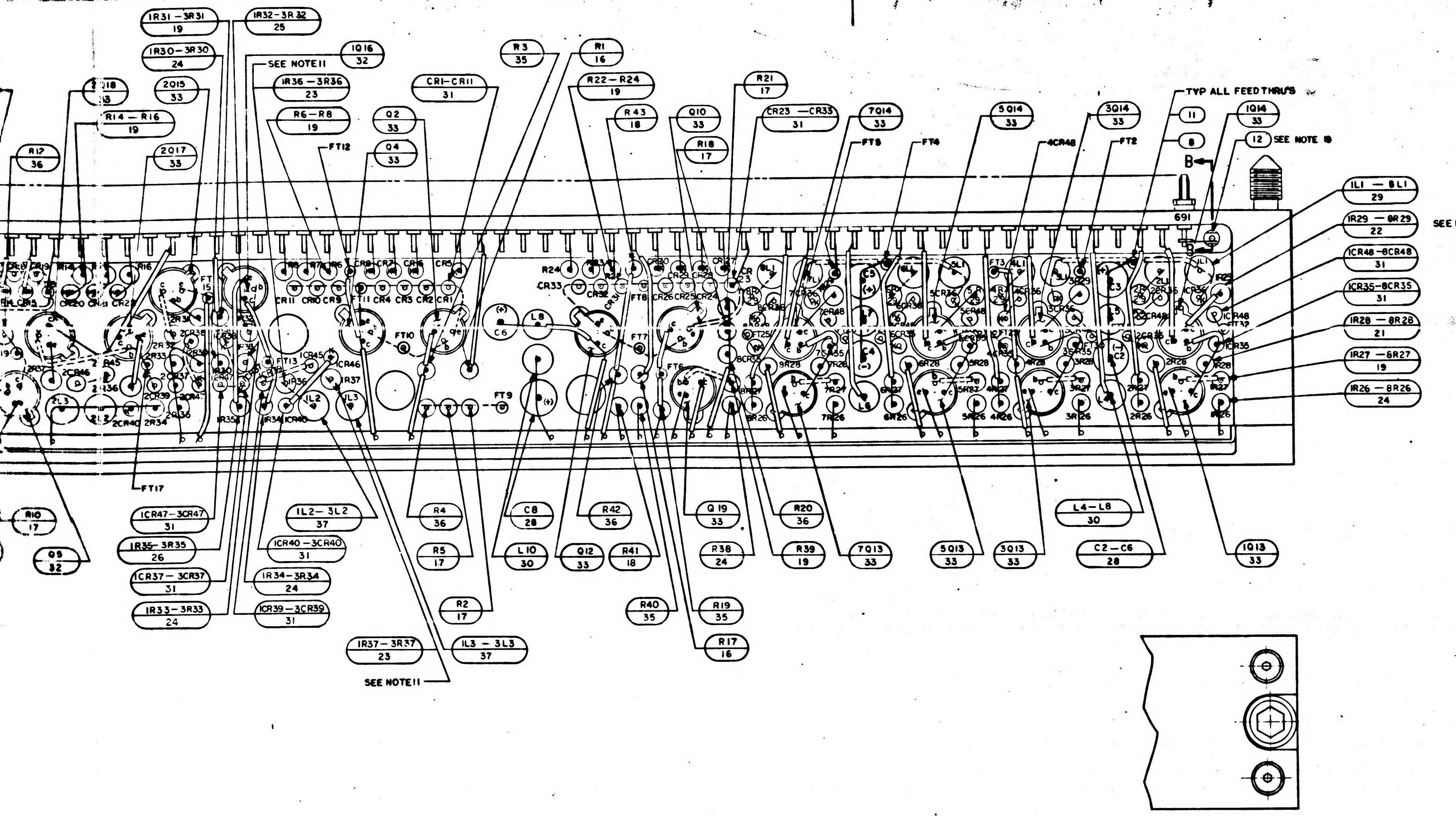
ROPE DRIVER MODULE
B16-17
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003140
SCALE 4/1
SHEET 1 OF 1

2003140

MASTER

34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IR32 – 3R32 25
IR30 – 3R30 24
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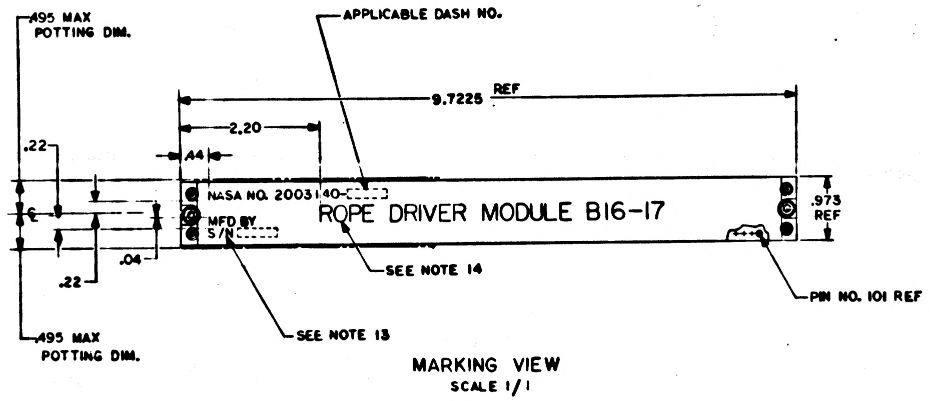
2Q15 33
IR36 – 3R36 23
R3 35
R1 16
2Q18 13
R14 – R16 19
R22 – R24 19
CR1 – CR11 31
R6 – R8 19
Q2 33
R43 18
Q10 33
R21 17
CR23 – CR33 31
7Q14 33
5Q14 33
3Q14 33
TYP ALL FEEDTHRU'S
11
1Q14 33
R17 36
2Q17 33
Q4 33
R18 17
FT12
FT9
FT4
4CR48
FT2
8
12 SEE NOTE 10
B
691
IL1 – 8L1 29
IR29 – 8R29 22
SEE NOTE 11
ICR48 – 8CR48 31
ICR35 – 8CR35 31
IR28 – 8R28 21
IR27 – 8R27 19
IR26 – 8R26 24
FT17
R10 17
Q5 32
ICR47 – 3CR47 31
IR35 – 3R35 26
ICR37 – 3CR37 31
IR33 – 3R33 24
IL2 – 3L2 37
ICR40 – 3CR40 31
IR34 – 3R34 24
ICR39 – 3CR39 31
R4 36
R5 17
R2 17
C8 28
L10 30
Q12 33
R42 36
R41 18
Q19 33
R38 24
R20 36
R39 19
7Q13 33
5Q13 33
3Q13 33
L4 – L8 30
C2 – C6 28
1Q13 33
R40 35
R19 35
R17 16
IR37 – 3R37 23
IL3 – 3L3 37
SEE NOTE 11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APPLICABLE DASH NO.
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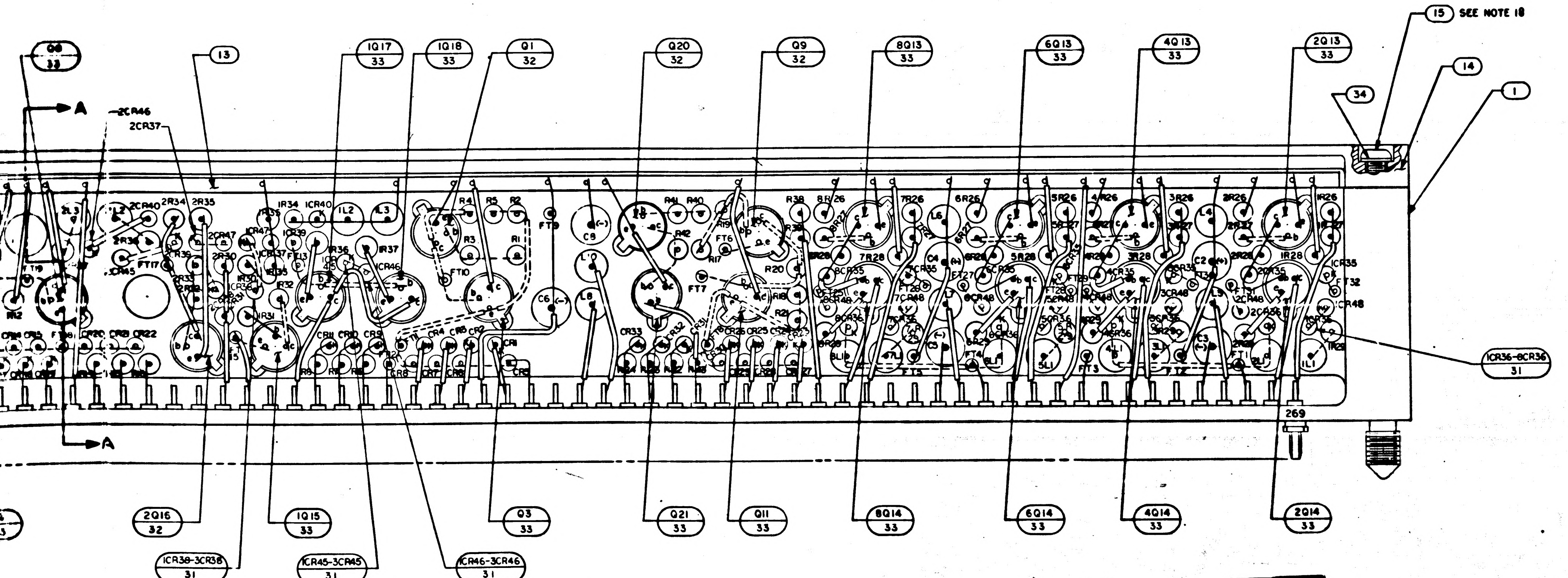
2.20
.44
.22
.22
.04
.973 REF
NASA NO. 2003140-
ROPE DRIVER MODULE B16-17
MFD BY
S/N
SEE NOTE 14
SEE NOTE 13
PIN NO. 101 REF
.495 MAX POTTING DIM.

MARKING VIEW
SCALE 1/1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13
1Q17 33
1Q18 33
Q1 32
Q20 32
Q9 32
8Q13 33
6Q13 33
4Q13 33
2Q13 33
15 SEE NOTE 18
14
34
1
A
2CR46
2CR37
ICR36 – 8CR36 31
269
A
2Q16 32
1Q15 33
Q3 33
Q21 33
Q11 33
8Q14 33
6Q14 33
4Q14 33
2Q14 33
ICR38 – 3CR38 31
ICR45 – 3CR45 31
ICR46 – 3CR46 31

F2

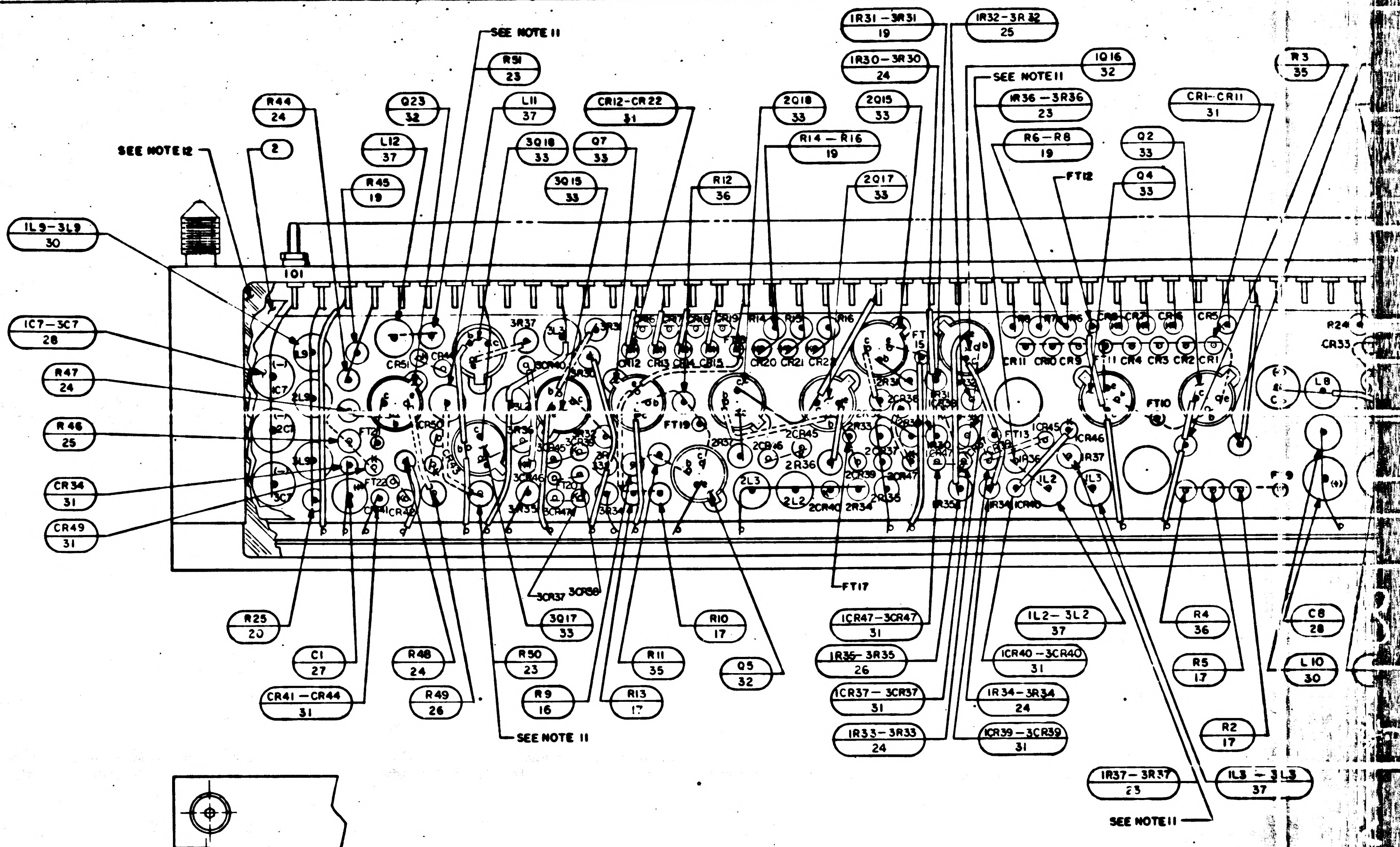
2003140

MASTER

20032

NEXT ASSY USED ON

APPLICATION


SEE NOTE 11
R51
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IR31-3R31
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IR32-3R32
25
IR30-3R30
24
SEE NOTE 11
IQ16
32
R3
35
IR36-3R36
23
CR1-CR11
31
R44
24
Q23
32
L11
37
CR12-CR22
31
2Q18
33
2Q15
33
R6-R8
19
Q2
33
SEE NOTE 12
2
L12
37
3Q18
33
Q7
33
R14-R16
19
Q4
33
R45
19
3Q15
33
R12
36
2Q17
33
FT12
IL9-3L9
30
101
IC7-3C7
28
R47
24
R46
25
CR34
31
CR49
31
FT17
R25
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C1
27
CR41-CR44
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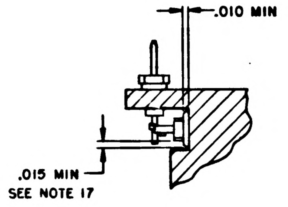
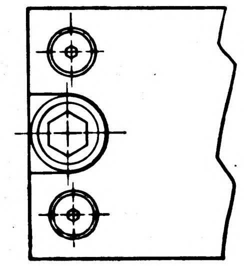
R48
24
R49
26
R50
23
R9
16
3Q17
33
R11
35
R13
17
R10
17
Q5
32
ICR47-3CR47
31
IR35-3R35
26
ICR37-3CR37
31
IR33-3R33
24
IL2-3L2
37
ICR40-3CR40
31
IR34-3R34
24
ICR39-3CR39
31
R4
36
R5
17
R2
17
C8
28
L10
30
IR37-3R37
23
IL3-3L3
37
SEE NOTE 11
SEE NOTE 11

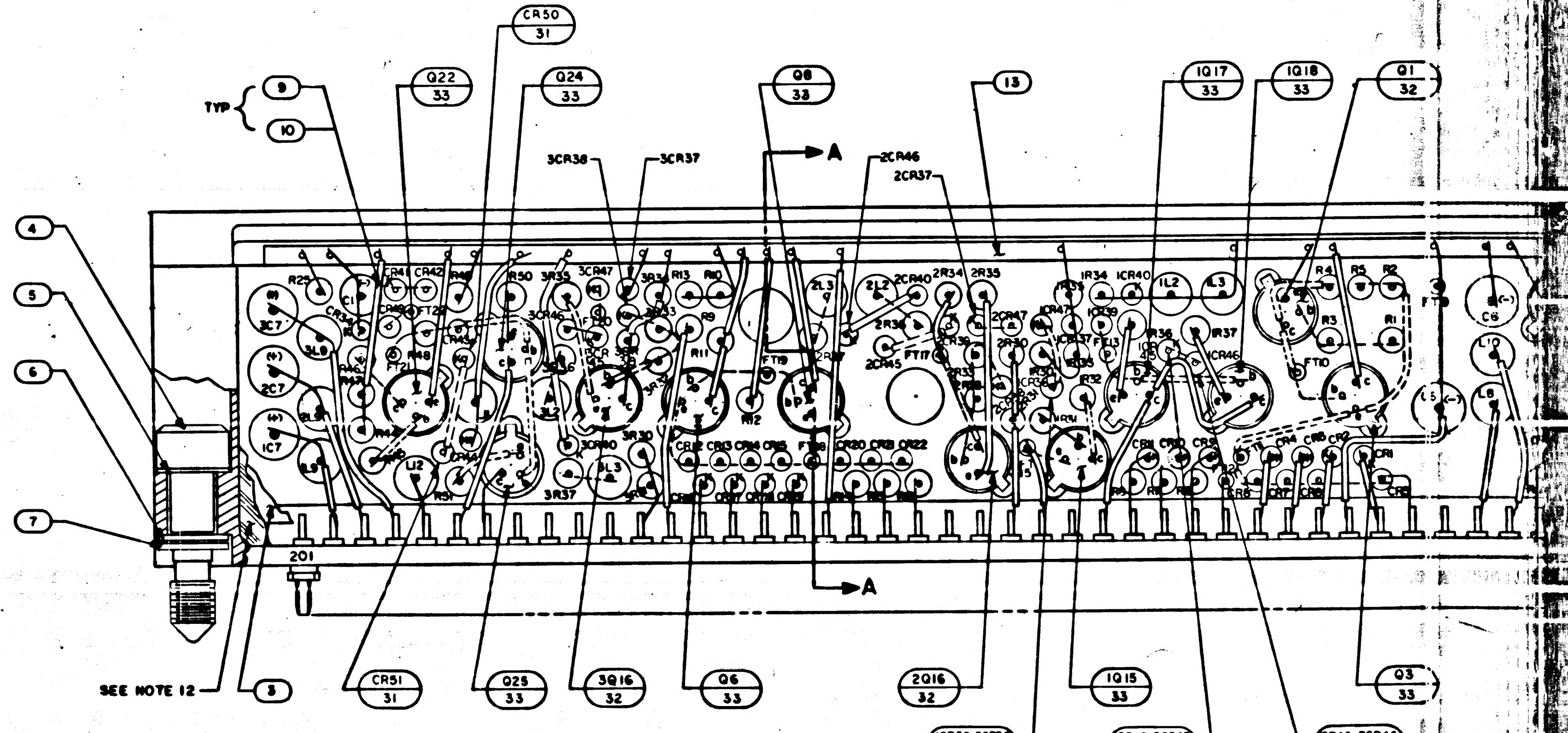
R36,R37	
PART NO.	VALUE
1006788-29	2.5
-30	2.6
-31	2.7
-32	2.8
-33	2.9
-34	3.0
-35	3.1
-36	3.2
-37	3.3
-38	3.4
-39	3.5
-40	3.6
-41	3.7
-42	3.8
-43	3.9
-44	4.0
-45	4.1
-46	4.2
-47	4.3
-48	4.4
1006788-49	4.5


.010 MIN
.015 MIN
SEE NOTE 17

SECTION B-B

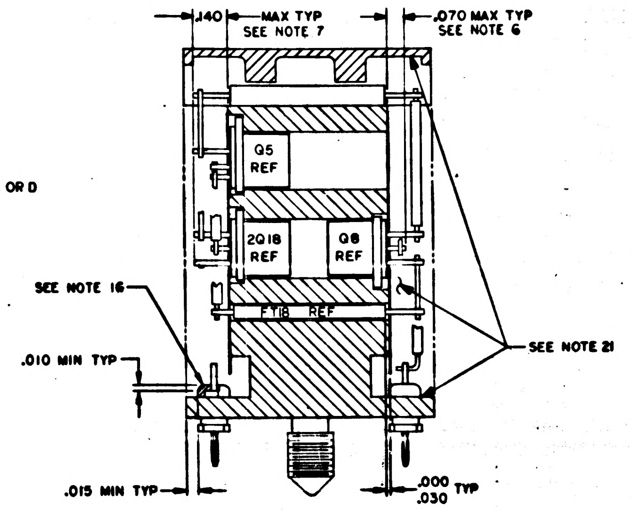
R29,R50,R51	
PART NO.	VALUE
1006788- 51	1.5
- 53	1.6
- 16	1.7
- 18	1.8
- 20	1.9
- 22	2.0
- 24	2.1
- 26	2.2
- 28	2.3
- 15	2.4
- 29	2.5
- 30	2.6
- 31	2.7
- 32	2.8
- 73	2.75
- 72	2.65
- 71	2.55
- 70	2.45
- 69	2.35
- 27	2.25
- 25	2.15
- 23	2.05
- 21	1.95
- 19	1.85
- 17	1.75
- 54	1.65
1006788- 52	1.55




CR50
31
TYP
9
10
Q22
33
Q24
33
Q8
33
13
IQ17
33
IQ18
33
Q1
32
3CR38
3CR37
A
2CR46
2CR37
4
5
6
7
201
A
SEE NOTE 12
3
CR51
31
Q25
33
3Q16
32
Q6
33
2Q16
32
IQ15
33
Q3
33
ICR38-3CR38
31
ICR45-3CR45
31
ICR46-3CR46
31

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. + DENOTES POSITIVE SIDE OF CAPACITOR
5. K DENOTES CATHODE SIDE OF DIODE
6. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
7. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
8. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND 1002069
9. WELD PER ND 1002005
10. STAKE FIND NO. 16 THRU FIND NO. 33, 35, 36 AND 37 TO FIND NO. 1 PER ND1002009, METHOD C OR D
11. SELECT R29, R36, R37, R50 AND R51 PER APPLICABLE PS FROM APPROPRIATE CHART
12. ENCAPSULATE PER ND 1002002. REMOVE FLASHING
13. MARK .10/.08 HIGH WHITE CHARACTERS PER ND 1002019 AND ND 1002122 TYPE II, CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
14. MARK .26/.24 HIGH WHITE CHARACTERS PER ND 1002019 AND ND 1002122 TYPE II, CLASS 2 USING INK 1006271-1
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS 2003140
16. SEAL INSULATORS AND TERMINALS TO HEADER PER ND1002004, TYPE VI
17. SEAL FIND NO. 12 TO HEADER PER ND1002004, TYPE VI
18. MOUNTING TORQUE FOR FIND NO. 15 TO BE 2.0 -2.5 INCH POUNDS
19. MOUNTING TORQUE FOR FIND NO. 12 TO BE 15-20 INCH OUNCES
20. BOND FIND NO. 13 TO FIND NO. 1 PER ND1002004, TYPE I
21. COAT INDICATED SURFACES, BOTH ENDS, TOP AND BOTTOM, BOTH SIDES, PER ND1002187, TYPE II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MAX TYP
SEE NOTE 7
.070 MAX TYP
SEE NOTE 6
Q5
REF
2Q18
REF
Q8
REF
FT18 REF
SEE NOTE 16
.010 MIN TYP
SEE NOTE 21
.015 MIN TYP
.000
.030
TYP

SECTION A-A

F1

4.2.4.4 Set and Reset Drivers. Verify that the input and output waveforms complies with paragraph 3.1.10. The input waveforms shall be applied to pins 125, 212 and 224. The outputs shall be measured across 10-ohm ± 0.1% load resistor connected between the output pins (108, 123 and 227) and B+ (high). The input pins shall be returned to not more than 0.9 vdc when no input pulse is being applied.

4.2.4.5 Clear Driver. Verify that the input and output pulses complies with paragraph 3.1.11. The input shall be applied to pin 104. The output shall be measured across 10-ohm ± 0.1% resistors connected from the output pins (206 and 207) and high B+. Inputs shall be terminated to not more than 0.9 vdc when not being tested.

4.2.4.6 Rope Gates. Verify that the input and output pulses complies with paragraph 3.1.12. The input pulses shall be applied to module pins 144, 137 and 213. The output measurements shall be made across the 31 ohms ± 1% load resistors connected between the output pins (237, 118, 149, 139, 127, 222, 113, 252 and 238) and ground. The input-output pin association is as follows:

149, 238 and 252 and associated with 144

113, 118 and 222 associated with 213

127, 139 and 237 associated with 137

4.2.5 Weight. Weigh the module to the nearest .01 pound. Verify that the weight does not exceed the maximum allowable weight specified in paragraph 3.2.2.

4.3 WORKMANSHIP. The following tests shall be performed under the conditions specified as a verification of good workmanship.

4.3.1 Marginal Voltage and Temperature Extremes. The module shall perform without degradation in performance when subjected to the temperature and voltage combinations specified in paragraph 3.1.13. There shall be an exception to the performance requirements in those instances (in section 3) where a specific ambient temperature of 25°C has been specified as a criteria for achieving the specified results. The module shall be subjected to the tests specified in paragraphs 4.2.4.2 through 4.2.4.6 in the high and low (voltage and temperature) environments. The module shall be exposed to its test temperature for at least 30 minutes prior to test.

4.3.2 Vibration. Install the module in an applicable computer. Subject the computer subsystem to the vibration tests specified in the applicable JDC. Verify that the computer subsystem meets the requirements of the applicable specification.

5. PREPARATION FOR DELIVERY

5.1 GENERAL. Preparation for delivery shall be in accordance with SPECIFICATION ND 1002214.

6. NOTES. None.

1. SCOPE

This specification establishes the detail requirements for complete identification and acceptance of the Rope Driver Module Part No. 2003140-011.

2. APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein.

2.1 EFFECTIVE ISSUES. Unless otherwise specified herein, Military and Government Standards and specifications shall be the issue in effect on the date of request for proposal or invitation to bid.

SPECIFICATIONS

APOLLO G&N

ND 1002214	General Specification for Preservation, Packaging, Packing and Container Marking of APOLLO Guidance and Navigation Major Assemblies, Assemblies, Subassemblies, Parts and Associated Ground Support Equipment.

DRAWINGS

APOLLO G&N

2003140	ROPE DRIVER MODULE (B16-B17)

Copies of Specifications, Standards, Drawings, Bulletins and Publications required by suppliers in connection with specific procurement functions should be obtained from the Procuring Activity or as directed by the Contracting Officer.

2.2 CONFLICTING REQUIREMENTS. In the event of conflict between the requirements of the contract, this Specification and the documents listed in this section, the following order of precedence shall apply and the contractor shall notify MIT Apollo Management of the conflict as soon as it is determined.

a. The contract
b. This Specification
c. Documents listed in this section

2

3.1.4 (Resistance (Cont'd)

c. The resistance between the following pin pairs shall be 200 ± 4.0 ohms.

Pins	Pins	Pins
130 to 230	219 to 119	143 to 243
129 to 229	220 to 120	142 to 242
128 to 228	221 to 121	141 to 241

d. The resistance and polarity for the following pin pairs shall be as follows:

Pin +	Pin -	
138	140	not more than 300 ± 100 ohms at 11.5 ± 4.5 ma
131	135	not more than 300 ± 100 ohms at 11.5 ± 4.5 ma
140	138	not less than 10 megohms at 6 volts
135	131	not less than 10 megohms at 6 volts

3.1.5 **Capacitance.** The following values shall apply:

a. The capacitance between the following pin pairs shall be 6.8 ± 1.0 uf.

Pins	Pins	Pins
165 to 267	154 to 256	239 to 111
267 to 265	256 to 254	240 to 111

b. The capacitance between the following pin pairs shall be 20.4 ± 2.0 uf.

Pins
202 to 101
203 to 101
204 to 101

c. The capacitance between pins 103 and 225 shall be 1 uf ± 15%.

3.1.5 Inductance. The following values shall apply:

a. The inductance between the following pin pairs shall be 8.2 ± 2.0 uh.

Pins	Pins
165 to 267	255 to 256
266 to 267	239 to 111
154 to 256	240 to 111

3.1.9.2 **Inhibit Drivers.** The input and output signals shall conform to the characteristics specified in table 3-3 and figure 3-2. 3-2

Table 3-3

Characteristic	Input at pin A	Output at pin B
Level (A_1) high	2.10 ± 0.25 volts	----
Level (A_2) low	0.8 ± 0.1 volt	2.0 ma max
Amplitude (A)	------	225 ± 5 ma*
Rise Time (T_r)	100 nsec max	0.65 usec ± 30%
Fall Time (T_f)	100 usec max	----
Pulse Width (PW)	3 usec ± 5%	----
Period (T)	16 usec ± 5%	----
Time Delay (T_d)	----	0.5 usec max
T off	----	1.0 usec max

* At 25°C.

*at 25°C

3.1.10 **Set and Reset Drivers.** The input and output waveforms shall comply with Table 3-4 and Figure 3-2 with the output measured across the output load resistor. The amplitude (A) limits specified herein have been established for an ambient temperature of 25°C.

Table 3-4

Parameters	Input	Output
Level (A_2) low	0.8 ± 0.1 volts	2.0 ma, max
Level (A_1) high	2.1 ± 0.25 volts	--------
Amplitude (A)	--------	450 ± 5 ma *
Rise Time (T_r)	100 nsec max	0.60 ± 0.2 usec
Fall Time (T_f)	100 nsec max	--------
Pulse Width (PW)	4 usec ± 5%	--------
Period (T)	16 usec ± 5%	--------
TD	--------	200 nsec max and 50 nsec min.
T OFF	--------	0.90 usec max.

* at 25°C

3.1.12 **Clear Driver.** The input and output waveforms shall comply with Table 3-5 and Figure 3-2 with the output measured across the output load resistor. The amplitude (A) limit has been established for an ambient temperature of 25°C.

Table 3-5

Parameter	Input	Output
Level (A_2) low	0.8 ± 0.1 volt	2.0 ma, max
Level (A_1) high	2.1 ± 0.25 volts	--------
Amplitude (A)	--------	350 ± 5 ma*
Rise Time (T_r)	100 nsec max	1.0 usec ± 30%
Fall Time (T_f)	100 nsec max	--------
Pulse Width (PW)	3 usec ± 5%	--------
Period (T)	16 usec ± 5%	--------
TD	--------	0.20 usec max
T OFF	--------	1.5 usec max

* at 25°C

3.1.12 Rope Gates. The input and output pulse characteristics shall comply with Table 3-6 and Figure 3-3. The output pulse shall be measured across output load resistor.

Table 3-6

Parameter	Input	Output
Level (A_2) low	1.5 volts max	0.1 volts max
Level (A_1) high	0.1 volt below B+ max	1.5 volts below B+ max
Rise Time (T_r)	0.2 usec max	--------
Fall Time (T_f)	0.2 usec max	--------
Pulse Width (PW)	8 usec ± 5%	--------
Period (T)	16 usec ± 5%	--------
T ON	--------	0.6 usec max
T OFF	--------	1.5 usec max

3.1.13 **Marginal Voltage and Temperature Extremes.** The module shall perform as described in paragraphs 3.1.8 through 3.1.12 under each of the two combinations (temperature and input voltage) of operating extremes.

3.1.13.1 Low Operating Extreme:

a. Voltage: 4.8 ± 0.1 vdc and 12.2 ± 0.1 vdc
b. Temperature: $-10^{\circ}C\ ^{+0C^{\circ}}_{-2.8C^{\circ}}$

Under the low operating extreme the following output (amplitude A) deviations shall apply:

Set and Reset Driver	Clear Driver	Inhibit Driver
Amplitude A = 475 ± 15 ma	Amplitude A = 350 ± 10 ma	Amplitude A = 220 ± 10 ma

3.1.13.2 High Operating Extreme

a. Voltage: 3.4 ± 0.1 vdc and 16.5 ± 0.1 vdc
b. Temperature: $70^{\circ}C\ ^{+2.8C^{\circ}}_{-0C^{\circ}}$

Under the high operating extreme the following output (amplitude A) deviations shall apply.

Set and Reset Driver	Clear Driver	Inhibit Driver
Amplitude A = 425 ± 15 ma	Amplitude A = 345 ± 10 ma	Amplitude A = 225 ± 10 ma

3.1.13.3 **Inhibit and Clear Drivers Outputs Under Low Conditions.** With input voltages of 3.4 ± 0.1 vdc and 16.5 ± 0.1 vdc and with an ambient temperature of $-10\ C\ ^{+0^{\circ}C}_{-2.9^{\circ}C}$ amplitude A for the inhibit drivers shall be 255 ± 10 ma and for the clear drivers shall be 380 ± 10 ma.

3.1.13.4 **Inhibit and Clear Drivers Outputs Under High Conditions.** With input voltages of 4.8 ± 0.1 vdc and 12.2 ± 0.1 vdc and in an ambient temperature of 70°C amplitude A for inhibit drivers shall be 190 ± 10 ma and for the clear drivers shall be 315 ± 10 ma.

3.1.14 **Vibration.** The module shall perform as specified in paragraphs 3.1.8 through 3.1.12 when installed in an operating computer which is being subjected to the vibration requirements specified in the applicable specifications for the computer subsystem. Acceptance criteria for the module shall be compliance of the computer subsystem with its applicable specifications.

3.2 Product Configuration

3.2.1 **Drawings.** The configuration of the assembly shall be in accordance with APOLLO G&N Drawing 2003140 and all drawings and engineering data referenced thereon.

3.2.2 **Weight.** Maximum allowable weight of the assembly shall be 0.90 pounds.

4. QUALTIY ASSURANCE PROVISION

4.1 **GENERAL.** The contractor responsible for the manufacture of the assembly shall be responsible for the accomplishment of each test required herein. A cross reference index of module requirements (section 3) and verification tests for these requirements (section 4) is provided in Table 4-1.

Table 4-1 Cross Reference Index

Requirement (Section 3)	Verification (Section 4)
3.1.1	4.2.2
3.1.2	4.2.3.1
3.1.3	4.2.3.2
3.1.4	4.2.3.3
3.1.5	4.2.3.4
3.1.6	4.2.3.5
3.1.7	4.1.3
3.1.8	4.2.4.2
3.1.9	4.2.4.3
3.1.10	4.2.4.4
3.1.11	4.2.4.5
3.1.12	4.2.4.6
3.1.13	4.3.1
3.1.14	4.3.2
3.2.1	4.2.1
3.2.2	4.2.5

4.2.4 Dynamic Tests

4.2.4.1 Test Conditions. The input pulses shall be applied to the module from a micrologic as specified in figure 4-1. The following conditions shall be maintained throughout dynamic tests unless otherwise specified. The input DC levels shall be adjusted before applying power to the module.

a. Pins 169, 101, 103, 111, 218, 235, 254, 259, and 265 shall be connected to ground (0.VDC).

b. Pins 102, 154, 165, 239 and 240 shall be connected to 14.0 ± 0.1 VDC (high B+).

c. Pins 255 and 266 shall be connected to 4.0 ± 0.1 VDC (low B+).

4.2.4.2 Inhibit Gates. Verify that the input and output waveforms complies with paragraph 3.1.8. The input shall be applied to pin 249. The output shall be measured across a 50-ohm, ± 5%, loading resistor connected between pin 244 and 0 VDC. Pins 104, 125, 224 and 212 shall be terminated to not more than 0.9 vdc. Inputs shall be terminated to not more than 0.9 vdc when not being used.

4.2.4.3 Inhibit Drivers. Verify that the input and output waveforms complies with paragraph 3.1.9. See table 4-2 for input and output pin relationships and for pin A and B locations. The following connections shall be made.

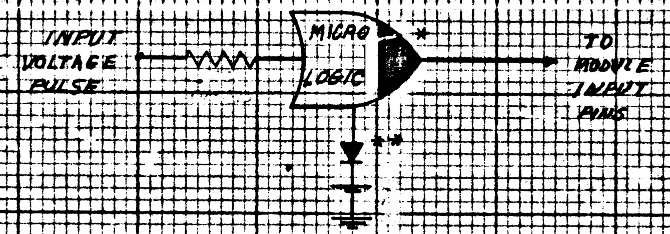
a. Pins 104, 125, 224 and 212 shall be grounded.

b. Connect pin 260 to a potential of 1.7 ± 0.2 volts below B+ high.

c. Connect 10- ohm ± 0.1% load resistors between pin B (see table 4-2) and B+ (high).

Table 4-2 Input-Output Pin Relationship

Pin A Input	Pin B Output
269	169
167	268
263	162
160	262
258	157
156	257
251	152
151	250

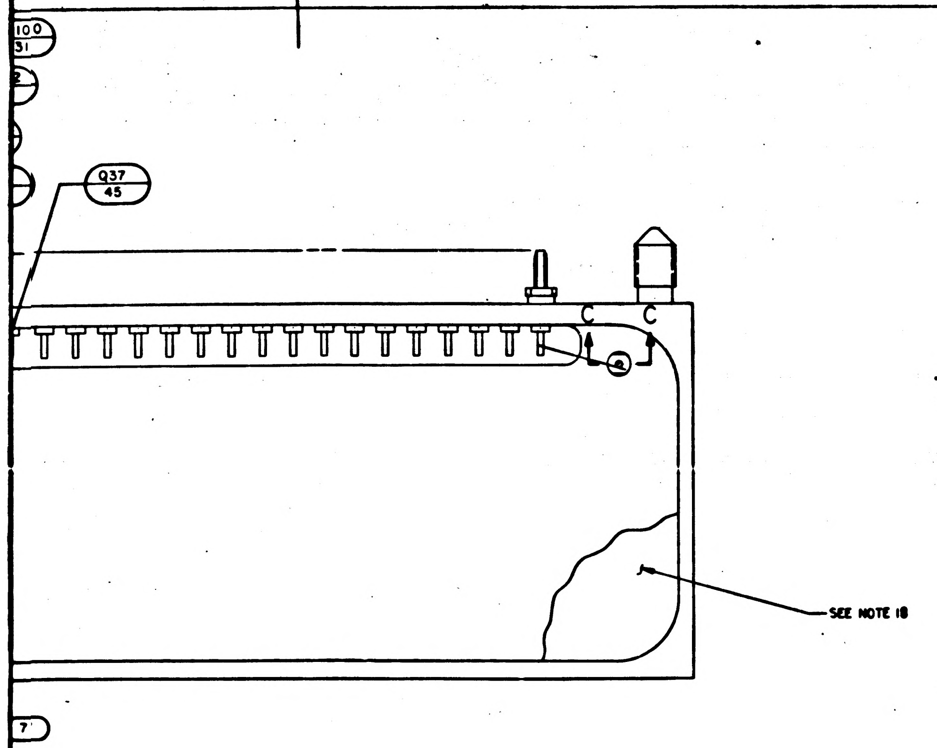

INPUT VOLTAGE PULSE
MICRO LOGIC
*
**
TO MODULE INPUT PINS

* MICROLOGIC PART NO. 1006326 OR EQUIVALENT

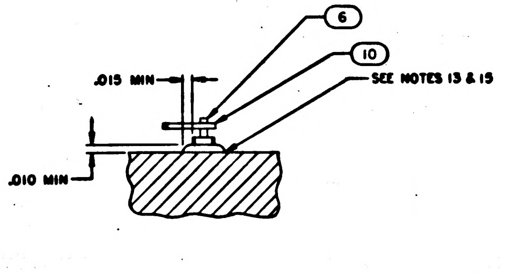
** DIODE PART NO. 1006751 OR EQUIVALENT

FIGURE 3-1 INPUT MICROLOGIC

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
—		RELEASED PER TDRR 25152				
A		REVISED PER TDRR 25775				

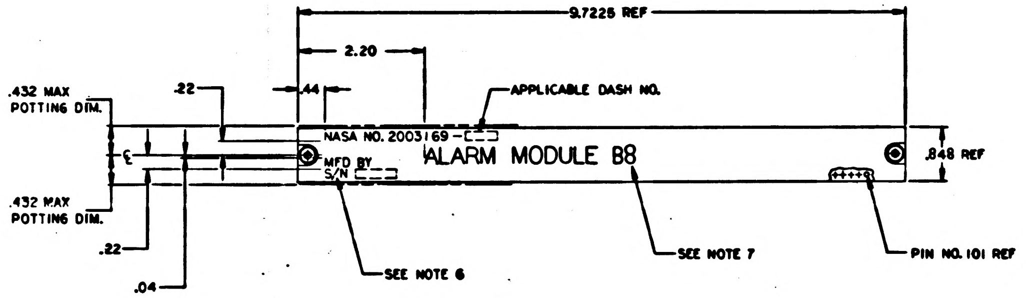


100
31
2
Q37
45
C
C
SEE NOTE 18
7



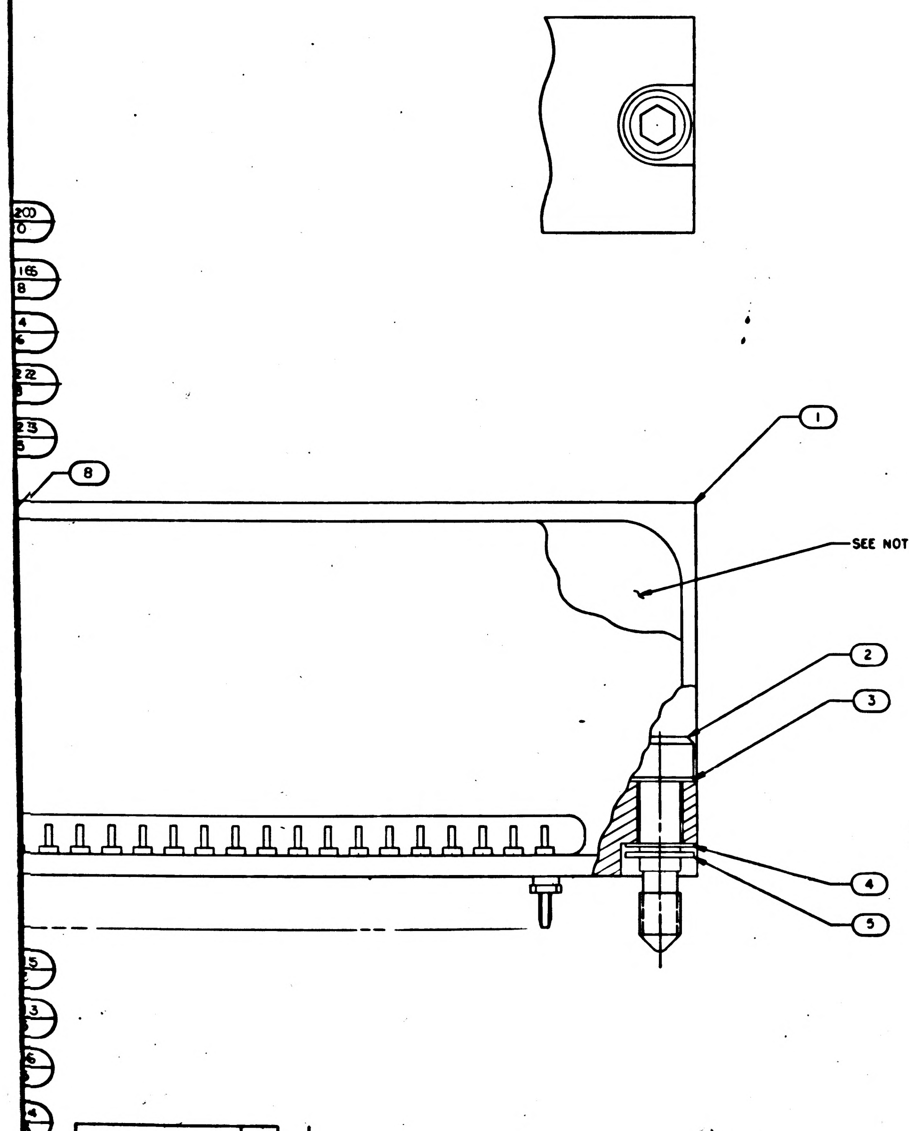
6
10
.015 MIN
SEE NOTES 13 & 15
.010 MIN

PARTIAL SECTION C-C



9.7225 REF
2.20
APPLICABLE DASH NO.
.432 MAX
POTTING DIM.
.22
.44
NASA NO. 2003169 -
MFD BY
S/N
ALARM MODULE B8
.848 REF
.432 MAX
POTTING DIM.
.22
.04
SEE NOTE 6
SEE NOTE 7
PIN NO. 101 REF

MARKING VIEW
SCALE 1/1



200
165
4
22
23
8
1
SEE NOTE 18
2
3
4
5

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2005028	SCHEMATIC	REF
1	1006755-69	CAPACITOR	56
1	1006755-21	CAPACITOR	55
1	1006750-50	RESISTOR	54
1	1006750-36	RESISTOR	53
6	2004074	INSULATOR, WASHER	52
5	SEE NOTE 8	RESISTOR	51
8	1006750-39	RESISTOR	50
1	1006750-46	RESISTOR	49
1	1006755-128	CAPACITOR	48
7	1010376-1	TRANSISTOR	47
15	2004004-002	TRANSISTOR	46
16	2004004-001	TRANSISTOR	45
4	2004112-002	DIODE	44
8	2004103-001	DIODE	43
2	1006777-25	CAPACITOR	42
1	1006777-24	CAPACITOR	41
1	1006777-20	CAPACITOR	40
1	1006755-79	CAPACITOR	39
4	1006755-57	CAPACITOR	38
1	1006755-36	CAPACITOR	37
1	1006755-31	CAPACITOR	36
2	1006788-6	RESISTOR	35
6	1010377-227	RESISTOR	34
3	1010377-51	RESISTOR	33
1	1010377-50	RESISTOR	32
6	1006750-84	RESISTOR	31
1	1006750-83	RESISTOR	30
1	1006750-63	RESISTOR	29
9	1006750-58	RESISTOR	28
14	1006750-56	RESISTOR	27
18	1006750-49	RESISTOR	26
17	1006750-47	RESISTOR	25
5	1006750-43	RESISTOR	24
1	1006750-41	RESISTOR	23
1	1006750-33	RESISTOR	21
5	1006750-32	RESISTOR	20
2	1006750-30	RESISTOR	19
3	1006750-25	RESISTOR	18
3	1006750-15	RESISTOR	17
1	1006750-14	RESISTOR	16
3	1006750-8	RESISTOR	15
2	1006750-6	RESISTOR	14
3	1006750-1	RESISTOR	13
AR	1006776-22	INSULATION, SLEEVING	12
AR	1006776-21	INSULATION, SLEEVING	11
AR	1006757-8	WIRE, ELEC	10
AR	1006757-1	WIRE, ELEC	9
1	2003077-011	INSULATOR B ASSEMBLY	8
1	2004144	INSULATOR A	7
1	2004039	TERMINAL THREADED	6
2	MS16633-4015	RING, RETAINING, EXTERNAL, "E"	5
2	1004546-3	WASHER, FLAT	4
2	1004546-1	WASHER, FLAT	3
2	1004579-1	SCREW, JACKING	2
1	2003032-011	HEADER, HOUSING ASSY	1
-011	LIST OF MATERIALS		

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS XX± .02 ANGLES ± ——
DO NOT SCALE THIS DRAWING

MATERIAL

NEXT ASSY	USED ON
2003100	

APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN
CHECKED
APPROVED
APPROVED Eldon C Hall
APPROVED MIT
APPROVED MSC A. C. METZGER
DATE

ALARM MODULE
B8
ASSEMBLY

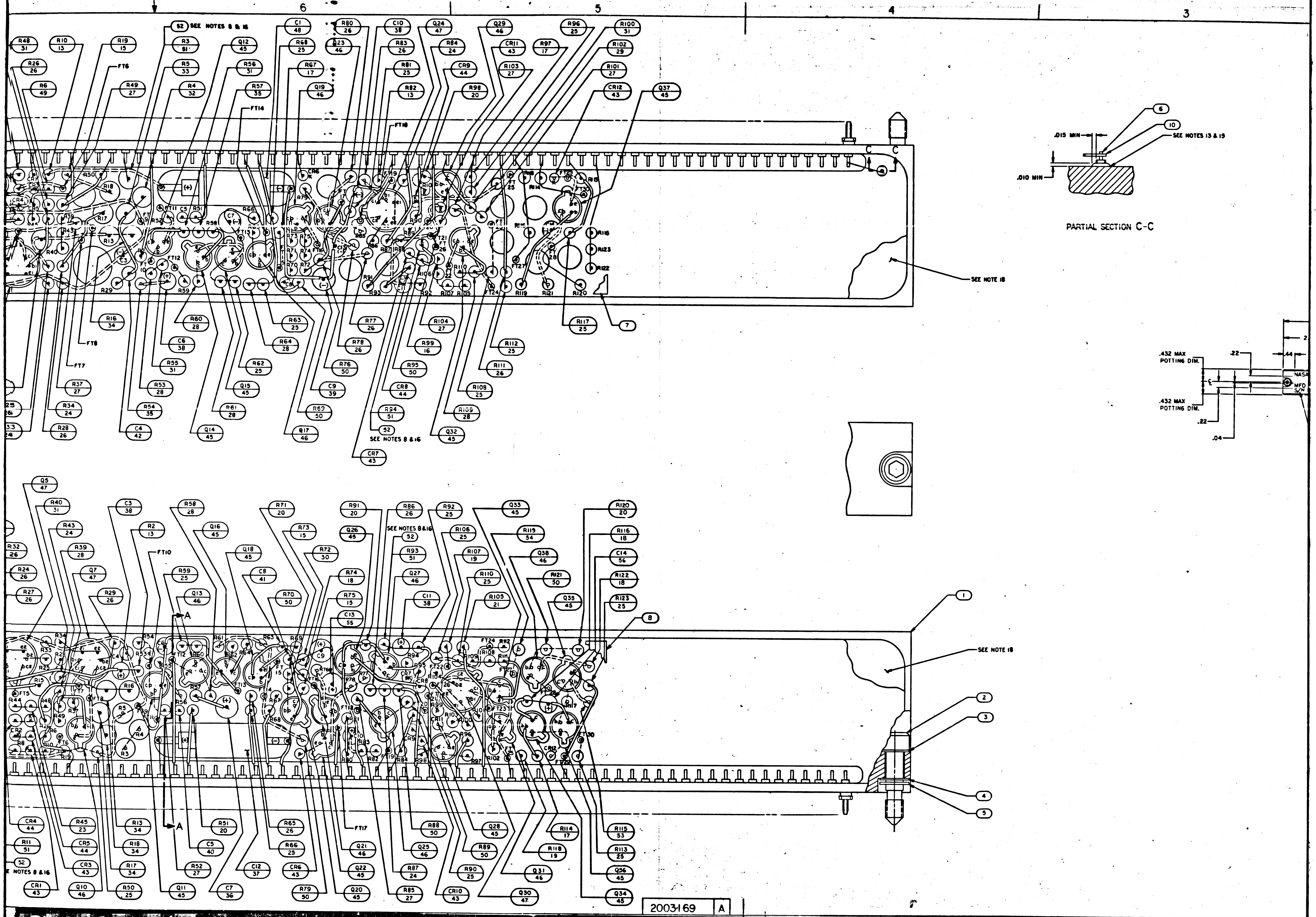
CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2003169

SCALE 4/1
SHEET 1 OF 1

2003169 A

2003169 A

F3/3


6
5
4
3
52 SEE NOTES 8 & 16
SEE NOTES 8 & 16
R48 31
R10 13
R19 15
R26 26
R6 49
R3 51
R5 33
R4 32
R49 27
Q12 45
R56 31
R57 35
C1 48
R80 26
Q23 46
R68 25
R67 17
Q19 46
C10 38
R83 26
R81 25
R82 13
Q24 47
R84 24
CR9 44
R98 20
Q29 46
CR11 43
R103 27
R96 25
R97 17
R100 31
R102 29
R101 27
CR12 43
Q37 45
FT6
FT14
FT18
R16 34
C6 38
R55 31
R53 28
R54 35
R37 27
R34 24
R28 26
C4 42
Q14 45
R60 28
R61 28
Q15 45
R62 25
R64 28
R63 25
Q17 46
R69 50
C9 39
R76 50
R78 26
R77 26
R94 51
CR7 43
CR8 44
R95 50
R99 16
R104 27
Q32 45
R109 28
R108 25
R111 26
R112 25
R117 25
FT8
FT7
7
SEE NOTE 18
6
10
.015 MIN
SEE NOTES 13 & 15
.010 MIN
PARTIAL SECTION C-C
C
C
.432 MAX POTTING DIM.
.432 MAX POTTING DIM.
.22
.44
.22
.04
NASA
MFD
S/N
Q5 47
R40 31
R43 24
R39 28
Q7 47
C3 38
R2 13
FT10
R29 26
R58 28
Q16 45
R59 25
Q13 46
Q18 45
C8 41
R71 20
R73 15
R72 30
R70 50
R74 18
R75 15
C13 55
R91 20
Q26 45
R86 26
R93 51
Q27 46
C11 38
R92 25
R106 25
R107 19
R110 25
R105 21
Q33 45
R119 54
Q38 46
R121 50
Q35 45
R120 20
R116 18
C14 56
R122 18
R123 25
R32 26
R24 26
R27 26
A
A
1
8
SEE NOTE 18
2
3
4
5
CR4 44
R11 51
52
SEE NOTES 8 & 16
CR1 43
R45 23
CR5 44
CR3 43
Q10 46
R13 34
R18 34
R17 34
R50 25
C5 40
R52 27
Q11 45
R51 20
C12 37
C7 36
R65 26
R66 25
CR6 43
R79 50
FT17
Q21 46
Q22 45
Q20 45
R88 50
Q25 46
R87 24
R85 27
CR10 43
Q28 45
R89 50
R90 25
Q30 47
Q31 46
R114 17
R118 19
R115 53
R113 25
Q36 45
Q34 45
2003169 A

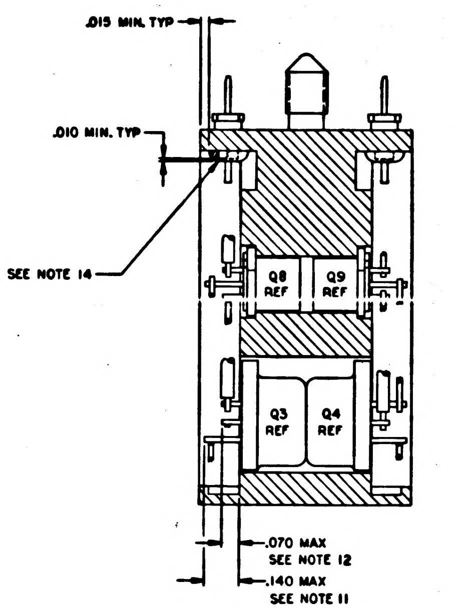
2003169 A F2/3

R11,R93	
PART NO.	VALUE
1006798-6	10
1006788-9	27
1006750-1	51
-4	68
-7	91
-9	110
-11	130
-12	150
-13	160
-14	180
-15	200
-16	220
1006750-17	240

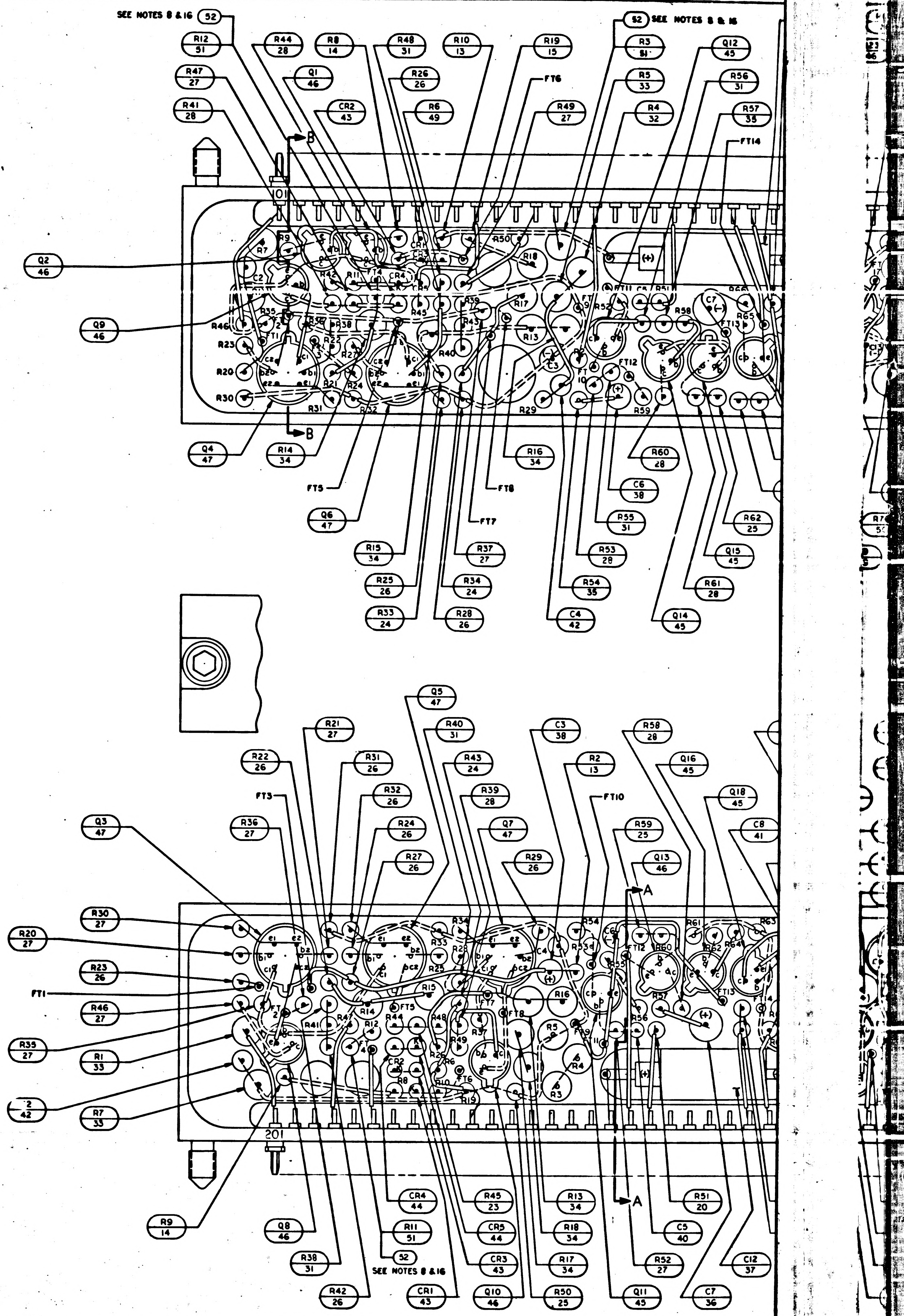
R12	
PART NO.	VALUE
1006750-36	1500
-37	1600
-38	1800
-39	2000
-40	2200
1006750-41	2400

R94	
PART NO.	VALUE
1006750-27	620
-30	820
-32	1000
-34	1200
-35	1300
-36	1500
-37	1600
1006750-38	1800

R3	
PART NO.	VALUE
1006750-128	3450
-45	3600
-129	3750
-46	3900
-130	4100
-47	4300
-131	4500
1006750-48	4700


.015 MIN. TYP
.010 MIN. TYP
SEE NOTE 14
Q8 REF
Q9 REF
Q3 REF
Q4 REF
.070 MAX SEE NOTE 12
.140 MAX SEE NOTE 11

SECTION B-B
FIND NO. 7 & 8 REMOVED FOR CLARITY


SEE NOTES 8 & 16
52
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R44 28
R8 14
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R10 13
R19 15
R3 8I
Q12 45
R47 27
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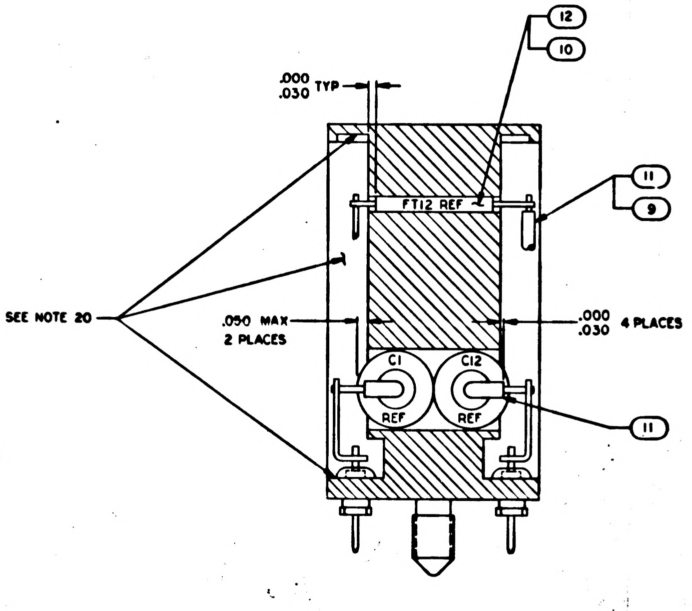
R26 26
FT6
R5 33
R56 31
R41 28
CR2 43
R6 49
R49 27
R4 32
R57 35
FT14
B
101
Q2 46
Q9 46
Q4 47
R14 34
FT5
FT8
FT7
R16 34
R60 28
C6 38
Q6 47
R55 31
R62 25
R15 34
R37 27
R53 28
Q15 45
R25 26
R34 24
R54 35
R61 28
R33 24
R28 26
C4 42
Q14 45
Q5 47
R40 31
R21 27
C3 38
R58 28
R22 26
R31 26
R43 24
R2 13
Q16 45
FT3
R32 26
R39 28
FT10
Q18 45
Q3 47
R36 27
R24 26
Q7 47
R59 25
C8 41
R27 26
R29 26
Q13 46
A
R30 27
R20 27
R23 26
FT1
R46 27
R35 27
R1 33
2 42
R7 33
201
R9 14
Q8 46
CR4 44
R45 23
R13 34
R51 20
R11 51
CR5 44
R18 34
C5 40
R38 31
52
SEE NOTES 8 & 16
CR3 43
R17 34
R52 27
C12 37
R42 26
CR1 43
Q10 46
R50 25
Q11 45
C7 36

NOTES

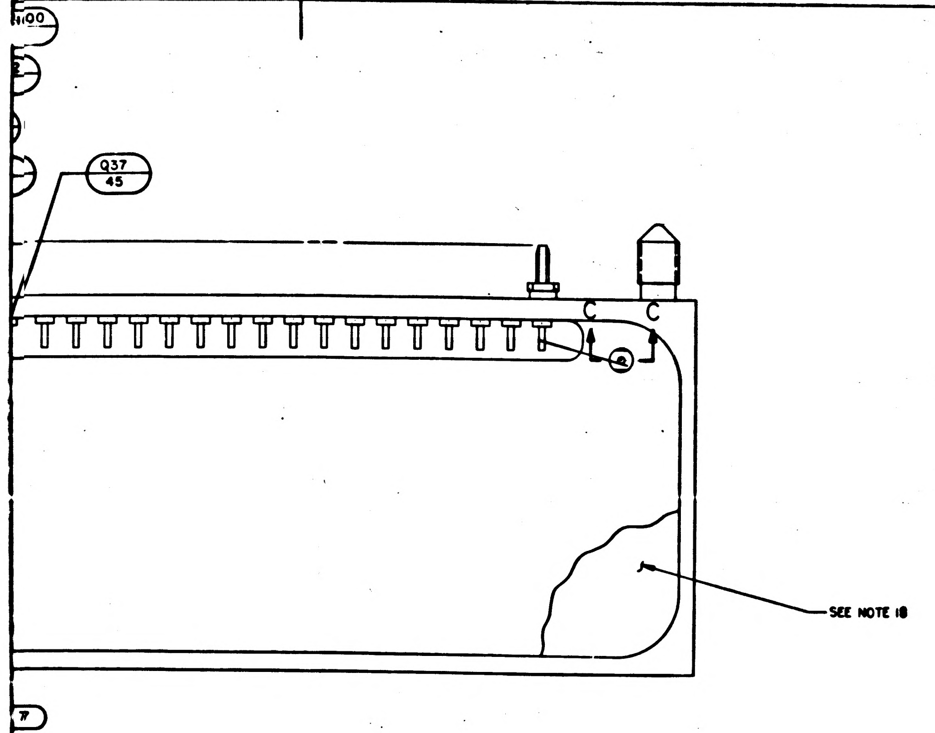
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. + DENOTES POSITIVE SIDE OF CAPACITOR
5. K DENOTES CATHODE SIDE OF DIODE
6. MARK .10/.08 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271-1
7. MARK .26/.24 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 USING INK 1006271-1
8. SELECT R3, R11, R12, R93 AND R94 PER APPLICABLE PS FROM APPROPRIATE CHART
9. WELD PER ND1002005
10. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
11. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL
12. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
13. MOUNTING TORQUE FOR FIND NO. 6 TO BE 15-20 INCH OUNCES
14. SEAL INSULATORS AND TERMINALS TO HEADER PER ND1002004, TYPE VI
15. SEAL FIND NO. 6 TO HEADER PER ND1002004, TYPE VI
16. ASSEMBLE FIND NO. 52 TO MODULE AFTER SELECTED VALUE HAS BEEN DETERMINED
17. STAKE FIND NO. 13 THRU FIND NO. 51 AND FIND NO. 56 THRU FIND NO. 59 TO FIND NO. 1 PER ND1002009 METHOD C OR D
18. ENCAPSULATE PER ND1002002. REMOVE FLASHING
19. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS 2003069
20. COAT INDICATED SURFACES, BOTH ENDS, TOP AND BOTTOM, BOTH SIDES PER ND1002187, TYPE II

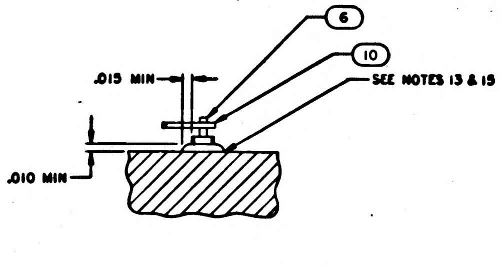

12
10
.000 .030 TYP
FT12 REF
11
9
SEE NOTE 20
.050 MAX 2 PLACES
.000 .030 4 PLACES
C1 REF
C12 REF
11

SECTION A-A
FIND NO. 7 & 8 REMOVED FOR CLARITY

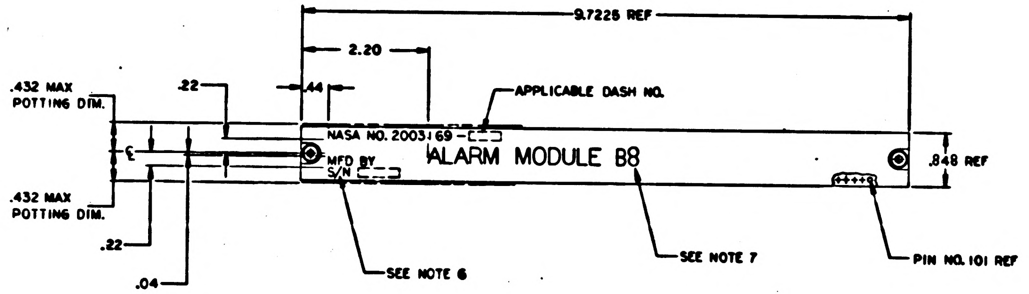
REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
—		RELEASED PER TDRR 25152				
A		REVISED PER TDRR 25775	[illegible]	[illegible]	[illegible]	[illegible]
B		REVISED PER TDRR 25997	[illegible]	[illegible]		

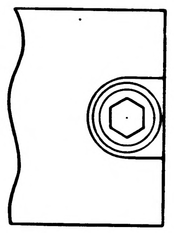


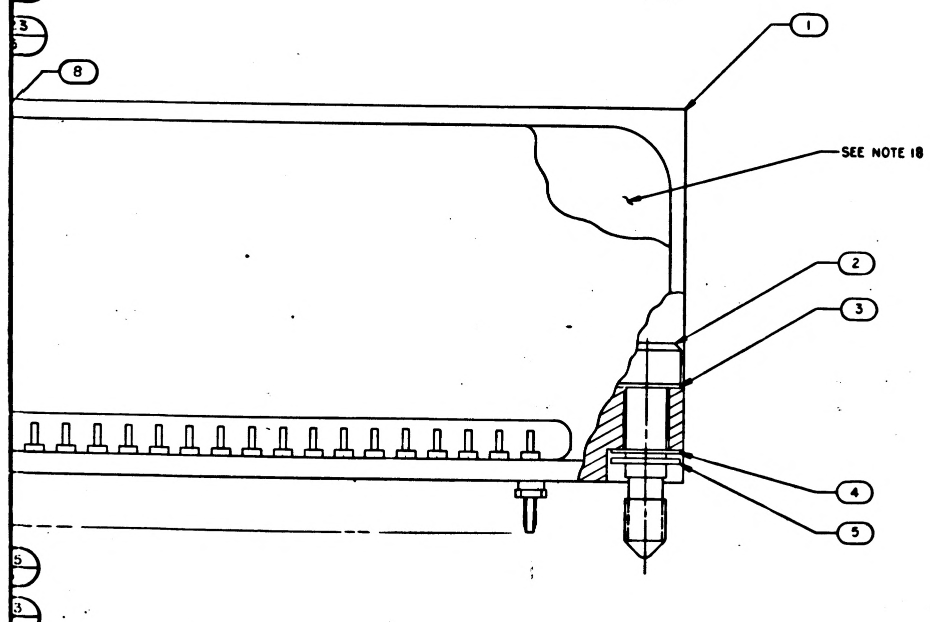


PARTIAL SECTION C-C



MARKING VIEW
SCALE 1/1





QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	—	2005029	SCHEMATIC	REF
—	☒	2005028	SCHEMATIC	REF
1	—	1006750-53	RESISTOR	57
1	1	1006755-69	CAPACITOR	56
1	1	1006755-21	CAPACITOR	55
1	1	1006750-50	RESISTOR	54
1	1	1006750-36	RESISTOR	53
5	6	2004074	INSULATOR.WASHER	52
5	5	SEE NOTE 8	RESISTOR	51
8	8	1006750-39	RESISTOR	50
—	1	1006750-46	RESISTOR	49
1	1	1006755-128	CAPACITOR	48
7	7	1010376-1	TRANSISTOR	47
16	16	2004004-002	TRANSISTOR	46
16	16	2004004-001	TRANSISTOR	45
4	4	2004112-002	DIODE	44
8	8	2004103-001	DIODE	43
2	2	1006777-25	CAPACITOR	42
1	1	1006777-24	CAPACITOR	41
1	1	1006777-20	CAPACITOR	40
1	1	1006755-79	CAPACITOR	39
4	4	1006755-57	CAPACITOR	38
1	1	1006755-36	CAPACITOR	37
1	1	1006755-31	CAPACITOR	36
2	2	1006788-6	RESISTOR	35
6	6	1010377-227	RESISTOR	34
3	3	1010377-51	RESISTOR	33
1	1	1010377-50	RESISTOR	32
6	6	1006750-84	RESISTOR	31
1	1	1006750-83	RESISTOR	30
1	1	1006750-63	RESISTOR	29
9	9	1006750-58	RESISTOR	28
14	14	1006750-56	RESISTOR	27
18	18	1006750-49	RESISTOR	26
17	17	1006750-47	RESISTOR	25
5	5	1006750-43	RESISTOR	24
1	1	1006750-41	RESISTOR	23
1	1	1006750-33	RESISTOR	21
5	5	1006750-32	RESISTOR	20
2	2	1006750-30	RESISTOR	19
3	3	1006750-25	RESISTOR	18
3	3	1006750-15	RESISTOR	17
1	1	1006750-14	RESISTOR	16
3	3	1006750-8	RESISTOR	15
2	2	1006750-6	RESISTOR	14
3	3	1006750-1	RESISTOR	13
AR	AR	1006776-22	INSULATION, SLEEVING	12
AR	AR	1006776-21	INSULATION, SLEEVING	11
AR	AR	1006757-8	WIRE, ELEC	10
AR	AR	1006757-1	WIRE, ELEC	9
1	1	2003077-011	INSULATOR B ASSEMBLY	8
1	1	2004144	INSULATOR A	7
1	1	2004039	TERMINAL THREADED	6
2	2	MS16633-4015	RING, RETAINING, EXTERNAL, "E"	5
2	2	1004546-3	WASHER, FLAT	4
2	2	1004546-1	WASHER, FLAT	3
2	2	1004579-1	SCREW, JACKING	2
1	1	2003032-011	HEADER, HOUSING ASSY	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003100	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS XX± .02 ANGLES ± ——
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN [illegible] 5 JAN 66
CHECKED [illegible] 5 JAN 66
APPROVED
APPROVED Elliot C Hall [illegible]
APPROVED MIT [illegible]
APPROVED MSC A. C. METZGER
DATE

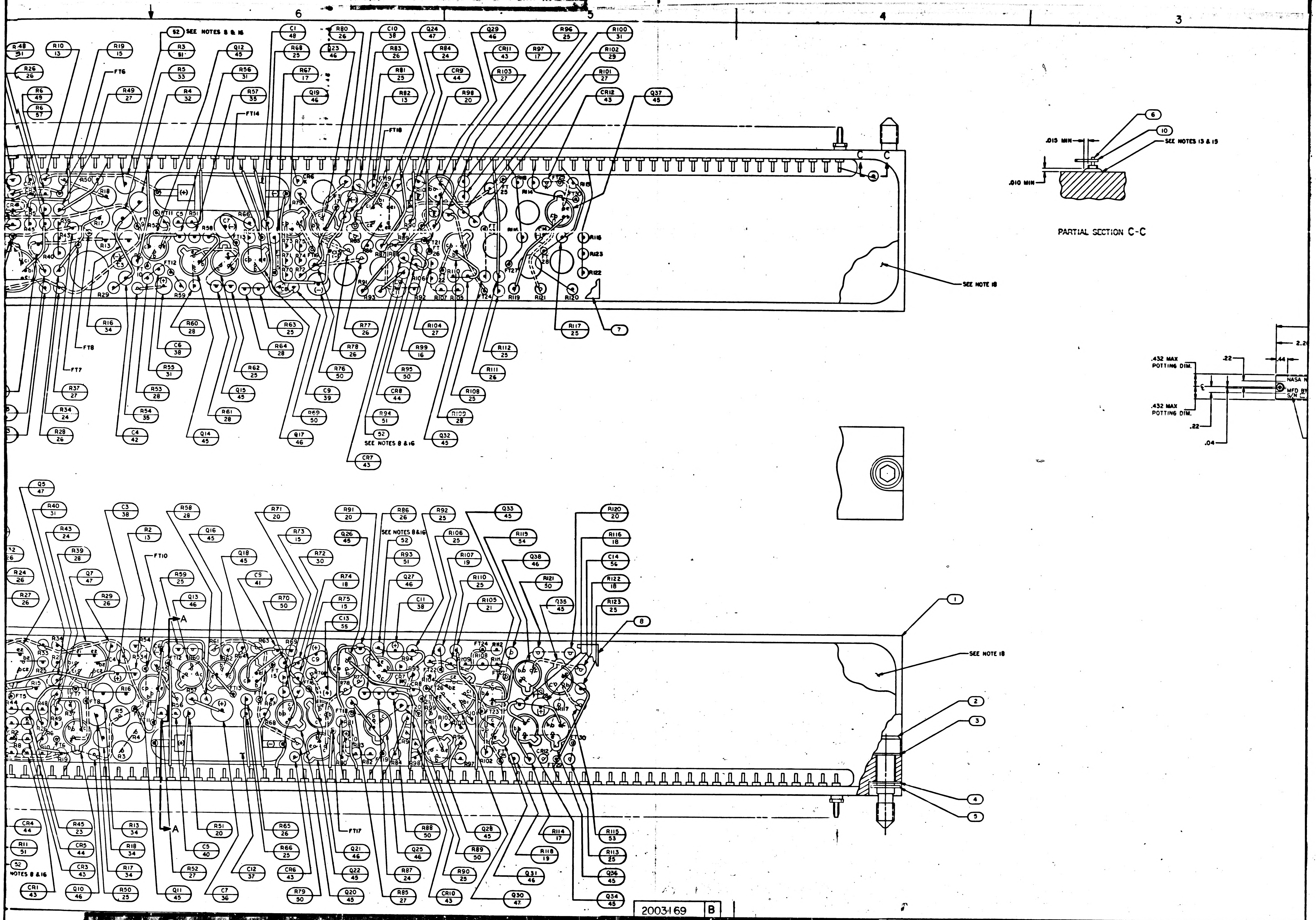
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ALARM MODULE
B8
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003169
SCALE 4/1
SHEET 1 OF 1

2003169 B

E3/3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4
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52 SEE NOTES 8 & 16
R48 31
R10 13
R19 15
R26 26
R6 49
R6 57
R3 81
R5 33
R4 32
R49 27
Q12 45
R56 31
R57 35
FT6
FT14
C1 48
R68 25
R67 17
Q19 46
R80 26
Q23 46
C10 38
R83 26
R81 25
R82 13
FT18
Q24 47
R84 24
CR9 44
R98 20
Q29 46
CR11 43
R103 27
R97 17
R96 25
R100 31
R102 29
R101 27
CR12 43
Q37 45
6
10
.015 MIN
.010 MIN
SEE NOTES 13 & 15
PARTIAL SECTION C-C
SEE NOTE 18
C
C
R16 34
FT8
FT7
R60 28
C6 38
R55 31
R53 28
R54 35
C4 42
R37 27
R34 24
R28 26
R63 25
R64 28
R62 25
Q15 45
R61 28
Q14 45
R77 26
R78 26
R76 50
C9 39
R69 50
Q17 46
R104 27
R99 16
R95 50
CR8 44
R94 51
52
SEE NOTES 8 & 16
CR7 43
R112 25
R111 26
R108 25
R109 28
Q32 45
R117 25
7
.432 MAX POTTING DIM.
.22
.44
2.2
NASA
MFD BY
S/N
.04
Q5 47
R40 31
R43 24
R39 28
Q7 47
R29 26
R24 26
R27 26
C3 38
R2 13
FT10
R58 28
Q16 45
R59 25
Q13 46
Q18 45
C9 41
R70 50
R71 20
R73 15
R72 30
R91 20
Q26 45
R74 18
R75 15
C13 55
R86 26
SEE NOTES 8 & 16
52
R93 51
Q27 46
C11 38
R92 25
R106 25
R107 19
R110 25
R105 21
Q33 45
R119 54
Q38 46
R121 50
Q35 45
R120 20
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C14 56
R122 18
R123 25
8
1
SEE NOTE 18
2
3
4
5
A
A
CR4 44
R11 51
52
NOTES 8 & 16
CR1 43
R45 23
CR5 44
CR3 43
Q10 46
R13 34
R18 34
R17 34
R50 25
R51 20
C5 40
R52 27
Q11 45
C12 37
C7 36
R65 26
R66 25
CR6 43
R79 50
FT17
Q21 46
Q22 45
Q20 45
R88 50
Q25 46
R87 24
R85 27
R89 50
R90 25
CR10 43
Q28 45
Q31 46
Q30 47
R114 17
R118 19
R115 53
R113 25
Q36 45
Q34 45
2003169 B

2003169 C F2/3

[illegible]

R11,R93

PART NO.	VALUE
1006788-6	10
1006788-9	27
1006750-1	51
-4	68
-7	91
-9	110
-11	130
-12	150
-13	160
-14	180
-15	200
-16	220
1006750-17	240

R12

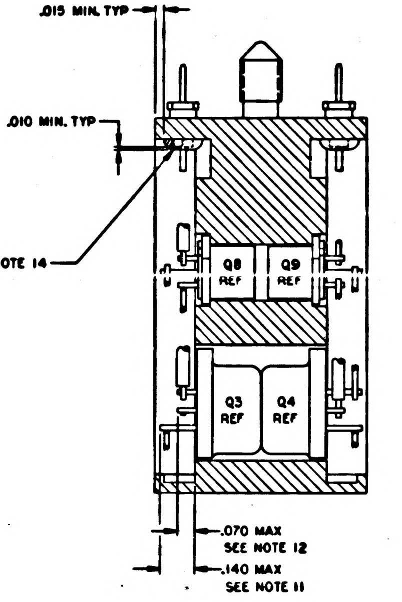
PART NO.	VALUE
1006750-36	1500
-37	1600
-38	1800
-39	2000
-40	2200
1006750-41	2400

R94

PART NO.	VALUE
1006750-27	620
-30	820
-32	1000
-34	1200
-35	1300
-36	1500
-37	1600
1006750-38	1800

R3

PART NO.	VALUE
1006750-128	3450
-45	3600
-129	3750
-46	3900
-130	4100
-47	4300
-131	4500
1006750 -48	4700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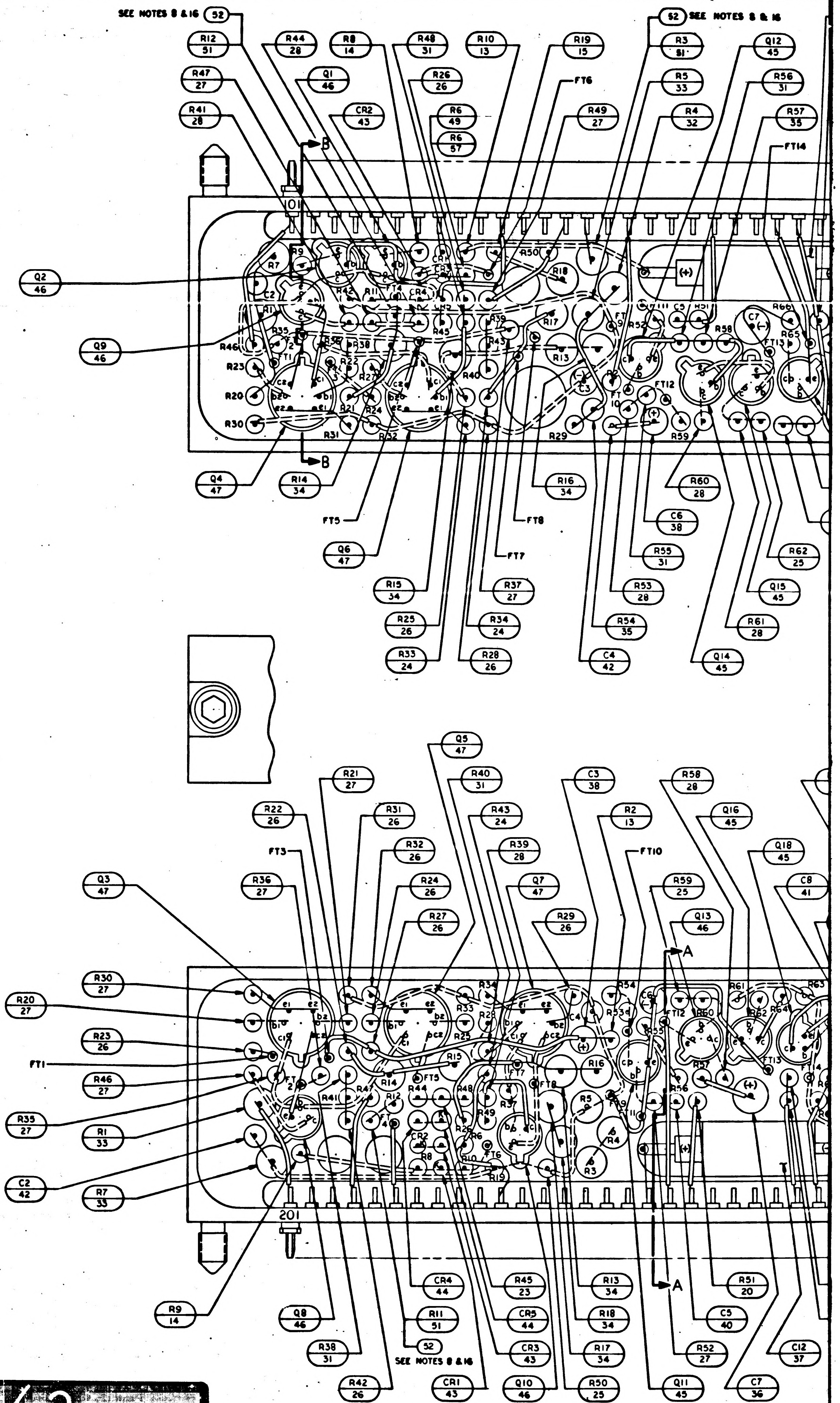
.010 MIN. TYP
SEE NOTE 14
Q8 REF
Q9 REF
Q3 REF
Q4 REF
.070 MAX
SEE NOTE 12
.140 MAX
SEE NOTE 11

SECTION B-B
FIND NO. 7 & 8 REMOVED FOR CLARITY


SEE NOTES 8 & 16
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R10 13
R19 15
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R47 27
Q1 46
R26 26
FT6
R5 33
R56 31
R41 28
CR2 43
R6 49
R6 57
R49 27
R4 32
R57 35
FT14
B
101
Q2 46
Q9 46
R46
R23
R20
R30
Q4 47
R14 34
FT5
Q6 47
R15 34
R25 26
R33 24
R37 27
R34 24
R28 26
FT7
FT8
R16 34
C6 38
R55 31
R53 28
R54 35
C4 42
R60 28
R62 25
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R61 28
Q14 45
Q5 47
R21 27
R40 31
C3 38
R58 28
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R31 26
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R2 13
Q16 45
FT3
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FT10
Q18 45
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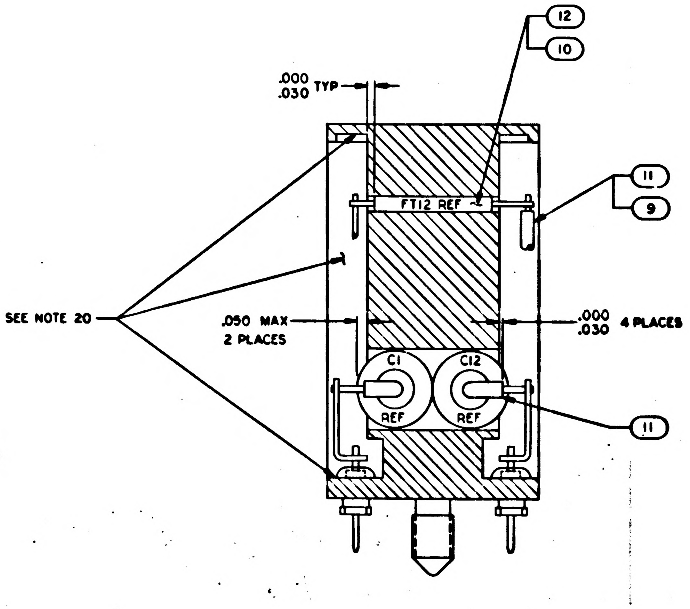
R24 26
Q7 47
R59 25
C8 41
Q3 47
R27 26
R29 26
Q13 46
A
R30 27
R20 27
R23 26
FT1
R46 27
R35 27
R1 33
C2 42
R7 33
201
R9 14
Q8 46
R38 31
R42 26
CR4 44
R11 51
52
SEE NOTES 8 & 16
CR1 43
R45 23
CR5 44
CR3 43
Q10 46
R13 34
R18 34
R17 34
R50 25
Q11 45
R51 20
C5 40
R52 27
C12 37
C7 36

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. + DENOTES POSITIVE SIDE OF CAPACITOR
5. K DENOTES CATHODE SIDE OF DIODE
6. MARK .10/.08 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271-1
7. MARK .26/.24 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 USING INK 1006271-1
8. SELECT R3, R11, R12, R93 AND R94 PER APPLICABLE PS FROM APPROPRIATE CHART
9. WELD PER ND1002005
10. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
11. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL
12. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
13. MOUNTING TORQUE FOR FIND NO. 6 TO BE 15-20 INCH OUNCES
14. SEAL INSULATORS AND TERMINALS TO HEADER PER ND1002004, TYPE VI
15. SEAL FIND NO. 6 TO HEADER PER ND1002004, TYPE VI
16. ASSEMBLE FIND NO. 52 TO MODULE AFTER SELECTED VALUE HAS BEEN DETERMINED
17. STAKE FIND NO. 13 THRU FIND NO. 51 AND FIND NO. 53 THRU FIND NO. 57 TO FIND NO. 1 PER ND1002009 METHOD C OR D
18. ENCAPSULATE PER ND1002002. REMOVE FLASHING
19. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS 2003069
20. COAT INDICATED SURFACES, BOTH ENDS, TOP AND BOTTOM, BOTH SIDES PER ND1002187, TYPE II


12
10
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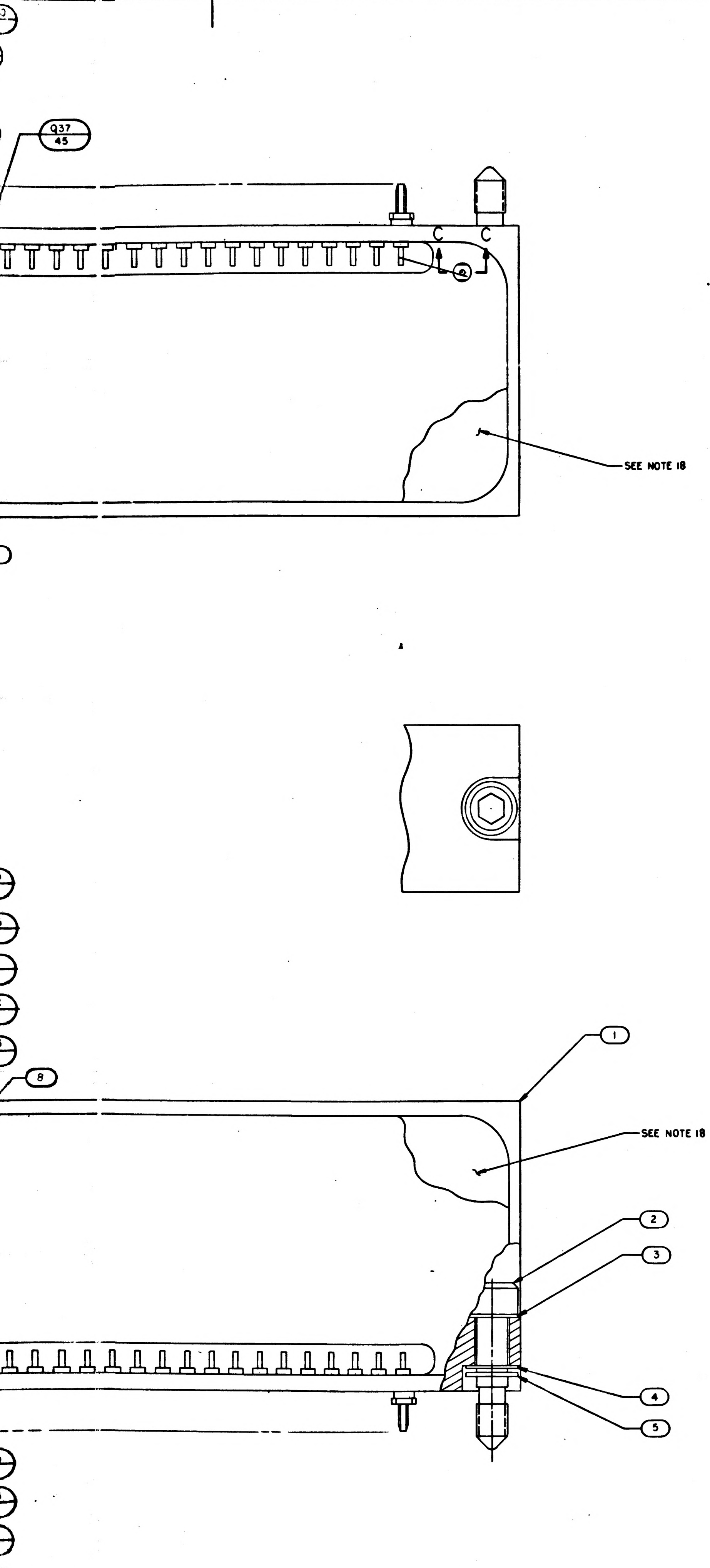
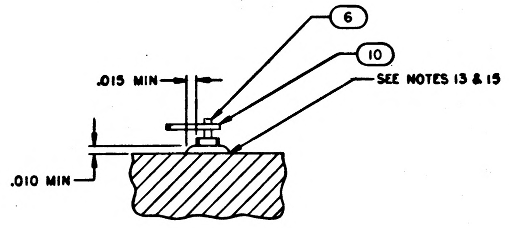
.030 TYP
FT12 REF
11
9
SEE NOTE 20
.050 MAX
2 PLACES
.000
.030 4 PLACES
C1 REF
C12 REF
11

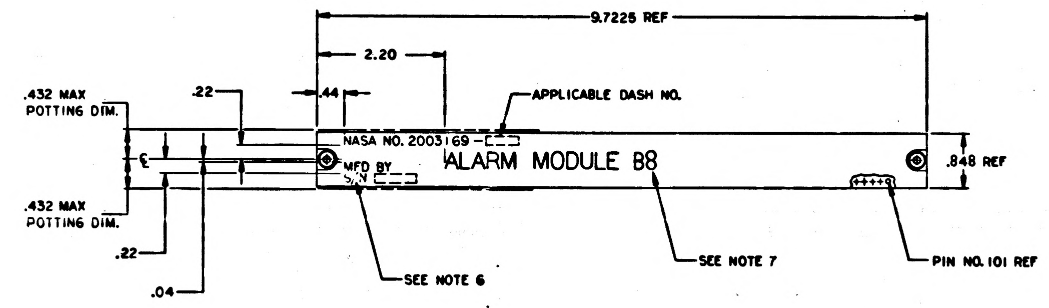
SECTION A-A
FIND NO. 7 & 8 REMOVED FOR CLARITY

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
—		RELEASED PER TDRR 25152				





PARTIAL SECTION C-C



MARKING VIEW
SCALE 1/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2005028	SCHEMATIC	REF
1	1006755-69	CAPACITOR	56
1	1006755-21	CAPACITOR	55
1	1006750-50	RESISTOR	54
1	1006750-36	RESISTOR	53
4	2004074	INSULATOR. WASHER	52
4	SEE NOTE 8	RESISTOR	51
8	1006750-39	RESISTOR	50
1	1006750-46	RESISTOR	49
1	1006755-128	CAPACITOR	48
7	1010376-1	TRANSISTOR	47
15	2004004-002	TRANSISTOR	46
16	2004004-001	TRANSISTOR	45
4	2004112-002	DIODE	44
8	2004103-001	DIODE	43
2	1006777-25	CAPACITOR	42
1	1006777-24	CAPACITOR	41
1	1006777-20	CAPACITOR	40
1	1006755-79	CAPACITOR	39
4	1006755-57	CAPACITOR	38
1	1006755-36	CAPACITOR	37
1	1006755-31	CAPACITOR	36
2	1006788-6	RESISTOR	35
6	1010377-227	RESISTOR	34
4	1010377-51	RESISTOR	33
1	1010377-50	RESISTOR	32
6	1006750-84	RESISTOR	31
1	1006750-83	RESISTOR	30
1	1006750-63	RESISTOR	29
9	1006750-58	RESISTOR	28
14	1006750-56	RESISTOR	27
18	1006750-49	RESISTOR	26
17	1006750-47	RESISTOR	25
5	1006750-43	RESISTOR	24
1	1006750-41	RESISTOR	23
1	1006750-33	RESISTOR	21
5	1006750-32	RESISTOR	20
2	1006750-30	RESISTOR	19
3	1006750-25	RESISTOR	18
3	1006750-15	RESISTOR	17
1	1006750-14	RESISTOR	16
3	1006750-8	RESISTOR	15
2	1006750-6	RESISTOR	14
3	1006750-1	RESISTOR	13
AR	1006776-22	INSULATION, SLEEVING	12
AR	1006776-21	INSULATION, SLEEVING	11
AR	1006757-8	WIRE, ELEC	10
AR	1006757-1	WIRE, ELEC	9
1	2003077-011	INSULATOR B ASSEMBLY	8
1	2004144	INSULATOR A	7
1	2004039	TERMINAL THREADED	6
2	MS16633-4015	RING, RETAINING, EXTERNAL, "E"	5
2	1004546-3	WASHER, FLAT	4
2	1004546-1	WASHER, FLAT	3
2	1004579-1	SCREW, JACKING	2
1	2003032-011	HEADER, HOUSING ASSY	1
-011	LIST OF MATERIALS		

2003100	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS XX± .02 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN G.P. Tufpikes 5 JAN 66
CHECKED Bob Franck 5 JAN 66
APPROVED
APPROVED Eldon C. Hall 7 Jan 66
APPROVED MIT W. Kupfer
APPROVED MSC A. C. METZGER
DATE

ALARM MODULE B8 ASSEMBLY

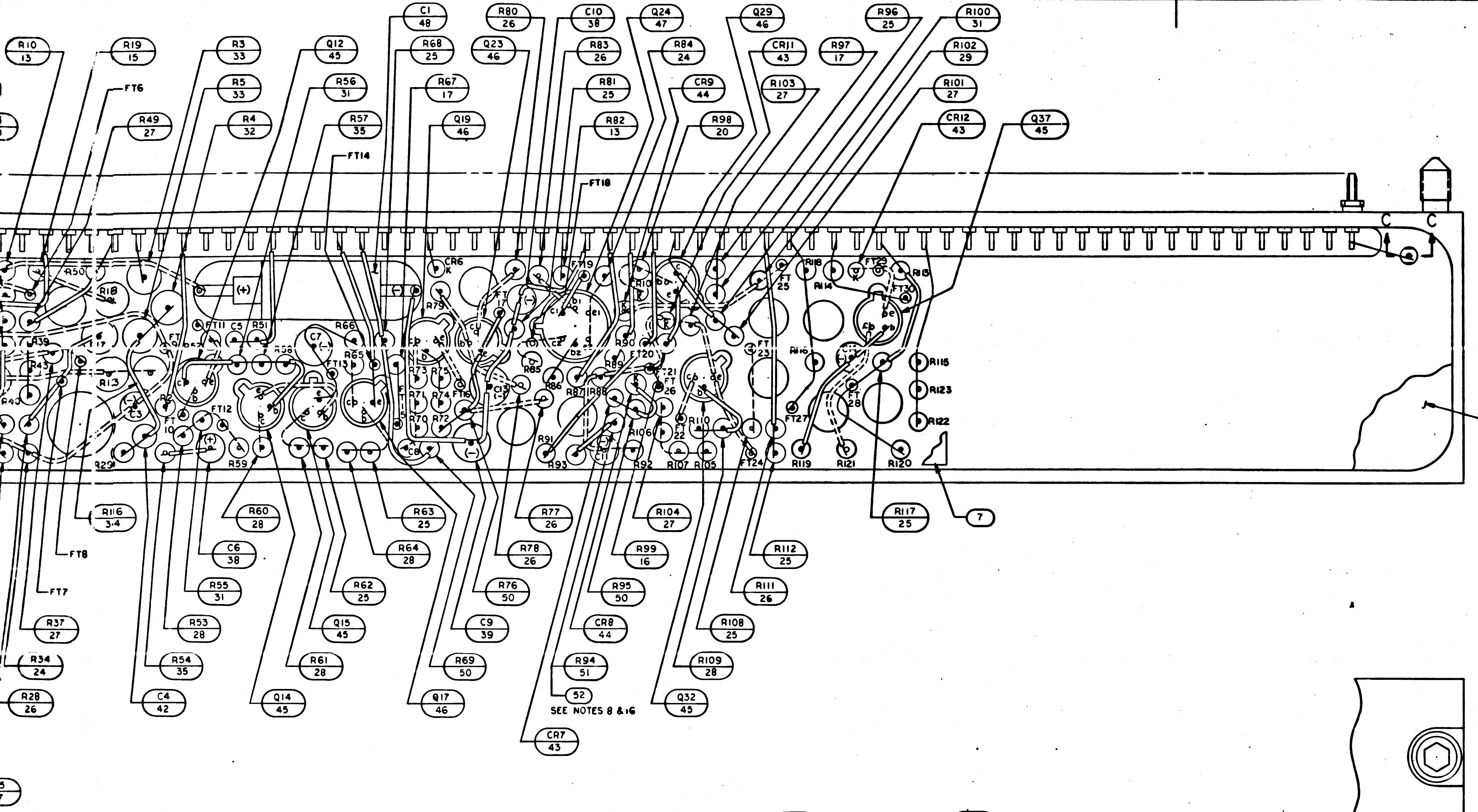
CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003169
SCALE 4/1
SHEET 1 OF 1

2003169 –

2003169

3H

MASTER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FT14
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Q23 46
C10 38
R83 26
R81 25
R82 13
FT18
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CR9 44
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Q29 46
CR11 43
R103 27
R96 25
R97 17
R100 31
R102 29
R101 27
CR12 43
Q37 45
C
C
R50
R18
CR6
R79
R66
C7
C5
R51
FT11
FT12
R65
R73
R74
R71
R70
R72
R86
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R90
R91
R93
R92
R106
R107
R105
R110
R104
FT20
FT21
FT22
FT23
FT24
FT25
FT26
FT27
FT28
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R116
R115
R123
R122
R119
R121
R120
R13
R40
R125
R59
C3
FT10
R116 34
FT8
FT7
R37 27
R34 24
R28 26
C6 38
R55 31
R53 28
R54 35
C4 42
R60 28
R62 25
R61 28
Q15 45
Q14 45
R63 25
R64 28
C9 39
R69 50
Q17 46
R76 50
R78 26
R77 26
R104 27
R99 16
R95 50
CR8 44
R94 51
52
SEE NOTES 8 & 16
CR7 43
R112 25
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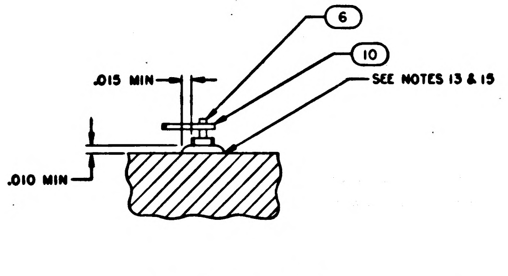
R109 28
Q32 45
R117 25
7
SEE NOTE 18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SEE NOTES 13 & 15
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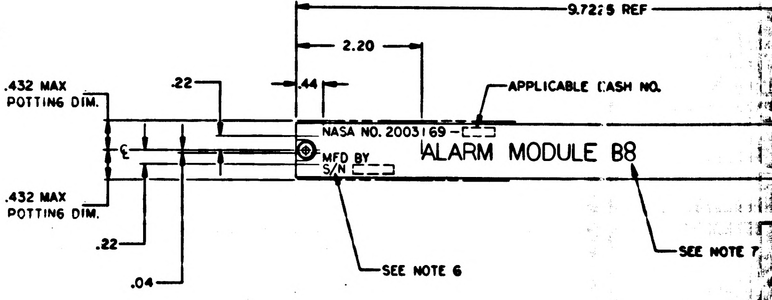
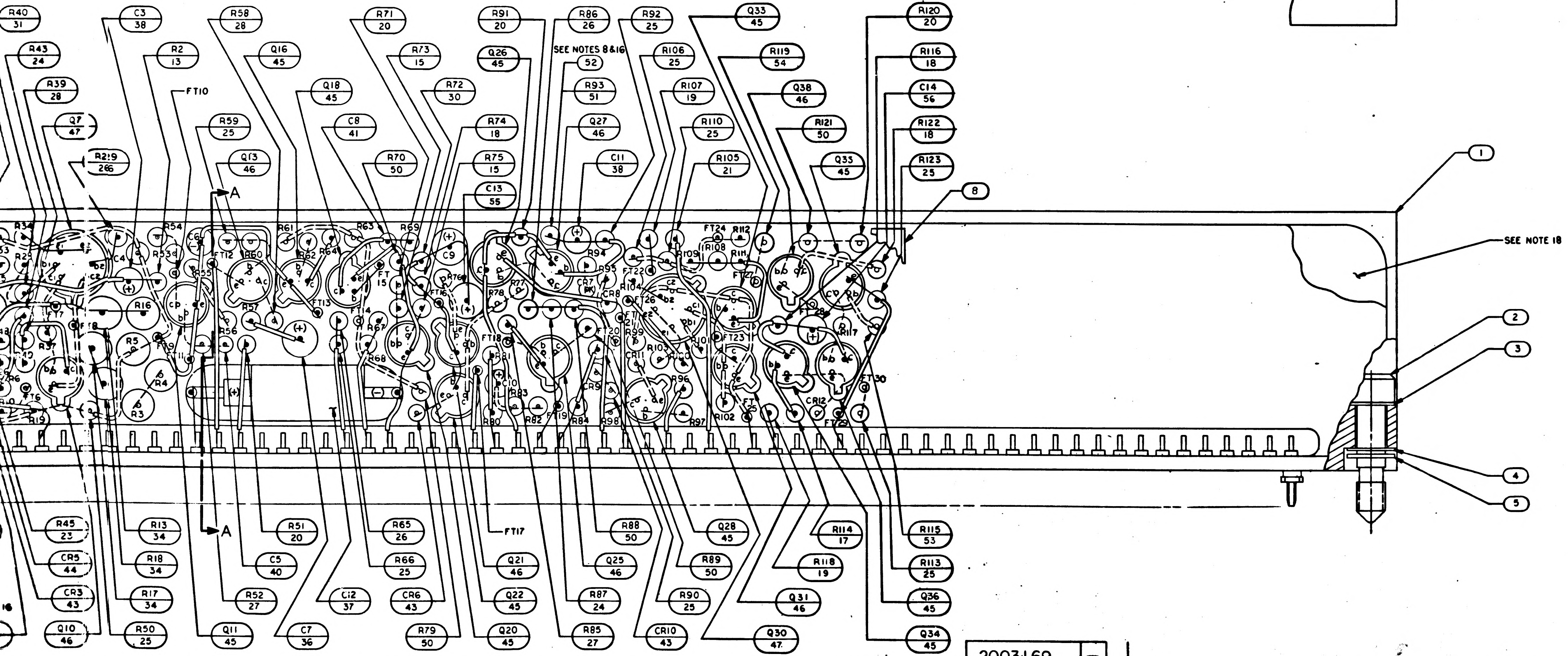
.010 MIN

PARTIAL SECTION C-C


9.725 REF
2.20
.44
.22
.432 MAX POTTING DIM.
.432 MAX POTTING DIM.
.22
.04
APPLICABLE CASH NO.
NASA NO. 2003169 -
MFD BY
S/N
ALARM MODULE B8
SEE NOTE 6
SEE NOTE 7

MARKING VIEW
SCALE 1/1


R40 31
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R219 286
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FT10
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C8 41
R70 50
R71 20
R73 15
R72 30
R74 18
R75 15
C13 55
R91 20
Q26 45
SEE NOTES 8 & 16
52
R93 51
Q27 46
C11 38
R86 26
R92 25
R106 25
R107 19
R110 25
R105 21
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R119 54
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R121 50
Q35 45
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SEE NOTE 18
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Q10 46
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R51 20
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R52 27
Q11 45
C12 37
C7 36
R65 26
R66 25
CR6 43
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FT17
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Q22 45
Q20 45
R88 50
Q25 46
R87 24
R85 27
R89 50
R90 25
CR10 43
Q28 45
Q31 46
Q30 47
R114 17
R118 19
R115 53
R113 25
Q36 45
Q34 45

2003169 -

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R11,R93

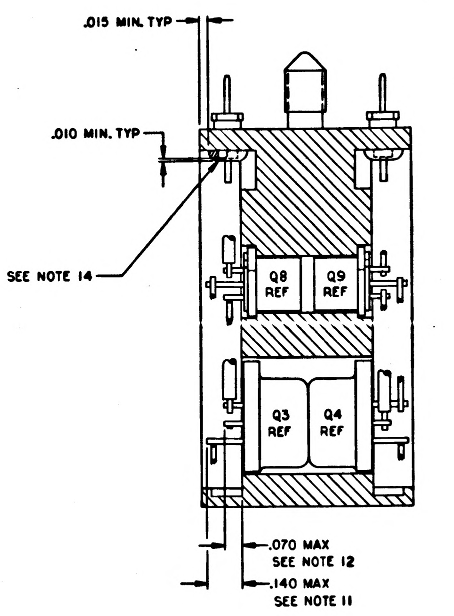
PART NO.	VALUE
1006788-6	10
1006788-9	27
1006750-1	51
-4	68
-7	91
-9	110
-11	130
-12	150
-13	160
-14	180
-15	200
-16	220
1006750-17	240

R12

PART NO.	VALUE
1006750-36	1500
-37	1600
-38	1800
-39	2000
-40	2200
1006750-41	2400

R94

PART NO.	VALUE
1006750-27	620
-30	820
-32	1000
-34	1200
-35	1300
-36	1500
-37	1600
1006750-38	1800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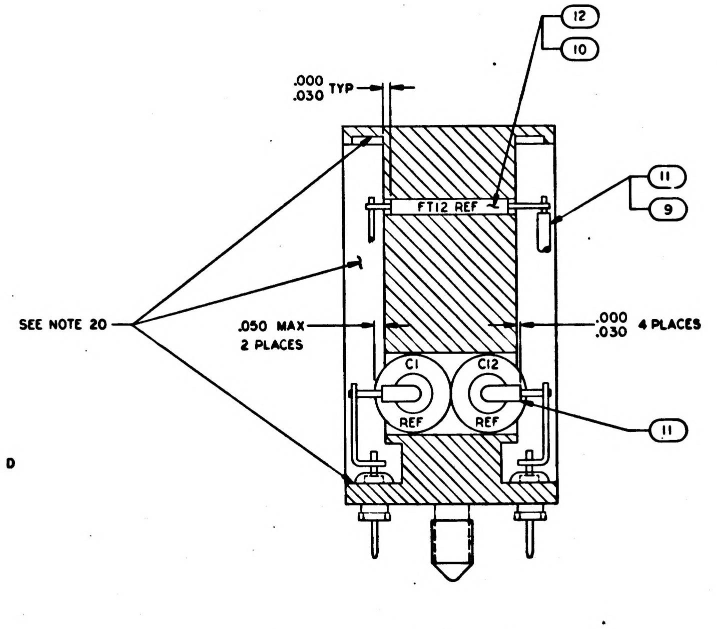
.010 MIN. TYP
SEE NOTE 14
Q8 REF
Q9 REF
Q3 REF
Q4 REF
.070 MAX
SEE NOTE 12
.140 MAX
SEE NOTE 11

SECTION B-B

FIND NO. 7 & 8 REMOVED FOR CLARITY

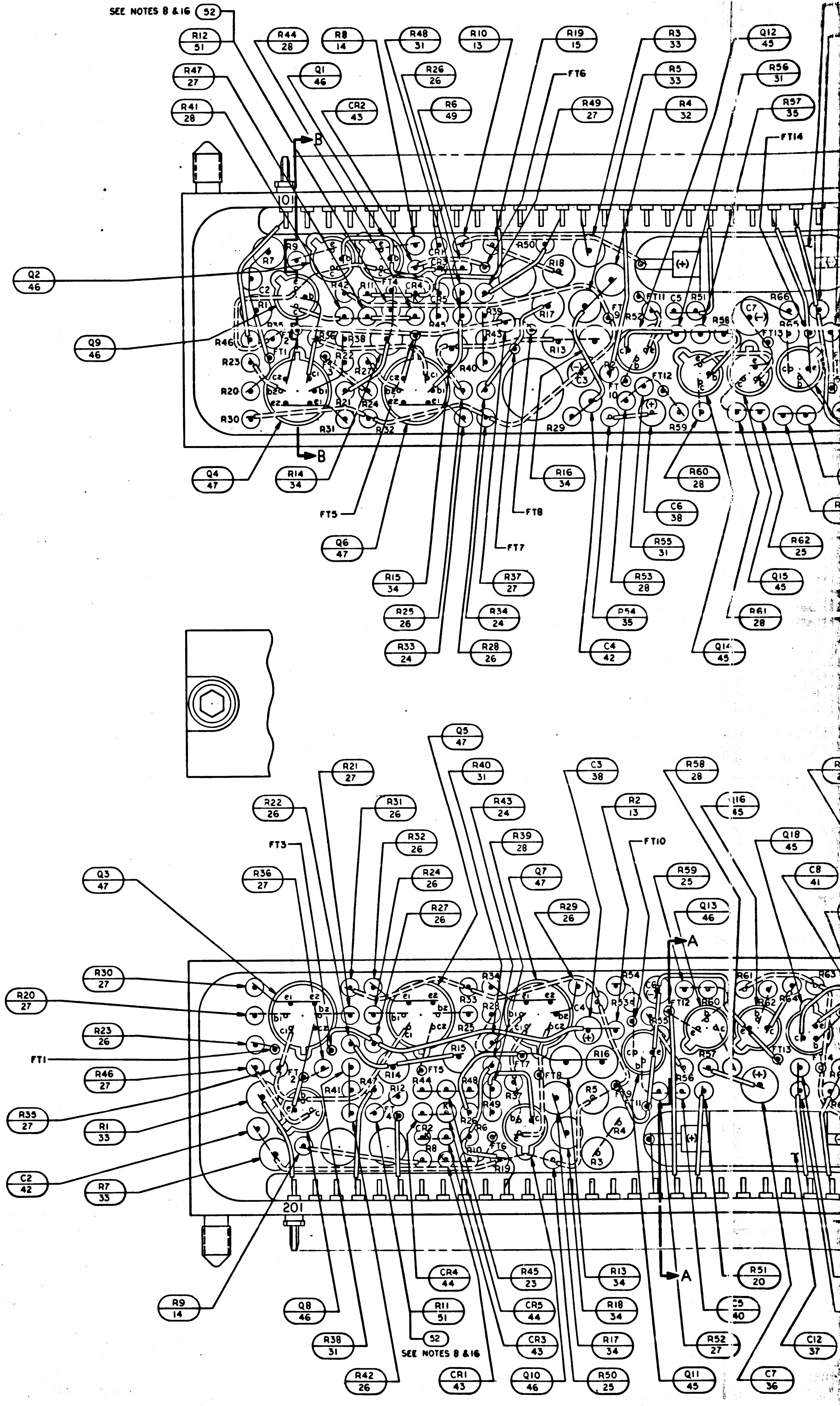
NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. + DENOTES POSITIVE SIDE OF CAPACITOR
5. K DENOTES CATHODE SIDE OF DIODE
6. MARK .10/.08 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271-1
7. MARK .26/.24 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 USING INK 1006271-1
8. SELECT R11, R12, R93 AND R94 PER APPLICABLE PS FROM APPROPRIATE CHART
9. WELD PER ND1002005
10. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
11. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL
12. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
13. MOUNTING TORQUE FOR FIND NO. 6 TO BE 15-20 INCH OUNCES
14. SEAL INSULATORS AND TERMINALS TO HEADER PER ND1002004, TYPE VI
15. SEAL FIND NO. 6 TO HEADER PER ND1002004, TYPE VI
16. ASSEMBLE FIND NO. 55 TO MODULE AFTER SELECTED VALUE HAS BEEN DETERMINED
17. STAKE FIND NO. 13 THRU FIND NO. 51 AND FIND NO. 56 THRU FIND NO. 59 TO FIND NO. 1 PER ND1002009 METHOD C OR D
18. ENCAPSULATE PER ND1002002. REMOVE FLASHING
19. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS 2003069
20. COAT INDICATED SURFACES, BOTH ENDS, TOP AND BOTTOM, BOTH SIDES PER ND1002187, TYPE II


12
10
11
9
.000
.030 TYP
FT12 REF
SEE NOTE 20
.050 MAX
2 PLACES
.000
.030 4 PLACES
C1
C12
REF
REF
11

SECTION A-A

FIND NO. 7 & 8 REMOVED FOR CLARITY


SEE NOTES 8 & 16
52
R12 51
R47 27
R41 28
R44 28
R8 14
Q1 46
CR2 43
R48 31
R26 26
R10 13
R6 49
R19 15
FT6
R49 27
R3 33
R5 33
R4 32
Q12 45
R56 31
R57 35
FT14
B
101
Q2 46
Q9 46
Q4 47
R14 34
FT5
Q6 47
R15 34
R25 26
R33 24
R16 34
FT8
FT7
R37 27
R34 24
R28 26
C4 42
R53 28
R54 35
C6 38
R55 31
R60 28
R62 25
Q15 45
R61 28
Q14 45
Q5 47
R21 27
R40 31
C3 38
R58 28
R22 26
R31 26
R43 24
R2 13
Q16 45
FT3
R32 26
R39 28
FT10
Q18 45
R36 27
R24 26
Q7 47
R59 25
C8 41
R27 26
R29 26
Q13 46
A
Q3 47
R30 27
R20 27
R23 26
FT1
R46 27
R35 27
R1 33
C2 42
R7 33
R9 14
201
Q8 46
R38 31
R42 26
CR4 44
R11 51
52
SEE NOTES 8 & 16
R45 23
CR5 44
CR3 43
CR1 43
Q10 46
R13 34
R18 34
R17 34
R50 25
R51 20
C5 40
R52 27
Q11 45
C7 36
C12 37

2003169 –

REVISIONS 25977						
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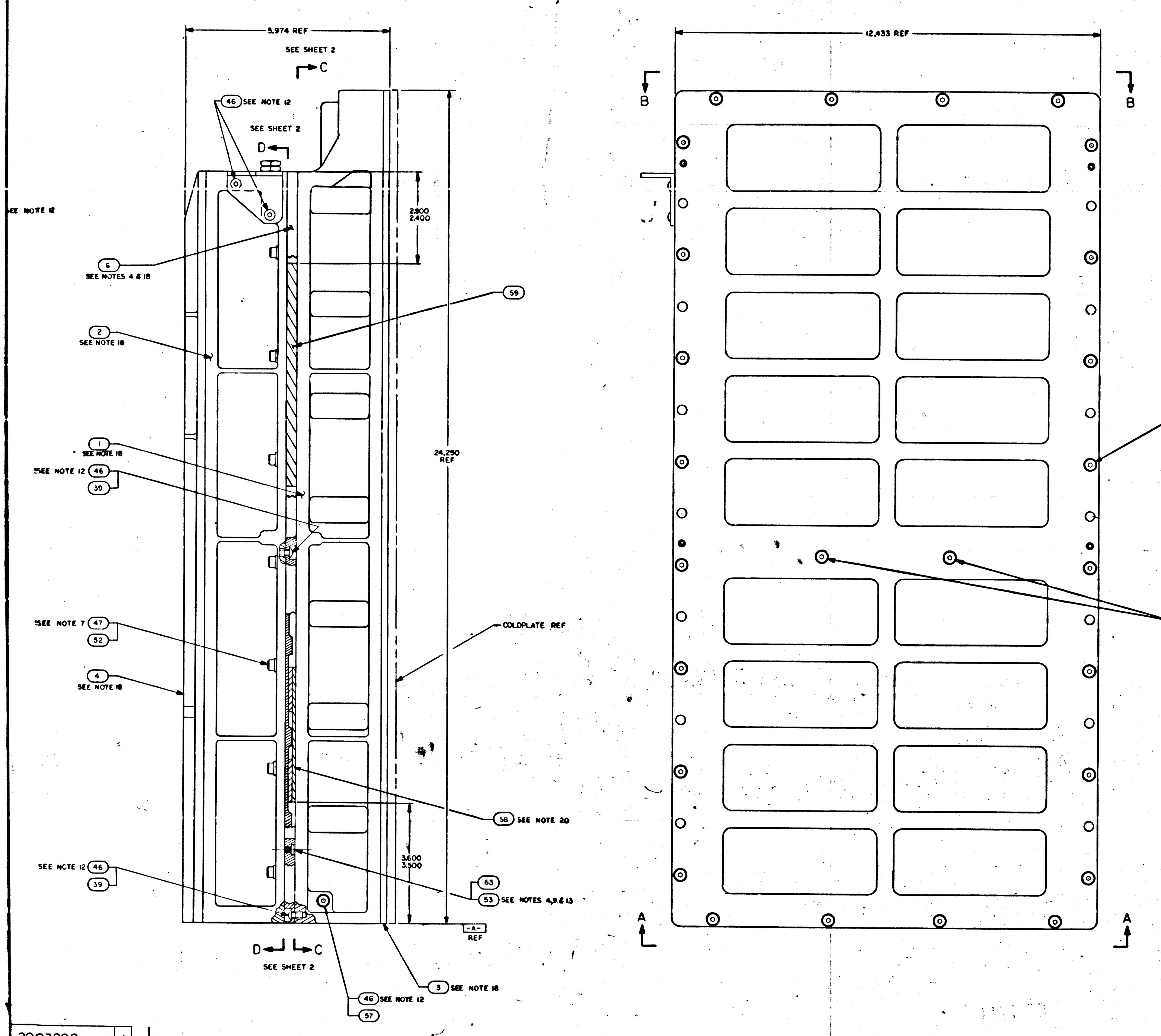

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3
2
1
5.974 REF
SEE SHEET 2
C
46 SEE NOTE 12
SEE SHEET 2
D
SEE NOTE 12
6
SEE NOTES 4 & 18
2.900
2.400
2
SEE NOTE 18
59
1
SEE NOTE 18
SEE NOTE 12 46
39
24.250
REF
SEE NOTE 7 47
52
4
SEE NOTE 18
COLDPLATE REF
58 SEE NOTE 20
3.600
3.500
SEE NOTE 12 46
39
63
53 SEE NOTES 4,9 & 13
-A-
REF
D C
SEE SHEET 2
3 SEE NOTE 18
46 SEE NOTE 12
57
12.433 REF
B
B
46 SEE NOTE 12
39
46 SEE NOTE 12
63
A
A
D
C
B
A

☒	2005036	AGC WIRE LIST	REF
10	2004148-007	WASHER, FLAT	63
1	2003981-011	SENSE AMPLIFIER MODULE, FIXED MEMORY B14	62
AR	2004895-002	SHIM AGC	
AR	2004895-001	SHIM AGC	60
1	2004899-001	PAD VIBRATION	59
1	2003970	VIBRATION PAD ASSY	58
4	NAS1598-D08N	WASHER, SEALING	57
1	2018773	VALVE PRESSURE ASSEMBLY	56
1	1000159-5	PACKING, PREFORMED "O RING"	55
2	2004984-001	WASHER, FLAT	54
8	2004130	PAD, THREADED	53
18	2004894-014	WASHER, FLAT	52
4	2004894-012	WASHER, FLAT	51
2	1001489-34	SCREW, HEX SOCKET HEAD	50
4	1004722-2	SCREW, CAPTIVE	49
1	1000159-7	PACKING, PREFORMED "O" RING	48
18	MS16996-14	SCREW, SOCKET HEAD, CAP	47
66	1006783-25	SCREW, BUTTON HEAD, HEX SOCKET	46
2	1006347	GASKET, PLATE	45
1	2004986	PLUG, MACHINE THREAD	44
1	1004260-19	NAME PLATE, TYPE I	43
1	2004113-001	BRACKET, CABLE	42
1	2004115	COVER, POTTED	41
1	1006380	GASKET, RETAINED	40
58	[illegible]	WASHER, KNURLED	39
3	2003067-031	INTERFACE MODULE A27-29	38
2	2003070-021	INTERFACE MODULE A25-26	37
2	2003953-011	POWER SUPPLY MODULE A30-31	36
1	2003121-231	LOGIC MODULE A24	35
1	2003121-221	LOGIC MODULE A23	34
1	2003121-211	LOGIC MODULE A22	33
1	2003121-191	LOGIC MODULE A21	32
1	2003121-181	LOGIC MODULE A20	31
1	2003121-171	LOGIC MODULE A19	30
1	2003121-161	LOGIC MODULE A18	29
1	2003121-151	LOGIC MODULE A17	28
1	2003121-141	LOGIC MODULE A16	27
1	2003121-131	LOGIC MODULE A15	26
1	2003121-121	LOGIC MODULE A14	25
1	2003121-111	LOGIC MODULE A13	24
1	2003121-091	LOGIC MODULE A12	23
4	2003121-081	LOGIC MODULE A8-11	22
1	2003121-071	LOGIC MODULE A7	21
1	2003121-061	LOGIC MODULE A6	20
1	2003121-051	LOGIC MODULE A5	19
1	2003121-041	LOGIC MODULE A4	18
1	2003121-031	LOGIC MODULE A3	17
1	2003121-021	LOGIC MODULE A2	16
1	2003121-011	LOGIC MODULE A1	15
2	2003140-011	ROPE DRIVER MODULE B16-17	14
1	2003027-021	STRAND SELECT MODULE B15	13
1	2003982-011	SENSE AMPL MOD, ERASABLE MEMORY B13	12
1	2003111-011	ERASABLE MEMORY MODULE B12	11
1	2003026-021	CURRENT SWITCH MODULE B11	10
2	2003114-011	ERASABLE DRIVER MODULE B9-10	9
1	2003983-011	ALARM MODULE B8	8
1	2003036-021	OSCILLATOR MODULE B7	7
1	2003978	MID SPACER	6
1	2003059-021	INTERCONNECTION HEADER ASSEMBLY	5
1	2003976	TRAY B COVER	4
1	2003977	TRAY A COVER	3
1	2003093-011	TRAY B WIRED ASSEMBLY	2
1	2003092-011	TRAY A WIRED ASSEMBLY	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

6003001	
2003101	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN P. Roney 23 Dec 65
CHECKED
APPROVED
APPROVED Elden C. Hall 9 Feb 66
APPROVED MIT
APPROVED MSC A. C. METZGER

COMPUTER
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003200
SCALE 1/1
SHEET 1 OF 2

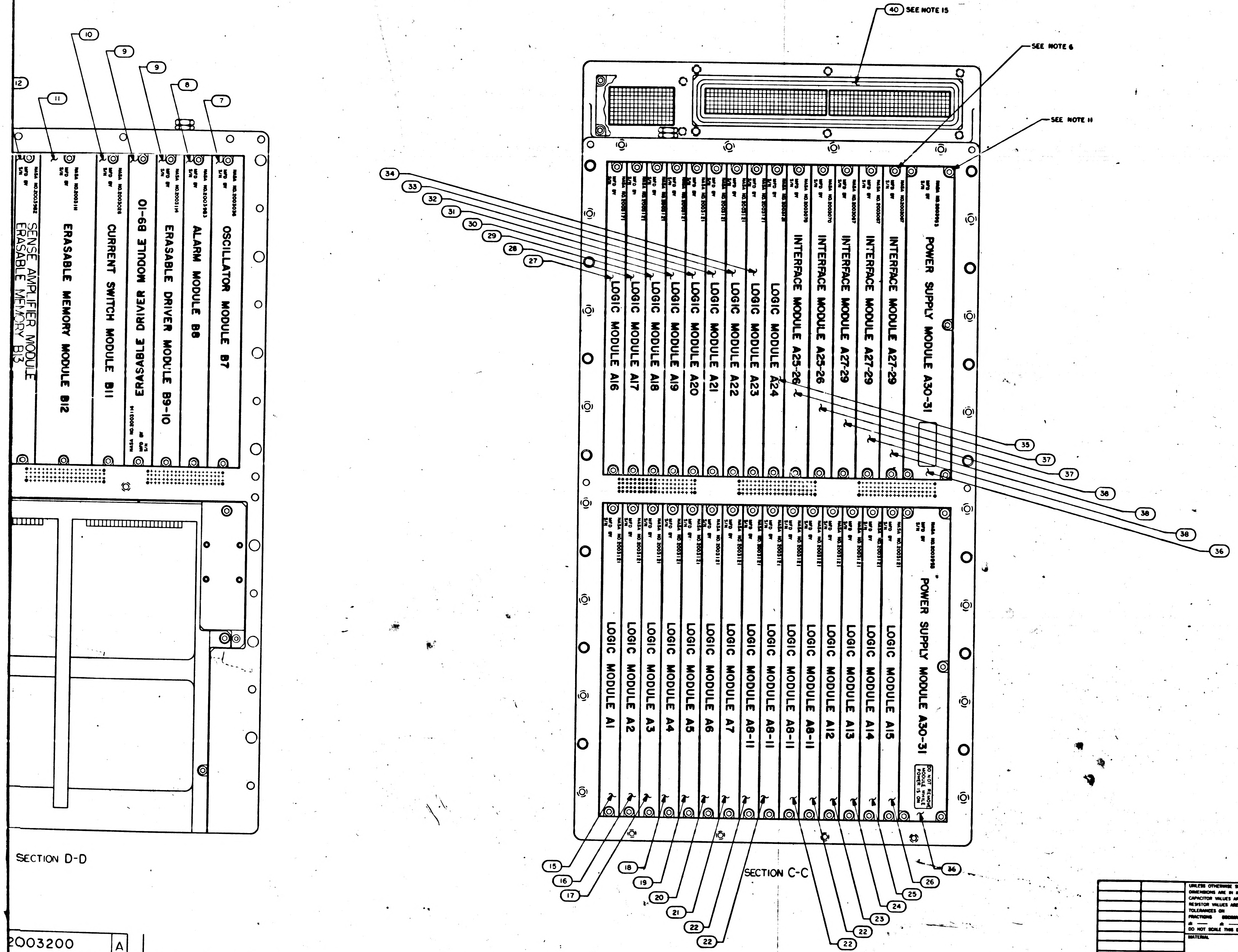
2003200 A

2003200 A

F 2/12

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 28062	APT			

REVISIONS 25977



40 SEE NOTE 15
SEE NOTE 6
SEE NOTE 11
OSCILLATOR MODULE B7
ALARM MODULE B8
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
CURRENT SWITCH MODULE B11
ERASABLE MEMORY MODULE B12
SENSE AMPLIFIER MODULE ERASABLE MEMORY B13
POWER SUPPLY MODULE A30-31
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
LOGIC MODULE A24
LOGIC MODULE A23
LOGIC MODULE A22
LOGIC MODULE A21
LOGIC MODULE A20
LOGIC MODULE A19
LOGIC MODULE A18
LOGIC MODULE A17
LOGIC MODULE A16
POWER SUPPLY MODULE A30-31
DO NOT REMOVE MODULE WHILE POWER IS ON
LOGIC MODULE A15
LOGIC MODULE A14
LOGIC MODULE A13
LOGIC MODULE A12
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A7
LOGIC MODULE A6
LOGIC MODULE A5
LOGIC MODULE A4
LOGIC MODULE A3
LOGIC MODULE A2
LOGIC MODULE A1
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SECTION D-D
SECTION C-C

2003200 A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED A. C. METZGER
MSC

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003200
SCALE 1/1
SHEET 2 OF 2

F 2/2

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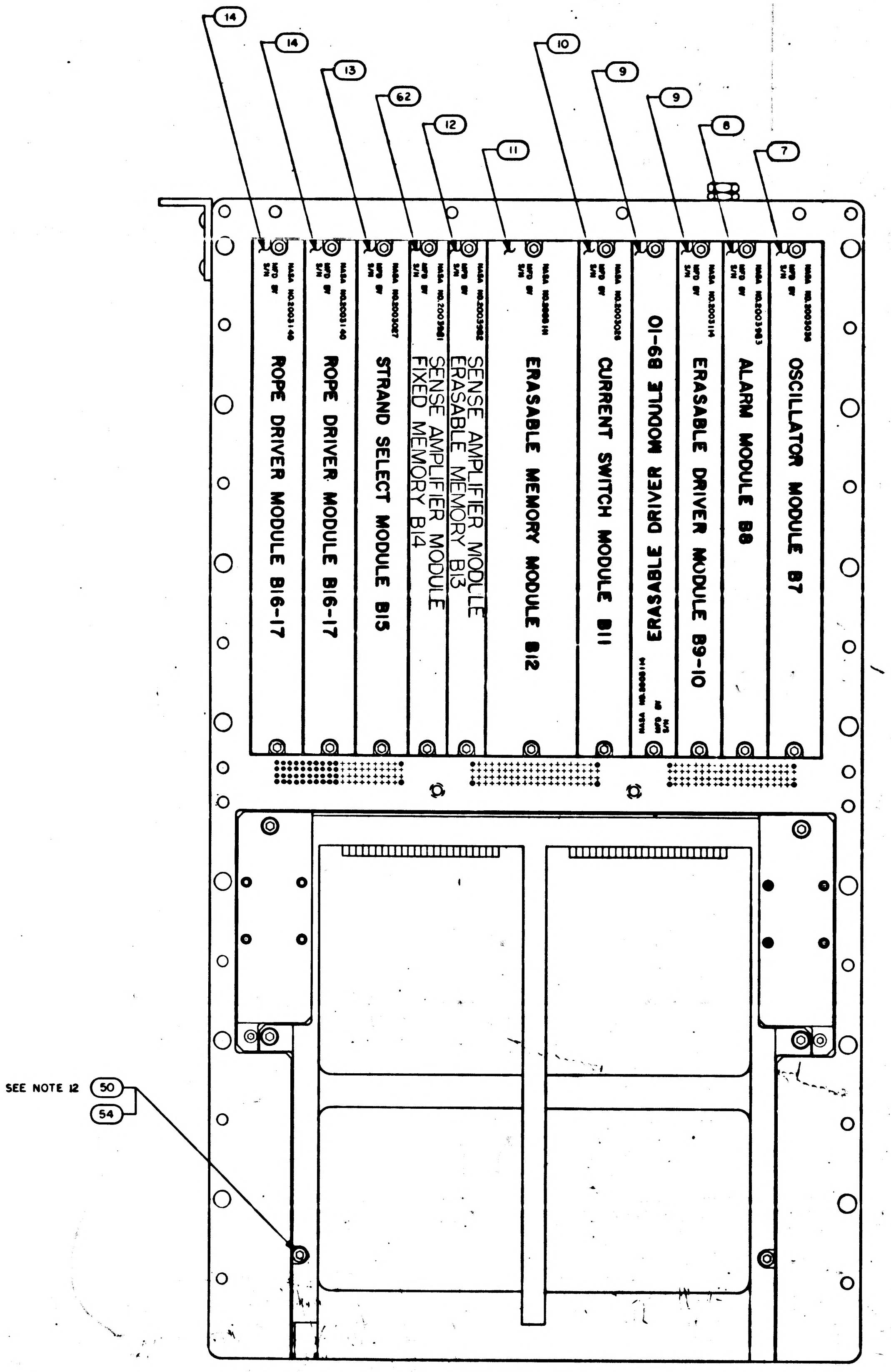
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ROPE DRIVER MODULE B16-17
ROPE DRIVER MODULE B16-17
STRAND SELECT MODULE B15
SENSE AMPLIFIER MODULE
ERASABLE MEMORY B13
SENSE AMPLIFIER MODULE
FIXED MEMORY B14
ERASABLE MEMORY MODULE B12
CURRENT SWITCH MODULE B11
ERASABLE DRIVER MODULE B9-10
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ALARM MODULE B8
OSCILLATOR MODULE B7
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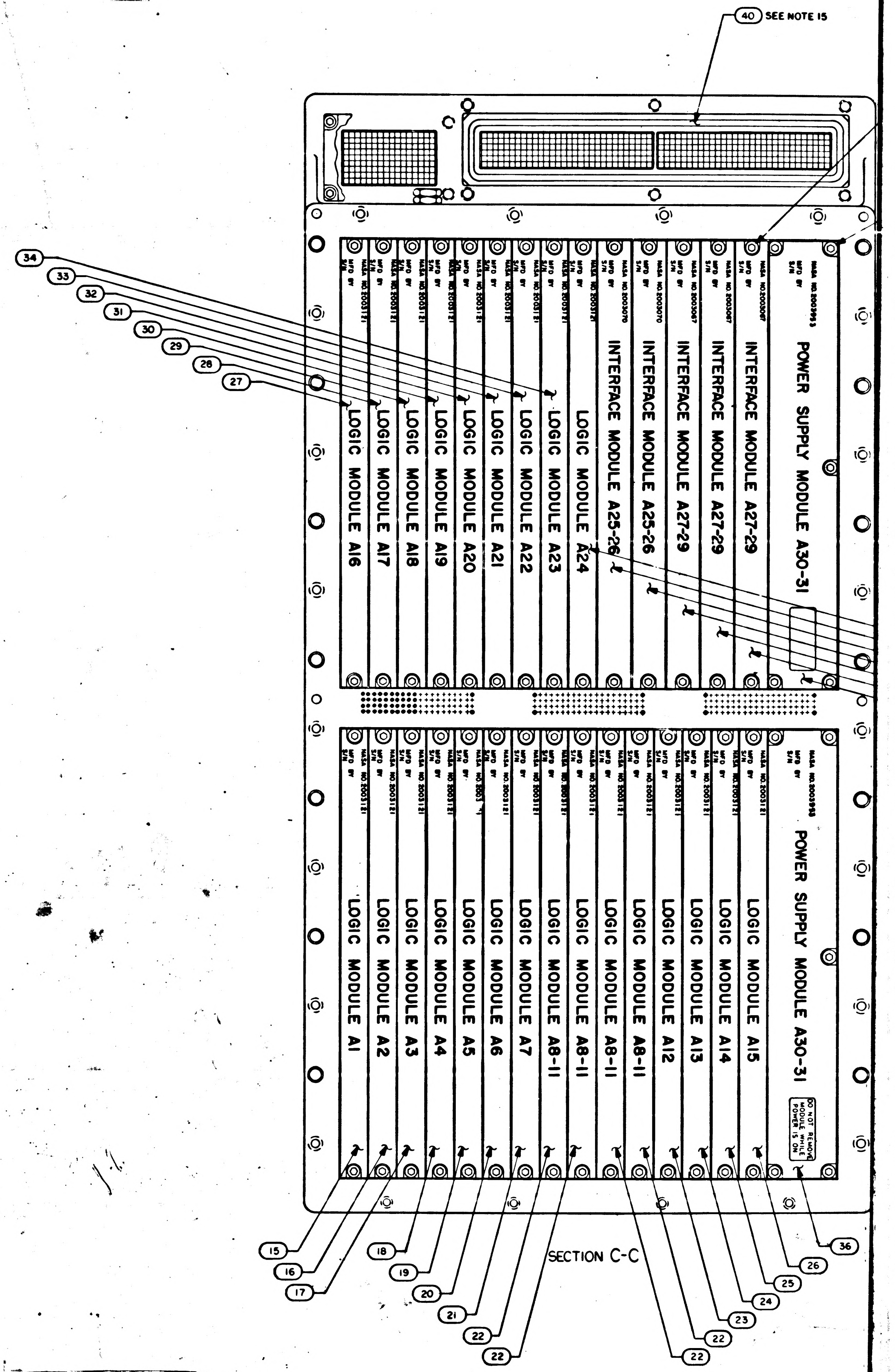
SECTION D-D


40 SEE NOTE 15
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32
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LOGIC MODULE A16
LOGIC MODULE A17
LOGIC MODULE A18
LOGIC MODULE A19
LOGIC MODULE A20
LOGIC MODULE A21
LOGIC MODULE A22
LOGIC MODULE A23
LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
37
LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
DO NOT REMOVE MODULE WHILE POWER IS ON
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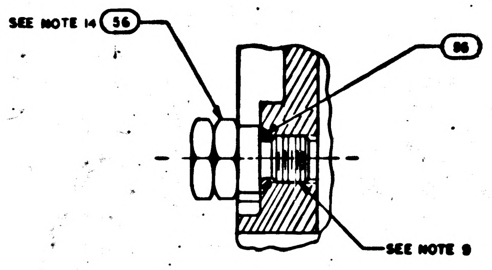
SECTION C-C

2003200 A F1/2 SHEET 2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SEE NOTE 9

PARTIAL SECTION F F
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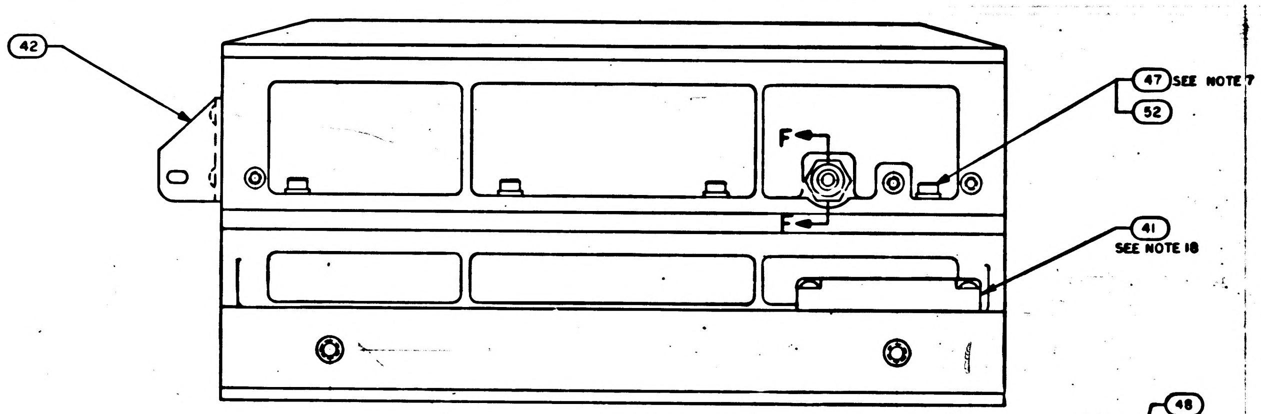
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47 SEE NOTE 7
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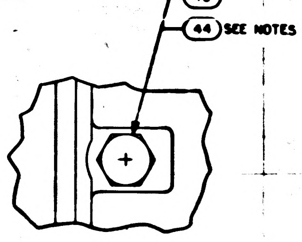
41 SEE NOTE 18

VIEW B-B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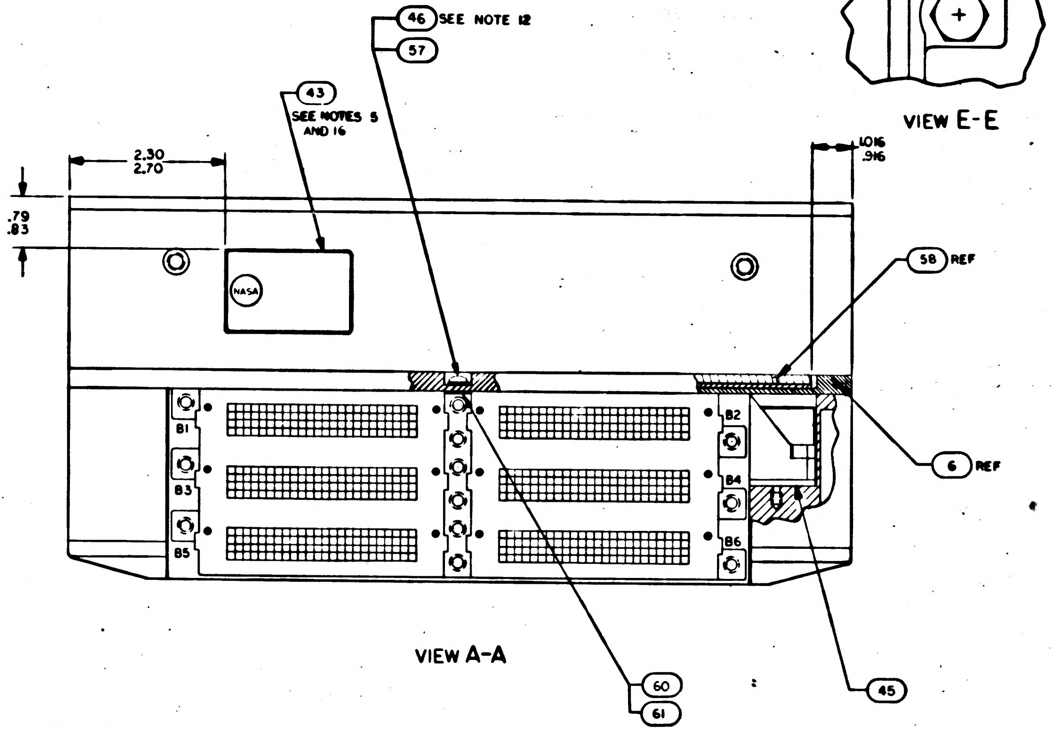
44 SEE NOTES 9 & 14

VIEW E-E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2.70
.79
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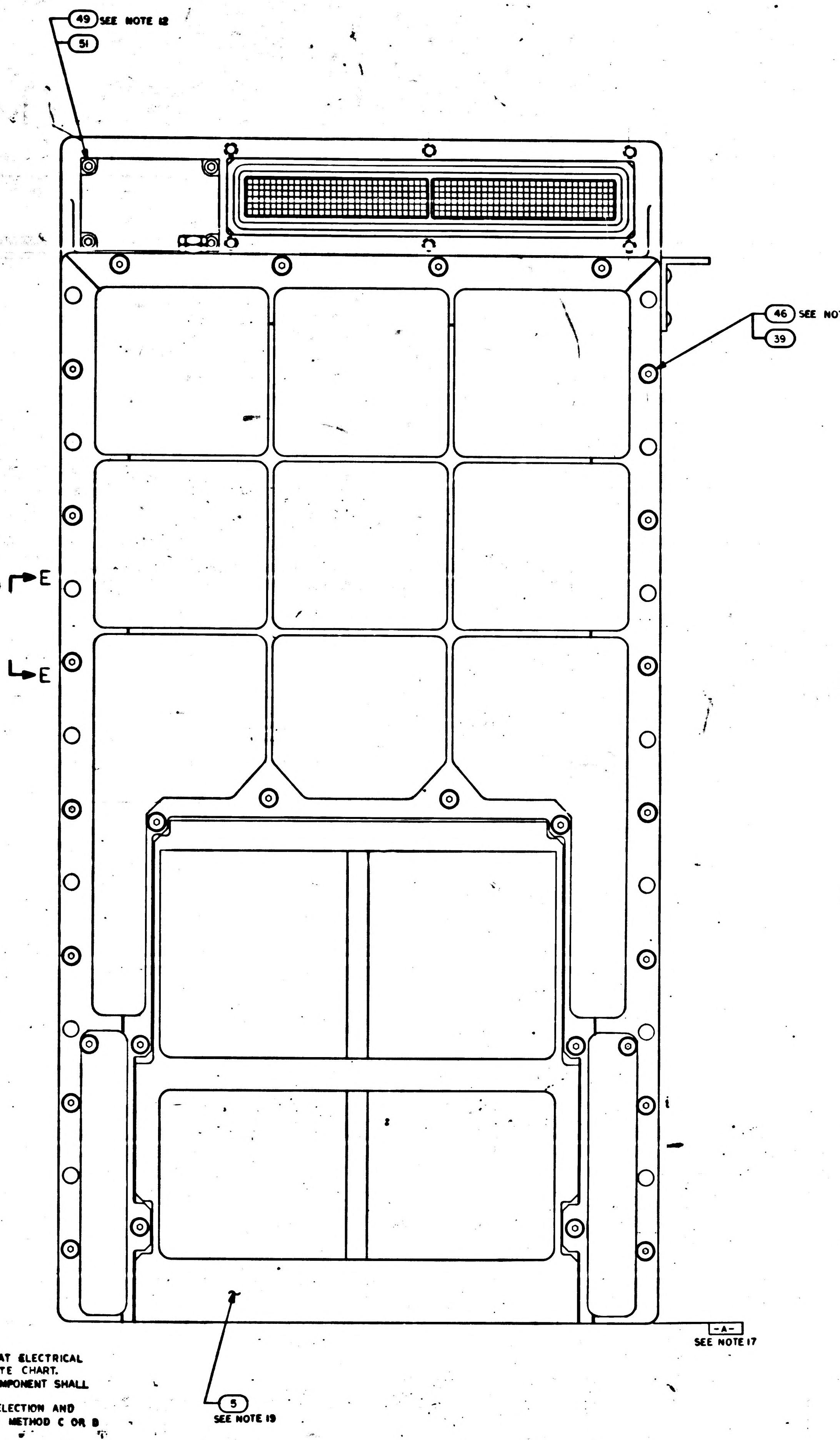
NASA
58 REF
6 REF
B1
B2
B3
B4
B5
B6
60
61
45

VIEW A-A


49 SEE NOTE 12
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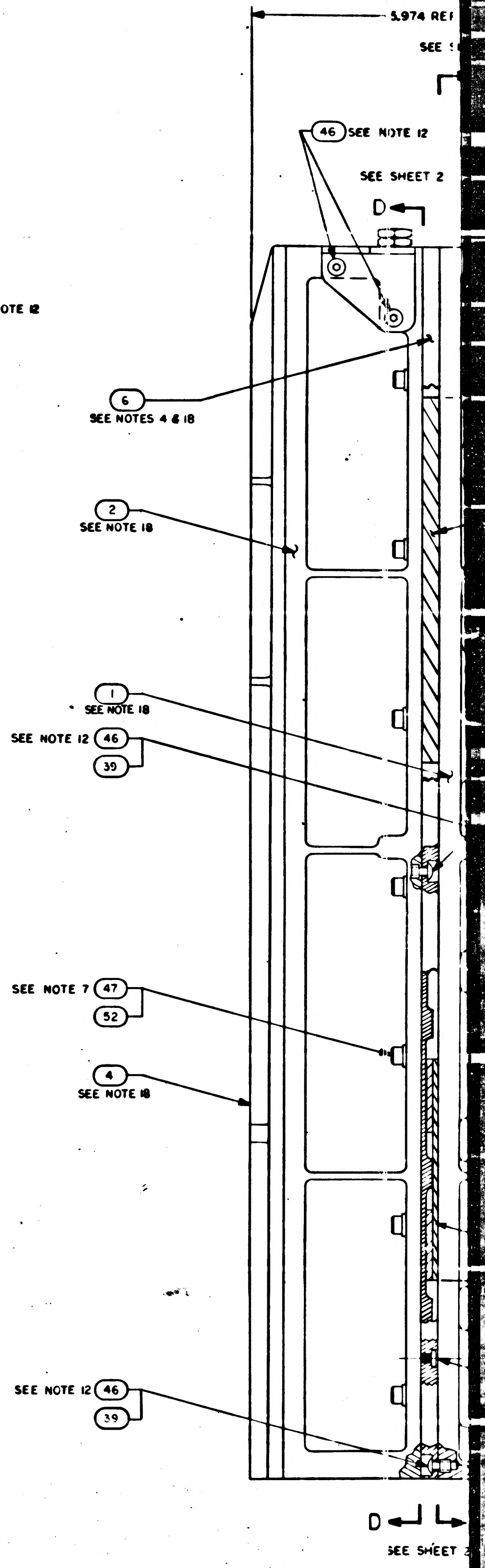
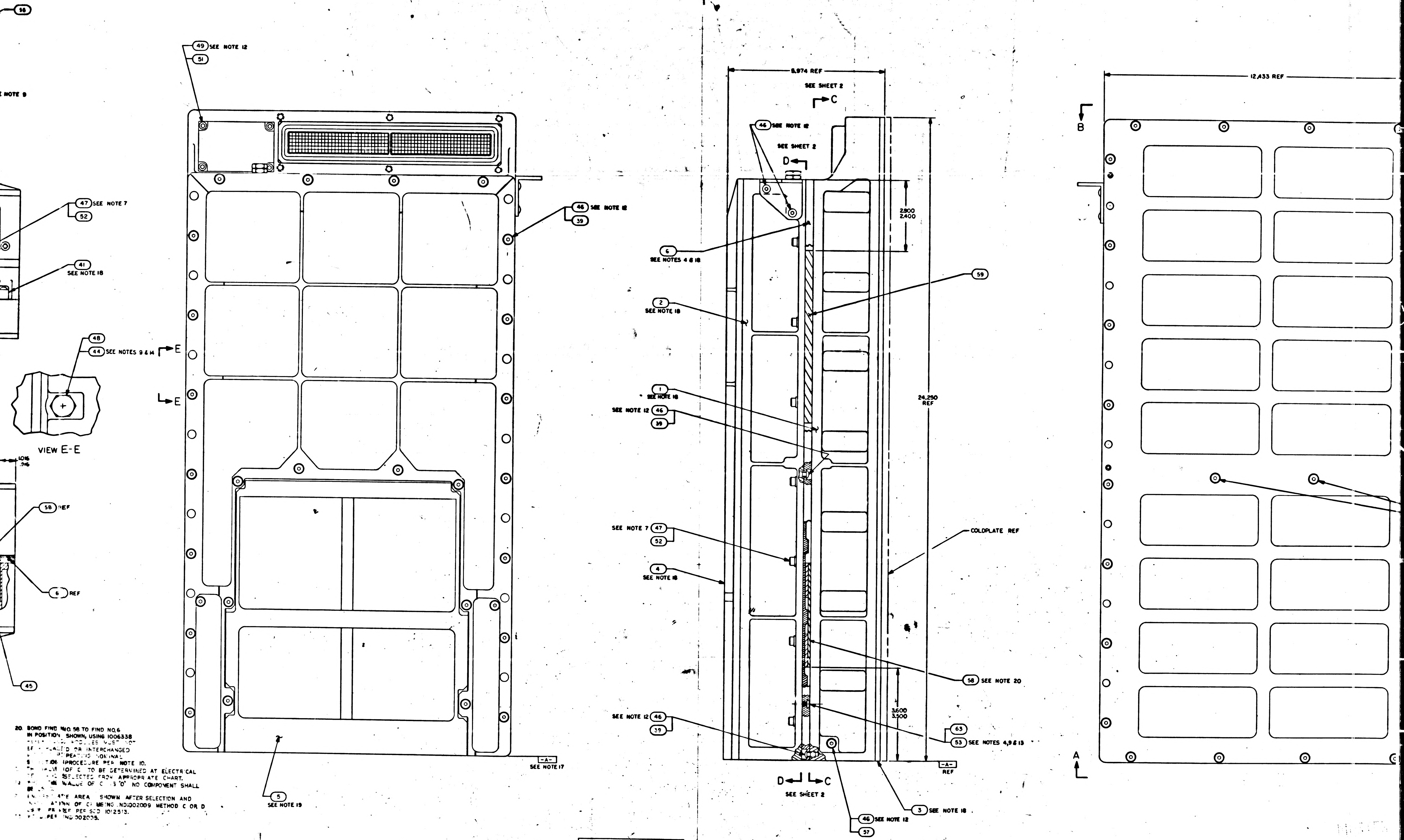
46 SEE NOTE 12
39
E
E
-A-
SEE NOTE 17
5
SEE NOTE 19


5.974 REF
46 SEE NOTE 12
SEE SHEET 2
D
6
SEE NOTES 4 & 18
2
SEE NOTE 18
1
SEE NOTE 18
SEE NOTE 12 46
39
SEE NOTE 7 47
52
4
SEE NOTE 18
SEE NOTE 12 46
39
D
SEE SHEET

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. PHANTOM LINES DENOTE AGC COLDPLATE AND HANDLING FIXTURE TO BE SUPPLIED BY NORTH AMERICAN AVIATION, INC
3. ADD SILICONE GREASE 1006879 TO MODULE MATING METAL SURFACES AND TRAY MATING SURFACES
4. ASSEMBLE FIND NO.53 AND FIND NO.63 TO FIND NO.6 AND FIND NO.6 TO FIND NO.2 PRIOR TO ASSEMBLY OF FIND NO.2 TO FIND NO.1
5. BOND FIND NO.43 TO FIND NO.1 PER ND1002004 TYPE IV
6. UNLESS OTHERWISE SPECIFIED TORQUE ALL MODULE MOUNTING SCREWS 15/19 INCH POUNDS
7. TORQUE FIND NO.47 TO 28/32 INCH POUNDS
8. FINISH IS REQUIRED TO SATISFY ICD GAEC 510-10001
9. APPLY SEALING COMPOUND MIL-S-22473 GRADE A TO FIND NO.53, FIND NO.56 AND FIND NO. 44
10. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2016005
11. TORQUE FOR FIND NO. 36 MOUNTING SCREWS TO BE 4/6 INCH POUNDS
12. TORQUE FOR FIND NO. 46,49 AND 50 TO BE 18/22 INCH POUNDS
13. TORQUE FOR FIND NO. 53 TO BE 4/6 INCH POUNDS
14. TORQUE FOR FIND NO. 44 AND FIND NO. 56 TO BE 137/157 INCH POUNDS
15. FIND NO. 40 SHALL BE SUPPLIED AS PART OF THIS ASSEMBLY
16. MARK "COMPUTER ASSEMBLY" AND RELATED PART NO., APPLICABLE DASH NO., SERIAL NO. AND CONTRACT NO. PER 1004260 AND SERIALIZE PER ND1002023
17. FINISH SURFACE -A- PER ICD NAA MH01-01302-116 THIS ASSEMBLY MUST BE CAPABLE OF MEETING ELECTRICAL BONDING REQUIREMENTS OF ICD NAA MH01-01302-116
18. FIND NO. 1 THRU 6 AND FIND NO. 41 TO BE ELECTRICALLY BONDED, RESISTANCE BETWEEN ANY TWO ITEMS TO BE LESS THAN 10 MILLI OHMS
19. LEAK TEST: PURGE AND FILL WITH 30 ± 1.0 PSIA DRY NITROGEN. STORE AT ROOM AMBIENT FOR 24 ± 5 HOURS. TEST PRESSURE FOR $\Delta P < 0.5$ PSIA. ALL MEASUREMENTS MADE AT STANDARD TEMPERATURE ± 2°C TEST SHALL BE PREFORMED WITH 2001400 INSTALLED. FOLLOWING TEST BLEED TO 17 ± 1.0 PSIA
20. BOND FIND NO. 58 TO FIND NO.6 IN POSITION SHOWN, USING 1006338
21. REFERENCED MODULES MUST NOT BE REPLACED OR INTERCHANGED WITHOUT REPEATING NOMINAL SELECTION PROCEDURE PER NOTE 10.
22. THE VALVE OF C1 TO BE DETERMINED AT ELECTRICAL TEST AND SELECTED FROM APPROPRIATE CHART.
23. WHEN THE VALUE OF C1 IS "0" NO COMPONENT SHALL BE USED.
24. ENCAPSULATE AREA SHOWN AFTER SELECTION AND INSTALLATION OF C1 USING ND1002009 METHOD C OR B USING PRIMER PER SCD 1012513.
25. WELD PER ND1002005.

2003200 B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SEE NOTE 9
49 SEE NOTE 12
51
47 SEE NOTE 7
52
41
SEE NOTE 18
48
44 SEE NOTES 9 & 14
E
E
VIEW E-E
1.016
.916
58 REF
6 REF
45
46 SEE NOTE 12
39
5
SEE NOTE 19
-A-
SEE NOTE 17
8.974 REF
SEE SHEET 2
C
46 SEE NOTE 12
SEE SHEET 2
D
6
SEE NOTES 4 & 18
2
SEE NOTE 18
1
SEE NOTE 18
SEE NOTE 12 46
39
SEE NOTE 7 47
52
4
SEE NOTE 18
SEE NOTE 12 46
39
2.900
2.400
59
24.250
REF
COLDPLATE REF
58 SEE NOTE 20
3.600
3.500
63
53 SEE NOTES 4,9 & 13
-A-
REF
D C
SEE SHEET 2
3 SEE NOTE 18
46 SEE NOTE 12
57
12.433 REF
B
A

20. BOND FIND NO. 58 TO FIND NO. 6 IN POSITION SHOWN, USING 1006338
[illegible] MODULES MUST NOT BE [illegible] OR INTERCHANGED [illegible] REPEATING NOMINAL S[illegible]TION PROCEDURE PER NOTE 10.
[illegible] VALUE OF C TO BE DETERMINED AT ELECTRICAL [illegible] SELECTED FROM APPROPRIATE CHART.
[illegible] VALUE OF C IS "0" NO COMPONENT SHALL BE USED.
[illegible] AREA SHOWN AFTER SELECTION AND [illegible]ATION OF C USING ND1002009 METHOD C OR D [illegible] PER SCD 1012513.
[illegible] PER ND1002005.

2003200 B

REVISIONS 23977

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
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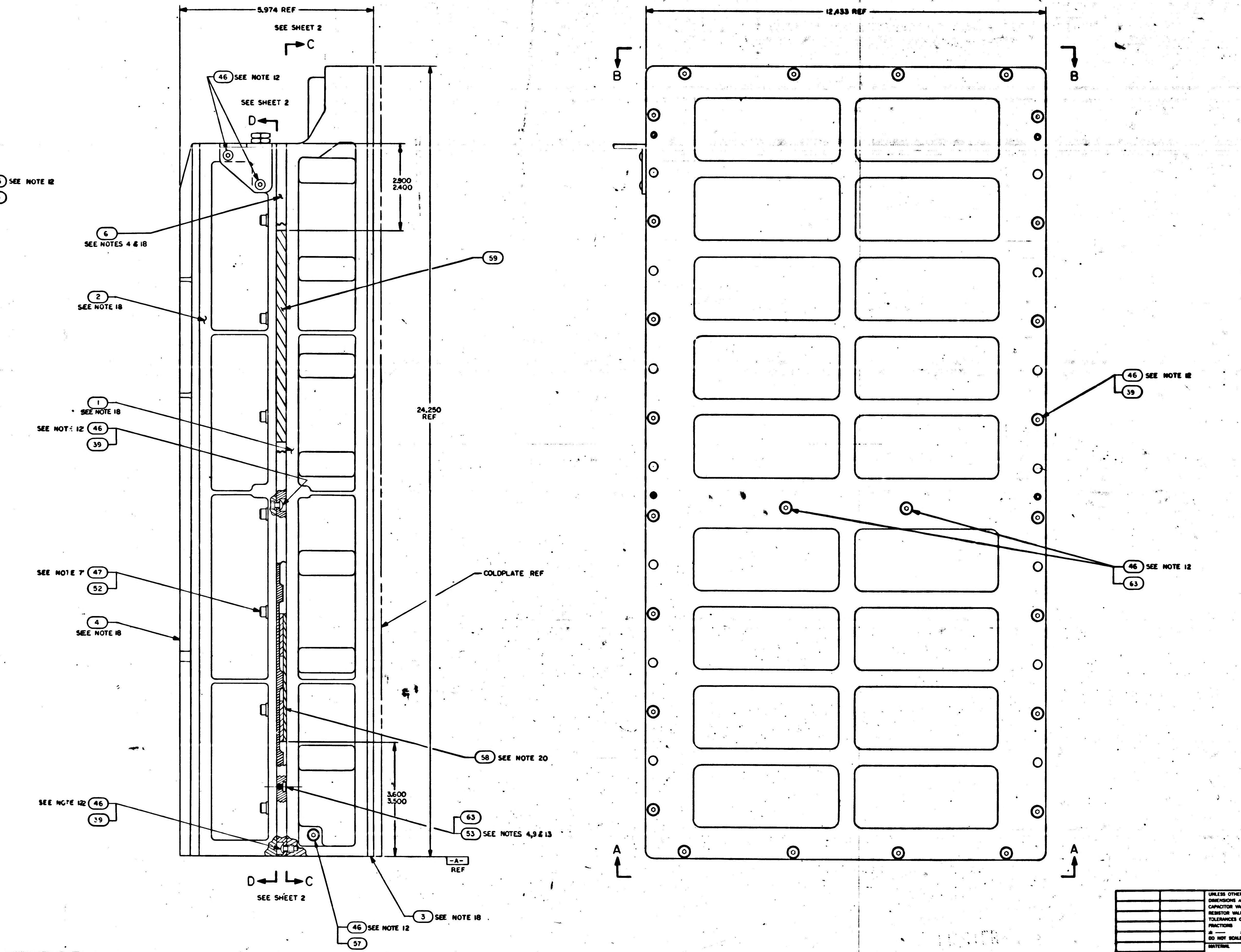
B		REVISED PER TDRR 30887				



QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006776-22	INSULATION SLEEVING, ELECTRICAL	65
☒	2005036	AGC WIPE LIST	REF
1	SEE NOTE 22	CAPACITOR	64
10	2004148-007	WASHER, FLAT	63
1	2003981-011	SENSE AMPLIFIER MODULE, FIXED MEMORY B14	62
AR	2004895-002	SHIM AGC	61
AR	2004895-001	SHIM AGC	60
1	2004899-001	PAD VIBRATION	59
1	2003970	VIBRATION PAD ASSY	58
4	NAS1598-D08N	WASHER, SEALING	57
1	2018773	VALVE PRESSURE ASSEMBLY	56
1	1000159-5	PACKING, PREFORMED "O" RING	55
2	2004984-001	WASHER, FLAT	54
8	2004130	PAD, THREADED	53
18	2004894-014	WASHER, FLAT	52
4	2004894-012	WASHER, FLAT	51
2	1001489-34	SCREW, HEX SOCKET HEAD	50
4	1004722-2	SCREW, CAPTIVE	49
1	1000159-7	PACKING, PREFORMED "O" RING	48
18	MS16996-14	SCREW, SOCKET HEAD, CAP	47
66	1006783-25	SCREW, BUTTON HEAD, HEX SOCKET	46
2	1006347	GASKET, PLATE	45
1	2004986	PLUG, MACHINE THREAD	44
1	1004260-19	NAME PLATE, TYPE I	43
1	2004113-001	BRACKET, CABLE	42
1	2004115	COVER, POTTED	41
1	1006380	GASKET, RETAINED	40
58	2004707	WASHER, KNURLED	39
3	2003067-031	INTERFACE MODULE A27-29	38
2	2003070-021	INTERFACE MODULE A25-26	37
2	2003953-011	POWER SUPPLY MODULE A30-31	36
1	2003121-231	LOGIC MODULE A24	35
1	2003121-221	LOGIC MODULE A23	34
1	2003121-211	LOGIC MODULE A22	33
1	2003121-191	LOGIC MODULE A21	32
1	2003121-181	LOGIC MODULE A20	31
1	2003121-171	LOGIC MODULE A19	30
1	2003121-161	LOGIC MODULE A18	29
1	2003121-151	LOGIC MODULE A17	28
1	2003121-141	LOGIC MODULE A16	27
1	2003121-131	LOGIC MODULE A15	26
1	2003121-121	LOGIC MODULE A14	25
1	2003121-111	LOGIC MODULE A13	24
1	2003121-091	LOGIC MODULE A12	23
4	2003121-081	LOGIC MODULE A8-11	22
1	2003121-071	LOGIC MODULE A7	21
1	2003121-061	LOGIC MODULE A6	20
1	2003121-051	LOGIC MODULE A5	19
1	2003121-041	LOGIC MODULE A4	18
1	2003121-031	LOGIC MODULE A3	17
1	2003121-021	LOGIC MODULE A2	16
1	2003121-011	LOGIC MODULE A1	15
2	2003140-011	ROPE DRIVER MODULE B16-17	14
1	2003027-021	STRAND SELECT MODULE B15	13
1	2003982-011	SENSE AMPL MOD, ERASABLE MEMORY B13	12
1	2003111-011	ERASABLE MEMORY MODULE B12	11
1	2003026-021	CURRENT SWITCH MODULE B11	10
2	2003114-011	ERASABLE DRIVER MODULE B9-10	9
1	2003983-011	ALARM MODULE B8	8
1	2003036-021	OSCILLATOR MODULE B7	7
1	2003978	MID SPACER	6
1	2003059-021	INTERCONNECTION HEADER ASSEMBLY	5
1	2003976	TRAY B COVER	4
1	2003977	TRAY A COVER	3
1	2003093-011	TRAY B WIRED ASSEMBLY	2
1	2003092-011	TRAY A WIRED ASSEMBLY	1
-011	LIST OF MATERIALS		

2003200 B

2003991	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING
MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN P. Rowey 23 ... 65
CHECKED
APPROVED
APPROVED Eldon C. Hall 9 Feb 66
APPROVED MIT
APPROVED MSC A. G. METZGER
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER ASSEMBLY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003200
SCALE 1/1
SHEET 1 OF 2

2H

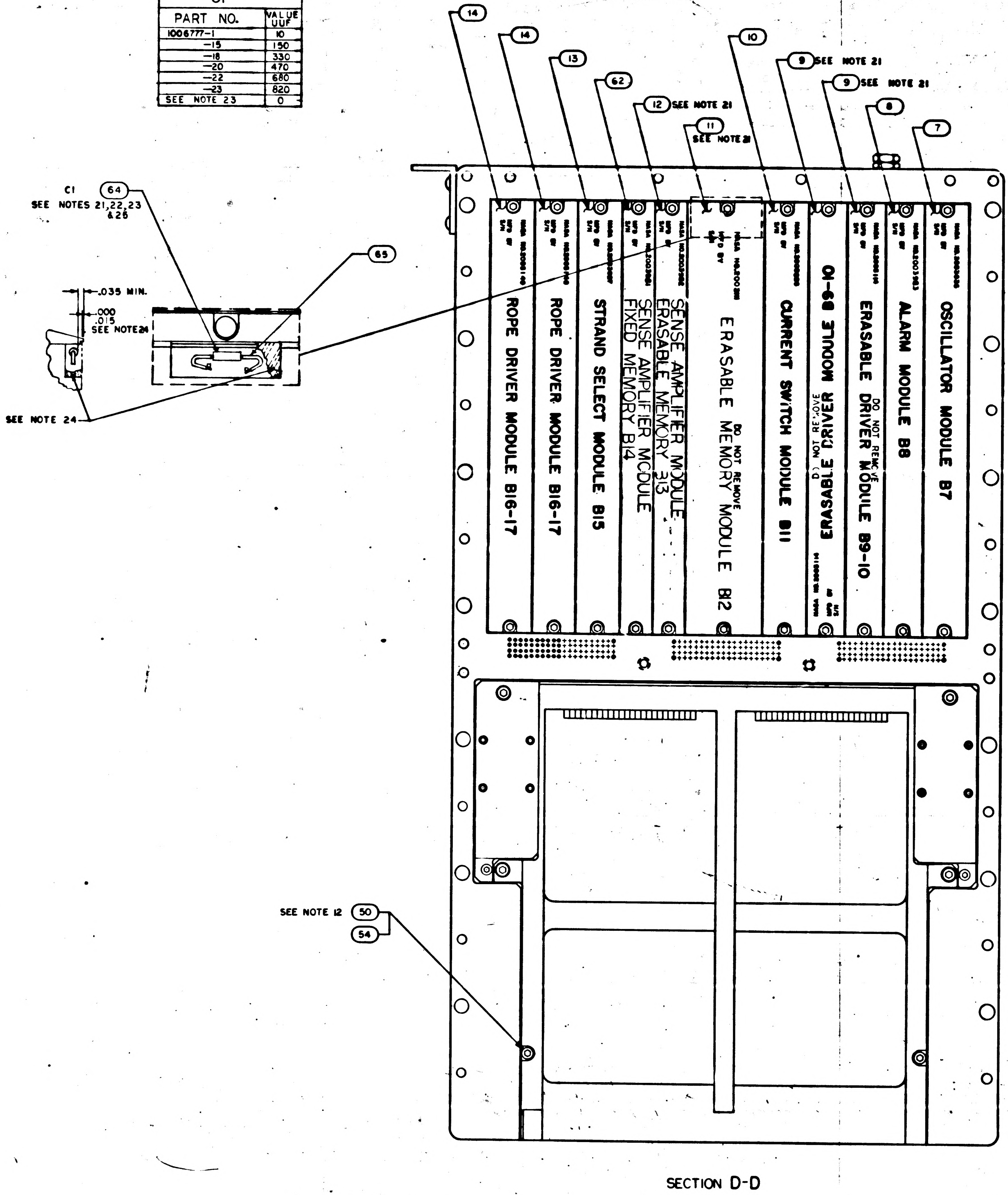
2003200 B

F 3/3

2003200

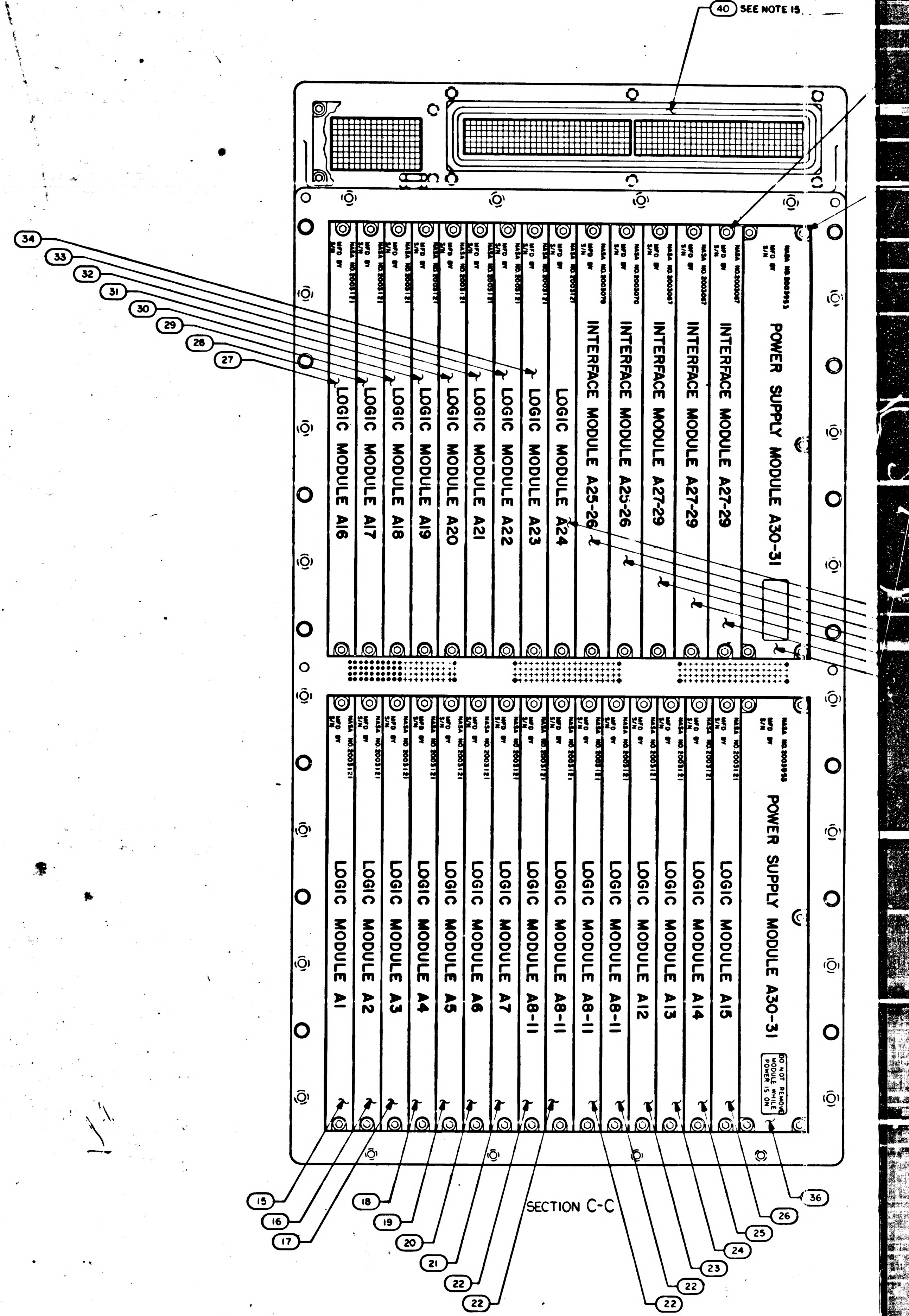
NOTICE – [illegible]

CI	
PART NO.	VALUE UUF
1006777-1	10
-15	150
-18	330
-20	470
-22	680
-23	820
SEE NOTE 23	0



C1
64
SEE NOTES 21,22,23 & 26
65
.035 MIN.
.000
.015
SEE NOTE 24
SEE NOTE 24
14
14
13
62
12 SEE NOTE 21
11 SEE NOTE 21
10
9 SEE NOTE 21
9 SEE NOTE 21
8
7
ROPE DRIVER MODULE B16-17
ROPE DRIVER MODULE B16-17
STRAND SELECT MODULE B15
SENSE AMPLIFIER MODULE FIXED MEMORY B14
SENSE AMPLIFIER MODULE ERASABLE MEMORY B13
DO NOT REMOVE
ERASABLE MEMORY MODULE B12
CURRENT SWITCH MODULE B11
DO NOT REMOVE
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
DO NOT REMOVE
ALARM MODULE B8
OSCILLATOR MODULE B7
SEE NOTE 12
50
54

SECTION D-D



40 SEE NOTE 15
34
33
32
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27
LOGIC MODULE A16
LOGIC MODULE A17
LOGIC MODULE A18
LOGIC MODULE A19
LOGIC MODULE A20
LOGIC MODULE A21
LOGIC MODULE A22
LOGIC MODULE A23
LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
DO NOT REMOVE MODULE WHILE POWER IS ON
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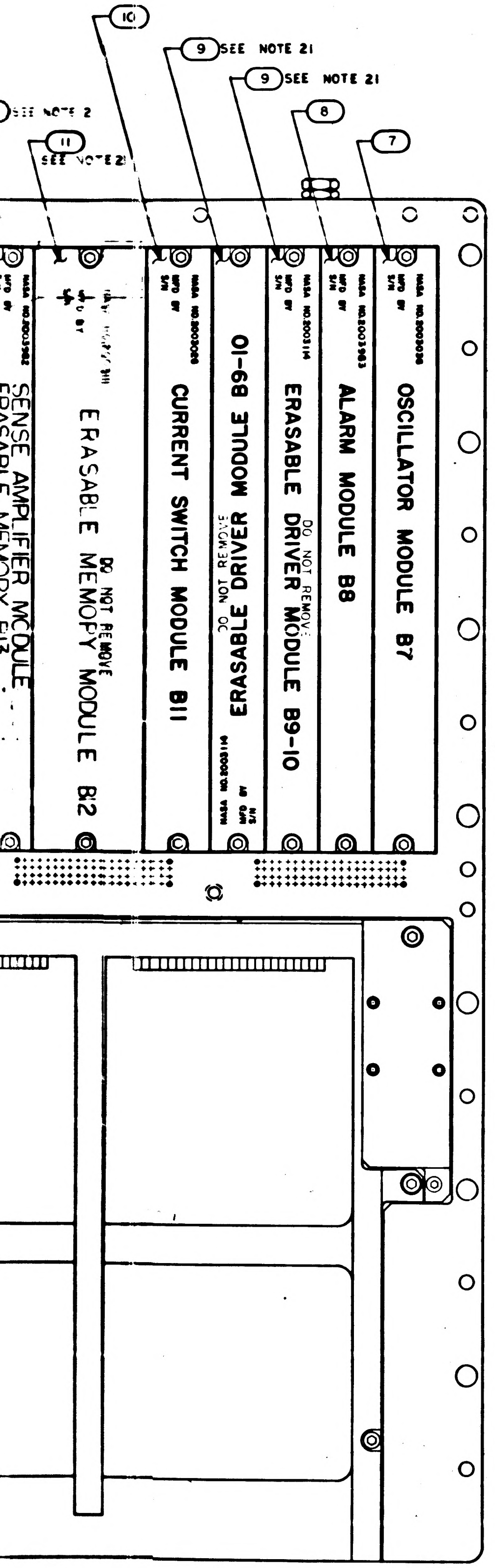
SECTION C-C

2H

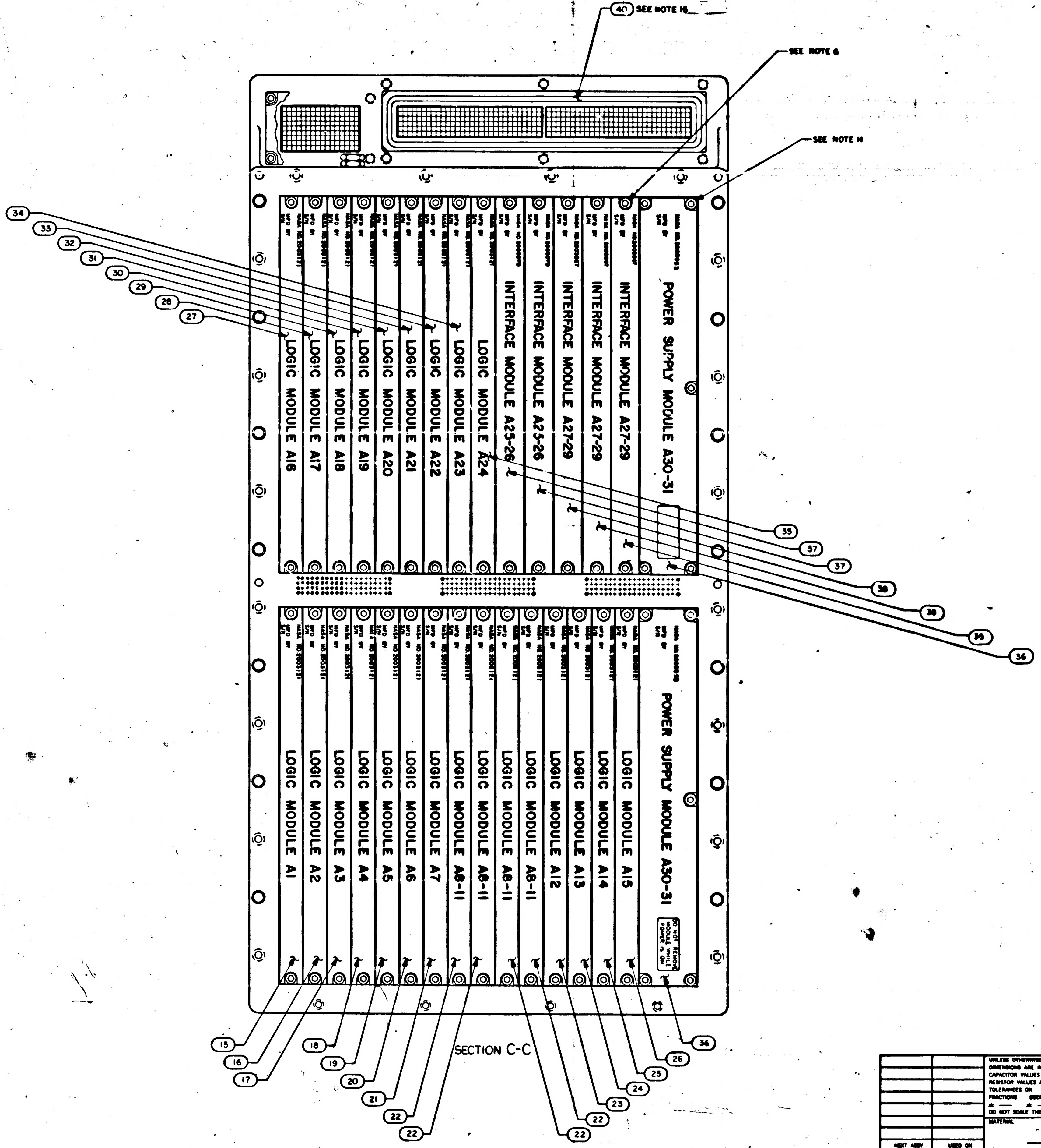
2003200	B

SH 2 / 2 F 1 / 2

		REVISIONS 25977				
A		REVISED PER TDRR 28062				
B		REVISED PER TDRR 30887				T.S.R.


10
9 SEE NOTE 21
9 SEE NOTE 21
SEE NOTE 2
11 SEE NOTE 21
8
7
OSCILLATOR MODULE B7
ALARM MODULE B8
DO NOT REMOVE
ERASABLE DRIVER MODULE B9-10
DO NOT REMOVE
ERASABLE DRIVER MODULE B9-10
CURRENT SWITCH MODULE B11
DO NOT REMOVE
ERASABLE MEMORY MODULE B12
SENSE AMPLIFIER MODULE
NASA NO.2003036
NASA NO.2003983
NASA NO.2003114
NASA NO.2003114
NASA NO.2003000
NASA NO.2003982
MFD BY
S/N

SECTION D-D


40 SEE NOTE 16
SEE NOTE 6
SEE NOTE 11
34
33
32
31
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29
28
27
POWER SUPPLY MODULE A30-31
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
LOGIC MODULE A24
LOGIC MODULE A23
LOGIC MODULE A22
LOGIC MODULE A21
LOGIC MODULE A20
LOGIC MODULE A19
LOGIC MODULE A18
LOGIC MODULE A17
LOGIC MODULE A16
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36
36
POWER SUPPLY MODULE A30-31
DO NOT REMOVE MODULE WHILE POWER IS ON
LOGIC MODULE A15
LOGIC MODULE A14
LOGIC MODULE A13
LOGIC MODULE A12
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A7
LOGIC MODULE A6
LOGIC MODULE A5
LOGIC MODULE A4
LOGIC MODULE A3
LOGIC MODULE A2
LOGIC MODULE A1
NASA NO.
MFD BY
S/N
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22
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26
36

SECTION C-C

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
CHECKED
APPROVED
APPROVED Eldon C. Hall
APPROVED MIT
APPROVED R. O. METZGER
MSC

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER
ASSEMBLY

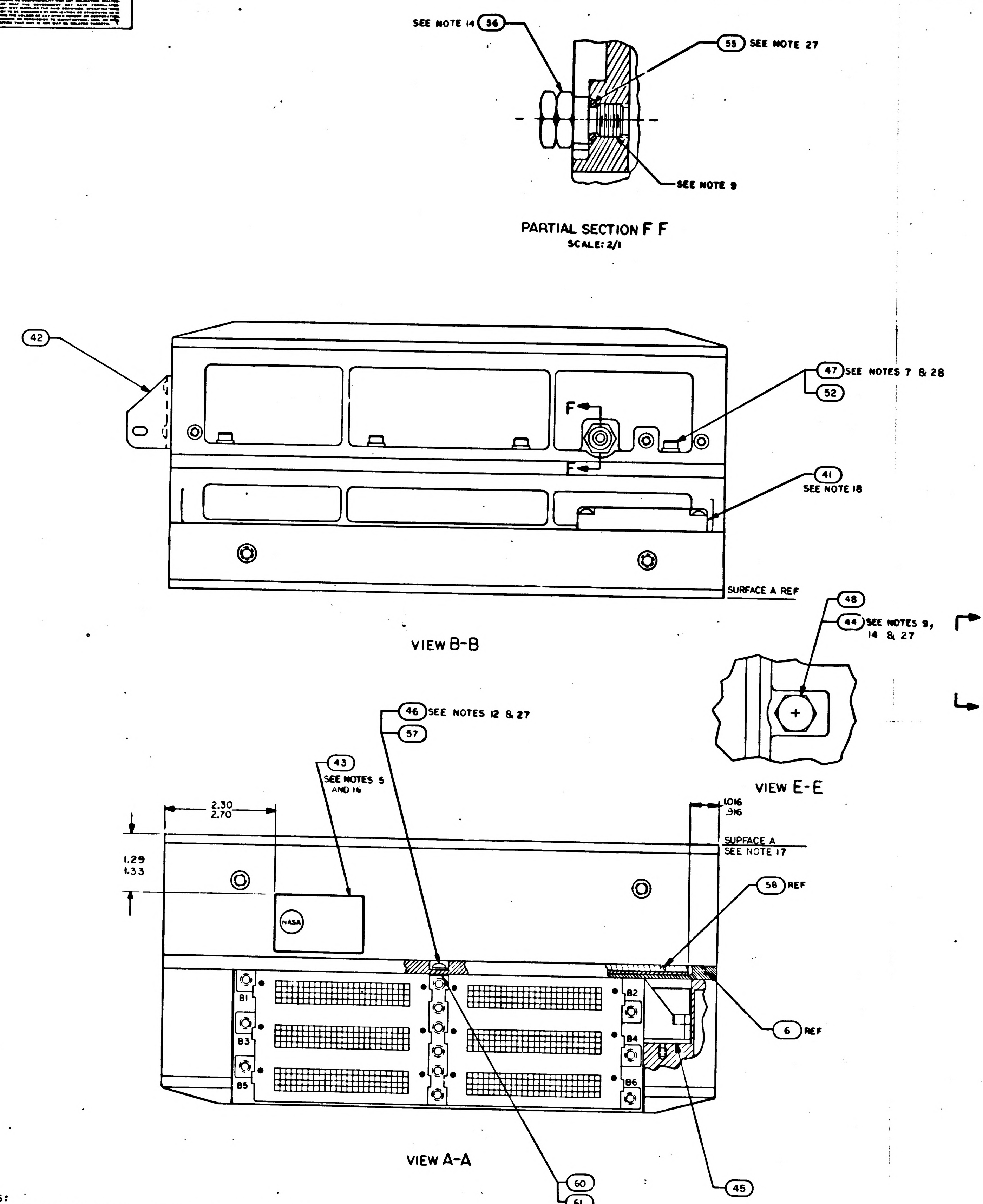
CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2003200
SCALE 1/1		SHEET 2 OF 2

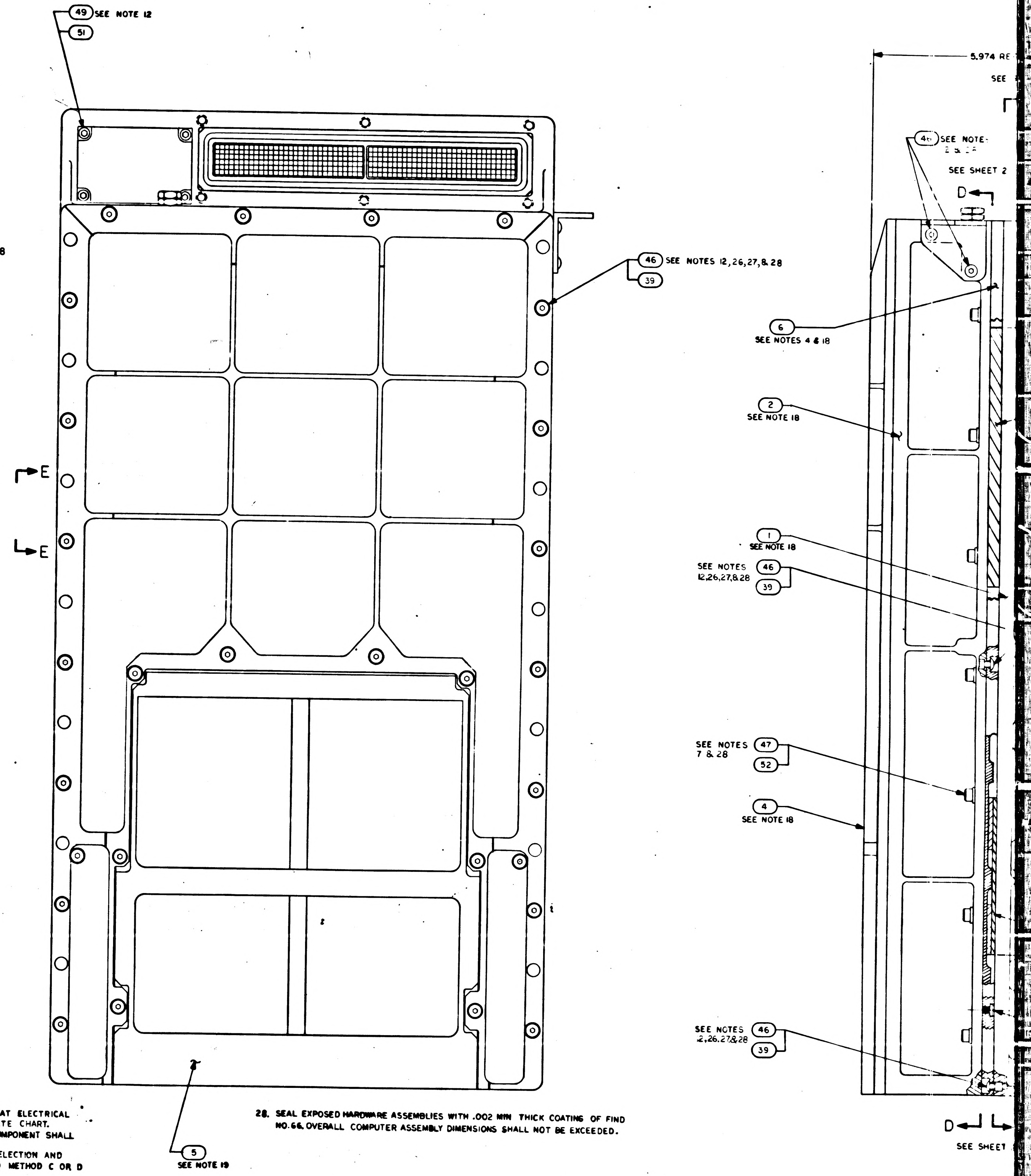
2003200 B

2003200

2H

F-2/2


SEE NOTE 14 56
55 SEE NOTE 27
SEE NOTE 9
PARTIAL SECTION F F
SCALE: 2/1
42
47 SEE NOTES 7 & 28
52
F
F
41
SEE NOTE 18
SURFACE A REF
VIEW B-B
48
44 SEE NOTES 9, 14 & 27
VIEW E-E
46 SEE NOTES 12 & 27
57
43
SEE NOTES 5 AND 16
2.30
2.70
1.016
.916
1.29
1.33
SURFACE A
SEE NOTE 17
58 REF
NASA
B1
B2
B3
B4
B5
B6
6 REF
VIEW A-A
60
61
45


49 SEE NOTE 12
51
E
E
46 SEE NOTES 12,26,27,& 28
39
5
SEE NOTE 19
5.974 RE
SEE
40 SEE NOTE 2 & 3A
SEE SHEET 2
D
6
SEE NOTES 4 & 18
2
SEE NOTE 18
1
SEE NOTE 18
SEE NOTES 12,26,27,& 28 46
39
SEE NOTES 7 & 28 47
52
4
SEE NOTE 18
SEE NOTES 12,26,27,& 28 46
39
D
SEE SHEET

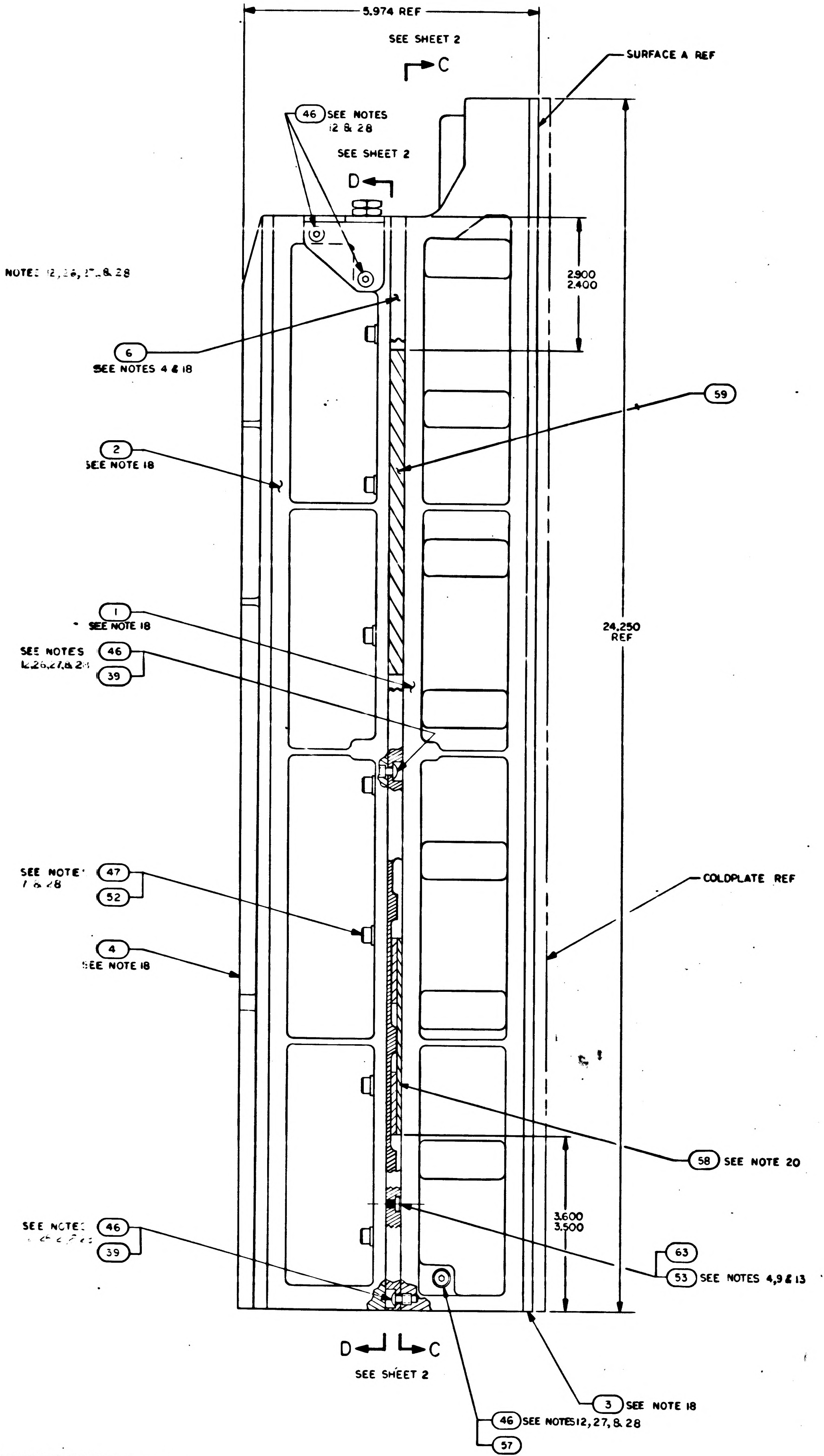
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. PHANTOM LINES DENOTE AGC COLDPLATE AND HANDLING FIXTURE TO BE SUPPLIED BY NORTH AMERICAN AVIATION, INC
3. ADD SILICONE GREASE 1006879 TO MODULE MATING METAL SURFACES AND TRAY MATING SURFACES
4. ASSEMBLE FIND NO.53 AND FIND NO.63 TO FIND NO.6 AND FIND NO.6 TO FIND NO.2 PRIOR TO ASSEMBLY OF FIND NO.2 TO FIND NO.1
5. BOND FIND NO.43 TO FIND NO.1 PER ND1002004 TYPE IV
6. UNLESS OTHERWISE SPECIFIED TORQUE ALL MODULE MOUNTING SCREWS 15/19 INCH POUNDS
7. TORQUE FIND NO.47 TO 28/32 INCH POUNDS
8. FINISH IS REQUIRED TO SATISFY ICD GAEC 510-10001
9. APPLY SEALING COMPOUND MIL-S-22473 GRADE A TO FIND NO.53, FIND NO.56 AND FIND NO.44
10. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2016005
11. TORQUE FOR FIND NO. 36 MOUNTING SCREWS TO BE 4/6 INCH POUNDS
12. TORQUE FOR FIND NO. 46,49 AND 50 TO BE 18/22 INCH POUNDS
13. TORQUE FOR FIND NO. 53 TO BE 4/6 INCH POUNDS
14. TORQUE FOR FIND NO. 44 AND FIND NO. 56 TO BE 137/157 INCH POUNDS
15. FIND NO. 40 SHALL BE SUPPLIED AS PART OF THIS ASSEMBLY
16. MARK "COMPUTER ASSEMBLY" AND RELATED PART NO., APPLICABLE DASH NO., SERIAL NO. AND CONTRACT NO. PER 1004260 AND SERIALIZE PER ND1002023
17. FINISH SURFACE $\boxed{-A-}$ PER ICD NAA MH01-01302-116 THIS ASSEMBLY MUST BE CAPABLE OF MEETING ELECTRICAL BONDING REQUIREMENTS OF ICD NAA MH01-01302-116
18. FIND NO.1 THRU 6 AND FIND NO.41 TO BE ELECTRICALLY BONDED, RESISTANCE BETWEEN ANY TWO ITEMS TO BE LESS THAN 10 MILLI OHMS
19. LEAK TEST: PURGE AND FILL WITH 30 ± 1.0 PSIA DRY NITROGEN. STORE AT ROOM AMBIENT FOR 24 ± 5 HOURS. TEST PRESSUPE FOR $\Delta P < 0.5$ PSIA. ALL MEASUREMENTS MADE AT STANDARD TEMPERATURE ±2°C, FOLLOWING TEST BLEED TO 17 ± 1.0 PSIA
20. BOND FIND NO. 58 TO FIND NO. 6 IN POSITION SHOWN, USING 1006338
21. REFERENCED MODULES MUST NOT BE REPLACED OR INTERCHANGED WITHOUT REPEATING NOMINAL SELECTION PROCEDURE PER NOTE 10.
22. THE VALVE OF C1 TO BE DETERMINED AT ELECTRICAL TEST AND SELECTED FROM APPROPRIATE CHART.
23. WHEN THE VALUE OF C1 IS "0" NO COMPONENT SHALL BE USED.
24. ENCAPSULATE AREA SHOWN AFTER SELECTION AND INSTALLATION OF C1 USING ND1002009 METHOD C OR D USING PRIMER PER SCD 1012513.
25. WELD PER ND1002005.
26. ASSEMBLE HARDWARE WITH SMOOTH FACE OF FIND NO.39 IN CONTACT WITH SCREW HEAD
27. FIND NO. 39, 48, 55 & 57 TO BE DISCARDED AND REPLACED WITH NEW PARTS EACH TIME THEY ARE DISASSEMBLED
28. SEAL EXPOSED HARDWARE ASSEMBLIES WITH .002 MIN THICK COATING OF FIND NO.66. OVERALL COMPUTER ASSEMBLY DIMENSIONS SHALL NOT BE EXCEEDED.

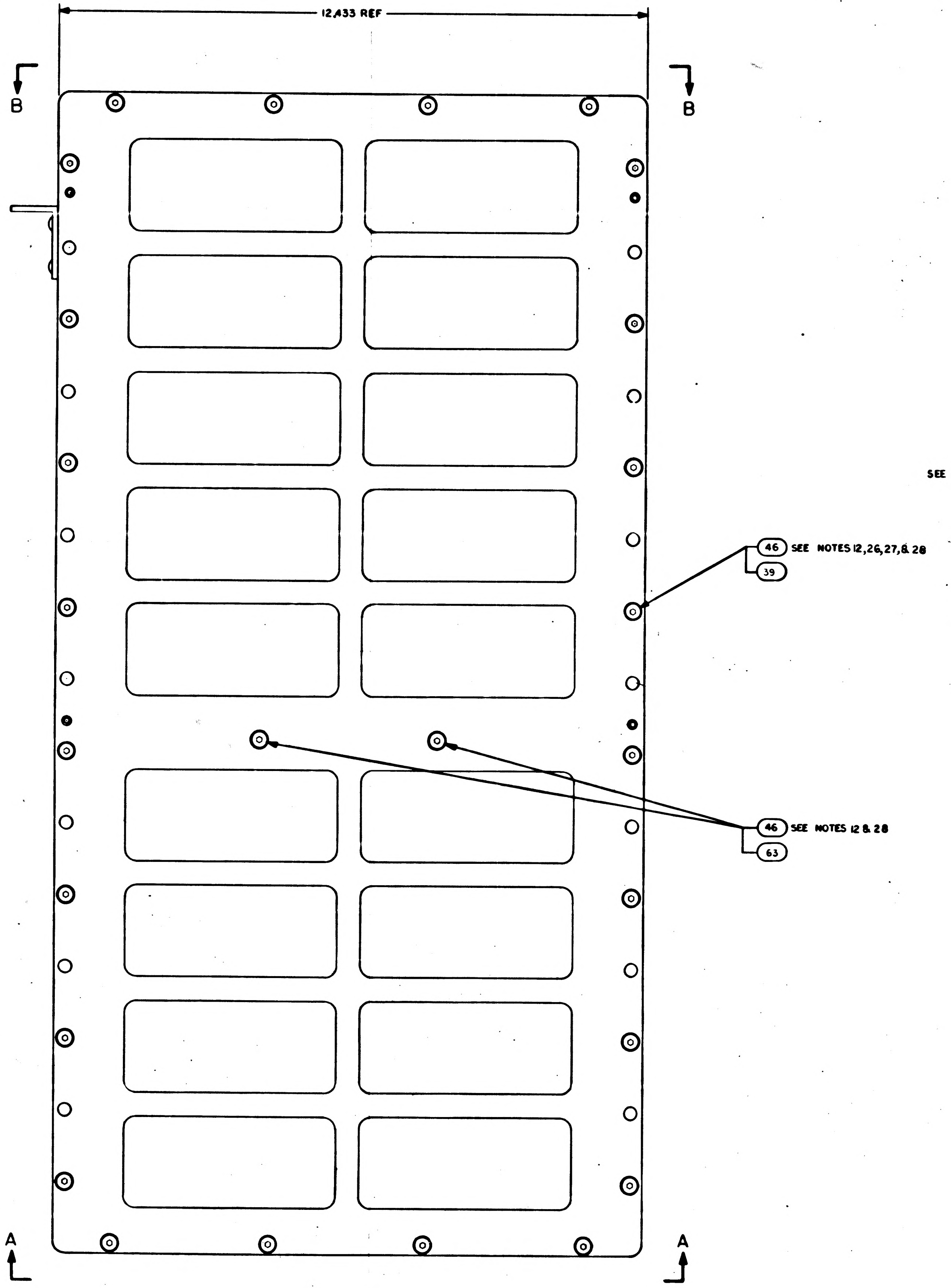
2003200 C

SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
A		REVISED PER TDRR 28062	JPT			
B		REVISED PER TDRR 30887				
C		REVISED PER TDRR 30890			10/27/6	

REVISIONS 25477



5.974 REF
SEE SHEET 2
C
SURFACE A REF
46 SEE NOTES 12 & 28
SEE SHEET 2
D
SEE NOTES 12,26,27,& 28
2.900
2.400
6 SEE NOTES 4 & 18
59
2 SEE NOTE 18
24.250 REF
1 SEE NOTE 18
SEE NOTES 12,26,27,& 28 46 39
SEE NOTES 7 & 28 47 52
COLDPLATE REF
4 SEE NOTE 18
58 SEE NOTE 20
3.600
3.500
SEE NOTES 46 39
63
53 SEE NOTES 4,9 & 13
D C
SEE SHEET 2
3 SEE NOTE 18
46 SEE NOTES 12, 27, & 28
57



12.433 REF
B
B
46 SEE NOTES 12,26,27,& 28
39
46 SEE NOTES 12 & 28
63
A
A

SEE NOTE 28

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006338-000	SEALING COMPOUND, SILICONE RUBBER	66
AR	1006776-22	INSULATION SLEEVING, ELECTRICAL	65
☒	2005036	AGC WIRE LIST	REF
1	SEE NOTE 22	CAPACITOR	64
10	2004148-007	WASHER, FLAT	63
1	2003981-011	SENSE AMPLIFIER MODULE, FIXED MEMORY B14	62
AR	2004895-002	SHIM AGC	61
AR	2004895-001	SHIM AGC	60
1	2004899-001	PAD VIBRATION	59
1	2003970	VIBRATION PAD ASSY	58
4	NAS1598-D08N	WASHER, SEALING	57
1	2018773	VALVE PRESSURE ASSEMBLY	56
1	1000159-5	PACKING, PREFORMED "O" RING	55
2	2004984-001	WASHER, FLAT	54
8	2004130	PAD, THREADED	53
18	2004894-014	WASHER, FLAT	52
4	2004894-012	WASHER, FLAT	51
2	1001489-34	SCREW, HEX SOCKET HEAD	50
4	1004722-2	SCREW, CAPTIVE	49
1	1000159-7	PACKING, PREFORMED "O" RING	48
18	MS16996-14	SCREW, SOCKET HEAD, CAP	47
66	1006783-25	SCREW, BUTTON HEAD, HEX SOCKET	46
2	1006347	GASKET, PLATE	45
1	2004986	PLUG, MACHINE THREAD	44
1	1004260-19	NAME PLATE, TYPE I	43
1	2004113-001	BRACKET, CABLE	42
1	2004115	COVER, POTTED	41
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58	2004707	WASHER, KNURLED	39
3	2003067-031	INTERFACE MODULE A27-29	38
2	2003070-021	INTERFACE MODULE A25-26	37
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1	2003121-231	LOGIC MODULE A24	35
1	2003121-221	LOGIC MODULE A23	34
1	2003121-211	LOGIC MODULE A22	33
1	2003121-191	LOGIC MODULE A21	32
1	2003121-181	LOGIC MODULE A20	31
1	2003121-171	LOGIC MODULE A19	30
1	2003121-161	LOGIC MODULE A18	29
1	2003121-151	LOGIC MODULE A17	28
1	2003121-141	LOGIC MODULE A16	27
1	2003121-131	LOGIC MODULE A15	26
1	2003121-121	LOGIC MODULE A14	25
1	2003121-111	LOGIC MODULE A13	24
1	2003121-091	LOGIC MODULE A12	23
4	2003121-081	LOGIC MODULE A8-11	22
1	2003121-071	LOGIC MODULE A7	21
1	2003121-061	LOGIC MODULE A6	20
1	2003121-051	LOGIC MODULE A5	19
1	2003121-041	LOGIC MODULE A4	18
1	2003121-031	LOGIC MODULE A3	17
1	2003121-021	LOGIC MODULE A2	16
1	2003121-011	LOGIC MODULE A1	15
2	2003140-011	ROPE DRIVER MODULE B16-17	14
1	2003027-021	STRAND SELECT MODULE B15	13
1	2003982-011	SENSE AMPL MOD, ERASABLE MEMORY B13	12
1	2003111-011	ERASABLE MEMORY MODULE B12	11
1	2003026-021	CURRENT SWITCH MODULE B11	10
2	2003114-011	ERASABLE DRIVER MODULE B9-10	9
1	2003983-011	ALARM MODULE B8	8
1	2003036-021	OSCILLATOR MODULE B7	7
1	2003978	MID SPACER	6
1	2003059-021	INTERCONNECTION HEADER ASSEMBLY	5
1	2003976	TRAY B COVER	4
1	2003977	TRAY A COVER	3
1	2003093-011	TRAY B WIRED ASSEMBLY	2
1	2003092-011	TRAY A WIRED ASSEMBLY	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003991	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL
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MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN R. Roney 23 ... 65
CHECKED
APPROVED
APPROVED Eldon C. Hall 8 Feb 66
APPROVED MIT
APPROVED MSC A. G. METZGER
DATE

COMPUTER ASSEMBLY

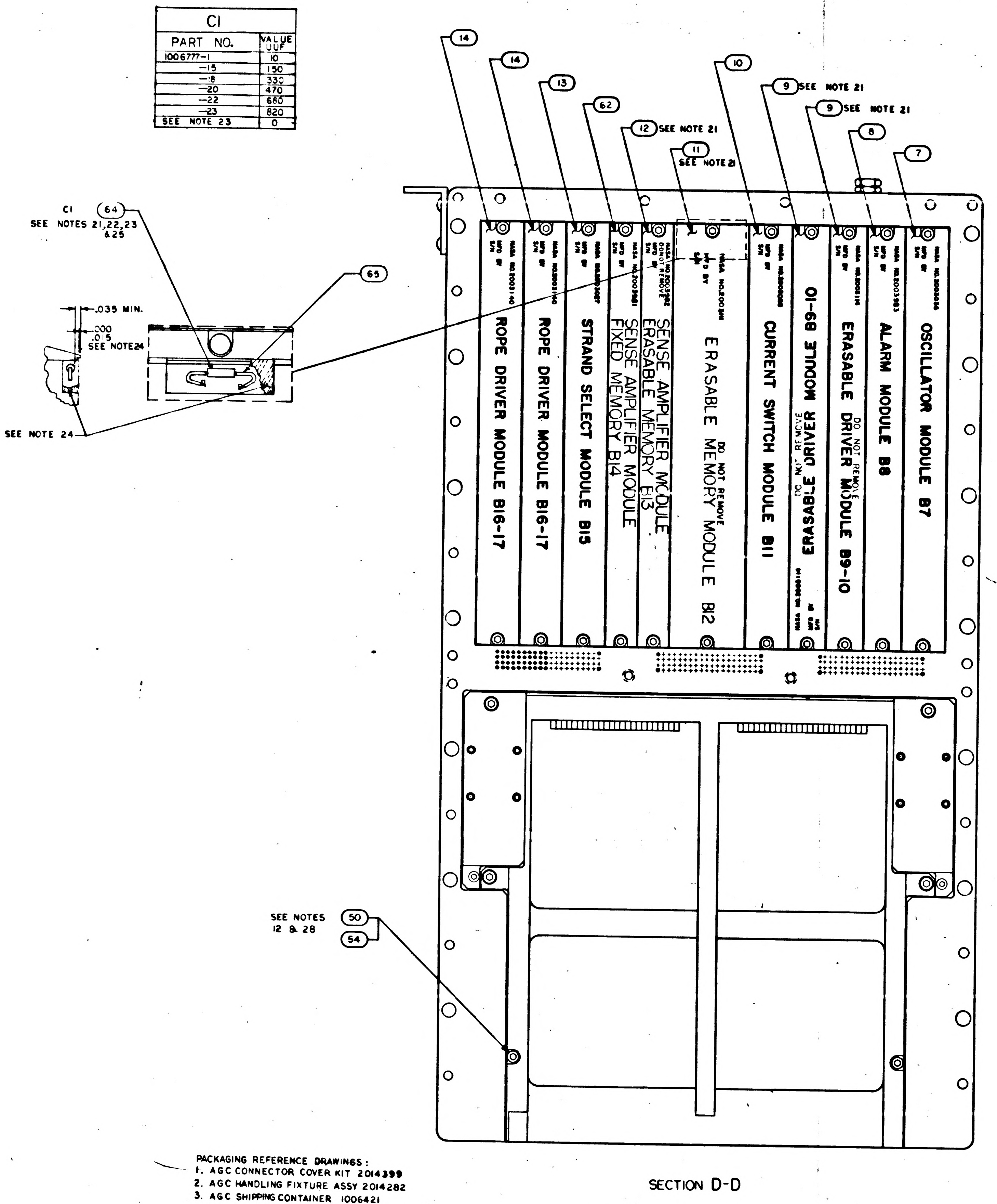
CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003200
SCALE 1/1
SHEET 1 OF 2

2003200 C

2003200

F 2/2

CI	
PART NO.	VALUE UUF
1006777-1	10
-15	150
-18	330
-20	470
-22	680
-23	820
SEE NOTE 23	0


CI
64
SEE NOTES 21,22,23 & 25
65
.035 MIN.
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SEE NOTE24
SEE NOTE 24
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62
12 SEE NOTE 21
11 SEE NOTE 21
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9 SEE NOTE 21
9 SEE NOTE 21
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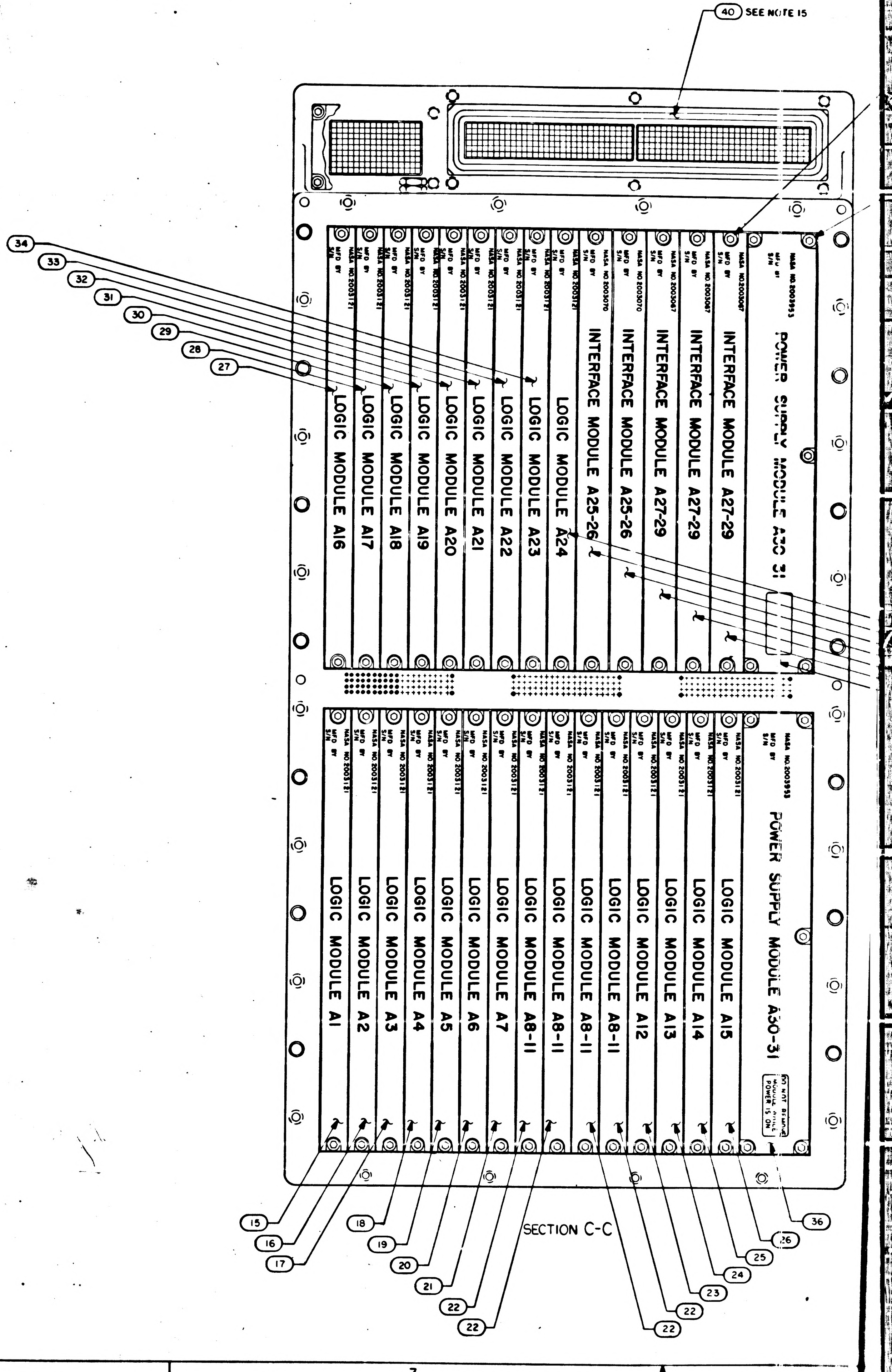
7
ROPE DRIVER MODULE B16-17
ROPE DRIVER MODULE B16-17
STRAND SELECT MODULE B15
SENSE AMPLIFIER MODULE FIXED MEMORY B14
SENSE AMPLIFIER MODULE ERASABLE MEMORY B13
DO NOT REMOVE
ERASABLE MEMORY MODULE B12
DO NOT REMOVE
CURRENT SWITCH MODULE B11
DO NOT REMOVE
ERASABLE DRIVER MODULE B9-10
DO NOT REMOVE
ERASABLE DRIVER MODULE B9-10
ALARM MODULE B8
OSCILLATOR MODULE B7
NASA NO.
MFD BY
S/N
SEE NOTES 12 & 28
50
54

PACKAGING REFERENCE DRAWINGS:
1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421

SECTION D-D


40 SEE NOTE 15
34
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LOGIC MODULE A16
LOGIC MODULE A17
LOGIC MODULE A18
LOGIC MODULE A19
LOGIC MODULE A20
LOGIC MODULE A21
LOGIC MODULE A22
LOGIC MODULE A23
LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
DO NOT REMOVE MODULE WHILE POWER IS ON
NASA NO.
MFD BY
S/N
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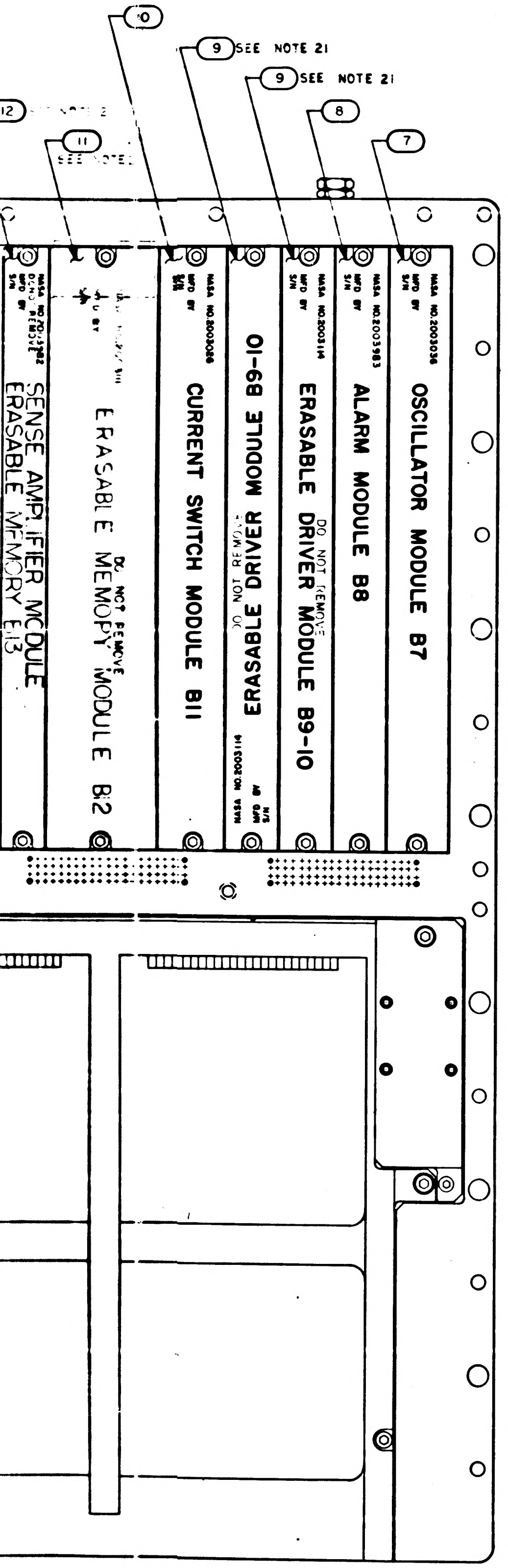
36

SECTION C-C

2003200 C

SH 2/2 F 1/2

REVISIONS 25977						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 28062				
B		REVISED PER TDRR 30887			10/12	
C		REVISED PER TDRR 30890				



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11 SEE NOTE
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9 SEE NOTE 21
9 SEE NOTE 21
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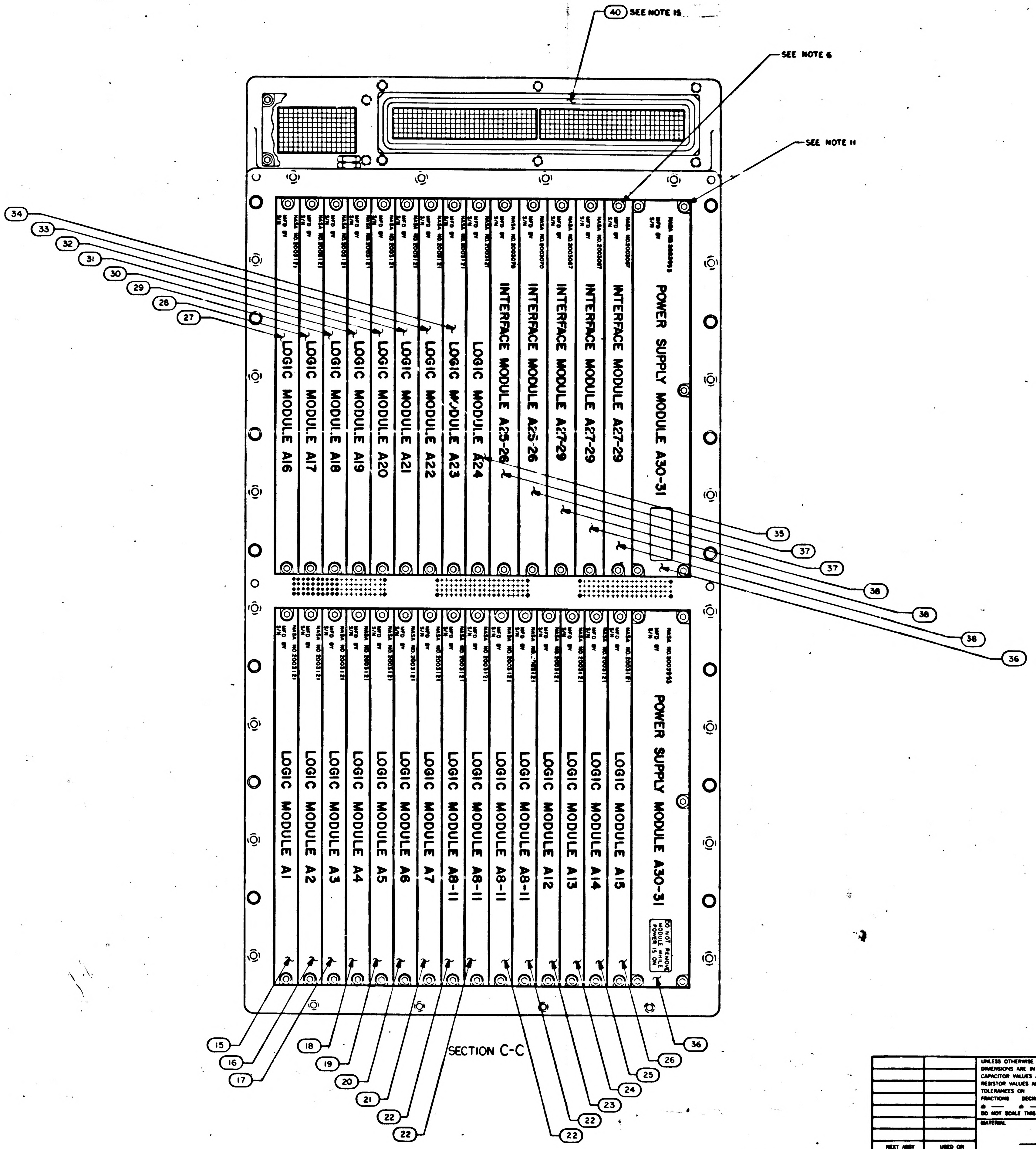
SENSE AMPLIFIER MODULE
ERASABLE MEMORY E13
ERASABLE MEMORY MODULE B12
DO NOT REMOVE
CURRENT SWITCH MODULE B11
ERASABLE DRIVER MODULE B9-10
DO NOT REMOVE
ERASABLE DRIVER MODULE B9-10
DO NOT REMOVE
ALARM MODULE B8
OSCILLATOR MODULE B7

SECTION D-D



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SEE NOTE 6
SEE NOTE 11
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LOGIC MODULE A16
LOGIC MODULE A17
LOGIC MODULE A18
LOGIC MODULE A19
LOGIC MODULE A20
LOGIC MODULE A21
LOGIC MODULE A22
LOGIC MODULE A23
LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
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LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
DO NOT REMOVE MODULE WHILE POWER IS ON
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SECTION C-C

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION		FIND NO.
	LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL
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MIT
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MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN R. J. Slang
CHECKED
APPROVED
APPROVED Eldon C. Hall
APPROVED MIT
APPROVED MSC R. C. METZGER

COMPUTER ASSEMBLY

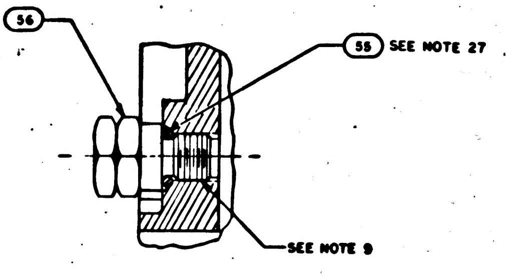
CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2003200

DATE
SCALE 1/1
SHEET 2 OF 2

2003200

2c03200

E 2/2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SEE NOTE 14
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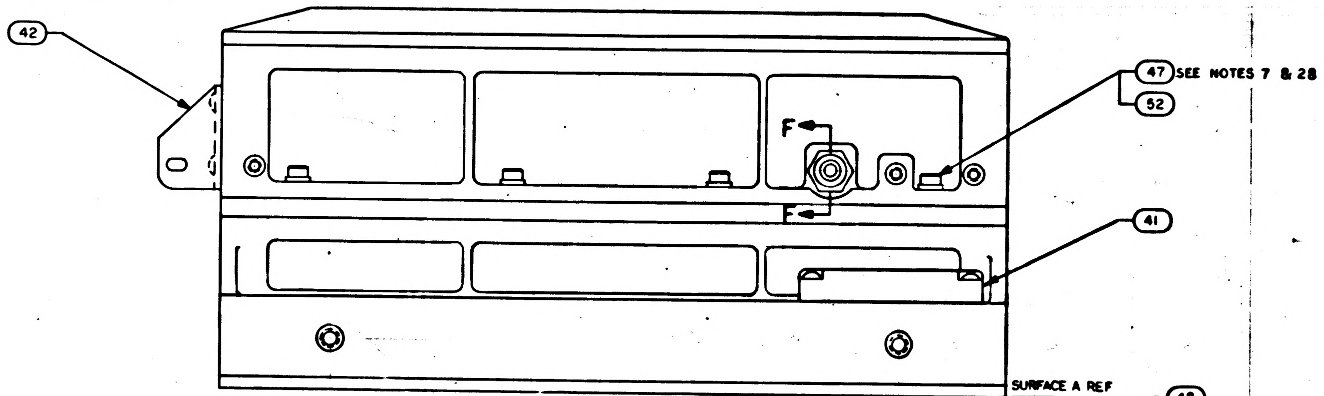
SEE NOTE 27
SEE NOTE 9

PARTIAL SECTION F F
SCALE: 2/1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SEE NOTES 7 & 28
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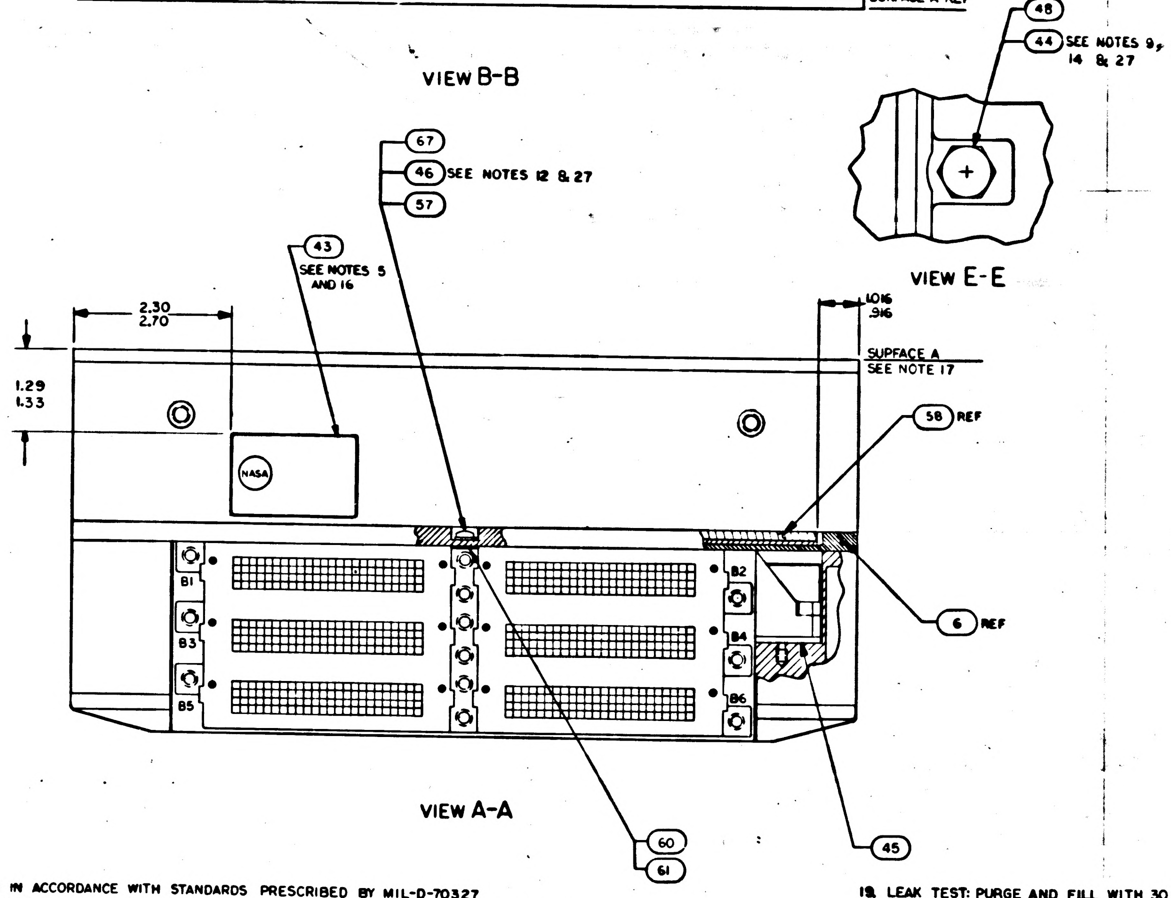
SURFACE A REF

VIEW B-B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SEE NOTES 9, 14 & 27
67
46
SEE NOTES 12 & 27
57
43
SEE NOTES 5 AND 16
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2.70
1.016
.916
SURFACE A
SEE NOTE 17
1.29
1.33
NASA
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REF
6
REF
B1
B2
B3
B4
B5
B6
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61
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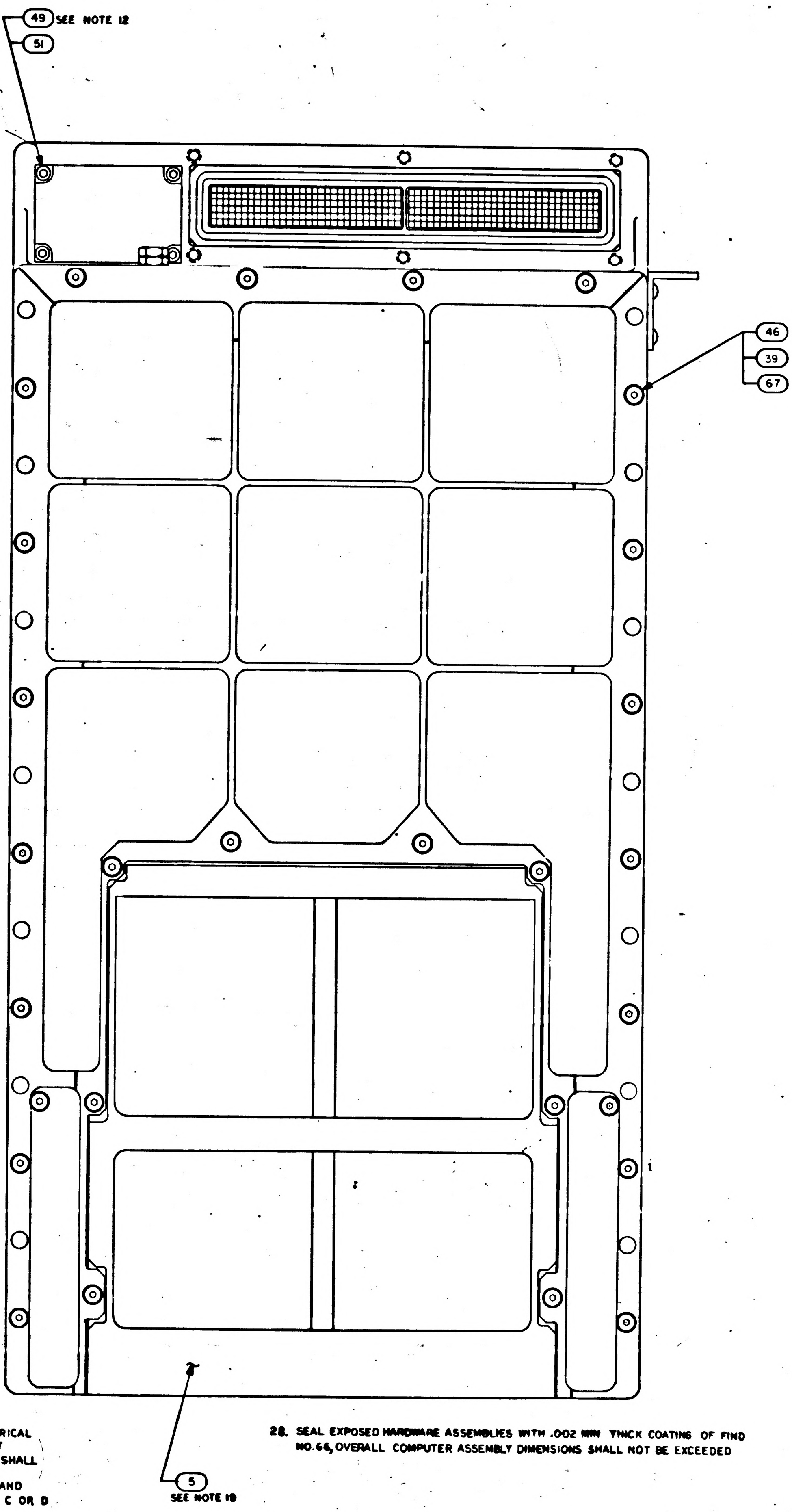
VIEW E-E

VIEW A-A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SEE NOTE 12
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SEE NOTES 12,26,27,& 28
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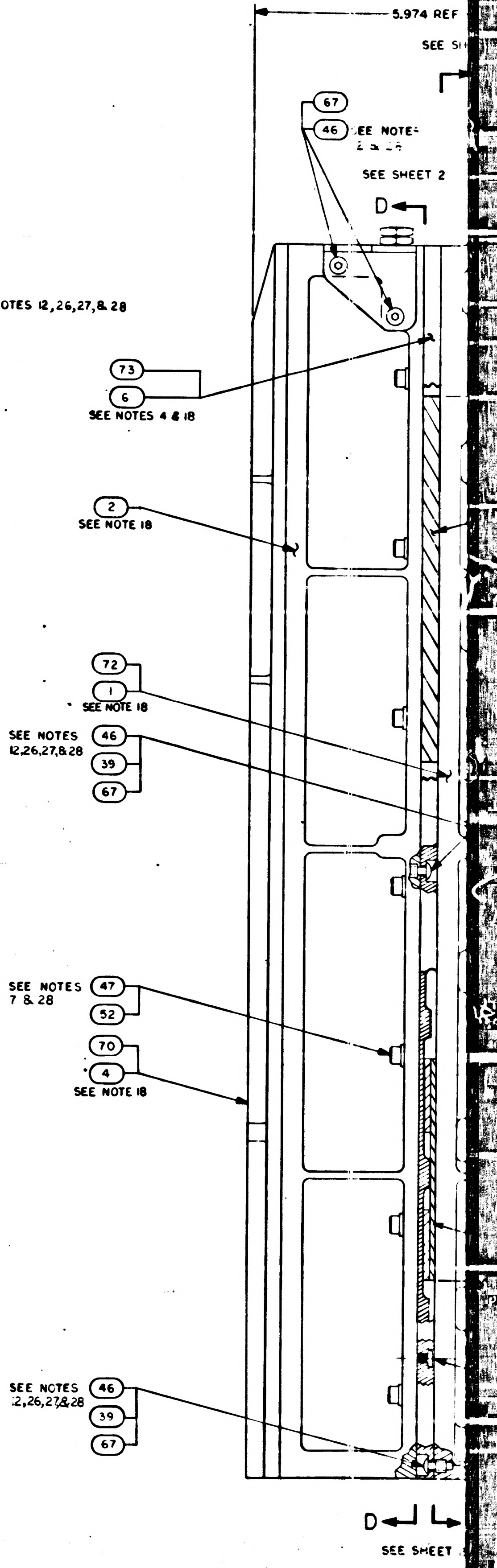
SEE NOTE 19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SEE SHEET 2
D
73
6
SEE NOTES 4 & 18
2
SEE NOTE 18
72
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SEE NOTE 18
SEE NOTES 12,26,27,& 28
46
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67
SEE NOTES 7 & 28
47
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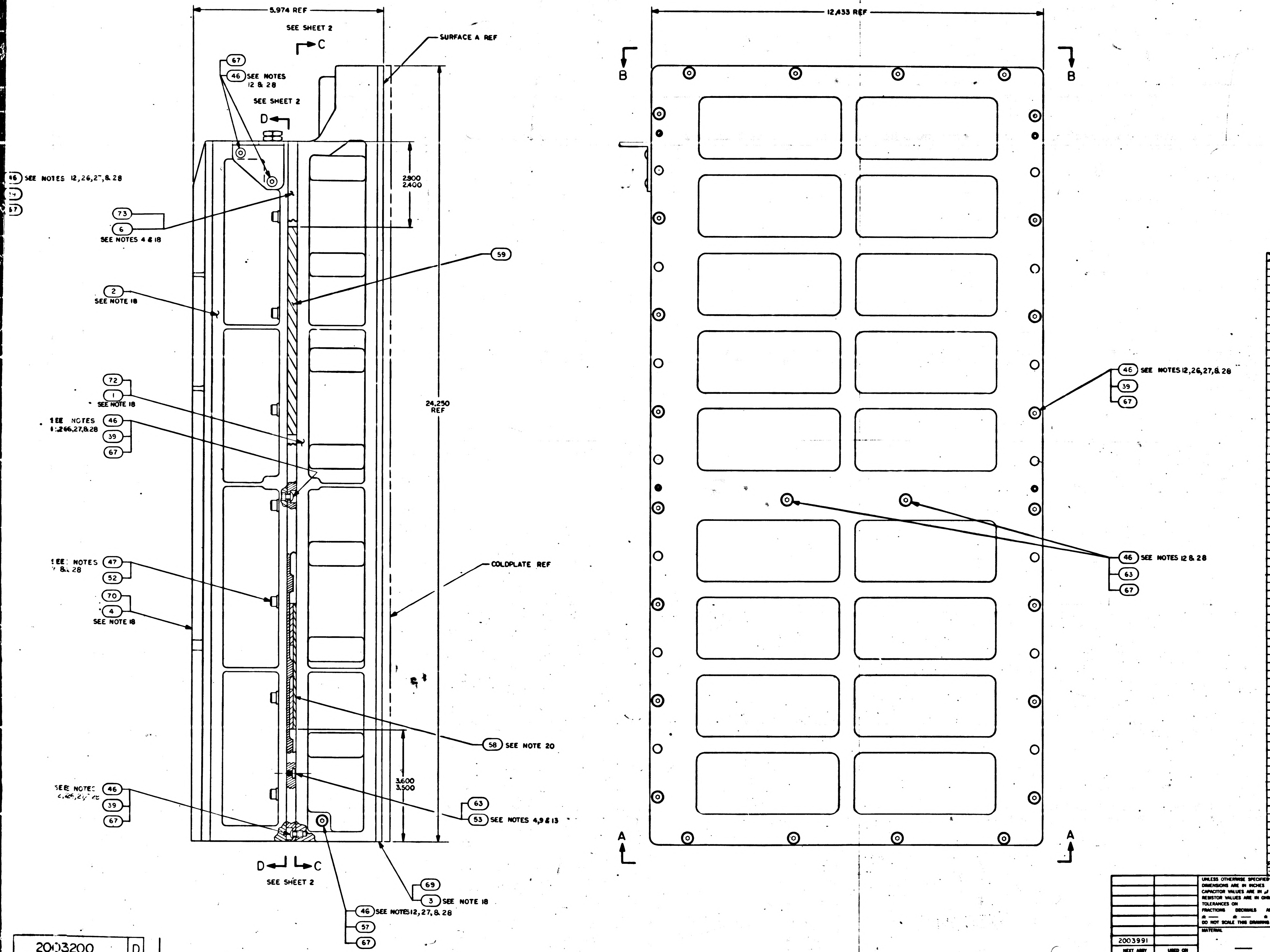
70
4
SEE NOTE 18
SEE NOTES 12,26,27,& 28
46
39
67
D
SEE SHEET

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. PHANTOM LINES DENOTE AGC COLDPLATE AND HANDLING FIXTURE TO BE SUPPLIED BY NORTH AMERICAN AVIATION, INC
3. ADD SILICONE GREASE 1006879 TO MODULE MATING METAL SURFACES AND TRAY MATING SURFACES
4. ASSEMBLE FIND NO.53 AND FIND NO.63 TO FIND NO.6 AND FIND NO.6 TO FIND NO.2 PRIOR TO ASSEMBLY OF FIND NO.2 TO FIND NO.1 OR FIND NO.72
5. BOND FIND NO.43 TO FIND NO.1 OR FIND NO. 72 PER ND1002004 TYPE IV
6. UNLESS OTHERWISE SPECIFIED TORQUE ALL MODULE MOUNTING SCREWS 15/19 INCH POUNDS
7. TORQUE FIND NO.47 TO 28/32 INCH POUNDS
8. FINISH IS REQUIRED TO SATISFY ICD GAEC 510-10001
9. APPLY SEALING COMPOUND MIL-S-22473 GRADE H TO FIND NO.53, FIND NO.56 AND FIND NO. 44
10. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2016005
11. TORQUE FOR FIND NO. 36 MOUNTING SCREWS TO BE 4/6 INCH POUNDS
12. TORQUE FOR FIND NO. 46,49,50,67 AND 68 TO BE 18/22 INCH POUNDS
13. TORQUE FOR FIND NO. 53 TO BE 4/6 INCH POUNDS
14. TORQUE FOR FIND NO. 44 AND FIND NO. 56 TO BE 137/157 INCH POUNDS
15. FIND NO. 40 SHALL BE SUPPLIED AS PART OF THIS ASSEMBLY
16. MARK "COMPUTER ASSEMBLY" AND RELATED PART NO., APPLICABLE DASH NO., SERIAL NO. AND CONTRACT NO. PER 1004260 AND SERIALIZE PER ND1002023
17. FINISH SURFACE $\boxed{-A-}$ PER ICD NAA MH01-01302-116 THIS ASSEMBLY MUST BE CAPABLE OF MEETING ELECTRICAL BONDING REQUIREMENTS OF ICD NAA MH01-01302-116
18. THE FOLLOWING RESISTANCES TO BE NOT MORE THAN 20 MILLIOHMS:
    a. RESISTANCE BETWEEN FIND NO.1 AND FIND NO.6
    b. RESISTANCE BETWEEN FIND NO.2 AND FIND NO.5
    c. RESISTANCE BETWEEN FIND NO.3 AND FIND NO.4 OR BETWEEN FIND NO.69 AND FIND NO.70
19. LEAK TEST: PURGE AND FILL WITH 30±1.0 PSIA DRY NITROGEN. STORE AT ROOM AMBIENT FOR 24 ±5 HOURS. TEST PRESSURE FOR ΔP< 0.5 PSIA. ALL MEASUREMENTS MADE AT STANDARD TEMPERATURE ±2°C. FOLLOWING TEST BLEED TO 17±1.0 PSIA
20. BOND FIND NO.58 TO FIND NO.6 IN POSITION SHOWN, USING 1006338
21. REFERENCED MODULES MUST NOT BE REPLACED OR INTERCHANGED WITHOUT REPEATING NOMINAL SELECTION PROCEDURE PER NOTE 10
22. THE VALUE OF C1 TO BE DETERMINED AT ELECTRICAL TEST AND SELECTED FROM APPROPRIATE CHART
23. WHEN THE VALUE OF C1 IS "D" NO COMPONENT SHALL BE USED
24. ENCAPSULATE AREA SHOWN AFTER SELECTION AND INSTALLATION OF C1 USING ND1002009 METHOD C OR D USING PRIMER PER SCD 1012513
25. WELD PER ND1002005
26. ASSEMBLE HARDWARE WITH SMOOTH FACE OF FIND NO.39 IN CONTACT WITH SCREW HEAD
27. FIND NO.39,48,55 & 57 TO BE DISCARDED AND REPLACED WITH NEW PARTS EACH TIME THEY ARE DISASSEMBLED
28. SEAL EXPOSED HARDWARE ASSEMBLIES WITH .002 MIN THICK COATING OF FIND NO.66, OVERALL COMPUTER ASSEMBLY DIMENSIONS SHALL NOT BE EXCEEDED

REVISIONS 25477						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 28062				
B		REVISED PER TDRR 30887				
C		REVISED PER TDRR 30690			10/27/6	
D		REVISED PER TDRR 32353				


5.974 REF
SEE SHEET 2
C
SURFACE A REF
67
46 SEE NOTES 12 & 28
SEE SHEET 2
D
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74
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73
6
SEE NOTES 4 & 18
2.900
2.400
59
2
SEE NOTE 18
72
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SEE NOTE 18
SEE NOTES 12,26,27,& 28
46
39
67
24.250 REF
SEE NOTES 7 & 28
47
52
70
4
SEE NOTE 18
COLDPLATE REF
58 SEE NOTE 20
3.600
3.500
63
53 SEE NOTES 4,9 & 13
SEE NOTES 12,26,27,& 28
46
39
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D C
SEE SHEET 2
69
3 SEE NOTE 18
46 SEE NOTES 12, 27, & 28
57
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12.433 REF
B
B
46 SEE NOTES 12,26,27,& 28
39
67
46 SEE NOTES 12 & 28
63
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A
A

☒	—	2005943	AGC WIRE LIST	REF
1	—	2003978-001	MID-SPACER	73
1	—	2003092-021	TRAY A WIRE ASSY	72
2	—	2003140-021	ROPE DRIVER MODULE B16-17	71
1	—	2003976-011	TRAY B COVER	70
1	—	2003977-011	TRAY A COVER	69
2	—	1001489-36	SCREW, HEX SOCKET HEAD	68
66	—	1006783-26	SCREW, BUTTON HEAD HEX SOCKET	67
AR	AR	1006338-000	SEALING COMPOUND, SILICONE RUBBER	66
AR	AR	1006776-22	INSULATION SLEEVING, ELECTRICAL	75
—	☒	2005036	AGC WIRE LIST	REF
1	1	SEE NOTE 22	CAPACITOR	64
10	10	2004148-007	WASHER, FLAT	63
1	1	2003981-011	SENSE AMPLIFIER MODULE, FIXED MEMORY B14	62
AR	AR	2004895-002	SHIM AGC	61
AR	AR	2004895-001	SHIM AGC	60
1	1	2004899-001	PAD VIBRATION	59
1	1	2003970	VIBRATION PAD ASSY	58
4	4	NAS1598-008N	WASHER, SEALING	57
1	1	2018773	VALVE PRESSURE ASSEMBLY	56
1	1	1000159-5	PACKING, PREFORMED "O" RING	55
2	2	2004984-001	WASHER, FLAT	54
8	8	2004130	PAD, THREADED	53
18	18	2004894-014	WASHER, FLAT	52
4	4	2004894-012	WASHER, FLAT	51
—	2	1001489-34	SCREW, HEX SOCKET HEAD	50
4	4	1004722-2	SCREW, CAPTIVE	49
1	1	1000159-7	PACKING, PREFORMED "O" RING	48
18	18	MS16996-14	SCREW, SOCKET HEAD, CAP	47
—	66	1006783-25	SCREW, BUTTON HEAD, HEX SOCKET	46
2	2	1006347	GASKET, PLATE	45
1	1	2004986	PLUG, MACHINE THREAD	44
1	1	1004260-19	NAME PLATE, TYPE I	43
1	1	2004113-001	BRACKET, CABLE	42
1	1	2004115	COVER, POTTED	41
1	1	1006380	GASKET, RETAINED	40
58	58	2004707	WASHER, KNURLED	39
3	3	2003067-031	INTERFACE MODULE A27-29	38
2	2	2003070-021	INTERFACE MODULE A25-26	37
2	2	2003953-011	POWER SUPPLY MODULE A30-31	36
1	1	2003121-231	LOGIC MODULE A24	35
1	1	2003121-221	LOGIC MODULE A23	34
1	1	2003121-211	LOGIC MODULE A22	33
1	1	2003121-191	LOGIC MODULE A21	32
1	1	2003121-181	LOGIC MODULE A20	31
1	1	2003121-171	LOGIC MODULE A19	30
1	1	2003121-161	LOGIC MODULE A18	29
1	1	2003121-151	LOGIC MODULE A17	28
1	1	2003121-141	LOGIC MODULE A16	27
1	1	2003121-131	LOGIC MODULE A15	26
1	1	2003121-121	LOGIC MODULE A14	25
1	1	2003121-111	LOGIC MODULE A13	24
1	1	2003121-091	LOGIC MODULE A12	23
4	4	2003121-081	LOGIC MODULE A8-11	22
1	1	2003121-071	LOGIC MODULE A7	21
1	1	2003121-061	LOGIC MODULE A6	20
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1	1	2003121-041	LOGIC MODULE A4	18
1	1	2003121-031	LOGIC MODULE A3	17
1	1	2003121-021	LOGIC MODULE A2	16
1	1	2003121-011	LOGIC MODULE A1	15
—	2	2003140-011	ROPE DRIVER MODULE B16-17	14
1	1	2003027-021	STRAND SELECT MODULE B15	13
1	1	2003982-011	SENSE AMPL MOD, ERASABLE MEMORY B13	12
1	1	2003111-011	ERASABLE MEMORY MODULE B12	11
1	1	2003026-021	CURRENT SWITCH MODULE B11	10
2	2	2003114-011	ERASABLE DRIVER MODULE B9-10	9
1	1	2003983-011	ALARM MODULE B8	8
1	1	2003036-021	OSCILLATOR MODULE B7	7
—	1	2003978-000	MID SPACER	6
1	1	2003059-021	INTERCONNECTION HEADER ASSEMBLY	5
—	1	2003976-000	TRAY B COVER	4
—	1	2003977-000	TRAY A COVER	3
1	1	2003093-011	TRAY B WIRED ASSEMBLY	2
—	1	2003092-011	TRAY A WIRED ASSEMBLY	1
QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-021	-011	LIST OF MATERIALS		

2003991	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN 23 Dec 65
CHECKED
APPROVED
APPROVED Eldon C. Hall 9 Feb 66
APPROVER MIT
APPROVER MSC A. C. METZGER

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER ASSEMBLY

CODE IDENT NO. 80230 SIZE J DRAWING NO. 2003200
SCALE 1/1 SHEET 1 OF 2

2003200 D

2003200

F 2 / 2

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-20	470
-22	680
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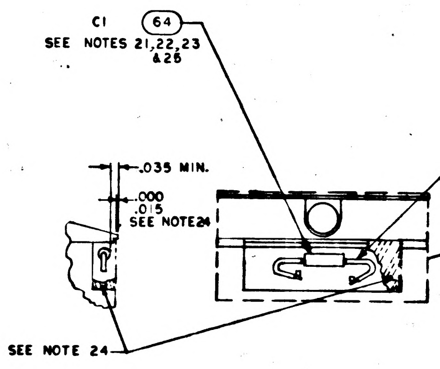
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SEE NOTES 21,22,23 & 26
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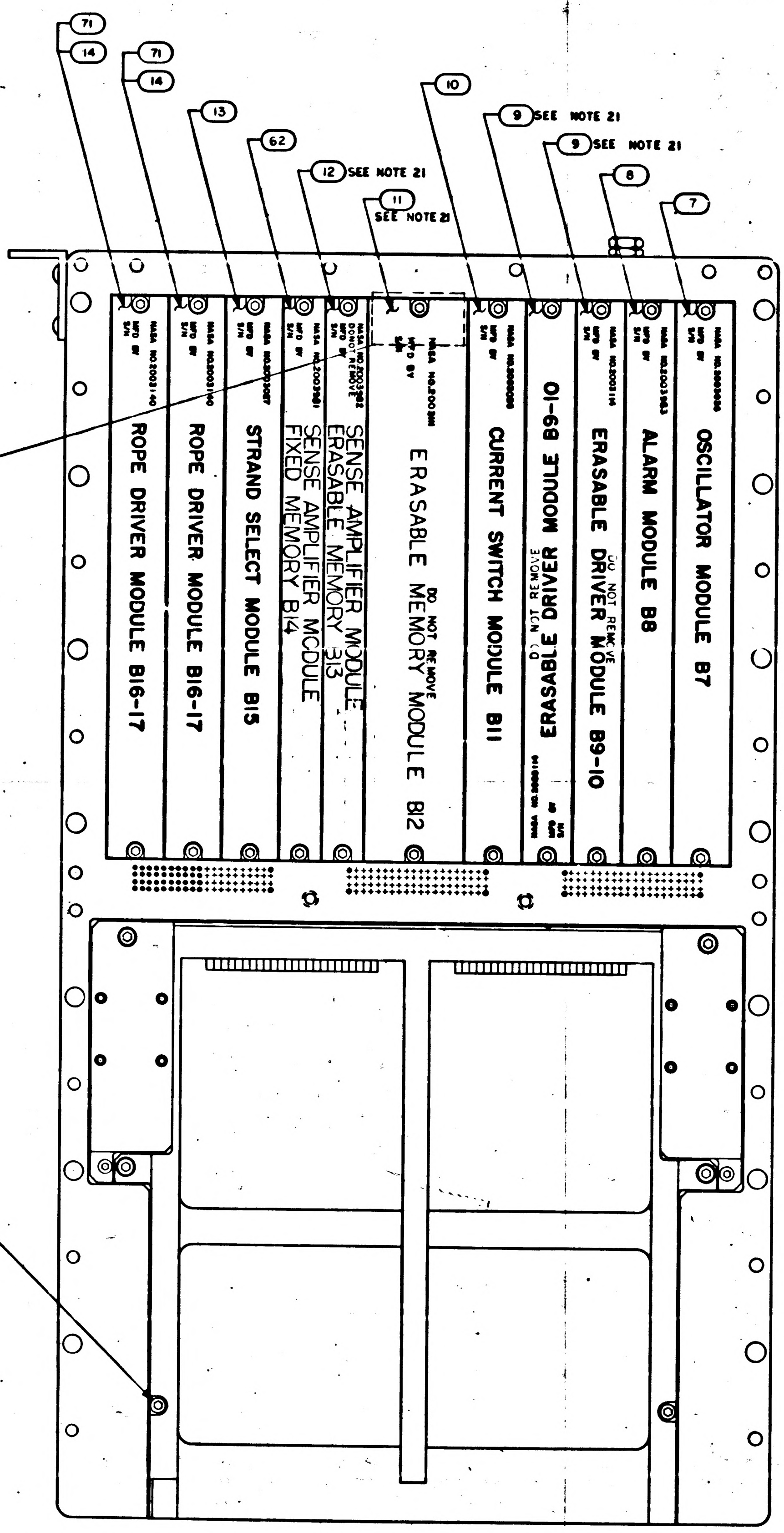
SEE NOTE 24
SEE NOTE 24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9 SEE NOTE 21
9 SEE NOTE 21
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ROPE DRIVER MODULE B16-17
ROPE DRIVER MODULE B16-17
STRAND SELECT MODULE B15
SENSE AMPLIFIER MODULE FIXED MEMORY B14
SENSE AMPLIFIER MODULE ERASABLE MEMORY B13
DO NOT REMOVE
ERASABLE MEMORY MODULE B12
CURRENT SWITCH MODULE B11
DO NOT REMOVE
ERASABLE DRIVER MODULE B9-10
DO NOT REMOVE
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ALARM MODULE B8
OSCILLATOR MODULE B7
SEE NOTES 12 & 28
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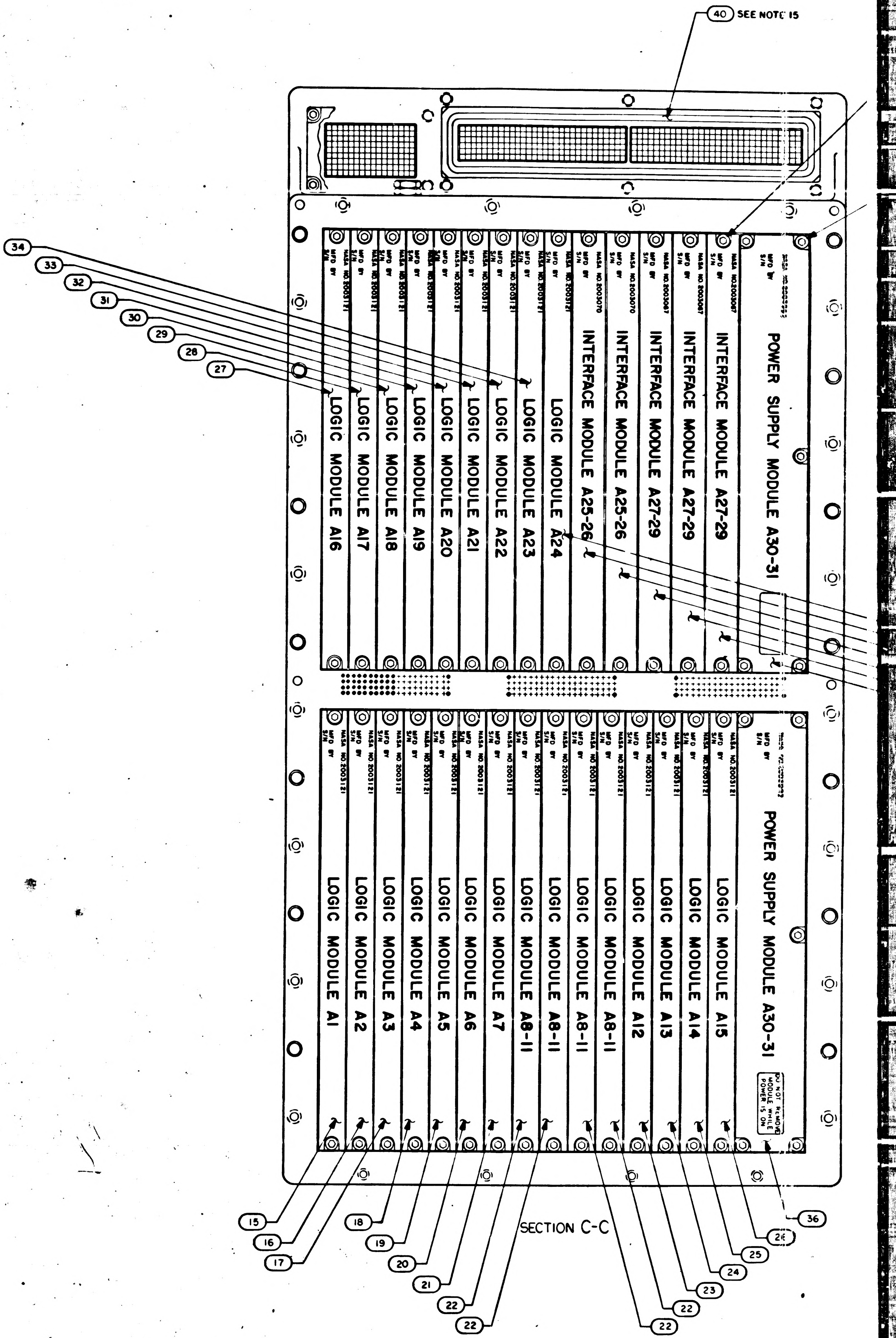
SECTION D-D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LOGIC MODULE A16
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LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
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LOGIC MODULE A8-11
LOGIC MODULE A12
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LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
DO NOT REMOVE MODULE WHILE POWER IS ON
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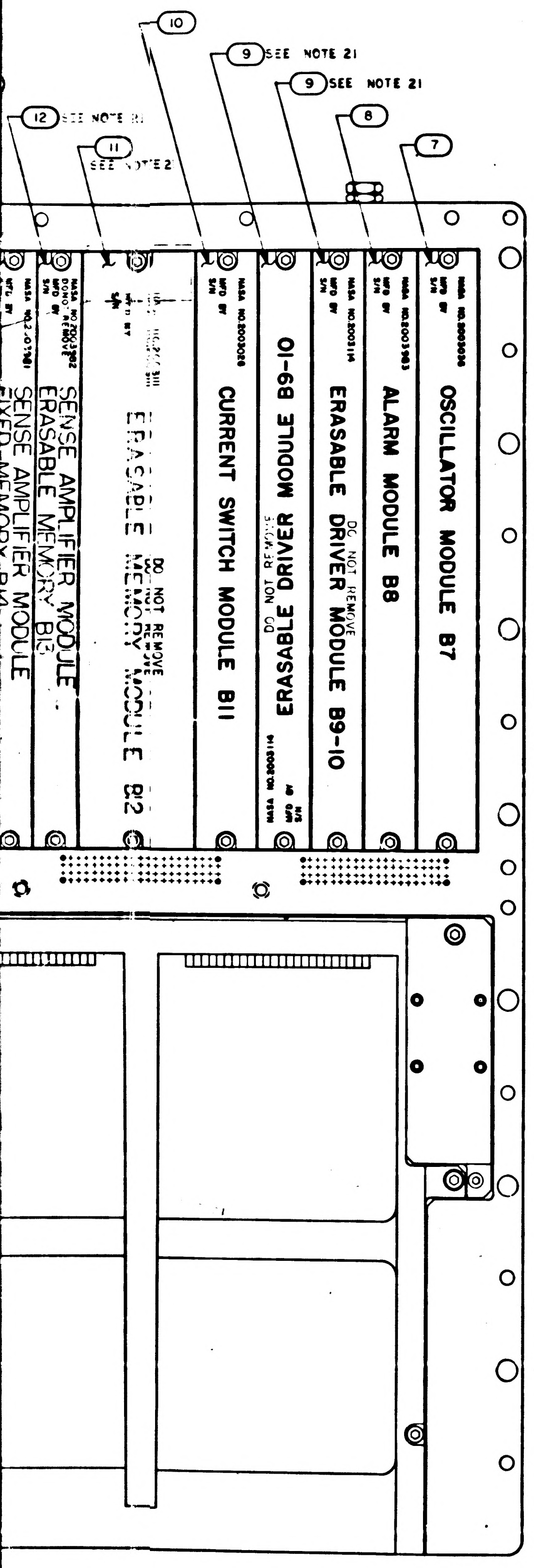
SECTION C-C

PACKAGING REFERENCE DRAWINGS:
1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421

2003200	D

SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
A		REVISED PER TDRR 28062				
B		REVISED PER TDRR 30887				
C		REVISED PER TDRR 30890				
D		REVISED PER TDRR 32353				

REVISIONS 25977



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9 SEE NOTE 21
9 SEE NOTE 21
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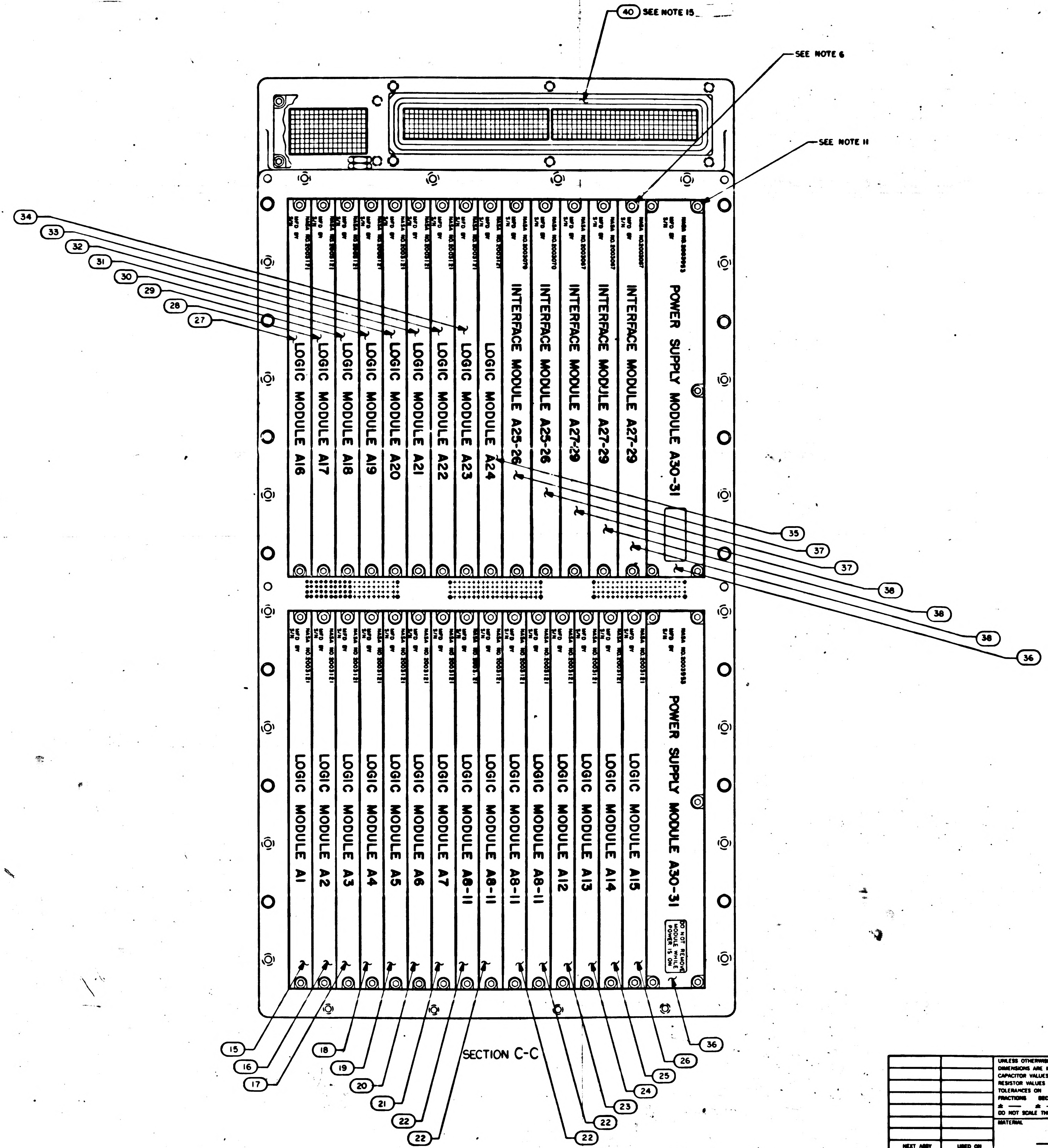
12 SEE NOTE 21
11 SEE NOTE 21
OSCILLATOR MODULE B7
ALARM MODULE B8
ERASABLE DRIVER MODULE B9-10
DO NOT REMOVE
ERASABLE DRIVER MODULE B9-10
DO NOT REMOVE
CURRENT SWITCH MODULE B11
ERASABLE MEMORY MODULE B12
DO NOT REMOVE
SENSE AMPLIFIER MODULE ERASABLE MEMORY B13
SENSE AMPLIFIER MODULE FIXED MEMORY B14
NASA NO. MFD BY S/N

SECTION D-D



40 SEE NOTE 15
SEE NOTE 6
SEE NOTE 11
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LOGIC MODULE A16
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LOGIC MODULE A18
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LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
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LOGIC MODULE A1
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LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
DO NOT REMOVE MODULE WHILE POWER IS ON
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NASA NO. MFD BY S/N

SECTION C-C

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC R. O. METZGER
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003200
SCALE 1/1
SHEET 2 OF 2

2003200 D

2003200

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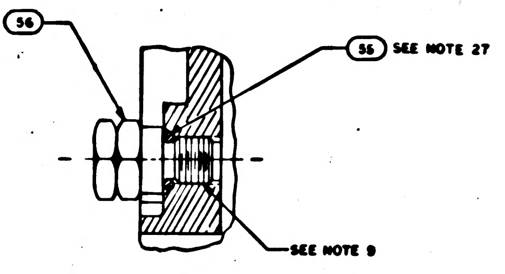
F2/2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(55) SEE NOTE 27
SEE NOTE 9

PARTIAL SECTION F F
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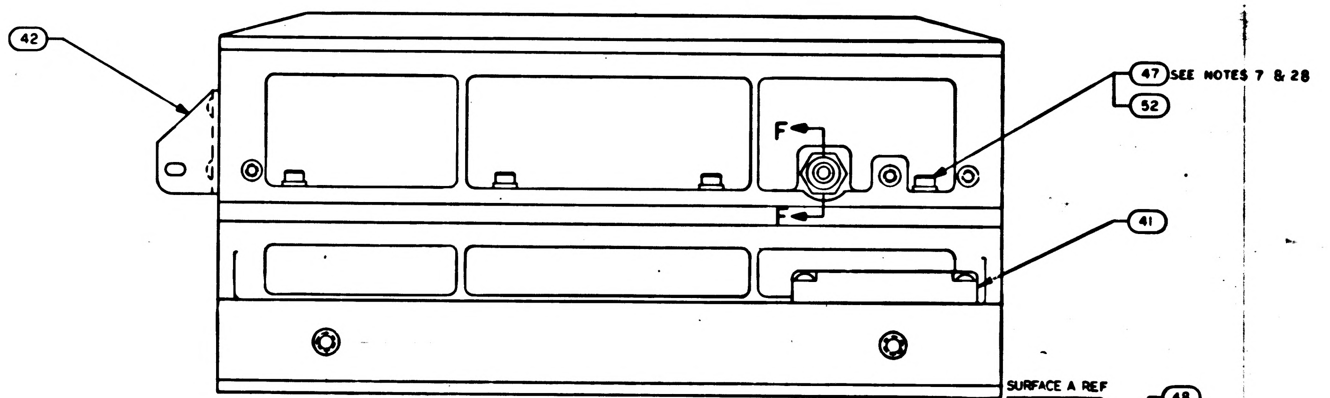
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47 SEE NOTES 7 & 28
52
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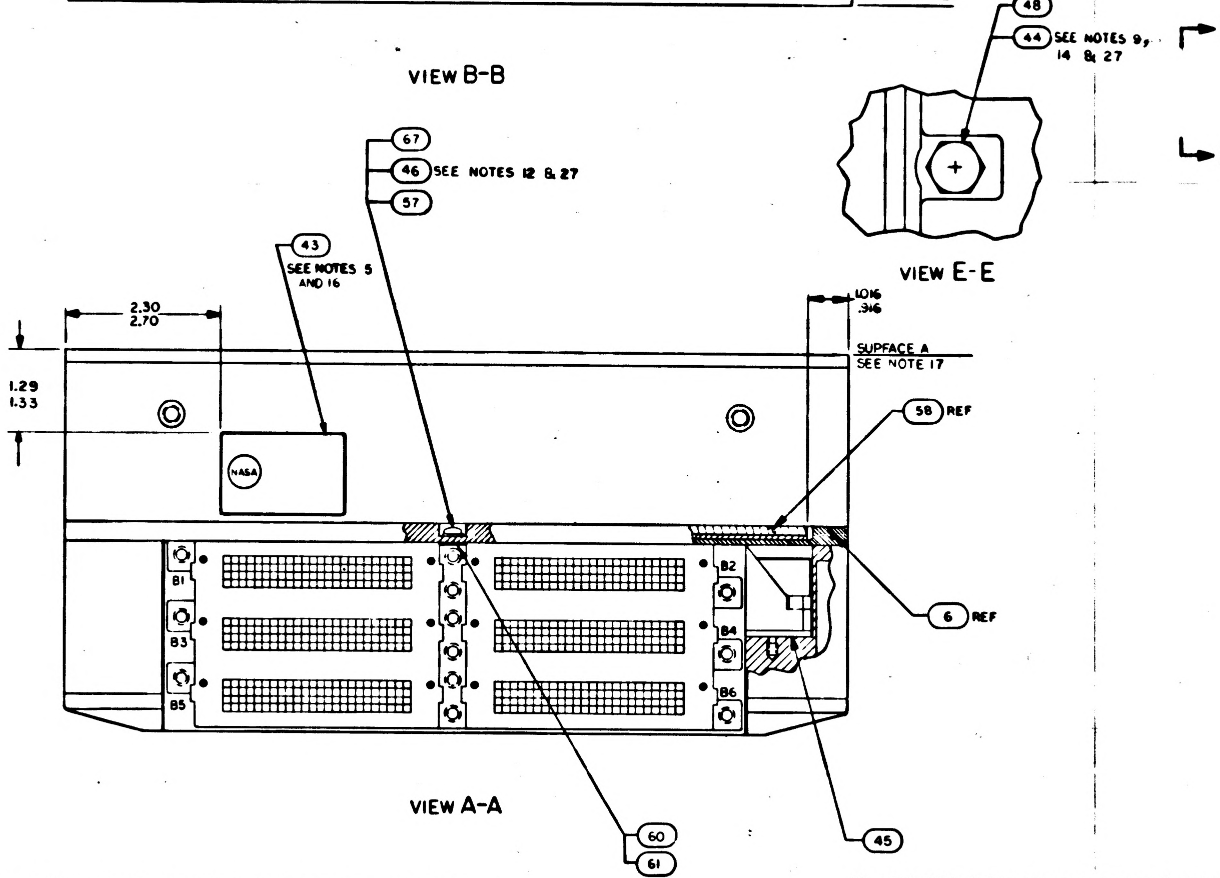
SURFACE A REF

VIEW B-B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44 SEE NOTES 9, 14 & 27
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46 SEE NOTES 12 & 27
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SEE NOTES 5 AND 16
2.30
2.70
.1016
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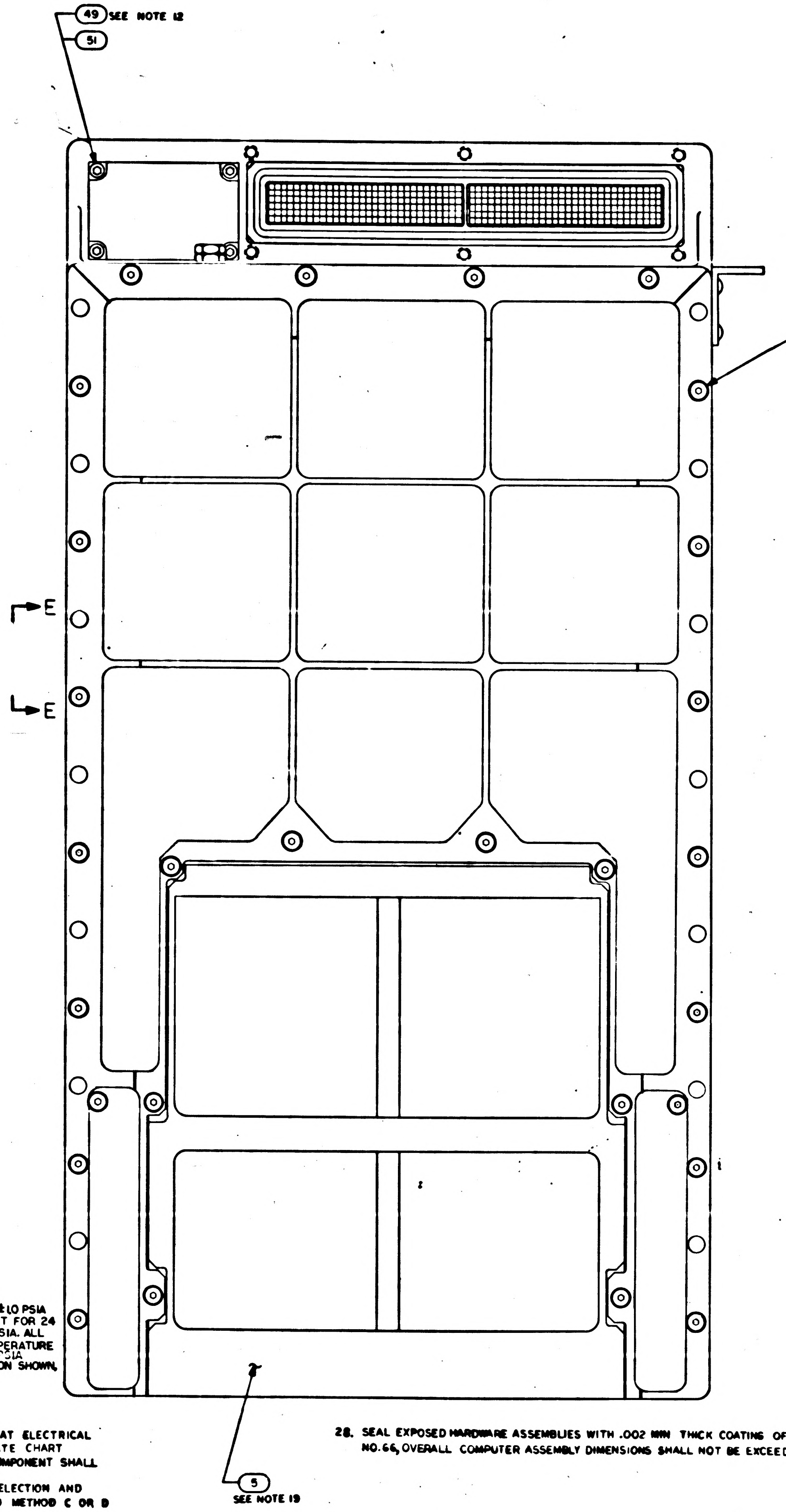
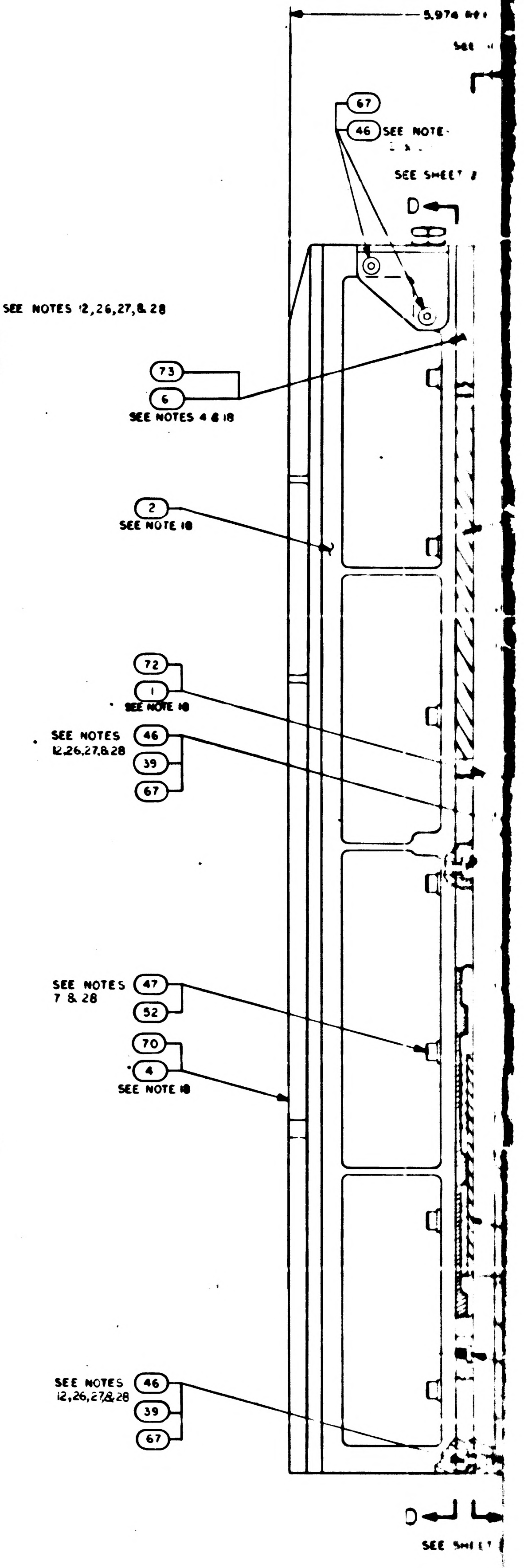
SURFACE A
SEE NOTE 17
1.29
1.33
58 REF
NASA
B1
B2
B3
B4
B5
B6
6 REF
60
61
45

VIEW E-E

VIEW A-A


49 SEE NOTE 12
51
46 SEE NOTES 12,26,27,& 28
39
67
E
E
5
SEE NOTE 19


5.974
67
46 SEE NOTE
SEE SHEET 2
D
73
6
SEE NOTES 4 & 18
2
SEE NOTE 18
72
1
SEE NOTE 18
SEE NOTES 12,26,27,& 28
46
39
67
SEE NOTES 7 & 28
47
52
70
4
SEE NOTE 18
SEE NOTES 12,26,27,& 28
46
39
67
D

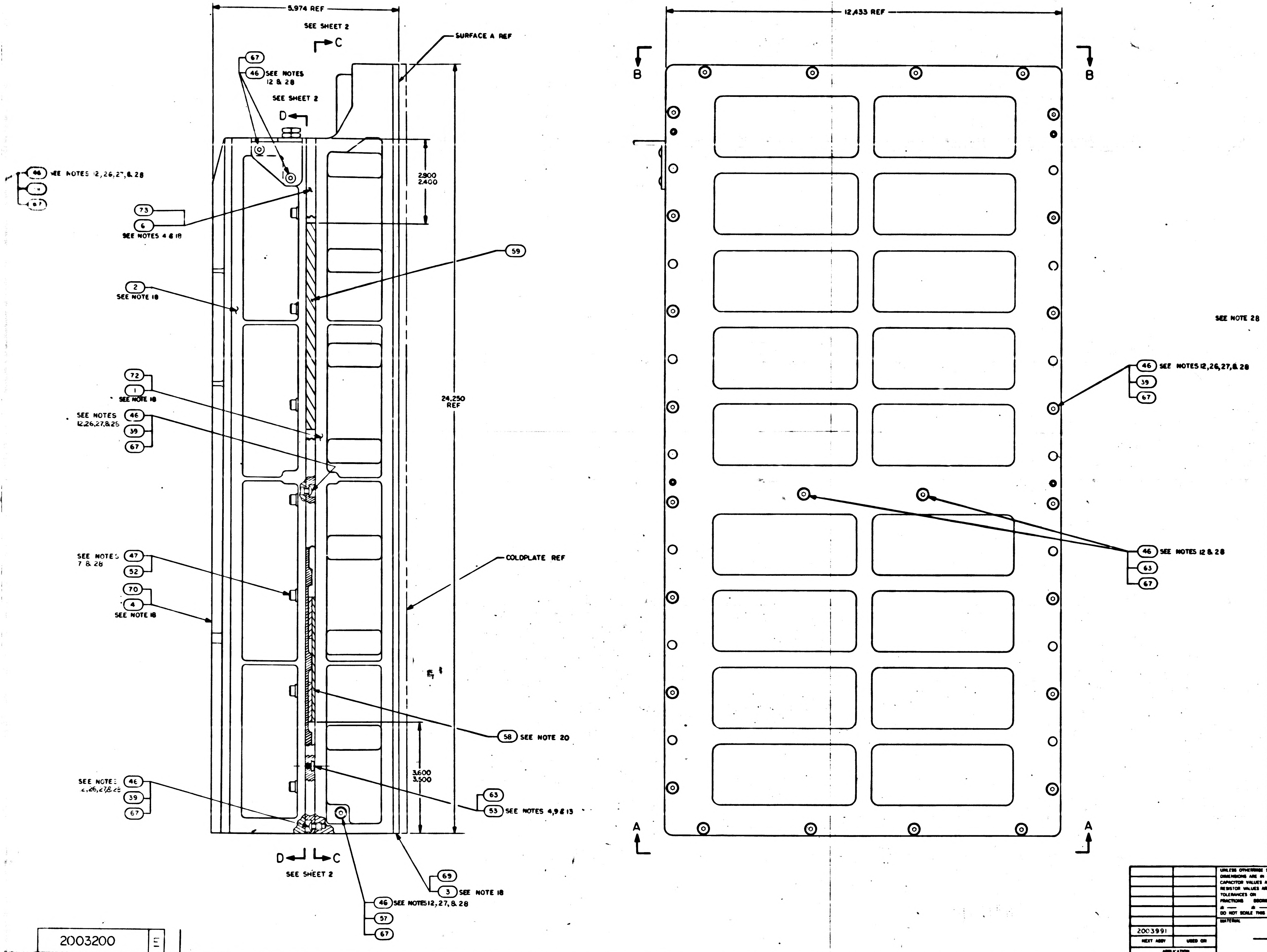
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. PHANTOM LINES DENOTE AGC COLDPLATE AND HANDLING FIXTURE TO BE SUPPLIED BY NORTH AMERICAN AVIATION, INC
3. ADD SILICONE GREASE 1006879 TO MODULE MATING METAL SURFACES AND TRAY MATING SURFACES
4. ASSEMBLE FIND NO.53 AND FIND NO.63 TO FIND NO.6 AND FIND NO.6 TO FIND NO.2 PRIOR TO ASSEMBLY OF FIND NO.2 TO FIND NO.1 OR FIND NO.72
5. BOND FIND NO.43 TO FIND NO.1 OR FIND NO. 72 PER ND1002004 TYPE IV
6. UNLESS OTHERWISE SPECIFIED TORQUE ALL MODULE MOUNTING SCREWS 15/19 INCH POUNDS
7. TORQUE FIND NO.47 TO 28/32 INCH POUNDS
8. FINISH IS REQUIRED TO SATISFY ICD GAEC 510-10001
9. APPLY SEALING COMPOUND MIL-S-22473 GRADE H TO FIND NO.53, FIND NO.56 AND FIND NO.44
10. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2016005
11. TORQUE FOR FIND NO. 36 MOUNTING SCREWS TO BE 4/6 INCH POUNDS
12. TORQUE FOR FIND NO. 46,49,50,67 AND 68 TO BE 18/22 INCH POUNDS
13. TORQUE FOR FIND NO. 53 TO BE 4/6 INCH POUNDS
14. TORQUE FOR FIND NO. 44 AND FIND NO. 56 TO BE 137/157 INCH POUNDS
15. FIND NO. 40 SHALL BE SUPPLIED AS PART OF THIS ASSEMBLY
16. MARK COMPUTER ASSEMBLY AND RELATED PART NO., APPLICABLE DASH NO., SERIAL NO. AND CONTRACT NO. PER 1004260 AND SERIALIZE PER ND1002023
17. FINISH SURFACE $\boxed{-A-}$ PER ICD NAA MH01-01302-116 THIS ASSEMBLY MUST BE CAPABLE OF MEETING ELECTRICAL BONDING REQUIREMENTS OF ICD NAA MH01-01302-116
18. THE FOLLOWING RESISTANCES TO BE NOT MORE THAN 20 MILLIOHMS:
    a. RESISTANCE BETWEEN FIND NO.1 AND FIND NO.6
    b. RESISTANCE BETWEEN FIND NO.2 AND FIND NO.5
    c. RESISTANCE BETWEEN FIND NO.3 AND FIND NO.4 OR BETWEEN FIND NO.69 AND FIND NO.70
19. LEAK TEST: PURGE AND FILL WITH 30 ± 1.0 PSIA DRY NITROGEN. STORE AT ROOM AMBIENT FOR 24 ± 5 HOURS. TEST PRESSURE FOR $\Delta P < 0.5$ PSIA. ALL MEASUREMENTS MADE AT STANDARD TEMPERATURE ± 2°C, FOLLOWING TEST BLEED TO 17 ± 1.0 PSIA
20. BOND FIND NO.58 TO FIND NO.6 IN POSITION SHOWN, USING 1006338
21. REFERENCED MODULES MUST NOT BE REPLACED OR INTERCHANGED WITHOUT REPEATING NOMINAL SELECTION PROCEDURE PER NOTE 10
22. THE VALUE OF C1 TO BE DETERMINED AT ELECTRICAL TEST AND SELECTED FROM APPROPRIATE CHART
23. WHEN THE VALUE OF C1 IS "0" NO COMPONENT SHALL BE USED
24. ENCAPSULATE AREA SHOWN AFTER SELECTION AND INSTALLATION OF C1 USING ND1002009 METHOD C OR D USING PRIMER PER SCD 1012513
25. WELD PER ND1002005
26. ASSEMBLE HARDWARE WITH SMOOTH FACE OF FIND NO.39 IN CONTACT WITH SCREW HEAD
27. FIND NO.39, 48, 55 & 57 TO BE DISCARDED AND REPLACED WITH NEW PARTS EACH TIME THEY ARE DISASSEMBLED
28. SEAL EXPOSED HARDWARE ASSEMBLIES WITH .002 MIN THICK COATING OF FIND NO.66, OVERALL COMPUTER ASSEMBLY DIMENSIONS SHALL NOT BE EXCEEDED

2003200 E

SH1/2 E1/2

REVISIONS 2 5477						
SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
A		REVISED PER TDRR 28062				
B		REVISED PER TDRR 3086?				
C		REVISED PER TDRR 30690				
D		REVISED PER TDRR 32353				
E		REVISED PER TDRR 32873				


5.974 REF
SEE SHEET 2
C
SURFACE A REF
67
46 SEE NOTES 12 & 28
SEE SHEET 2
D
46 SEE NOTES 12,26,27,& 28
57
67
73
6
SEE NOTES 4 & 18
2.900
2.400
59
2
SEE NOTE 18
24.250 REF
72
1
SEE NOTE 18
SEE NOTES 12,26,27,& 28
46
39
67
SEE NOTES 7 & 28
47
52
70
4
SEE NOTE 18
COLDPLATE REF
58 SEE NOTE 20
3.600
3.500
SEE NOTES 12,26,27,& 28
46
39
67
63
53 SEE NOTES 4,9 & 13
D
C
SEE SHEET 2
69
3 SEE NOTE 18
46 SEE NOTES 12,27,& 28
57
67
12.433 REF
B
B
A
A
SEE NOTE 28
46 SEE NOTES 12,26,27,& 28
39
67
46 SEE NOTES 12 & 28
63
67

QTY REQD	QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	☒		2005943	AGC WIRE LIST	REF
2	—	—	2003953-021	POWER SUPPLY MOD A30-31	74
1	1	—	2003978-001	MID-SPACER	73
1	1	—	2003092-021	TRAY A WIRE ASSY	72
2	2	—	2003140-021	ROPE DRIVER MODULE B16-17	71
1	1	—	2003976-011	TRAY B COVER	70
1	1	—	2003977-011	TRAY A COVER	69
2	2	—	1001489-36	SCREW, HEX SOCKET HEAD	68
66	66	—	1006783-26	SCREW, BUTTON HEAD HEX SOCKET	67
AR	AR	AR	1006338-000	SEALING COMPOUND, SILICONE RUBBER	66
AR	AR	AR	1006776-22	INSULATION SLEEVING, ELECTRICAL	65
—	—	☒	2005036	AGC WIRE LIST	REF
1	1	1	SEE NOTE 22	CAPACITOR	64
10	10	10	2004148-007	WASHER, FLAT	63
1	1	1	[illegible]	SENSE AMPLIFIER MODULE, FIXED MEMORY B14	62
AR	AR	AR	2004895-002	SHIM AGC	61
AR	AR	AR	2004895-001	SHIM AGC	60
1	1	1	2004899-001	PAD VIBRATION	59
1	1	1	2003970	VIBRATION PAD ASSY	58
4	4	4	NAS1598-D08N	WASHER, SEALING	57
1	1	1	2018773	VALVE PRESSURE ASSEMBLY	56
1	1	1	1000159-5	PACKING, PREFORMED "O" RING	55
2	2	2	[illegible]984-001	WASHER, FLAT	54
8	8	8	2004130	PAD, THREADED	53
18	18	18	2004894-014	WASHER, FLAT	52
4	4	4	2004894-012	WASHER, FLAT	51
—	—	2	1001489-34	SCREW, HEX SOCKET HEAD	50
4	4	4	1004722-2	SCREW, CAPTIVE	49
1	1	1	1000159-7	PACKING, PREFORMED "O" RING	48
18	18	18	MS16996-14	SCREW, SOCKET HEAD, CAP	47
—	—	56	1006783-25	SCREW, BUTTON HEAD, HEX SOCKET	46
2	2	2	1006347	GASKET, PLATE	45
1	1	1	2004986	PLUG, MACHINE THREAD	44
1	1	1	1004260-19	NAME PLATE, TYPE I	43
1	1	1	2004113-001	BRACKET, CABLE	42
1	1	1	2004115	COVER, POTTED	41
1	1	1	1006380	GASKET, RETAINED	40
58	58	58	2004707	WASHER, KNURLED	39
3	3	3	2003067-031	INTERFACE MODULE A27-29	38
2	2	2	2003070-021	INTERFACE MODULE A25-26	37
—	2	2	2003953-011	POWER SUPPLY MODULE A30-31	36
1	1	1	2003121-231	LOGIC MODULE A24	35
1	1	1	2003121-221	LOGIC MODULE A23	34
1	1	1	2003121-211	LOGIC MODULE A22	33
1	1	1	2003121-191	LOGIC MODULE A21	32
1	1	1	2003121-181	LOGIC MODULE A20	31
1	1	1	2003121-171	LOGIC MODULE A19	30
1	1	1	2003121-161	LOGIC MODULE A18	29
1	1	1	2003121-151	LOGIC MODULE A17	28
1	1	1	2003121-141	LOGIC MODULE A16	27
1	1	1	2003121-131	LOGIC MODULE A15	26
1	1	1	2003121-121	LOGIC MODULE A14	25
1	1	1	2003121-111	LOGIC MODULE A13	24
1	1	1	2003121-091	LOGIC MODULE A12	23
4	4	4	2003121-081	LOGIC MODULE A8-11	22
1	1	1	2003121-071	LOGIC MODULE A7	21
1	1	1	2003121-061	LOGIC MODULE A6	20
1	1	1	2003121-051	LOGIC MODULE A5	19
1	1	1	2003121-041	LOGIC MODULE A4	18
1	1	1	2003121-031	LOGIC MODULE A3	17
1	1	1	2003121-021	LOGIC MODULE A2	16
1	1	1	2003121-011	LOGIC MODULE A1	15
—	—	2	2003140-011	ROPE DRIVER MODULE B16-17	14
1	1	1	2003027-021	STRAND SELECT MODULE B15	13
1	1	1	2003982-011	SENSE AMPL MOD, ERASABLE MEMORY B13	12
1	1	1	2003111-011	ERASABLE MEMORY MODULE B12	11
1	1	1	2003026-021	CURRENT SWITCH MODULE B11	10
2	2	2	2003114-011	ERASABLE DRIVER MODULE B9-10	9
1	1	1	2003893-011	ALARM MODULE B8	8
1	1	1	2003036-021	OSCILLATOR MODULE B7	7
—	—	1	2003978-000	MID SPACER	6
1	1	1	2003059-021	INTERCONNECTION HEADER ASSEMBLY	5
—	—	1	2003976-000	TRAY B COVER	4
—	—	1	2003977-000	TRAY A COVER	3
1	1	1	2003093-011	TRAY B WIRED ASSEMBLY	2
—	—	1	2003092-011	TRAY A WIRED ASSEMBLY	1
-31	-021	-011	LIST OF MATERIALS		

2003991	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING
MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER ASSEMBLY

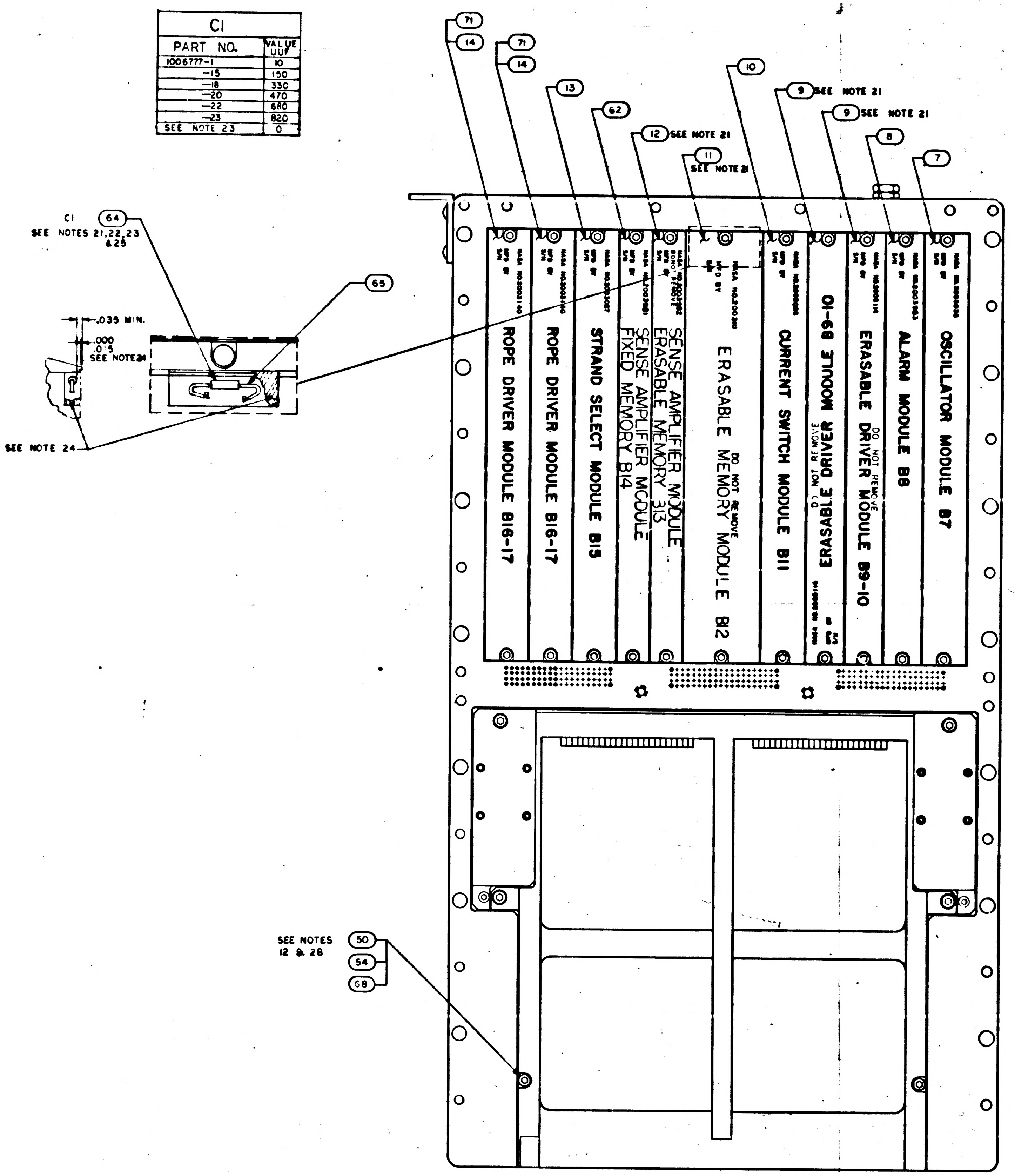
CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003200
SCALE 1/1
SHEET 1 OF 2

2003200 | E

2003200 | L

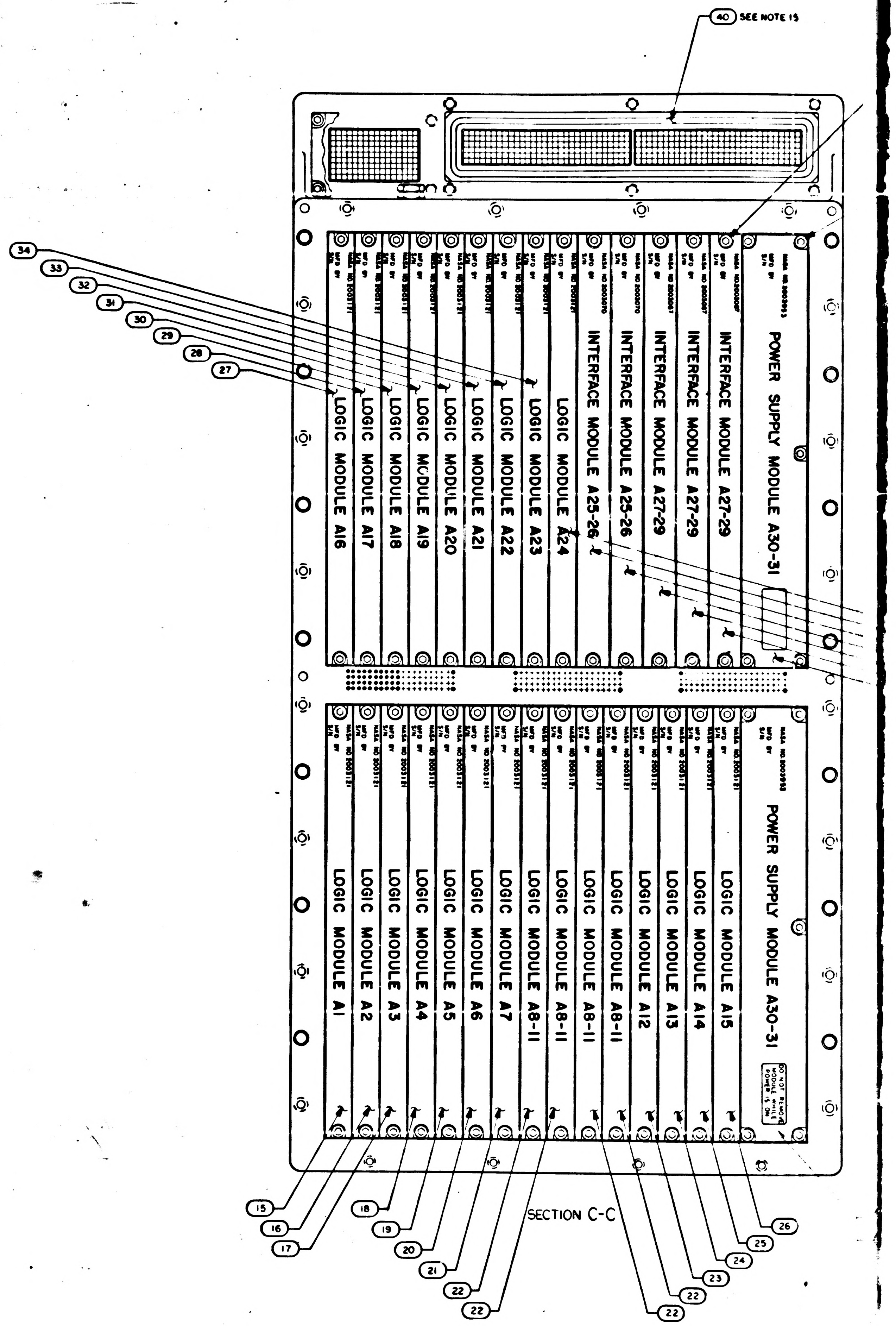
F 2/2

C1	
PART NO.	VALUE UUF
1006777-1	10
-15	150
-18	330
-20	470
-22	680
-23	820
SEE NOTE 23	0



C1 (64) SEE NOTES 21,22,23 & 28
(65)
.035 MIN.
.000 .015 SEE NOTE 24
SEE NOTE 24
(71) (14) (71) (14) (13) (62)
(12) SEE NOTE 21
(11) SEE NOTE 21
(10)
(9) SEE NOTE 21
(9) SEE NOTE 21
(8) (7)
ROPE DRIVER MODULE B16-17
ROPE DRIVER MODULE B16-17
STRAND SELECT MODULE B15
SENSE AMPLIFIER MODULE FIXED MEMORY B14
SENSE AMPLIFIER MODULE ERASABLE MEMORY B13
DO NOT REMOVE
ERASABLE MEMORY MODULE B12
CURRENT SWITCH MODULE B11
DO NOT REMOVE
ERASABLE DRIVER MODULE B9-10
DO NOT REMOVE
ERASABLE DRIVER MODULE B9-10
ALARM MODULE B8
OSCILLATOR MODULE B7
SEE NOTES 12 & 28
(50) (54) (58)

SECTION D-D



(40) SEE NOTE 15
(34) (33) (32) (31) (30) (29) (28) (27)
LOGIC MODULE A16
LOGIC MODULE A17
LOGIC MODULE A18
LOGIC MODULE A19
LOGIC MODULE A20
LOGIC MODULE A21
LOGIC MODULE A22
LOGIC MODULE A23
LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
(15) (16) (17) (18) (19) (20) (21) (22) (22) (22) (22) (23) (24) (25) (26)

SECTION C-C

PACKAGING REFERENCE DRAWINGS:
1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421

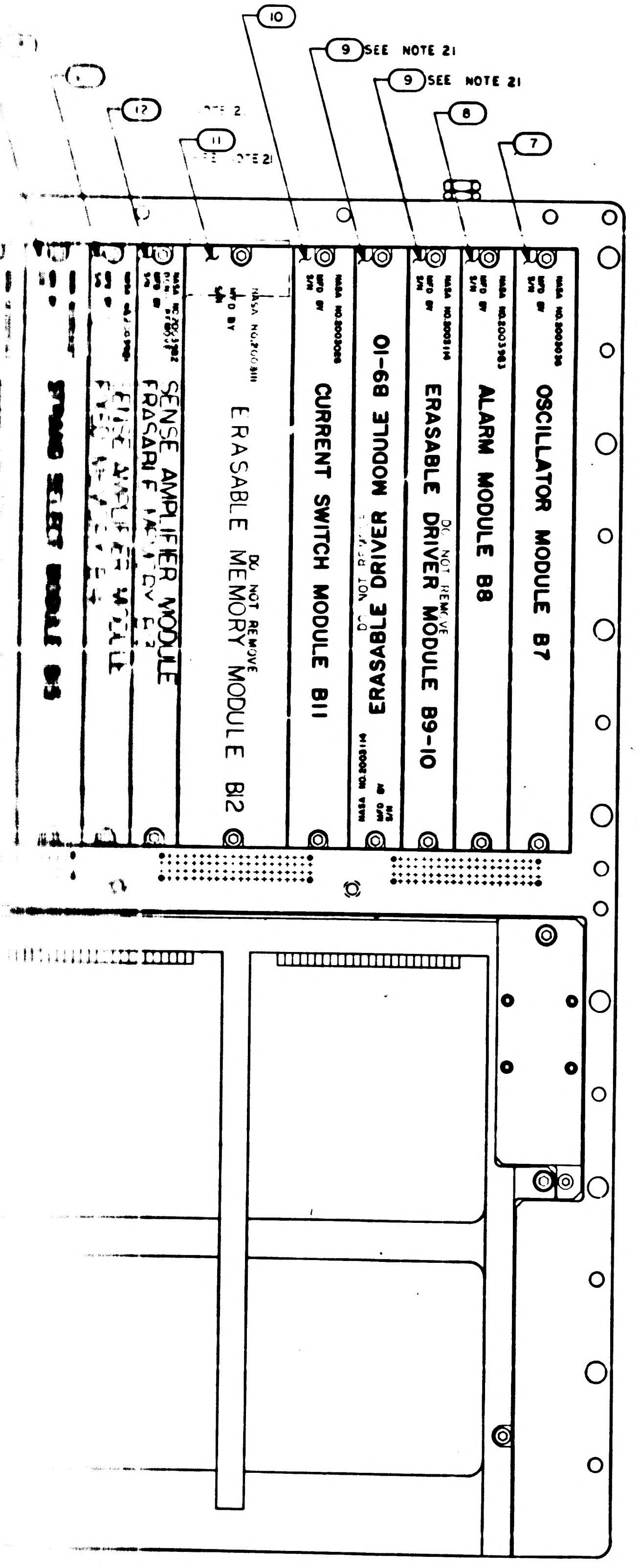
2003200 | E

2003200

F1/2 SH2/2

REVISIONS 2-977

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 25062				
B		REVISED PER TDRR 30887				
C		REVISED PER TDRR 30890				
D		REVISED PER TDRR 32353				
E		REVISED PER TDRR 32873				



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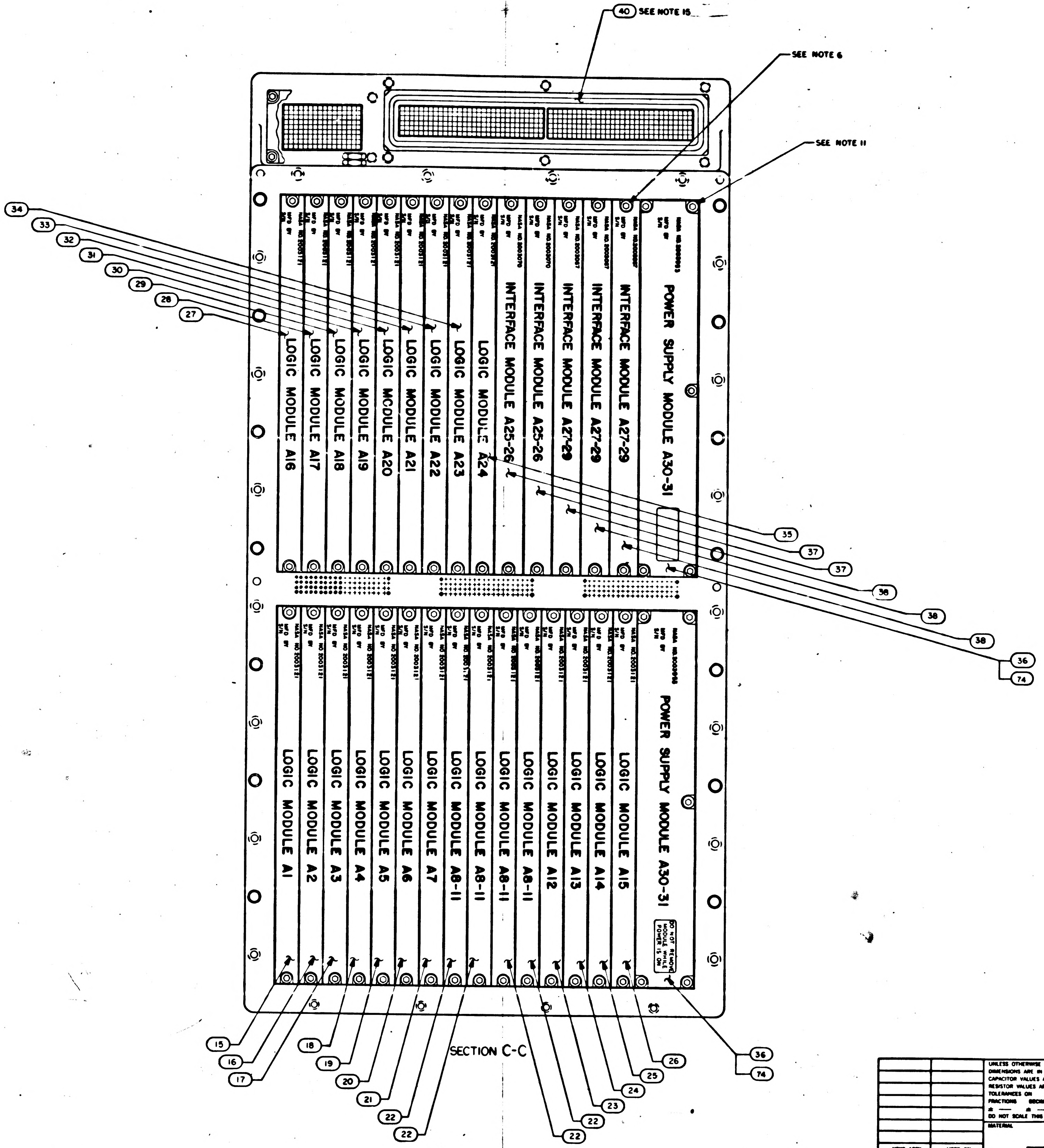
9 SEE NOTE 21
9 SEE NOTE 21
8
7
12
11
OSCILLATOR MODULE B7
ALARM MODULE B8
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
DO NOT REMOVE
CURRENT SWITCH MODULE B11
ERASABLE MEMORY MODULE B12
DO NOT REMOVE
SENSE AMPLIFIER MODULE
STRAND SELECT MODULE B5

SECTION D-D



40 SEE NOTE 15
SEE NOTE 6
SEE NOTE 11
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27
POWER SUPPLY MODULE A30-31
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
LOGIC MODULE A24
LOGIC MODULE A23
LOGIC MODULE A22
LOGIC MODULE A21
LOGIC MODULE A20
LOGIC MODULE A19
LOGIC MODULE A18
LOGIC MODULE A17
LOGIC MODULE A16
35
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36
74
POWER SUPPLY MODULE A30-31
DO NOT REMOVE MODULE WHILE POWER IS ON
LOGIC MODULE A15
LOGIC MODULE A14
LOGIC MODULE A13
LOGIC MODULE A12
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A7
LOGIC MODULE A6
LOGIC MODULE A5
LOGIC MODULE A4
LOGIC MODULE A3
LOGIC MODULE A2
LOGIC MODULE A1
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36
74

SECTION C-C

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED Eldon C. Hall
APPROVED MIT
APPROVED MSC A. C. Metzger
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER
ASSEMBLY

CODE IDENT NO	SIZE	DRAWING NO
80230	J	2003200

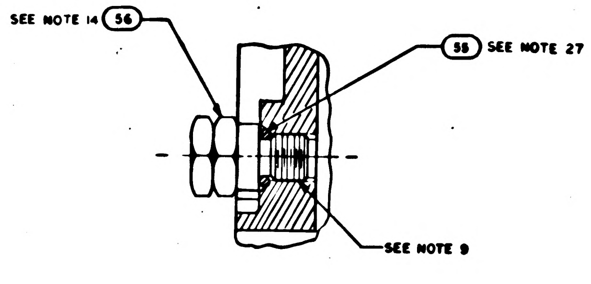
SCALE 1/1
SHEET 2 OF 2

2003200 E

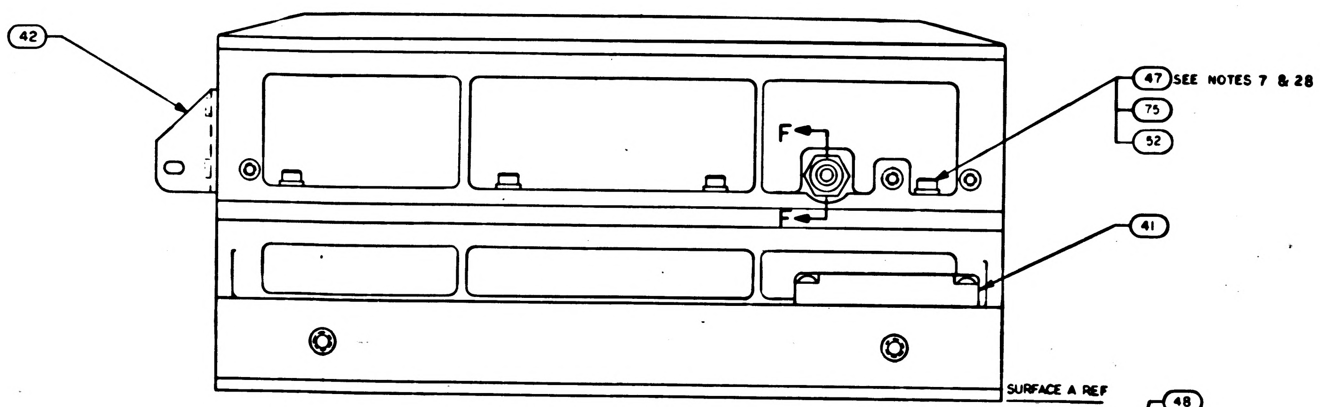
2003200

E 2/2

S003005


SEE NOTE 14 56
58 SEE NOTE 27
SEE NOTE 9

PARTIAL SECTION F F
SCALE: 2/1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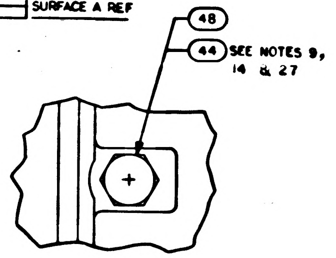
F
F
47 SEE NOTES 7 & 28
75
52
41
SURFACE A REF

VIEW B-B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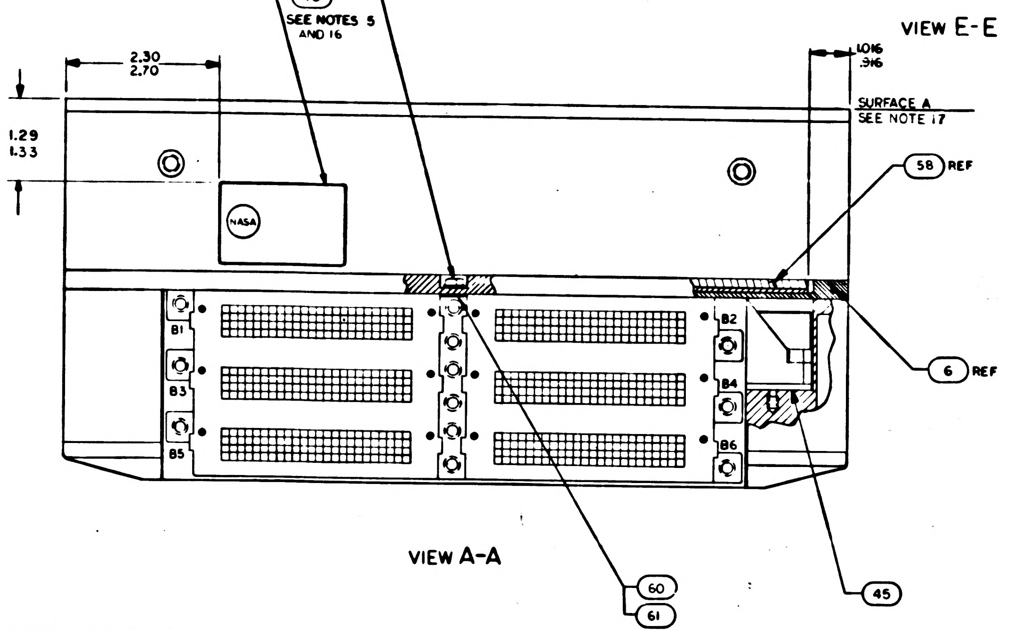
44 SEE NOTES 9, 14 & 27

VIEW E-E


76 REF
46 REF
57 REF
43
SEE NOTES 5 AND 16
2.30
2.70
1.29
1.33
1.016
.916
SURFACE A
SEE NOTE 17
58 REF
NASA
B1
B2
B3
B4
B5
B6
6 REF
60
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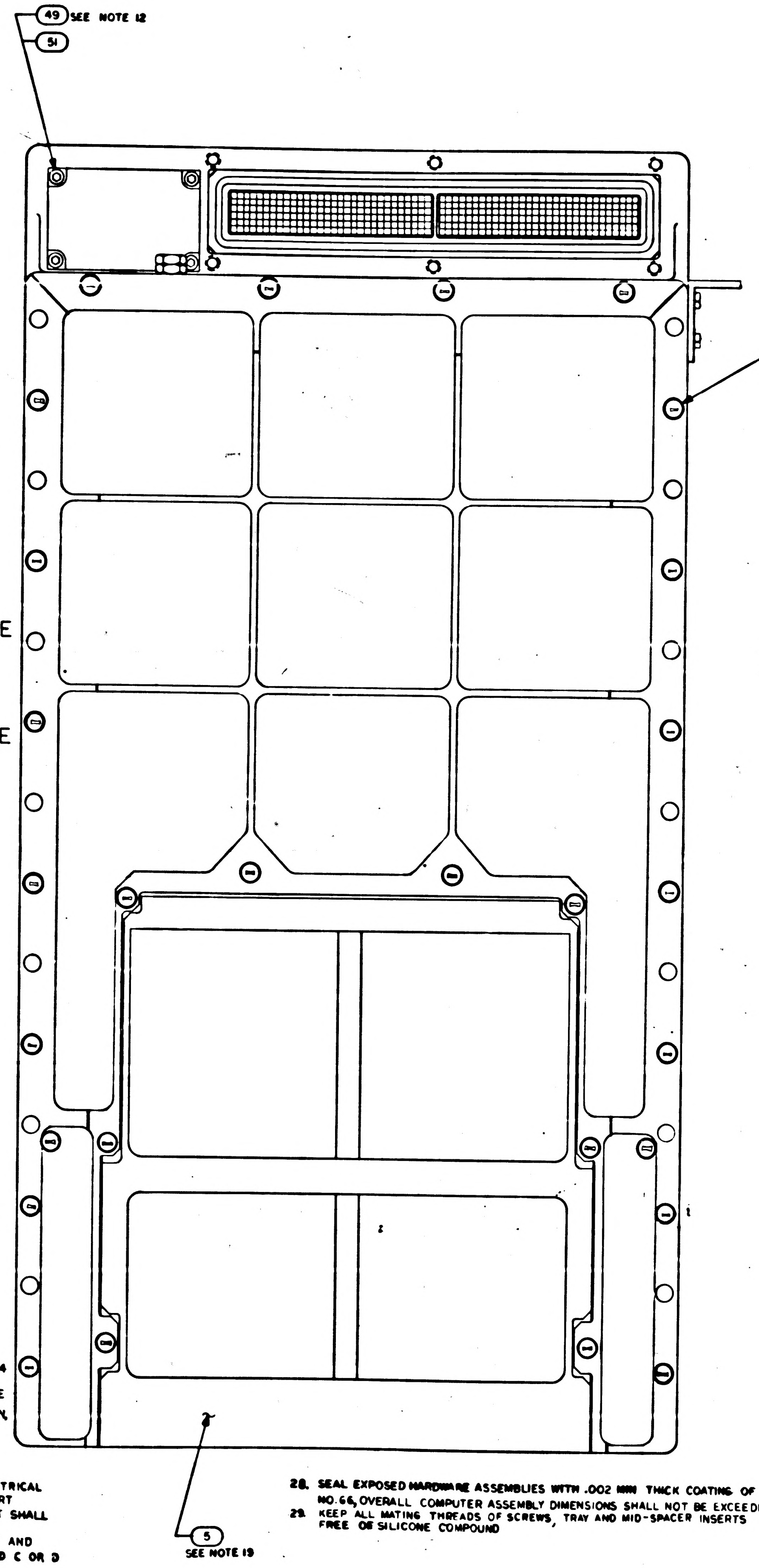
45

VIEW A-A


49 SEE NOTE 12
51
46 SEE NOTES 12,26,27,& 28
39
77
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E
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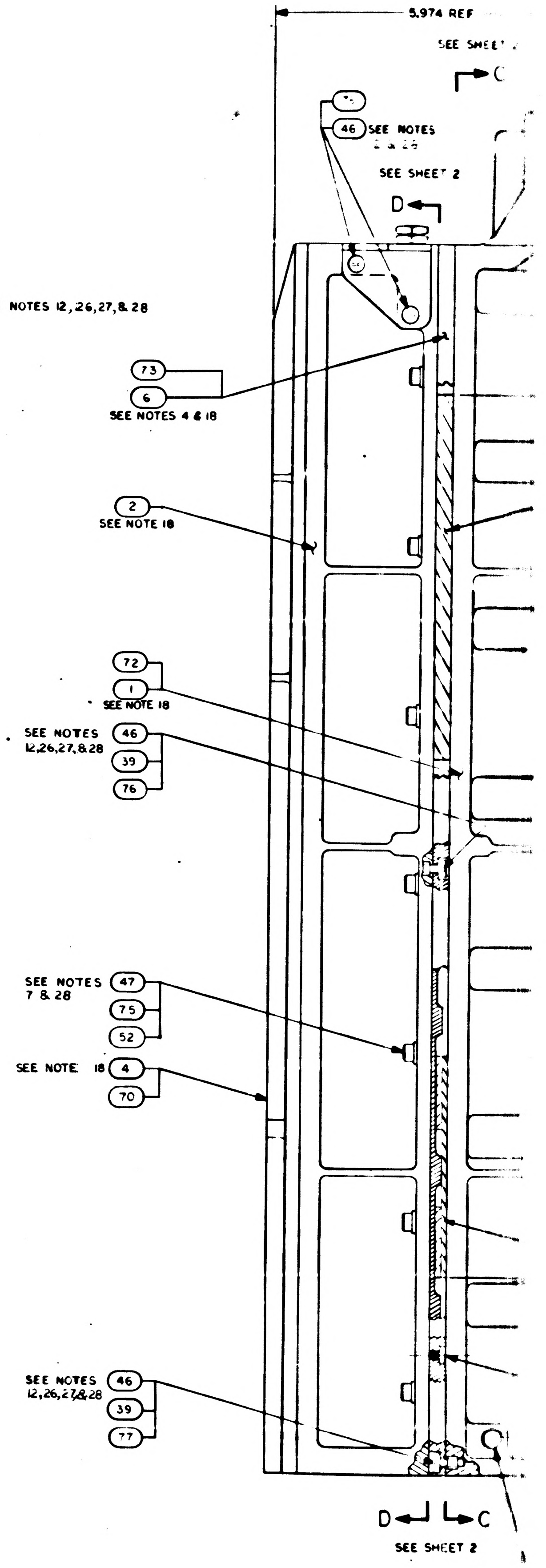
SEE NOTE 19


5.974 REF
SEE SHEET 2
C
46 SEE NOTES
SEE SHEET 2
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73
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SEE NOTES 4 & 18
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SEE NOTE 18
72
1
SEE NOTE 18
SEE NOTES 12,26,27,& 28 46
39
76
SEE NOTES 7 & 28 47
75
52
SEE NOTE 18 4
70
SEE NOTES 12,26,27,& 28 46
39
77
D
C
SEE SHEET 2

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
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5. BOND FIND NO.43 TO FIND NO.1 OR FIND NO. 72 PER ND1002004 TYPE IV
6. UNLESS OTHERWISE SPECIFIED TORQUE ALL MODULE MOUNTING SCREWS 15/19 INCH POUNDS
7. TORQUE FIND NO.47 OR FIND NO. 75 TO 28/32 INCH POUNDS
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9. APPLY SEALING COMPOUND MIL-S-22473 GRADE H TO FIND NO.53, FIND NO.56 AND FIND NO. 44
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13. TORQUE FOR FIND NO. 53 TO BE 4/6 INCH POUNDS
14. TORQUE FOR FIND NO. 44 AND FIND NO. 56 TO BE 137/157 INCH POUNDS
15. FIND NO. 40 SHALL BE SUPPLIED AS PART OF THIS ASSEMBLY
16. MARK COMPUTER ASSEMBLY AND RELATED PART NO., APPLICABLE DASH NO., SERIAL NO. AND CONTRACT NO. PER 1004260 AND SERIALIZE PER ND1002023
17. FINISH SURFACE $\boxed{-A-}$ PER ICD NAA MH01-01302-116 THIS ASSEMBLY MUST BE CAPABLE OF MEETING ELECTRICAL BONDING REQUIREMENTS OF ICD NAA MH01-01302-116
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    a. RESISTANCE BETWEEN FIND NO.1 AND FIND NO.6
    b. RESISTANCE BETWEEN FIND NO.2 AND FIND NO.5
    c. RESISTANCE BETWEEN FIND NO.3 AND FIND NO.4 OR BETWEEN FIND NO.69 AND FIND NO.70
19. LEAK TEST: PURGE AND FILL WITH 30±1.0 PSIA DRY NITROGEN. STORE AT ROOM AMBIENT FOR 24 ±5 HOURS. TEST PRESSURE FOR $\Delta P < 0.5$ PSIA. ALL MEASUREMENTS MADE AT STANDARD TEMPERATURE ±2°C, FOLLOWING TEST BLEED TO 17±1.0 PSIA
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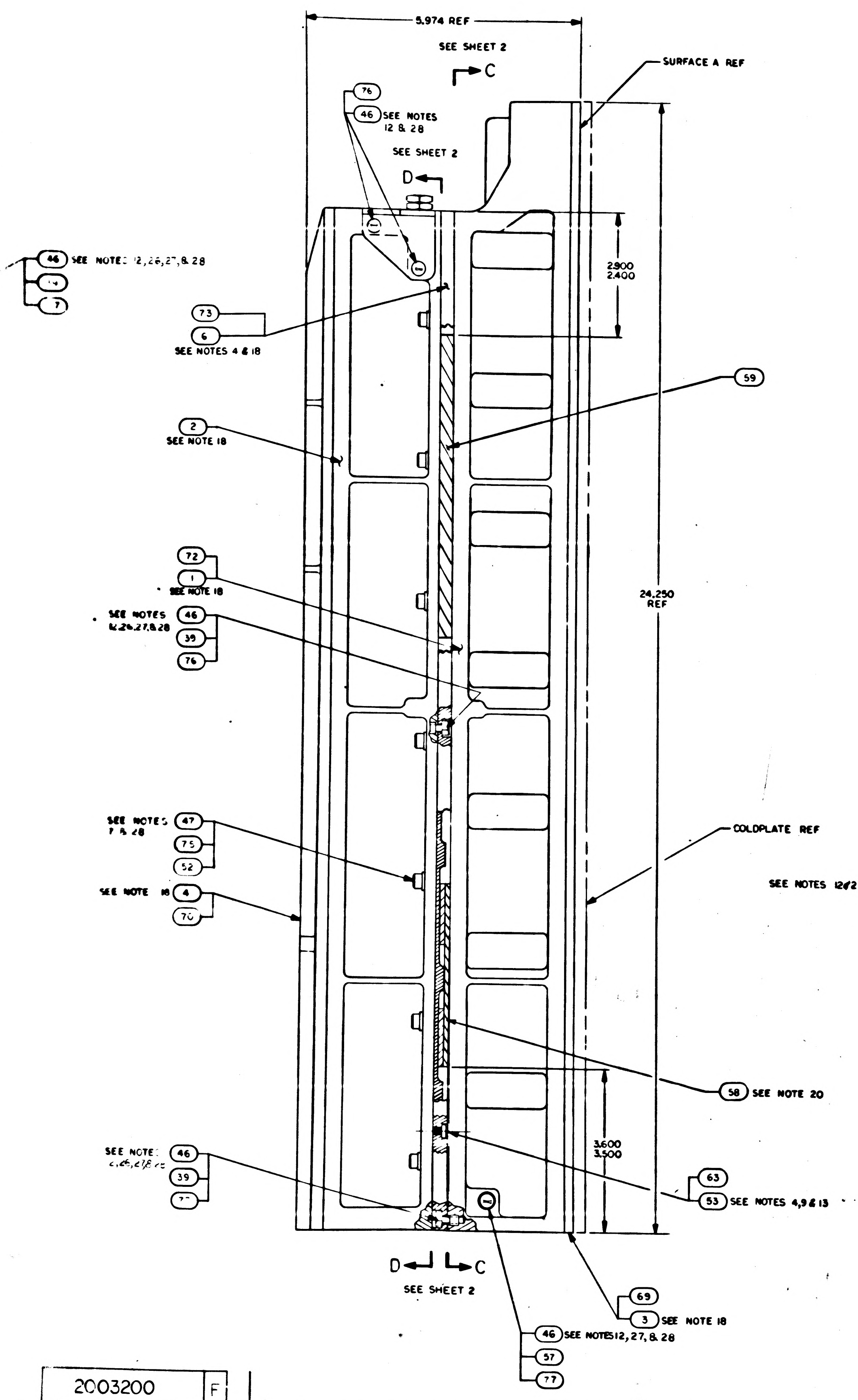
22. THE VALUE OF C1 TO BE DETERMINED AT ELECTRICAL TEST AND SELECTED FROM APPROPRIATE CHART
23. WHEN THE VALUE OF C1 IS "0" NO COMPONENT SHALL BE USED
24. ENCAPSULATE AREA SHOWN AFTER SELECTION AND INSTALLATION OF C1 USING ND1002009 METHOD C OR D USING PRIMER PER SCD 1012513
25. WELD PER ND1002005
26. ASSEMBLE HARDWARE WITH SMOOTH FACE OF FIND NO.39 IN CONTACT WITH SCREW HEAD
27. FIND NO. 39, 48, 55 & 57 TO BE DISCARDED AND REPLACED WITH NEW PARTS EACH TIME THEY ARE DISASSEMBLED
28. SEAL EXPOSED HARDWARE ASSEMBLIES WITH .002 MIN THICK COATING OF FIND NO. 66, OVERALL COMPUTER ASSEMBLY DIMENSIONS SHALL NOT BE EXCEEDED
29. KEEP ALL MATING THREADS OF SCREWS, TRAY AND MID-SPACER INSERTS FREE OF SILICONE COMPOUND

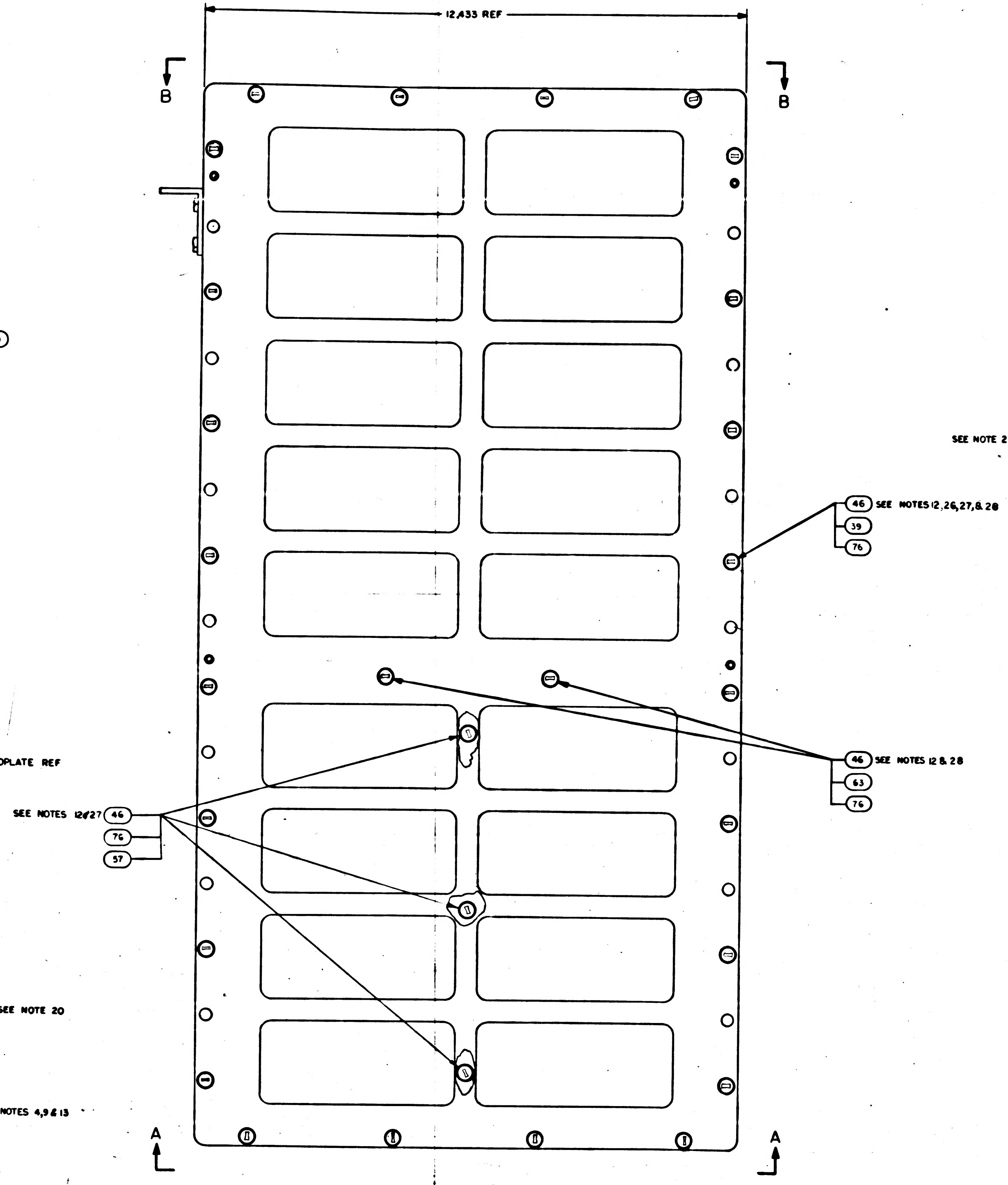
2003200 F

SH 1/2 F 1/2

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 28062				
B		REVISED PER TDRR 3088?				
C		REVISED PER TDRR 30690				
D		REVISED PER TDRR 32353				
E		REVISED PER TDRR 32873				
F		REVISED PER TDRR 33607				

REVISIONS


5.974 REF
SEE SHEET 2
C
SURFACE A REF
76
46 SEE NOTES 12 & 28
SEE SHEET 2
D
46 SEE NOTE 12,26,27,& 28
14
7
2.900
2.400
73
6
SEE NOTES 4 & 18
59
2
SEE NOTE 18
72
1
SEE NOTE 18
SEE NOTES 12,26,27,& 28
46
39
76
24.250 REF
SEE NOTES 7 & 28
47
75
52
SEE NOTE 18
4
70
COLDPLATE REF
58 SEE NOTE 20
3.600
3.500
SEE NOTES 12,26,27,& 28
46
39
77
63
53 SEE NOTES 4,9 & 13
D C
SEE SHEET 2
69
3 SEE NOTE 18
46 SEE NOTES 12,27,& 28
57
77


12.433 REF
B
B
46 SEE NOTES 12,26,27,& 28
39
76
46 SEE NOTES 12 & 28
63
76
SEE NOTES 12 & 27
46
76
57
A
A

SEE NOTE 28

QTY REQD -31	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	☒	—	2005943	AGC WIRE LIST	REF
33	33	—	2004732-002	SCREW COATED	77
33	33	—	2004732-001	SCREW COATED	76
18	18	—	2004732-003	SCREW COATED	75
2	—	—	2003953-021	POWER SUPPLY MOD A30-31	74
1	1	—	2003978-001	MID-SPACER	73
1	1	—	2003092-021	TRAY A WIRE ASSY	72
2	2	—	2003140-021	ROPE DRIVER MODULE B16-B17	71
1	1	—	2003976-011	TRAY B COVER	70
1	1	—	2003977-011	TRAY A COVER	69
2	2	—	1001489-36	SCREW, HEX SOCKET HEAD	68
[illegible]	[illegible]	—	~~1006783-~~[illegible]	~~SCREW, BUTTON HEAD HEX SOCKET~~	67
AR	AR	AR	1006338-000	SEALING COMPOUND, SILICONE RUBBER	66
AR	AR	AR	1006776-22	INSULATION SLEEVING, ELECTRICAL	65
—	—	☒	2005036	AGC WIRE LIST	REF
1	1	1	SEE NOTE 22	CAPACITOR	64
10	10	10	2004148-007	WASHER, FLAT	63
1	1	1	[illegible]	~~SENSE AMPLIFIER MODULE, FIXED MEMORY B14~~	62
AR	AR	AR	2004895-002	SHIM AGC	61
AR	AR	AR	2004895-001	SHIM AGC	60
1	1	1	2004899-001	PAD VIBRATION	59
1	1	1	2003970	VIBRATION PAD ASSY	58
4	4	4	NAS1598-008N	WASHER, SEALING	57
1	1	1	2018773	VALVE PRESSURE ASSEMBLY	56
1	1	1	1000159-5	PACKING, PREFORMED "O" RING	55
2	2	2	2004984-001	WASHER, FLAT	54
8	8	8	2004130	PAD, THREADED	53
18	18	18	2004894-014	WASHER, FLAT	52
4	4	4	2004894-012	WASHER, FLAT	51
—	—	2	1001489-34	SCREW, HEX SOCKET HEAD	50
4	4	4	1004722-2	SCREW, CAPTIVE	49
1	1	1	1000159-7	PACKING, PREFORMED "O" RING	48
~~40~~	~~40~~	18	MS16996-14	SCREW, SOCKET HEAD, CAP	47
—	—	66	1006783-25	SCREW, BUTTON HEAD, HEX SOCKET	46
2	2	2	1006347	GASKET, PLATE	45
1	1	1	2004986	PLUG, MACHINE THREAD	44
1	1	1	1004260-19	NAME PLATE, TYPE I	43
1	1	1	2004113-001	BRACKET, CABLE	42
1	1	1	2004115	COVER, POTTED	41
1	1	1	1006380	GASKET, RETAINED	40
58	58	58	2004707	WASHER, KNURLED	39
3	3	3	2003067-031	INTERFACE MODULE A27-29	38
2	2	2	2003070-021	INTERFACE MODULE A25-26	37
—	2	2	2003953-011	POWER SUPPLY MODULE A30-31	36
1	1	1	2003121-231	LOGIC MODULE A24	35
1	1	1	2003121-221	LOGIC MODULE A23	34
1	1	1	2003121-211	LOGIC MODULE A22	33
1	1	1	2003121-191	LOGIC MODULE A21	32
1	1	1	2003121-181	LOGIC MODULE A20	31
1	1	1	2003121-171	LOGIC MODULE A19	30
1	1	1	2003121-161	LOGIC MODULE A18	29
1	1	1	2003121-151	LOGIC MODULE A17	28
1	1	1	2003121-141	LOGIC MODULE A16	27
1	1	1	2003121-131	LOGIC MODULE A15	26
1	1	1	2003121-121	LOGIC MODULE A14	25
1	1	1	2003121-111	LOGIC MODULE A13	24
1	1	1	2003121-091	LOGIC MODULE A12	23
4	4	4	2003121-081	LOGIC MODULE A8-11	22
1	1	1	2003121-071	LOGIC MODULE A7	21
1	1	1	2003121-061	LOGIC MODULE A6	20
1	1	1	2003121-051	LOGIC MODULE A5	19
1	1	1	2003121-041	LOGIC MODULE A4	18
1	1	1	2003121-031	LOGIC MODULE A3	17
1	1	1	2003121-021	LOGIC MODULE A2	16
1	1	1	2003121-011	LOGIC MODULE A1	15
—	—	2	2003140-011	ROPE DRIVER MODULE B16-17	14
1	1	1	2003027-021	STRAND SELECT MODULE B15	13
1	1	1	2003982-011	SENSE AMPL MOD, ERASABLE MEMORY B13	12
1	1	1	2003111-011	ERASABLE MEMORY MODULE B12	11
1	1	1	2003026-021	CURRENT SWITCH MODULE B11	10
2	2	2	2003114-011	ERASABLE DRIVER MODULE B9-10	9
1	1	1	2003983-011	ALARM MODULE B8	8
1	1	1	2003036-021	OSCILLATOR MODULE B7	7
—	—	1	2003978-000	MID SPACER	6
1	1	1	2003059-021	INTERCONNECTION HEADER ASSEMBLY	5
—	—	1	2003976-000	TRAY B COVER	4
—	—	1	2003977-000	TRAY A COVER	3
1	1	1	2003093-011	TRAY B WIRED ASSEMBLY	2
—	—	1	2003092-011	TRAY A WIRED ASSEMBLY	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003991	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER
ASSEMBLY

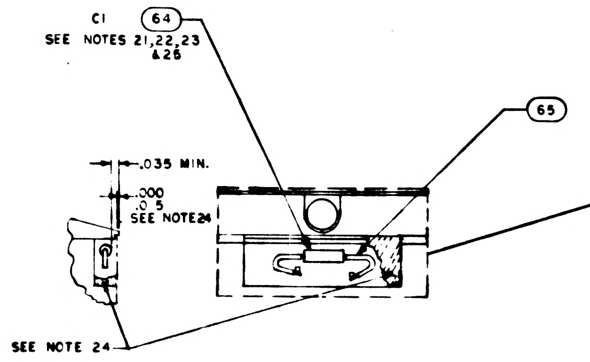
CODE IDENT NO. 80230 SIZE J DRAWING NO. 2003200
SCALE 1/1 SHEET 1 OF 2

2003200

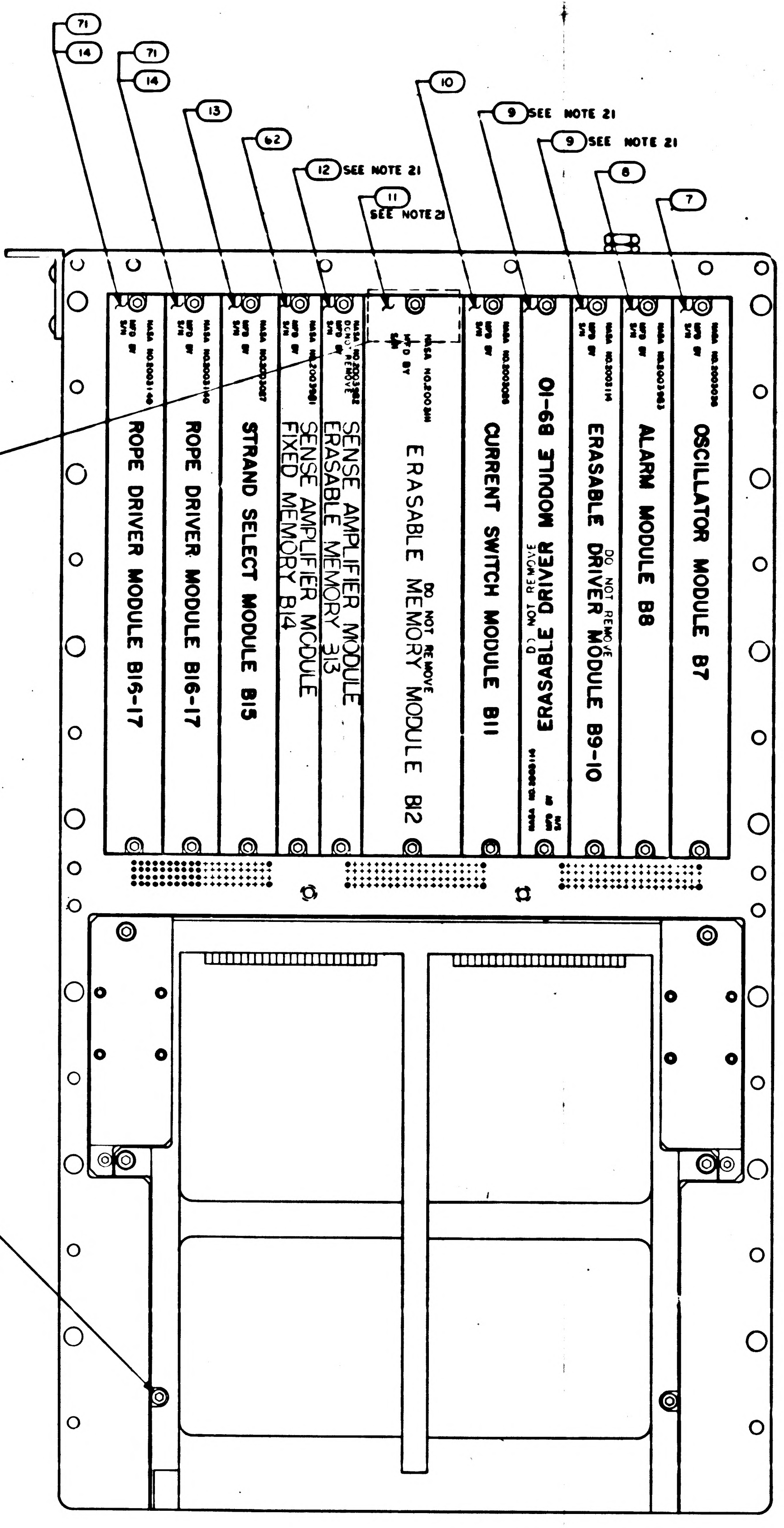
2003200 F

E 2/2

C1	
PART NO.	VALUE UUF
1006777-1	10
-15	150
-18	330
-20	470
-22	680
-23	820
SEE NOTE 23	0



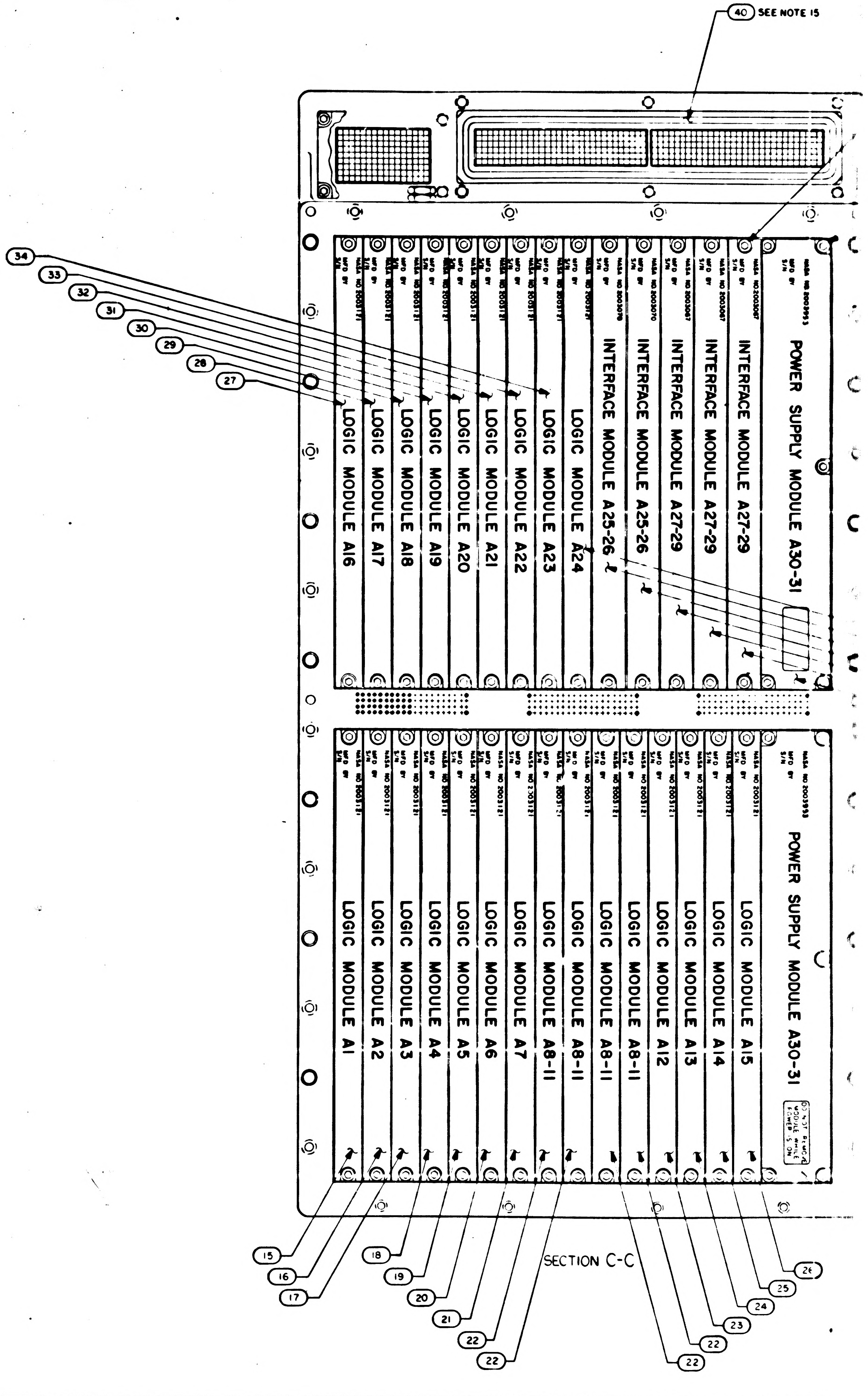
C1
SEE NOTES 21,22,23 & 25
64
65
.035 MIN.
.000
.015
SEE NOTE 24
SEE NOTE 24



71
14
71
14
13
62
12 SEE NOTE 21
11 SEE NOTE 21
10
9 SEE NOTE 21
9 SEE NOTE 21
8
7
OSCILLATOR MODULE B7
ALARM MODULE B8
DO NOT REMOVE
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
DO NOT REMOVE
CURRENT SWITCH MODULE B11
DO NOT REMOVE
ERASABLE MEMORY MODULE B12
SENSE AMPLIFIER MODULE ERASABLE MEMORY B13
SENSE AMPLIFIER MODULE FIXED MEMORY B14
STRAND SELECT MODULE B15
ROPE DRIVER MODULE B16-17
ROPE DRIVER MODULE B16-17
SEE NOTES 12 & 28
50
54
58

SECTION D-D

PACKAGING REFERENCE DRAWINGS:
1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421



40 SEE NOTE 15
34
33
32
31
30
29
28
27
POWER SUPPLY MODULE A30-31
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
LOGIC MODULE A24
LOGIC MODULE A23
LOGIC MODULE A22
LOGIC MODULE A21
LOGIC MODULE A20
LOGIC MODULE A19
LOGIC MODULE A18
LOGIC MODULE A17
LOGIC MODULE A16
POWER SUPPLY MODULE A30-31
LOGIC MODULE A15
LOGIC MODULE A14
LOGIC MODULE A13
LOGIC MODULE A12
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A7
LOGIC MODULE A6
LOGIC MODULE A5
LOGIC MODULE A4
LOGIC MODULE A3
LOGIC MODULE A2
LOGIC MODULE A1
15
16
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18
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22
22
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24
25
26

SECTION C-C

2003200	F

SH 2/12 E1/2

SYM	ZONE	REVISIONS 2F477 DESCRIPTION	DR	CHK	DATE	APPROVED
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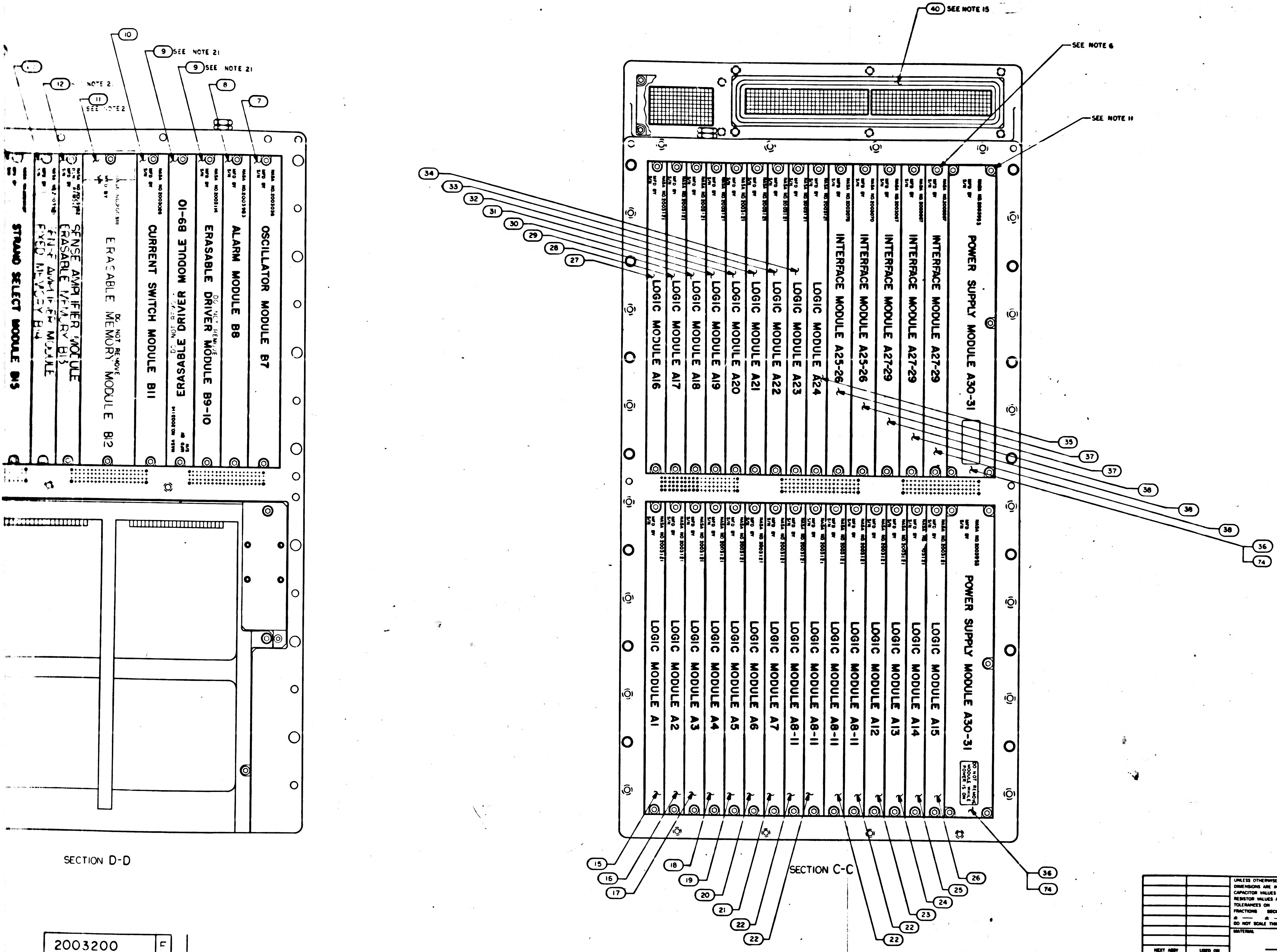
B		REVISED PER TDRR 3068?	[illegible]	[illegible]	[illegible]	[illegible]
C		REVISED PER TDRR 30890	[illegible]	[illegible]	[illegible]	[illegible]
D		REVISED PER TDRR 32353	[illegible]	[illegible]	[illegible]	[illegible]
E		REVISED PER TDRR 32873	[illegible]	[illegible]	3 67	[illegible]
F		REVISED PER TDRR 32867	[illegible]		[illegible]	[illegible]



40 SEE NOTE 15
SEE NOTE 6
SEE NOTE 11
10
9 SEE NOTE 21
9 SEE NOTE 21
8
7
12 NOTE 2
11 SEE NOTE 2
OSCILLATOR MODULE B7
NASA NO. 2003036
ALARM MODULE B8
NASA NO. 2003983
ERASABLE DRIVER MODULE B9-10
DO NOT REMOVE
NASA NO. 2003114
ERASABLE DRIVER MODULE B9-10
DO NOT REMOVE
CURRENT SWITCH MODULE B11
NASA NO. 2003080
ERASABLE MEMORY MODULE B12
DO NOT REMOVE
SENSE AMPLIFIER MODULE
ERASABLE MEMORY B13
FINE AMPLIFIER MODULE
FIXED MEMORY B14
STRAND SELECT MODULE B15
MFD BY
S/N
SECTION D-D
POWER SUPPLY MODULE A30-31
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
LOGIC MODULE A24
LOGIC MODULE A23
LOGIC MODULE A22
LOGIC MODULE A21
LOGIC MODULE A20
LOGIC MODULE A19
LOGIC MODULE A18
LOGIC MODULE A17
LOGIC MODULE A16
34
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32
31
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37
37
38
38
38
36
74
POWER SUPPLY MODULE A30-31
DO NOT REMOVE MODULE WHILE POWER IS ON
LOGIC MODULE A15
LOGIC MODULE A14
LOGIC MODULE A13
LOGIC MODULE A12
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A7
LOGIC MODULE A6
LOGIC MODULE A5
LOGIC MODULE A4
LOGIC MODULE A3
LOGIC MODULE A2
LOGIC MODULE A1
15
16
17
18
19
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21
22
22
22
23
24
25
26
36
74
SECTION C-C

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL
—

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
	LIST OF MATERIALS		

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN [illegible]
CHECKED [illegible]
APPROVED
APPROVED Eldon C. Hall
APPROVED MIT [illegible]
APPROVED MSC A. C. METZGER
DATE

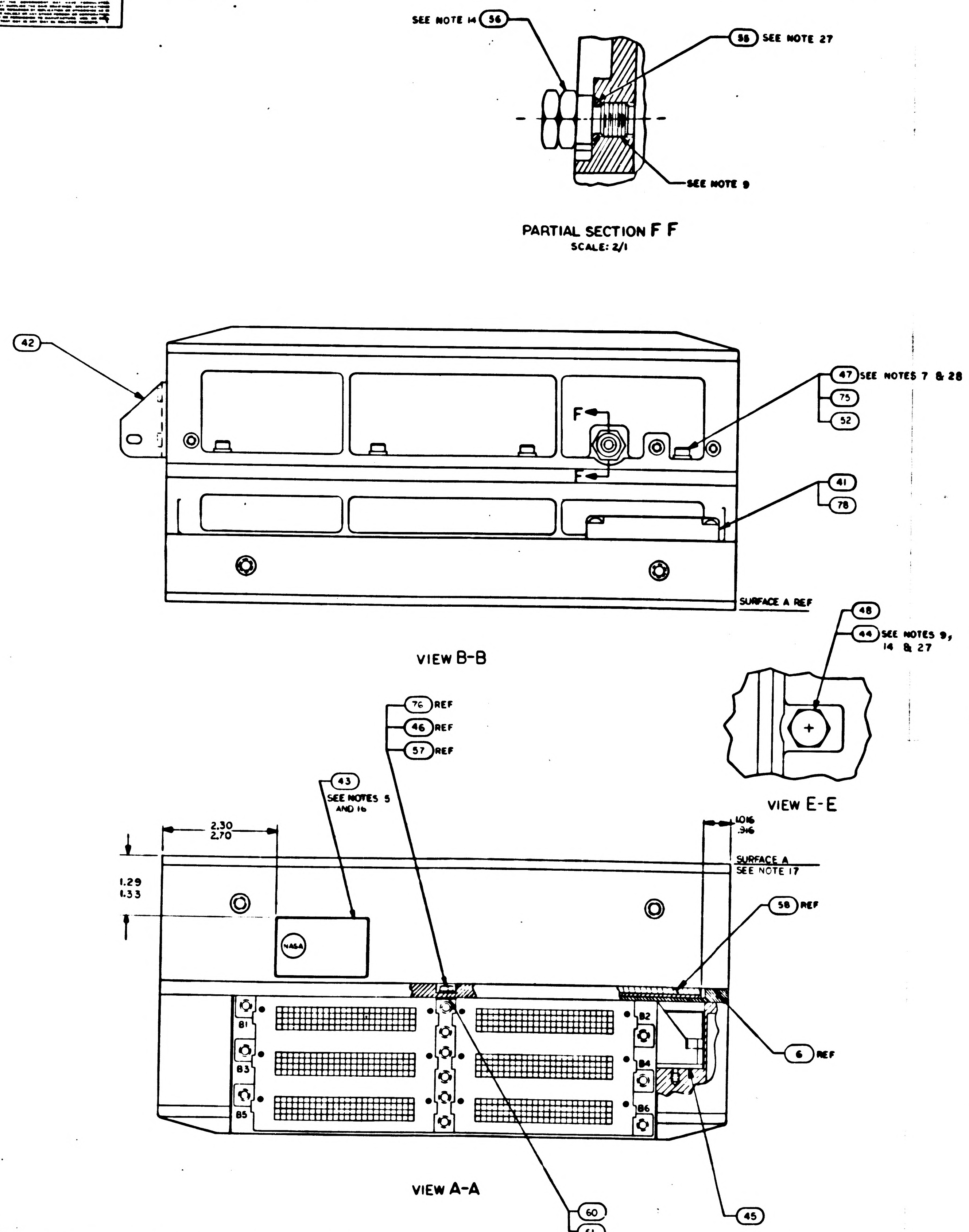
COMPUTER ASSEMBLY

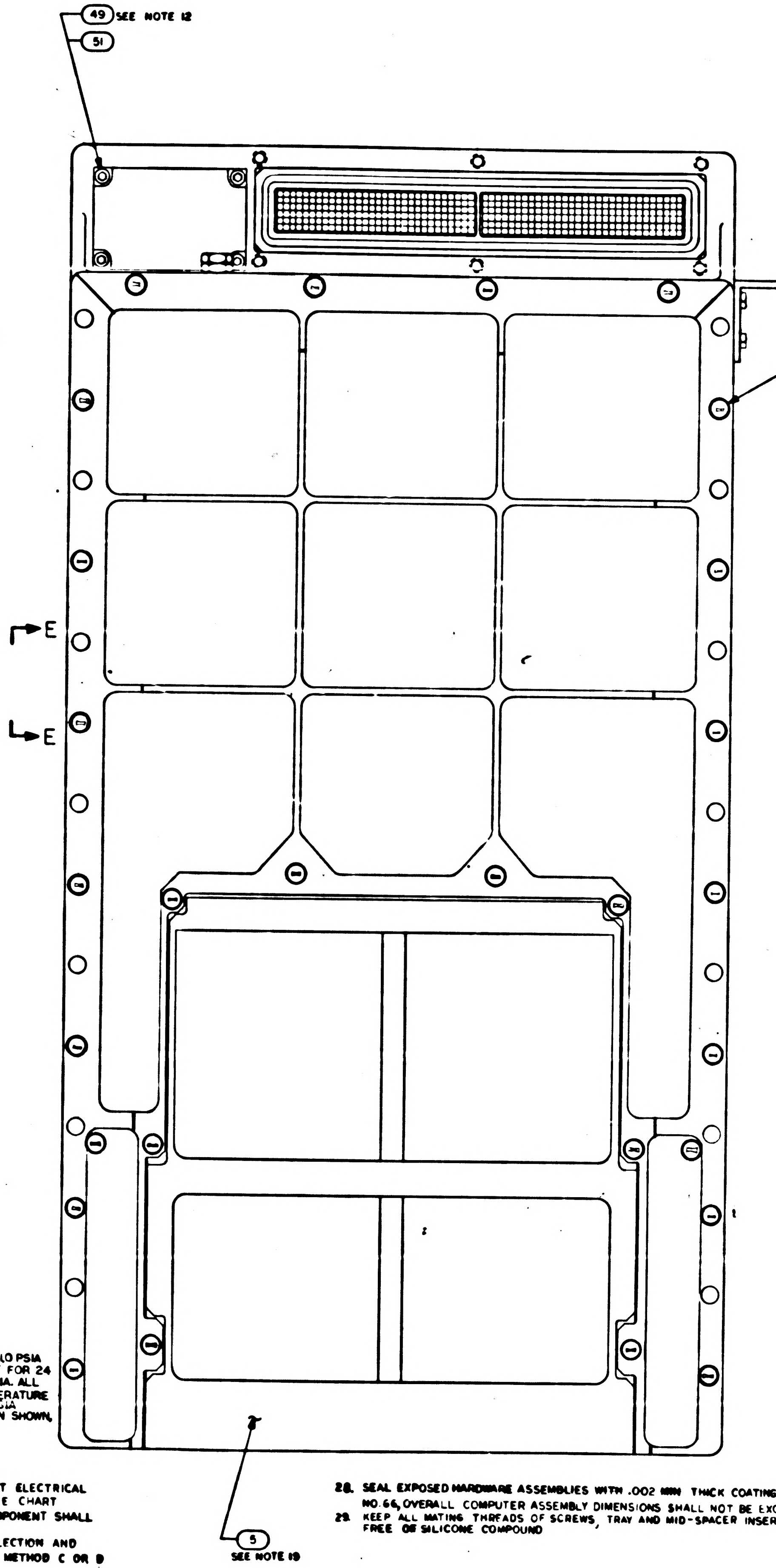
CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2003200

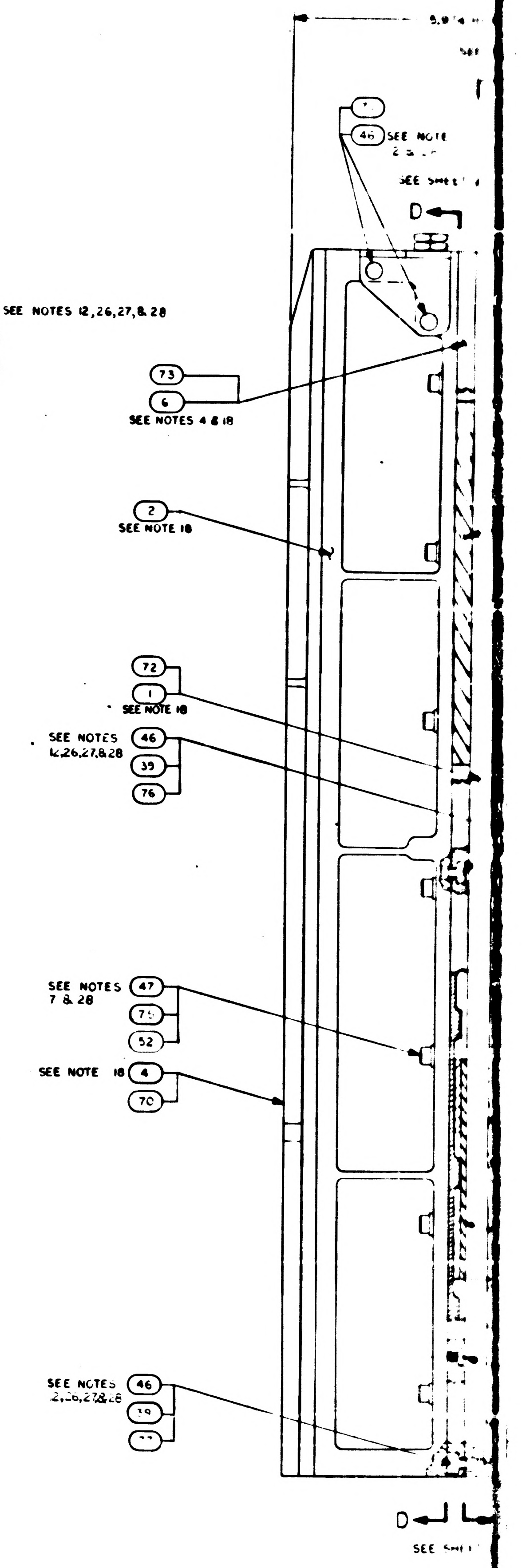
SCALE 1/1
SHEET 2 OF 2

2003200 F

F 2/2


SEE NOTE 14
56
58 SEE NOTE 27
SEE NOTE 9
PARTIAL SECTION F F
SCALE: 2/1
42
47 SEE NOTES 7 & 28
75
52
F
F
41
78
SURFACE A REF
VIEW B-B
48
44 SEE NOTES 9, 14 & 27
VIEW E-E
76 REF
46 REF
57 REF
43
SEE NOTES 5 AND 16
2.30
2.70
1.016
.316
SURFACE A
SEE NOTE 17
1.29
1.33
58 REF
NASA
B1
B2
B3
B4
B5
B6
6 REF
VIEW A-A
60
61
45


49 SEE NOTE 12
51
46 SEE NOTES 12,26,27,& 28
39
77
E
E
5
SEE NOTE 19

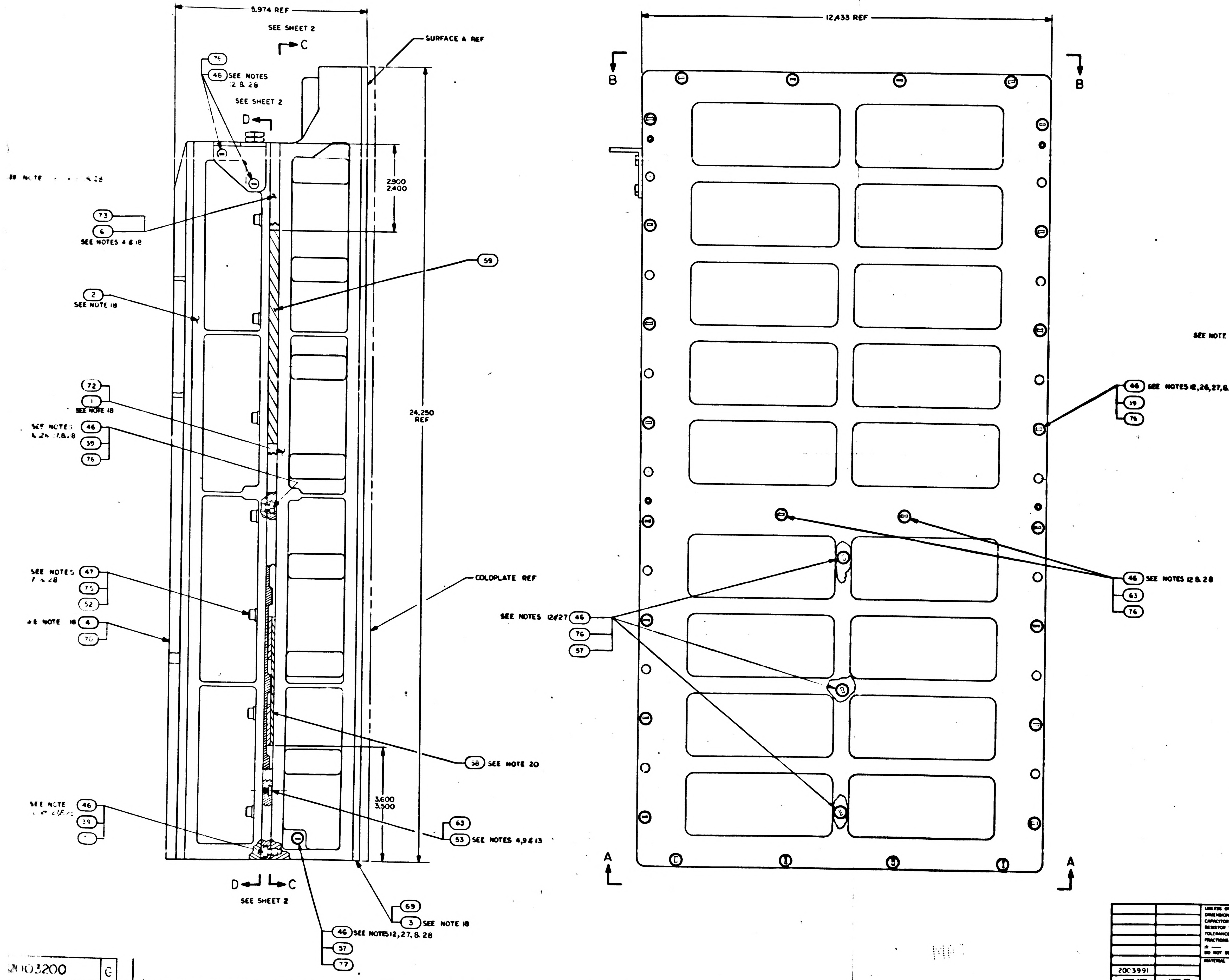

46 SEE NOTE
SEE SHEET
D
73
6
SEE NOTES 4 & 18
2
SEE NOTE 18
72
1
SEE NOTE 18
SEE NOTES 12,26,27,& 28
46
39
76
SEE NOTES 7 & 28
47
75
52
SEE NOTE 18
4
70
SEE NOTES 12,26,27,& 28
46
39
D
SEE SHEET

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. PHANTOM LINES DENOTE AGC COLDPLATE AND HANDLING FIXTURE TO BE SUPPLIED BY NORTH AMERICAN AVIATION, INC
3. ADD SILICONE COMPOUND 1006879 TO MODULE MATING METAL SURFACES AND TRAY MATING SURFACES
4. ASSEMBLE FIND NO.53 AND FIND NO.63 TO FIND NO.6 AND FIND NO.6 TO FIND NO.2 PRIOR TO ASSEMBLY OF FIND NO.2 TO FIND NO.1 OR FIND NO.72
5. BOND FIND NO.43 TO FIND NO.1 OR FIND NO. 72 PER ND1002004 TYPE IV
6. UNLESS OTHERWISE SPECIFIED TORQUE ALL MODULE MOUNTING SCREWS 15/19 INCH POUNDS
7. TORQUE FIND NO.47 OR FIND NO. 75 TO 28/32 INCH POUNDS
8. FINISH IS REQUIRED TO SATISFY ICD GAEC 510-10001
9. APPLY SEALING COMPOUND MIL-S-22473 GRADE H TO FIND NO.53, FIND NO.56 AND FIND NO. 44
10. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2016005
11. TORQUE FOR FIND NO. 36 MOUNTING SCREWS TO BE 4/6 INCH POUNDS
12. TORQUE FOR FIND NO. 46,49,50,76 AND 68 TO BE 18/22 INCH POUNDS
13. TORQUE FOR FIND NO. 53 TO BE 4/6 INCH POUNDS
14. TORQUE FOR FIND NO. 44 AND FIND NO. 56 TO BE 137/157 INCH POUNDS
15. FIND NO. 40 SHALL BE SUPPLIED AS PART OF THIS ASSEMBLY
16. MARK COMPUTER ASSEMBLY AND RELATED PART NO., APPLICABLE DASH NO., SERIAL NO. AND CONTRACT NO. PER 1004260 AND SERIALIZE PER ND1002023
17. FINISH SURFACE -A- PER ICD NAA MH01-01302-116 THIS ASSEMBLY MUST BE CAPABLE OF MEETING ELECTRICAL BONDING REQUIREMENTS OF ICD NAA MH01-01302-116
18. THE FOLLOWING RESISTANCES TO BE NOT MORE THAN 20 MILLIOHMS:
    a. RESISTANCE BETWEEN FIND NO.1 AND FIND NO.6
    b. RESISTANCE BETWEEN FIND NO.2 AND FIND NO.5
    c. RESISTANCE BETWEEN FIND NO.3 AND FIND NO.4 OR BETWEEN FIND NO.69 AND FIND NO.70
19. LEAK TEST: PURGE AND FILL WITH 30±1.0 PSIA DRY NITROGEN. STORE AT ROOM AMBIENT FOR 24 ±5 HOURS. TEST PRESSURE FOR ΔP< 0.5 PSIA. ALL MEASUREMENTS MADE AT STANDARD TEMPERATURE ±2°C. FOLLOWING TEST BLEED TO 17±1.0 PSIA
20. BOND FIND NO.58 TO FIND NO.6 IN POSITION SHOWN, USING 1006338
21. REFERENCED MODULES MUST NOT BE REPLACED OR INTERCHANGED WITHOUT REPEATING NOMINAL SELECTION PROCEDURE PER NOTE 10
22. THE VALUE OF C1 TO BE DETERMINED AT ELECTRICAL TEST AND SELECTED FROM APPROPRIATE CHART
23. WHEN THE VALUE OF C1 IS "0" NO COMPONENT SHALL BE USED
24. ENCAPSULATE AREA SHOWN AFTER SELECTION AND INSTALLATION OF C1 USING ND1002009 METHOD C OR D USING PRIMER PER SCD 1012513
25. WELD PER ND1002005
26. ASSEMBLE HARDWARE WITH SMOOTH FACE OF FIND NO.39 IN CONTACT WITH SCREW HEAD
27. FIND NO.39,48,55 & 57 TO BE DISCARDED AND REPLACED WITH NEW PARTS EACH TIME THEY ARE DISASSEMBLED
28. SEAL EXPOSED HARDWARE ASSEMBLIES WITH .002 MIN THICK COATING OF FIND NO.66, OVERALL COMPUTER ASSEMBLY DIMENSIONS SHALL NOT BE EXCEEDED
29. KEEP ALL MATING THREADS OF SCREWS, TRAY AND MID-SPACER INSERTS FREE OF SILICONE COMPOUND

2003200 | 3

SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
A		REVISED PER TDRR 28062	[illegible]	[illegible]	[illegible]	[illegible]
B		REVISED PER TDRR 3086[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
C		REVISED PER TDRR 3[illegible]90	[illegible]	[illegible]	[illegible]	[illegible]
D		REVISED PER TDRR 32353	[illegible]	[illegible]		[illegible]
E		REVISED PER TDRR 328[illegible]3	[illegible]	[illegible]		[illegible]
F		REVISED PER TDRR 32[illegible]7	[illegible]			[illegible]
G		REVISED PER TDRR 33439	[illegible]	[illegible]		[illegible]



QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	☒	☒	—	2005943	AGC WIRE LIST	[illegible]
1	—	—	—	2003099-011	COVER, TEST CONN	78
33	33	33	—	2004732-002	SCREW, COATED	77
33	33	33	—	2004732-001	SCREW, COATED	76
18	18	18	—	2004732-003	SCREW, COATED	75
2	2	—	—	2003953-021	POWER SUPPLY MOD A30-31	74
1	1	1	—	2003978-001	MID-SPACER	73
1	1	1	—	2003092-021	TRAY A WIRE ASSY	72
2	2	2	—	2003140-021	ROPE DRIVER MODULE B16-B17	71
1	1	1	—	2003976-011	TRAY P COVER	70
1	1	1	—	2003977-011	TRAY A COVER	69
2	2	2	—	1001499-36	SCREW, HEX SOCKET HEAD	68
[illegible]	[illegible]	[illegible]	—	~~1006783-[illegible]~~	~~SCREW, BUTTON HEAD HEX SOCKET~~	67
AR	AR	AR	AR	1006338-006	SEALING COMPOUND, SILICONE RUBBER	66
AR	AR	AR	AR	1006776-22	INSULATION SLEEVING, ELECTRICAL	65
—	—	—	☒	2005036	AGC WIRE LIST	REF
1	1	1	1	SEE NOTE 22	CAPACITOR	64
10	10	10	10	2004148-007	WASHER, FLAT	63
1	1	1	1	~~2003981-011~~	~~SENSE AMPLIFIER MODULE, FIXED MEMORY B14~~	62
AR	AR	AR	AR	2004895-002	SHIM AGC	61
AR	AR	AR	AR	2004895-001	SHIM AGC	60
1	1	1	1	2004899-001	PAD VIBRATION	59
1	1	1	1	2003970	VIBRATION PAD ASSY	58
4	4	4	4	NAS1598-D06N	WASHER, SEALING	57
1	1	1	1	2018773	VALVE PRESSURE ASSEMBLY	56
1	1	1	1	1000159-5	PACKING, PREFORMED "O" RING	55
2	2	2	2	2004984-001	WASHER, FLAT	54
8	8	8	8	2004130	PAD, THREADED	53
18	18	18	18	2004894-014	WASHER, FLAT	52
—	4	4	4	2004894-012	WASHER, FLAT	51
—	—	—	2	1001489-34	SCREW, HEX SOCKET HEAD	50
—	4	4	4	1004722-2	SCREW, CAPTIVE	49
1	1	1	1	1000159-7	PACKING, PREFORMED "O" RING	48
[illegible]	[illegible]	[illegible]	18	MS16996-14	SCREW, SOCKET HEAD, CAP	47
—	—	—	66	1006783-25	SCREW, BUTTON HEAD, HEX SOCKET	46
2	2	2	2	1006347	GASKET, PLATE	45
1	1	1	1	2004986	PLUG, MACHINE THREAD	44
1	1	1	1	1004260-19	NAME PLATE, TYPE I	43
1	1	1	1	2004113-001	BRACKET, CABLE	42
—	1	1	1	2004115	COVER, POTTED	41
1	1	1	1	1006380	GASKET, RETAINED	40
58	58	58	58	2004707	WASHER, KNURLED	39
3	3	3	3	2003067-031	INTERFACE MODULE A27-29	38
2	2	2	2	2003070-021	INTERFACE MODULE A25-26	37
—	—	2	2	2003953-011	POWER SUPPLY MODULE A30-31	36
1	1	1	1	2003121-231	LOGIC MODULE A24	35
1	1	1	1	2003121-221	LOGIC MODULE A23	34
1	1	1	1	2003121-211	LOGIC MODULE A22	33
1	1	1	1	2003121-191	LOGIC MODULE A21	32
1	1	1	1	2003121-181	LOGIC MODULE A20	31
1	1	1	1	2003121-171	LOGIC MODULE A19	30
1	1	1	1	2003121-161	LOGIC MODULE A18	29
1	1	1	1	2003121-151	LOGIC MODULE A17	28
1	1	1	1	2003121-141	LOGIC MODULE A16	27
1	1	1	1	2003121-131	LOGIC MODULE A15	26
1	1	1	1	2003121-121	LOGIC MODULE A14	25
1	1	1	1	2003121-111	LOGIC MODULE A13	24
1	1	1	1	2003121-091	LOGIC MODULE A12	23
4	4	4	4	2003121-081	LOGIC MODULE A8-11	22
1	1	1	1	2003121-071	LOGIC MODULE A7	21
1	1	1	1	2003121-061	LOGIC MODULE A6	20
1	1	1	1	2003121-051	LOGIC MODULE A5	19
1	1	1	1	2003121-041	LOGIC MODULE A4	18
1	1	1	1	2003121-031	LOGIC MODULE A3	17
1	1	1	1	2003121-021	LOGIC MODULE A2	16
1	1	1	1	2003121-011	LOGIC MODULE A1	15
—	—	—	2	2003140-011	ROPE DRIVER MODULE B16-17	14
1	1	1	1	2003027-021	STRAND SELECT MODULE B15	13
1	1	1	1	2003982-011	SENSE AMPL MOD, ERASABLE MEMORY B13	12
1	1	1	1	2003111-011	ERASABLE MEMORY MODULE B12	11
1	1	1	1	2003026-021	CURRENT SWITCH MODULE B11	10
2	2	2	2	2003114-011	ERASABLE DRIVER MODULE B9-10	9
1	1	1	1	2003983-011	ALARM MODULE B8	8
1	1	1	1	2003036-021	OSCILLATOR MODULE B7	7
—	—	—	1	2003978-000	MID SPACER	6
1	1	1	1	2003059-021	INTERCONNECTION HEADER ASSEMBLY	5
—	—	—	1	2003976-000	TRAY B COVER	4
—	—	—	1	2003977-000	TRAY A COVER	3
1	1	1	1	2003093-011	TRAY B WIRED ASSEMBLY	2
—	—	—	1	2003092-011	TRAY A WIRED ASSEMBLY	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003991	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING
MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN P. Posey 27 [illegible] 65
CHECKED [illegible]
APPROVED
APPROVED Eldon C. Hall 4 Feb 66
APPROVED MIT [illegible]
APPROVED MSC

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER
ASSEMBLY

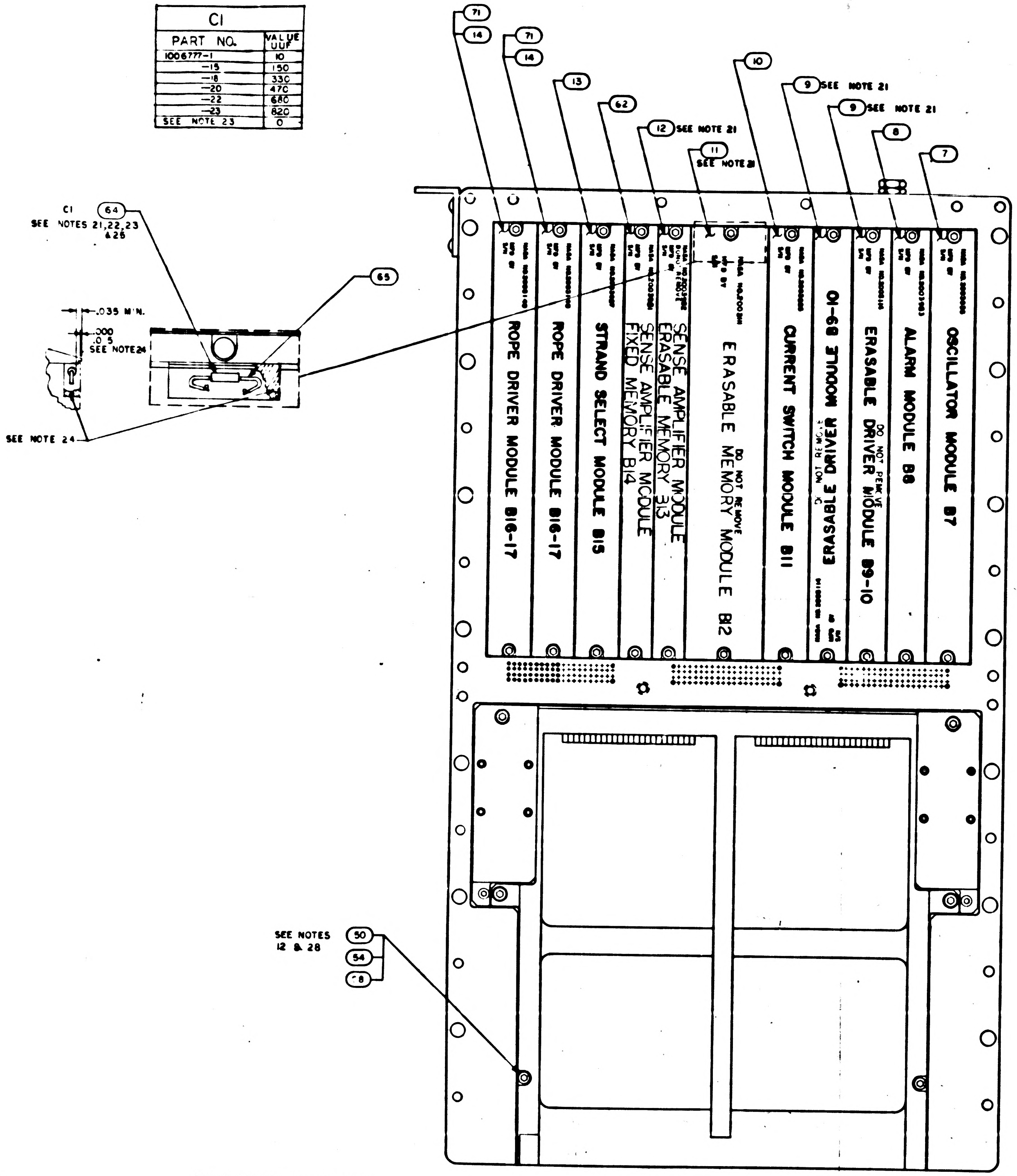
CODE IDENT NO. 80230 SIZE J DRAWING NO. 2003200
SCALE 1/1 SHEET 1 OF 2

2003200 G

2003200

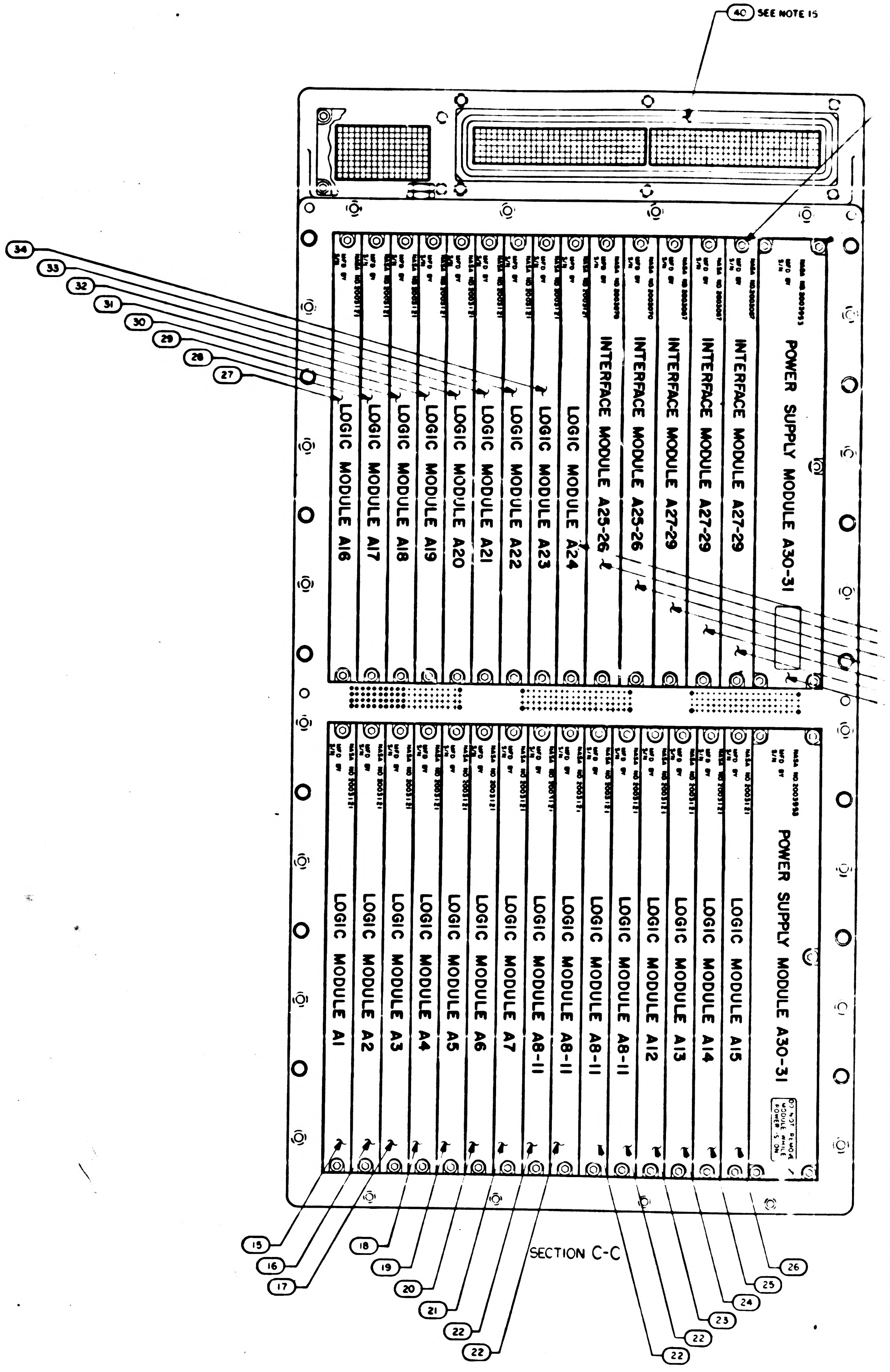
F2/2

C1	
PART NO.	VALUE UUF
1006777-1	10
-15	150
-18	330
-20	470
-22	680
-23	820
SEE NOTE 23	0


C1
64
SEE NOTES 21,22,23 & 26
.035 MIN.
.000
.005
SEE NOTE 26
SEE NOTE 24
65
71
14
71
14
13
62
12 SEE NOTE 21
11 SEE NOTE 21
10
9 SEE NOTE 21
9 SEE NOTE 21
8
7
ROPE DRIVER MODULE B16-17
ROPE DRIVER MODULE B16-17
STRAND SELECT MODULE B15
SENSE AMPLIFIER MODULE FIXED MEMORY B14
SENSE AMPLIFIER MODULE ERASABLE MEMORY B13
DO NOT REMOVE
ERASABLE MEMORY MODULE B12
CURRENT SWITCH MODULE B11
DO NOT REMOVE
ERASABLE DRIVER MODULE B9-10
DO NOT REMOVE
ERASABLE DRIVER MODULE B9-10
ALARM MODULE B8
OSCILLATOR MODULE B7
SEE NOTES 12 & 28
50
54
58

SECTION D-D

PACKAGING REFERENCE DRAWINGS:
1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421


40 SEE NOTE 15
34
33
32
31
30
29
28
27
LOGIC MODULE A16
LOGIC MODULE A17
LOGIC MODULE A18
LOGIC MODULE A19
LOGIC MODULE A20
LOGIC MODULE A21
LOGIC MODULE A22
LOGIC MODULE A23
LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
15
16
17
18
19
20
21
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24
25
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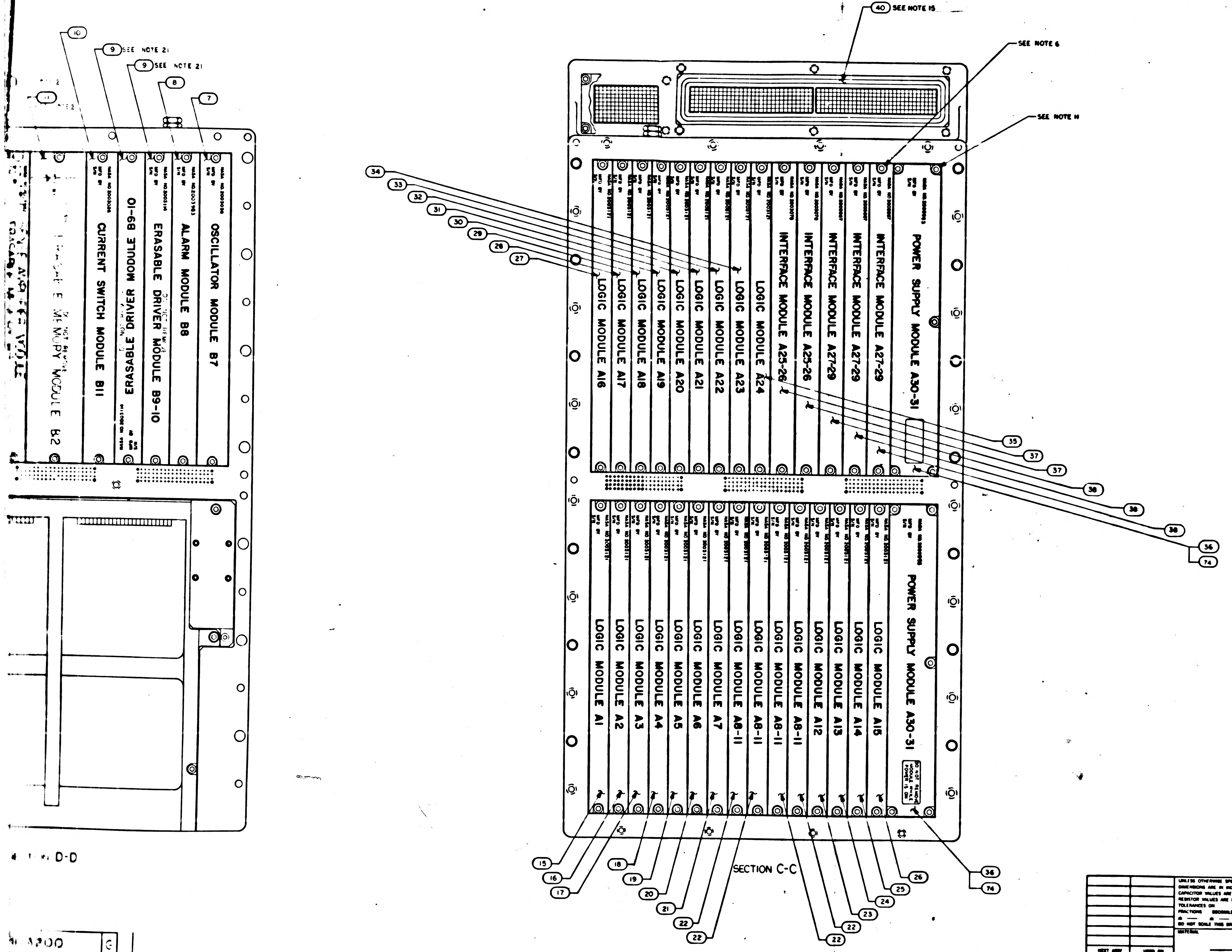
SECTION C-C

2003200 G

SH2/21 F1/2

REVISIONS 2-977						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 28062				
B		REVISED PER TDRR 30687				
C		REVISED PER TDRR 30890				
D		REVISED PER TDRR 32353				
E		REVISED PER TDRR 32873				
F		REVISED PER TDRR 32867				
G		REVISED PER TDRR 33439				



40 SEE NOTE 15
SEE NOTE 6
SEE NOTE 14
10
9 SEE NOTE 21
9 SEE NOTE 21
8
7
ERASABLE MEMORY MODULE B2
CURRENT SWITCH MODULE B11
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
ALARM MODULE B8
OSCILLATOR MODULE B7
POWER SUPPLY MODULE A30-31
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
LOGIC MODULE A24
LOGIC MODULE A23
LOGIC MODULE A22
LOGIC MODULE A21
LOGIC MODULE A20
LOGIC MODULE A19
LOGIC MODULE A18
LOGIC MODULE A17
LOGIC MODULE A16
POWER SUPPLY MODULE A30-31
DO NOT REMOVE MODULE WHILE POWER IS ON
LOGIC MODULE A15
LOGIC MODULE A14
LOGIC MODULE A13
LOGIC MODULE A12
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A7
LOGIC MODULE A6
LOGIC MODULE A5
LOGIC MODULE A4
LOGIC MODULE A3
LOGIC MODULE A2
LOGIC MODULE A1
34
33
32
31
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29
28
27
35
37
37
38
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38
36
74
15
16
17
18
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22
23
24
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26
36
74
SECTION C-C
D-D

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

NEXT ASSY | USED ON
APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED A. C. METZGER
MSC

COMPUTER ASSEMBLY

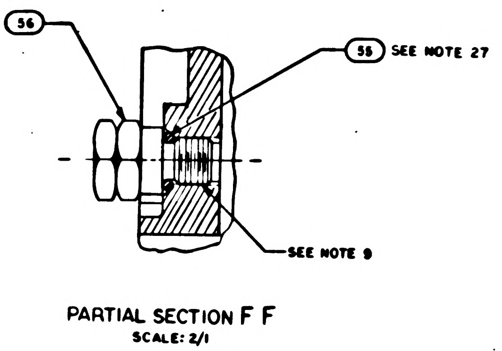
CODE IDENT NO	SIZE	DRAWING NO
80230	J	2003200

SCALE 1/1
SHEET 2 OF 2

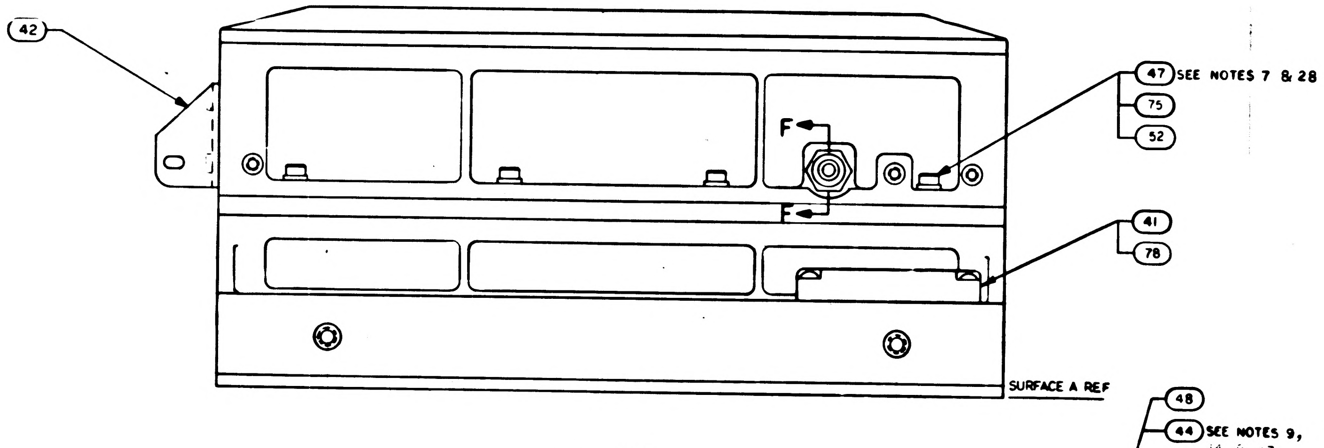
2003200

F2/2

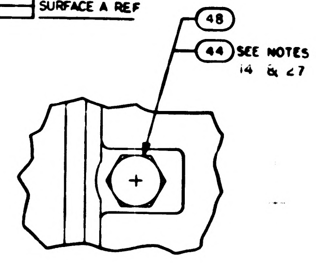
CHART 'A' (SEE NOTE 30)			
PART NO.	PART NO.	MODULE	
2003121-011	2003888-011	LOGIC MODULE	A1
-021	-021		A2
-031	-031		A3
-041	-041		A4
-051	-051		A5
-061	-061		A6
-07	-071		A7
-08	-081		A8-A11
-09	-091		A12
-111	-111		A13
-121	-121		A14
-131	-131		A15
-141	-141		A16
-151	-151		A17
-16	-161		A18
-17	-171		A19
-18	-181		A20
-19	-191		A21
-2	-211		A22
22	-221		A23
2003 2 -23	2003888-231	LOGIC MODULE	A24


SEE NOTE 14 (56)
(55) SEE NOTE 27
SEE NOTE 9

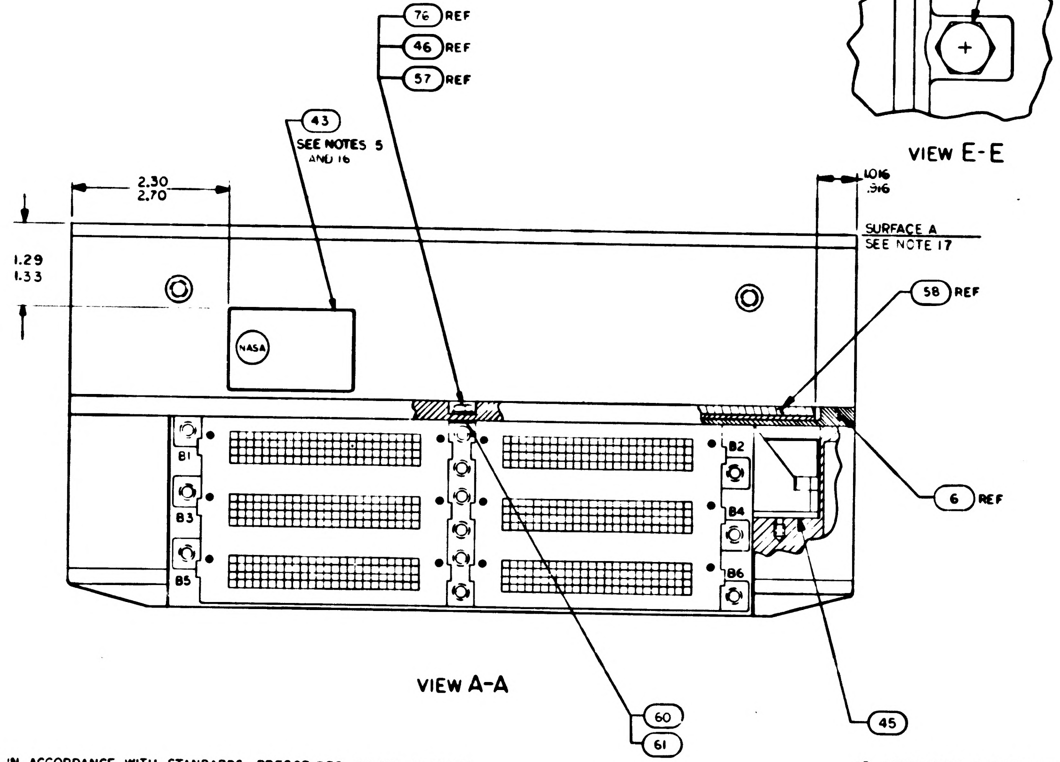
PARTIAL SECTION F F
SCALE: 2/1


(42)
F
F
(47) SEE NOTES 7 & 28
(75)
(52)
(41)
(78)
SURFACE A REF

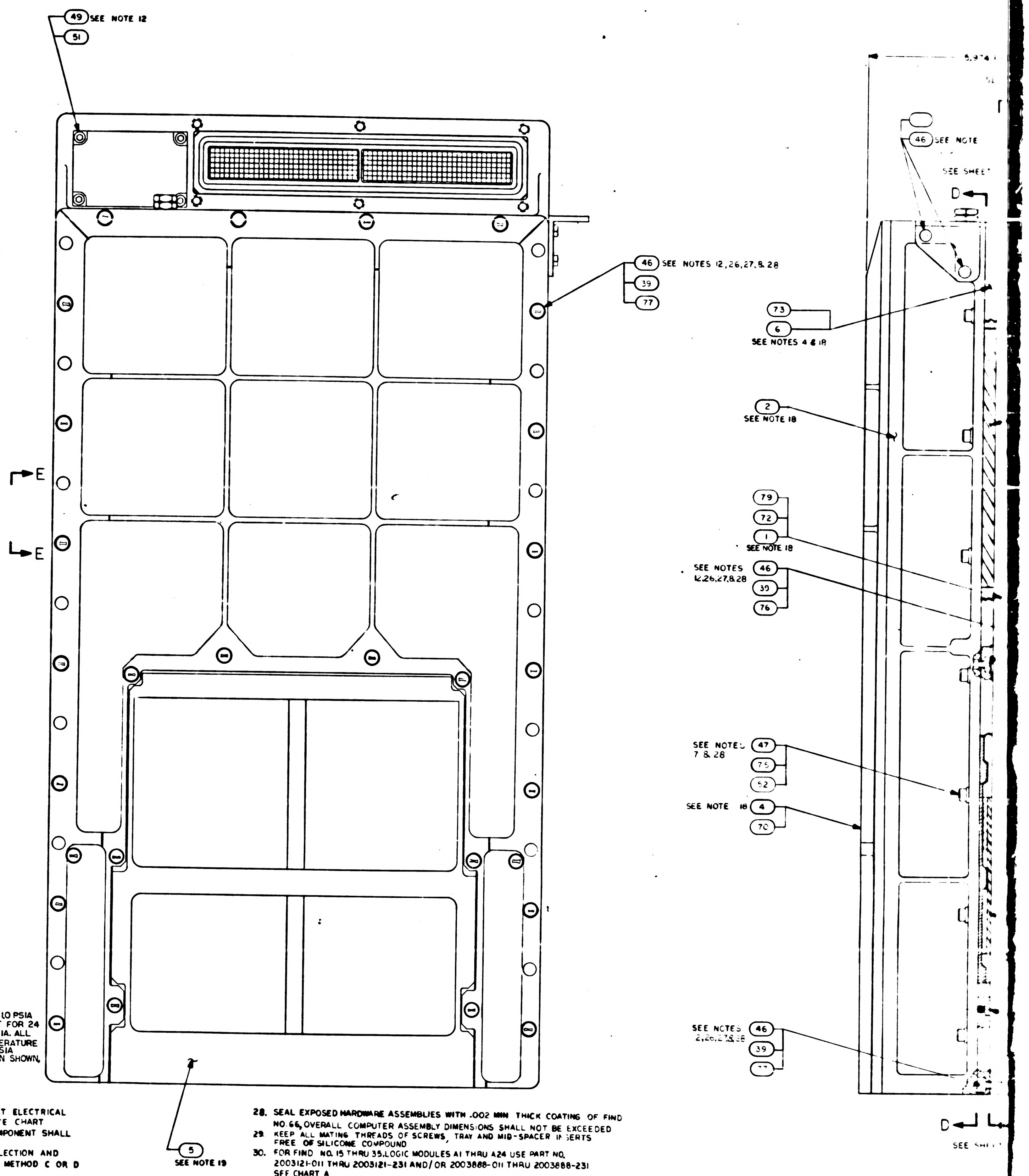
VIEW B-B


(48)
(44) SEE NOTES 9, 14 & 27

VIEW E-E


(76) REF
(46) REF
(57) REF
(43)
SEE NOTES 5 AND 16
2.30
2.70
1.016
.916
1.29
1.33
SURFACE A
SEE NOTE 17
(58) REF
NASA
B1
B2
B3
B4
B5
B6
(6) REF
(60)
(61)
(45)

VIEW A-A

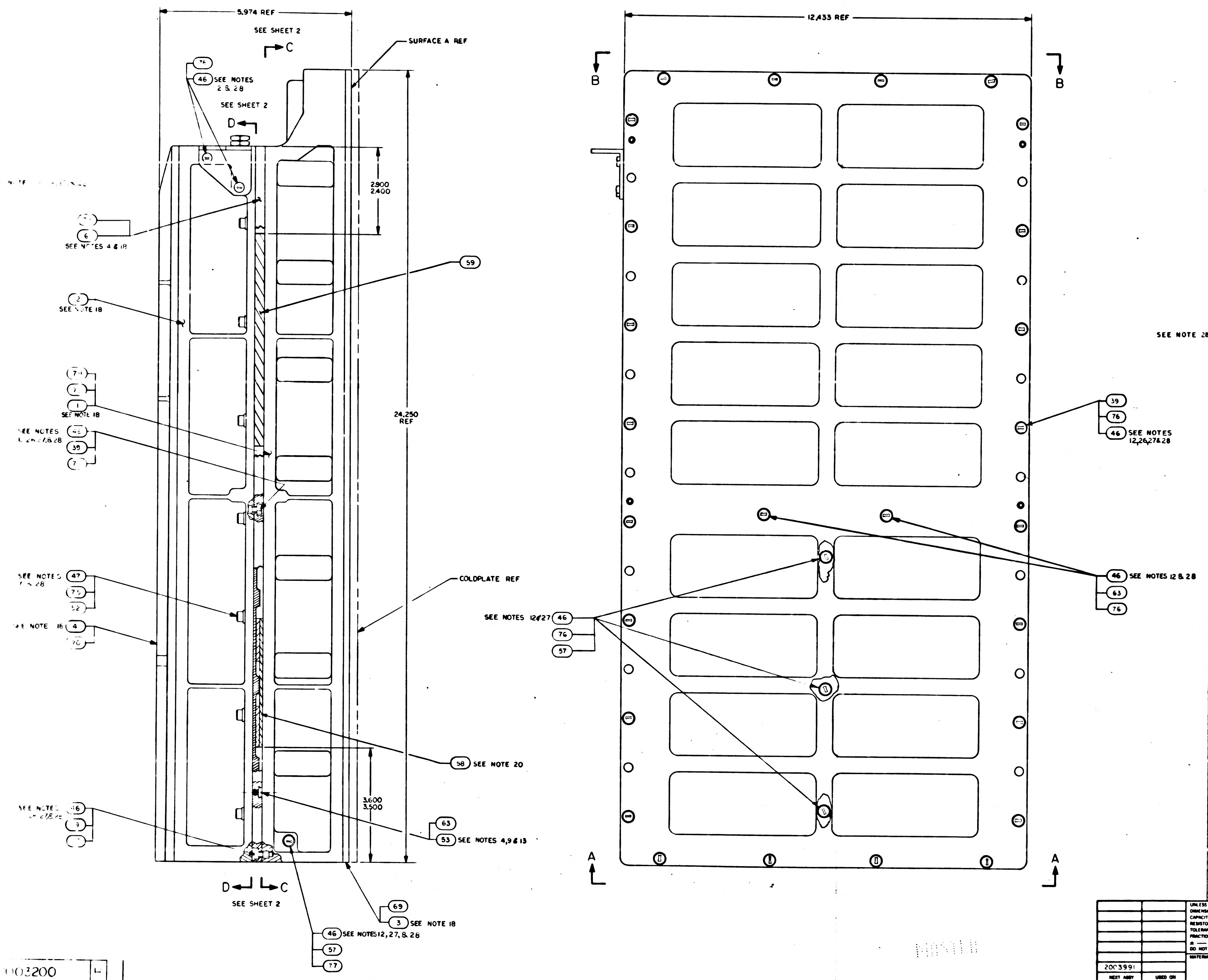

(49) SEE NOTE 12
(51)
E
E
(46) SEE NOTES 12,26,27,& 28
(39)
(77)
(5)
SEE NOTE 19
(46) SEE NOTE
SEE SHEET
D
(73)
(6)
SEE NOTES 4 & 18
(2)
SEE NOTE 18
(79)
(72)
(1)
SEE NOTE 18
SEE NOTES 12,26,27,& 28
(46)
(39)
(76)
SEE NOTES 7 & 28
(47)
(75)
(52)
SEE NOTE 18
(4)
(70)
SEE NOTES 12,26,27,& 28
(46)
(39)
D
SEE SHEET

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. PHANTOM LINES DENOTE AGC COLDPLATE AND HANDLING FIXTURE TO BE SUPPLIED BY NORTH AMERICAN AVIATION, INC
3. ADD SILICONE COMPOUND 1006879 TO MODULE MATING METAL SURFACES AND TRAY MATING SURFACES
4. ASSEMBLE FIND NO. 53 AND FIND NO. 63 TO FIND NO. 6 AND FIND NO. 6 TO FIND NO. 2 PRIOR TO ASSEMBLY OF FIND NO. 2 TO FIND NO. 1 OR FIND NO. 72
5. BOND FIND NO. 43 TO FIND NO. 1 OR FIND NO. 72 OR FIND NO. 79 PER ND1002004 TYPE IV
6. UNLESS OTHERWISE SPECIFIED TORQUE ALL MODULE MOUNTING SCREWS 15/19 INCH POUNDS
7. TORQUE FIND NO. 47 OR FIND NO. 75 TO 28/32 INCH POUNDS
8. FINISH IS REQUIRED TO SATISFY ICD GAEC 510-10001
9. APPLY SEALING COMPOUND MIL-S-22473 GRADE H TO FIND NO. 53, FIND NO. 56 AND FIND NO. 44
10. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2016005 OR PS2016007
11. TORQUE FOR FIND NO. 36 MOUNTING SCREWS TO BE 4/6 INCH POUNDS
12. TORQUE FOR FIND NO. 46, 49, 50, 76 AND 68 TO BE 18/22 INCH POUNDS
13. TORQUE FOR FIND NO. 53 TO BE 4/6 INCH POUNDS
14. TORQUE FOR FIND NO. 44 AND FIND NO. 56 TO BE 137/157 INCH POUNDS
15. FIND NO. 40 SHALL BE SUPPLIED AS PART OF THIS ASSEMBLY
16. MARK COMPUTER ASSEMBLY AND RELATED PART NO., APPLICABLE DASH NO., SERIAL NO. AND CONTRACT NO. PER 1004260 AND SERIALIZE PER ND1002023
17. FINISH SURFACE -A- PER ICD NAA MH01-01302-116 THIS ASSEMBLY MUST BE CAPABLE OF MEETING ELECTRICAL BONDING REQUIREMENTS OF ICD NAA MH01-01302-116
18. THE FOLLOWING RESISTANCES TO BE NOT MORE THAN 20 MILLIOHMS:
    - a. RESISTANCE BETWEEN FIND NO. 1 AND FIND NO. 6
    - b. RESISTANCE BETWEEN FIND NO. 2 AND FIND NO. 5
    - c. RESISTANCE BETWEEN FIND NO. 3 AND FIND NO. 4 OR BETWEEN FIND NO. 69 AND FIND NO. 70
19. LEAK TEST: PURGE AND FILL WITH 30 ± 1.0 PSIA DRY NITROGEN. STORE AT ROOM AMBIENT FOR 24 ± 5 HOURS. TEST PRESSURE FOR $\Delta P < 0.5$ PSIA. ALL MEASURFMENTS MADE AT STANDARD TEMPERATURE ± 2° C, FOLLOWING TEST BLEED TO 17 ± 1.0 PSIA
20. BOND FIND NO. 58 TO FIND NO. 6 IN POSITION SHOWN, USING 1006338
21. REFERENCED MODULES MUST NOT BE REPLACED OR INTERCHANGED WITHOUT REPEATING NOMINAL SELECTION PROCEDURE PER NOTE 10
22. THE VALUE OF C1 TO BE DETERMINED AT ELECTRICAL TEST AND SELECTED FROM APPROPRIATE CHART
23. WHEN THE VALUE OF C1 IS "0" NO COMPONENT SHALL BE USED
24. ENCAPSULATE AREA SHOWN AFTER SELECTION AND INSTALLATION OF C1 USING ND1002009 METHOD C OR D USING PRIMER PER SCD 1012513
25. WELD PER ND1002005
26. ASSEMBLE HARDWARE WITH SMOOTH FACE OF FIND NO. 39 IN CONTACT WITH SCREW HEAD
27. FIND NO. 39, 48, 55 & 57 TO BE DISCARDED AND REPLACED WITH NEW PARTS EACH TIME THEY ARE DISASSEMBLED
28. SEAL EXPOSED HARDWARE ASSEMBLIES WITH .002 MIN THICK COATING OF FIND NO. 66, OVERALL COMPUTER ASSEMBLY DIMENSIONS SHALL NOT BE EXCEEDED
29. KEEP ALL MATING THREADS OF SCREWS, TRAY AND MID-SPACER INSERTS FREE OF SILICONE COMPOUND
30. FOR FIND NO. 15 THRU 35, LOGIC MODULES A1 THRU A24 USE PART NO. 2003121-011 THRU 2003121-231 AND/OR 2003888-011 THRU 2003888-231 SEE CHART A
31. FOR TRAY 'A' WIRED ASSY USE EITHER 2003092-041 OR 2003092-051 OR 2003092-061

2003200	4

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 28062				
B		REVISED PER TDRR 30887				
C		REVISED PER TDRR 30690				
D		REVISED PER TDRR 32353				
E		REVISED PER TDRR 32873				
F		REVISED PER TDRR 32967				
G		REVISED PER TDRR 33439				
H		REVISED PER TDRR 3426				



SEE NOTE 28

QTY REQD -051	QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
X	X	X	X	—	2005943	AGC WIRE LIST	REF
2	—	—	—	—	2003892-011	POWER SUPPLY MOD A30-31	80
1	—	—	—	—	SEE NOTE 31	TRAY A WIRED ASSY	79
1	1	—	—	—	2003099-011	COVER, TEST CONN	78
33	33	33	33	—	2004732-002	SCREW, COATED	77
33	33	33	33	—	2004732-001	SCREW, COATED	76
18	18	18	18	—	2004732-003	SCREW, COATED	75
—	2	2	—	—	2003953-021	POWER SUPPLY MOD A30-31	74
1	1	1	1	—	2003978-001	MID-SPACER	73
—	1	1	1	—	2003092-021	TRAY A WIRE ASSY	72
2	2	2	2	—	2003140-021	ROPE DRIVER MODULE B16-B17	71
1	1	1	1	—	2003976-011	TRAY B COVER	70
1	1	1	1	—	2003977-011	TRAY A COVER	69
2	2	2	2	—	1001489-36	SCREW, HEX SOCKET HEAD	68
—	~~88~~	~~88~~	~~88~~	—	~~1006783-26~~	~~SCREW, BUTTON HEAD HEX SOCKET~~	67
AR	AR	AR	AR	AR	1006338-000	SEALING COMPOUND, SILICONE RUBBER	66
AR	AR	AR	AR	AR	1006776-22	INSULATION SLEEVING, ELECTRICAL	65
—	—	—	—	X	2005036	AGC WIRE LIST	REF
1	1	1	1	1	SEE NOTE 22	CAPACITOR	64
10	10	10	10	10	2004148-007	WASHER, FLAT	63
1	1	1	1	1	2003981-011	SENSE AMPLIFIER MODULE, FIXED MEMORY B14	62
AR	AR	AR	AR	AR	2004895-002	SHIM AGC	61
AR	AR	AR	AR	AR	2004895-001	SHIM AGC	60
1	1	1	1	1	2004899-001	PAD VIBRATION	59
1	1	1	1	1	2003970	VIBRATION PAD ASSY	58
4	4	4	4	4	NAS1598-D08N	WASHER, SEALING	57
1	1	1	1	1	2018773	VALVE PRESSURE ASSEMBLY	56
1	1	1	1	1	1000159-5	PACKING, PREFORMED "O" RING	55
2	2	2	2	2	2004984-001	WASHER, FLAT	54
8	8	8	8	8	2004130	PAD, THREADED	53
18	18	18	18	18	2004894-014	WASHER, FLAT	52
—	—	4	4	4	2004894-012	WASHER, FLAT	51
—	—	—	—	2	1001489-34	SCREW, HEX SOCKET HEAD	50
—	—	4	4	4	1004722-2	SCREW, CAPTIVE	49
1	1	1	1	1	1000159-7	PACKING, PREFORMED "O" RING	48
—	~~40~~	~~40~~	~~40~~	18	MS16996-14	SCREW, SOCKET HEAD, CAP	47
—	—	—	—	66	1006783-25	SCREW, BUTTON HEAD, HEX SOCKET	46
2	2	2	2	2	1006347	GASKET, PLATE	45
1	1	1	1	1	2004986	PLUG, MACHINE THREAD	44
1	1	1	1	1	1004260-19	NAME PLATE, TYPE I	43
1	1	1	1	1	2004113-001	BRACKET, CABLE	42
—	—	1	1	1	2004115	COVER, POTTED	41
1	1	1	1	1	1006380	GASKET, RETAINED	40
58	58	58	58	58	2004707	WASHER, KNURLED	39
3	3	3	3	3	2003067-031	INTERFACE MODULE A27-29	38
2	2	2	2	2	2003070-021	INTERFACE MODULE A25-26	37
—	—	—	2	2	2003953-011	POWER SUPPLY MODULE A30-31	36
1	1	1	1	1	SEE NOTE 30	LOGIC MODULE A24	35
1	1	1	1	1		LOGIC MODULE A23	34
1	1	1	1	1		LOGIC MODULE A22	33
1	1	1	1	1		LOGIC MODULE A21	32
1	1	1	1	1		LOGIC MODULE A20	31
1	1	1	1	1		LOGIC MODULE A19	30
1	1	1	1	1		LOGIC MODULE A18	29
1	1	1	1	1		LOGIC MODULE A17	28
1	1	1	1	1		LOGIC MODULE A16	27
1	1	1	1	1		LOGIC MODULE A15	26
1	1	1	1	1		LOGIC MODULE A14	25
1	1	1	1	1		LOGIC MODULE A13	24
1	1	1	1	1		LOGIC MODULE A12	23
4	4	4	4	4		LOGIC MODULE A8-11	22
1	1	1	1	1		LOGIC MODULE A7	21
1	1	1	1	1		LOGIC MODULE A6	20
1	1	1	1	1		LOGIC MODULE A5	19
1	1	1	1	1		LOGIC MODULE A4	18
1	1	1	1	1		LOGIC MODULE A3	17
1	1	1	1	1		LOGIC MODULE A2	16
1	1	1	1	1	SEE NOTE 30	LOGIC MODULE A1	15
—	—	—	—	2	2003140-011	ROPE DRIVER MODULE B16-17	14
1	1	1	1	1	2003027-021	STRAND SELECT MODULE B15	13
1	1	1	1	1	2003982-011	SENSE AMPL MOD, ERASABLE MEMORY B13	12
1	1	1	1	1	2003111-011	ERASABLE MEMORY MODULE B12	11
1	1	1	1	1	2003026-021	CURRENT SWITCH MODULE B11	10
2	2	2	2	2	2003114-011	ERASABLE DRIVER MODULE B9-10	9
1	1	1	1	1	2003983-011	ALARM MODULE B8	8
1	1	1	1	1	2003036-021	OSCILLATOR MODULE B7	7
—	—	—	—	1	2003978-000	MID SPACER	6
1	1	1	1	1	2003059-021	INTERCONNECTION HEADER ASSEMBLY	5
—	—	—	—	1	2003976-000	TRAY B COVER	4
—	—	—	—	1	2003977-000	TRAY A COVER	3
1	1	1	1	1	2003093-011	TRAY B WIRED ASSEMBLY	2
—	—	—	—	1	2003092-011	TRAY A WIRED ASSEMBLY	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003991	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER
ASSEMBLY

CODE IDENT NO 80230
SIZE J
DRAWING NO. 2003200
SCALE 1/1
SHEET 1 OF 2

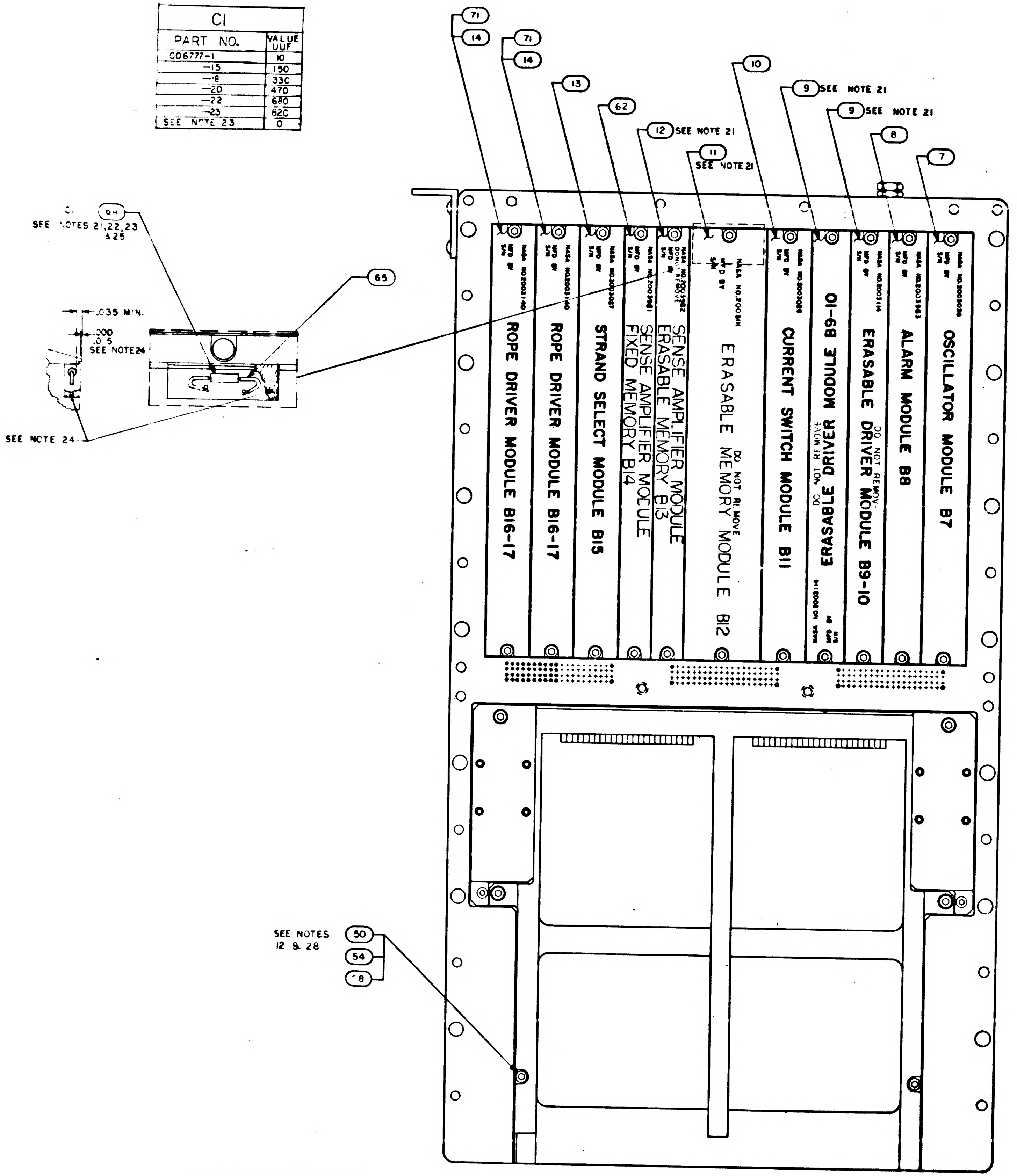
2003200
H

003200 H

E2/2 2003200 H

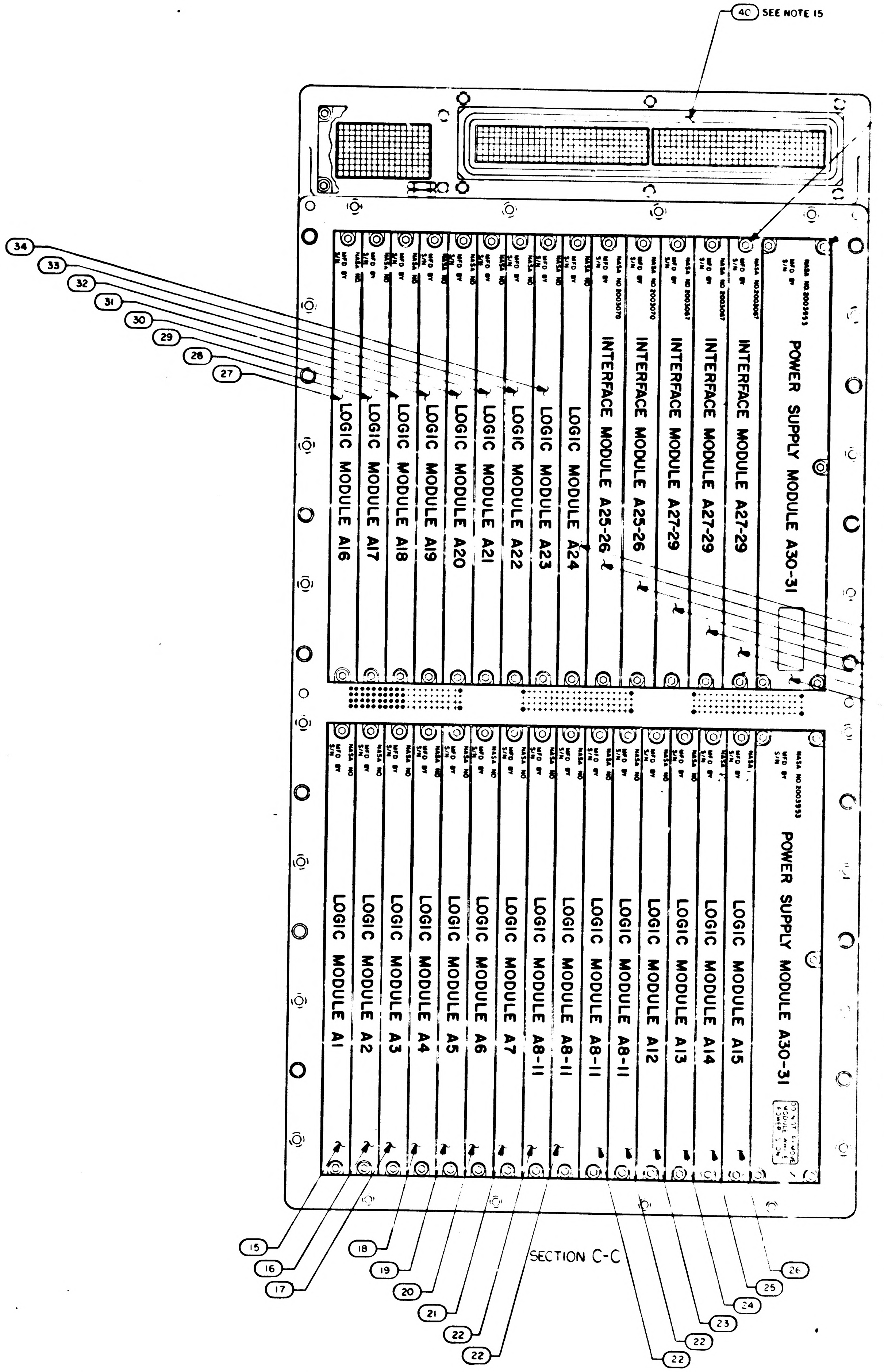
NOTICE - [illegible]

C1	
PART NO.	VALUE UUF
006777-1	10
-15	150
-18	330
-20	470
-22	680
-23	820
SEE NOTE 23	0


64
SEE NOTES 21,22,23 & 25
65
.035 MIN.
.000
.015
SEE NOTE 24
SEE NOTE 24
71
14
71
14
13
62
12 SEE NOTE 21
11 SEE NOTE 21
10
9 SEE NOTE 21
9 SEE NOTE 21
8
7
ROPE DRIVER MODULE B16-17
ROPE DRIVER MODULE B16-17
STRAND SELECT MODULE B15
SENSE AMPLIFIER MODULE FIXED MEMORY B14
SENSE AMPLIFIER MODULE ERASABLE MEMORY B13
DO NOT REMOVE
ERASABLE MEMORY MODULE B12
DO NOT REMOVE
CURRENT SWITCH MODULE B11
ERASABLE DRIVER MODULE B9-10
DO NOT REMOVE
ERASABLE DRIVER MODULE B9-10
DO NOT REMOVE
ALARM MODULE B8
OSCILLATOR MODULE B7
NASA NO.2003140
NASA NO.2003140
NASA NO.2003087
NASA NO.2003981
NASA NO.2003982
NASA NO.2003111
NASA NO.2003080
NASA NO.2003114
NASA NO.2003114
NASA NO.2003983
NASA NO.2003036
MFD BY
S/N
SEE NOTES 12 & 28
50
54
58

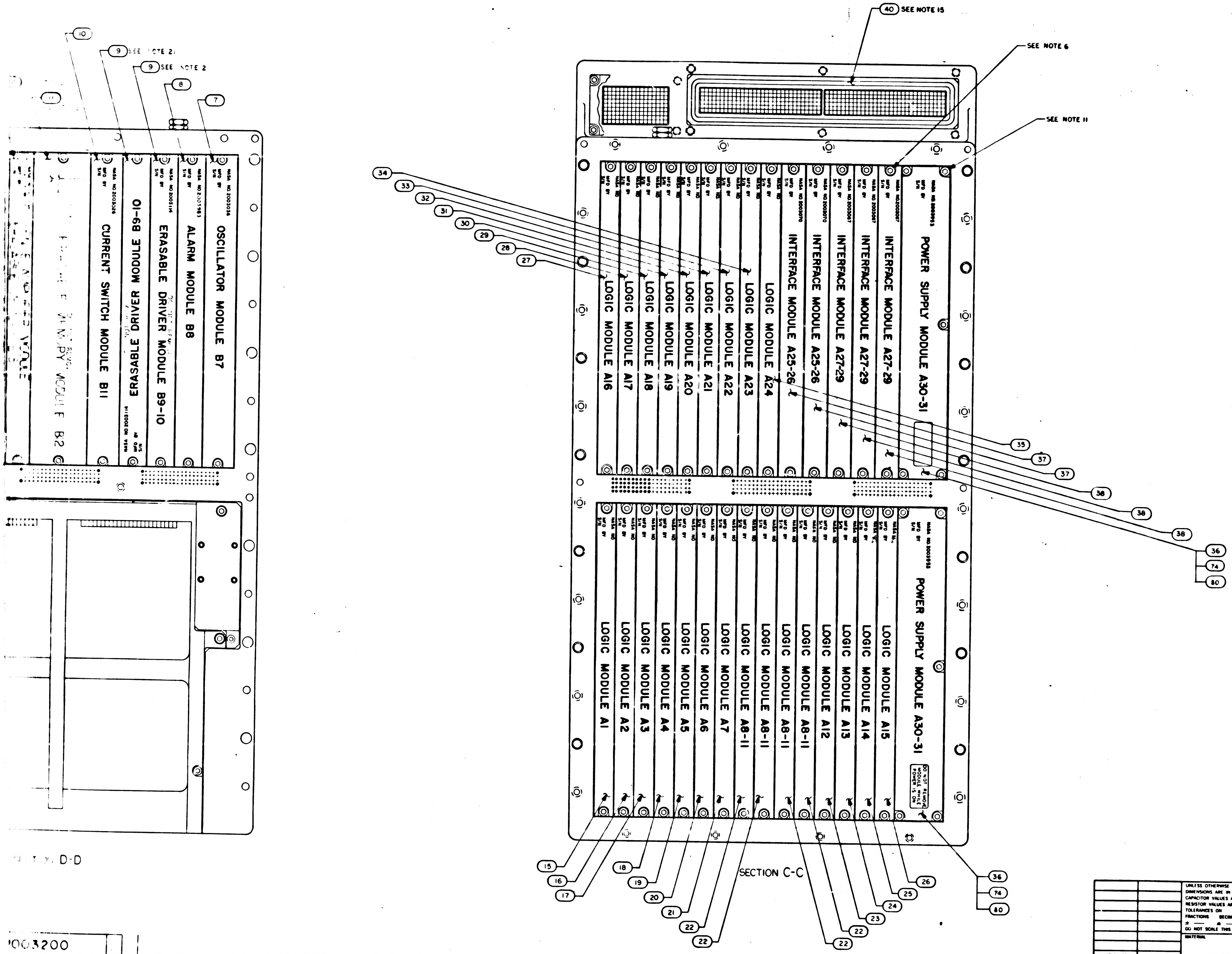
PACKAGING REFERENCE DRAWINGS:
1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421

SECTION D-D


40 SEE NOTE 15
34
33
32
31
30
29
28
27
LOGIC MODULE A16
LOGIC MODULE A17
LOGIC MODULE A18
LOGIC MODULE A19
LOGIC MODULE A20
LOGIC MODULE A21
LOGIC MODULE A22
LOGIC MODULE A23
LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
NASA NO
MFD BY
S/N
15
16
17
18
19
20
21
22
22
22
22
23
24
25
26

SECTION C-C

SYM	ZONE	REVISIONS DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 28062	[illegible]	[illegible]	[illegible]	[illegible]
B		REVISED PER TDRR 30667	[illegible]	[illegible]	[illegible]	[illegible]
C		REVISED PER TDRR 30990	[illegible]	[illegible]	[illegible]	[illegible]
D		REVISED PER TDRR 32353	[illegible]	[illegible]	[illegible]	[illegible]
E		REVISED PER TDRR 32873	[illegible]	[illegible]	[illegible]	[illegible]
F		REVISED PER TDRR 32867	[illegible]		[illegible]	[illegible]
G		REVISED PER TDRR 33439	[illegible]	[illegible]	[illegible]	[illegible]
H		REVISED PER TDRR 34261	[illegible]	[illegible]	[illegible]	[illegible]



10
9 SEE NOTE 21
9 SEE NOTE 2
8
7
11
NASA NO 2003036
MFD BY
S/N
OSCILLATOR MODULE B7
NASA NO 2003983
ALARM MODULE B8
NASA NO 2003114
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
NASA NO 2003028
CURRENT SWITCH MODULE B11
MEMORY MODULE B2
SECTION D-D
40 SEE NOTE 15
SEE NOTE 6
SEE NOTE 11
34
33
32
31
30
29
28
27
NASA NO
MFD BY
S/N
LOGIC MODULE A16
LOGIC MODULE A17
LOGIC MODULE A18
LOGIC MODULE A19
LOGIC MODULE A20
LOGIC MODULE A21
LOGIC MODULE A22
LOGIC MODULE A23
LOGIC MODULE A24
NASA NO 2003070
INTERFACE MODULE A25-26
NASA NO 2003070
INTERFACE MODULE A25-26
NASA NO 2003067
INTERFACE MODULE A27-29
NASA NO 2003067
INTERFACE MODULE A27-29
NASA NO 2003067
INTERFACE MODULE A27-29
NASA NO 2003993
POWER SUPPLY MODULE A30-31
35
37
37
38
38
38
36
74
80
LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
NASA NO 2003993
POWER SUPPLY MODULE A30-31
DO NOT REMOVE MODULE WHILE POWER IS ON
15
16
17
18
19
20
21
22
22
SECTION C-C
22
22
23
24
25
26
36
74
80

2003200

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN
CHECKED
APPROVED
APPROVED Ellen C. Hall
APPROVED MIT
APPROVED A. C. METZGER
MSC
DATE

COMPUTER ASSEMBLY

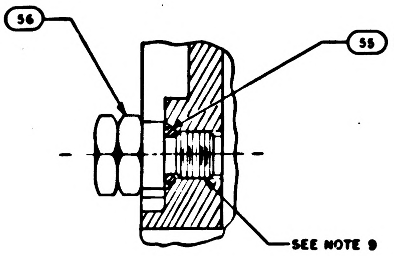
CODE IDENT NO	SIZE	DRAWING NO
80230	J	2003200

SCALE 1/1
SHEET 2 OF 2

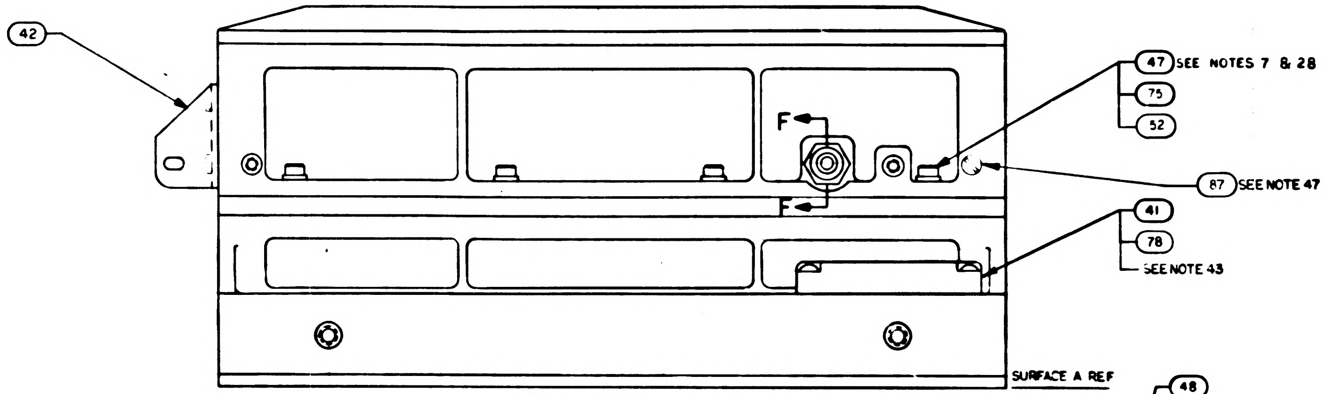
2003200

F2/2 2003200 H

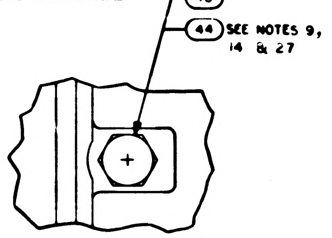
CHART A (SEE NOTE 30)		
PART NO.	PART NO.	MODULE
2003121-011	2003888-011	LOGIC MODULE A1
-021	-021	A2
-031	-03	A3
-041	-041	A4
-051	-051	A5
-061	-06	A6
-07	-07	A7
-08	-08	A8-A11
-09	-09	A12
-111	[illegible]	A13
-121	-12	A14
-131	-13	A15
-14	-14	A16
-15	-15	A17
-16	-16	A18
-17	-17	A19
-18	-18	A20
-19	-19	A21
-2	-21	A22
-22	-22	A23
2003121-23	2003888-23	LOGIC MODULE A24


SEE NOTE 14 56
55 SEE NOTE 27
SEE NOTE 9

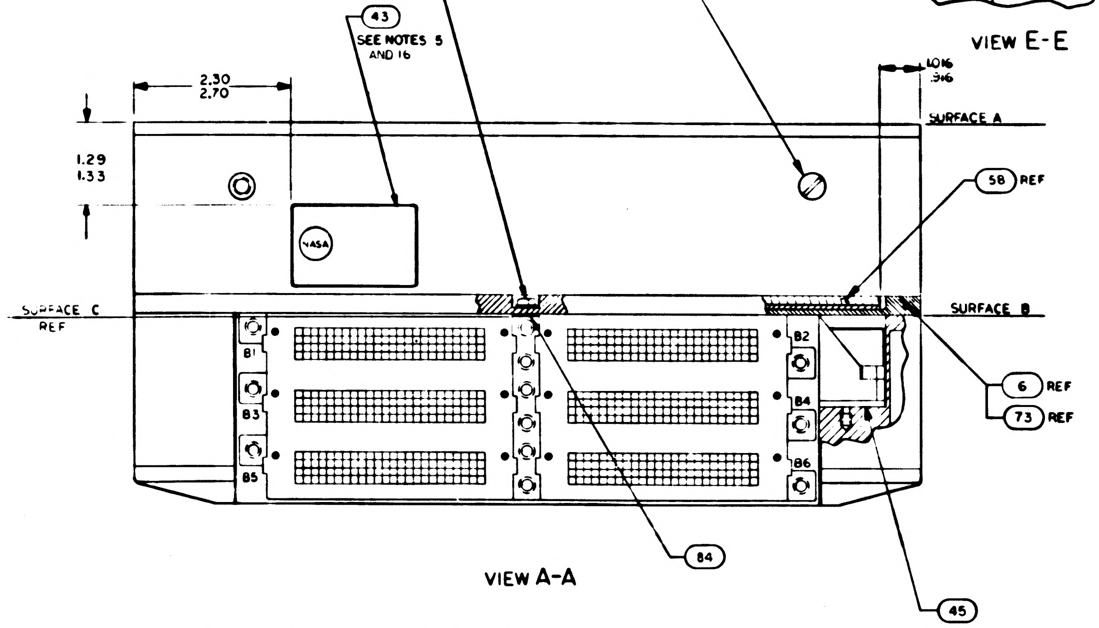
PARTIAL SECTION F F
SCALE: 2/1


42
F
F
47 SEE NOTES 7 & 28
75
52
87 SEE NOTE 47
41
78
SEE NOTE 43
SURFACE A REF

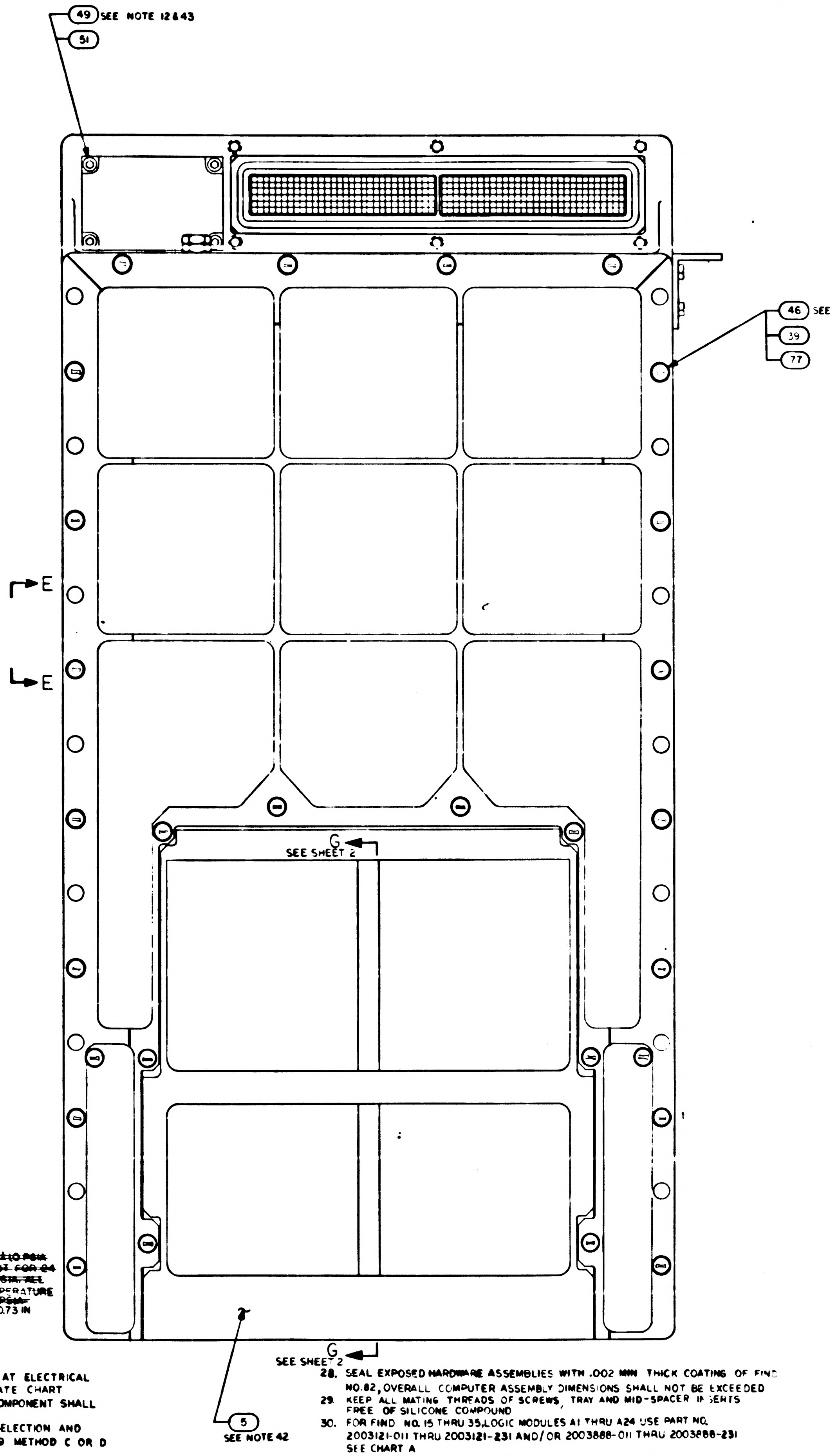
VIEW B-B

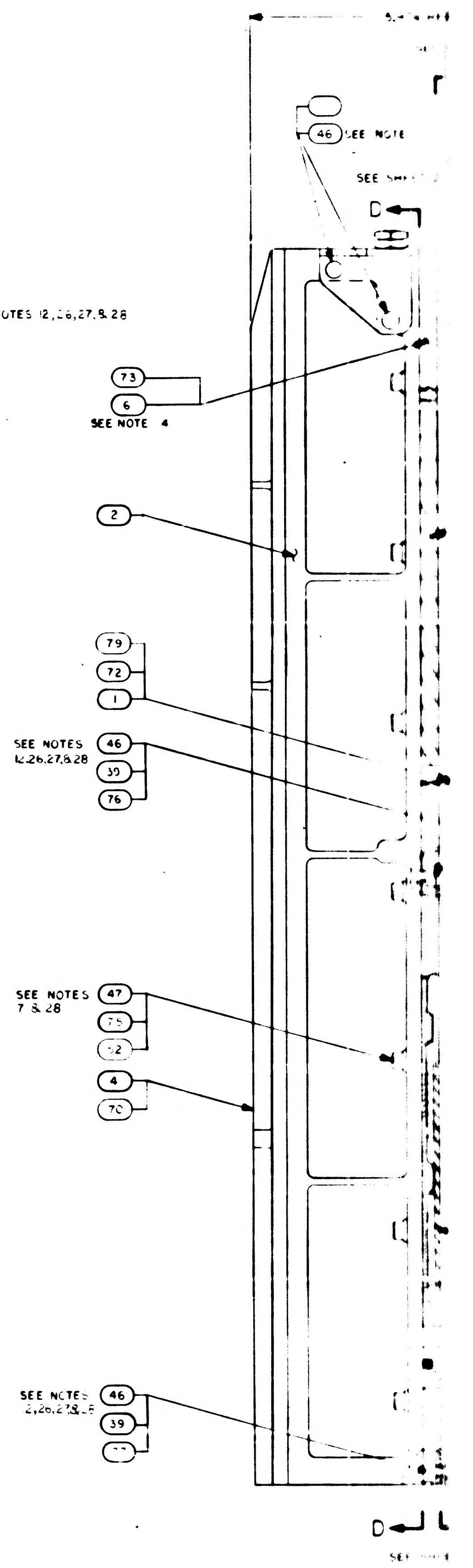

48
44 SEE NOTES 9, 14 & 27

VIEW E-E


76 REF
46 REF
57 REF
43 SEE NOTES 5 AND 16
88 SEE NOTE 47
2.30
2.70
1.29
1.33
.016
.316
SURFACE A
58 REF
NASA
SURFACE C REF
SURFACE B
B1
B2
B3
B4
B5
B6
6 REF
73 REF
84
45

VIEW A-A


49 SEE NOTE 12 & 43
51
46 SEE NOTES 12,26,27,8,28
39
77
E
E
G
SEE SHEET 2
G
SEE SHEET 2
5
SEE NOTE 42

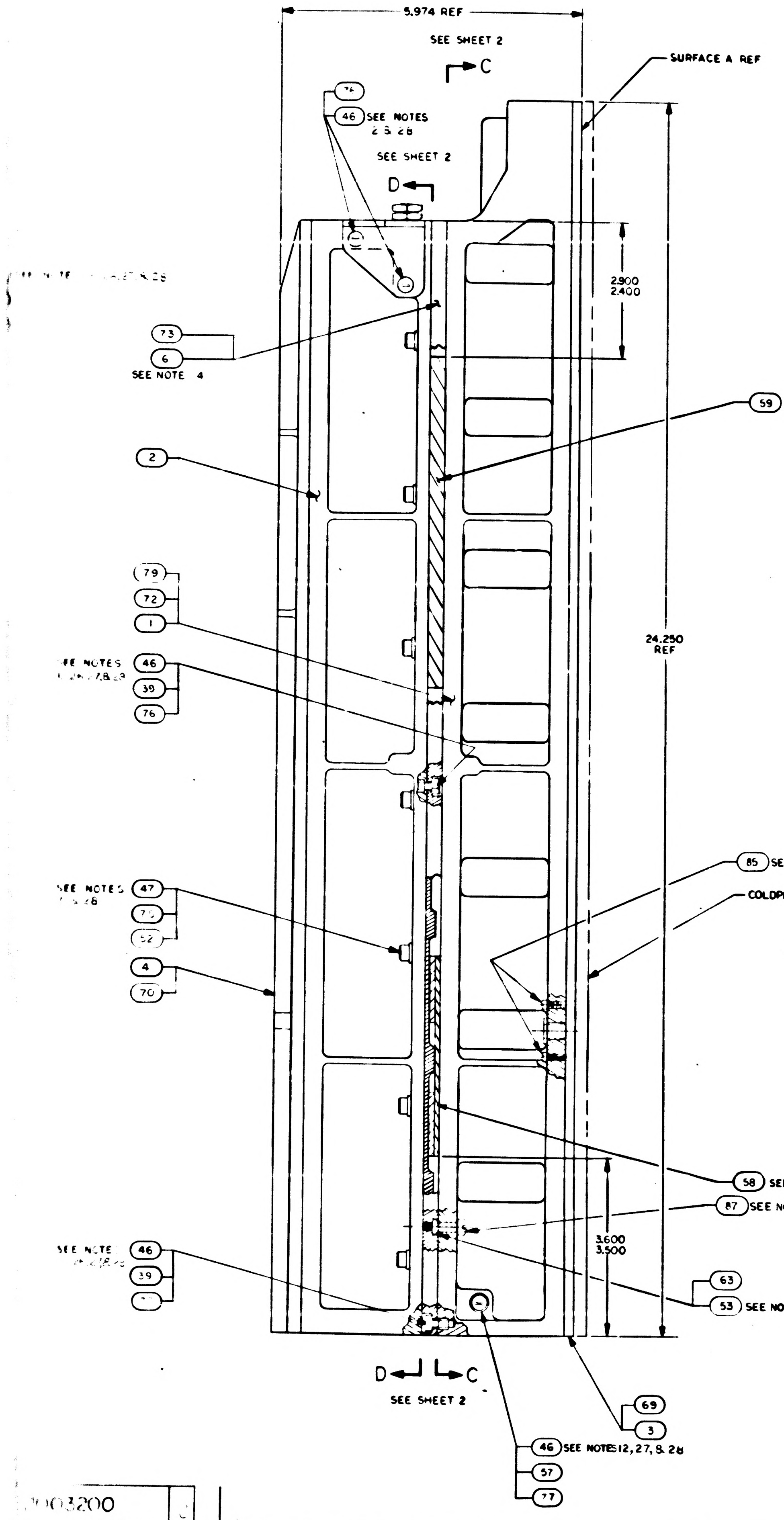

46 SEE NOTE
SEE SHEET
D
73
6
SEE NOTE 4
2
79
72
1
SEE NOTES 12,26,27,8,28
46
39
76
SEE NOTES 7 & 28
47
75
52
4
70
SEE NOTES 12,26,27,8,28
46
39
77
D

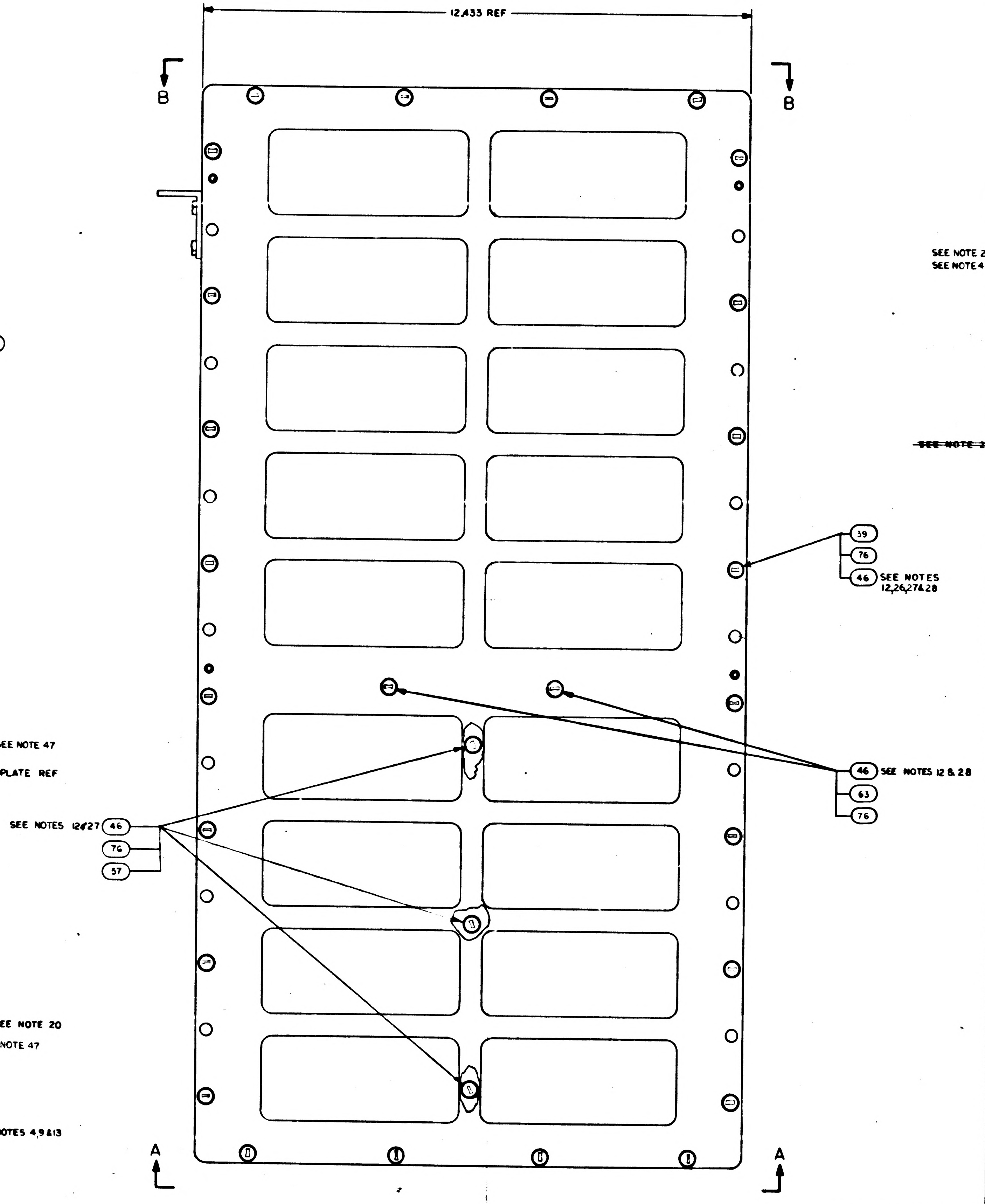
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. PHANTOM LINES DENOTE AGC COLDPLATE AND HANDLING FIXTURE TO BE SUPPLIED BY NORTH AMERICAN AVIATION, INC.
3. ADD SILICONE COMPOUND 1006879 TO MODULE MATING METAL SURFACES AND TRAY MATING SURFACES
4. ASSEMBLE FIND NO. 53 AND FIND NO. 63 TO FIND NO. 6 OR FIND NO. 73 AND FIND NO. 6 OR FIND NO. 73 TO FIND NO. 2 PRIOR TO ASSEMBLY OF FIND NO. 2 TO FIND NO 1 OR FIND NO. 72 OR FIND NO. 79
5. BOND FIND NO. 43 TO FIND. NO. 1 OR FIND NO. 72 OR FIND NO. 79 PER ND1002219, METHOD II
6. UNLESS OTHERWISE SPECIFIED TORQUE ALL MODULE MOUNTING SCREWS 15/19 INCH POUNDS
7. TORQUE FIND NO. 47 OR FIND NO. 75 TO 28/32 INCH POUNDS
8. ~~FINISH IS REQUIRED TO SATISFY ICD [illegible]~~
9. APPLY SEALING COMPOUND MIL-S-22473 GRADE H TO FIND NO. 53, FIND NO. 56 AND FIND NO. 44
10. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2016005 OR PS2016007
11. TORQUE FOR FIND NO. 36 MOUNTING SCREWS TO BE 10/12 INCH POUNDS
12. TORQUE FOR FIND NO. 46, 49, 50, 76 AND 68 TO BE 18/22 INCH POUNDS
13. TORQUE FOR FIND NO. 53 TO BE 4/6 INCH POUNDS
14. TORQUE FOR FIND NO. 44 AND FIND NO. 56 TO BE 137/157 INCH POUNDS
15. FIND NO. 40 SHALL BE SUPPLIED AS PART OF THIS ASSEMBLY
16. MARK COMPUTER ASSEMBLY AND RELATED PART NO., APPLICABLE DASH NO., SERIAL NO. AND CONTRACT NO. PER 1004260 AND SERIALIZE PER ND1002023
17. ~~FINISH SURFACE -A- PER ICD MAX MH01-01301-116 THIS ASSEMBLY MUST BE CAPABLE OF MEETING ELECTRICAL BONDING REQUIREMENTS OF ICD MAX MH01-01302-116~~
18. ~~THE FOLLOWING RESISTANCES TO BE NOT MORE THAN 30 MILLIOHMS~~
    - ~~a. RESISTANCE BETWEEN FIND NO. 1 AND FIND NO. 6~~
    - ~~b. RESISTANCE BETWEEN FIND NO. 2 AND FIND NO. 5~~
    - ~~c. RESISTANCE BETWEEN FIND NO. 3 AND FIND NO. 4 OR BETWEEN FIND NO. 00 AND FIND NO. 70~~
19. ~~LEAK TEST PURGE AND FILL WITH 30±1.0 PSIA DRY NITROGEN STORE AT ROOM AMBIENT FOR 24 ±5 HOURS TEST PRESSURE FOR ΔP<0.5 PSIA. ALL MEASUREMENTS MADE AT STANDARD TEMPERATURE ±2°C, FOLLOWING TEST BLEED TO 17±1.0 PSIA~~
20. BOND FIND NO. 58 TO FIND NO. 6 OR FIND NO. 73 IN POSITION SHOWN USING 1CC6338
21. REFERENCED MODULES MUST NOT BE REPLACED OR INTERCHANGED WITHOUT REPEATING NOMINAL SELECTION PROCEDURE PER NOTE 10
22. THE VALUE OF C1 TO BE DETERMINED AT ELECTRICAL TEST AND SELECTED FROM APPROPRIATE CHART
23. WHEN THE VALUE OF C1 IS "0" NO COMPONENT SHALL BE USED
24. ENCAPSULATE AREA SHOWN AFTER SELECTION AND INSTALLATION OF C1 USING ND1002009 METHOD C OR D USING PRIMER PER SCD 1012513
25. WELD PER ND1002005
26. ASSEMBLE HARDWARE WITH SMOOTH FACE OF FIND NO. 39 IN CONTACT WITH SCREW HEAD
27. FIND NO. 39, 48, 55 & 57 TO BE DISCARDED AND REPLACED WITH NEW PARTS EACH TIME THEY ARE DISASSEMBLED
28. SEAL EXPOSED HARDWARE ASSEMBLIES WITH .002 MIN THICK COATING OF FIND NO. 82, OVERALL COMPUTER ASSEMBLY DIMENSIONS SHALL NOT BE EXCEEDED
29. KEEP ALL MATING THREADS OF SCREWS, TRAY AND MID-SPACER INSERTS FREE OF SILICONE COMPOUND
30. FOR FIND NO. 15 THRU 35, LOGIC MODULES A1 THRU A24 USE PART NO. 2003121-011 THRU 2003121-231 AND/OR 2003888-011 THRU 2003888-231 SEE CHART A
31. FOR TRAY "A" WIRED ASSY USE EITHER 2003092-041 OR 2003092-051 OR 2003092-061
32. FOR OSCILLATOR MODULE B7 USE EITHER 2003036-021 OR 2003036-031
33. THRU 47 SEE SHEET 2

2003200 J

REVISIONS						
SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
A		REVISED PER TDRR 28062				
B		REVISED PER TDRR 3088[illegible]				
C		REVISED PER TDRR 3[illegible]90				
D		REVISED PER TDRR 32353				
E		REVISED PER TDRR 32873				
F		REVISED PER TDRR [illegible]7				
G		REVISED PER TDRR 33439				
H		REVISED PER TDRR 3426				
[illegible]		REVISED PER TDRR 3[illegible]				





	QTY REQD -051	QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
	4	4	4	4	4	1010485-432	SCREW NYLON	[illegible]
	11	11	11	11	11	1010485-332	SCREW NYLON	[illegible]
	6	6	6	6	6	1010485-235	SCREW, NYLON	[illegible]
	28	28	28	28	28	1010485-100	SCREW, NYLON	[illegible]
	AR	AR	AR	AR	AR	2010801	SHIM AGC	[illegible]
	AR	AR	AR	AR	AR	2010800-000	SHIM	[illegible]
SEE NOTE 28	AR	AR	AR	AR	AR	1006338-003	SEALING COMPOUND, SILICONE RUBBER	[illegible]
SEE NOTE 42	AR	AR	AR	AR	AR	MIL-S-8660	SILICONE COMPOUND	[illegible]
	╳	╳	╳	╳	—	2005943	AGC WIRE LIST	[illegible]
	2	—	—	—	—	2003892-011	POWER SUPPLY MOD A30-31	80
	1	—	—	—	—	SEE NOTE 31	TRAY A WIRED ASSY	79
	1	1	—	—	—	2003099-011	COVER, TEST CONN	78
	33	33	33	33	—	2004732-002	SCREW, COATED	77
	33	33	33	33	—	2004732-001	SCREW, COATED	76
	18	18	18	18	—	2004732-003	SCREW, COATED	75
	—	2	2	—	—	2003953-021	POWER SUPPLY MOD A30-31	74
	1	1	1	1	—	2003978-001	MID-SPACER	73
	—	1	1	1	—	2003092-021	TRAY A WIRE ASSY	72
	2	2	2	2	—	SEE NOTE 41	ROPE DRIVER MODULE B16-B17	71
	1	1	1	1	—	2003976-011	TRAY B COVER	70
	1	1	1	1	—	2003977-011	TRAY A COVER	69
	2	2	2	2	—	1001489-36	SCREW, HEX SOCKET HEAD	68
	~~—~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~—~~	~~1006783-28~~	~~SCREW, BUTTON HEAD HEX SOCKET~~	~~67~~
~~SEE NOTE 28~~	~~AR~~	~~AR~~	~~AR~~	~~AR~~	~~AR~~	~~1006338-000~~	~~SEALING COMPOUND, SILICONE RUBBER~~	~~66~~
	AR	AR	AR	AR	AR	1006776-22	INSULATION SLEEVING, ELECTRICAL	65
	—	—	—	—	╳	2005036	AGC WIRE LIST	REF
	1	1	1	1	1	SEE NOTE 22	CAPACITOR	64
	10	10	10	10	10	2004148-007	WASHER, FLAT	63
	1	1	1	1	1	~~2003301-011~~	~~SENSE AMPLIFIER MODULE, FIXED MEMORY B14~~	62
	~~AR~~	~~AR~~	~~AR~~	~~AR~~	~~AR~~	~~2004895-002~~	~~SHIM AGC~~	~~61~~
	~~AR~~	~~AR~~	~~AR~~	~~AR~~	~~AR~~	~~2004895-001~~	~~SHIM AGC~~	~~60~~
	1	1	1	1	1	2004899-001	PAD VIBRATION	59
	1	1	1	1	1	2003970	VIBRATION PAD ASSY	58
	4	4	4	4	4	NAS1598-D08N	WASHER, SEALING	57
	1	1	1	1	1	2018773	VALVE PRESSURE ASSEMBLY	56
	1	1	1	1	1	1000159-5	PACKING, PREFORMED "O" RING	55
	2	2	2	2	2	2004984-001	WASHER, FLAT	54
	8	8	8	8	8	2004130	PAD, THREADED	53
	18	18	18	18	18	2004894-014	WASHER, FLAT	52
	—	—	4	4	4	2004894-012	WASHER, FLAT	51
	—	—	—	—	2	1001489-34	SCREW, HEX SOCKET HEAD	50
	—	—	4	4	4	1004722-2	SCREW, CAPTIVE	49
	1	1	1	1	1	1000159-7	PACKING, PREFORMED "O" RING	48
	—	~~40~~	~~40~~	~~40~~	18	MS16996-14	SCREW, SOCKET HEAD, CAP	47
	—	—	—	—	66	1006783-25	SCREW, BUTTON HEAD, HEX SOCKET	46
	2	2	2	2	2	1006347	GASKET, PLATE	45
	1	1	1	1	1	2004986	PLUG, MACHINE THREAD	44
	1	1	1	1	1	1004260-19	NAME PLATE, TYPE I	43
	1	1	1	1	1	2004113-001	BRACKET, CABLE	42
	—	—	1	1	1	2004115	COVER, POTTED	41
	1	1	1	1	1	1006380	GASKET, RETAINED	40
	58	58	58	58	58	2004717	WASHER, KNURLED	39
	3	3	3	3	3	SEE NOTE 40	INTERFACE MODULE A27-29	38
	2	2	2	2	2	SEE NOTE 39	INTERFACE MODULE A25-26	37
	—	—	—	2	2	2003953-011	POWER SUPPLY MODULE A30-31	36
	1	1	1	1	1	SEE NOTE 30	LOGIC MODULE A24	35
	1	1	1	1	1		LOGIC MODULE A23	34
	1	1	1	1	1		LOGIC MODULE A22	33
	1	1	1	1	1		LOGIC MODULE A21	32
	1	1	1	1	1		LOGIC MODULE A20	31
	1	1	1	1	1		LOGIC MODULE A19	30
	1	1	1	1	1		LOGIC MODULE A18	29
	1	1	1	1	1		LOGIC MODULE A17	28
	1	1	1	1	1		LOGIC MODULE A16	27
	1	1	1	1	1		LOGIC MODULE A15	26
	1	1	1	1	1		LOGIC MODULE A14	25
	1	1	1	1	1		LOGIC MODULE A13	24
	1	1	1	1	1		LOGIC MODULE A12	23
	4	4	4	4	4		LOGIC MODULE A8-11	22
	1	1	1	1	1		LOGIC MODULE A7	21
	1	1	1	1	1		LOGIC MODULE A6	20
	1	1	1	1	1		LOGIC MODULE A5	19
	1	1	1	1	1		LOGIC MODULE A4	18
	1	1	1	1	1		LOGIC MODULE A3	17
	1	1	1	1	1		LOGIC MODULE A2	16
	1	1	1	1	1	SEE NOTE 30	LOGIC MODULE A1	15
	—	—	—	—	2	2003140-011	ROPE DRIVER MODULE B16-17	14
	1	1	1	1	1	SEE NOTE 38	STRAND SELECT MODULE B15	13
	1	1	1	1	1	SEE NOTE 37	SENSE AMPL MOD, ERASABLE MEMORY B13	12
	1	1	1	1	1	SEE NOTE 36	ERASABLE MEMORY MODULE B12	11
	1	1	1	1	1	SEE NOTE 35	CURRENT SWITCH MODULE B11	10
	2	2	2	2	2	SEE NOTE 34	ERASABLE DRIVER MODULE B9-10	9
	1	1	1	1	1	SEE NOTE 33	ALARM MODULE B8	8
	1	1	1	1	1	SEE NOTE 32	OSCILLATOR MODULE B7	7
	—	—	—	—	1	2003978-000	MID SPACER	6
	1	1	1	1	1	2003059-021	INTERCONNECTION HEADER ASSEMBLY	5
	—	—	—	—	1	2003976-000	TRAY B COVER	4
	—	—	—	—	1	2003977-000	TRAY A COVER	3
	1	1	1	1	1	2003093-011	TRAY B WIRED ASSEMBLY	2
	—	—	—	—	1	2003092-011	TRAY A WIRED ASSEMBLY	1

LIST OF MATERIALS

2003991	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER ASSEMBLY

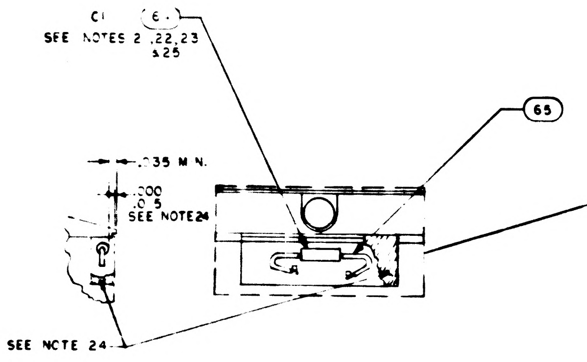
CODE IDENT NO 80230
SIZE J
DRAWING NO 2003200
SCALE 1/1
SHEET 1 OF 2

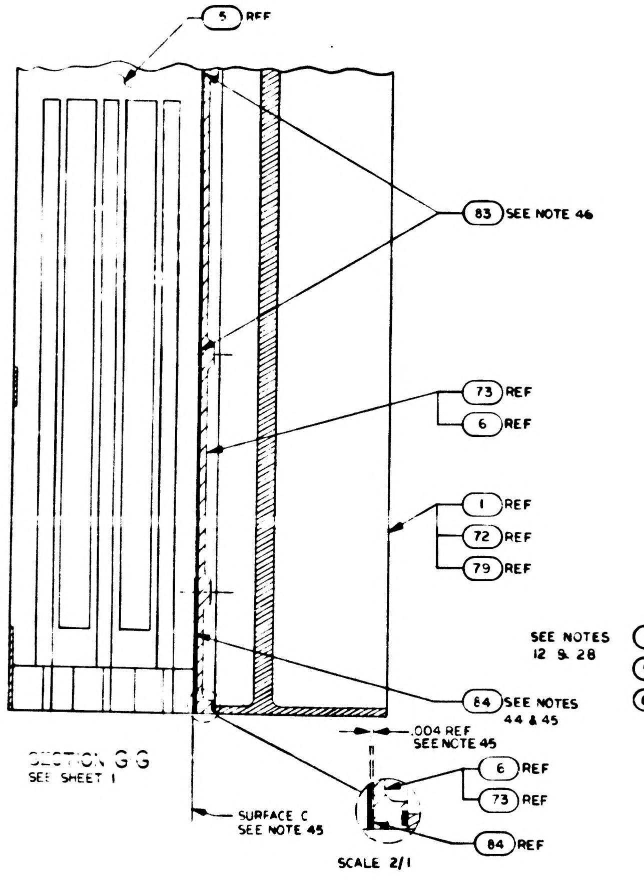
2003200 J

2003200

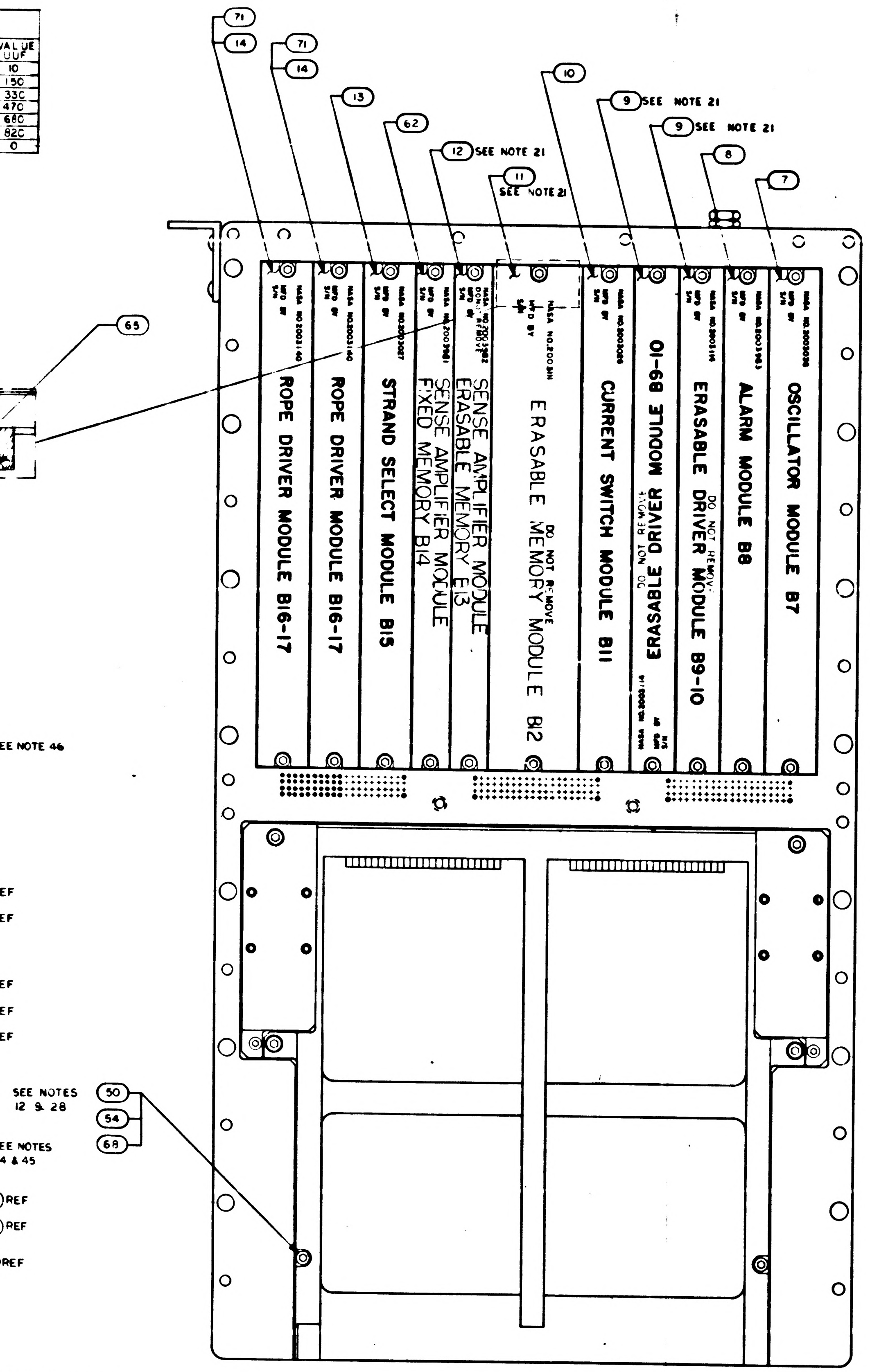
F2/2

C1	
PART NO.	VALUE UUF
1006777-1	10
-15	150
-18	330
-20	470
-22	680
-23	820
SEE NOTE 23	0

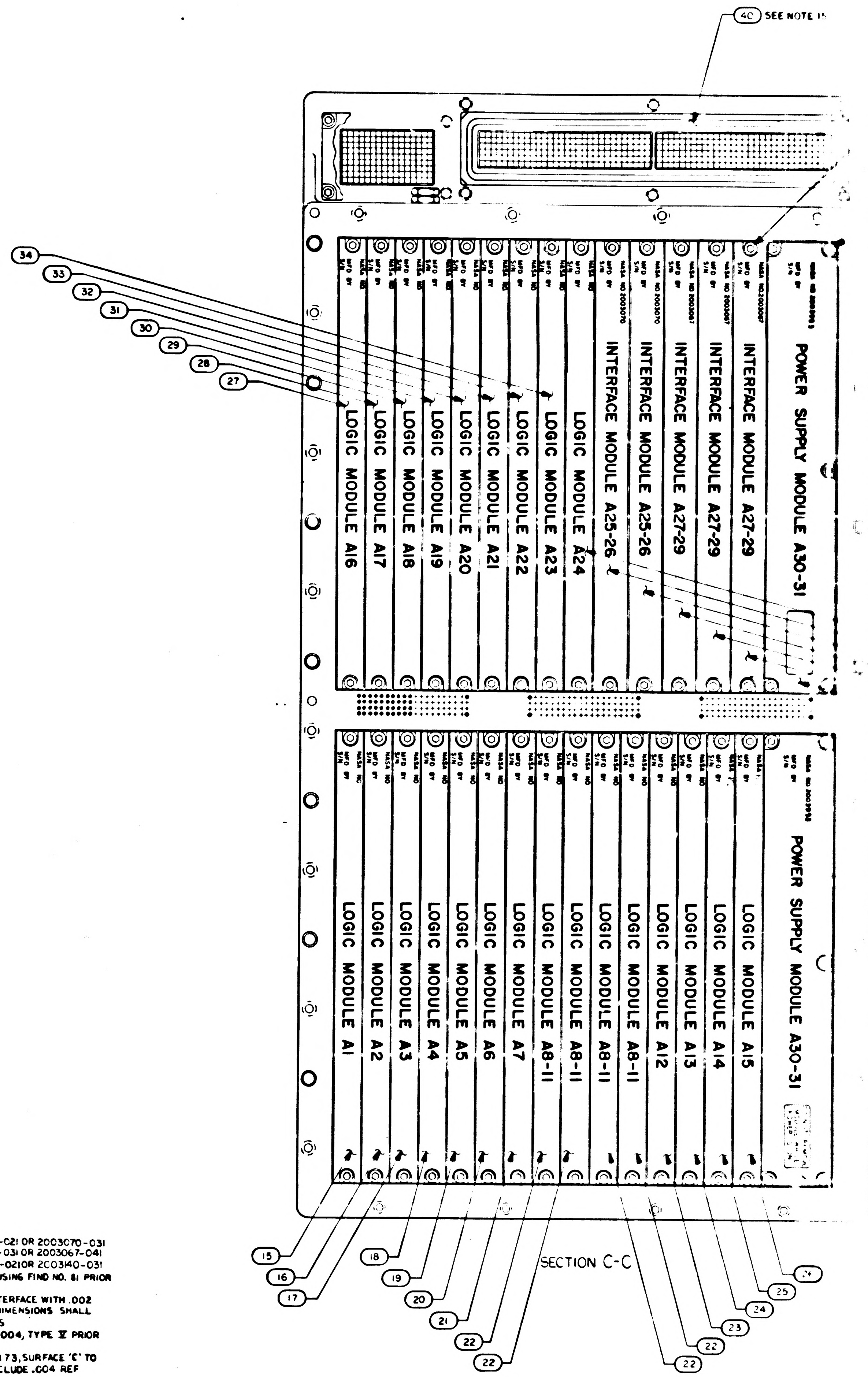

C1
6
SEE NOTES 2, 22, 23 & 25
65
.035 MIN.
.200 ±.015
SEE NOTE 24
SEE NOTE 24


5 REF
83 SEE NOTE 46
73 REF
6 REF
1 REF
72 REF
79 REF
84 SEE NOTES 44 & 45
.004 REF SEE NOTE 45
SURFACE C SEE NOTE 45
6 REF
73 REF
84 REF
SCALE 2/1

SECTION G-G
SEE SHEET 1


71
14
71
14
13
62
12 SEE NOTE 21
11 SEE NOTE 21
10
9 SEE NOTE 21
9 SEE NOTE 21
8
7
ROPE DRIVER MODULE B16-17
ROPE DRIVER MODULE B16-17
STRAND SELECT MODULE B15
SENSE AMPLIFIER MODULE FIXED MEMORY B14
SENSE AMPLIFIER MODULE ERASABLE MEMORY B13
DO NOT REMOVE
ERASABLE MEMORY MODULE B12
CURRENT SWITCH MODULE B11
DO NOT REMOVE
ERASABLE DRIVER MODULE B9-10
DO NOT REMOVE
ERASABLE DRIVER MODULE B9-10
ALARM MODULE B8
OSCILLATOR MODULE B7
NASA NO.
MFD BY
S/N
SEE NOTES 12 & 28
50
54
68

SECTION D-D


40 SEE NOTE 15
34
33
32
31
30
29
28
27
LOGIC MODULE A16
LOGIC MODULE A17
LOGIC MODULE A18
LOGIC MODULE A19
LOGIC MODULE A20
LOGIC MODULE A21
LOGIC MODULE A22
LOGIC MODULE A23
LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
NASA NO.
MFD BY
S/N
15
16
17
18
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22
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23
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25

SECTION C-C

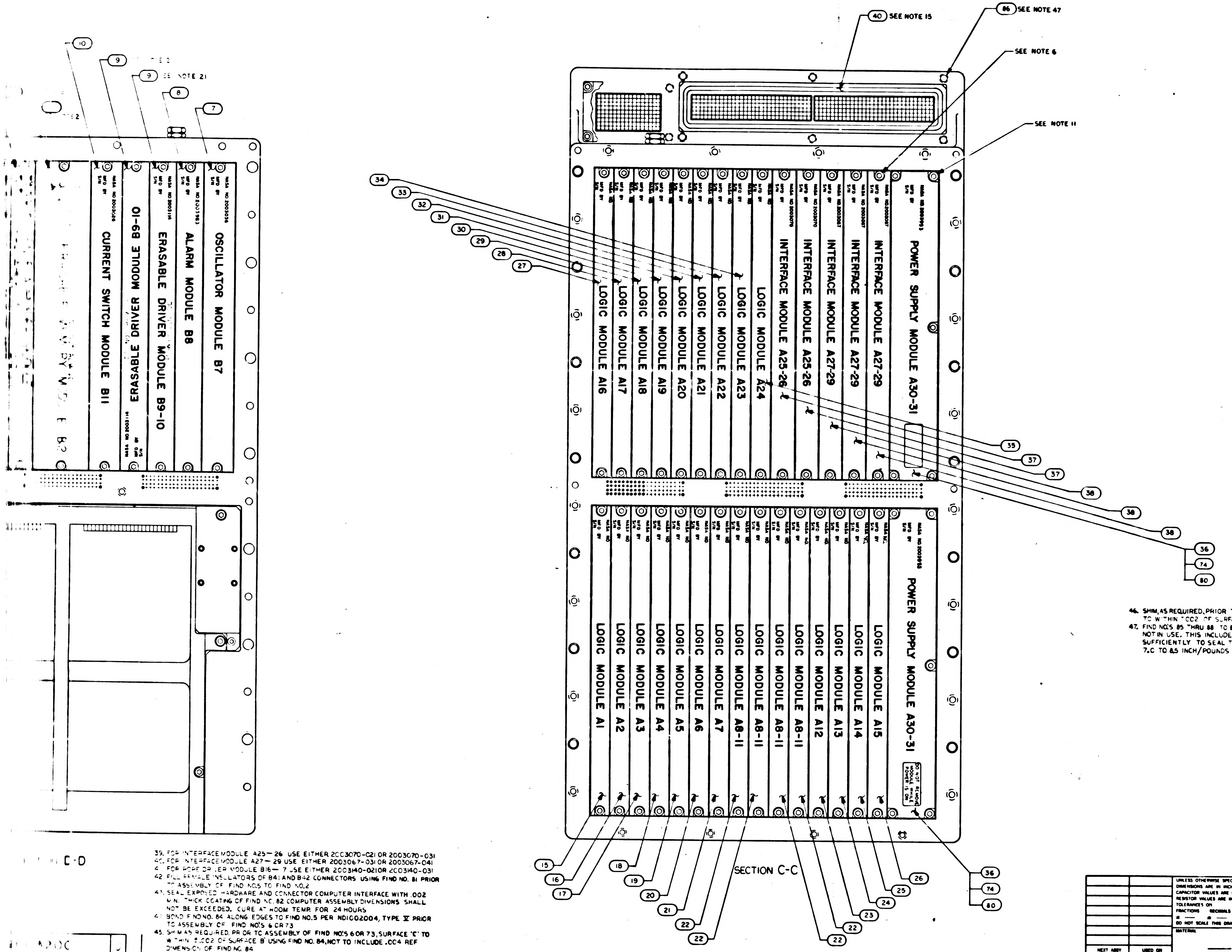
PACKAGING REFERENCE DRAWINGS:
1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421

33. FOR ALARM MODULE B8 USE EITHER 2003983-011 OR 2003983-021
34. FOR ERASABLE DRIVER MODULE B9-10 USE EITHER 2003114-011 OR 2003114-021
35. FOR CURRENT SWITCH MODULE B11 USE EITHER 2003026-021 OR 2003026-031
36. FOR ERASABLE MEMORY MODULE B12 USE EITHER 2003111-011 OR 2003111-021
37. FOR SENSE AMPLIFIER MODULE ERASABLE MEMORY B13 USE EITHER 2003982-011 OR 2003982-021 OR 2003982-031
38. FOR STRAND SELECT MODULE B15 USE EITHER 2003027-021 OR 2003027-031
39. FOR INTERFACE MODULE A25-26 USE EITHER 2003070-021 OR 2003070-031
40. FOR INTERFACE MODULE A27-29 USE EITHER 2003067-031 OR 2003067-041
41. FOR ROPE DRIVER MODULE B16-17 USE EITHER 2003140-021 OR 2003140-031
42. FILL FEMALE INSULATORS OF B41 AND B42 CONNECTORS USING FIND NO. 81 PRIOR TO ASSEMBLY OF FIND NO.5 TO FIND NO.2
43. SEAL EXPOSED HARDWARE AND CONNECTOR COMPUTER INTERFACE WITH .002 MIN. THICK COATING OF FIND NO. 82 COMPUTER ASSEMBLY DIMENSIONS SHALL NOT BE EXCEEDED. CURE AT ROOM TEMP. FOR 24 HOURS
44. BOND FIND NO. 84 ALONG EDGES TO FIND NO.5 PER ND1002004, TYPE V PRIOR TO ASSEMBLY OF FIND NO'S 6 OR 73
45. SHIM AS REQUIRED, PRIOR TO ASSEMBLY OF FIND NO'S 6 OR 73, SURFACE 'C' TO WITHIN ±.002 OF SURFACE 'B' USING FIND NO. 84, NOT TO INCLUDE .004 REF DIMENSION OF FIND NO. 84

2003200	J

SH 2/2 2003200 J F1/2

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 28062	[illegible]	[illegible]	[illegible]	[illegible]
B		REVISED PER TDRR 30667	[illegible]	[illegible]	[illegible]	[illegible]
C		REVISED PER TDRR 30890	[illegible]	[illegible]	[illegible]	[illegible]
D		REVISED PER TDRR 32353	[illegible]	[illegible]	[illegible]	[illegible]
E		REVISED PER TDRR 32873	[illegible]	[illegible]	[illegible]	[illegible]
F		REVISED PER TDRR 32867	[illegible]		[illegible]	[illegible]
G		REVISED PER TDRR 33439	[illegible]	[illegible]	[illegible]	[illegible]
H		REVISED PER TDRR 34261	[illegible]	[illegible]	[illegible]	[illegible]
J		REVISED PER TDRR 34680	SA	[illegible]	[illegible]	[illegible]



10
9
9 SEE NOTE 21
8
7
OSCILLATOR MODULE B7
ALARM MODULE B8
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
CURRENT SWITCH MODULE B11
NASA NO 2003036
NASA NO 2003963
NASA NO 2003116
MFD BY
S/N
D-D
40 SEE NOTE 15
86 SEE NOTE 47
SEE NOTE 6
SEE NOTE 11
34
33
32
31
30
29
28
27
POWER SUPPLY MODULE A30-31
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
LOGIC MODULE A24
LOGIC MODULE A23
LOGIC MODULE A22
LOGIC MODULE A21
LOGIC MODULE A20
LOGIC MODULE A19
LOGIC MODULE A18
LOGIC MODULE A17
LOGIC MODULE A16
35
37
37
38
38
38
36
74
80
POWER SUPPLY MODULE A30-31
LOGIC MODULE A15
LOGIC MODULE A14
LOGIC MODULE A13
LOGIC MODULE A12
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A7
LOGIC MODULE A6
LOGIC MODULE A5
LOGIC MODULE A4
LOGIC MODULE A3
LOGIC MODULE A2
LOGIC MODULE A1
15
16
17
18
19
20
21
22
22
22
22
23
24
25
26
36
74
80
SECTION C-C

39. FOR INTERFACE MODULE A25—26 USE EITHER 2003070-021 OR 2003070-031
40. FOR INTERFACE MODULE A27—29 USE EITHER 2003067-031 OR 2003067-041
41. FOR ROPE DRIVER MODULE B16—17 USE EITHER 2003140-021 OR 2003140-031
42. FILL FEMALE INSULATORS OF B41 AND B42 CONNECTORS USING FIND NO. 81 PRIOR TO ASSEMBLY OF FIND NO.5 TO FIND NO.2
43. SEAL EXPOSED HARDWARE AND CONNECTOR COMPUTER INTERFACE WITH .002 MIN. THICK COATING OF FIND NO. 82 COMPUTER ASSEMBLY DIMENSIONS SHALL NOT BE EXCEEDED. CURE AT ROOM TEMP. FOR 24 HOURS
44. BOND FIND NO. 84 ALONG EDGES TO FIND NO.5 PER ND1002004, TYPE V PRIOR TO ASSEMBLY OF FIND NO'S 6 OR 73
45. SHIM AS REQUIRED, PRIOR TO ASSEMBLY OF FIND NO'S 6 OR 73, SURFACE 'C' TO WITHIN ±.002 OF SURFACE 'B' USING FIND NO. 84, NOT TO INCLUDE .004 REF DIMENSION OF FIND NO. 84

46. SHIM, AS REQUIRED, PRIOR TO ASSEMBLY OF FIND NO'S 6 OR 73, SURFACE 'C' TO WITHIN ±.002 OF SURFACE 'B' USING FIND NO. 83
47. FIND NO'S 85 THRU 88 TO BE USED AT ALL TIMES THAT THREADED HOLES ARE NOT IN USE. THIS INCLUDES SHIPPING. ALL SCREWS SHALL BE TORQUED SUFFICIENTLY TO SEAL THREADED HOLES, EXCEPT FIND NO 87 TO BE TORQUED 7.0 TO 8.5 INCH/POUNDS

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING
MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN R.J. Lloyd
CHECKED
APPROVED
APPROVED Eldon C. Hall
APPROVED MIT
APPROVED A. C. METZGER
MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER
ASSEMBLY

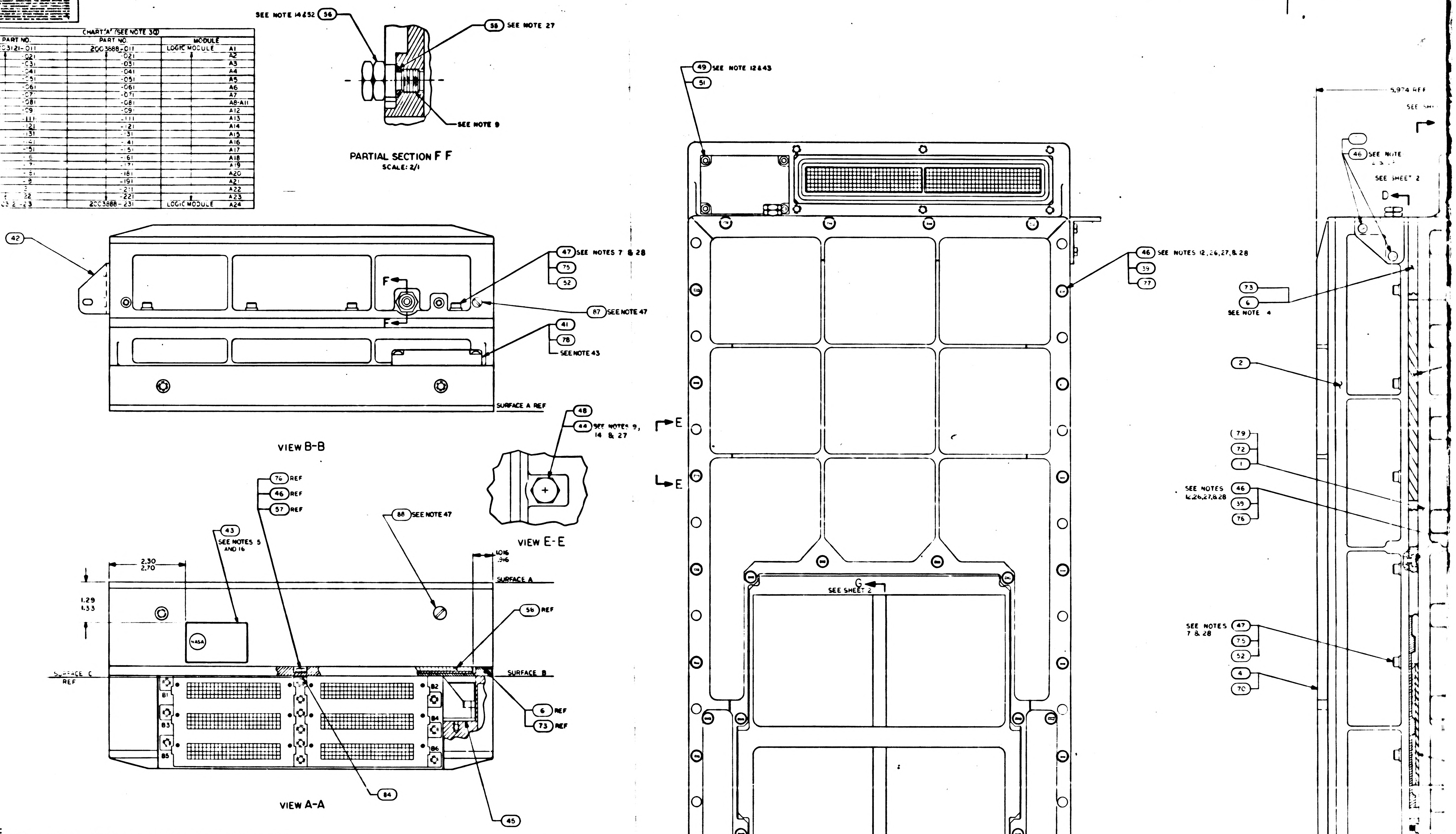
CODE IDENT NO	SIZE	DRAWING NO
80230	J	2003200

SCALE 1/1
SHEET 2 OF 2

2003200

F2/2

CHART "A" (SEE NOTE 30)		
PART NO.	PART NO.	MODULE
2003121-011	2003888-011	LOGIC MODULE A1
-021	-021	A2
-031	-031	A3
-041	-041	A4
-051	-051	A5
-061	-061	A6
-071	-071	A7
-081	-081	A8-A11
-091	-091	A12
-111	-111	A13
-121	-121	A14
-131	-131	A15
-141	-141	A16
-151	-151	A17
-161	-161	A18
-171	-171	A19
-181	-181	A20
-191	-191	A21
-211	-211	A22
-221	-221	A23
2003121-231	2003888-231	LOGIC MODULE A24

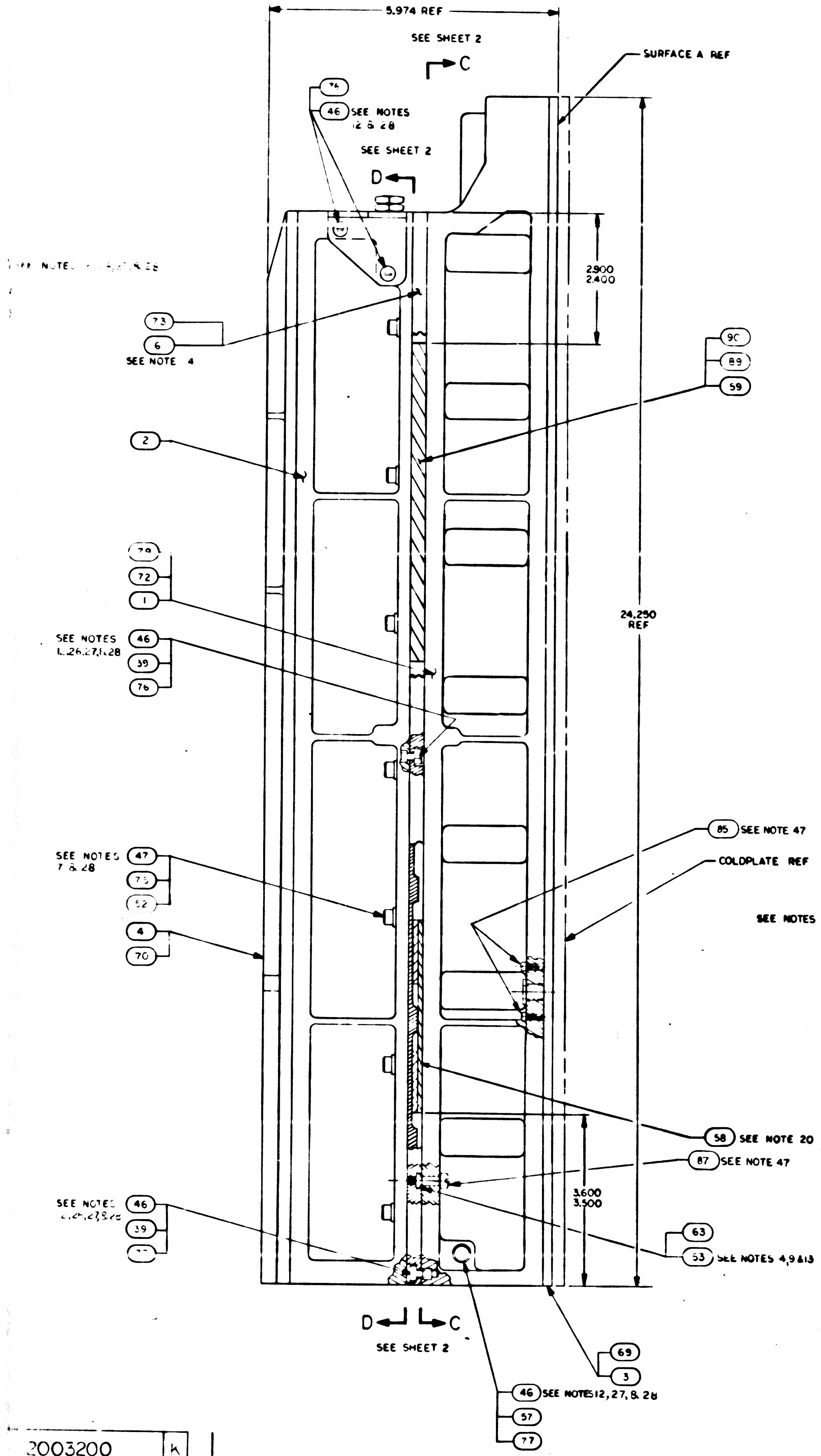

8
7
6
5
D
C
B
A
SEE NOTE 14 & 52 (56)
(58) SEE NOTE 27
SEE NOTE 9
PARTIAL SECTION F F
SCALE: 2/1
(42)
(47) SEE NOTES 7 & 28
(75)
(52)
F
(87) SEE NOTE 47
(41)
(78)
SEE NOTE 43
SURFACE A REF
VIEW B-B
(48)
(44) SEE NOTES 9, 14 & 27
VIEW E-E
(76) REF
(46) REF
(57) REF
(88) SEE NOTE 47
(43)
SEE NOTES 5 AND 16
2.30
2.70
1.29
1.33
.1016
.316
SURFACE A
NASA
(56) REF
SURFACE C REF
SURFACE B
B1
B2
B3
B4
B5
B6
(6) REF
(73) REF
(84)
(45)
VIEW A-A
(49) SEE NOTE 12 & 43
(51)
(46) SEE NOTES 12, 26, 27, & 28
(39)
(77)
E
G
SEE SHEET 2
(5)
SEE NOTE 42
5.974 REF
(46) SEE NOTE
SEE SHEET 2
D
(73)
(6)
SEE NOTE 4
(2)
(79)
(72)
(1)
SEE NOTES 12,26,27,& 28
(46)
(39)
(76)
SEE NOTES 7 & 28
(47)
(75)
(52)
(4)
(70)
SEE NOTES 12,26,27,& 28
(46)
(39)
(77)
SEE SHEET 2

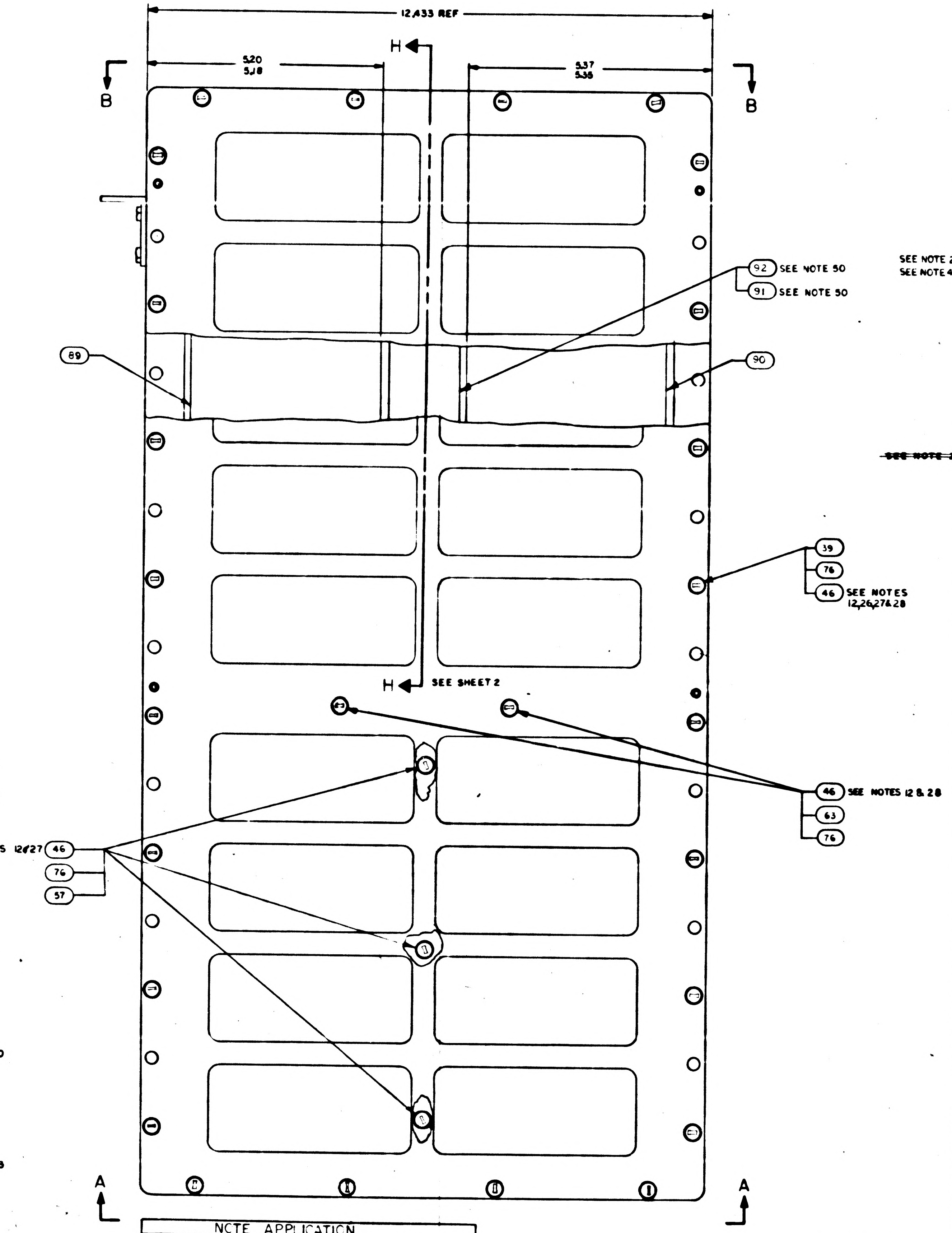
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. PHANTOM LINES DENOTE AGC COLDPLATE AND HANDLING FIXTURE TO BE SUPPLIED BY NORTH AMERICAN AVIATION, INC.
3. ADD SILICONE COMPOUND 1006879 TO MODULE MATING METAL SURFACES AND TRAY MATING SURFACES
4. ASSEMBLE FIND NO. 53 AND FIND NO. 63 TO FIND NO. 6 OR FIND NO. 73 AND FIND NO. 6 OR FIND NO. 73 TO FIND NO. 2 PRIOR TO ASSEMBLY OF FIND NO. 2 TO FIND NO. 1 OR FIND NO. 72 OR FIND NO. 79
5. BOND FIND NO. 43 TO FIND NO. 1 OR FIND NO. 72 OR FIND NO. 79 PER ND1002219, METHOD II
6. UNLESS OTHERWISE SPECIFIED TORQUE ALL MODULE MOUNTING SCREWS 15/19 INCH POUNDS
7. TORQUE FIND NO. 47 OR FIND NO. 75 TO 28/32 INCH POUNDS
~~8. FINISH IS REQUIRED TO SATISFY SCD [illegible]~~
9. APPLY SEALING COMPOUND MIL-S-22473 GRADE H TO FIND NO. 53, FIND NO. 56 AND FIND NO. 44
10. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2016005 OR PS2016007
11. TORQUE FOR FIND NO. 36 MOUNTING SCREWS TO BE 10/12 INCH POUNDS
12. TORQUE FOR FIND NO. 46, 49, 50, 76 AND 68 TO BE 18/22 INCH POUNDS
13. TORQUE FOR FIND NO. 53 TO BE 4/6 INCH POUNDS
14. TORQUE FOR FIND NO. 44 AND FIND NO. 56 TO BE 137/157 INCH POUNDS
15. FIND NO. 40 SHALL BE SUPPLIED AS PART OF THIS ASSEMBLY
16. MARK COMPUTER ASSEMBLY AND RELATED PART NO., APPLICABLE DASH NO., SERIAL NO. AND CONTRACT NO. PER 1004260 AND SERIALIZE PER ND1002023
~~17. FINISH SURFACE -X- PER SCD NAA MH01-01302-116 THIS ASSEMBLY MUST BE CAPABLE OF MEETING ELECTRICAL BONDING REQUIREMENTS OF SCD NAA MH01-01302-116~~
~~18. THE FOLLOWING RESISTANCES TO BE NOT MORE THAN [illegible] MILLIOHMS:~~
  ~~a. RESISTANCE BETWEEN FIND NO. 1 AND FIND NO. 6~~
  ~~b. RESISTANCE BETWEEN FIND NO. 2 AND FIND NO. 5~~
  ~~c. RESISTANCE BETWEEN FIND NO. 3 AND FIND NO. 4 OR BETWEEN FIND NO. 69 AND FIND NO. 70~~
~~19. LEAK TEST PURGE AND FILL WITH 30±1.0 PSIA DRY NITROGEN STORE AT ROOM AMBIENT FOR 24 HOURS TEST PRESSURE FOR [illegible] PSIA REL MEASUREMENTS MADE AT STANDARD TEMPERATURE ±2°C FOLLOWING TEST BLEED TO 17±1.0 PSIA~~
20. BOND FIND NO. 58 TO FIND NO. 6 OR FIND NO. 73 IN POSITION SHOWN USING 1006338
21. REFERENCED MODULES MUST NOT BE REPLACED OR INTERCHANGED WITHOUT REPEATING NOMINAL SELECTION PROCEDURE PER NOTE 10
22. THE VALUE OF C1 TO BE DETERMINED AT ELECTRICAL TEST AND SELECTED FROM APPROPRIATE CHART
23. WHEN THE VALUE OF C1 IS "0" NO COMPONENT SHALL BE USED
24. ENCAPSULATE AREA SHOWN AFTER SELECTION AND INSTALLATION OF C1 USING ND1002009 METHOD C OR D USING PRIMER PER SCD 1012513
25. WELD PER ND1002005
26. ASSEMBLE HARDWARE WITH SMOOTH FACE OF FIND NO. 39 IN CONTACT WITH SCREW HEAD
27. FIND NO. 39, 48, 55 & 57 TO BE DISCARDED AND REPLACED WITH NEW PARTS EACH TIME THEY ARE DISASSEMBLED
28. SEAL EXPOSED HARDWARE ASSEMBLIES WITH .002 MIN THICK COATING OF FIND NO. 82, OVERALL COMPUTER ASSEMBLY DIMENSIONS SHALL NOT BE EXCEEDED
29. KEEP ALL MATING THREADS OF SCREWS, TRAY AND MID-SPACER INSERTS FREE OF SILICONE COMPOUND
30. FOR FIND NO. 15 THRU 35, LOGIC MODULES A1 THRU A24 USE PART NO. 2003121-011 THRU 2003121-231 AND/OR 2003888-011 THRU 2003888-231 SEE CHART A
31. FOR TRAY "A" WIPED ASSY USE EITHER 2003092-041 OR 2003092-051 OR 2003092-061
32. FOR OSCILLATOR MODULE B7 USE EITHER 2003036-021 OR 2003036-031
33. THRU 52 SEE SHEET 2

2003200	K

SH1/2 2003200 KF1/2





REVISIONS						
SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
A		REVISED PER TDRR 28062				
B		REVISED PER TDRR [illegible]0687				
C		REVISED PER TDRR 30[illegible]90				
D		REVISED PER TDRR 32353				
E		REVISED PER TDRR 328[illegible]3				
F		REVISED PER TDRR [illegible]				
G		REVISED PER TDRR 33439				
H		REVISED PER TDRR 3426				
J		REVISED PER TDRR 34680				
K		REVISED PER TDRR 35323				

NOTE APPLICATION

DASH NO.	NOTES APPLICABLE
-011	1 THRU 7, 9 THRU 16, 20 THRU 30, 32 THRU 40, 42, 44 THRU 47 & 52
-021	1 THRU 7, 9 THRU 16, 20 THRU 30, 32 THRU 47 & 52
-031	1 THRU 7, 9 THRU 16, 20 THRU 30, 32 THRU 47 & 52
-041	1 THRU 7, 9 THRU 16, 20 THRU 30, 32 THRU 47 & 52
-051	1 THRU 7, 9 THRU 16, 20 THRU 52

	QTY REQD -051	QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
		—	—	—	—	2004691	SHIM, VIBRATION DAMPENING	[illegible]
		—	—	—	—	2004690	PAD, VIBRATION DAMPENING	[illegible]
	1	—	—	—	—	2004699-007	PAD, VIBRATION	[illegible]
	1		—	—	—	2004699-006	PAD, VIBRATION	[illegible]
	4	4	4	4	4	1010485-432	SCREW NYLON	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	SCREW NYLON	[illegible]
	6	6	6	6	6	1010485-235	SCREW, NYLON	[illegible]
	28	28	28	28	28	1010485-[illegible]	SCREW NYLON	[illegible]
	AR	AR	AR	AR	AR	2010801	SHIM AGC	[illegible]
	AR	AR	AR	AR	AR	2010800-000	SHIM	[illegible]
SEE NOTE 28	AR	AR	AR	AR	AR	1006338-003	SEALING COMPOUND, SILICONE RUBBER	[illegible]
SEE NOTE 42	AR	AR	AR	AR	AR	MIL-S-8660	SILICONE COMPOUND	[illegible]
	╳	╳	╳	╳	—	2005943	AGC WIRE LIST	REF
	2	—	—	—	—	2003892-011	POWER SUPPLY MOD A30-31	80
	1	—	—	—	—	SEE NOTE 31	TRAY A WIRED ASSY	79
	1	1	—	—	—	2003099-011	COVER, TEST CONN	78
	33	33	33	33	—	2004732-002	SCREW, COATED	77
	33	33	33	33	—	2004732-001	SCREW, COATED	76
	18	18	8	8	—	2004732-003	SCREW, COATED	75
	—	2	2	—	—	2003953-021	POWER SUPPLY MOD A30-31	74
	1	1	1	1	—	2003978-001	MID-SPACER	73
	—	1	1	1	—	2003092-021	TRAY A WIRE ASSY	72
	2	2	2	2	—	SEE NOTE 41	ROPE DRIVER MODULE B16-B17	71
	1	1	1	1	—	2003976-011	TRAY B COVER	70
	1	1	1	1	—	2003977-011	TRAY A COVER	69
	2	2	2	2	—	1001489-36	SCREW, HEX SOCKET HEAD	68
	—	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	—	~~1006783-26~~	~~SCREW, BUTTON HEAD HEX SOCKET~~	67
~~SEE NOTE 28~~	~~AR~~	~~AR~~	~~AR~~	~~AR~~	~~AR~~	~~1006338-000~~	~~SEALING COMPOUND, SILICONE RUBBER~~	~~66~~
	AR	AR	AR	AR	AR	1006775-22	INSULATION SLEEVING, ELECTRICAL	65
	—	—	—	—	╳	2005036	AGC WIRE LIST	REF
	1	1	1	1	1	SEE NOTE 22	CAPACITOR	64
	10	10	10	10	10	2004148-007	WASHER, FLAT	63
	1	1	1	1	1	2003981-011	SENSE AMPLIFIER MODULE, FIXED MEMORY B14	62
	~~AR~~	~~AR~~	~~AR~~	~~AR~~	~~AR~~	~~2004895-002~~	~~SHIM AGC~~	~~61~~
	~~AR~~	~~AR~~	~~AR~~	~~AR~~	~~AR~~	~~2004895-001~~	~~SHIM AGC~~	~~60~~
	—	1	1	1	1	2004899-001	PAD VIBRATION	59
	1	1	1	1	1	2003970	VIBRATION PAD ASSY	58
	4	4	4	4	4	NAS1598-D08N	WASHER, SEALING	57
	1	1	1	1	1	2018773	VALVE PRESSURE ASSEMBLY	56
	1	1	1	1	1	1000159-5	PACKING, PREFORMED "O" RING	55
	2	2	2	2	2	2004984-001	WASHER, FLAT	54
	8	8	8	8	8	2004130	PAD, THREADED	53
	18	18	18	18	18	2004894-014	WASHER, FLAT	52
	—	—	4	4	4	2004894-012	WASHER, FLAT	51
	—	—	—	—	2	1001489-34	SCREW, HEX SOCKET HEAD	50
	—	—	4	4	4	1004722-2	SCREW, CAPTIVE	49
	1	1	1	1	1	1000159-7	PACKING, PREFORMED "O" RING	48
	—	~~40~~	~~40~~	~~40~~	18	MS16996-14	SCREW, SOCKET HEAD, CAP	47
	—	—	—	—	66	1006783-25	SCREW, BUTTON HEAD, HEX SOCKET	46
	2	2	2	2	2	1006347	GASKET, PLATE	45
	1	1	1	1	1	2004986	PLUG, MACHINE THREAD	44
	1	1	1	1	1	1004260-19	NAME PLATE, TYPE I	43
	1	1	1	1	1	2004113-001	BRACKET, CABLE	42
	—	—	1	1	1	2004115	COVER, POTTED	41
	1	1	1	1	1	1006380	GASKET, RETAINED	40
	58	58	58	58	58	20047[illegible]7	WASHER, KNURLED	39
	3	3	3	3	3	SEE NOTE 40	INTERFACE MODULE A27-29	38
	2	2	2	2	2	SEE NOTE 39	INTERFACE MODULE A25-26	37
	—	—	—	2	2	2003953-011	POWER SUPPLY MODULE A30-31	36
	1	1	1	1	1	SEE NOTE 30	LOGIC MODULE A24	35
	1	1	1	1	1		LOGIC MODULE A23	34
	1	1	1	1	1		LOGIC MODULE A22	33
	1	1	1	1	1		LOGIC MODULE A21	32
	1	1	1	1	1		LOGIC MODULE A20	31
	1	1	1	1	1		LOGIC MODULE A19	30
	1	1	1	1	1		LOGIC MODULE A18	29
	1	1	1	1	1		LOGIC MODULE A17	28
	1	1	1	1	1		LOGIC MODULE A16	27
	1	1	1	1	1		LOGIC MODULE A15	26
	1	1	1	1	1		LOGIC MODULE A14	25
	1	1	1	1	1		LOGIC MODULE A13	24
	1	1	1	1	1		LOGIC MODULE A12	23
	4	4	4	4	4		LOGIC MODULE A8-11	22
	1	1	1	1	1		LOGIC MODULE A7	21
	1	1	1	1	1		LOGIC MODULE A6	20
	1	1	1	1	1		LOGIC MODULE A5	19
	1	1	1	1	1		LOGIC MODULE A4	18
	1	1	1	1	1		LOGIC MODULE A3	17
	1	1	1	1	1		LOGIC MODULE A2	16
	1	1	1	1	1	SEE NOTE 30	LOGIC MODULE A1	15
	—	—	—	—	2	2003140-011	ROPE DRIVER MODULE B16-17	14
	1	1	1	1	1	SEE NOTE 38	STRAND SELECT MODULE B15	13
	1	1	1	1	1	SEE NOTE 37	SENSE AMPL MOD, ERASABLE MEMORY B13	12
	1	1	1	1	1	SEE NOTE 36	ERASABLE MEMORY MODULE B12	11
	1	1	1	1	1	SEE NOTE 35	CURRENT SWITCH MODULE B11	10
	2	2	2	2	2	SEE NOTE 34	ERASABLE DRIVER MODULE B9-10	9
	1	1	1	1	1	SEE NOTE 33	ALARM MODULE B8	8
	1	1	1	1	1	SEE NOTE 32	OSCILLATOR MODULE B7	7
	—	—	—	—	1	2003978-000	MID SPACER	6
	1	1	1	1	1	2003059-021	INTERCONNECTION HEADER ASSEMBLY	5
	—	—	—	—	1	2003976-000	TRAY B COVER	4
	—	—	—	—	1	2003977-000	TRAY A COVER	3
	1	1	1	1	1	2003093-011	TRAY B WIRED ASSEMBLY	2
	—	—	—	—	1	2003092-011	TRAY A WIRED ASSEMBLY	1

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

2003991	
NEXT ASSY	USED ON
APPLICATION	

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER
ASSEMBLY

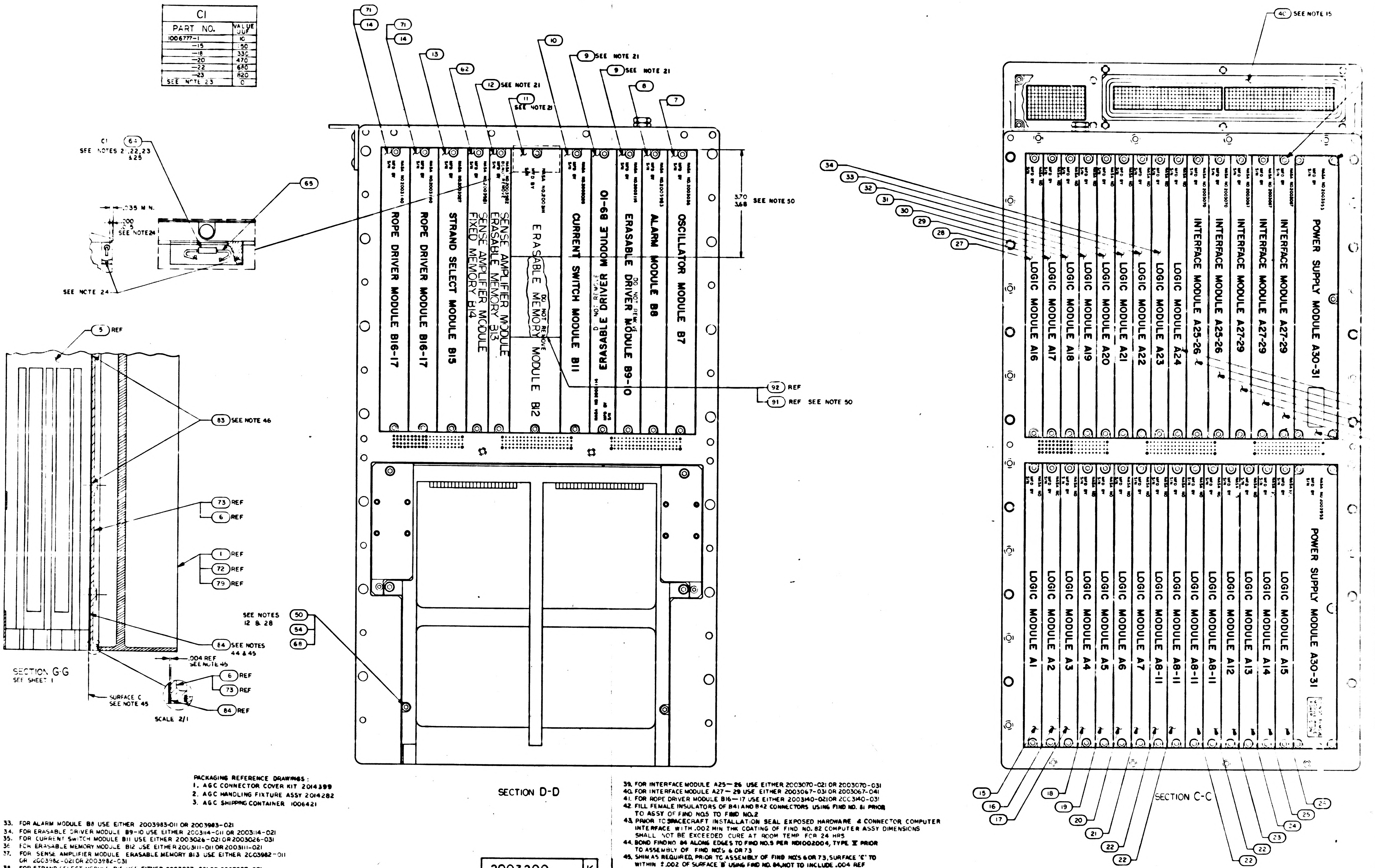
CODE IDENT NO	SIZE	DRAWING NO.
80230	J	2003200

SCALE 1/1 — SHEET 1 OF 2

2003200 K

SH1/2 2003200 KF2/2

C1	
PART NO.	VALUE UUF
1006777-1	10
-15	150
-18	330
-20	470
-22	680
-23	820
SEE NOTE 23	0



C1 (64) SEE NOTES 21,22,23 & 25
(65)
.035 MIN.
.000 .015 SEE NOTE 24
SEE NOTE 24
(5) REF
(83) SEE NOTE 46
(73) REF
(6) REF
(1) REF
(72) REF
(79) REF
(84) SEE NOTES 44 & 45
.004 REF SEE NOTE 45
(6) REF
(73) REF
(84) REF
SURFACE C SEE NOTE 45
SCALE 2/1
SECTION G-G SEE SHEET 1
(71) (14) (71) (14) (13) (62)
(12) SEE NOTE 21
(11) SEE NOTE 21
(10)
(9) SEE NOTE 21
(9) SEE NOTE 21
(8) (7)
ROPE DRIVER MODULE B16-17
ROPE DRIVER MODULE B16-17
STRAND SELECT MODULE B15
SENSE AMPLIFIER MODULE FIXED MEMORY B14
SENSE AMPLIFIER MODULE ERASABLE MEMORY B13
DO NOT REMOVE
ERASABLE MEMORY MODULE B12
CURRENT SWITCH MODULE B11
DO NOT REMOVE
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
DO NOT REMOVE
ALARM MODULE B8
OSCILLATOR MODULE B7
NASA NO. MFD BY S/N
3.70 3.68 SEE NOTE 50
(92) REF
(91) REF SEE NOTE 50
SEE NOTES 12 & 28
(50) (54) (68)
SECTION D-D
(40) SEE NOTE 15
(34) (33) (32) (31) (30) (29) (28) (27)
LOGIC MODULE A16
LOGIC MODULE A17
LOGIC MODULE A18
LOGIC MODULE A19
LOGIC MODULE A20
LOGIC MODULE A21
LOGIC MODULE A22
LOGIC MODULE A23
LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
(15) (16) (17) (18) (19) (20) (21) (22) (22) (22) (22) (23) (24) (25) (26)
SECTION C-C

PACKAGING REFERENCE DRAWINGS:
1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421

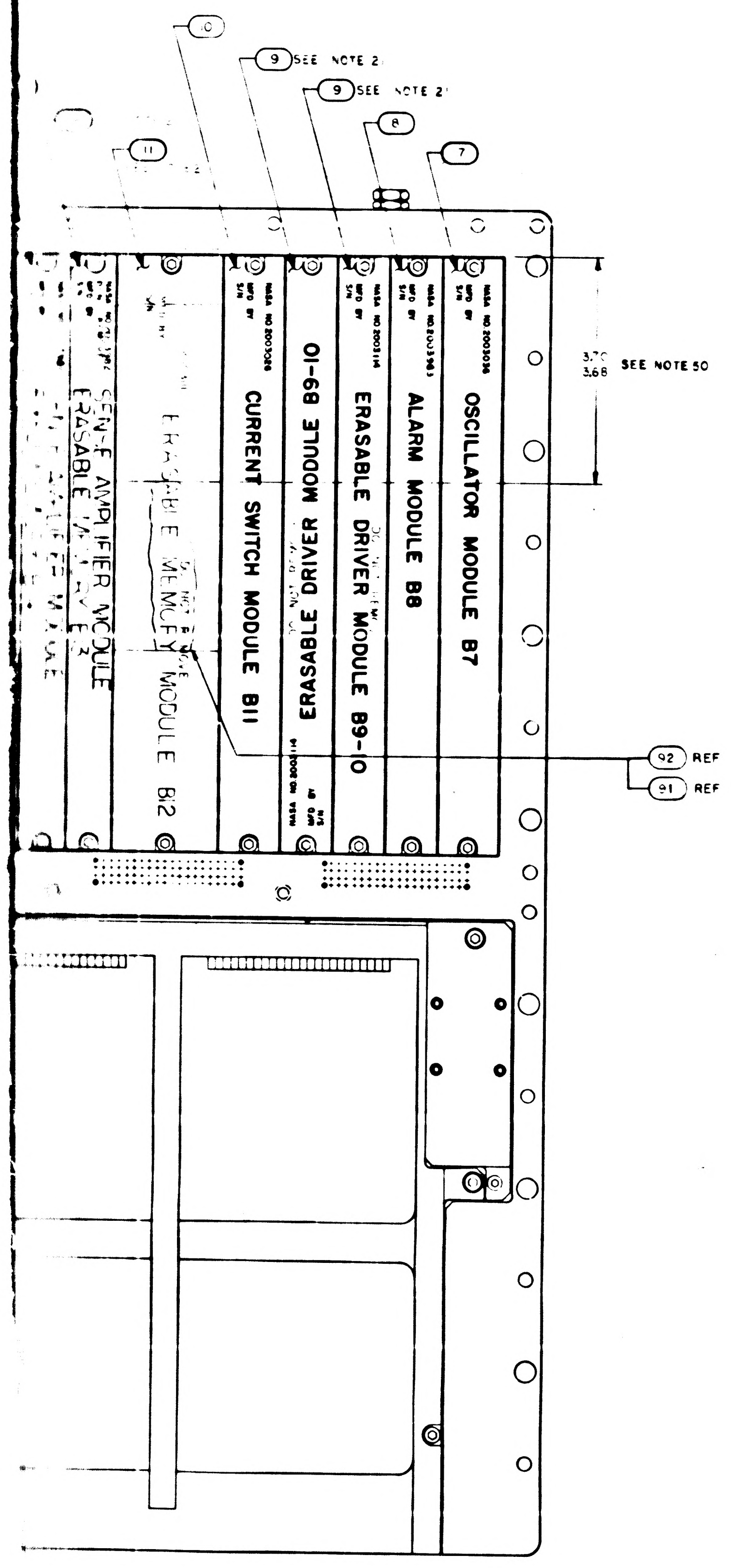
33. FOR ALARM MODULE B8 USE EITHER 2003983-011 OR 2003983-021
34. FOR ERASABLE DRIVER MODULE B9-10 USE EITHER 2003114-011 OR 2003114-021
35. FOR CURRENT SWITCH MODULE B11 USE EITHER 2003026-021 OR 2003026-031
36. FOR ERASABLE MEMORY MODULE B12 USE EITHER 2003111-011 OR 2003111-021
37. FOR SENSE AMPLIFIER MODULE ERASABLE MEMORY B13 USE EITHER 2003982-011 OR 2003982-021 OR 2003982-031
38. FOR STRAND SELECT MODULE B15 USE EITHER 2003027-021 OR 2003027-031
39. FOR INTERFACE MODULE A25—26 USE EITHER 2003070-021 OR 2003070-031
40. FOR INTERFACE MODULE A27—29 USE EITHER 2003067-031 OR 2003067-041
41. FOR ROPE DRIVER MODULE B16—17 USE EITHER 2003140-021 OR 2003140-031
42. FILL FEMALE INSULATORS OF B41 AND B42 CONNECTORS USING FIND NO. 81 PRIOR TO ASSY OF FIND NO.5 TO FIND NO.2
43. PRIOR TO SPACECRAFT INSTALLATION SEAL EXPOSED HARDWARE & CONNECTOR COMPUTER INTERFACE WITH .002 MIN THK COATING OF FIND NO. 82 COMPUTER ASSY DIMENSIONS SHALL NOT BE EXCEEDED CURE AT ROOM TEMP FOR 24 HRS
44. BOND FIND NO 84 ALONG EDGES TO FIND NO.5 PER ND1002004, TYPE II PRIOR TO ASSEMBLY OF FIND NO'S 6 OR 73
45. SHIM AS REQUIRED, PRIOR TO ASSEMBLY OF FIND NO'S 6 OR 73, SURFACE 'C' TO WITHIN ±.002 OF SURFACE 'B' USING FIND NO. 84, NOT TO INCLUDE .004 REF DIMENSION OF FIND NO. 84

2K

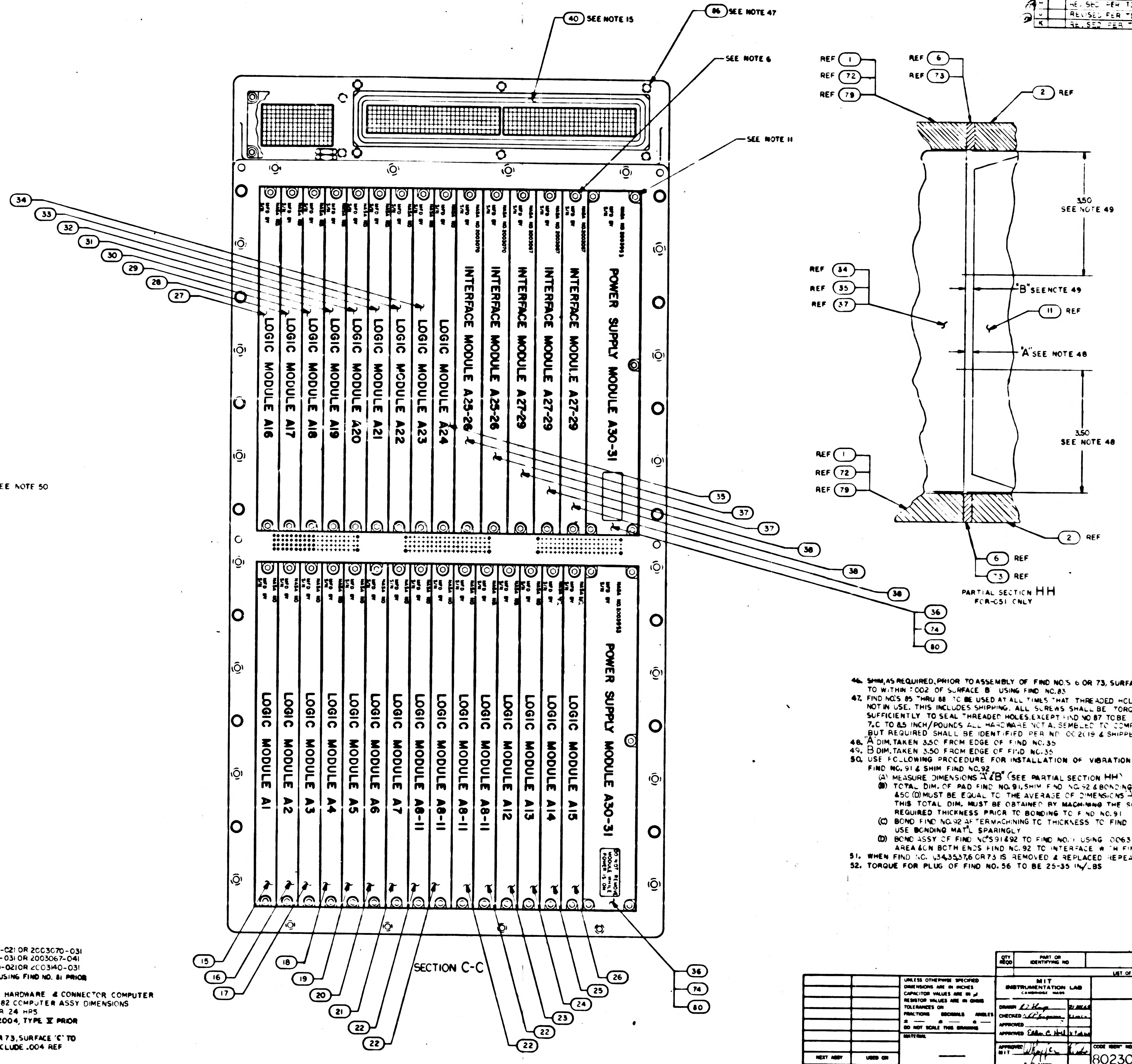
2003200 K

2003200 KF1/2 SH2/2

SYM	ZONE	REVISIONS DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 28062	[illegible]	[illegible]	[illegible]	[illegible]
B		REVISED PER TDRR [illegible]	[illegible]	[illegible]	[illegible]	[illegible]
C		REVISED PER TDRR [illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D		REVISED PER TDRR 32353	[illegible]		[illegible]	[illegible]
E		REVISED PER TDRR 32873	[illegible]	[illegible]	[illegible]	[illegible]
F		REVISED PER TDRR 3286[illegible]	[illegible]		[illegible]	[illegible]
G		REVISED PER TDRR 33439	[illegible]	[illegible]	[illegible]	[illegible]
H		REVISED PER TDRR 3426[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
J		REVISED PER TDRR 34680	[illegible]	[illegible]	[illegible]	[illegible]
K		REVISED PER TDRR [illegible]	[illegible]	[illegible]	[illegible]	[illegible]


10
11
9 SEE NOTE 2
9 SEE NOTE 2
8
7
OSCILLATOR MODULE B7
ALARM MODULE B8
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
CURRENT SWITCH MODULE B11
ERASABLE MEMORY MODULE B12
SENSE AMPLIFIER MODULE
ERASABLE MEMORY
3.70
3.68 SEE NOTE 50
92 REF
91 REF SEE NOTE 50

SECTION D-D


40 SEE NOTE 15
86 SEE NOTE 47
SEE NOTE 6
SEE NOTE 11
34
33
32
31
30
29
28
27
POWER SUPPLY MODULE A30-31
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
LOGIC MODULE A24
LOGIC MODULE A23
LOGIC MODULE A22
LOGIC MODULE A21
LOGIC MODULE A20
LOGIC MODULE A19
LOGIC MODULE A18
LOGIC MODULE A17
LOGIC MODULE A16
35
37
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38
36
74
80
POWER SUPPLY MODULE A30-31
LOGIC MODULE A15
LOGIC MODULE A14
LOGIC MODULE A13
LOGIC MODULE A12
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A7
LOGIC MODULE A6
LOGIC MODULE A5
LOGIC MODULE A4
LOGIC MODULE A3
LOGIC MODULE A2
LOGIC MODULE A1
15
16
17
18
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20
21
22
22
22
22
23
24
25
26
36
74
80
REF 1
REF 72
REF 79
REF 6
REF 73
2 REF
3.50 SEE NOTE 49
"B" SEE NOTE 49
11 REF
REF 34
REF 35
REF 37
"A" SEE NOTE 48
3.50 SEE NOTE 48
REF 1
REF 72
REF 79
2 REF
6 REF
73 REF

SECTION C-C

PARTIAL SECTION HH
FOR-051 ONLY

39. FOR INTERFACE MODULE A25—26 USE EITHER 2003070-021 OR 2003070-031
40. FOR INTERFACE MODULE A27—29 USE EITHER 2003067-031 OR 2003067-041
41. FOR ROPE DRIVER MODULE B16—17 USE EITHER 2003140-021 OR 2003140-031
42. FILL FEMALE INSULATORS OF B41 AND B42 CONNECTORS USING FIND NO. 81 PRIOR TO ASSY OF FIND NO.5 TO FIND NO.2
43. PRIOR TO SPACECRAFT INSTALLATION SEAL EXPOSED HARDWARE & CONNECTOR COMPUTER INTERFACE WITH .002 MIN THK COATING OF FIND NO. 82 COMPUTER ASSY DIMENSIONS SHALL NOT BE EXCEEDED CURE AT ROOM TEMP FOR 24 HRS
44. BOND FIND NO 84 ALONG EDGES TO FIND NO.5 PER ND1002004, TYPE V PRIOR TO ASSEMBLY OF FIND NO'S 6 OR 73
45. SHIM AS REQUIRED, PRIOR TO ASSEMBLY OF FIND NO'S 6 OR 73, SURFACE 'C' TO WITHIN ±.002 OF SURFACE 'B' USING FIND NO. 84, NOT TO INCLUDE .004 REF DIMENSION OF FIND NO. 84

46. SHIM, AS REQUIRED, PRIOR TO ASSEMBLY OF FIND NO.S 6 OR 73, SURFACE 'C' TO WITHIN ±.002 OF SURFACE 'B' USING FIND NO. 83
47. FIND NO'S 85 THRU 88 TO BE USED AT ALL TIMES THAT THREADED HOLES ARE NOT IN USE. THIS INCLUDES SHIPPING. ALL SCREWS SHALL BE TORQUED SUFFICIENTLY TO SEAL THREADED HOLES, EXCEPT FIND NO 87 TO BE TORQUED 7.0 TO 8.5 INCH/POUNDS ALL HARDWARE NOT ASSEMBLED TO COMPUTER WHEN SHIPPED BUT REQUIRED SHALL BE IDENTIFIED PER ND 1002019 & SHIPPED UNASSEMBLED
48. "A" DIM. TAKEN 3.50 FROM EDGE OF FIND NO. 35
49. "B" DIM. TAKEN 3.50 FROM EDGE OF FIND NO. 35
50. USE FOLLOWING PROCEDURE FOR INSTALLATION OF VIBRATION DAMPENING PAD FIND NO. 91 & SHIM FIND NO. 92
    - (A) MEASURE DIMENSIONS "A" & "B" (SEE PARTIAL SECTION HH)
    - (B) TOTAL DIM. OF PAD FIND NO. 91, SHIM FIND NO. 92 & BONDING MAT'L PER NOTE 50 & 50 (D) MUST BE EQUAL TO THE AVERAGE OF DIMENSIONS A & B PLUS [illegible] ±.004 THIS TOTAL DIM. MUST BE OBTAINED BY MACHINING THE SHIM FIND NO. 92 TO THE REQUIRED THICKNESS PRIOR TO BONDING TO FIND NO. 91
    - (C) BOND FIND NO. 92 AFTER MACHINING TO THICKNESS TO FIND NO. 91 USING 1006336. USE BONDING MAT'L SPARINGLY
    - (D) BOND ASSY OF FIND NO'S 91 & 92 TO FIND NO. [illegible] USING 1006338 BOND [illegible] CENTER AREA & ON BOTH ENDS FIND NO. 92 TO INTERFACE WITH FIND NO. [illegible]
51. WHEN FIND NO. 1, 34, 35, 37, 6 OR 73 IS REMOVED & REPLACED REPEAT NOTE 50
52. TORQUE FOR PLUG OF FIND NO. 56 TO BE 25-35 IN/LBS

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN [illegible]
CHECKED [illegible]
APPROVED
APPROVED [illegible]
APPROVED MIT [illegible]
APPROVED MSC A. C. METZGER

COMPUTER
ASSEMBLY

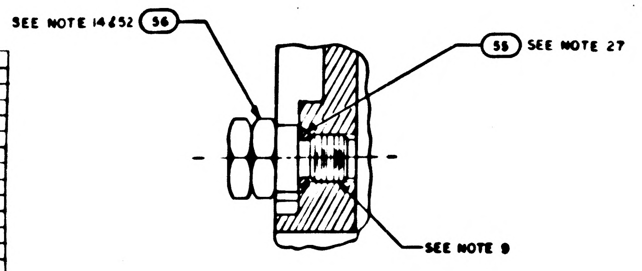
CODE IDENT NO 80230 SIZE J DRAWING NO 2003200
SCALE
SHEET 2 OF 2

003200 K

2003200

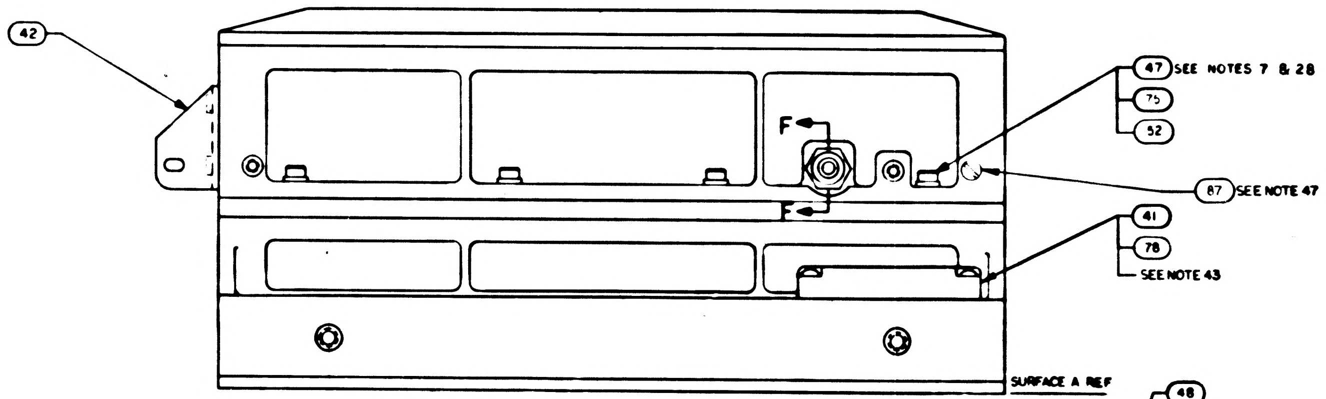
2003200-KF 2/2 SH 2/2

CHART 'A' (SEE NOTE 30)			
PART NO.	PART NO.	MODULE	
2003121-011	2003888-011	LOGIC MODULE	A1
-021	-021		A2
-031	031		A3
-041	041		A4
-051	-051		A5
-061	-061		A6
-07	-071		A7
-08	-081		A8-A11
-09	-091		A12
[illegible]	-111		A13
-12	-121		A14
-131	-131		A15
-14	-141		A16
-15	-151		A17
-16	-161		A18
-17	-171		A19
-181	-181		A20
-191	-191		A21
-2	-211		A22
22	-221		A23
2003121-23	2003888-231	LOGIC MODULE	A24



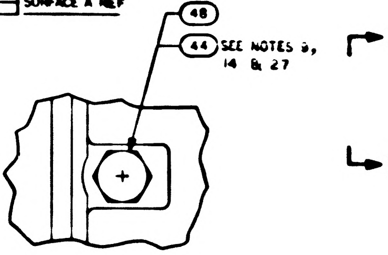
SEE NOTE 14 & 52
56
58
SEE NOTE 27
SEE NOTE 9

PARTIAL SECTION F F
SCALE: 2/1



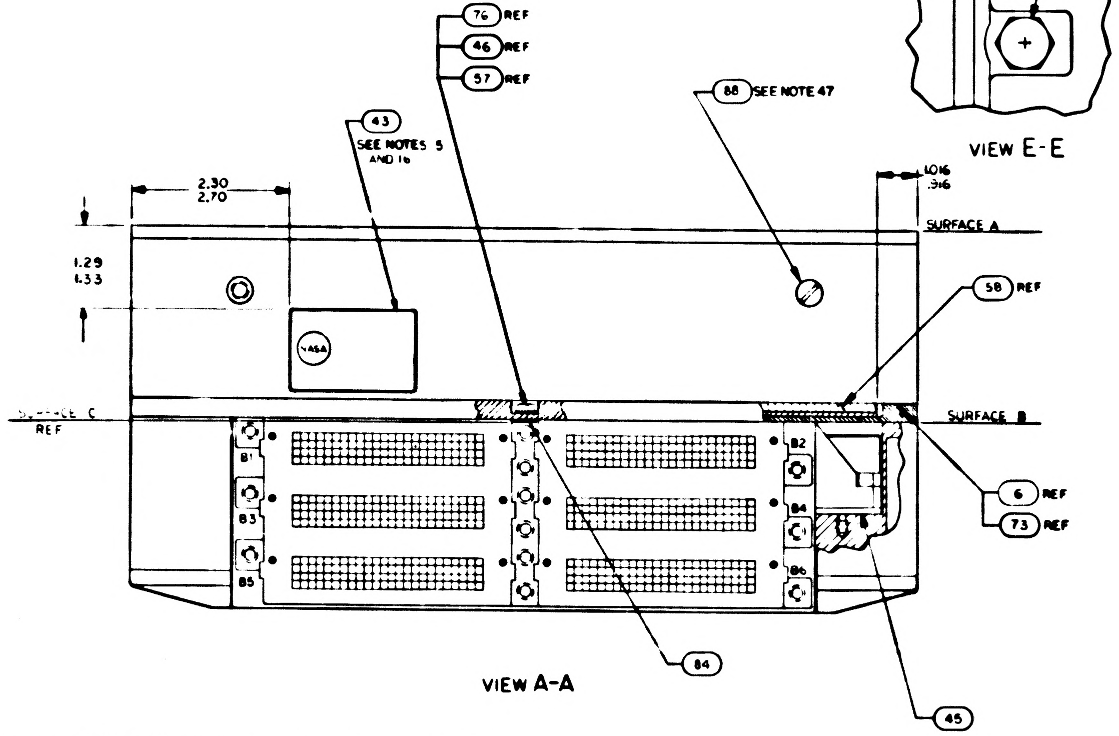
42
F
F
47
SEE NOTES 7 & 28
75
52
87
SEE NOTE 47
41
78
SEE NOTE 43
SURFACE A REF

VIEW B-B



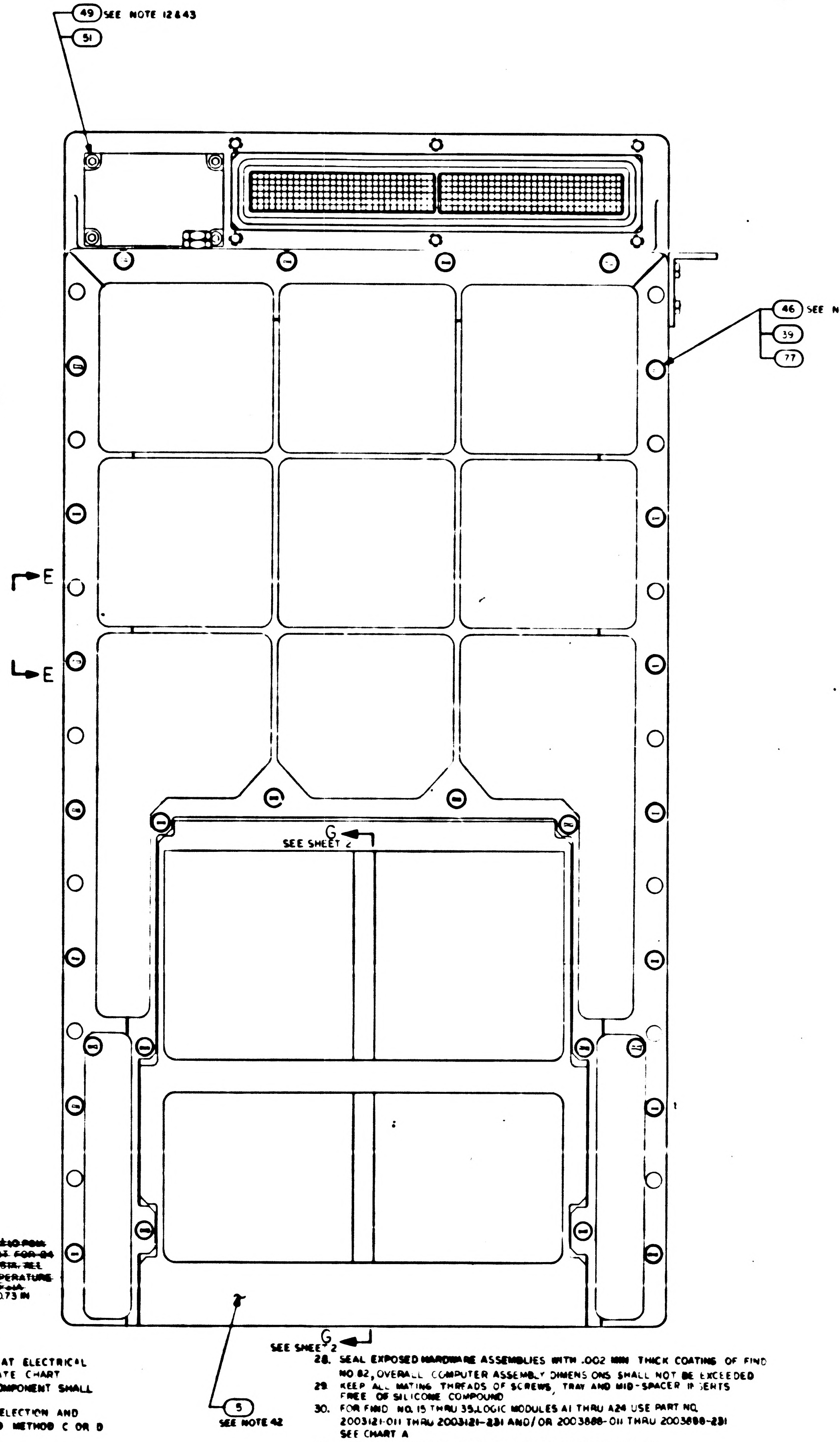
48
44
SEE NOTES 9, 14 & 27

VIEW E-E

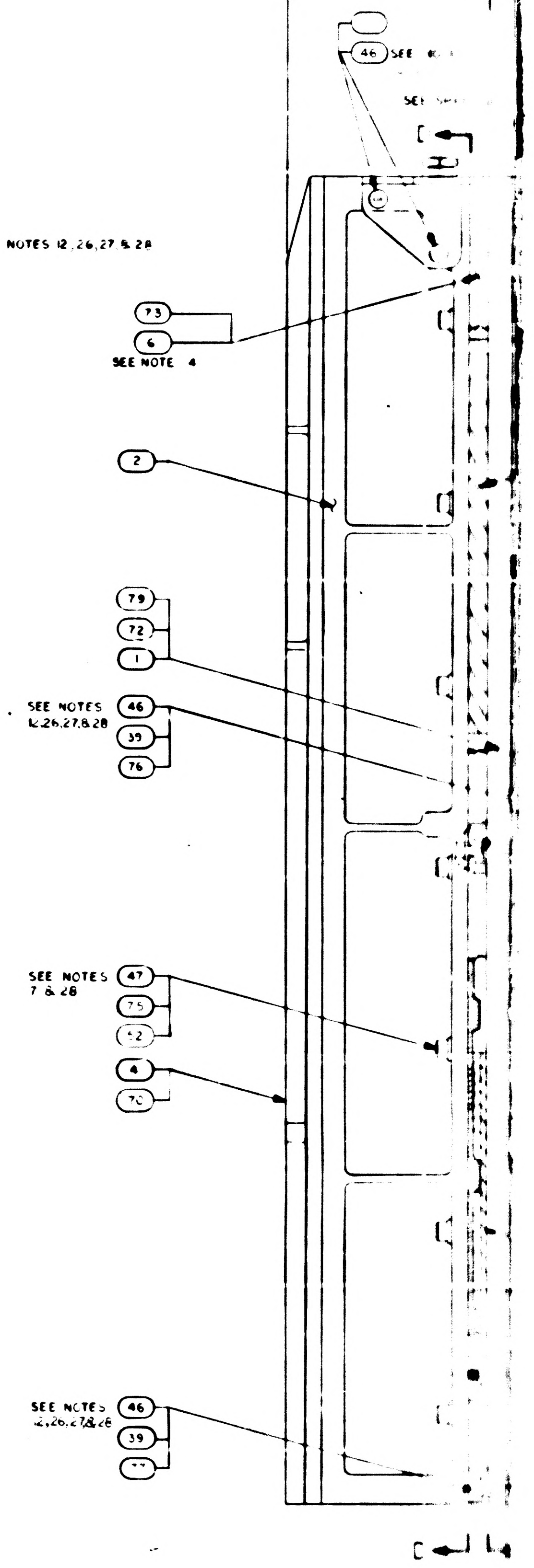


76 REF
46 REF
57 REF
43
SEE NOTES 5 AND 16
88
SEE NOTE 47
2.30
2.70
.1016
.916
SURFACE A
1.29
1.33
NASA
58 REF
SURFACE C REF
SURFACE B
B1
B2
B3
B4
B5
B6
6 REF
73 REF
84
45

VIEW A-A



49
SEE NOTE 12 & 43
51
46
SEE NOTES 12, 26, 27 & 28
39
77
E
E
G
SEE SHEET 2
G
SEE SHEET 2
5
SEE NOTE 42



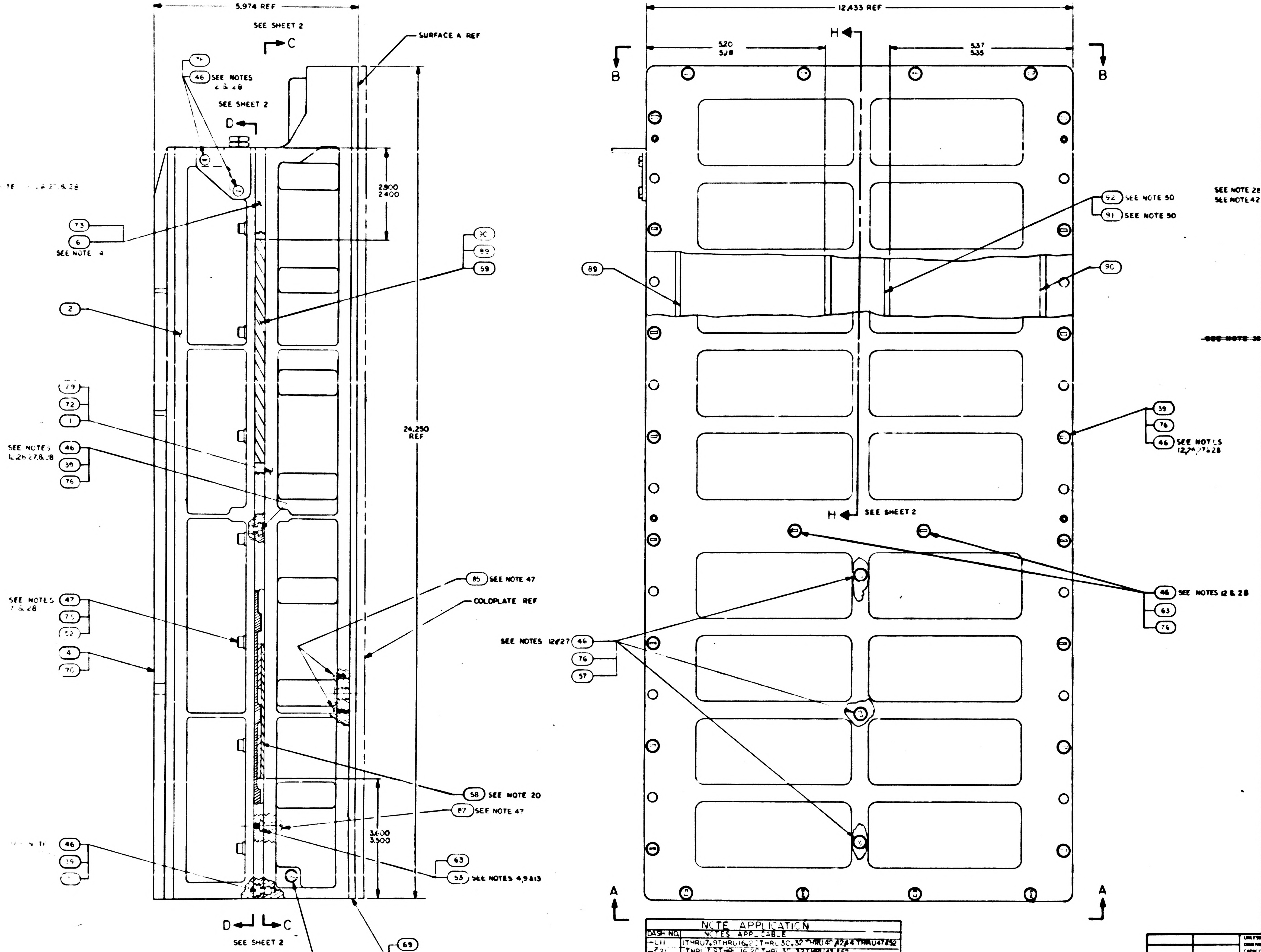
46
SEE
73
6
SEE NOTE 4
2
79
72
1
SEE NOTES 12, 26, 27 & 28
46
39
76
SEE NOTES 7 & 28
47
75
52
4
70
SEE NOTES 12, 26, 27 & 28
46
39
77

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. PHANTOM LINES DENOTE AGC COLDPLATE AND HANDLING FIXTURE TO BE SUPPLIED BY NORTH AMERICAN AVIATION, INC.
3. ADD SILICONE COMPOUND 1006879 TO MODULE MATING METAL SURFACES AND TRAY MATING SURFACES
4. ASSEMBLE FIND NO. 53 AND FIND NO. 63 TO FIND NO. 6 OR FIND NO. 73 AND FIND NO. 6 OR FIND NO. 73 TO FIND NO. 2 PRIOR TO ASSEMBLY OF FIND NO. 2 TO FIND NO. 1 OR FIND NO. 72 OR FIND NO. 79
5. BOND FIND NO. 43 TO FIND NO. 1 OR FIND NO. 72 OR FIND NO. 79 PER ND1002219, METHOD II
6. UNLESS OTHERWISE SPECIFIED TORQUE ALL MODULE MOUNTING SCREWS 15/19 INCH POUNDS
7. TORQUE FIND NO. 47 OR FIND NO. 75 TO 26/32 INCH POUNDS
~~8. [illegible]~~
9. APPLY SEALING COMPOUND PER 1008953-004 TO FIND NO. 53, FIND NO. 56 AND FIND NO. 44
10. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2016005 OR PS2016007
11. TORQUE FOR FIND NO. 36 MOUNTING SCREWS TO BE 10/12 INCH POUNDS
12. TORQUE FOR FIND NO. 46, 49, 50, 76 AND 68 TO BE 18/22 INCH POUNDS
13. TORQUE FOR FIND NO. 53 TO BE 4/6 INCH POUNDS
14. TORQUE FOR FIND NO. 44 AND FIND NO. 56 TO BE 137/157 INCH POUNDS
15. FIND NO. 40 SHALL BE SUPPLIED AS PART OF THIS ASSEMBLY
16. MARK COMPUTER ASSEMBLY AND RELATED PART NO., APPLICABLE DASH NO., SERIAL NO. AND CONTRACT NO. PER 1004260 AND SERIALIZE PER ND1002023
~~SURFACE -X- PER SCD [illegible] THIS ASSEMBLY MUST BE CAPABLE OF MEETING~~
~~[illegible] REQUIREMENTS OF SCD [illegible]~~
~~18. THE FOLLOWING RESISTANCES TO BE NOT MORE THAN [illegible]~~
~~a. RESISTANCE BETWEEN FIND NO. 1 AND FIND NO. 6~~
~~b. RESISTANCE BETWEEN FIND NO. 2 AND FIND NO. 6~~
~~c. RESISTANCE BETWEEN FIND NO. 3 AND FIND NO. 4 OR BETWEEN FIND NO. [illegible] NO. 70~~
~~19. LEAK TEST PURGE AND FILL WITH [illegible] DRY NITROGEN [illegible] AT ROOM AMBIENT FOR [illegible] TEST PRESSURE FOR [illegible] PSIA. ALL MEASUREMENTS MADE AT STANDARD TEMPERATURE ±2°C FOLLOWING TEST BLEED TO [illegible]~~
20. BOND FIND NO. 58 TO FIND NO. 6 OR FIND NO. 73 IN POSITION SHOWN USING 1006338
21. REFERENCED MODULES MUST NOT BE REPLACED OR INTERCHANGED WITHOUT REPEATING NOMINAL SELECTION PROCEDURE PER NOTE 10
22. THE VALUE OF C1 TO BE DETERMINED AT ELECTRICAL TEST AND SELECTED FROM APPROPRIATE CHART
23. WHEN THE VALUE OF C1 IS "0" NO COMPONENT SHALL BE USED
24. ENCAPSULATE AREA SHOWN AFTER SELECTION AND INSTALLATION OF C1 USING ND1002009 METHOD C OR D USING PRIMER PER SCD 1012513
25. WELD PER ND1002005
26. ASSEMBLE HARDWARE WITH SMOOTH FACE OF FIND NO. 30 IN CONTACT WITH SCREW HEAD
27. FIND NO. 39, 48, 55 & 57 TO BE DISCARDED AND REPLACED WITH NEW PARTS EACH TIME THEY ARE DISASSEMBLED
28. SEAL EXPOSED HARDWARE ASSEMBLIES WITH .002 MIN THICK COATING OF FIND NO. 82, OVERALL COMPUTER ASSEMBLY DIMENSIONS SHALL NOT BE EXCEEDED
29. KEEP ALL MATING THREADS OF SCREWS, TRAY AND MID-SPACER INSERTS FREE OF SILICONE COMPOUND
30. FOR FIND NO. 15 THRU 35, LOGIC MODULES A1 THRU A24 USE PART NO. 2003121-011 THRU 2003121-231 AND/OR 2003888-011 THRU 2003888-231 SEE CHART A
31. FOR TRAY & WIPED ASSY USE EITHER 2003092-041 OR 2003092-051 OR 2003092-061
32. FOR OSCILLATOR MODULE B7 USE EITHER 2003036-021 OR 2003036-031
33. THRU 52 SEE SHEET 2

2003200

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 2[illegible]62				
B		REVISED PER TDRR [illegible]087				
C		REVISED PER TDRR 3[illegible]-90				
D		REVISED PER TDRR 32353				
E		REVISED PER TDRR [illegible]				
F		REVISED PER TDRR [illegible]				
G		REVISED PER TDRR 33-39				
H		REVISED PER TDRR 342[illegible]				
J		REVISED PER TDRR [illegible]				
K		REVISED PER TDRR [illegible]				
L		REVISED PER TDRR 3[illegible]				



NOTE APPLICATION	
DASH NO.	NOTES APPLICABLE
-011	1 THRU 7, 9 THRU 16, 20 THRU 30, 32 THRU 40, 42, 44 THRU 47 & 52
-021	1 THRU 7, 9 THRU 16, 20 THRU 30, 32 THRU 47 & 52
-031	1 THRU 7, 9 THRU 16, 20 THRU 30, 32 THRU 47 & 52
-041	1 THRU 7, 9 THRU 16, 20 THRU 30, 32 THRU 47 & 52
-051	1 THRU 7, 9 THRU 16, 20 THRU 52

	QTY REQD -051	QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
		—	—	—	—	2[illegible]465	SHIM, VIBRATION DAMPENING	[illegible]
		—	—	—	—	2004690	PAD, VIBRATION DAMPENING	[illegible]
	1	—	—	—	—	[illegible]	PAD, VIBRATION	[illegible]
	1		—	—	—	2004899-006	PAD, VIBRATION	[illegible]
	4	4	4	4	4	1010485-432	SCREW NYLON	[illegible]
	11	11	11	11	11	1010485-332	SCREW NYLON	[illegible]
	6	6	6	6	6	1010485-235	SCREW, NYLON	[illegible]
	28	28	28	28	28	[illegible]485-[illegible]00	SCREW, NYLON	[illegible]
	AR	AR	AR	AR	AR	20108[illegible]1	SHIM AGC	[illegible]
	AR	AR	AR	AR	AR	2010800-000	SHIM	[illegible]
SEE NOTE 28	AR	AR	AR	AR	AR	1006338-003	SEALING COMPOUND, SILICONE RUBBER	[illegible]
SEE NOTE 42	AR	AR	AR	AR	AR	100[illegible]354	SILICONE COMPOUND	[illegible]
	╳	╳	╳	╳		[illegible]4354	AGC WIRE LIST	REF
	2	—	—	—	—	2003892-011	POWER SUPPLY MOD A30 31	80
	1	—	—	—	—	SEE NOTE 31	TRAY A WIRED ASSY	79
	1	1	—	—	—	2003099-011	COVER, TEST CONN	78
	33	33	33	33	—	2004732-002	SCREW, COATED	77
	33	33	33	33	—	2004732-001	SCREW, COATED	76
	18	18	8	8	—	2004732-003	SCREW, COATED	75
	—	2	2	—	—	2003953-021	POWER SUPPLY MOD A30 31	74
	1	1	1	1	—	2003978-001	MID-SPACER	73
	—	1	1	1	—	2003092-021	TRAY A WIRE ASSY	72
	2	2	2	2	—	SEE NOTE 41	ROPE DRIVER MODULE B16-B17	71
	1	1	1	1	—	2003976-011	TRAY B COVER	70
	1	1	1	1	—	2003977-011	TRAY A COVER	69
	2	2	2	2	—	1001489-36	SCREW, HEX SOCKET HEAD	68
	—	[illegible]	[illegible]	[illegible]	—	1006783-26	SCREW, BUTTON HEAD HEX SOCKET	67
~~SEE NOTE 38~~	~~AR~~	~~AR~~	~~AR~~	~~AR~~	~~AR~~	~~1006338-000~~	~~SEALING COMPOUND, SILICONE RUBBER~~	~~66~~
	AR	AR	AR	AR	AR	1006776-22	INSULATION SLEEVING, ELECTRICAL	65
	—	—	—	—	╳	2005036	AGC WIRE LIST	REF
	1	1		1	1	SEE NOTE 22	CAPACITOR	64
	10	10	10	10	10	2004148-007	WASHER, FLAT	63
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] MODIFIED MODULE, FIXED MEMORY [illegible]	62
	~~AR~~	~~AR~~	~~AR~~	~~AR~~	~~AR~~	~~2004895-002~~	~~SHIM AGC~~	~~61~~
	~~AR~~	~~AR~~	~~AR~~	~~AR~~	~~AR~~	~~2004895-001~~	~~SHIM AGC~~	~~60~~
	—	1	1	1	1	2004[illegible]49-001	PAD VIBRATION	59
	1	1	1	1	1	2003970	VIBRATION ISO ASSY	58
	4	4	4	4	4	NAS1596-008N	WASHER, SEALING	57
	1	1	1	1	1	2012773	VALVE PRESSURE ASSEMBLY	56
	1	1	1	1	1	1000159-5	PACKING, PREFORMED "O" RING	55
	2	2	2	2	2	2004984-001	WASHER, FLAT	54
	8	8	8	8	8	2004130	PAD, THREADED	53
	18	18	18	18	18	2004894-014	WASHER, FLAT	52
	—	—	4	4	4	2004894-012	WASHER, FLAT	51
	—	—	—	—	2	1001489-34	SCREW, HEX SOCKET HEAD	50
	—	—	4	4	4	1004722-2	SCREW, CAPTIVE	49
	1	1	1	1	1	1000159-7	PACKING, PREFORMED "O" RING	48
	—	[illegible]	[illegible]	[illegible]	16	MS16996-14	SCREW, SOCKET HEAD, CAP	47
	—	—	—	—	66	1006783-25	SCREW, BUTTON HEAD, HEX SOCKET	46
	2	2	2	2	2	1006347	GASKET, PLATE	45
	1	1	1	1	1	2004986	PLUG, MACHINE THREAD	44
	1	1	1	1	1	1004260-19	NAME PLATE, TYPE I	43
	1	1	1	1	1	2004113-001	BRACKET, CABLE	42
	—	—	1	1	1	2004115	COVER, POTTED	41
	1	1	1	1	1	1006380	GASKET, RETAINED	40
	58	58	58	58	58	20047[illegible]7	WASHER, KNURLED	39
	3	3	3	3	3	SEE NOTE 40	INTERFACE MODULE A27-29	38
	2	2	2	2	2	SEE NOTE 39	INTERFACE MODULE A25-26	37
	—	—	—	2	2	2003953-011	POWER SUPPLY MODULE A30-31	36
	1	1	1	1	1	SEE NOTE 30	LOGIC MODULE A24	35
	1	1	1	1	1		LOGIC MODULE A23	34
	1	1	1	1	1		LOGIC MODULE A22	33
	1	1	1	1	1		LOGIC MODULE A21	32
	1	1	1	1	1		LOGIC MODULE A20	31
	1	1	1	1	1		LOGIC MODULE A19	30
	1	1	1	1	1		LOGIC MODULE A18	29
	1	1	1	1	1		LOGIC MODULE A17	28
	1	1	1	1	1		LOGIC MODULE A16	27
	1	1	1	1	1		LOGIC MODULE A15	26
	1	1	1	1	1		LOGIC MODULE A14	25
	1	1	1	1	1		LOGIC MODULE A13	24
	1	1	1	1	1		LOGIC MODULE A12	23
	4	4	4	4	4		LOGIC MODULE A8-11	22
	1	1	1	1	1		LOGIC MODULE A7	21
	1	1	1	1	1		LOGIC MODULE A6	20
	1	1	1	1	1		LOGIC MODULE A5	19
	1	1	1	1	1		LOGIC MODULE A4	18
	1	1	1	1	1		LOGIC MODULE A3	17
	1	1	1	1	1		LOGIC MODULE A2	16
	1	1	1	1	1	SEE NOTE 30	LOGIC MODULE A1	15
	—	—	—	—	2	2003140-011	ROPE DRIVER MODULE B16-17	14
	1	1	1	1	1	SEE NOTE 38	STRAND SELECT MODULE B15	13
	1	1	1	1	1	SEE NOTE 37	SENSE AMPL MOD, ERASABLE MEMORY B13	12
	1	1		1	1	SEE NOTE 36	ERASABLE MEMORY MODULE B12	11
	1	1		1	1	SEE NOTE 35	CURRENT SWITCH MODULE B11	10
	2	2	2	2	2	SEE NOTE 34	ERASABLE DRIVER MODULE B9-10	9
	1	1		1	1	SEE NOTE 33	ALARM MODULE B8	8
	1	1		1	1	SEE NOTE 32	OSCILLATOR MODULE B7	7
	—	—	—	—	1	2003978-000	MID SPACER	6
	1	1		1	1	2003059-021	INTERCONNECTION HEADER ASSEMBLY	5
	—	—	—	—	1	2003976-000	TRAY B COVER	4
	—	—	—	—	1	2003977-000	TRAY A COVER	3
	1	1		1	1	2003093-011	TRAY B WIRED ASSEMBLY	2
	—	—	—	—	1	2003092-011	TRAY A WIRED ASSEMBLY	1

LIST OF MATERIALS

2003991	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER ASSEMBLY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2003200

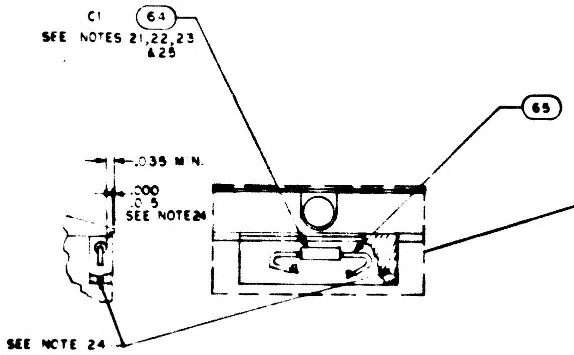
SCALE — SHEET 1 OF 2

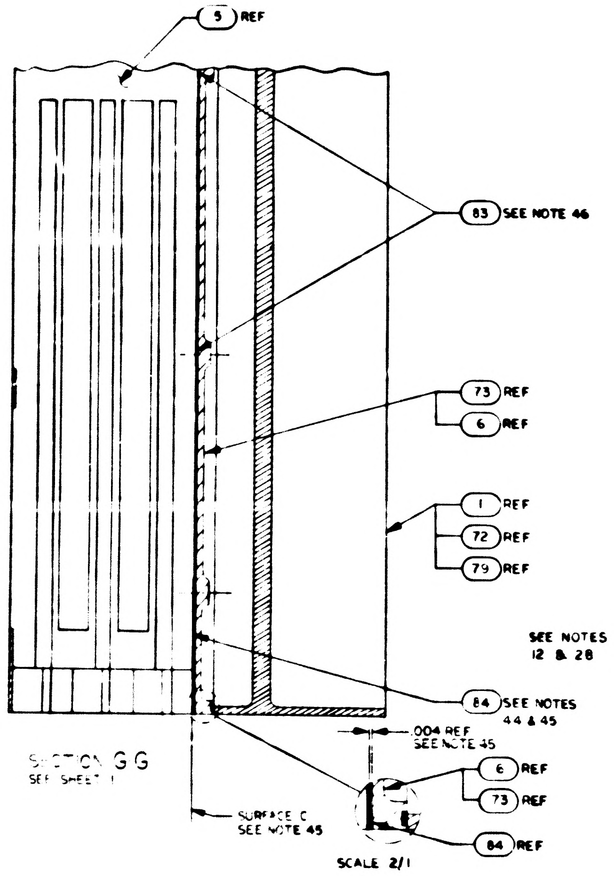
2003200

L

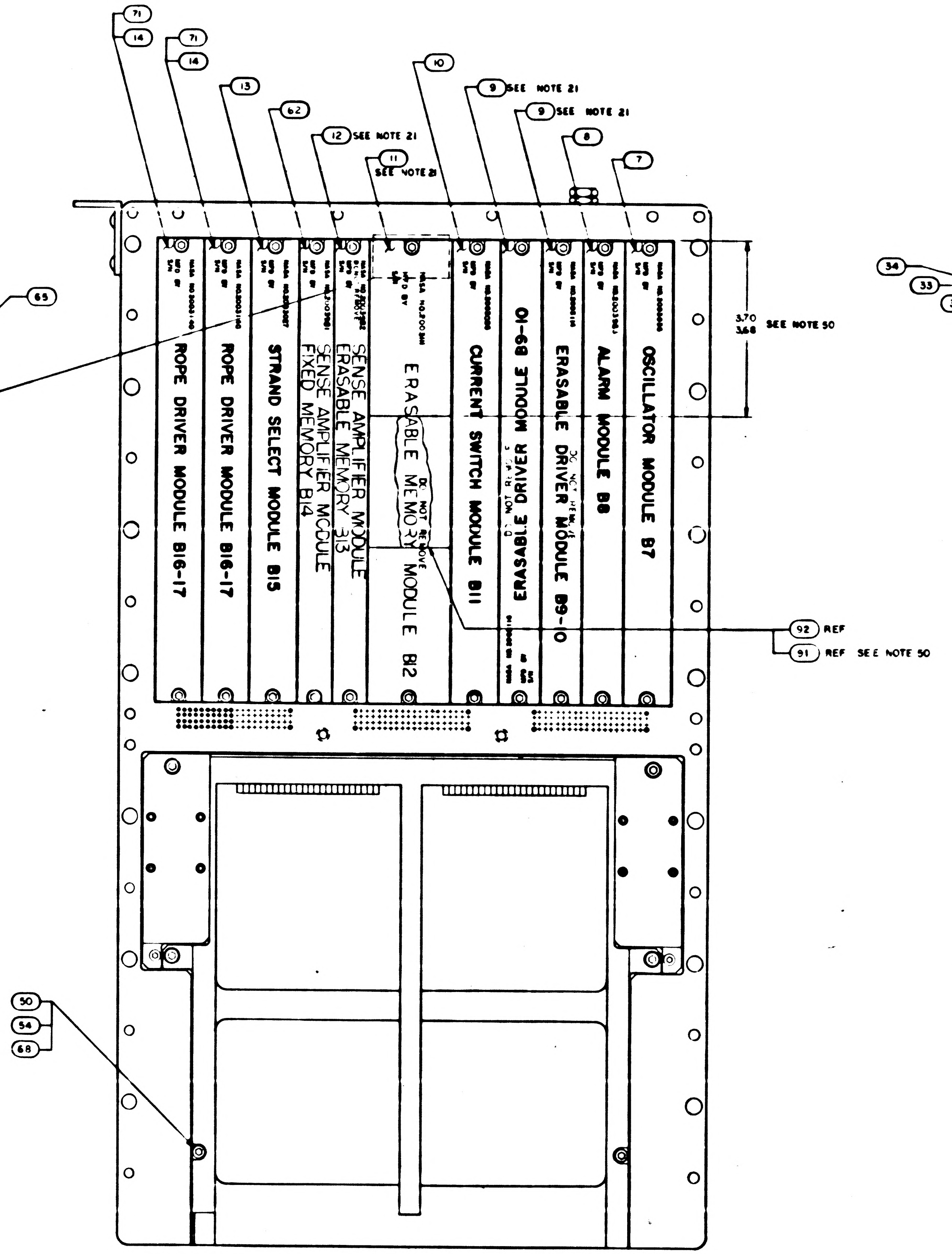
SH1/2 2003200ILE2/2

C1	
PART NO.	VALUE UUF
1006777-1	10
—15	50
—8	330
—20	470
—22	680
—23	820
SEE NOTE 23	0

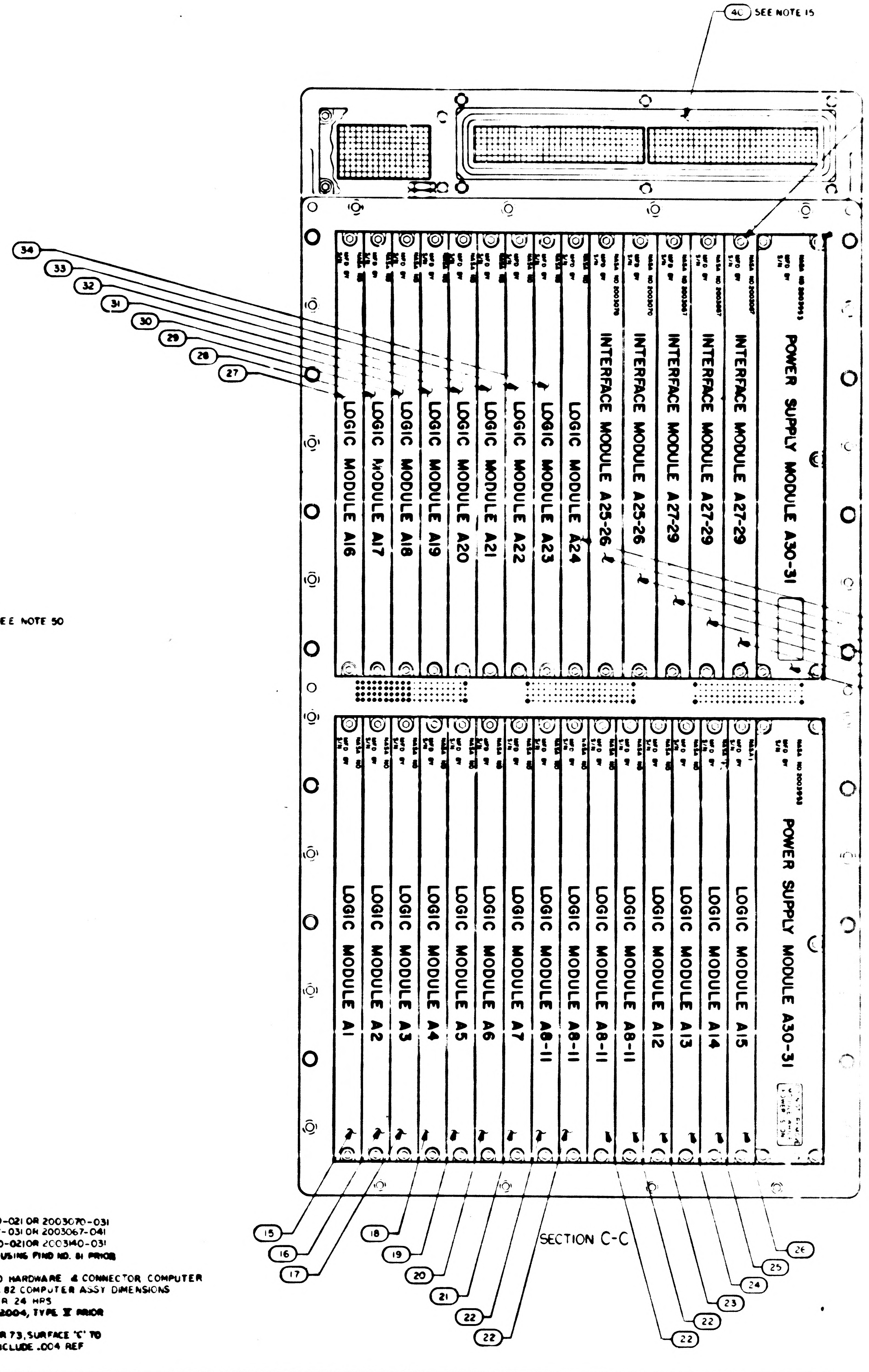

C1
64
SEE NOTES 21,22,23 & 25
65
.035 MIN.
.200 ± .5
SEE NOTE 24
SEE NOTE 24


5 REF
83 SEE NOTE 46
73 REF
6 REF
1 REF
72 REF
79 REF
84 SEE NOTES 44 & 45
.004 REF
SEE NOTE 45
6 REF
73 REF
84 REF
SURFACE C
SEE NOTE 45
SCALE 2/1

SECTION G-G
SEE SHEET 1


71
14
71
14
13
62
12 SEE NOTE 21
11 SEE NOTE 21
10
9 SEE NOTE 21
9 SEE NOTE 21
8
7
ROPE DRIVER MODULE B16-17
ROPE DRIVER MODULE B16-17
STRAND SELECT MODULE B15
SENSE AMPLIFIER MODULE FIXED MEMORY B14
SENSE AMPLIFIER MODULE ERASABLE MEMORY B13
ERASABLE MEMORY MODULE B12
DO NOT REMOVE
CURRENT SWITCH MODULE B11
ERASABLE DRIVER MODULE B9-10
DO NOT REMOVE
ERASABLE DRIVER MODULE B9-10
DO NOT REMOVE
ALARM MODULE B8
OSCILLATOR MODULE B7
3.70
3.68
SEE NOTE 50
92 REF
91 REF SEE NOTE 50
SEE NOTES 12 & 28
50
54
68

SECTION D-D


40 SEE NOTE 15
34
33
32
31
30
29
28
27
LOGIC MODULE A16
LOGIC MODULE A17
LOGIC MODULE A18
LOGIC MODULE A19
LOGIC MODULE A20
LOGIC MODULE A21
LOGIC MODULE A22
LOGIC MODULE A23
LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
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25
26

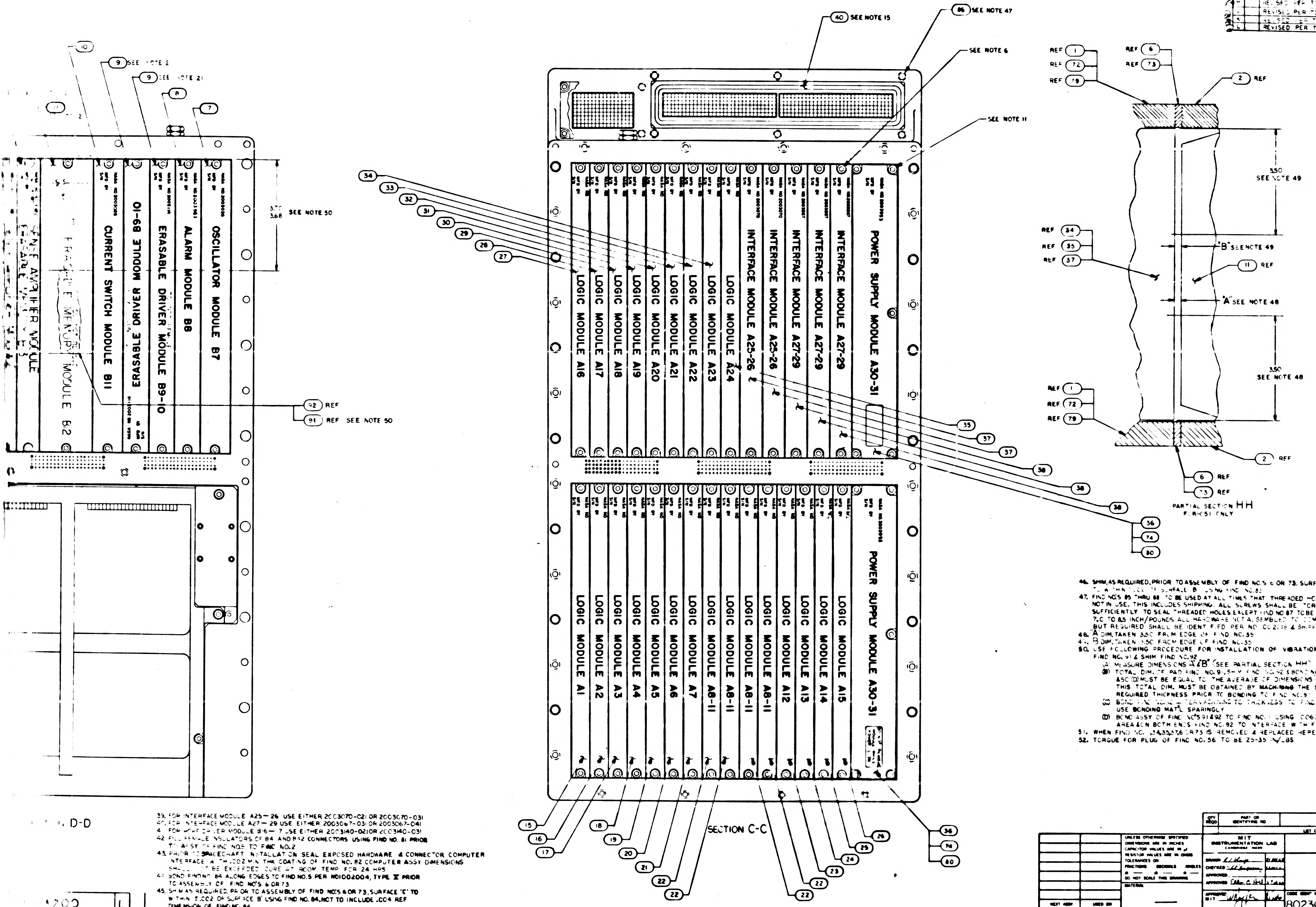
SECTION C-C

PACKAGING REFERENCE DRAWINGS:
1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421

33. FOR ALARM MODULE B8 USE EITHER 2003983-011 OR 2003983-021
34. FOR ERASABLE DRIVER MODULE B9-10 USE EITHER 2003114-011 OR 2003114-021
35. FOR CURRENT SWITCH MODULE B11 USE EITHER 2003026-021 OR 2003026-031
36. FOR ERASABLE MEMORY MODULE B12 USE EITHER 2003111-011 OR 2003111-021
37. FOR SENSE AMPLIFIER MODULE ERASABLE MEMORY B13 USE EITHER 2003982-011 OR 2003982-021 OR 2003982-031
38. FOR STRAND SELECT MODULE B15 USE EITHER 2003027-021 OR 2003027-031
39. FOR INTERFACE MODULE A25—26 USE EITHER 2003070-021 OR 2003070-031
40. FOR INTERFACE MODULE A27—29 USE EITHER 2003067-031 OR 2003067-041
41. FOR ROPE DRIVER MODULE B16—17 USE EITHER 2003140-021 OR 2003140-031
42. FILL FEMALE INSULATORS OF B41 AND B42 CONNECTORS USING FIND NO. 81 PRIOR TO ASSY OF FIND NO.5 TO FIND NO.2
43. PRIOR TO SPACECRAFT INSTALLATION SEAL EXPOSED HARDWARE & CONNECTOR COMPUTER INTERFACE WITH .002 MIN THK COATING OF FIND NO. 82 COMPUTER ASSY DIMENSIONS SHALL NOT BE EXCEEDED CURE AT ROOM TEMP FOR 24 HRS
44. BOND FIND NO. 84 ALONG EDGES TO FIND NO.5 PER ND1002004, TYPE V PRIOR TO ASSEMBLY OF FIND NO'S 6 OR 73
45. SHIM AS REQUIRED, PRIOR TO ASSEMBLY OF FIND NO'S 6 OR 73, SURFACE 'C' TO WITHIN ±.002 OF SURFACE 'B' USING FIND NO. 84, NOT TO INCLUDE .004 REF DIMENSION OF FIND NO. 84

2003200 L

SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
A		REVISED PER TDRR 28062				
B		REVISED PER TDRR [illegible]				
C		REVISED PER TDRR 30490				
D		REVISED PER TDRR 32353				
E		REVISED PER TDRR 32873				
F		REVISED PER TDRR 3266?				
G		REVISED PER TDRR 33439				
H		REVISED PER TDRR 3426?				
J		REVISED PER TDRR 34680				
K		REVISED PER TDRR [illegible]				
L		REVISED PER TDRR 36011				



4
3
2
1
D
C
B
A
40 SEE NOTE 15
86 SEE NOTE 47
SEE NOTE 6
SEE NOTE 11
10
9 SEE NOTE 2
9 SEE NOTE 21
8
7
3.72
3.68
SEE NOTE 50
OSCILLATOR MODULE B7
ALARM MODULE B8
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
CURRENT SWITCH MODULE B11
FRAGILE MEMORY MODULE B2
SENSE AMPLIFIER MODULE
92 REF
91 REF SEE NOTE 50
D-D
POWER SUPPLY MODULE A30-31
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
LOGIC MODULE A24
LOGIC MODULE A23
LOGIC MODULE A22
LOGIC MODULE A21
LOGIC MODULE A20
LOGIC MODULE A19
LOGIC MODULE A18
LOGIC MODULE A17
LOGIC MODULE A16
POWER SUPPLY MODULE A30-31
LOGIC MODULE A15
LOGIC MODULE A14
LOGIC MODULE A13
LOGIC MODULE A12
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A7
LOGIC MODULE A6
LOGIC MODULE A5
LOGIC MODULE A4
LOGIC MODULE A3
LOGIC MODULE A2
LOGIC MODULE A1
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31
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74
80
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16
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18
19
20
21
22
22
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22
23
24
25
26
36
74
80
SECTION C-C
REF 1
REF 72
REF 79
REF 6
REF 73
2 REF
3.50
SEE NOTE 49
"B" SEE NOTE 49
11 REF
"A" SEE NOTE 48
3.50
SEE NOTE 48
REF 34
REF 35
REF 37
REF 1
REF 72
REF 79
2 REF
6 REF
73 REF
PARTIAL SECTION HH
FOR-C51 ONLY

46. SHIM, AS REQUIRED, PRIOR TO ASSEMBLY OF FIND NO'S 6 OR 73, SURFACE 'C' TO WITHIN .002 OF SURFACE 'B' USING FIND NO. 83
47. FIND NO'S 85 THRU 88 TO BE USED AT ALL TIMES THAT THREADED HOLES ARE NOT IN USE. THIS INCLUDES SHIPPING. ALL SCREWS SHALL BE TORQUED SUFFICIENTLY TO SEAL THREADED HOLES EXCEPT FIND NO 87 TO BE TORQUED 7.0 TO 8.5 INCH/POUNDS ALL HARDWARE NOT ASSEMBLED TO COMPUTER WHEN SHIPPED BUT REQUIRED SHALL BE IDENTIFIED PER ND 1002019 & SHIPPED UNASSEMBLED
48. "A" DIM. TAKEN 3.50 FROM EDGE OF FIND NO. 35
49. "B" DIM. TAKEN 3.50 FROM EDGE OF FIND NO. 35
50. USE FOLLOWING PROCEDURE FOR INSTALLATION OF VIBRATION DAMPENING PAD FIND NO. 91 & SHIM FIND NO. 92
    - (A) MEASURE DIMENSIONS "A" & "B" (SEE PARTIAL SECTION HH)
    - (B) TOTAL DIM. OF PAD FIND NO. 91, SHIM FIND NO. 92 & BONDING MAT'L PER NOTE 50 (C) & 50 (D) MUST BE EQUAL TO THE AVERAGE OF DIMENSIONS "A" & "B" PLUS .002 ± .004 THIS TOTAL DIM. MUST BE OBTAINED BY MACHINING THE SHIM FIND NO. 92 TO THE REQUIRED THICKNESS PRIOR TO BONDING TO FIND NO. 91
    - (C) BOND FIND NO. 92 AFTER MACHINING TO THICKNESS TO FIND NO. 91 USING 1006338. USE BONDING MAT'L SPARINGLY
    - (D) BOND ASSY OF FIND NO'S 91 & 92 TO FIND NO. 1 USING 1006338 BOND IN CENTER AREA & ON BOTH ENDS FIND NO. 92 TO INTERFACE WITH FIND NO. [illegible]
51. WHEN FIND NO. 1, 34, 35, 37, 6 OR 73 IS REMOVED & REPLACED REPEAT NOTE 50
52. TORQUE FOR PLUG OF FIND NO. 56 TO BE 25-35 IN/LBS

39. FOR INTERFACE MODULE A25—26 USE EITHER 2003070-021 OR 2003070-031
40. FOR INTERFACE MODULE A27—29 USE EITHER 2003067-031 OR 2003067-041
41. FOR ROPE DRIVER MODULE B16—17 USE EITHER 2003140-021 OR 2003140-031
42. FILL FEMALE INSULATORS OF B4 AND B42 CONNECTORS USING FIND NO. 81 PRIOR TO ASSY OF FIND NO. 5 TO FIND NO. 2
43. PRIOR TO SPACECRAFT INSTALLATION SEAL EXPOSED HARDWARE & CONNECTOR COMPUTER INTERFACE WITH .002 MIN THK COATING OF FIND NO. 82 COMPUTER ASSY DIMENSIONS SHALL NOT BE EXCEEDED CURE AT ROOM TEMP FOR 24 HRS
44. BOND FIND NO. 84 ALONG EDGES TO FIND NO. 5 PER ND1002004, TYPE V PRIOR TO ASSEMBLY OF FIND NO'S 6 OR 73
45. SHIM AS REQUIRED PRIOR TO ASSEMBLY OF FIND NO'S 6 OR 73, SURFACE 'C' TO WITHIN ±.002 OF SURFACE 'B' USING FIND NO. 84, NOT TO INCLUDE .004 REF DIMENSION OF FIND NO. 84

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED
APPROVED
APPROVED Eldon C. Hall
APPROVED MIT
APPROVED MSC A. C. METZGER
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER
ASSEMBLY

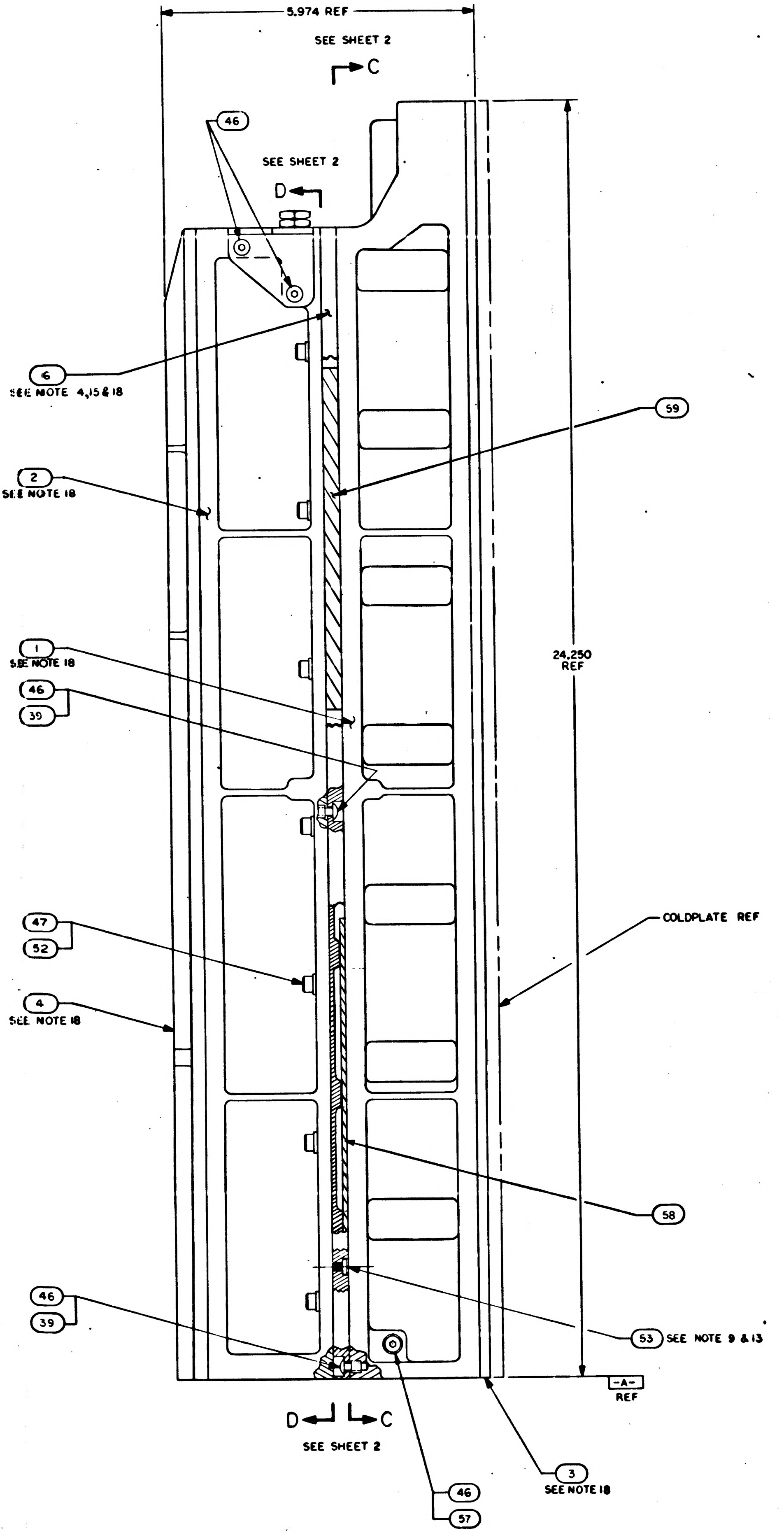
CODE IDENT NO 80230
SIZE J
DRAWING NO 2003200
SCALE 1/1
SHEET 2 OF 2

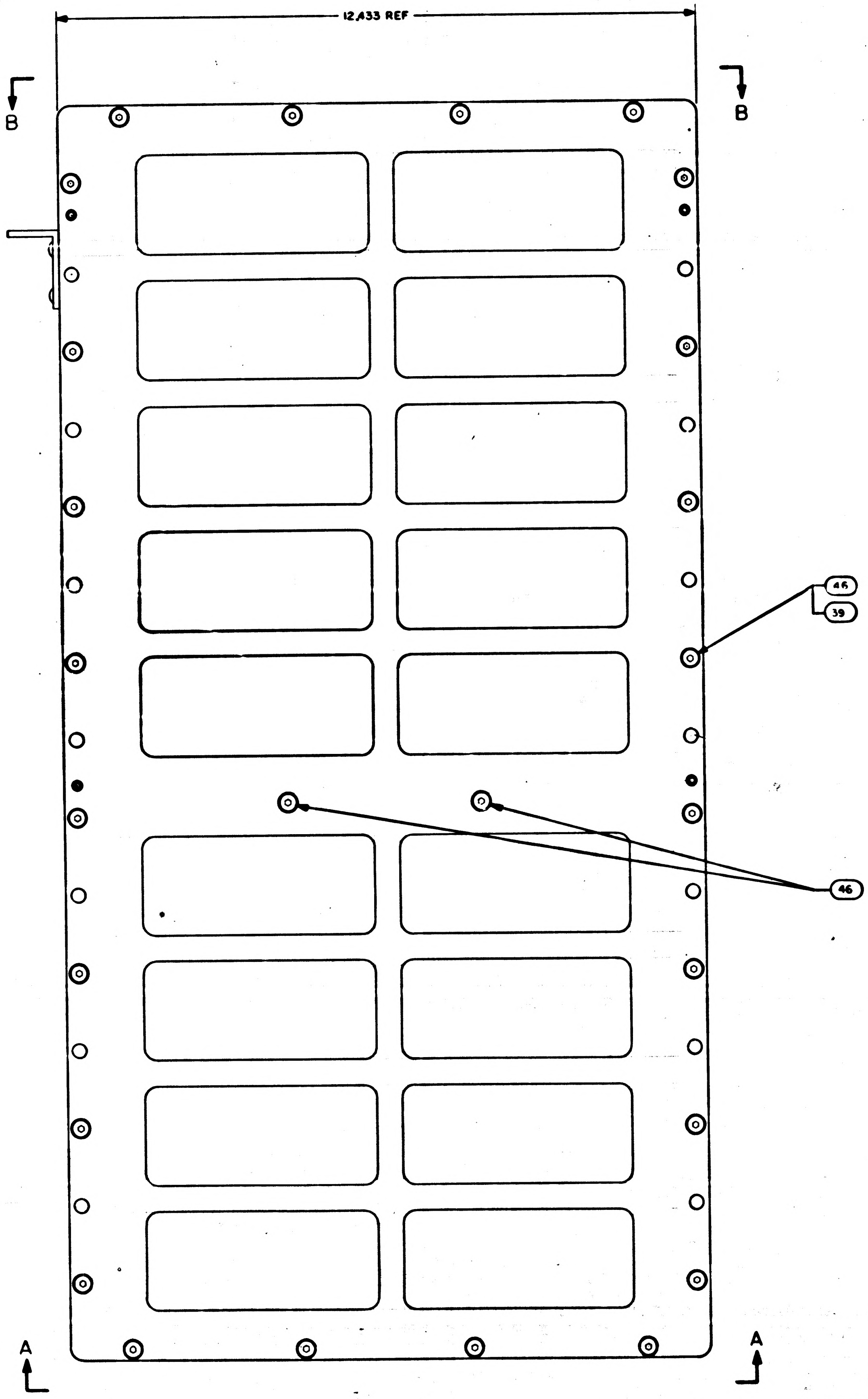
2003200 L

2003200

2003200LF2/2

REVISIONS 23977						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED





QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2005036	AGC WIRE LIST	REF
AR	2004895-002	SHIM AGC	61
AR	2004895-001	SHIM AGC	60
1	2004899-002	PAD VIABRATION	59
1	2004899-001	PAD VIABRATION	58
4	NAS1598-008N	WASHER, SEALING	57
1	2018773	VALVE PRESSURE ASSEMBLY	56
1	1000159-5	PACKING, PREFORMED "O" RING	55
2	2004984-001	WASHER, FLAT	54
8	2004985	PAD, THREADED	53
18	2004894-014	WASHER, FLAT	52
4	2004894-012	WASHER, FLAT	51
2	1001489-34	SCREW, HEX SOCKET HEAD	50
4	1004722-2	SCREW, CAPTIVE	49
1	1000159-7	PACKING, PREFORMED "O" RING	48
18	MS16996-14	SCREW, SOCKET HEAD, CAP	47
66	1006783-25	SCREW, BUTTON HEAD, HEX SOCKET	46
2	1006347	GASKET, PLATE	45
1	2004986	PLUG, MACHINE THREAD	44
1	1004260-19	NAME PLATE, TYPE I	43
1	2004987	BRACKET, CABLE	42
1	2004988	COVER, POTTED	41
1	1006380	GASKET, RETAINED	40
58	2004148-005	WASHER, FLAT	39
3	2003067-031	INTERFACE MODULE A27-29	38
2	2003070-021	INTERFACE MODULE A25-26	37
2	2003953-011	POWER SUPPLY MODULE A30-31	36
1	2003121-231	LOGIC MODULE A24	35
1	2003121-221	LOGIC MODULE A23	34
1	2003121-211	LOGIC MODULE A22	33
1	2003121-191	LOGIC MODULE A21	32
1	2003121-181	LOGIC MODULE A20	31
1	2003121-171	LOGIC MODULE A19	30
1	2003121-161	LOGIC MODULE A18	29
1	2003121-151	LOGIC MODULE A17	28
1	2003121-141	LOGIC MODULE A16	27
1	2003121-131	LOGIC MODULE A15	26
1	2003121-121	LOGIC MODULE A14	25
1	2003121-111	LOGIC MODULE A13	24
1	2003121-091	LOGIC MODULE A12	23
4	2003121-081	LOGIC MODULE A8-11	22
1	2003121-071	LOGIC MODULE A7	21
1	2003121-061	LOGIC MODULE A6	20
1	2003121-051	LOGIC MODULE A5	19
1	2003121-041	LOGIC MODULE A4	18
1	2003121-031	LOGIC MODULE A3	17
1	2003121-021	LOGIC MODULE A2	16
1	2003121-011	LOGIC MODULE A1	15
2	2003140-011	ROPE DRIVER MODULE B16-17	14
1	2003027-021	STRAND SELECT MODULE B15	13
2	2003043-021	SENSE AMPLIFIER MODULE B13-14	12
1	2003111-011	ERASABLE MEMORY MODULE B12	11
1	2003026-021	CURRENT SWITCH MODULE B11	10
2	2003114-011	ERASABLE DRIVER MODULE B9-10	9
1	2003169-021	ALARM MODULE B8	8
1	2003036-021	OSCILLATOR MODULE B7	7
1	1006381-001	GASKET, RETAINED	6
1	2003059-021	INTERCONNECTION HEADER ASSEMBLY	5
1	1006378-001	GASKET, RETAINED	4
1	1006379-001	GASKET, RETAINED	3
1	2003093-011	TRAY B WIRED ASSEMBLY	2
1	2003092-011	TRAY A WIRED ASSEMBLY	1

-011 LIST OF MATERIALS

NEXT ASSY	USED ON
6003001	
2003101	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN R. Roney 23 Dec 65
CHECKED
APPROVED
APPROVED Eldon C. Hall 9 Feb 66
APPROVED MIT 9 Feb 66
APPROVED MSC A. C. METZGER
DATE

COMPUTER ASSEMBLY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003200
SCALE 1/1
SHEET 1 OF 2

F-2

MASTER

2h

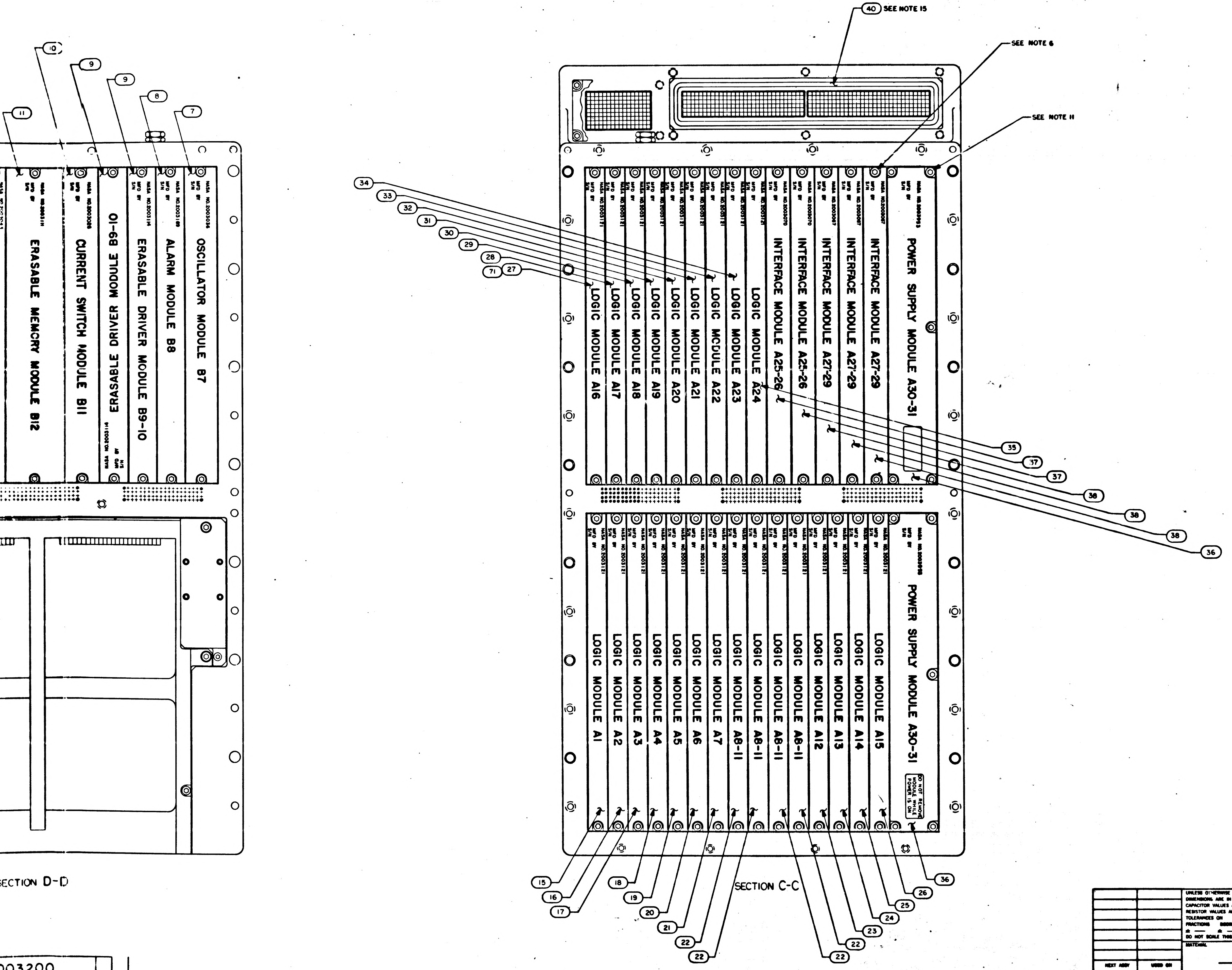
2003200

2003200

2003200

REVISIONS 25977

SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED


40 SEE NOTE 15
SEE NOTE 6
SEE NOTE 11
OSCILLATOR MODULE B7
ALARM MODULE B8
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
CURRENT SWITCH MODULE B11
ERASABLE MEMORY MODULE B12
POWER SUPPLY MODULE A30-31
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
LOGIC MODULE A24
LOGIC MODULE A23
LOGIC MODULE A22
LOGIC MODULE A21
LOGIC MODULE A20
LOGIC MODULE A19
LOGIC MODULE A18
LOGIC MODULE A17
LOGIC MODULE A16
POWER SUPPLY MODULE A30-31
LOGIC MODULE A15
LOGIC MODULE A14
LOGIC MODULE A13
LOGIC MODULE A12
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A7
LOGIC MODULE A6
LOGIC MODULE A5
LOGIC MODULE A4
LOGIC MODULE A3
LOGIC MODULE A2
LOGIC MODULE A1
DO NOT REMOVE MODULE WHILE POWER IS ON
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SECTION D-D
SECTION C-C

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
		LIST OF MATERIALS	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

NEXT ASSY	USED ON
APPLICATION	

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN A.J. Ilinga 21 DEC 66
CHECKED C.P. Kingsbury 22 Dec 66
APPROVED
APPROVED Eldon C. Hall 8 Feb 66
APPROVED MIT W. Kupfer 8 Feb 66
APPROVED MSC A. D. METZGER
DATE

COMPUTER
ASSEMBLY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2003200

SCALE 1/1 SHEET 2 OF 2

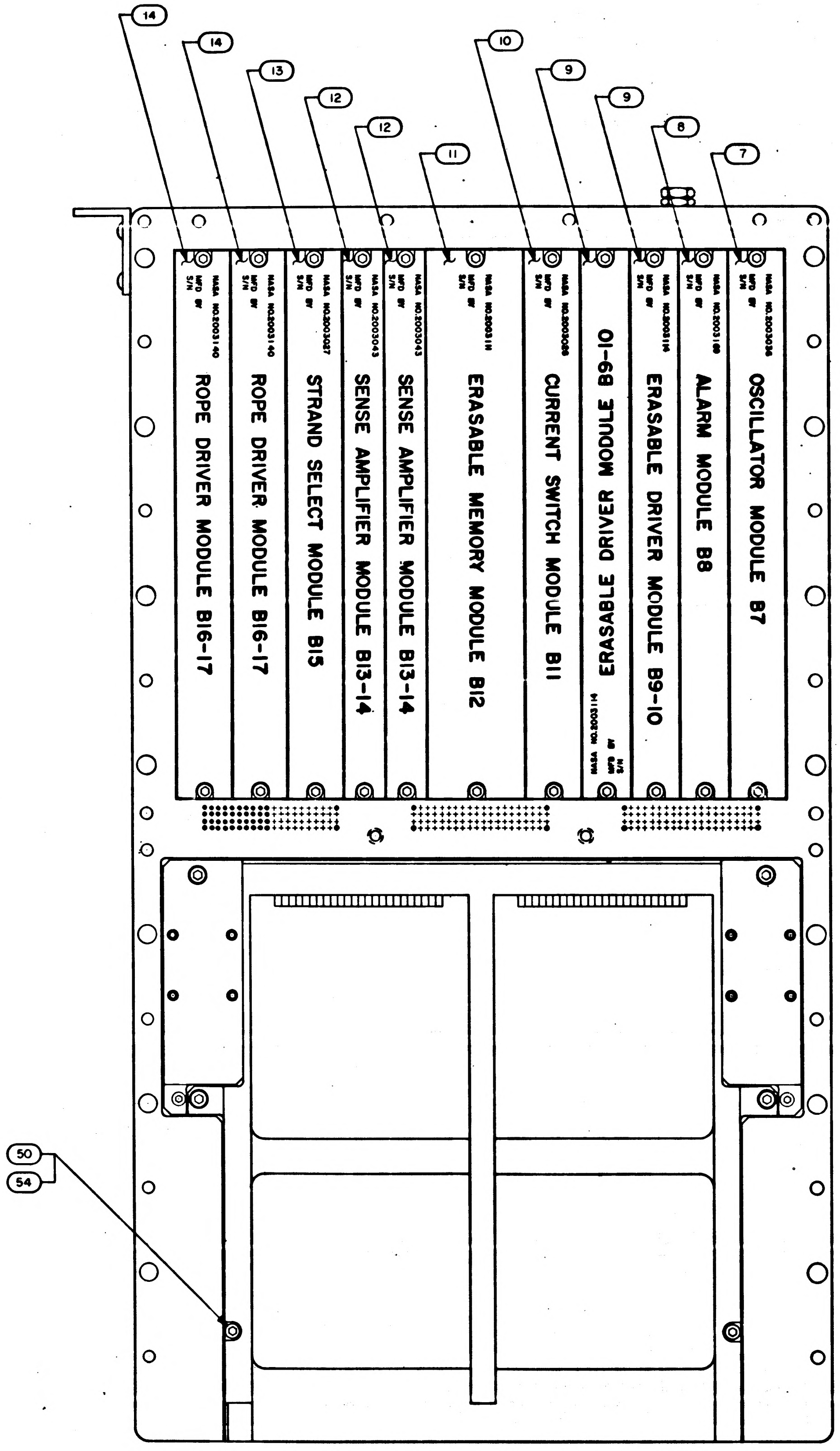
2003200

2003200

2H

MASTER

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


14
14
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OSCILLATOR MODULE B7
ALARM MODULE B8
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
CURRENT SWITCH MODULE B11
ERASABLE MEMORY MODULE B12
SENSE AMPLIFIER MODULE B13-14
SENSE AMPLIFIER MODULE B13-14
STRAND SELECT MODULE B15
ROPE DRIVER MODULE B16-17
ROPE DRIVER MODULE B16-17
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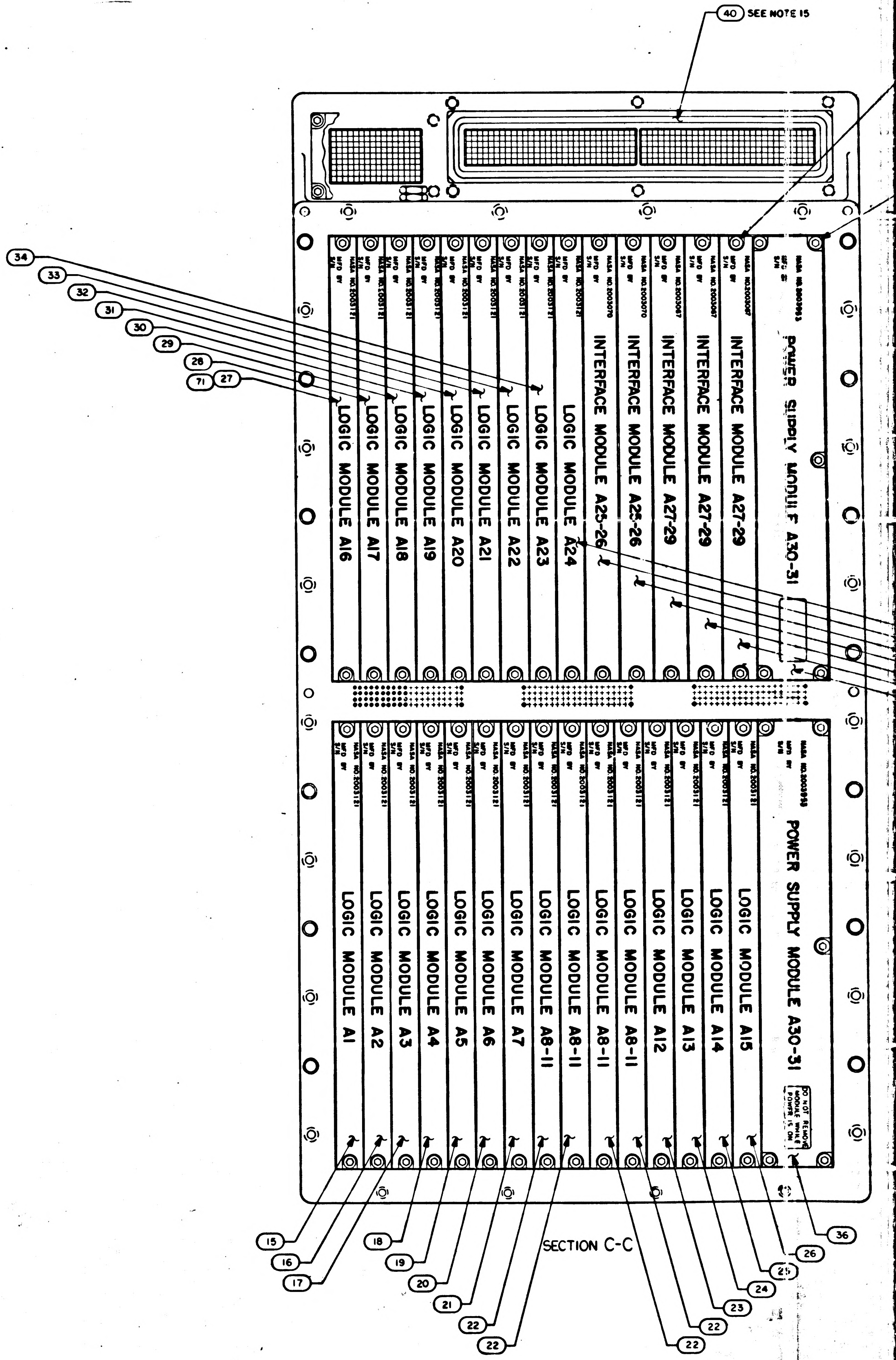
54

SECTION D-D


40 SEE NOTE 15
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POWER SUPPLY MODULE A30-31
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
LOGIC MODULE A24
LOGIC MODULE A23
LOGIC MODULE A22
LOGIC MODULE A21
LOGIC MODULE A20
LOGIC MODULE A19
LOGIC MODULE A18
LOGIC MODULE A17
LOGIC MODULE A16
POWER SUPPLY MODULE A30-31
LOGIC MODULE A15
LOGIC MODULE A14
LOGIC MODULE A13
LOGIC MODULE A12
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A7
LOGIC MODULE A6
LOGIC MODULE A5
LOGIC MODULE A4
LOGIC MODULE A3
LOGIC MODULE A2
LOGIC MODULE A1
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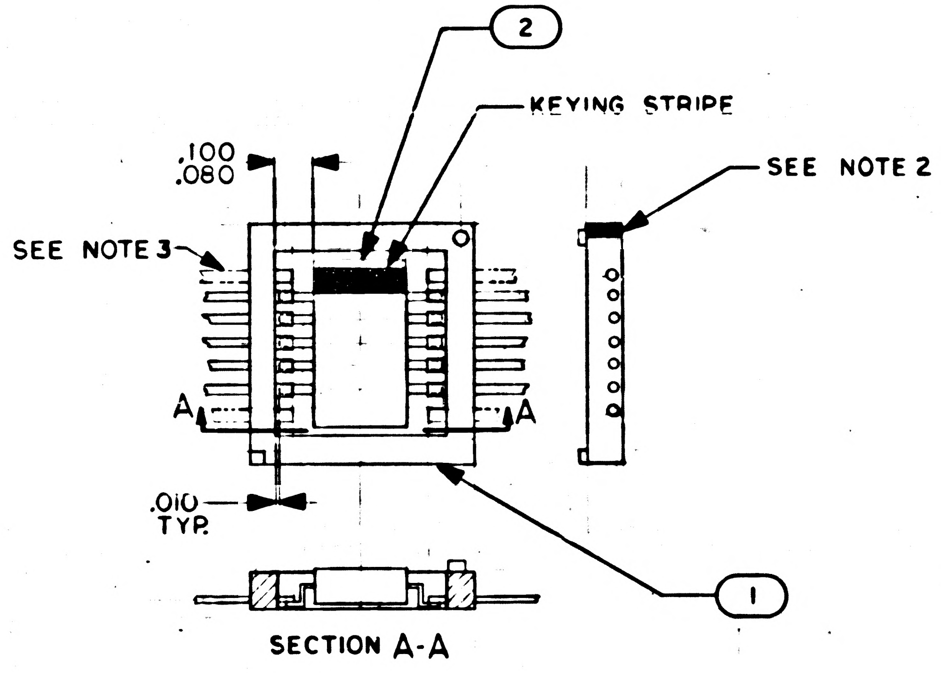
SECTION C-C

2003200

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER ER 00266	AA			
B		INITIAL RELEASE TDRR 36295			6 JUNE 68	



PART NO.	FIND NO. 1	FIND NO. 2
2003307-1	1005020-4	1004301-001
2003307-2	1005020-4	1004301-002

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK IDENTIFICATION STRIPE APPROX .062 WIDE PER ND 1002019 (BLACK)
3. CUT OUTER LEADS (4) FLUSH WITH FRAME
4. WELD PER ND 1002005 EXCEPT THAT WELDMENTS SHALL BE 180° AS SHOWN.

2003309	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN GREENBERG 24 Aug 67
CHECKED Bonarrigo 6 Sep 67
APPROVED
APPROVED Eldon C Hall 5 June 68
APPROVED [redacted]
APPROVED MSC
DATE

FLATPACK ASSEMBLY
RESTART MONITOR

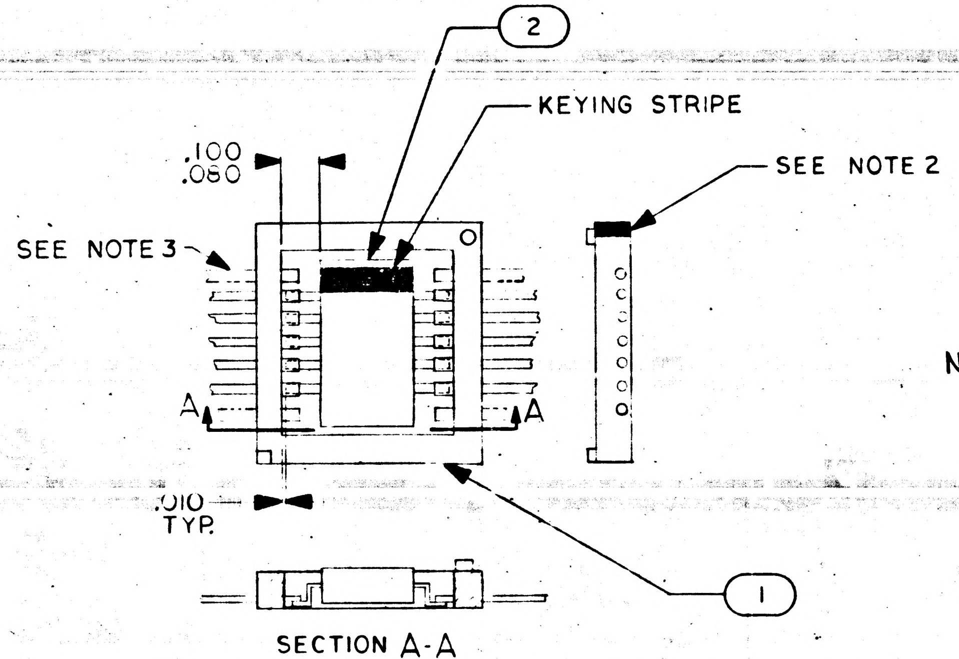
CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2003307
SCALE 4/1
SHEET 1 OF 1

2003307 B

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER ER 00266	AA			
B		INITIAL RELEASE TDRR 36295			6 JUNE 68	
C		REVISED PER TDRR 38034	RSP		25 FEB 70	



NOTES: (CONT.)

6. AFTER WELDING AND STAKING, ASSEMBLIES SHALL MEET THE REQUIREMENTS OF TABLE II, SUBGROUPS 2 AND 3 OF 1006321 WITH THE EXCEPTION OF COLLECTOR EMITTER SUSTAINING VOLTAGE AND AVERAGE PROPAGATION DELAY. THE MAXIMUM LIMITS SHALL BE RAISED 10% AND THE MINIMUM LIMITS DECREASED 10%. TESTING MAY BE DONE AT 25°C ± 3°C.
7. AFTER WELDING AND STAKING, ASSEMBLIES SHALL MEET THE REQUIREMENTS OF TABLE II, SUBGROUPS 2 AND 3 OF 1006394 WITH THE EXCEPTION OF COLLECTOR EMITTER SUSTAINING VOLTAGE AND AVERAGE PROPAGATION DELAY. THE MAXIMUM LIMITS SHALL BE RAISED 10% AND THE MINIMUM LIMITS DECREASED 10%. TESTING MAY BE DONE AT 25°C ± 3°C.

2003307 C

PART NO.	FIND NO. 1	FIND NO. 2	
2003307-1	1005020-4	1004301-001	
2003307-2	1005020-4	1004301-002	
2003307-3	1005020-4	2004301-001	SEE NOTES 5 & 6
2003307-4	1005020-4	2004301-002	SEE NOTES 5 & 7

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK IDENTIFICATION STRIPE APPROX .062 WIDE PER ND 1002019 (BLACK)
3. CUT OUTER LEADS (4) FLUSH WITH FRAME
4. WELD PER ND 1002005 EXCEPT THAT WELDMENTS SHALL BE 180° AS SHOWN.
5. AFTER WELDING, STAKE FIND NO. 2 TO FIND NO. 1 PER ND 1002009, METHOD J, AROUND ENTIRE PERIMETER. STAKING COMPOUND TO BE FLUSH TO .02 BELOW EITHER SURFACE OF FRAME.

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2898986-011	
2003309	
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN GREENBERG 24 Aug 61
CHECKED Bonarrigo 6 Sept 67
APPROVED
APPROVED Eldon C Hall 5 Jan 68
APPROVED [redacted]
APPROVED, MSC 6/5/68
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FLATPACK ASSEMBLY
RESTART MONITOR

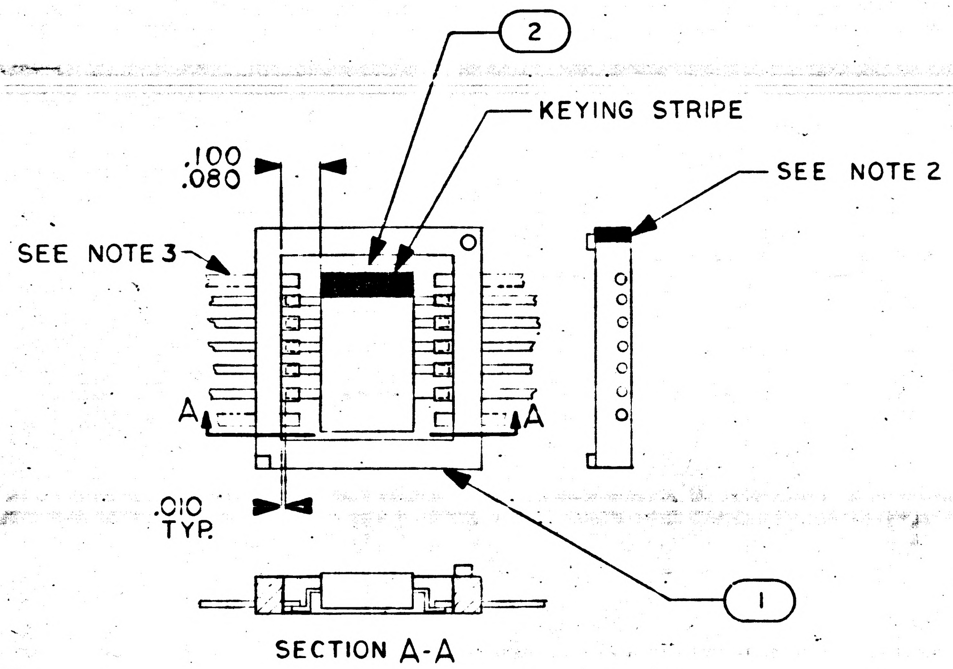
CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2003307

SCALE 4/1 SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER ER 00266	AA			
B		INITIAL RELEASE TDRR 36295			6 JUNE 68	
C		REVISED PER TDRR 38034	R&P		25 FEB 70	
D		REVISED PER TDRR 38035	PHG	CTP	27 FEB 70	



5. AFTER WELDING, STAKE FIND NO. 2 TO FIND NO. 1 PER ND 1002009, METHOD J, AROUND ENTIRE PERIMETER. STAKING MATERIAL SHALL COMPLETELY COVER LEADS OF FIND NO. 2 BUT SHALL NOT EXTEND ABOVE EITHER SURFACE OF FIND NO. 1. SURFACE OF STAKING MATERIAL MAY CONTAIN DEFECTS OR VOIDS PROVIDED THAT LEADS OF FIND NO. 2 ARE NOT EXPOSED.

6. AFTER WELDING AND STAKING, ASSEMBLIES SHALL MEET THE REQUIREMENTS OF TABLE II, SUBGROUPS 2 AND 3 OF 1006321 WITH THE EXCEPTION OF COLLECTOR EMITTER SUSTAINING VOLTAGE AND AVERAGE PROPAGATION DELAY. THE MAXIMUM LIMITS SHALL BE RAISED 10% AND THE MINIMUM LIMITS DECREASED 10%. TESTING MAY BE DONE AT 25°C ± 3°C.

7. AFTER WELDING AND STAKING, ASSEMBLIES SHALL MEET THE REQUIREMENTS OF TABLE II SUBGROUPS 2 AND 3 OF 1006394 WITH THE EXCEPTION OF COLLECTOR EMITTER SUSTAINING VOLTAGE AND AVERAGE PROPAGATION DELAY. THE MAXIMUM LIMITS SHALL BE RAISED 10% AND THE MINIMUM LIMITS DECREASED 10%. TESTING MAY BE DONE AT 25°C ± 3°C.

2003307 D

PART NO.	FIND NO. 1	FIND NO. 2	
2003307-1	1005020-4	1004301-001	
2003307-2	1005020-4	1004301-002	
2003307-3	1005020-4	2004301-001	SEE NOTES 5 & 6
2003307-4	1005020-4	2004301-002	SEE NOTES 5 & 7

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK IDENTIFICATION STRIPE APPROX .062 WIDE PER ND 1002019 (BLACK)
3. CUT OUTER LEADS (4) FLUSH WITH FRAME
4. WELD PER ND 1002005 EXCEPT THAT WELDMENTS SHALL BE 180° AS SHOWN. TENSILE SHEAR TESTS (PULL TEST) SHALL ALSO BE MADE AT 180°.

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2898986-011	
2003309	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN GREENBERG 24 Aug 67
CHECKED Bonarrigo 6 Sept 67
APPROVED
APPROVED Eldon C Hall 5 Jun 68
APPROVED
APPROVED MSC 6/5/68 DATE

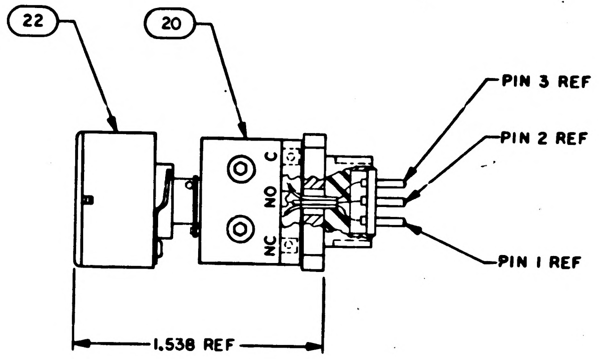
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

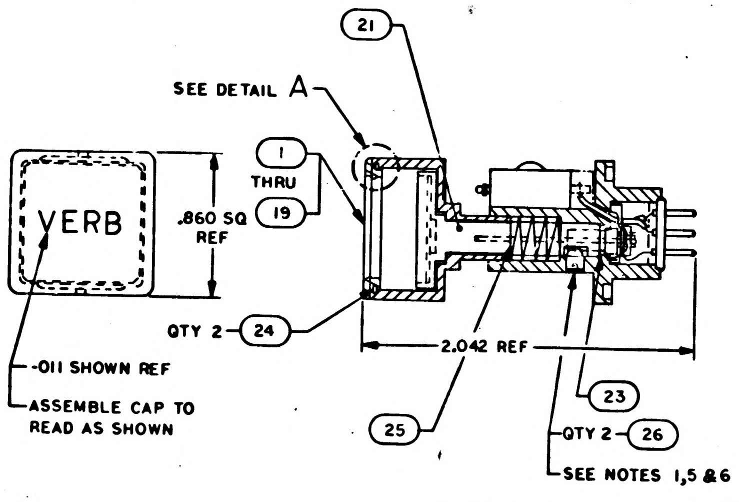
FLATPACK ASSEMBLY
RESTART MONITOR

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2003307
SCALE 4/1
SHEET 1 OF 1

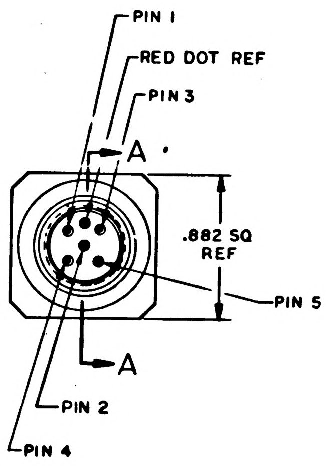
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

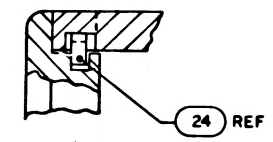
REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		INITIAL RELEASE TDRR 32573			6 JAN 67	





SECTION A-A





DETAIL A
SCALE 10/1

NOTES

1. STAKE FIND NO.26 TO FIND NO. 20 USING STAKING COMPOUND PER MIL-S-22473 TYPE HV
2. PINS INDICATED 1 THRU 5 ARE FOR REFERENCE ONLY AND ARE NOT TO BE MARKED
3. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
4. IDENTIFY WITH PART NO. PER ND1002019
5. FIND NO.21 AND FIND NO.23 TO BE BOTTOMED BEFORE ASSEMBLING FIND NO.26
6. MOUNTING TORQUE OF FIND NO.26 TO BE 2.5 TO 2.8 INCH POUNDS

QTY REQD 211	QTY REQD 191	QTY REQD 181	QTY REQD 171	QTY REQD 161	QTY REQD 151	QTY REQD 141	QTY REQD 131	QTY REQD 121	QTY REQD 111	QTY REQD 091	QTY REQD 081	QTY REQD 071	QTY REQD 061	QTY REQD 051	QTY REQD 041	QTY REQD 031	QTY REQD 021	QTY REQD 011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	AN565DC4H3	SET-SCREW	26
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2004941	SPRING,COMPRESSION	25
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2004944	SPRING,CAP RETAINING	24
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1006369	PACKING PREFORM	23
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2003926-011	HOUSING ASSY (CAP)	22
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2003975-021	SHAFT ASSY	21
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2003933-021	HOUSING ASSY (MOUNTING)	20
1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1006353-019	CAP,ELECTRICAL,ENGRAVED	19
—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-018		18
—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-017		17
—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-016		16
—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-015		15
—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	-014		14
—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	-013		13
—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	-012		12
—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	-011		11
—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	-010		10
—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	-009		9
—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	-008		8
—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	-007		7
—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	-006		6
—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	-005		5
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	-004		4
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	-003		3
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	-002		2
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1006353-001	CAP,ELECTRICAL,ENGRAVED	1

LIST OF MATERIALS

2003949	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN		17 AUG 66
CHECKED		19 AUG 66
APPROVED		
APPROVED		
APPROVED CCA		1/6/67
APPROVED MSC		
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PUSH BUTTON SWITCH
ASSEMBLY
PLUG IN UNIT
AGC DSKY

CODE IDENT NO	SIZE	DRAWING NO.
80230	D	2003875
SCALE 2/1		SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL RELEASE TORR 32521	6 JAN 67	

ASSEMBLY INFORMATION CHART

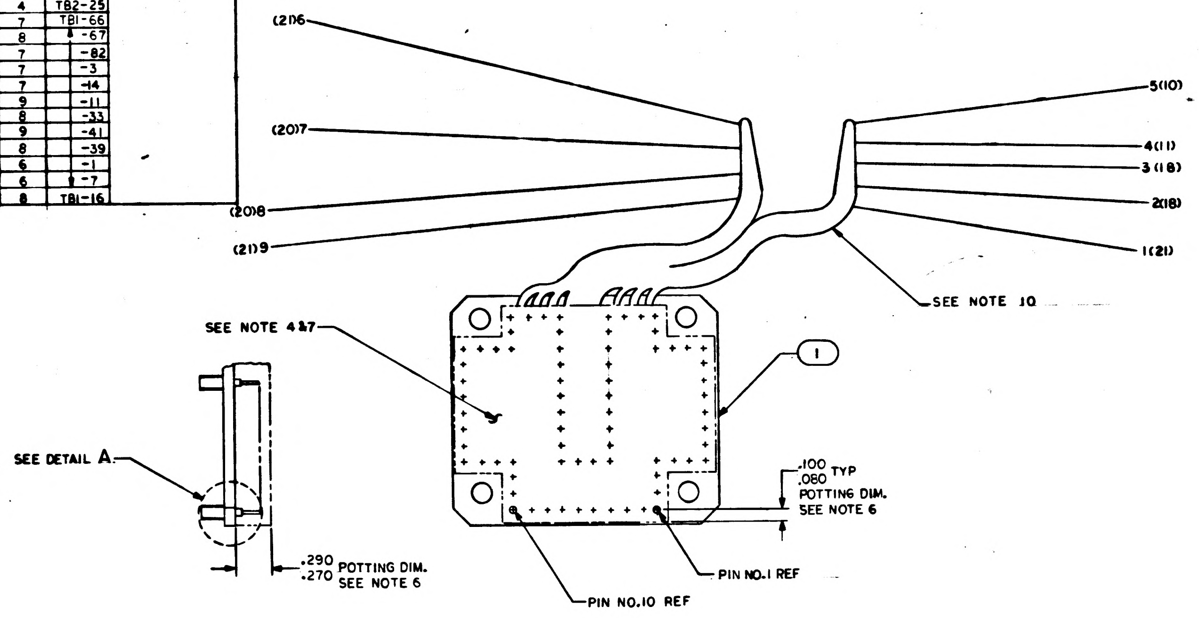
FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A1	10	J10-1		30	2	9	TB1-71	
	A2	↑	↑ -2		↑	↑	6	↑ -64	
	A3		-3				9	-69	
	A4		-4				7	-81	
	A5		-5				9	-77	
	A6		-6				9	↓ -79	
	A7		-7				6	TB1-72	
	A8		-8				4	TB2-73	
	A9		-9				3	↑ -91	
	A10		-10	OPT			3	-66	
	A11		-11				2	-84	
	A12		-12				3	-90	
	A13		-13				3	↓ -82	
	A14		-14				4	TB2-81	
	A15		-15				9	TB1-62	
	A16		-16				6	↑ -56	
	A17		-17				6	-80	
	A18		-18				7	-65	
	A19		-19				7	-74	
	A20	↓	↓ -20		↓	↓	9	↓ -86	
	A21	10	J10-21		30	2	8	TB1-84	
	A22	10	J10-22		30	2	1	TB2-71	
	A23	↑	↑ -23		↑	↑	4	TB2-65	
	A24		-24				1	TB2-70	
	A25		-25				8	TB1-76	
	A26		-26				1	TB2-87	
	A27		-27				3	TB2-83	
	A28		-28				1	TB2-86	
	A29		-29				8	TB1-68	
	A30		-30				7	TB1-57	
	A31		-37				9	TB1-87	
	A32		-38	OPT			3	TB2-74	
	A33		-39				3	TB2-67	
	A34		-40				2	TB2-77	
	A35		-41				5	TB1-42	
	A36		-42				2	TB2-69	
	A37		-43				1	↑ -62	
	A38		-44				2	-85	
	A39		-45				5	-24	
	A40		-46				1	-23	
	A41	↓	↓ -53		↓	↓	3	↓ -34	
	A42	10	J10-54		30	2	1	TB2-38	
	A43	10	J10-55		30	2	6	TB1-30	
	A44	↑	↑ -56		↑	↑	2	TB2-37	
	A45		-57				4	↑ -57	
	A46		-58				3	-50	
	A47		-59				1	-22	
	A48		-60				3	-26	
	A49		-67				1	↓ -39	
	A50		-68				2	TB2-44	
	A51		-69				6	TB1-25	
	A52		-70	OPT			3	TB2-51	
	A53		-71				3	TB2-43	
	A54		-72				1	TB2-55	
	A55		-73				6	TB1-37	
	A56		-74				9	TB1-54	
	A57		-81				3	TB2-27	
	A58		-82				2	↑ -52	
	A59	↓	↓ -83		↓	↓	3	↓ -58	
	A60	10	J10-84		30	2	5	TB2-32	

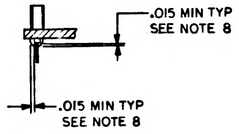
ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A61	10	J10-85		30	2	6	TB1-31	
	A62	↑	↑ -86		↑	↑	4	TB2-49	
	A63		-87				1	TB2-31	
	A64		-88				5	TB2-56	
	A65		-95				8	TB1-83	
	A66		-96				6	↑ -24	
	A67		-97				8	-45	
	A68		-98				9	-23	
	A69		-99				6	-19	
	A70		-100				8	-60	
	A71		-101	OPT			7	↓ -32	
	A72		-102				7	TB1-21	
	A73		-109				4	TB2-89	
	A74		-110				6	TB1-18	
	A75		-111				6	TB1-36	
	A76		-112				3	TB2-98	
	A77		-113				1	TB2-94	
	A78		-114				4	TB2-97	
	A79		-115				9	TB1-47	
	A80	↓	↓ -116		↓	↓	9	TB1-17	
	A81	10	J10-123		30	2	7	TB1-50	
	A82	10	J10-124		30	2	7	TB1-44	
	A83	↑	↑ -125		↑	↑	6	TB1-49	
	A84		-126				1	TB2-102	
	A85		-127				2	TB2-101	
	A86		-128				6	TB1-2	
	A87		-129				6	↑ -48	
	A88		-130				6	-6	
	A89		-137				7	-26	
	A90		-138				8	-51	
	A91		-139				6	↓ -43	
	A92		-140	OPT			7	TB1-15	
	A93		-141				2	TB2-93	
	A94		-142				7	TB1-8	
	A95		-143				9	↑ -53	
	A96		-144				8	-10	
	A97		-146				7	-20	
	A98		-147				8	-46	
	A99		-148				8	-52	
	A100		-149				9	-35	
	A101	↓	↓ -150		↓	↓	8	↓ -59	
	A102	10	J10-151		30	2	7	TB1-38	
	A103	10	J10-152		30	2	8	TB1-40	
	A104	↑	↑ -153		↑	↑	9	TB1-55	
	A105		-154				1	TB2-63	
	A106		-155				1	↑ -30	
	A107		-156				2	↓ -29	
	A108		-157				4	TB2-25	
	A109		-158				7	TB1-66	
	A110		-159				8	↑ -67	
	A111		-160				7	-82	
	A112		-145				7	-3	
	A113		-131	OPT			7	-14	
	A114		-132				9	-11	
	A115		-133				8	-33	
	A116		-134				9	-41	
	A117		-135				8	-39	
	A118		-136				6	-1	
	A119	↓	↓ -117		↓	↓	6	↓ -7	
	A120	10	J10-118		30	2	8	TB1-16	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	A121	10	J10-119		30	2	8	TB1-28	
	A122	↑	↑ -120		↑	↑	7	TB1-27	
	A123		-121				8	TB1-34	
	A124		-122				2	TB2-100	
	A125		-103				2	↑ -76	
	A126		-104				1	-78	
	A127		-105				3	-75	
	A128		-106				5	-80	
	A129		-107				5	-88	
	A130		-108				1	↓ -79	
	A131		-89	OPT			5	TB2-96	
	A132		-90				9	TB1-85	
	A133		-91				8	TB1-75	
	A134		-92				2	TB2-92	
	A135		-93				6	TB1-13	
	A136		-94				9	TB1-63	
	A137		-75				3	TB2-59	
	A138		-76				1	↑ -14	
	A139		-77				2	-36	
	A140	↓	↓ -78		↓	↓	5	↓ -72	
	A141	10	J10-79		30	2	3	TB2-42	
	A142	10	J10-80		30	2	2	TB2-28	
	A143	↑	↑ -61		↑	↑	4	↑ -41	
	A144		-62				5	-64	
	A145		-63				5	-1	
	A146		-64				4	-17	
	A147		-65				2	-53	
	A148		-66				4	-33	
	A149		-47				1	-47	
	A150		-48				2	-68	
	A151		-49	OPT			1	-7	
	A152		-50				5	-54	
	A153		-51				2	↓ -60	
	A154		-52				1	TB2-46	
	A155		-31				9	TB1-70	
	A156		-32				8	↑ -5	✓
	A157		-33				9	-78	
	A158		-34				7	-73	
	A159	↓	↓ -35		↓	↓	9	↓ -61	
	A160	10	J10-36		30	2	7	TB1-9	





DETAIL A
ROTATED 90°CW

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. WIRE USING ASSEMBLY INFORMATION CHART PER ND1002031
4. DRESS AND TRIM FIND NO. 2, BOND PER ND1002009
5. IDENTIFY WITH PART NO. PER ND1002019
6. ENCAPSULATE PER ND1002236
7. DRESS FIND NO. 2 USING FIND NO.3 ONLY WHERE REQUIRED TO KEEP WIRES WITHIN THE CONFINES OF THE POTTING.
8. SEAL INSULATORS OF FIND NO.1 PER ND1002004 TYPE VI
9. COLOR OF FIND NO.2 TO BE OPTIONAL
10. FABRICATE PER ND1002032

SEE NOTE 9

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1012507-001	TAPE, LACING TIEING	3
AR	1006732	WIRE, ELECTRICAL INSULATED	2
1	2003957-011	CONNECTOR PLATE ASSY	1
-011	LIST OF MATERIALS		

2003884	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO. CONTRACT
DRAWN J.L. Leonard DATE 17SEP66
CHECKED C. DeVeronica 20 SEP 66
APPROVAL
APPROVAL Eldon C Hall 10 Oct 66
NASA APPROVAL
CCB APPROVAL 1/6/67

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CONNECTOR PLATE, ID,
WIRED ASSY
AGC DSKY

CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	E	2003881
SCALE 2/1	WT	SHEET 1 OF 1

2003881 A

SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL RELEASE TDRR 32523	6	
B	REVISED PER TDRR 33940 DR. CHK P. Donovan		

ASSEMBLY INFORMATION CHART

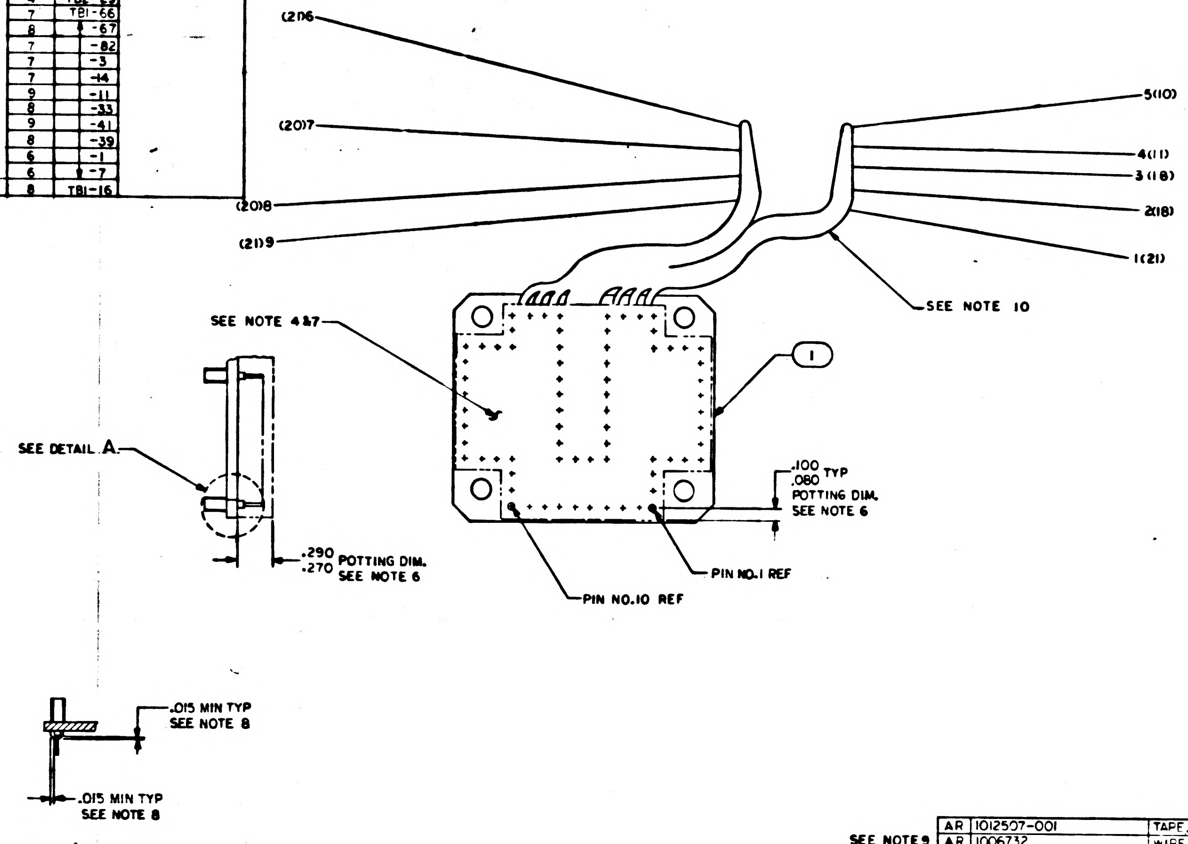
REMARKS	FROM			DESCRIPTION			TO		REMARKS
	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	
	A1	10	J10-1		30	2	9	TB1-71	
	A2		-2				6	-64	
	A3		-3				9	-69	
	A4		-4				7	-81	
	A5		-5				9	-77	
	A6		-6				9	-79	
	A7		-7				6	TB1-72	
	A8		-8				4	TB2-73	
	A9		-9				3	-91	
	A10		-10	OPT			3	-66	
	A11		-11				2	-84	
	A12		-12				3	-90	
	A13		-13				3	-82	
	A14		-14				4	TB2-81	
	A15		-15				9	TB1-62	
	A16		-16				6	-56	
	A17		-17				6	-80	
	A18		-18				7	-65	
	A19		-19				7	-74	
	A20		-20				9	-86	
	A21	10	J10-21		30	2	8	TB1-84	
	A22	10	J10-22		30	2	1	TB2-71	
	A23		-23				4	TB2-65	
	A24		-24				1	TB2-70	
	A25		-25				8	TB1-76	
	A26		-26				1	TB2-87	
	A27		-27				3	TB2-83	
	A28		-28				1	TB2-86	
	A29		-29				8	TB1-68	
	A30		-30				7	TB1-57	
	A31		-37				9	TB1-87	
	A32		-38	OPT			3	TB2-74	
	A33		-39				3	TB2-67	
	A34		-40				2	TB2-77	
	A35		-41				6	TB1-42	
	A36		-42				2	TB2-69	
	A37		-43				1	-62	
	A38		-44				2	-85	
	A39		-45				5	-24	
	A40		-46				1	-23	
	A41		-53				3	-34	
	A42	10	J10-54		30	2	1	TB2-38	
	A43	10	J10-55		30	2	6	TB1-30	
	A44		-56				2	TB2-37	
	A45		-57				4	-57	
	A46		-58				3	-50	
	A47		-59				1	-22	
	A48		-60				3	-26	
	A49		-67				1	-39	
	A50		-68				2	TB2-44	
	A51		-69				6	TB -25	
	A52		-70	OPT			3	TB2-51	
	A53		-71				3	TB2-43	
	A54		-72				1	TB2-55	
	A55		-73				6	TB1-37	
	A56		-74				9	TB1-54	
	A57		-81				3	TB2-27	
	A58		-82				2	-52	
	A59		-83				3	-56	
	A60	10	J10-84		30	2	5	TB2-32	

ASSEMBLY INFORMATION CHART

REMARKS	FROM			DESCRIPTION			TO		REMARKS
	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	
	A61	10	J10-85		30	2	6	TB1-31	
	A62		-86				4	TB2-49	
	A63		-87				1	TB2-31	
	A64		-88				5	TB2-56	
	A65		-95				8	TB1-83	
	A66		-96				6	-24	
	A67		-97				8	-45	
	A68		-98				9	-23	
	A69		-99				6	-19	
	A70		-100				8	-60	
	A71		-101	OPT			7	-32	
	A72		-102				7	TB1-21	
	A73		-109				4	TB2-89	
	A74		-110				6	TB1-18	
	A75		-111				6	TB1-36	
	A76		-112				3	TB2-98	
	A77		-113				1	TB2-94	
	A78		-114				4	TB2-97	
	A79		-115				9	TB1-47	
	A80		-116				9	TB1-17	
	A81	10	J10-123		30	2	7	TB1-50	
	A82	10	J10-124		30	2	7	TB1-44	
	A83		-125				6	TB1-49	
	A84		-126				1	TB2-102	
	A85		-127				2	TB2-101	
	A86		-128				6	TB1-2	
	A87		-129				6	-48	
	A88		-130				6	-6	
	A89		-137				7	-26	
	A90		-138				8	-51	
	A91		-139				6	-43	
	A92		-140	OPT			7	TB1-15	
	A93		-141				2	TB2-93	
	A94		-142				7	TB1-8	
	A95		-143				9	-53	
	A96		-144				8	-10	
	A97		-146				7	-20	
	A98		-147				8	-46	
	A99		-148				8	-52	
	A100		-149				9	-35	
	A101		-150				8	-59	
	A102	10	J10-151		30	2	7	TB1-38	
	A103	10	J10-152		30	2	8	TB1-40	
	A104		-153				9	TB1-55	
	A105		-154				1	TB2-63	
	A106		-155				1	-30	
	A107		-156				2	-29	
	A108		-157				4	TB2-25	
	A109		-158				7	TB1-66	
	A110		-159				8	-67	
	A111		-160				7	-82	
	A112		-145				7	-3	
	A113		-131	OPT			7	-14	
	A114		-132				9	-11	
	A115		-133				8	-33	
	A116		-134				9	-41	
	A117		-135				8	-39	
	A118		-136				6	-1	
	A119		-117				6	-7	
	A120	10	J10-118		30	2	8	TB1-16	

ASSEMBLY INFORMATION CHART

REMARKS	FROM			DESCRIPTION			TO		REMARKS
	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	
	A121	10	J10-119		30	2	8	TB1-26	
	A122		-120				7	TB1-27	
	A123		-121				8	TB1-34	
	A124		-122				2	TB2-100	
	A125		-103				2	-76	
	A126		-104				1	-78	
	A127		-105				3	-75	
	A128		-106				5	-80	
	A129		-107				5	-88	
	A130		-108				1	-79	
	A131		-89	OPT			5	TB2-96	
	A132		-90				9	TB1-85	
	A133		-91				8	TB1-75	
	A134		-92				2	TB2-92	
	A135		-93				6	TB1-13	
	A136		-94				9	TB1-63	
	A137		-75				3	TB2-59	
	A138		-76				1	-14	
	A139		-77				2	-36	
	A140		-78				5	-72	
	A141	10	J10-79		30	2	3	TB2-42	
	A142	10	J10-80		30	2	2	TB2-28	
	A143		-61				4	-41	
	A144		-62				5	-64	
	A145		-63				5	-1	
	A146		-64				4	-17	
	A147		-65				2	-53	
	A148		-66				4	-33	
	A149		-47				1	-47	
	A150		-48				2	-68	
	A151		-49	OPT			1	-7	
	A152		-50				5	-54	
	A153		-51				2	-60	
	A154		-52				1	TB2-46	
	A155		-31				9	TB1-70	
	A156		-32				8	-5	
	A157		-33				9	-78	
	A158		-34				7	-73	
	A159		-35				9	-61	
	A160	10	J10-36		30	2	7	TB1-9	



DETAIL A
ROTATED 90°CW

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. WIRE USING ASSEMBLY INFORMATION CHART PER ND1002031
4. DRESS AND TRIM FIND NO. 2, BOND PER ND1002009 (OPTIONAL)
5. IDENTIFY WITH PART NO. PER ND1002019
6. ENCAPSULATE PER ND1002236
7. DRESS FIND NO. 2 USING FIND NO.3 ONLY WHERE REQUIRED TO KEEP WIRES WITHIN THE CONFINES OF THE POTTING
8. SEAL INSULATORS OF FIND NO.1 PER ND1002187 TYPE III
9. COLOR OF FIND NO.2 TO BE OPTIONAL
10. FABRICATE PER ND1002032

SEE NOTE 9

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1012507-001	TAPE, LACING TIEING	3
AR	1006732	WIRE, ELECTRICAL INSULATED	2
1	2003957-011	CONNECTOR PLATE ASSY	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003884	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO CONTRACT

DRAWN DATE
CHECKED C. DeSimone 20 SEP 66
APPROVAL
APPROVAL Eldon C. Hall 10
NASA APPROVAL
CCB APPROVAL 1/4/67

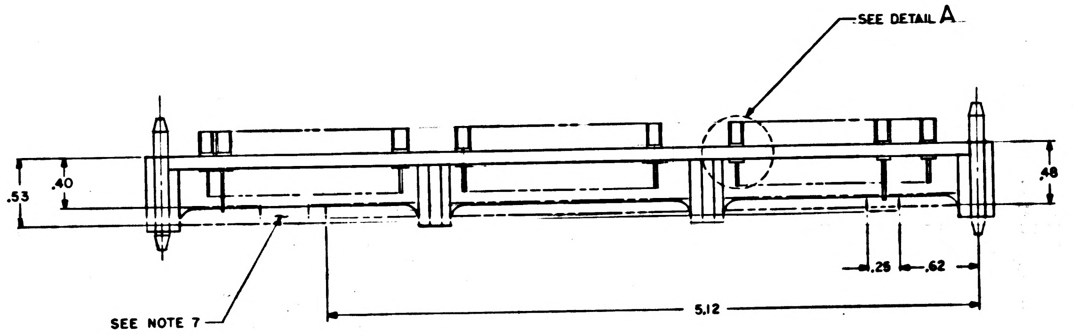
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

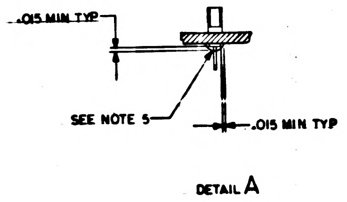
CONNECTOR PLATE, ID,
WIRED ASSY
AGC DSKY

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 2003881
SCALE 2/1
WT
SHEET OF

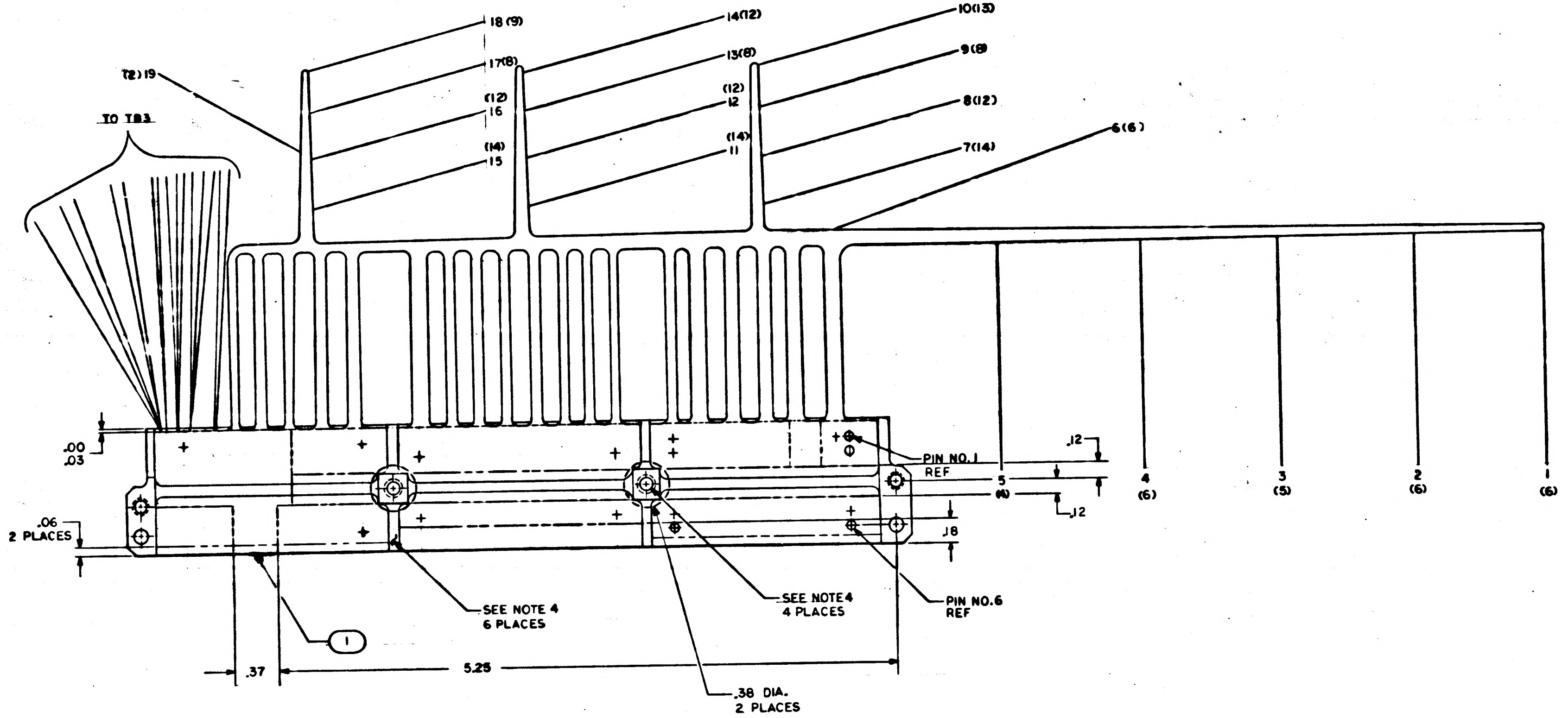
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL RELEASE TDRR 32573		





DETAIL A



NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. IDENTIFY WITH PART NO. PER ND1002019
3. AR DENOTES AS REQUIRED
4. INDICATED AREA AND HOLES TO BE FREE FROM ENCAPSULATING COMPOUND
5. SEAL INSULATORS ON FIND NO.1 PER ND1002004 TYPE VI
6. COLOR OF FIND NO.2 TO BE OPTIONAL
7. ENCAPSULATE PER ND1002236
8. WIRE USING ASSEMBLY INFORMATION CHART PER ND1002031 EXCEPT FIND NO.7 TO HAVE 5 TO 6 TURNS OF UNINSULATED WIRE, 1/2 TO 1 1/2 TURNS INSULATED WIRE, STRIP LENGTH OF 1.00 TO 1.18, AND STRIP FORCE OF 5 LBS. MIN.
9. FABRICATE PER ND1002032
10. UNLESS OTHERWISE SPECIFED, STRIP ALL LEADS .20 AND TIN
11. SOLDER PER ND1002071 USING SOLDER PER ND1002075

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
SEE NOTE 8	AR	1010807-22	WIRE, INSULATED	7
	AR	1012507-001	TAPE, LACING	6
	AR	1010789-024	WIRE, INSULATED	5
	AR	1010789-017	WIRE, INSULATED	4
	AR	1010789-016	WIRE, INSULATED	3
SEE NOTE 6	AR	1006732	WIRE, INSULATED	2
	1	2003951-021	CONNECTOR PLATE ASSY	1
	-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003885	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.01 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN J.P. Leonard DATE 19 SEP 66
CHECKED G.D. Ammia 20 SEP 66
APPROVAL
APPROVAL Eldon C. Hall 10 Oct 66
NASA APPROVAL
APPROVAL 1/6/67

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CONNECTOR, PLATE WIRED ASSY
AGC DSKY

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 2003882
SCALE 2/1
WT
SHEET 1 OF 2

2003882 A

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL RELEASE TDRR 32573	6 Nov 67	E.D.

ASSEMBLY INFORMATION CHART

	FROM			DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
SEE NOTE 8	A1	21	J12-166	SEE NOTE 6	30	2	19	J7-6	SEE NOTE 8
	A2		-167		30	2	16	J6-43	
	A3		-160	WHT	26	7	18	-18	
	A4		-159	SEE NOTE 6	30	2	17	-34	
	A5		-154				16	-40	
	A6		-153				15	-50	
	A7		-148		30	2	16	-39	
	A8		-147	WHT	26	7	16	-38	
	A9		-142	SEE NOTE 6	30	2	15	-54	
	A10		-141				16	-41	
	A11		-136				17	-29	
	A12		-135				15	-55	
	A13		-187				16	-42	
	A14		-210		30	2	15	-49	
	A15		-182	WHT	26	7	15	-60	
	A16		-204	SEE NOTE 6	30	2	15	-56	
	A17		-192				18	-17	
	A18		-176				17	-36	
	A19		-175				18	-22	
	A20		-174				17	J6-30	
	A21		-170				19	J7-4	
	A22		-169				18	J6-24	
	A23		-168				15	J6-53	
	A24		-164				16	J5-43	
	A25		-163				17	-34	
	A26		-162				17	-36	
	A27		-161				18	-22	
	A28		-158				15	-56	
	A29		-157				16	-39	
	A30		-156		30	2	18	-24	
	A31	21	J12-155	WHT	26	7	18	J5-8	
	A32	21	J12-152	SEE NOTE 6	30	2	16	J5-42	
	A33		-151		30	2	16	-40	
	A34		-150	WHT	26	7	16	-38	
	A35		-149	SEE NOTE 6	30	2	17	-30	
	A36		-146				15	-50	
	A37		-145				15	-55	
	A38		-144				15	-49	
	A39		-143				17	-29	
	A40		-140				15	-54	
	A41		-139				15	-53	
	A42		-138				16	-41	
	A43		-137		30	2	18	-17	
	A44		-134	WHT	26	7	15	J5-60	
	A45		-133	SEE NOTE 6	30	2	12	J4-43	
	A46		-132				14	J4-6	
	A47		-131				1	J6-84	
	A48		-130				14	J4-24	
	A49		-129				12	J4-39	
	A50		-128				14	J4-17	
	A51		-127				1	J6-83	
	A52		-126				11	J4-50	
	A53		-125				12	J4-40	
	A54		-124				13	J4-36	
	A55		-123				1	J6-78	
	A56		-122				13	J4-30	
	A57		-121				13	J4-29	
	A58		-120				14	J4-18	
	A59		-119				1	J6-70	
	A60	21	J12-118		30	2	13	J4-34	
	A61	21	J12-117	SEE NOTE 6	30	2	12	J4-38	
	A62		-116				14	J4-21	
	A63		-115				1	J6-76	
	A64		-114				11	J4-55	
	A65		-113				12	-41	
	A66		-112				12	-42	
	A67		-111				3	-83	
	A68		-110				11	-53	
	A69		-109				11	-54	
	A70		-108				11	-49	
	A71		-107				3	-70	
	A72		-106				11	-60	
	A73		-105				11	-56	
	A74		-104				14	J4-22	
	A75		-103				4	J3-76	
	A76		-102				14	-17	
	A77		-101		30	2	14	-24	
	A78		-100	WHT	26	7	14	-18	
	A79		-99	SEE NOTE 6	30	2	4	-70	
	A80		-98		30	2	12	-40	
	A81		-97		30	2	13	-36	
	A82		-96	WHT	26	7	14	J3-6	
	A83		-95	SEE NOTE 6	30	2	5	J2-84	
	A84		-94		30	2	14	J3-22	
	A85		-93		30	2	13	J3-30	
	A86		-92	WHT	26	7	14	J3-8	
	A87		-91	SEE NOTE 6	30	2	5	J2-83	
	A88		-90		30	2	12	J3-39	
	A89	21	J12-89		30	2	12	J3-43	

ASSEMBLY INFORMATION CHART

	FROM			DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
SEE NOTE 8	A90	21	J12-88	WHT	26	7	12	J3-38	SEE NOTE 8
	A91		-87	SEE NOTE 6	30	2	6	J1-78	
	A92		-86				11	J3-56	
	A93		-85				12	J3-42	
	A94		-84				13	J3-34	
	A95		-83				6	J1-74	
	A96		-82				11	J3-50	
	A97		-81		30	2	11	J3-55	
	A98		-80	WHT	26	7	11	J3-60	
	A99		-79	SEE NOTE 6	30	2	6	J1-70	
	A100		-78				12	J3-41	
	A101		-77				13	J3-29	
	A102		-76				11	J3-54	
	A103		-75				11	J3-49	
	A104		-74				1	J6-79	
	A105		-73				2	J5-76	
	A106		-72				11	J3-53	
	A107		-71		30	2	7	J2-60	
	A108		-70	WHT	26	7	10	J2-8	
	A109		-69	SEE NOTE 6	30	2	10	J2-18	
	A110		-68				2	J5-70	
	A111		-67				2	J5-84	
	A112		-66				7	J2-56	
	A113		-65				10	J2-24	
	A114		-64		30	2	9	J2-36	
	A115	21	J12-63	WHT	26	7	10	J2-6	
	A116	21	J12-62	SEE NOTE 6	30	2	2	J5-83	
	A117		-61				2	J5-78	
	A118		-60				10	J2-21	
	A119		-59				9	J2-30	
	A120		-58				8	J2-40	
	A121		-57				9	J2-34	
	A122		-56				2	J5-82	
	A123		-55				3	J4-79	
	A124		-54				7	J2-50	
	A125		-53				8	J2-39	
	A126		-52				8	J2-43	
	A127		-51				10	J2-22	
	A128		-50				3	J4-78	
	A129		-48				7	J2-55	
	A130		-47				8	J2-42	
	A131		-46				[illegible]	J2-38	
	A132		-45				9	J2-29	
	A133		-44				4	J3-84	
	A134		-43				4	J3-83	
	A135		-42				7	J2-54	
	A136		-41				7	J2-49	
	A137		-40				8	J2-41	
	A138		-39				10	J2-17	
	A139		-38				4	J3-78	
	A140		-37				4	J3-82	
	A141		-36				7	J2-53	
	A142		-35				10	J1-24	
	A143		-34		30	2	10	J1-17	
	A144	21	J12-33	WHT	26	7	10	J1-6	
	A145	21	J12-32	SEE NOTE 6	30	2	5	J2-78	
	A146		-31				5	J2-70	
	A147		-30				7	J1-53	
	A148		-29				9	-36	
	A149		-28				10	-21	
	A150		-27				10	-22	
	A151		-25				6	-84	
	A152		-24				9	-29	
	A153		-23				8	-39	
	A154		-22				9	-34	
	A155		-21				9	-30	
	A156		-18				7	-55	
	A157		-17				8	-43	
	A158		-16				7	-49	
	A159		-15				10	J1-18	
	A160		-13				3	J4-84	
	A161		-12				7	J1-56	
	A162		-11				7	-50	
	A163		-10				8	-41	
	A164		-9				8	-40	
	A165		-7				6	-83	
	A166		-6				7	-60	
	A167		-5				7	-54	
	A168		-4				8	-38	
	A169		-3				8	-42	
	A170		-1		30	2	6	J1-82	
	A171		-183	WHT	26	7	18	G1	
SEE NOTE 11	A172		-199	YELLOW	26	3	20	TB3-17	SEE NOTE 10
	A173		-211					-16	
	A174		-206					-15	
	A175		-212					-14	
	A176		-198					-13	
	A177		-200					-11	
	A178	21	J12-188	YELLOW	26	3	20	TB3-10	

ASSEMBLY INFORMATION CHART

	FROM			DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
SEE NOTE 11	A179	21	J12-180	YELLOW	26	3	20	TB3-12	SEE NOTE 10
	A180		-193	YELLOW		4		-9	TWIST SEE NOTE 10
	A181		-194	&RED		4		-8	
	A182		-205	YELLOW		3		-6	SEE NOTE 10
	A183		-181	YELLOW		3		-5	
	A184		-186	YELLOW		3		-4	
	A185		J12-184	BLACK		5	20	TB3-2	
	A186		J12-177	WHT		7	21	J12-19	
SEE NOTE 8 ✱	A187	21	J12-19	WHT	26	7	21	J12-184	

✱ DENOTES MUST BE FIRST LEVEL

2003882 A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

2003885	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG NO CONTRACT

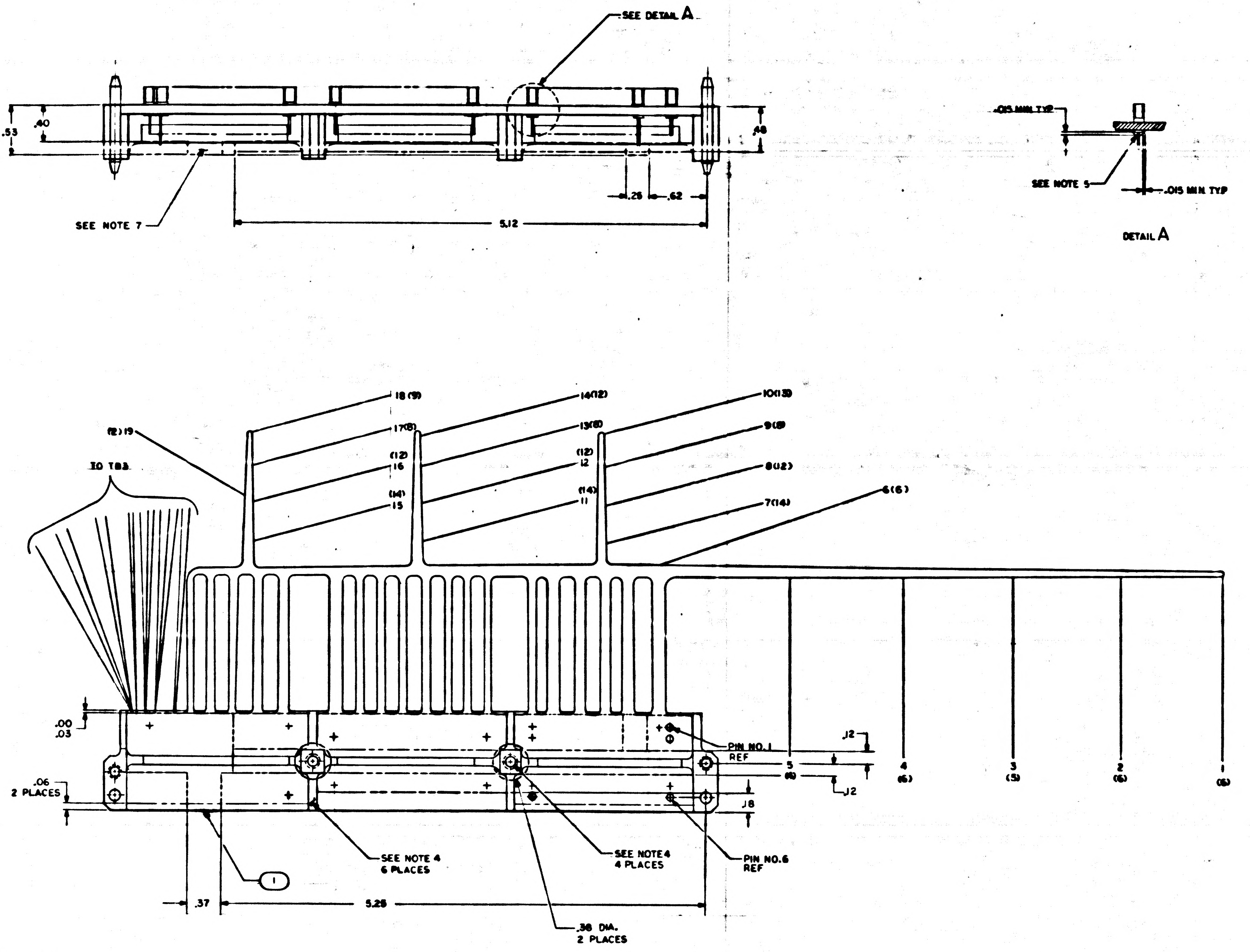
DRAWN Barry R. Quillen DATE 19 SEP 66
CHECKED C. DeMarino 20 SEP 66
APPROVAL
APPROVAL Eldon C. Hall 10 Oct 66
NASA APPROVAL
CCA APPROVAL 9/4/67

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CONNECTOR, PLATE WIRED ASSY
AGC DSKY

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 2003882
SCALE NONE
WT
SHEET 2 OF 2

SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL RELEASE TDRR 32573		
B	REVISED PER TDRR 32721 DR CHK	3/6/67	



SEE DETAIL A
.53
.40
.48
.26
.62
5.12
SEE NOTE 7
.015 MIN TYP
SEE NOTE 5
.015 MIN TYP
DETAIL A
18 (9)
14(12)
10(12)
17(8)
13(8)
9(8)
(2) 19
(12) 16
(12) 12
8(12)
(14) 15
(14) 11
7(14)
6(6)
10 TBA
.00
.03
PIN NO. 1 REF
5 (6)
4 (6)
3 (5)
2 (5)
1 (5)
.12
.12
.06 2 PLACES
.18
SEE NOTE 4 6 PLACES
SEE NOTE 4 4 PLACES
PIN NO. 6 REF
1
.37
5.25
.38 DIA. 2 PLACES

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. IDENTIFY WITH PART NO. PER ND1002019
3. AR DENOTES AS REQUIRED
4. INDICATED AREA AND HOLES TO BE FREE FROM ENCAPSULATING COMPOUND
5. SEAL INSULATORS ON FIND NO. 1 PER ND1002004 TYPE XI
6. COLOR OF FIND NO. 2 TO BE OPTIONAL
7. ENCAPSULATE PER ND1002236
8. WIRE USING ASSEMBLY INFORMATION CHART PER ND1002031 EXCEPT FIND NO. 7 TO HAVE 5 TO 6 TURNS OF UNINSULATED WIRE, 1/2 TO 1/2 TURNS INSULATED WIRE, STRIP LENGTH OF 1.00 TO [illegible] AND STRIP FORCE OF 5 LBS. MIN.
9. FABRICATE PER ND1002032
10. UNLESS OTHERWISE SPECIFIED, STRIP ALL LEADS .20 AND TIN
11. SOLDER PER ND1002071 USING SOLDER PER ND1002075

	QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
SEE NOTE 8	AR	1010807-22	WIRE, INSULATED	7
	AR	1010507-001	TAPE, LACING	6
	AR	[illegible]	[illegible]	5
	AR	1010789-017	WIRE, INSULATED	4
	AR	1010789-016	WIRE, INSULATED	3
SEE NOTE 6	AR	1006732	WIRE, INSULATED	2
	1	2003951-021	CONNECTOR PLATE ASSY	
	-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003885	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.01 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN [illegible] DATE 25 SEPT 66
CHECKED [illegible] 20 SEP 66
APPROVAL
APPROVAL Eldon C. Hall
NASA APPROVAL
APPROVAL 4/6/67

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

CONNECTOR, PLATE
WIRED ASSY
AGC DSKY

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 2003882
SCALE 2/1
WT
SHEET 1 OF 2

[illegible]

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL RELEASE TDRR 30573		
B	REVISED PER TDRR 32721 DR CHK J.C.		

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
SEE NOTE 8	A1	21	J12-166	SEE NOTE 6	30	2	19	J7-6	SEE NOTE 8
	A2		-167		30	2	16	J6-43	
SEE NOTES 10&11	A3		-160	YEL	26	3	18	-18	SEE NOTES 10&11
SEE NOTE 8	A4		-159	SEE NOTE 6	30	2	17	-34	SEE NOTE 8
	A5		-154				16	-40	
	A6		-153				15	-50	
	A7		-148		30	2	16	-39	
SEE NOTES 10&11	A8		-147	YEL	26	3	16	-38	SEE NOTES 10&11
SEE NOTE 8	A9		-142	SEE NOTE 6	30	2	15	-54	SEE NOTE 8
	A10		-141				16	-41	
	A11		-136				17	-29	
	A12		-135				15	-55	
	A13		-187				16	-42	
	A14		-210		30	2	15	-49	
SEE NOTES 10&11	A15		-182	YEL	26	3	15	-60	SEE NOTES 10&11
SEE NOTE 8	A16		-204	SEE NOTE 6	30	2	15	-56	SEE NOTE 8
	A17		-192				18	-17	
	A18		[illegible]				[illegible]	[illegible]	
	A19		-175				18	-22	
	A20		-174				17	J6-30	
	A21		-170				19	J7-4	
	A22		-169				18	J6-24	
	A23		-168				15	J6-53	
	A24		-164				16	J5-43	
	A25		-163				17	-34	
	A26		-162				17	-36	
	A27		-161				18	-22	
	A28		-158				15	-56	
	A29		-157				16	-39	
	A30		-156		30	2	18	-24	
SEE NOTES 10&11	A31	21	J12-155	YEL	26	3	18	J5-8	SEE NOTES 10&11
SEE NOTE 8									SEE NOTE 8
	A32	21	J12-152	SEE NOTE 6	30	2	16	J5-42	
	A33		-151		30	2	16	-40	
SEE NOTES 10&11	A34		-150	YEL	26	3	16	-38	SEE NOTES 10&11
SEE NOTE 8	A35		-149	SEE NOTE 6	30	2	17	-30	SEE NOTE 8
	A36		-146				15	-50	
	A37		-145				15	-55	
	A38		-144				15	-49	
	A39		-143				17	-29	
	A40		-140				16	-54	
	A41		-139				15	-53	
	A42		-138				16	-41	
	A43		-137		30	2	18	-17	
SEE NOTES 10&11	A44		-134	YEL	26	3	15	J5-60	SEE NOTES 10&11
SEE NOTE 8	A45		-133	SEE NOTE 6	30	2	12	J4-43	SEE NOTE 8
	A46		-132				14	J4-6	
	A47		-131				1	J6-84	
	A48		-130				14	J4-24	
	A49		-129				12	J4-39	
	A50		-128				14	J4-17	
	A51		-127				1	J6-83	
	A52		-126				11	J4-50	
	A53		-125				12	J4-40	
	A54		-124				13	J4-36	
	A55		-123				1	J6-78	
	A56		-122				13	J4-30	
	A57		-121				13	J4-29	
	A58		-120				14	J4-18	
	A59		-119				1	J6-70	
	A60	21	J12-118		30	2	13	J4-34	
	A61	21	J12-117	SEE NOTE 6	30	2	12	J4-38	
	A62		-116				14	J4-21	
	A63		-115				1	J6-76	
	A64		-114				11	J4-55	
	A65		-113				12	-41	
	A66		-112				12	-42	
	A67		-111				3	-83	
	A68		-110				11	-53	
	A69		-109				11	-54	
	A70		-108				11	-49	
	A71		-107				3	-70	
	A72		-106				11	-60	
	A73		-105				11	-56	
	A74		-104				14	J4-22	
	A75		-103				4	J3-76	
	A76		-102				14	-17	
	A77		-101		30	2	14	-24	
SEE NOTES 10&11	A78		-100	YEL	26	3	14	-18	SEE NOTES 10&11
SEE NOTE 8	A79		-99	SEE NOTE 6	30	2	4	-70	SEE NOTE 8
	A80		-98		30	2	12	-40	
	A81		-97		30	2	13	-36	
SEE NOTES 10&11	A82		-96	YEL	26	3	14	J3-6	SEE NOTES 10&11
SEE NOTE 8	A83		-95	SEE NOTE 6	30	2	5	J2-84	SEE NOTE 8
	A84		-94		30	2	14	J3-22	
	A85		-93		30	2	13	J3-30	
SEE NOTES 10&11	A86		-92	YEL	26	3	14	J3-8	SEE NOTES 10&11
SEE NOTE 8	A87		-91	SEE NOTE 6	30	2	5	J2-83	SEE NOTE 8
	A88		-90		30	2	12	J3-39	
	A89	21	J12-89		30	2	12	J3-43	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
SEE NOTES 10&11	A90	21	J12-88	YEL	26	3	12	J3-38	SEE NOTES 10&11
SEE NOTE 8	A91		-87	SEE NOTE 6	30	2	6	J1-78	SEE NOTE 8
	A92		-86				11	J3-56	
	A93		-85				12	J3-42	
	A94		-84				13	J3-34	
	A95		-83				6	J1-74	
	A96		-82				11	J3-50	
	A97		-81		30	2	11	J3-55	
SEE NOTES 10&11	A98		-80	YEL	26	3	11	J3-60	SEE NOTES 10&11
SEE NOTE 8	A99		-79	SEE NOTE 6	30	2	6	J1-70	SEE NOTE 8
	A100		-78				12	J3-41	
	A101		-77				13	J3-29	
	A102		-76				11	J3-54	
	A103		-75				11	J3-49	
	A104		-74				1	J6-79	
	A105		-73				2	J5-76	
	A106		-72				11	J3-53	
	A107		-71		30	2	[illegible]	[illegible]	
SEE NOTES 10&11	A108		-70	YEL	26	3	10	J2-8	SEE NOTES 10&11
SEE NOTE 8	A109		-69	SEE NOTE 6	30	2	10	J2-18	SEE NOTE 8
	A110		-68				2	J5-70	
	A111		-67				2	J5-84	
	A112		-66				7	J2-56	
	A113		-65				10	J2-24	
	A114		-64		30	2	9	J2-36	
SEE NOTES 10&11	A115	21	J12-63	YEL	26	3	10	J2-6	SEE NOTES 10&11
SEE NOTE 8									SEE NOTE 8
	A116	21	J12-62	SEE NOTE 6	30	2	2	J5-83	
	A117		-61				2	J5-78	
	A118		-60				10	J2-21	
	A119		-59				9	J2-30	
	A120		-58				8	J2-40	
	A121		-57				9	J2-34	
	A122		-56				2	J5-82	
	A123		-55				3	J4-79	
	A124		-54				7	J2-50	
	A125		-53				8	J2-39	
	A126		-52				8	J2-43	
	A127		-51				10	J2-22	
	A128		-50				3	J4-78	
	A129		-48				7	J2-55	
	A130		-47				8	J2-42	
	A131		-46				8	[illegible]	
	A132		-45				9	J2-29	
	A133		-44				4	J3-84	
	A134		-43				4	J3-83	
	A135		-42				7	J2-54	
	A136		-41				7	J2-49	
	A137		-40				8	J2-41	
	A138		-39				10	J2-17	
	A139		-38				4	J3-78	
	A140		-37				4	J3-82	
	A141		-36				7	J2-53	
	A142		-35				10	J1-24	
	A143		-34		30	2	10	J1-17	
SEE NOTES 10&11	A144	21	J12-33	YEL	26	3	10	J1-6	SEE NOTES 10&11
SEE NOTE 8									SEE NOTE 8
	A145	21	J12-32	SEE NOTE 6	30	2	5	J2-78	
	A146		-31				5	J2-70	
	A147		-30				7	J1-53	
	A148		-29				9	-36	
	A149		-28				10	-21	
	A150		-27				10	-22	
	A151		-25				6	-84	
	A152		-24				9	-29	
	A153		-23				8	-39	
	A154		-22				9	34	
	A155		-21				9	-30	
	A156		-18				7	-55	
	A157		-17				8	-43	
	A158		-16				7	-49	
	A159		-15				10	J1-18	
	A160		-13				3	J4-84	
	A161		-12				7	J1-56	
	A162		-11				7	-50	
	A163		-10				8	-41	
	A164		-9				8	-40	
	A165		-7				6	-83	
	A166		-6				7	-60	
	A167		-5				7	-54	
	A168		-4				8	-38	
	A169		-3				8	-42	
	A170		-1		30	2	6	J1-82	
	A171		-183	WHT	26	7	18	G1	
SEE NOTE 11	A172		-199	YELLOW	26	3	20	TB3-17	SEE NOTE 10
	A173		-211					-16	
	A174		-206					-15	
	A175		-212					-14	
	A176		-198					-13	
	A177		-200					-11	
	A178	21	J12-188	YELLOW	26	3	20	TB3-10	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
SEE NOTE 11	A179	21	J12-180	YELLOW	26	3	20	TB3-12	SEE NOTE 10
	A180		-193	YELLOW		4		-9	TWIST SEE NOTE 10
	A181		-194	&RED		4		-8	
	A182		-205	YELLOW		3		-6	SEE NOTE 10&11
	A183		-181	YELLOW		3		-5	
	A184		-186	YELLOW		3		-4	
	A185		J12-184	BLACK		5	20	TB3-2	
	A186		J12-177	YEL		3	21	J12-19	
SEE NOTES 10&11 ✱	A187	21	J12-19	YEL	26	3	21	J12-184	

✱ DENOTES MUST BE FIRST LEVEL

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

2003885	
NEXT ASSY	USED ON
APPLICATION	

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN DATE 19 SEP 66
CHECKED 20 SEP 66
APPROVAL
APPROVAL
NASA APPROVAL
CCD APPROVAL

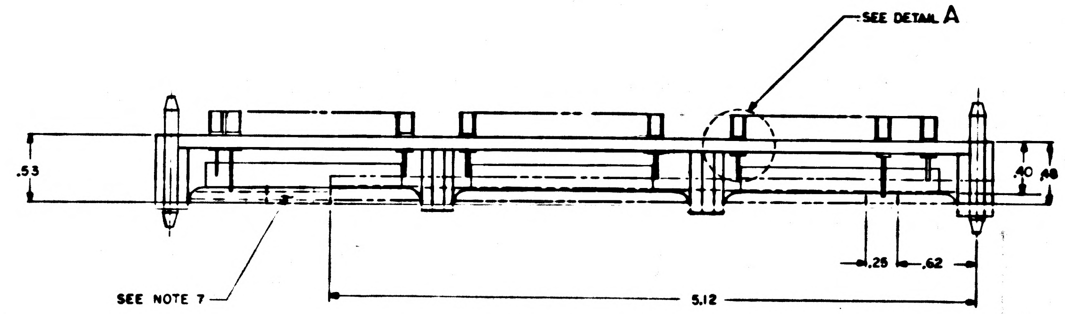
MANNED SPACECRAFT CENTER
HOUSTON TEXAS

CONNECTOR, PLATE
WIRED ASSY
AGC DSKY

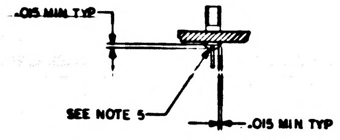
CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 20038[illegible]2
SCALE NONE
WT
SHEET OF 2

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

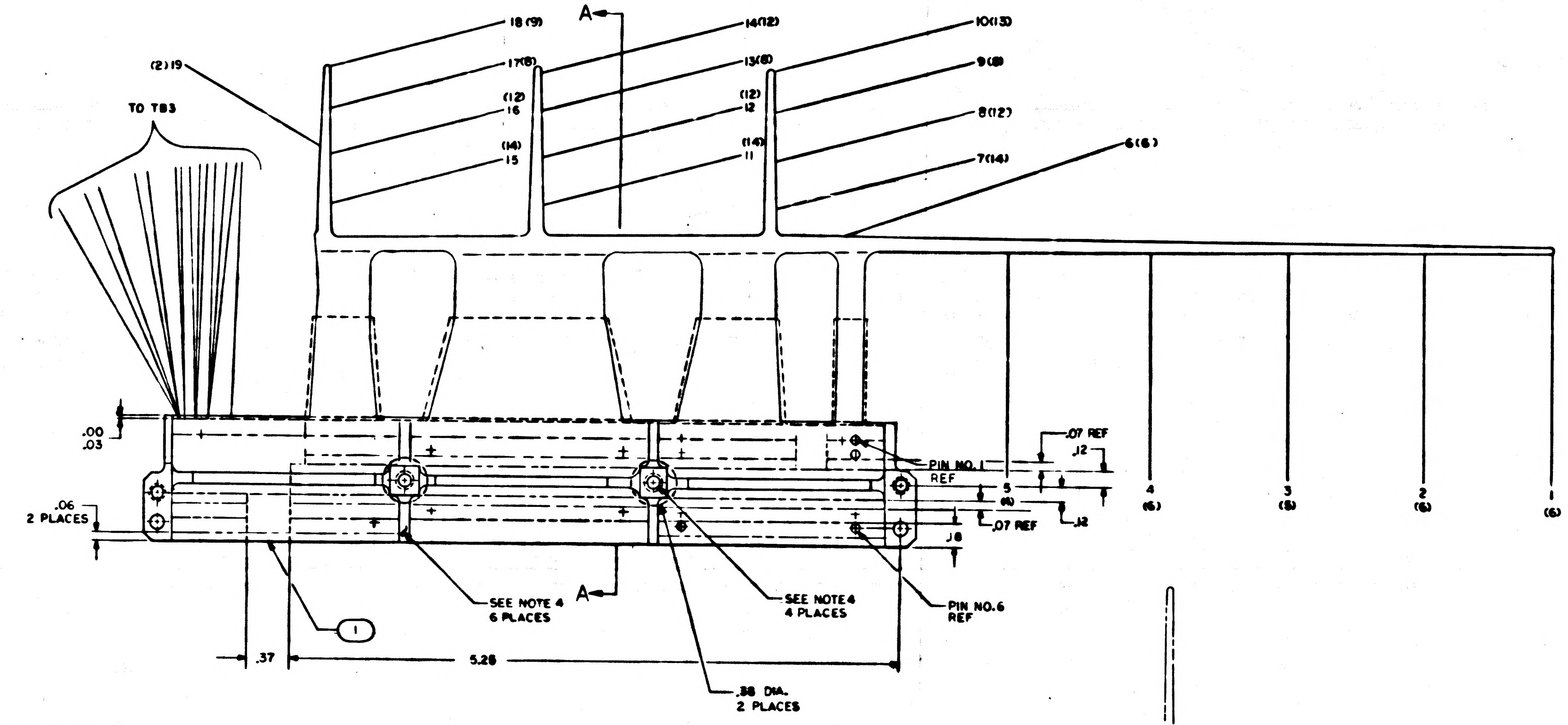
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL RELEASE TDRR 32573		
B	REVISED PER TDRR 32721 DR CHK		
C	REVISED PER TDRR 33444 DR R. Stuck CHK		


SEE DETAIL A
.53
.40
.48
.25
.62
5.12
SEE NOTE 7

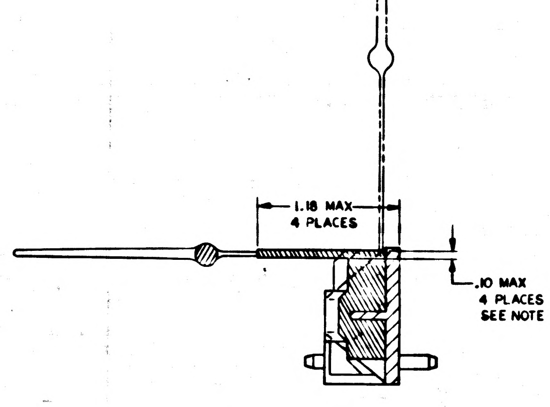
VIEW SHOWN WITH WIRING REMOVED


.015 MIN TYP
SEE NOTE 5
.015 MIN TYP

DETAIL A


TO TB3
(2) 19
18 (9)
17 (8)
(12) 16
(14) 15
A
14 (12)
13 (8)
(12) 12
(14) 11
10 (13)
9 (8)
8 (12)
7 (14)
6 (6)
.00
.03
.06
2 PLACES
PIN NO. 1 REF
.07 REF
.12
5 (4)
4 (6)
3 (5)
2 (6)
1 (6)
.07 REF
.12
.18
SEE NOTE 4
6 PLACES
SEE NOTE 4
4 PLACES
PIN NO. 6 REF
1
.37
5.28
.38 DIA.
2 PLACES

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. IDENTIFY WITH PART NO. PER ND1002019
3. AR DENOTES AS REQUIRED
4. INDICATED AREA AND HOLES TO BE FREE FROM ENCAPSULATING COMPOUND
5. SEAL INSULATORS ON FIND NO. 1 PER ND1002004 TYPE VI
6. COLOR OF FIND NO. 2 TO BE OPTIONAL
7. ENCAPSULATE PER ND1002236; EXCEPT, PARA. 4.3 & 4.3.1 NOT APPLICABLE TO .10 MAX THICKNESS AREAS.
8. WIRE USING ASSEMBLY INFORMATION CHART PER ND1002031 EXCEPT FIND NO. 7 TO HAVE 5 TO 6 TURNS OF UNINSULATED WIRE, 1/2 TO 1/2 TURNS INSULATED WIRE, STRIP LENGTH OF 1.00 TO 1.16, AND STRIP FORCE OF 5 LBS. MIN.
9. FABRICATE PER ND1002032
10. UNLESS OTHERWISE SPECIFIED, STRIP ALL LEADS .20 AND TIN
11. SOLDER PER ND1002071 USING SOLDER PER ND1002075


1.18 MAX
4 PLACES
.10 MAX
4 PLACES
SEE NOTE 7

SECTION A-A
SHOWN IN ENCAPSULATING POSITION

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
SEE NOTE 8	AR	1010807-22	WIRE, INSULATED	7
	AR	1012507-001	TAPE, LACING	6
	AR	1010789-024	WIRE, INSULATED	5
	AR	1010789-017	WIRE, INSULATED	4
	AR	1010799-016	WIRE, INSULATED	3
SEE NOTE 6	AR	1006732	WIRE, INSULATED	2
	1	2003951-021	CONNECTOR PLATE ASSY	1
	-011	LIST OF MATERIALS		

2003885	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± .01 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN J.P. Leonard DATE 25SEP66
CHECKED 20 SEP 66
APPROVAL
APPROVAL Eldon C Hall 10 Oct 66
NASA APPROVAL
APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CONNECTOR, PLATE WIRED ASSY AGC DSKY

CODE IDENT NO 80230 SIZE E NASA DRAWING NO 2003882
SCALE 2/1 WT SHEET 1 OF 2

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL RELEASE TDRR 32573		
B	REVISED PER TDRR 32721 DR CHK C.C.		
C	REVISED PER TDRR 33444 DR CHK		

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
SEE NOTE 8	A1	21	J12-166	SEE NOTE 6	30	2	19	J7-6	SEE NOTE 8
	A2		-167		30	2	16	J6-43	
SEE NOTES 10&11	A3		-160	YEL	26	3	18	-18	SEE NOTES 10&11
SEE NOTE 8	A4		-159	SEE NOTE 6	30	2	17	-34	SEE NOTE 8
	A5		-154				16	-40	
	A6		-153				15	-50	
	A7		-148		30	2	16	-39	
SEE NOTES 10&11	A8		-147	YEL	26	3	16	-38	SEE NOTES 10&11
SEE NOTE 8	A9		-142	SEE NOTE 6	30	2	15	-54	SEE NOTE 8
	A10		-141				16	-41	
	A11		-136				17	-29	
	A12		-135				15	-55	
	A13		-187				16	-42	
	A14		-210		30	2	15	-49	
SEE NOTES 10&11	A15		-182	YEL	26	3	15	-60	SEE NOTES 10&11
SEE NOTE 8	A16		-204	SEE NOTE 6	30	2	15	-56	SEE NOTE 8
	A17		-192				18	-17	
	A18		-176				17	-36	
	A19		-175				18	-22	
	A20		-174				17	J6-30	
	A21		-170				19	J7-4	
	A22		-169				18	J6-24	
	A23		-168				15	J6-53	
	A24		-164				16	J5-43	
	A25		-163				17	-34	
	A26		-162				17	-36	
	A27		-161				18	-22	
	A28		-158				15	-56	
	A29		-157				16	-39	
	A30		-156		30	2	18	-24	
SEE NOTES 10&11	A31	21	J12-155	YEL	26	3	18	J5-8	SEE NOTES 10&11
SEE NOTE 8									SEE NOTE 8
	A32	21	J12-152	SEE NOTE 6	30	2	16	J5-42	
	A33		-151		30	2	16	-40	
SEE NOTES 10&11	A34		-150	YEL	26	3	16	-38	SEE NOTES 10&11
SEE NOTE 8	A35		-149	SEE NOTE 6	30	2	17	-30	SEE NOTE 8
	A36		-146				15	-50	
	A37		-145				15	-55	
	A38		-144				15	-49	
	A39		-143				17	-29	
	A40		-140				15	-54	
	A41		-139				15	-53	
	A42		-138				16	-41	
	A43		-137		30	2	18	-17	
SEE NOTES 10&11	A44		-134	YEL	26	3	15	J5-60	SEE NOTES 10&11
SEE NOTE 8	A45		-133	SEE NOTE 6	30	2	12	J4-43	SEE NOTE 8
	A46		-132				14	J4-6	
	A47		-131				1	J6-84	
	A48		-130				14	J4-24	
	A49		-129				12	J4-39	
	A50		-128				14	J4-17	
	A51		-127				1	J6-83	
	A52		-126				11	J4-50	
	A53		-125				12	J4-40	
	A54		-124				13	J4-36	
	A55		-123				1	J6-78	
	A56		-122				13	J4-30	
	A57		-121				13	J4-29	
	A58		-120				14	J4-18	
	A59		-119				1	J6-70	
	A60	21	J12-118		30	2	13	J4-34	
	A61	21	J12-117	SEE NOTE 6	30	2	12	J4-38	
	A62		-116				14	J4-21	
	A63		-115				1	J6-76	
	A64		-114				11	J4-55	
	A65		-113				12	-41	
	A66		-112				12	-42	
	A67		-111				3	-83	
	A68		-110				11	-53	
	A69		-109				11	-54	
	A70		-108				11	-49	
	A71		-107				3	-70	
	A72		-106				11	-60	
	A73		-105				11	-56	
	A74		-104				14	J4-22	
	A75		-103				4	J3-76	
	A76		-102				14	-17	
	A77		-101		30	2	14	-24	
SEE NOTES 10&11	A78		-100	YEL	26	3	14	-18	SEE NOTES 10&11
SEE NOTE 8	A79		-99	SEE NOTE 6	30	2	4	-70	SEE NOTE 8
	A80		-98		30	2	12	-40	
	A81		-97		30	2	13	-36	
SEE NOTES 10&11	A82		-96	YEL	26	3	14	J3-6	SEE NOTES 10&11
SEE NOTE 8	A83		-95	SEE NOTE 6	30	2	5	J2-84	SEE NOTE 8
	A84		-94		30	2	14	J3-22	
	A85		-93		30	2	13	J3-30	
SEE NOTES 10&11	A86		-92	YEL	26	3	14	J3-P	SEE NOTES 10&11
SEE NOTE 8	A87		-91	SEE NOTE 6	30	2	5	J2-83	SEE NOTE 8
	A88		-90		30	2	12	J3-39	
	A89	21	J12-89		30	2	12	J3-43	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
SEE NOTES 10&11	A90	21	J12-88	YEL	26	3	12	J3-38	SEE NOTES 10&11
SEE NOTE 8	A91		-87	SEE NOTE 6	30	2	6	J1-78	SEE NOTE 8
	A92		-86				11	J3-56	
	A93		-85				12	J3-42	
	A94		-84				13	J3-34	
	A95		-83				6	J1-74	
	A96		-82				11	J3-50	
	A97		-81		30	2	11	J3-55	
SEE NOTES 10&11	A98		-80	YEL	26	3	11	J3-60	SEE NOTES 10&11
SEE NOTE 8	A99		-79	SEE NOTE 6	30	2	6	J1-70	SEE NOTE 8
	A100		-78				12	J3-41	
	A101		-77				13	J3-29	
	A102		-76				11	J3-54	
	A103		-75				11	J3-49	
	A104		-74				1	J6-79	
	A105		-73				2	J5-76	
	A106		-72				11	J3-53	
	A107		-71		30	2	7	J2-60	
SEE NOTES 10&11	A108		-70	YEL	26	3	10	J2-8	SEE NOTES 10&11
SEE NOTE 8	A109		-69	SEE NOTE 6	30	2	10	J2-18	SEE NOTE 8
	A110		-68				2	J5-70	
	A111		-67				2	J5-84	
	A112		-66				7	J2-56	
	A113		-65				10	J2-24	
	A114		-64		30	2	9	J2-36	
SEE NOTES 10&11	A115	21	J12-63	YEL	26	3	10	J2-6	SEE NOTES 10&11
SEE NOTE 8									SEE NOTE 8
	A116	21	J12-62	SEE NOTE 6	30	2	2	J5-83	
	A117		-61				2	J5-78	
	A118		-60				10	J2-21	
	A119		-59				9	J2-30	
	A120		-58				8	J2-40	
	A121		-57				9	J2-34	
	A122		-56				2	J5-82	
	A123		-55				3	J4-79	
	A124		-54				7	J2-50	
	A125		-53				8	J2-39	
	A126		-52				8	J2-43	
	A127		-51				10	J2-22	
	A128		-50				3	J4-76	
	A129		-48				7	J2-55	
	A130		-47				8	J2-42	
	A131		-46				8	J2-38	
	A132		-45				9	J2-29	
	A133		-44				4	J3-84	
	A134		-43				4	J3-83	
	A135		-42				7	J2-54	
	A136		-41				7	J2-49	
	A137		-40				8	J2-41	
	A138		-39				10	J2-17	
	A139		-38				4	J3-78	
	A140		-37				4	J3-82	
	A141		-36				7	J2-53	
	A142		-35				10	J1-24	
	A143		-34		30	2	10	J1-17	
SEE NOTES 10&11	A144	21	J12-33	YEL	26	3	10	J1-6	SEE NOTES 10&11
SEE NOTE 8									SEE NOTE 8
	A145	21	J12-32	SEE NOTE 6	30	2	5	J2-78	
	A146		-31				5	J2-70	
	A147		-30				7	J1-53	
	A148		-29				9	-36	
	A149		-28				10	-21	
	A150		-27				10	-22	
	A151		-25				6	-84	
	A152		-24				9	-29	
	A153		-23				8	-39	
	A154		-22				9	-34	
	A155		-21				9	-30	
	A156		-18				7	-55	
	A157		-17				8	-43	
	A158		-16				7	-49	
	A159		-15				10	J1-18	
	A160		-13				3	J4-84	
	A161		-12				7	J1-56	
	A162		-11				7	-50	
	A163		-10				8	-41	
	A164		-9				8	-40	
	A165		-7				6	-83	
	A166		-6				7	-60	
	A167		-5				7	-54	
	A168		-4				8	-38	
	A169		-3				8	-42	
	A170		-1		30	2	6	J1-82	
	A171		-183	WHT	26	7	18	G1	
SEE NOTE 11	A172		-199	YELLOW	26	3	20	TB3-17	SEE NOTE 10
	A173		-211					-16	
	A174		-206					-15	
	A175		-212					-14	
	A176		-198					-13	
	A177		-200					-11	
	A178	21	J12-188	YELLOW	26	3	20	TB3-10	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
SEE NOTE 11	A179	21	J12-180	YELLOW	26	3	20	TB3-12	SEE NOTE 10
	A180		-193	YELLOW		4		-9	TWIST SEE NOTE 10
	A181		-194	&RED		4		-8	
	A182		-205	YELLOW		3		-6	SEE NOTE 10&11
	A183		-181	YELLOW		3		-5	
	A184		-186	YELLOW		3		-4	
	A185		J12-184	BLACK		5	20	TB3-2	
	A186		J12-177	YEL		3	21	J12-19	
SEE NOTES 10&11 ✱	A187	21	J12-19	YEL	26	3	21	J12-184	

✱ DENOTES MUST BE FIRST LEVEL

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

2003885	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

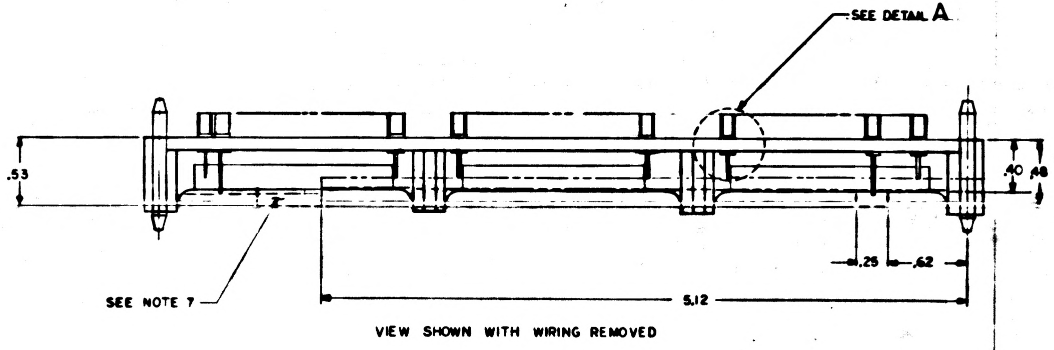
MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN Gerry R. Miller DATE 19 SEP 66
CHECKED 20 SEP 66
APPROVAL
APPROVAL Eldon C. Hall 10 Oct 66
NASA APPROVAL
CCB APPROVAL 7/67

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CONNECTOR, PLATE
WIRED ASSY
AGC DSKY

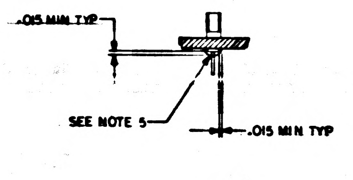
CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 2003882
SCALE NONE
WT
SHEET 2 OF 2

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL RELEASE TDRR 32573		
B	REVISED PER TDRR 32721 DR CHK		
C	REVISED PER TDRR 33444 DR CHK		
D	REVISED PER TDRR 33940 DR CHK		



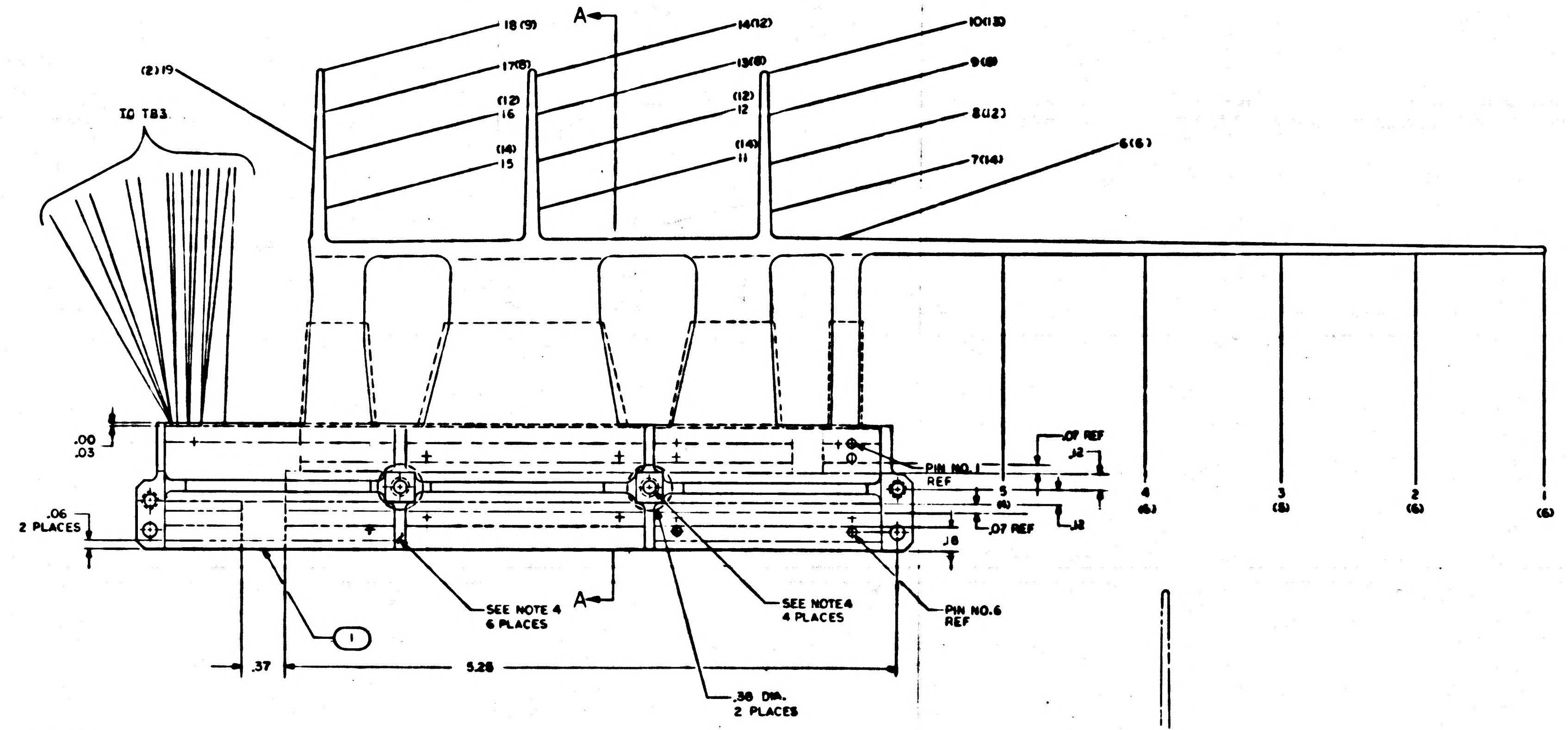
SEE DETAIL A
.53
.40
.48
.25
.62
5.12
SEE NOTE 7

VIEW SHOWN WITH WIRING REMOVED



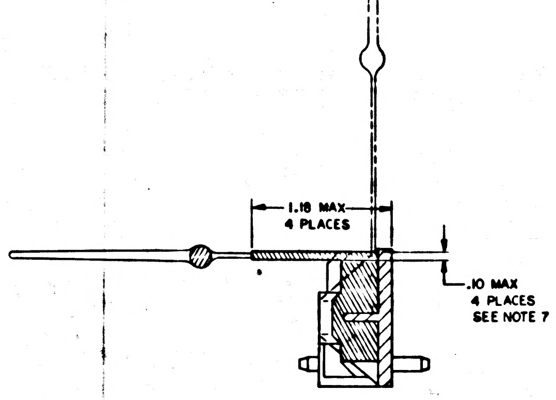
.015 MIN TYP
SEE NOTE 5
.015 MIN TYP

DETAIL A



TO TB3
(2)19
18(9)
17(8)
(12)
16
(14)
15
A
14(12)
13(8)
(12)
12
(14)
11
10(13)
9(8)
8(12)
7(14)
6(6)
.00
.03
.06
2 PLACES
PIN NO. 1
REF
.07 REF
.12
5
(6)
4
(6)
3
(8)
2
(6)
1
(6)
.07 REF
.12
.18
SEE NOTE 4
6 PLACES
SEE NOTE 4
4 PLACES
PIN NO. 6
REF
1
.37
5.28
.38 DIA.
2 PLACES

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. IDENTIFY WITH PART NO. PER ND1002019
3. AR DENOTES AS REQUIRED
4. INDICATED AREA AND HOLES TO BE FREE FROM ENCAPSULATING COMPOUND
5. SEAL INSULATORS ON FIND NO. 1 PER ND1002187 TYPE III
6. COLOR OF FIND NO. 2 TO BE OPTIONAL
7. ENCAPSULATE PER ND1002236; EXCEPT, PARA. 4.3 & 4.3.1 NOT APPLICABLE TO .10 MAX THICKNESS AREAS.
8. WIRE USING ASSEMBLY INFORMATION CHART PER ND1002031 EXCEPT FIND NO. 7 TO HAVE 5 TO 6 TURNS OF UNINSULATED WIRE, 1/2 TO 1 1/2 TURNS INSULATED WIRE, STRIP LENGTH OF 1.00 TO 1.18, AND STRIP FORCE OF 5 LBS. MIN.
9. FABRICATE PER ND1002032
10. UNLESS OTHERWISE SPECIFIED, STRIP ALL LEADS .20 AND TIN
11. SOLDER PER ND1002071 USING SOLDER PER ND1002078



1.18 MAX
4 PLACES
.10 MAX
4 PLACES
SEE NOTE 7

SECTION A-A
SHOWN IN ENCAPSULATING POSITION

	QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
SEE NOTE 8	AR	1010807-22	WIRE, INSULATED	7
	AR	1012507-001	TAPE, LACING	6
	AR	1010789-024	WIRE, INSULATED	5
	AR	1010789-017	WIRE, INSULATED	4
	AR	1010789-016	WIRE, INSULATED	3
SEE NOTE 6	AR	1006732	WIRE, INSULATED	2
	1	2003951-021	CONNECTOR PLATE ASSY	
	-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003885	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.01 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN DATE
CHECKED 20 SEP 66
APPROVAL
APPROVAL
NASA APPROVAL
APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

CONNECTOR, PLATE
WIRED ASSY
AGC DSKY

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 2003882
SCALE 2/1
WT
SHEET 1 OF 2

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL RELEASE TDRR 33573		
B	REVISED PER TDRR 32721 DR CHK J.C.		
C	REVISED PER TDRR 33444 DR CHK		
D	REVISED PER TDRR 33940 DR CHK Donovan	6-26-67	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
SEE NOTE 8	A1	21	J12-166	SEE NOTE 6	30	2	19	J7-6	SEE NOTE 8
	A2		-167		30	2	16	J6-43	
SEE NOTES 10&11	A3		-160	YEL	26	3	18	-18	SEE NOTES 10&11
SEE NOTE 8	A4		-159	SEE NOTE 6	30	2	17	-34	SEE NOTE 8
	A5		-154				16	-40	
	A6		-153				15	-50	
	A7		-148		30	2	16	-39	
SEE NOTES 10&11	A8		-147	YEL	26	3	16	-38	SEE NOTES 10&11
SEE NOTE 8	A9		-142	SEE NOTE 6	30	2	15	-54	SEE NOTE 8
	A10		-141				16	-41	
	A11		-136				17	-29	
	A12		-135				15	-55	
	A13		-187				16	-42	
	A14		-210		30	2	15	-49	
SEE NOTES 10&11	A15		-182	YEL	26	3	15	-60	SEE NOTES 10&11
SEE NOTE 8	A16		-204	SEE NOTE 6	30	2	15	-56	SEE NOTE 8
	A17		-192				18	-17	
	A18		-176				17	-36	
	A19		-175				18	-22	
	A20		-174				17	J6-30	
	A21		-170				19	J7-4	
	A22		-169				18	J6-24	
	A23		-168				15	J6-53	
	A24		-164				16	J5-43	
	A25		-163				17	-34	
	A26		-162				17	-36	
	A27		-161				18	-22	
	A28		-158				15	-56	
	A29		-157				16	-39	
	A30		-156		30	2	18	-24	
SEE NOTES 10&11	A31	21	J12-155	YEL	26	3	18	J5-8	SEE NOTES 10&11
SEE NOTE 8									SEE NOTE 8
	A32	21	J12-152	SEE NOTE 6	30	2	16	J5-42	
	A33		-151		30	2	16	-40	
SEE NOTES 10&11	A34		-150	YEL	26	3	16	-38	SEE NOTES 10&11
SEE NOTE 8	A35		-149	SEE NOTE 6	30	2	17	-30	SEE NOTE 8
	A36		-146				15	-50	
	A37		-145				15	-55	
	A38		-144				15	-49	
	A39		-143				17	-29	
	A40		-140				15	-54	
	A41		-139				15	-53	
	A42		-138				16	-41	
	A43		-137		30	2	18	-17	
SEE NOTES 10&11	A44		-134	YEL	26	3	15	J5-60	SEE NOTES 10&11
SEE NOTE 8	A45		-133	SEE NOTE 6	30	2	12	J4-43	SEE NOTE 8
	A46		-132				14	J4-6	
	A47		-131				1	J6-84	
	A48		-130				14	J4-24	
	A49		-129				12	J4-39	
	A50		-128				14	J4-17	
	A51		-127				1	J6-83	
	A52		-126				11	J4-50	
	A53		-125				12	J4-40	
	A54		-124				13	J4-36	
	A55		-123				1	J6-78	
	A56		-122				13	J4-30	
	A57		-121				13	J4-29	
	A58		-120				14	J4-18	
	A59		-119				1	J6-70	
	A60	21	J12-118		30	2	13	J4-34	
	A61	21	J12-117	SEE NOTE 6	30	2	12	J4-38	
	A62		-116				14	J4-21	
	A63		-115				1	J6-76	
	A64		-114				11	J4-55	
	A65		-113				12	-41	
	A66		-112				12	-42	
	A67		-111				3	-83	
	A68		-110				11	-53	
	A69		-109				11	-54	
	A70		-108				11	-49	
	A71		-107				3	-70	
	A72		-106				11	-60	
	A73		-105				11	-56	
	A74		-104				14	J4-22	
	A75		-103				4	J3-76	
	A76		-102				14	-17	
	A77		-101		30	2	14	-24	
SEE NOTES 10&11	A78		-100	YEL	26	3	14	-18	SEE NOTES 10&11
SEE NOTE 8	A79		-99	SEE NOTE 6	30	2	4	-70	SEE NOTE 8
	A80		-98		30	2	12	-40	
	A81		-97		30	2	13	-36	
SEE NOTES 10&11	A82		-96	YEL	26	3	14	J3-6	SEE NOTES 10&11
SEE NOTE 8	A83		-95	SEE NOTE 6	30	2	5	J2-84	SEE NOTE 8
	A84		-94		30	2	14	J3-22	
	A85		-93		30	2	13	J3-30	
SEE NOTES 10&11	A86		-92	YEL	26	3	14	J3-8	SEE NOTES 10&11
SEE NOTE 8	A87		-91	SEE NOTE 6	30	2	5	J2-83	SEE NOTE 8
	A88		-90		30	2	12	J3-39	
	A89	21	J12-89		30	2	12	J3-43	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
SEE NOTES 10&11	A90	21	J12-88	YEL	26	3	12	J3-38	SEE NOTES 10&11
SEE NOTE 8	A91		-87	SEE NOTE 6	30	2	6	J1-78	SEE NOTE 8
	A92		-86				11	J3-56	
	A93		-85				12	J3-42	
	A94		-84				13	J3-34	
	A95		-83				6	J1-74	
	A96		-82				11	J3-50	
	A97		-81		30	2	11	J3-55	
SEE NOTES 10&11	A98		-80	YEL	26	3	11	J3-60	SEE NOTES 10&11
SEE NOTE 8	A99		-79	SEE NOTE 6	30	2	6	J1-70	SEE NOTE 8
	A100		-78				12	J3-41	
	A101		-77				13	J3-29	
	A102		-76				11	J3-54	
	A103		-75				11	J3-49	
	A104		-74				1	J6-79	
	A105		-73				2	J5-76	
	A106		-72				11	J3-53	
	A107		-71		30	2	7	J2-60	
SEE NOTES 10&11	A108		-70	YEL	26	3	10	J2-8	SEE NOTES 10&11
SEE NOTE 8	A109		-69	SEE NOTE 6	30	2	10	J2-18	SEE NOTE 8
	A110		-68				2	J5-70	
	A111		-67				2	J5-84	
	A112		-66				7	J2-56	
	A113		-65				10	J2-24	
	A114		-64		30	2	9	J2-36	
SEE NOTES 10&11	A115	21	J12-63	YEL	26	3	10	J2-6	SEE NOTES 10&11
SEE NOTE 8									SEE NOTE 8
	A116	21	J12-62	SEE NOTE 6	30	2	2	J5-83	
	A117		-61				2	J5-78	
	A118		-60				10	J2-21	
	A119		-59				9	J2-30	
	A120		-58				8	J2-40	
	A121		-57				9	J2-34	
	A122		-56				2	J5-82	
	A123		-55				3	J4-79	
	A124		-54				7	J2-50	
	A125		-53				8	J2-39	
	A126		-52				8	J2-43	
	A127		-51				10	J2-22	
	A128		-50				3	J4-78	
	A129		-48				7	J2-55	
	A130		-47				8	J2-42	
	A131		-46				8	J2-38	
	A132		-45				9	J2-29	
	A133		-44				4	J3-84	
	A134		-43				4	J3-83	
	A135		-42				7	J2-54	
	A136		-41				7	J2-49	
	A137		-40				8	J2-41	
	A138		-39				10	J2-17	
	A139		-38				4	J3-78	
	A140		-37				4	J3-82	
	A141		-36				7	J2-53	
	A142		-35				10	J1-24	
	A143		-34		30	2	10	J1-17	
SEE NOTES 10&11	A144	21	J12-33	YEL	26	3	10	J1-6	SEE NOTES 10&11
SEE NOTE 8									SEE NOTE 8
	A145	21	J12-32	SEE NOTE 6	30	2	5	J2-78	
	A146		-31				5	J2-70	
	A147		-30				7	J1-53	
	A148		-29				9	-36	
	A149		-28				10	-21	
	A150		-27				10	-22	
	A151		-25				6	-84	
	A152		-24				9	-2[illegible]	
	A153		-23				8	-39	
	A154		-22				9	-34	
	A155		-21				9	-30	
	A156		-18				7	-55	
	A157		-17				8	-43	
	A158		-16				7	49	
	A159		-15				10	J1-18	
	A160		-13				3	J4 84	
	A161		-12				7	J1-56	
	A162		-11				7	-50	
	A163		-10				8	-41	
	A164		-9				8	-40	
	A165		-7				6	-83	
	A166		-6				7	-60	
	A167		-5				7	-54	
	A168		-4				8	-38	
	A169		-3				8	-42	
	A170		-1		30	2	6	J1-82	
	A171		-183	WHT	26	7	18	G1	
SEE NOTE 11	A172		-199	YELLOW	26	3	20	TB3-17	SEE NOTE 10
	A173		-211					-16	
	A174		-206					-15	
	A175		-212					-14	
	A176		-198					-13	
	A177		-200					-11	
	A178	21	J12-188	YELLOW	26	3	20	TB3-10	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
SEE NOTE 11	A179	21	J12-180	YELLOW	26	3	20	TB3-12	SEE NOTE 10
	A180		-193	YELLOW		4		-9	TWIST SEE NOTE 10
	A181		-194	&RED		4		-8	
	A182		-205	YELLOW		3		-6	SEE NOTE 10&11
	A183		-181	YELLOW		3		-5	
	A184		-186	YELLOW		3		-4	
	A185		J12-184	BLACK		5	20	TB3-2	
	A186		J12-177	YEL		3	21	J12-19	
SEE NOTES 10&11 ✱	A187	21	J12-19	YEL	26	3	21	J12-184	

✱ DENOTES MUST BE FIRST LEVEL

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

2003885	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN DATE 19 SEP 66
CHECKED 20 SEP 66
APPROVAL
APPROVAL Eldon C. Hall 10 Sep
NASA APPROVAL
CCD APPROVAL 9/1/67

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CONNECTOR, PLATE
WIRED ASSY
AGC DSKY

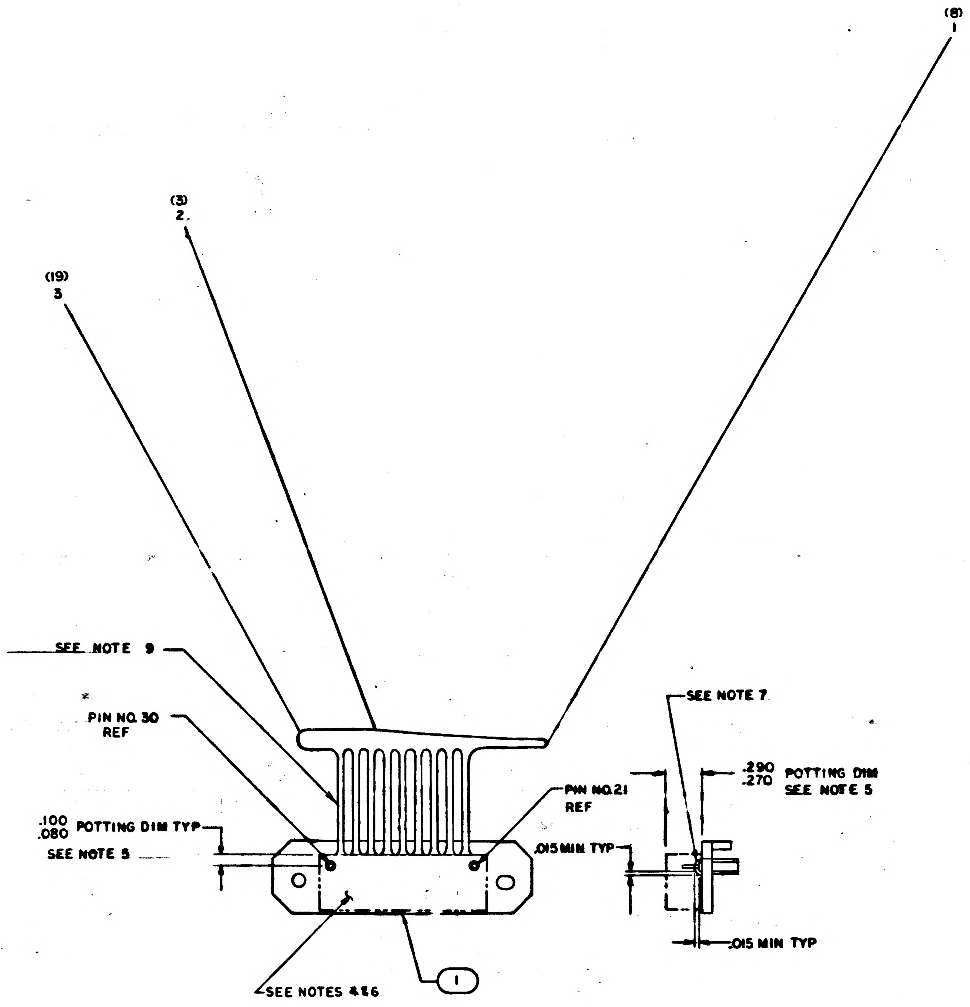
CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 2003882
SCALE NONE
WT
SHEET OF 2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL RELEASE TDRR 32573	6 Nov 67	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO.	DES	REMARKS
	B1	4	J11-21	WHT	26	2	3	TB2-10	
	B2		-11				1	-103	
	B3		-1				1	-99	
	B4		-22				3	TB2-15	
	B5		-12				1	TB1-12	
	B6		-2				3	TB2-48	
	B7		-23				3	-16	
	B8		-15				3	-3	
	B9		-3				2	-35	
	B10		-24				3	-12	
	B11		-4				3	-20	
	B12		-13				2	-45	
	B13		-25				3	-19	
	B14		-6				3	TB2-40	
	B15		-5				1	TB1-4	
	B16		-26				3	TB2-13	
	B17		-16				3	TB2-9	
	B18		-14				1	TB1-22	
	B19		-27				3	TB2-21	
	B20		-17				3	TB2-18	
	B21		-7				1	TB1-29	
	B22		-28				3	TB2-2	
	B23		-18				3	TB2-5	
	B24		-8				1	TB1-58	
	B25		-29				3	TB2-11	
	B26		-19				3	-6	
	B27		-9				1	-95	
	B28		-30				3	-4	
	B29		-20				3	-8	
	B30	4	J11-10	WHT	26	2	2	TB2-61	



NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. IDENTIFY WITH PART NO. PER ND1002019
4. DRESS AND TRIM FIND NO. 2, BOND PER ND1002009
5. ENCAPSULATE PER ND1002236
6. DRESS FIND NO. 2 USING FIND NO. 3 ONLY WHERE REQUIRED TO KEEP WIRES WITHIN THE CONFINES OF THE POTTING
7. SEAL INSULATORS TO FIND NO. 1 PER ND1002004, TYPE VI
8. WIRE USING ASSY INFO CHART AND ND1002031 EXCEPT FIND NO. 2 TO HAVE 5 TO 6 TURNS OF UNINSULATED WIRE, 1/2 TO 1 1/2 TURNS OF INSULATED WIRE, STRIP LENGTH OF 1.00 TO 1.18 AND STRIP FORCE OF 5LBS MIN
9. FABRICATE PER. ND1002032

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1012507-001	TAPE, LACING AND TIEING	3
AR	1010807-22	WIRE, INSULATED	2
1	2003958-011	CONNECTOR PLATE ASSY	1
011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003884	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO. CONTRACT
DRAWN W. Brown DATE 15 Sep 66
CHECKED G. Rubenstein 20 SEP 66
APPROVAL
APPROVAL Eldon C. Hall 10 Oct 66
NASA APPROVAL G.C.M.
EDE APPROVAL 1/4/67

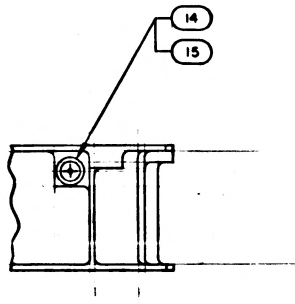
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

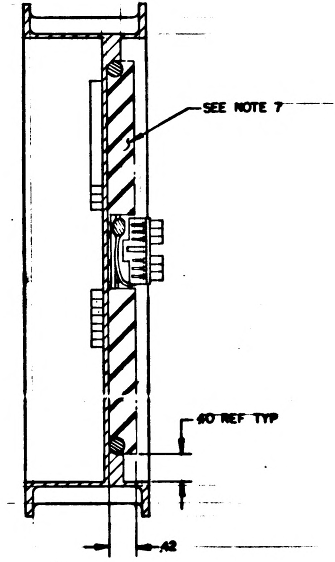
CONNECTOR PLATE, IA,
WIRED ASSY
AGC DSKY

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 2003883
SCALE 2/1
WT
SHEET 1 OF 1

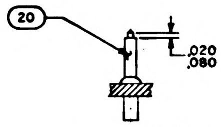
2003883 A

2003885 A

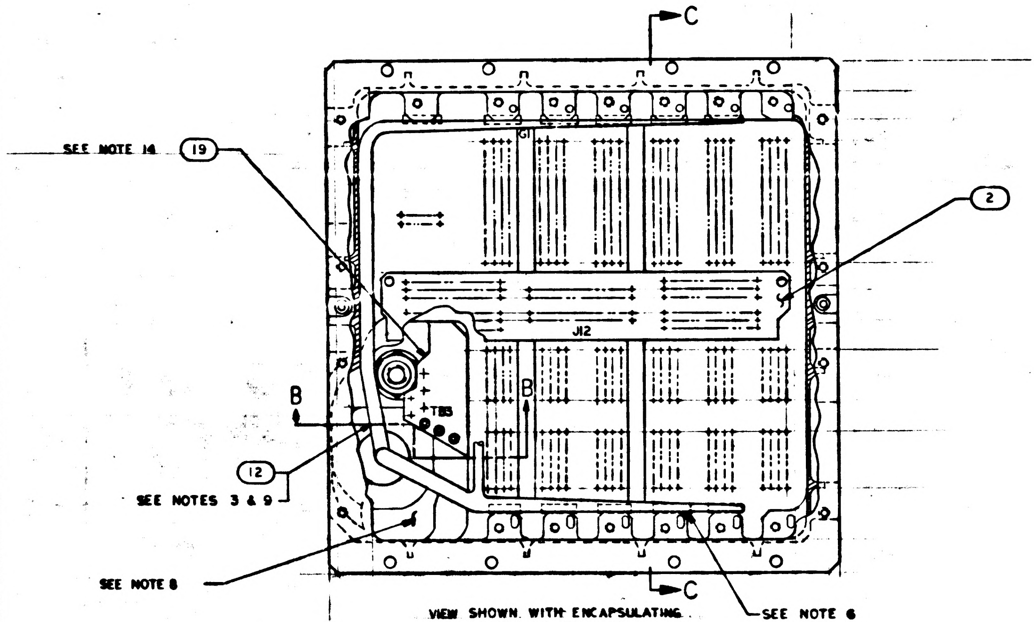



SEE NOTE 7
.60 REF TYP
.42

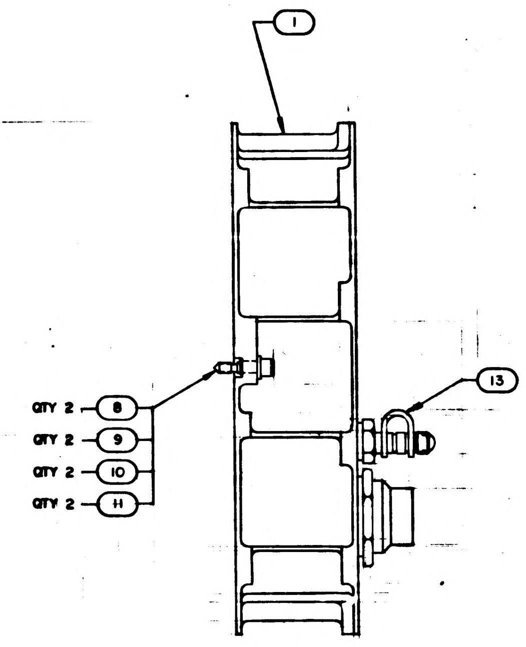
SECTION C-C

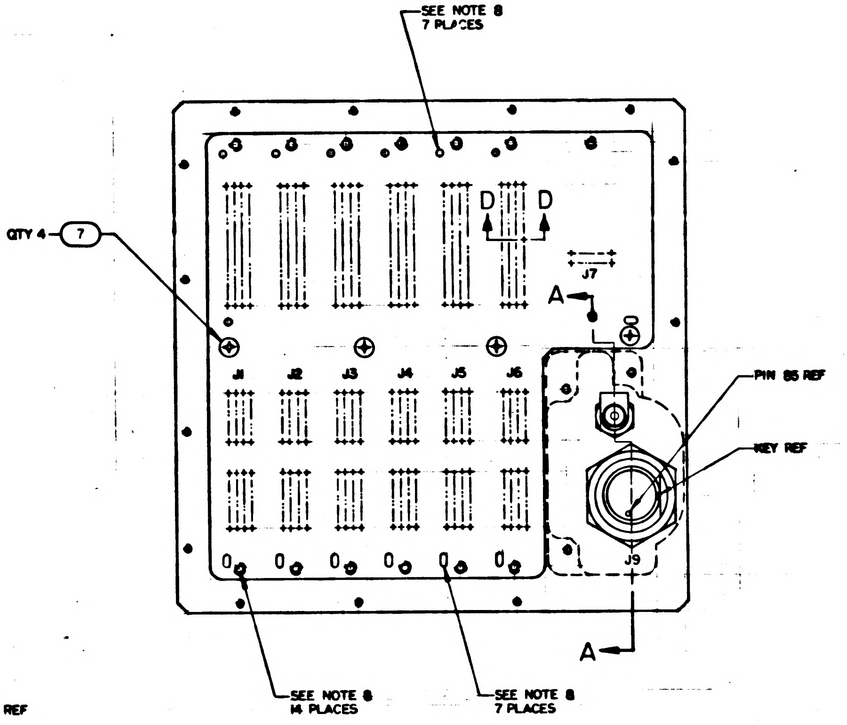


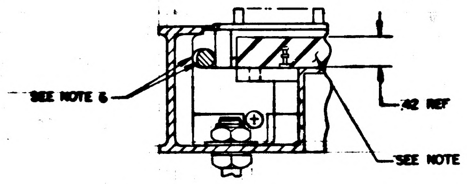
SECTION D-D
SEE NOTE 15
59 PLACES
SCALE 2/1


C
SEE NOTE 14
19
2
J12
TB5
B
B
12
SEE NOTES 3 & 9
SEE NOTE 8
C
SEE NOTE 6
11 PLACES

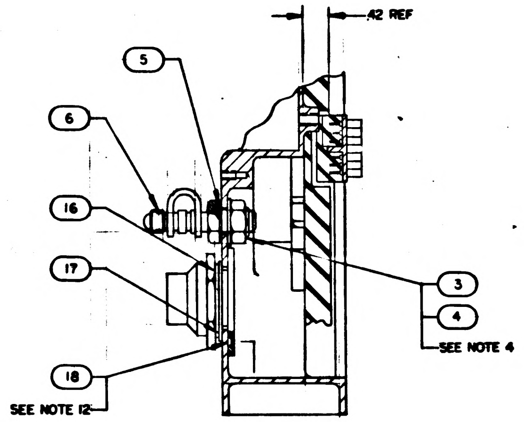
VIEW SHOWN WITH ENCAPSULATING COMPOUND REMOVED


1
QTY 2 8
QTY 2 9
QTY 2 10
QTY 2 11
13


SEE NOTE 8
7 PLACES
QTY 4 7
D
D
J7
A
J1
J2
J3
J4
J5
J6
PIN 85 REF
KEY REF
J9
A
SEE NOTE 8
14 PLACES
SEE NOTE 8
7 PLACES


SEE NOTE 6
.42 REF
SEE NOTE 7

SECTION B-B


.42 REF
5
6
16
17
18
SEE NOTE 12
3
4
SEE NOTE 4

SECTION A-A

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. IDENTIFY WITH PART NO. PER ND1002019
3. SOLDER LEADS OF FIND NO. 12 PER ND1002071 USING SOLDER PER ND1002079
4. MOUNTING TORQUE FOR FIND NO. 3 TO BE 10 TO 11 FT-LBS
5. AR DENOTES AS REQUIRED
6. BOND FIND NO. 12 TO FIND NO. 1 PER ND1002004, TYPE V IN AREAS INDICATED
7. ENCAPSULATE INDICATED AREAS PER ND1002295
8. INDICATED AREA AND HOLES TO BE FREE FROM ENCAPSULATING COMPOUND
9. MOUNTING TORQUE FOR CONNECTOR OF FIND NO. 12 TO BE 20 TO 25 FT LBS
10. WIRE USING LEAD ELECTRICAL & PER ND1002031 EXCEPT 1010807-22 TO HAVE 5 MIN TO 6 MAX TURNS OF UNINSULATED WIRE, 1/2 TO 1-1/2 TURNS OF INSULATED WIRE, STRIP LENGTH OF 1.00 TO 1.18, AND STRIP FORCE OF 5 LBS MIN.
11. INDICATED AREAS TO BE FREE OF WIRES AND ENCAPSULATING COMPOUND TO THE LEVEL OF SURFACE A
12. DISCARD VENDOR SUPPLIED O RING AND REPLACE WITH FIND NO. 18
13. WELD PER ND1002005
14. BOND FIND NO. 19 TO FIND NO. 1 PER ND1002004 TYPE V
15. SLEEVE ALL UNUSED WRAPOSTS USING FIND NO. 20, EXCEPT PINS NO. 93 THRU 124 OF J1 THRU J6.
16. REF. DWG NO. 1006732
17. REF. DWG NO. 1010807-22

	2005954
A	1006776-21
1	2003880-011
1	1000159-10
1	1004546-6
1	1010635-004
1	NAS1598D0AN
1	MS51957-42
1	2004931
1	2003886-011
2	MS16633-4015
2	1004546-3
2	1004546-1
2	1004579-2
4	MS51959-28
1	2004903
1	1000159-14
1	MS15795-814
1	MS20364D624A
1	2003882-011
1	203947-011
QTY REQ	PART OR IDENTIFYING
-0	

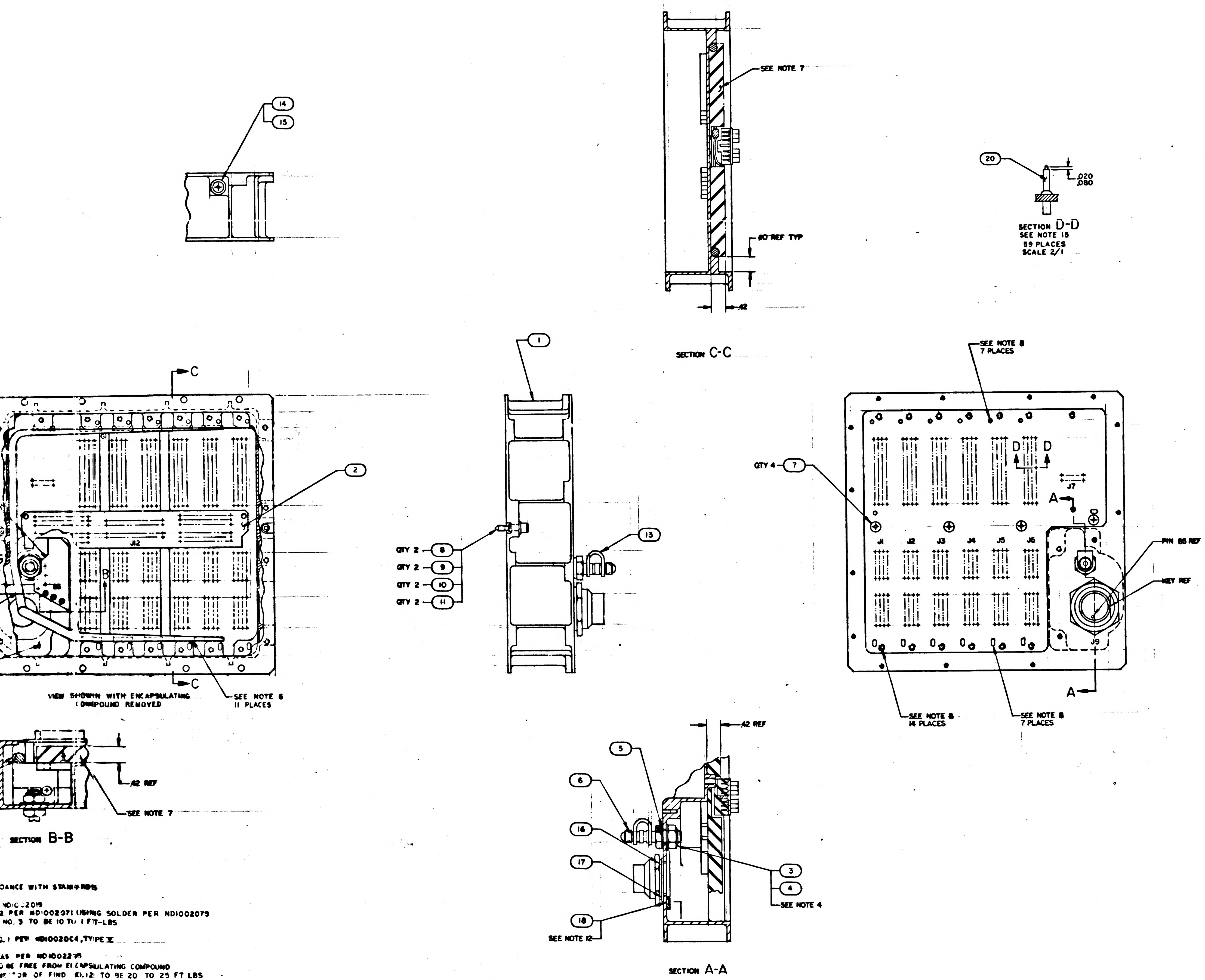
		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ±.01 ANGLES ± DO NOT SCALE THIS DRAWING
		MATERIAL
2003994		HEAT TREATMENT
NEXT ASSY	USED ON	FINAL FINISH
APPLICATION		

MIT
INSTRUMENTATION
CAMBRIDGE MASS

DR.
CHK'D
APP'D
APP'D
NASA APPROVAL
APPROVAL

2003885 A

1/2003885


14
15
SEE NOTE 7
.60 REF TYP
.42
SECTION C-C
20
.020
.080
SECTION D-D
SEE NOTE 15
59 PLACES
SCALE 2/1
1
C
C
2
J12
B
VIEW SHOWN WITH ENCAPSULATING COMPOUND REMOVED
SEE NOTE 6
11 PLACES
QTY 2 8
QTY 2 9
QTY 2 10
QTY 2 11
13
SEE NOTE 8
7 PLACES
QTY 4 7
D D
J7
A
J1 J2 J3 J4 J5 J6
PIN 85 REF
KEY REF
J9
A
SEE NOTE 8
14 PLACES
SEE NOTE 8
7 PLACES
.12 REF
SEE NOTE 7
SECTION B-B
.42 REF
5
6
16
17
18
SEE NOTE 12
3
4
SEE NOTE 4
SECTION A-A

DANCE WITH STANDARDS

NDIC_2019
2 PER ND1002071 USING SOLDER PER ND1002079
NO. 3 TO BE 10 TO 1 FT-LBS

.1 PER ND1002004,TYPE V

AS PER ND1002275
BE FREE FROM ENCAPSULATING COMPOUND
OR OF FIND NO.12 TO BE 20 TO 25 FT LBS
PER ND1002031 EXCEPT 1010807-22 TO HAVE
LATED WIRE, 1/2 TO 1-1/2 TURNS OF INSULATED
LB, AND STRIP FORCE OF 5LBS MIN.
WIRES AND ENCAPSULATING
FACE A
AND REPLACE WITH FIND NO. 18

PER ND1002004 TYPE V
USING FIND NO. 31 EXCEPT PINS NO. 93 THRU 124

SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL RELEASE TDRR 32573	67	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	2005954	INTERCONNECTING DIAGRAM	REF
AR	1006776-21	INSULATION SLEEVING	20
1	2003880-011	TERMINAL BLOCK ASSY	19
1	1000159-10	PACKING, PREFORMED O-RING	18
1	1004546-6	WASHER, FLAT	17
1	1010635-004	WASHER, LOCK	16
1	NAS1598D06N	WASHER, SEALING	15
1	MS51957-42	SCREW, PAN HD, CROSS RECESSED	14
1	2004931	RETAINER, VALVE CAP	13
1	2003886-011	WIRING HARNESS, BRANCHED	12
2	MS16633-4015	RING, RETAINING	11
2	1004546-3	WASHER, FLAT	10
2	1004546-1	WASHER, FLAT	9
2	1004579-2	SCREW, JACKING	8
4	MS51959-28	SCREW, FLAT HD, CROSS RECESSED	7
1	2004903	VALVE PNEUMATIC TANK	6
1	1000159-14	PACKING, PREFORMED, O-RING	5
1	MS15795-814	WASHER, FLAT	4
1	MS20364D624A	NUT, HEX	3
1	2003882-011	CONNECTOR PLATE WIRED ASSY	2
1	203947-011	IDM WIREWRAP PLATE ASSY	1
-011	LIST OF MATERIALS		

2003885 A

2003994	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.01 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN C. J. Betts DATE 21 SEP 66
CHECKED C. DeMaria 22 SEP 66
APPROVAL
APPROVAL Eldon C Hall 10 Oct 66
NASA APPROVAL
CCB APPROVAL 1/6/67

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MAIN HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO 2003885
SCALE 1/1
SHEET 1 OF 3

2003885 A

2/2003885

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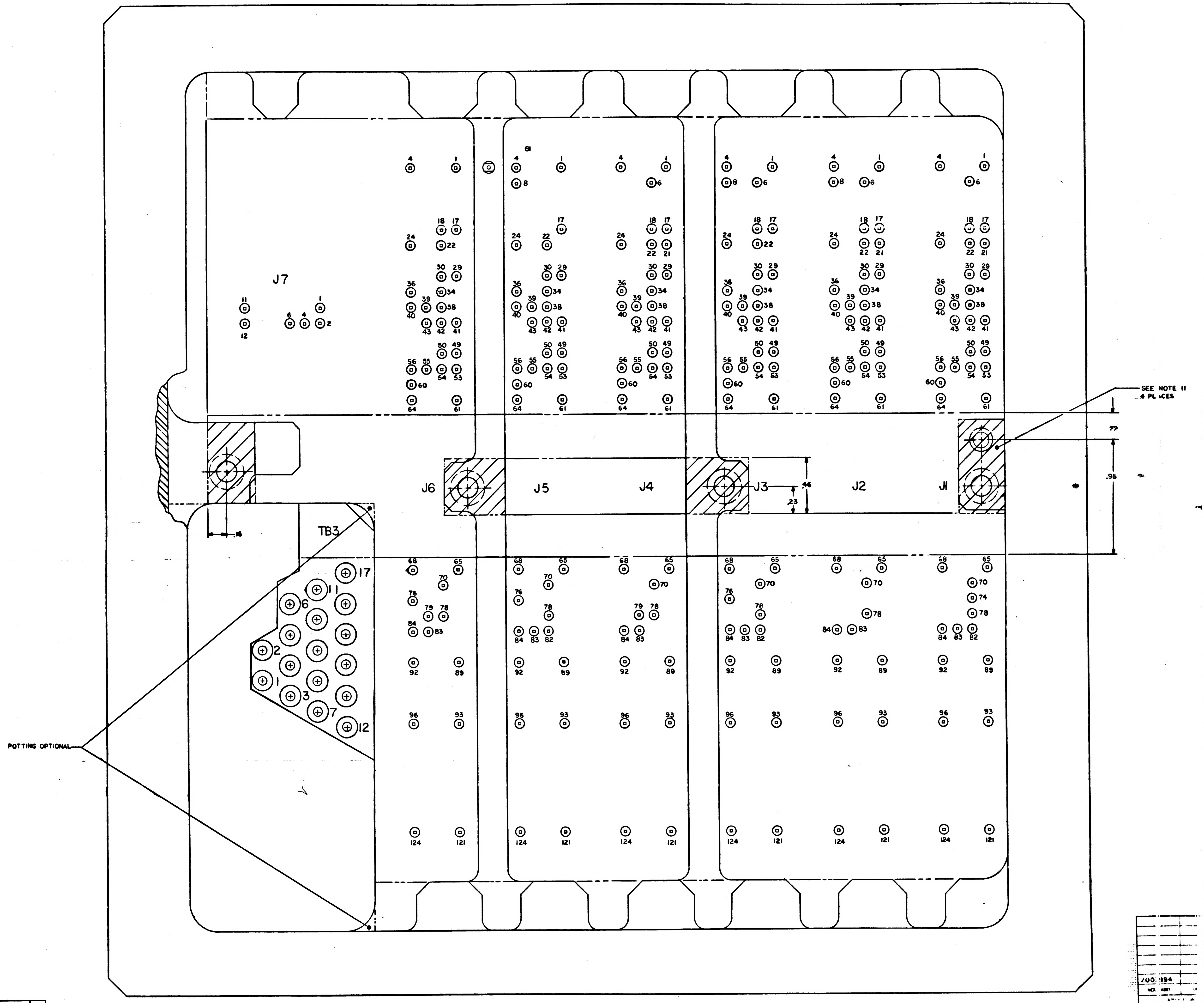
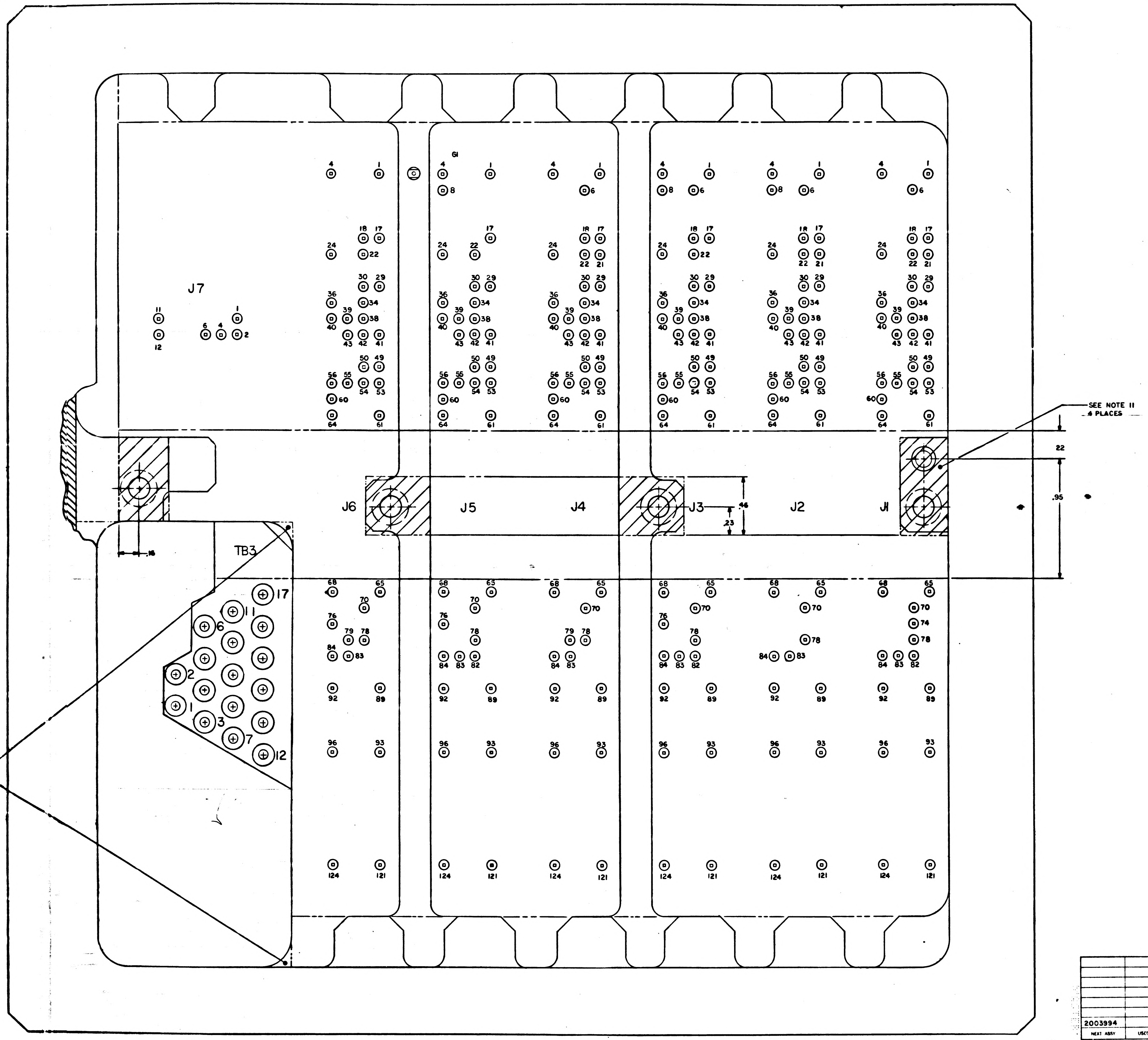

J7
J6
J5
J4
J3
J2
J1
TB3
SEE NOTE 11
4 PLACES
.22
.95
.46
.23
.16
POTTING OPTIONAL
1
2
3
6
7
11
12
17

2003994	
NEX ASSY	
APPLICATION	

2003885 A

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL RELEASE 7D4432573	6 Jun 67	EK



QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
2003994	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN J. Moy DATE 17 Mar 66
CHECKED 19 Jul 66
APPROVAL
APPROVAL Eldon C Hall
NASA APPROVAL
APPROVAL 1/4/67

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MAIN HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO	SIZE	NASA DRAWING NO
80230	J	2003885

SCALE NONE WT SHEET 2 OF 3

2003885 A

2/2003885

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2003885 A

SYM	REVISIONS DESCRIPTION
A	INITIAL RELEASE 32573

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	SEE NOTE	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A1		J12-166	16	OPT	30	AR	J7-6	
A2		-167	16	OPT	30		J6-43	
A3		-160	17	WHT	26		-18	
A4		-159	16	OPT	30		-34	
A5		-154					-40	
A6		-153					-50	
A7		-148	16	OPT	30		-39	
A8		-147	17	WHT	26		-38	
A9		-142	16	OPT	30		-54	
A10		-141					-41	
A11		-136					-29	
A12		-135					-55	
A13		-187					-42	
A14		-210	16	OPT	30		-49	
A15		-182	17	WHT	26		-60	
A16		-204	16	OPT	30		-56	
A17		-192					-17	
A18		-176					-36	
A19		-175					-22	
A20		-174					J6-30	
A21		-170					J7-4	
A22		-169					J6-24	
A23		-168					J6-53	
A24		-164					J5-43	
A25		-163					-34	
A26		-162					-36	
A27		-161					-22	
A28		-158					-56	
A29		-157					-39	
A30		-156	16	OPT	30		-24	
A31		-155	17	WHT	26		-8	
A32		-152	16	OPT	30		-42	
A33		-151					-40	
A34		-150	17	WHT	26		-38	
A35		-149	16	OPT	30		-30	
A36	SEE NOTE 10	-146					-50	SEE NOTE 10
A37		-145					-55	
A38		-144					-49	
A39		-143					-29	
A40		-140					-54	
A41		-139					-53	
A42		-138					-41	
A43		-137	16	OPT	30		-17	
A44		-134	17	WHT	26		J5-60	
A45		-133	16	OPT	30		J4-43	
A46		-132					J4-6	
A47		-131					J6-84	
A48		-130					J4-24	
A49		-129					J4-39	
A50		-128					J4-17	
A51		-127					J6-83	
A52		-126					J4-50	
A53		-125					J4-40	
A54		-124					J4-36	
A55		-123					J6-78	
A56		-122					J4-30	
A57		-121					J4-29	
A58		-120					J4-18	
A59		-119					J6-70	
A60		-118					J4-34	
A61		-117					J4-38	
A62		-116					J4-21	
A63		-115					J6-76	
A64		-114					J4-55	
A65		-113					-41	
A66		-112					-42	
A67		-111					-83	
A68		-110					-53	
A69		-109					-54	
A70		-108					-49	
A71		-107					-70	
A72		J12-106	16	OPT	30	AR	J4-60	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	SEE NOTE	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A73		J12-105	16	OPT	30	AR	J4-56	
A74		-104					J4-22	
A75		-103					J3-76	
A76		-102					-17	
A77		-101	16	OPT	30		-24	
A78		-100	17	WHT	26		-18	
A79		-99	16	OPT	30		-70	
A80		-98	16	OPT	30		-40	
A81		-97	16	OPT	30		-36	
A82		-96	17	WHT	26		J3-6	
A83		-95	16	OPT	30		J2-84	
A84		-94	16	OPT	30		J3-22	
A85		-93	16	OPT	30		J3-30	
A86		-92	17	WHT	26		J3-8	
A87		-91	16	OPT	30		J2-83	
A88		-90	16	OPT	30		J3-39	
A89		-89	16	OPT	30		J3-43	
A90		-88	17	WHT	26		J3-38	
A91		-87	16	OPT	30		J1-78	
A92		-86					J3-56	
A93		-85					J3-42	
A94		-84					J3-34	
A95		-83					J1-74	
A96		-82					J3-50	
A97		-81	16	OPT	30		J3-55	
A98		-80	17	WHT	26		J3-60	
A99		-79	16	OPT	30		J1-70	
A100		-78					J3-41	
A101		-77					J3-29	
A102		-76					J3-54	
A103		-75					J3-49	
A104		-74					J6-79	
A105		-73					J5-76	
A106		-72					J3-53	
A107		-71	16	OPT	30		J2-60	
A108	SEE NOTE 10	-70	17	WHT	26		J2-8	SEE NOTE 10
A109		-69	16	OPT	30		J2-18	
A110		-68					J5-70	
A111		-67					J5-84	
A112		-66					J2-56	
A113		-65					J2-24	
A114		-64	16	OPT	30		J2-36	
A115		-63	17	WHT	26		J2-6	
A116		-62	16	OPT	30		J5-83	
A117		-61					J5-78	
A118		-60					J2-21	
A119		-59					J2-30	
A120		-58					J2-40	
A121		-57					J2-34	
A122		-56					J5-82	
A123		-55					J4-79	
A124		-54					J2-50	
A125		-53					J2-39	
A126		-52					J2-43	
A127		-51					J2-22	
A128		-50					J4-78	
A129		-48					J2-55	
A130		-47					J2-42	
A131		-46					J2-38	
A132		-45					J2-29	
A133		-44					J3-84	
A134		-43					J3-83	
A135		-42					J2-54	
A136		-41					J2-49	
A137		-40					J2-41	
A138		-39					J2-17	
A139		-38					J3-78	
A140		-37					J3-82	
A141		-36					J2-53	
A142		-35					J1-24	
A143		-34	16	OPT	30		J1-17	
A144		J12-33	17	WHT	26	AR	J1-6	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	SEE NOTE	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A145		J12-32	16	OPT	30	AR	J2-78	
A146		-31					J2-70	
A147		-30					J1-53	
A148		-29					-36	
A149		-28					-21	
A150		-27					-22	
A151		-25					-84	
A152		-24					-29	
A153		-23					-39	
A154		-22					-34	
A155		-21					-30	
A156	SEE NOTE 10	-18					-55	SEE NOTE 10
A157		-17					-43	
A158		-16					-49	
A159		-15					J1-18	
A160		-13					J4-84	
A161		-12					J1-56	
A162		-11					-50	
A163		-10					-41	
A164		-9					-40	
A165		-7					-83	
A166		-6					-60	
A167		-5					-54	
A168		-4					-38	
A169		-3					-42	
A170		J12-1	16	OPT	30		J1-82	
A171		J12-183	17	WHT	26	AR	G1	SEE NOTE 13

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
	LIST OF MATERIALS	

NEXT ASSY	USED ON
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APPROVAL
APPROVAL Eldon C Hall 10 Oct 66
NASA APPROVAL
APPROVAL

MANNED SPACECRAFT CENT
HOUSTON, TEXAS

MAIN HOUSING ASSE
AGC DSKY

CODE IDENT NO 80230
SIZE J
NASA DRAWING 20038
SCALE NONE
WT

2003885 A

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REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL RELEASE 7044 32573		

2003885 A

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	SEE NOTE	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A1		J12-166	16	OPT	30	AR	J7-6	
A2		-167	16	OPT	30		J6-43	
A3		-160	17	WHT	26		-18	
A4		-159	16	OPT	30		-34	
A5		-154					-40	
A6		-153					-50	
A7		-148	16	OPT	30		-39	
A8		-147	17	WHT	26		-38	
A9		-142	16	OPT	30		-54	
A10		-141					-41	
A11		-136					-29	
A12		-135					-55	
A13		-187					-42	
A14		-210	16	OPT	30		-49	
A15		-182	17	WHT	26		-60	
A16		-204	16	OPT	30		-56	
A17		-192					-17	
A18		-176					-36	
A19		-175					-22	
A20		-174					J6-30	
A21		-170					J7-4	
A22		-169					J6-24	
A23		-168					J6-53	
A24		-164					J5-43	
A25		-163					-34	
A26		-162					-36	
A27		-161					-22	
A28		-158					-56	
A29		-157					-39	
A30		-156	16	OPT	30		-24	
A31		-155	17	WHT	26		-8	
A32		-152	16	OPT	30		-42	
A33		-151					-40	
A34		-150	17	WHT	26		-38	
A35		-149	16	OPT	30		-30	
A36	SEE NOTE 10	-146					-50	SEE NOTE 10
A37		-145					-55	
A38		-144					-49	
A39		-143					-29	
A40		-140					-54	
A41		-139					-53	
A42		-138					-41	
A43		-137	16	OPT	30		-17	
A44		-134	17	WHT	26		J5-60	
A45		-133	16	OPT	30		J4-43	
A46		-132					J4-6	
A47		-131					J6-84	
A48		-130					J4-24	
A49		-129					J4-39	
A50		-128					J4-17	
A51		-127					J6-83	
A52		-126					J4-50	
A53		-125					J4-40	
A54		-124					J4-36	
A55		-123					J6-78	
A56		-122					J4-30	
A57		-121					J4-29	
A58		-120					J4-18	
A59		-119					J6-70	
A60		-118					J4-34	
A61		-117					J4-38	
A62		-116					J4-21	
A63		-115					J6-76	
A64		-114					J4-55	
A65		-113					-41	
A66		-112					-42	
A67		-111					-83	
A68		-110					-53	
A69		-109					-54	
A70		-108					-49	
A71		-107					-70	
A72		J12-106	16	OPT	30	AR	J4-60	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	SEE NOTE	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A73		J12-105	16	OPT	30	AR	J4-56	
A74		-104					J4-22	
A75		-103					J3-76	
A76		-102					-17	
A77		-101	16	OPT	30		-24	
A78		-100	17	WHT	26		-18	
A79		-99	16	OPT	30		-70	
A80		-98	16	OPT	30		-40	
A81		-97	16	OPT	30		-36	
A82		-96	17	WHT	26		J3-6	
A83		-95	16	OPT	30		J2-84	
A84		-94	16	OPT	30		J3-22	
A85		-93	16	OPT	30		J3-30	
A86		-92	17	WHT	26		J3-8	
A87		-91	16	OPT	30		J2-83	
A88		-90	16	OPT	30		J3-39	
A89		-89	16	OPT	30		J3-43	
A90		-88	17	WHT	26		J3-38	
A91		-87	16	OPT	30		J1-78	
A92		-86					J3-56	
A93		-85					J3-42	
A94		-84					J3-34	
A95		-83					J1-74	
A96		-82					J3-50	
A97		-81	16	OPT	30		J3-55	
A98		-80	17	WHT	26		J3-60	
A99		-79	16	OPT	30		J1-70	
A100		-78					J3-41	
A101		-77					J3-29	
A102		-76					J3-54	
A103		-75					J3-49	
A104		-74					J6-79	
A105		-73					J5-76	
A106		-72					J3-53	
A107		-71	16	OPT	30		J2-60	
A108	SEE NOTE 10	-70	17	WHT	26		J2-8	SEE NOTE 10
A109		-69	16	OPT	30		J2-18	
A110		-68					J5-70	
A111		-67					J5-84	
A112		-66					J2-56	
A113		-65					J2-24	
A114		-64	16	OPT	30		J2-36	
A115		-63	17	WHT	26		J2-6	
A116		-62	16	OPT	30		J5-83	
A117		-61					J5-78	
A118		-60					J2-21	
A119		-59					J2-30	
A120		-58					J2-40	
A121		-57					J2-34	
A122		-56					J5-82	
A123		-55					J4-79	
A124		-54					J2-50	
A125		-53					J2-39	
A126		-52					J2-43	
A127		-51					J2-22	
A128		-50					J4-78	
A129		-48					J2-55	
A130		-47					J2-42	
A131		-46					J2-38	
A132		-45					J2-29	
A133		-44					J3-84	
A134		-43					J3-83	
A135		-42					J2-54	
A136		-41					J2-49	
A137		-40					J2-41	
A138		-39					J2-17	
A139		-38					J3-78	
A140		-37					J3-82	
A141		-36					J2-53	
A142		-35					J1-24	
A143		-34	16	OPT	30		J1-17	
A144		J12-33	17	WHT	26	AR	J1-6	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	SEE NOTE	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A145		J12-32	16	OPT	30	AR	J2-78	
A146		-31					J2-70	
A147		-30					J1-53	
A148		-29					-36	
A149		-28					-21	
A150		-27					-22	
A151		-25					-84	
A152		-24					-29	
A153		-23					-39	
A154		-22					-34	
A155		-21					-30	
A156	SEE NOTE 10	-18					-55	SEE NOTE 10
A157		-17					-43	
A158		-16					-49	
A159		-15					J1-18	
A160		-13					J4-84	
A161		-12					J1-56	
A162		-11					-50	
A163		-10					-41	
A164		-9					-40	
A165		-7					-83	
A166		-6					-60	
A167		-5					-54	
A168		-4					-38	
A169		-3					-42	
A170		J12-1	16	OPT	30		J1-82	
A171		J12-183	17	WHT	26	AR	G1	SEE NOTE 13

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
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HOUSTON, TEXAS

MAIN HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO	SIZE	NASA DRAWING NO.
80230	J	2003885

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2003885 A

2003885 A

2/2003885

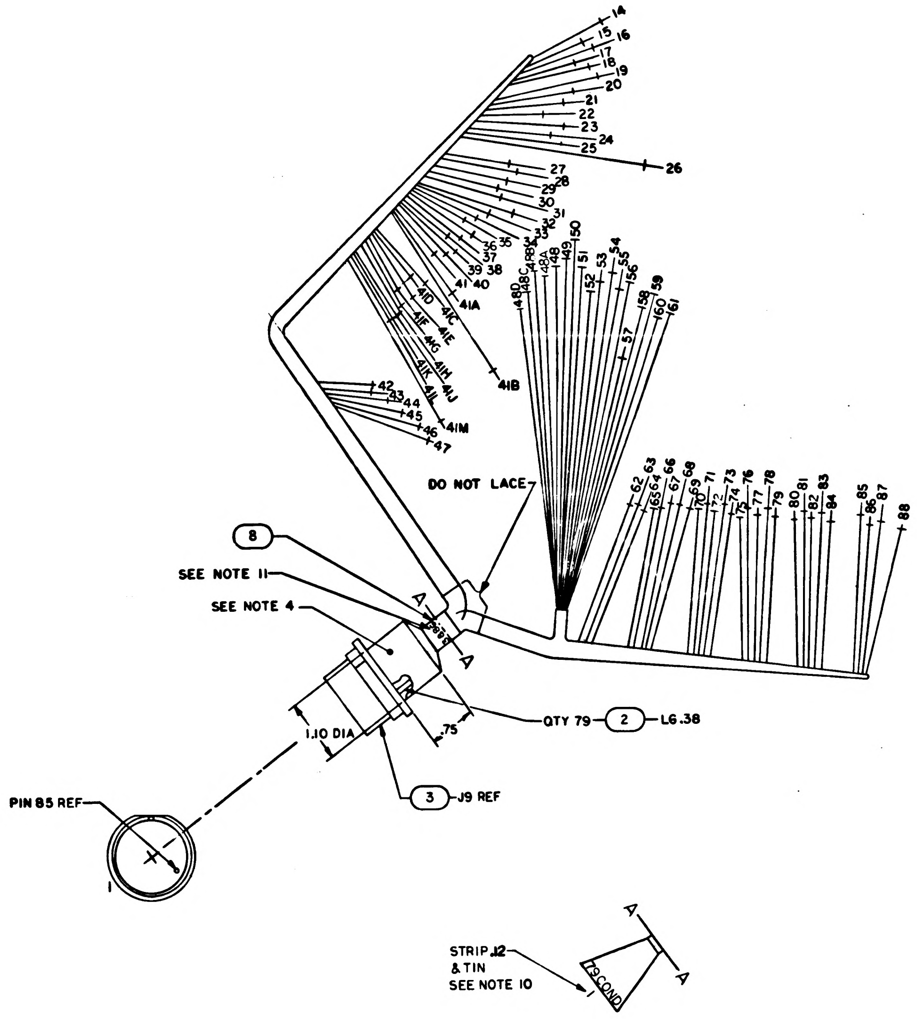
SYM	DESCRIPTION	DATE
A	INITIAL RELEASE TDRR 3:573	

2003886 A

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DESTINATION	COLOR	AWG	FIND NO.	STA NO.	DESTINATION	REMARKS
	B1	1	J9-37	YELLOW	26	1	37	J5-6	SEE NOTE 3
	B2	1	J9-53				24	J3-12	
	B3	1	J9-80				28	J4-10	
	B4	1	J9-31				18	J2-11	
	B5	1	J9-19				34	J5-5	
	B6	1	J9-28				53	TB3-17	
	B7	1	J9-61				38	J5-3	
	B8	1	J9-59				41	J5-12	
	B9	1	J9-81				30	J4-8	
	B10	1	J9-82				27	J4-2	
	B11	1	J9-54				31	J4-12	
	B12	1	J9-27				71	J4-86	
	B13	1	J9-83				29	J4-11	
	B14	1	J9-47				78	J3-85	
	B15	1	J9-14				41F	J6-2	
	B16	1	J9-4				44	J7-7	
	B17	1	J9-15				41H	J6-10	
	B18	1	J9-12				64	J6-90	
	B19	1	J9-32				41L	J6-8	
	B20	1	J9-26				73	J4-85	
	B21	1	J9-55				41D	J6-1	
	B22	1	J9-46				83	J2-85	
	B23	1	J9-84				41K	J6-11	
	B24	1	J9-72				86	J1-85	
	B25	1	J9-5				45	J7-5	
	B26	1	J9-3				79	J3-89	
	B27	1	J9-16				23	J3-15	
	B28	1	J9-11				65	J5-91	
	B29	1	J9-33				25	J3-20	
	B30	1	J9-25				67	J5-86	
	B31	1	J9-56				19	J3-21	
	B32	1	J9-45				62	J6-86	
	B33	1	J9-79				48	TB3-16	
	B34	1	J9-71				81	J2-86	
	B35	1	J9-1				46	J7-3	
	B36	1	J9-2				87	J1-90	
	B37	1	J9-6				40	J5-15	
	B38	1	J9-10				72	J4-90	
	B39	1	J9-17				41A	J5-20	
	B40	1	J9-24				70	J4-91	
	B41	1	J9-34				32	J5-21	
	B42	1	J9-44				76	J3-86	
	B43	1	J9-49				51	TB3-15	
	B44	1	J9-70				85	J1-86	
	B45	1	J9-51				49	TB3-14	
	B46	1	J9-8				47	J7-2	
	B47	1	J9-7				43	J7-11	
	B48	1	J9-9				88	J1-89	
	B49	1	J9-18				63	J6-85	
	B50	1	J9-23				74	J4-89	
	B51	1	J9-35				39	J5-11	
	B52	1	J9-43				75	J3-91	
	B53	1	J9-58				35	J5-1	
	B54	1	J9-69				68	J5-85	
	B55	1	J9-78				52	TB3-13	
	B56	1	J9-21				48C	TB3-3	
	B57	1	J9-36				41G	J6-6	
	B58	1	J9-22				82	J2-90	
	B59	1	J9-48				54	TB3-11	
	B60	1	J9-42				66	J5-90	
	B61	1	J9-77				59	TB3-10	
	B62	1	J9-68				80	J2-91	
	B63	1	J9-30				60	TB3-12	
	B64	1	J9-57				15	J2-1	
	B65	1	J9-60			1	41J	J6-3	
	B66	1	J9-40	YELLOW		5	55	TB3-9	TWIST SEE NOTE 3
	B67	1	J9-38	RED		5	56	TB3-8	
	B68	1	J9 41	YELLOW		1	84	J2-89	SEE NOTE 3
	B69	1	J9-76				50	TB3-6	
	B70	1	J9-67				69	J5-89	
	B71	1	J9-85				41C	J6-5	
	B72	1	J9-64				14	J1-3	
	B73	1	J9-63				61	TB3-5	
	B74	1	J9-65				58	TB3-4	
	B75	1	J9-62				16	J2-10	
	B76	1	J9-66	YELLOW		1	77	J3-90	
	B77	1	J9-39	BLK		7	57	TB3-2	
SEE NOTE 3	B78	41M	J6-64	YELLOW		1	36	J5-10	
	B79	41E	J6-9				20	J3-9	
	B80	17	J2-3				22	J3-3	
	B81	21	J3-10				33	J5-9	
	B82	26	J3 64				41B	J5-64	
	B83	1	J9-74				48A	TB3-1	
	B84	1	J9-75				48B	TB3-7	
SEE NOTE 3	B85	48D	TB3-3	YELLOW	26	1	42	J7-9	

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. FABRICATE PER ND1002032
3. UNLESS OTHERWISE SPECIFIED STRIP ALL LEADS .20 AND TIN
4. POT INDICATED AREA PER ND1002236
5. AR DENOTES AS REQUIRED
6. IDENTIFY WITH PART NO. PER ND1002019
7. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; PREFIX DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH
8. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED USING FIND NO.4
9. DO NOT APPLY HEAT GREATER THAN 250° F TO FIND NO.2
10. SOLDER PER ND1002071 USING ND1002075
11. MARK .060/.100 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 USING INK 1006271-11. CENTRALIZE AS SHOWN



* DENOTES LENGTH IN FEET

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
1	MS18035-1-2	STRAP, CABLE
* 1.0	1010789-024	WIRE, INSULATED
~~* 1.0~~	~~1010416-14~~	~~WIRE, INSULATED~~
* 1.0	1010789-017	WIRE, INSULATED
AR	1012507-003	TAPE, LACING
1	1006361-003	CONNECTOR, RECEPTACLE
* 2.5	1006322-004	SLEEVING, INSULATION
* 145	1010789-016	WIRE, INSULATED
-011	LIST OF MATERIALS	

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DRAWN J. Gordon DATE 10/3/66
CHECKED 4 OCT 66
APPROVAL
APPROVAL Eldon C Hall 10 Oct 66
NASA APPROVAL
CCB APPROVAL 1/9/67

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRA
AGC DSKY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003886
SCALE 1/1
WT
SHEET

2003886 A

1/2003886

APOLLO G&N Specification
PS 2003887 Rev A
Original Issue Date:
Release Authority: TDRR 32542
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

POWER SUPPLY MODULE A30-31 ASSEMBLY

DRAWING NO. 2003887

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
					NASA
	A	32542	Initial Release		

This specification consists of pages 1 to 30 inclusive.

APPROVALS	NASA/MSC	E. C. Hall 12/9/66 MIT/IL	10/10/66 L. Topjian 10/10/66 10/10/66 10/10/66 RAY

3.1.4 Vibration. With power applied the module shall perform as specified herein when subjected to vibration limits specified below:

Frequency Range:	10 to 2000 to 10 cps
Frequency Sweep Rate:	at a logarithmic rate of one minute per octave.
Velocity:	3.14 ± 10% inches per second in the frequency range of 10 to 100 cps.
Acceleration:	5 g's ± 10% peak in the frequency range of 100 to 2000 cps.

3.2 PRODUCT CONFIGURATION

3.2.1 Drawings. The configuration of the module shall be in accordance with APOLLO G&N Drawing 2003887 and all drawings and engineering data referenced thereon.

3.2.2 Weight: Maximum weight of the module shall be 1.68 pounds.

4. QUALITY ASSURANCE PROVISIONS

4.1 GENERAL. The contractor responsible for the manufacture of the module shall be responsible for the accomplishment of each test required. The cross reference index (Table 4-1) shows the relationship between the performance requirements in section 3 and verification of those requirements in section 4.

4.2.2.2.11.1 Repeat test 4.2.2.2.11 part b. with the sync pulse applied to terminal 205. (3.1.2.9b).

4.2.2.2.12 **14V (A30) Voltage Control Test.** Apply the conditions as specified in Figure 1 with a supply voltage of 28 ± 0.2 VDC. Apply the 14V conditions as specified in Figure 4 to terminal 204. Vary the 2.5K POT over its entire range while monitoring the 14 volt outputs (Figure 1) for a range of 9.0 ± 0.5 vdc to 17.0 ± 0.2 vdc. (3.1.2.10a).

4.2.2.2.13 14V (A31) ACE Test 1. Apply the conditions as specified in Figure 1 with a supply voltage of 28 ± 0.2 VDC. Apply the conditions as specified in Figure 5 to terminal 103 and switching S1 and holding S2 OFF while monitoring the 14 volt outputs (Figure 1) for a minimum range of 10.1 ± 0.2 VDC to 17.0 ± 0.2 VDC. (3.1.2.10b).

> NOTE: V Out vs ACE Voltage Data shall be recorded with ACE Voltage varied at increments of 2 volts to +10 volts and -10 volts, and 5 volts from 10 to 30 vdc and -10 to -30 vdc.

4.2.2.2.14 ACE Test Number 2. With the ACE test conditions applied and by switching S2 to ground and S1 OFF as described in Figure 5, the 14 volt output shall be 12.8 ± 0.4 vdc. (3.1.2.10c).

4.2.3 Weight. Weigh the module to the nearest .01 pound. Verify that the weight does not exceed the maximum allowable weight specified in paragraph 3.2.2.

4.3 Workmanship. The following tests shall be performed under the conditions specified as a verification of good workmanship.

4.3.1 Marginal Voltage and Temperature Extremes. The module shall be exposed to its ambient temperature for at least 30 minutes prior to starting electrical tests in the temperature extremes described in paragraph 3.1.3. The module shall be tested only in accordance with paragraph 4.2.2.2.1 through 4.2.2.2.3; 4.2.2.2.9 through 4.2.2.2.10 and 4.2.2.2.15. The tests described in these paragraphs incorporate the voltage extremes described in paragraph 3.1.3. The following exceptions shall apply:

APOLLO G&N Specification
PS 2003888 Rev - A
Original Issue Date: 3 AUG '67
Release Authority: TDRR 34262
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

LOGIC MODULE ASSEMBLIES

(MODULES A1-A24)

DRAWING NO. 2003888

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				CCB	NASA
3 AUG 67	A	34262	Initial Release		

This specification consists of pages 1 to 8 inclusive.

APPROVALS	NASA/MSC	E C Hall 6/9/67	9 June 67 MIT/IL	10-11-66 10-11-66	10/11/66 10/11/66 RAY

3.1.5 Vibration. The module shall perform as specified in paragraphs 3.1.2 through 3.1.4 when installed in an operating computer which is being subjected to the vibration requirements specified in the applicable specifications for the computer subsystem. Acceptance criteria for the module shall be the compliance of the computer subsystem with its applicable specifications.

3.2 PRODUCT CONFIGURATION

3.2.1 Drawings. The module configuration shall be in accordance with APOLLO G&N Drawing 2003888 and all drawings and engineering data referenced thereon. Logic configuration shall be in accordance with APOLLO G&N Drawings listed in Table I.

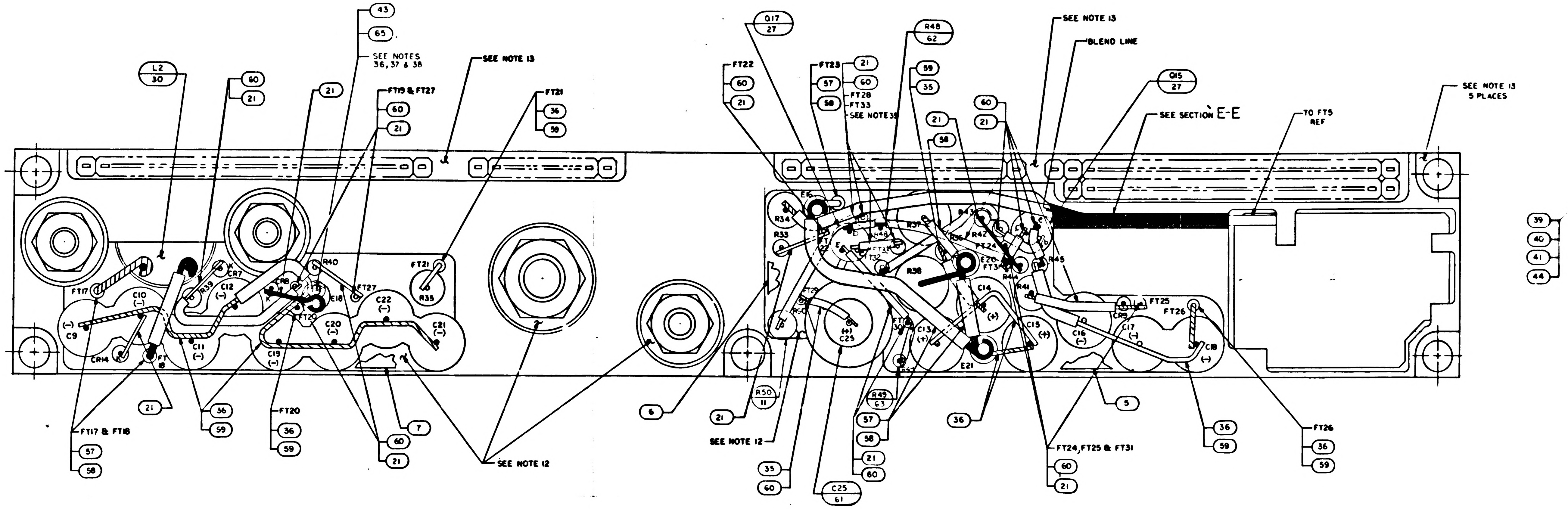
3.2.2 Weight. **Weight of the module shall be recorded.**

4.0 QUALITY ASSURANCE PROVISIONS

4.1 GENERAL. The contractor responsible for the manufacture of the module shall be responsible for accomplishing the tests required herein. See Table III for Product Performance and Configuration Requirement/Quality Verification Cross Reference Index.

TABLE III

Requirement	Verification
3.1.1	4.2.2
3.1.2	4.2.3
3.1.3	4.2.4
3.1.4	4.2.5 & 4.2.6.2
3.2.1	4.2.1
3.2.2	4.2.6.3
3.1.5	4.2.6.1


L2 30
60
21
21
43
65
SEE NOTES 36, 37 & 38
FT19 & FT27
60
21
SEE NOTE 13
FT21
36
59
Q17 27
FT22
60
21
FT23
21
57
60
58
FT28
FT33
SEE NOTE 35
R48 62
59
35
21
58
60
21
SEE NOTE 13
BLEND LINE
Q15 27
SEE SECTION E-E
TO FT5 REF
SEE NOTE 13 5 PLACES
39
40
41
44
FT17
C10 (−)
(−) C9
CR14
FT18
C11 (−)
CR7
R39
C12 (−)
CR8
K
R40
E18
FT20
C19 (−)
C20 (−)
FT27
C22 (−)
C21 (−)
FT21
R35
E16
R34
R33
R37
R36
R43
R42
FT24
E20
FT30
R44
R45
R38
C14
(+)
R41
CR9
FT25
FT26
C17 (−)
C18 (−)
C16 (−)
C15 (+)
C13 (+)
(+) C25
E21
FT29
FT32
21
FT17 & FT18
57
58
36
59
FT20
36
59
60
21
7
SEE NOTE 12
6
21
SEE NOTE 12
R50 11
35
60
C25 61
R49 63
57
58
21
60
36
FT24, FT25 & FT31
60
21
5
36
59
FT26
36
59

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. WELD PER ND1002005
3. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
4. SOLDER PER ND1002071 USING SOLDER COMP SN60 FORM WIRE SOLID PER ND1002075 EXCEPT AS SHOWN
5. K DENOTES CATHODE SIDE OF DIODE
6. AR DENOTES AS REQUIRED
7. APPLY SILICONE GREASE, 1006879, TO INDICATED AREAS OF CR6, CR10 Q12 AND Q14
8. MOUNTING TORQUE FOR CR6 AND CR10 TO BE 25/30 INCH POUNDS
9. FIND NO 56 TO COVER SOLDER JOINT OF FIND NO. 36 AND FIND NO.54
10. MOUNTING TORQUE FOR Q12 TO BE 15/30 INCH POUNDS
11. MOUNTING TORQUE FOR Q14 TO BE 13/15 INCH POUNDS
12. ENCAPSULATE PER ND1002002 EXCEPT PREHEAT MOLD 1 1/2 HOURS MIN AND CURE FOR 3 HRS MIN AT 200°F±5°F. REMOVE FLASHING
13. INDICATED AREAS TO BE FREE OF ENCAPSULATION
14. STAKE FIND NO.10 THRU 20, 22, 23, 27, 29 THRU 33, 38, 61, 62, 63 & 64 PER ND1002009 METHOD C OR D
15. FT DENOTES FEED THRU
16. + DENOTES POSITIVE SIDE OF CAPACITOR
17. SEAL INSULATORS, CONTACTS AND FIND NO. 37 TO HEADER PER ND1002004, TYPE VI
18. E DENOTES STAND-OFF
19. MARK .10/.08 HIGH WHITE CHARACTERS PER ND 1002019 AND ND1002122 TYPE II, CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271-1
20. MARK .26/.24 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-1
21. BLACK DOT & CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
22. BLACK DOT & SOLID BLACK WIRING INDICATES SPECIAL LEVEL WIRING
23. WHITE DOT & CLEAR WIRING INDICATES LOWER LEVEL WIRING
24. MOUNTING TORQUE FOR FIND NO. 37 TO BE 15/20 INCH OUNCES
25. ENCAPSULATE FIND NO. 2 IN FIND NO. 1 TO DIM. SHOWN PER ND1002009, METHOD F
26. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST. R1 AND R2 TO BE SELECTED FROM APPROPRIATE CHART
27. STAKE WIRE IN PLACE PER ND1002004, TYPE VI
28 BACKGROUND TO BE RED USING MARKING INK 1C06271-9
29. MARK .10/.08 HIGH WHITE PER ND1002019 & ND1002122 TYPE II, CLASS 2, USING INK 1006271-1. CENTRALIZE AS SHOWN
30. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL REQUIREMENTS OF PS 2003892
31 ENCAPSULATE FIND NO34 TO FIND NO.1 PER ND1002009 METHOD F
32 SEAL BOTTOM OF FIND NO.2 PER ND1002009 METHOD C OR D PRIOR TO ENCAPSULATION PER NOTE 25
33 BOND FIND NO.43 TO FIND NO.1 PER ND1002004 TYPE VI
34 COAT TOP AND END SURFACES OF FIND NO. 23 AND 24 PER ND1002187 TYPE II
35. FILL CAVITY FOR FT32 & FT33 PER ND1002009 METHOD C OR D
36 MOUNTING TORQUE FOR FIND NO. 65 TO BE 3.0/3.5 INCH POUNDS
37 SEAL INTERFACE OF FIND NO. 65 AND FIND NO.1 .005 MIN PER ND1002004 TYPE VI
38. AFTER ASSY OF FIND NO. 65 TO FIND NO 1 AND PRIOR TO ASSY OF ANY WIRE, THE RESISTANCE FROM E18 TO E9 SHALL BE NOT MORE THAN 0.1 OHMS

R1 AND R2

PART NO.	VALUE
1006750-1	51
-2	56
-3	62
-4	68
-5	75
-6	82
-7	91
-8	100
-9	110
-10	120
-11	130
-12	150
-13	160
-14	180
-15	200
-16	220
-17	240
-18	270
-19	300
-20	330
-21	360
-22	390
-23	430
-24	470
1006750-25	510

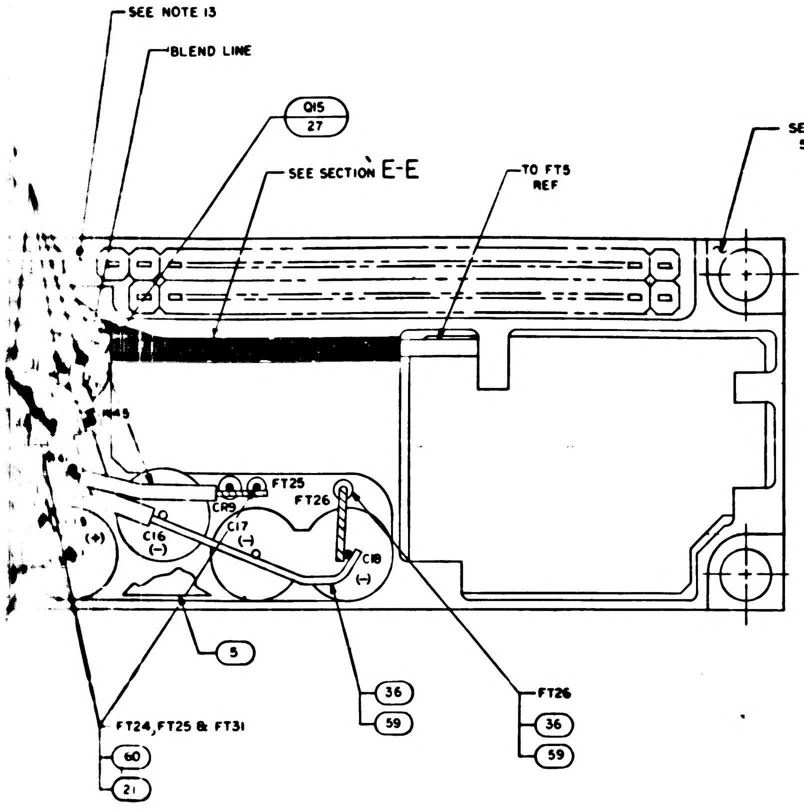
SEE NOTE 13

SEE NOTE 27
CROSS SECTION

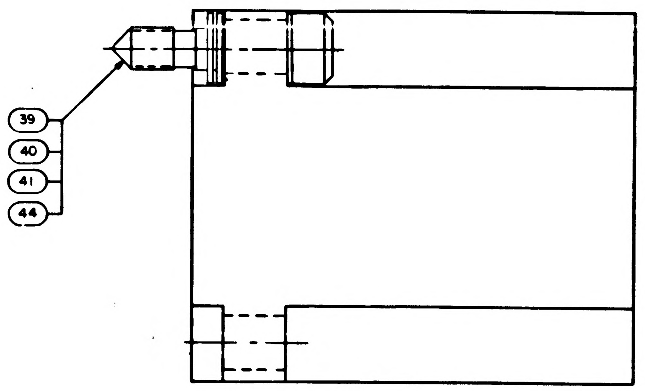
POTTING TO BE
BELOW THIS SURF.

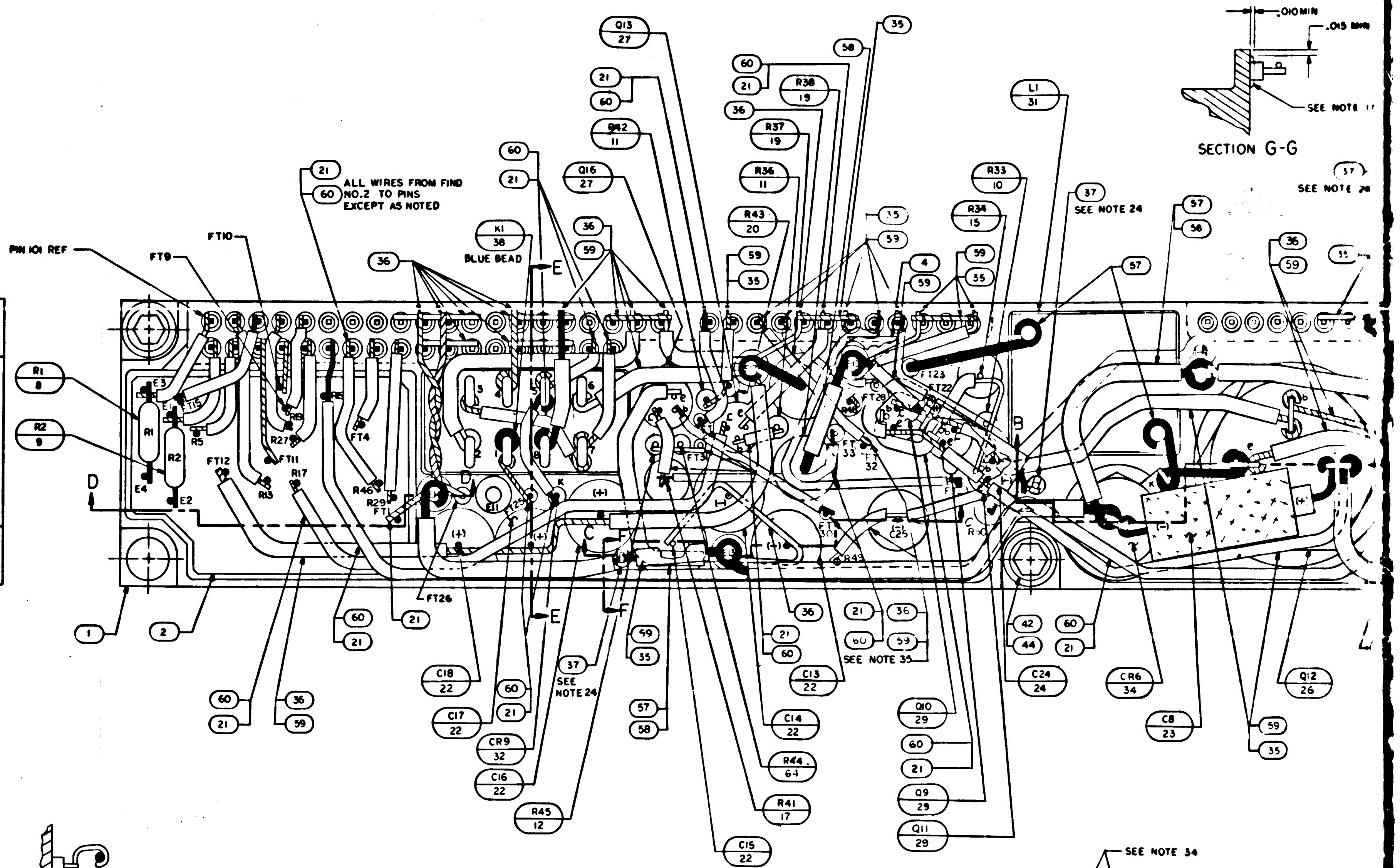
2003892 A

E 1/4



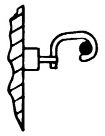
SEE NOTE 13
BLEND LINE
Q15 27
SEE SECTION E-E
TO FT5 REF
SEE NOTE 13 5 PLACES
R45
CR9
FT25
FT26
C16 (-)
C17 (-)
C18 (-)
(+)
5
36 59
FT26 36 59
FT24, FT25 & FT31
60 21



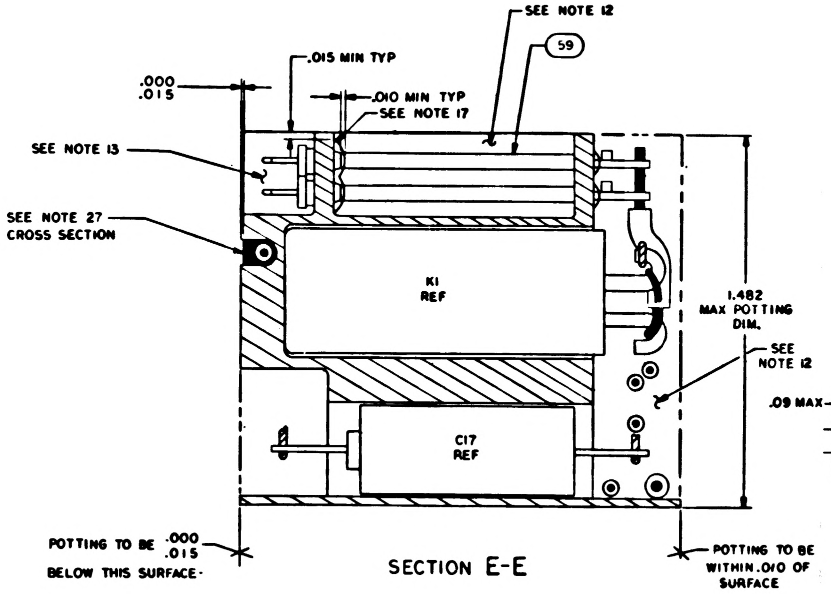


PIN 101 REF
FT9
FT10
21 60 ALL WIRES FROM FIND NO.2 TO PINS EXCEPT AS NOTED
K1 38 BLUE BEAD
36
E
Q13 27
21 60
R42 11
60 21
Q16 27
36 59
60 21 R38 19
36
58
35
R37 19
R36 11
R43 20
59 35
L1 31
R33 10
R34 15
4 59
59 35
37 SEE NOTE 24
57 58
57
36 59
.010 MIN
.015 MIN
SEE NOTE 17
37 SEE NOTE 24
R1 8
R2 9
E3 E4 E2
R5
FT12
FT11
R13
R17
R27
R46
R29
FT4
FT26
FT23 FT22
FT33 32
C24
CR6
(+) (-)
B
C
D
F
1
2
60 21
21
60 21
36 59
C18 22
C17 22
60 21
CR9 32
C16 22
R45 12
37 SEE NOTE 24
59 35
57 58
R44 64
R41 17
C15 22
21 60
C13 22
C14 22
36
21 60 36 59 SEE NOTE 35
Q10 29
60 21
Q9 29
Q11 29
42 44
60 21
C24 24
CR6 34
C8 23
Q12 26
59 35

SECTION G-G

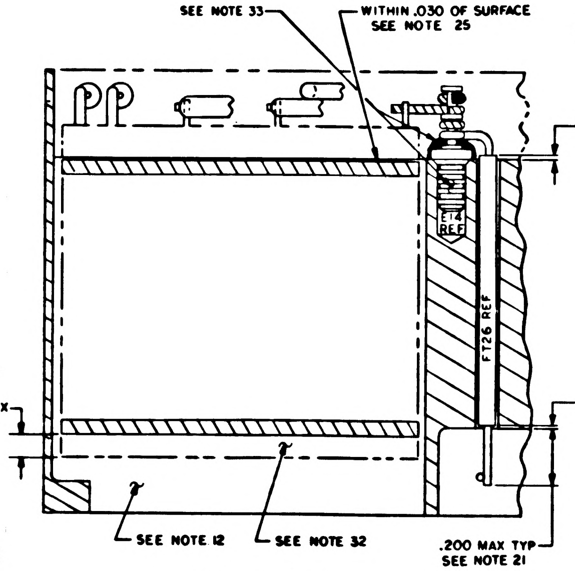


SECTION F-F



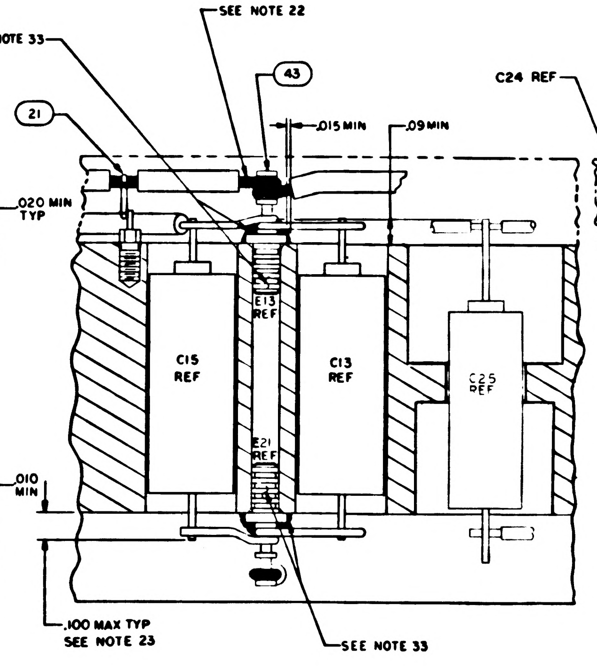
SEE NOTE 12
59
.015 MIN TYP
.010 MIN TYP
SEE NOTE 17
.000 .015
SEE NOTE 13
SEE NOTE 27 CROSS SECTION
K1 REF
C17 REF
1.482 MAX POTTING DIM.
SEE NOTE 12
POTTING TO BE .000 .015 BELOW THIS SURFACE
POTTING TO BE WITHIN .010 OF SURFACE

SECTION E-E



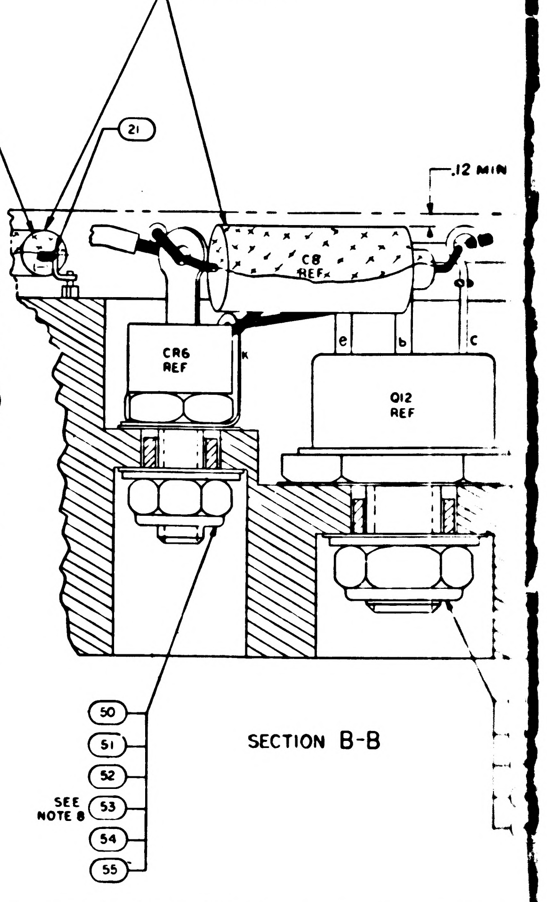
SEE NOTE 33
WITHIN .030 OF SURFACE SEE NOTE 25
.020 MIN TYP
E14 REF
FT26 REF
.09 MAX
.010 MIN
SEE NOTE 12
SEE NOTE 32
.200 MAX TYP SEE NOTE 21

SECTION D-D



SEE NOTE 33
SEE NOTE 22
43
21
.015 MIN
.09 MIN
E13 REF
C15 REF
C13 REF
C25 REF
E21 REF
.100 MAX TYP SEE NOTE 23
SEE NOTE 33

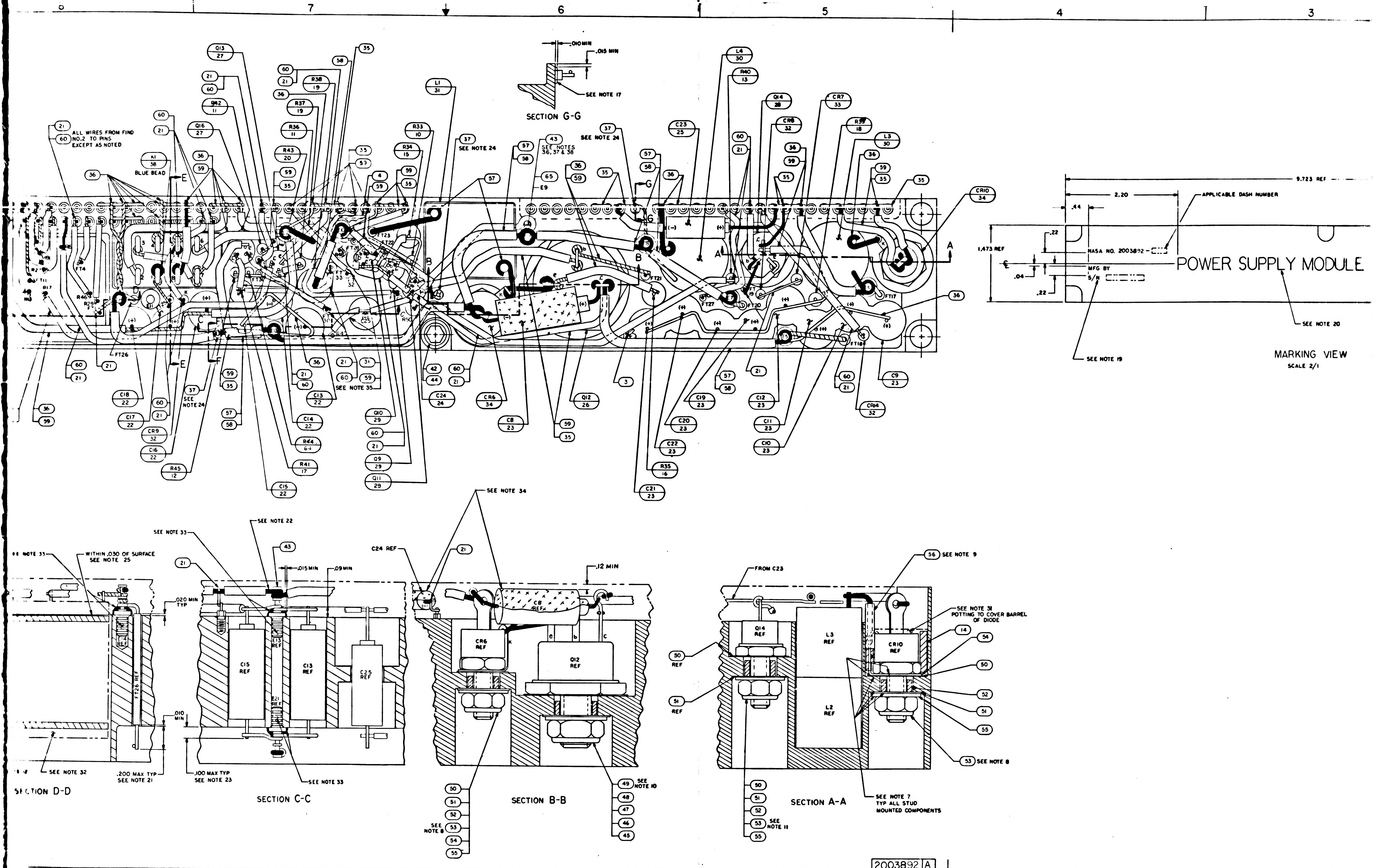
SECTION C-C



SEE NOTE 34
C24 REF
21
.12 MIN
C8 REF
CR6 REF
Q12 REF
e b c
50
51
52
SEE NOTE 8
53
54
55

SECTION B-B

F2/4

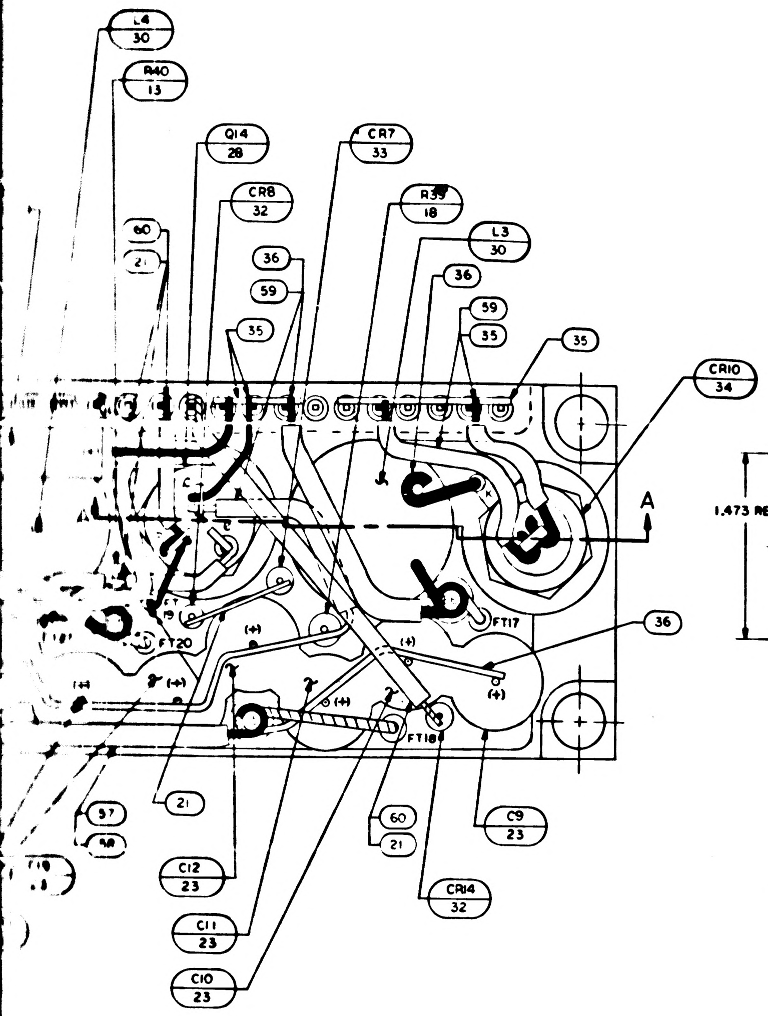

8
7
6
5
4
3
ALL WIRES FROM FIND NO.2 TO PINS EXCEPT AS NOTED
21
60
K1
38
BLUE BEAD
36
Q13
27
Q16
27
R42
11
R38
19
R37
19
R36
11
R43
20
R33
10
R34
15
L1
31
37
SEE NOTE 24
43
SEE NOTES 36, 37 & 38
65
E9
SEE NOTE 24
C23
25
L4
30
R40
13
Q14
28
CR8
32
CR7
33
R39
18
L3
30
CR10
34
35
57
58
59
4
.010 MIN
.015 MIN
SEE NOTE 17
SECTION G-G
E
F
G
A
B
C
FT4
FT11
FT17
FT18
FT20
FT21
FT22
FT23
FT26
FT27
FT30
FT33
R29
R46
R50
C25
(+)
(-)
C18
22
C17
22
CR9
32
C16
22
R45
12
SEE NOTE 24
C15
22
C13
22
C14
22
R44
64
R41
17
SEE NOTE 35
Q10
29
Q9
29
Q11
29
42
44
C24
24
CR6
34
C8
23
Q12
26
3
C19
23
C20
23
C22
23
R35
16
C21
23
C12
23
C11
23
C10
23
C9
23
CR14
32
9.723 REF
2.20
.44
APPLICABLE DASH NUMBER
.22
1.473 REF
NASA NO. 2003892 -
.04
MFG BY
S/N
POWER SUPPLY MODULE
SEE NOTE 20
SEE NOTE 19
MARKING VIEW
SCALE 2/1
SEE NOTE 34
SEE NOTE 33
WITHIN .030 OF SURFACE SEE NOTE 25
.020 MIN TYP
E14 REF
FT26 REF
.010 MIN
SEE NOTE 32
.200 MAX TYP SEE NOTE 21
SECTION D-D
SEE NOTE 22
43
.015 MIN
.09 MIN
C15 REF
E13 REF
E21 REF
C13 REF
C25 REF
.100 MAX TYP SEE NOTE 23
SEE NOTE 33
SECTION C-C
C24 REF
.12 MIN
C8 REF
CR6 REF
Q12 REF
e
b
c
K
50
51
52
53
54
55
SEE NOTE 8
49
48
47
46
45
SEE NOTE 10
SECTION B-B
FROM C23
56 SEE NOTE 9
SEE NOTE 31 POTTING TO COVER BARREL OF DIODE
14
Q14 REF
L3 REF
L2 REF
CR10 REF
50 REF
51 REF
53 SEE NOTE 8
SEE NOTE 11
SECTION A-A
SEE NOTE 7 TYP ALL STUD MOUNTED COMPONENTS

2003892 A

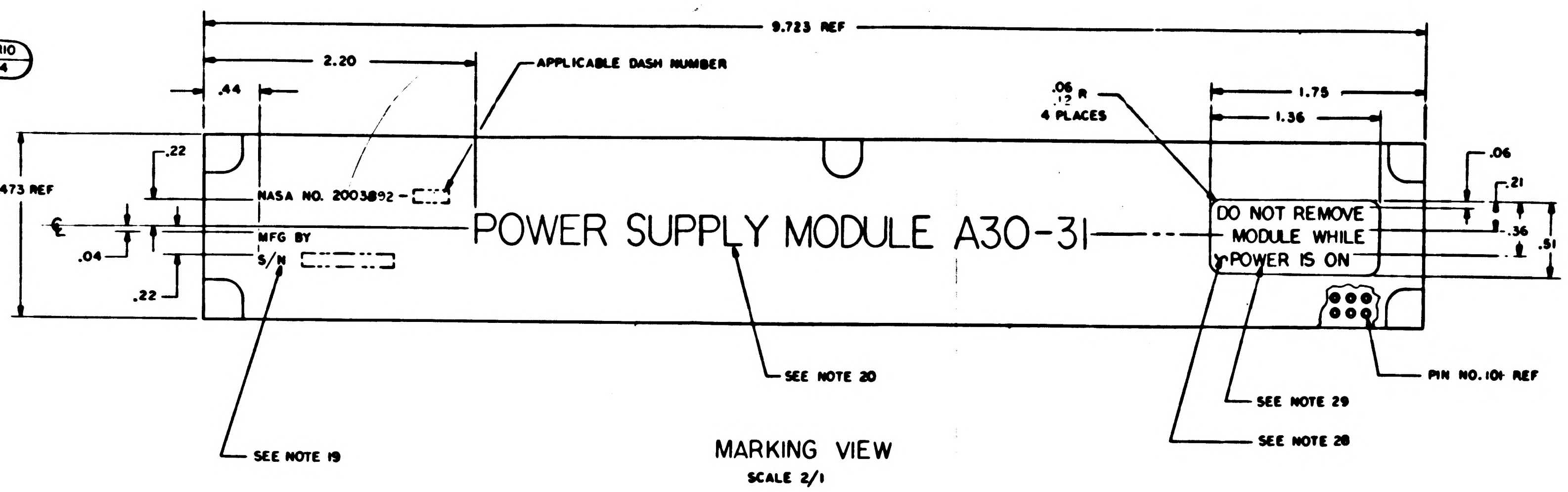
F 3/4

2003892 A

SYM	DESCRIPTION		
A	REVISED PER TDRR 33700 DR CHK	5/23/67	



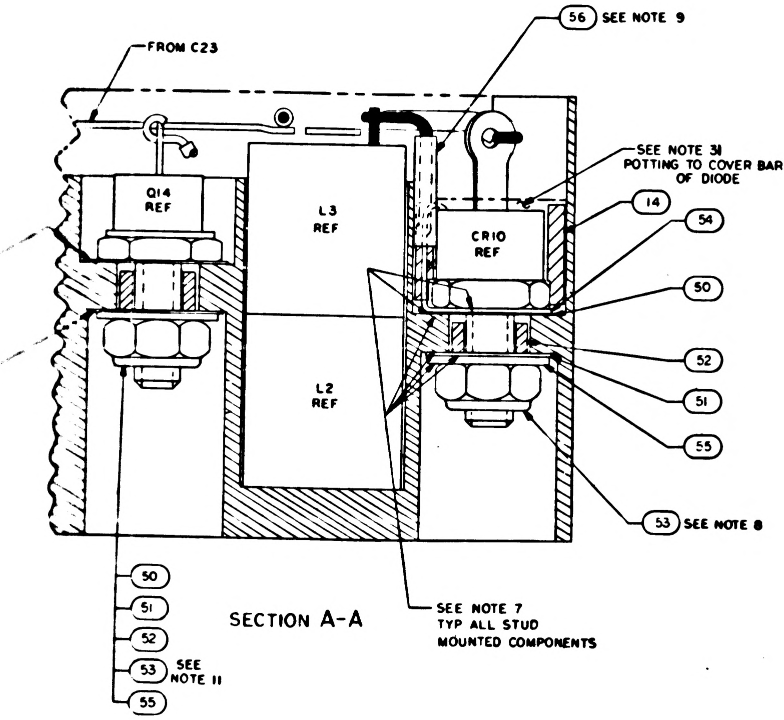
L4 30
R40 13
Q14 28
CR7 33
CR8 32
R39 18
L3 30
60 21
36
59
35
36
59
35
35
CR10 34
A
36
FT17
FT18
FT20
21
57
58
C12 23
C11 23
C10 23
60 21
CR14 32
C9 23



9.723 REF
2.20
APPLICABLE DASH NUMBER
.44
.06 R
.12
4 PLACES
1.75
1.36
.06
.21
.36
.51
.22
1.473 REF
.04
.22
NASA NO. 2003892 -
MFG BY
S/N
POWER SUPPLY MODULE A30-31
DO NOT REMOVE
MODULE WHILE
POWER IS ON
SEE NOTE 20
SEE NOTE 29
SEE NOTE 28
SEE NOTE 19
PIN NO. 101 REF

MARKING VIEW

SCALE 2/1



FROM C23
56 SEE NOTE 9
SEE NOTE 31
POTTING TO COVER BARREL
OF DIODE
14
54
50
52
51
55
53 SEE NOTE 8
Q14 REF
L3 REF
CR10 REF
L2 REF
50
51
52
53 SEE NOTE 11
55
SEE NOTE 7
TYP ALL STUD
MOUNTED COMPONENTS

SECTION A-A

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	2005971	SCHEMATIC	REF
2	2004737	TERMINAL, STUD, FORKED	65
1	1006750-28	RESISTOR	64
1	1006750-32	RESISTOR	63
1	1006788-4	RESISTOR	62
1	1006755-14	CAPACITOR	61
AR	1006776-22	INSULATION, SLEEVING	60
AR	1006776-20	INSULATION, SLEEVING	59
AR	1006776-18	INSULATION, SLEEVING	58
AR	QQ-W-343, TYPE S, 18	WIRE, ELEC	57
AR	1006776-30	INSULATION, SLEEVING	56
3	1008071-004	WASHER, FLAT	55
2	2008013-5	TERMINAL, LUG	54
3	MS21083B3	NUT, HEX, SELF-LOCKING	53
3	1008025-5	BUSHING, INSULATOR	52
3	1008024-1	WASHER, INSULATOR	51
3	1008024-2	WASHER, INSULATOR	50
1	MS21083B5	NUT, HEX, SELF-LOCKING	49
1	1008071-7	WASHER, FLAT	48
1	2008020 3	BUSHING, INSULATOR	47
1	1008024 5	WASHER, INSULATOR	46
1	1008024 6	WASHER, INSULATOR	45
5	2004984-003	WASHER, FLAT	44
12	1006708	TERMINAL, STUD	43
1	1004722-2	SCREW, CAPTIVE	42
4	MS16633-4015	RING, RETAINING, EXTERNAL 'E'	41
4	2004984-001	WASHER, FLAT	40
4	1004579-1	SCREW, JACKING	39
1	1006304-003	RELAY	38
3	2004039	TERMINAL THREADED	37
AR	1006757-21	WIRE, ELEC	36
AR	1006757-23	WIRE, ELEC	35
2	1006329	DIODE	34
1	2004112-001	DIODE	33
3	2004183-001	DIODE	32
1	1006328	INDUCTOR	31
3	1006327	INDUCTOR	30
1	2004722	TRANSISTOR, SELECTION LIST	29
1	1006363-001	TRANSISTOR	28
4	2004184-001	TRANSISTOR, POTTED	27
1	1006317-002	TRANSISTOR	26
1	1006755-126	CAPACITOR	25
1	1006755-79		24
9	1006755-134		23
6	1006755-89	CAPACITOR	22
AR	1006757-13	WIRE, ELEC	21
1	1006750-40	RESISTOR	20
2	1006330-001		19
1	1010604-50		18
1	1010389-23		17
1	1010389-113		16
1	1010389-51	RESISTOR	15
1	2004928	SLEEVE, THERMAL	14
1	1006750-43	RESISTOR	13
1	1006750-39		12
3	1006750-15		11
1	1006750-1		10
1	SEE NOTE 26		9
1	SEE NOTE 26	RESISTOR	8
1	2004892	INSULATOR D	7
1	2004735-002	INSULATOR C	6
1	2004735-001	INSULATOR C	5
1	2004736	INSULATOR B	4
1	2004893	INSULATOR A	3
1	2003029-031	CONTROL CIRCUIT SUB ASSY	2
1	2003057-041	HEADER HOUSING ASSY	1

-011 LIST OF MATERIALS

2003993	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ±.02 ANGLES
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN C. Tab FEB
CHECKED 7 FEB 67
APPROVAL FEB
APPROVAL
NASA APPROVAL
APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

POWER SUPPLY MODULE
A30 – 31
ASSEMBLY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO 2003892
SCALE 4/1
WT
SHEET 1 OF 1

2003892 A

F 4 / 4

APOLLO G&N Specification
PS 2003892 Rev A
Original Issue Date: 3 AUG '67
Release Authority: TDRR 34276
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

POWER SUPPLY MODULE A30-31 ASSEMBLY

DRAWING NO. 2003892

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				~~MIT~~ CCB	NASA
3 AUG 67	A	34276	INITIAL RELEASE		—

This specification consists of pages 1 to 36 inclusive.

APPROVALS	NASA/MSC	E C Hall 2/14/67	W Stameris 5 May 67	Rep for BC Dutcher 5/4/67
	NASA/MSC	MIT/IL		RAY

3.1.2.2 4 Volt Output Low Margin Conditions. With the module connected as described in Figure 1, and with a supply voltage of 17.9 ± 0.1 VDC; the 4 volt output shall have a high load current of 6.8 ± 0.3 amperes and a low load current of 0.50 ± 0.05 amperes, and:

a. The voltage of each output shall be 4.00 ± 0.25 VDC.

b. The ripple voltage of each output, as described in Figure 6, shall be not more than 50 millivolts peak to peak.

c. The switching spikes of each output, as described in Figure 6, shall be not more than 0.4 volts peak to peak.

d. The control waveform observed between terminals 207 and 109 (0 VDC) of the module shall have the following parameters (see Figure 7):

Amplitude (A)	8.4 ± 1.4 volts
Pulse Width (PW)	6.5 ± 0.7 usec.
Period (T)	19.5 ± 0.5 usec.

e. When the load (current) is switched from high to low or from low to high at an 8-12 cps rate, the low load output (see Figure 1) shall have a response waveform (see Figure 8) as follows:

Recovery Time:	not more than 4.0 msec.
Overshoot:	not more than 3.5 Vpk
Undershoot:	not more than 1.0 Vpk

3.1.2.2.1 Regulation with Sync Variations; and No Sync.

a. With the module connected as described in 3.1.2.2, but with the variation of the 4V sync pulse applied and with the supply voltage increased to 22.0 ± 0.1 VDC, the load currents shall remain constant, and:

(1) The voltage of each output shall be 4.00 ± 0.12 VDC.

3.1.2.2.1 (Continued)

(2) The ripple voltage of each output, as described in Figure 6, shall be not more than 50 millivolts peak to peak.

(3) The switching spikes of each output, as described in Figure 6, shall be not more than 0.4 volts peak to peak.

b. With the conditions of part a. applied, but with the sync pulse removed:

(1) The voltage of each output shall be 4.00 ± 0.25 VDC.

(2) The ripple voltage of each output, as described in Figure 6, shall be not more than 200 millivolts peak to peak.

(3) The switching spikes of each output, as described in Figure 6, shall be not more than 0.4 volts peak to peak.

3.1.2.3 4 Volt Output High Margin Conditions. With the module connected as described in Figure 1, and with a supply voltage of 36.2 ± 0.2 VDC; the 4 volt output shall have a low load current of 0.50 ± 0.05 amperes, and:

a. The output voltage shall be 4.00 ± 0.25 VDC.

b. The output ripple voltage, as described in Figure 6, shall be not more than 50 millivolts peak to peak.

c. The switching spikes of the output, as described in Figure 6, shall be not more than 0.4 volts peak to peak.

d. The control waveform observed between terminals 207 and 109 (0 VDC) of the module shall have the following parameters (see Figure 7):

Amplitude (A)	8.4 ± 1.4 volts
Pulse Width (PW)	2.0 ± 0.3 usec.
Period (T)	19.5 ± 0.5 usec.

3.1.2.3 (Continued)

e. When the load (current) is switched from high to low or from low to high at an 8-12 cps rate, the low load output (see Figure 1) shall have a response waveform (see Figure 8) as follows:

Recovery Time:	not more than 8.0 msec.
Overshoot:	not more than 4.5 Vpk
Undershoot:	not more than 1.0 Vpk

3.1.2.3.1 Regulation with Sync Variations and No Sync.

a. With the module connected as described in 3.1.2.3 but with the variation of the 4V sync pulse applied and with the supply voltage decreased to 33.0 ± 0.1 VDC; the load current shall remain constant, and:

   (1) The output voltage shall be 4.00 ± 0.12 VDC.

b. With the conditions of part a. applied, but with the sync pulse removed:

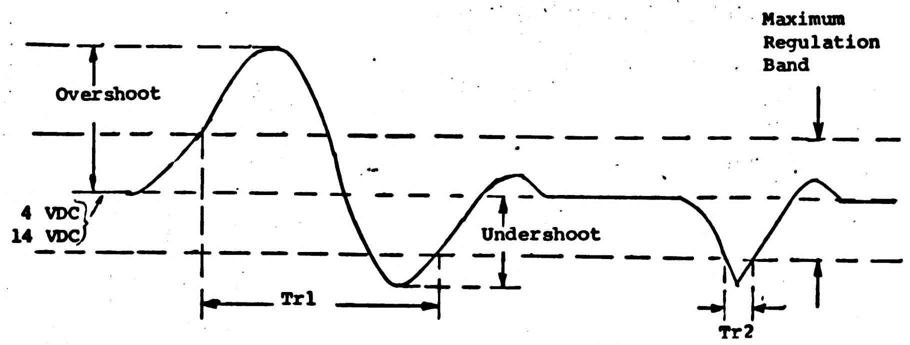
   (1) The output voltage shall be 4.0 ± 0.25 VDC.

   (2) The output ripple voltage, as described in Figure 6, shall be not more than 200 millivolts peak to peak.

   (3) The switching spikes of the output, as described in Figure 6, shall be not more than 0.4 volts peak to peak.

3.1.2.4 14 Volt Output, Nominal Conditions. With the module connected as described in Figure 1, but with the sync pulse removed, and with a supply voltage of 28.0 ± 0.1 VDC; the 14 volt output shall have a high load current of 3.1 ± 0.1 amperes and a low load current of 0.20 ± 0.02 amperes, and:

a. The voltage of each output shall be 14.0 ± 0.4 VDC.


Maximum
Regulation
Band
Overshoot
4 VDC
14 VDC
Undershoot
Tr1
Tr2

Maximum Regulation Band

+25°C		-10°C		+70°C	
4V	14V	4V	14V	4V	14V
0.5V	0.8V	0.6V	1.0V	0.6V	1.0V

Tr1 and Tr2 - Specified Recovery Time

Figure 8 - Transient Response Waveform

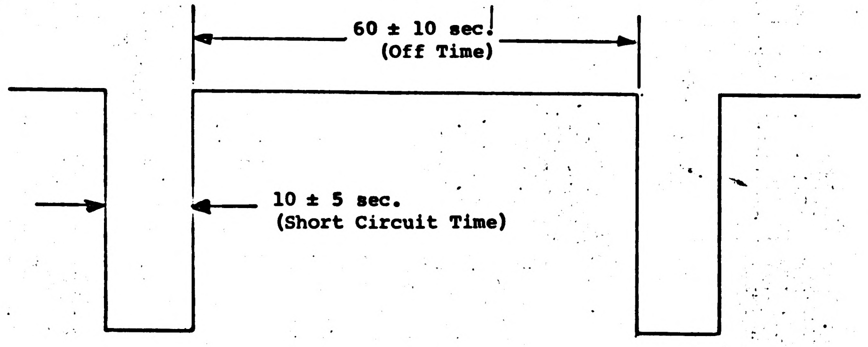

60 ± 10 sec.
(Off Time)
10 ± 5 sec.
(Short Circuit Time)

Figure 9 - Short Circuit Conditions

3.1.4 Vibration. With power applied the module shall perform per paragraph 4.3.2 when subjected to vibration limits specified below and controlled on the module.

Frequency Range:	10 to 2000 to 10 cps
Frequency Sweep Rate:	at a logarithmic rate of one minute per octave.
Velocity:	3.14 ± 10% inches per second in the frequency range of 10 to 167 cps.
Acceleration:	8.5 g's ± 10% peak in the frequency range of 167 to 2000 cps.
Planes:	Each of three mutually perpendicular axes.

3.2 PRODUCT CONFIGURATION

3.2.1 Drawings. The configuration of the module shall be in accordance with APOLLO G&N Drawing 2003892 and all drawings and engineering data referenced thereon.

3.2.2 Weight: Weight of the module shall be recorded.

4. QUALITY ASSURANCE PROVISIONS

4.1 GENERAL. The contractor responsible for the manufacture of the module shall be responsible for the accomplishment of each test required. The cross reference index (Table 4-1) shows the relationship between the performance requirements in section 3 and verification of those requirements in section 4.

4.2.2.2 Dynamic Tests.

4.2.2.2.1 4V Supply (A30) Regulation, Ripple, Noise, and Control Pulse Tests. Perform tests as listed in Table I to assure that the requirements for the parameters of regulation, ripple, noise (switching spikes), and control pulse are as specified in 3.1.2.1 through 3.1.2.3.1.

4.2.2.2.2 4V (A30) Transient Response Test.

a. (Low Input). Apply the conditions as specified in Figure 1 with a supply voltage of 17.9 ± 0.1. Monitor the low load output (Figure 1) for a waveform (Figure 8) having a recovery time of not more than 4.0 msec, an overshoot of not more than 3.5 Vpk, and an under shoot of not more than 1.0 Vpk after the application of each condition listed below. (3.1.2.2e).

   (1) Step load (amperes) from 0.50 ± 0.05 to 6.8 ± 0.3 and from 6.8 ± 0.3 to 0.50 ± 0.05 at an 8-12 cps rate.

b. (High Input). Repeat test a. above using a supply voltage of 36.2 ± 0.2 (in place of 17.9 ± 0.1). Monitor the low load output for a recovery time of not more than 8.0 msec, an overshoot of not more than 4.5 Vpk and an under shoot of not more than 1.0 Vpk. (3.1.2.3e).

4.2.2.2.3 Standby Relay Test. Apply the conditions as specified in Figure 1 with a supply of 36.2 ± 0.2 VDC. Monitor the 4 volt output for a high load current of 6.8 ± 0.3 amperes and a low load current of 0.50 ± 0.05 amperes, and:

a. Energize the relay by applying the conditions described in Figure 3 and monitor SBYREL/voltage which shall be NMT 0.4 volts, the high load current for zero amperes and the output voltage at pin 116 shall be less than 0.1 vdc in accordance with 3.1.2.7a.

TABLE I Regulation, Ripple, Noise, and Control Pulse Verification Tests for 4 VDC POWER SUPPLY (A30)

Apply Input VDC per Figure 1	Apply Sync VDC per Figures 1&2	Test For Requirements of Subparagraph	Measure Required Output Parameters: Ripple & Noise per Figures 1 & 6 Control Pulse per Figures 1,4, & 7	Load (Amperes)	Across Output Terminals 109 (0 VDC) and
28.0±0.1	NO SYNC	3.1.2.1	a. Voltage 4.00 ± 0.25 VDC b. Ripple NMT 200 MVpp c. Noise NMT 0.4 Vpp d. Control Pulse A: 8.4±1.4 VDC PW: 11.5±1.5 usec T: 60 ±5 usec	Low 0.50±0.05 High 6.8±0.3	118 114
17.9±0.1	SYNC	3.1.2.2	a. Voltage 4.00 ± 0.25 VDC b. Ripple NMT 50 MVpp c. Noise NMT 0.4 Vpp d. Control Pulse A: 8.4±1.4 VDC PW: 6.5±0.7 usec T: 19.5±0.5 usec	Low 0.50±0.05 High 6.8±0.3	118 114
22.0±0.1	SYNC Variations 1, 2 and 3	3.1.2.2.1a.	(1) Voltage 4.00 ± 0.12 VDC (2) Ripple NMT 50 MVpp (3) Noise NMT 0.4 Vpp	0.50±0.05 6.8±0.3	118 114
22.0±0.1	NO SYNC	3.1.2.2.1b.	(1) Voltage 4.00 ± 0.25 VDC (2) Ripple NMT 200 MVpp (3) Noise NMT 0.4 Vpp	0.50±0.05 6.8±0.3	118 114
36.2±0.2	SYNC	3.1.2.3	a. Voltage 4.00 ± 0.25 VDC b. Ripple NMT 50 MVpp c. Noise NMT 0.4 Vpp d. Control Pulse A: 8.4±1.4 VDC PW: 2.0±0.3 usec T: 19.5±0.5 usec	Low 0.50±0.05	118
33.0±0.1	SYNC Variations 1,2 & 3	3.1.2.3.1a.	(1) Voltage 4.00 ± 0.12 VDC	0.50±0.05	118
33.0±0.1	NO SYNC	3.1.2.3.1b.	(1) Voltage 4.00 ± 0.25 VDC (2) Ripple NMT 200 MVpp (3) Noise NMT 0.4 Vpp	0.50±0.05	118

APOLLO G&N Specification
PS 2003892 Rev B
Original Issue Date: 3 AUG '67
Release Authority: TDRR 34276
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

POWER SUPPLY MODULE A30-31 ASSEMBLY

DRAWING NO. 2003892

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				~~MIT~~ CCB	NASA
3 AUG 67	A	34276	INITIAL RELEASE		—
8-3-67	B	34277	1, 5, 7, 25	FH	FH

This specification consists of pages 1 to 36 inclusive.

APPROVALS	NASA/MSC	MIT/IL	RAY
		E C Hall 2/14/67 W Stameris 5 May 67	RSP for BC Outeley 5/4/67 D.M. Cooper

APOLLO G&N Specification
PS 2003892 Rev C
Original Issue Date: 3 AUG '67
Release Authority: TDRR 34276
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

POWER SUPPLY MODULE A30-31 ASSEMBLY

DRAWING NO. 2003892

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				~~MIT~~ CCB	NASA
3AUG67	A	34276	INITIAL RELEASE		—
[illegible]-3-67	B	34277	1, 5, 7, 25	FH	FH
[illegible]-20-[illegible]	C	34885	1, 21	LB FH	LB FH

This specification consists of pages 1 to 36 inclusive.

APPROVALS	NASA/MSC	E C Hall 2/14/67 5 May 67 MIT/IL	Rep for BC [illegible] 5/4/67 RAY

APOLLO G&N Specification
PS 2003892 Rev D
Original Issue Date: 3 AUG '67
Release Authority: TDRR 34276
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

POWER SUPPLY MODULE A30-31 ASSEMBLY

DRAWING NO. 2003892

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				~~MIT~~ CCB	NASA
3 AUG 67	A	34276	INITIAL RELEASE		—
8-3-67	B	34277	1, 5, 7, 25	FH	FH
10-20-67	C	34885	1, 21	LLB FH	LLB FH
2-21-68	D	35709	1,6,19,28	DE FH	DE FH

This specification consists of pages 1 to 36 inclusive.

APPROVALS	NASA/MSC	EC Hall 2/14/67 W Stameris 5 May 67 MIT/IL	RAY for B C Dutcher 5/4/67

TABLE I Regulation, Ripple, Noise, and Control Pulse Verification Tests for 4 VDC POWER SUPPLY (A30)

Apply Input VDC per Figure 1	Apply Sync VDC per Figures 1&2	Test For Requirements of Subparagraph	Measure Required Output Parameters: Ripple & Noise per Figures 1 & 6 Control Pulse per Figures 1,4, & 7	Load (Amperes)	Across Output Terminals 109 (0 VDC) and
28.0±0.1	NO SYNC	3.1.2.1	a. Voltage 4.00 ± 0.25 VDC b. Ripple NMT 200 MVpp c. Noise NMT 0.4 Vpp d. Control Pulse A: 8.4±1.4 VDC PW: 11.5±1.5 usec T: 60 ±5 usec	Low 0.50±0.05 High 6.8±0.3	118 114
17.9±0.1	SYNC	3.1.2.2	a. Voltage 4.00 ± 0.25 VDC b. Ripple NMT 50 MVpp c. Noise NMT 0.4 Vpp d. Control Pulse A: 8.4±1.4 VDC PW: 6.5±0.7 usec T: 19.5±0.5 usec	Low 0.50±0.05 High 6.8±0.3	118 114
22.0±0.1	SYNC Variations 1, 2 and 3	3.1.2.2.1a.	(1) Voltage 4.00 ± 0.12 VDC (2) Ripple NMT 50 MVpp (3) Noise NMT 0.4 Vpp	0.50±0.05 6.8±0.3	118 114
22.0±0.1	NO SYNC	3.1.2.2.1b.	(1) Voltage 4.00 ± 0.25 VDC (2) Ripple NMT 200 MVpp (3) Noise NMT 0.4 Vpp	0.50±0.05 6.8±0.3	118 114
36.2±0.2	SYNC	3.1.2.3	a. Voltage 4.00 ± 0.25 VDC b. Ripple NMT 50 MVpp c. Noise NMT 0.4 Vpp d. Control Pulse A: 8.4±1.4 VDC PW: 2.1±0.3 usec T: 19.5±0.5 usec	Low 0.50±0.05	118
33.0±0.1	SYNC Variations 1,2 & 3	3.1.2.3.1a.	(1) Voltage 4.00 ± 0.12 VDC	0.50±0.05	118
33.0±0.1	NO SYNC	3.1.2.3.1b.	(1) Voltage 4.00 ± 0.25 VDC (2) Ripple NMT 200 MVpp (3) Noise NMT 0.4 Vpp	0.50±0.05	118

3.1.2.2.1 (Continued)

(2) The ripple voltage of each output, as described in Figure 6, shall be not more than 50 millivolts peak to peak.

(3) The switching spikes of each output, as described in Figure 6, shall be not more than 0.4 volts peak to peak.

b. With the conditions of part a. applied, but with the sync pulse removed:

(1) The voltage of each output shall be 4.00 ± 0.25 VDC.

(2) The ripple voltage of each output, as described in Figure 6, shall be not more than 200 millivolts peak to peak.

(3) The switching spikes of each output, as described in Figure 6, shall be not more than 0.4 volts peak to peak.

3.1.2.3 **4 Volt Output High Margin Conditions.** With the module connected as described in Figure 1, and with a supply voltage of 36.2 ± 0.2 VDC; the 4 volt output shall have a low load current of 0.50 ± 0.05 amperes, and:

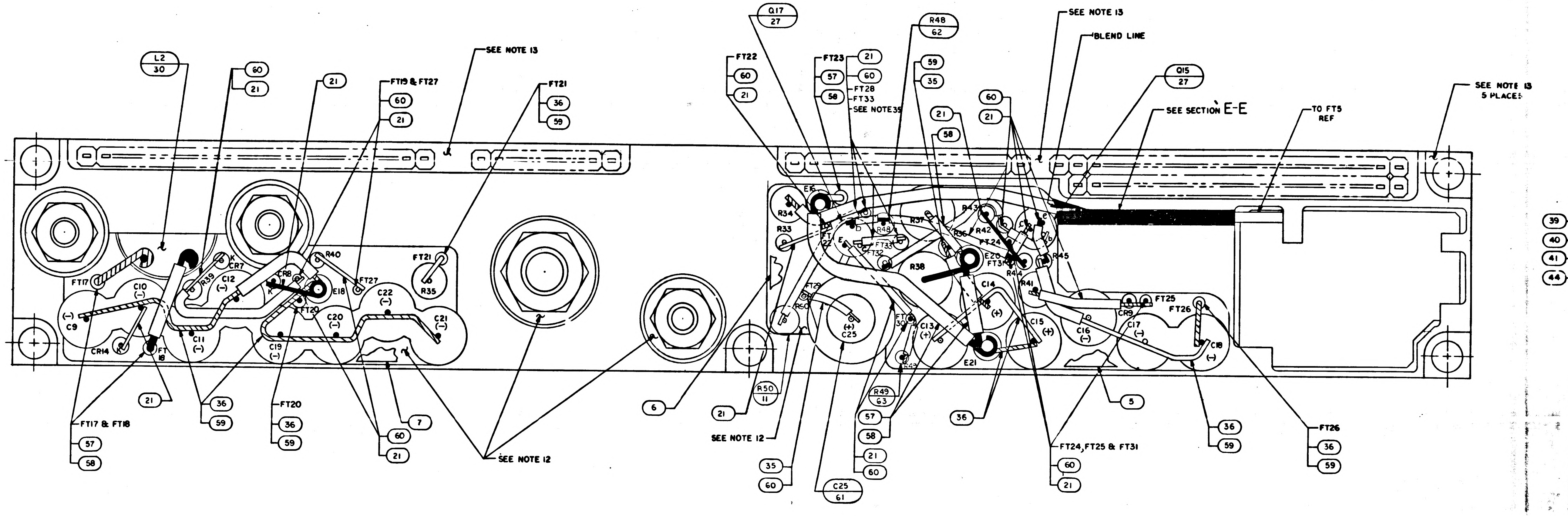
a. The output voltage shall be 4.00 ± 0.25 VDC.

b. The output ripple voltage, as described in Figure 6, shall be not more than 50 millivolts peak to peak.

c. The switching spikes of the output, as described in Figure 6, shall be not more than 0.4 volts peak to peak.

d. The control waveform observed between terminals 207 and 109 (0 VDC) of the module shall have the following parameters (see Figure 7):

Amplitude (A)	8.4 ± 1.4 volts
Pulse Width (PW)	2.1 ± 0.3 usec.
Period (T)	19.5 ± 0.5 usec.

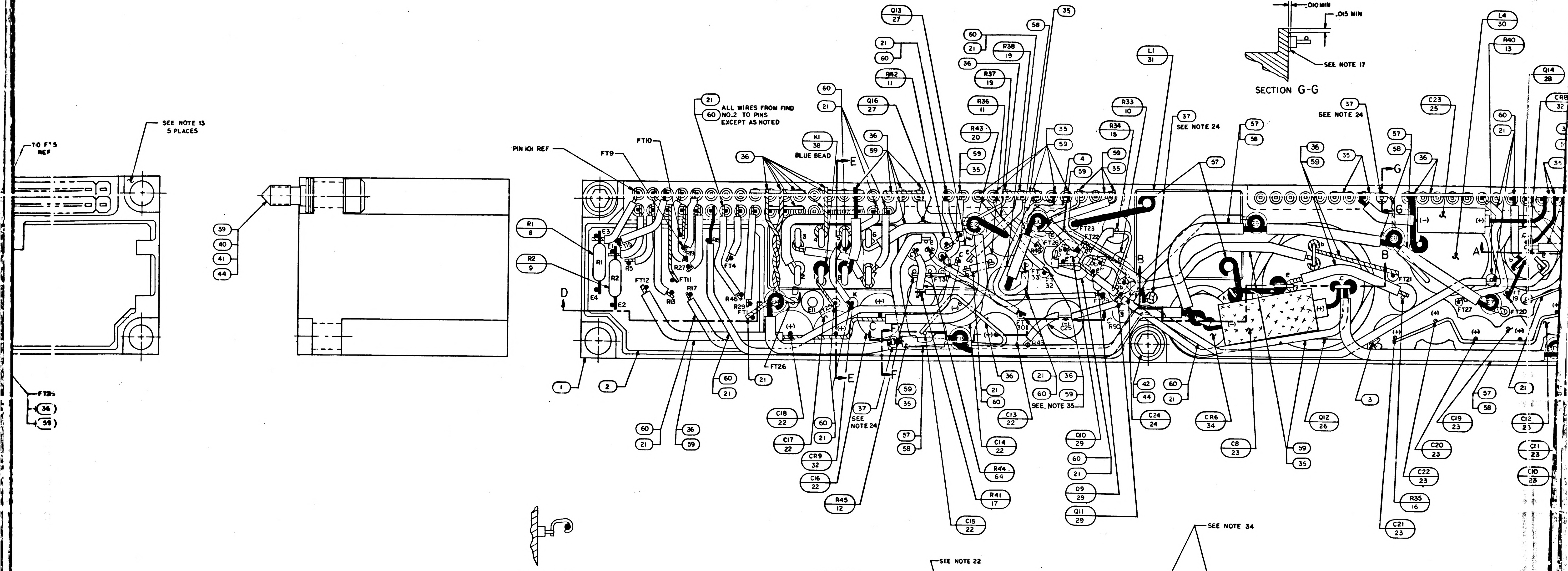


L2
30
60
21
21
FT19 & FT27
60
21
SEE NOTE 13
FT21
36
59
Q17
27
R48
62
SEE NOTE 13
BLEND LINE
FT22
60
21
FT23
21
57
60
58
FT28
FT33
SEE NOTE 35
59
35
Q15
27
SEE SECTION E-E
TO FT5 REF
SEE NOTE 13 5 PLACES
60
21
21
58
FT17
C10
C9
CR14
FT18
C11
C12
CR7
R39
CR8
R40
E18
FT27
FT20
C19
C20
C22
C21
FT21
R35
E16
R34
R33
R37
R36
R38
R42
R43
FT24
E20
R45
R41
R44
C14
C13
C15
C16
C17
C18
CR9
FT25
FT26
FT29
R50
C25
E21
21
36
59
FT17 & FT18
57
58
FT20
36
59
60
21
7
6
SEE NOTE 12
R50
11
21
SEE NOTE 12
35
60
C25
61
R49
63
57
58
21
60
36
5
FT24, FT25 & FT31
60
21
36
59
FT26
36
59
39
40
41
44

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. WELD PER ND1002005
3. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
4. SOLDER PER ND1002071 USING SOLDER COMP SN60 FORM WIRE SOLID PER ND1002075 EXCEPT AS SHOWN
5. K DENOTES CATHODE SIDE OF DIODE
6. AR DENOTES AS REQUIRED
7. APPLY SILICONE GREASE, 1006879, TO INDICATED AREAS OF CR6, CR10 Q12 AND Q14
8. MOUNTING TORQUE FOR CR6 AND CR10 TO BE 25/30 INCH POUNDS
9. FIND NO.56 TO COVER SOLDER JOINT OF FIND NO.36 AND FIND NO.54
10. MOUNTING TORQUE FOR Q12 TO BE 15/30 INCH POUNDS
11. MOUNTING TORQUE FOR Q14 TO BE 13/15 INCH POUNDS
12. ENCAPSULATE PER ND1002002 EXCEPT PREHEAT MOLD 1 1/2 HOURS MIN AND CURE FOR 3 HRS MIN AT 200°F±5°F. REMOVE FLASHING
13. INDICATED AREAS TO BE FREE OF ENCAPSULATION
14. STAKE FIND NO.10 THRU 20, 22, 23, 27, 29 THRU 33, 38, 61, 62, 63 & 64 PER ND1002009 METHOD C OR D
15. FT DENOTES FEED THRU
16. + DENOTES POSITIVE SIDE OF CAPACITOR
17. SEAL INSULATORS, CONTACTS AND FIND NO. 37 TO HEADER PER ND1002004, TYPE VI
18. E DENOTES STAND-OFF
19. MARK .10/.08 HIGH WHITE CHARACTERS PER ND 1002019 AND ND1002122 TYPE II, CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271-1
20. MARK .26/.24 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-1
21. BLACK DOT & CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
22. BLACK DOT & SOLID BLACK WIRING INDICATES SPECIAL LEVEL WIRING
23. WHITE DOT & CLEAR WIRING INDICATES LOWER LEVEL WIRING
24. MOUNTING TORQUE FOR FIND NO. 37 TO BE 15/20 INCH OUNCES
25. ENCAPSULATE FIND NO. 2 IN FIND NO. 1 TO DIM. SHOWN PER ND1002009, METHOD F
26. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST. R1 AND R2 TO BE SELECTED FROM APPROPRIATE CHART
27. STAKE WIRE IN PLACE PER ND1002004, TYPE VI
28. BACKGROUND TO BE RED USING MARKING INK 1006271-9
29. MARK .10/.08 HIGH WHITE PER ND1002019 & ND1002122 TYPE II, CLASS 2, USING INK 1006271-1. CENTRALIZE AS SHOWN
30. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL REQUIREMENTS OF PS 2003892
31. ENCAPSULATE FIND NO 34 TO FIND NO.1 PER ND1002009, METHOD F
32. SEAL BOTTOM OF FIND NO.2 PER ND1002009 METHOD C OR D PRIOR TO ENCAPSULATION PER NOTE 25
33. BOND FIND NO.43 TO FIND NO.1 PER ND1002004 TYPE VI
34. COAT TOP AND END SURFACES OF FIND NO. 23 AND 24 PER ND1002187 TYPE II
35. FILL CAVITY FOR FT32 & FT33 PER ND1002009 METHOD C OR D

R1 AND R2	
PART NO.	VALUE
1006750-1	51
-2	56
-3	62
-4	68
-5	75
-6	82
-7	91
-8	100
-9	110
-10	120
-11	130
-12	150
-13	160
-14	180
-15	200
-16	220
-17	240
-18	270
-19	300
-20	330
-21	360
-22	390
-23	430
-24	470
1006750-25	510


SEE NOTE 13
5 PLACES
TO FT5
REF
FT25
36
59
39
40
41
44
PIN 101 REF
FT9
FT10
R1
8
R2
9
E3
E4
E2
FT12
R5
R13
R17
R27
R46
R29
FT11
FT4
FT1
FT26
D
21
60
ALL WIRES FROM FIND NO.2 TO PINS EXCEPT AS NOTED
K1
38
BLUE BEAD
E
Q16
27
Q13
27
R42
11
R38
19
R37
19
R36
11
R43
20
R33
10
R34
15
L1
31
37
SEE NOTE 24
57
58
35
59
4
SECTION G-G
.010 MIN
.015 MIN
SEE NOTE 17
G
C23
25
L4
30
R40
13
Q14
28
CR8
32
A
B
FT21
FT27
FT20
FT19
FT23
FT22
FT28
FT13
FT30
FT33
FT32
C25
R50
R48
R49
1
2
3
42
44
C18
22
C17
22
CR9
32
C16
22
R45
12
SEE NOTE 24
C13
22
C14
22
R44
64
R41
17
C15
22
Q10
29
Q9
29
Q11
29
SEE NOTE 35
C24
24
CR6
34
C8
23
Q12
26
C19
23
C20
23
C22
23
R35
16
C21
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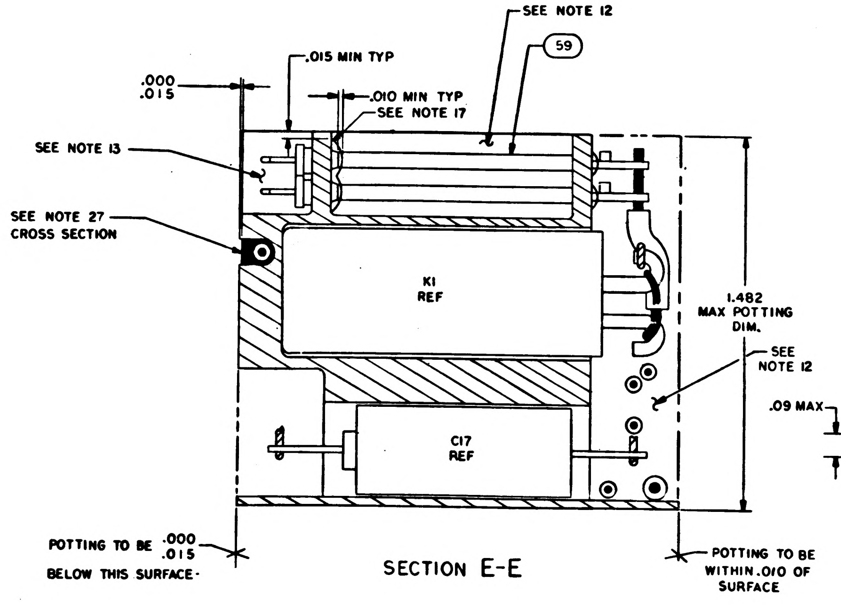
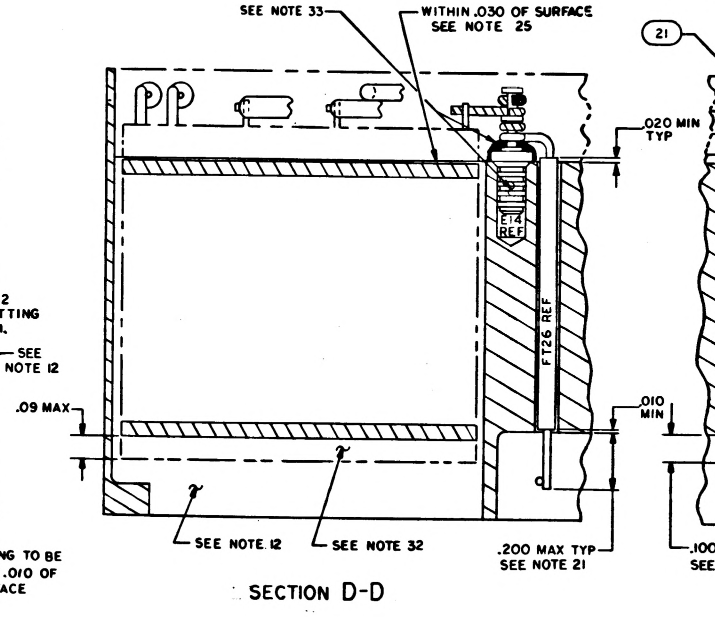
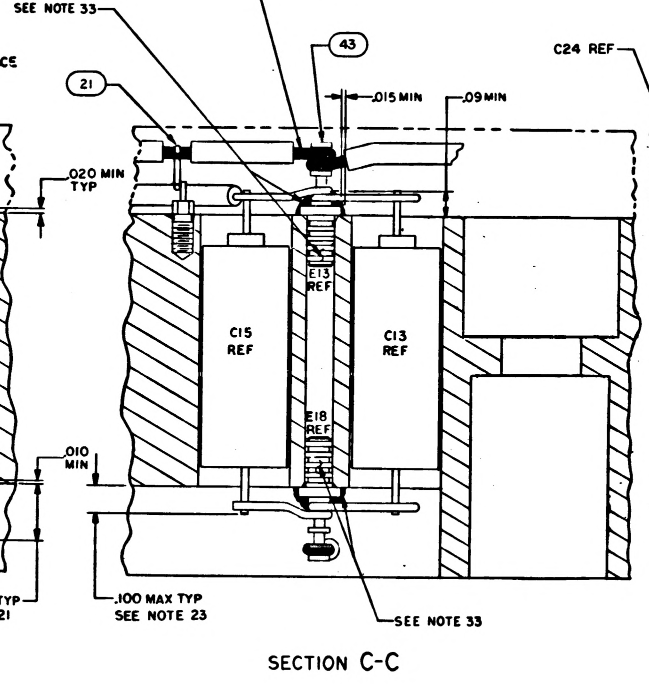
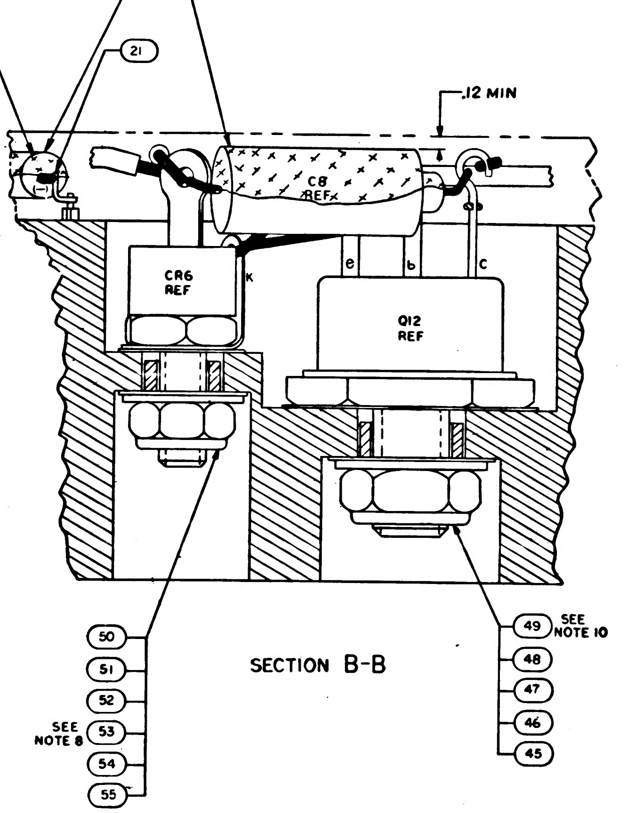
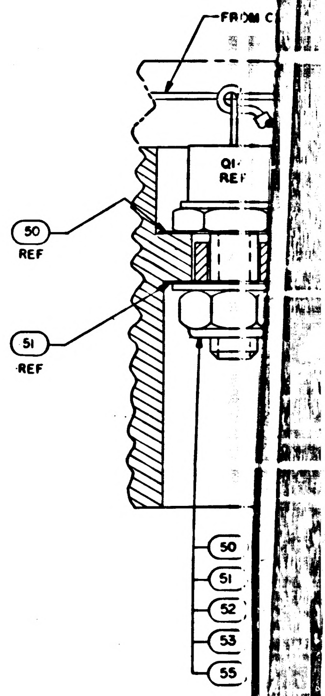
C12
23
C11
23
C10
23
SECTION F-F


SEE NOTE 12
59
.000
.015
.015 MIN TYP
.010 MIN TYP
SEE NOTE 17
SEE NOTE 13
SEE NOTE 27
CROSS SECTION
K1
REF
1.482
MAX POTTING
DIM.
SEE
NOTE 12
C17
REF
POTTING TO BE .000 .015 BELOW THIS SURFACE
POTTING TO BE WITHIN .010 OF SURFACE
SECTION E-E


SEE NOTE 33
WITHIN .030 OF SURFACE
SEE NOTE 25
.020 MIN
TYP
E14
REF
FT26 REF
.09 MAX
.010
MIN
SEE NOTE 12
SEE NOTE 32
.200 MAX TYP
SEE NOTE 21
SECTION D-D


SEE NOTE 33
SEE NOTE 22
43
21
.015 MIN
.09 MIN
E13
REF
C15
REF
C13
REF
E18
REF
.100 MAX TYP
SEE NOTE 23
SEE NOTE 33
SECTION C-C

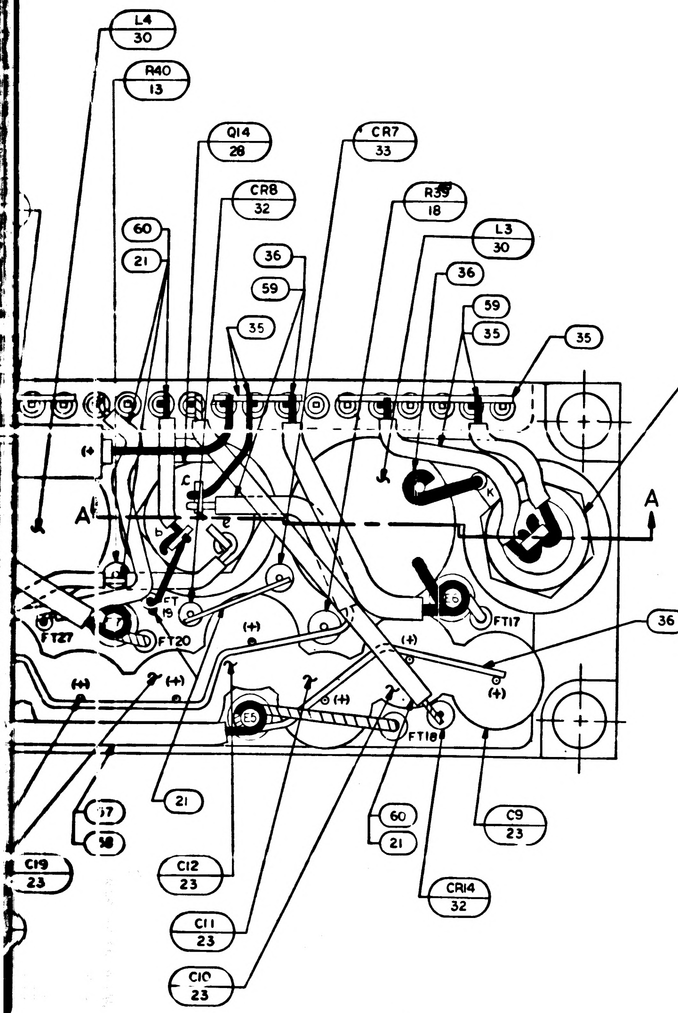

SEE NOTE 34
C24 REF
21
.12 MIN
C8
REF
CR6
REF
e
b
c
k
Q12
REF
50
51
52
SEE
NOTE 8
53
54
55
49
SEE
NOTE 10
48
47
46
45
SECTION B-B


FROM C
Q1
REF
50
REF
51
REF
50
51
52
53
54
55

2003892

REVISIONS PDRR 32966

SYM	DESCRIPTION	


L4
30
R40
13
Q14
28
CR7
33
CR8
32
R39
18
L3
30
60
21
36
59
35
36
59
35
35
CR10
34
A
A
(+)
FT27
FT20
FT17
FT18
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C19
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C12
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C11
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C10
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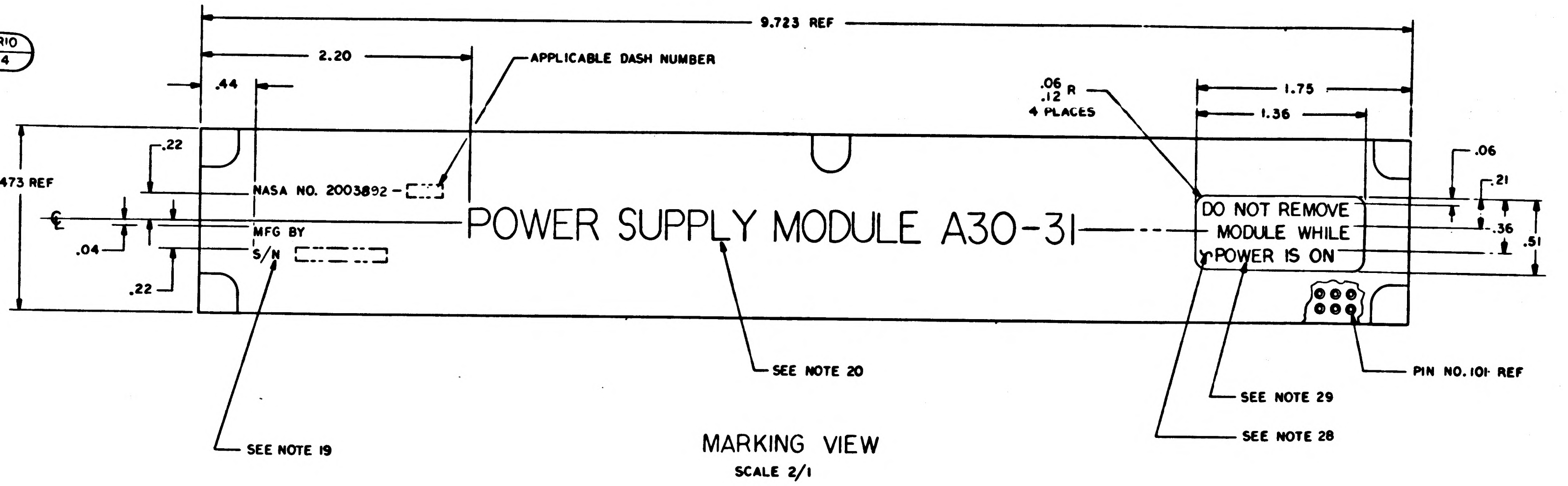
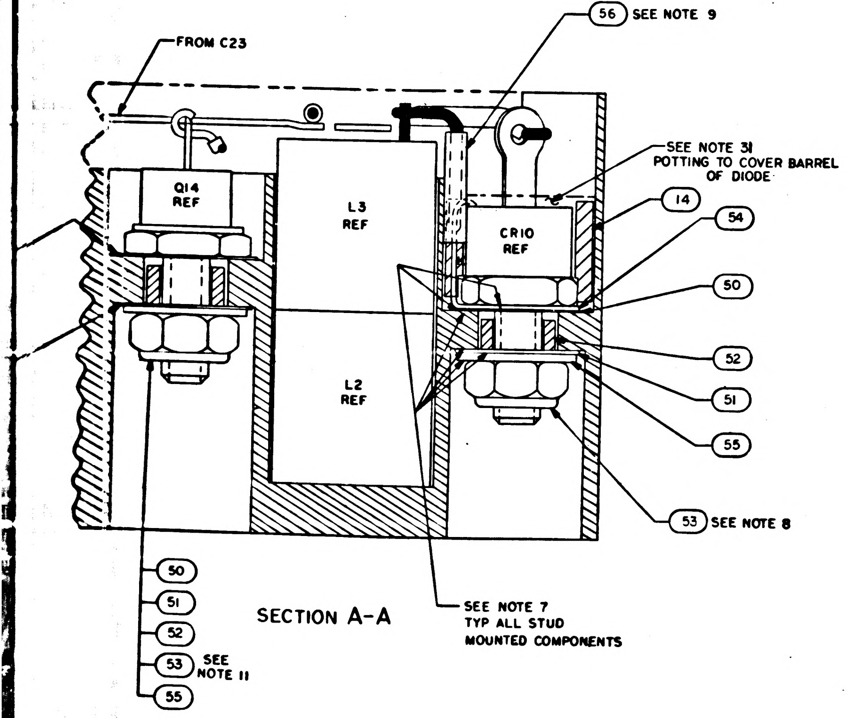
60
21
CR14
32
C9
23


9.723 REF
2.20
APPLICABLE DASH NUMBER
.44
.06 R
.12
4 PLACES
1.75
1.36
1.473 REF
.22
NASA NO. 2003892 -
MFG BY
S/N
.04
.22
POWER SUPPLY MODULE A30-31
DO NOT REMOVE
MODULE WHILE
POWER IS ON
.06
.21
.36
.51
SEE NOTE 20
SEE NOTE 19
SEE NOTE 29
SEE NOTE 28
PIN NO. 101 REF

MARKING VIEW
SCALE 2/1


FROM C23
56 SEE NOTE 9
SEE NOTE 31
POTTING TO COVER BARREL
OF DIODE
Q14
REF
L3
REF
L2
REF
CR10
REF
14
54
50
52
51
55
53 SEE NOTE 8
50
51
52
53 SEE NOTE 11
55
SEE NOTE 7
TYP ALL STUD
MOUNTED COMPONENTS

SECTION A-A

	2005971	SCHEMATIC	REF
1	1006750-28	RESISTOR	64
1	1006750-32	RESISTOR	63
1	1006788-4	RESISTOR	62
1	1006755-14	CAPACITOR	61
AR	1006776-22	INSULATION, SLEEVING	60
AR	1006776-20	INSULATION, SLEEVING	59
AR	1006776-18	INSULATION, SLEEVING	58
AR	QQ-W-343, TYPE S, 18	WIRE, ELEC	57
AR	1006776-30	INSULATION, SLEEVING	56
3	1008071-004	WASHER, FLAT	55
2	2008013-5	TERMINAL, LUG	54
3	MS21083B3	NUT, HEX, SELF-LOCKING	53
3	1008025-5	BUSHING, INSULATOR	52
3	1008024-1	WASHER, INSULATOR	51
3	1008024-2	WASHER, INSULATOR	50
1	MS21083B5	NUT, HEX, SELF-LOCKING	49
1	1008071-7	WASHER, FLAT	48
1	2008020-3	BUSHING, INSULATOR	47
1	1008024-5	WASHER, INSULATOR	46
1	1008024-6	WASHER, INSULATOR	45
5	2004984-003	WASHER, FLAT	44
14	1006708	TERMINAL, STUD	43
1	1004722-2	SCREW, CAPTIVE	42
4	MS16633-4015	RING, RETAINING, EXTERNAL 'E'	41
4	2004984-001	WASHER, FLAT	40
4	1004579-1	SCREW, JACKING	39
1	1006304-003	RELAY	38
3	2004039	TERMINAL THREADED	37
AR	1006757-21	WIRE, ELEC	36
AR	1006757-23	WIRE, ELEC	35
2	1006329	DIODE	34
1	2004112-001	DIODE	33
3	2004183-001	DIODE	32
1	1006328	INDUCTOR	31
3	1006327	INDUCTOR	30
1	2004722	TRANSISTOR, SELECTION LIST	29
1	1006363-001	TRANSISTOR	28
4	2004184-001	TRANSISTOR, POTTED	27
1	1006317-002	TRANSISTOR	26
1	1006755-126	CAPACITOR	25
1	1006755-79	↑	24
9	1006755-134	↓	23
6	1006755-89	CAPACITOR	22
AR	1006757-13	WIRE, ELEC	21
1	1006750-40	RESISTOR	20
2	1006330-001	↑	19
1	1010604-50		18
1	1010389-23		17
1	1010389-113	↓	16
1	1010389-51	RESISTOR	15
1	2004928	SLEEVE, THERMAL	14
1	1006750-43	RESISTOR	13
1	1006750-39	↑	12
3	1006750-15		11
1	1006750-1		10
1	SEE NOTE 26	↓	9
1	SEE NOTE 26	RESISTOR	8
1	2004892	INSULATOR D	7
1	2004735-002	INSULATOR C	6
1	2004735-001	INSULATOR C	5
1	2004736	INSULATOR B	4
1	2004893	INSULATOR A	3
1	2003029-031	CONTROL CIRCUIT SUB ASSY	2
1	2003057-021	HEADER HOUSING ASSY	1
QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
-011	LIST OF MATERIALS		

2003993	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
±.02 ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN C. Val[illegible] 6 FEB 67
CHECKED [illegible] 7 FEB 67
APPROVAL [illegible] 8 Feb 67
APPROVAL [illegible] 8 Feb 67
NASA APPROVAL [illegible]
APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

POWER SUPPLY MODULE
A30 – 31
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO 2003892
SCALE 4/1
WT
SHEET 1 OF 1

2003892

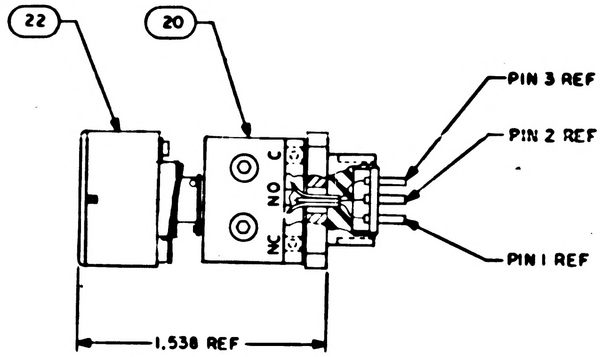
2003892

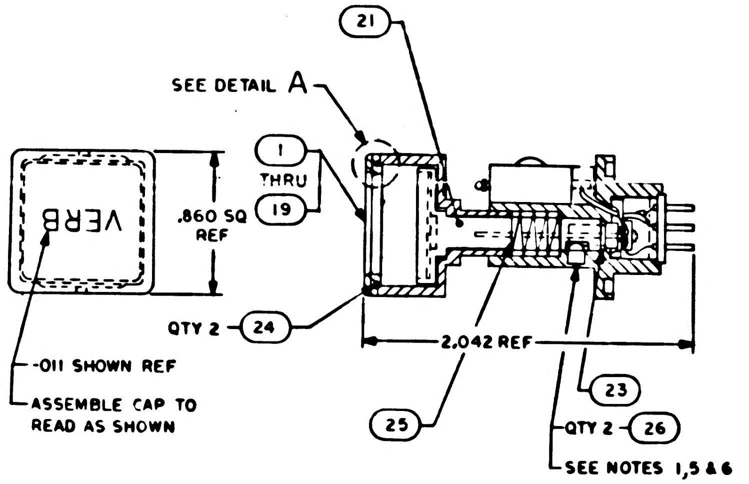
31/2003892

[illegible]

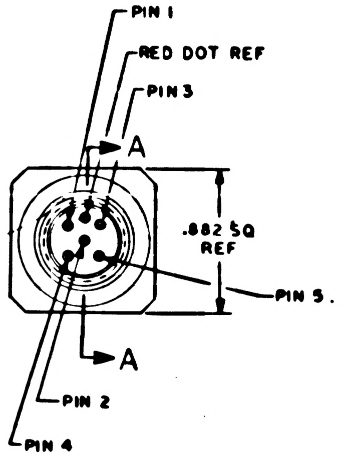
REVISIONS TDRR 35062

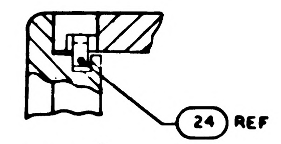
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED





SECTION A-A





DETAIL A
SCALE 10/1

NOTES:

1. STAKE FIND NO.26 TO FIND NO.20 USING STAKING COMPOUND PER MIL-S-22473 TYPE HV
2. PINS INDICATED 1 THRU 5 ARE FOR REFERENCE ONLY AND ARE NOT TO BE MARKED
3. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
4. IDENTIFY WITH PART NO. PER ND1002019
5. FIND NO.21 AND FIND NO.23 TO BE BOTTOMED BEFORE ASSEMBLING FIND NO.26
6. MOUNTING TORQUE OF FIND NO.26 TO BE 2.5 TO 2.8 INCH POUNDS
7. PUSH FORCE APPLIED AT CENTER OF CAP TO ACTUATE MICROSWITCH AT FINAL ASSEMBLY SHALL BE 1.0 ± .25 LBS

QTY REQD -211	QTY REQD -191	QTY REQD -181	QTY REQD -171	QTY REQD -161	QTY REQD -151	QTY REQD -141	QTY REQD -131	QTY REQD -121	QTY REQD -111	QTY REQD -091	QTY REQD -081	QTY REQD -071	QTY REQD -061	QTY REQD -051	QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	AN565DC4H3		SET-SCREW	26
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2004941		SPRING, COMPRESSION	25
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2004944		SPRING, CAP RETAINING	24
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1006369		PACKING PREFORM	23
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2004738-011		HOUSING ASSY (CAP)	22
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2003975-011		SHAFT ASSY	21
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2003933-011		HOUSING ASSY (MOUNTING)	20
1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1005022-019		CAP, ELECTRICAL, ENGRAVED	19
—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-018			18
—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-017			17
—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-016			16
—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-015			15
—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	-014			14
—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	-013			13
—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	-012			12
—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	-011			11
—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	-010			10
—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	-009			9
—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	-008			8
—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	-007			7
—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	-006			6
—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	-005			5
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	-004			4
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	-003			3
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	-002			2
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1005022-001		CAP, ELECTRICAL, ENGRAVED	1

LIST OF MATERIALS

SEE NOTE 8 2003903	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN		1/3/67
CHECKED	E. Holman	1/11/67
APPROVED	Allan C Hall	1/26/67
APPROVED	NAS 9-497	Mar 67
APPROVED NASA		7/14/67
APPROVED MSC		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

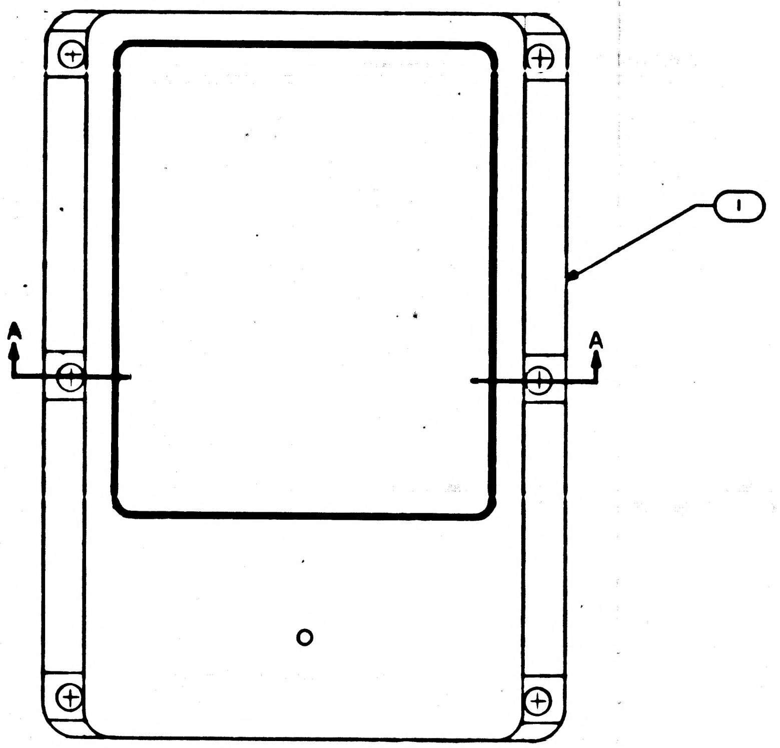
PUSH BUTTON SWITCH ASSEMBLY
PLUG IN UNIT
AGC DSKY

CODE IDENT NO	SIZE	DRAWING NO.
80230	D	2003896
SCALE 2/1		SHEET 1 OF 1

2003896

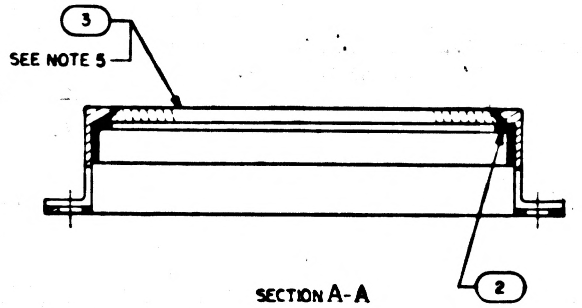
[illegible]

REVISIONS TDRR 35062						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 35650		E W	2/22/68	2/27/68 J S R



NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. IDENTIFY WITH PART NO. PER ND1002019
3. BOND FIND NO.2 AND FIND NO.3 TO FIND NO.1 AS INDICATED USING FIND NO.4. CURE AT ROOM TEMPERATURE FOR 24 HOURS MIN. PRIME AS REQ'D USING 1010900
4. ~~BOND FIND NO.2 TO FIND NO.1 AS INDICATED USING FIND NO.5. CURE AT ROOM TEMPERATURE FOR 24 HOURS MIN.~~
5. SURFACE OF FIND NO.3 TO BE FLUSH TO .010 BELOW FACE SURFACE OF FIND NO.1



SECTION A-A

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO
~~A R~~	~~1006341~~		~~ADHESIVE SEALING~~	~~5~~
A R	1006339-002		ADHESIVE, SILICONE	4
1	2004698		PANEL, INDICATOR	3
1	2004141		GASKET, INDICATOR COVER	2
1	2004699		FRAME, INDICATOR COVER	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003899	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN J. P. Leonard 3 NOV 67
CHECKED S. [illegible] 6 NOV 67
APPROVED Allan C Hall [illegible]
APPROVED [illegible] [illegible]
APPROVED E W [illegible] 11/4/67
APPROVED MSC [illegible] 11/8/67
DATE

COVER ASSEMBLY
INDICATOR ALARM
AGC DSKY

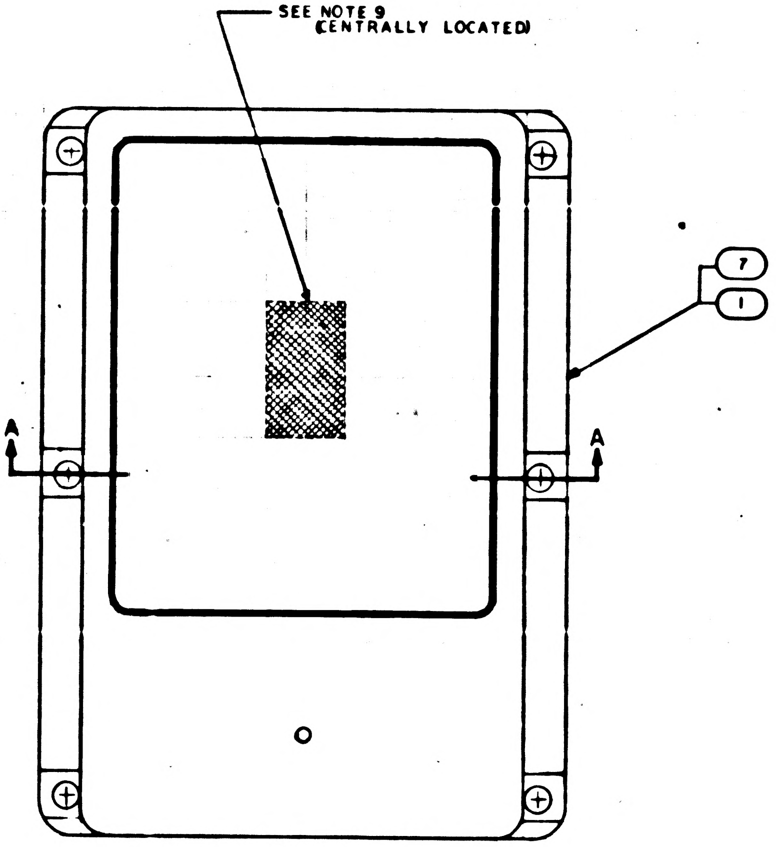
CODE IDENT NO 80230
SIZE D
DRAWING NO. 2003897
SCALE 2/1
SHEET 1 OF 1

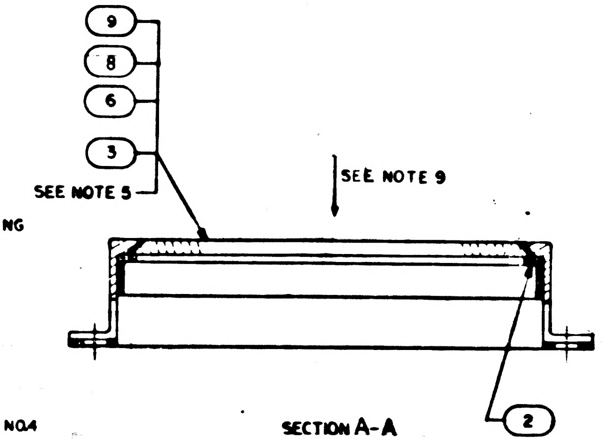
2003897 A

[illegible]

REVISIONS TDRR 35062						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 35650		E U	2/22/65	ESR
B		REVISED PER TDRR 36458				
C		REVISED PER TDRR 36657				

NOTE APPLICATION	
-011	1 THRU 5
-021	1,2,5,6,8,9
-031	1,2,5,7,8,9
-041	1,2,5,7,8,9





SECTION A-A

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. IDENTIFY WITH PART NO. PER ND1002019
3. BOND FIND NO.2 AND FIND NO.3 TO FIND NO.1 AS INDICATED USING FIND NO.4. CURE AT ROOM TEMPERATURE FOR 24 HOURS MIN. PRIME AS REQD USING 1010900
4. ~~BOND FIND NO.2 TO FIND NO.1 AS INDICATED USING FIND NO.5. CURE AT ROOM TEMPERATURE FOR 24 HOURS MIN.~~
5. SURFACE OF FIND NO. 3,6,8,OR 9 TO BE FLUSH TO .010 BELOW FACE SURFACE OF FIND NO 1
6. BOND FIND NO.6 TO FIND NO.1 AS INDICATED USING FIND NO.4 CURE AT ROOM TEMPERATURE FOR 24 HOURS MIN.
7. BOND FIND NO.8 OR FIND NO.9 TO FIND NO.7 AS INDICATED USING FIND NO.4 CURE AT ROOM TEMPERATURE FOR 24 HOURS MIN.
8. COMPLETED ASSY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET WHEN MOUNTED TO SIMULATE ACTUAL APPLICATION:
   - A. THE THERMAL REQUIREMENTS OF PARA 3.1.3 LESS REQUIREMENTS OF PARA. 3.1.2 OF PS 2003899
   - B. THE VIBRATION REQUIREMENTS OF PARA 3.1.4.1 OF PS 2003899
9. AFTER TESTING PER NOTE 8 THE FOLLOWING TEST SHALL BE PERFORMED:
   - A. PUSH FORCE-A 10 LB LOAD SHALL BE APPLIED TO THE AREA OF THE GLASS INDICATED IN THE DIRECTION INDICATED. ANY VISUAL DEGRADATION OF THE ADHESIVE QUALITIES OF OF FIND NO.4 IS CAUSE FOR REJECTION

1	–	–	–	2004743-003		PANEL INDICATOR	9
–	1	–	–	2004743-002		PANEL, INDICATOR	8
1	1	–	–	2004699-001		FRAME INDICATOR COVER	7
–	–	1	–	2004743-001		PANEL, INDICATOR	6
–	~~–~~	~~–~~	~~AR~~	~~1006341~~		~~ADHESIVE SEALING~~	~~5~~
AR	AR	AR	AR	1006338-002		ADHESIVE, SILICONE	4
–	–	–	1	2004698		PANEL, INDICATOR	3
–	–	–	1	2004141		GASKET, INDICATOR COVER	2
–	–	1	1	2004699-000		FRAME, INDICATOR COVER	1
QTY REQD	QTY REQD	QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO
041	031	021	011	LIST OF MATERIALS			

2003899	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN J.P. Leonard 3 NOV 67
CHECKED S. Nelson 6 NOV 67
APPROVED Allen C Hall
APPROVED CONTRACT NAS 9 4065
APPROVED
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COVER ASSEMBLY

AGC DSKY

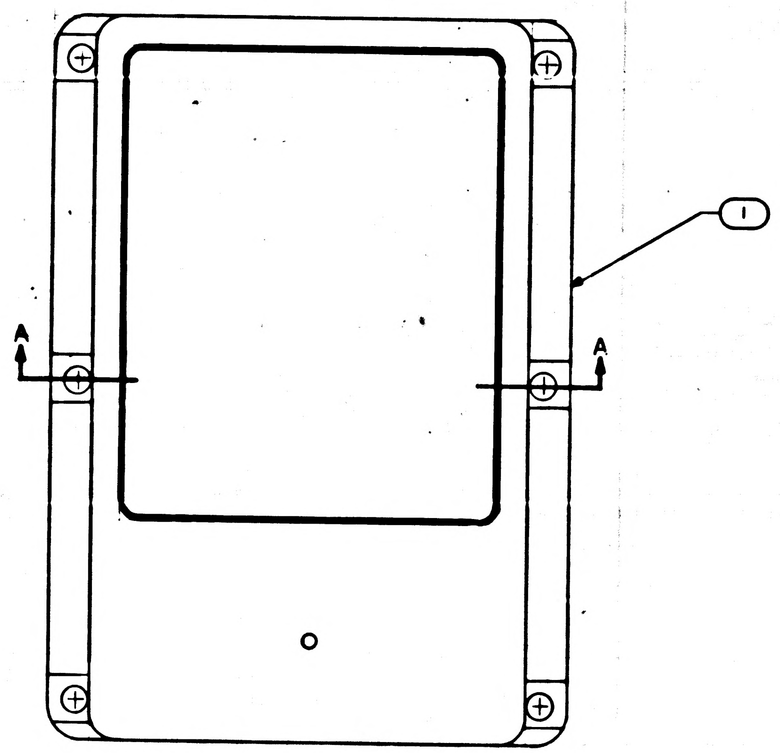
CODE IDENT NO 80230
SIZE D
DRAWING NO. 2003897
SCALE 2/1
SHEET 1 OF 1

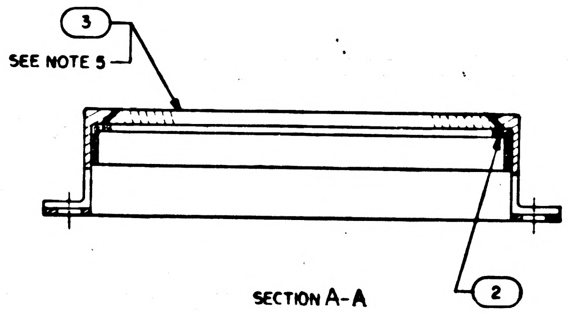
2003897 C

[illegible]

REVISIONS TDRR 35062

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED





SECTION A-A

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. IDENTIFY WITH PART NO. PER ND1002019
3. BOND FIND NO. 3 TO FIND NO. 1 AS INDICATED USING FIND NO. 4. CURE AT ROOM TEMPERATURE FOR 24 HOURS MIN
4. BOND FIND NO. 2 TO FIND NO. 1 AS INDICATED USING FIND NO. 5. CURE AT ROOM TEMPERATURE FOR 24 HOURS MIN
5. SURFACE OF FIND NO. 3 TO BE FLUSH TO .010 BELOW FACE SURFACE OF FIND NO-1

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO
A R	1006341		ADHESIVE SEALING	5
A R	1006338-002		ADHESIVE, SILICONE	4
1	2004698		PANEL, INDICATOR	3
1	2004141		GASKET, INDICATOR COVER	2
1	2004699		FRAME, INDICATOR COVER	1
011	LIST OF MATERIALS			

NEXT ASSY	USED ON
2003899	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN 3 NOV 67
CHECKED 6 NOV 67
APPROVED 8 Nov 67
APPROVED Nov 67
CONTRACT NAS 9-497
APPROVED
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COVER ASSEMBLY
INDICATOR ALARM
AGC DSKY

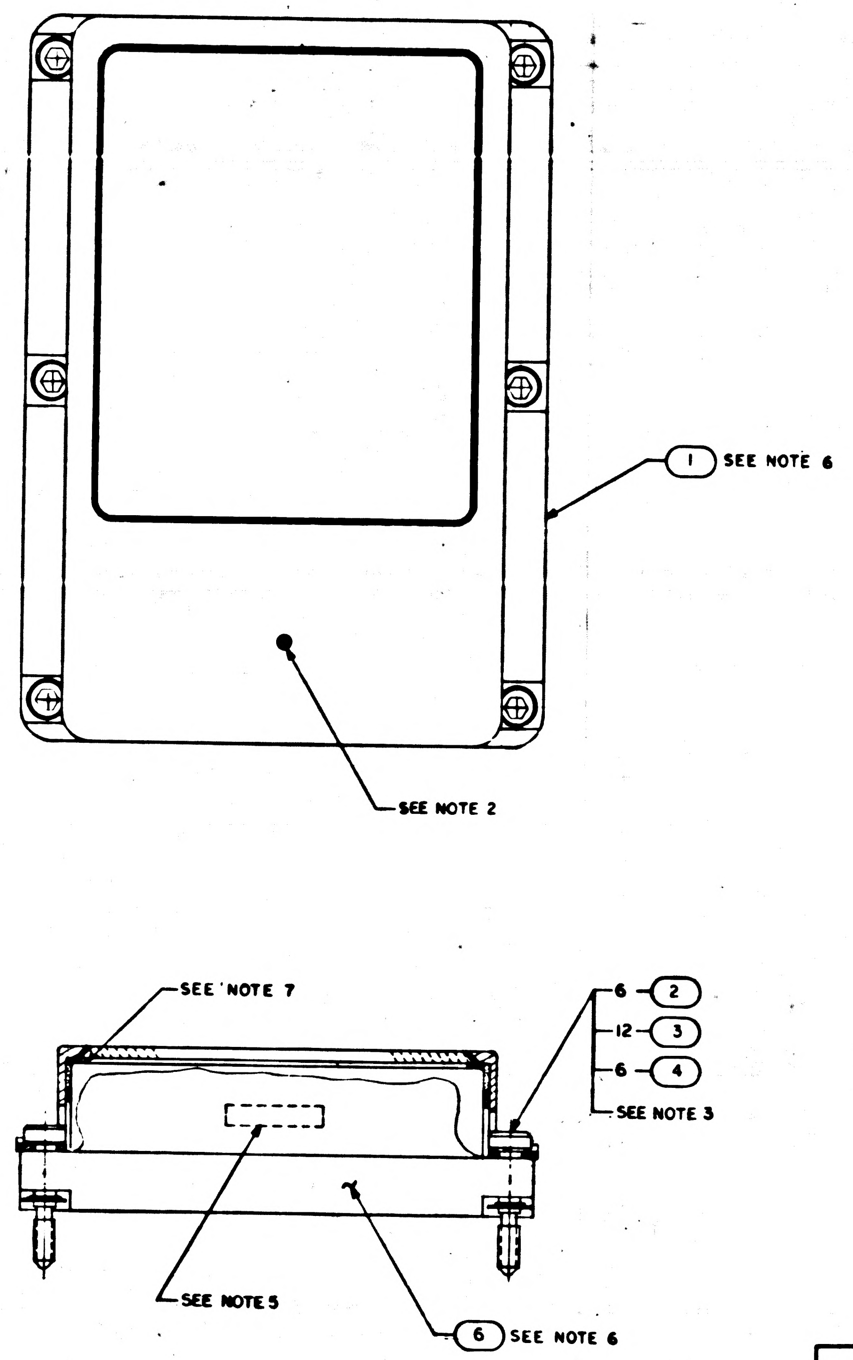
CODE IDENT NO 80230
SIZE D
DRAWING NO. 2003897
SCALE 2/1
SHEET 1 OF 1

2003897 — 1

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS TDRR 35062

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES:

1. FIND NO.6 TO BE EITHER 1006387-002 OR 1006387-003
2. FILL INDICATED AREA USING FIND NO.5 FLUSH TO .010 BELOW FACE SURFACE OF FIND NO.1 CURE AT ROOM TEMP FOR 24 HRS-MIN.
3. INSTALL FIND NO.2 AND FIND NO.3 TO FIND NO.1 BEFORE ASSEMBLING FIND NO.1 TO FIND NO.6
4. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
5. IDENTIFY WITH PART NO. PER ND1002019
6. ASSEMBLE FIND NO.1 TO FIND NO. 6 IN AN ENVIRONMENT HAVING A TEMPERATURE OF 72°F ±5°F AND A RELATIVE HUMIDITY OF 20% OR LESS
7. SEAL TEST: UNIT SHALL BE ABLE TO PASS A BUBBLE TEST WHEN SUBMERGED IN FREON, FC-75 AT A PRESSURE DIFFERENTIAL OF 3PSIG. A FAILURE SHALL BE DEFINED AS A STEADY STREAM OF BUBBLES.

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO
1	SEE NOTE 1		INDICATOR, ALARM	6
AR	1006338-002		ADHESIVE, SILICONE	5
6	MS16633-4014		RING, RETAINING	4
12	1004546-4		WASHER, FLAT	3
6	2004932-003		SCREW, JACKING	2
1	2003897-011		COVER ASSEMBLY	1
011	LIST OF MATERIALS			

NEXT ASSY	USED ON
2003950	
2003985	
2003994	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN 3 NOV 67
CHECKED 6 NOV 67
APPROVED 7 Nov 67
APPROVED
CONTRACT NAS9-497
APPROVED
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

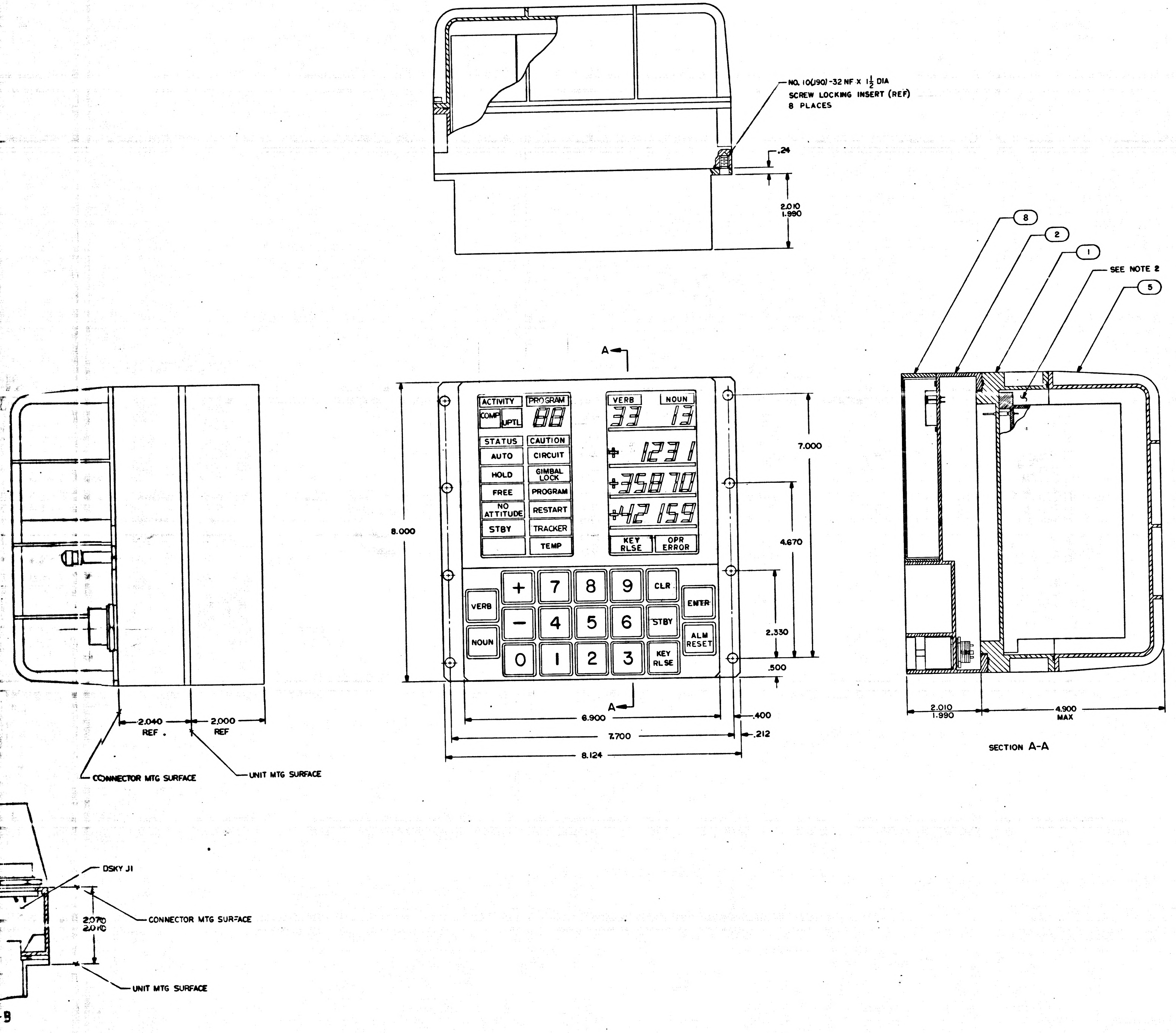
I/L & COVER ASSEMBLY

AGC DSKY

CODE IDENT NO 80230
SIZE D
DRAWING NO. 2003899
SCALE 2/1
SHEET 1 OF

2003899 | —

REVISIONS 14467			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 15652	9/1/65	



NO. 10(.190)-32 NF X 1½ DIA
SCREW LOCKING INSERT (REF)
8 PLACES
.24
2.010
1.990
8
2
1
SEE NOTE 2
5
A
ACTIVITY
PROGRAM
COMP
UPTL
88
VERB
NOUN
33
13
STATUS
CAUTION
AUTO
CIRCUIT
HOLD
GIMBAL LOCK
FREE
PROGRAM
NO ATTITUDE
RESTART
STBY
TRACKER
TEMP
+ 1231
+35870
+42159
KEY RLSE
OPR ERROR
+
7
8
9
CLR
VERB
ENTER
−
4
5
6
STBY
NOUN
ALM RESET
0
1
2
3
KEY RLSE
7.000
8.000
4.670
2.330
.500
6.900
.400
7.700
.212
8.124
2.010
1.990
4.900 MAX
SECTION A-A
2.040 REF
2.000 REF
CONNECTOR MTG SURFACE
UNIT MTG SURFACE
DSKY J1
2.070
2.010
CONNECTOR MTG SURFACE
UNIT MTG SURFACE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
X	2003906	AGC DSKY OUTLINE	REF
X	2005901	INTERCONNECTION DIAGRAM	REF
X	2005900	SIGNAL FLOW DIAGRAM	REF
			10
			9
1	2003905-011	FRONT COVER ASSY	8
1	1006316-001	INDICATOR, E/L (ALM, PROG-ACTIVE)	7
1	1006315-001	INDICATOR, E/L (REG, VERB-NOUN)	6
1	2004900-001	COVER, REAR	5
1	2003901-011	POWER SUPPLY ASSY	4
6	2003902-011	INDICATOR DRIVER MODULE	3
1	2003903-011	FRONT PANEL ASSY	2
1	2003904-011	IDM PLATE WIRE WRAP ASSY	1
011	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO. CONTRACT
DRAWN R. Boudreau DATE 12 Nov 64
CHECKED 12 Nov 64
APPROVAL Nov 13/64
APPROVAL Nov 6/64
NASA APPROVAL
MIT APPROVAL 24 Nov 64

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC DSKY ASSEMBLY

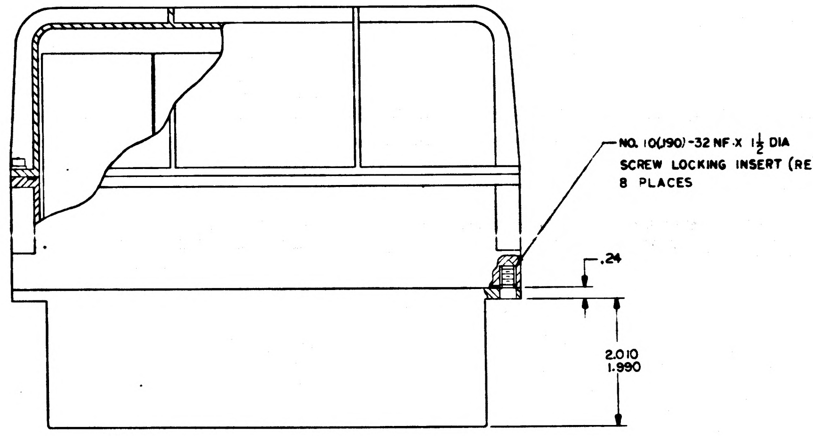
CODE IDENT NO.
SIZE J
NASA DRAWING NO. 2003900
SCALE 1/1
WT
SHEET 1 OF 1

2003900 A

(24)

MASTER

F-2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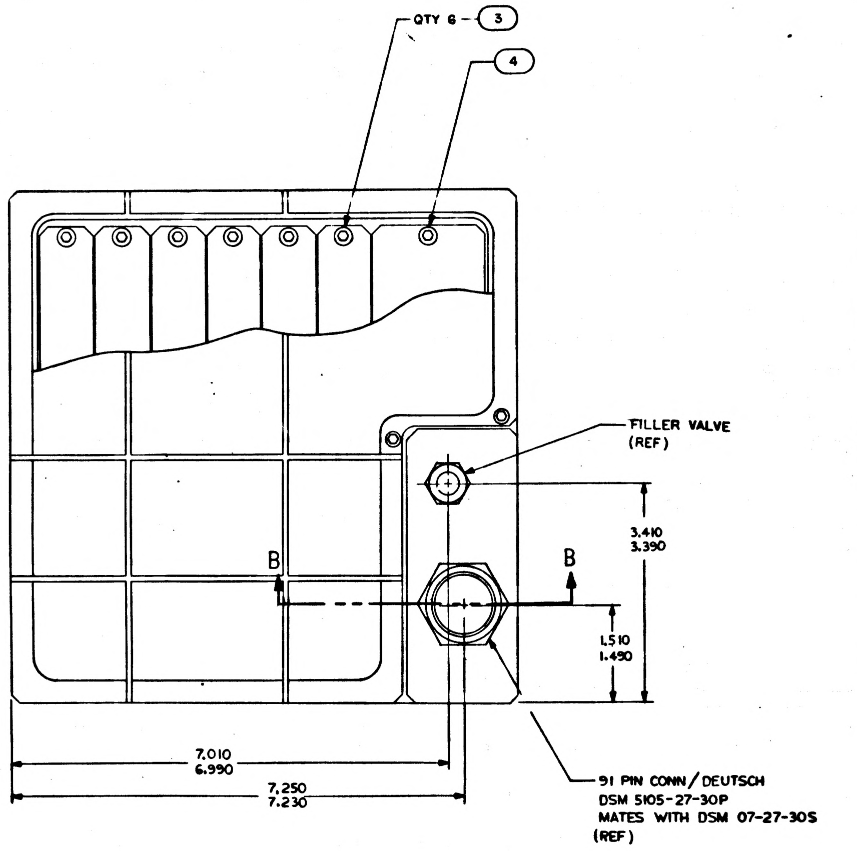
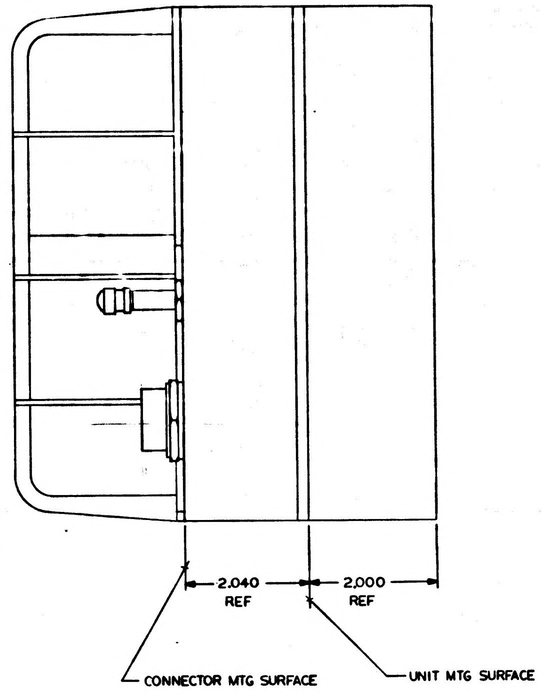
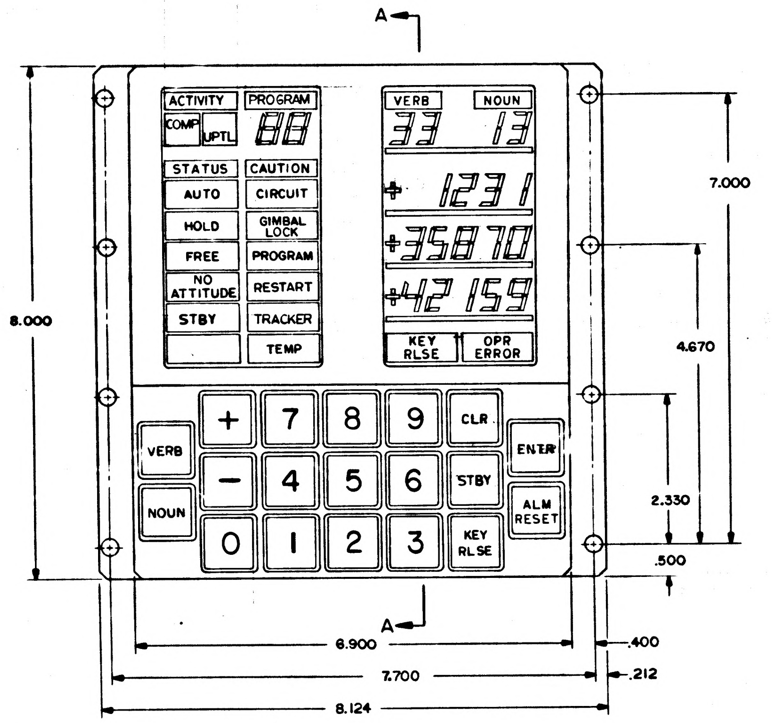
SCREW LOCKING INSERT (REF)
8 PLACES
.24
2.010
1.990


QTY 6 - 3
4
FILLER VALVE
(REF)
B
B
3.410
3.390
1.510
1.490
7.010
6.990
7.250
7.230
91 PIN CONN/DEUTSCH
DSM 5105-27-30P
MATES WITH DSM 07-27-30S
(REF)


2.040
REF
2.000
REF
CONNECTOR MTG SURFACE
UNIT MTG SURFACE


A
ACTIVITY
PROGRAM
COMP
UPTL
88
VERB
NOUN
33
13
STATUS
CAUTION
AUTO
CIRCUIT
HOLD
GIMBAL LOCK
FREE
PROGRAM
NO ATTITUDE
RESTART
STBY
TRACKER
TEMP
+ 1231
+35870
+42159
KEY RLSE
OPR ERROR
VERB
NOUN
+
7
8
9
CLR
ENTR
−
4
5
6
STBY
ALM RESET
0
1
2
3
KEY RLSE
A
8.000
7.000
4.670
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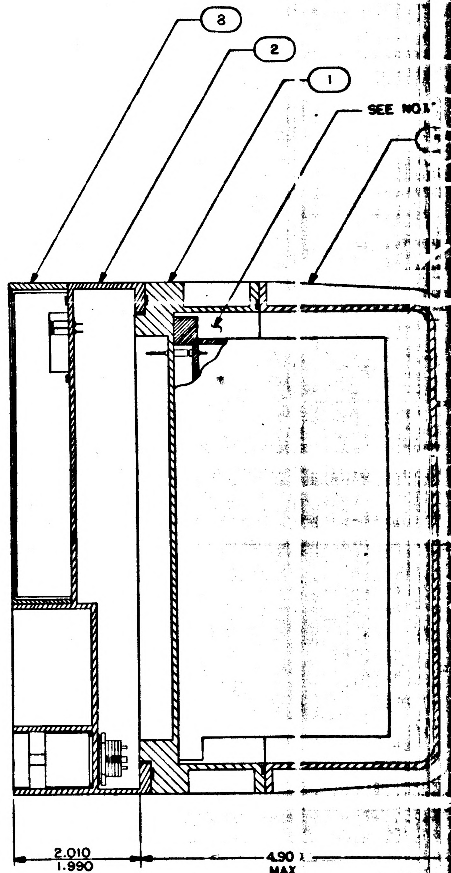
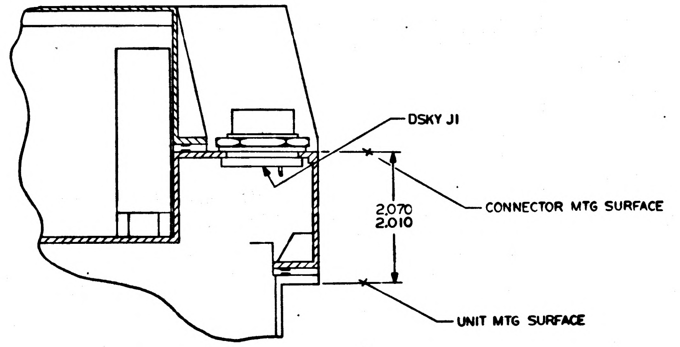
.500
6.900
.400
7.700
.212
8.124


3
2
1
SEE NO.
2.010
1.990
4.90
MAX

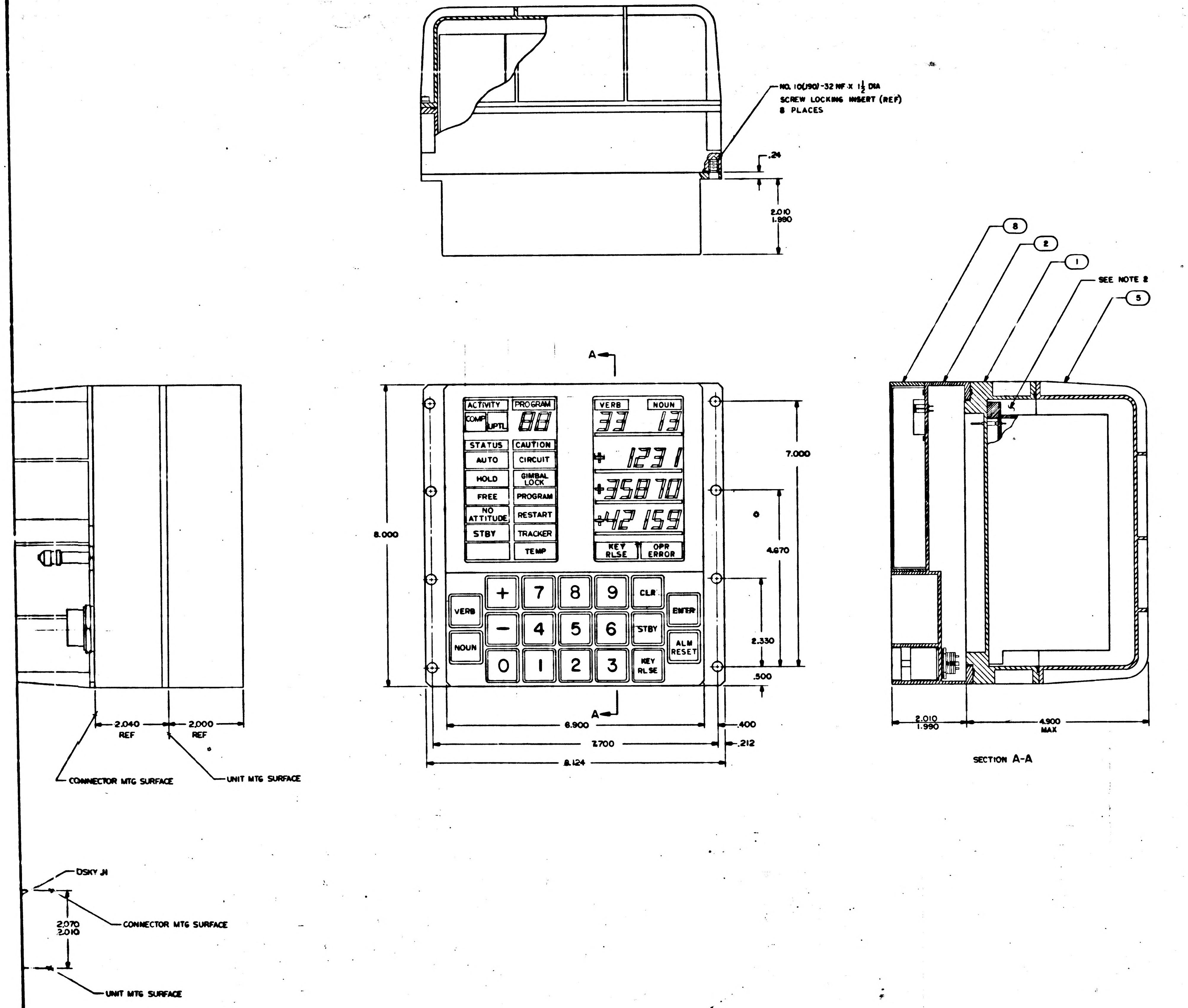
SECTION A-A

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. 16 PSIA DRY NITROGEN FILL


DSKY J1
2.070
2.010
CONNECTOR MTG SURFACE
UNIT MTG SURFACE

SECTION B-B

REVISIONS 15447			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 15652	[illegible] 65	[illegible]
B	REPLACED WITH CHANGES BY REV C PER TDRR 17775 DR [illegible] CHK [illegible]	[illegible] 65	[illegible]



NO. 10(.190)-32 NF X 1½ DIA
SCREW LOCKING INSERT (REF)
8 PLACES
.24
2.010
1.990
8
2
1
SEE NOTE 2
5
A
ACTIVITY
COMP
UPTL
PROGRAM
88
VERB
NOUN
33
13
+ 1231
+35870
+42159
STATUS
CAUTION
AUTO
CIRCUIT
HOLD
GIMBAL LOCK
FREE
PROGRAM
NO ATTITUDE
RESTART
STBY
TRACKER
TEMP
KEY RLSE
OPR ERROR
+
7
8
9
CLR
VERB
ENTER
−
4
5
6
STBY
NOUN
ALM RESET
0
1
2
3
KEY RLSE
7.000
8.000
4.670
2.330
.500
6.900
.400
7.700
.212
8.124
2.010
1.990
4.900
MAX
SECTION A-A
2.040
REF
2.000
REF
CONNECTOR MTG SURFACE
UNIT MTG SURFACE
DSKY J1
2.070
2.010
CONNECTOR MTG SURFACE
UNIT MTG SURFACE

Ⓑ REPLACED WITH CHANGE BY REV C

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2003906	AGC DSKY OUTLINE	REF
☒	2005901	INTERCONNECTION DIAGRAM	REF
☒	2005900	SIGNAL FLOW DIAGRAM	REF
			10
			9
1	2003905-011	FRONT COVER ASSY	8
1	1006316-001	INDICATOR, E/L (ALM, PROG-ACTIVE)	7
1	1006315-001	INDICATOR, E/L (REG, VERB-NOUN)	6
1	2004900-001	COVER, REAR	5
1	2003901-011	POWER SUPPLY ASSY	4
6	2003902-011	INDICATOR DRIVER MODULE	3
1	2003903-011	FRONT PANEL ASSY	2
1	2003904-011	IDM PLATE WIRE WRAP ASSY	1
011	LIST OF MATERIALS		

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN [illegible] DATE [illegible]
CHECKED [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]

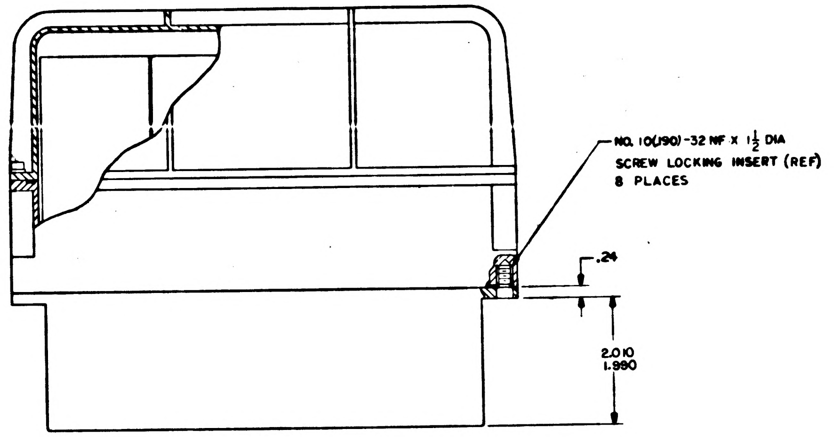
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

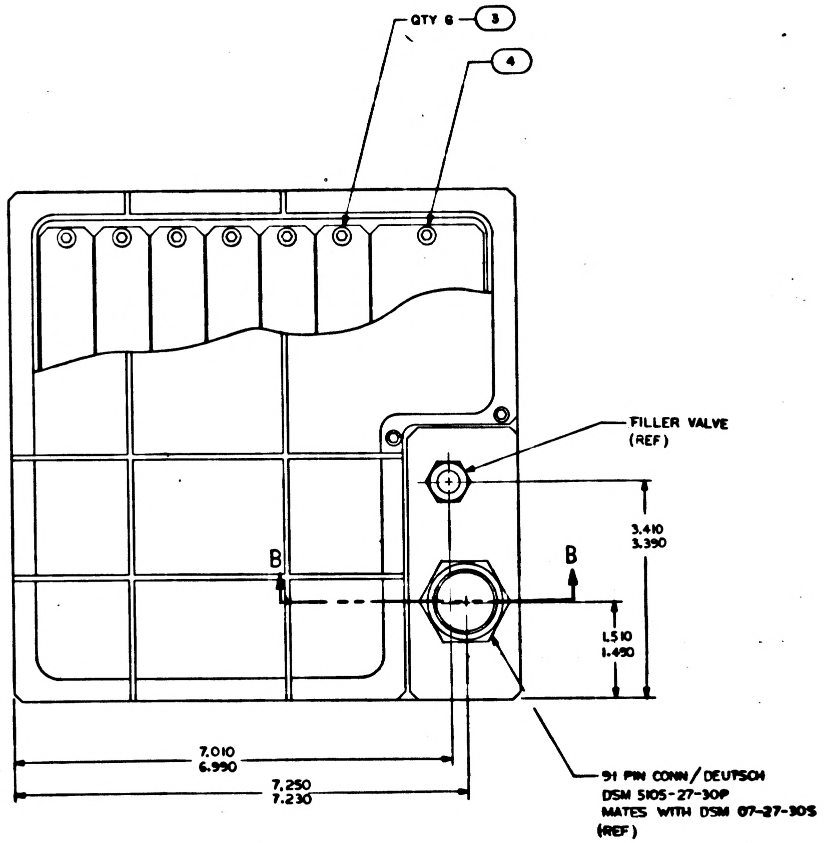
AGC DSKY ASSEMBLY

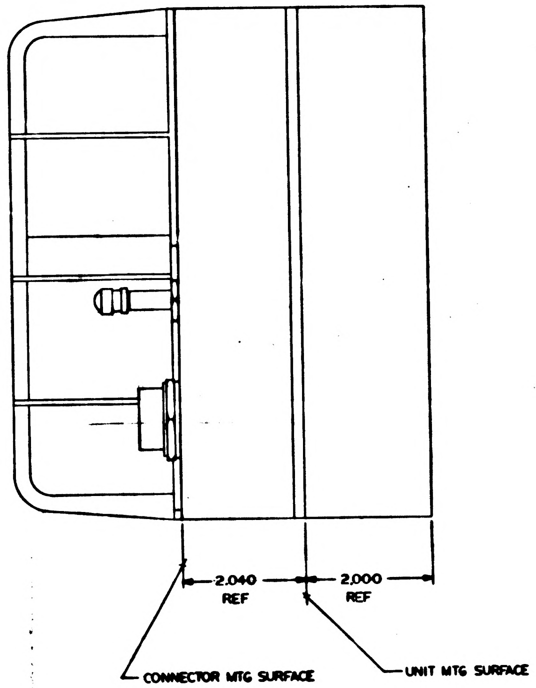
CODE IDENT NO.
SIZE J
NASA DRAWING NO 2003900
SCALE 1/1
WT
SHEET 1 OF 1

2003900

MASTER


NO. 10(.190)-32 NF X 1½ DIA
SCREW LOCKING INSERT (REF)
8 PLACES
.24
2.010
1.990


QTY 6
3
4
FILLER VALVE
(REF)
3.410
3.390
B
B
1.510
1.490
7.010
6.990
7.250
7.230
91 PIN CONN/DEUTSCH
DSM 5105-27-30P
MATES WITH DSM 07-27-30S
(REF)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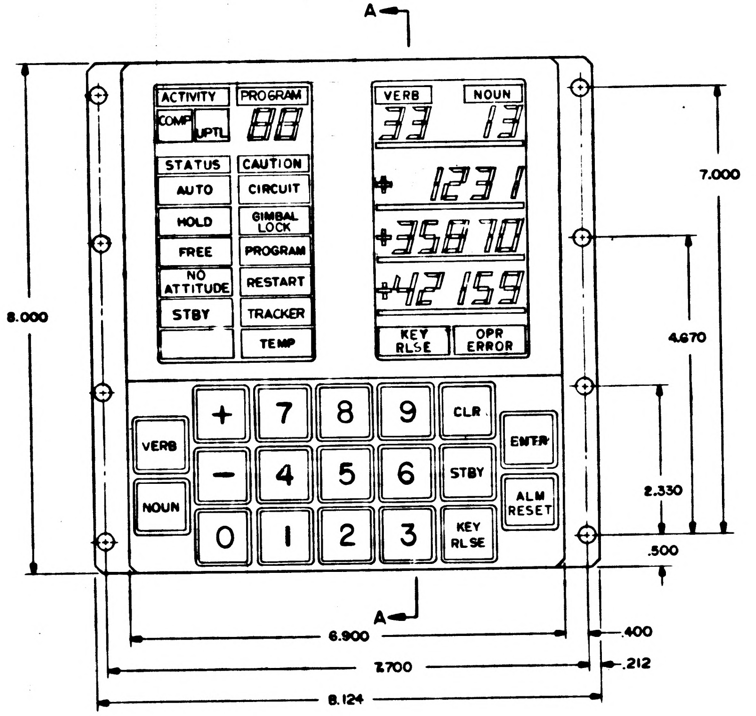
REF
2.000
REF
CONNECTOR MTG SURFACE
UNIT MTG SURFACE


A
ACTIVITY
COMP
UPTL
PROGRAM
88
VERB
NOUN
33
13
STATUS
CAUTION
AUTO
CIRCUIT
HOLD
GIMBAL LOCK
FREE
PROGRAM
NO ATTITUDE
RESTART
STBY
TRACKER
TEMP
+ 1231
+35870
+42159
KEY RLSE
OPR ERROR
+
7
8
9
CLR
VERB
ENTR
−
4
5
6
STBY
NOUN
ALM RESET
0
1
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KEY RLSE
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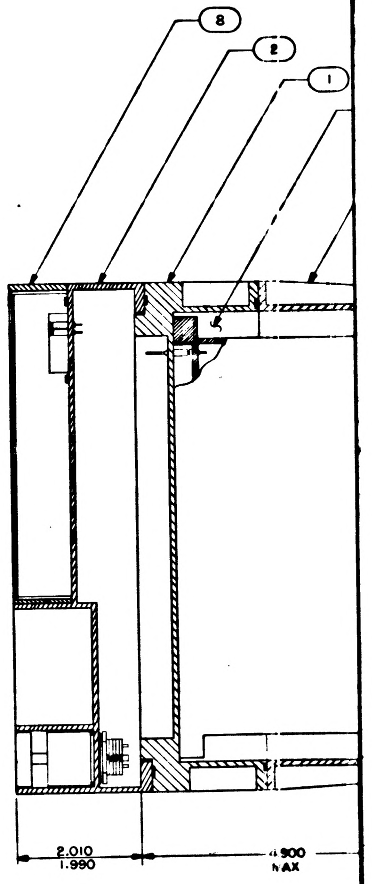
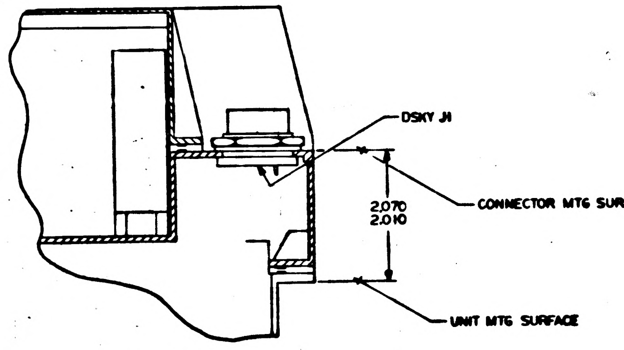
7.000
4.670
2.330
.500
A
6.900
.400
7.700
.212
8.124


8
2
1
2.010
1.990
4.900
MAX

SECTION A-A

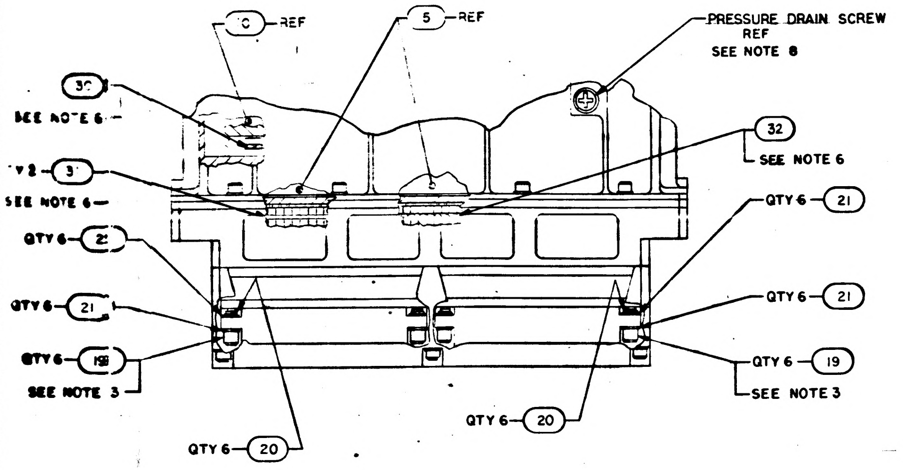
NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH
STANDARDS PRESCRIBED BY MIL-D-70327
2. 16 PSIA DRY NITROGEN FILL


DSKY J1
2.070
2.010
CONNECTOR MTG SURFACE
UNIT MTG SURFACE

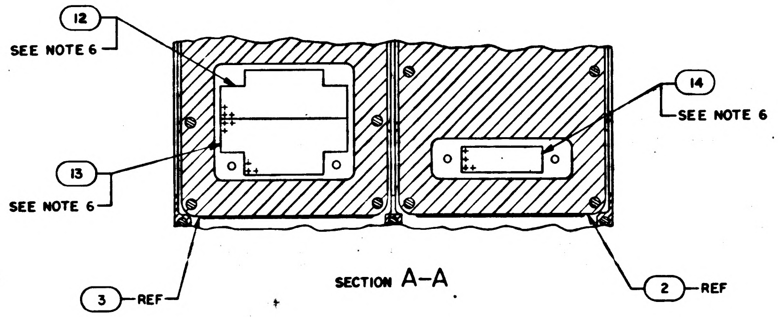
SECTION B-B

2003900 C

SYM	DESCRIPTION	DATE	APPROVAL
C	REPLACES REV B WITH CHANGES PER TDRR 17775	6/22/65	W.K.

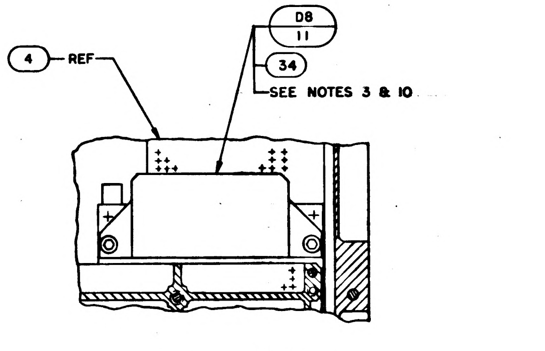


C — REF
5 — REF
PRESSURE DRAIN SCREW REF SEE NOTE 8
30
SEE NOTE 6
31
SEE NOTE 6
32
SEE NOTE 6
QTY 6 — 21
QTY 6 — 21
QTY 6 — 21
QTY 6 — 21
QTY 6 — 19
SEE NOTE 3
QTY 6 — 19
SEE NOTE 3
QTY 6 — 20
QTY 6 — 20



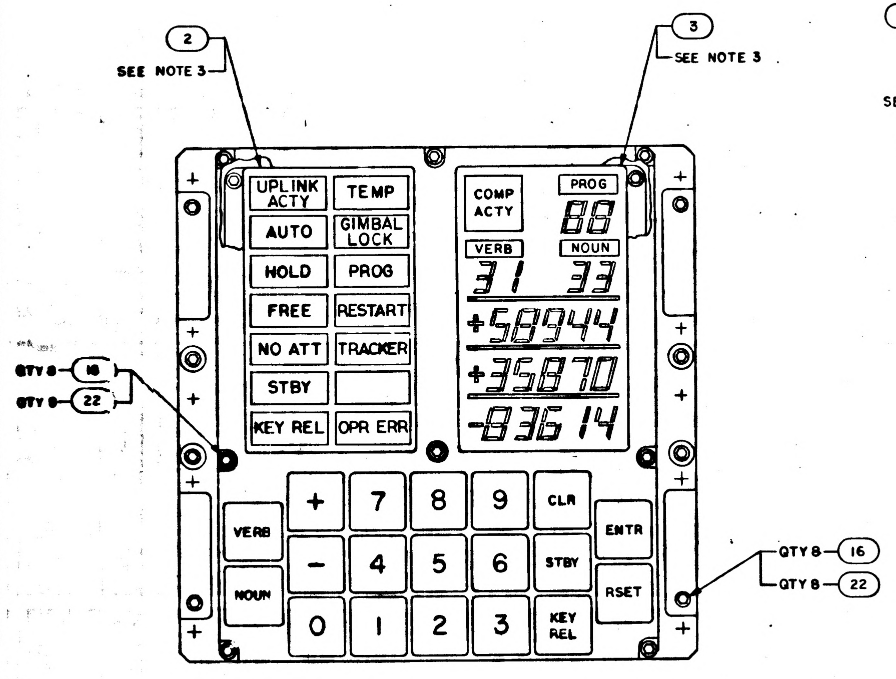
12
SEE NOTE 6
13
SEE NOTE 6
14
SEE NOTE 6
3 — REF
2 — REF

SECTION A–A

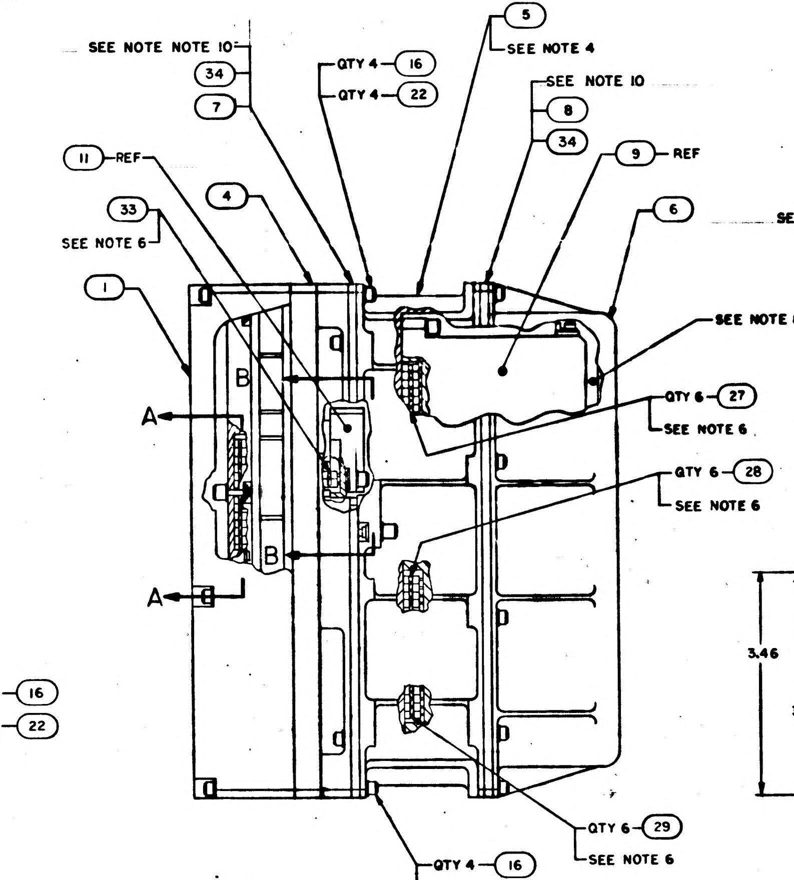


4 — REF
D8
11
34
SEE NOTES 3 & 10

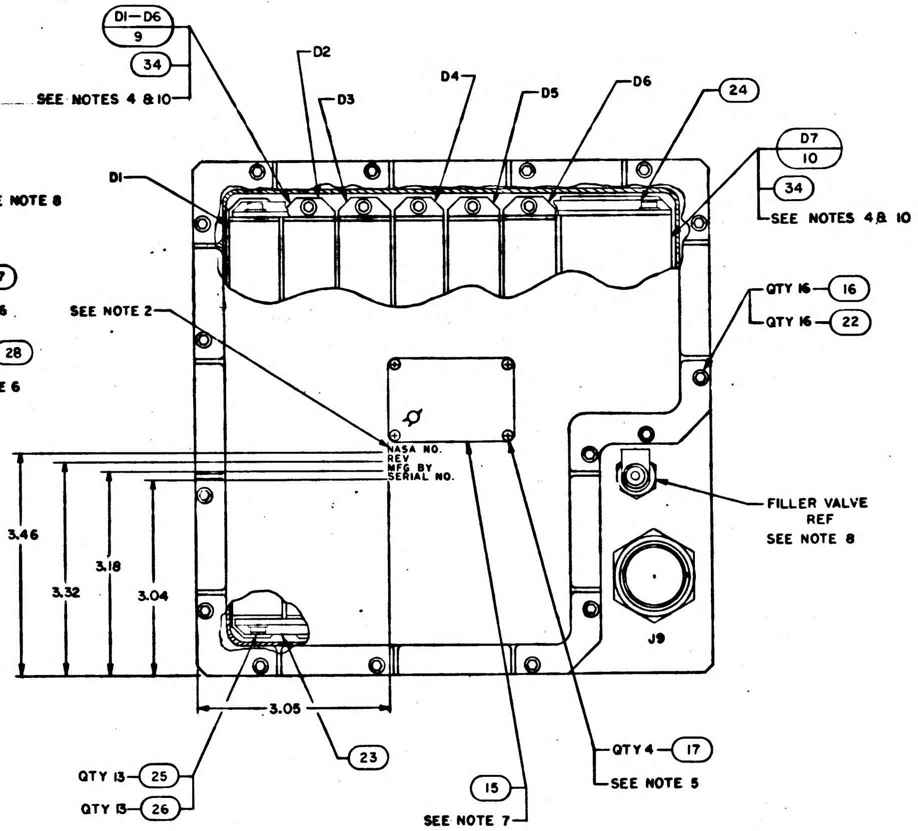
PARTIAL SECTION B–B



2
SEE NOTE 3
3
SEE NOTE 3
UPLINK ACTY
TEMP
AUTO
GIMBAL LOCK
HOLD
PROG
FREE
RESTART
NO ATT
TRACKER
STBY
KEY REL
OPR ERR
COMP ACTY
PROG
88
VERB
NOUN
31
33
+58944
+35870
-83614
+
7
8
9
CLR
VERB
ENTR
−
4
5
6
STBY
NOUN
RSET
0
1
2
3
KEY REL
QTY 8 — 16
QTY 8 — 22
QTY 8 — 16
QTY 8 — 22



SEE NOTE NOTE 10
34
7
QTY 4 — 16
QTY 4 — 22
5
SEE NOTE 4
SEE NOTE 10
8
34
9 — REF
11 — REF
33
SEE NOTE 6
4
6
1
SEE NOTE 8
QTY 6 — 27
SEE NOTE 6
QTY 6 — 28
SEE NOTE 6
A
B
B
A
QTY 6 — 29
SEE NOTE 6
QTY 4 — 16
QTY 4 — 22



D1—D6
9
34
SEE NOTES 4 & 10
D2
D3
D4
D5
D6
24
D7
10
34
SEE NOTES 4& 10
D1
QTY 16 — 16
QTY 16 — 22
SEE NOTE 2
NASA NO.
REV
MFG BY
SERIAL NO.
FILLER VALVE REF SEE NOTE 8
J9
3.46
3.32
3.18
3.04
3.05
QTY 13 — 25
QTY 13 — 26
23
15
SEE NOTE 7
QTY 4 — 17
SEE NOTE 5

Ⓒ REPLACES REV B WITH CHANGES

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2003906	OUTLINE DRAWING	REF
☒	2005901	INTERCONNECTION DIAGRAM	REF
☒	2005900	SIGNAL FLOW DIAGRAM	REF
AR	1006879	SILICONE COMPOUND	34
1	2004955-005	GASKET	33
1	2004955-008	GASKET	32
2	2004955-007	GASKET	31
1	2004955-006	GASKET	30
6	2004955-003	GASKET	29
6	2004955-002	GASKET	28
6	2004955-004	GASKET	27
13	1001489-4	SCREW, HEX SOCKET HEAD	26
13	NAS620C4	WASHER, FLAT	25
1	2004958	BRACKET, MODULE	24
1	2004959	BRACKET, MODULE	23
40	NAS620C6	WASHER, FLAT	22
24	1004546-4	WASHER, FLAT	21
12	MS16633-4014	RING, RETAINING	20
12	2004932-001	SCREW, JACKING	19
8	1001489-58	SCREW, HEX SOCKET HEAD	18
4	MS35216-1	SCREW, PAN HEAD, CROSS RECESSED	17
32	MS16995-18	SCREW, CAP, SOCKET HEAD	16
1	1004260-20	NAMEPLATES	15
1	2004955-001	GASKET	14
1	2004953-002	GASKET	13
1	2004953-001	GASKET	12
1	2003909-011	KEYBOARD MODULE ASSY D8	11
1	2003901-011	POWER SUPPLY ASSY MODULE D7	10
6	2003902-011	INDICATOR DRIVER MODULE D1-D6	9
1	1006349	GASKET, BONDED, RUBBER	8
1	1006350	GASKET, BONDED, RUBBER	7
1	2004900	COVER, REAR	6
1	2003904-011	MAIN HOUSING ASSY	5
1	2003903-011	FRONT HOUSING ASSY	4
1	1006315	INDICATOR, DIGITAL	3
1	1006316	INDICATOR, ALARM	2
1	2004929-011	COVER, FRONT	1
011	LIST OF MATERIALS		

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK .10/.018 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271-11
3. MOUNTING TORQUE FOR FIND NO. 19 AND JACK SCREWS OF FIND NO. 11 TO BE 7-10 INCH POUNDS
4. MOUNTING TORQUE FOR JACK SCREWS OF FIND NO. 5, 9 & 10 TO BE 15-19 INCH POUNDS
5. APPLY SEALING COMPOUND MIL-S-22473 GRADE H TO FIND NO.17
6. BOND FIND NO. 12, 13 TO FIND NO.3, FIND NO. 14 TO FIND NO.2, FIND NO. 27, 28, 29 TO FIND NO. 9, FIND NO. 30 TO FIND NO.10, FIND NO.31, 32 TO FIND NO.5, FIND NO.33 TO FIND NO.11 PER ND1002237
7. STAMP CHARACTERS PER ND1002019 AND SERIALIZE PER ND1002023
8. FILL WITH A MINIMUM OF 87% NITROGEN AND 8.7% HELIUM AND A MAXIMUM OF 4.3% AIR TO 1.05/1.10 ATMOSPHERES. DO NOT EXCEED 2 ATMOSPHERES DURING PRESSURIZATION
9. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF [illegible] S2003900
10. APPLY FIND NO. 34 TO MATING SURFACES OF FIND NO. 7, 8, 9, 10 & 11. DO NOT APPLY TO BONDED RUBBER OF FIND NO. 7 AND 8

[illegible] IDENTITIES AS REQUIRED

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN R. Belanger DATE 10 MAY 65
CHECKED C. DeVirgilio 13 MAY 65
APPROVAL
APPROVAL Eldon C Hall 22 June 65
NASA APPROVAL
MIT APPROVAL W Kupfer 22 June 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC DSKY ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO 2003900
SCALE 1/1
WT
SHEET 1 OF 1

MASTER

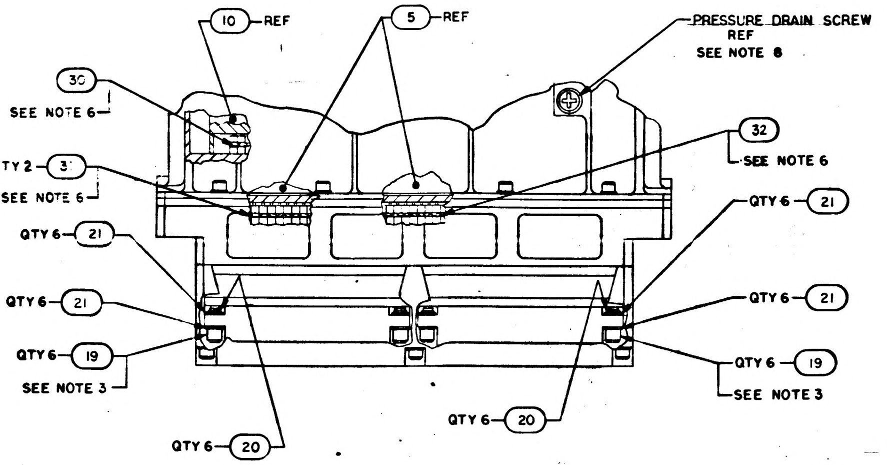
2003900 C

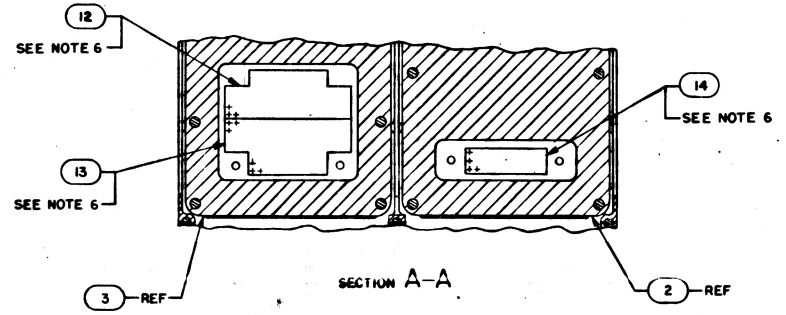
2H

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY, NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

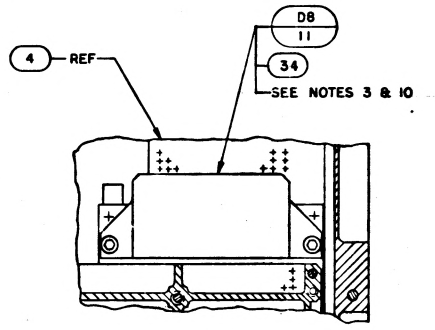
2003900 C

SYM	DESCRIPTION	DATE
C	REPLACES REV B WITH CHANGES PER TDRR 17775	

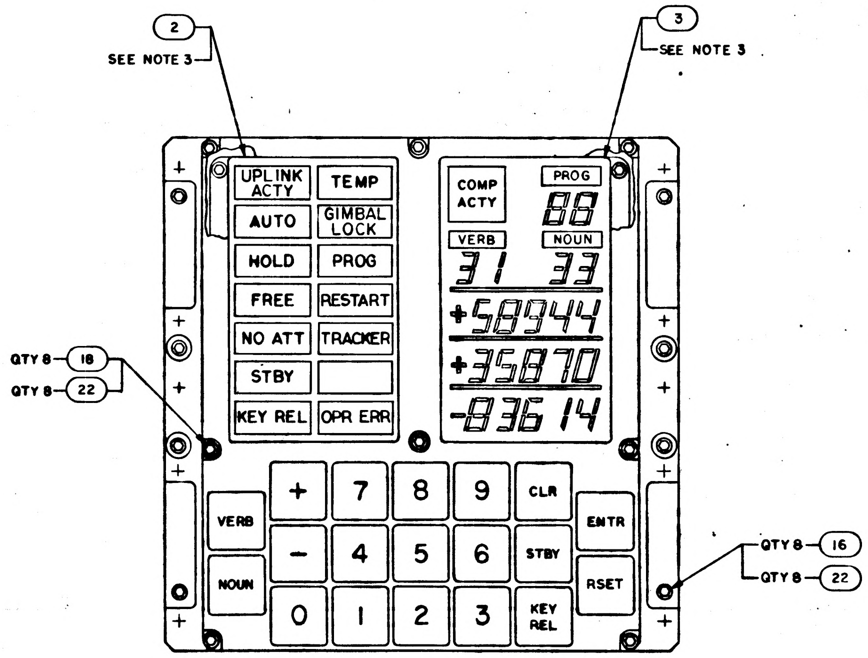

10 - REF
5 - REF
PRESSURE DRAIN SCREW REF SEE NOTE 8
30 SEE NOTE 6
QTY 2 - 31 SEE NOTE 6
32 SEE NOTE 6
QTY 6 - 21
QTY 6 - 21
QTY 6 - 21
QTY 6 - 21
QTY 6 - 19 SEE NOTE 3
QTY 6 - 19 SEE NOTE 3
QTY 6 - 20
QTY 6 - 20

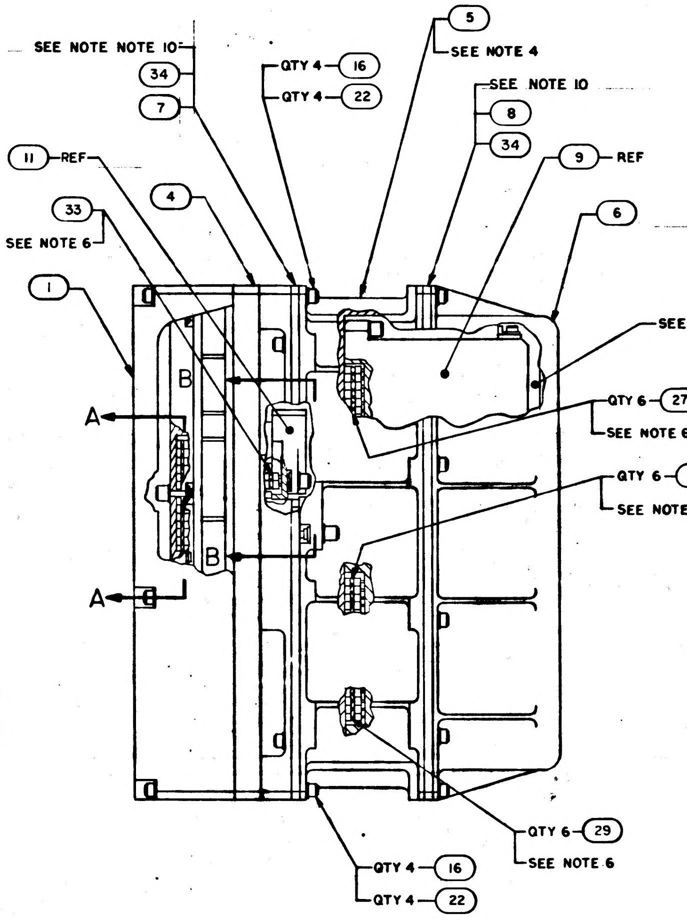

12 SEE NOTE 6
13 SEE NOTE 6
14 SEE NOTE 6
3 - REF
2 - REF

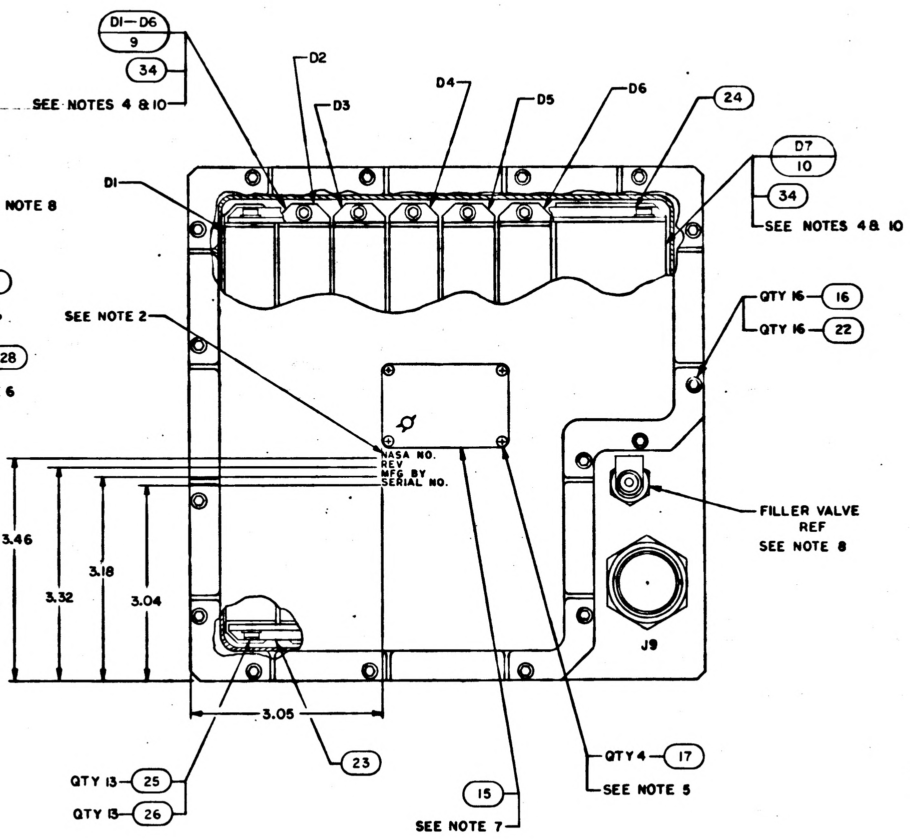
SECTION A-A


4 - REF
D8
11
34
SEE NOTES 3 & 10

PARTIAL SECTION B-B


2 SEE NOTE 3
3 SEE NOTE 3
QTY 8 - 18
QTY 8 - 22
QTY 8 - 16
QTY 8 - 22
UPLINK ACTY
TEMP
AUTO
GIMBAL LOCK
HOLD
PROG
FREE
RESTART
NO ATT
TRACKER
STBY
KEY REL
OPR ERR
COMP ACTY
PROG
88
VERB
NOUN
31 33
+58944
+35870
-83614
VERB
NOUN
+
7
8
9
CLR
ENTR
–
4
5
6
STBY
0
1
2
3
KEY REL
RSET


SEE NOTE NOTE 10
34
7
QTY 4 - 16
QTY 4 - 22
5 SEE NOTE 4
SEE NOTE 10
8
34
9 - REF
11 - REF
33 SEE NOTE 6
4
6
1
SEE NOTE 8
B
A
QTY 6 - 27 SEE NOTE 6
QTY 6 - 28 SEE NOTE 6
B
A
QTY 6 - 29 SEE NOTE 6
QTY 4 - 16
QTY 4 - 22


D1-D6
9
34
SEE NOTES 4 & 10
D2
D3
D4
D5
D6
24
D1
D7
10
34
SEE NOTES 4 & 10
QTY 16 - 16
QTY 16 - 22
SEE NOTE 2
NASA NO.
REV
MFG BY
SERIAL NO.
FILLER VALVE REF SEE NOTE 8
3.46
3.32
3.18
3.04
J9
3.05
23
QTY 13 - 25
QTY 13 - 26
15 SEE NOTE 7
QTY 4 - 17 SEE NOTE 5

Ⓒ REPLACES REV B WITH CHANGES

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK .10/.08 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271-11
3. MOUNTING TORQUE FOR FIND NO. 19 AND JACK SCREWS OF FIND NO. 11 TO BE 7-10 INCH POUNDS
4. MOUNTING TORQUE FOR JACK SCREWS OF FIND NO. 5, 9 & 10 TO BE 15-19 INCH POUNDS
5. APPLY SEALING COMPOUND MIL-S-22473 GRADE H TO FIND NO. 17
6. BOND FIND NO. 12, 13 TO FIND NO. 3, FIND NO. 14 TO FIND NO. 2, FIND NO. 27, 28, 29 TO FIND NO. 9, FIND NO. 30 TO FIND NO. 10, FIND NO. 31, 32 TO FIND NO. 5, FIND NO. 33 TO FIND NO. 11 PER ND1002237
7. STAMP CHARACTERS PER ND1002019 AND SERIALIZE PER ND1002023
8. FILL WITH A MINIMUM OF 87% NITROGEN AND 8.7% HELIUM AND A MAXIMUM OF 4.3% AIR TO 1.05/1.10 ATMOSPHERES. DO NOT EXCEED 2 ATMOSPHERES DURING PRESSURIZATION
9. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003900
10. APPLY FIND NO. 34 TO MATING SURFACES OF FIND NO. 7, 8, 9, 10 & 11. DO NOT APPLY TO BONDED RUBBER OF FIND NO. 7 AND 8
11. AR DENOTES AS REQUIRED

2H

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
☒	2003906	OUTLINE DRAWING
☒	2005901	INTERCONNECTION DIAGRAM
☒	2005900	SIGNAL FLOW DIAGRAM
AR	1006879	SILICONE COMPOUND
1	2004955-005	GASKET
1	2004955-008	GASKET
2	2004955-007	GASKET
1	2004955-006	GASKET
6	2004955-003	GASKET
6	2004955-002	GASKET
6	2004955-004	GASKET
13	1001489-4	SCREW, HEX SOCKET HEAD
13	NAS620C4	WASHER, FLAT
1	2004958	BRACKET, MODULE
1	2004959	BRACKET, MODULE
40	NAS620C6	WASHER, FLAT
24	1004546-4	WASHER, FLAT
12	MS16633-4014	RING, RETAINING
12	2004932-001	SCREW, JACKING
8	1001489-58	SCREW, HEX SOCKET HEAD
4	MS35216-1	SCREW, PAN HEAD CROSS
32	MS16995-18	SCREW, CAP, SOCKET HEAD
1	1004260-20	NAMEPLATE
1	2004955-001	GASKET
1	2004953-002	GASKET
1	2004953-001	GASKET
1	2003909-011	KEYBOARD MODULE ASSY LO
1	2003901-011	POWER SUPPLY ASSY MODULE
6	2003902-011	INDICATOR DRIVER MODULE
1	1006349	GASKET, BONDED, RUBBER
1	1006350	GASKET, BONDED, RUBBER
1	2004900	COVER, REAR
1	2003904-011	MAIN HOUSING ASSY
1	2003903-011	FRONT HOUSING ASSY
1	1006315	INDICATOR, DIGITAL
1	1006316	INDICATOR, ALARM
1	2004929-0[illegible]	COVER, FRONT
011	LIST OF MATERIALS	

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN DATE 10/ 65
CHECKED 15 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL 22 Jun 65

MANNED SPACECRAFT CEN
HOUSTON, TEX

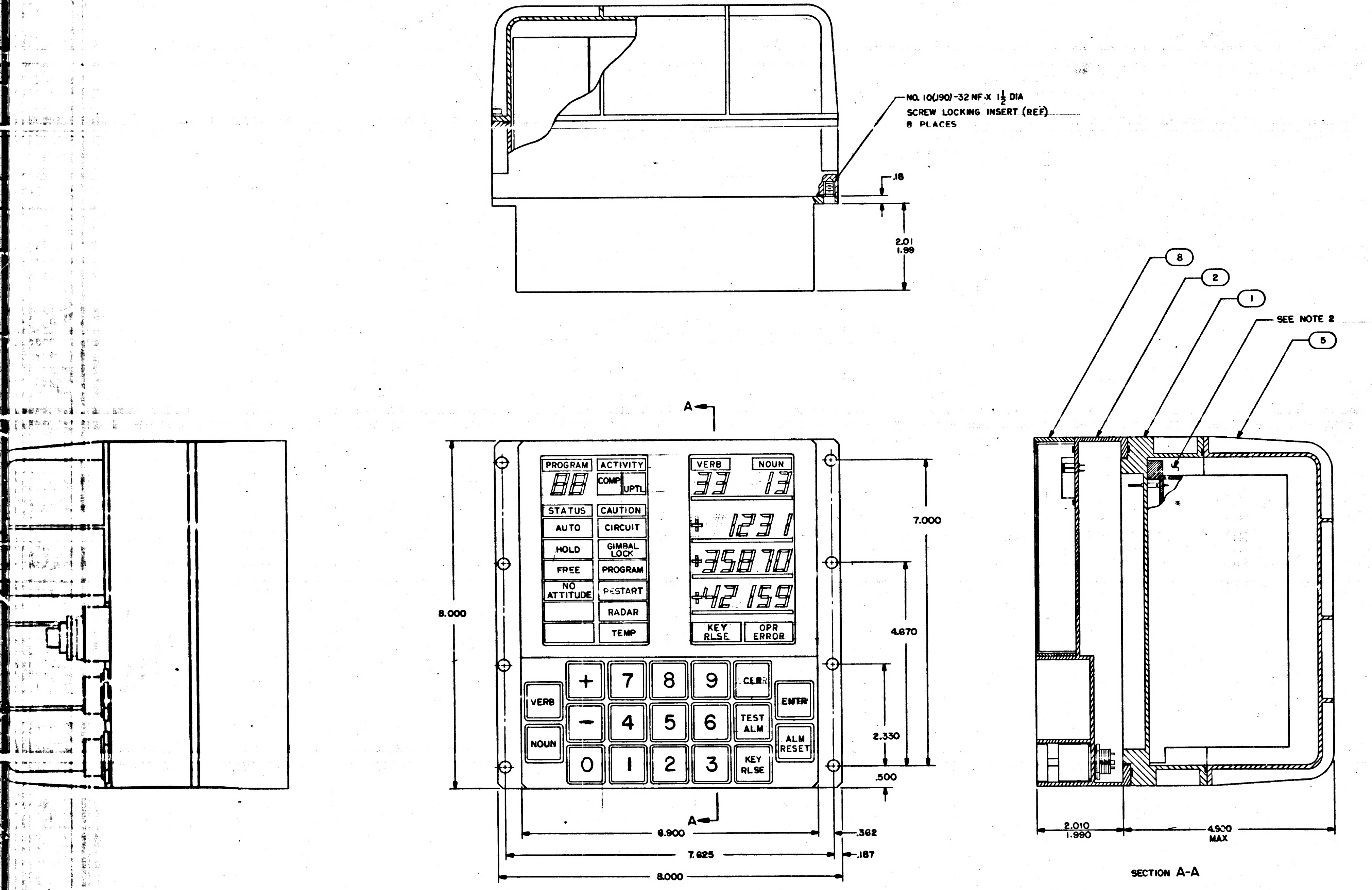
AGC DSKY ASSEM

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 20039
SCALE 1/1
WT

MASTER

2003900 C

SYM	DESCRIPTION	DATE	APPROVAL
	REVISIONS 14467		



NO. 10(.190)-32 NF-X 1½ DIA
SCREW LOCKING INSERT (REF)
8 PLACES
.18
2.01
1.99
8
2
1
SEE NOTE 2
5
A
PROGRAM
ACTIVITY
COMP
UPTL
88
STATUS
CAUTION
AUTO
CIRCUIT
HOLD
GIMBAL LOCK
FREE
PROGRAM
NO ATTITUDE
RESTART
RADAR
TEMP
VERB
NOUN
33
13
+12311
+35870
+42159
KEY RLSE
OPR ERROR
+
7
8
9
CLR
VERB
ENTER
−
4
5
6
TEST ALM
NOUN
ALM RESET
0
1
2
3
KEY RLSE
8.000
7.000
4.670
2.330
.500
6.900
7.625
8.000
.382
.187
2.010
1.990
4.900
MAX

SECTION A-A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2003906	AGC DSKY OUTLINE	REF
☒	2005901	INTERCONNECTION DIAGRAM	REF
☒	2005900	SIGNAL FLOW DIAGRAM	REF
			10
			9
1	2003905-011	FRONT COVER ASSY	8
1	1006316-001	INDICATOR, E/L (ALM, PROG-ACTIVE)	7
1	1006315-001	INDICATOR, E/L (REG, VERB-NOUN)	6
1	2004900-001	COVER, REAR	5
1	2003901-011	POWER SUPPLY ASSY	4
6	2003902-011	INDICATOR DRIVER MODULE	3
1	2003903-011	FRONT PANEL ASSY	2
1	2003904-011	IDM PLATE WIRE WRAP ASSY	1

011 LIST OF MATERIALS

MASTER

NEXT ASSY	USED ON
APPLICATION	

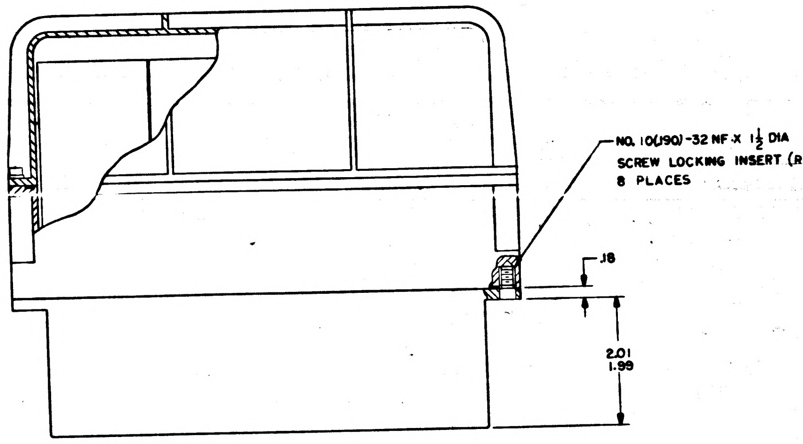
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

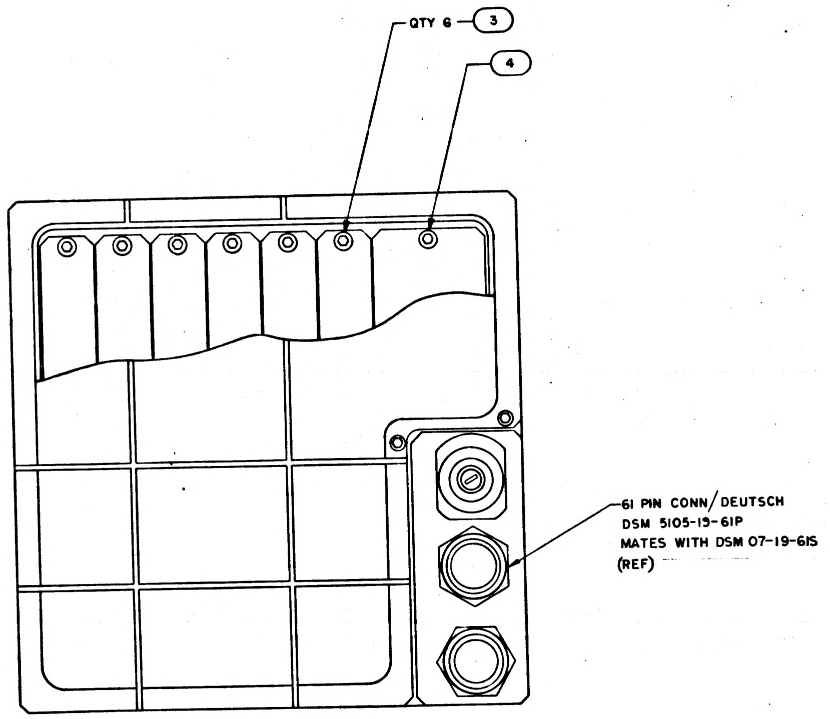
MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN R. [illegible] DATE 12 Mar 6[illegible]
CHECKED [illegible]
APPROVAL [illegible] Nov 13/64
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible] 24 Mar 6[illegible]

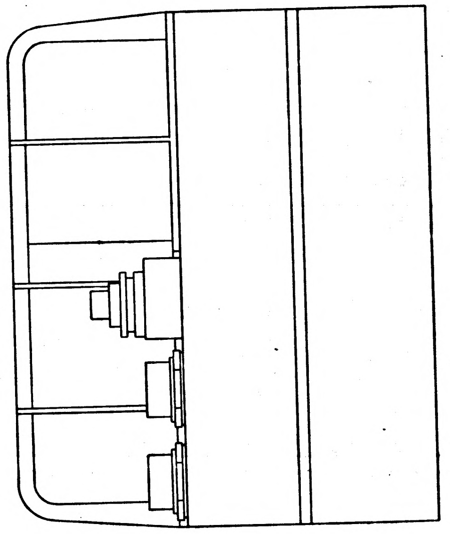
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

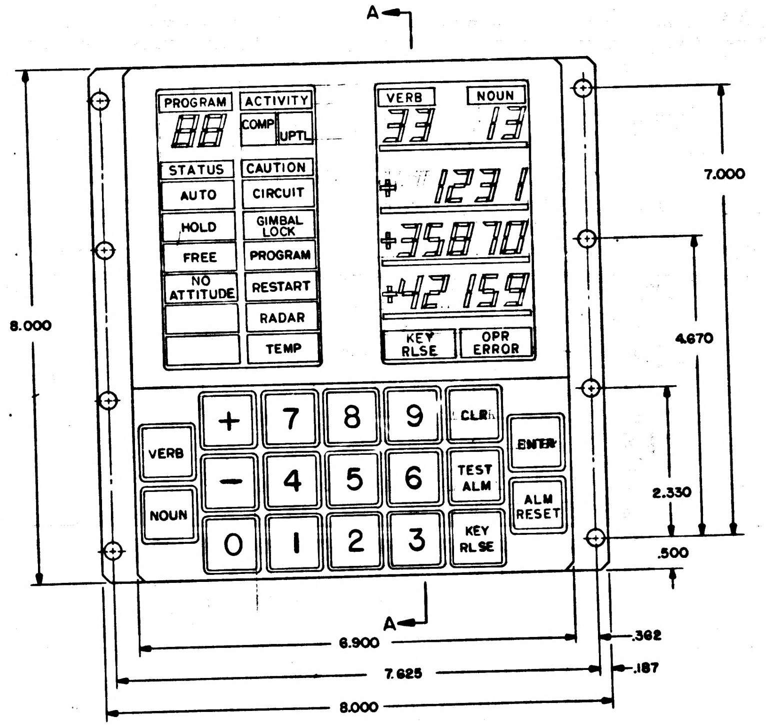
AGC DSKY ASSEMBLY

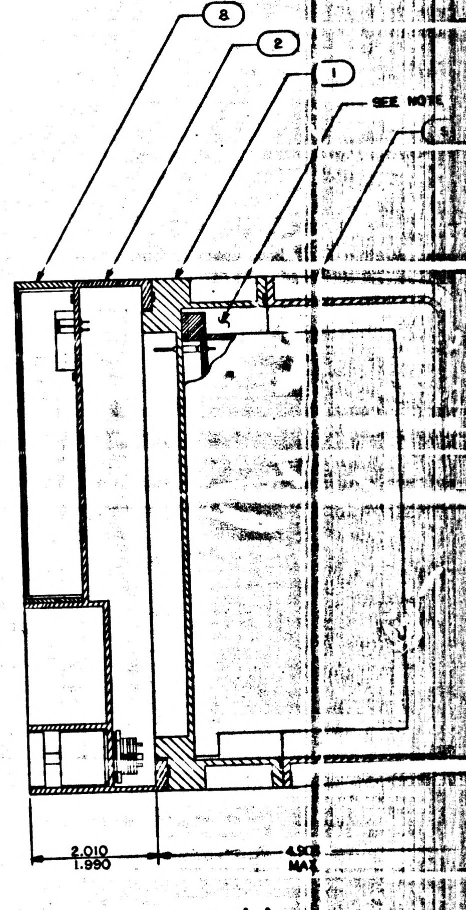
CODE IDENT NO. | SIZE J | NASA DRAWING NO. 2003900
SCALE 1/1 | WT | SHEET 1 OF 1


NO. 10(.190)-32 NF X 1½ DIA
SCREW LOCKING INSERT (REF)
8 PLACES
.18
2.01
1.99


QTY 6
3
4
61 PIN CONN/DEUTSCH
DSM 5105-19-61P
MATES WITH DSM 07-19-61S
(REF)




A
PROGRAM
ACTIVITY
88
COMP
UPTL
STATUS
CAUTION
AUTO
CIRCUIT
HOLD
GIMBAL LOCK
FREE
PROGRAM
NO ATTITUDE
RESTART
RADAR
TEMP
VERB
NOUN
33
13
+ 1231
+35870
+42159
KEY RLSE
OPR ERROR
+
7
8
9
CLR
ENTER
VERB
−
4
5
6
TEST ALM
ALM RESET
NOUN
0
1
2
3
KEY RLSE
8.000
7.000
4.670
2.330
.500
6.900
.362
7.625
.187
8.000


8
2
1
SEE NOTE
2.010
1.990
MAX

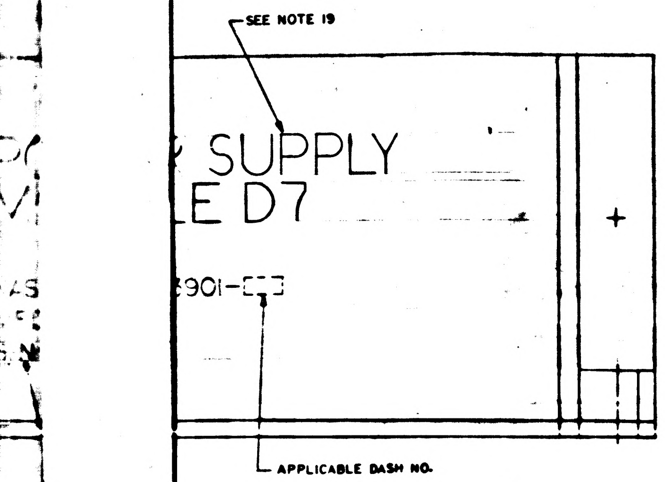
SECTION A-A

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. 16 PSIA DRY NITROGEN FILL

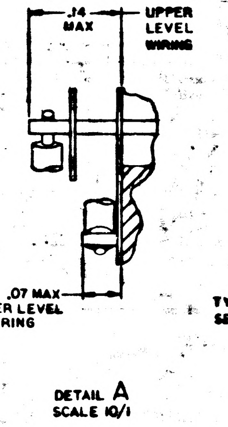
A	2003901

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22161 DR CHK APPD		

REVISIONS 20356

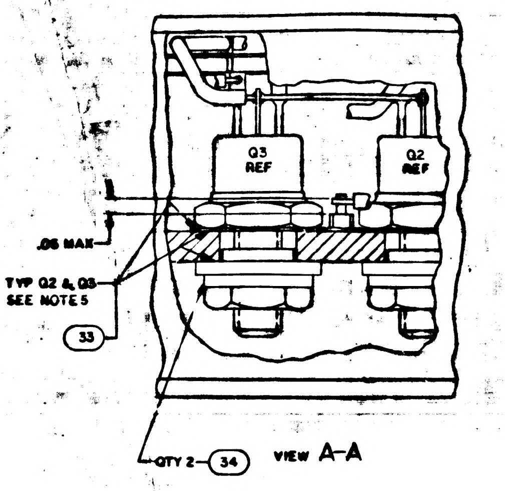


SEE NOTE 19
SUPPLY
LE D7
3901-[ ]
APPLICABLE DASH NO.



.14 MAX
UPPER LEVEL WIRING
.06 MAX
.07 MAX LOWER LEVEL WIRING

DETAIL A
SCALE 10/1

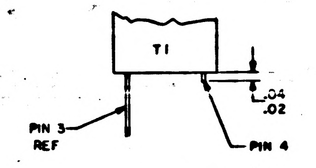


Q3 REF
Q2 REF
TYP Q2 & Q3 SEE NOTE 5
33
QTY 2 – 34

VIEW A–A

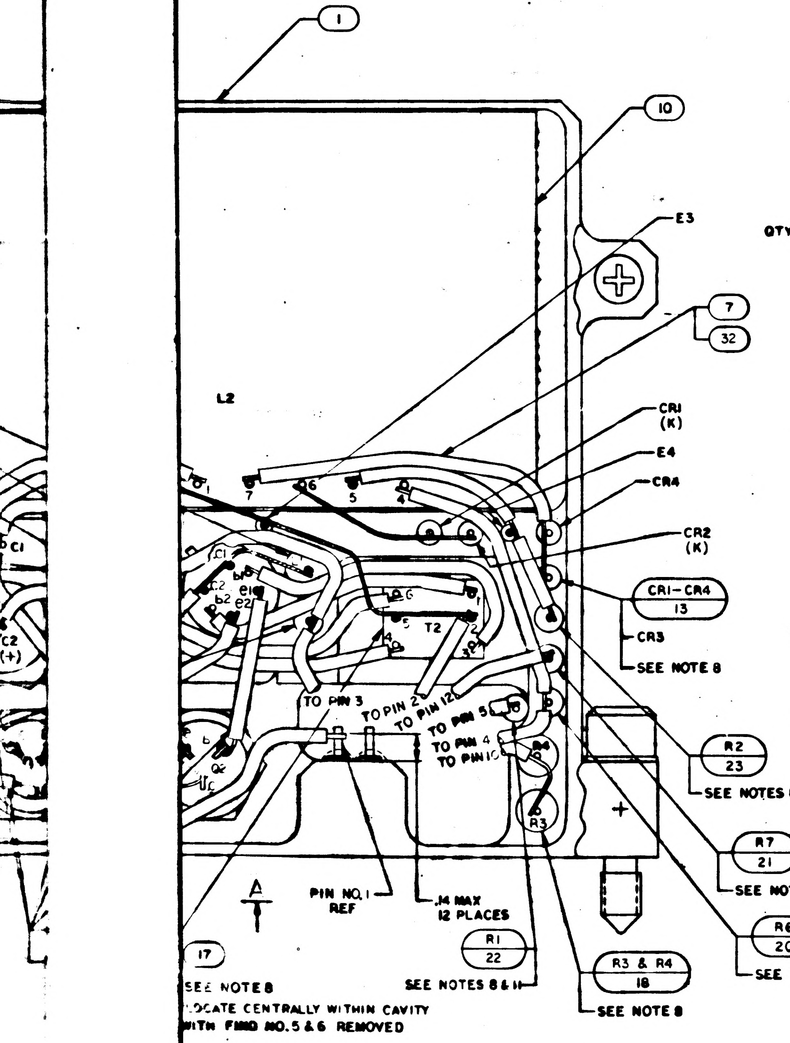
CHART A	
PART NO.	VALUE
1006750-41	2400
-42	2700
-43	3000
-44	3300
-45	3600
-46	3900
-47	4300
-48	4700
-126	2850
-127	3150
-128	3450
1006750-129	3750

CHART B	
PART NO.	VALUE
1006750-19	300
-22	390
-25	510
-27	620
-28	680
-29	750
-30	820
-31	910
-32	1000
-34	1200
1006750-36	1500

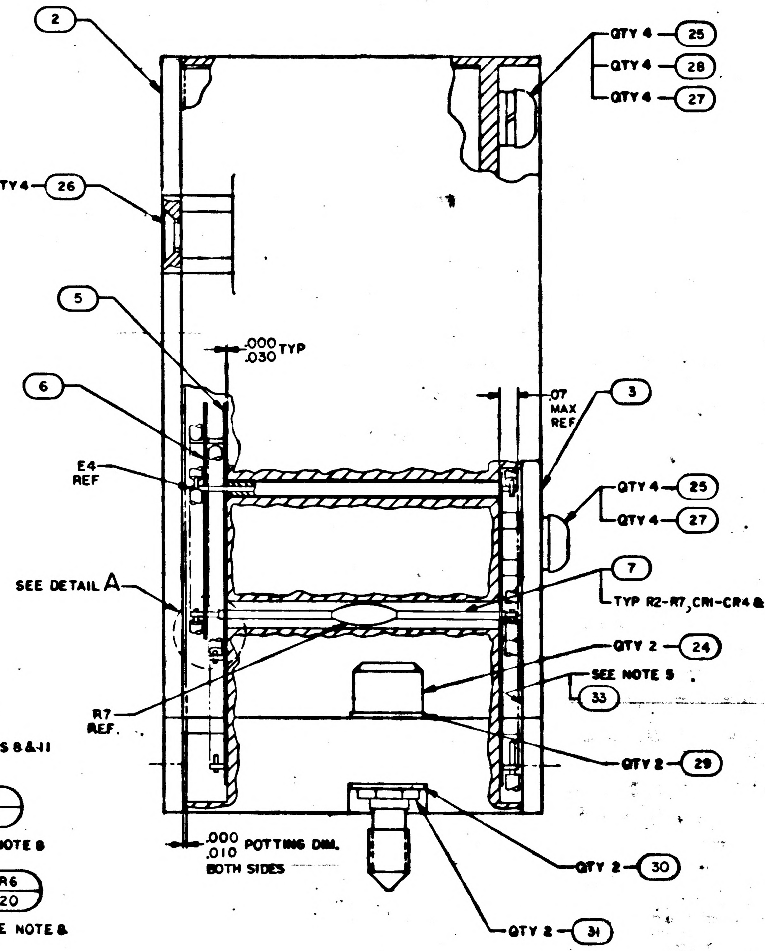


T1
PIN 3 REF
PIN 4
.04
.02

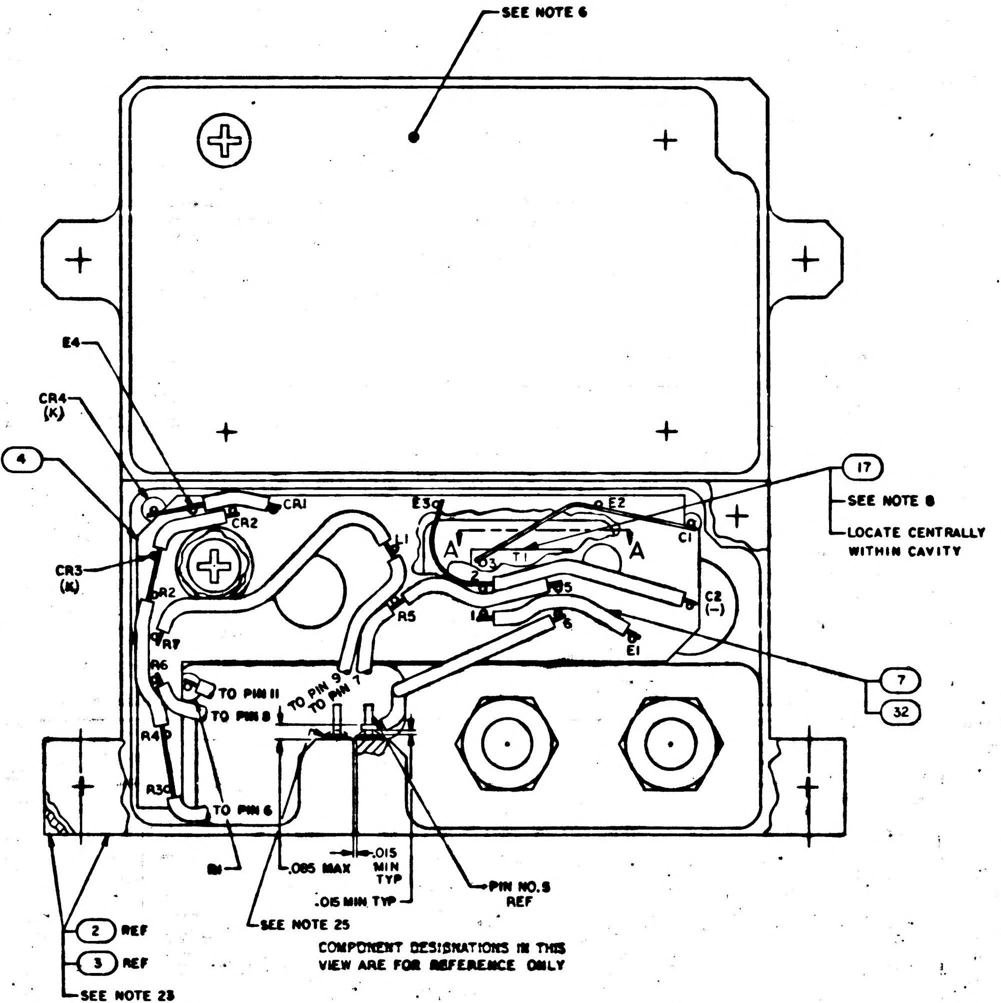
PARTIAL SECTION A–A



1
10
E3
7
32
L2
CR1 (K)
E4
CR4
CR2 (K)
CR1–CR4 13
CR3
SEE NOTE 8
T2
TO PIN 3
TO PIN 12
TO PIN 5
TO PIN 4
TO PIN 10
R2 23
SEE NOTES 8 & 11
R7 21
SEE NOTE 8
R6 20
SEE NOTE 8
R3 & R4 18
SEE NOTE 8
R1 22
SEE NOTES 8 & 11
PIN NO. 1 REF
.14 MAX 12 PLACES
A
C1
C2 (+)
17



2
QTY 4 – 25
QTY 4 – 28
QTY 4 – 27
QTY 4 – 26
5
6
.000 .030 TYP
E4 REF
.07 MAX REF
3
QTY 4 – 25
QTY 4 – 27
SEE DETAIL A
7
TYP R2-R7, CR1-CR4 & L1
QTY 2 – 24
SEE NOTE 5
33
R7 REF.
QTY 2 – 29
.000 .010 POTTING DIM. BOTH SIDES
QTY 2 – 30
QTY 2 – 31



SEE NOTE 6
E4
CR4 (K)
4
CR1
CR2
CR3 (K)
E3
E2
A
T1
A
C1
17
SEE NOTE 8
LOCATE CENTRALLY WITHIN CAVITY
R2
R7
R6
R5
R4
R3
R1
L1
C2 (–)
E1
TO PIN 11
TO PIN 8
TO PIN 9
TO PIN 7
TO PIN 6
7
32
2 REF
3 REF
SEE NOTE 23 TYP ALL AROUND
.085 MAX
.015 MIN TYP
.015 MIN TYP
PIN NO. 8 REF
SEE NOTE 25

COMPONENT DESIGNATIONS IN THIS VIEW ARE FOR REFERENCE ONLY

17
SEE NOTE 8
LOCATE CENTRALLY WITHIN CAVITY
WITH FIND NO. 5 & 6 REMOVED

D BY MIL-B-70327

METHOD C OR D
ASSEMBLED

T ELECTRICAL
O SELECTED

NS
E WITH ND1002080
UNIT NUMBER

, TYPE II, CLASS 2

, TYPE II, CLASS 2

20. + DENOTES POSITIVE SIDE OF CAPACITOR
21. – DENOTES NEGATIVE SIDE OF CAPACITOR
22. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND MEET ALL THE REQUIREMENTS OF P.S. 2003901
23. FIND NO.2 AND 3 SHALL NOT OVERHANG EDGES OF FIND NO.1
~~24. UNLESS OTHERWISE SPECIFIED ALL WIRING TO BE FIND NO.9~~
25. SEAL INSULATORS OF FIND NO.1 PER ND1002004 TYPE VI

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
2	MS15795 808	WASHER, FLAT	34
☒	2005904	SCHEMATIC	REF
AR	1006879	SILICONE COMPOUND	33
AR	1006757-13	WIRE, ELECTRICAL .020 DIA	32
2	MS16633-4015	RING, RETAINING, EXTERNAL	31
2	1004546-3	WASHER, FLAT	30
2	1004546-1	WASHER, FLAT	29
4	MS35338-78	WASHER, LOCK, SPLIT	28
8	NAS620C4	WASHER, FLAT	27
4	MS24693-PC2	SCREW, FLAT HD, CROSS RECESSED	26
8	MS35216-12	SCREW, PAN HD, CROSS RECESSED	25
2	1004579-1	SCREW, JACKING	24
1	SEE NOTE 11	RESISTOR, FIXED FILM	23
1	SEE NOTE 11	RESISTOR, FIXED FILM	22
1	1006750-56	RESISTOR, FIXED	21
1	1006750-72	RESISTOR, FIXED	20
1	1006750-32	RESISTOR, FIXED	19
2	1006760-64	RESISTOR, FIXED	18
2	1010291-4	TRANSFORMER, AUDIO	17
1	1010406-7	COIL, RF, CHOKE	16
1	1006755-134	CAPACITOR, FIXED	15
1	1006793-19	CAPACITOR, FIXED	14
4	2004103-001	SEMICONDUCTOR DEVICE, DIODE	13
2	1010376-1	TRANSISTOR, SILICON, TYPE NPN	12
2	1006363-002	TRANSISTOR, SILICON, TYPE NPN	11
1	1006325	REACTOR, SATURABLE	10
~~AR~~	~~1006757-1~~	~~WIRE, ELECTRICAL .010 X .020~~	~~9~~
~~AR~~	~~1006757-3~~	~~WIRE, ELECTRICAL .020 DIA~~	~~8~~
AR	1006776-22	SLEEVING, INSULATION	7
1	2004902	INSULATOR, UPPER LEVEL	6
1	2004901-011	INSULATOR, LOWER LEVEL	5
1	2004934-011	INSULATOR, REAR	4
1	2004906	COVER, BOTTOM	3
1	2004905	COVER, TOP	2
1	2003921-011	HEADER ASSEMBLY	1
011	LIST OF MATERIALS		

2003901 A

2003900	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

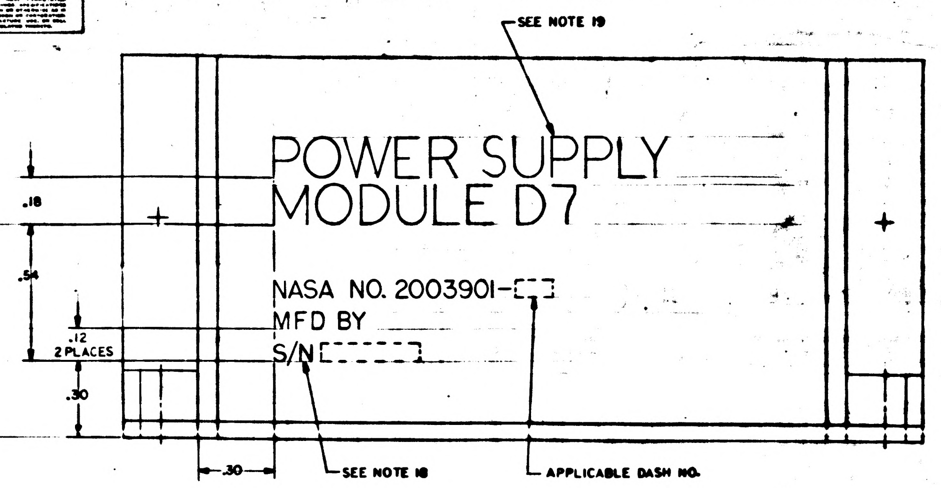
DRAWN DATE
CHECKED R. Edward 11 Jun 65
APPROVAL
APPROVAL
NASA APPROVAL 7-13-65
MIT APPROVAL 7-13-65

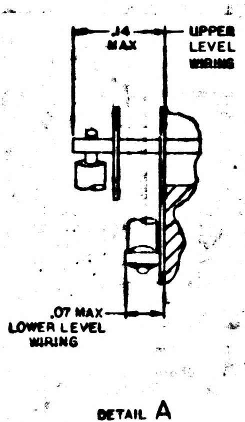
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

POWER SUPPLY ASSEMBLY
MODULE D7
AGC DSKY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003901
SCALE 4/1
WT
SHEET 1 OF 1

2003901 A


SEE NOTE 19
POWER SUPPLY
MODULE D7
NASA NO. 2003901-
MFD BY
S/N
.18
.54
.12
2 PLACES
.30
.30
SEE NOTE 18
APPLICABLE DASH NO.


.14 MAX
UPPER LEVEL WIRING
.07 MAX
LOWER LEVEL WIRING
DETAIL A
SCALE 10/1

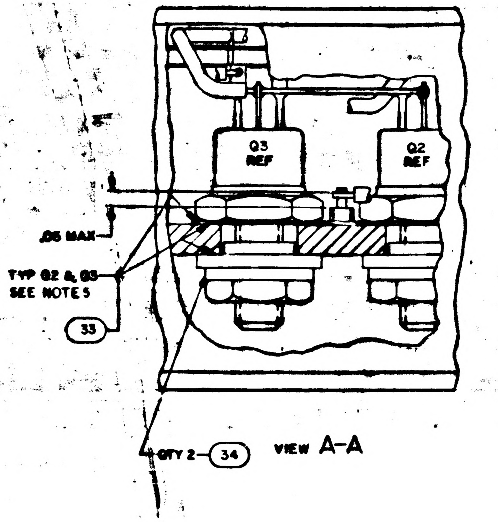
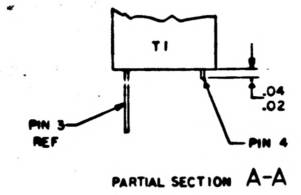
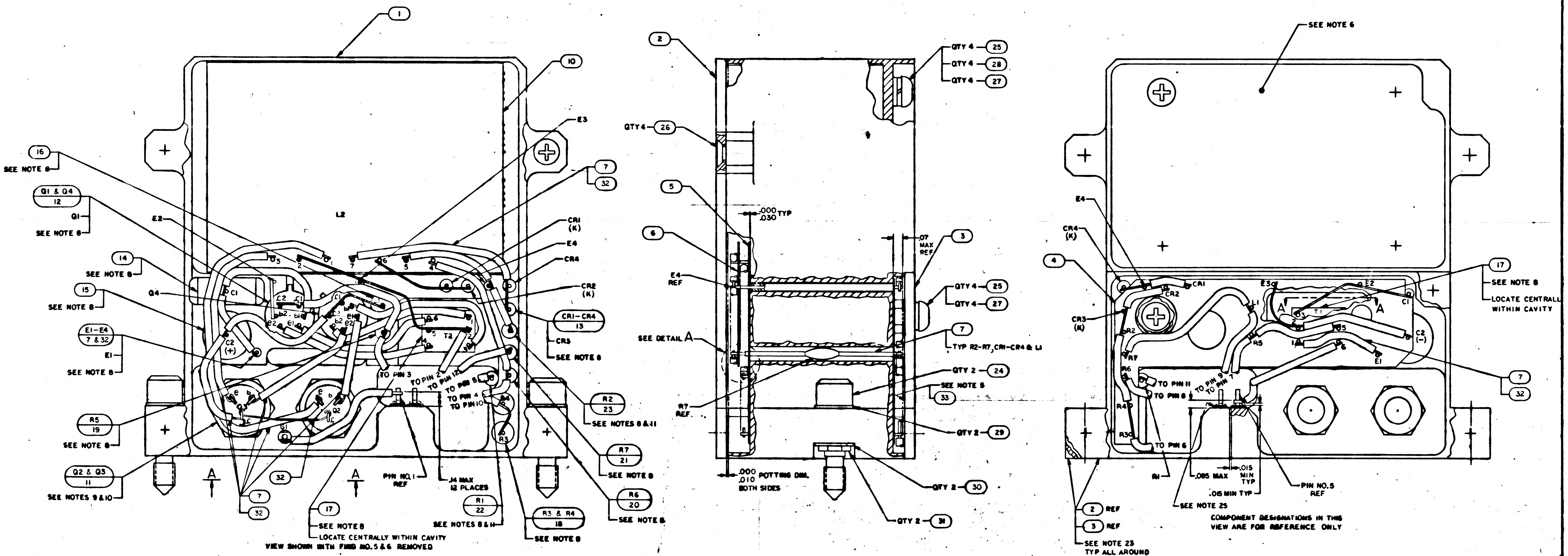

Q3 REF
Q2 REF
.05 MAX
TYP Q2 & Q3
SEE NOTE 5
33
QTY 2 34
VIEW A-A

CHART A	
PART NO.	VALUE
1006750-41	2400
-42	2700
-43	3000
-44	3300
-45	3600
-46	3900
-47	4300
-48	4700
-126	2850
-127	3150
-128	3450
1006750-129	3750

CHART B	
PART NO.	VALUE
1006750-19	300
-22	390
-25	510
-27	620
-28	680
-29	750
-30	820
-31	910
-32	1000
-34	1200
1006750-36	1500


T1
PIN 3 REF
PIN 4
.04
.02
PARTIAL SECTION A-A


1
10
E3
16
SEE NOTE 8
Q1 & Q4
12
Q1
SEE NOTE 8
E2
L2
7
32
CR1 (K)
E4
CR4
CR2 (K)
14
SEE NOTE 8
Q4
15
SEE NOTE 8
CR1-CR4
13
CR3
SEE NOTE 8
E1-E4
7 & 32
E1
SEE NOTE 8
C2 (+)
T2
TO PIN 3
TO PIN 2
TO PIN 12
TO PIN 5
TO PIN 4
TO PIN 10
R2
23
SEE NOTES 8 & 11
R5
19
SEE NOTE 8
R7
21
SEE NOTE 8
Q2 & Q3
11
SEE NOTES 9 & 10
A
A
32
7
32
PIN NO. 1 REF
.14 MAX
12 PLACES
R6
20
SEE NOTE 8
R1
22
SEE NOTES 8 & 11
R3 & R4
18
SEE NOTE 8
17
SEE NOTE 8
LOCATE CENTRALLY WITHIN CAVITY
VIEW SHOWN WITH FIND NO.5 & 6 REMOVED
2
QTY 4 25
QTY 4 28
QTY 4 27
QTY4 26
5
.000
.030 TYP
6
E4 REF
.07 MAX REF
3
QTY 4 25
QTY 4 27
SEE DETAIL A
7
TYP R2-R7, CR1-CR4 & L1
QTY 2 24
SEE NOTE 5
33
R7 REF.
QTY 2 29
.000
.010 POTTING DIM. BOTH SIDES
QTY 2 30
QTY 2 31
SEE NOTE 6
E4
CR4 (K)
4
CR3 (K)
CR1
CR2
E3
E2
L1
A
Q3
T1
A
C1
C2 (-)
R5
E1
17
SEE NOTE 8
LOCATE CENTRALLY WITHIN CAVITY
7
32
R2
R7
R6
R4
R3
TO PIN 11
TO PIN 8
TO PIN 9
TO PIN 7
TO PIN 6
R1
.085 MAX
.015 MIN TYP
.015 MIN TYP
PIN NO. 5 REF
SEE NOTE 25
2 REF
3 REF
SEE NOTE 23
TYP ALL AROUND
COMPONENT DESIGNATIONS IN THIS VIEW ARE FOR REFERENCE ONLY

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. WELD PER ND1002005
3. SOLDER PER ND1002071 USING SOLDER PER ND1002075
4. ENCAPSULATE PER ND1002236
5. APPLY FIND NO. 33 TO INDICATED AREA
6. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
7. ALL VIEWS SHOWN WITH POTTING REMOVED FOR CLARITY
8. STAKE FIND NO.12 THRU FIND NO. 23 & E1-E4 TO FIND NO1 PER ND1002009 METHOD C OR D
9. NEW MICA WASHER TO BE INSTALLED EACH TIME FIND NO. 11 IS DISASSEMBLED
10. MOUNTING TORQUE FOR FIND NO.11 TO BE 8-15 INCH POUNDS
11. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST, FIND NO.22 TO BE SELECTED FROM CHART A & FIND NO.23 TO SELECTED FROM CHART B
12. AR DENOTES AS REQUIRED
13. K DENOTES CATHODE SIDE OF DIODE
14. WHITE DOT & CLEAR LEAD INDICATES LOWER LEVEL WIRING
15. BLACK DOT & CROSS HATCHED LEAD INDICATES UPPER LEVEL WIRING
16. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002080
17. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX THE DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH
18. MARK .07/.05 HIGH WHITE CHARACTERS PER ND1002008 & ND1002122, TYPE II, CLASS 2 & SERIALIZE PER ND1002023 USING INK 1006271-1
19. MARK .17/.15 HIGH WHITE CHARACTERS PER ND1002008 & ND1002122, TYPE II, CLASS 2 USING INK 1006271-1
20. + DENOTES POSITIVE SIDE OF CAPACITOR
21. - DENOTES NEGATIVE SIDE OF CAPACITOR
22. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND MEET ALL THE REQUIREMENTS OF P.S. 2003901
23. FIND NO.2 AND 3 SHALL NOT OVERHANG EDGES OF FIND NO.1
~~24. UNLESS OTHERWISE SPECIFIED ALL WIRING TO BE FIND NO.9~~
25. SEAL INSULATORS OF FIND NO.1 PER ND1002004 TYPE VI

2003900	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE
DIMENSIONS ARE
TOLERANCES ON
FRACTIONS
DO NOT SCALE TH
MATERIAL
HEAT TREATMENT
FINAL FINISH

APOLLO G&N Specification
PS 2003901 Rev. A
Original Issue Date: 5-11-66
Release Authority: TDRR 28742
Class A **Release**

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

AGC DSKY POWER SUPPLY ASSEMBLY

(MODULE D7)

DRAWING NO. 2003901

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
Ⓜ 6/1/66	A	29206	1 and 5, 6, 7		

This specification consists of pages 1 to 8 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	2C Hall 5/4 6-1-66 MIT/IL	D. M. Sleeper 23 MAR 66 4/1/66 4/1/66 RAY 4-1-66

Table 1 - NOMINAL AND MARGINAL OPERATION

		Pin 4 to 6 (EV250 to EVLO)				Pin 8 to 6 (EVH11 to EVLO)			
Input Voltages VDC		Load* Condition		Output Voltage (Vrms)		Load* Condition		Output Voltage (Vrms)	
14VDC	25VDC ***	No load	Full load	+25°C	-10°C +80°C	No load	Full load	+25°C	-10°C +80°C
14.0±0.1	25.0±0.2	X		** 255+15 -10	** 255±30	X		250+15 -10	250±30
14.0±0.1	25.0±0.2		X	255±10	255±30		X	245±10	245±30
14.0±0.1	21.0±0.2		X	255+10 -20	255+30 -35		X	245+10 -15	245+30 -35
14.0±0.1	18.0±0.2		X	255+10 -45	255+30 -60		X	245+10 -40	245+30 -60
14.0±0.1	36.0±0.2		X	255±15	255+35 -30		X	245±15	245+35 -30
15.0±0.1	25.0±0.2		X	255+40 -0	255+60 -0		X	245+40 -0	245+60 -0
17.0±0.1	25.0±0.2	X		** 255+75 -0	255+90 -0	X		250+75 -0	250+90 -0
12.0±0.1	18.0±0.2		X	255+0 -60	255+0 -80		X	245+0 -60	245+0 -80

*Full Load, wherever designated, is the application of both the EV250 and EVH11 loads.

**Variable from 0 to the values shown by varying the external potentiometer from minimum to maximum resistance.

***25 VDC Source Current, with the 10K potentiometer at max resistance, shall be NMT 75 milliamperes at NO LOAD and NMT 160 ma at FULL LOAD when measured at nominal input voltage at 25°C, -10°C, and +80°C.

4.2 TESTS/VERIFICATION

4.2.1 Drawing Compliance. The modules shall be examined for compliance with the requirements of APOLLO G&N Drawing 2003901. Particular attention shall be given to inspection for contaminants, pin misalignment, legibility and appearance of marking, and damage to surfaces, structure and equipment.

4.2.2 Thermal Conditioning. Verify that the module was subjected to two complete thermal cycles as specified in 3.1.1 prior to performing the acceptance tests specified herein.

4.2.3 Insulation Resistance. Using test equipment with a test potential of 500 VDC limited to a short circuit current of 1.0 milliampere, measure the resistance between pin 1 and all other pins connected together. Verify that the resistance complies with that specified in paragraph 3.1.2.

4.2.4 Isolation Resistance. Using test equipment with a test potential of 500 VDC limited to a short circuit current of 1 milliampere, measure the resistance between pins 2, 3, 5, 7, 9, 11, and 12 connected together and pins 4, 6, 8, and 10 connected together to determine compliance with paragraph 3.1.3

4.2.5 Inputs-Outputs. Apply the input voltage and input signal with the load and input impedance connections as shown in Figure 1. Measure the output at points indicated to determine compliance with Table I at 25°C.

4.2.6 Pin to Pin. Measure the resistance between Pins 3 and 7, 4 and 8, 6 and 10, and 9 and 12 to determine compliance with Paragraph 3.1.5.

4.2.7 Continuity. Verify that the resistance measured between chassis ground pin 1 and the chassis complies with that specified in Paragraph 3.1.4. Anodizing may be penetrated to assure good electrical connection.

4.2.8 Workmanship. The following tests shall be performed under the conditions specified as a verification of good workmanship.

4.2.8.1 Vibration. Install the module in DSKY. Subject the DSKY to the vibration tests specified in paragraph 3.1.8. Verify that the DSKY meets the requirements of the applicable specification.

4.2.8.2 Thermal Extremes and Marginal Voltages. Repeat the test of Paragraph 4.2.5 at -10°C +0, -2.8°C and +80°C -0, +2.8°C to determine compliance with Table I. Modules shall be stabilized at thermal extremes for ½ hour before testing.

4.2.8.3 Weight. Weigh the module to the nearest .01 pound. Verify that the weight does not exceed the maximum allowable weight specified in paragraph 3.2.2.

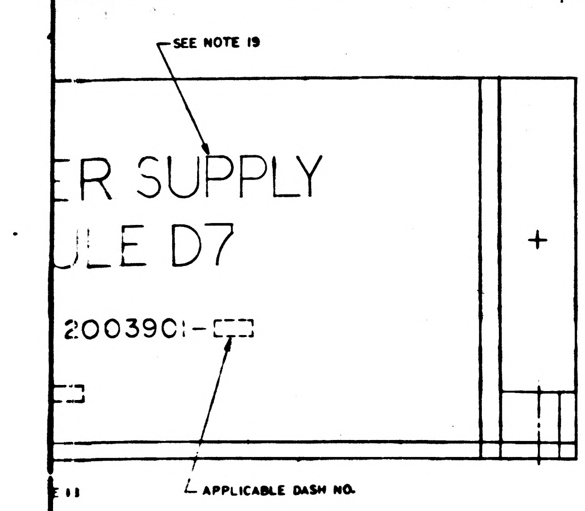
5.0 PREPARATION FOR DELIVERY

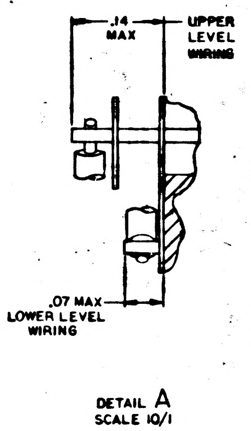
5.1 Preparation for delivery shall be in accordance with Specification ND 1002214.

6.0 NOTES: None

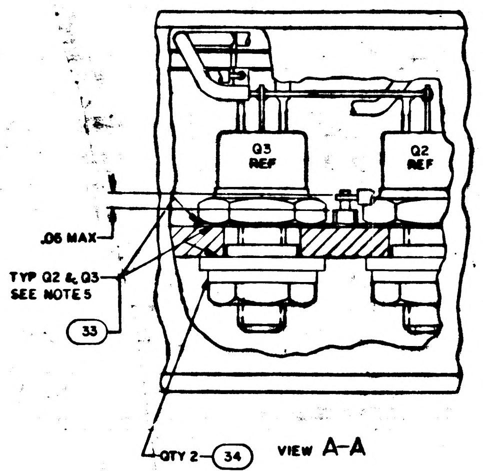
B	2003901

REVISIONS 20356			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22161 DR CHK APPD		
B	REVISED PER TDRR 23234 DR CHK APPD		


SEE NOTE 19
ER SUPPLY
ULE D7
2003901-
APPLICABLE DASH NO.
E 11


.14 MAX
UPPER LEVEL WIRING
.07 MAX LOWER LEVEL WIRING

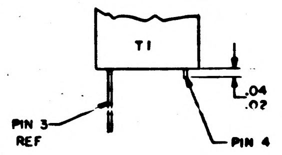
DETAIL A
SCALE 10/1


Q3 REF
Q2 REF
.06 MAX
TYP Q2 & Q3 SEE NOTE 5
33
QTY 2 34

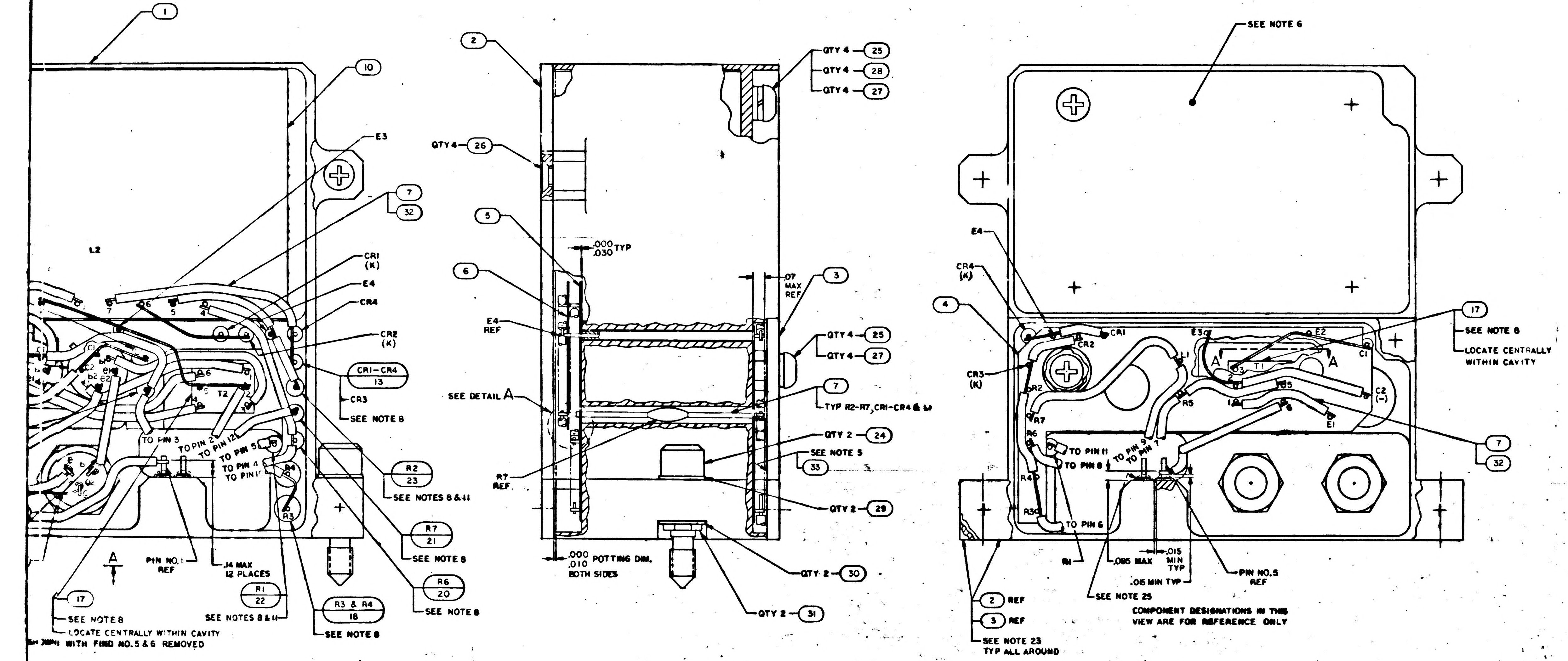
VIEW A-A

CHART A	
PART NO.	VALUE
1006750-41	2400
-42	2700
-43	3000
-44	3300
-45	3600
-46	3900
-47	4300
-48	4700
-126	2850
-127	3150
-128	3450
1006750-129	3750

CHART B	
PART NO.	VALUE
1006750-19	300
-22	390
-25	510
-27	620
-28	680
-29	750
-30	820
-31	910
-32	1000
-34	1200
1006750-36	1500


T1
.04
.02
PIN 3 REF
PIN 4

PARTIAL SECTION A-A


1
10
E3
7
32
L2
CR1 (K)
E4
CR4
CR2 (K)
CR1-CR4
13
CR3
SEE NOTE 8
T2
TO PIN 3
TO PIN 2
TO PIN 12
TO PIN 5
TO PIN 4
TO PIN 1
R4
R3
R2
23
SEE NOTES 8 & 11
R7
21
SEE NOTE 8
R6
20
SEE NOTE 8
PIN NO. 1 REF
.14 MAX 12 PLACES
A
17
SEE NOTE 8
LOCATE CENTRALLY WITHIN CAVITY
R1
22
SEE NOTES 8 & 11
R3 & R4
18
SEE NOTE 8
2
QTY 4 26
5
6
E4 REF
.000 .030 TYP
SEE DETAIL A
R7 REF.
.000 .010 POTTING DIM. BOTH SIDES
QTY 4 25
QTY 4 28
QTY 4 27
.07 MAX REF
3
QTY 4 25
QTY 4 27
7
TYP R2-R7, CR1-CR4 & L1
QTY 2 24
SEE NOTE 5
33
QTY 2 29
QTY 2 30
QTY 2 31
SEE NOTE 6
E4
CR4 (K)
4
CR1
CR2
CR3 (K)
CR2
E3
L1
E2
T1
A
A
C1
C2 (-)
R5
R6
R7
R5
E1
17
SEE NOTE 8
LOCATE CENTRALLY WITHIN CAVITY
7
32
TO PIN 11
TO PIN 8
TO PIN 9
TO PIN 7
R4
R3
TO PIN 6
R1
.085 MAX
.015 MIN TYP
.015 MIN TYP
PIN NO. 5 REF
SEE NOTE 25
2 REF
3 REF
SEE NOTE 23 TYP ALL AROUND

COMPONENT DESIGNATIONS IN THIS VIEW ARE FOR REFERENCE ONLY

SH OWN WITH FIND NO. 5 & 6 REMOVED

ES CRIBED BY MIL-D-70327

ND
D 2009 METHOD C OR D
IS DISASSEMBLED
NG S
MED AT ELECTRICAL
23 TO SELECTED

ND
AL WIRING
CORDANCE WITH ND1002089
TION WITH UNIT NUMBER
D 22, TYPE II, CLASS 2
22, TYPE II, CLASS 2

20. + DENOTES POSITIVE SIDE OF CAPACITOR
21. – DENOTES NEGATIVE SIDE OF CAPACITOR
22. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND MEET ALL THE REQUIREMENTS OF P.S. 2003901
23. FIND NO. 2 AND 3 SHALL NOT OVERHANG EDGES OF FIND NO. 1
~~24. UNLESS OTHERWISE SPECIFIED ALL WIRING TO BE FIND NO. 9~~
25. SEAL INSULATORS OF FIND NO. 1 PER ND1002004 TYPE VI

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
2	MS15795 808	WASHER, FLAT	34
☒	2005904	SCHEMATIC	REF
AR	1006878	SILICONE COMPOUND	33
AR	1006757-13	WIRE, ELECTRICAL .020 DIA	32
2	MS16633-4015	RING, RETAINING, EXTERNAL	31
2	1004546-3	WASHER, FLAT	30
2	1004546-1	WASHER, FLAT	29
4	MS35338-78	WASHER, LOCK, SPLIT	28
8	NAS620C4	WASHER, FLAT	27
4	MS24693-PC2	SCREW, FLAT HD, CROSS RECESSED	26
8	MS35216-12	SCREW, PAN HD, CROSS RECESSED	25
2	1004579-1	SCREW, JACKING	24
1	SEE NOTE 11	RESISTOR, FIXED FILM	23
1	SEE NOTE 11	RESISTOR, FIXED FILM	22
1	1006750-56	RESISTOR, FIXED	21
1	1006750-72	RESISTOR, FIXED	20
1	1006750-32	RESISTOR, FIXED	19
2	1006760-64	RESISTOR, FIXED	18
2	1010291-4	TRANSFORMER, AUDIO	17
1	1010406-7	COIL, RF, CHOKE	16
1	1006755-134	CAPACITOR, FIXED	15
1	1006793-19	CAPACITOR, FIXED	14
4	2004103-001	SEMICONDUCTOR DEVICE, DIODE	13
2	1010376-1	TRANSISTOR, SILICON, TYPE NPN	12
2	1006363-002	TRANSISTOR, SILICON, TYPE NPN	11
1	1006325	REACTOR, SATURABLE	10
~~AR~~	~~1006757-1~~	~~WIRE, ELECTRICAL .010 X .020~~	~~9~~
~~AR~~	~~1006757-8~~	~~WIRE, ELECTRICAL .020 DIA~~	~~8~~
AR	1006776-22	SLEEVING, INSULATION	7
1	2004902	INSULATOR, UPPER LEVEL	6
1	2004901-011	INSULATOR, LOWER LEVEL	5
1	2004934-011	INSULATOR, REAR	4
1	2004906	COVER, BOTTOM	3
1	2004905	COVER, TOP	2
1	2003921-011	HEADER ASSEMBLY	1
011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003985	
2003900	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN DATE
CHECKED 11 June 65
APPROVAL
APPROVAL
NASA APPROVAL 07-13-65
MIT APPROVAL 7-13-65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

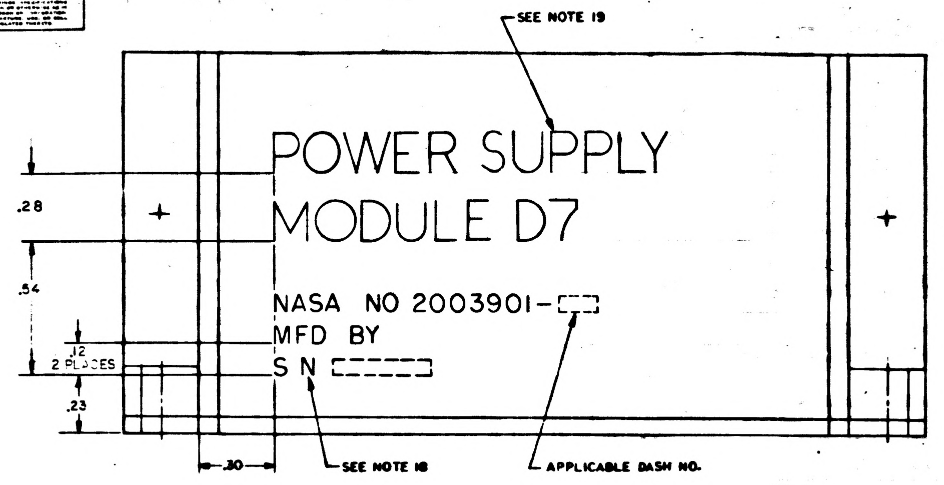
POWER SUPPLY ASSEMBLY
MODULE D7
AGC DSKY

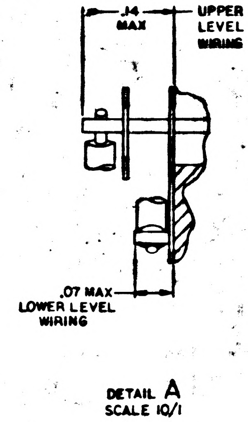
CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003901
SCALE 4/1
WT
SHEET 1 OF 1

2003901	B

F 2/2

NOTICE – [illegible]


SEE NOTE 19
POWER SUPPLY
MODULE D7
NASA NO 2003901-
MFD BY
S N
.28
.54
.12
2 PLACES
.23
.30
SEE NOTE 18
APPLICABLE DASH NO.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MAX
UPPER
LEVEL
WIRING
.07 MAX
LOWER LEVEL
WIRING
DETAIL A
SCALE 10/1

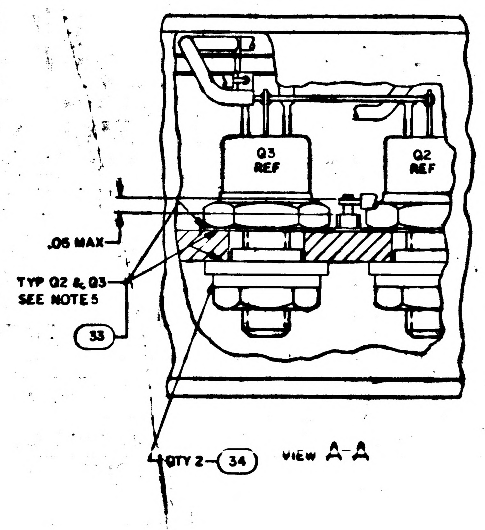
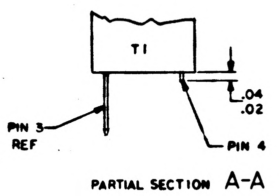
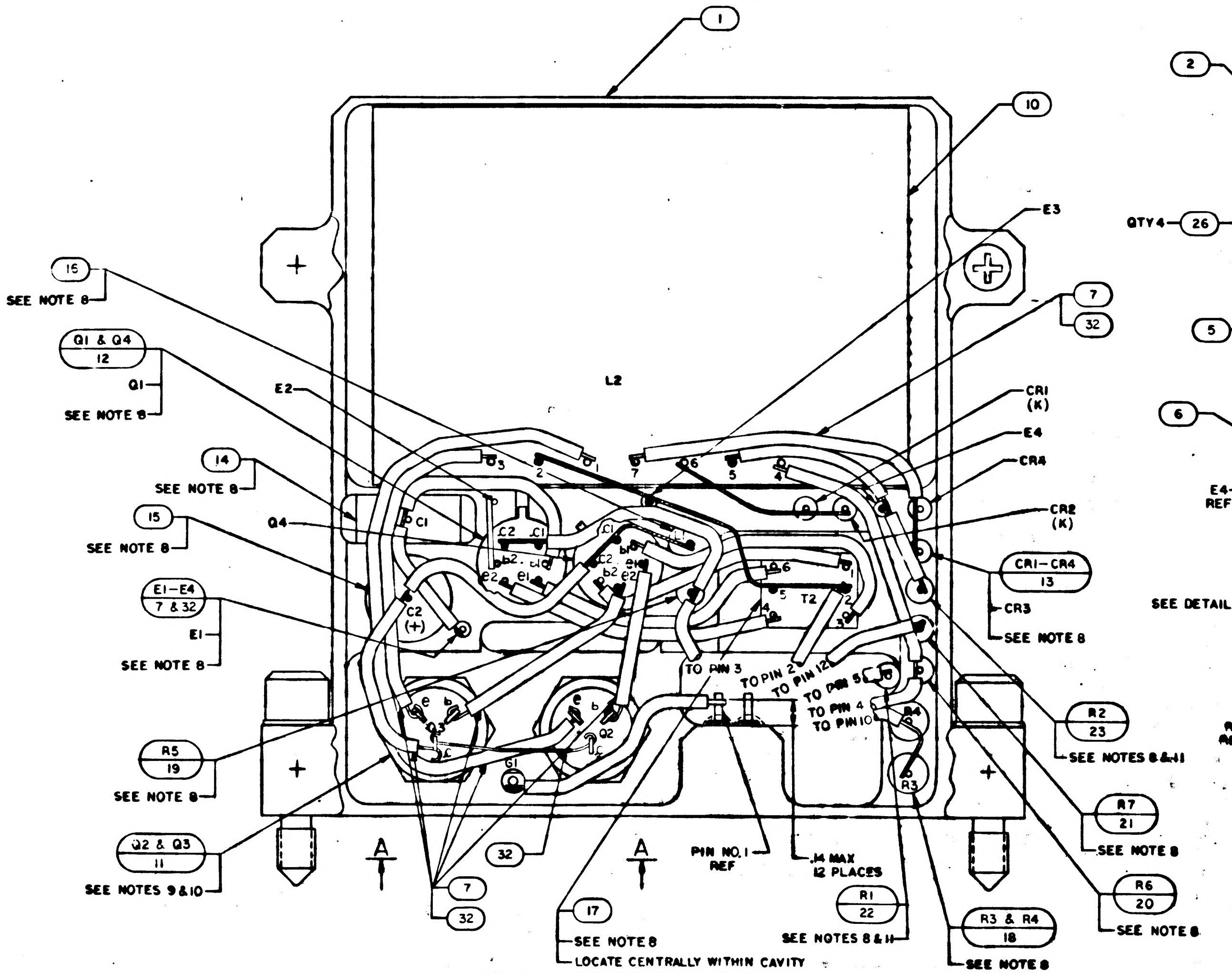

Q3
REF
Q2
REF
.06 MAX
TYP Q2 & Q3
SEE NOTE 5
33
QTY 2
34
VIEW A-A

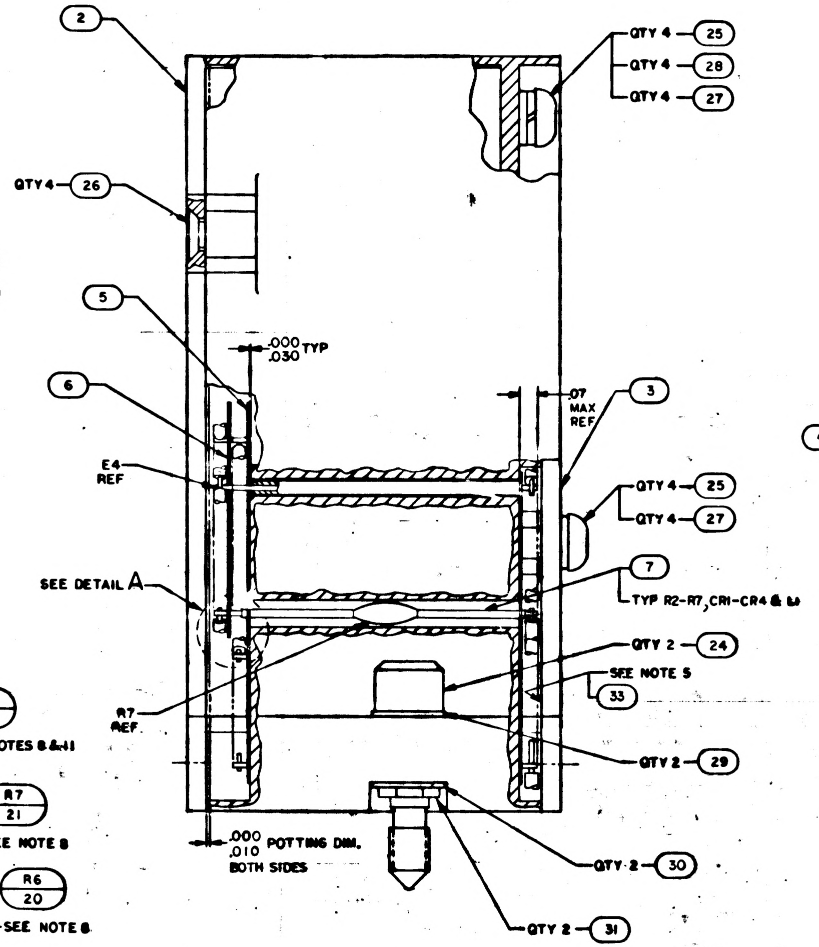
CHART A	
PART NO.	VALUE
1006750-41	2400
-42	2700
-43	3000
-44	3300
-45	3600
-46	3900
-47	4300
-48	4700
-126	2850
-127	3150
-128	3450
1006750-129	3750

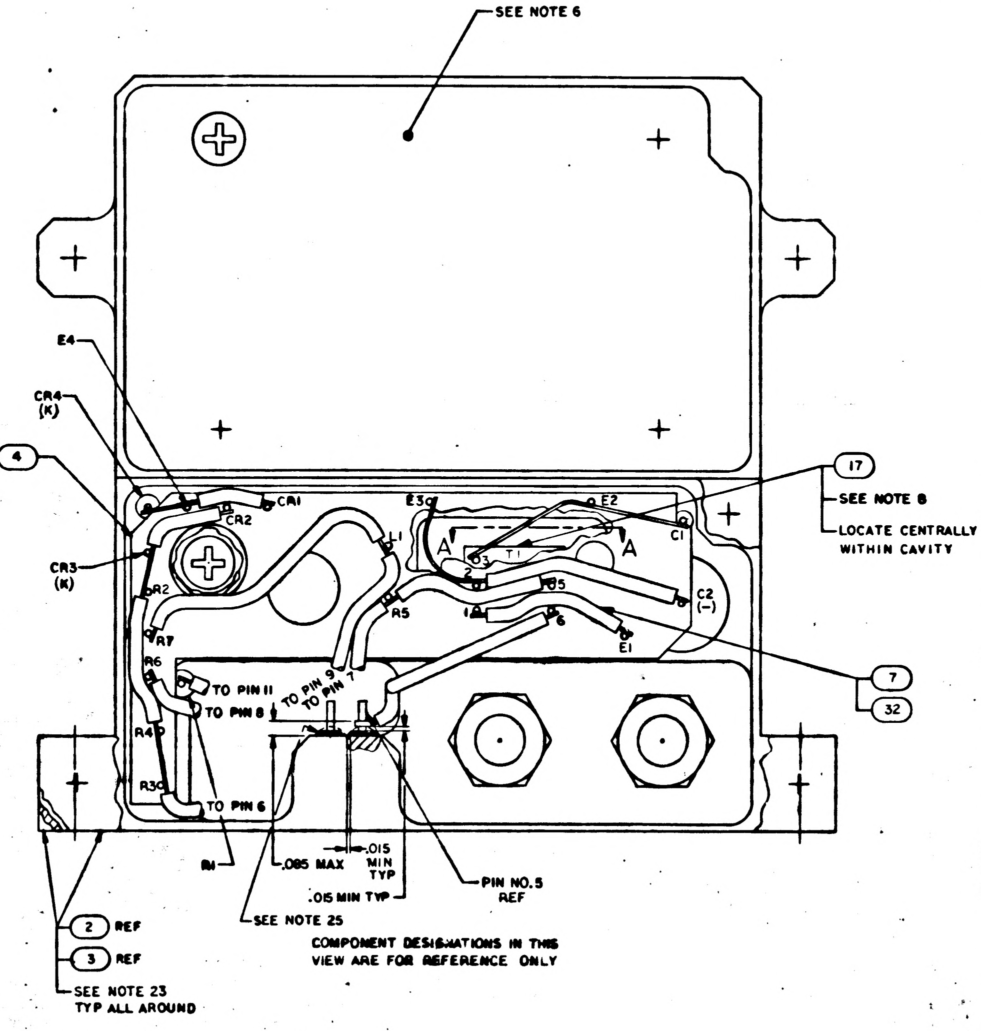
CHART B	
PART NO.	VALUE
1006750-19	300
-22	390
-25	510
-27	620
-28	680
-29	750
-30	820
-31	910
-32	1000
-34	1200
1006750-36	1500


T1
PIN 3
REF
PIN 4
.04
.02
PARTIAL SECTION A-A


1
10
E3
7
32
15
SEE NOTE 8
Q1 & Q4
12
Q1
SEE NOTE 8
E2
L2
CR1
(K)
E4
CR4
CR2
(K)
14
SEE NOTE 8
Q4
15
SEE NOTE 8
C1
C2
T2
CR1-CR4
13
CR3
SEE NOTE 8
E1-E4
7 & 32
E1
SEE NOTE 8
C2
(+)
TO PIN 3
TO PIN 2
TO PIN 12
TO PIN 5
TO PIN 4
TO PIN 10
R2
23
SEE NOTES 8 & 11
R5
19
SEE NOTE 8
Q2 & Q3
11
SEE NOTES 9 & 10
Q1
Q2
R3
R4
R7
21
SEE NOTE 8
A
A
32
7
32
PIN NO.1
REF
.14 MAX
12 PLACES
R1
22
SEE NOTES 8 & 11
R3 & R4
18
SEE NOTE 8
R6
20
SEE NOTE 8
17
SEE NOTE 8
LOCATE CENTRALLY WITHIN CAVITY

VIEW SHOWN WITH FIND NO.5 & 6 REMOVED


2
QTY 4
25
QTY 4
28
QTY 4
27
QTY 4
26
5
.000
.030 TYP
6
E4
REF
.07
MAX
REF
3
QTY 4
25
QTY 4
27
7
TYP R2-R7, CR1-CR4 & L1
SEE DETAIL A
QTY 2
24
SEE NOTE 5
33
R7
REF
QTY 2
29
.000
.010 POTTING DIM.
BOTH SIDES
QTY 2
30
QTY 2
31


SEE NOTE 6
E4
CR4
(K)
4
CR1
CR2
E3
E2
17
SEE NOTE 8
LOCATE CENTRALLY
WITHIN CAVITY
CR3
(K)
A
T1
A
C1
C2
(-)
L1
R2
R5
R7
R6
R3
R4
E1
TO PIN 11
TO PIN 8
TO PIN 9
TO PIN 7
TO PIN 6
7
32
R1
.085 MAX
.015
MIN
TYP
.015 MIN TYP
PIN NO.5
REF
SEE NOTE 25
2
REF
3
REF
SEE NOTE 23
TYP ALL AROUND

COMPONENT DESIGNATIONS IN THIS
VIEW ARE FOR REFERENCE ONLY

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. WELD PER ND1002005
3. SOLDER PER ND1002071 USING SOLDER PER ND1002075
4. ENCAPSULATE PER ND1002236
5. APPLY FIND NO. 33 TO INDICATED AREA
6. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
7. ALL VIEWS SHOWN WITH POTTING REMOVED FOR CLARITY
8. STAKE FIND NO.12 THRU FIND NO. 23 & E1-E4 TO FIND NO 1 PER ND1002009 METHOD C OR D
9. NEW MICA WASHER TO BE INSTALLED EACH TIME FIND NO. 11 IS DISASSEMBLED
10. MOUNTING TORQUE FOR FIND NO.11 TO BE 8-15 INCH POUNDS
11. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST, FIND NO.22 TO BE SELECTED FROM CHART A & FIND NO.23 TO SELECTED FROM CHART B
12. AR DENOTES AS REQUIRED
13. K DENOTES CATHODE SIDE OF DIODE
14. WHITE DOT & CLEAR LEAD INDICATES LOWER LEVEL WIRING
15. BLACK DOT & CROSS HATCHED LEAD INDICATES UPPER LEVEL WIRING
16. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002088
17. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX THE DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH
18. MARK .07/.05 HIGH WHITE CHARACTERS PER ND1002019 & ND1002122, TYPE II, CLASS 2 & SERIALIZE PER ND1002023 USING INK 1006271-1
19. MARK .17/.15 HIGH WHITE CHARACTERS PER ND1002019 & ND1002122, TYPE II, CLASS 2 USING INK 1006271-1
20. + DENOTES POSITIVE SIDE OF CAPACITOR
21. – DENOTES NEGATIVE SIDE OF CAPACITOR
22. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND MEET ALL THE REQUIREMENTS OF P.S. 2003901
23. FIND NO.2 AND 3 SHALL NOT OVERHANG EDGES OF FIND NO.1
~~24. UNLESS OTHERWISE SPECIFIED ALL WIRING TO BE FIND NO.9~~
25. SEAL INSULATORS OF FIND NO.1 PER ND1002004 TYPE VI

2003985	
2003900	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SP
DIMENSIONS ARE IN IN
TOLERANCES ON
FRACTIONS DECIMAL
± ±.02
DO NOT SCALE THIS D
MATERIAL
HEAT TREATMENT
FINAL FINISH

APOLLO G&N Specification
PS 2003901 Rev. B
Original Issue Date: 5-11-66
Release Authority: TDRR 28742
Class A Release

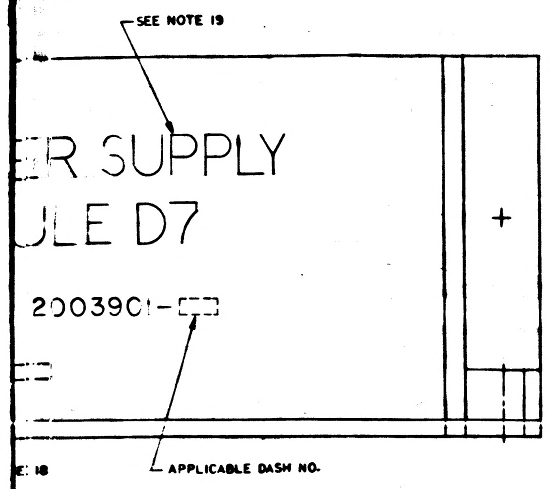
PROCUREMENT SPECIFICATION
PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS
AGC DSKY POWER SUPPLY ASSEMBLY
(MODULE D7)
DRAWING NO. 2003901

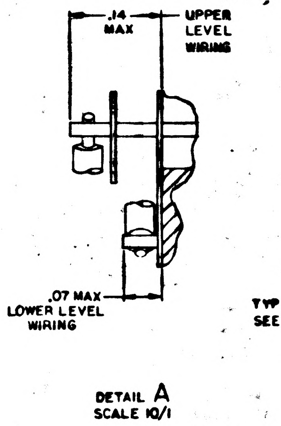
Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
Ⓜ 6/1/66	A	29206	1 and	EMS FA	EMS FA
Ⓜ 7/1/66	B	29923	1 and 5	EMS FA	EMS FA

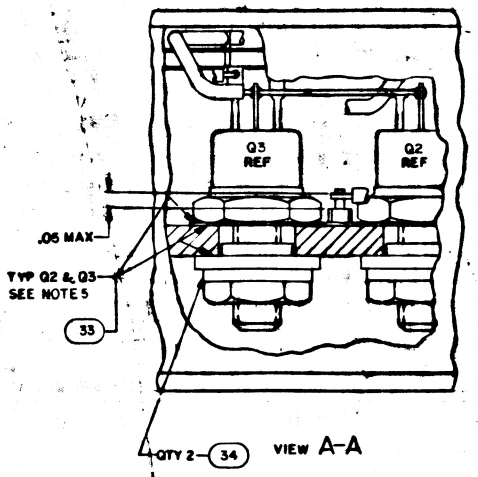
This specification consists of pages 1 to 8 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	EC Hall 5/11/66 [illegible] 5-11-66 MIT/IL	D. M. Slieper 23 MAR 66 4/1/66	4/1/66 4-1-66 RAY


SEE NOTE 19
ER SUPPLY
ULE D7
2003901-
APPLICABLE DASH NO.
E 18


.14 MAX
UPPER LEVEL WIRING
.07 MAX LOWER LEVEL WIRING

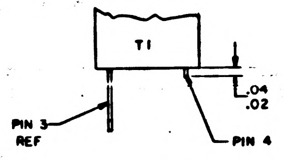
DETAIL A
SCALE 10/1


Q3 REF
Q2 REF
.06 MAX
TYP Q2 & Q3 SEE NOTE 5
33
QTY 2 34

VIEW A-A

CHART A	
PART NO.	VALUE
1006750-41	2400
-42	2700
-43	3000
-44	3300
-45	3600
-46	3900
-47	4300
-48	4700
-126	2850
-127	3150
-128	3450
1006750-129	3750

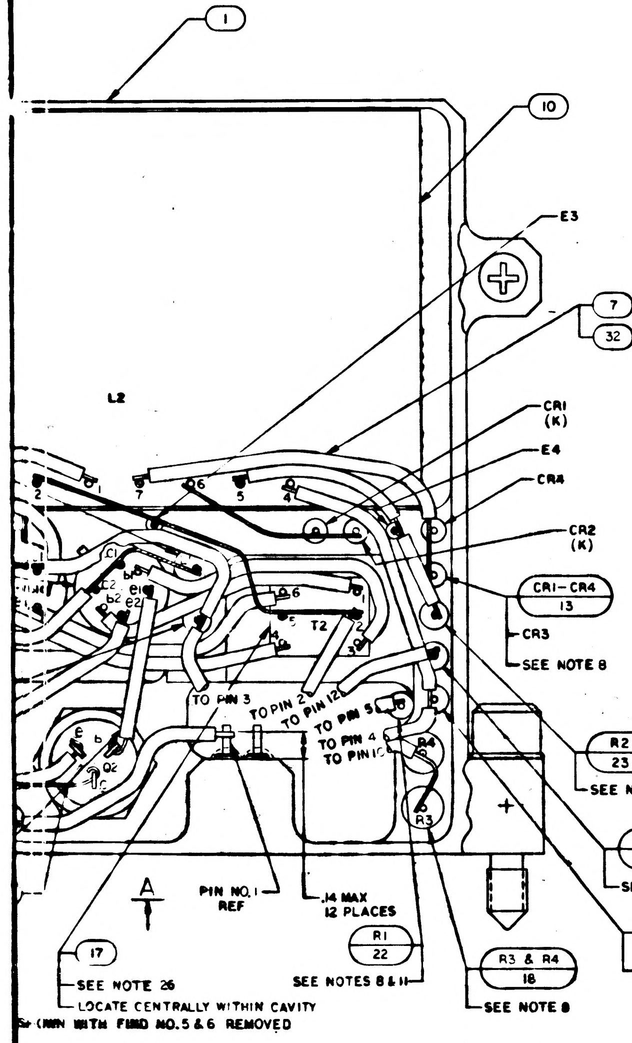
CHART B	
PART NO.	VALUE
1006750-19	300
-22	390
-25	510
-27	620
-28	680
-29	750
-30	820
-31	910
-32	1000
-34	1200
1006750-36	1500

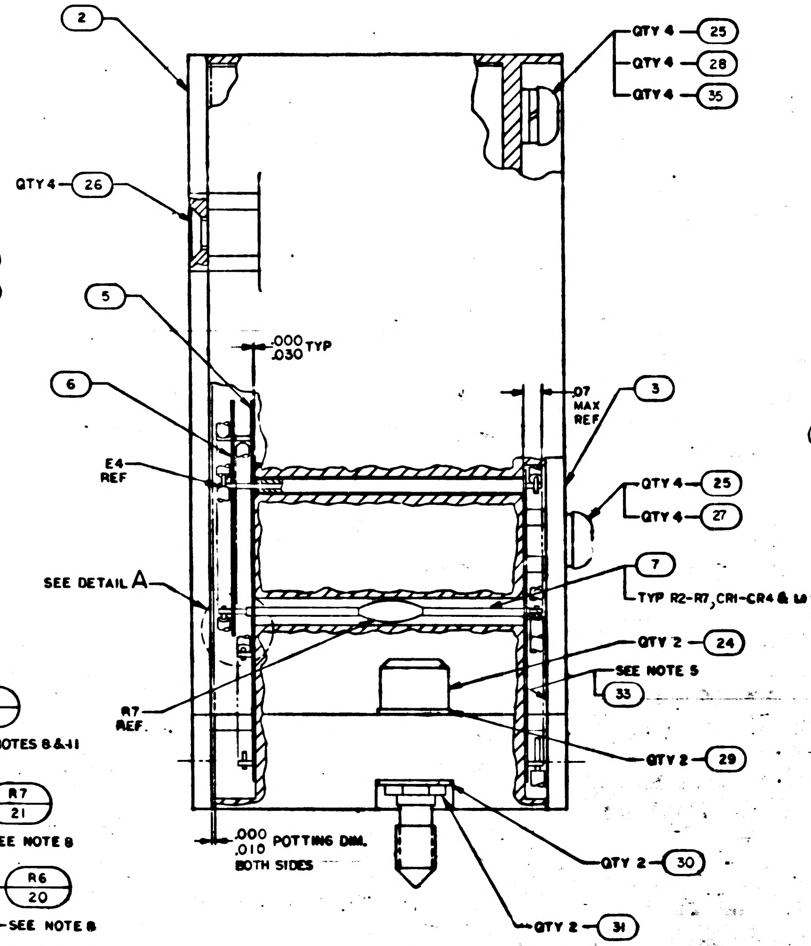

T1
PIN 3 REF
PIN 4
.04
.02

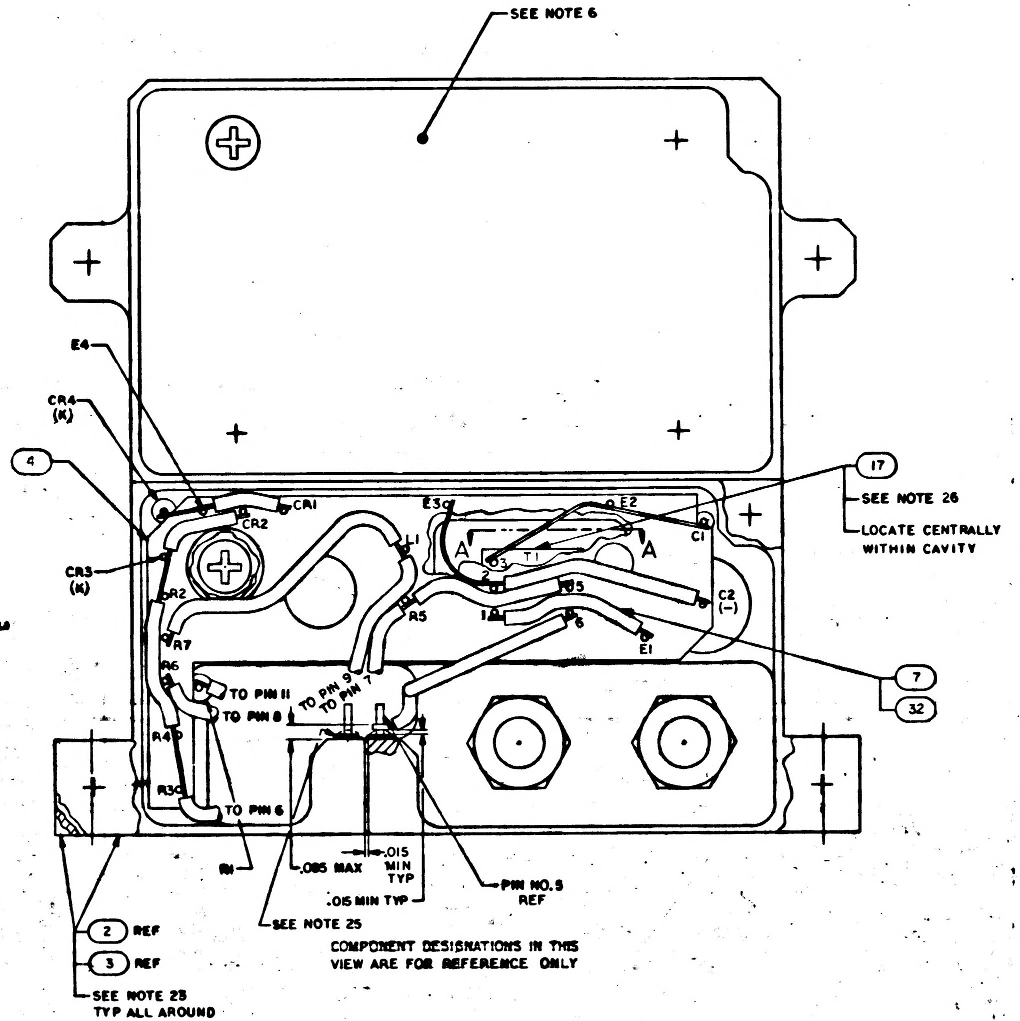
PARTIAL SECTION A-A

2003901 C

REVISIONS 20356			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22161 DR CHK APPD		
B	REVISED PER TDRR 23234 DR CHK APPD		
C	REVISED PER TDRR 23628 DR CHK APPD		


1
10
E3
7
32
L2
CR1 (K)
E4
CR4
CR2 (K)
CR1-CR4
13
CR3
SEE NOTE 8
T2
TO PIN 3
TO PIN 2
TO PIN 12
TO PIN 5
TO PIN 4
TO PIN 10
R4
R3
R2
23
SEE NOTES 8 & 11
R7
21
SEE NOTE 8
R6
20
SEE NOTE 8
A
PIN NO.1 REF
.14 MAX 12 PLACES
R1
22
SEE NOTES 8 & 11
R3 & R4
18
SEE NOTE 8
17
SEE NOTE 26
LOCATE CENTRALLY WITHIN CAVITY
SHOWN WITH FIND NO.5 & 6 REMOVED


2
QTY 4 25
QTY 4 28
QTY 4 35
QTY 4 26
5
.000 .030 TYP
6
.07 MAX REF
3
E4 REF
QTY 4 25
QTY 4 27
SEE DETAIL A
7
TYP R2-R7, CR1-CR4 & L1
QTY 2 24
SEE NOTE 5
33
R7 REF.
QTY 2 29
.000 .010 POTTING DIM. BOTH SIDES
QTY 2 30
QTY 2 31


SEE NOTE 6
E4
CR4 (K)
4
CR1
CR2
CR3 (K)
E3
E2
T1
A
A
C1
17
SEE NOTE 26
LOCATE CENTRALLY WITHIN CAVITY
R2
R7
R5
L1
C2 (-)
E1
R6
R4
R3
R1
TO PIN 11
TO PIN 8
TO PIN 9
TO PIN 7
TO PIN 6
7
32
.085 MAX
.015 MIN TYP
.015 MIN TYP
PIN NO.5 REF
SEE NOTE 25
2 REF
3 REF
SEE NOTE 23 TYP ALL AROUND

COMPONENT DESIGNATIONS IN THIS VIEW ARE FOR REFERENCE ONLY

...D BY MIL-D-70327

...24

...S DISASSEMBLED
...NTS
...NED AT ELECTRICAL
...23 TO SELECTED

...EL WIRING
...CORDANCE WITH ND1002080
...WITH UNIT NUMBER

...202122, TYPE II, CLASS 2

...02122, TYPE II, CLASS 2

20. + DENOTES POSITIVE SIDE OF CAPACITOR
21. - DENOTES NEGATIVE SIDE OF CAPACITOR
22. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND MEET ALL THE REQUIREMENTS OF P.S. 2003901
23. FIND NO.2 AND 3 SHALL NOT OVERHANG EDGES OF FIND NO.1
~~24. UNLESS OTHERWISE SPECIFIED ALL WIRING TO BE FIND NO.9~~
25. SEAL INSULATORS OF FIND NO.1 PER ND1002004 TYPE VI
26. STAKE FIND NO.17 TO FIND NO.1 PER ND1002004 TYPE V

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
4	MS15795-803	WASHER, FLAT	35
2	MS15795-808	WASHER, FLAT	34
☒	2005904	SCHEMATIC	REF
AR	1006879	SILICONE COMPOUND	33
AR	1006757-13	WIRE, ELECTRICAL .020 DIA	32
2	MS16633-4015	RING, RETAINING, EXTERNAL	31
2	1004546-3	WASHER, FLAT	30
2	1004546-1	WASHER, FLAT	29
4	MS35338-78	WASHER, LOCK, SPLIT	28
4	NAS620C4	WASHER, FLAT	27
4	MS24693-PC2	SCREW, FLAT HD, CROSS RECESSED	26
8	MS35216-12	SCREW, PAN HD, CROSS RECESSED	25
2	1004579-1	SCREW, JACKING	24
1	SEE NOTE 11	RESISTOR, FIXED FILM	23
1	SEE NOTE 11	RESISTOR, FIXED FILM	22
1	1006750-56	RESISTOR, FIXED	21
1	1006750-72	RESISTOR, FIXED	20
1	1006750-32	RESISTOR, FIXED	19
2	1006760-64	RESISTOR, FIXED	18
2	1010291-4	TRANSFORMER, AUDIO	17
1	1010406-7	COIL, RF, CHOKE	16
1	1006755-134	CAPACITOR, FIXED	15
1	1006793-19	CAPACITOR, FIXED	14
4	2004103-001	SEMICONDUCTOR DEVICE, DIODE	13
2	1010376-1	TRANSISTOR, SILICON, TYPE NPN	12
2	1006363-002	TRANSISTOR, SILICON, TYPE NPN	11
1	1006325	REACTOR, SATURABLE	10
~~AR~~	~~1006757-1~~	~~WIRE, ELECTRICAL .010 x .020~~	~~9~~
~~AR~~	~~1006757-1~~	~~WIRE, ELECTRICAL .020 DIA~~	~~8~~
AR	1006776-22	SLEEVING, INSULATION	7
1	2004902	INSULATOR, UPPER LEVEL	6
1	2004901-011	INSULATOR, LOWER LEVEL	5
1	2004934-	INSULATOR, REAR	4
1	2004906	COVER, BOTTOM	3
1	2004905	COVER, TOP	2
1	2003921-011	HEADER ASSEMBLY	1
011	LIST OF MATERIALS		

2003901

NEXT ASSY	USED ON
2003985	
2003900	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN DATE
CHECKED R. Edwards 11 Jun 65
APPROVAL
APPROVAL
NASA APPROVAL 07-13-65
MIT APPROVAL 7-13-65

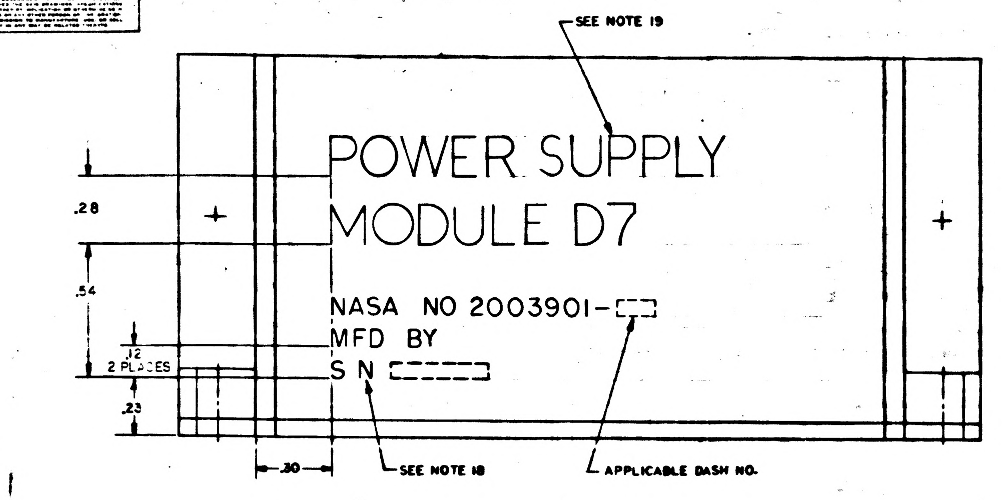
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

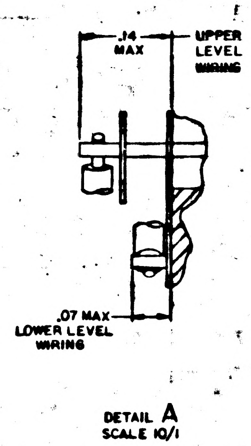
POWER SUPPLY ASSEMBLY
MODULE D7
AGC DSKY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003901
SCALE 4/1
WT
SHEET 1 OF 1

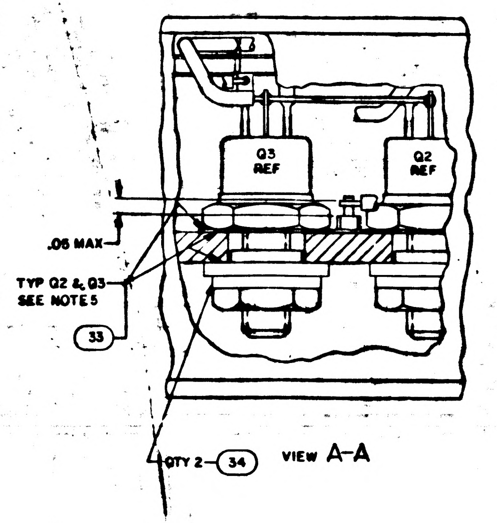
2003901 C

F 2/2


SEE NOTE 19
POWER SUPPLY
MODULE D7
NASA NO 2003901-
MFD BY
S N
.28
.54
.12
2 PLACES
.23
.20
SEE NOTE 18
APPLICABLE DASH NO.


.14 MAX
UPPER LEVEL WIRING
.07 MAX
LOWER LEVEL WIRING

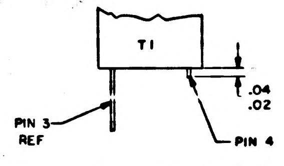
DETAIL A
SCALE 10/1


Q3 REF
Q2 REF
.06 MAX
TYP Q2 & Q3
SEE NOTE 5
33
QTY 2 34

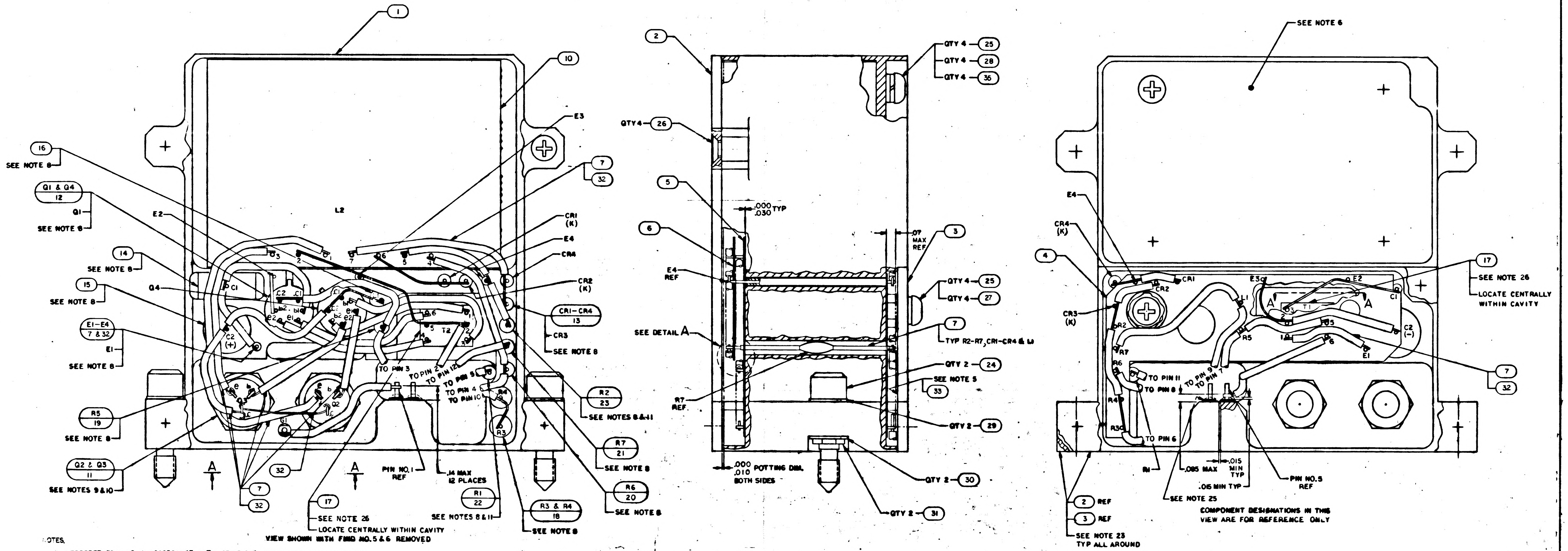
VIEW A-A

CHART A	
PART NO.	VALUE
1006750-41	2400
-42	2700
-43	3000
-44	3300
-45	3600
-46	3900
-47	4300
-48	4700
-126	2850
-127	3150
-128	3450
1006750-129	3750

CHART B	
PART NO.	VALUE
1006750-19	300
-22	390
-25	510
-27	620
-28	680
-29	750
-30	820
-31	910
-32	1000
-34	1200
1006750-36	1500


T1
PIN 3 REF
PIN 4
.04
.02

PARTIAL SECTION A-A


1
10
E3
16
SEE NOTE 8
Q1 & Q4
12
Q1
SEE NOTE 8
E2
L2
7
32
CR1 (K)
E4
CR4
CR2 (K)
14
SEE NOTE 8
15
SEE NOTE 8
Q4
C1
E1-E4
7 & 32
E1
SEE NOTE 8
C2 (+)
CR1-CR4
13
CR3
SEE NOTE 8
T2
TO PIN 3
TO PIN 2
TO PIN 12
TO PIN 5
TO PIN 4
TO PIN 10
R4
R3
R2
23
SEE NOTES 8 & 11
R5
19
SEE NOTE 8
Q2 & Q3
11
SEE NOTES 9 & 10
Q1
Q2
A
A
7
32
32
PIN NO. 1 REF
.14 MAX
12 PLACES
R7
21
SEE NOTE 8
R6
20
SEE NOTE 8
17
SEE NOTE 26
LOCATE CENTRALLY WITHIN CAVITY
R1
22
SEE NOTES 8 & 11
R3 & R4
18
SEE NOTE 8
VIEW SHOWN WITH FIND NO. 5 & 6 REMOVED
2
QTY 4 25
QTY 4 28
QTY 4 36
QTY4 26
5
6
.000
.030 TYP
E4 REF
SEE DETAIL A
R7 REF
.07 MAX REF
3
QTY 4 25
QTY 4 27
7
TYP R2-R7, CR1-CR4 & L1
QTY 2 24
SEE NOTE 5
33
QTY 2 29
.000
.010 POTTING DIM.
BOTH SIDES
QTY 2 30
QTY 2 31
SEE NOTE 6
4
E4
CR4 (K)
CR1
CR2
CR3 (K)
R2
R7
R6
R4
R3
R1
E3
E2
C1
T1
A
A
L1
R5
E1
C2 (-)
17
SEE NOTE 26
LOCATE CENTRALLY WITHIN CAVITY
7
32
TO PIN 11
TO PIN 8
TO PIN 9
TO PIN 7
TO PIN 6
.085 MAX
.015 MIN TYP
.015 MIN TYP
PIN NO. 5 REF
SEE NOTE 25
2 REF
3 REF
SEE NOTE 23
TYP ALL AROUND
COMPONENT DESIGNATIONS IN THIS VIEW ARE FOR REFERENCE ONLY

NOTES.

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. WELD PER 1002005
3. SOLDER PER ND1002071 USING SOLDER PER ND1002075
4. ENCAPSULATE PER ND1002236
5. APPLY FIND NO.33 TO INDICATED AREA
6. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
7. ALL VIEWS SHOWN WITH POTTING REMOVED FOR CLARITY
8. STAKE FIND NO.12 THRU FIND NO.16 AND FIND NO.18 THRU FIND NO.23 E1-E4 TO FIND NO.1 PER ND1002009 METHOD C OR D
9. NEW MICA WASHER TO BE INSTALLED EACH TIME FIND NO. 11 IS DISASSEMBLED
10. MOUNTING TORQUE FOR FIND NO. 11 TO BE 8-15 INCH POUNDS
11. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST, FIND NO.22 TO BE SELECTED FROM CHART A & FIND NO.23 TO SELECTED FROM CHART B
12. AR DENOTES AS REQUIRED
13. K DENOTES CATHODE SIDE OF DIODE
14. WHITE DOT & CLEAR LEAD INDICATES LOWER LEVEL WIRING
15. BLACK DOT & CROSS HATCHED LEAD INDICATES UPPER LEVEL WIRING
16. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002088
17. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX THE DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH
18. MARK .07/.05 HIGH WHITE CHARACTERS PER ND1002018 & ND1002122, TYPE II, CLASS 2 & SERIALIZE PER ND1002023 USING INK 1006271-1
19. MARK .17/.15 HIGH WHITE CHARACTERS PER ND1002018 & ND1002122, TYPE II, CLASS 2 USING INK 1006271-1
20. + DENOTES POSITIVE SIDE OF CAPACITOR
21. − DENOTES NEGATIVE SIDE OF CAPACITOR
22. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND MEET ALL THE REQUIRFMENTS OF P.S. 2003901
23. FIND NO.2 AND 3 SHALL NOT OVERHANG EDGES OF FIND NO.1
24. ~~UNLESS OTHERWISE SPECIFIED ALL WIRING TO BE FIND NO.8~~
25. SEAL INSULATORS OF FIND NO.1 PER ND1002004 TYPE III
26. STAKE FIND NO.17 TO FIND NO.1 PER ND1002004 TYPE V

F1/2

2003901 C

2003985	
2003900	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SP
DIMENSIONS ARE IN IN
TOLERANCES ON
FRACTIONS DECIMA
± ±.02
DO NOT SCALE THIS
MATERIAL
HEAT TREATMENT
FINAL FINISH

APOLLO G&N Specification
PS 2003901 **Rev. C**
Original Issue Date: 5-11-66
Release Authority: TDRR 28742
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

AGC DSKY POWER SUPPLY ASSEMBLY

(MODULE D7)

DRAWING NO. 2003901

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
Ⓜ 6/1/66	A	29206	1 and 5 & 7	DMS FG	DMS FG
Ⓜ 7/1/66	B	29923	1 and 5	DMS FG	DMS FG
Ⓜ 9/1/66	C	30871	1, 3	[illegible] FG	[illegible] FG

This specification consists of pages 1 to 8 **inclusive.**

APPROVALS	A. C. METZGE NASA/MSC	EC Hall 5/11/66 [illegible] 5-11-66 MIT/IL	D. M. Sleeper 25 MAR 66 [illegible] 4/1/66 [illegible] 4/1/66 RAY [illegible] 4-1-66

3.0 REQUIREMENTS

3.1 PERFORMANCE. The Power Supply Module (D7) consists of a load-regulated push-pull amplifier. The circuitry is such that when an 8 volt (nominal) 800 cps square wave input is filtered and amplified, an open circuit output of 250 VRMS (nominal) at 800 cps is obtained.

3.1.1 Thermal Conditioning. The module shall be subjected to two complete thermal cycles, as specified below prior to acceptance testing:

> 25°C down to -10°C ± 3.0°C in NLT 20 minutes, held at -10°C ± 3.0°C for NLT 30 minutes, raised to +70°C ± 3.0°C in NLT 40 minutes, held at +70°C ± 3.0°C for NLT 30 minutes, lowered to 25°C in NLT 20 minutes.

3.1.2 Insulation Resistance. The insulation resistance between chassis ground pin 1 and all other pins connected together shall be 100 megohms minimum.

3.1.3 Isolation Resistance. The isolation resistance between pins 4, 6, 8, and 10 connected together and pins 2, 3, 5, 7, 9, 11, and 12 connected together shall be not less than 100 megohms.

3.1.4 Continuity. The resistance between the chassis ground pin 1 and the chassis shall be 0.5 ohms maximum.

3.1.5 Pin To Pin Resistance. All pins not mutually insulated shall exhibit the resistance values shown on the unit schematic.

Reference Values: Pins 3 and 7; 1.0K ± 2%; Pins 9 and 12, 10K ± 2%
Pins 4 and 8, 20K ± 2%; Pins 6 and 10, 11K ± 2%

3.1.6 Input Voltages. The module shall function within the limits specified in Table I when supplied with the DC voltage (nominal and marginal), the proper input signal, and the attenuation of a 10K potentiometer as specified in Figure 1.

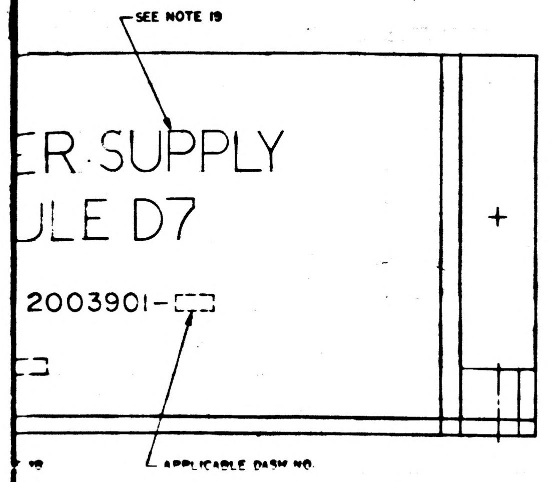
3.1.7 Load and Output Characteristics. The module shall develop the output voltages specified in Table I when operated into the equivalent loads specified in Figure 1.

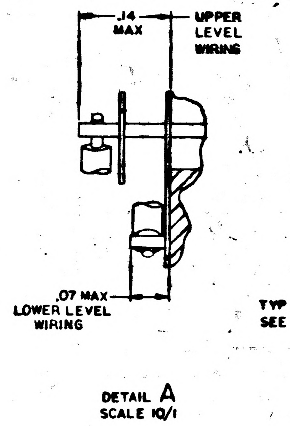
3.1.8 The module shall perform as specified in 3.1.6 and 3.1.7 when installed in an operating DSKY which is being subjected to the vibration requirements specified in the applicable specifications for the DSKY. Acceptance criteria for the module shall be the compliance of the DSKY with its applicable specifications.

3.2 PRODUCT CONFIGURATION

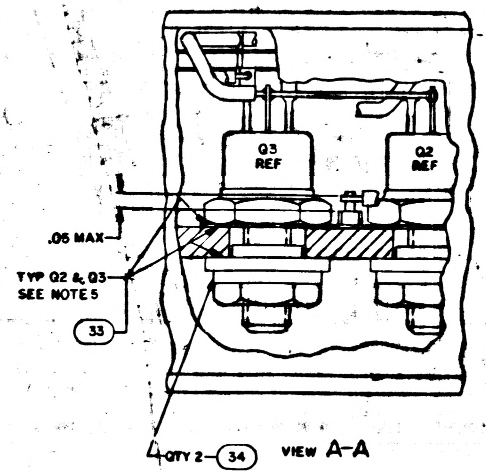
3.2.1 DRAWINGS. The module configuration shall be in accordance with APOLLO G&N Drawing 2003901 and all drawings and engineering data referenced thereon.

3.2.2 Weight. Maximum allowable weight of the module shall be 0.91 pounds.


SEE NOTE 19
ER SUPPLY
ULE D7
2003901-
APPLICABLE DASH NO.


.14 MAX
UPPER LEVEL WIRING
.07 MAX LOWER LEVEL WIRING

DETAIL A
SCALE 10/1

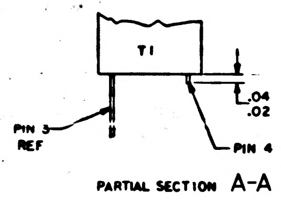

Q3 REF
Q2 REF
.06 MAX
TYP Q2 & Q3 SEE NOTE 5
33
QTY 2 34

VIEW A-A

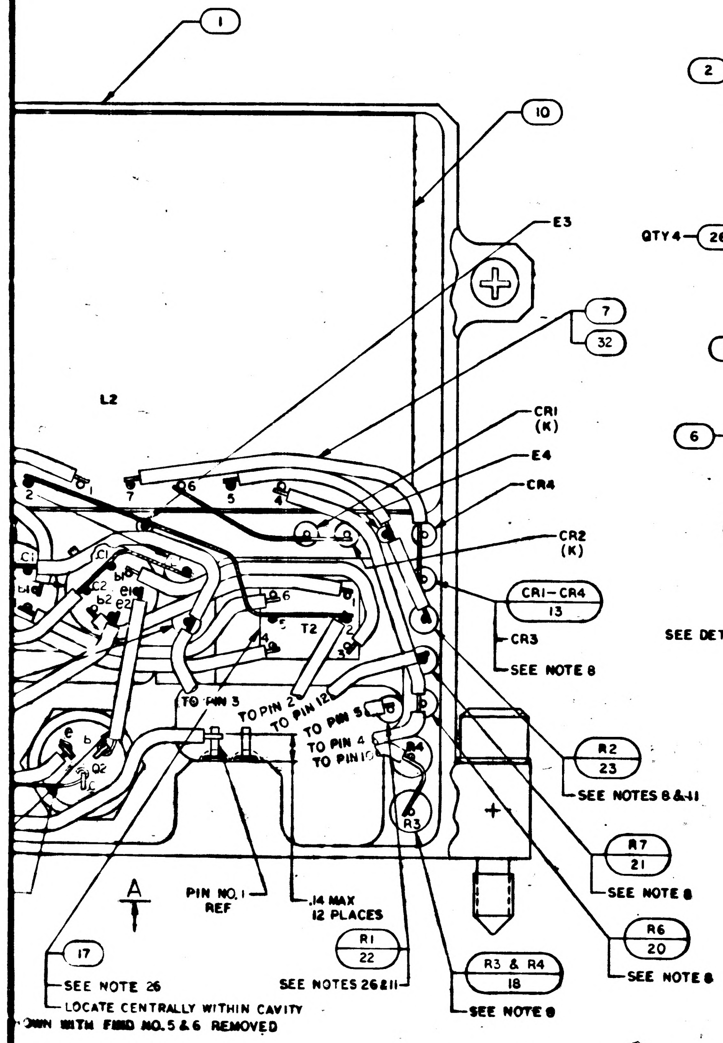
CHART A	
PART NO.	VALUE
1006750-41	2400
-42	2700
-43	3000
-44	3300
-45	3600
-46	3900
-47	4300
-48	4700
-126	2850
-127	3150
-128	3450
1006750-129	3750

CHART B	
PART NO.	VALUE
1006750-19	300
-22	390
-25	510
-27	620
-28	680
-29	750
-30	820
-31	910
-32	1000
-34	1200
1006750-36	1500

REVISIONS 20356			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22161 DR CHK APPD		
B	REVISED PER TDRR 23234 DR CHK APPD		
C	REVISED PER TDRR 23628 DR CHK APPD		
D	REVISED PER TDRR 24232 DR CHK APPD		

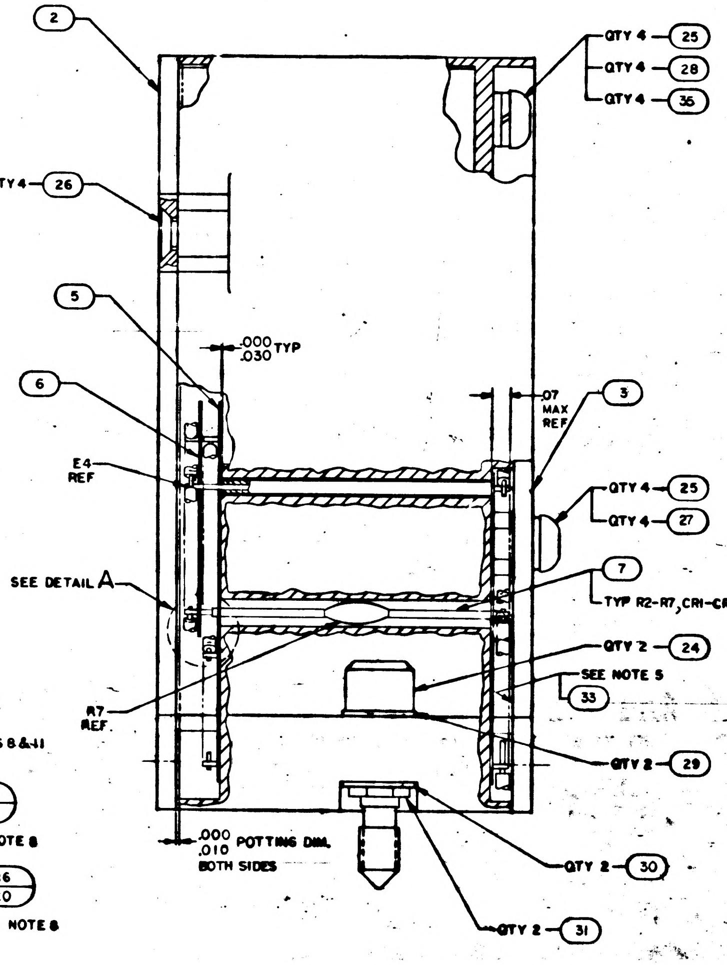

T1
PIN 3 REF
.04
.02
PIN 4

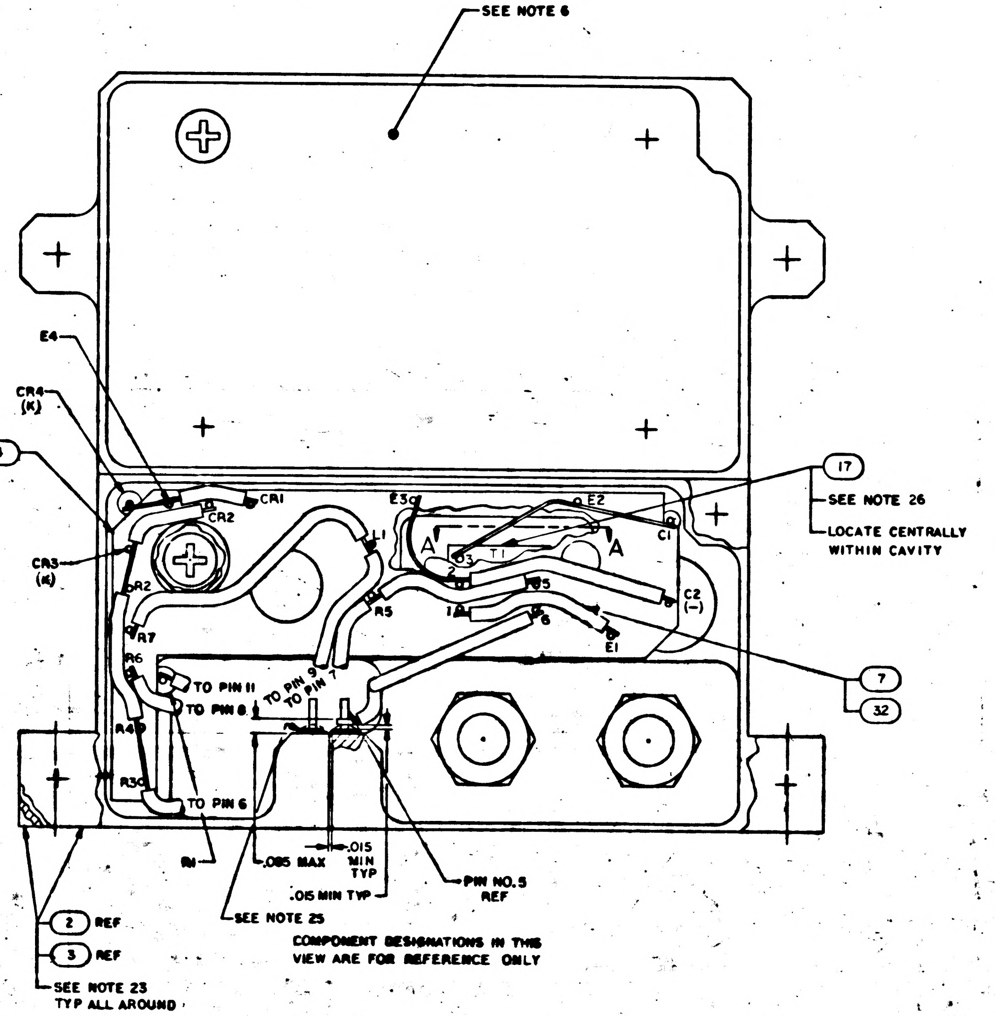
PARTIAL SECTION A-A


1
10
E3
7
32
L2
CR1 (K)
E4
CR4
CR2 (K)
CR1-CR4 13
CR3
SEE NOTE 8
T2
TO PIN 3
TO PIN 2
TO PIN 12
TO PIN 9
TO PIN 4
TO PIN 10
R2 23
SEE NOTES 8 & 11
R7 21
SEE NOTE 8
R6 20
SEE NOTE 8
A
PIN NO. 1 REF
.14 MAX 12 PLACES
R1 22
SEE NOTES 26 & 11
R3 & R4 18
SEE NOTE 8
17
SEE NOTE 26
LOCATE CENTRALLY WITHIN CAVITY

OWN WITH FIND NO. 5 & 6 REMOVED

BY MIL-D-70327


2
QTY 4 26
5
6
E4 REF
SEE DETAIL A
R7 REF
.000 .030 TYP
.07 MAX REF
3
QTY 4 25
QTY 4 28
QTY 4 35
QTY 4 25
QTY 4 27
7
TYP R2-R7, CR1-CR4 & 10
QTY 2 24
SEE NOTE 5
33
QTY 2 29
.000 .010 POTTING DIM. BOTH SIDES
QTY 2 30
QTY 2 31


SEE NOTE 6
E4
CR4 (K)
4
CR3 (K)
CR2
CR1
E3
E2
T1
Q3
A
A
C1
C2 (-)
17
SEE NOTE 26
LOCATE CENTRALLY WITHIN CAVITY
R2
R7
R6
R4
R3
R5
E1
TO PIN 11
TO PIN 8
TO PIN 9
TO PIN 7
TO PIN 6
7
32
.085 MAX
.015 MIN TYP
PIN NO. 5 REF
SEE NOTE 25
2 REF
3 REF
SEE NOTE 23 TYP ALL AROUND

COMPONENT DESIGNATIONS IN THIS VIEW ARE FOR REFERENCE ONLY

NO. 23 & E1-E4

IS DISASSEMBLED

S

NED AT ELECTRICAL

O. 23 TO SELECTED

L WIRING

RDANCE WITH ND1002080

ON WITH UNIT NUMBER

1002122, TYPE II, CLASS 2

002122, TYPE II, CLASS 2

20. + DENOTES POSITIVE SIDE OF CAPACITOR
21. − DENOTES NEGATIVE SIDE OF CAPACITOR
22. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND MEET ALL THE REQUIREMENTS OF P.S. 2003901
23. FIND NO. 2 AND 3 SHALL NOT OVERHANG EDGES OF FIND NO. 1
~~24. UNLESS OTHERWISE SPECIFIED ALL WIRING TO BE FIND NO. 9~~
25. SEAL INSULATORS OF FIND NO. 1 PER ND1002004 TYPE VI
26. STAKE FIND NO. 17 AND FIND NO. 22 TO FIND NO. 1 PER ND1002004 TYPE V

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
4	MS15795-803	WASHER, FLAT	35
2	MS15795-808	WASHER, FLAT	34
☒	2005904	SCHEMATIC	REF
AR	1006879	SILICONE COMPOUND	33
AR	1006757-13	WIRE, ELECTRICAL .020 DIA	32
2	MS16633-4015	RING, RETAINING, EXTERNAL	31
2	1004546-3	WASHER, FLAT	30
2	1004546-1	WASHER, FLAT	29
4	MS35338-78	WASHER, LOCK, SPLIT	28
4	NAS620C4	WASHER, FLAT	27
4	MS24693-PC2	SCREW, FLAT HD, CROSS RECESSED	26
8	MS35216-12	SCREW, PAN HD, CROSS RECESSED	25
2	1004579-1	SCREW, JACKING	24
1	SEE NOTE 11	RESISTOR, FIXED FILM	23
1	SEE NOTE 11	RESISTOR, FIXED FILM	22
1	1006750-56	RESISTOR, FIXED	21
1	1006750-72	RESISTOR, FIXED	20
1	1006750-32	RESISTOR, FIXED	19
2	1006760-64	RESISTOR, FIXED	18
2	1010291-4	TRANSFORMER, AUDIO	17
1	1010406-7	COIL, RF, CHOKE	16
1	1006755-134	CAPACITOR, FIXED	15
1	1006793-19	CAPACITOR, FIXED	14
4	2004103-001	SEMICONDUCTOR DEVICE, DIODE	13
2	1010376-1	TRANSISTOR, SILICON, TYPE NPN	12
2	1006363-002	TRANSISTOR, SILICON, TYPE NPN	11
1	1006325	REACTOR, SATURABLE	10
~~AR~~	~~1006757-1~~	~~WIRE, ELECTRICAL .010 x .080~~	~~9~~
~~AR~~	~~1006757-8~~	~~WIRE, ELECTRICAL .020 DIA~~	~~8~~
AR	1006776-22	SLEEVING, INSULATION	7
1	2004902	INSULATOR, UPPER LEVEL	6
1	2004901-011	INSULATOR, LOWER LEVEL	5
1	2004934-	INSULATOR, REAR	4
1	2004906	COVER, BOTTOM	3
1	2004905	COVER, TOP	2
1	2003921-011	HEADER ASSEMBLY	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003985	
2003900	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

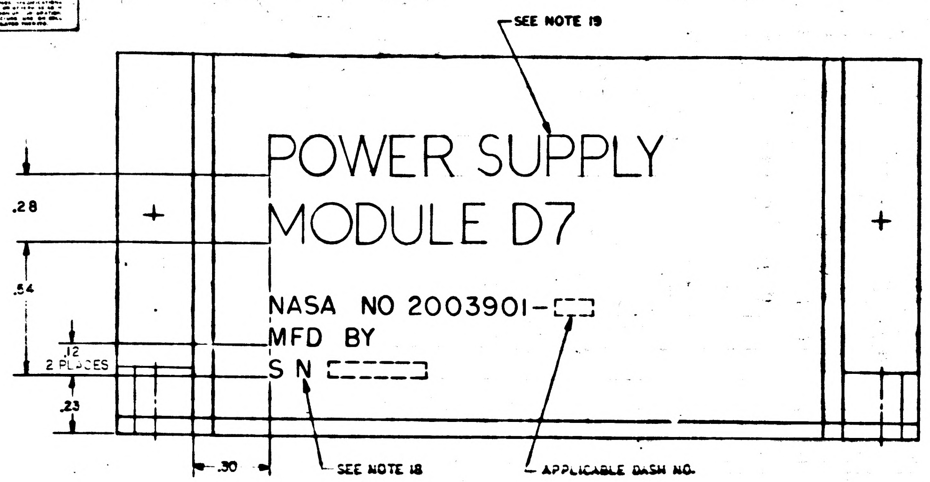
MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN DATE
CHECKED 11 Jun 65
APPROVAL
APPROVAL
NASA APPROVAL 7-13-65
MIT APPROVAL 7-13-65

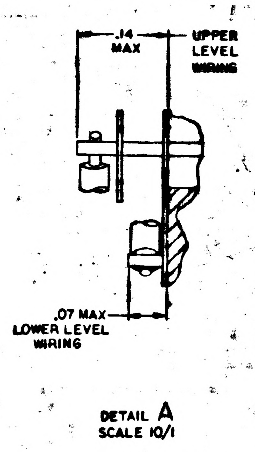
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

POWER SUPPLY ASSEMBLY
MODULE D7
AGC DSKY

CODE IDENT NO. 80230 SIZE J NASA DRAWING NO. 2003901
SCALE 4/1 WT SHEET 1 OF 1

F2/2


SEE NOTE 19
POWER SUPPLY
MODULE D7
NASA NO 2003901-
MFD BY
S N
.28
.54
.12 2 PLACES
.23
.30
SEE NOTE 18
APPLICABLE DASH NO.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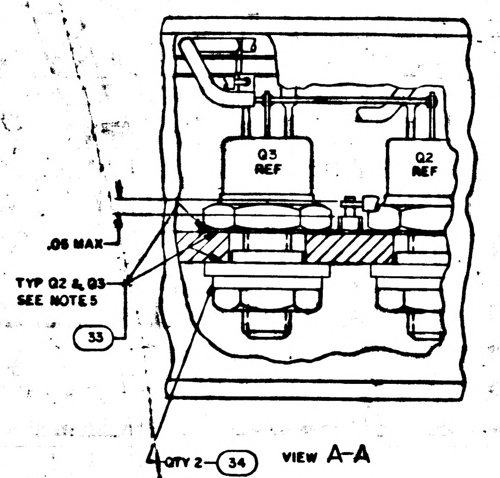
UPPER LEVEL WIRING
.07 MAX
LOWER LEVEL WIRING

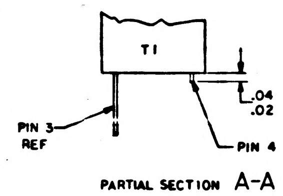
DETAIL A
SCALE 10/1


Q3 REF
Q2 REF
.06 MAX
TYP Q2 & Q3 SEE NOTE 5
33
QTY 2 34

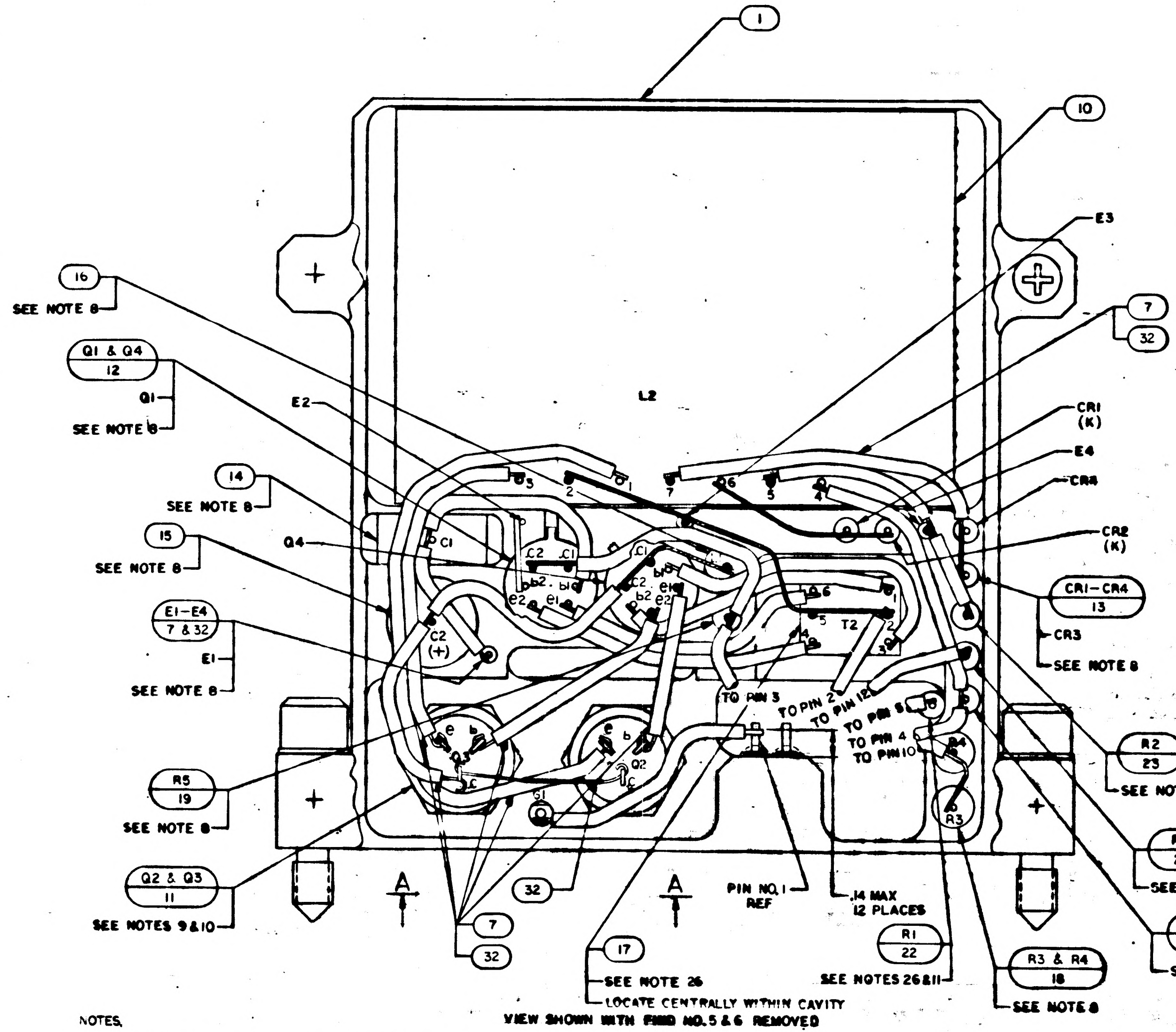
VIEW A-A

CHART A	
PART NO.	VALUE
1006750-41	2400
-42	2700
-43	3000
-44	3300
-45	3600
-46	3900
-47	4300
-48	4700
-126	2850
-127	3150
-128	3450
1006750-129	3750

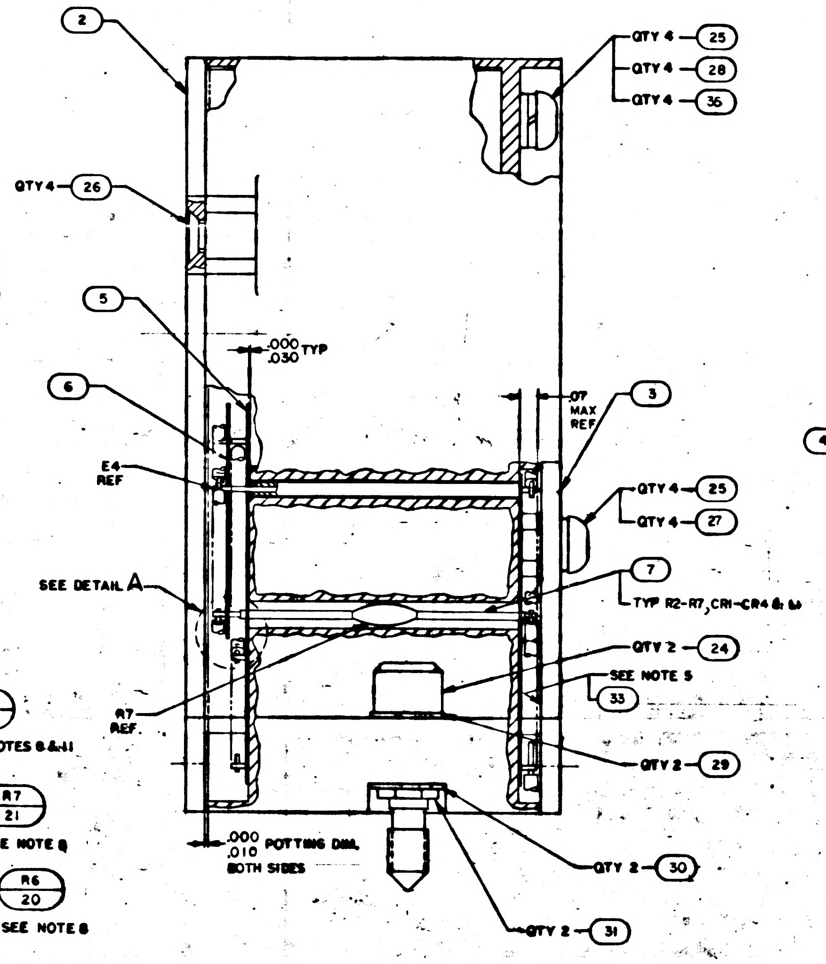
CHART B	
PART NO.	VALUE
1006750-19	300
-22	390
-25	510
-27	620
-28	680
-29	750
-30	820
-31	910
-32	1000
-34	1200
1006750-36	1500

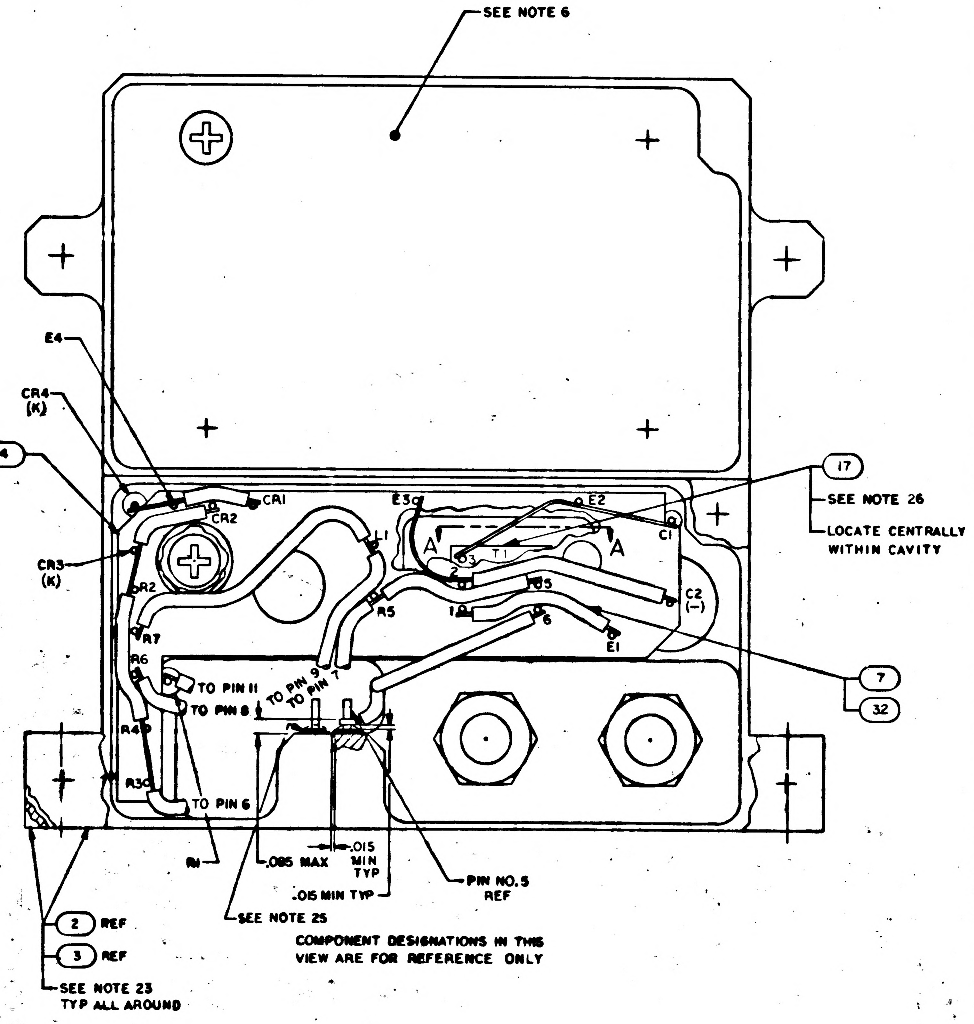

T1
PIN 3 REF
PIN 4
.04
.02

PARTIAL SECTION A-A


1
10
E3
16
SEE NOTE 8
Q1 & Q4
12
Q1
SEE NOTE 8
E2
L2
7
32
CR1 (K)
E4
CR4
CR2 (K)
14
SEE NOTE 8
Q4
15
SEE NOTE 8
CR1-CR4
13
CR3
SEE NOTE 8
E1-E4
7 & 32
E1
SEE NOTE 8
C1
C2 (+)
T2
TO PIN 3
TO PIN 2
TO PIN 12
TO PIN 5
TO PIN 4
TO PIN 10
R2
23
SEE NOTES 8 & 11
R5
19
SEE NOTE 8
R7
21
SEE NOTE 8
Q2 & Q3
11
SEE NOTES 9 & 10
A
A
7
32
32
PIN NO.1 REF
.14 MAX
12 PLACES
R1
22
SEE NOTES 26 & 11
R3 & R4
18
SEE NOTE 8
R6
20
SEE NOTE 8
17
SEE NOTE 26
LOCATE CENTRALLY WITHIN CAVITY

VIEW SHOWN WITH FIND NO.5 & 6 REMOVED


2
QTY 4 25
QTY 4 28
QTY 4 36
QTY 4 26
5
.000 .030 TYP
6
.07 MAX REF
3
E4 REF
QTY 4 25
QTY 4 27
SEE DETAIL A
7
TYP R2-R7, CR1-CR4 & L1
QTY 2 24
SEE NOTE 5
33
R7 REF.
QTY 2 29
.000 .010 POTTING DIM. BOTH SIDES
QTY 2 30
QTY 2 31


SEE NOTE 6
E4
CR4 (K)
4
CR3 (K)
CR2
CR1
E3
E2
T1
A
A
C1
C2 (-)
17
SEE NOTE 26
LOCATE CENTRALLY WITHIN CAVITY
R2
R7
R6
R5
L1
E1
TO PIN 11
TO PIN 8
TO PIN 9
TO PIN 7
R4
R3
TO PIN 6
R1
.085 MAX
.015 MIN TYP
.015 MIN TYP
PIN NO.5 REF
7
32
2 REF
3 REF
SEE NOTE 25
SEE NOTE 23
TYP ALL AROUND

COMPONENT DESIGNATIONS IN THIS VIEW ARE FOR REFERENCE ONLY

NOTES,

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. WELD PER 10C2005
3. SOLDER PER ND1002071 USING SOLDER PER ND1002075
4. ENCAPSULATE PER ND1002236
5. APPLY FIND NO.33 TO INDICATED AREA
6. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
7. ALL VIEWS SHOWN WITH POTTING REMOVED FOR CLARITY
8. STAKE FIND NO.12 THRU FIND NO.16, FIND NO.18 THRU FIND NO.21, FIND NO.23 & E1-E4 TO FIND NO.1 PER ND1002009 METHOD C OR D
9. NEW MICA WASHER TO BE INSTALLED EACH TIME FIND NO.11 IS DISASSEMBLED
10. MOUNTING TORQUE FOR FIND NO.11 TO BE 8-15 INCH POUNDS
11. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST, FIND NO.22 TO BE SELECTED FROM CHART A & FIND NO.23 TO SELECTED FROM CHART B
12. AR DENOTES AS REQUIRED
13. K DENOTES CATHODE SIDE OF DIODE
14. WHITE DOT & CLEAR LEAD INDICATES LOWER LEVEL WIRING
15. BLACK DOT & CROSS HATCHED LEAD INDICATES UPPER LEVEL WIRING
16. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002088
17. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX THE DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH
18. MARK .07/.03 HIGH WHITE CHARACTERS PER ND1002008 & ND1002102, TYPE II, CLASS 2 & SERIALIZE PER ND1002023 USING INK 1006271-1
19. MARK .17/.15 HIGH WHITE CHARACTERS PER ND1002008 & ND1002102, TYPE II, CLASS 2 USING INK 1006271-1

20. + DENOTES POSITIVE SIDE OF CAPACITOR
21. - DENOTES NEGATIVE SIDE OF CAPACITOR
22. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND MEET ALL THE REQUIREMENTS OF P.S. 2003901
23. FIND NO.2 AND 3 SHALL NOT OVERHANG EDGES OF FIND NO.1
~~24. UNLESS OTHERWISE SPECIFIED ALL WIRING TO BE FIND NO.9~~
25. SEAL INSULATORS OF FIND NO.1 PER ND1002004 TYPE VI
26. STAKE FIND NO.17 AND FIND NO.22 TO FIND NO.1 PER ND1002004 TYPE V

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ±.02 DO NOT SCALE THIS DRAWING
2003985		MATERIAL
2003900		HEAT TREATMENT
NEXT ASSY	USED ON	FINAL FINISH
APPLICATION		

2003901 D

APOLLO G&N Specification
PS 2003901 **Rev. D**
Original Issue Date: 5-11-66
Release Authority: TDRR 28742
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

AGC DSKY POWER SUPPLY ASSEMBLY

(MODULE D7)

DRAWING NO. 2003901

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
Ⓜ 6/1/66	A	29206	1 and 5 & 7	DMS FG	DMS FG
Ⓜ 7/1/66	B	29923	1 and 5	DMS FG	DMS FG
Ⓜ 9/1/66	C	30871	1, 3	WJ FG	WJ FG
Ⓜ 1/6/67	D	32574	1, 2	WJ FG	WJ FG

This specification consists of pages 1 to 8 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	2C Hall 5/11/66 5-11-66 MIT/IL	D.M. Sleeper 25 MAR 66 4/1/66 4/1/66 RAY 4-1-66

1.0 SCOPE

This specification establishes the detail requirements for identification and acceptance of the AGC DSKY Power Supply Module (D7) Part Numbers 2003901-021, and 2003901-031.

2.0 APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein.

2.1 EFFECTIVE ISSUES. Unless otherwise specified herein, Military and Government Standards and Specifications shall be the issue in effect on the date of request for proposal or invitation to bid.

SPECIFICATIONS

APOLLO G&N

ND 1002214	General Specification for Preservation, Packaging, Packing, and Container Marking of Apollo Guidance and Navigation Major Assemblies, Assemblies, Subassemblies, Parts and Associated Ground Support Equipment.

DRAWINGS

APOLLO G&N

2003901	POWER SUPPLY ASSEMBLY, MODULE D7 AGC DSKY

(Copies of Specifications, drawings, standards, bulletins, and publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer).

2.2 CONFLICTING REQUIREMENTS. In the event of conflict between the requirements of the contract, this specification, and the documents listed in this section, the following order of precedence shall apply and the contractor shall notify MIT APOLLO Management of the conflict as soon as it is determined.

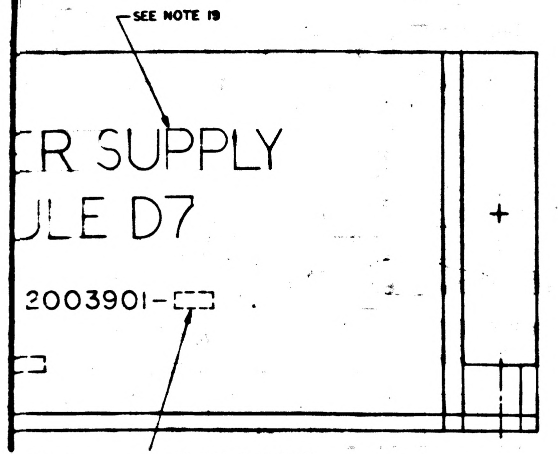
a. The contract

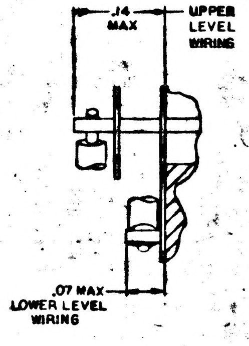
b. This specification

c. Documents listed in this section

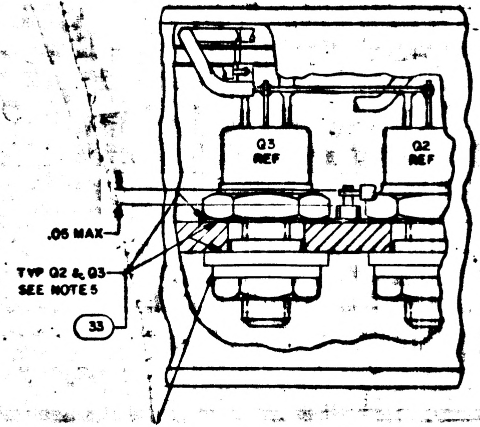
2003901 E

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22161 DR CHK APPD		
B	REVISED PER TDRR 23234 DR CHK APPD		
C	REVISED PER TDRR 23628 DR CHK APPD		
D	REVISED PER TDRR 24232 DR CHK APPD		
E	REVISED PER TDRR 25147 DR CHK		


SEE NOTE 19
ER SUPPLY
ULE D7
2003901-
APPLICABLE DASH NO.


.14 MAX
UPPER LEVEL WIRING
.07 MAX
LOWER LEVEL WIRING

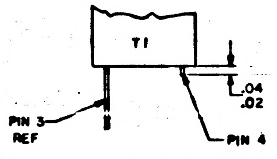
DETAIL A
SCALE 10/1


Q3 REF
Q2 REF
.06 MAX
TYP Q2 & Q3
SEE NOTE 5
33
QTY 2
34

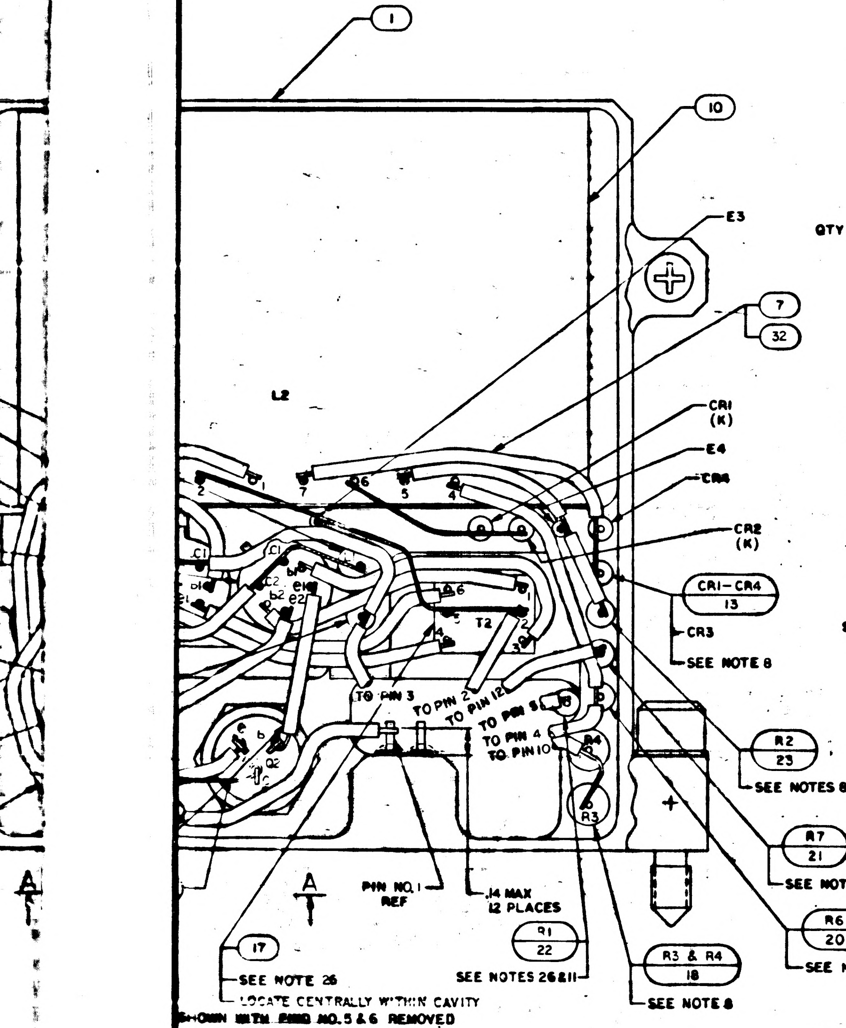
VIEW A-A

CHART A	
PART NO.	VALUE
1006750-41	2400
-42	2700
-43	3000
-44	3300
-45	3600
-46	3900
-47	4300
-48	4700
-126	2850
-127	3150
-128	3450
-129	3750
-130	4100
1006750-131	4500

CHART B	
PART NO.	VALUE
1006750-19	300
-22	390
-25	510
-27	620
-28	680
-29	750
-30	820
-31	910
-32	1000
-34	1200
1006750-36	1500

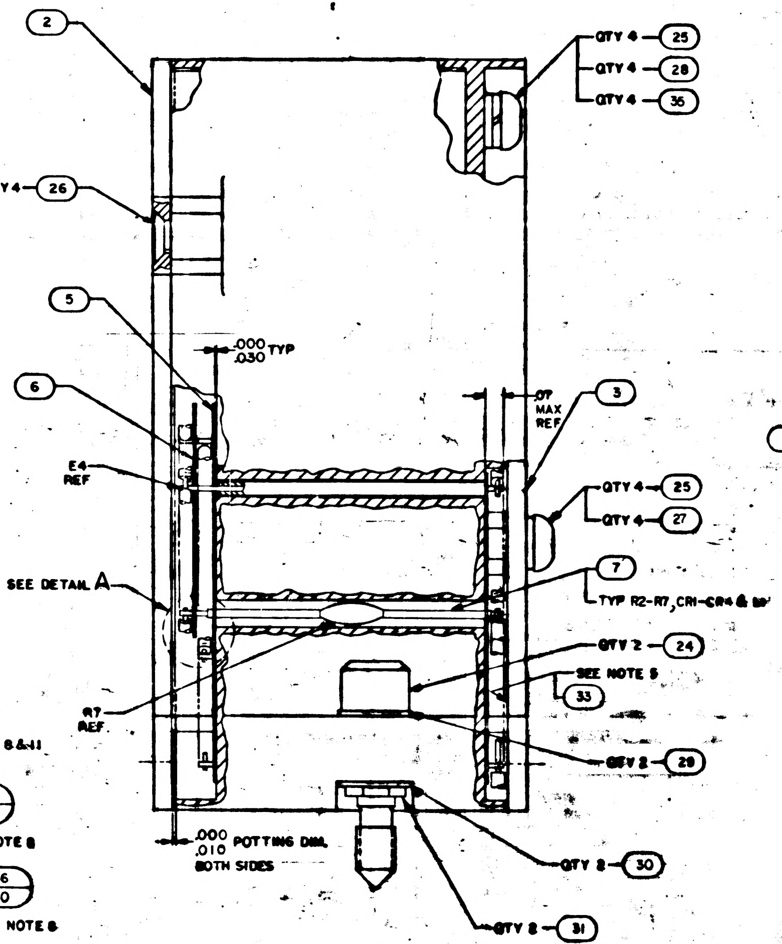

T1
PIN 3 REF
PIN 4
.04
.02

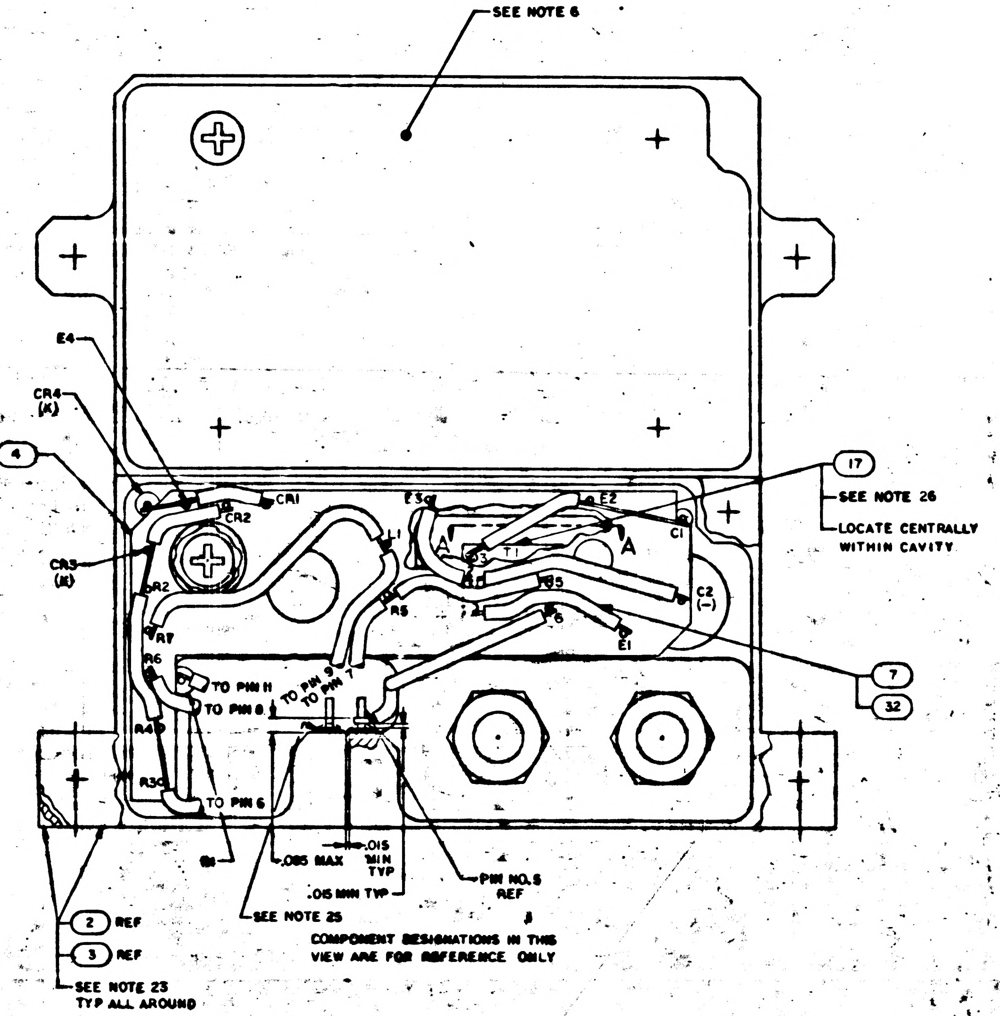
PARTIAL SECTION A-A


1
10
E3
7
32
L2
CR1 (K)
E4
CR4
CR2 (K)
CR1-CR4
13
CR3
SEE NOTE 8
C1
T2
Q2
TO PIN 3
TO PIN 2
TO PIN 12
TO PIN 5
TO PIN 4
TO PIN 10
R3
R4
R2
23
SEE NOTES 8 & 11
R7
21
SEE NOTE 8
R6
20
SEE NOTE 8
A
PIN NO.1 REF
.14 MAX
12 PLACES
R1
22
SEE NOTES 26 & 11
R3 & R4
18
SEE NOTE 8
17
SEE NOTE 26
LOCATE CENTRALLY WITHIN CAVITY

SHOWN WITH FIND NO.5 & 6 REMOVED

SED BY MIL-D-70327


2
QTY 4
26
5
.000
.030 TYP
6
E4 REF
SEE DETAIL A
R7 REF
.000
.010 POTTING DIM.
BOTH SIDES
QTY 4
25
QTY 4
28
QTY 4
35
.07 MAX REF
3
QTY 4
25
QTY 4
27
7
TYP R2-R7, CR1-CR4 & ...
QTY 2
24
SEE NOTE 5
33
QTY 2
29
QTY 2
30
QTY 2
31


SEE NOTE 6
E4
CR4 (K)
4
CR1
CR2
CR3 (K)
R2
R7
R6
R4
R3
L1
R5
E3
E2
T1
A
C1
C2 (-)
E1
17
SEE NOTE 26
LOCATE CENTRALLY WITHIN CAVITY
7
32
TO PIN 11
TO PIN 8
TO PIN 9
TO PIN 7
TO PIN 6
.085 MAX
.015 MIN TYP
.015 MIN TYP
PIN NO.5 REF
SEE NOTE 25
2
REF
3
REF
SEE NOTE 23
TYP ALL AROUND

COMPONENT DESIGNATIONS IN THIS VIEW ARE FOR REFERENCE ONLY

NC NO.23 & E1-E4

IS DISASSEMBLED
NDS
MINED AT ELECTRICAL
NO.23 TO SELECTED

ND
VEL WIRING
CORDANCE WITH ND1002089
TION WITH UNIT NUMBER

D1002122, TYPE II, CLASS 2

D1002122, TYPE II, CLASS 2

20. + DENOTES POSITIVE SIDE OF CAPACITOR
21. − DENOTES NEGATIVE SIDE OF CAPACITOR
22. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND MEET ALL THE REQUIREMENTS OF P.S. 2003901
23. FIND NO.2 AND 3 SHALL NOT OVERHANG EDGES OF FIND NO.1
~~24. UNLESS OTHERWISE SPECIFIED ALL WIRING TO BE FIND NO.9~~
25. SEAL INSULATORS OF FIND NO.1 PER ND1002004 TYPE VI
26. STAKE FIND NO.17 AND FIND NO.22 TO FIND NO.1 PER ND1002004 TYPE V

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
4	MS15795-803	WASHER, FLAT	35
2	MS15795-808	WASHER, FLAT	34
X	2005904	SCHEMATIC	REF
AR	1006879	SILICONE COMPOUND	33
AR	1006757-13	WIRE, ELECTRICAL .020 DIA	32
2	MS16633-4015	RING, RETAINING, EXTERNAL	31
2	1004546-3	WASHER, FLAT	30
2	1004546-1	WASHER, FLAT	29
4	MS35338-78	WASHER, LOCK, SPLIT	28
4	NAS620C4	WASHER, FLAT	27
4	MS24693-PC2	SCREW, FLAT HD, CROSS RECESSED	26
8	MS35216-12	SCREW, PAN HD, CROSS RECESSED	25
2	1004579-1	SCREW, JACKING	24
1	SEE NOTE 11	RESISTOR, FIXED FILM	23
1	SEE NOTE 11	RESISTOR, FIXED FILM	22
1	1006750-56	RESISTOR, FIXED	21
1	1006750-72	RESISTOR, FIXED	20
1	1006750-32	RESISTOR, FIXED	19
2	1006760-64	RESISTOR, FIXED	18
2	1010291-4	TRANSFORMER, AUDIO	17
1	1010406-7	COIL, RF, CHOKE	16
1	1006795-134	CAPACITOR, FIXED	15
1	1006793-19	CAPACITOR, FIXED	14
4	2004103-001	SEMICONDUCTOR DEVICE, DIODE	13
2	1010376-1	TRANSISTOR, SILICON, TYPE NPN	12
2	1006363-002	TRANSISTOR, SILICON, TYPE NPN	11
1	1006325	REACTOR, SATURABLE	10
~~AR~~	~~1006757-4~~	~~WIRE, ELECTRICAL .010 [illegible]~~	~~9~~
~~AR~~	~~1006757-8~~	~~WIRE, ELECTRICAL .020 DIA~~	~~8~~
AR	1006776-22	SLEEVING, INSULATION	7
1	2004902	INSULATOR, UPPER LEVEL	6
1	2004901-011	INSULATOR, LOWER LEVEL	5
1	2004934-	INSULATOR, REAR	4
1	2004906	COVER, BOTTOM	3
1	2004905	COVER, TOP	2
1	2003921-011	HEADER ASSEMBLY	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003985	
2003900	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL 07-13-65
MIT APPROVAL 7-13-65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

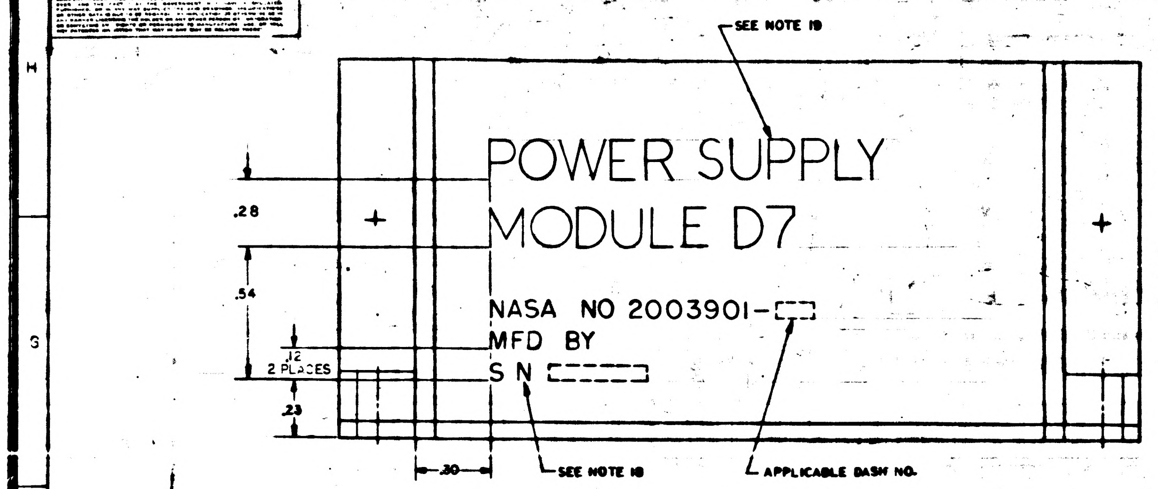
POWER SUPPLY ASSEMBLY
MODULE D7
AGC DSKY

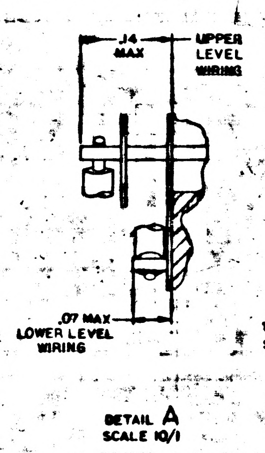
CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO 2003901
SCALE 4/1
WT
SHEET 1 OF 1

2003901 E

2003901 L

F2/A2


SEE NOTE 19
POWER SUPPLY
MODULE D7
NASA NO 2003901-
MFD BY
S N
.28
.54
.12
2 PLACES
.23
.30
SEE NOTE 18
APPLICABLE DASH NO.


.14 MAX
UPPER LEVEL WIRING
.07 MAX
LOWER LEVEL WIRING
DETAIL A
SCALE 10/1

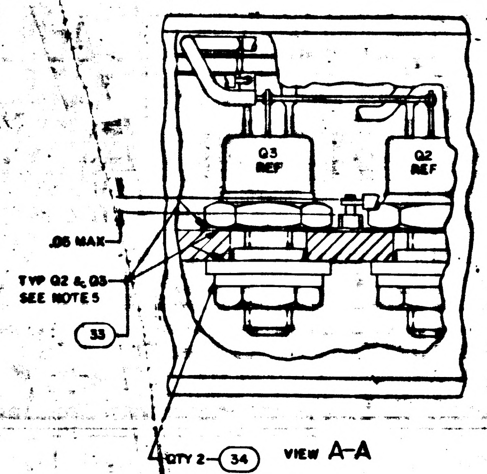
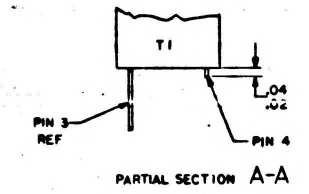
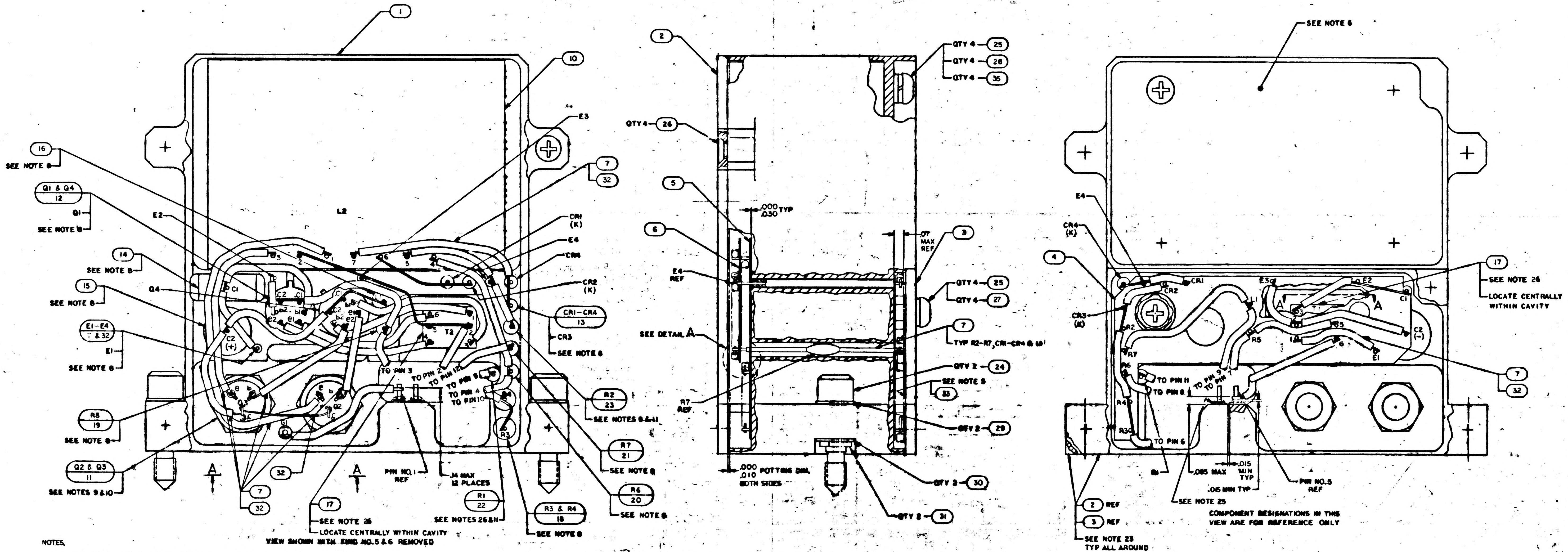

Q3 REF
Q2 REF
.05 MAX
TYP Q2 & Q3
SEE NOTES 5
33
QTY 2 34
VIEW A-A

CHART A	
PART NO.	VALUE
1006750-41	2400
-42	2700
-43	3000
-44	3300
-45	3600
-46	3900
-47	4300
-48	4700
-126	2850
-127	3150
-128	3450
-129	3750
-130	4100
1006750-131	4500

CHART B	
PART NO.	VALUE
1006750-19	300
-22	390
-25	510
-27	620
-28	680
-29	750
-30	820
-31	910
-32	1000
-34	1200
1006750-36	1500


T1
PIN 3 REF
PIN 4
.04
.02
PARTIAL SECTION A-A


1
10
E3
16
SEE NOTE 8
Q1 & Q4
12
Q1
SEE NOTE 8
E2
L2
7
32
CR1 (K)
E4
CR4
CR2 (K)
14
SEE NOTE 8
15
SEE NOTE 8
Q4
C1
C2
E1-E4
7 & 32
E1
SEE NOTE 8
C2 (+)
T2
CR1-CR4
13
CR3
SEE NOTE 8
TO PIN 3
TO PIN 2
TO PIN 12
TO PIN 5
TO PIN 4
TO PIN 10
R2
23
SEE NOTES 8 & 11
R5
19
SEE NOTE 8
Q2 & Q3
11
SEE NOTES 9 & 10
A
7
32
17
SEE NOTE 26
LOCATE CENTRALLY WITHIN CAVITY
PIN NO.1 REF
.14 MAX
12 PLACES
R1
22
SEE NOTES 26 & 11
R3 & R4
18
SEE NOTE 8
R7
21
SEE NOTE 8
R6
20
SEE NOTE 8
VIEW SHOWN WITH FIND NO.5 & 6 REMOVED
2
QTY 4 26
5
6
E4 REF
.000
.030 TYP
.07 MAX REF
3
QTY 4 25
QTY 4 28
QTY 4 36
QTY 4 25
QTY 4 27
SEE DETAIL A
7
TYP R2-R7, CR1-CR4 & L1
QTY 2 24
SEE NOTE 5
33
R7 REF
QTY 2 29
.000
.010 POTTING DIM. BOTH SIDES
QTY 3 30
QTY 2 31
SEE NOTE 6
E4
CR4 (K)
4
CR1
CR2
CR3 (K)
E3
T1
E2
C1
17
SEE NOTE 26
LOCATE CENTRALLY WITHIN CAVITY
L1
R5
C2 (-)
E1
7
32
R7
R6
TO PIN 11
TO PIN 8
TO PIN 9
TO PIN 7
R4
R3
TO PIN 6
.085 MAX
.015 MIN TYP
.015 MIN TYP
PIN NO.5 REF
2 REF
3 REF
SEE NOTE 23
TYP ALL AROUND
SEE NOTE 25
COMPONENT DESIGNATIONS IN THIS VIEW ARE FOR REFERENCE ONLY

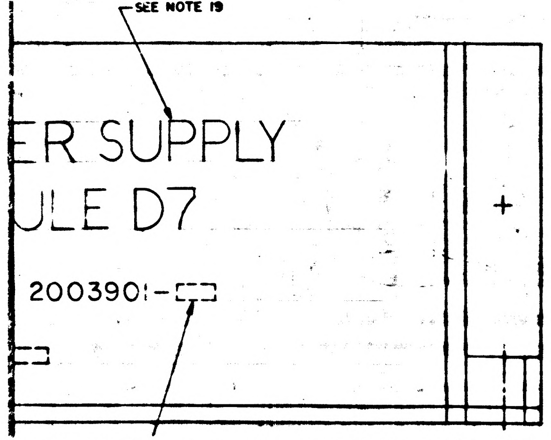
NOTES,

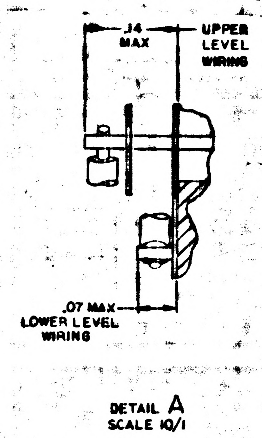
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. WELD PER 1002005
3. SOLDER PER ND1002071 USING SOLDER PER ND1002075
4. ENCAPSULATE PER ND1002236
5. APPLY FIND NO.33 TO INDICATED AREA
6. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
7. ALL VIEWS SHOWN WITH POTTING REMOVED FOR CLARITY
8. STAKE FIND NO.12 THRU FIND NO.16, FIND NO.18 THRU FIND NO.21, FIND NO.23 & E1-E4 TO FIND NO.1 PER ND1002009 METHOD C OR D
9. NEW MICA WASHER TO BE INSTALLED EACH TIME FIND NO. 11 IS DISASSEMBLED
10. MOUNTING TORQUE FOR FIND NO.11 TO BE 8-15 INCH POUNDS
11. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST, FIND NO.22 TO BE SELECTED FROM CHART A & FIND NO.23 TO SELECTED FROM CHART B
12. AR DENOTES AS REQUIRED
13. K DENOTES CATHODE SIDE OF DIODE
14. WHITE DOT & CLEAR LEAD INDICATES LOWER LEVEL WIRING
15. BLACK DOT & CROSS HATCHED LEAD INDICATES UPPER LEVEL WIRING
16. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002058
17. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX THE DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH
18. MARK .07/.05 HIGH WHITE CHARACTERS PER ND1002010 & ND1002122, TYPE II, CLASS 2 & SERIALIZE PER ND1002023 USING INK 1006271-1
19. MARK .17/.15 HIGH WHITE CHARACTERS PER ND1002010 & ND1002122, TYPE II, CLASS 2 USING INK 1006271-1
20. + DENOTES POSITIVE SIDE OF CAPACITOR
21. − DENOTES NEGATIVE SIDE OF CAPACITOR
22. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND MEET ALL THE REQUIREMENTS OF P.S. 2003801
23. FIND NO.2 AND 3 SHALL NOT OVERHANG EDGES OF FIND NO.1
~~24. UNLESS OTHERWISE SPECIFIED ALL WIRING TO BE FIND NO.8~~
25. SEAL INSULATORS OF FIND NO.1 PER ND1002004 TYPE VI
26. STAKE FIND NO.17 AND FIND NO.22 TO FIND NO.1 PER ND1002004 TYPE V

2003985	
2003900	
NEXT ASSY	USED ON
APPLICATION	

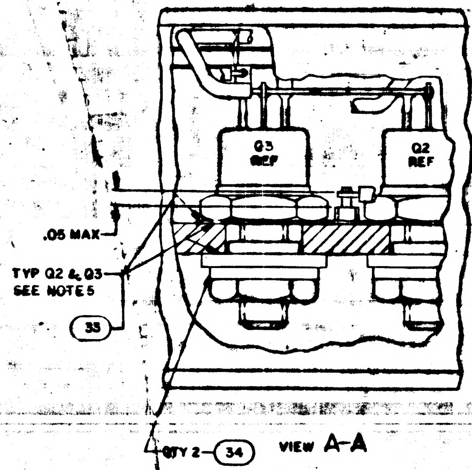
UNLESS OTHERWISE SP
DIMENSIONS ARE IN IN
TOLERANCES ON
FRACTIONS DECIMALS
± ±.02
DO NOT SCALE THIS DR
MATERIAL
HEAT TREATMENT
FINAL FINISH

2003901 E


SEE NOTE 19
ER SUPPLY
ULE D7
2003901-
APPLICABLE DASH NO.
E 18


.14 MAX
UPPER LEVEL WIRING
.07 MAX LOWER LEVEL WIRING

DETAIL A
SCALE 10/1


Q3 REF
Q2 REF
.05 MAX
TYP Q2 & Q3 SEE NOTE 5
33
QTY 2 34

VIEW A-A

CHART A	
PART NO.	VALUE
1006750-41	2400
-42	2700
-43	3000
-44	3300
-45	3600
-46	3900
-47	4300
-48	4700
-126	2850
-127	3150
-128	3450
-129	3750
-130	4100
-131	4500
-38	1800
-39	2000
-40	2200
-122	1900
-123	2100
-124	2300
1006750-125	2550

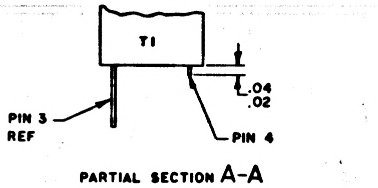
CHART B	
PART NO.	VALUE
1006750-19	300
-22	390
-25	510
-27	620
-28	680
-29	750
-30	820
-31	910
-32	1000
-34	1200
1006750-36	1500

CHART C	
PART NO.	VALUE
1006793-18	3000 PF
-19	3300
-20	3600
-21	3900
-22	4300
-23	4700
1006793-24	5100 PF

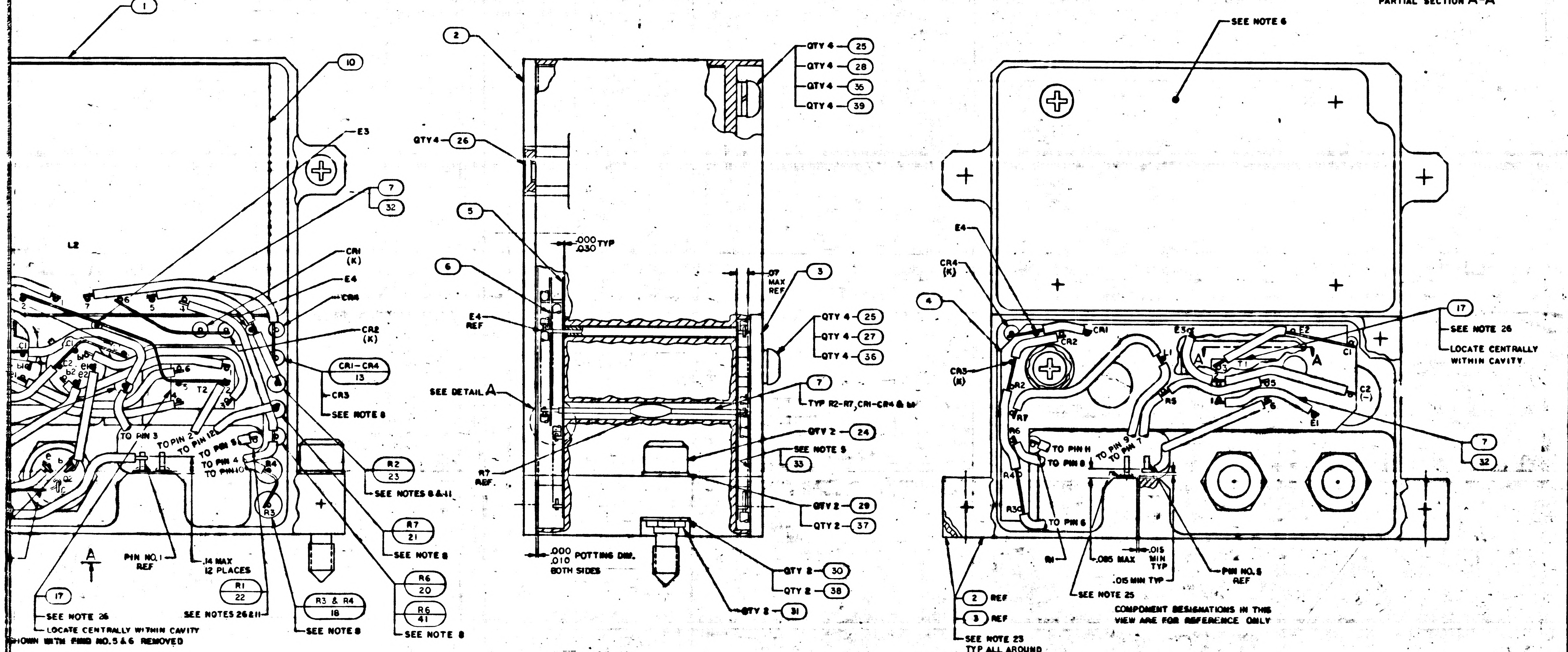
2003901 F

REVISIONS 20356

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22161 DR K. Simpson CHK Hagen APPD		
B	REVISED PER TDRR 23234 DR CHK APPD		
C	REVISED PER TDRR 23628 DR CHK R.H.E. APPD		
D	REVISED PER TDRR 24232 DR P.S. CHK Hagen APPD		
E	REVISED PER TDRR 25147 DR A.J. CHK		
F	REVISED PER TDRR 27551 DR P.S. CHK R.H.E. APPD		


T1
.04
.02
PIN 3 REF
PIN 4

PARTIAL SECTION A-A


1
10
E3
7
32
L2
CR1 (K)
E4
CR4
CR2 (K)
CR1-CR4
13
CR3
SEE NOTE 8
R2
23
SEE NOTES 8 & 11
R7
21
SEE NOTE 8
R6
20
R6
41
SEE NOTE 8
R3 & R4
18
SEE NOTE 8
R1
22
SEE NOTES 26 & 11
.14 MAX
12 PLACES
PIN NO. 1 REF
A
17
SEE NOTE 26
LOCATE CENTRALLY WITHIN CAVITY
SHOWN WITH FIND NO. 5 & 6 REMOVED
TO PIN 3
TO PIN 2
TO PIN 12
TO PIN 8
TO PIN 4
TO PIN 10
T2
2
QTY 4 26
5
6
E4 REF
SEE DETAIL A
R7 REF
.000
.030 TYP
.07 MAX REF
3
QTY 4 25
QTY 4 28
QTY 4 35
QTY 4 39
QTY 4 25
QTY 4 27
QTY 4 36
7
TYP R2-R7, CR1-CR4 & L1
QTY 2 24
SEE NOTE 5
33
QTY 2 29
QTY 2 37
QTY 2 30
QTY 2 38
QTY 2 31
.000
.010 POTTING DIM.
BOTH SIDES
SEE NOTE 6
E4
CR4 (K)
4
CR3 (K)
CR1
CR2
E3
L1
T1
Q3
Q2
C1
C2 (-)
E1
E2
R2
R3
R4
R5
R6
R7
TO PIN H
TO PIN 8
TO PIN 9
TO PIN 7
TO PIN 6
17
SEE NOTE 26
LOCATE CENTRALLY WITHIN CAVITY
7
32
2 REF
3 REF
SEE NOTE 23
TYP ALL AROUND
R1
.085 MAX
.015 MIN TYP
.015 MIN TYP
SEE NOTE 25
PIN NO. 5 REF
COMPONENT DESIGNATIONS IN THIS VIEW ARE FOR REFERENCE ONLY

☒	–	2005921	SCHEMATIC	REF
–	☒	2005904	SCHEMATIC	REF
1	–	1006750-63	RESISTOR, FIXED	41
1	–	SEE NOTE 11	CAPACITOR, FIXED	40
4	–	2004984-013	WASHER, FLAT	39
2	–	2004984-003	WASHER, FLAT	38
2	–	2004984-001	WASHER, FLAT	37
4	–	2004984-012	WASHER, FLAT	36
–	4	MS15795-803	WASHER, FLAT	35
2	2	MS15795-808	WASHER, FLAT	34
AR	AR	1006879	SILICONE COMPOUND	33
AR	AR	1006757-13	WIRE, ELECTRICAL .020 DIA	32
2	2	MS16633-4015	RING, RETAINING, EXTERNAL	31
–	2	1004546-3	WASHER, FLAT	30
–	2	1004546-1	WASHER, FLAT	29
4	4	MS35338-78	WASHER, LOCK, SPLIT	28
–	4	NAS620C4	WASHER, FLAT	27
4	4	MS24693-PC2	SCREW, FLAT HD, CROSS RECESSED	26
8	8	MS35216-12	SCREW, PAN HD, CROSS RECESSED	25
2	2	1004579-1	SCREW, JACKING	24
1	1	SEE NOTE 11	RESISTOR, FIXED FILM	23
1	1	SEE NOTE 11	RESISTOR, FIXED FILM	22
1	1	1006750-56	RESISTOR, FIXED	21
–	1	1006750-72	RESISTOR, FIXED	20
1	1	1006750-32	RESISTOR, FIXED	19
2	2	1006760-64	RESISTOR, FIXED	18
2	2	1010291-4	TRANSFORMER, AUDIO	17
1	1	1010406-7	COIL, RF, CHOKE	16
1	1	1006755-134	CAPACITOR, FIXED	15
–	1	1006793-19	CAPACITOR, FIXED	14
4	4	2004103-001	SEMICONDUCTOR DEVICE, DIODE	13
2	2	1010376-1	TRANSISTOR, SILICON, TYPE NPN	12
2	2	1006363-002	TRANSISTOR, SILICON, TYPE NPN	11
1	1	1006325	REACTOR, SATURABLE	10
~~AR~~	~~AR~~	~~1006757-4~~	~~WIRE, ELECTRICAL .010 x .020~~	~~9~~
~~AR~~	~~AR~~	~~1006757-8~~	~~WIRE, ELECTRICAL .020 DIA~~	~~8~~
AR	AR	1006776-22	SLEEVING, INSULATION	7
1	1	2004902	INSULATOR, UPPER LEVEL	6
1	1	2004901-011	INSULATOR, LOWER LEVEL	5
1	1	2004934-	INSULATOR, REAR	4
1	1	2004906	COVER, BOTTOM	3
1	1	2004905	COVER, TOP	2
1	1	2003921-011	HEADER ASSEMBLY	1
QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
021	011	LIST OF MATERIALS		

2003901

...ED BY MIL-D-70327

...NC NO.23, FIND NO. 41

...IS DISASSEMBLED
...IDS
...INED AT ELECTRICAL
...23 TO BE SELECTED FROM

...D
...EL WIRING
...ORDANCE WITH ND1002080
...ION WITH UNIT NUMBER

...1002122, TYPE II, CLASS 2

...1002122, TYPE II, CLASS 2

20. + DENOTES POSITIVE SIDE OF CAPACITOR
21. – DENOTES NEGATIVE SIDE OF CAPACITOR
22. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND MEET ALL THE REQUIREMENTS OF P.S. 2003901
23. FIND NO.2 AND 3 SHALL NOT OVERHANG EDGES OF FIND NO.1
~~24. UNLESS OTHERWISE SPECIFIED ALL WIRING TO BE FIND NO.8~~
25. SEAL INSULATORS OF FIND NO.1 PER ND1002004 TYPE VI
26. STAKE FIND NO.17 AND FIND NO.22 TO FIND NO.1 PER ND1002004 TYPE V

2003901 F

NEXT ASSY	USED ON
2003950	
2003985	
2003900	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

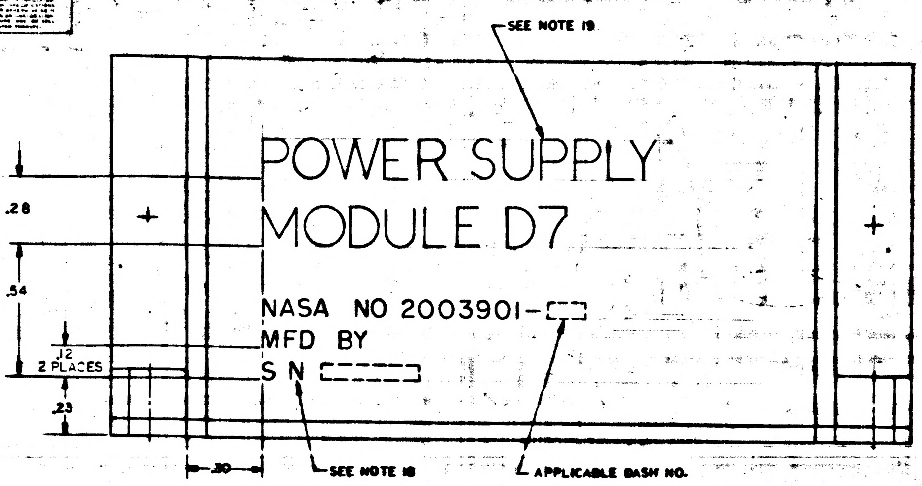
MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN DATE
CHECKED 11 June 65
APPROVAL
APPROVAL
NASA APPROVAL 7-13-65
MIT APPROVAL 7-13-65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

POWER SUPPLY ASSEMBLY
MODULE D7
AGC DSKY

CODE IDENT NO. 80230 SIZE J NASA DRAWING NO. 2003901
SCALE 4/1 WT SHEET 1 OF 1

F 2/2


SEE NOTE 19
POWER SUPPLY
MODULE D7
NASA NO 2003901-
MFD BY
S N
.28
.54
.12
2 PLACES
.23
.20
SEE NOTE 18
APPLICABLE DASH NO.

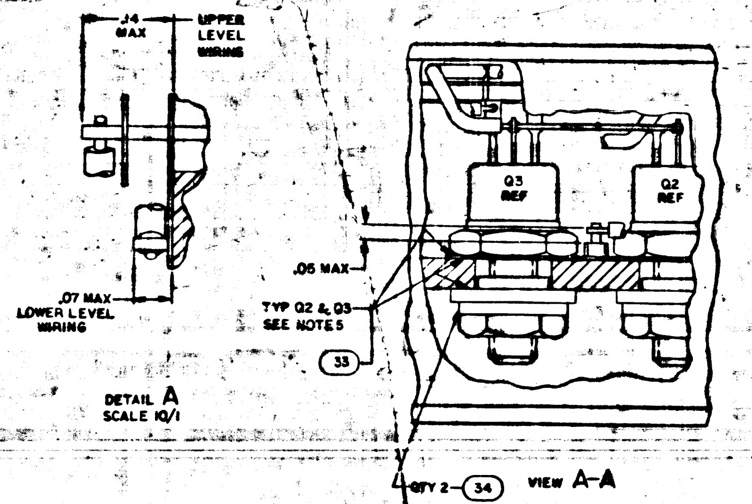
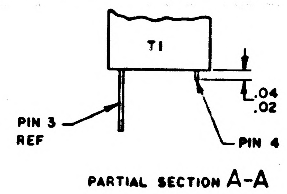
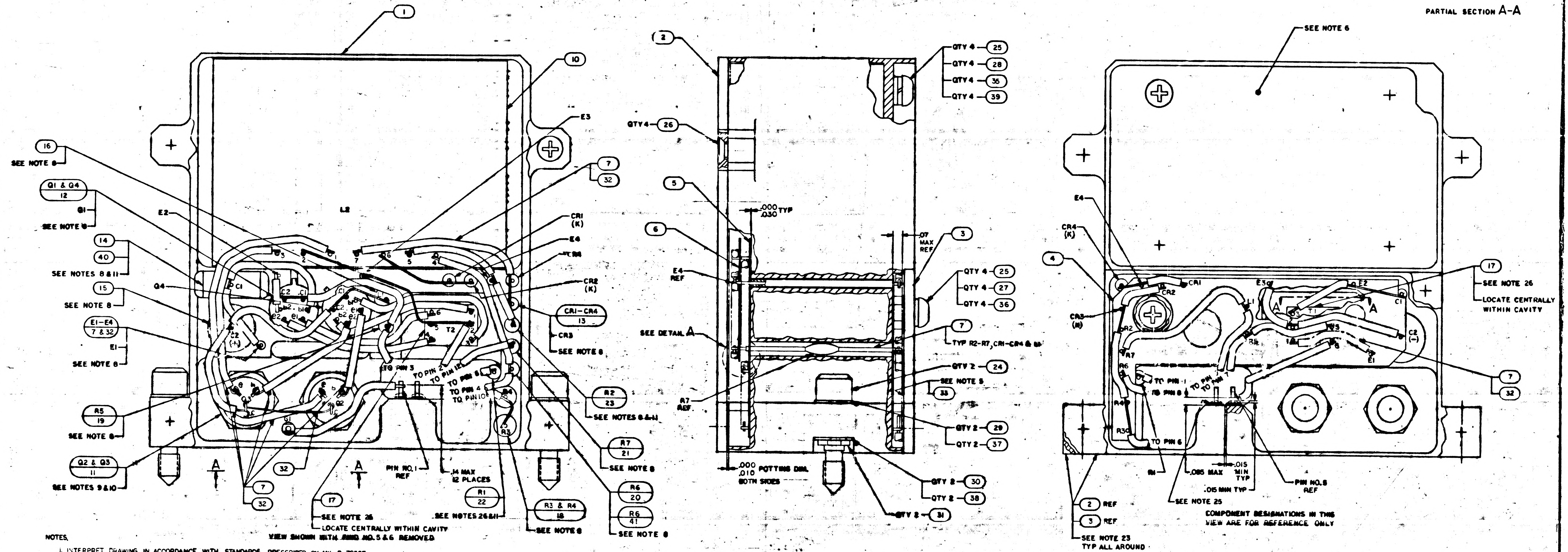

.14 MAX
UPPER LEVEL WIRING
.07 MAX
LOWER LEVEL WIRING
DETAIL A
SCALE 10/1
Q3 REF
Q2 REF
.05 MAX
TYP Q2 & Q3
SEE NOTE 5
33
QTY 2 34
VIEW A-A

CHART A	
PART NO.	VALUE
1006750-41	2400
-42	2700
-43	3000
-44	3300
-45	3600
-46	3900
-47	4300
-48	4700
-126	2850
-127	3150
-128	3450
-129	3750
-130	4100
-131	4500
-38	1800
-39	2000
-40	2200
-122	1900
-123	2100
-124	2300
1006750-125	2550

CHART B	
PART NO.	VALUE
1006750-19	300
-22	390
-25	510
-27	620
-28	680
-29	750
-30	820
-31	910
-32	1000
-34	1200
1006750-36	1500

CHART C	
PART NO.	VALUE
1006793-18	3000 PF
-19	3300
-20	3600
-21	3900
-22	4300
-23	4700
1006793-24	5100 PF


T1
.04
.02
PIN 3
REF
PIN 4
PARTIAL SECTION A-A


1
10
E3
16
SEE NOTE 8
7
32
Q1 & Q4
12
SEE NOTE 8
E2
L2
CR1 (K)
E4
CR4
14
40
SEE NOTES 8 & 11
Q4
C1
C2
CR2 (K)
15
SEE NOTE 8
CR1-CR4
13
CR3
SEE NOTE 8
E1-E4
7 & 32
E1
SEE NOTE 8
T2
TO PIN 3
TO PIN 2
TO PIN 12
TO PIN 5
TO PIN 4
TO PIN 10
R2
23
SEE NOTES 8 & 11
R5
19
SEE NOTE 8
R7
21
SEE NOTE 8
Q2 & Q3
11
SEE NOTES 9 & 10
A
7
32
PIN NO. 1 REF
.14 MAX
12 PLACES
R1
22
SEE NOTES 26 & 11
R3 & R4
18
SEE NOTE 8
R6
20
R6
41
SEE NOTE 8
17
SEE NOTE 26
LOCATE CENTRALLY WITHIN CAVITY
VIEW SHOWN WITH FIND NO. 5 & 6 REMOVED
2
QTY 4 25
QTY 4 28
QTY 4 35
QTY 4 39
QTY 4 26
5
.000
.030 TYP
6
E4 REF
3
.07 MAX REF
QTY 4 25
QTY 4 27
QTY 4 36
SEE DETAIL A
7
TYP R2-R7, CR1-CR4 & 22
QTY 2 24
SEE NOTE 5
33
R7 REF.
QTY 2 29
QTY 2 37
.000
.010 POTTING DIM.
BOTH SIDES
QTY 2 30
QTY 2 38
QTY 2 31
SEE NOTE 6
E4
CR4 (K)
4
CR1
CR2
E3
E2
L1
T1
C1
C2 (-)
CR3 (K)
R2
R7
R6
R5
R4
R3
R1
E1
17
SEE NOTE 26
LOCATE CENTRALLY WITHIN CAVITY
7
32
TO PIN 1
TO PIN 8
TO PIN 7
TO PIN 6
.085 MAX
.015 MIN TYP
.015 MIN TYP
PIN NO. 8 REF
SEE NOTE 25
COMPONENT DESIGNATIONS IN THIS VIEW ARE FOR REFERENCE ONLY
2 REF
3 REF
SEE NOTE 23
TYP ALL AROUND

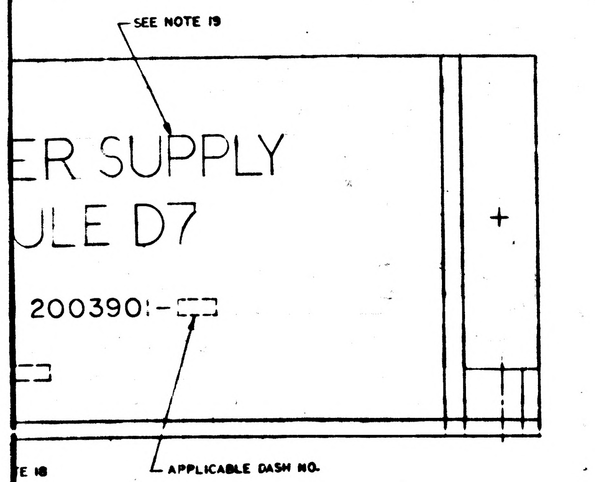
NOTES,

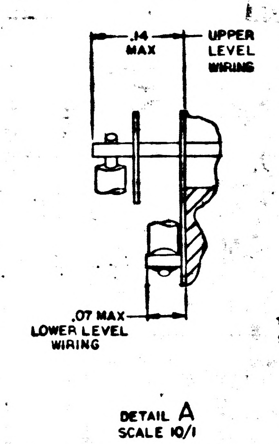
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. WELD PER 1002005
3. SOLDER PER ND1002071 USING SOLDER PER ND1002075
4. ENCAPSULATE PER ND1002236
5. APPLY FIND NO.33 TO INDICATED AREA
6. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
7. ALL VIEWS SHOWN WITH POTTING REMOVED FOR CLARITY
8. STAKE ~~FIND NO.2 THRU FIND NO.6~~, FIND NO 18 THRU FIND NO.21, FIND NO.23, FIND NO. 41 & E1-E4 TO FIND NO.1 PER ND1002009 METHOD C OR D
9. NEW MICA WASHER TO BE INSTALLED EACH TIME FIND NO. 11 IS DISASSEMBLED
10. MOUNTING TORQUE FOR FIND NO.11 TO BE 8-15 INCH POUNDS
11. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST, FIND NO.22 TO BE SELECTED FROM CHART A, FIND NO.23 TO BE SELECTED FROM CHART B & FIND NO. 40 TO BE SELECTED FROM CHART C
12. ~~AR DENOTES AS REQUIRED~~
13. K DENOTES CATHODE SIDE OF DIODE
14. WHITE DOT & CLEAR LEAD INDICATES LOWER LEVEL WIRING
15. BLACK DOT & CROSS HATCHED LEAD INDICATES UPPER LEVEL WIRING
16. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002010
17. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX THE DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH
18. MARK .07/.05 HIGH WHITE CHARACTERS PER ND1002010 & ND1002122, TYPE II, CLASS 2 & SERIALIZE PER ND1002023 USING INK 1006271-1
19. MARK .17/.15 HIGH WHITE CHARACTERS PER ND1002010 & ND1002122, TYPE II, CLASS 2 USING INK 1006271-1
20. + DENOTES POSITIVE SIDE OF CAPACITOR
21. − DENOTES NEGATIVE SIDE OF CAPACITOR
22. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND MEET ALL THE REQUIREMENTS OF P.S. 2003901
23. FIND NO.2 AND 3 SHALL NOT OVERHANG EDGES OF FIND NO.1
24. ~~UNLESS OTHERWISE SPECIFIED ALL WIRING TO BE FIND NO.9~~
25. SEAL INSULATORS OF FIND NO.1 PER ND1002004 TYPE VI
26. STAKE FIND NO.17 AND FIND NO.22 TO FIND NO.1 PER ND1002004 TYPE V

2003950	
2003985	
2003900	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE S
DIMENSIONS ARE IN
TOLERANCES ON
FRACTIONS DECIMA
± ±.0
DO NOT SCALE THIS
MATERIAL
HEAT TREATMENT
FINAL FINISH

2003901 F F1/2


SEE NOTE 19
ER SUPPLY
ULE D7
200390:-
TE 18
APPLICABLE DASH NO.


.14 MAX
UPPER LEVEL WIRING
.07 MAX LOWER LEVEL WIRING
DETAIL A
SCALE 10/1

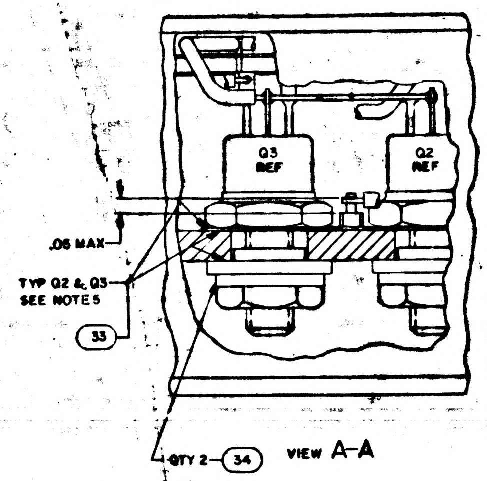

Q3 REF
Q2 REF
.06 MAX
TYP Q2 & Q3 SEE NOTE 5
33
QTY 2 - 34
VIEW A-A

CHART A	
PART NO.	VALUE
1006750-41	2400
-42	2700
-43	3000
-44	3300
-45	3600
-46	3900
-47	4300
-48	4700
-126	2850
-127	3150
-128	3450
-129	3750
-130	4100
-131	4500
-38	1800
-39	2000
-40	2200
-122	1900
-123	2100
-124	2300
1006750-125	2550

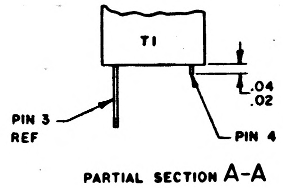
CHART B	
PART NO.	VALUE
1006750-19	300
-22	390
-25	510
-27	620
-28	680
-29	750
-30	820
-31	910
-32	1000
-34	1200
1006750-36	1500

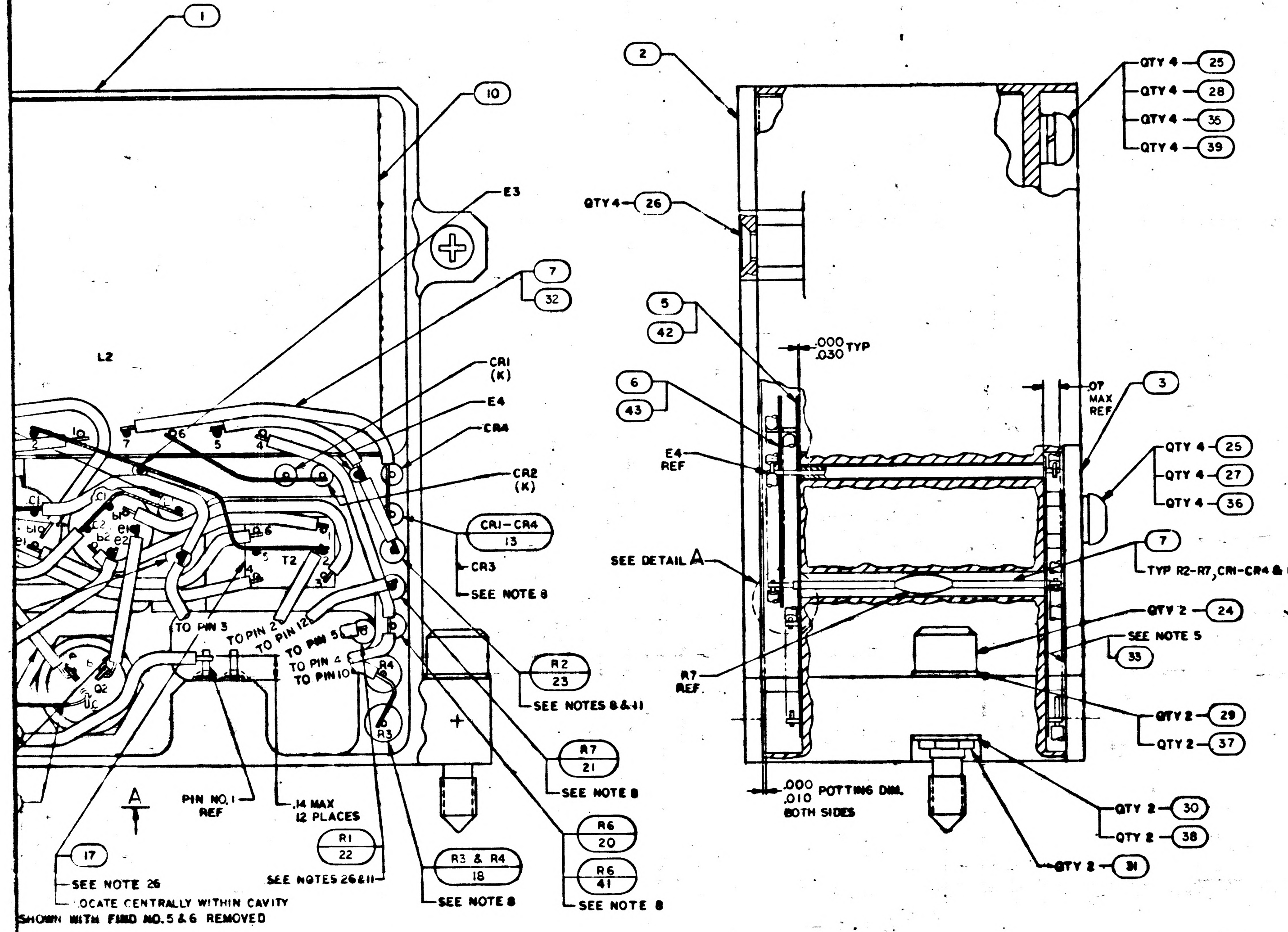
CHART C	
PART NO.	VALUE
1006793-18	3000 PF
-19	3300
-20	3600
-21	3900
-22	4300
-23	4700
1006793-24	5100 PF

2003901 G

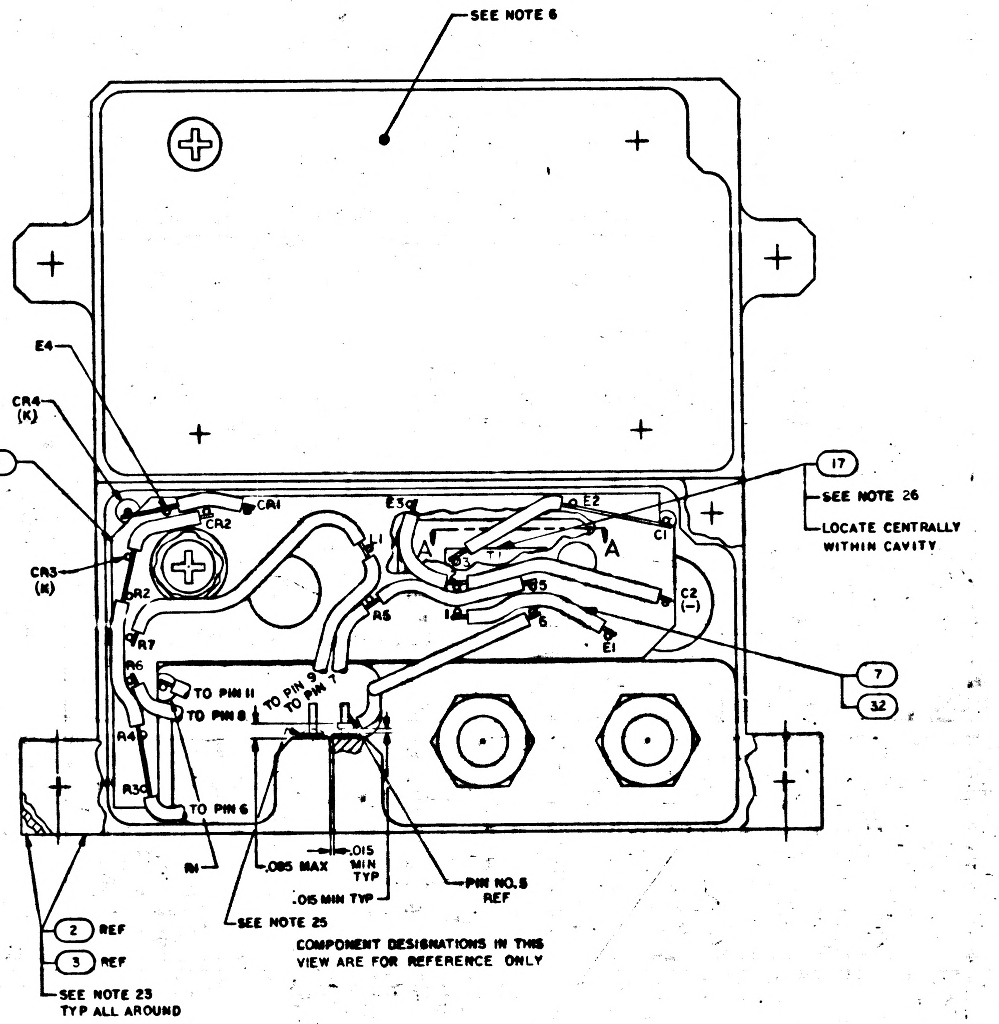
REVISIONS 20356

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER DRR 22161 DR CHK APPD		
B	REVISED PER TDRR 23234 DR CHK APPD		
C	REVISED PER TDRR 23628 DR. CHK R.M.E. APPD		
D	REVISED PER TDRR 24232 DR R.P. CHK APPD		
E	REVISED PER TDRR 25147 DR A.J. CHK		
F	REVISED PER TDRR 27551 DR CHK R.M.E. APPD		
G	REVISED PER TDRR 28032 DR CHK APPD		


T1
.04
.02
PIN 3 REF
PIN 4
PARTIAL SECTION A-A


1
10
E3
7
32
L2
CR1 (K)
E4
CR4
CR2 (K)
CR1-CR4
13
CR3
SEE NOTE 8
T2
TO PIN 3
TO PIN 12
TO PIN 5
TO PIN 4
TO PIN 10
R2
23
SEE NOTES 8 & 41
R7
21
SEE NOTE 8
R6
20
R6
41
SEE NOTE 8
R3 & R4
18
SEE NOTE 8
R1
22
SEE NOTES 26 & 11
.14 MAX 12 PLACES
PIN NO. 1 REF
A
17
SEE NOTE 26
LOCATE CENTRALLY WITHIN CAVITY
2
QTY 4 - 25
QTY 4 - 28
QTY 4 - 35
QTY 4 - 39
QTY 4 - 26
5
42
6
43
.000 .030 TYP
E4 REF
SEE DETAIL A
.07 MAX REF
3
QTY 4 - 25
QTY 4 - 27
QTY 4 - 36
7
TYP R2-R7, CR1-CR4 & L2
QTY 2 - 24
SEE NOTE 5
33
R7 REF
QTY 2 - 29
QTY 2 - 37
.000 .010 POTTING DIM. BOTH SIDES
QTY 2 - 30
QTY 2 - 38
QTY 2 - 31

SHOWN WITH FIND NO. 5 & 6 REMOVED


SEE NOTE 6
E4
CR4 (K)
4
CR1
CR2
CR3 (K)
R2
R7
R6
R4
R3
R1
L1
E3
E2
C1
A
A
Q3
Q2
C2 (-)
R5
E1
17
SEE NOTE 26
LOCATE CENTRALLY WITHIN CAVITY
7
32
TO PIN 11
TO PIN 8
TO PIN 9
TO PIN 7
TO PIN 6
.085 MAX
.015 MIN TYP
.015 MIN TYP
PIN NO. 8 REF
SEE NOTE 25
2 REF
3 REF
SEE NOTE 23 TYP ALL AROUND

COMPONENT DESIGNATIONS IN THIS VIEW ARE FOR REFERENCE ONLY

QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
–	☒	2005904	SCHEMATIC	REF
☒	–	2005921	SCHEMATIC	REF
1	–	2004715	INSULATOR, UPPER LEVEL	43
1	–	2004714	INSULATOR, LOWER LEVEL	42
1	–	1006750-63	RESISTOR, FIXED	41
1	–	SEE NOTE 11	CAPACITOR, FIXED	40
4	–	2004984-013	WASHER, FLAT	39
2	–	2004984-003	WASHER, FLAT	38
2	–	2004984-001	WASHER, FLAT	37
4	–	2004984-012	WASHER, FLAT	36
–	4	MS15795-803	WASHER, FLAT	35
2	2	MS15795-808	WASHER, FLAT	34
AR	AR	1006879	SILICONE COMPOUND	33
AR	AR	1006757-13	WIRE, ELECTRICAL .020 DIA	32
2	2	MS16633-4015	RING, RETAINING, EXTERNAL	31
–	2	1004546-3	WASHER, FLAT	30
–	2	1004546-1	WASHER, FLAT	29
4	4	MS35338-78	WASHER, LOCK, SPLIT	28
–	4	NAS620C4	WASHER, FLAT	27
4	4	MS24693-PC2	SCREW, FLAT HD, CROSS RECESSED	26
8	8	MS35216-12	SCREW, PAN HD, CROSS RECESSED	25
2	2	1004579-1	SCREW, JACKING	24
1	1	SEE NOTE 11	RESISTOR, FIXED FILM	23
1	1	SEE NOTE 11	RESISTOR, FIXED FILM	22
1	1	1006750-56	RESISTOR, FIXED	21
–	1	1006750-72	RESISTOR, FIXED	20
1	1	1006750-32	RESISTOR, FIXED	19
2	2	1006760-64	RESISTOR, FIXED	18
2	2	1010291-4	TRANSFORMER, AUDIO	17
1	1	1010406-7	COIL, RF, CHOKE	16
1	1	1006755-134	CAPACITOR, FIXED	15
–	1	1006793-19	CAPACITOR, FIXED	14
4	4	2004103-001	SEMICONDUCTOR DEVICE, DIODE	13
2	2	1010376-1	TRANSISTOR, SILICON, TYPE NPN	12
2	2	1006363-002	TRANSISTOR, SILICON, TYPE NPN	11
1	1	1006325	REACTOR, SATURABLE	10
~~AR~~	~~AR~~	~~1006757-1~~	~~WIRE, ELECTRICAL .010 X .020~~	~~9~~
~~AR~~	~~AR~~	~~1006757-8~~	~~WIRE, ELECTRICAL .020 DIA~~	~~8~~
AR	AR	1006776-22	SLEEVING, INSULATION	7
–	1	2004902	INSULATOR, UPPER LEVEL	6
–	1	2004901-011	INSULATOR, LOWER LEVEL	5
1	1	2004934-	INSULATOR, REAR	4
1	1	2004906	COVER, BOTTOM	3
1	1	2004905	COVER, TOP	2
1	1	2003921-011	HEADER ASSEMBLY	1
021	011	LIST OF MATERIALS		

F ND NO. 23, FIND NO. 40, FIND NO. 41

IS DISASSEMBLED
NDS
MINED AT ELECTRICAL
ES TO BE SELECTED FROM

VEL WIRING
CORDANCE WITH ND1002058
TION WITH UNIT NUMBER

D1002122, TYPE II, CLASS 2

D1002122, TYPE II, CLASS 2

BED BY MIL-D-70327

20. + DENOTES POSITIVE SIDE OF CAPACITOR
21. – DENOTES NEGATIVE SIDE OF CAPACITOR
22. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND MEET ALL THE REQUIREMENTS OF P.S. 2003901
23. FIND NO. 2 AND 3 SHALL NOT OVERHANG EDGES OF FIND NO. 1
~~24. UNLESS OTHERWISE SPECIFIED ALL WIRING TO BE FIND NO. 9~~
25. SEAL INSULATORS OF FIND NO. 1 PER ND1002004 TYPE VI
26. STAKE FIND NO. 17 AND FIND NO. 22 TO FIND NO. 1 PER ND1002004 TYPE V

NEXT ASSY	USED ON
2003950	
2003985	
2003900	
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN DATE
CHECKED R. Edwards 11 Jun 65
APPROVAL
APPROVAL
NASA APPROVAL 07-13-65
MIT APPROVAL 7-13-65

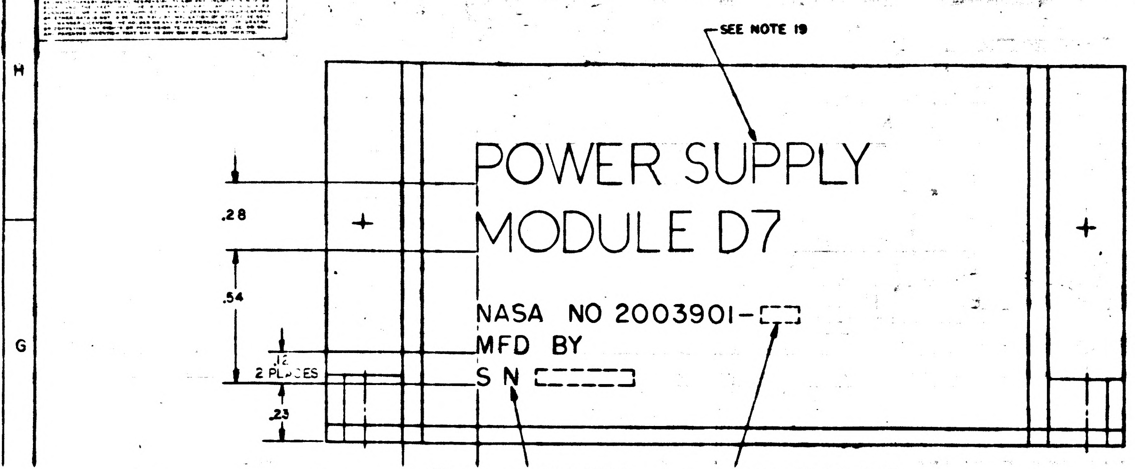
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

POWER SUPPLY ASSEMBLY
MODULE
AGC DSKY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003901
SCALE 4/1
WT
SHEET 1 OF 1

2003901 G

F 2/2


POWER SUPPLY
MODULE D7
NASA NO 2003901-
MFD BY
S N
SEE NOTE 19
SEE NOTE 18
APPLICABLE DASH NO.
.28
.54
.12 2 PLACES
.23
.30

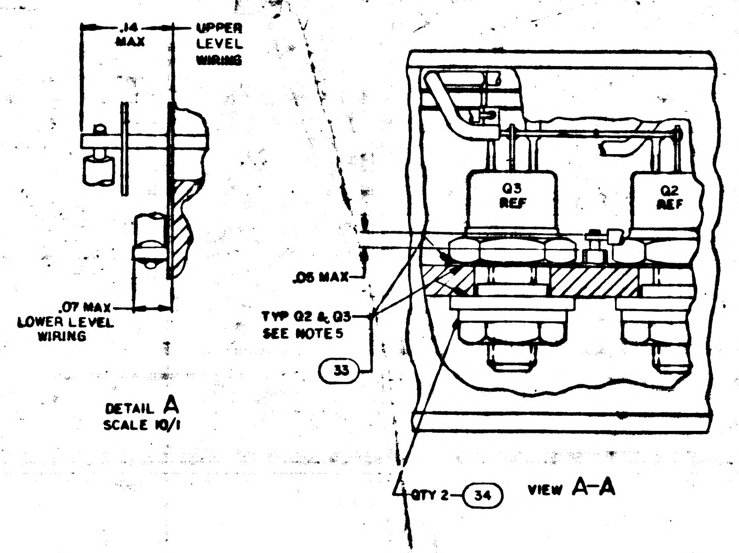
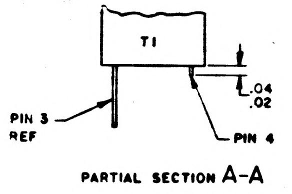
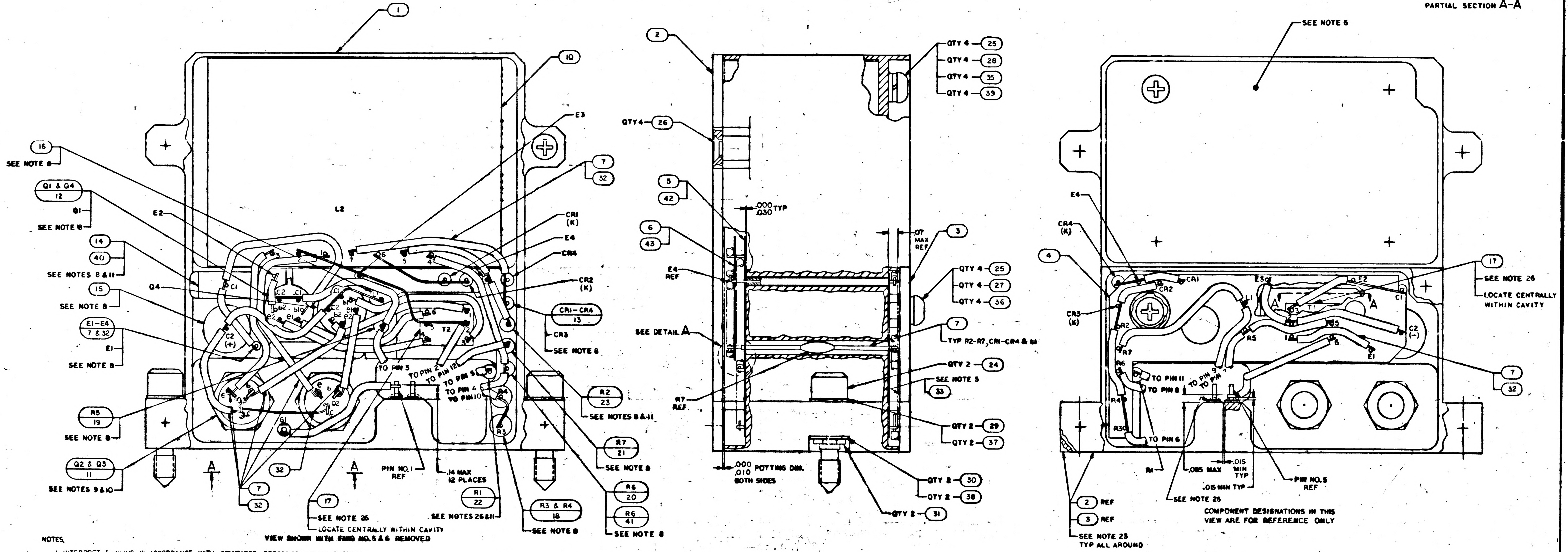

.14 MAX
UPPER LEVEL WIRING
.07 MAX LOWER LEVEL WIRING
DETAIL A
SCALE 10/1
.05 MAX
TYP Q2 & Q3 SEE NOTE 5
33
Q3 REF
Q2 REF
QTY 2 34
VIEW A-A

CHART A	
PART NO.	VALUE
1006750-41	2400
-42	2700
-43	3000
-44	3300
-45	3600
-46	3900
-47	4300
-48	4700
-126	2850
-127	3150
-128	3450
-129	3750
-130	4100
-131	4500
-38	1800
-39	2000
-40	2200
-122	1900
-123	2100
-124	2300
1006750-125	2550

CHART B	
PART NO.	VALUE
1006750-19	300
-22	390
-25	510
-27	620
-28	680
-29	750
-30	820
-31	910
-32	1000
-34	1200
1006750-36	1500

CHART C	
PART NO.	VALUE
1006793-18	3000 PF
-19	3300
-20	3600
-21	3900
-22	4300
-23	4700
1006793-24	5100 PF


T1
PIN 3 REF
PIN 4
.04
.02
PARTIAL SECTION A-A


1
10
E3
16
SEE NOTE 8
Q1 & Q4
12
Q1
SEE NOTE 8
E2
L2
7
32
CR1 (K)
E4
CR4
CR2 (K)
14
40
SEE NOTES 8 & 11
Q4
15
SEE NOTE 8
E1-E4
7 & 32
E1
SEE NOTE 8
CR1-CR4
13
CR3
SEE NOTE 8
T2
TO PIN 3
TO PIN 2
TO PIN 12
TO PIN 5
TO PIN 4
TO PIN 10
R2
23
SEE NOTES 8 & 11
R5
19
SEE NOTE 8
Q2 & Q3
11
SEE NOTES 9 & 10
A
A
7
32
32
17
SEE NOTE 26
LOCATE CENTRALLY WITHIN CAVITY
PIN NO.1 REF
.14 MAX 12 PLACES
R1
22
SEE NOTES 26 & 11
R3 & R4
18
SEE NOTE 8
R7
21
SEE NOTE 8
R6
20
R6
41
SEE NOTE 8
VIEW SHOWN WITH FIND NO.5 & 6 REMOVED
2
QTY 4 26
5
42
6
43
E4 REF
.000 .030 TYP
.07 MAX REF
3
SEE DETAIL A
R7 REF.
.000 .010 POTTING DIM. BOTH SIDES
QTY 4 25
QTY 4 28
QTY 4 35
QTY 4 39
QTY 4 25
QTY 4 27
QTY 4 36
7
TYP R2-R7, CR1-CR4 & L1
QTY 2 24
SEE NOTE 5
33
QTY 2 29
QTY 2 37
QTY 2 30
QTY 2 38
QTY 2 31
SEE NOTE 6
E4
CR4 (K)
4
CR3 (K)
CR2
CR1
E3
E2
C1
C2 (-)
17
SEE NOTE 26
LOCATE CENTRALLY WITHIN CAVITY
T1
L1
R5
R2
R7
R6
R4
R3
R1
E1
TO PIN 11
TO PIN 8
TO PIN 9
TO PIN 7
TO PIN 6
7
32
.085 MAX
.015 MIN TYP
.015 MIN TYP
PIN NO. 5 REF
2 REF
3 REF
SEE NOTE 25
SEE NOTE 23 TYP ALL AROUND
COMPONENT DESIGNATIONS IN THIS VIEW ARE FOR REFERENCE ONLY

NOTES.

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. WELD PER 1002005
3. SOLDER PER ND1002071 USING SOLDER PER ND1002075
4. ENCAPSULATE PER ND1002236
5. APPLY FIND NO.33 TO INDICATED AREA
6. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
7. ALL VIEWS SHOWN WITH POTTING REMOVED FOR CLARITY
8. STAKE FIND NO.12 THRU FIND NO.16, FIND NO.18 THRU FIND NO.21, FIND NO.23, FIND NO. 40, FIND NO. 41 & E1-E4 TO FIND NO.1 PER ND1002003 METHOD C OR D
9. NEW MICA WASHER TO BE INSTALLED EACH TIME FIND NO. 11 IS DISASSEMBLED
10. MOUNTING TORQUE FOR FIND NO. 11 TO BE 8-15 INCH POUNDS
11. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST, FIND NO.22 TO BE SELECTED FROM CHART A, FIND NO.23 TO BE SELECTED FROM CHART B & FIND NO. 40 TO BE SELECTED FROM CHART C
12. AR DENOTES AS REQUIRED
13. K DENOTES CATHODE SIDE OF DIODE
14. WHITE DOT & CLEAR LEAD INDICATES LOWER LEVEL WIRING
15. BLACK DOT & CROSS HATCHED LEAD INDICATES UPPER LEVEL WIRING
16. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002088
17. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX THE DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH
18. MARK .07/.05 HIGH WHITE CHARACTERS PER ND1002018 & ND1002122, TYPE II, CLASS 2 & SERIALIZE PER ND1002023 USING INK 1006271-1
19. MARK .17/.15 HIGH WHITE CHARACTERS PER ND1002018 & ND1002122, TYPE II, CLASS 2 USING INK 1006271-1
20. + DENOTES POSITIVE SIDE OF CAPACITOR
21. − DENOTES NEGATIVE SIDE OF CAPACITOR
22. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND MEET ALL THE REQUIREMENTS OF P.S. 2003901
23. FIND NO.2 AND 3 SHALL NOT OVERHANG EDGES OF FIND NO.1
24. ~~UNLESS OTHERWISE SPECIFIED ALL WIRING TO BE FIND NO.[illegible]~~
25. SEAL INSULATORS OF FIND NO.1 PER ND1002004 TYPE VI
26. STAKE FIND NO.17 AND FIND NO.22 TO FIND NO.1 PER ND1002004 TYPE V

		UNLESS OTHERWISE DIMENSIONS ARE IN TOLERANCES ON FRACTIONS DECIM ± ±.0 DO NOT SCALE THIS
2003950		MATERIAL
2003985		
2003900		HEAT TREATMENT
NEXT ASSY	USED ON	FINAL FINISH
APPLICATION		

	REVISIONS		
SYM	DESCRIPTION	DATE	APPROVAL

2003901

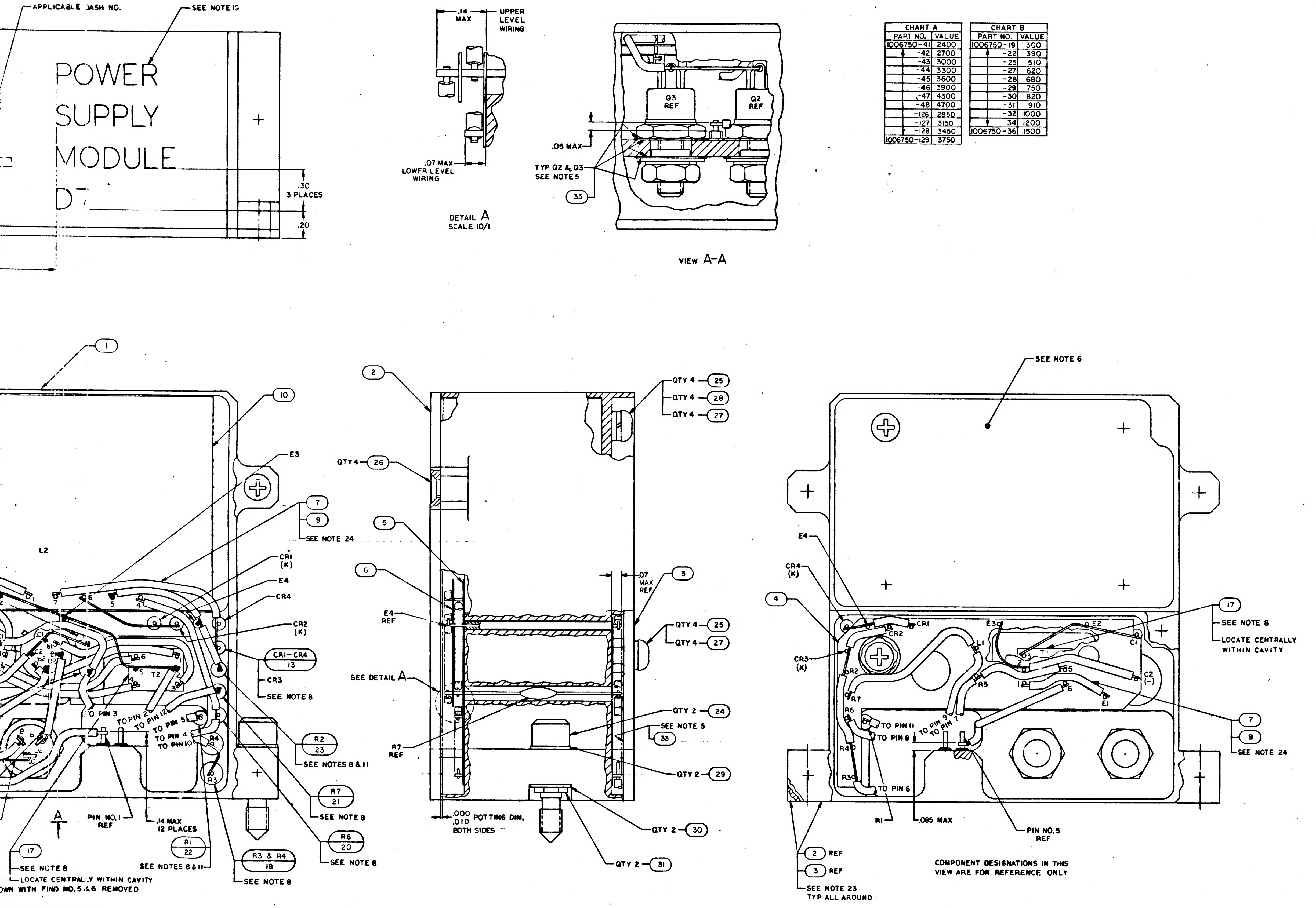

APPLICABLE DASH NO.
SEE NOTE 19
POWER SUPPLY MODULE D7
.30 3 PLACES
.20
.14 MAX
UPPER LEVEL WIRING
.05 MAX
.07 MAX LOWER LEVEL WIRING
TYP Q2 & Q3 SEE NOTE 5
33
DETAIL A SCALE 10/1
Q3 REF
Q2 REF
VIEW A-A
1
10
E3
7
9
SEE NOTE 24
L2
CR1 (K)
E4
CR4
CR2 (K)
CR1-CR4 13
CR3
SEE NOTE 8
TO PIN 3
TO PIN 2
TO PIN 12
TO PIN 5
TO PIN 4
TO PIN 10
R4
R3
R2 23
SEE NOTES 8 & 11
R7 21
SEE NOTE 8
A
PIN NO.1 REF
.14 MAX 12 PLACES
R1 22
SEE NOTES 8 & 11
R6 20
SEE NOTE 8
R3 & R4 18
SEE NOTE 8
17
SEE NOTE 8
LOCATE CENTRALLY WITHIN CAVITY
2
QTY 4 26
5
6
E4 REF
SEE DETAIL A
R7 REF
QTY 4 25
QTY 4 28
QTY 4 27
.07 MAX REF
3
QTY 4 25
QTY 4 27
QTY 2 24
SEE NOTE 5
33
QTY 2 29
.000 .010 POTTING DIM. BOTH SIDES
QTY 2 30
QTY 2 31
SEE NOTE 6
E4
CR4 (K)
4
CR3 (K)
CR1
CR2
E3
L1
E2
T1
C1
C2 (-)
R2
R7
R5
R6
E1
17
SEE NOTE 8
LOCATE CENTRALLY WITHIN CAVITY
7
9
SEE NOTE 24
TO PIN 11
TO PIN 8
TO PIN 9
TO PIN 7
R4
R3
TO PIN 6
R1
.085 MAX
PIN NO.5 REF
2 REF
3 REF
SEE NOTE 23 TYP ALL AROUND
COMPONENT DESIGNATIONS IN THIS VIEW ARE FOR REFERENCE ONLY

CHART A	
PART NO.	VALUE
1006750-41	2400
-42	2700
-43	3000
-44	3300
-45	3600
-46	3900
-47	4300
-48	4700
-126	2850
-127	3150
-128	3450
1006750-129	3750

CHART B	
PART NO.	VALUE
1006750-19	300
-22	390
-25	510
-27	620
-28	680
-29	750
-30	820
-31	910
-32	1000
-34	1200
1006750-36	1500

OWN WITH FIND NO.5 & 6 REMOVED

CRIBED BY MIL-D-70327

02009 METHOD C OR D
IS DISASSEMBLED

ED AT ELECTRICAL
0.23 TO SELECTED

WIRING
DANCE WITH MD1002C08
N WITH UNIT NUMBER

22, TYPE II, CLASS 2

22, TYPE II, CLASS 2

20. + DENOTES POSITIVE SIDE OF CAPACITOR
21. − DENOTES NEGATIVE SIDE OF CAPACITOR
22. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND MEET ALL THE REQUIREMENTS OF P.S. 2003901
23. FIND NO.2 AND 3 SHALL NOT OVERHANG EDGES OF FIND NO.1
24. UNLESS OTHERWISE SPECIFIED ALL WIRING TO BE FIND NO. 9

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	2005904	SCHEMATIC	REF
AR	1006879	SILICONE COMPOUND	33
AR	1006757-13	WIRE, ELECTRICAL	32
2	MS16633-4015	RING, RETAINING, EXTERNAL	31
2	1004546-3	WASHER, FLAT	30
2	1004546-1	WASHER, FLAT	29
4	MS35338-78	WASHER, LOCK, SPLIT	28
8	NAS620C4	WASHER, FLAT	27
4	MS24693-PC2	SCREW, FLAT HD, CROSS RECESSED	26
8	MS35215-12	SCREW, PAN HD, CROSS RECESSED	25
2	1004579-1	SCREW, JACKING	24
1	SEE NOTE 11	RESISTOR, FIXED FILM	23
1	SEE NOTE 11	RESISTOR, FIXED FILM	22
1	1006750-56	RESISTOR, FIXED	21
1	1006750-72	RESISTOR, FIXED	20
1	1006750-32	RESISTOR, FIXED	19
2	1006760-64	RESISTOR, FIXED	18
2	1010291-4	TRANSFORMER, AUDIO	17
1	1010406-7	COIL, RF CHOKE	16
1	1006755-134	CAPACITOR, FIXED	15
1	1006793-19	CAPACITOR, FIXED	14
4	2004103-001	SEMICONDUCTOR DEVICE, DIODE	13
2	1010376-1	TRANSISTOR, SILICON, TYPE NPN	12
2	1006363-002	TRANSISTOR, SILICON, TYPE NPN	11
1	1006325	REACTOR, SATURABLE	10
AR	1006757-1	WIRE, ELECTRICAL .010 X .020	9
AR	1006757-8	WIRE, ELECTRICAL .020 DIA	8
AR	1006776-22	SLEEVING, INSULATION	7
1	2004902	INSULATOR, UPPER LEVEL	6
1	2004901-011	INSULATOR, LOWER LEVEL	5
1	2004934-011	INSULATOR, REAR	4
1	2004906	COVER, BOTTOM	3
1	2004905	COVER, TOP	2
1	2003921-011	HEADER ASSEMBLY	1
011	LIST OF MATERIALS		

2003900	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO CONTRACT
DRAWN DATE 65
CHECKED R. Edwards 11 June 65
APPROVAL 11 June 65
APPROVAL 12 July 65
NASA APPROVAL 7-13-65
MIT APPROVAL 7-13-65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

POWER SUPPLY ASSEMBLY
MODULE D7
AGC DSKY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO. 2003901
SCALE 4/1
WT
SHEET 1 OF 1

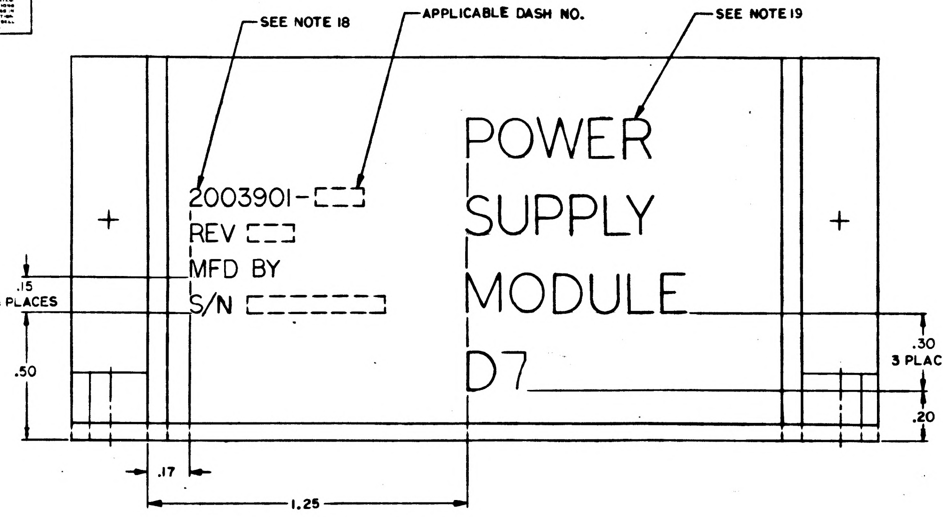
2003901

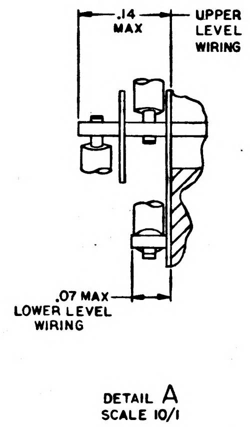
F2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

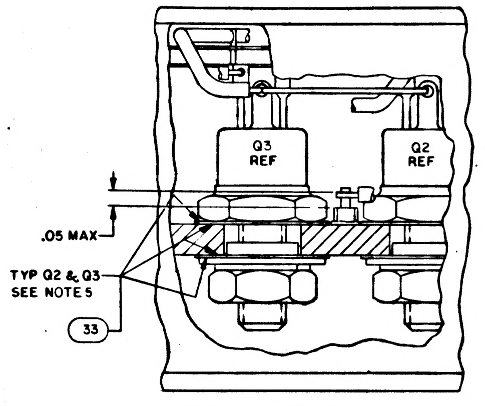
2003901

24


SEE NOTE 18
APPLICABLE DASH NO.
SEE NOTE 19
2003901-
REV
MFD BY
S/N
POWER
SUPPLY
MODULE
D7
.15
3 PLACES
.50
.30
3 PLACES
.20
.17
1.25


.14
MAX
UPPER
LEVEL
WIRING
.07 MAX
LOWER LEVEL
WIRING

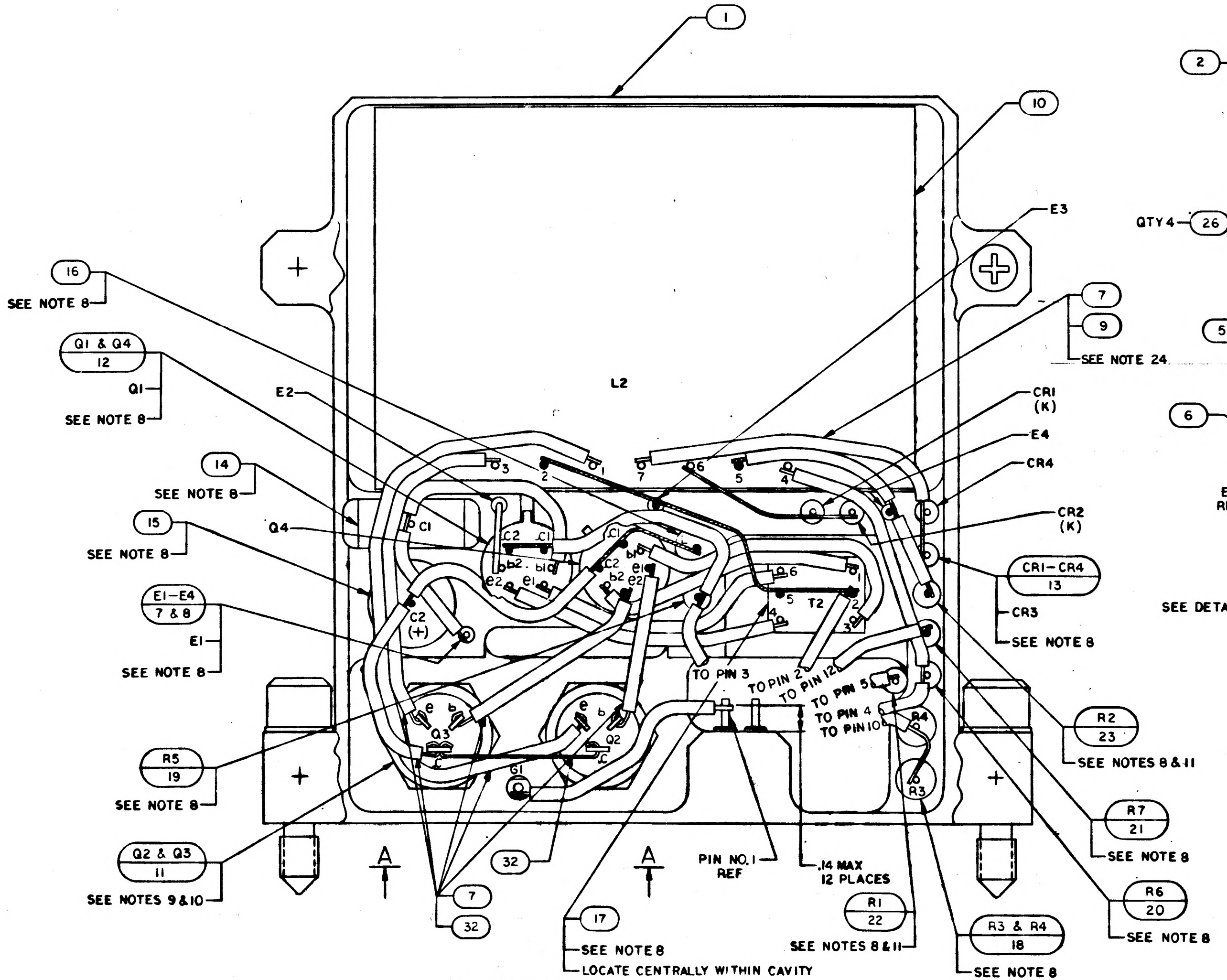
DETAIL A
SCALE 10/1


Q3
REF
Q2
REF
.05 MAX
TYP Q2 & Q3
SEE NOTE 5
33

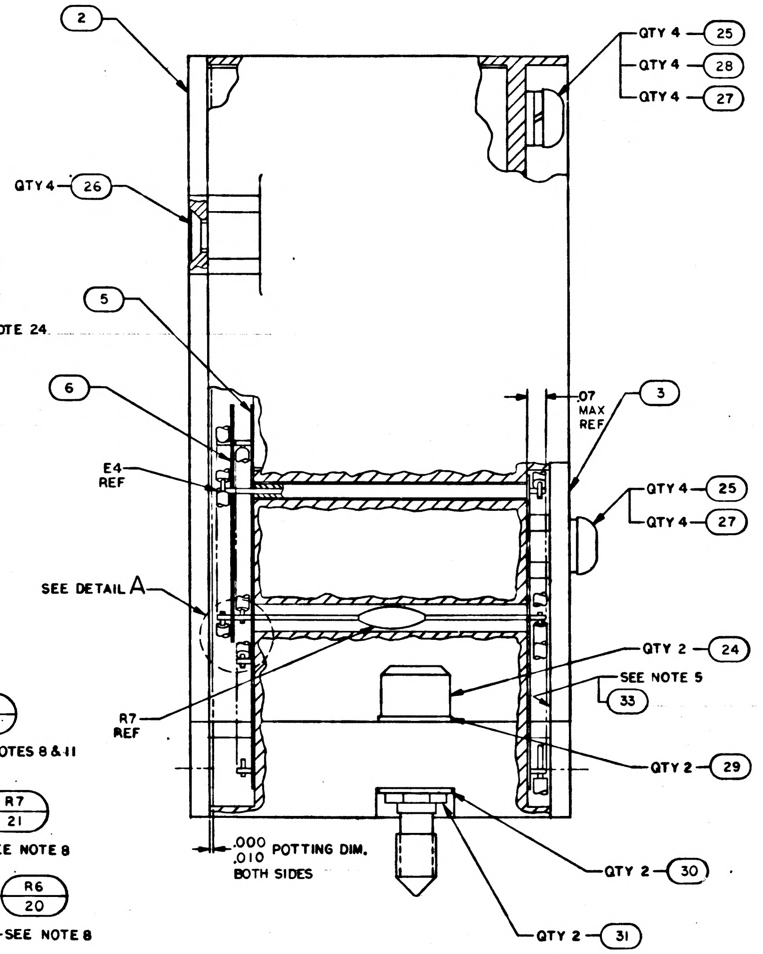
VIEW A-A

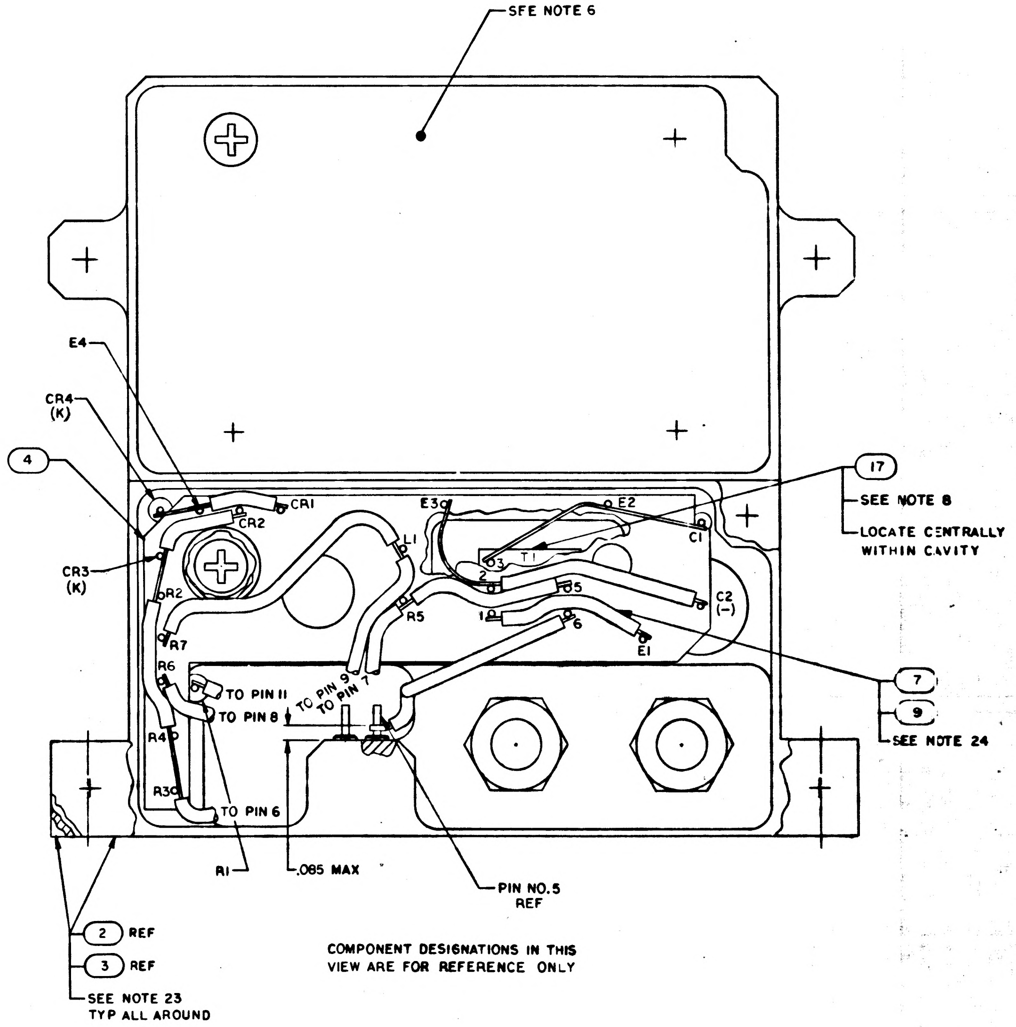
CHART A	
PART NO.	VALUE
1006750-41	2400
-42	2700
-43	3000
-44	3300
-45	3600
-46	3900
-47	4300
-48	4700
-126	2850
-127	3150
-128	3450
1006750-129	3750

CHART B	
PART NO.	VALUE
1006750-19	300
-22	390
-25	510
-27	620
-28	680
-29	750
-30	820
-31	910
-32	1000
-34	1200
1006750-36	1500


1
10
E3
16
SEE NOTE 8
7
9
SEE NOTE 24
Q1 & Q4
12
Q1
SEE NOTE 8
L2
E2
CR1
(K)
E4
CR4
14
SEE NOTE 8
Q4
CR2
(K)
15
SEE NOTE 8
CR1-CR4
13
CR3
SEE NOTE 8
E1-E4
7 & 8
E1
SEE NOTE 8
C2
(+)
C1
T2
TO PIN 3
TO PIN 2
TO PIN 12
TO PIN 5
TO PIN 4
TO PIN 10
R4
R3
R2
23
SEE NOTES 8 & 11
R5
19
SEE NOTE 8
Q3
Q2
G1
R7
21
SEE NOTE 8
Q2 & Q3
11
SEE NOTES 9 & 10
A
A
32
7
32
PIN NO. 1
REF
.14 MAX
12 PLACES
R1
22
SEE NOTES 8 & 11
R6
20
SEE NOTE 8
R3 & R4
18
SEE NOTE 8
17
SEE NOTE 8
LOCATE CENTRALLY WITHIN CAVITY

VIEW SHOWN WITH FIND NO.5 & 6 REMOVED


2
QTY 4
25
QTY 4
28
QTY 4
27
QTY 4
26
5
.07
MAX
REF
3
6
E4
REF
QTY 4
25
QTY 4
27
SEE DETAIL A
QTY 2
24
SEE NOTE 5
33
R7
REF
QTY 2
29
.000
.010 POTTING DIM.
BOTH SIDES
QTY 2
30
QTY 2
31


SEE NOTE 6
E4
CR4
(K)
4
CR1
CR2
E3
E2
17
SEE NOTE 8
LOCATE CENTRALLY WITHIN CAVITY
C1
CR3
(K)
R2
L1
T1
R5
C2
(-)
R7
E1
R6
TO PIN 11
TO PIN 8
TO PIN 9
TO PIN 7
7
9
SEE NOTE 24
R4
R3
TO PIN 6
R1
.085 MAX
PIN NO.5
REF
2
REF
3
REF
SEE NOTE 23
TYP ALL AROUND

COMPONENT DESIGNATIONS IN THIS VIEW ARE FOR REFERENCE ONLY

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. WELD PER ND1002005
3. SOLDER PER ND1002071 USING SOLDER PER ND1002075
4. ENCAPSULATE PER ND1002236
5. APPLY FIND NO. 33 TO INDICATED AREA
6. INDICATED AREA TO BE FREE OF ENCAPSULATING COMPOUND
7. ALL VIEWS SHOWN WITH POTTING REMOVED FOR CLARITY
8. STAKE FIND NO.12 THRU FIND NO. 23 TO FIND NO.1 PER ND1002009 METHOD C OR D
9. NEW MICA WASHERS TO BE INSTALLED EACH TIME FIND NO. 11 IS DISASSEMBLED
10. MOUNTING TORQUE FOR FIND NO.11 TO BE 8-15 INCH POUNDS
11. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST, FIND NO.22 TO BE SELECTED FROM CHART A & FIND NO.23 TO SELECTED FROM CHART B
12. AR DENOTES AS REQUIRED
13. K DENOTES CATHODE SIDE OF DIODE
14. WHITE DOT & CLEAR LEAD INDICATES LOWER LEVEL WIRING
15. BLACK DOT & CROSS HATCHED LEAD INDICATES UPPER LEVEL WIRING
16. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
17. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX THE DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH
18. MARK .07/.05 HIGH WHITE CHARACTERS PER ND1002019 & ND1002122, TYPE II, CLASS 2 & SERIALIZE PER ND1002023 USING INK 1006271-1
19. MARK .17/.15 HIGH WHITE CHARACTERS PER ND1002019 & ND1002122, TYPE II, CLASS 2 USING INK 1006271-1
20. + DENOTES POSITIVE SIDE OF CAPACITOR
21. – DENOTES NEGATIVE SIDE OF CAPACITOR
22. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND MEET ALL THE REQUIREMENTS OF P.S. 2003901
23. FIND NO.2 AND 3 SHALL NOT OVERHANG EDGES OF FIND NO.1
24. UNLESS OTHERWISE SPECIFIED ALL WIRING TO BE FIND NO. 9

2003900	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS
±.02
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

2003901

APOLLO G&N Specification
PS 2003901 Rev. -
Original Issue Date: 5-11-66
Release Authority: TDRR 28742
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

AGC DSKY POWER SUPPLY ASSEMBLY

(MODULE D7)

DRAWING NO. 2003901

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA

This specification consists of pages 1 to 8 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	E C Hall 5/11 [illegible] 5-11-66 MIT/IL	D. M. Sleeper 25 MAR 66 [illegible] 4/1/66 [illegible] 4/1/66 [illegible] 4-1-66 RAY

1.0 SCOPE

This specification establishes the detail requirements for identification and acceptance of the AGC DSKY Power Supply Module (D7) Part No. 2003901-021.

2.0 APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein.

2.1 EFFECTIVE ISSUES. Unless otherwise specified herein, Military and Government Standards and Specifications shall be the issue in effect on the date of request for proposal or invitation to bid.

SPECIFICATIONS

APOLLO G&N

ND 1002214	General Specification for Preservation, Packaging, Packing, and Container Marking of Apollo Guidance and Navigation Major Assemblies, Assemblies, Subassemblies, Parts and Associated Ground Support Equipment.

DRAWINGS

APOLLO G&N

2003901	POWER SUPPLY ASSEMBLY, MODULE D7 AGC DSKY

(Copies of Specifications, drawings, standards, bulletins, and publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer).

2.2- CONFLICTING REQUIREMENTS. In the event of conflict between the requirements of the contract, this specification, and the documents listed in this section, the following order of precedence shall apply and the contractor shall notify MIT APOLLO Management of the conflict as soon as it is determined.

a. The contract

b. This specification

c. Documents listed in this section

3.0 REQUIREMENTS

3.1 PERFORMANCE. The Power Supply Module (D7) consists of a load-regulated push-pull amplifier. The circuitry is such that when an 8 volt (nominal) 800 cps square wave input is filtered and amplified, an open circuit output of 250 VRMS (nominal) at 800 cps is obtained.

3.1.1 Thermal Conditioning. The module shall be subjected to two complete thermal cycles, as specified below prior to acceptance testing:

> 25°C down to -10°C ± 3.0°C in NLT 20 minutes, held at -10°C ± 3.0°C for NLT 30 minutes, raised to +70°C ± 3.0°C in NLT 40 minutes, held at +70°C ± 3.0°C for NLT 30 minutes, lowered to 25°C in NLT 20 minutes.

3.1.2 Insulation Resistance. The insulation resistance between chassis ground pin 1 and all other pins connected together shall be 100 megohms minimum.

3.1.3 Isolation Resistance. The isolation resistance between pins 4, 6, 8, and 10 connected together and pins 2, 3, 5, 7, 9, 11, and 12 connected together shall be not less than 100 megohms.

3.1.4 Continuity. The resistance between the chassis ground pin 1 and the chassis shall be 0.5 ohms maximum.

3.1.5 Pin To Pin Resistance. All pins not mutually insulated shall exhibit the resistance values shown on the unit schematic.

Reference Values: Pins 3 and 7; 1.0K ± 2%; Pins 9 and 12, 10K ± 2%
Pins 4 and 8, 20K ± 2%; Pins 6 and 10, 11K ± 2%

3.1.6 Input Voltages. The module shall function within the limits specified in Table I when supplied with the DC voltage (nominal and marginal), the proper input signal, and the attenuation of a 10K potentiometer as specified in Figure 1.

3.1.7 Load and Output Characteristics. The module shall develop the output voltages specified in Table I when operated into the equivalent loads specified in Figure 1.

3.1.8 The module shall perform as specified in 3.1.6 and 3.1.7 when installed in an operating DSKY which is being subjected to the vibration requirements specified in the applicable specifications for the DSKY. Acceptance criteria for the module shall be the compliance of the DSKY with its applicable specifications.

3.2 PRODUCT CONFIGURATION

3.2.1 DRAWINGS. The module configuration shall be in accordance with APOLLO G&N Drawing 2003901 and all drawings and engineering data referenced thereon.

3.2.2 Weight. Maximum allowable weight of the module shall be 0.90 pounds.

Table 1 - NOMINAL AND MARGINAL OPERATION

		Pin 4 to 6 (EV250 to EVLO)				Pin 8 to 6 (EVH11 to EVLO)			
Input Voltages VDC		Load* Condition		Output Voltage (Vrms)**		Load* Condition		Output Voltage (Vrms)**	
14VDC	25VDC ***	No load	Full load	+25°C	-10°C +80°C	No load	Full load	+25°C	-10°C +80°C
14.0±0.1	25.0±0.2	X		250±10	250±30	X		247±10	247±30
14.0±0.1	25.0±0.2		X	250+10 -15	250±30		X	240+10 -15	240±30
14.0±0.1	21.0±0.2		X	250+10 -20	250+30 -35		X	240+10 -15	240+30 -35
14.0±0.1	18.0±0.2		X	250+10 -45	250+30 -60		X	240+10 -40	240+30 -60
14.0±0.1	36.0±0.2		X	250+15 -15	250+35 -30		X	240+15 -15	240+35 -30
15.0±0.1	25.0±0.2		X	250+40 -0	250+60 -0		X	240+40 -0	240+60 -0
17.0±0.1	25.0±0.2	X		250+80 -0		X		247+80 -0	
12.0±0.1	18.0±0.2		X	250+0 -60			X	240+0 -60	

*Full Load, wherever designated, is the application of both the EV250 and EVH11 loads.

**Variable from 0 to the values shown by varying the external potentiometer from minimum to maximum resistance.

***25 VDC Source Current, with the 10K potentiometer at max resistance, shall be NMT 75 milliamperes at NO LOAD and NMT 160 ma at FULL LOAD when measured at nominal input voltage at 25°C.

4.2 TESTS/VERIFICATION

4.2.1 Drawing Compliance. The modules shall be examined for compliance with the requirements of APOLLO G&N Drawing 2003901. Particular attention shall be given to inspection for contaminants, pin misalignment, legibility and appearance of marking, and damage to surfaces, structure and equipment.

4.2.2 Thermal Conditioning. Verify that the module was subjected to two complete thermal cycles as specified in 3.1.1 prior to performing the acceptance tests specified herein.

4.2.3 Insulation Resistance. Using test equipment with a test potential of 500 VDC limited to a short circuit current of 1.0 milliampere, measure the resistance between pin 1 and all other pins connected together. Verify that the resistance complies with that specified in paragraph 3.1.2.

4.2.4 Isolation Resistance. Using test equipment with a test potential of 500 VDC limited to a short circuit current of 1 milliampere, measure the resistance between pins 2, 3, 5, 7, 9, 11, and 12 connected together and pins 4, 6, 8, and 10 connected together to determine compliance with paragraph 3.1.3

4.2.5 Inputs-Outputs. Apply the input voltage and input signal with the load and input impedance connections as shown in Figure 1. Measure the output at points indicated to determine compliance with Table I at 25°C.

4.2.6 Pin to Pin. Measure the resistance between Pins 3 and 7, 4 and 8, 6 and 10, and 9 and 12 to determine compliance with Paragraph 3.1.5.

4.2.7 Continuity. Verify that the resistance measured between chassis ground pin 1 and the chassis complies with that specified in Paragraph 3.1.4.

4.2.8 Workmanship. The following tests shall be performed under the conditions specified as a verification of good workmanship.

4.2.8.1 Vibration. Install the module in DSKY. Subject the DSKY to the vibration tests specified in paragraph 3.1.8. Verify that the DSKY meets the requirements of the applicable specification.

4.2.8.2 Thermal Extremes and Marginal Voltages. Repeat the test of Paragraph 4.2.5 at -10°C +0, -2.8°C and +80°C -0, +2.8°C to determine compliance with Table I. Modules shall be stabilized at thermal extremes for ½ hour before testing.

4.2.8.3 Weight. Weigh the module to the nearest .01 pound. Verify that the weight does not exceed the maximum allowable weight specified in paragraph 3.2.2.

5.0 PREPARATION FOR DELIVERY

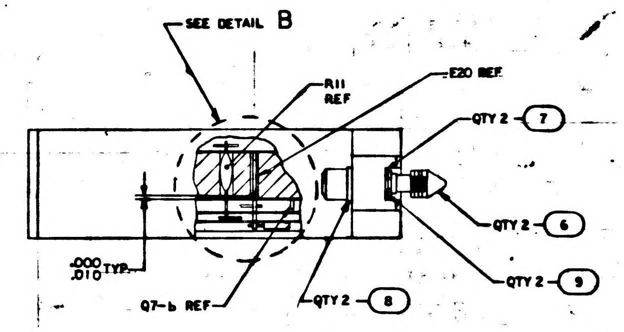
5.1 Preparation for delivery shall be in accordance with Specification ND 1002214.

6.0 NOTES: None

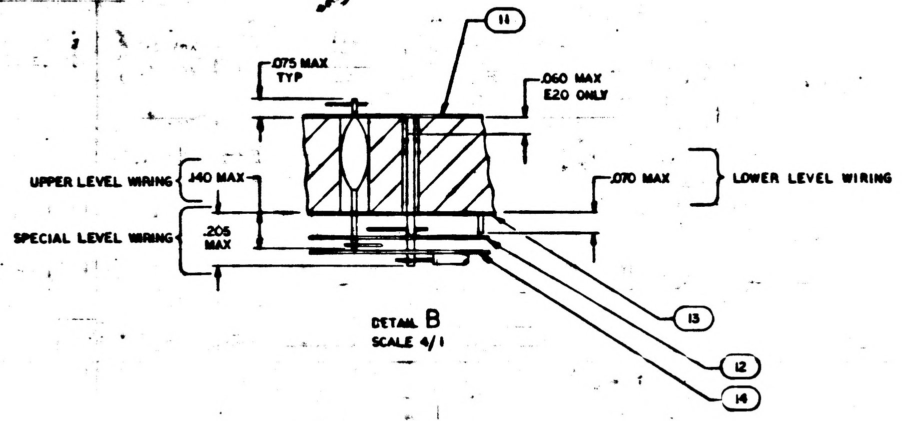
REV	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22162 DR W. Leonard CHK		

2003902 A

FROM PIN NO.	TO COMPONENT
101	E10
102	E11
103	E9
104	E13
105	E49
106	E14
107	E12
108	CR52
109	CR60
110	CR51
111	E16
112	E50
113	E17
114	E18
115	R5
116	CR59
117	CR62
118	CR61
119	E21
120	E20
121	E23
122	CR64
123	CR58
124	CR63

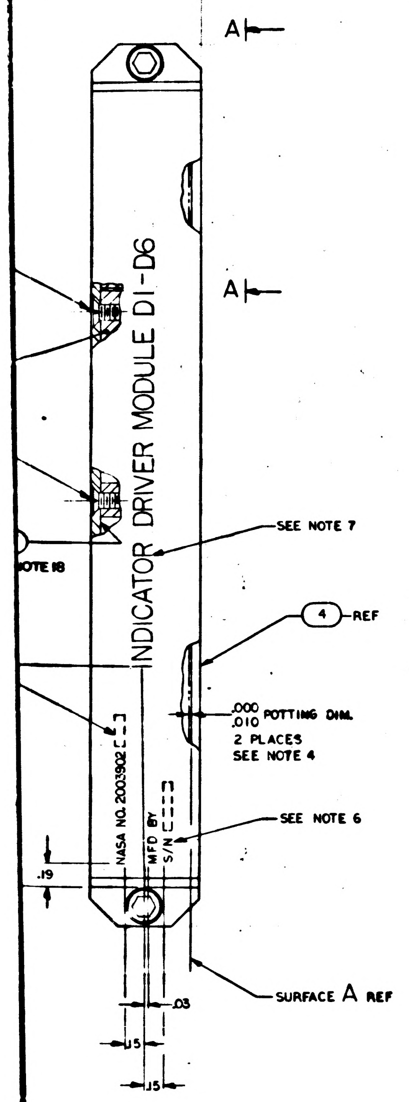


SEE DETAIL B
R11 REF
E20 REF
QTY 2 7
QTY 2 6
QTY 2 9
QTY 2 8
.000 .010 TYP.
Q7-b REF

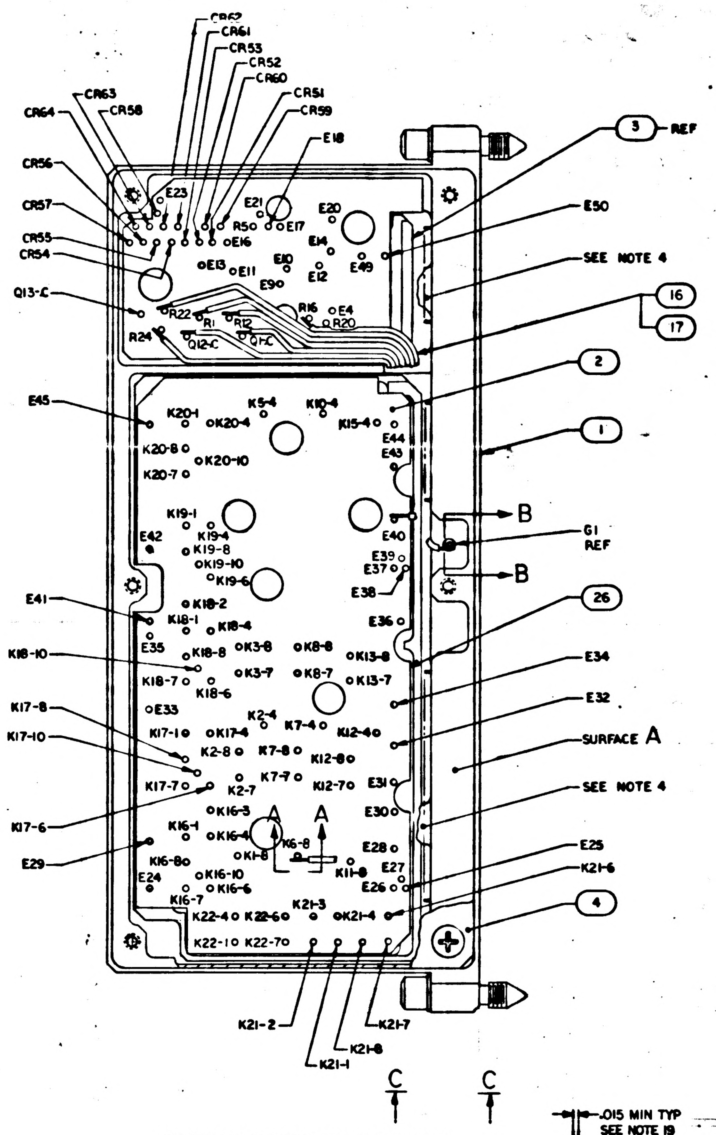


11
.075 MAX TYP
.060 MAX E20 ONLY
UPPER LEVEL WIRING
.140 MAX
.070 MAX
LOWER LEVEL WIRING
SPECIAL LEVEL WIRING
.205 MAX
13
12
14

DETAIL B
SCALE 4/1

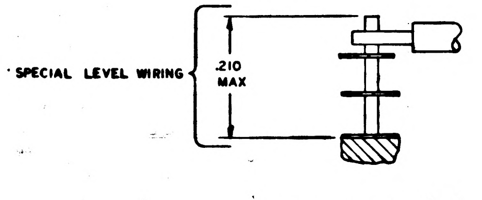


A
A
INDICATOR DRIVER MODULE D1-D6
SEE NOTE 7
4 REF
.000 .010 POTTING DIM. 2 PLACES SEE NOTE 4
NASA NO. 2003902
MFD BY
S/N
SEE NOTE 6
NOTE 18
.19
SURFACE A REF
.03
.15
.15



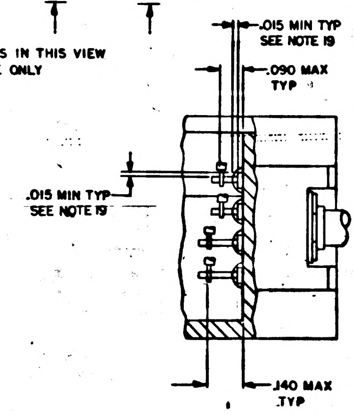
CR62
CR61
CR53
CR52
CR51
CR60
CR59
CR63
CR58
CR64
E18
CR56
CR57
CR55
CR54
Q13-C
E23
E21
R50
E17
E20
E16
E14
E13
E11
E10
E49
E90
E12
R16
E4
R22
R1
R12
R20
R24
Q12-C
Q7-C
3 REF
E50
SEE NOTE 4
16
17
2
E45
K20-1
K20-4
K5-4
K10-4
K15-4
K20-8
K20-10
E44
E43
K20-7
1
K19-1
K19-4
K19-8
K19-10
K19-6
E42
E40
B
G1 REF
E39
E37
E38
B
26
E41
K18-2
K18-1
K18-4
E36
K18-10
E35
K18-8
K3-8
K8-8
K13-8
E34
K18-7
K3-7
K8-7
K13-7
K18-6
E32
K17-8
E33
K2-4
K7-4
K17-4
K12-4
K17-10
K17-1
K2-8
K7-8
K12-8
SURFACE A
K17-7
K2-7
K7-7
K12-7
E31
SEE NOTE 4
K16-3
E30
K17-6
K16-1
K16-4
A
A
K6-8
E28
K1-8
K11-8
E27
E25
E29
K16-8
K16-10
K16-6
E26
K21-6
E24
K16-7
K21-3
K22-4
K22-6
K21-4
4
K22-10
K22-7
K21-2
K21-8
K21-1
K21-7
C
C

COMPONENT DESIGNATIONS IN THIS VIEW ARE FOR REFERENCE ONLY



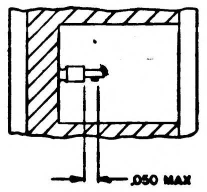
SPECIAL LEVEL WIRING
.210 MAX

PARTIAL SECTION A-A
TYPICAL FOR PINS OF FIND NO.2
SCALE 10/1



.015 MIN TYP SEE NOTE 19
.090 MAX TYP
.015 MIN TYP SEE NOTE 19
.140 MAX TYP

PARTIAL VIEW C-C
SCALE 4/1



SECTION B-B
SCALE 4/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
	2005902	SCHEMATIC	REF
1	2004917	INSULATOR	26
AR	1006879	COMPOUND, SILICONE THERMOCONDUCTIVE	25
AR	1006757-1	WIRE, ELECTRICAL .010 × .020	24
7	2004004-002	TRANSISTOR	23
6	2004004-001	TRANSISTOR	22
3	1006750-62	RESISTOR, FIXED FILM	21
21	1006750-56	RESISTOR, FIXED FILM	20
22	2004103-001	SEMICONDUCTOR DEVICE, DIODE	19
5	1006755-106	CAPACITOR, FIXED	18
AR	1006776-22	SLEEVING, INSULATION	17
AR	1006757-8	WIRE, ELECTRICAL .020 DIA	16
~~AR~~		~~WIRE, INSULATED~~	~~15~~
1	2004915	INSULATOR, PHOTO MASTER, SPECIAL LEVEL	14
1	2004914-011	INSULATOR, PHOTO MASTER, LOWER LEVEL	13
1	2004913	INSULATOR, PHOTO MASTER, UPPER LEVEL	12
1	2004912-011	INSULATOR, PHOTO MASTER, REAR	11
15	MS24693-C2	SCREW, FLAT HD, CROSS RECESSED	10
2	MS16633-4015	RING, RETAINING, EXTERNAL	9
2	1004546-1	WASHER, FLAT	8
2	1004546-3	WASHER, FLAT	7
2	1004579-1	SCREW, JACKING	6
1	2004956	COVER, REAR	5
1	2004911	COVER	4
1	2003908-011	DECODING CIRCUIT ASSY	3
1	2003910-011	RELAY CIRCUIT ASSY	2
1	2003907-011	HEADER ASSY	1

011 LIST OF MATERIALS

2003902 A

NEXT ASSY	USED ON
2003900	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN W. Brown DATE
CHECKED P. Edward
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INDICATOR DRIVER ASSY
MODULE D1-D6
AGC DSKY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003902
SCALE 2/1
WT
SHEET 1 OF 1

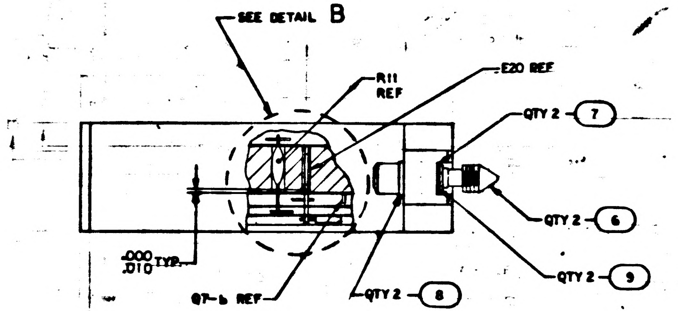
MASTER

2003902 A

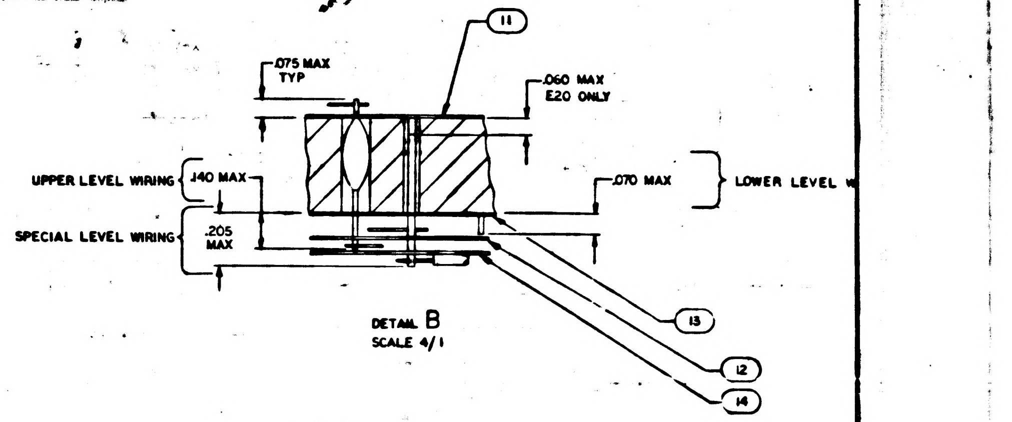
F 3/3

WIRING LEGEND

FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT
1	K21-7	26	E29	51	E34	76	K19-4	101	E10
2	K21-2	27	K16-3	52	K18-10	77	E44	102	E11
3	K22-7	28	K16-1	53	K13-8	78	K15-4	103	E9
4	K22-1	29	K12-7	54	K8-8	79	K20-8	104	E13
5	K22-6	30	K2-7	55	K3-8	80	K20-10	105	E49
6	K22-4	31	K17-6	56	K3-7	81	K20-1	106	E14
7	K21-1	32	E30	57	E35	82	K20-4	107	E12
8	K21-8	33	K17-10	58	K18-4	83	K5-4	108	CR52
9	E24	34	K12-8	59	K18-1	84	K10-4	109	CR60
10	K21-3	35	E31	60	K18-8	85	R22	110	CR51
11	K21-4	36	K7-7	61	E37	86	R24	111	E16
12	K21-6	37	K17-4	62	E36	87	Q12-C	112	E50
13	E27	38	K17-8	63	K19-6	88	E45	113	E17
14	E26	39	K2-8	64	K18-2	89	R16	114	E18
15	K16-7	40	K7-8	65	E40	90	R12	115	R5
16	E25	41	K2-4	66	E39	91	R1	116	CR59
17	K11-8	42	K7-4	67	E38	92	Q1-C	117	CR62
18	K16-8	43	K12-4	68	G1	93	E4	118	CR61
19	K16-10	44	E32	69	E42	94	CR57	119	E21
20	K16-6	45	K18-6	70	K19-8	95	Q13-C	120	E20
21	K16-4	46	K18-7	71	E41	96	R20	121	E23
22	K1-8	47	E33	72	K19-10	97	CR53	122	CR64
23	E28	48	K17-1	73	E43	98	CR54	123	CR58
24	K6-8	49	K8-7	74	K20-7	99	CR55	124	CR63
25	K17-7	50	K13-7	75	K19-1	100	CR56		

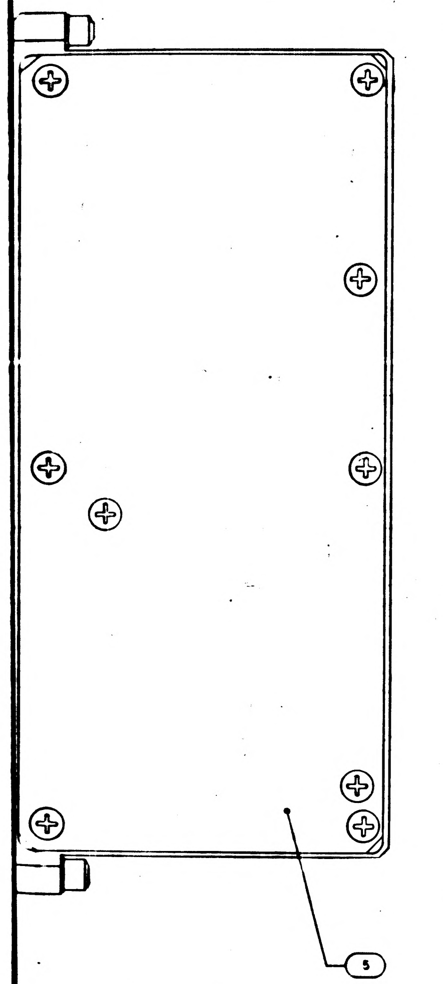


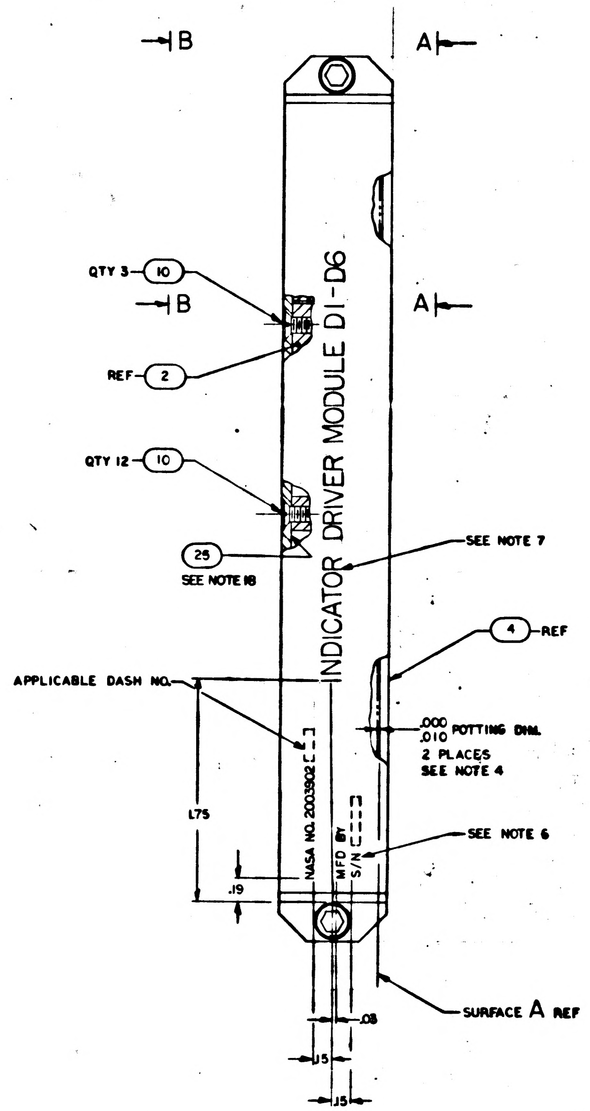
SEE DETAIL B
R11 REF
E20 REF
QTY 2 7
QTY 2 6
QTY 2 9
QTY 2 8
Q7-b REF
.000 .010 TYP.



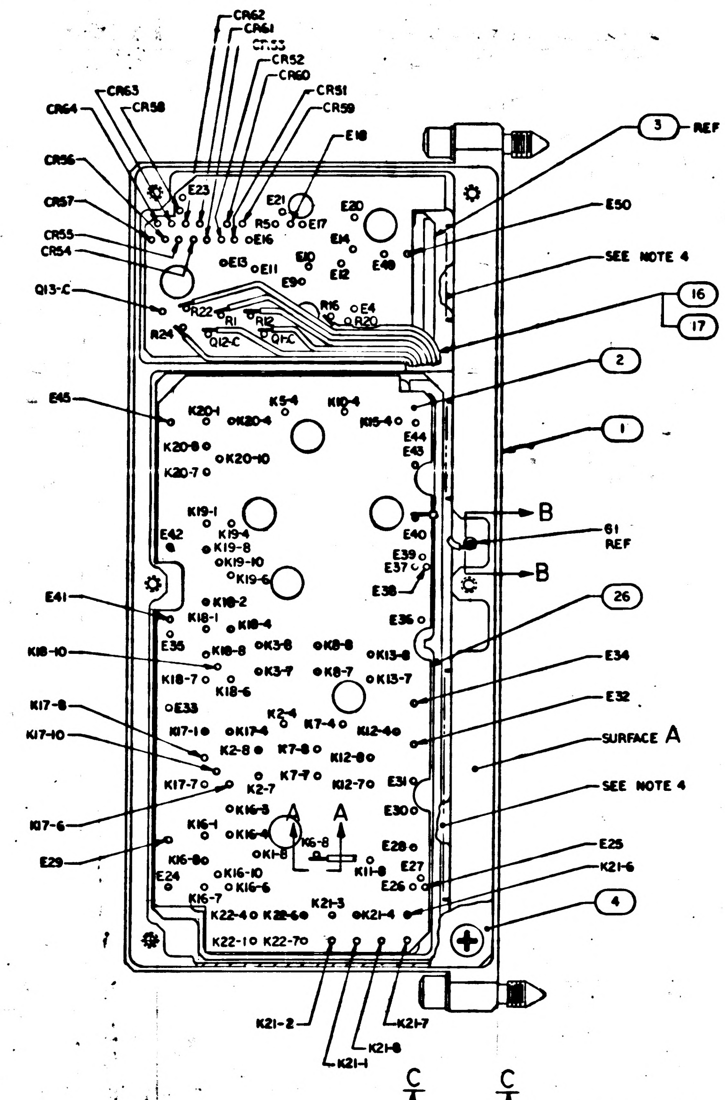
11
.075 MAX TYP
.060 MAX E20 ONLY
UPPER LEVEL WIRING
.140 MAX
.070 MAX
LOWER LEVEL W
SPECIAL LEVEL WIRING
.205 MAX
13
12
14

DETAIL B
SCALE 4/1



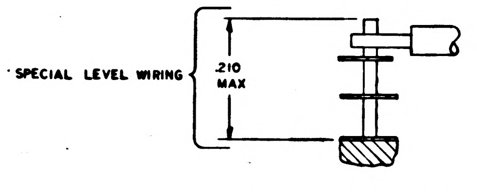


B
A
QTY 3 10
B
A
REF 2
QTY 12 10
25
SEE NOTE 18
INDICATOR DRIVER MODULE DI-D6
SEE NOTE 7
4 REF
APPLICABLE DASH NO.
NASA NO. 2003902
MFD BY
S/N
1.75
.19
.000 .010 POTTING DIM.
2 PLACES
SEE NOTE 4
SEE NOTE 6
SURFACE A REF
.03
.15
.15



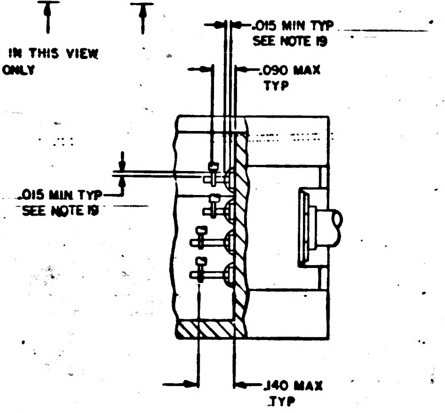
CR62
CR61
CR53
CR52
CR60
CR51
CR59
CR63
CR58
CR64
CR56
CR57
CR55
CR54
Q13-C
E18
E23
E21
E20
R50
E17
E16
E14
E13
E11
E10
E9
E12
E49
R22
R1
R12
R16
E4
R20
R24
Q12-C
Q1-C
3 REF
E50
SEE NOTE 4
16
17
2
1
E45
K20-1
K20-4
K5-4
K10-4
K15-4
E44
E43
K20-8
K20-10
K20-7
K19-1
K19-4
K19-8
K19-10
K19-6
E42
E40
B
61 REF
B
E39
E37
E38
26
E41
K18-2
K18-1
K18-4
E36
E35
K18-8
K3-8
K8-8
K13-8
K18-10
K18-7
K3-7
K8-7
K13-7
K18-6
E34
E33
K2-4
K7-4
K12-4
E32
K17-8
K17-1
K17-4
K2-8
K7-8
K12-8
SURFACE A
K17-10
K17-7
K2-7
K7-7
K12-7
E31
E30
SEE NOTE 4
K17-6
K16-3
A
A
K16-1
K16-4
K6-8
E28
E29
K16-8
K1-8
K11-8
E27
E26
E25
E24
K16-10
K16-6
K21-6
K16-7
K21-3
K21-4
4
K22-4
K22-6
K22-1
K22-7
K21-2
K21-7
K21-8
K21-1
C
C

COMPONENT DESIGNATIONS IN THIS VIEW
ARE FOR REFERENCE ONLY



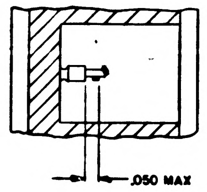
SPECIAL LEVEL WIRING
.210 MAX

PARTIAL SECTION A-A
TYPICAL FOR PINS OF FIND NO.2
SCALE 10/1



.015 MIN TYP
SEE NOTE 19
.090 MAX
TYP
.015 MIN TYP
SEE NOTE 19
.140 MAX
TYP

PARTIAL VIEW C-C
SCALE 4/1



SECTION B-B
SCALE 4/1

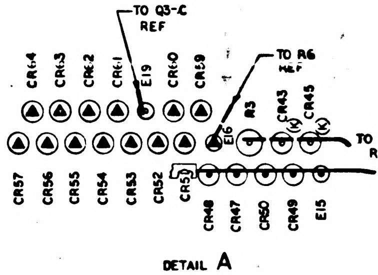
MASTER

2003900	
NEXT ASSY	USED
APPLICATION	

2003902 A F2/3

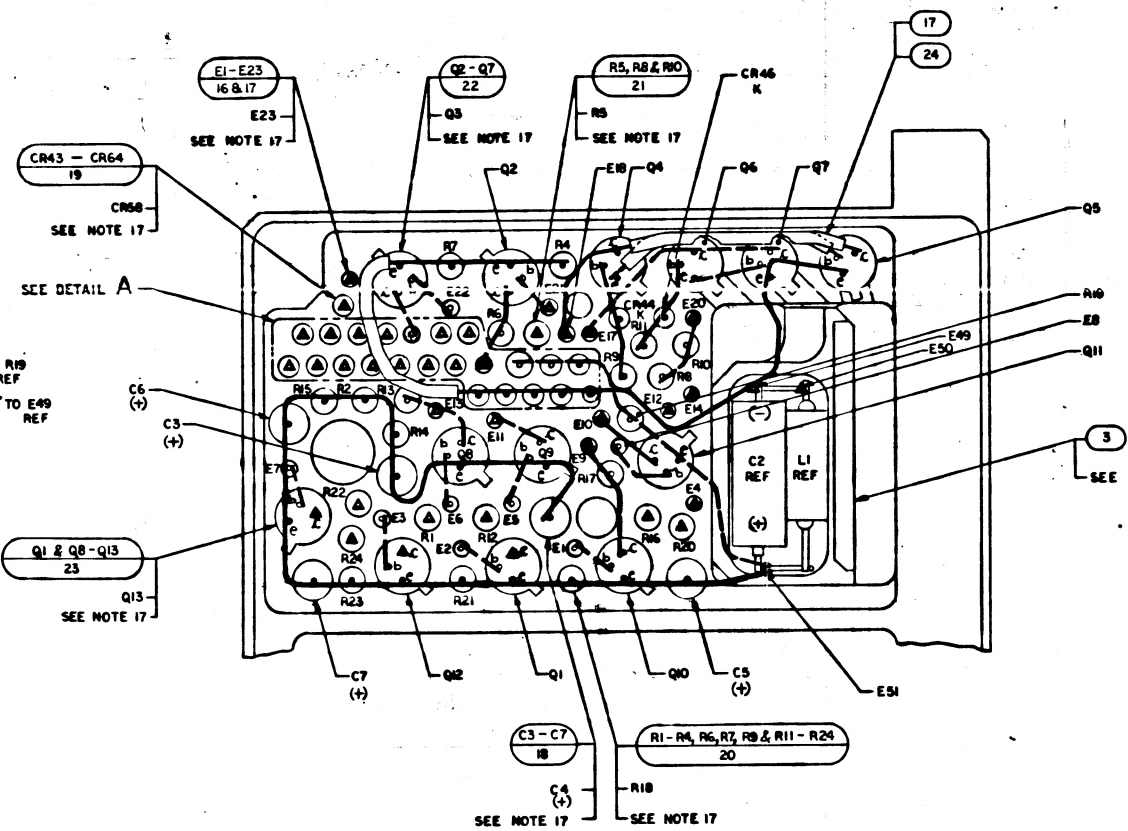
FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT
1	K21-7	26	E29	51	E34	76	K19-4
2	K21-2	27	K16-3	52	K18-10	77	E44
3	K22-7	28	K16-1	53	K13-8	78	K15-4
4	K22-1	29	K12-7	54	K8-8	79	K20-8
5	K22-6	30	K2-7	55	K3-8	80	K20-10
6	K22-4	31	K17-6	56	K3-7	81	K20-1
7	K21-1	32	E30	57	E35	82	K20-4
8	K21-8	33	K17-10	58	K18-4	83	K5-4
9	E24	34	K12-8	59	K18-1	84	K10-4
10	K21-3	35	E31	60	K18-8	85	R22
11	K21-4	36	K7-7	61	E37	86	R24
12	K21-6	37	K17-4	62	E36	87	Q12-C
13	E27	38	K17-8	63	K19-6	88	E45
14	E26	39	K2-8	64	K18-2	89	R16
15	K16-7	40	K7-8	65	E40	90	R2
16	E25	41	K2-4	66	E39	91	R1
17	K11-8	42	K7-4	67	E38	92	Q1-C
18	K16-8	43	K12-4	68	G1	93	E4
19	K16-10	44	E32	69	E42	94	CR57
20	K16-6	45	K18-6	70	K19-8	95	Q13-C
21	K16-4	46	K18-7	71	E41	96	R20
22	K1-8	47	E33	72	K19-10	97	CR53
23	E28	48	K17-1	73	E43	98	CR54
24	K6-8	49	K8-7	74	K20-7	99	CR55
25	K17-7	50	K13-7	75	K19-1	100	CR56

WIRING LEGEND



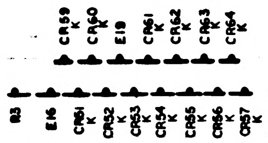
TO Q3-C REF
TO R6 REF
TO R19 REF
TO E49 REF
CR44
CR43
CR42
CR41
E19
CR40
CR39
R3
CR43 (K)
CR45 (K)
CR57
CR56
CR55
CR54
CR53
CR52
CR51
CR48
CR47
CR50
CR49
E15

DETAIL A
SCALE 4/1



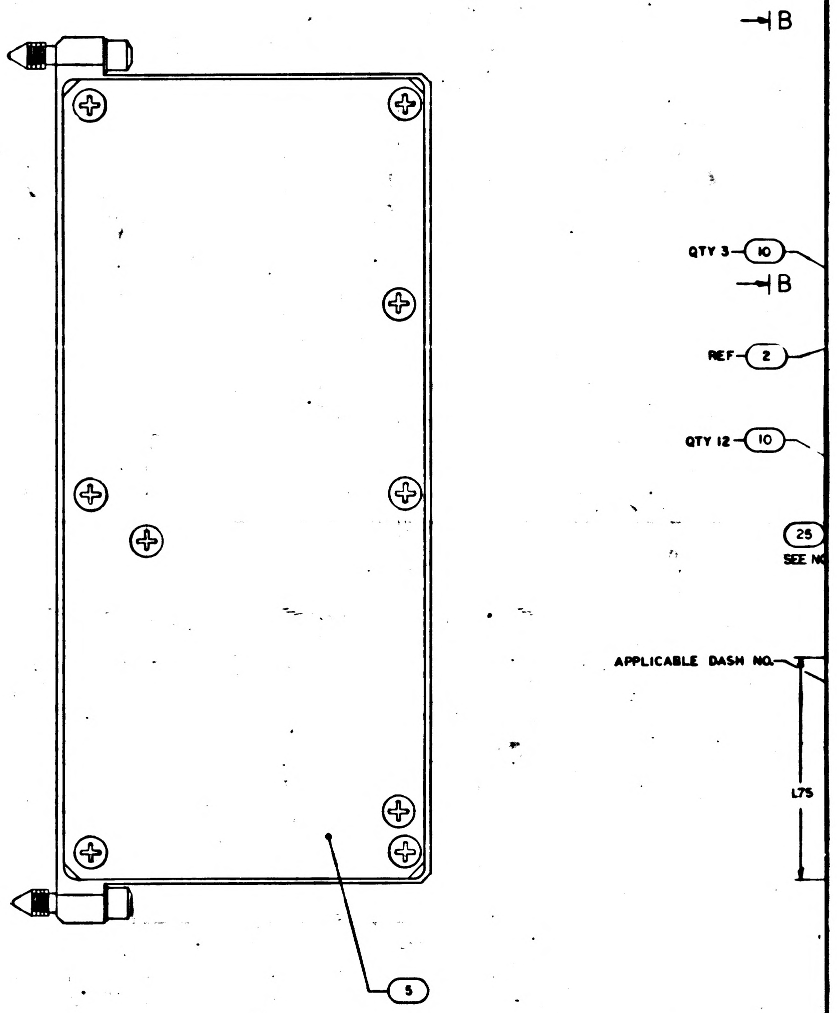
E1-E23
16 & 17
E23
SEE NOTE 17
Q2-Q7
22
Q3
SEE NOTE 17
R5, R8 & R10
21
R5
SEE NOTE 17
CR46
K
17
24
CR43 - CR64
19
CR58
SEE NOTE 17
Q2
E18
Q4
Q6
Q7
Q5
SEE DETAIL A
R19
E8
E49
E50
Q11
C6 (+)
C3 (+)
3
SEE NOTE 15
C2 REF
L1 REF
Q1 & Q8-Q13
23
Q13
SEE NOTE 17
C7 (+)
Q12
Q1
Q10
C5 (+)
E51
C3 - C7
18
R1 - R4, R6, R7, R9 & R11 - R24
20
C4 (+)
SEE NOTE 17
R18
SEE NOTE 17

VIEW A-A
SCALE 4/1
VIEW SHOWN WITH FIND NO. 4, 12, 13, 14
AND SPECIAL LEVEL WIRING REMOVED

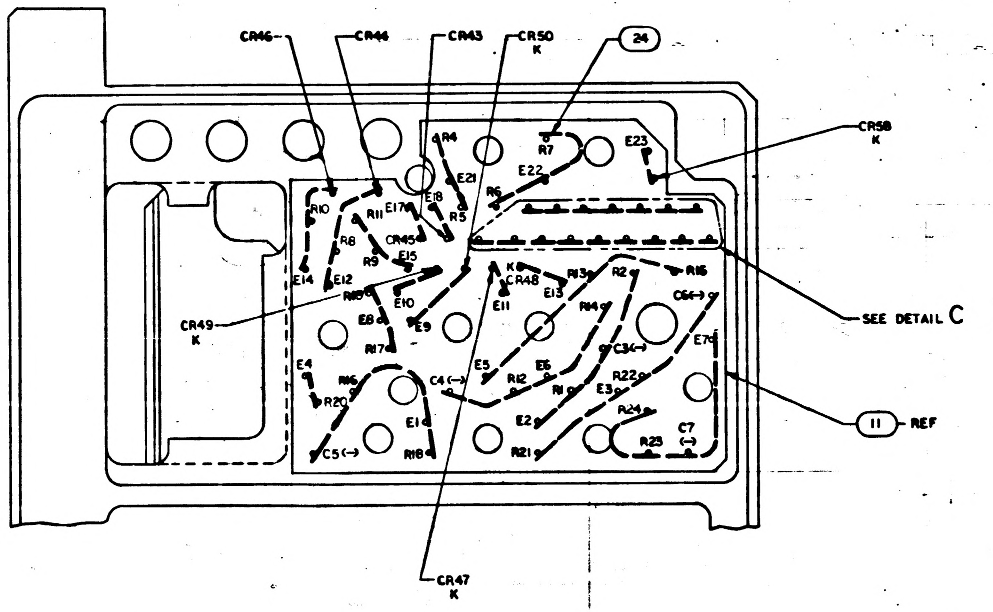


CR59 K
CR60 K
E19
CR61 K
CR62 K
CR63 K
CR64 K
R3
E16
CR51 K
CR52 K
CR53 K
CR54 K
CR55 K
CR56 K
CR57 K

DETAIL C
SCALE 4/1



B
QTY 3 - 10
B
REF - 2
QTY 12 - 10
25
SEE NO
APPLICABLE DASH NO.
1.75
5



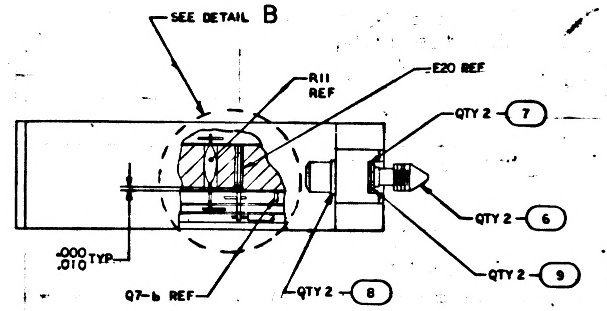
CR46
CR44
CR43
CR50 K
24
CR58 K
SEE DETAIL C
CR49 K
11 REF
CR47 K

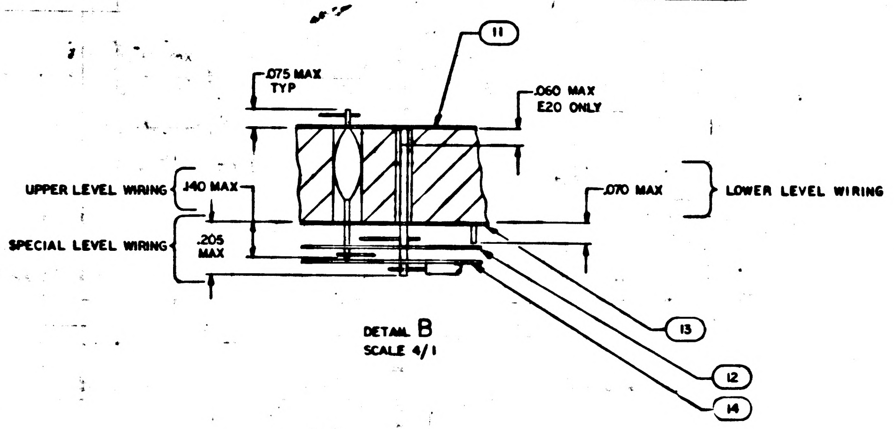
VIEW B-B
SCALE 4/1
COMPONENT DESIGNATIONS IN THIS VIEW
ARE FOR REFERENCE ONLY

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. WELD PER ND1002005
3. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
4. ENCAPSULATE PER ND1002236
5. K DENOTES CATHODE SIDE OF DIODE
6. MARK .05/.07 HIGH WHITE CHARACTERS PER ND1002019 & ND1002122 TYPE II, CLASS 2 & SERIALIZE PER ND1002023 USING INK 1006271-1
7. MARK .18/.20 HIGH WHITE CHARACTERS PER ND1002019 & ND1002122 TYPE II, CLASS 2 USING INK 1006271-1
8. AR DENOTES AS REQUIRED
9. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
10. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
11. ▲ AND CLEAR LEADS INDICATE SPECIAL LEVEL WIRING
12. − DENOTES NEGATIVE SIDE OF CAPACITOR
13. + DENOTES POSITIVE SIDE OF CAPACITOR
14. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX THE DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH.
15. BOND FIND NO. 3 TO FIND NO. 1 PER ND1002004 TYPE IV
16. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH & SHALL MEET ALL THE REQUIREMENTS OF P.S. 2003902
17. STAKE FIND NO. 17 THRU FIND NO. 23 TO FIND NO. 1 PER ND1002009 METHOD C OR D
18. APPLY FIND NO. 25 TO INDICATED SURFACE
19. SEAL INSULATORS ON FIND NO. 1 PER ND1002004 TYPE VI

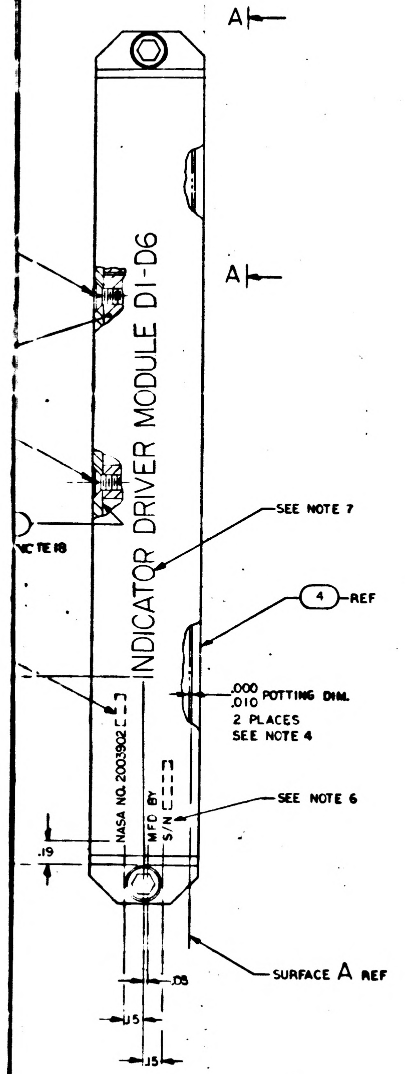
FROM PIN NO.	TO COMPONENT
101	E10
102	E11
103	E9
104	E13
105	E49
106	E14
107	E12
108	CR52
109	CR60
110	CR51
111	E16
112	E50
113	E17
114	E18
115	R5
116	CR59
117	CR62
118	CR61
119	E2
120	E20
121	E23
122	CR64
123	CR58
124	CR63

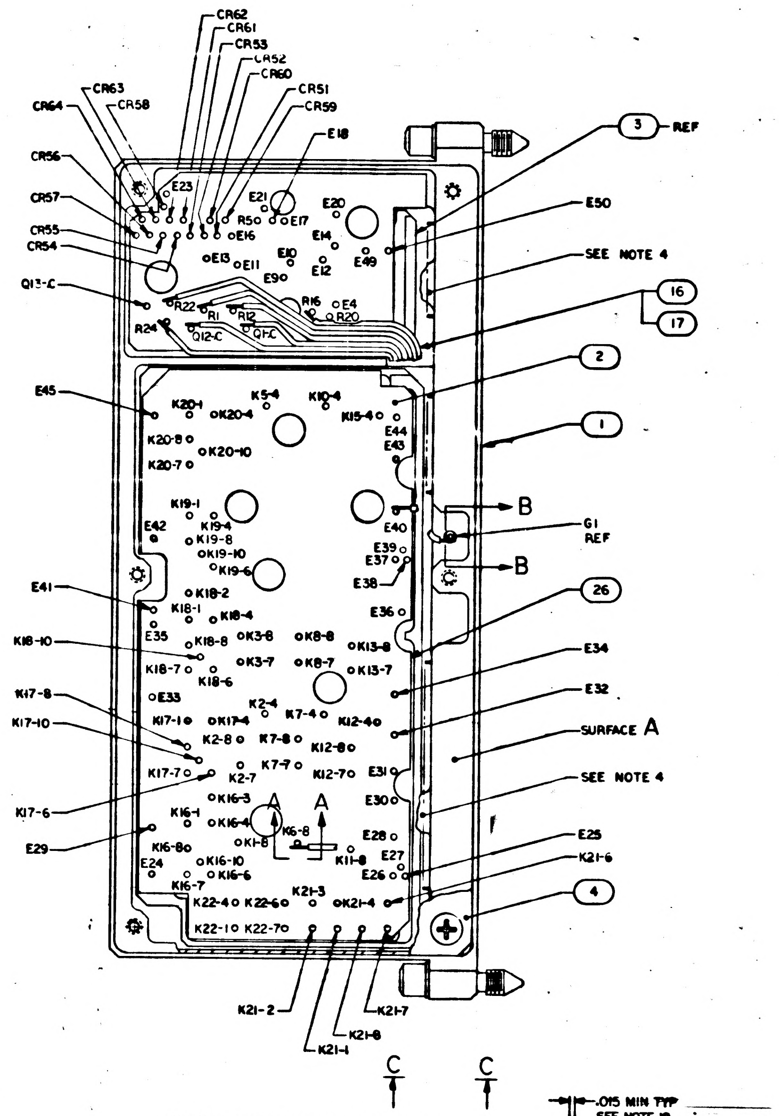
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22162 DR J.P. Leonard CHK		
B	REVISED PER TDRR 24232 DR J.P. Leonard CHK		


SEE DETAIL B
R11 REF
E20 REF
QTY 2 (7)
QTY 2 (6)
QTY 2 (9)
QTY 2 (8)
.000
.010 TYP
Q7-b REF

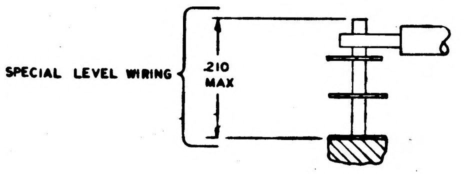

(11)
.075 MAX TYP
.060 MAX E20 ONLY
UPPER LEVEL WIRING .140 MAX
.070 MAX
LOWER LEVEL WIRING
SPECIAL LEVEL WIRING .205 MAX
(13)
(12)
(14)

DETAIL B
SCALE 4/1

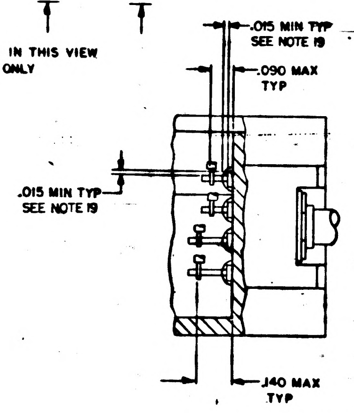

A
A
INDICATOR DRIVER MODULE DI-D6
NOTE 18
SEE NOTE 7
(4) REF
.000 .010 POTTING DIM.
2 PLACES
SEE NOTE 4
NASA NO. 2003902
MFD BY
S/N
SEE NOTE 6
.19
.05
.15
.15
SURFACE A REF


CR62
CR61
CR53
CR52
CR60
CR51
CR59
CR63
CR58
CR64
E18
(3) REF
CR56
CR57
CR55
CR54
E23
E21
R50
E17
E20
E16
E14
E13
E11
E10
E12
E49
E9
Q13-C
R22
R1
R12
R16
E4
R20
R24
Q12-C
Q11-C
E50
SEE NOTE 4
(16)
(17)
(2)
(1)
E45
K20-1
K20-4
K5-4
K10-4
K15-4
E44
E43
K20-8
K20-10
K20-7
K19-1
K19-4
K19-8
K19-10
K19-6
E42
E40
E39
E37
E38
B
G1 REF
B
(26)
E41
K18-2
K18-1
K18-4
E35
E36
K18-10
K18-8
K3-8
K8-8
K13-8
K18-7
K3-7
K8-7
K13-7
K18-6
E34
E33
E32
K17-8
K2-4
K7-4
K12-4
K17-1
K17-4
K17-10
K2-8
K7-8
K12-8
SURFACE A
K7-7
K17-7
K2-7
K12-7
E31
SEE NOTE 4
K17-6
K16-3
E30
A
A
K16-1
K16-4
K6-8
E29
K1-8
E28
E25
K16-8
K16-10
E27
K21-6
E24
K16-6
K11-8
E26
K16-7
K21-3
(4)
K22-4
K22-6
K21-4
K22-10
K22-7
K21-2
K21-7
K21-8
K21-1
C
C

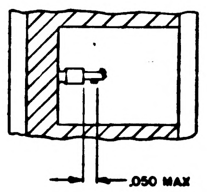
COMPONENT DESIGNATIONS IN THIS VIEW ARE FOR REFERENCE ONLY


SPECIAL LEVEL WIRING
.210 MAX

PARTIAL SECTION A-A
TYPICAL FOR PINS OF FIND NO. 2
SCALE 10/1


.015 MIN TYP
SEE NOTE 19
.090 MAX TYP
.015 MIN TYP
SEE NOTE 19
.140 MAX TYP

PARTIAL VIEW C-C
SCALE 4/1



SECTION B-B
SCALE 4/1

	2005902	SCHEMATIC	REF
1	2004917	INSULATOR	26
AR	1006879	COMPOUND, SILICONE THERMOCONDUCTIVE	25
AR	1006757-1	WIRE, ELECTRICAL .010 × .020	24
7	2004004-002	TRANSISTOR	23
6	2004004-001	TRANSISTOR	22
3	1006750-62	RESISTOR, FIXED FILM	21
21	1006750-56	RESISTOR, FIXED FILM	20
22	2004103-001	SEMICONDUCTOR DEVICE, DIODE	19
5	1006755-106	CAPACITOR, FIXED	18
AR	1006776-22	SLEEVING, INSULATION	17
AR	1006757-8	WIRE, ELECTRICAL .020 DIA	16
~~AR~~	[illegible]	~~WIRE, INSULATED~~	~~15~~
1	2004915	INSULATOR, PHOTO MASTER, SPECIAL LEVEL	14
1	2004914-011	INSULATOR, PHOTO MASTER, LOWER LEVEL	13
1	2004913	INSULATOR, PHOTO MASTER, UPPER LEVEL	12
1	2004912-011	INSULATOR, PHOTO MASTER, REAR	11
15	MS24693-C2	SCREW, FLAT HD, CROSS RECESSED	10
2	MS16633-4015	RING, RETAINING, EXTERNAL	9
2	1004546-1	WASHER, FLAT	8
2	1004546-3	WASHER, FLAT	7
2	1004579-1	SCREW, JACKING	6
1	2004956	COVER, REAR	5
1	2004911	COVER	4
1	2003908-011	DECODING CIRCUIT ASSY	3
1	2003910-011	RELAY CIRCUIT ASSY	2
1	2003907-011	HEADER ASSY	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
011	LIST OF MATERIALS		

(1) 2003902

2003985	
2003900	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO CONTRACT
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INDICATOR DRIVER ASSY
MODULE DI-D6
AGC DSKY

CODE IDENT NO	SIZE	NASA DRAWING NO
80230	J	2003902
SCALE 2/1	WT	SHEET 1 OF 1

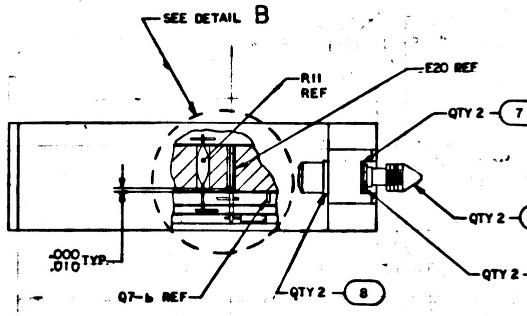
MASTER

F3/13

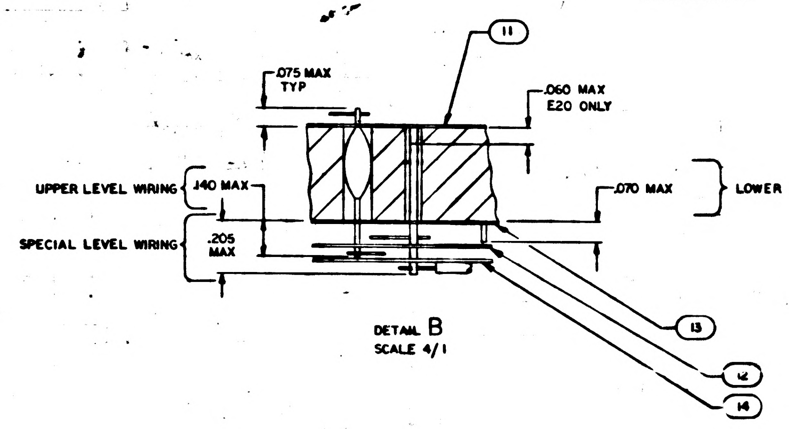
2003902 B

WIRING LEGEND

FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT
51	E34	76	K19-4	101	E10
52	K18-10	77	E44	102	E11
53	K13-8	78	K15-4	103	E9
54	K8-8	79	K20-8	104	E13
55	K3-8	80	K20-10	105	E49
56	K3-7	81	K20-1	106	E14
57	E35	82	K20-4	107	E12
58	K18-4	83	K5-4	108	CR52
59	K18-1	84	K10-4	109	CR60
60	K18-8	85	R22	110	CR51
61	E37	86	R24	111	E16
62	E36	87	Q12-C	112	E50
63	K19-6	88	E45	113	E17
64	K18-2	89	R16	114	E18
65	E40	90	R12	115	R5
66	E39	91	R1	116	CR59
67	E38	92	Q1-C	117	CR62
68	G1	93	E4	118	CR61
69	E42	94	CR57	119	E21
70	K19-8	95	Q13-C	120	E20
71	E41	96	R20	121	E23
72	K19-10	97	CR53	122	CR64
73	E43	98	CR54	123	CR58
74	K20-7	99	CR55	124	CR63
75	K19-1	100	CR56		

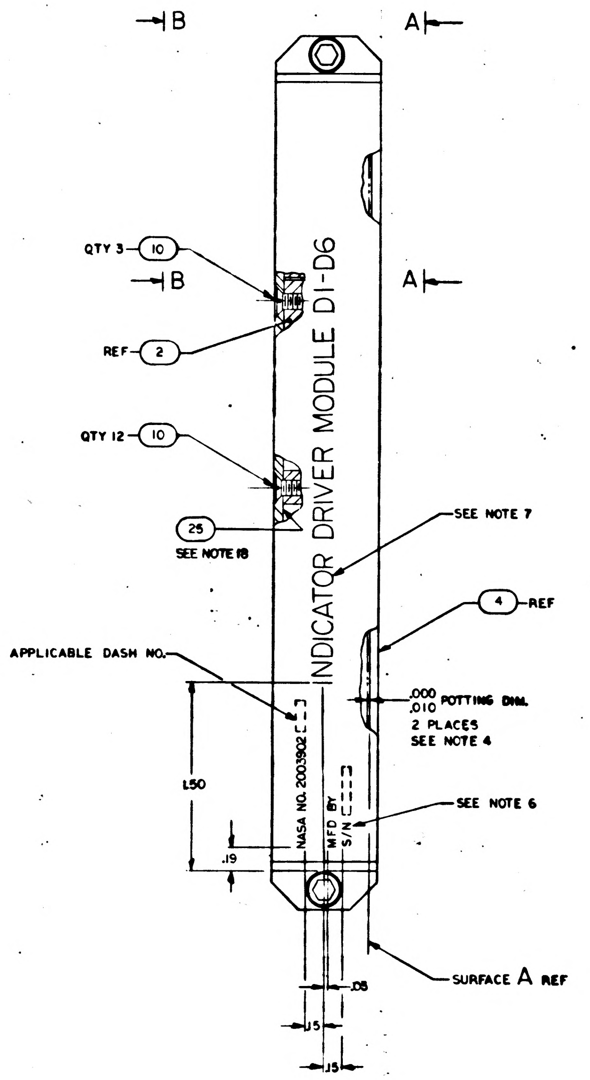


SEE DETAIL B
R11 REF
E20 REF
QTY 2 7
QTY 2 6
QTY 2 9
QTY 2 8
.000 .010 TYP
Q7-6 REF

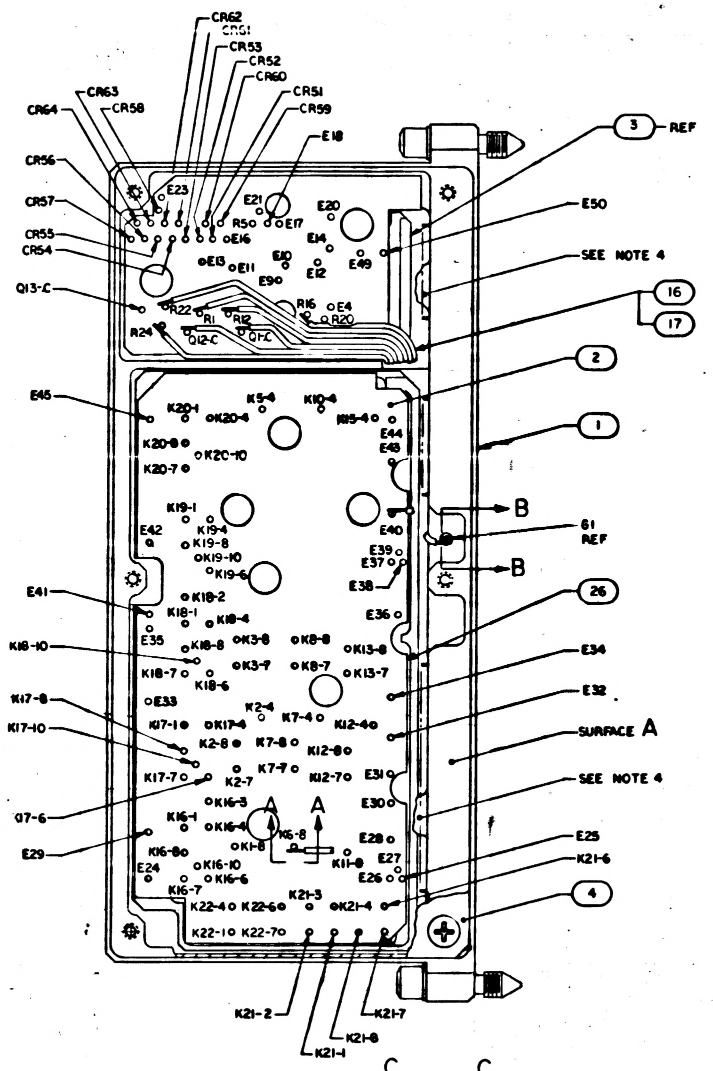


11
.075 MAX TYP
.060 MAX E20 ONLY
UPPER LEVEL WIRING
.140 MAX
.070 MAX
LOWER LEVEL WIRING
SPECIAL LEVEL WIRING
.205 MAX
13
12
14

DETAIL B
SCALE 4/1

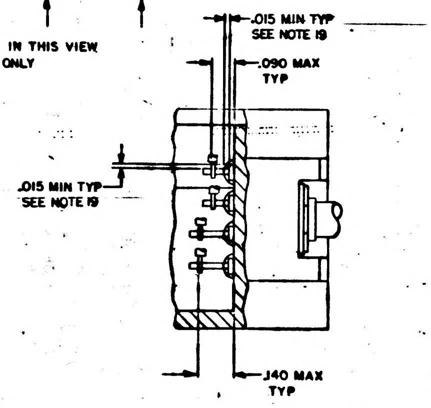


B
A
QTY 3 10
B
A
REF 2
INDICATOR DRIVER MODULE DI-D6
QTY 12 10
25
SEE NOTE 18
SEE NOTE 7
4 REF
APPLICABLE DASH NO.
.000 .010 POTTING DIM.
2 PLACES
SEE NOTE 4
NASA NO. 2003902
MFD BY
S/N
SEE NOTE 6
1.50
.19
SURFACE A REF
.08
.15
.15



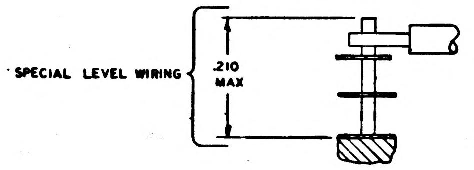
CR62
CR61
CR53
CR52
CR60
CR51
CR59
CR63
CR64
CR58
E18
3 REF
CR56
CR57
CR55
CR54
E50
SEE NOTE 4
Q13-C
16
17
2
E45
1
B
61 REF
B
E41
26
K18-10
E34
K17-8
E32
K17-10
SURFACE A
SEE NOTE 4
Q7-6
E29
E25
K21-6
4
K21-2
K21-8
K21-7
K21-1
C
C

COMPONENT DESIGNATIONS IN THIS VIEW ARE FOR REFERENCE ONLY



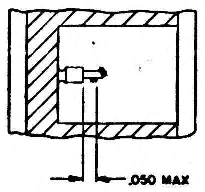
.015 MIN TYP
SEE NOTE 19
.090 MAX TYP
.015 MIN TYP
SEE NOTE 19
.140 MAX TYP

PARTIAL VIEW C-C
SCALE 4/1



SPECIAL LEVEL WIRING
.210 MAX

PARTIAL SECTION A-A
TYPICAL FOR PINS OF FIND NO. 2
SCALE 10/1



SECTION B-B
SCALE 4/1

QTY REQD	PART OR IDENTIFYING NO.
☒	2005902
1	2004917
AR	1006879
AR	1006757-1
7	2004004-002
6	2004004-001
3	1006750-62
21	1006750-56
22	20[illegible]03-001
5	1006755-106
AR	006[illegible]-22
AR	006757-8
1	2004915
1	2004914-011
1	2004913
1	2004912-011
5	MS24693-C2
2	MS16633-4015
2	004546-1
2	004546-3
2	1004579-1
1	2004956
1	2004911
1	2003908-011
1	2003910-011
1	2003907-011
011	

MASTER

NEXT ASSY	USED ON
2003985	
2003900	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

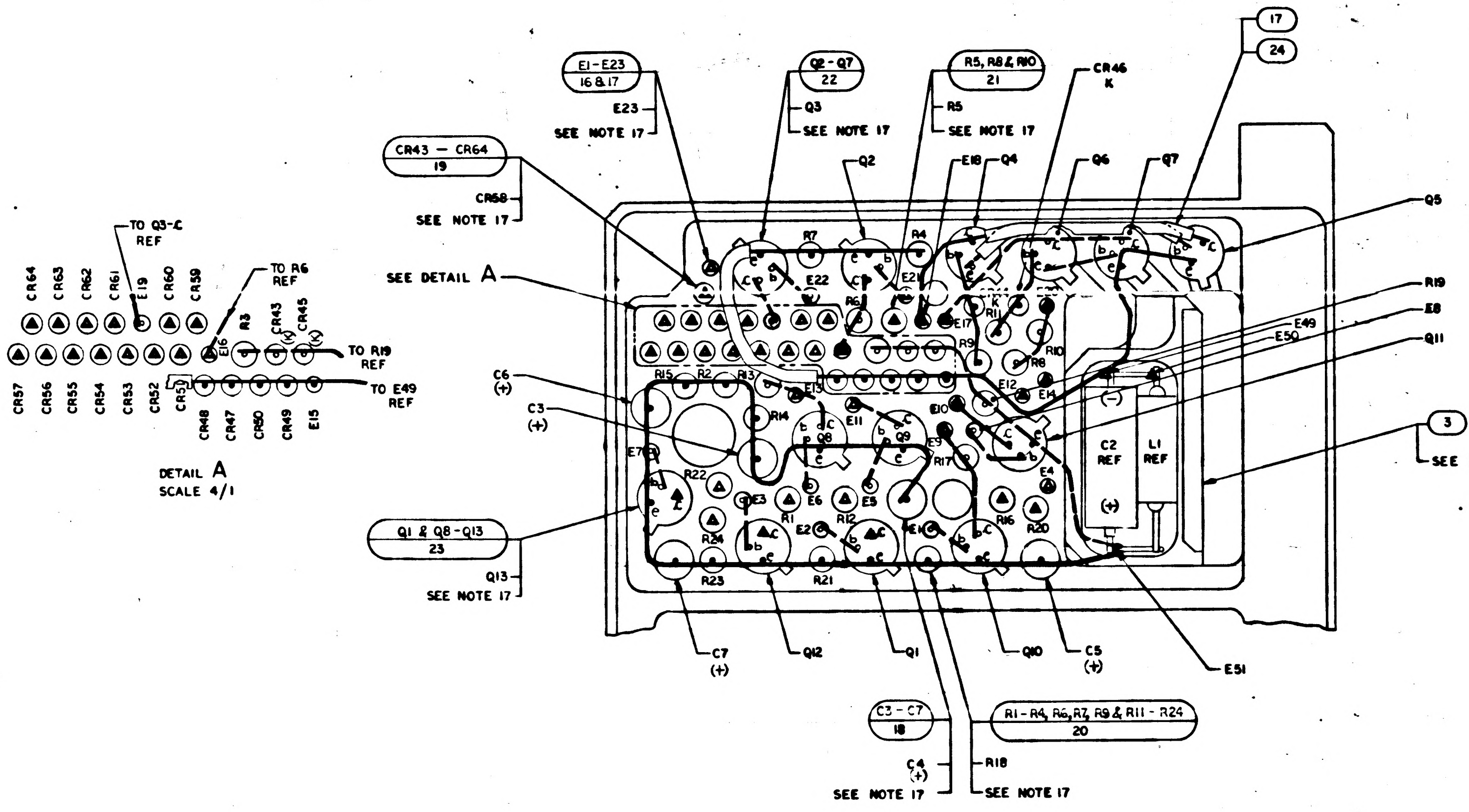
MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

2003902 B

2003902 B F2/3

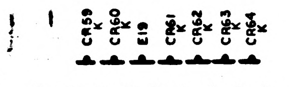
FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT
1	K21-7	26	E29	51	E34	76	K19-4
2	K21-2	27	K16-3	52	K18-10	77	E44
3	K22-7	28	K16-1	53	K13-8	78	K15-4
4	K22-1	29	K12-7	54	K8-8	79	K20-8
5	K22-6	30	K2-7	55	K3-8	80	K20-10
6	K22-4	31	K17-6	56	K3-7	81	K20-1
7	K21-1	32	E30	57	E35	82	K20-4
8	K21-8	33	K17-10	58	K18-4	83	K5-4
9	E24	34	K12-8	59	K18-1	84	K10-4
10	K21-3	35	E31	60	K18-8	85	R22
11	K21-4	36	K7-7	61	E37	86	R24
12	K21-6	37	K17-4	62	E36	87	Q12-C
13	E27	38	K17-8	63	K19-6	88	E45
14	E26	39	K2-8	64	K18-2	89	R16
15	K16-7	40	K7-8	65	E40	90	R12
16	E25	41	K2-4	66	E39	91	R1
17	K11-8	42	K7-4	67	E38	92	Q1-C
18	K16-8	43	K12-4	68	G1	93	E4
19	K16-10	44	E32	69	E42	94	CR57
20	K16-6	45	K18-6	70	K19-8	95	Q13-C
21	K16-4	46	K18-7	71	E41	96	R20
22	K1-8	47	E33	72	K19-10	97	CR53
23	E28	48	K17-1	73	E43	98	CR54
24	K5-8	49	K9-7	74	K20-7	99	CR55
25	K17-7	50	K13-7	75	K19-1	100	CR56

WIRING LEGEND

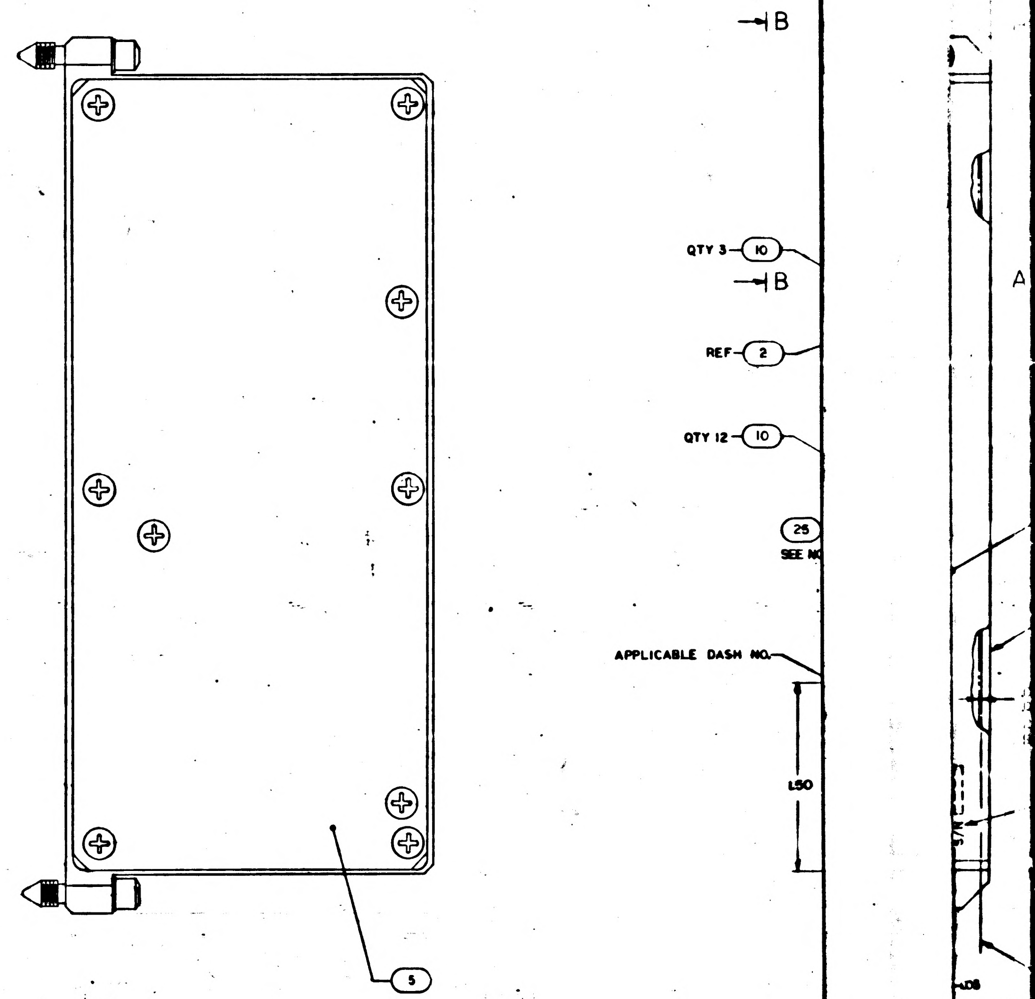

E1-E23
16 & 17
E23
SEE NOTE 17
Q2-Q7
22
Q3
SEE NOTE 17
R5, R8 & R10
21
R5
SEE NOTE 17
CR46
K
17
24
CR43 - CR64
19
CR58
SEE NOTE 17
Q2
E18
Q4
Q6
Q7
Q5
SEE DETAIL A
R19
E8
Q11
E49
E50
C6
(+)
C3
(+)
3
SEE NOTE 15
C2
REF
L1
REF
Q1 & Q8-Q13
23
Q13
SEE NOTE 17
C7
(+)
Q12
Q1
Q10
C5
(+)
E51
C3-C7
18
R1-R4, R6, R7, R9 & R11-R24
20
C4
(+)
SEE NOTE 17
R18
SEE NOTE 17
TO Q3-C
REF
TO R6
REF
TO R19
REF
TO E49
REF
CR64
CR63
CR62
CR61
E19
CR60
CR59
R3
CR43
CR45
CR57
CR56
CR55
CR54
CR53
CR52
CR51
CR48
CR47
CR50
CR49
E15

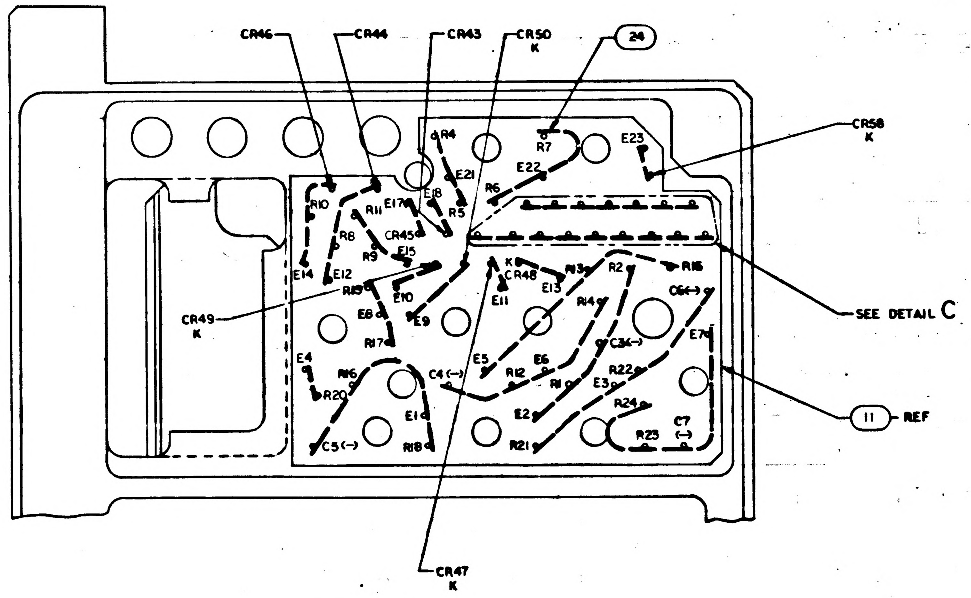
DETAIL A
SCALE 4/1

VIEW A-A
SCALE 4/1
VIEW SHOWN WITH FIND NO. 4, 12, 13, 14
AND SPECIAL LEVEL WIRING REMOVED


CR59
CR60
E19
CR61
CR62
CR63
CR64
R3
E16
CR51
CR52
CR53
CR54
CR55
CR56
CR57
K

DETAIL C
SCALE 4/1


B
QTY 3
10
B
REF
2
QTY 12
10
25
SEE NO
APPLICABLE DASH NO.
1.50
5

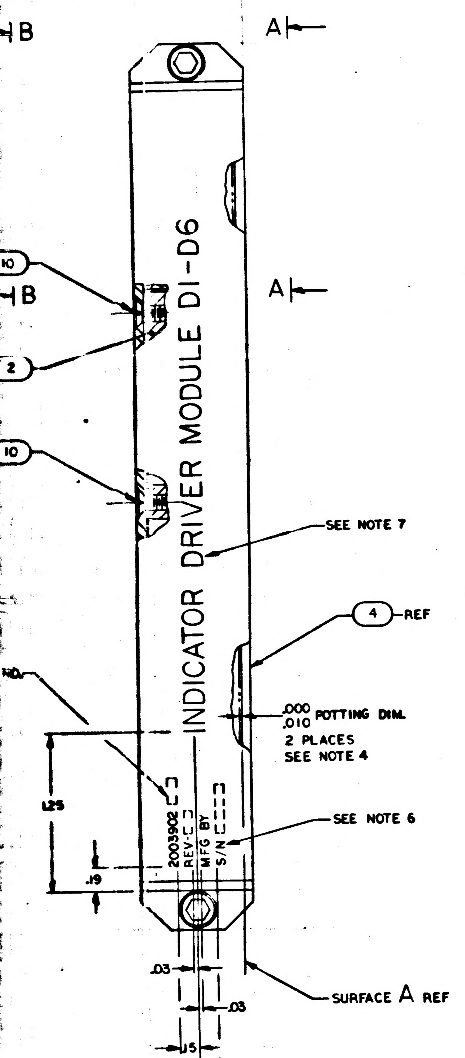

CR46
CR44
CR43
CR50
K
24
CR58
K
R4
R7
E23
E21
E22
E18
R5
R6
R10
R11
E17
R8
R9
CR45
E15
E14
E12
R19
E10
K
CR48
R13
E13
R2
R16
C6(+)
CR49
K
E8
R17
E9
E11
R14
C3(-)
E7
E4
R16
C4(-)
E5
E6
R12
R1
E3
R22
R20
E16
E2
R24
C5(-)
R18
R21
R23
C7
(-)
11
REF
SEE DETAIL C
CR47
K

VIEW B-B
SCALE 4/1
COMPONENT DESIGNATIONS IN THIS VIEW
ARE FOR REFERENCE ONLY

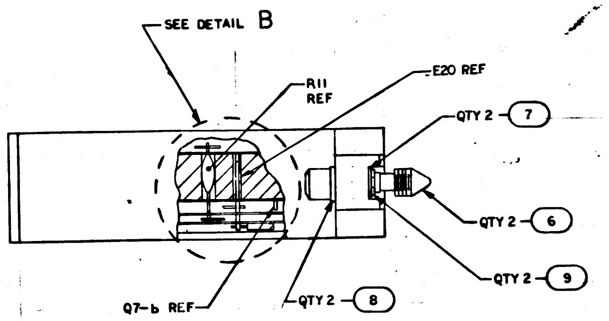
NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. WELD PER ND1002005
3. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
4. ENCAPSULATE PER ND1002236
5. K DENOTES CATHODE SIDE OF DIODE
6. MARK .05/.07 HIGH WHITE CHARACTERS PER ND1002019 & ND1002122 TYPE II, CLASS 2 & SERIALIZE PER ND1002023 USING INK 1006271-1
7. MARK .18/.20 HIGH WHITE CHARACTERS PER ND1002019 & ND1002122 TYPE II, CLASS 2 USING INK 1006271-1
8. AR DENOTES AS REQUIRED
9. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
10. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
11. ▲ AND CLEAR LEADS INDICATE SPECIAL LEVEL WIRING
12. – DENOTES NEGATIVE SIDE OF CAPACITOR
13. + DENOTES POSITIVE SIDE OF CAPACITOR
14. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX THE DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH.
15. BOND FIND NO. 3 TO FIND NO. 1 PER ND1002004 TYPE IV
16. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH & SHALL MEET ALL THE REQUIREMENTS OF P.S. 2003902
17. STAKE FIND NO. 17 THRU FIND NO. 23 TO FIND NO. 1 PER ND1002009 METHOD C OR D
18. APPLY FIND NO. 25 TO INDICATED SURFACE
19. SEAL INSULATORS ON FIND NO. 1 PER ND1002004 TYPE VI

		REVISIONS		
2003902	SYM	DESCRIPTION	DATE	APPROVAL

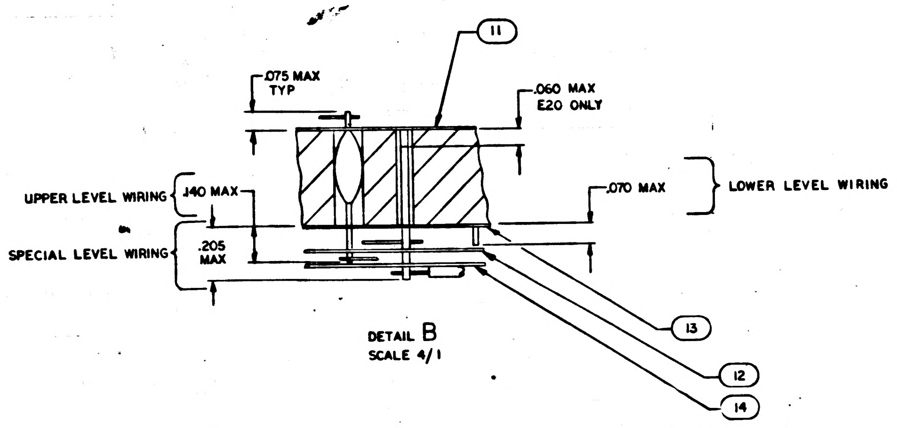
FROM PIN NO.	TO COMPONENT
101	10
102	11
103	9
104	13
105	49
106	14
107	12
108	R52
C3	R50
[illegible]	R5
[illegible]	6
[illegible]	[illegible]
3	7
4	8
[illegible]	R5
[illegible]	R59
[illegible]	R62
8	R6
[illegible]	2
2	20
12	[illegible]
122	R64
[illegible]	[illegible]
124	R63



A
A
B
B
10
2
10
INDICATOR DRIVER MODULE DI-D6
SEE NOTE 7
4 REF
.000 .010 POTTING DIM.
2 PLACES
SEE NOTE 4
1.25
2003902
REV-
MFG BY
S/N
SEE NOTE 6
.19
.03
.03
.15
.15
SURFACE A REF

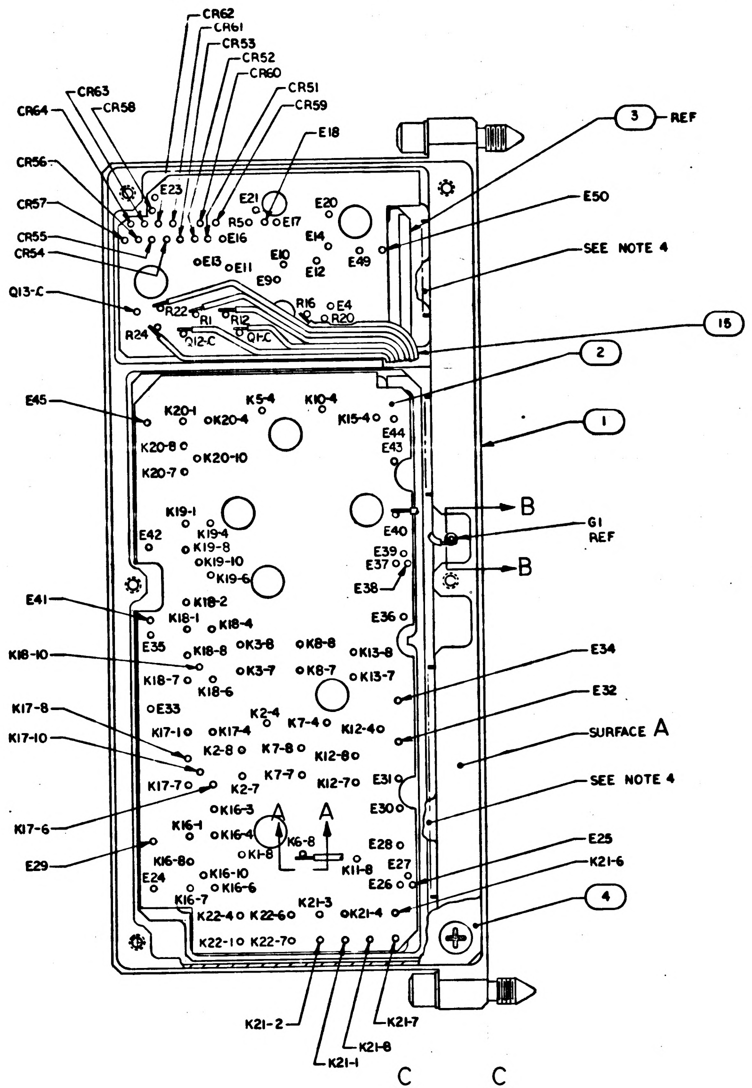


SEE DETAIL B
R11 REF
E20 REF
QTY 2 7
QTY 2 6
QTY 2 9
Q7-b REF
QTY 2 8



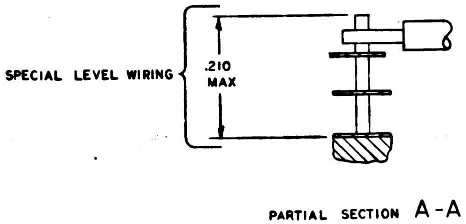
11
.075 MAX TYP
.060 MAX E20 ONLY
UPPER LEVEL WIRING
.140 MAX
.070 MAX
LOWER LEVEL WIRING
SPECIAL LEVEL WIRING
.205 MAX
13
12
14

DETAIL B
SCALE 4/1



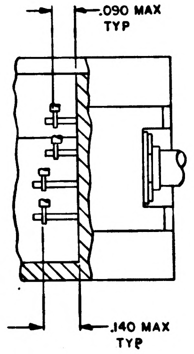
CR62
CR61
CR53
CR52
CR60
CR51
CR59
CR63
CR58
CR64
E18
3 REF
CR56
E23
E21
E20
E50
CR57
R50
E17
CR55
E16
E14
SEE NOTE 4
CR54
E13
E11
E10
E12
E49
E9
Q13-C
R22
R16
E4
R11
R12
R20
R24
Q12-C
Q7-C
15
2
E45
K20-1
K20-4
K5-4
K10-4
K15-4
1
K20-8
E44
E43
K20-10
K20-7
K19-1
B
E40
G1 REF
E42
K19-4
K19-8
K19-10
E39
E37
B
K19-6
E38
K18-2
E41
K18-1
K18-4
E36
E35
K18-8
K3-8
K8-8
K13-8
E34
K18-10
K18-7
K3-7
K8-7
K13-7
K18-6
E32
E33
K2-4
K7-4
K12-4
K17-8
K17-1
K17-4
SURFACE A
K17-10
K2-8
K7-8
K12-8
K7-7
E31
SEE NOTE 4
K17-7
K2-7
K12-7
K17-6
K16-3
A
A
E30
K16-1
K16-4
K1-8
K6-8
E28
E25
E24
K16-8
E27
K21-6
E29
K16-10
K16-6
K11-8
E26
K16-7
K21-3
4
K22-4
K22-6
K21-4
K22-1
K22-7
K21-2
K21-7
K21-8
K21-1
C
C

COMPONENT DESIGNATIONS IN THIS VIEW ARE FOR REFERENCE ONLY



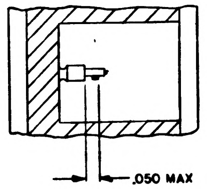
SPECIAL LEVEL WIRING
.210 MAX

PARTIAL SECTION A-A
TYPICAL FOR PINS OF FIND NO. 2
SCALE 10/1



.090 MAX TYP
.140 MAX TYP

PARTIAL VIEW C-C
SCALE 4/1



SECTION B-B
SCALE 4/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
⨯	2005902	SCHEMATIC	REF
AR	1006757-1	WIRE, ELECTRICAL .010 × .020	24
7	2004004-002	TRANSISTOR	23
6	2004004-001	TRANSISTOR	22
3	1006753-62	RESISTOR, FIXED FILM	21
21	1006750-56	RESISTOR, FIXED FILM	20
22	2004103-001	SEMICONDUCTOR DEVICE, DIODE	19
5	1006755-106	CAPACITOR, FIXED	18
AR	1006757-8	SLEEVING, INSULATION	17
AR	1006776-22	WIRE, ELECTRICAL .020 DIA	16
AR	later	WIRE, INSULATED	15
1	2004915	INSULATOR, PHOTO MASTER, SPECIAL LEVEL	14
1	2004914-011	INSULATOR, PHOTO MASTER, LOWER LEVEL	13
1	2004913	INSULATOR, PHOTO MASTER, UPPER LEVEL	12
1	2004912-011	INSULATOR, PHOTO MASTER, REAR	11
15	MS24693-C2	SCREW, FLAT HD, CROSS RECESSED	10
2	MS16633-4015	RING, RETAINING, EXTERNAL	9
2	1004546-1	WASHER, FLAT	8
2	1004546-3	WASHER, FLAT	7
2	1004579-1	SCREW, JACKING	6
1	2004956	COVER, REAR	5
1	2004911	COVER	4
1	2003908-011	DECODING CIRCUIT ASSY	3
1	2003910-011	RELAY CIRCUIT ASSY	2
1	2003907-011	HEADER ASSY	1
011	LIST OF MATERIALS		

2003902

3H

NEXT ASSY	USED ON
2003900	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN G. Brown DATE
CHECKED R. Edward
APPROVAL
APPROVAL
NASA APPROVAL 4/26/65
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

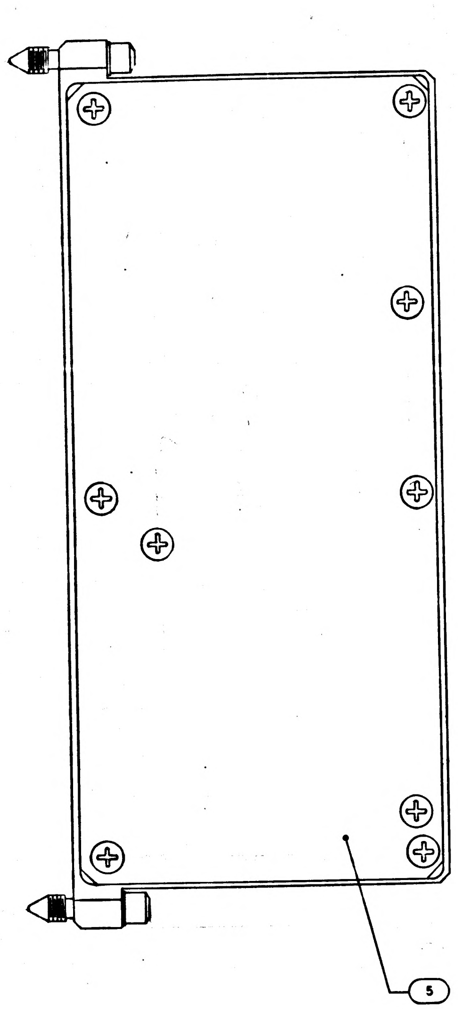
INDICATOR DRIVER ASSY
MODULE DI-D6
AGC DSKY

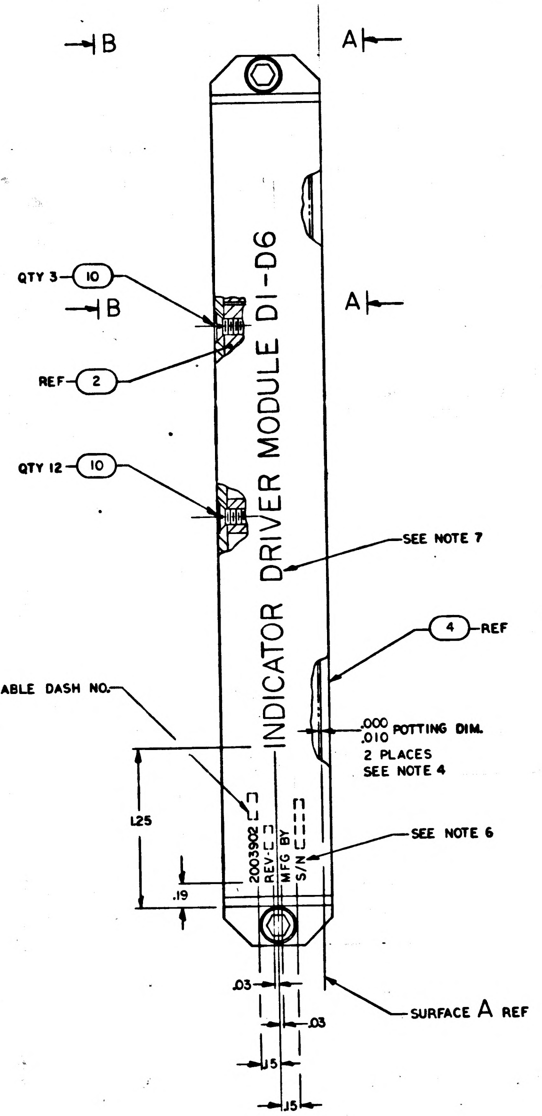
CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003902
SCALE 2/1
WT
SHEET 1 OF 1

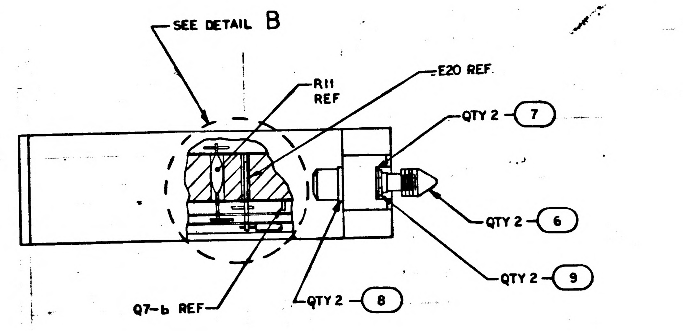
MASTER

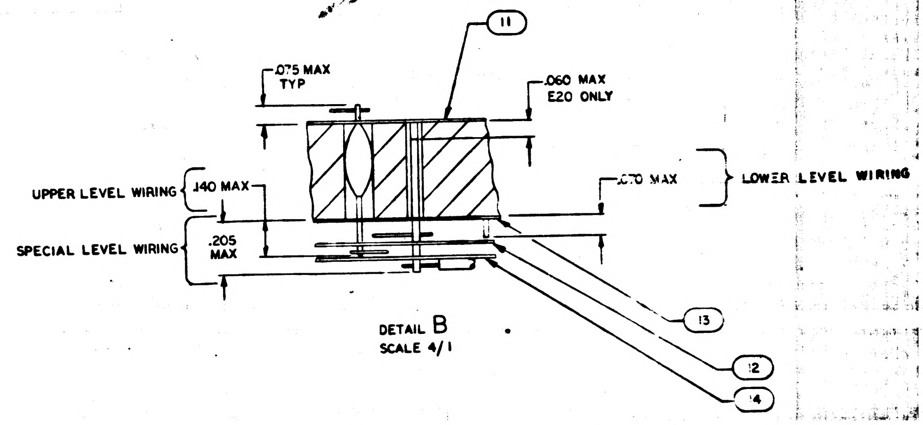
WIRING LEGEND

FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT
1	K21-7	26	E29	51	E34	76	K19-4	101	E10
2	K21-2	27	K16-3	52	K18-10	77	E44	102	E11
3	K22-7	28	K16-1	53	K13-8	78	K15-4	103	E9
4	K22-1	29	K12-7	54	K8-8	79	K20-8	104	E13
5	K22-6	30	K2-7	55	K3-8	80	K20-10	105	E49
6	K22-4	31	K17-6	56	K3-7	81	K20-1	106	E14
7	K21-1	32	E30	57	E35	82	K20-4	107	E12
8	K21-8	33	K17-10	58	K18-4	83	K5-4	108	CR52
9	E24	34	K12-8	59	K18-1	84	K10-4	109	CR60
10	K21-3	35	E31	60	K18-8	85	R22	110	CR51
11	K21-4	36	K7-7	61	E37	86	R24	111	E16
12	K21-6	37	K17-4	62	E36	87	Q12-C	112	E50
13	E27	38	K17-8	63	K19-6	88	E45	113	E17
14	E26	39	K2-8	64	K18-2	89	R16	114	E18
15	K16-7	40	K7-8	65	E40	90	R12	115	R5
16	E25	41	K2-4	66	E39	91	R1	116	CR59
17	K11-8	42	K7-4	67	E38	92	Q1-C	117	CR62
18	K16-8	43	K12-4	68	G1	93	E4	118	CR61
19	K16-10	44	E32	69	E42	94	CR57	119	E21
20	K16-6	45	K18-6	70	K19-8	95	Q13-C	120	E20
21	K16-4	46	K18-7	71	E41	96	R20	121	E23
22	K1-8	47	E33	72	K19-10	97	CR53	122	CR64
23	E28	48	K17-1	73	E43	98	CR54	123	CR58
24	K6-8	49	K8-7	74	K20-7	99	CR55	124	CR63
25	K17-7	50	K13-7	75	K19-1	100	CR56		

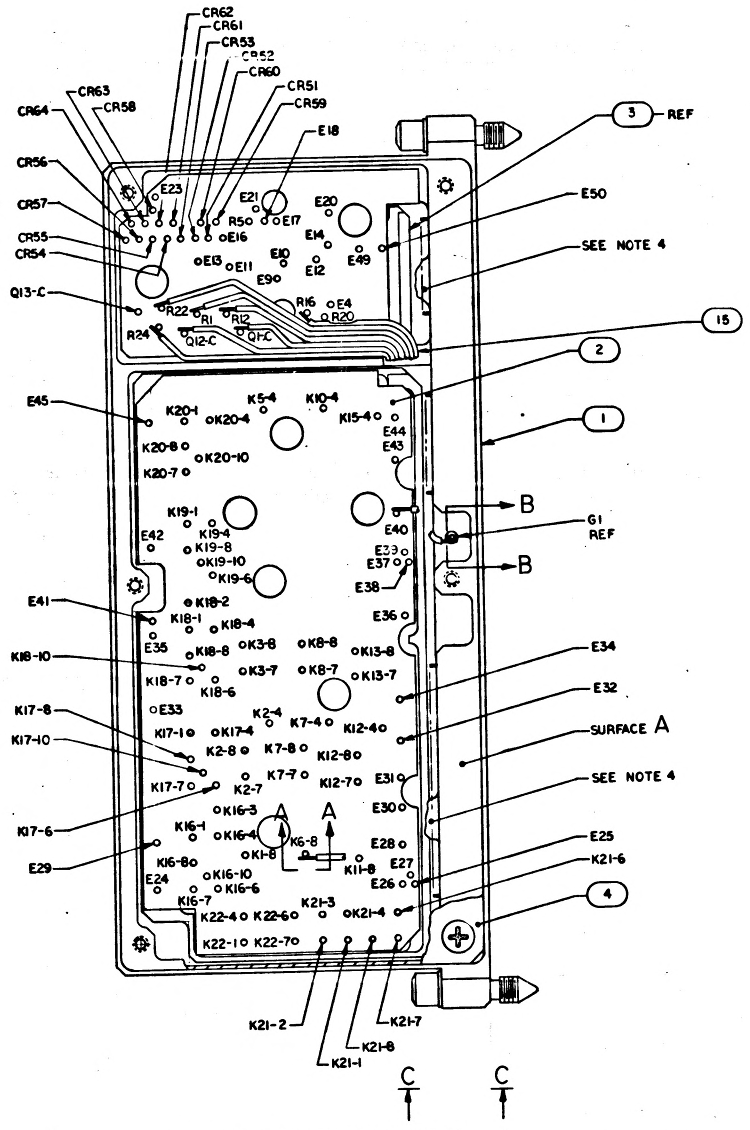



B
A
A
B
QTY 3 10
REF 2
QTY 12 10
INDICATOR DRIVER MODULE D1-D6
SEE NOTE 7
4 REF
APPLICABLE DASH NO.
.000 .010 POTTING DIM.
2 PLACES
SEE NOTE 4
1.25
.19
2003902
REV-
MFG BY
S/N
SEE NOTE 6
.03
.03
.15
.15
SURFACE A REF

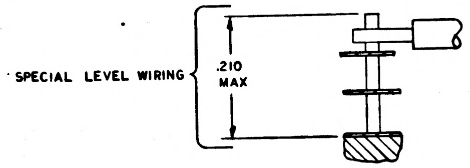

SEE DETAIL B
R11 REF
E20 REF.
QTY 2 7
QTY 2 6
QTY 2 9
QTY 2 8
Q7-b REF


11
.075 MAX TYP
.060 MAX E20 ONLY
UPPER LEVEL WIRING
.140 MAX
.070 MAX
LOWER LEVEL WIRING
SPECIAL LEVEL WIRING
.205 MAX
13
12
14

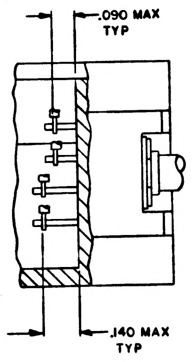
DETAIL B
SCALE 4/1


CR62
CR61
CR53
CR52
CR60
CR51
CR59
E18
CR63
CR58
CR64
CR56
CR57
CR55
CR54
Q13-C
R24
E23
E21
E20
R50
E17
E16
E14
E13
E11
E10
E12
E49
E9
R22
R1
R12
R16
E4
R20
Q12-C
Q1-C
3 REF
E50
SEE NOTE 4
15
2
1
E45
K20-1
K20-4
K5-4
K10-4
K15-4
E44
E43
K20-8
K20-10
K20-7
K19-1
K19-4
K19-8
K19-10
K19-6
E42
E40
E39
E37
E38
B
G1 REF
B
E41
K18-2
K18-1
K18-4
E35
K18-8
K3-8
K8-8
K13-8
E36
K18-10
K18-7
K18-6
K3-7
K8-7
K13-7
E34
E32
E33
K2-4
K7-4
K12-4
K17-8
K17-1
K17-4
K2-8
K7-8
K12-8
SURFACE A
K17-10
K17-7
K2-7
K7-7
K12-7
E31
SEE NOTE 4
K17-6
K16-3
A
A
E30
K16-1
K16-4
K6-8
E28
E25
K1-8
K11-8
E27
K21-6
E29
K16-8
K16-10
E26
E24
K16-6
K16-7
K21-3
K22-4
K22-6
K21-4
4
K22-1
K22-7
K21-2
K21-7
K21-8
K21-1
C
C

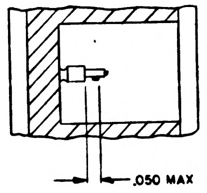
COMPONENT DESIGNATIONS IN THIS VIEW ARE FOR REFERENCE ONLY


SPECIAL LEVEL WIRING
.210 MAX

PARTIAL SECTION A-A
TYPICAL FOR PINS OF FIND NO.2
SCALE 10/1


.090 MAX TYP
.140 MAX TYP

PARTIAL VIEW C-C
SCALE 4/1

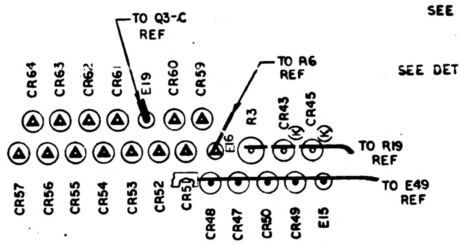


SECTION B-B
SCALE 4/1

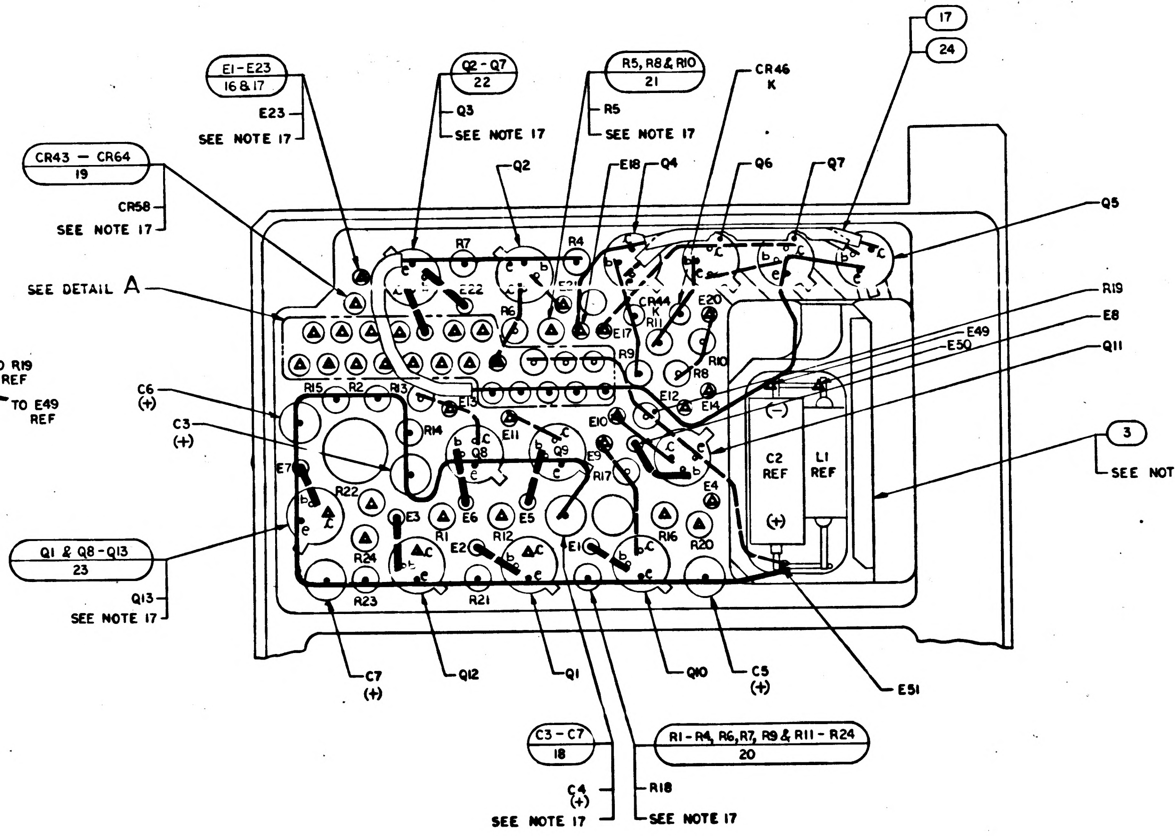
MASTER

2003900	
NEXT ASSY	USED ON
APPLICATION	

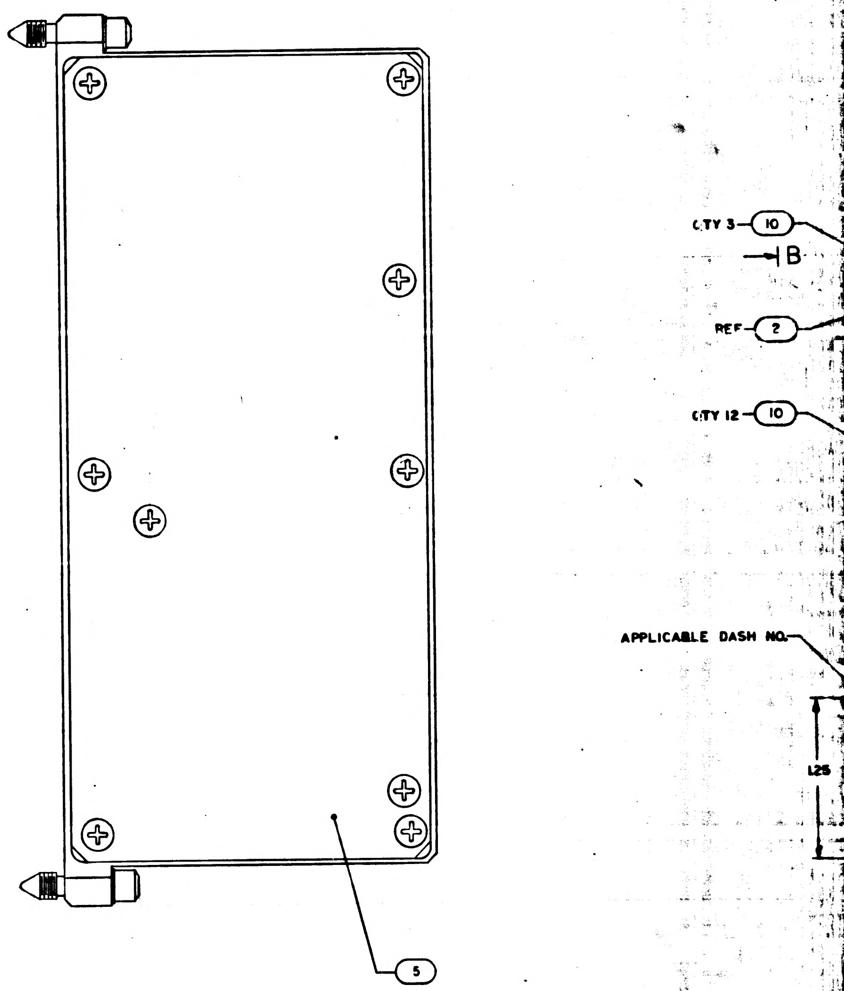
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

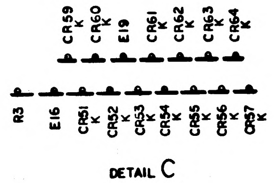

TO Q3-C REF
TO R6 REF
TO R19 REF
TO E49 REF
CR64
CR63
CR62
CR61
E19
CR60
CR59
R3
CR43
CR45
E16
CR57
CR56
CR55
CR54
CR53
CR52
CR51
CR48
CR47
CR50
CR49
E15

DETAIL A
SCALE 4/1

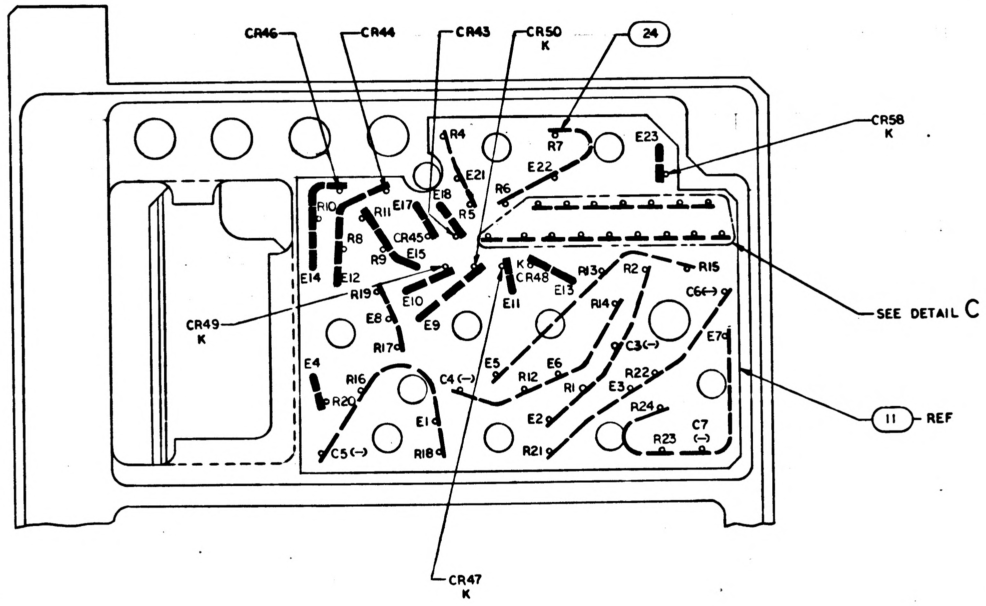

E1 – E23
16 & 17
E23
SEE NOTE 17
Q2 – Q7
22
Q3
SEE NOTE 17
R5, R8 & R10
21
R5
SEE NOTE 17
CR46
K
17
24
CR43 – CR64
19
CR58
SEE NOTE 17
Q2
E18
Q4
Q6
Q7
Q5
SEE DETAIL A
R7
R4
E22
R6
CR44
K
R11
E20
E17
R19
E8
E49
E50
Q11
R9
R10
R8
E12
E14
R15
R2
R13
C6
(+)
C3
(+)
E13
E11
E10
R14
Q9
E9
Q8
R17
C2
REF
L1
REF
(–)
(+)
3
SEE NOTE 15
E7
R22
E5
E4
E3
E6
R1
E2
R12
E1
R16
R20
Q1 & Q8-Q13
23
Q13
SEE NOTE 17
R24
R23
R21
C7
(+)
Q12
Q1
Q10
C5
(+)
E51
C3 – C7
18
R1 – R4, R6, R7, R9 & R11 – R24
20
C4
(+)
SEE NOTE 17
R18
SEE NOTE 17

VIEW A-A
SCALE 4/1
VIEW SHOWN WITH FIND NO. 4, 12, 13, 14
AND SPECIAL LEVEL WIRING REMOVED


B
CTY 3
10
B
REF
2
CTY 12
10
APPLICABLE DASH NO.
.25
5


CR59
K
CR60
K
E19
CR61
K
CR62
K
CR63
K
CR64
K
R3
E16
CR51
K
CR52
K
CR53
K
CR54
K
CR55
K
CR56
K
CR57
K

DETAIL C
SCALE 4/1


CR46
CR44
CR43
CR50
K
24
CR58
K
R4
R7
E23
E21
E22
R6
R10
E17
E18
R5
R11
R8
CR45
R9
E15
E12
E14
R19
K
CR48
R13
R2
R15
E13
E11
R14
C6(–)
E10
E8
E9
CR49
K
R17
E5
E6
C3(–)
E7
E4
R16
C4(–)
R12
R1
E3
R22
R20
E1
E2
R24
C5(–)
R18
R21
R23
C7
(–)
SEE DETAIL C
11
REF
CR47
K

VIEW B-B
SCALE 4/1
COMPONENT DESIGNATIONS IN THIS VIEW
ARE FOR REFERENCE ONLY

WIRING LEGEND

FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT
1	K21-7	26	E29	51	E34	76	K19-4
2	K21-2	27	K16-3	52	K18-10	77	E44
3	K22-7	28	K16-1	53	K13-8	78	K15-4
4	K22-1	29	K12-7	54	K8-8	79	K20-8
5	K22-6	30	K2-7	55	K3-8	80	K20-10
6	K22-4	31	K17-6	56	K3-7	81	K20-1
7	K21-1	32	E30	57	E35	82	K20-4
8	K21-8	33	K17-10	58	K18-4	83	K5-4
9	E24	34	K12-8	59	K18-1	84	K10-4
10	K21-3	35	E31	60	K18-8	85	R22
11	K21-4	36	K7-7	61	E37	86	R24
12	K21-6	37	K17-4	62	E36	87	Q12-C
13	E27	38	K17-8	63	K19-6	88	E45
14	E26	39	K2-8	64	K18-2	89	R16
15	K16-7	40	K7-8	65	E40	90	R12
16	E25	41	K2-4	66	E39	91	R1
17	K11-8	42	K7-4	67	E38	92	Q1-C
18	K16-8	43	K12-4	68	G1	93	E4
19	K16-10	44	E32	69	E42	94	CR57
20	K16-6	45	K18-6	70	K19-8	95	Q13-C
21	K16-4	46	K18-7	71	E41	96	R20
22	K1-8	47	E33	72	K19-10	97	CR53
23	E28	48	K17-1	73	E43	98	CR54
24	K6-8	49	K3-7	74	K20-7	99	CR55
25	K17-7	50	K13-7	75	K19-1	100	CR56

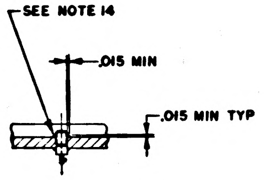
NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. WELD PER ND1002005
3. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
4. ENCAPSULATE PER ND1002236
5. K DENOTES CATHODE SIDE OF DIODE
6. MARK .05/.07 HIGH WHITE CHARACTERS PER ND1002019 & ND1002122 TYPE II, CLASS 2 & SERIALIZE PER ND1002023 USING INK 1006271-1
7. MARK .18/.20 HIGH WHITE CHARACTERS PER ND1002019 & ND1002122 TYPE II, CLASS 2 USING INK 1006271-1
8. AR DENOTES AS REQUIRED
9. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
10. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
11. ▲ AND CLEAR LEADS INDICATE SPECIAL LEVEL WIRING
12. – DENOTES NEGATIVE SIDE OF CAPACITOR
13. + DENOTES POSITIVE SIDE OF CAPACITOR
14. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX THE DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH.
15. BOND FIND NO. 3 TO FIND NO. 1 PER ND1002004 TYPE IV
16. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH & SHALL MEET ALL THE REQUIREMENTS OF P.S. 2003902
17. STAKE FIND NO. 17 THRU FIND NO. 23 TO FIND NO. 1 PER ND1002009 METHOD C OR D

3H

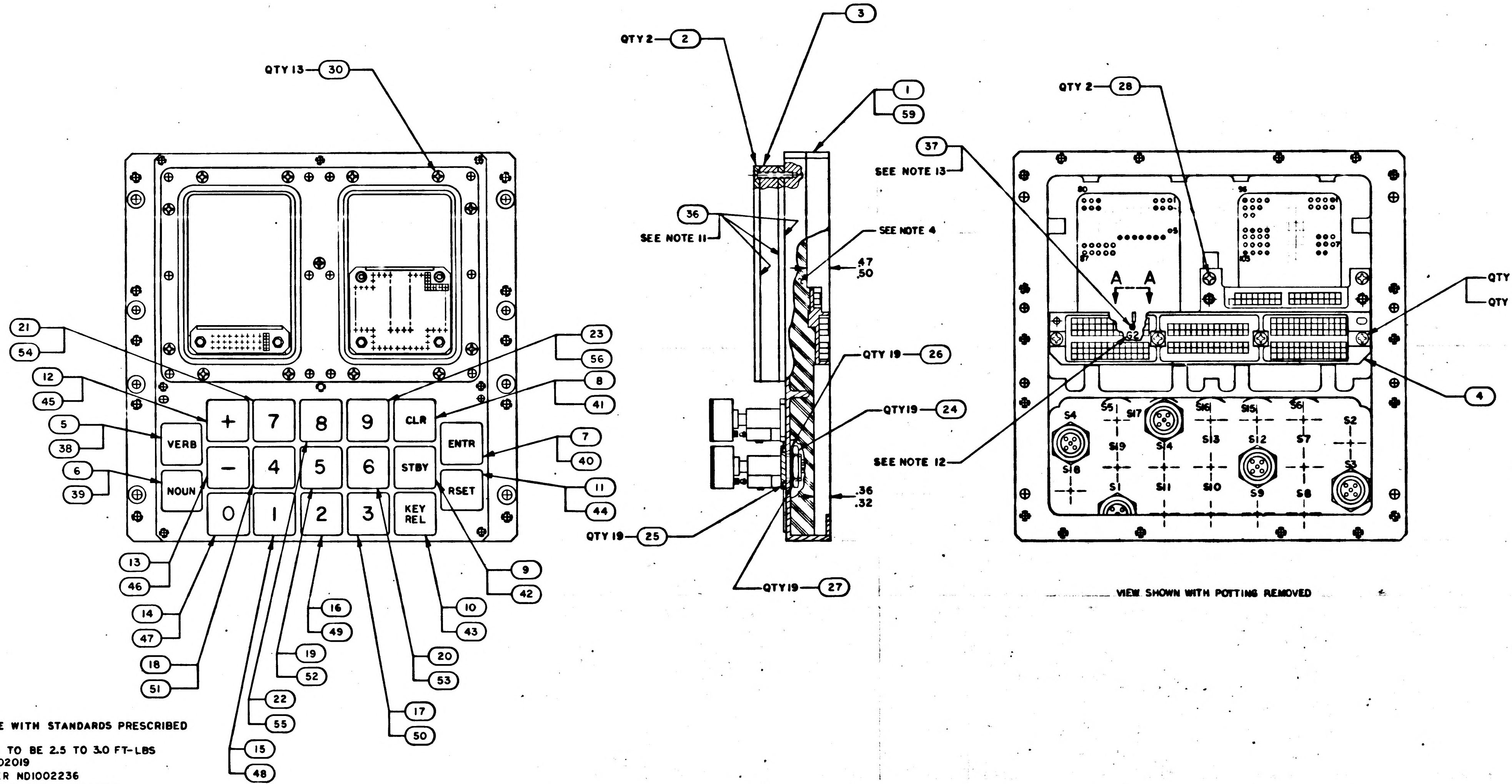
2003903 A

LTR	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22463 DR R.J. Gilbert CHK	11/4/65	



SEE NOTE 14
.015 MIN
.015 MIN TYP

PARTIAL SECTION A-A
SCALE 2/1



QTY 13
30
QTY 2
2
3
1
59
QTY 2
28
37
SEE NOTE 13
36
SEE NOTE 11
SEE NOTE 4
.47
.50
QTY 19
26
QTY19
24
SEE NOTE 12
.36
.32
QTY 19
25
QTY19
27
QTY 4
29
QTY 4
31
4
A
A
21
54
12
45
5
38
6
39
23
56
8
41
7
40
11
44
9
42
10
43
13
46
14
47
18
51
22
55
15
48
19
52
16
49
17
50
20
53
VERB
NOUN
+
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7
8
9
4
5
6
0
1
2
3
CLR
ENTR
STBY
RSET
KEY REL
S4
S5
S17
S16
S15
S6
S2
S19
S14
S13
S12
S7
S3
S18
S1
S11
S10
S9
S8

VIEW SHOWN WITH POTTING REMOVED

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE FOR FIND NO. 24 TO BE 2.5 TO 3.0 FT-LBS
3. IDENTIFY WITH PART NO. PER ND1002019
4. ENCAPSULATE INDICATED AREAS PER ND1002236
5. SOLDER PER ND1002071 USING SOLDER PER ND1002075
6. WELD PER ND1002005
7. AR DENOTES AS REQUIRED
8. BOND FIND NO.32 & 33 TO FIND NO.1 OR FIND NO.59 PER ND1002004 TYPE IV
9. DRESS AND TRIM AT ASSEMBLY USING FIND NO. 34
10. ~~WIRE PER ND1002031 USING LEAD ELECTRICAL~~
11. APPLY FIND NO.36 TO INDICATED SURFACES OF FIND NO. 2. DO NOT APPLY TO BONDED RUBBER
12. MARK .07/.10 HIGH CHARACTERS PER ND1002019 AND ND1002122 TYPE II CLASS 2, USING MARKING INK 1006271-11
13. MOUNTING TORQUE FOR FIND NO.37 TO BE 15-20 INCH OUNCES
14. SEAL FIND NO.37 TO FIND NO.1 OR FIND NO.59 PER ND1002004 TYPE VI

☒	☒	—	2005951	INTERCONNECTING DIAGRAM	REF
—	—	☒	2005901	INTERCONNECTING DIAGRAM	REF
1	—	—	2004968-011	HOUSING, FRONT	59
AR	AR	AR	1010416-14	WIRE, INSULATED	58
AR	AR	AR	1010416-13	WIRE, INSULATED	57
1	1	—	2003974-211	SWITCH, ASSEMBLY PUSHBUTTON	56
1	1	—	-191		55
1	1	—	-181		54
1	1	—	-171		53
1	1	—	-161		52
1	1	—	-151		51
1	1	—	-141		50
1	1	—	-131		49
1	1	—	-121		48
1	1	—	-111		47
1	1	—	-091		46
1	1	—	-081		45
1	1	—	-071		44
1	1	—	-061		43
1	1	—	-051		42
1	1	—	-041		41
1	1	—	-031		40
1	1	—	-021		39
1	1	—	2003974-011	SWITCH, ASSEMBLY PUSHBUTTON	38
1	1	1	2004039	TERMINAL, THREADED	37
AR	AR	AR	1006879	SILICONE COMPOUND	36
AR	AR	AR	1010416-15	WIRE, INSULATED	35
AR	AR	AR	1012507-003	TAPE, LACING	34
AR	AR	AR	1010416-20	WIRE, INSULATED	33
AR	AR	AR	1010848-2	WIRE, INSULATED	32
4	4	4	NAS620-6L	WASHER, FLAT	31
13	13	13	MS35200-19	SCREW, FLAT HD, CROSS RECESSED	30
4	4	4	MS35216-27	SCREW, PAN HD, CROSS RECESSED	29
2	2	2	MS35200-25	SCREW, FLAT HD, CROSS RECESSED	28
19	19	19	1010635-003	WASHER, LOCK	27
19	19	19	2004940	WASHER, PLAIN	26
19	19	19	1000159-7	O RING SEAL	25
19	19	19	2004942	NUT, HEX	24
—	—	1	2003924-211	SWITCH, ASSEMBLY PUSHBUTTON	23
—	—	1	-191		22
—	—	1	-181		21
—	—	1	-171		20
—	—	1	-161		19
—	—	1	-151		18
—	—	1	-141		17
—	—	1	-131		16
—	—	1	-121		15
—	—	1	-111		14
—	—	1	-091		13
—	—	1	-081		12
—	—	1	-071		11
—	—	1	-061		10
—	—	1	-051		9
—	—	1	-041		8
—	—	1	-031		7
—	—	1	-021		6
—	—	1	2003924-011	SWITCH, ASSEMBLY PUSHBUTTON	5
1	1	1	2003915-011	CONNECTOR, PLATE ASSEMBLY	4
1	1	1	2003912-011	ADAPTER, PLATE ASSEMBLY	3
2	2	2	1006351	GASKET, PREFORMED	2
—	1	1	2004918-011	HOUSING, FRONT	1
QTY REQD	QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
031	021	011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003985	
2003900	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN R. Gilbert DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

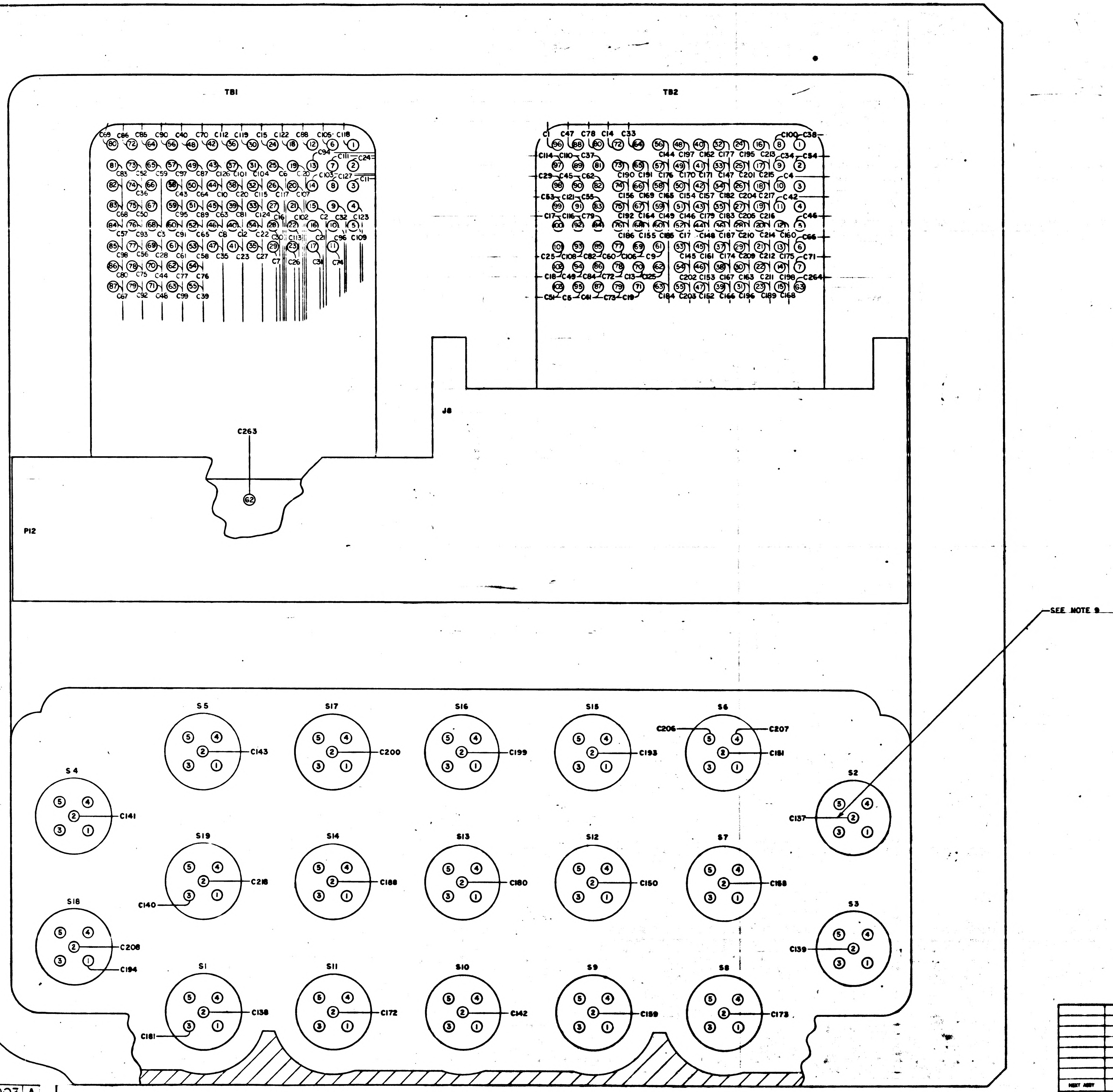
FRONT HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003903
SCALE 1/1
WT
SHEET 1 OF 3

2003903 A

2003903 A

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22463 DR R.D. Tootland CHK A.S.V.	[illegible]	[illegible]


TB1
TB2
J8
C263
62
P12
SEE NOTE 9
S5
C143
S17
C200
S16
C199
S15
C193
S6
C206
C207
C151
S4
C141
S2
C137
S19
C218
C140
S14
C188
S13
C180
S12
C150
S7
C168
S18
C208
C194
S3
C139
S1
C138
C181
S11
C172
S10
C142
S9
C159
S8
C173

2003903 A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

NEXT ASSY | USED ON
APPLICATION

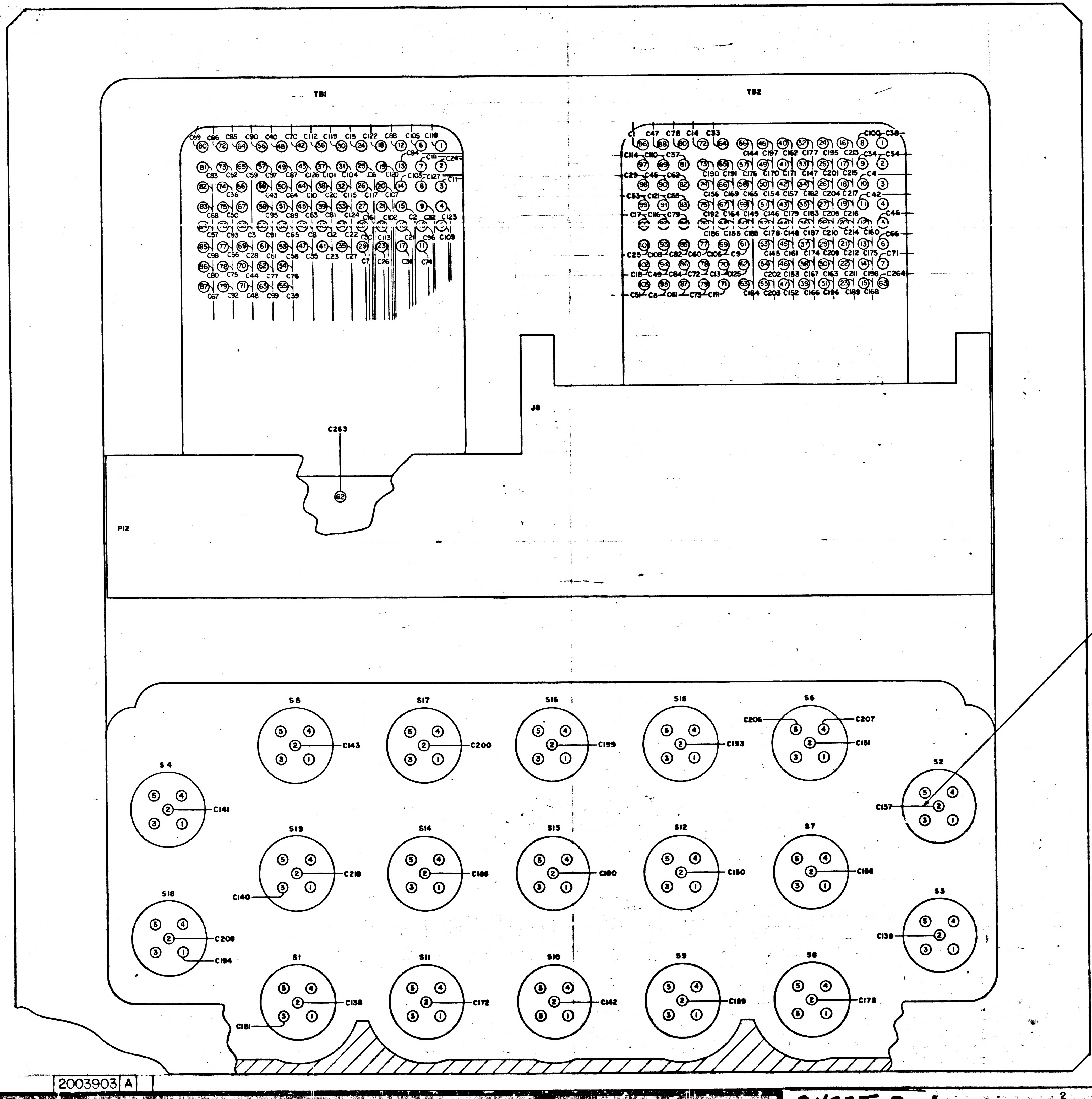
MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG NO. CONTRACT
DRAWN R.D. Tootland DATE
CHECKED A. Cagguis
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003903
SCALE NONE
WT
SHEET 2 OF 3

F 2/2


TB1
TB2
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C263
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P12
SEE NOTE 9
S5
C143
S17
C200
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C199
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C206
C207
C151
S4
C141
S2
C137
S19
C218
C140
S14
C186
S13
C180
S12
C150
S7
C168
S18
C208
C194
S3
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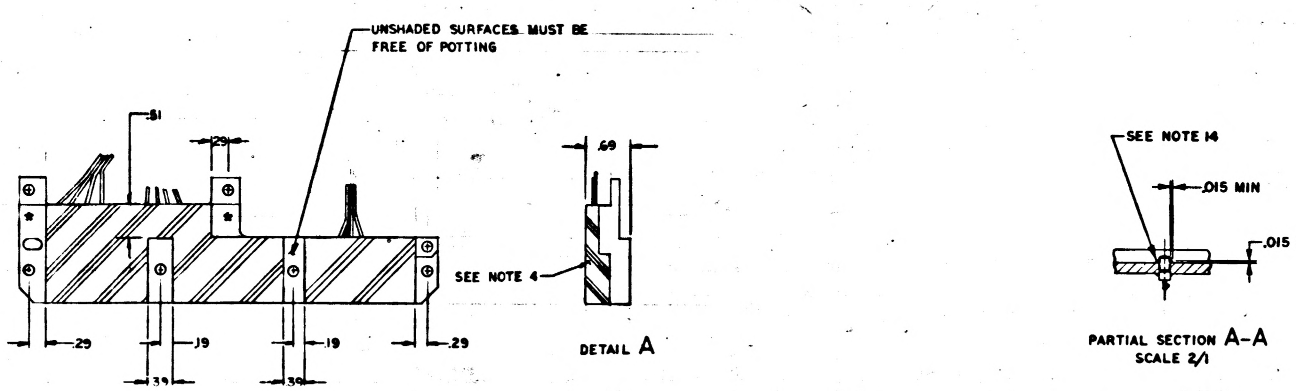
S8
C173

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES ± ± ± DO NOT SCALE THIS DRAWING	QTY REQD
		MATERIAL	DRAWN CHECKED APPROVAL APPROVAL
		HEAT TREATMENT	NASA APPROVAL
NEXT ASSY	USED ON	FINAL FINISH	M.I.T. APPROVAL MIT APPROVAL
APPLICATION			

2003903 A

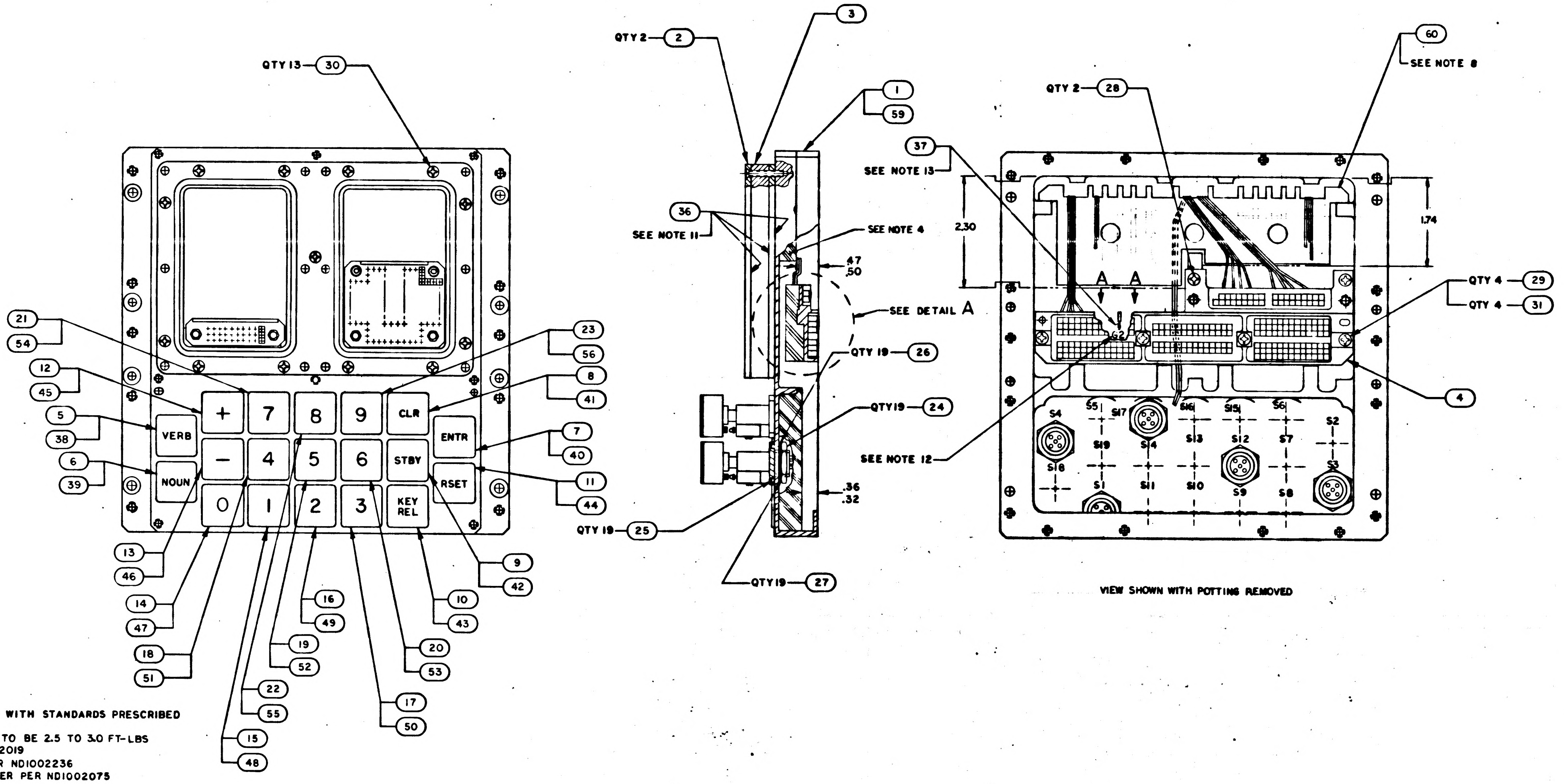
SHEET 2

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22463 DR CHK		
B	REVISED PER TDRR 23230 DR CHK		


UNSHADED SURFACES MUST BE FREE OF POTTING
.29
.19
.39
.19
.29
.39
SEE NOTE 4
.69
SEE NOTE 14
.015 MIN
.015 MIN TYP

DETAIL A

PARTIAL SECTION A-A
SCALE 2/1


QTY 13 — 30
QTY 2 — 2
3
1
59
36
SEE NOTE 11
SEE NOTE 13
37
SEE NOTE 4
.47
.50
SEE DETAIL A
QTY 19 — 26
QTY19 — 24
SEE NOTE 12
QTY 19 — 25
QTY19 — 27
.36
.32
QTY 2 — 28
60
SEE NOTE 8
2.30
1.74
A A
QTY 4 — 29
QTY 4 — 31
4
S5 S17 S16 S15 S6 S2
S4 S19 S14 S13 S12 S7
S18
S1 S11 S10 S9 S8 S3
21 54 12 45 5 38 6 39
23 56 8 41 7 40 11 44
VERB
NOUN
+ 7 8 9 CLR
− 4 5 6 STBY
0 1 2 3 KEY REL
ENTR
RSET
13 46 14 47 18 51 22 55 15 48 19 52 16 49 17 50 20 53 10 43 9 42

VIEW SHOWN WITH POTTING REMOVED

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE FOR FIND NO. 24 TO BE 2.5 TO 3.0 FT-LBS
3. IDENTIFY WITH PART NO. PER ND1002019
4. ENCAPSULATE INDICATED AREAS PER ND1002236
5. SOLDER PER ND1002071 USING SOLDER PER ND1002075
6. WELD PER ND1002005
7. AR DENOTES AS REQUIRED
8. BOND FIND NO. 32, 33, 35 & 60 TO FIND NO. 1 OR FIND NO. 59 PER ND1002004 TYPE IV
9. DRESS AND TRIM AT ASSEMBLY USING FIND NO. 34
10. ~~WIRE PER ND1002[illegible] USING LEAD ELECTRICAL~~
11. APPLY FIND NO. 36 TO INDICATED SURFACES OF FIND NO. 2. DO NOT APPLY TO BONDED RUBBER
12. MARK .07/.10 HIGH CHARACTERS PER ND1002019 AND ND1002122 TYPE II CLASS 2, USING MARKING INK 1006271-11
13. MOUNTING TORQUE FOR FIND NO. 37 TO BE 15–20 INCH OUNCES
14. SEAL FIND NO. 37 TO FIND NO. 1 OR FIND NO. 59 PER ND1002004 TYPE VI

QTY REQD 031	QTY REQD 021	QTY REQD 011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
		—	2005951	INTERCONNECTING DIAGRAM	REF
—	—		2005901	INTERCONNECTING DIAGRAM	REF
1	1	—	2004971	COMB, WIRE	60
1	—	—	2004968-011	HOUSING, FRONT	59
AR	AR	AR	1010416-14	WIRE, INSULATED	58
AR	AR	AR	1010416-13	WIRE, INSULATED	57
1	1	—	2003974-211	SWITCH, ASSEMBLY PUSHBUTTON	56
1	1	—	-191		55
1	1	—	-181		54
1	1	—	-171		53
1	1	—	-161		52
1	1	—	-151		51
1	1	—	-141		50
1	1	—	-131		49
1	1	—	-121		48
1	1	—	-111		47
1	1	—	-091		46
1	1	—	-081		45
1	1	—	-071		44
1	1	—	-061		43
1	1	—	-051		42
1	1	—	-041		41
1	1	—	-031		40
1	1	—	-021		39
1	1	—	2003974-011	SWITCH, ASSEMBLY PUSHBUTTON	38
1	1	1	2004039	TERMINAL, THREADED	37
AR	AR	AR	1006879	SILICONE COMPOUND	36
AR	AR	AR	1010416-15	WIRE, INSULATED	35
AR	AR	AR	1012507-003	TAPE, LACING	34
AR	AR	AR	1010416-20	WIRE, INSULATED	33
AR	AR	AR	1010848-2	WIRE, INSULATED	32
4	4	4	NAS620-6L	WASHER, FLAT	31
13	13	13	MS35200-19	SCREW, FLAT HD, CROSS RECESSED	30
4	4	4	MS35216-27	SCREW, PAN HD, CROSS RECESSED	29
2	2	2	MS35200-25	SCREW, FLAT HD, CROSS RECESSED	28
19	19	19	1010635-003	WASHER, LOCK	27
19	19	19	2004940	WASHER, PLAIN	26
19	19	19	1000159-7	O RING SEAL	25
19	19	19	2004942	NUT, HEX	24
—	—	1	2003924-211	SWITCH, ASSEMBLY PUSHBUTTON	23
—	—	1	-191		22
—	—	1	-181		21
—	—	1	-171		20
—	—	1	-161		19
—	—	1	-151		18
—	—	1	-141		17
—	—	1	-131		16
—	—	1	-121		15
—	—	1	-111		14
—	—	1	-091		13
—	—	1	-081		12
—	—	1	-071		11
—	—	1	-061		10
—	—	1	-051		9
—	—	1	-041		8
—	—	1	-031		7
—	—	1	-021		6
—	—	1	2003924-011	SWITCH, ASSEMBLY PUSHBUTTON	5
1	1	1	2003915-011	CONNECTOR, PLATE ASSEMBLY	4
1	1	1	2003912-011	ADAPTER, PLATE ASSEMBLY	3
2	2	2	1006351	GASKET, PREFORMED	2
—	1	1	2004918-011	HOUSING, FRONT	[illegible]

LIST OF MATERIALS

NEXT ASSY	USED ON
2003985	
2003900	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.01 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO. CONTRACT
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

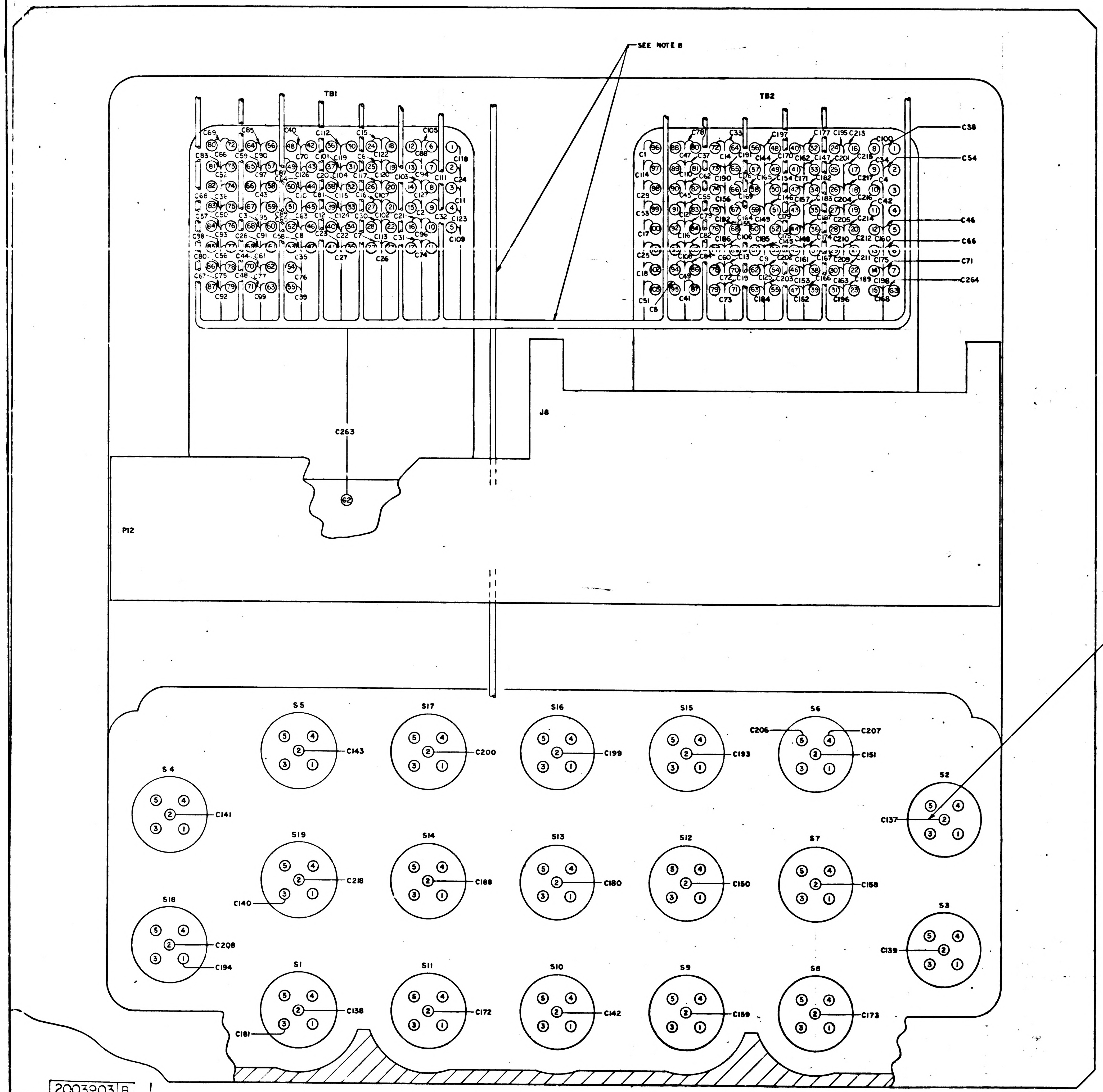
FRONT HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003903
SCALE 1/1
WT
SHEET 1 OF 3

2003903 B

2003903 B

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22463 DR R.D. [illegible] CHK [illegible]	[illegible]	[illegible]
B	REVISED PER TDRR 23230 DR [illegible] CHK CAP	[illegible]	[illegible]


SEE NOTE 8
TB1
TB2
C38
C54
C46
C66
C71
C264
J8
C263
62
P12
SEE NOTE 9
S5
C143
S17
C200
S16
C199
S15
C193
S6
C206
C207
C151
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C141
S2
C137
S19
C218
C140
S14
C188
S13
C180
S12
C150
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C158
S3
C139
S18
C208
C194
S1
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C181
S11
C172
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C142
S9
C159
S8
C173

2003903 B

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

NEXT ASSY | USED ON
APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

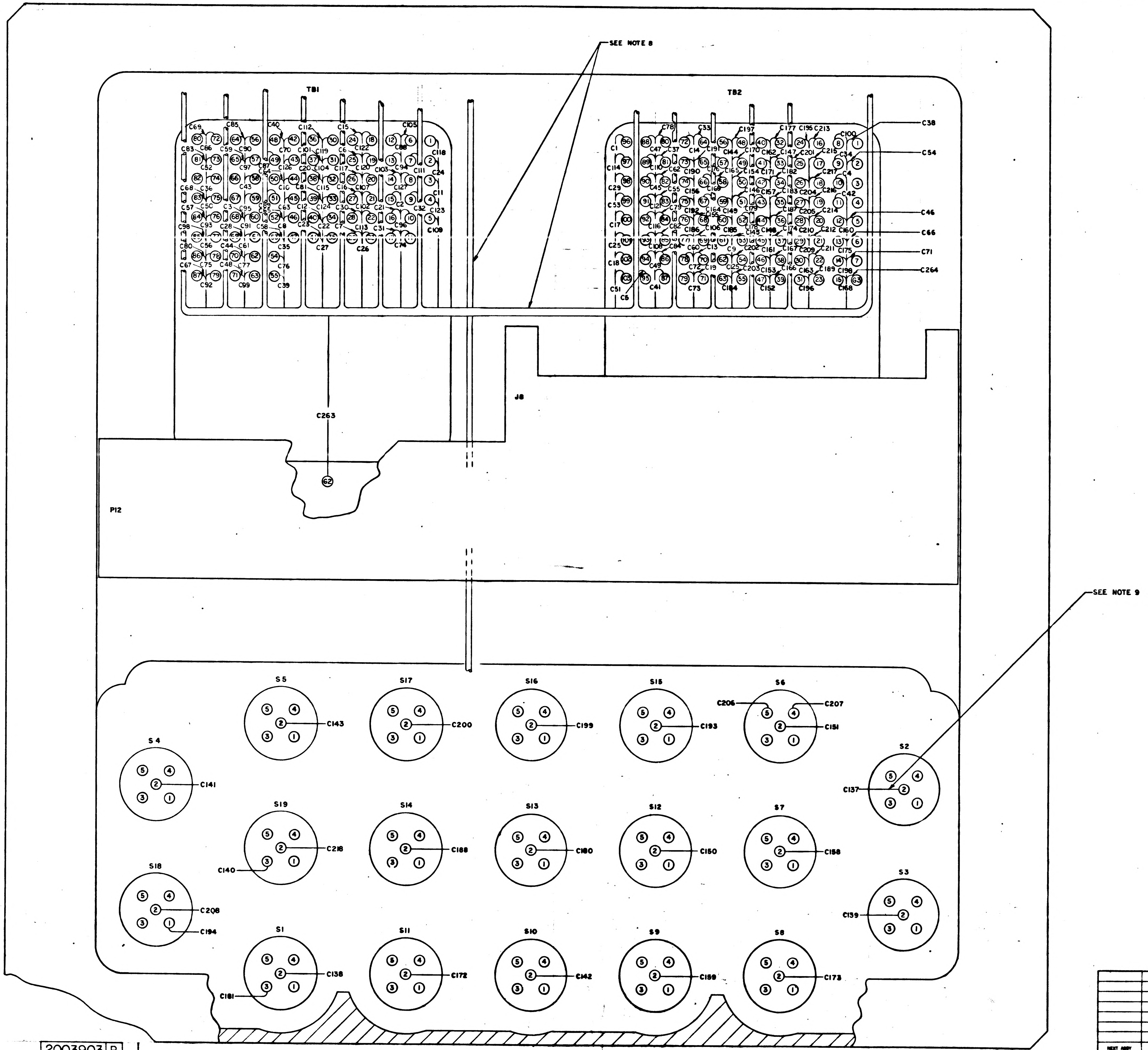
DRAWN R.D. [illegible] DATE [illegible]
CHECKED A. Caggiano 19 [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible] 7-1[illegible]
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO 2003903
SCALE NONE
WT
SHEET 2 OF 3

F 2/2


SEE NOTE 8
TB1
TB2
C38
C54
C46
C66
C71
C264
J8
C263
62
P12
SEE NOTE 9
S5
C143
S17
C200
S16
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C140
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C188
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C180
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C173

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

NEXT ASSY | USED ON
APPLICATION

QTY REQD
INSTRUMENT
DRAWN
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

2003903 B

2003903 B F1/2

SHEET 2

2003903 B

REV	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22463 DR CHK APPD		
B	REVISED PER TDRR 23230 DR CHK		

ELECTRICAL

ROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
2-131	32	WHT	24	AR	TB2-96	SEE NOTE 6
-132					TB1-15	
-133					TB1-68	
-134					TB2-10	
-127					TB2-95	
-128					TB1-25	
-129					TB1-29	
-130					TB1-46	
-123					TB2-61	
-124					TB1-44	
-125					TB1-3	
-126					TB1-40	
-119					TB2-70	
-120					TB2-72	
-121					TB1-24	
-122					TB1-27	
-115					TB2-100	
-116					TB2 102	
-117					TB2-71	
-118					TB1-38	
-111					TB1-16	
-112					TB1-34	
-113					TB1-41	
-114					TB1-2	
-107					TB2-101	
-108					TB -23	
-109					TB1-35	
-110					TB1-69	
-103					TB2-98	
-104					TB1-28	
-105					TB1-17	
-106					TB1-9	
-99					TB2-64	
-100					TB2-9	
-101					TB1-47	
-102					TB1 74	
-95					TB2-81	
-96					TB2-1	
-97					TB1-55	
-98					TB1-48	
-91					TB2-87	
-92					TB2-11	
-93					TB1-58	
-94					TB1-70	
-87					TB2-90	
-88					TB2-5	
-89					TB2-88	
-90					TB1-71	
-83					TB2-94	
-84					TB1-75	
-85					TB2-103	
-86					TB1-73	
-79					TB2-99	
-80					TB2-2	
-81					TB2 83	
-82					TB1-77	
-73					TB1-84	
-74					TB1-53	
-75					TB1-65	
-76					TB2-77	
-77					TB1-61	
-78					TB2-82	
-67					TB1-45	
-68					TB1-50	
-69					TB1-52	
-70					TB2-6	
-71					TB1-87	
-72					TB1-83	
-61					TB1-80	
-62					TB1-42	
-63					TB2-7	
-64					TB2-78	
-65					TB2-79	
-66					TB1-11	
-55					TB1-78	
-56					TB1-54	
-57					TB1-62	
-58					TB2-80	
-59					TB2-84	
-60					TB1-86	
-50					TB1-39	
-51					TB2-85	
-52					TB1-81	
-53					TB2-86	
-54					TB1-64	
-43					TB1-72	
-44					TB1-49	
-45	32	WHT	24	AR	TB1-12	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS	
C89	SEE NOTE 6	P12-46	32	WHT	24	AR	TB1-51	SEE NOTE 6	
C90		-47					TB1-56		
C91		-48					TB1-60		
C92		-37					TB1-79		
C93		-38					TB1-76		
C94		-39					TB1-13		
C95		-40					TB1-59		
C96		-41					TB1-10		
C97		-42					TB1-57		
C98		-31					TB1-85		
C99		-32					TB1-63		
C100		-33					TB2-8		
C101		-34					TB1-37		
C102		-35					TB1-21		
C103		-36					TB1-14		
C104		-25					TB1-31		
C105		-27					TB1-6		
C106		-28					TB2-69		
C107		-29					TB1-20		
C108		-30					TB2-93		
C109		-21					TB1-5		
C110		-22					TB2-89		
C111		-23					TB1-7		
C112		-24					TB1-36		
C113		-13					TB1-22		
C114		-15					TB2-97		
C115		-16					TB1-32		
C116		-17					TB2-92		
C117		-18					TB1-26		
C118		-7					TB1-1		
C119		-9					TB1-30		
C120		-10					TB1-19		
C121		-11					TB2-91		
C122		-12					TB1-18		
C123		-1					TB1-4		
C124		-3					TB1-33		
C125		-4					TB2-62		
C126		-5					TB1-43		
C127		P12-6	32	WHT	24		TB1-8		
C128	SEE NOTE 5	S16-1	35	YEL	26		S17-3	SEE NOTE 5	
C129	SEE NOTE 5	S5-4	57	RED	26		S19-4	TWIST	SEE NOTE 5
C130		S5-5	58	ORN			S19-5		
C131		S19-4	57	RED			S1-4	TWIST	
C132		S19-5	58	ORN			S1-5		
C133		S1-4	57	RED			S18-4	TWIST	
C134		S1-5	58	ORN			S18-5		
C135	SEE NOTE 5	S18-4	57	RED			S4-4	TWIST	
C136		S18-5	58	ORN			S4-5		
C137	SEE NOTE 5	J8-3	33	WHT			S2-2	SEE NOTE 5	
C138		-5					S1-2		
C139		-8					S3-2		
C140		-9					S19-3		
C141		-10					S4-2		
C142		-11					S10-2		
C143		J8-13	33		26		S5-2		
C144	SEE NOTE 6	P12-135	32		24		TB2-56	SEE NOTE 6	
C145		-136					TB2-53		
C146		-137					TB2-51		
C147		-138					TB2-33		
C148		-139					TB2-44		
C149		P12-140	32		24		TB2-59		
C150	SEE NOTE 5	J8-14	33		26		S12-2	SEE NOTE 5	
C151		J8-15	33		26		S6-2		
C152	SEE NOTE 6	P12-141	32		24		TB2-47	SEE NOTE 6	
C153		-142					TB2-46		
C154		-143					TB2-50		
C155		-144					TB2-68		
C156		-145					TB2-74		
C157		P12-146	32		24		TB2-42		
C158	SEE NOTE 5	J8-16	33		26		S7-2	SEE NOTE 5	
C159		J8-17	33	WHT	26		S9-2		
C160	SEE NOTE 6	P12-147	32	WHT	24		TB2-12	SEE NOTE 6	
C161		-148					-45		
C162		-149					-40		
C163		-150					-30		
C164		-151					-67		
C165		-152					-58		
C166		-153					-39		
C167		-154					-38		
C168		-155					-15		
C169		-156					-66		
C170		-157					-49		
C171		P12-158	32	WHT	24		TB2-41		
C172	SEE NOTE 5	J8-18	33	WHT	26		S11-2	SEE NOTE 5	
C173		J8-19	33	WHT	26		S8-2		
C174	SEE NOTE 6	P12-159	32	WHT	24		TB2-37	SEE NOTE 6	
C175		P12-160	32	WHT	24		TB2-13		
C176		P12-161	32	WHT	24	AR	TB2-57		

LEAD ELECTRICAL

COND IDENT	REMARKS	FRCM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS	
C177	SEE NOTE 6	P12-162	32	WHT	24	AR	TB2-32	SEE NOTE 6	
C178		P12-163	32	WHT	24		TB2-52		
C179		P12-164	32	WHT	24		TB2-43		
C180	SEE NOTE 5	J8-20	33	WHT	26		S13-2	SEE NOTE 5	
C181		J8-21	33	WHT	26		S1-3		
C182	SEE NOTE 6	P12-165	32	WHT	24		TB2-34	SEE NOTE 6	
C183		-166					-35		
C184		-167					-63		
C185		-168					-60		
C186		-169					-76		
C187		P12-170	32		24		TB2-36		
C188	SEE NOTE 5	J8-22	33		26		S14-2	SEE NOTE 5	
C189	SEE NOTE 6	P12-190	32		24		TB2-23	SEE NOTE 6	
C190		-174					-73		
C191		-175					-65		
C192		P12-176	32		24		TB2-75		
C193	SEE NOTE 5	J8-24	33		26		S15-2	SEE NOTE 5	
C194		J8-25	33		26		S18-1		
C195	SEE NOTE 6	P12-196	32		24		TB2-24	SEE NOTE 6	
C196		-192					-31		
C197		-204					-48		
C198		P12-182	32		24		TB2-14		
C199	SEE NOTE 5	J8-26	33		26		S16-2	SEE NOTE 5	
C200		J8 27	33		26		S17-2		
C201	SEE NOTE 6	P12-185	32		24		TB2-25	SEE NOTE 6	
C202		-210					-54		
C203		-187					-55		
C204		-195					-26		
C205		-184	32	WHT	24		TB2-27		
C206	SEE NOTE 5	-193	58	ORN	26		S6-5	TWIST	SEE NOTE 5
C207		P12-194	57	RED	26		S6-4		
C208	SEE NOTE 5	J8-30	33	WHT	26		S18-2	SEE NOTE 5	
C209	SEE NOTE 6	P12-197	32	WHT	24		TB2-29	SEE NOTE 6	
C210		-209					-28		
C211		-191					-22		
C212		-201					-21		
C213		-202					-16		
C214		-203					-20		
C215		-186					-17		
C216		-207					-19		
C217		-208	32	WHT	24		TB2-18		
C218	SEE NOTE 5	P12-179	33	WHT	26		S19-2	SEE NOTE 5	
C219		S1-1	35	YEL	26		S2-3		
C220		S2-1					S3-3		
C221		S3-1					S4-3		
C222		S4-1					S5-3		
C223		S5-1					S6-3		
C224		S6-1					S7-3		
C225		S7-1					S8-3		
C226		S8-1					S9-3		
C227		S9-1					S10-3		
C228		S10-1					S11-3		
C229		S11-1					S12-3		
C230		S12-1					S13-3		
C231		S13-1					S14-3		
C232		S14-1					S15-3		
C233		S15-1	35	YEL			S16-3		
C234	SEE NOTE 5	S17-4	57	RED			S5-4	TWIST	SEE NOTE 5
C235		S17-5	58	ORN			S5-5		
C236		S6-4	57	RED			S2-4	TWIST	
C237		S6-5	58	ORN			S2-5		
C238		S2-4	57	RED			S7-4	TWIST	
C239		S2-5	58	ORN			S7-5		
C240		S7-4	57	RED			S3-4	TWIST	
C241		S7-5	58	ORN			S3-5		
C242		S3-4	57	RED			S8-4	TWIST	
C243		S3-5	58	ORN			S8-5		
C244		S8-4	57	RED			S9-4	TWIST	
C245		S8-5	58	ORN			S9-5		
C246		S9-4	57	RED			S12-4	TWIST	
C247		S9-5	58	ORN			S12-5		
C248		S12-4	57	RED			S15-4	TWIST	
C249		S12-5	58	ORN			S15-5		
C250		S15-4	57	RED			S16-4	TWIST	
C251		S15-5	58	ORN			S16-5		
C252		S16-4	57	RED			S13-4	TWIST	
C253		S16-5	58	ORN			S13-5		
C254		S13-4	57	RED			S10-4	TWIST	
C255		S13-5	58	ORN			S10-5		
C256		S10-4	57	RED			S11-4	TWIST	
C257		S10-5	58	ORN			S11-6		
C258		S11-4	57	RED			S14-4	TWIST	
C259		S11-5	58	ORN			S14-5		
C260	SEE NOTES	S14-4	57	RED			S17-4	TWIST	
C261		S14-5	58	ORN	26		S17-5		
C262	SEE NOTE 5	S17-1	35	YEL	30	AR	S18-3	SEE NOTE 5	
C263	SEE NOTE 6	P12-184	32	WHT	24	AR	62	SEE NOTE 6	
C264		P12-183	32	WHT	24	AR	63		

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

NEXT ASSY | USED ON
APPLICATION

MIT INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT HOUSING ASSEMBLY

AGC DSKY

CODE IDENT NO. 80230 | SIZE J | NASA DRAWING NO. 2003903
SCALE NONE | WT | SHEET 3 OF 3

2003903 B

2003903 B

F2/2

5 4 3 2

[illegible]

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C1	SEE NOTE 6	P12-131	32	WHT	24	AR	TB2-96	SEE NOTE 6
C2		↑ -132	↑	↑	↑	↑	TB1-15	
C3		-133					TB1-68	
C4		-134					TB2-10	
C5		-127					TB2-95	
C6		-128					TB1-25	
C7		-129					TB1-29	
C8		-130					TB1-46	
C9		-123					TB2-61	
C10		-124					TB1-44	
C11		-125					TB1-3	
C12		-126					TB1-40	
C13		-119					TB2-70	
C14		-120					TB2-72	
C15		-121					TB1-24	
C16		-122					TB1-27	
C17		-115					TB2-100	
C18		-116					TB2-102	
C19		-117					TB2-71	
C20		-118					TB1-38	
C21		-111					TB1-16	
C22		-112					TB1-34	
C23		-113					TB1-41	
C24		-114					TB1-2	
C25		-107					TB2-101	
C26		-108					TB1-23	
C27		-109					TB1-35	
C28		-110					TB1-69	
C29		-103					TB2-98	
C30		-104					TB1-28	
C31		-105					TB1-17	
C32		-106					TB1-9	
C33		-99					TB2-64	
C34		-100					TB2-9	
C35		-101					TB1-47	
C36		-102					TB1-74	
C37		-95					TB2-81	
C38		-96					TB2-1	
C39		-97					TB1-55	
C40		-98					TB1-48	
C41		-91					TB2-87	
C42		-92					TB2-11	
C43		-93					TB1-58	
C44		-94					TB1-70	
C45		-87					TB2-90	
C46		-88					TB2-5	
C47		-89					TB2-88	
C48		-90					TB1-71	
C49		-83					TB2-94	
C50		-84					TB1-75	
C51		-85					TB2-103	
C52		-86					TB1-73	
C53		-79					TB2-99	
C54		-80					TB2-2	
C55		-81					TB2-83	
C56		-82					TB1-77	
C57		-73					TB1-84	
C58		-74					TB1-53	
C59		-75					TB1-65	
C60		-76					TB2-77	
C61		-77					TB1-61	
C62		-78					TB2-82	
C63		-67					TB1-45	
C64		-68					TB1-50	
C65		-69					TB1-52	
C66		-70					TB2-6	
C67		-71					TB1-87	
C68		-72					TB1-83	
C69		-61					TB1-80	
C70		-62					TB1-42	
C71		-63					TB2-7	
C72		-64					TB2-78	
C73		-65					TB2-79	
C74		-66					TB1-11	
C75		-55					TB1-78	
C76		-56					TB1-54	
C77		-57					TB1-62	
C78		-58					TB2-80	
C79		-59					TB2-84	
C80		-60					TB1-86	
C81		-50					TB1-39	
C82		-51					TB2-85	
C83		-52					TB1-81	
C84		-53					TB2-86	
C85		-54					TB1-64	
C86		-43					TB1-72	
C87		↓ -44	↓	↓	↓	↓	TB1-49	
C88		P12-45	32	WHT	24	AR	TB1-12	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS	
C89	SEE NOTE 6	P12-46	32	WHT	24	AR	TB1-51	SEE NOTE 6	
C90		↑ -47	↑	↑	↑	↑	TB1-56		
C91		-48					TB1-60		
C92		-37					TB1-79		
C93		-38					TB1-76		
C94		-39					TB1-13		
C95		-40					TB1-59		
C96		-41					TB1-10		
C97		-42					TB1-57		
C98		-31					TB1-85		
C99		-32					TB1-63		
C100		-33					TB2-8		
C101		-34					TB1-37		
C102		-35					TB1-21		
C103		-36					TB1-14		
C104		-25					TB1-31		
C105		-27					TB1-6		
C106		-28					TB2-69		
C107		-29					TB1-20		
C108		-30					TB2-93		
C109		-21					TB1-5		
C110		-22					TB2-89		
C111		-23					TB1-7		
C112		-24					TB1-36		
C113		-13					TB1-22		
C114		-15					TB2-97		
C115		-16					TB1-32		
C116		-17					TB2-92		
C117		-18					TB1-26		
C118		-7					TB1-1		
C119		-9					TB1-30		
C120		-10					TB1-19		
C121		-11					TB2-91		
C122		-12					TB1-18		
C123		-1					TB1-4		
C124		-3					TB1-33		
C125		-4					TB2-62		
C126		↓ -5	↓	↓	↓		TB1-43		
C127		P12-6	32	WHT	24		TB1-8		
C128	SEE NOTE 5	S16-1	35	YEL	26		S17-3	SEE NOTE 5	
C129	SEE NOTE 5	S5-4	57	RED	26		S19-4	TWIST	SEE NOTE 5
C130		S5-5	58	ORN	↑		S19-5		
C131	↑	S19-4	57	RED			S1-4	TWIST	
C132		S19-5	58	ORN			S1-5		
C133		S1-4	57	RED			S18-4	TWIST	
C134	↓	S1-5	58	ORN			S18-5		
C135	SEE NOTE 5	S18-4	57	RED			S4-4	TWIST	
C136		S18-5	58	ORN			S4-5		
C137	SEE NOTE 5	J8-3	33	WHT			S2-2	SEE NOTE 5	
C138		↑ -5	↑	↑			S1-2		
C139		-8					S3-2		
C140		-9					S19-3		
C141		-10					S4-2		
C142		↓ -11	↓		↓		S10-2		
C143		J8-13	33		26		S5-2		
C144	SEE NOTE 6	P12-135	32		24		TB2-56	SEE NOTE 6	
C145		↑ -136	↑		↑		TB2-53		
C146		-137					TB2-51		
C147		-138					TB2-33		
C148		↓ -139	↓		↓		TB2-44		
C149		P12-140	32		24		TB2-59		
C150	SEE NOTE 5	J8-14	33		26		S12-2	SEE NOTE 5	
C151		J8-15	33		26		S6-2		
C152	SEE NOTE 6	P12-141	32		24		TB2-47	SEE NOTE 6	
C153		↑ -142	↑		↑		TB2-46		
C154		-143					TB2-50		
C155		-144					TB2-68		
C156		↓ -145	↓		↓		TB2-74		
C157		P12-146	32		24		TB2-42		
C158	SEE NOTE 5	J8-16	33	↓	26		S7-2	SEE NOTE 5	
C159		J8-17	33	WHT	26		S9-2		
C160	SEE NOTE 6	P12-147	32	WHT	24		TB2-12	SEE NOTE 6	
C161		↑ -148	↑	↑	↑		↑ -45		
C162		-149					-40		
C163		-150					-30		
C164		-151					-67		
C165		-152					-58		
C166		-153					-39		
C167		-154					-38		
C168		-155					-15		
C169		-156					-66		
C170		↓ -157	↓	↓	↓		↓ -49		
C171		P12-158	32	WHT	24		TB2-41		
C172	SEE NOTE 5	J8-18	33	WHT	26		S11-2	SEE NOTE 5	
C173		J8-19	33	WHT	26		S8-2		
C174	SEE NOTE 6	P12-159	32	WHT	24		TB2-37	SEE NOTE 6	
C175		P12-160	32	WHT	24	↓	TB2-13		
C176		P12-161	32	WHT	24	AR	TB2-57		

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS	
C177	SEE NOTE 6	P12-162	32	WHT	24	AR	TB2-32	SEE NOTE 6	
C178		P12-163	32	WHT	24	↑	TB2-52		
C179		P12-164	32	WHT	24		TB2-43		
C180	SEE NOTE 5	J8-20	33	WHT	26		S13-2	SEE NOTE 5	
C181		J8-21	33	WHT	26		S1-3		
C182	SEE NOTE 6	P12-165	32	WHT	24		TB2-34	SEE NOTE 6	
C183		↑ -166	↑	↑	↑		↑ -35		
C184		-167					-63		
C185		-168					-60		
C186		↓ -169	↓		↓		↓ -76		
C187		P12-170	32		24		TB2-36		
C188	SEE NOTE 5	J8-22	33		26		S14-2	SEE NOTE 5	
C189	SEE NOTE 6	P12-190	32		24		TB2-23	SEE NOTE 6	
C190		↑ -174	↑		↑		↑ -73		
C191		↓ -175	↓		↓		↓ -65		
C192		P12-176	32		24		TB2-75		
C193	SEE NOTE 5	J8-24	33		26		S15-2	SEE NOTE 5	
C194		J8-25	33		26		S18-1		
C195	SEE NOTE 6	P12-196	32		24		TB2-24	SEE NOTE 6	
C196		↑ -192	↑		↑		↑ -31		
C197		↓ -204	↓		↓		↓ -48		
C198		P12-182	32		24		TB2-14		
C199	SEE NOTE 5	J8-26	33		26		S16-2	SEE NOTE 5	
C200		J8-27	33		26		S17-2		
C201	SEE NOTE 6	P12-185	32		24		TB2-25	SEE NOTE 6	
C202		↑ -210	↑		↑		↑ -54		
C203		-187					-55		
C204		-195	↓	↓	↓		↓ -26		
C205		-181	32	WHT	24		TB2-27		
C206	SEE NOTE 5	↓ -193	58	ORN	26		S6-5	TWIST	SEE NOTE 5
C207		P12-194	57	RED	26		S6-4		
C208	SEE NOTE 5	J8-30	33	WHT	26		S18-2	SEE NOTE 5	
C209	SEE NOTE 6	P12-197	32	WHT	24		TB2-29	SEE NOTE 6	
C210		↑ -209	↑	↑	↑		↑ -28		
C211		-191					-22		
C212		-201					-21		
C213		-202					-16		
C214		-203					-20		
C215		-186					-17		
C216		-207	↓	↓	↓		↓ -19		
C217		↓ -208	32	WHT	24		TB2-18		
C218	SEE NOTE 5	P12-179	33	WHT	26		S19-2	SEE NOTE 5	
C219		S1-1	35	YEL	26		S2-3		
C220		S2-1	↑	↑	↑		S3-3		
C221		S3-1					S4-3		
C222		S4-1					S5-3		
C223		S5-1					S6-3		
C224		S6-1					S7-3		
C225		S7-1					S8-3		
C226		S8-1					S9-3		
C227		S9-1					S10-3		
C228		S10-1					S11-3		
C229		S11-1					S12-3		
C230		S12-1					S13-3		
C231		S13-1					S14-3		
C232		S14-1	↓	↓			S15-3		
C233		S15-1	35	YEL			S16-3		
C234	SEE NOTE 5	S17-4	57	RED			S5-4	TWIST	SEE NOTE 5
C235		S17-5	58	ORN			S5-5		
C236	↑	S6-4	57	RED			S2-4	TWIST	
C237		S6-5	58	ORN			S2-5		
C238		S2-4	57	RED			S7-4	TWIST	
C239		S2-5	58	ORN			S7-5		
C240		S7-4	57	RED			S3-4	TWIST	
C241		S7-5	58	ORN			S3-5		
C242		S3-4	57	RED			S8-4	TWIST	
C243		S3-5	58	ORN			S8-5		
C244		S8-4	57	RED			S9-4	TWIST	
C245		S8-5	58	ORN			S9-5		
C246		S9-4	57	RED			S12-4	TWIST	
C247		S9-5	58	ORN			S12-5		
C248		S12-4	57	RED			S15-4	TWIST	
C249		S12-5	58	ORN			S15-5		
C250		S15-4	57	RED			S16-4	TWIST	
C251		S15-5	58	ORN			S16-5		
C252		S16-4	57	RED			S13-4	TWIST	
C253		S16-5	58	ORN			S13-5		
C254		S13-4	57	RED			S10-4	TWIST	
C255		S13-5	58	ORN			S10-5		
C256		S10-4	57	RED			S11-4	TWIST	
C257		S10-5	58	ORN			S11-5		
C258		S11-4	57	RED			S14-4	TWIST	
C259	↓	S11-5	58	ORN			S14-5		
C260	SEE NOTES	S14-4	57	RED	↓		S17-4	TWIST	
C261		S14-5	58	ORN	26	↓	S17-5		
C262	SEE NOTE 5	S17-1	35	YEL	30	AR	S18-3	SEE NOTE 5	
C263	SEE NOTE 6	P12-184	32	WHT	24	AR	62	SEE NOTE 6	
C264		P12-183	32	WHT	24	AR	63		

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES ± ± ± DO NOT SCALE THIS DRAWING	QTY REQD
		MATERIAL	DRAWN CHECKED APPROVAL APPROVAL
		HEAT TREATMENT	NASA APPROVAL
NEXT ASSY	USED ON	FINAL FINISH	MIT APPROVAL
APPLICATION			

INSTRUMENTATION

ONT

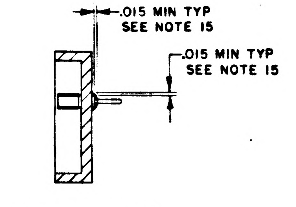
30

2003903 B

SHEET 3

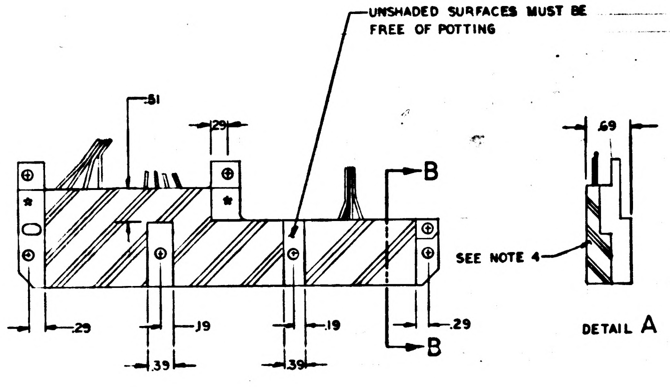
2003903 C

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22463 DR R. D. Guilard CHK	11/4/65	
B	REVISED PER TDRR 23230 DR CHK	10/12/65	
C	REVISED PER TDRR 24665 DR R.R. Guilard CHK	12/28/66	



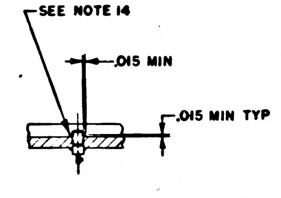
.015 MIN TYP
SEE NOTE 15
.015 MIN TYP
SEE NOTE 15

PARTIAL SECTION B
UNPOTTED
SCALE 2/1



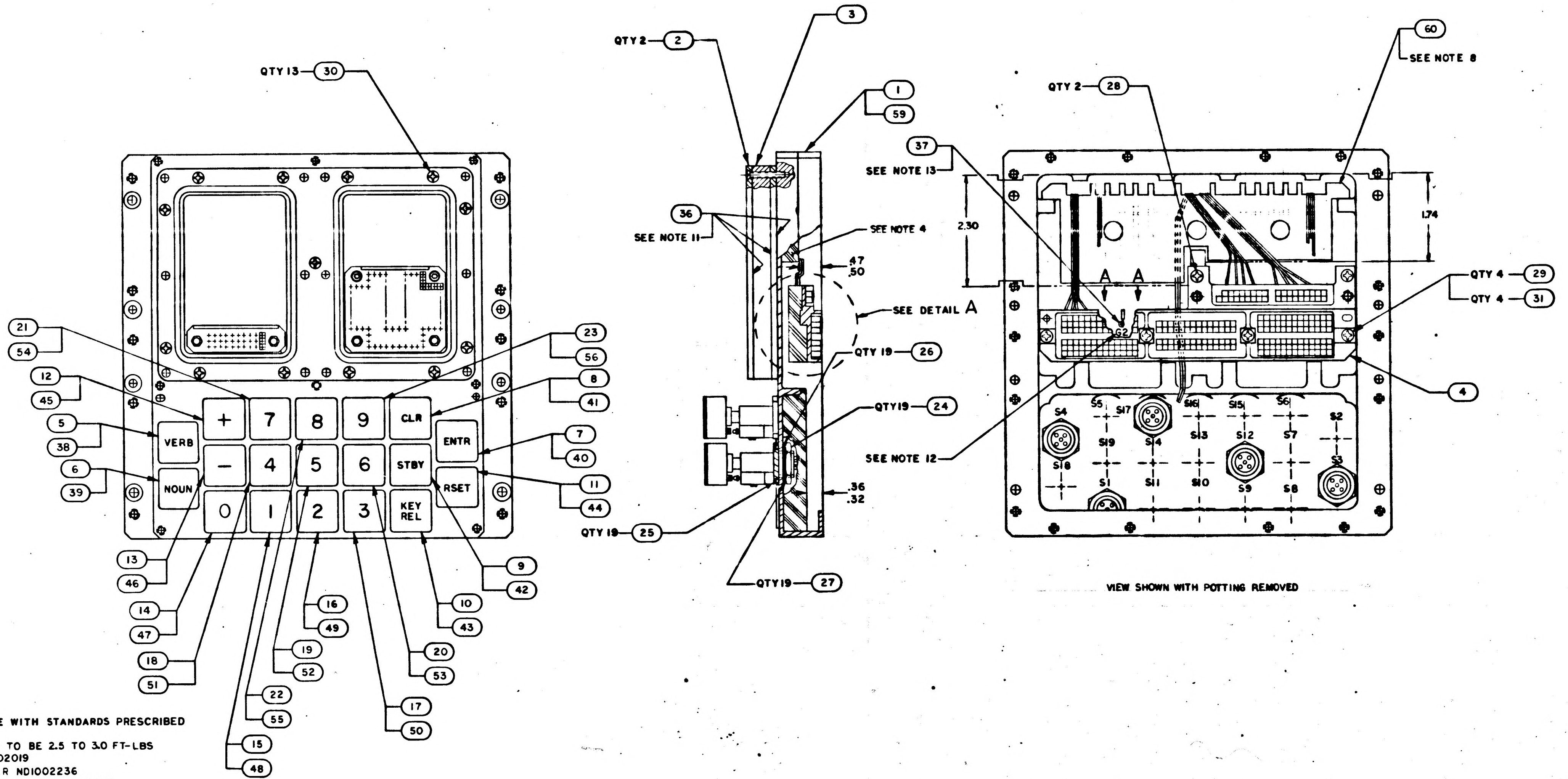
UNSHADED SURFACES MUST BE FREE OF POTTING
.81
.29
B
B
.29
.19
.19
.29
.39
.39
.69
SEE NOTE 4

DETAIL A



SEE NOTE 14
.015 MIN
.015 MIN TYP

PARTIAL SECTION A-A
SCALE 2/1



QTY 13
30
QTY 2
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59
37
SEE NOTE 13
36
SEE NOTE 11
SEE NOTE 4
.47
.50
SEE DETAIL A
QTY 19
26
QTY19
24
SEE NOTE 12
.36
.32
QTY 19
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QTY19
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QTY 2
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SEE NOTE 8
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QTY 4
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S3
VIEW SHOWN WITH POTTING REMOVED
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KEY REL

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE FOR FIND NO. 24 TO BE 2.5 TO 3.0 FT-LBS
3. IDENTIFY WITH PART NO. PER ND1002019
4. ENCAPSULATE INDICATED AREAS PER ND1002236
5. SOLDER PER ND1002071 USING SOLDER PER ND1002075
6. WELD PER ND1002005
7. AR DENOTES AS REQUIRED
8. BOND FIND NO. 32, 33, 35 & 60 TO FIND NO. 1 OR FIND NO. 59 PER ND1002004 TYPE IV
9. DRESS AND TRIM AT ASSEMBLY USING FIND NO. 34
~~10. WIRE PER ND1002031 USING LEAD ELECTRICAL~~
11. APPLY FIND NO. 36 TO INDICATED SURFACES OF FIND NO. 2. DO NOT APPLY TO BONDED RUBBER
12. MARK .07/.10 HIGH CHARACTERS PER ND1002019 AND ND1002122 TYPE II CLASS 2, USING MARKING INK 1006271-11
13. MOUNTING TORQUE FOR FIND NO. 37 TO BE 15−20 INCH OUNCES
14. SEAL FIND NO. 37 TO FIND NO. 1 OR FIND NO. 59 PER ND1002004 TYPE VI
15. SEAL INSULATORS ON FIND NO. 4 PER ND1002004 TYPE VI

QTY REQD 031	QTY REQD 021	QTY REQD 011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	☒	—	2005951	INTERCONNECTING DIAGRAM	REF
—	—	☒	2005901	INTERCONNECTING DIAGRAM	REF
1	1	—	2004971	COMB, WIRE	60
1	—	—	2004968-011	HOUSING, FRONT	59
AR	AR	AR	1010416-14	WIRE, INSULATED	58
AR	AR	AR	1010416-13	WIRE, INSULATED	57
1	1	—	2003974-211	SWITCH, ASSEMBLY PUSHBUTTON	56
1	1	—	-191		55
1	1	—	-181		54
1	1	—	-171		53
1	1	—	-161		52
1	1	—	-151		51
1	1	—	-141		50
1	1	—	-131		49
1	1	—	-121		48
1	1	—	-111		47
1	1	—	-091		46
1	1	—	-081		45
1	1	—	-071		44
1	1	—	-061		43
1	1	—	-051		42
1	1	—	-041		41
1	1	—	-031		40
1	1	—	-021		39
1	1	—	2003974-011	SWITCH, ASSEMBLY PUSHBUTTON	38
1	1	1	2004039	TERMINAL, THREADED	37
AR	AR	AR	1006679	SILICONE COMPOUND	36
AR	AR	AR	1010416-15	WIRE, INSULATED	35
AR	AR	AR	1012507-003	TAPE, LACING	34
AR	AR	AR	1010416-20	WIRE, INSULATED	33
AR	AR	AR	1010848-2	WIRE, INSULATED	32
4	4	4	NAS620-6L	WASHER, FLAT	31
13	13	13	MS35200-19	SCREW, FLAT HD, CROSS RECESSED	30
4	4	4	MS35216-27	SCREW, PAN HD, CROSS RECESSED	29
2	2	2	MS35200-25	SCREW, FLAT HD, CROSS RECESSED	28
19	19	19	1010635-003	WASHER, LOCK	27
19	19	19	2004940	WASHER, PLAIN	26
19	19	19	1000159-7	O RING SEAL	25
19	19	19	2004942	NUT, HEX	24
—	—	1	2003924-211	SWITCH, ASSEMBLY PUSHBUTTON	23
—	—	1	-191		22
—	—	1	-181		21
—	—	1	-171		20
—	—	1	-161		19
—	—	1	-151		18
—	—	1	-141		17
—	—	1	-131		16
—	—	1	-121		15
—	—	1	-111		14
—	—	1	-091		13
—	—	1	-081		12
—	—	1	-071		11
—	—	1	-061		10
—	—	1	-051		9
—	—	1	-041		8
—	—	1	-031		[illegible]
—	—	1	-021		[illegible]
—	—	1	2003924-011	SWITCH, ASSEMBLY PUSHBUTTON	[illegible]
1	1	1	2003915-011	CONNECTOR, PLATE ASSEMBLY	4
1	1	1	2003912-011	ADAPTER PLATE ASSEMBLY	3
2	2	2	1006351	GASKET, PREFORMED	2
—	1	1	2004918-011	HOUSING, FRONT	1

LIST OF MATERIALS

2003903 C

NEXT ASSY	USED ON
2003985	
2003900	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.01 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN R. Guilard DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

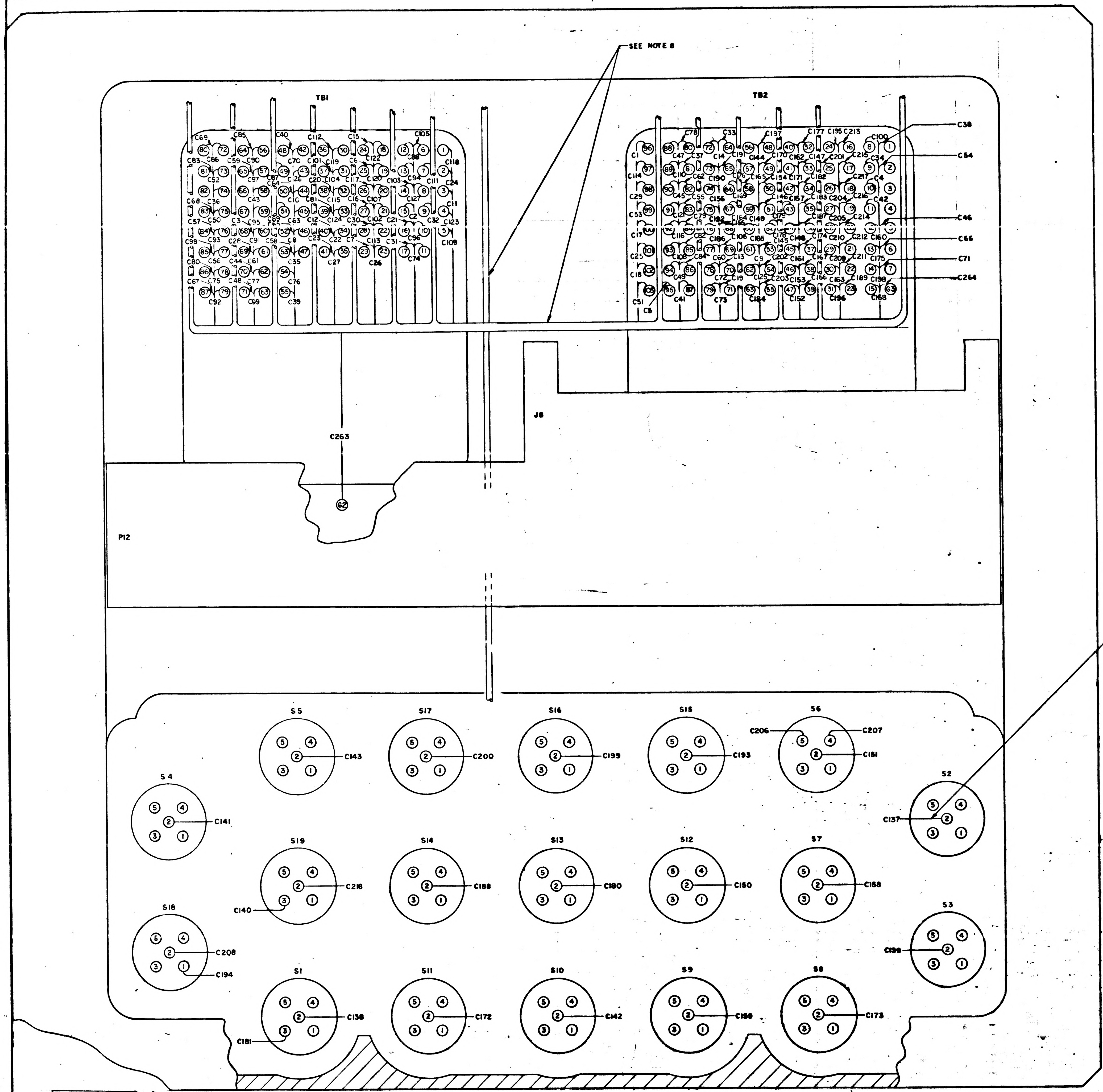
FRONT HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230 SIZE J NASA DRAWING NO. 2003903
SCALE 1/1 WT SHEET 1 OF 3

2003903 C

2003903 C

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22463 DR R.D. [illegible] CHK [illegible]	[illegible]	[illegible]
B	REVISED PER TDRR 23230 DR [illegible] CHK CAP	7/27/65	R.J. [illegible]
C	REVISED PER TDRR 24665 DR R.P. [illegible] CHK CAP	10/20/65	[illegible]


SEE NOTE 8
TB1
TB2
C38
C54
C46
C66
C71
C264
C263
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J8
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C194
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C138
C181
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C172
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C142
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C159
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C173

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

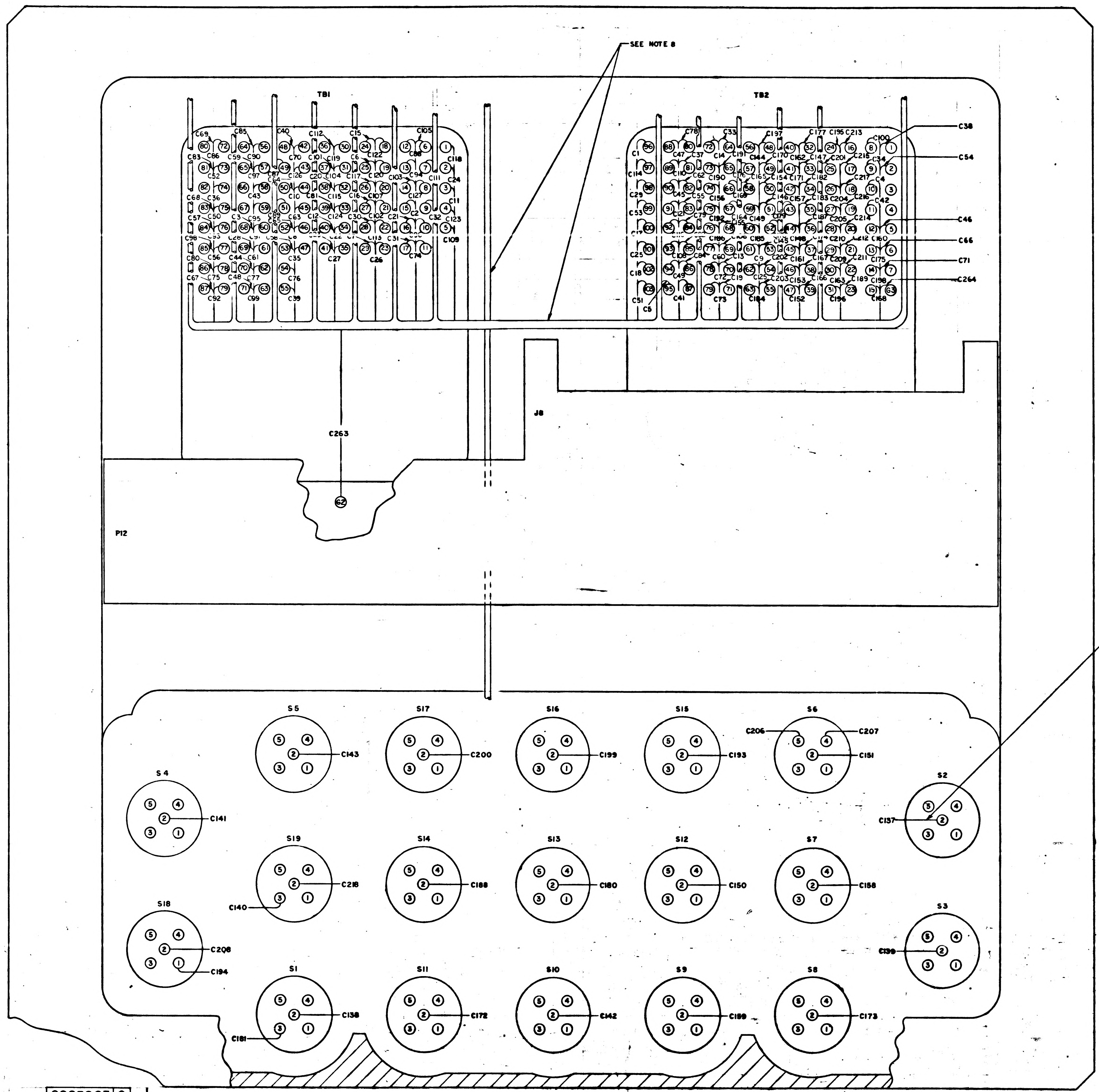
MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN R.D. [illegible] DATE [illegible]
CHECKED [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO 2003903
SCALE NONE
WT
SHEET 2 OF 2

E 2/4/2


SEE NOTE 8
TB1
TB2
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J8
P12
SEE NOTE 9
S5
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		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES ± ± ± DO NOT SCALE THIS DRAWING	QTY REQD
		MATERIAL	MIT INSTRUMENTAT
		HEAT TREATMENT	DRAWN CHECKED APPROVAL APPROVAL
NEXT ASSY	USED ON	FINAL FINISH	NASA APPROVAL M.I.T. APPROVAL MIT APPROVAL
APPLICATION			

2003903 C

SHEET 2

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22463 DR CHK APPD		
B	REVISED PER TDRR 23230 DR. CHK		
C	REVISED PER TDRR 24635 DR R.B. CHK CAP		

2003903 C

LEAD ELECTRICAL

FROM	F. NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
3	32	WHT	24	AR	TB2-96	SEE NOTE 6
13					TB1-15	
13					TB1-68	
-13					TB2-10	
-2					TB2-95	
-2					TB1-25	
-2					TB1-29	
-3					TB1-46	
2					TB2-6	
-12					TB1-44	
12					TB1-3	
-12					TB1-40	
-11					TB2-70	
-12					TB2-72	
-12					TB1-24	
-12					TB1-27	
11					TB2-100	
-11					TB2-102	
-117					TB2-71	
11					TB1-38	
11					TB1-16	
-11					TB1-34	
-11					TB1-41	
-11					TB1-2	
-10					TB2-101	
-10					TB1-23	
10					TB1-35	
-1					TB1-69	
10					TB2-98	
-10					TB1-28	
-10					TB1-17	
10					TB1-9	
99					TB2-64	
10					TB2-9	
-10					TB1-47	
10					TB1-74	
-95					TB2-81	
-96					TB2-1	
-97					TB1-55	
-98					TB1-48	
-91					TB2-87	
-92					TB2-11	
93					TB1-58	
94					TB1-70	
87					TB2-90	
-88					TB2-5	
-8					TB2-88	
-9					TB1-71	
-8					TB2-94	
-8					TB1-75	
-8					TB2-103	
-8					TB1-73	
-7					TB2-99	
8					TB2-2	
-81					TB2 83	
8					TB1-77	
73					TB1-84	
-7					TB1-53	
7					TB1-65	
7					TB2-77	
-7					TB1-61	
7					TB2-82	
-67					TB1-45	
6					TB1-50	
-6					TB1-52	
-7					TB2-6	
-71					TB1-87	
-7					TB1-83	
-6					TB1-80	
6					TB1-42	
[illegible]					TB2-7	
6					TB2-78	
-6					TB2-79	
-6					TB1-11	
[illegible]					TB1-78	
[illegible]					TB1-54	
5					TB1-62	
-5					TB2-80	
[illegible]					TB2-84	
6					TB1-86	
5					TB1-39	
[illegible]					TB2-85	
5					TB1-8	
[illegible]					TB2-86	
5					TB1-64	
4					TB1-72	
4					TB1-49	
4	32	WHT	24	AR	TB1-12	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS	
C89	SEE NOTE 6	P12-46	32	WHT	24	AR	TB1-51	SEE NOTE 6	
C90		-47					TB1-56		
C91		-48					TB1-60		
C92		-37					TB1-79		
C93		-38					TB1-76		
C94		-39					TB1-13		
C95		-40					TB1-59		
C96		-41					TB1-10		
C97		-42					TB1-57		
C98		-31					TB1-85		
C99		-32					TB1-63		
C100		-33					TB2-8		
C101		-34					TB1-37		
C102		-35					TB1-21		
C103		-36					TB1-14		
C104		-25					TB1-31		
C105		-27					TB1-6		
C106		-28					TB2-69		
C107		-29					TB1-20		
C108		-30					TB2-93		
C109		-21					TB1-5		
C110		-22					TB2-89		
C111		-23					TB1-7		
C112		-24					TB1-36		
C113		-13					TB1-22		
C114		-15					TB2-97		
C115		-16					TB1-32		
C116		-17					TB2-92		
C117		-18					TB1-26		
C118		-7					TB1-1		
C119		-9					TB1-30		
C120		-10					TB1-19		
C121		-11					TB2-91		
C122		-12					TB1-18		
C123		-1					TB1-4		
C124		-3					TB1-33		
C125		-4					TB2-62		
C126		-5					TB1-43		
C127		P12-6	32	WHT	24		TB1-8		
C128	SEE NOTE 5	S16-1	35	YEL	26		S17-3	SEE NOTE 5	
C129	SEE NOTE 5	S5-4	57	RED	26		S19-4	TWIST	SEE NOTE 5
C130		S5-5	58	ORN			S19-5		
C131		S19-4	57	RED			S1-4	TWIST	
C132		S19-5	58	ORN			S1-5		
C133		S1-4	57	RED			S18-4	TWIST	
C134		S1-5	58	ORN			S18-5		
C135	SEE NOTE 5	S18-4	57	RED			S4-4	TWIST	
C136		S18-5	58	ORN			S4-5		
C137	SEE NOTE 5	J8-3	33	WHT			S2-2	SEE NOTE 5	
C138		-5					S1-2		
C139		-8					S3-2		
C140		-9					S19-3		
C141		-10					S4-2		
C142		-11					S10-2		
C143		J8-13	33		26		S5-2		
C144	SEE NOTE 6	P12-135	32		24		TB2-56	SEE NOTE 6	
C145		-136					TB2-53		
C146		-137					TB2-51		
C147		-138					TB2-33		
C148		-139					TB2-44		
C149		P12-140	32		24		TB2-59		
C150	SEE NOTE 5	J8-14	33		26		S12-2	SEE NOTE 5	
C151		J8-15	33		26		S6-2		
C152	SEE NOTE 6	P12-141	32		24		TB2-47	SEE NOTE 6	
C153		-142					TB2-46		
C154		-143					TB2-50		
C155		-144					TB2-68		
C156		-145					TB2-74		
C157		P12-146	32		24		TB2-42		
C158	SEE NOTE 5	J8-16	33		26		S7-2	SEE NOTE 5	
C159		J8-17	33	WHT	26		S9-2		
C160	SEE NOTE 6	P12-147	32	WHT	24		TB2-12	SEE NOTE 6	
C161		-148					-45		
C162		-149					-40		
C163		-150					-30		
C164		-151					-67		
C165		-152					-58		
C166		-153					-39		
C167		-154					-38		
C168		-155					-15		
C169		-156					-66		
C170		-157					-49		
C171		P12-158	32	WHT	24		TB2-41		
C172	SEE NOTE 5	J8-18	33	WHT	26		S11-2	SEE NOTE 5	
C173		J8-19	33	WHT	26		S8-2		
C174	SEE NOTE 6	P12-159	32	WHT	24		TB2-37	SEE NOTE 6	
C175		P12-160	32	WHT	24		TB2-13		
C176		P12-161	32	WHT	24	AR	TB2-57		

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS	
C177	SEE NOTE 6	P12-162	32	WHT	24	AR	TB2-32	SEE NOTE 6	
C178		P12-163	32	WHT	24		TB2-52		
C179		P12-164	32	WHT	24		TB2-43		
C180	SEE NOTE 5	J8-20	33	WHT	26		S13-2	SEE NOTE 5	
C181		J8-21	33	WHT	26		S1-3		
C182	SEE NOTE 6	P12-165	32	WHT	24		TB2-34	SEE NOTE 6	
C183		-166					-35		
C184		-167					-63		
C185		-168					-60		
C186		-169					-76		
C187		P12-170	32		24		TB2-36		
C188	SEE NOTE 5	J8-22	33		26		S14-2	SEE NOTE 5	
C189	SEE NOTE 6	P12-190	32		24		TB2-23	SEE NOTE 6	
C190		-174					-73		
C191		-175					-65		
C192		P12-176	32		24		TB2-75		
C193	SEE NOTE 5	J8-24	33		26		S15-2	SEE NOTE 5	
C194		J8-25	33		26		S18-1		
C195	SEE NOTE 6	P12-196	32		24		TB2-24	SEE NOTE 6	
C196		-192					-31		
C197		-204					-48		
C198		P12-182	32		24		TB2-14		
C199	SEE NOTE 5	J8-26	33		26		S16-2	SEE NOTE 5	
C200		J8-27	33		26		S17-2		
C201	SEE NOTE 6	P12-185	32		24		TB2-25	SEE NOTE 6	
C202		-210					-54		
C203		-187					-55		
C204		-195					-26		
C205		-181	32	WHT	24		TB2-27		
C206	SEE NOTE 5	-193	58	ORN	26		S6-5	TWIST	SEE NOTE 5
C207		P12-194	57	RED	26		S6-4		
C208	SEE NOTE 5	J8-30	33	WHT	26		S18-2	SEE NOTE 5	
C209	SEE NOTE 6	P12-197	32	WHT	24		TB2-29	SEE NOTE 6	
C210		-209					-28		
C211		-191					-22		
C212		-201					-21		
C213		-202					-16		
C214		-203					-20		
C215		-186					-17		
C216		-207					-19		
C217		-208	32	WHT	24		TB2-18		
C218	SEE NOTE 5	P12-179	33	WHT	26		S19-2	SEE NOTE 5	
C219		S1-1	35	YEL	26		S2-3		
C220		S2-1					S3-3		
C221		S3-1					S4-3		
C222		S4-1					S5-3		
C223		S5-1					S6-3		
C224		S6-1					S7-3		
C225		S7-1					S8-3		
C226		S8-1					S9-3		
C227		S9-1					S10-3		
C228		S10-1					S11-3		
C229		S11-1					S12-3		
C230		S12-1					S13-3		
C231		S13-1					S14-3		
C232		S14-1					S15-3		
C233		S15-1	35	YEL			S16-3		
C234	SEE NOTE 5	S17-4	57	RED			S5-4	TWIST	SEE NOTE 5
C235		S17-5	58	ORN			S5-5		
C236		S6-4	57	RED			S2-4	TWIST	
C237		S6-5	58	ORN			S2-5		
C238		S2-4	57	RED			S7-4	TWIST	
C239		S2-5	58	ORN			S7-5		
C240		S7-4	57	RED			S3-4	TWIST	
C241		S7-5	58	ORN			S3-5		
C242		S3-4	57	RED			S8-4	TWIST	
C243		S3-5	58	ORN			S8-5		
C244		S8-4	57	RED			S9-4	TWIST	
C245		S8-5	58	ORN			S9-5		
C246		S9-4	57	RED			S12-4	TWIST	
C247		S9-5	58	ORN			S12-5		
C248		S12-4	57	RED			S15-4	TWIST	
C249		S12-5	58	ORN			S15-5		
C250		S15-4	57	RED			S16-4	TWIST	
C251		S15-5	58	ORN			S16-5		
C252		S16-4	57	RED			S13-4	TWIST	
C253		S16-5	58	ORN			S13-5		
C254		S13-4	57	RED			S10-4	TWIST	
C255		S13-5	58	ORN			S10-5		
C256		S10-4	57	RED			S11-4	TWIST	
C257		S10-5	58	ORN			S11-5		
C258		S11-4	57	RED			S14-4	TWIST	
C259		S11-5	58	ORN			S14-5		
C260	SEE NOTE 5	S14-4	57	RED			S17-4	TWIST	
C261		S14-5	58	ORN	26		S17-5		
C262	SEE NOTE 5	S17-1	35	YEL	30	AR	S18-3	SEE NOTE 5	
C263	SEE NOTE 6	P12-184	32	WHT	24	AR	62	SEE NOTE 6	
C264		P12-183	32	WHT	24	AR	63		

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN DATE
CHECKED
APPROVAL
APPROVAL Eldon C. Hall 12 July 65
NASA APPROVAL
MIT APPROVAL 7-1965

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT HOUSING ASSEMBLY

AGC DSKY

CODE IDENT NO.	SIZE	NASA DRAWING NO
80230	J	2003903

SCALE NONE WT SHEET 3 OF 3

2003903 C

2003903 C

F2/2

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C1		P12-131	32	WHT	24	AR	TB2-96	
C2		-132					TB1-15	
C3		-133					TB -68	
C4		-134					TB2-10	
C5		-127					TB2-95	
C6		-128					TB1-25	
C7		-129					TB1-29	
C8		-130					TB1-46	
C9		-123					TB2-61	
C10		-124					TB1-44	
C11		-125					TB1-3	
C12		-126					TB1-40	
C13		-119					TB2-70	
C14		-120					TB2-72	
C15		-121					TB1-24	
C16		-122					TB1-27	
C17		-115					TB2-100	
C18		-116					TB2-102	
C19		-117					TB2-71	
C20		-118					TB1-38	
C21		-111					TB1-16	
C22		-112					TB1-34	
C23		-113					TB1-41	
C24		-114					TB1-2	
C25		-107					TB2-101	
C26		-108					TB1-23	
C27		-109					TB1-35	
C28		-110					TB1-69	
C29		-103					TB2-98	
C30		-104					TB1-28	
C31		-105					TB 17	
C32		-106					TB1-9	
C33		-99					TB2-64	
C34		-100					TB2-9	
C35		-101					TB1-47	
C36		-102					TB -74	
C37		-95					TB2-81	
C38		-96					TB2-1	
C39		-97					TB1-55	
C40		-98					TB1-48	
C41		-91					TB2-87	
C42		-92					TB2-11	
C43		-93					TB1-58	
C44	SEE NOTE 6	-94					TB1-70	SEE NOTE 6
C45		-87					TB2-90	
C46		-88					TB2-5	
C47		-89					TB2-88	
C48		-90					TB1-71	
C49		-83					TB2-94	
C50		-84					TB1-75	
C51		-85					TB2-103	
C52		-86					TB1-73	
C53		-79					TB2-99	
C54		-80					TB2-2	
C55		-81					TB2 83	
C56		-82					TB1-77	
C57		-73					TB1-84	
C58		-74					TB1-53	
C59		-75					TB1-65	
C60		-76					TB2-77	
C61		-77					TB -61	
C62		-78					TB2-82	
C63		-67					TB1-45	
C64		-68					TB1-50	
C65		-69					TB1-52	
C66		-70					TB2-6	
C67		-71					TB1-87	
C68		-72					TB1-83	
C69		-61					TB1-80	
C70		-62					TB1-42	
C71		-63					TB2-7	
C72		-64					TB2-78	
C73		-65					TB2-79	
C74		-66					TB1-11	
C75		-55					TB1-78	
C76		-56					TB1-54	
C77		-57					TB1-62	
C78		-58					TB2-80	
C79		-59					TB2-84	
C80		-60					TB1-86	
C81		-50					TB1-39	
C82		-51					TB2-85	
C83		-52					TB1-81	
C84		-53					TB2-86	
C85		-54					TB -64	
C86		-43					TB1-72	
C87		-44					TB1-49	
C88		P12-45	32	WHT	24	AR	TB1-12	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C89		P12-46	32	WHT	24	AR	TB1-51	
C90		-47					TB1-56	
C91		-48					TB1-60	
C92		-37					TB1-79	
C93		-38					TB1-76	
C94		-39					TB1-13	
C95		-40					TB1-59	
C96		-41					TB1-10	
C97		-42					TB1-57	
C98		-31					TB1-85	
C99		-32					TB1-63	
C100		-33					TB2-8	
C101		-34					TB1-37	
C102		-35					TB1-21	
C103		-36					TB1-14	
C104		-25					TB1-31	
C105		-27					TB1-6	
C106	SEE NOTE 6	-28					TB2-69	SEE NOTE 6
C107		-29					TB1-20	
C108		-30					TB2-93	
C109		-21					TB1-5	
C110		-22					TB2-89	
C111		-23					TB1-7	
C112		-24					TB1-36	
C113		-13					TB1-22	
C114		-15					TB2-97	
C115		-16					TB1-32	
C116		-17					TB2-92	
C117		-18					TB1-26	
C118		-7					TB1-1	
C119		9					TB1 30	
C120		-10					TB1-19	
C121		-11					TB2-91	
C122		-12					TB1-18	
C123		-1					TB1-4	
C124		-3					TB1-33	
C125		-4					TB2-62	
C126		-5					TB1-43	
C127		P12-6	32	WHT	24		TB1-8	
C128	SEE NOTE 5	S16-1	35	YEL	26		S17-3	SEE NOTE 5
C129	SEE NOTE 5	S5-4	57	RED	26		S19-4	TWIST
C130		S5-5	58	ORN			S19-5	
C131		S19-4	57	RED			S1-4	TWIST
C132		S19-5	58	ORN			S1-5	
C133		S1-4	57	RED			S18-4	TWIST
C134		S1-5	58	ORN			S18-5	
C135	SEE NOTE 5	S18-4	57	RED			S4-4	TWIST
C136		S18-5	58	ORN			S4-5	
C137		J8-3	33	WHT			S2-2	
C138		-5					S1-2	
C139		-8					S3-2	
C140	SEE NOTE 5	-9					S19-3	SEE NOTE 5
C141		-10					S4-2	
C142		-11					S10-2	
C143		J8-13	33		26		S5-2	
C144		P12-135	32		24		TB2-56	
C145		-136					TB2-53	
C146	SEE NOTE 6	-137					TB2-51	
C147		-138					TB2-33	SEE NOTE 6
C148		-139					TB2-44	
C149		P12-140	32		24		TB2-59	
C150	SEE NOTE 5	J8-14	33		26		S12-2	SEE NOTE 5
C151		J8-15	33		26		S6-2	
C152		P12-141	32		24		TB2-47	
C153		-142					TB2-46	
C154	SEE NOTE 6	-143					TB2-50	SEE NOTE 6
C155		-144					TB2-68	
C156		-145					TB2-74	
C157		P12-146	32		24		TB2-42	
C158	SEE NOTE 5	J8-16	33		26		S7-2	SEE NOTE 5
C159		J8-17	33	WHT	26		S9-2	
C160		P12-147	32	WHT	24		TB2-12	
C161		-148					-45	
C162		-149					-40	
C163		-150					-30	
C164		-151					-67	
C165	SEE NOTE 6	-152					-58	
C166		-153					-39	SEE NOTE 6
C167		-154					-38	
C168		-155					-15	
C169		-156					-66	
C170		-157					-49	
C171		P12-158	32	WHT	24		TB2-41	
C172	SEE NOTE 5	J8-18	33	WHT	26		S11-2	SEE NOTE 5
C173		J8-19	33	WHT	26		S8-2	
C174		P12-159	32	WHT	24		TB2-37	
C175	SEE NOTE 6	P12-160	32	WHT	24		TB2-13	SEE NOTE 6
C176		P12-161	32	WHT	24	AR	TB2-57	

SEE NOTE 5

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C177		P12-162	32	WHT	24	AR	TB2-32	
C178	SEE NOTE 6	P12-163	32	WHT	24		TB2-52	SEE NOTE 6
C179		P12-164	32	WHT	24		TB2-43	
C180	SEE NOTE 5	J8-20	33	WHT	26		S13-2	SEE NOTE 5
C181		J8-21	33	WHT	26		S1-3	
C182		P12-165	32	WHT	24		TB2-34	
C183		-166					-35	
C184	SEE NOTE 6	-167					-53	SEE NOTE 6
C185		-168					-60	
C186		-169					-76	
C187		P12-170	32		24		TB2-36	
C188	SEE NOTE 5	J8-22	33		26		S14-2	SEE NOTE 5
C189		P12-190	32		24		TB2-23	
C190		-174					-73	
C191	SEE NOTE 6	-175					-65	SEE NOTE 6
C192		P12-176	32		24		TB2-75	
C193	SEE NOTE 5	J8-24	33		26		S15-2	SEE NOTE 5
C194		J8-25	33		26		S18-1	
C195		P12-196	32		24		TB2-24	
C196	SEE NOTE 6	-192					-31	SEE NOTE 6
C197		-204					-48	
C198		P12-182	32		24		TB2-14	
C199	SEE NOTE 5	J8-26	33		26		S16-2	SEE NOTE 5
C200		J8-27	33		26		S17-2	
C201		P12-185	32		24		TB2-25	
C202		-210					-54	
C203	SEE NOTE 6	-187					-55	SEE NOTE 6
C204		-195					-26	
C205		-181	32	WHT	24		TB2-27	
C206	SEE NOTE 5	-193	58	ORN	26		S6-5	TWIST
C207		P12-194	57	RED	26		S6-4	
C208	SEE NOTE 5	J8-30	33	WHT	26		S18-2	SEE NOTE 5
C209		P12-197	32	WHT	24		TB2-29	
C210		-209					-28	
C211		-191					-22	
C212		-201					-21	
C213	SEE NOTE 6	-202					-16	SEE NOTE 6
C214		-203					-20	
C215		-186					-17	
C216		-207					-19	
C217		-208	32	WHT	24		TB2-18	
C218		P12-179	33	WHT	26		S19-2	
C219		S1-1	35	YEL	26		S2-3	
C220		S2-1					S3-3	
C221		S3-1					S4-3	
C222		S4-1					S5-3	
C223		S5-1					S6-3	
C224		S6-1					S7-3	
C225	SEE NOTE 5	S7-1					S8-3	SEE NOTE 5
C226		S8-1					S9-3	
C227		S9-1					S10-3	
C228		S10-1					S11-3	
C229		S11-1					S12-3	
C230		S12-1					S13-3	
C231		S13-1					S14-3	
C232		S14-1					S15-3	
C233		S15-1	35	YEL			S16-3	
C234	SEE NOTE 5	S17-4	57	RED			S5-4	TWIST
C235		S17-5	58	ORN			S5-5	
C236		S6-4	57	RED			S2-4	TWIST
C237		S6-5	58	ORN			S2-5	
C238		S2-4	57	RED			S7-4	TWIST
C239		S2-5	58	ORN			S7-5	
C240		S7-4	57	RED			S3-4	TWIST
C241		S7-5	58	ORN			S3-5	
C242		S3-4	57	RED			S8-4	TWIST
C243		S3-5	58	ORN			S8-5	
C244		S8-4	57	RED			S9-4	TWIST
C245		S8-5	58	ORN			S9-5	
C246		S9-4	57	RED			S12-4	TWIST
C247		S9-5	58	ORN			S12-5	
C248		S12-4	57	RED			S15-4	TWIST
C249		S12-5	58	ORN			S15-5	
C250		S15-4	57	RED			S16-4	TWIST
C251		S15-5	58	ORN			S16-5	
C252		S16-4	57	RED			S13-4	TWIST
C253		S16-5	58	ORN			S13-5	
C254		S13-4	57	RED			S10-4	TWIST
C255		S13-5	58	ORN			S10-5	
C256		S10-4	57	RED			S11-4	TWIST
C257		S10-5	58	ORN			S11-5	
C258		S11-4	57	RED			S14-4	TWIST
C259		S11-5	58	ORN			S14-5	
C260	SEE NOTES	S14-4	57	RED			S17-4	TWIST
C261		S14-5	58	ORN	26		S17-5	
C262	SEE NOTE 5	S17-1	35	YEL	30	AR	S18-3	SEE NOTE 5
C263	SEE NOTE 6	P12-184	32	WHT	24	AR	62	SEE NOTE 6
C264		P12-183	32	WHT	24	AR	63	

SEE NOTE 5

SEE NOTE 5

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

QTY REQD

INSTRUMENTA

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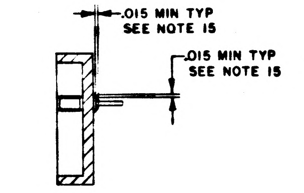
APPROVAL

2003903 C

SHEET 3

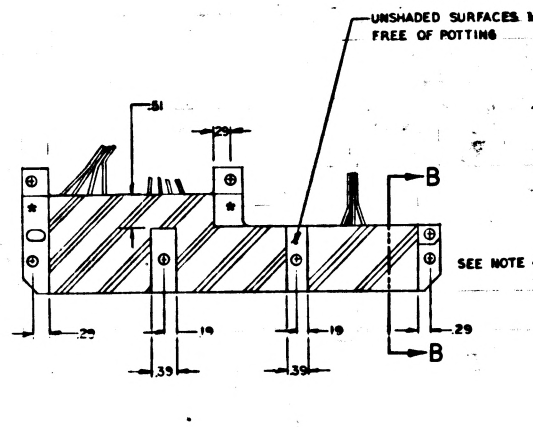
2003903 D

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22463 DR [illegible] CHK [illegible]	11/4/65	
B	REVISED PER TDRR 23230 DR [illegible] CHK [illegible]	[illegible]	
C	REVISED PER TDRR 24665 DR [illegible] CHK [illegible]	[illegible]	
D	REVISED PER TDRR 25032 DR [illegible] CHK [illegible]	1/6/66	



.015 MIN TYP
SEE NOTE 15
.015 MIN TYP
SEE NOTE 15

PARTIAL SECTION B
UNPOTTED
SCALE 2/1



UNSHADED SURFACES MUST BE FREE OF POTTING
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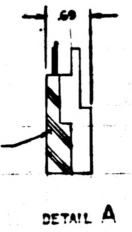

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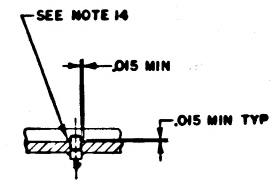
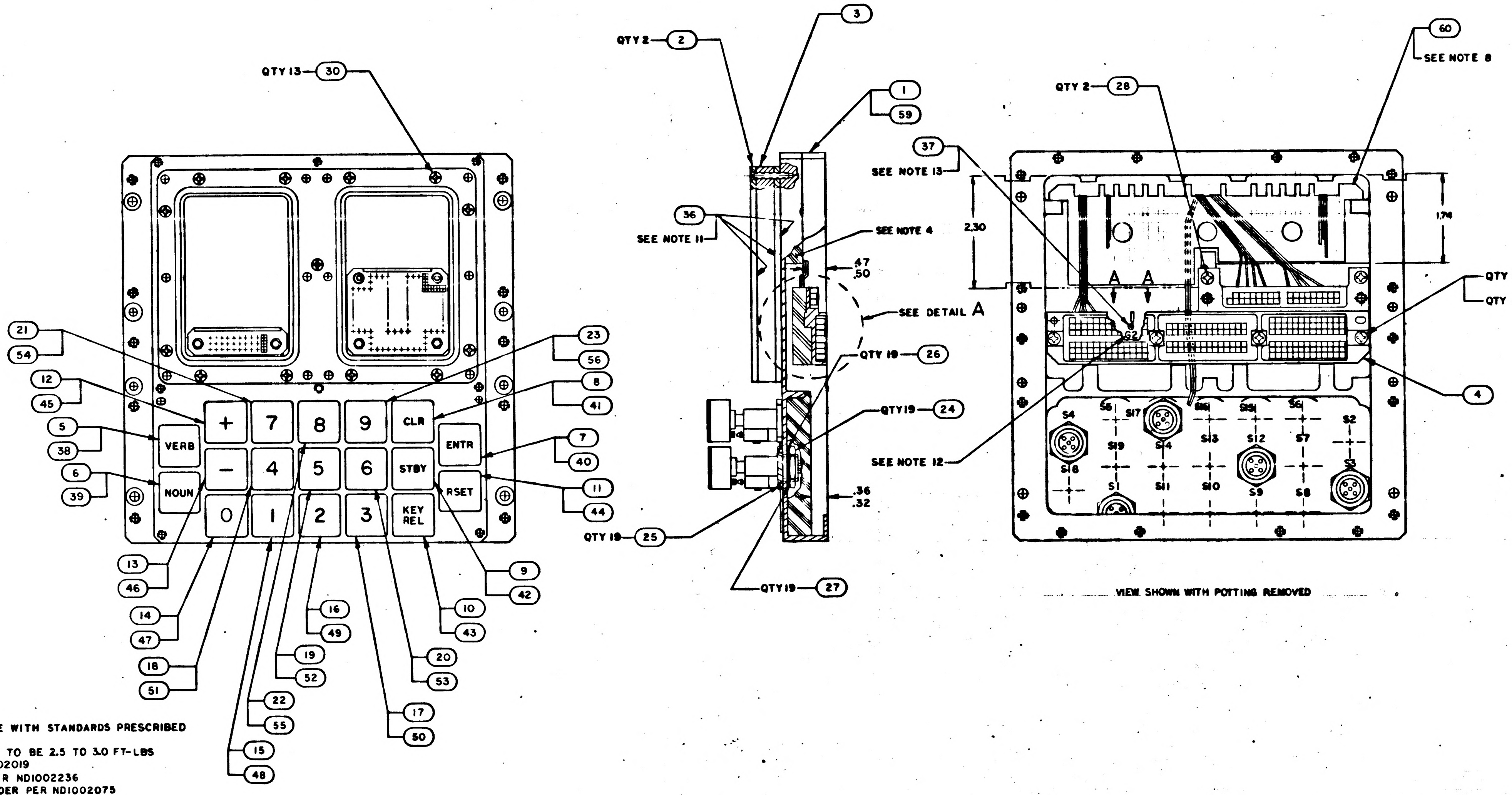
SEE NOTE 4

DETAIL A



SEE NOTE 14
.015 MIN
.015 MIN TYP

PARTIAL SECTION A-A
SCALE 2/1



QTY 13
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SEE NOTE 11
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QTY 19
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VIEW SHOWN WITH POTTING REMOVED

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE FOR FIND NO. 24 TO BE 2.5 TO 3.0 FT-LBS
3. IDENTIFY WITH PART NO. PER ND1002019
4. ENCAPSULATE INDICATED AREAS PER ND1002236
5. SOLDER PER ND1002071 USING SOLDER PER ND1002075
6. WELD PER ND1002005
7. AR DENOTES AS REQUIRED
8. BOND FIND NO. 32, 33, 35 & 60 TO FIND NO. 1 OR FIND NO. 59 PER ND1002004 TYPE IV
9. DRESS AND TRIM AT ASSEMBLY USING FIND NO. 34
~~10. WIRE PER ND1002071 USING LEAD ELECTRICAL~~
11. APPLY FIND NO. 36 TO INDICATED SURFACES OF FIND NO. 2. DO NOT APPLY TO BONDED RUBBER
12. MARK .07/.10 HIGH CHARACTERS PER ND1002019 AND ND1002122 TYPE II CLASS 2, USING MARKING INK 1006271-11
13. MOUNTING TORQUE FOR FIND NO. 37 TO BE 15-20 INCH OUNCES
14. SEAL FIND NO. 37 TO FIND NO. 1 OR FIND NO. 59 PER ND1002004 TYPE VI
15. SEAL INSULATORS ON FIND NO. 4 PER ND1002004 TYPE VI

LIST OF MATERIALS

QTY REQD 031	QTY REQD 021	QTY REQD 011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	☒	—	2005951	INTERCONNECTING DIAGRAM	REF
—	—	☒	2005901	INTERCONNECTING DIAGRAM	REF
AR	AR	AR	1010907-22	WIRE, INSULATED	61
1	1	—	2004971	COMB, WIRE	60
1	—	—	2004968-011	HOUSING, FRONT	59
AR	AR	AR	1010416-14	WIRE, INSULATED	58
AR	AR	AR	1010416-13	WIRE, INSULATED	57
1	1	—	2003974-211	SWITCH, ASSEMBLY PUSHBUTTON	56
1	1	—	-191		55
1	1	—	-181		54
1	1	—	-171		53
1	1	—	-161		52
1	1	—	-151		51
1	1	—	-141		50
1	1	—	-131		49
1	1	—	-121		48
1	1	—	-111		47
1	1	—	-091		46
1	1	—	-081		45
1	1	—	-071		44
1	1	—	-061		43
1	1	—	-051		42
1	1	—	-041		41
1	1	—	-031		40
1	1	—	-021		39
1	1	—	2003974-011	SWITCH, ASSEMBLY PUSHBUTTON	38
1	1	1	2004039	TERMINAL, THREADED	37
AR	AR	AR	1006879	SILICONE COMPOUND	36
AR	AR	AR	1010416-15	WIRE, INSULATED	35
AR	AR	AR	1012507-003	TAPE, LACING	34
AR	AR	AR	1010416-20	WIRE, INSULATED	33
AR	AR	AR	1010848-2	WIRE, INSULATED	32
4	4	4	NAS620-6L	WASHER, FLAT	31
13	13	13	MS35200-19	SCREW, FLAT HD, CROSS RECESSED	30
4	4	4	MS35216-27	SCREW, PAN HD, CROSS RECESSED	29
2	2	2	MS35200-25	SCREW, FLAT HD, CROSS RECESSED	28
19	19	19	1010635-003	WASHER, LOCK	27
19	19	19	2004940	WASHER, PLAIN	26
19	19	19	1000159-7	O RING SEAL	25
19	19	19	2004942	NUT, HEX	24
—	—	1	2003924-211	SWITCH, ASSEMBLY PUSHBUTTON	23
—	—	1	-191		22
—	—	1	-181		21
—	—	1	-171		20
—	—	1	-161		19
—	—	1	-151		18
—	—	1	-141		17
—	—	1	-131		16
—	—	1	-121		15
—	—	1	-111		14
—	—	1	-091		13
—	—	1	-081		12
—	—	1	-071		11
—	—	1	-061		10
—	—	1	-051		9
—	—	1	-041		8
—	—	1	-031		7
—	—	1	-021		6
—	—	1	2003924-011	SWITCH, ASSEMBLY PUSHBUTTON	5
1	1	1	2003915-011	CONNECTOR, PLATE ASSEMBLY	4
1	1	1	2003912-011	ADAPTER, PLATE ASSEMBLY	3
2	2	2	1006351	GASKET, PREFORMED	2
—	1	1	2004918-011	HOUSING, FRONT	1

2003903 D

NEXT ASSY	USED ON
2003985	
2003900	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.01 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

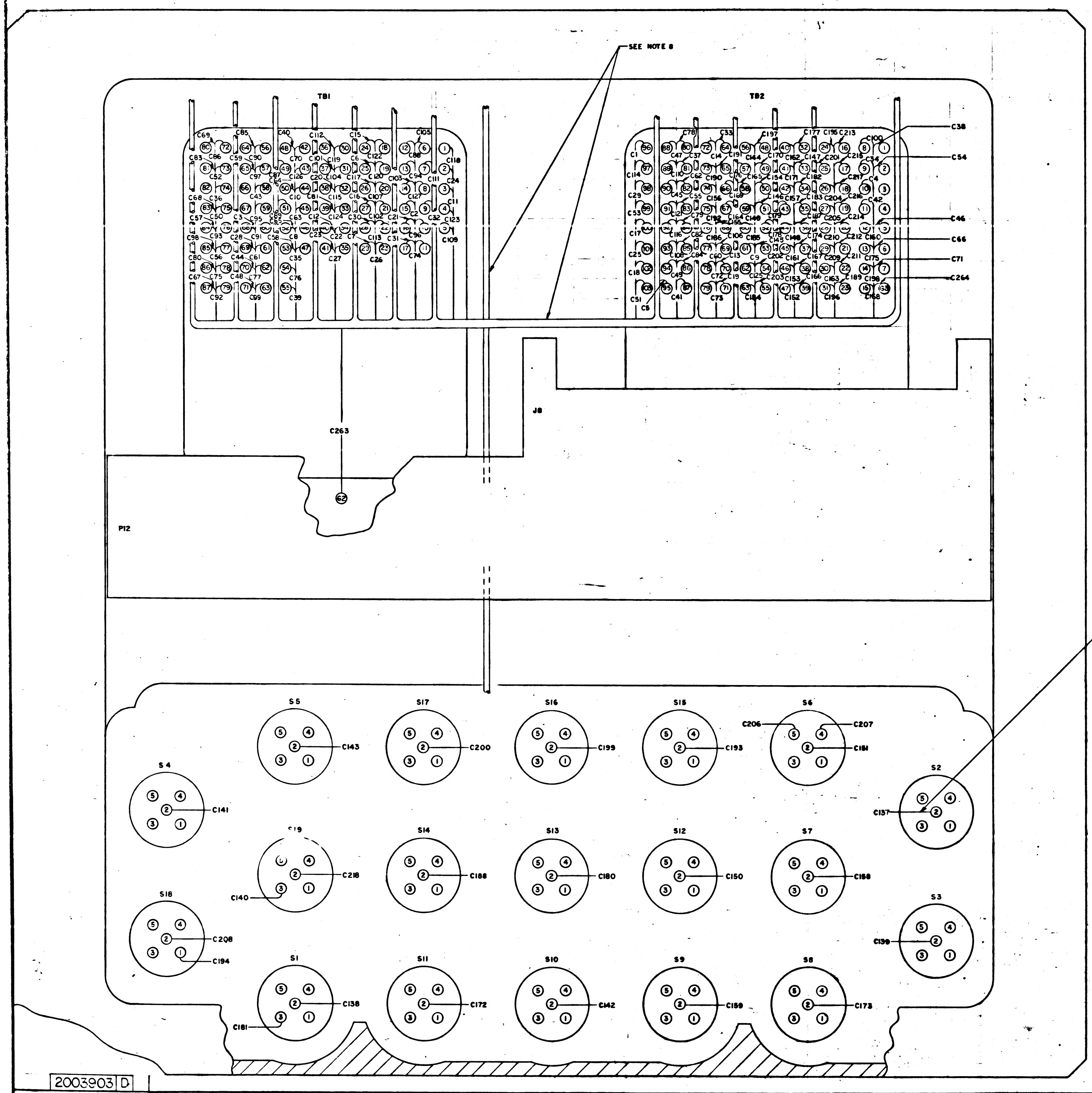
FRONT HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003903
SCALE 1/1
WT
SHEET 1 OF 3

2003903 D

2003903 D

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22463 DR R.D. Gustafson CHK		
B	REVISED PER TDRR 23230 DR CHK CAP		
C	REVISED PER TDRR 24665 DR R.D. CHK CAP		
D	REVISED PER TDRR 25032 DR CHK		



SEE NOTE 8
TB1
TB2
C38
C54
C46
C66
C71
C264
C263
62
J8
P12
SEE NOTE 9
S5
C143
S17
C200
S16
C199
S15
C193
S6
C206
C207
C181
S4
C141
S2
C137
S19
C218
C140
S14
C188
S13
C180
S12
C150
S7
C168
S18
C208
C194
S3
C139
S1
C138
C181
S11
C172
S10
C142
S9
C159
S8
C173

2003903 D

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

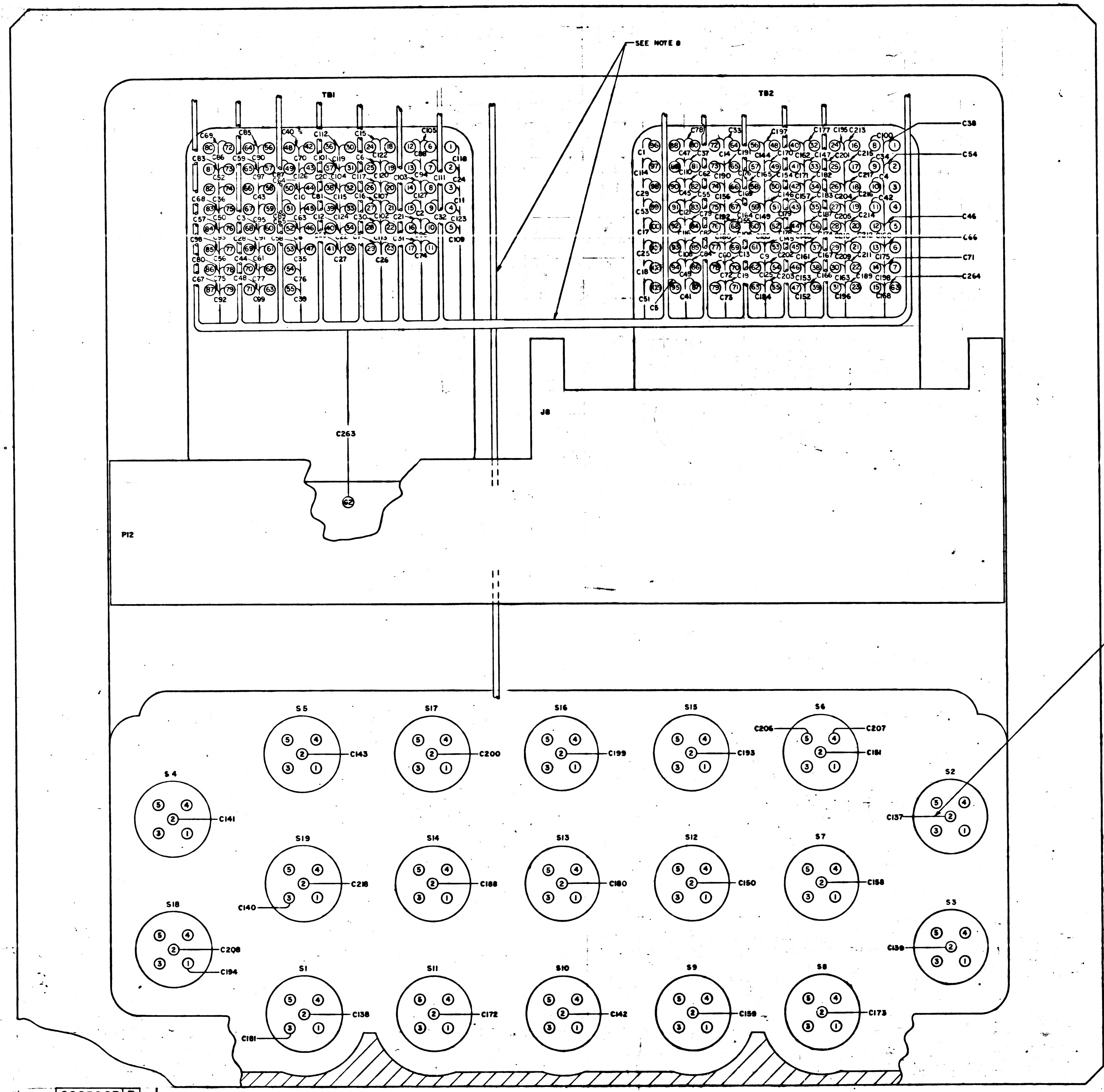
MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN R.D. Gustafson DATE
CHECKED A. Cappuccio
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO 2003903
SCALE NONE
WT
SHEET 2 OF 3

F-2/42


SEE NOTE 8
TB1
TB2
C69
C85
C40
C112
C15
C105
C83
C86
C59
C90
C70
C101
C119
C6
C122
C88
C118
C52
C97
C87
C126
C20
C104
C117
C120
C103
C94
C111
C24
C68
C36
C43
C10
C8
C115
C16
C107
C127
C11
C57
C50
C3
C95
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C177
C195
C213
C100
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C1
C47
C37
C14
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C144
C170
C162
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C201
C215
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C114
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C51
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C41
C73
C184
C152
C196
C168
C46
C66
C71
C175
C198
C264
J8
C263
62
P12
SEE NOTE 9
S5
S17
S16
S15
S6
S4
S2
S19
S14
S13
S12
S7
S18
S3
S1
S11
S10
S9
S8
C143
C200
C199
C193
C206
C207
C181
C141
C137
C218
C188
C180
C150
C158
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C208
C194
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C142
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C173
C181

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ± ANGLES ± DO NOT SCALE THIS DRAWING	QTY REQD
		MATERIAL	INSTRUMENT
		HEAT TREATMENT	DRAWN CHECKED APPROVAL APPROVAL
NEXT ASSY	USED ON	FINAL FINISH	NASA APPROVAL MIT APPROVAL MIT APPROVAL
APPLICATION			

2003903 D

SHEET 2

4 3 2 1

2003903 D

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22463 DR CHK APPD		
B	REVISED PER TDRR 23230 DR CHK CAP		
C	REVISED PER TDRR 24665 DR R.P. CHK CAP		
D	REVISED PER TDRR 25032 DR J.P. CHK		

EAD ELECTRICAL

ROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
-3	32	WHT	24	AR	TB2-96	SEE NOTE 6
[illegible]					TB1-15	
-33					TB1-68	
-34					TB2-10	
-27					TB2-95	
-28					TB1-25	
-29					TB1-29	
-30					TB1-46	
-23					TB2-61	
-24					TB1-44	
-25					TB1-3	
-26					TB1-40	
-119					TB2-70	
20					TB2-72	
[illegible]					TB1-24	
-122					TB1-27	
-115					TB2-100	
-116					TB2-102	
-117					TB2-71	
-118					TB1-38	
-111					TB1-16	
-112					TB1-34	
-113					TB1-41	
-114					TB1-2	
-107					TB2-101	
-108					TB1-23	
-109					TB1-35	
-110					TB1-69	
-103					TB2-98	
-104					TB1-28	
-105					TB1-17	
-106					TB1-9	
-99					TB2-64	
-100					TB2-9	
-101					TB1-47	
-102					TB1-74	
-95					TB2-81	
-96					TB2-1	
-97					TB1-55	
-98					TB1-48	
-91					TB2-87	
-92					TB2-11	
93					TB1-58	
94					TB1-70	
-187					TB2-90	
188					TB2-5	
-189					TB2-88	
-190					TB1-71	
-183					TB2-94	
-184					TB1-75	
-185					TB2-103	
-186					TB1-73	
-79					TB2-99	
-180					TB2-2	
81					TB2 83	
182					TB1-77	
73					TB1-84	
-74					TB1-53	
					TB1-65	
76					TB2-77	
-77					TB1-61	
-78					TB2-82	
67					TB1-45	
-68					TB1-50	
-69					TB1-52	
-70					TB2-6	
71					TB1-87	
-72					TB1-83	
61					TB1-80	
62					TB1-42	
-63					TB2-7	
64					TB2-78	
-65					TB2-79	
-66					TB1-11	
-55					TB1 78	
-56					TB1-54	
-57					TB1-62	
-58					TB2-80	
-59					TB2-84	
-60					TB1-86	
50					TB1-39	
-51					TB2-85	
-52					TB1-8	
-53					TB2-86	
-54					TB1-64	
43					TB1-72	
-44					TB1-49	
-45	32	WHT	24	AR	TB1-12	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C89	SEE NOTE 6	P12-46	32	WHT	24	AR	TB1-51	SEE NOTE 6
C90		-47					TB1-56	
C91		-48					TB1-60	
C92		-37					TB1-79	
C93		-38					TB1-76	
C94		-39					TB1-13	
C95		-40					TB1-59	
C96		-41					TB1-10	
C97		-42					TB1-57	
C98		-31					TB1-85	
C99		-32					TB1-63	
C100		-33					TB2-8	
C101		-34					TB1-37	
C102		-35					TB1-21	
C103		-36					TB1-14	
C104		-25					TB1-31	
C105		-27					TB1-6	
C106		-28					TB2-69	
C107		-29					TB1-20	
C108		-30					TB2-93	
C109		-21					TB1-5	
C110		-22					TB2-89	
C111		-23					TB1-7	
C112		-24					TB1-36	
C113		-13					TB1-22	
C114		-15					TB2-97	
C115		-16					TB1-32	
C116		-17					TB2-94	
C117		-18					[illegible]	
C118		-7					TB1-1	
C119		-9					TB1-30	
C120		-10					TB1-19	
C121		-11					TB2-91	
C122		-12					TB1-18	
C123		-1					TB1-4	
C124		-3					TB1-33	
C125		-4					TB2-62	
C126		-5					TB1-43	
C127		P12-6	32	WHT	24		TB1-8	
C128	SEE NOTE 5	S16-1	35	YEL	26		S17-3	SEE NOTE 5
C129	SEE NOTE 5	S5-4	57	RED	26		S19-4	TWIST
C130		S5-5	58	CRN			S19-5	
C131		S19-4	57	RED			S1-4	TWIST
C132		S19-5	58	ORN			S1-5	
C133		S1-4	57	RED			S18-4	TWIST
C134		S1-5	58	ORN			S18-5	
C135	SEE NOTE 5	S18-4	57	RED			S4-4	TWIST
C136		S18-5	58	ORN			S4-5	
C137	SEE NOTE 5	J8-3	33	WHT			S2-2	SEE NOTE 5
C138		-5					S1-2	
C139		-8					S3-2	
C140		-9					S19-3	
C141		-10					S4-2	
C142		-11					S10-2	
C143		J8-13	33		26		S5-2	
C144	SEE NOTE 6	P12-135	32		24		TB2-56	SEE NOTE 6
C145		-136					TB2-53	
C146		-137					TB2-51	
C147		-138					TB2-33	
C148		-139					TB2-44	
C149		P12-140	32		24		TB2-59	
C150	SEE NOTE 5	J8-14	33		26		S12-2	SEE NOTE 5
C151		J8-15	33		26		S6-2	
C152	SEE NOTE 6	P12-141	32		24		TB2-47	SEE NOTE 6
C153		-142					TB2-46	
C154		-143					TB2-50	
C155		-144					TB2-68	
C156		-145					TB2-74	
C157		P12-146	32		24		TB2-42	
C158	SEE NOTE 5	J8-16	33		26		S7-2	SEE NOTE 5
C159		J8-17	33	WHT	26		S9-2	
C160	SEE NOTE 6	P12-147	32	WHT	24		TB2-12	SEE NOTE 6
C161		-148					-45	
C162		-149					-40	
C163		-150					-30	
C164		-151					-67	
C165		-152					-58	
C166		-153					-39	
C167		-154					-38	
C168		-155					-15	
C169		-156					-66	
C170		-157					-49	
C171		P12-158	32	WHT	24		TB2-41	
C172	SEE NOTE 5	J8-18	33	WHT	26		S11-2	SEE NOTE 5
C173		J8-19	33	WHT	26		S8-2	
C174	SEE NOTE 6	P12-159	32	WHT	24		TB2-37	SEE NOTE 6
C175		P12-160	32	WHT	24		TB2-13	
C176		P12-161	32	WHT	24	AR	TB2-57	

SEE NOTE 5

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C177	SEE NOTE 6	P12-162	32	WHT	24	AR	TB2-32	SEE NOTE 6
C178		P12-163	32	WHT	24		TB2-52	
C179		P12-164	32	WHT	24		TB2-43	
C180	SEE NOTE 5	J8-20	33	WHT	26		S13-2	SEE NOTE 5
C181		J8-21	33	WHT	26		S1-3	
C182	SEE NOTE 6	P12-165	32	WHT	24		TB2-34	SEE NOTE 6
C183		-166					-35	
C184		-167					-63	
C185		-168					-60	
C186		-169					-76	
C187		P12-170	32		24		TB2-36	
C188	SEE NOTE 5	J8-22	33		26		S14-2	SEE NOTE 5
C189	SEE NOTE 6	P12-190	32		24		TB2-23	SEE NOTE 6
C190		-174					-73	
C191		-175					-65	
C192		P12-176	32		24		TB2-75	
C193	SEE NOTE 5	J8-24	33		26		S15-2	SEE NOTE 5
C194		J8-25	33		26		S18-1	
C195	SEE NOTE 6	P12-196	32		24		TB2-24	SEE NOTE 6
C196		-192					-31	
C197		-204					-48	
C198		P12-182	32		24		TB2-14	
C199	SEE NOTE 5	J8-26	33		26		S16-2	SEE NOTE 5
C200		J8-27	33		26		S17-2	
C201	SEE NOTE 6	P12-185	32		24		TB2-25	SEE NOTE 6
C202		-210					-54	
C203		-187					-55	
C204		-195					-26	
C205		-181	32	WHT	24		TB2 27	
C206	SEE NOTE 5	-193	58	ORN	26		S6-5	TWIST
C207		P12-194	57	RED	26		S6-4	
C208	SEE NOTE 5	J8-30	33	WHT	26		S18-2	SEE NOTE 5
C209	SEE NOTE 6	P12-197	32	WHT	24		TB2-29	SEE NOTE 6
C210		-209					-28	
C211		-191					-22	
C212		-201					-21	
C213		-202					-16	
C214		-203					-20	
C215		-186					-17	
C216		-207					-19	
C217		-208	32	WHT	24		TB2-18	
C218	SEE NOTE 5	P12-179	33	WHT	26		S19-2	SEE NOTE 5
C219		S1-1	35	YEL	26		S2-3	
C220		S2-1					S3-3	
C221		S3-1					S4-3	
C222		S4-1					S5-3	
C223		S5-1					S6-3	
C224		S6-1					S7-3	
C225		S7-1					S8-3	
C226		S8-1					S9-3	
C227		S9-1					S10-3	
C228		S10-1					S11-3	
C229		S11-1					S12-3	
C230		S12-1					S13-3	
C231		S13-1					S14-3	
C232		S14-1					S15-3	
C233		S15-1	35	YEL			S16-3	
C234	SEE NOTE 5	S17-4	57	RED			S5-4	TWIST
C235		S17-5	58	ORN			S5-5	
C236		S6-4	57	RED			S2-4	TWIST
C237		S6-5	58	ORN			S2-5	
C238		S2-4	57	RED			S7-4	TWIST
C239		S2-5	58	ORN			S7-5	
C240		S7-4	57	RED			S3-4	TWIST
C241		S7-5	58	ORN			S3-5	
C242		S3-4	57	RED			S8-4	TWIST
C243		S3-5	58	ORN			S8-5	
C244		S8-4	57	RED			S9-4	TWIST
C245		S8-5	58	ORN			S9-5	
C246		S9-4	57	RED			S12-4	TWIST
C247		S9-5	58	ORN			S12-5	
C248		S12-4	57	RED			S15-4	TWIST
C249		S12-5	58	ORN			S15-5	
C250		S15-4	57	RED			S16-4	TWIST
C251		S15-5	58	ORN			S16-5	
C252		S16-4	57	RED			S13-4	TWIST
C253		S16-5	58	ORN			S13-5	
C254		S13-4	57	RED			S10-4	TWIST
C255		S13-5	58	ORN			S10-5	
C256		S10-4	57	RED			S11-4	TWIST
C257		S10-5	58	ORN			S11-5	
C258		S11-4	57	RED			S14-4	TWIST
C259		S11-5	58	ORN			S14-5	
C260	SEE NOTES	S14-4	57	RED			S17-4	TWIST
C261		S14-5	58	ORN	26		S17-5	
C262	SEE NOTE 5	S17-1	35	YEL	30	AR	S16 3	SEE NOTE 5
C263	SEE NOTE 6	P12-184	32	WHT	24	AR	62	SEE NOTE 6
C264		P12-183	61	WHT	26	AR	63	SEE NOTE 5

SEE NOTE 5

SEE NOTE 5

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
Cambridge, Mass
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT HOUSING ASSEMBLY

AGC DSKY

CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	J	2003903

SCALE NONE WT SHEET 2 OF 2

2003903 D

F 2/2

2003903 J

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C1	SEE NOTE 6	P12-131	32	WHT	24	AR	TB2-96	SEE NOTE 6
C2		-132					TB1-15	
C3		-133					TB1-68	
C4		-134					TB2-10	
C5		-127					TB2-95	
C6		-128					TB1-25	
C7		-129					TB1-29	
C8		-130					TB1-46	
C9		-123					TB2-61	
C10		-124					TB1-44	
C11		-125					TB1-3	
C12		-126					TB1-40	
C13		-119					TB2-70	
C14		-120					TB2-72	
C15		-121					TB1-24	
C16		-122					TB1-27	
C17		-115					TB2-100	
C18		-116					TB2-102	
C19		-117					TB2-71	
C20		-118					TB1-38	
C21		-111					TB1-16	
C22		-112					TB1-34	
C23		-113					TB1-41	
C24		-114					TB1-2	
C25		-107					TB2-101	
C26		-108					TB1-23	
C27		-109					TB1-35	
C28		-110					TB1-69	
C29		-103					TB2-98	
C30		-104					TB1-28	
C31		-105					TB1-17	
C32		-106					TB1-9	
C33		-99					TB2-64	
C34		-100					TB2-9	
C35		-101					TB1-47	
C36		-102					TB1-74	
C37		-95					TB2-81	
C38		-96					TB2-1	
C39		-97					TB1-55	
C40		-98					TB1-48	
C41		-91					TB2-87	
C42		-92					TB2-11	
C43		-93					TB1-58	
C44		-94					TB1-70	
C45		-87					TB2-90	
C46		-88					TB2-5	
C47		-89					TB2-88	
C48		-90					TB1-71	
C49		-83					TB2-94	
C50		-84					TB1-75	
C51		-85					TB2-103	
C52		-86					TB1-73	
C53		-79					TB2-99	
C54		-80					TB2-2	
C55		-81					TB2 83	
C56		-82					TB1-77	
C57		-73					TB1-84	
C58		-74					TB1-53	
C59		-75					TB1-65	
C60		-76					TB2-77	
C61		-77					TB1-61	
C62		-78					TB2-82	
C63		-67					TB1-45	
C64		-68					TB1-90	
C65		-69					TB1-52	
C66		-70					TB2-6	
C67		-71					TB1-87	
C68		-72					TB1-83	
C69		-61					TB1-80	
C70		-62					TB1-42	
C71		-63					TB2-7	
C72		-64					TB2-78	
C73		-65					TB2-79	
C74		-66					TB1-11	
C75		-55					TB1-78	
C76		-56					TB1-54	
C77		-57					TB1-62	
C78		-58					TB2-80	
C79		-59					TB2-84	
C80		-60					TB1-86	
C81		-50					TB1-39	
C82		-51					TB2-85	
C83		-52					TB1-81	
C84		-53					TB2-86	
C85		-54					TB1-64	
C86		-43					TB1-72	
C87		-44					TB1-49	
C88		P12-45	32	WHT	24	AR	TB1-12	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C89	SEE NOTE 6	P12-46	32	WHT	24	AR	TB1-51	SEE NOTE 6
C90		-47					TB1-56	
C91		-48					TB1-60	
C92		-37					TB1-79	
C93		-38					TB1-76	
C94		-39					TB1-13	
C95		-40					TB1-59	
C96		-41					TB1-10	
C97		-42					TB1-57	
C98		-31					TB1-85	
C99		-32					TB1-63	
C100		-33					TB2-8	
C101		-34					TB1-37	
C102		-35					TB1-21	
C103		-36					TB1-14	
C104		-25					TB1-31	
C105		-27					TB1-6	
C106		-28					TB2-69	
C107		-29					TB1-20	
C108		-30					TB2-93	
C109		-21					TB1-5	
C110		-22					TB2-89	
C111		-23					TB1-7	
C112		-24					TB1-36	
C113		-13					TB1-22	
C114		-15					TB2-97	
C115		-16					TB1-32	
C116		-17					TB2-92	
C117		-18					TB1-26	
C118		-7					TB1-1	
C119		-9					TB1-30	
C120		-10					TB1-19	
C121		-11					TB2-91	
C122		-12					TB1-18	
C123		-1					TB1-4	
C124		-3					TB1-33	
C125		-4					TB2-62	
C126		-5					TB1-43	
C127		P12-6	32	WHT	24		TB1-8	
C128	SEE NOTE 5	S16-1	35	YEL	26		S17-3	SEE NOTE 5
C129	SEE NOTE 5	S5-4	57	RED	26		S19-4	TWIST
C130		S5-5	58	ORN			S19-5	
C131		S19-4	57	RED			S1-4	TWIST
C132		S19-5	58	ORN			S1-5	
C133		S1-4	57	RED			S18-4	TWIST
C134		S1-5	58	ORN			S18-5	
C135	SEE NOTE 5	S18-4	57	RED			S4-4	TWIST
C136		S18-5	58	ORN			S4-5	
C137	SEE NOTE 5	J8-3	33	WHT			S2-2	SEE NOTE 5
C138		-5					S1-2	
C139		-8					S3-2	
C140		-9					S19-3	
C141		-10					S4-2	
C142		-11					S10-2	
C143		J8-13	33		26		S5-2	
C144	SEE NOTE 6	P12-135	32		24		TB2-56	SEE NOTE 6
C145		-136					TB2-53	
C146		-137					TB2-51	
C147		-138					TB2-33	
C148		-139					TB2-44	
C149		P12-140	32		24		TB2-59	
C150	SEE NOTE 5	J8-14	33		26		S12-2	SEE NOTE 5
C151		J8-15	33		26		S6-2	
C152	SEE NOTE 6	P12-141	32		24		TB2-47	SEE NOTE 6
C153		-142					TB2-46	
C154		-143					TB2-50	
C155		-144					TB2-68	
C156		-145					TB2-74	
C157		P12-146	32		24		TB2-42	
C158	SEE NOTE 5	J8-16	33		26		S7-2	SEE NOTE 5
C159		J8-17	33	WHT	26		S9-2	
C160	SEE NOTE 6	P12-147	32	WHT	24		TB2-12	SEE NOTE 6
C161		-148					-45	
C162		-149					-40	
C163		-150					-30	
C164		-151					-67	
C165		-152					-58	
C166		-153					-39	
C167		-154					-38	
C168		-155					-15	
C169		-156					-66	
C170		-157					-49	
C171		P12-158	32	WHT	24		TB2-41	
C172	SEE NOTE 5	J8-18	33	WHT	26		S11-2	SEE NOTE 5
C173		J8-19	33	WHT	26		S8-2	
C174	SEE NOTE 6	P12-159	32	WHT	24		TB2-37	SEE NOTE 6
C175		P12-160	32	WHT	24		TB2-13	
C176		P12-161	32	WHT	24	AR	TB2-57	

SEE NOTE 5

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C177	SEE NOTE 6	P12-162	32	WHT	24	AR	TB2-32	SEE NOTE 6
C178		P12-163	32	WHT	24		TB2-52	
C179		P12-164	32	WHT	24		TB2-43	
C180	SEE NOTE 5	J8-20	33	WHT	26		S13-2	SEE NOTE 5
C181		J8-21	33	WHT	26		S1-3	
C182	SEE NOTE 6	P12-165	32	WHT	24		TB2-34	SEE NOTE 6
C183		-166					-35	
C184		-167					-63	
C185		-168					-60	
C186		-169					-76	
C187		P12-170	32		24		TB2-36	
C188	SEE NOTE 5	J8-22	33		26		S14-2	SEE NOTE 5
C189	SEE NOTE 6	P12-190	32		24		TB2-23	SEE NOTE 6
C190		-174					-73	
C191		-175					-65	
C192		P12-176	32		24		TB2-75	
C193	SEE NOTE 5	J8-24	33		26		S15-2	SEE NOTE 5
C194		J8-25	33		26		S18-1	
C195	SEE NOTE 6	P12-196	32		24		TB2-24	SEE NOTE 6
C196		-192					-31	
C197		-204					-48	
C198		P12-182	32		24		TB2-14	
C199	SEE NOTE 5	J8-26	33		26		S16-2	SEE NOTE 5
C200		J8-27	33		26		S17-2	
C201	SEE NOTE 6	P12-185	32		24		TB2-25	SEE NOTE 6
C202		-210					-54	
C203		-187					-55	
C204		-195					-26	
C205		-181	32	WHT	24		TB2-27	
C206	SEE NOTE 5	-193	58	ORN	26		S6-5	TWIST
C207		P12-194	57	RED	26		S6-4	
C208	SEE NOTE 5	J8-30	33	WHT	26		S18-2	SEE NOTE 5
C209	SEE NOTE 6	P12-197	32	WHT	24		TB2-29	SEE NOTE 6
C210		-209					-28	
C211		-191					-22	
C212		-201					-21	
C213		-202					-16	
C214		-203					-20	
C215		-186					-17	
C216		-207					-19	
C217		-208	32	WHT	24		TB2-18	
C218	SEE NOTE 5	P12-179	33	WHT	26		S19-2	SEE NOTE 5
C219		S1-1	35	YEL	26		S2-3	
C220		S2-1					S3-3	
C221		S3-1					S4-3	
C222		S4-1					S5-3	
C223		S5-1					S6-3	
C224		S6-1					S7-3	
C225		S7-1					S8-3	
C226		S8-1					S9-3	
C227		S9-1					S10-3	
C228		S10-1					S11-3	
C229		S11-1					S12-3	
C230		S12-1					S13-3	
C231		S13-1					S14-3	
C232		S14-1					S15-3	
C233		S15-1	35	YEL			S16-3	
C234	SEE NOTE 5	S17-4	57	RED			S5-4	TWIST
C235		S17-5	58	ORN			S5-5	
C236		S6-4	57	RED			S2-4	TWIST
C237		S6-5	58	ORN			S2-5	
C238		S2-4	57	RED			S7-4	TWIST
C239		S2-5	58	ORN			S7-5	
C240		S7-4	57	RED			S3-4	TWIST
C241		S7-5	58	ORN			S3-5	
C242		S3-4	57	RED			S8-4	TWIST
C243		S3-5	58	ORN			S8-5	
C244		S8-4	57	RED			S9-4	TWIST
C245		S8-5	58	ORN			S9-5	
C246		S9-4	57	RED			S12-4	TWIST
C247		S9-5	58	ORN			S12-5	
C248		S12-4	57	RED			S15-4	TWIST
C249		S12-5	58	ORN			S15-5	
C250		S15-4	57	RED			S16-4	TWIST
C251		S15-5	58	ORN			S16-5	
C252		S16-4	57	RED			S13-4	TWIST
C253		S16-5	58	ORN			S13-5	
C254		S13-4	57	RED			S10-4	TWIST
C255		S13-5	58	ORN			S10-5	
C256		S10-4	57	RED			S11-4	TWIST
C257		S10-5	58	ORN			S11-5	
C258		S11-4	57	RED			S14-4	TWIST
C259		S11-5	58	ORN			S14-5	
C260	SEE NOTE 5	S14-4	57	RED			S17-4	TWIST
C261		S14-5	58	ORN	26		S17-5	
C262	SEE NOTE 5	S17-1	35	YEL	30	AR	S18-3	SEE NOTE 5
C263	SEE NOTE 6	P12-184	32	WHT	24	AR	62	SEE NOTE 6
C264		P12-183	61	WHT	26	AR	63	SEE NOTE 5

SEE NOTE 5

SEE NOTE 5

QTY REQD	PART IDENTIFY

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
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CAMBRIDGE, MASS
DRAWN
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

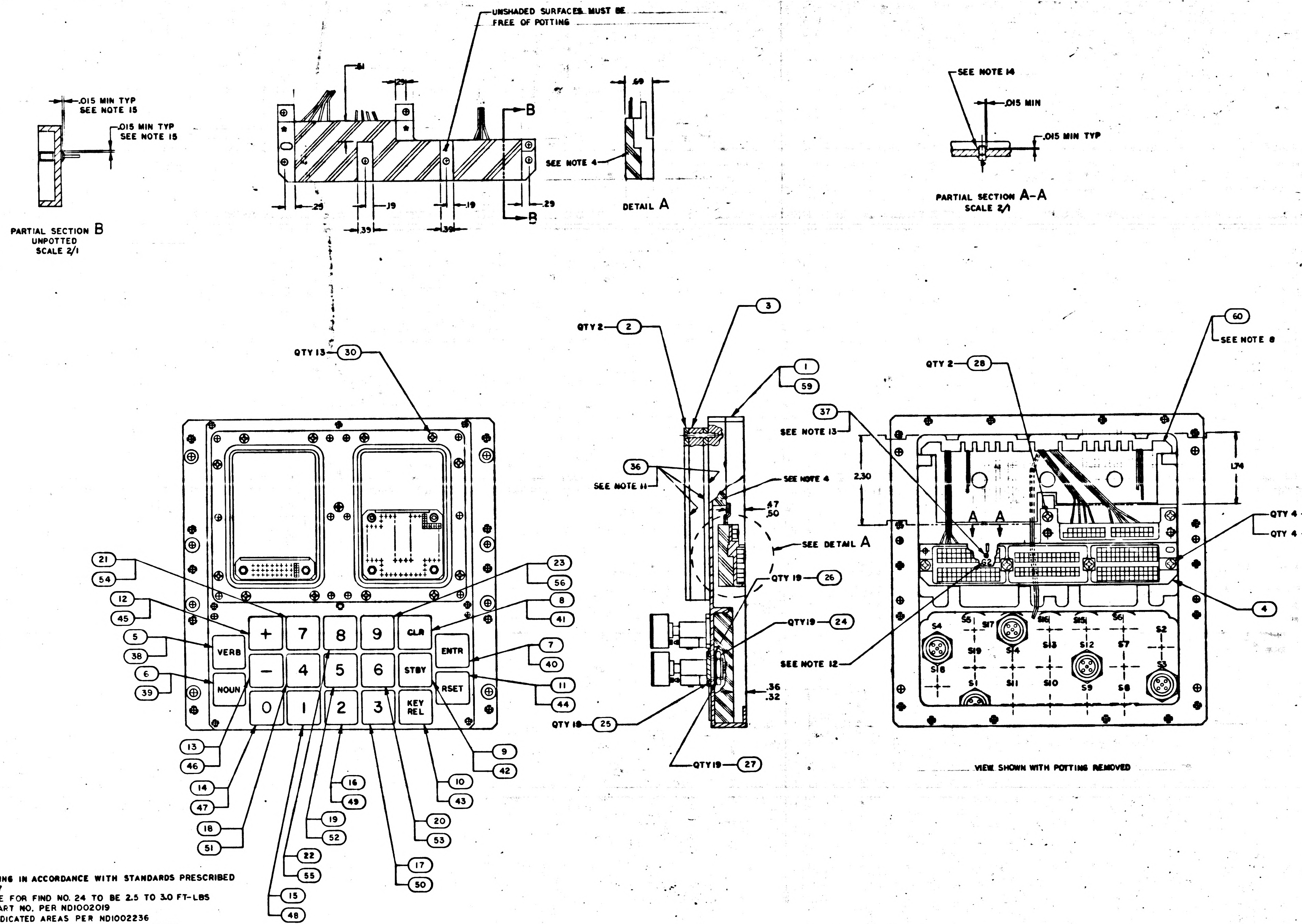
2003903 D

F 1/2

SHEET 3

2003903 E

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22463 DR R.P. Guibord CHK	11/4/65	
B	REVISED PER TDRR 23230 DR CHK	10/[illegible]/65	
C	REVISED PER TDRR 24665 DR R.P. Guibord CHK	12/[illegible]/65	
D	REVISED PER TDRR 25032 DR J.P. Leonard CHK	1/6/66	
E	REVISED PER TDRR 26855 DR CHK	3/[illegible]/66	



.015 MIN TYP
SEE NOTE 15
.015 MIN TYP
SEE NOTE 15
PARTIAL SECTION B
UNPOTTED
SCALE 2/1
UNSHADED SURFACES MUST BE FREE OF POTTING
.61
.29
B
B
.29
.19
.39
.19
.39
.29
.50
SEE NOTE 4
DETAIL A
SEE NOTE 14
.015 MIN
.015 MIN TYP
PARTIAL SECTION A-A
SCALE 2/1
QTY 13 (30)
QTY 2 (2)
(3)
(1)
(59)
(37)
SEE NOTE 13
(36)
SEE NOTE 11
SEE NOTE 4
.47
.50
SEE DETAIL A
QTY 19 (26)
QTY 19 (24)
SEE NOTE 12
QTY 19 (25)
QTY 19 (27)
.36
.32
(60)
SEE NOTE 8
QTY 2 (28)
2.30
1.74
A A
QTY 4 (29)
QTY 4 (31)
(4)
S4 S6 S17 S16 S15 S5 S2
S19 S14 S13 S12 S7 S3
S18 S1 S11 S10 S9 S8
VIEW SHOWN WITH POTTING REMOVED
+ 7 8 9 CLR
VERB ENTR
− 4 5 6 STBY
NOUN RSET
0 1 2 3 KEY REL
(21) (54) (12) (45) (5) (38) (6) (39) (13) (46) (14) (47) (18) (51) (22) (55) (15) (48)
(23) (56) (8) (41) (7) (40) (11) (44) (9) (42) (10) (43) (16) (49) (19) (52) (20) (53) (17) (50)

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE FOR FIND NO. 24 TO BE 2.5 TO 3.0 FT-LBS
3. IDENTIFY WITH PART NO. PER ND1002019
4. ENCAPSULATE INDICATED AREAS PER ND1002236
5. SOLDER PER ND1002071 USING SOLDER PER ND1002075
6. WELD PER ND1002005
7. AR DENOTES AS REQUIRED
8. BOND FIND NO. 32, 33, 35 & 60 TO FIND NO. 1 OR FIND NO. 59 PER ND1002004 TYPE IV
9. DRESS AND TRIM AT ASSEMBLY USING FIND NO. 34
~~10. WIRE PER ND1002037 USING LEAD ELECTRICAL~~
11. APPLY FIND NO. 36 TO INDICATED SURFACES OF FIND NO. 2. DO NOT APPLY TO BONDED RUBBER
12. MARK .07/.10 HIGH CHARACTERS PER ND1002019 AND ND1002122 TYPE II CLASS 2, USING MARKING INK 1006271-11
13. MOUNTING TORQUE FOR FIND NO. 37 TO BE 15-20 INCH OUNCES
14. SEAL FIND NO. 37 TO FIND NO. 1 OR FIND NO. 59 PER ND1002004 TYPE VI
15. SEAL INSULATORS ON FIND NO. 4 PER ND1002004 TYPE VI

QTY REQD 031	QTY REQD 021	QTY REQD 011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	☒	—	2005951	INTERCONNECTING DIAGRAM	REF
—	—	☒	2005901	INTERCONNECTING DIAGRAM	REF
AR	AR	AR	1010807-22	WIRE, INSULATED	61
1	1	—	2004971	COMB, WIRE	60
1	—	—	2004968-011	HOUSING, FRONT	59
AR	AR	AR	1010416-14	WIRE, INSULATED	58
AR	AR	AR	1010416-13	WIRE, INSULATED	57
1	1	—	2003974-211	SWITCH, ASSEMBLY PUSHBUTTON	56
1	1	—	-191		55
1	1	—	-181		54
1	1	—	-171		53
1	1	—	-161		52
1	1	—	-151		51
1	1	—	-141		50
1	1	—	-131		49
1	1	—	-121		48
1	1	—	-111		47
1	1	—	-091		46
1	1	—	-081		45
1	1	—	-071		44
1	1	—	-061		43
1	1	—	-051		42
1	1	—	-041		41
1	1	—	-031		40
1	1	—	-021		39
1	1	—	2003974-011	SWITCH, ASSEMBLY PUSHBUTTON	38
1	1	1	2004039	TERMINAL, THREADED	37
AR	AR	AR	1006879	SILICONE COMPOUND	36
AR	AR	AR	1010416-15	WIRE, INSULATED	35
AR	AR	AR	1012507-003	TAPE, LACING	34
AR	AR	AR	1010416-20	WIRE, INSULATED	33
AR	AR	AR	1010848-2	WIRE, INSULATED	32
4	4	4	NAS620-6L	WASHER, FLAT	31
13	13	13	MS35200-19	SCREW, FLAT HD, CROSS RECESSED	30
4	4	4	MS35216-27	SCREW, PAN HD, CROSS RECESSED	29
2	2	2	MS35200-25	SCREW, FLAT HD, CROSS RECESSED	28
19	19	19	1010635-003	WASHER, LOCK	27
19	19	19	2004940-001	WASHER, PLAIN	26
19	19	19	1000159-18	O RING SEAL	25
19	19	19	2004942	NUT, HEX	24
—	—	1	2003924-211	SWITCH, ASSEMBLY PUSHBUTTON	23
—	—	1	-191		22
—	—	1	-181		21
—	—	1	-171		20
—	—	1	-161		19
—	—	1	-151		18
—	—	1	-141		17
—	—	1	-131		16
—	—	1	-121		15
—	—	1	-111		14
—	—	1	-091		13
—	—	1	-081		12
—	—	1	-071		11
—	—	1	-061		10
—	—	1	-051		9
—	—	1	-041		8
—	—	1	-031		7
—	—	1	-021		6
—	—	1	2003924-011	SWITCH, ASSEMBLY PUSHBUTTON	5
1	1	1	2003915-011	CONNECTOR, PLATE ASSEMBLY	4
1	1	1	2003912-011	ADAPTER, PLATE ASSEMBLY	3
2	2	2	1006351	GASKET, PREFORMED	2
—	1	1	2004918-011	HOUSING, FRONT	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003985	
2003900	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.01 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
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CAMBRIDGE, MASS.
DRAWN R. Hubbard DATE
CHECKED
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MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

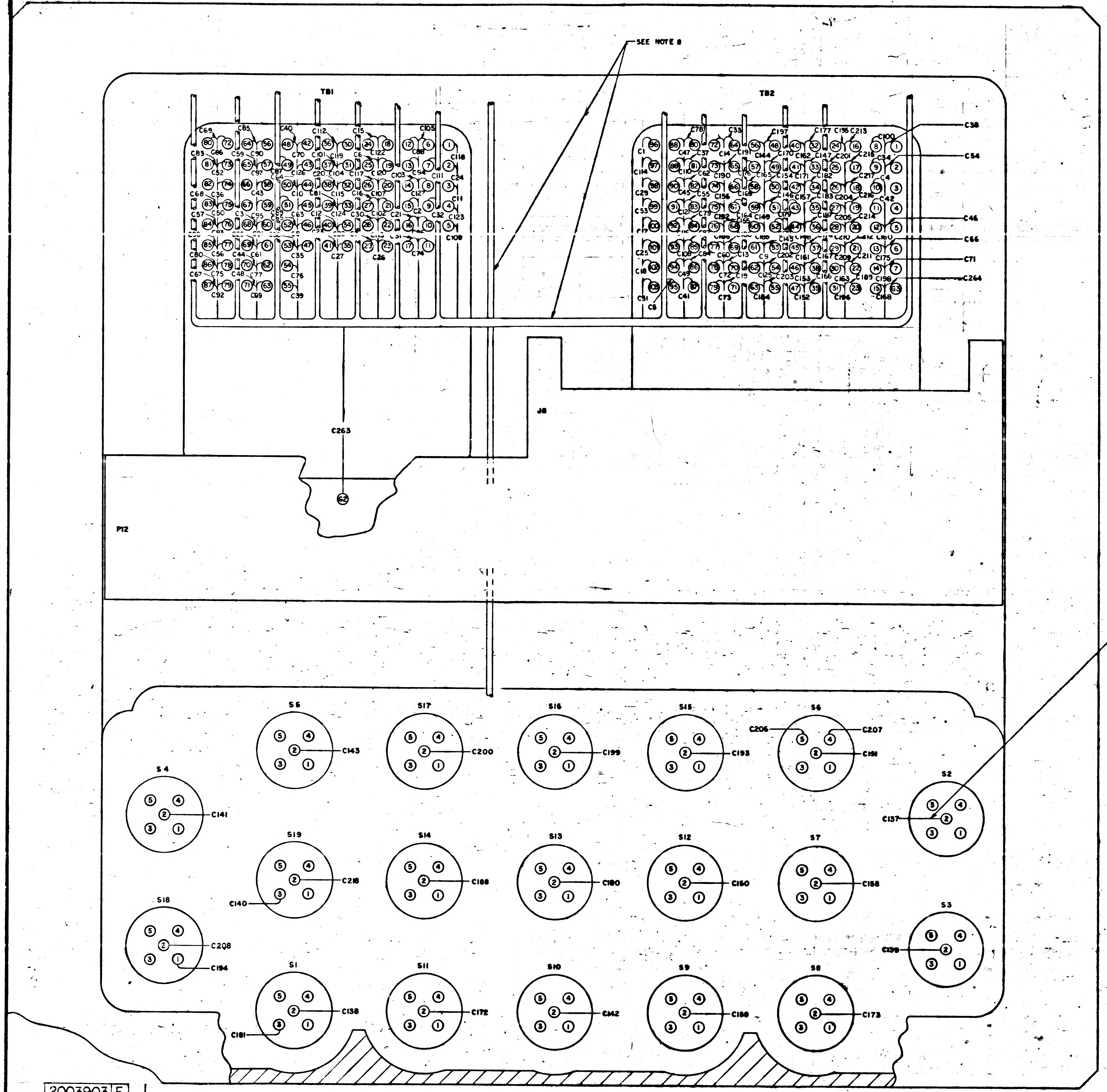
FRONT HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230 SIZE J NASA DRAWING NO. 2003903
SCALE 1/1 WT SHEET 1 OF 3

2003903 E

2003903 E

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22463 DR R.D. Zentel CHK ASV BM		
B	REVISED PER TDRR 23230 DR CABarr CHK CAP BM		
C	REVISED PER TDRR 24665 DR R.D. Zentel CHK CAP BM		
D	REVISED PER TDRR 25032 DR J.P.I. CHK BM	4/6/66	
E	REVISED PER TDRR 26856 DR CHK R.V.E. BM		


SEE NOTE 8
TB1
TB2
C38
C54
C46
C66
C71
C264
J8
C263
62
P12
SEE NOTE 9
S5
C143
S17
C200
S16
C199
S15
C193
S6
C206
C207
C191
S4
C141
S2
C137
S19
C218
C140
S14
C188
S13
C190
S12
C150
S7
C158
S18
C208
C194
S3
C139
S1
C138
C181
S11
C172
S10
C142
S9
C186
S8
C173

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
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NEXT ASSY | USED ON
APPLICATION

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DRAWN R.D. Zentel DATE
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APPROVAL
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MIT APPROVAL

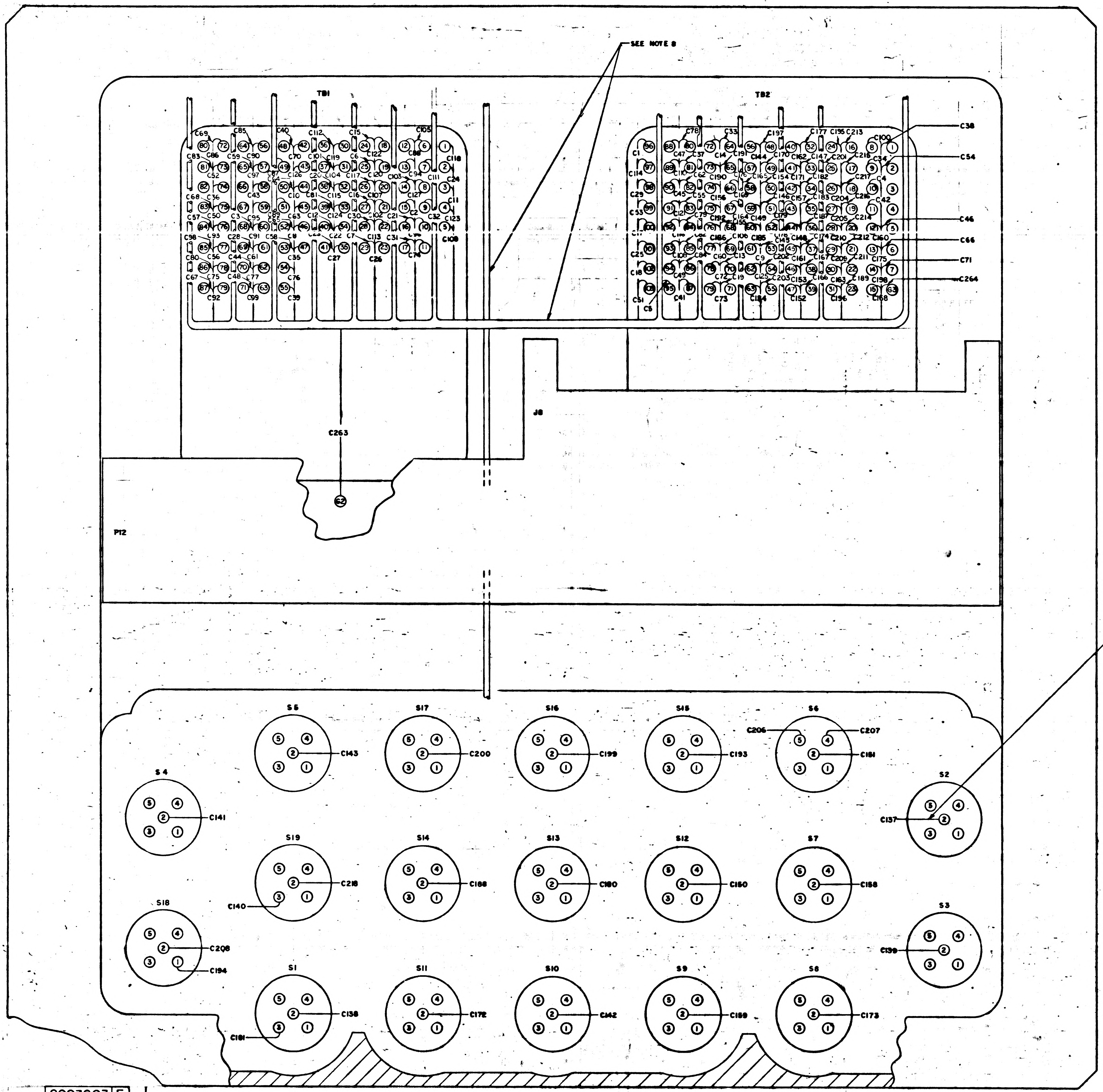
MANNED SPACECRAFT CENTER
HOUSTON TEXAS

FRONT HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO 80230 SIZE J NASA DRAWING NO 2003903
SCALE NONE WT SHEET 2 OF 3

2003903 E

F2/2


SEE NOTE 8
TB1
TB2
C38
C54
C46
C66
C71
C264
J8
C263
P12
SEE NOTE 9
S5
C143
S17
C200
S16
C199
S15
C193
S6
C206
C207
C181
S4
C141
S2
C137
S19
C218
C140
S14
C188
S13
C180
S12
C150
S7
C158
S18
C208
C194
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C139
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C138
C181
S11
C172
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C142
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C159
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C173

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

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APPLICATION

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2003903 E

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2003903 E

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22463 DR CHK APPD		
B	REVISED PER TDRR 23230 DR CHK		
C	REVISED PER TDRR 24665 DR CHK		
D	REVISED PER TDRR 25032 DR CHK	4/4/66	
E	REVISED PER TDRR 26855 DR CHK		

LEAD ELECTRICAL

COND IDENT	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C1	-131	32	WHT	24	AR	TB2-96	SEE NOTE 6
C2	-132					TB1-15	
C3	-133					TB1-68	
C4	-134					TB2-10	
C5	-127					TB2-95	
C6	-128					TB1-25	
C7	-129					TB1-29	
C8	-130					TB1-46	
C9	-123					TB2-61	
C10	-124					TB1-44	
C11	-125					TB1-3	
C12	-126					TB1-40	
C13	-119					TB2-70	
C14	-120					TB2-72	
C15	-121					TB1-24	
C16	-122					TB1-27	
C17	-115					TB2-100	
C18	-116					TB2-102	
C19	-117					TB2-71	
C20	-118					TB1-38	
C21	-111					TB1-16	
C22	-112					TB1-34	
C23	-113					TB1-41	
C24	-114					TB1-2	
C25	-107					TB2-101	
C26	-108					TB1-23	
C27	-109					TB1-35	
C28	-110					TB1-69	
C29	-103					TB2-98	
C30	-104					TB1-28	
C31	-105					TB1-17	
C32	-106					TB1-9	
C33	-99					TB2-64	
C34	-100					TB2-9	
C35	-101					TB1-47	
C36	-102					TB1-74	
C37	-95					TB2-81	
C38	-96					TB2-1	
C39	-97					TB1-55	
C40	-98					TB1-48	
C41	-91					TB2-87	
C42	-92					TB2-11	
C43	-93					TB1-58	
C44	-94					TB1-70	
C45	-87					TB2-90	
C46	-88					TB2-5	
C47	-89					TB2 88	
C48	-90					TB1-71	
C49	-83					TB2-94	
C50	-84					TB1-75	
C51	-85					TB2-103	
C52	-86					TB1-73	
C53	-79					TB2-99	
C54	-80					TB2-2	
C55	-81					TB2 83	
C56	-82					TB1-77	
C57	-73					TB1-84	
C58	-74					TB1-53	
C59	-75					TB1-65	
C60	-76					TB2-77	
C61	-77					TB1-61	
C62	-78					TB2-82	
C63	-67					TB1-45	
C64	-68					TB1-50	
C65	-69					TB1-52	
C66	-70					TB2-6	
C67	-71					TB1-87	
C68	-72					TB1-83	
C69	-61					TB1-80	
C70	-62					TB1-42	
C71	-63					TB2-7	
C72	-64					TB2-78	
C73	-65					TB2-79	
C74	-66					TB1-11	
C75	-55					TB1-78	
C76	-56					TB1-54	
C77	-57					TB1-62	
C78	-58					TB2-80	
C79	-59					TB2-84	
C80	-60					TB1-86	
C81	-50					TB1-39	
C82	-51					TB2-85	
C83	-52					TB1-81	
C84	-53					TB2-86	
C85	-54					TB1-64	
C86	-43					TB1-72	
C87	-44					TB1-49	
C88	-45	32	WHT	24	AR	TB1-12	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS	
C89	SEE NOTE 6	P12-46	32	WHT	24	AR	TB1-51	SEE NOTE 6	
C90		-47					TB1-56		
C91		-48					TB1-60		
C92		-37					TB1-79		
C93		-38					TB1-76		
C94		-39					TB1-13		
C95		-40					TB1-59		
C96		-41					TB1-10		
C97		-42					TB1-57		
C98		-31					TB1-85		
C99		-32					TB1-63		
C100		-33					TB2-8		
C101		-34					TB1-37		
C102		-35					TB1-21		
C103		-36					TB1-14		
C104		-25					TB1-31		
C105		-27					TB1-6		
C106		-28					TB2-69		
C107		-29					TB1-20		
C108		-30					TB2-93		
C109		-21					TB1-5		
C110		-22					TB2-89		
C111		-23					TB1-7		
C112		-24					TB1-36		
C113		-13					TB1-22		
C114		-15					TB2-97		
C115		-16					TB1-32		
C116		-17					TB2-92		
C117		-18					TB1-26		
C118		-7					TB1-1		
C119		-9					TB1-30		
C120		-10					TB1-19		
C121		-11					TB2-91		
C122		-12					TB1-18		
C123		-1					TB1-4		
C124		-3					TB1-33		
C125		-4					TB2-62		
C126		-5					TB1-43		
C127		P12-6	32	WHT	24		TB1-8		
C128	SEE NOTE 5	S16-1	35	YEL	26		S17-3	SEE NOTE 5	
C129	SEE NOTE 5	S5-4	57	RED	26		S19-4	TWIST	SEE NOTE 5
C130		S5-5	58	ORN			S19-5		
C131		S19-4	57	RED			S1-4	TWIST	
C132		S19-5	58	ORN			S1-5		
C133		S1-4	57	RED			S18-4	TWIST	
C134		S1-5	58	ORN			S18-5		
C135	SEE NOTE 5	S18-4	57	RED			S4-4	TWIST	
C136		S18-5	58	ORN			S4-5		
C137	SEE NOTE 5	J8-3	33	WHT			S2-2	SEE NOTE 5	
C138		-5					S1-2		
C139		-8					S3-2		
C140		-9					S19-3		
C141		-10					S4-2		
C142		-11					S10-2		
C143		J8-13	33		26		S5-2		
C144	SEE NOTE 6	P12-135	32		24		TB2-56	SEE NOTE 6	
C145		-136					TB2-53		
C146		-137					TB2-51		
C147		-138					TB2-33		
C148		-139					TB2-44		
C149		P12-140	32		24		TB2-59		
C150	SEE NOTE 5	J8-14	33		26		S12-2	SEE NOTE 5	
C151		J8-15	33		26		S6-2		
C152	SEE NOTE 6	P12-141	32		24		TB2-47	SEE NOTE 6	
C153		-142					TB2-46		
C154		-143					TB2-50		
C155		-144					TB2-68		
C156		-145					TB2-74		
C157		P12-146	32		24		TB2-42		
C158	SEE NOTE 5	J8-16	33		26		S7-2	SEE NOTE 5	
C159		J8-17	33	WHT	26		S9-2		
C160	SEE NOTE 6	P12-147	32	WHT	24		TB2-12	SEE NOTE 6	
C161		-148					-45		
C162		-149					-40		
C163		-150					-30		
C164		-151					-67		
C165		-152					-58		
C166		-153					-39		
C167		-154					-38		
C168		-155					-15		
C169		-156					-66		
C170		-157					-49		
C171		P12-158	32	WHT	24		TB2-41		
C172	SEE NOTE 5	J8-18	33	WHT	26		S11-2	SEE NOTE 5	
C173		J8-19	33	WHT	26		S8-2		
C174	SEE NOTE 6	P12-159	32	WHT	24		TB2-37	SEE NOTE 6	
C175		P12-160	32	WHT	24		TB2-13		
C176		P12-161	32	WHT	24	AR	TB2-57		

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS	
C177	SEE NOTE 6	P12-162	32	WHT	24	AR	TB2-32	SEE NOTE 6	
C178		P12-163	32	WHT	24		TB2-52		
C179		P12-164	32	WHT	24		TB2-43		
C180	SEE NOTE 5	J8-20	33	WHT	26		S13-2	SEE NOTE 5	
C181		J8-21	33	WHT	26		S1-3		
C182	SEE NOTE 6	P12-165	32	WHT	24		TB2-34	SEE NOTE 6	
C183		-166					-35		
C184		-167					-63		
C185		-168					-60		
C186		-169					-76		
C187		P12-170	32		24		TB2-36		
C188	SEE NOTE 5	J8-22	33		26		S14-2	SEE NOTE 5	
C189	SEE NOTE 6	P12-190	32		24		TB2-23	SEE NOTE 6	
C190		-174					-73		
C191		-175					-65		
C192		P12-176	32		24		TB2-75		
C193	SEE NOTE 5	J8-24	33		26		S15-2	SEE NOTE 5	
C194		J8-25	33		26		S18-1		
C195	SEE NOTE 6	P12-196	32		24		TB2-24	SEE NOTE 6	
C196		-192					-31		
C197		-204					-48		
C198		P12-182	32		24		TB2-14		
C199	SEE NOTE 5	J8-26	33		26		S16-2	SEE NOTE 5	
C200		J8-27	33		26		S17-2		
C201	SEE NOTE 6	P12-185	32		24		TB2-25	SEE NOTE 6	
C202		-210					-54		
C203		-187					-55		
C204		-195					-26		
C205		-181	32	WHT	24		TB2-27		
C206	SEE NOTE 5	-193	58	ORN	26		S6-5	TWIST	SEE NOTE 5
C207		P12-194	57	RED	26		S6-4		
C208	SEE NOTE 5	J8-30	33	WHT	26		S18-2	SEE NOTE 5	
C209	SEE NOTE 6	P12-197	32	WHT	24		TB2-29	SEE NOTE 6	
C210		-209					-28		
C211		-191					-22		
C212		-201					-21		
C213		-202					-16		
C214		-203					-20		
C215		-186					-17		
C216		-207					-19		
C217		-208	32	WHT	24		TB2-18		
C218	SEE NOTE 5	P12-179	33	WHT	26		S19-2	SEE NOTE 5	
C219		S1-1	35	YEL	26		S2-3		
C220		S2-1					S3-3		
C221		S3-1					S4-3		
C222		S4-1					S5-3		
C223		S5-1					S6-3		
C224		S6-1					S7-3		
C225		S7-1					S8-3		
C226		S8-1					S9-3		
C227		S9-1					S10-3		
C228		S10-1					S11-3		
C229		S11-1					S12-3		
C230		S12-1					S13-3		
C231		S13-1					S14-3		
C232		S14-1					S15-3		
C233		S15-1	35	YEL			S16-3		
C234	SEE NOTE 5	S17-4	57	RED			S5-4	TWIST	SEE NOTE 5
C235		S17-5	58	ORN			S5-5		
C236		S6-4	57	RED			S2-4	TWIST	
C237		S6-5	58	ORN			S2-5		
C238		S2-4	57	RED			S7-4	TWIST	
C239		S2-5	58	ORN			S7-5		
C240		S7-4	57	RED			S3-4	TWIST	
C241		S7-5	58	ORN			S3-5		
C242		S3-4	57	RED			S8-4	TWIST	
C243		S3-5	58	ORN			S8-5		
C244		S8-4	57	RED			S9-4	TWIST	
C245		S8-5	58	ORN			S9-5		
C246		S9-4	57	RED			S12-4	TWIST	
C247		S9-5	58	ORN			S12-5		
C248		S12-4	57	RED			S15-4	TWIST	
C249		S12-5	58	ORN			S15-5		
C250		S15-4	57	RED			S16-4	TWIST	
C251		S15-5	58	ORN			S16-5		
C252		S16-4	57	RED			S13-4	TWIST	
C253		S16-5	58	ORN			S13-5		
C254		S13-4	57	RED			S10-4	TWIST	
C255		S13-5	58	ORN			S10-5		
C256		S10-4	57	RED			S11-4	TWIST	
C257		S10-5	58	ORN			S11-5		
C258		S11-4	57	RED			S14-4	TWIST	
C259		S11-5	58	ORN			S14-5		
C260	SEE NOTE 5	S14-4	57	RED			S17-4	TWIST	
C261		S14-5	58	ORN	26		S17-5		
C262	SEE NOTE 5	S17-1	35	YEL	30	AR	S18-3	SEE NOTE 5	
C263	SEE NOTE 6	P12 184	32	WHT	24	AR	62	SEE NOTE 6	
C264		P12-183	61	WHT	26	AR	63	SEE NOTE 5	

D C B A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT HOUSING ASSEMBLY

AGC DSKY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003903
SCALE NONE
WT
SHEET 3 OF 3

2003903 E

4 2 1

F2/2

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C1	SEE NOTE 6	P12-131	32	WHT	24	AR	TB2-96	SEE NOTE 6
C2		-132					TB1-15	
C3		-133					TB1-68	
C4		-134					TB2-10	
C5		-127					TB2-95	
C6		-128					TB1-25	
C7		-129					TB1-29	
C8		-130					TB1-46	
C9		-123					TB2-61	
C10		-124					TB1-44	
C11		-125					TB1-3	
C12		-126					TB1-40	
C13		-119					TB2-70	
C14		-120					TB2-72	
C15		-121					TB1-24	
C16		-122					TB1-27	
C17		-115					TB2-100	
C18		-116					TB2-102	
C19		-117					TB2-71	
C20		-118					TB1-38	
C21		-111					TB1-16	
C22		-112					TB1-34	
C23		-113					TB1-41	
C24		-114					TB1-2	
C25		-107					TB2-101	
C26		-108					TB1-23	
C27		-109					TB1-35	
C28		-110					TB1-69	
C29		-103					TB2-98	
C30		-104					TB1-28	
C31		-105					TB1-17	
C32		-106					TB1-9	
C33		-99					TB2-64	
C34		-100					TB2-9	
C35		-101					TB1-47	
C36		-102					TB1-74	
C37		-95					TB2-81	
C38		-96					TB2-1	
C39		-97					TB1-55	
C40		-98					TB1-48	
C41		-91					TB2-87	
C42		-92					TB2-11	
C43		-93					TB1-58	
C44		-94					TB1-70	
C45		-87					TB2-90	
C46		-88					TB2-5	
C47		-89					TB2-88	
C48		-90					TB1-71	
C49		-83					TB2-94	
C50		-84					TB1-75	
C51		-85					TB2-103	
C52		-86					TB1-73	
C53		-79					TB2-99	
C54		-80					TB2-2	
C55		-81					TB2 83	
C56		-82					TB1-77	
C57		-73					TB1-84	
C58		-74					TB1-53	
C59		-75					TB1-65	
C60		-76					TB2-77	
C61		-77					TB1-61	
C62		-78					TB2-82	
C63		-67					TB1-45	
C64		-68					TB1-90	
C65		-69					TB1-52	
C66		-70					TB2-6	
C67		-71					TB1-87	
C68		-72					TB1-83	
C69		-61					TB1-80	
C70		-62					TB1-42	
C71		-63					TB2-7	
C72		-64					TB2-78	
C73		-65					TB2-79	
C74		-66					TB1-11	
C75		-55					TB1-78	
C76		-56					TB1-54	
C77		-57					TB1-62	
C78		-58					TB2-80	
C79		-59					TB2-84	
C80		-60					TB1-86	
C81		-50					TB1-39	
C82		-51					TB2-85	
C83		-52					TB1-81	
C84		-53					TB2-86	
C85		-54					TB1-64	
C86		-43					TB1-72	
C87		-44					TB1-49	
C88		P12-45	32	WHT	24	AR	TB1-12	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C89	SEE NOTE 6	P12-46	32	WHT	24	AR	TB1-51	SEE NOTE 6
C90		-47					TB1-56	
C91		-48					TB1-60	
C92		-37					TB1-79	
C93		-38					TB1-76	
C94		-39					TB1-13	
C95		-40					TB1-59	
C96		-41					TB1-10	
C97		-42					TB1-57	
C98		-31					TB1-85	
C99		-32					TB1-63	
C100		-33					TB2-8	
C101		-34					TB1-37	
C102		-35					TB1-21	
C103		-36					TB1-14	
C104		-25					TB1-31	
C105		-27					TB1-6	
C106		-28					TB2-69	
C107		-29					TB1-20	
C108		-30					TB2-93	
C109		-21					TB1-5	
C110		-22					TB2-89	
C111		-23					TB1-7	
C112		-24					TB1-36	
C113		-13					TB1-22	
C114		-15					TB2-97	
C115		-16					TB1-32	
C116		-17					TB2-92	
C117		-18					TB1-26	
C118		-7					TB1-1	
C119		-9					TB1-30	
C120		-10					TB1-19	
C121		-11					TB2-91	
C122		-12					TB1-18	
C123		-1					TB1-4	
C124		-3					TB1-33	
C125		-4					TB2-62	
C126		-5					TB1-43	
C127		P12-6	32	WHT	24		TB1-8	
C128	SEE NOTE 5	S16-1	35	YEL	26		S17-3	SEE NOTE 5
C129	SEE NOTE 5	S5-4	57	RED	26		S19-4	TWIST
C130		S5-5	58	ORN			S19-5	
C131		S19-4	57	RED			S1-4	TWIST
C132		S19-5	58	ORN			S1-5	
C133		S1-4	57	RED			S18-4	TWIST
C134		S1-5	58	ORN			S18-5	
C135	SEE NOTE 5	S18-4	57	RED			S4-4	TWIST
C136		S18-5	58	ORN			S4-5	
C137	SEE NOTE 5	J8-3	33	WHT			S2-2	SEE NOTE 5
C138		-5					S1-2	
C139		-8					S3-2	
C140		-9					S19-3	
C141		-10					S4-2	
C142		-11					S10-2	
C143		J8-13	33		26		S5-2	
C144	SEE NOTE 6	P12-135	32		24		TB2-56	SEE NOTE 6
C145		-136					TB2-53	
C146		-137					TB2-51	
C147		-138					TB2-33	
C148		-139					TB2-44	
C149		P12-140	32		24		TB2-59	
C150	SEE NOTE 5	J8-14	33		26		S12-2	SEE NOTE 5
C151		J8-15	33		26		S6-2	
C152	SEE NOTE 6	P12-141	32		24		TB2-47	SEE NOTE 6
C153		-142					TB2-46	
C154		-143					TB2-50	
C155		-144					TB2-68	
C156		-145					TB2-74	
C157		P12-146	32		24		TB2-42	
C158	SEE NOTE 5	J8-16	33		26		S7-2	SEE NOTE 5
C159		J8-17	33	WHT	26		S9-2	
C160	SEE NOTE 6	P12-147	32	WHT	24		TB2-12	SEE NOTE 6
C161		-148					-45	
C162		-149					-40	
C163		-150					-30	
C164		-151					-67	
C165		-152					-58	
C166		-153					-39	
C167		-154					-38	
C168		-155					-15	
C169		-156					-66	
C170		-157					-49	
C171		P12-158	32	WHT	24		TB2-41	
C172	SEE NOTE 5	J8-18	33	WHT	26		S11-2	SEE NOTE 5
C173		J8-19	33	WHT	26		S8-2	
C174	SEE NOTE 6	P12-159	32	WHT	24		TB2-37	SEE NOTE 6
C175		P12-160	32	WHT	24		TB2-13	
C176		P12-161	32	WHT	24	AR	TB2-57	

SEE NOTE 5

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C177	SEE NOTE 6	P12-162	32	WHT	24	AR	TB2-32	SEE NOTE 6
C178		P12-163	32	WHT	24		TB2-52	
C179		P12-164	32	WHT	24		TB2-43	
C180	SEE NOTE 5	J8-20	33	WHT	26		S13-2	SEE NOTE 5
C181		J8-21	33	WHT	26		S1-3	
C182	SEE NOTE 6	P12-165	32	WHT	24		TB2-34	SEE NOTE 6
C183		-166					-35	
C184		-167					-63	
C185		-168					-60	
C186		-169					-76	
C187		P12-170	32		24		TB2-36	
C188	SEE NOTE 5	J8-22	33		26		S14-2	SEE NOTE 5
C189	SEE NOTE 6	P12-190	32		24		TB2-23	SEE NOTE 6
C190		-174					-73	
C191		-175					-65	
C192		P12-176	32		24		TB2-75	
C193	SEE NOTE 5	J8-24	33		26		S15-2	SEE NOTE 5
C194		J8-25	33		26		S18-1	
C195	SEE NOTE 6	P12-196	32		24		TB2-24	SEE NOTE 6
C196		-192					-31	
C197		-204					-48	
C198		P12-182	32		24		TB2-14	
C199	SEE NOTE 5	J8-26	33		26		S16-2	SEE NOTE 5
C200		J8-27	33		26		S17-2	
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C203		-187					-55	
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C207		P12-194	57	RED	26		S6-4	
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C210		-209					-28	
C211		-191					-22	
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C213		-202					-16	
C214		-203					-20	
C215		-186					-17	
C216		-207					-19	
C217		-208	32	WHT	24		TB2-18	
C218	SEE NOTE 5	P12-179	33	WHT	26		S19-2	SEE NOTE 5
C219		S1-1	35	YEL	26		S2-3	
C220		S2-1					S3-3	
C221		S3-1					S4-3	
C222		S4-1					S5-3	
C223		S5-1					S6-3	
C224		S6-1					S7-3	
C225		S7-1					S8-3	
C226		S8-1					S9-3	
C227		S9-1					S10-3	
C228		S10-1					S11-3	
C229		S11-1					S12-3	
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C234	SEE NOTE 5	S17-4	57	RED			S5-4	TWIST
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C236		S6-4	57	RED			S2-4	TWIST
C237		S6-5	58	ORN			S2-5	
C238		S2-4	57	RED			S7-4	TWIST
C239		S2-5	58	ORN			S7-5	
C240		S7-4	57	RED			S3-4	TWIST
C241		S7-5	58	ORN			S3-5	
C242		S3-4	57	RED			S8-4	TWIST
C243		S3-5	58	ORN			S8-5	
C244		S8-4	57	RED			S9-4	TWIST
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C246		S9-4	57	RED			S12-4	TWIST
C247		S9-5	58	ORN			S12-5	
C248		S12-4	57	RED			S15-4	TWIST
C249		S12-5	58	ORN			S15-5	
C250		S15-4	57	RED			S16-4	TWIST
C251		S15-5	58	ORN			S16-5	
C252		S16-4	57	RED			S13-4	TWIST
C253		S16-5	58	ORN			S13-5	
C254		S13-4	57	RED			S10-4	TWIST
C255		S13-5	58	ORN			S10-5	
C256		S10-4	57	RED			S11-4	TWIST
C257		S10-5	58	ORN			S11-6	
C258		S11-4	57	RED			S14-4	TWIST
C259		S11-5	58	ORN			S14-5	
C260	SEE NOTES 5	S14-4	57	RED			S17-4	TWIST
C261		S14-5	58	ORN	26		S17-5	
C262	SEE NOTE 5	S17-1	35	YEL	30	AR	S18-3	SEE NOTE 5
C263	SEE NOTE 6	P12-184	32	WHT	24	AR	62	SEE NOTE 6
C264		P12-183	61	WHT	26	AR	63	SEE NOTE 5

SEE NOTE 5

SEE NOTE 5

QTY REQD	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

NEXT ASSY | USED ON
APPLICATION

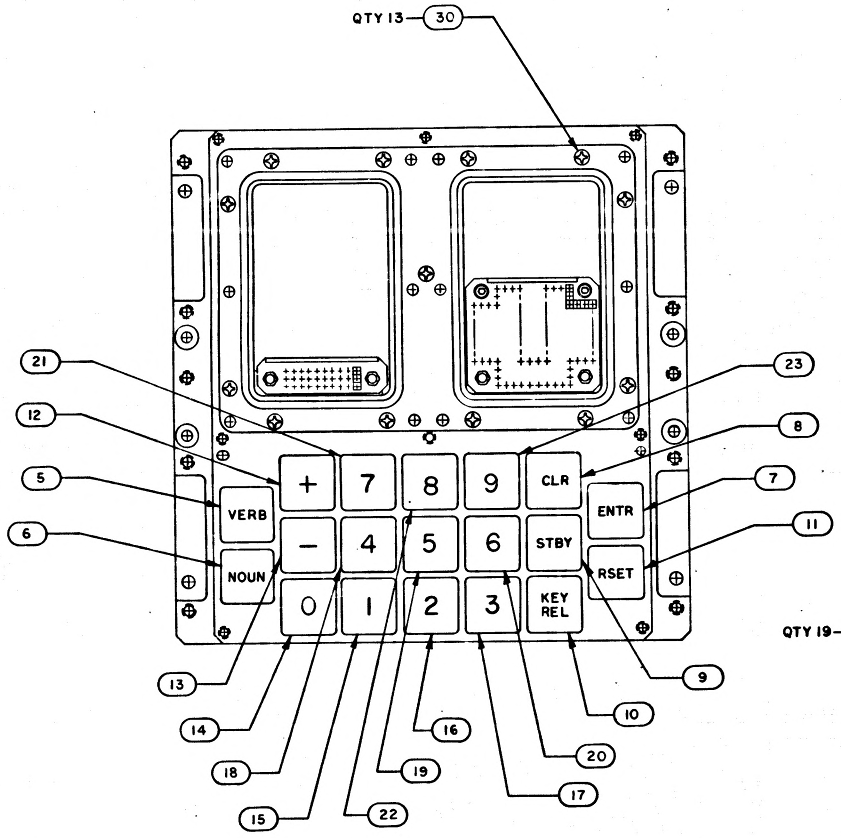
DRAWN
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

2003903 E

2003903

SYM	DESCRIPTION	DATE	APPROVAL

REVISIONS 2



QTY 13 — 30
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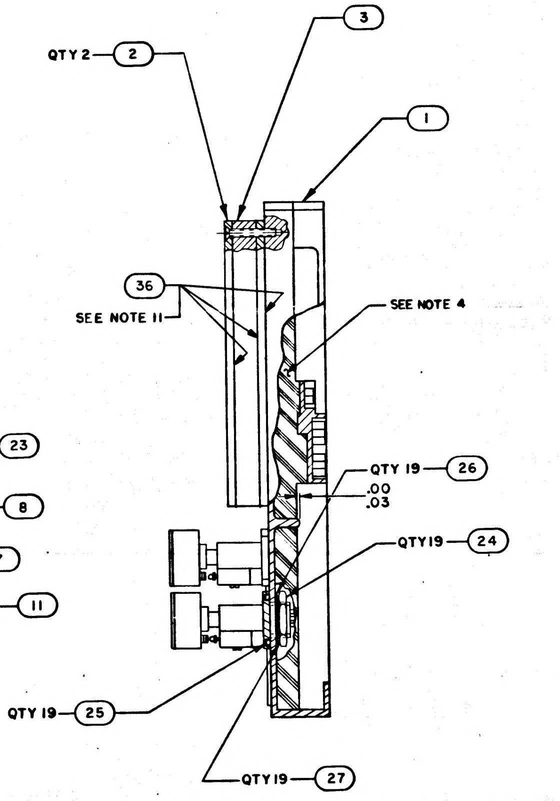

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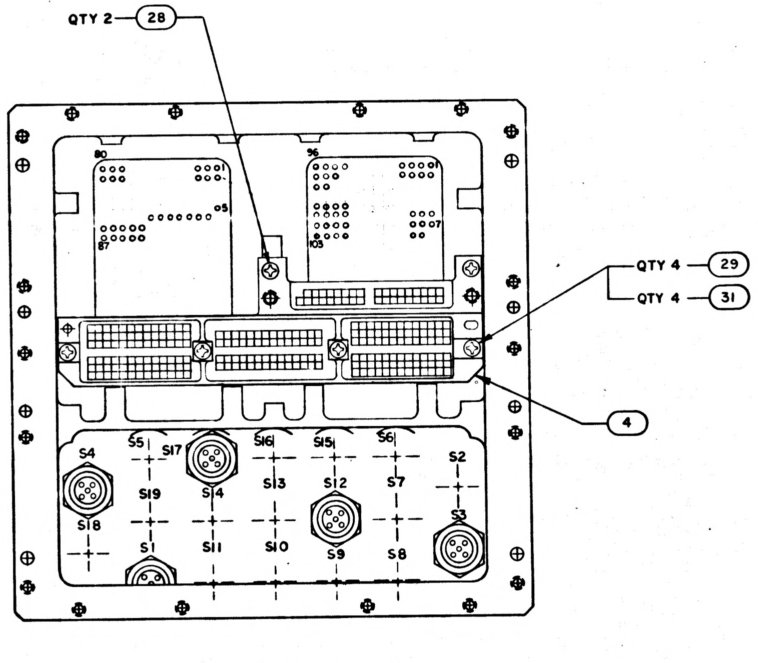

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VIEW SHOWN WITH POTTING REMOVED

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE FOR FIND NO. 24 TO BE 2.5 TO 3.0 FT-LBS
3. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
4. ENCAPSULATE INDICATED AREAS PER ND1002236
5. SOLDER PER ND1002071 USING SOLDER PER ND1002075
6. WELD PER ND1002005
7. AR DENOTES AS REQUIRED
8. BOND FIND NO.32 & 33 TO FIND NO.1 PER ND1002004 TYPE IV
9. DRESS AND TRIM AT ASSEMBLY USING FIND NO. 34
10 WIPE PER ND100203 USING LEAD ELECTRICAL
11. APPLY FIND NO.36 TO INDICATED SURFACES OF FIND NO. 2. DO NOT APPLY TO BONDED RUBBER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	2005901	INTERCONNECTING DIAGRAM	REF
AR	1006879	SILICONE COMPOUND	36
AR	1010940-004	WIRE,INSULATED	35
AR	1012507-003	TAPE, LACING	34
AR	1010807-22	WIRE, INSULATED	33
AR	1010848-2	WIRE, INSULATED	32
4	NAS620-6L	WASHER, FLAT	31
13	MS35200-19	SCREW, FLAT HD, CROSS RECESSED	30
4	MS35216-27	SCREW, PAN HD, CROSS RECESSED	29
2	MS35200-25	SCREW, FLAT HD, CROSS RECESSED	28
19	1010635-003	WASHER, LOCK	27
19	2004940	WASHER, PLAIN	26
19	1000159-7	O RING SEAL	25
19	2004942	NUT, HEX	24
1	2003924-211	SWITCH, ASSEMBLY PUSHBUTTON	23
1	-191		22
1	-181		21
1	-171		20
1	-161		19
1	-151		18
1	-141		17
1	-131		16
1	-121		15
1	-111		14
1	-091		13
1	-081		12
1	-071		11
1	-061		10
1	-051		9
1	-041		3
1	-031		7
1	-021		6
1	2003924-011	SWITCH, ASSEMBLY PUSHBUTTON	5
1	2003915-011	CONNECTOR, PLATE ASSEMBLY	4
1	2003912-011	ADAPTER, PLATE ASSEMBLY	3
2	1006351	GASKET, PREFORMED	2
1	2004918-011	HOUSING, FRONT	1

011 LIST OF MATERIALS

2003903

2H

NEXT ASSY	USED ON
2003900	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
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MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT

DRAWN R. Hubard DATE 7 Jul 65
CHECKED Logan 12 Jul 65
APPROVAL 12 Jul 65
APPROVAL Eldon C Hall 13 July 65
NASA APPROVAL WJ Rhine
MIT APPROVAL
MIT APPROVAL 7-13-65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

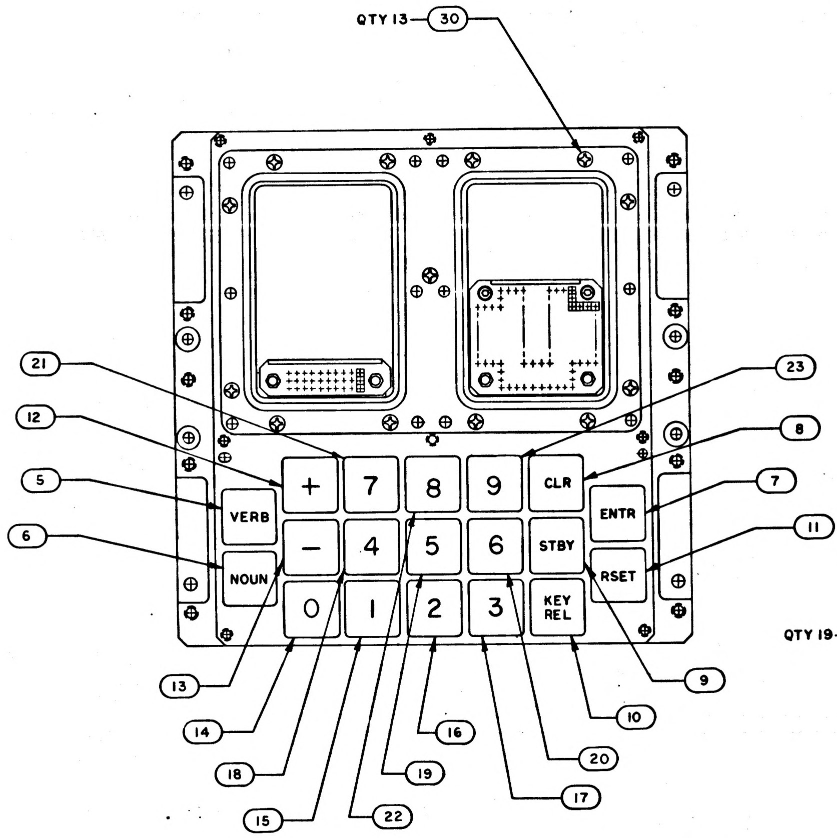
FRONT HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003903
SCALE 1/1
WT
SHEET 1 OF 3

2003903

E-2

2003903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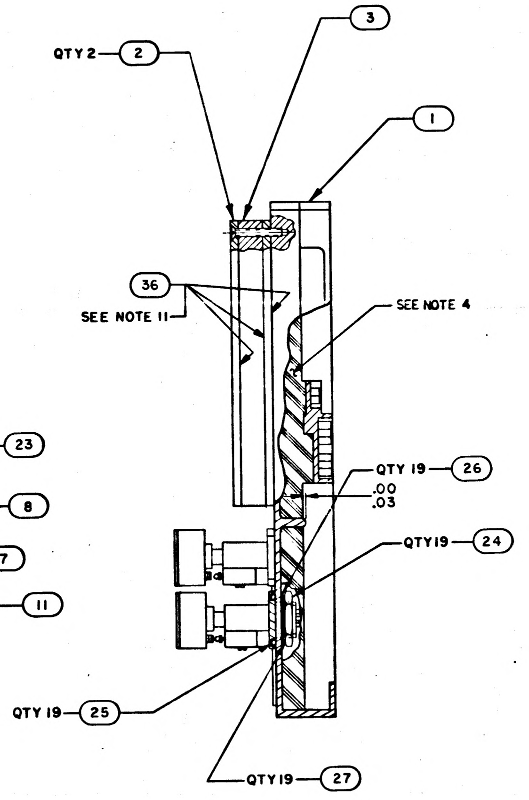
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SEE NOTE 4
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QTY19
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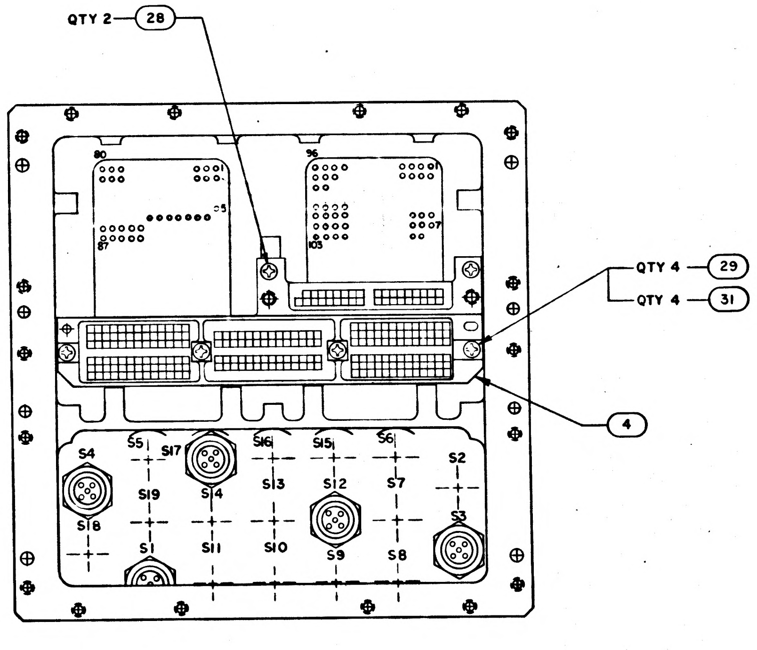
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S3

VIEW SHOWN WITH POTTING REMOVED

NOTES
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6. WELD PER ND1002005
7. AR DENOTES AS REQUIRED
8. BOND FIND NO.32 & 33 TO FIND NO.1 PER ND1002004 TYPE IV
9. DRESS AND TRIM AT ASSEMBLY USING FIND NO. 34
10 WIRE PER ND1002031 USING LEAD ELECTRICAL
11. APPLY FIND NO.36 TO INDICATED SURFACES OF FIND NO. 2.
DO NOT APPLY TO BONDED RUBBER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
☒	2005901	INTERCONNECTING DIAGRAM
AR	1006879	SILICONE COMPOUND
AR	1010940-004	WIRE, INSULATED
AR	1012507-003	TAPE, LACING
AR	1010807-22	WIRE, INSULATED
AR	1010848-2	WIRE, INSULATED
4	NAS(20-6L	WASHER, FLAT
13	MS35200-19	SCREW, FLAT HD, CROSS RECESS
4	MS35216-27	SCREW, PAN HD, CROSS RECESS
2	MS35200-25	SCREW, FLAT HD, CROSS RECES
19	1010635-003	WASHER, LOCK
19	2004940	WASHER, PLAIN
19	1000159-7	O RING SEAL
19	2004942	NUT, HEX
1	2003924-211	SWITCH, ASSEMBLY PUSHBUTTO
1	-191	
1	-181	
1	-171	
1	-161	
1	-151	
1	-141	
1	-131	
1	-121	
1	-111	
1	-091	
1	-081	
1	-071	
1	-061	
1	-051	
1	-041	
1	-031	
1	-021	
1	2003924-011	SWITCH, ASSEMBLY PUSHBUTT
1	2003915-011	CONNECTOR, PLATE ASSEMBLY
1	2003912-011	ADAPTER, PLATE ASSEMBLY
2	1006351	GASKET, PREFORMED
1	2004918-011	HOUSING, FRONT

011 LIST OF MATERIAL

NEXT ASSY	USED ON
2003900	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN R. Tuckerd DATE 7 June 65
CHECKED Pagan 11 June 65
APPROVAL
APPROVAL Eldon C Hall 12 July 65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

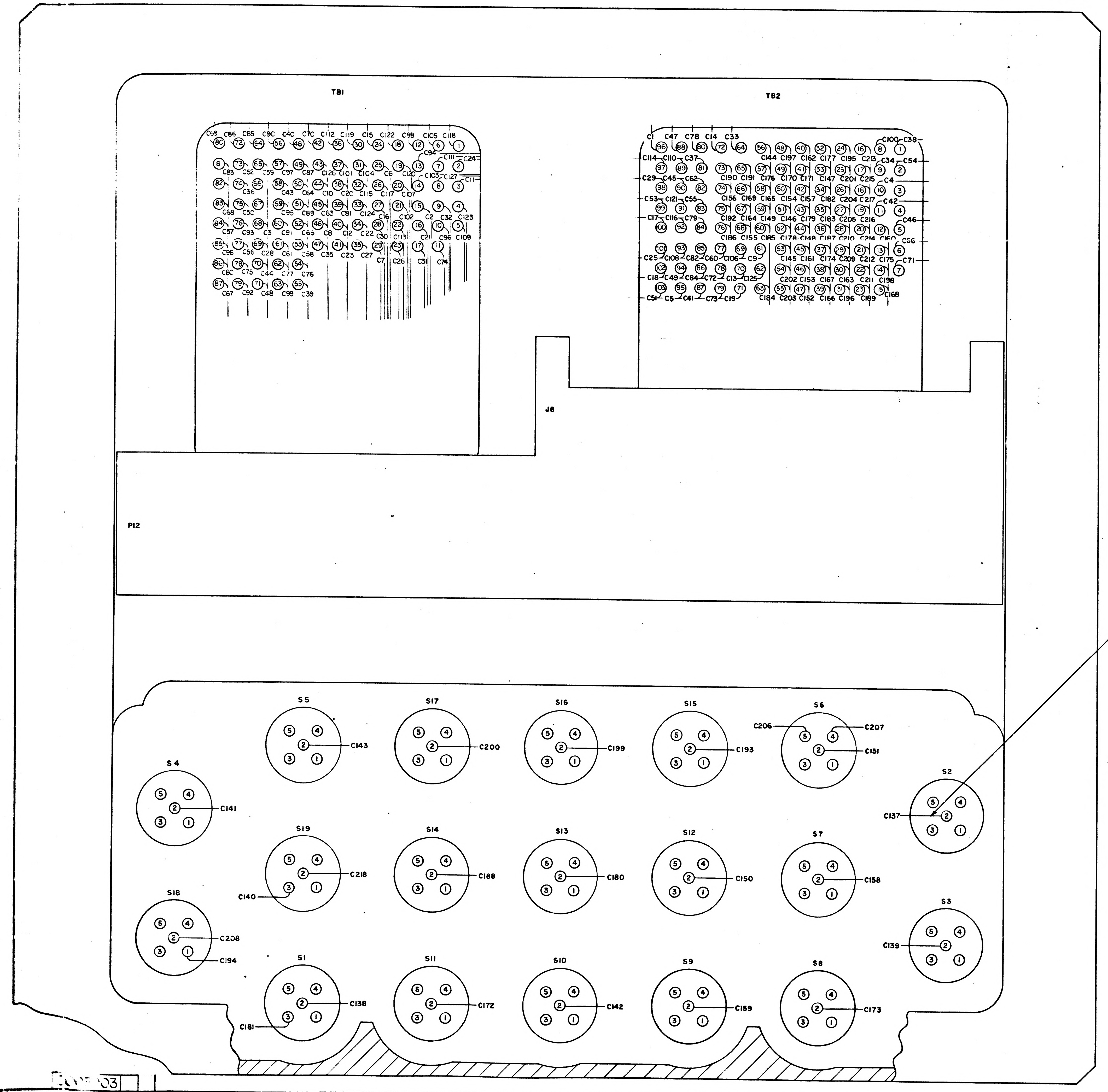
FRONT HOUSING ASS
AGC DSKY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 200390
SCALE 1/1
WT
SHEET

2003903

2003903

SYM	REVISIONS DESCRIPTION	DATE	APPROVAL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TB2
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P12
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S16 C199
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S2 C137
S19 C218 C140
S14 C188
S13 C180
S12 C150
S7 C158
S18 C208 C194
S3 C139
S1 C138 C181
S11 C172
S10 C142
S9 C159
S8 C173
1 2 3 4 5

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN R.D. [illegible] DATE 15 JUNE 65
CHECKED A. Cuypers 19 Jun 65
APPROVAL J. [illegible] 19 Jun 65
APPROVAL Allen C Hall 12 July 65
NASA APPROVAL W.J. [illegible]
MIT APPROVAL [illegible] 7-1?-65
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230 SIZE J NASA DRAWING NO. 2003903
SCALE NONE WT SHEET 2 OF 3

2003903

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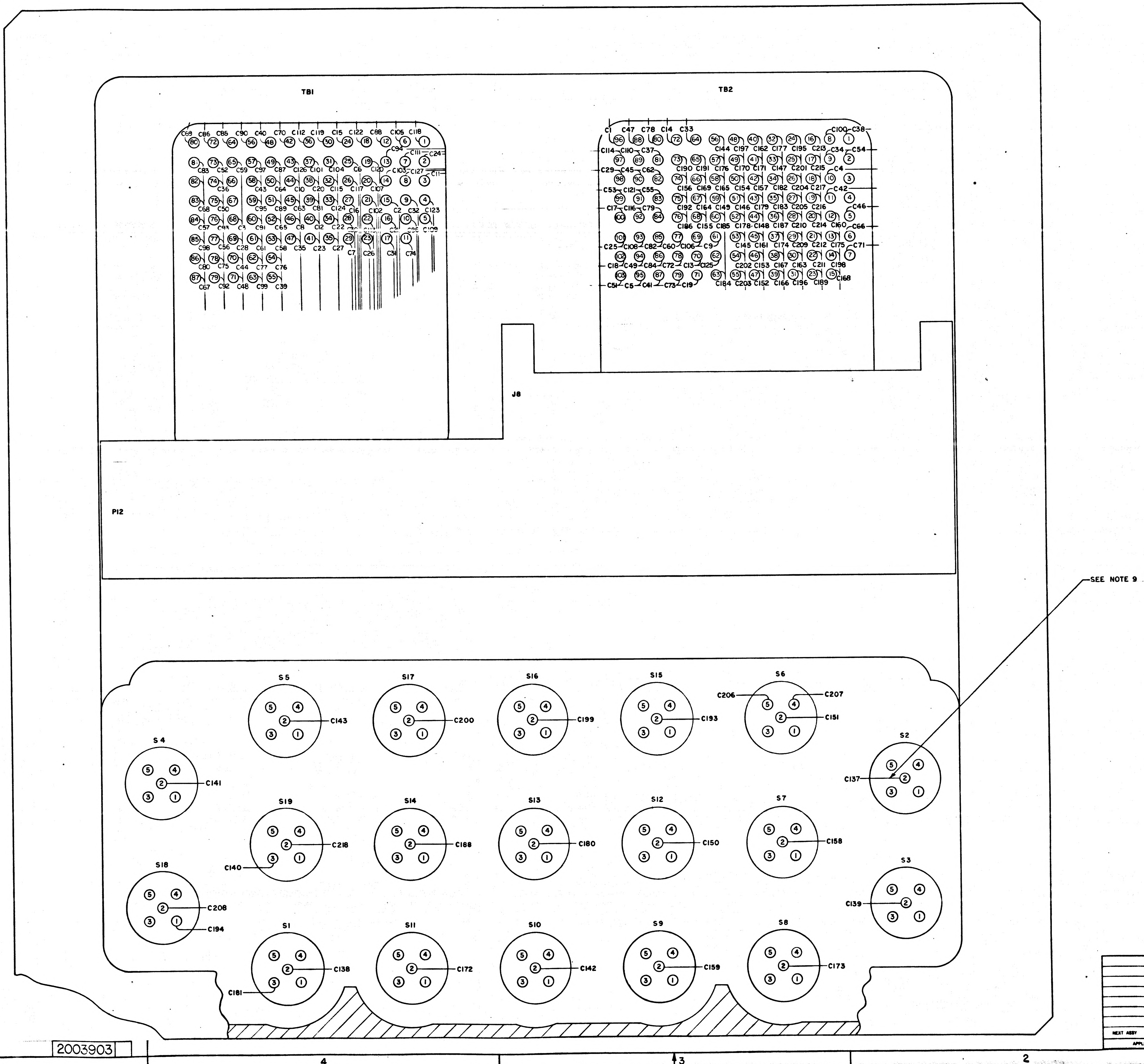
2003903


TB1
TB2
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C1 C47 C78 C14 C33
C100 C38
J8
P12
SEE NOTE 9
S5
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214

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ± ANGLES ± DO NOT SCALE THIS DRAWING	QTY REQD
		MATERIAL	DRAWN
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			APPROVAL
		HEAT TREATMENT	APPROVAL
NEXT ASSY	USED ON	FINAL FINISH	NASA APPROVAL
APPLICATION			

2003903

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2003903

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL

D

C

B

A

	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
				AR	[illegible]	SEE NOTE 6
					[illegible]	
					[illegible]	
					[illegible]	
					TB2-95	
					TB1-25	
					TB1-29	
					TB1-46	
					TB2-51	
					TB1-44	
					TB1-3	
					TB1-40	
					TB2-70	
					TB2-72	
					TB1-24	
					TB1-27	
115					TB2-100	
116					TB2-102	
117					TB2-71	
118					TB1-38	
111					TB1-16	
112					TB1-34	
113					TB1-41	
114					TB1-2	
107					TB2-101	
108					TB1-23	
109					TB1-35	
110					TB1-69	
103					TB2-98	
104					TB1-28	
105					TB1-17	
106					TB1-9	
99					TB2-64	
100					TB2-9	
101					TB1-47	
102					TB1-74	
95					TB2-81	
96					TB2-1	
97					TB1-55	
98					TB1-48	
91					TB2-87	
92					TB2-11	
93					TB1-58	
94					TB1-70	
87					TB2-90	
88					TB2-5	
89					TB2-88	
90					TB1-71	
83					TB2-94	
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-69					TB1-52	
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-72					TB1-83	
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-62					TB1-42	
-63					TB2-7	
-64					TB2-78	
-65					TB2-79	
-66					TB1-11	
-55					TB1-78	
-56					TB1-54	
-57					TB1-62	
-58					TB2-80	
-59					TB2-84	
-60					TB1-86	
-50					TB1-39	
-51					TB2-85	
-52					TB1-81	
-53					TB2-86	
-54					TB1-64	
-43					TB1-72	
-44					TB1-49	
-45	32			AR	TB1-12	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS	
C89	SEE NOTE 6	P12-46	32	WHT	Later	AR	TB1-51	SEE NOTE 6	
C90		-47					TB1-56		
C91		-48					TB1-60		
C92		-37					TB1-79		
C93		-38					TB1-76		
C94		-39					TB1-13		
C95		-40					TB1-59		
C96		-41					TB1-10		
C97		-42					TB1-57		
C98		-31					TB1-85		
C99		-32					TB1-63		
C100		-33					TB2-8		
C101		-34					TB1-37		
C102		-35					TB1-21		
C103		-36					TB1-14		
C104		-25					TB1-31		
C105		-27					TB1-6		
C106		-28					TB2-69		
C107		-29					TB1-20		
C108		-30					TB2-93		
C109		-21					TB1-5		
C110		-22					TB2-89		
C111		-23					TB1-7		
C112		-24					TB1-36		
C113		-13					TB1-22		
C114		-15					TB2-97		
C115		-16					TB1-32		
C116		-17					TB2-92		
C117		-18					TB1-26		
C118		-7					TB1-1		
C119		-9					TB1-30		
C120		-10					TB1-19		
C121		-11					TB2-91		
C122		-12					TB1-18		
C123		-1					TB1-4		
C124		-3					TB1-33		
C125		-4					TB2-62		
C126		-5					TB1-43		
C127		P12-6	32	WHT	Later		TB1-8		
C128	SEE NOTE 5	S16-1	35	YEL	30		S17-3	SEE NOTE 5	
C129	SEE NOTE 5	S5-4	33	WHT	26		S19-4	TWIST	SEE NOTE 5
C130		S5-5					S19-5		
C131		S19-4					S1-4	TWIST	
C132		S19-5					S1-5		
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C134		S1-5					S18-5		
C135	SEE NOTE 5	S18-4					S4-4	TWIST	
C136		S18-5	33	WHT	26		S4-5		
C137	SEE NOTE 10	J8-3	35	YEL	30		S2-2	SEE NOTE 5	
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C139		-8					S3-2		
C140		-9					S19-3		
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C142		-11					S10-2		
C143		J8-13	35	YEL	30		S5-2		
C144	SEE NOTE 6	P12-135	32	WHT	Later		TB2-56	SEE NOTE 6	
C145		-136					TB2-53		
C146		-137					TB2-51		
C147		-138					TB2-33		
C148		-139					TB2-44		
C149		P12-140	32	WHT	Later		TB2-59		
C150	SEE NOTE 10	J8-14	35	YEL	30		S12-2	SEE NOTE 5	
C151		J8-15	35	YEL	30		S6-2		
C152	SEE NOTE 6	P12-141	32	WHT	Later		TB2-47	SEE NOTE 6	
C153		-142					TB2-46		
C154		-143					TB2-50		
C155		-144					TB2-68		
C156		-145					TB2-74		
C157		P12-146	32	WHT	Later		TB2-42		
C158	SEE NOTE 10	J8-16	35	YEL	30		S7-2	SEE NOTE 5	
C159		J8-17	35	YEL	30		S9-2		
C160	SEE NOTE 6	P12-147	32	WHT	Later		TB2-12	SEE NOTE 6	
C161		-148					-45		
C162		-149					-40		
C163		-150					-30		
C164		-151					-67		
C165		-152					-58		
C166		-153					-39		
C167		-154					-38		
C168		-155					-15		
C169		-156					-66		
C170		-157					-49		
C171		P12-158	32	WHT	Later		TB2-41		
C172	SEE NOTE 10	J8-18	35	YEL	30		S11-2	SEE NOTE 5	
C173		J8-19	35	YEL	30		S8-2		
C174	SEE NOTE 6	P12-159	32	WHT			TB2-37	SEE NOTE 6	
C175		P12-160	32	WHT	Later		TB2-13		
C176		P12-161	32	WHT		AR	TB2-57		

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS	
C177	SEE NOTE 6	P12-162	32	WHT	Later	AR	TB2-32	SEE NOTE 6	
C178		P12-163	32	WHT	Later		TB2-52		
C179		P12-164	32	WHT	Later		TB2-43		
C180	SEE NOTE 10	J8-20	35	YEL	30		S13-2	SEE NOTE 5	
C181		J8-21	35	YEL	30		S1-3		
C182	SEE NOTE 6	P12-165	32	WHT	Later		TB2-34	SEE NOTE 6	
C183		-166					-35		
C184		-167					-63		
C185		-168					-60		
C186		-169					-76		
C187		P12-170	32	WHT	Later		TB2-36		
C188	SEE NOTE 10	J8-22	35	YEL	30		S14-2	SEE NOTE 5	
C189	SEE NOTE 6	P12-190	32	WHT	Later		TB2-23	SEE NOTE 6	
C190		-174					-73		
C191		-175					-65		
C192		P12-176	32	WHT	Later		TB2-75		
C193	SEE NOTE 10	J8-24	35	YEL	30		S15-2	SEE NOTE 5	
C194		J8-25	35	YEL	30		S18-1		
C195	SEE NOTE 6	P12-196	32	WHT	Later		TB2-24	SEE NOTE 6	
C196		-192					-31		
C197		-204					-48		
C198		P12-182	32	WHT	Later		TB2-14		
C199	SEE NOTE 10	J8-26	35	YEL	30		S16-2	SEE NOTE 5	
C200		J8-27	35	YEL	30		S17-2		
C201	SEE NOTE 6	P12-182	32	WHT	Later		TB2-25	SEE NOTE 6	
C202		-210					-54		
C203		-187					-55		
C204		-195					-26		
C205		-181	32	WHT	Later		TB2-27		
C206	SEE NOTE 5	-193	33	WHT	26		S6-5	TWIST	SEE NOTE 5
C207		P12-194	33	WHT	26		S6-4		
C208	SEE NOTE 10	J8-30	35	YEL	30		S18-2	SEE NOTE 5	
C209	SEE NOTE 6	P12-197	32	WHT	Later		TB2-29	SEE NOTE 6	
C210		-209					-28		
C211		-191					-22		
C212		-201					-21		
C213		-202					-16		
C214		-203					-20		
C215		-186					-17		
C216		-207					-19		
C217		-208	32	WH	Later		TB2-18		
C218	SEE NOTE 5	P12-179	33	WHT	26		S19-2	SEE NOTE 5	
C219	SEE NOTE 5	S1-1	35	YEL	30		S2-3	SEE NOTE 5	
C220		S2-1					S3-3		
C221		S3-1					S4-3		
C222		S4-1					S5-3		
C223		S5-1					S6-3		
C224		S6-1					S7-3		
C225		S7-1					S8-3		
C226		S8-1					S9-3		
C227		S9-1					S10-3		
C228		S10-1					S11-3		
C229		S11-1					S12-3		
C230		S12-1					S13-3		
C231		S13-1					S14-3		
C232		S14-1					S15-3		
C233		S15-1	35	YEL	30		S16-3		
C234	SEE NOTE 5	S17-4	33	WHT	26		S5-4	TWIST	SEE NOTE 5
C235		S17-5					S5-5		
C236		S6-4					S2-4	TWIST	
C237		S6-5					S2-5		
C238		S2-4					S7-4	TWIST	
C239		S2-5					S7-5		
C240		S7-4					S3-4	TWIST	
C241		S7-5					S3-5		
C242		S3-4					S8-4	TWIST	
C243		S3-5					S8-5		
C244		S8-4					S9-4	TWIST	
C245		S8-5					S9-5		
C246		S9-4					S12-4	TWIST	
C247		S9-5					S12-5		
C248		S12-4					S15-4	TWIST	
C249		S12-5					S15-5		
C250		S15-4					S16-4	TWIST	
C251		S15-5					S16-5		
C252		S16-4					S13-4	TWIST	
C253		S16-5					S13-5		
C254		S13-4					S10-4	TWIST	
C255		S13-5					S10-5		
C256		S10-4					S11-4	TWIST	
C257		S10-5					S11-5		
C258		S11-4					S14-4	TWIST	
C259		S11-5					S14-5		
C260	SEE NOTE 5	S14-4					S17-4	TWIST	
C261		S14-5	33	WHT	26		S17-5		
C262	SEE NOTE 5	S17-1	35	WHT	30	AR	S18-3	SEE NOTE 5	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

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FRONT HOUSING ASSEMBLY

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LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C1	SEE NOTE 6	P12-131	32	WHT	Later	AR	TB2-96	SEE NOTE 6
C2		-132					TB1-15	
C3		-133					TB1-68	
C4		-134					TB2-10	
C5		-127					TB2-95	
C6		-128					TB1-25	
C7		-129					TB1-29	
C8		-130					TB1-46	
C9		-123					TB2-61	
C10		-124					TB1-44	
C11		-125					TB1-3	
C12		-126					TB1-40	
C13		-119					TB2-70	
C14		-120					TB2-72	
C15		-121					TB1-24	
C16		-122					TB1-27	
C17		-115					TB2-100	
C18		-116					TB2-102	
C19		-117					TB2-71	
C20		-118					TB1-38	
C21		-111					TB1-16	
C22		-112					TB1-34	
C23		-113					TB1-41	
C24		-114					TB1-2	
C25		-107					TB2-101	
C26		-108					TB1-23	
C27		-109					TB1-35	
C28		-110					TB1-69	
C29		-103					TB2-98	
C30		-104					TB1-28	
C31		-105					TB1-17	
C32		-106					TB1-9	
C33		-99					TB2-64	
C34		-100					TB2-9	
C35		-101					TB1-47	
C36		-102					TB1-74	
C37		-95					TB2-81	
C38		-96					TB2-1	
C39		-97					TB1-55	
C40		-98					TB1-48	
C41		-91					TB2-87	
C42		-92					TB2-11	
C43		-93					TB1-58	
C44		-94					TB1-70	
C45		-87					TB2-90	
C46		-88					TB2-5	
C47		-89					TB2-88	
C48		-90					TB1-71	
C49		-83					TB2-94	
C50		-84					TB1-75	
C51		-85					TB2-103	
C52		-86					TB1-73	
C53		-79					TB2-99	
C54		-80					TB2-2	
C55		-81					TB2 83	
C56		-82					TB1-77	
C57		-73					TB1-84	
C58		-74					TB1-53	
C59		-75					TB1-65	
C60		-76					TB2-77	
C61		-77					TB1-61	
C62		-78					TB2-82	
C63		-67					TB1-45	
C64		-68					TB1-50	
C65		-69					TB1-52	
C66		-70					TB2-6	
C67		-71					TB1-87	
C68		-72					TB1-83	
C69		-61					TB1-80	
C70		-62					TB1-42	
C71		-63					TB2-7	
C72		-64					TB2-78	
C73		-65					TB2-79	
C74		-66					TB1-11	
C75		-55					TB1-78	
C76		-56					TB1-54	
C77		-57					TB1-62	
C78		-58					TB2-80	
C79		-59					TB2-84	
C80		-60					TB1-86	
C81		-50					TB1-39	
C82		-51					TB2-85	
C83		-52					TB1-81	
C84		-53					TB2-86	
C85		-54					TB1-64	
C86		-43					TB1-72	
C87		-44					TB1-49	
C88		P12-45	32	WHT	Later	AR	TB1-12	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS	
C89	SEE NOTE 6	P12-46	32	WHT	Later	AR	TB1-51	SEE NOTE 6	
C90		-47					TB1-56		
C91		-48					TB1-60		
C92		-37					TB1-79		
C93		-38					TB1-76		
C94		-39					TB1-13		
C95		-40					TB1-59		
C96		-41					TB1-10		
C97		-42					TB1-57		
C98		-31					TB1-85		
C99		-32					TB1-63		
C100		-33					TB2-8		
C101		-34					TB1-37		
C102		-35					TB1-21		
C103		-36					TB1-14		
C104		-25					TB1-31		
C105		-27					TB1-6		
C106		-28					TB2-69		
C107		-29					TB1-20		
C108		-30					TB2-93		
C109		-21					TB1-5		
C110		-22					TB2-89		
C111		-23					TB1-7		
C112		-24					TB1-36		
C113		-13					TB1-22		
C114		-15					TB2-97		
C115		-16					TB1-32		
C116		-17					TB2-92		
C117		-18					TB1-26		
C118		-7					TB1-1		
C119		-9					TB1-30		
C120		-10					TB1-19		
C121		-11					TB2-91		
C122		-12					TB1-18		
C123		-1					TB1-4		
C124		-3					TB1-33		
C125		-4					TB2-62		
C126		-5					TB1-43		
C127		P12-6	32	WHT	Later		TB1-8		
C128	SEE NOTE 5	S16-1	35	YEL	30		S17-3	SEE NOTE 5	
C129	SEE NOTE 5	S5-4	33	WHT	26		S19-4	TWIST	SEE NOTE 5
C130		S5-5					S19-5		
C131		S19-4					S1-4	TWIST	
C132		S19-5					S1-5		
C133		S1-4					S18-4	TWIST	
C134		S1-5					S18-5		
C135	SEE NOTE 5	S18-4					S4-4	TWIST	
C136		S18-5	33	WHT	26		S4-5		
C137	SEE NOTE 10	J8-3	35	YEL	30		S2-2	SEE NOTE 5	
C138		-5					S1-2		
C139		-8					S3-2		
C140		-9					S19-3		
C141		-10					S4-2		
C142		-11					S10-2		
C143		J8-13	35	YEL	30		S5-2		
C144	SEE NOTE 6	P12-135	32	WHT	Later		TB2-56	SEE NOTE 6	
C145		-136					TB2-53		
C146		-137					TB2-51		
C147		-138					TB2-33		
C148		-139					TB2-44		
C149		P12-140	32	WHT	Later		TB2-59		
C150	SEE NOTE 10	J8-14	35	YEL	30		S12-2	SEE NOTE 5	
C151		J8-15	35	YEL	30		S6-2		
C152	SEE NOTE 6	P12-141	32	WHT	Later		TB2-47	SEE NOTE 6	
C153		-142					TB2-46		
C154		-143					TB2-50		
C155		-144					TB2-68		
C156		-145					TB2-74		
C157		P12-146	32	WHT	Later		TB2-42		
C158	SEE NOTE 10	J8-16	35	YEL	30		S7-2	SEE NOTE 5	
C159		J8-17	35	YEL	30		S9-2		
C160	SEE NOTE 6	P12-147	32	WHT	Later		TB2-12	SEE NOTE 6	
C161		-148					-45		
C162		-149					-40		
C163		-150					-30		
C164		-151					-67		
C165		-152					-58		
C166		-153					-39		
C167		-154					-38		
C168		-155					-15		
C169		-156					-66		
C170		-157					-49		
C171		P12-158	32	WHT	Later		TB2-41		
C172	SEE NOTE 10	J8-18	35	YEL	30		S11-2	SEE NOTE 5	
C173		J8-19	35	YEL	30		S8-2		
C174	SEE NOTE 6	P12-159	32	WHT	Later		TB2-37	SEE NOTE 6	
C175		P12-160	32	WHT	Later		TB2-13		
C176		P12-161	32	WHT	Later	AR	TB2-57		

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS	
C177	SEE NOTE 6	P12-162	32	WHT	Later	AR	TB2-32	SEE NOTE 6	
C178		P12-163	32	WHT	Later		TB2-52		
C179		P12-164	32	WHT	Later		TB2-43		
C180	SEE NOTE 10	J8-20	35	YEL	30		S13-2	SEE NOTE 5	
C181		J8-21	35	YEL	30		S1-3		
C182	SEE NOTE 6	P12-165	32	WHT	Later		TB2-34	SEE NOTE 6	
C183		-166					-35		
C184		-167					-63		
C185		-168					-60		
C186		-169					-76		
C187		P12-170	32	WHT	Later		TB2-36		
C188	SEE NOTE 10	J8-22	35	YEL	30		S14-2	SEE NOTE 5	
C189	SEE NOTE 6	P12-190	32	WHT	Later		TB2-23	SEE NOTE 6	
C190		-174					-73		
C191		-175					-65		
C192		P12-176	32	WHT	Later		TB2-75		
C193	SEE NOTE 10	J8-24	35	YEL	30		S15-2	SEE NOTE 5	
C194		J8-25	35	YEL	30		S18-1		
C195	SEE NOTE 6	P12-196	32	WHT	Later		TB2-24	SEE NOTE 6	
C196		-192					-31		
C197		-204					-48		
C198		P12-182	32	WHT	Later		TB2-14		
C199	SEE NOTE 10	J8-26	35	YEL	30		S16-2	SEE NOTE 5	
C200		J8-27	35	YEL	30		S17-2		
C201	SEE NOTE 6	P12-182	32	WHT	Later		TB2-25	SEE NOTE 6	
C202		-210					-54		
C203		-187					-55		
C204		-195					-26		
C205		-181	32	WHT	Later		TB2-27		
C206	SEE NOTE 5	-193	33	WHT	26		S6-5	TWIST	SEE NOTE 5
C207		P12-194	33	WHT	26		S6-4		
C208	SEE NOTE 10	J8-30	35	YEL	30		S18-2	SEE NOTE 5	
C209	SEE NOTE 6	P12-197	32	WHT	Later		TB2-29	SEE NOTE 6	
C210		-209					-28		
C211		-191					-22		
C212		-201					-21		
C213		-202					-16		
C214		-203					-20		
C215		-186					-17		
C216		-207					-19		
C217		-208	32	WH	Later		TB2-18		
C218	SEE NOTE 5	P12-179	33	WHT	26		S19-2	SEE NOTE 5	
C219	SEE NOTE 5	S1-1	35	YEL	30		S2-3	SEE NOTE 5	
C220		S2-1					S3-3		
C221		S3-1					S4-3		
C222		S4-1					S5-3		
C223		S5-1					S6-3		
C224		S6-1					S7-3		
C225		S7-1					S8-3		
C226		S8-1					S9-3		
C227		S9-1					S10-3		
C228		S10-1					S11-3		
C229		S11-1					S12-3		
C230		S12-1					S13-3		
C231		S13-1					S14-3		
C232		S14-1					S15-3		
C233		S15-1	35	YEL	30		S16-3		
C234	SEE NOTE 5	S17-4	33	WHT	26		S5-4	TWIST	SEE NOTE 5
C235		S17-5					S5-5		
C236		S6-4					S2-4	TWIST	
C237		S6-5					S2-5		
C238		S2-4					S7-4	TWIST	
C239		S2-5					S7-5		
C240		S7-4					S3-4	TWIST	
C241		S7-5					S3-5		
C242		S3-4					S8-4	TWIST	
C243		S3-5					S8-5		
C244		S8-4					S9-4	TWIST	
C245		S8-5					S9-5		
C246		S9-4					S12-4	TWIST	
C247		S9-5					S12-5		
C248		S12-4					S15-4	TWIST	
C249		S12-5					S15-5		
C250		S15-4					S16-4	TWIST	
C251		S15-5					S16-5		
C252		S16-4					S13-4	TWIST	
C253		S16-5					S13-5		
C254		S13-4					S10-4	TWIST	
C255		S13-5					S10-5		
C256		S10-4					S11-4	TWIST	
C257		S10-5					S11-5		
C258		S11-4					S14-4	TWIST	
C259		S11-5					S14-5		
C260	SEE NOTE 5	S14-4					S17-4	TWIST	
C261		S14-5	33	WHT	26		S17-5		
C262	SEE NOTE 5	S17-1	35	WHT	30	AR	S18-3	SEE NOTE 5	

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES ± ± ± DO NOT SCALE THIS DRAWING
		MATERIAL
		HEAT TREATMENT
NEXT ASSY	USED ON	FINAL FINISH
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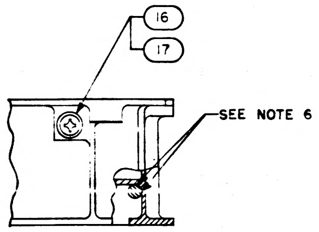

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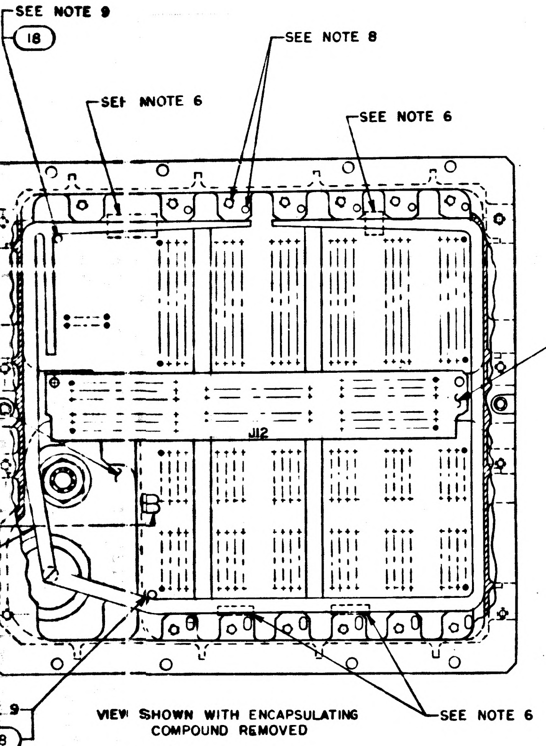
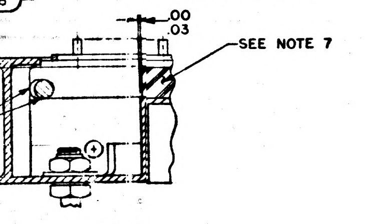
SEE NOTE 6



SEE NOTE 9
18
SEE NOTE 8
SEE NOTE 6
SEE NOTE 6
2
J12
9
18
SEE NOTE 6

VIEW SHOWN WITH ENCAPSULATING COMPOUND REMOVED



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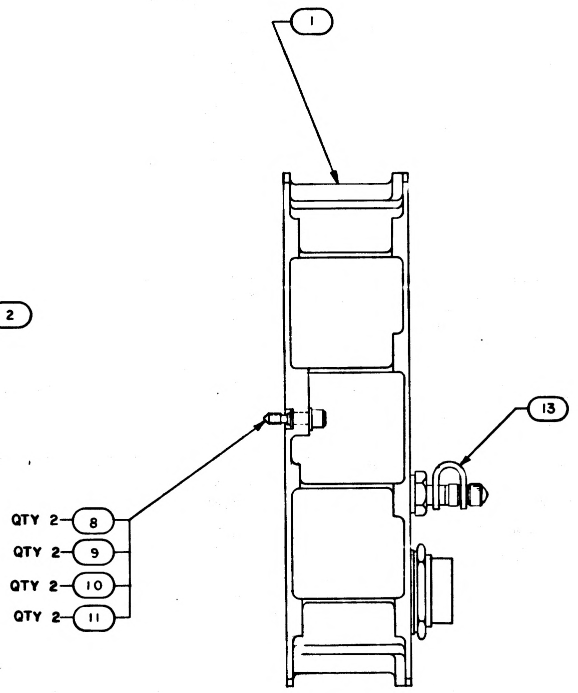
.03
SEE NOTE 7

SECTION B-B



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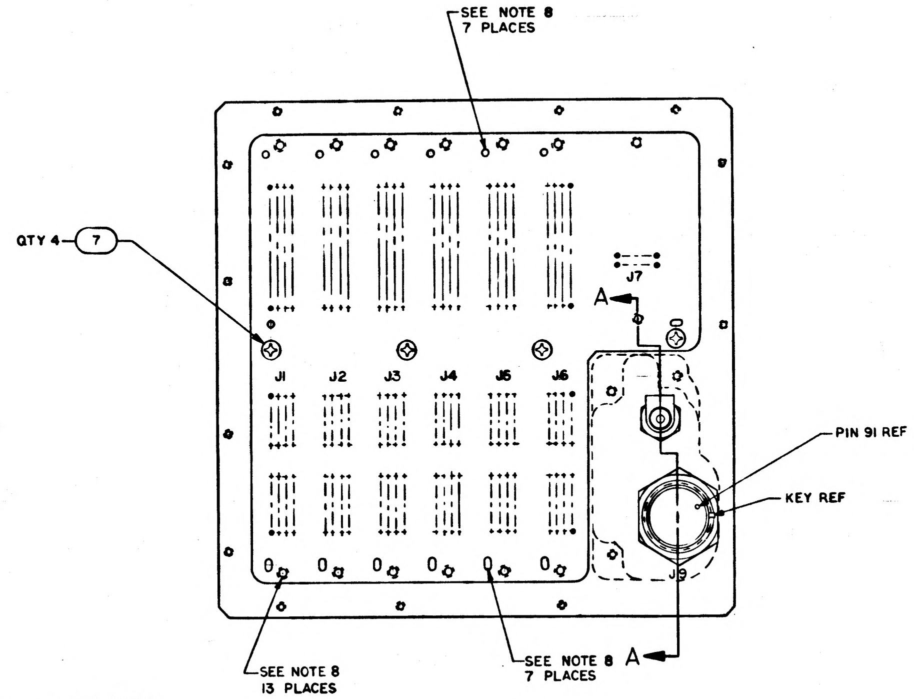
QTY 2 9
QTY 2 10
QTY 2 11



SEE NOTE 8
7 PLACES
QTY 4 7
J7
A
J1
J2
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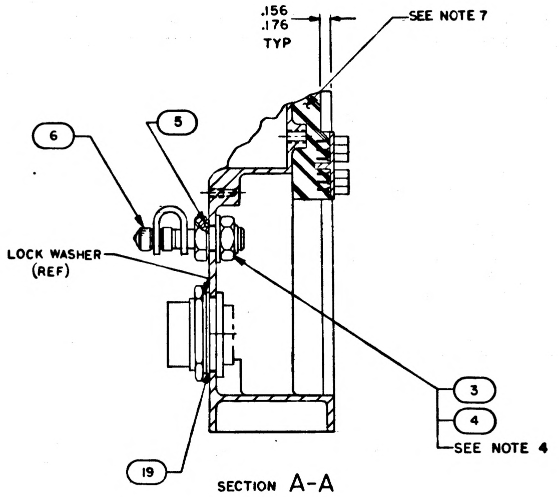
J5
J6
PIN 91 REF
KEY REF
J9
SEE NOTE 8
13 PLACES
SEE NOTE 8
7 PLACES
A



.156
.176
TYP
SEE NOTE 7
6
5
LOCK WASHER (REF)
3
4
SEE NOTE 4
19

SECTION A-A

RDANCE WITH STANDARDS

AND REVISION PER ND1002019
LEAD ELECTRICAL
NO. 3 TO BE 10 TO 11 FT-LBS

O. 1 PER ND1002004 TYPE IV

EAS PER ND1002236
TO BE FREE FROM ENCAPSULATING COMPOUND
O. 1 WHERE SHOWN USING FIND NO. 18

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
╳	2005901	INTERCONNECTING DIAGRAM	REF
1	1004546-5	WASHER, FLAT	19
AR	1012507-003	TAPE, LACING	18
1	NAS1598D08N	WASHER, SEALING	17
1	MS35216-39	SCREW, PAN HD, CROSS RECESSED	16
AR	1010807-22	WIRE, INSULATED	15
AR	1010940-004	WIRE, INSULATED	14
1	2004931	RETAINER, VALVE CAP	13
1	2003930-011	WIRING HARNESS, BRANCHED	12
2	MS16633-4015	RING, RETAINING	11
2	1004546-3	WASHER, FLAT	10
2	1004546-1	WASHER, FLAT	9
2	1004579-2	SCREW, JACKING	8
4	MS35200-25	SCREW, FLAT HD, CROSS RECESSED	7
1	1006345	VALVE, PNEUMATIC TANK	6
1	1000159-14	PACKING, PREFORMED, O-RING	5
1	MS15795-314	WASHER, FLAT	4
1	MS20364D624A	NUT, HEX	3
1	2003916-011	CONNECTOR PLATE ASSY	2
1	2003917-011	IDM WIREWRAP PLATE ASSY	1
011	LIST OF MATERIALS		

2003904

NEXT ASSY	USED ON
2003900	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN K W Singleton DATE 8 APR 65
CHECKED Alogan 10 June 65
APPROVAL
APPROVAL Eldon C Hall 13 July 65
NASA APPROVAL W J Rhine
MIT APPROVAL 7-13-65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MAIN HOUSING ASSEMBLY
AGC DSKY

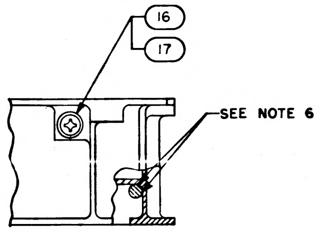
CODE IDENT NO 80230 SIZE J NASA DRAWING NO. 2003904
SCALE 1/1 WT SHEET 1 OF 3

2003904

2H

E-2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.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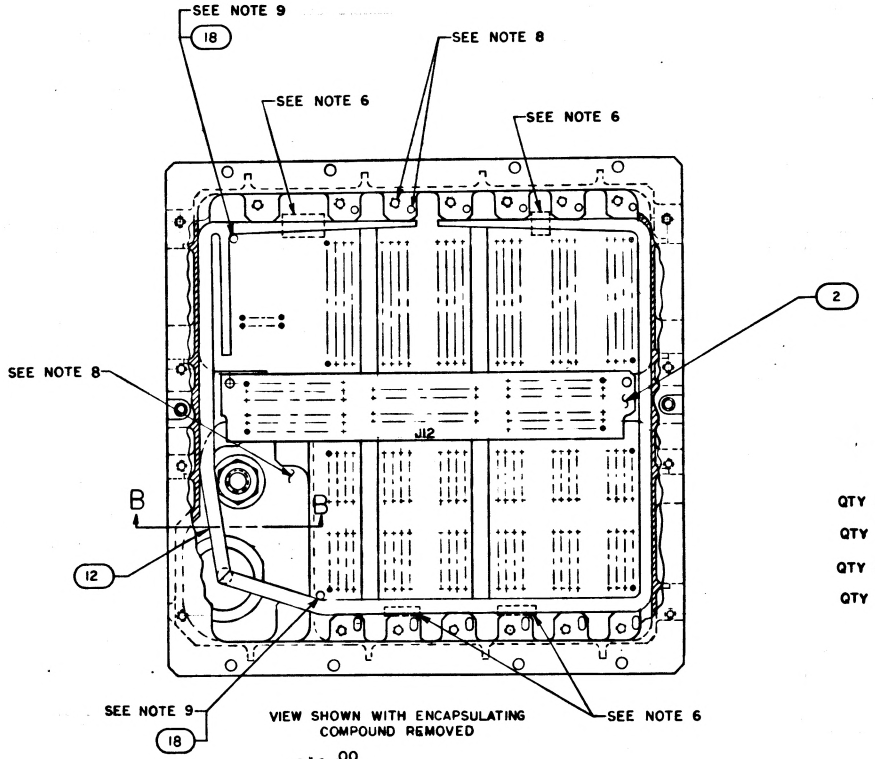
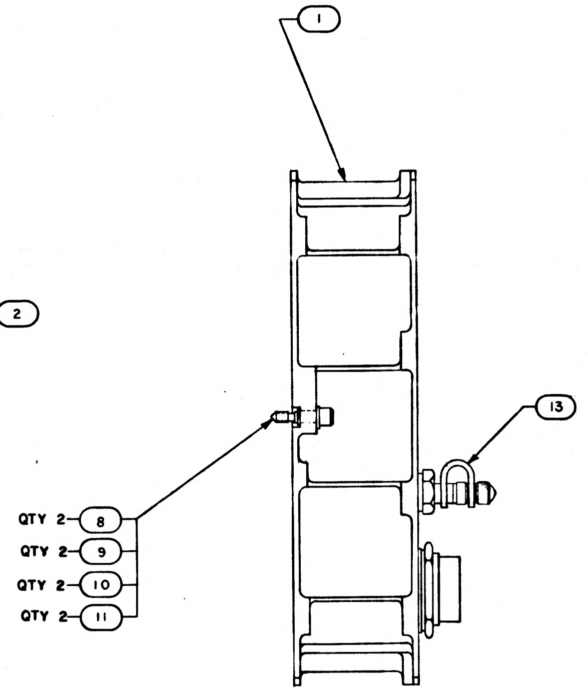
17
SEE NOTE 6


SEE NOTE 9
18
SEE NOTE 8
SEE NOTE 6
SEE NOTE 6
2
SEE NOTE 8
J12
B
12
SEE NOTE 9
18
SEE NOTE 6

VIEW SHOWN WITH ENCAPSULATING COMPOUND REMOVED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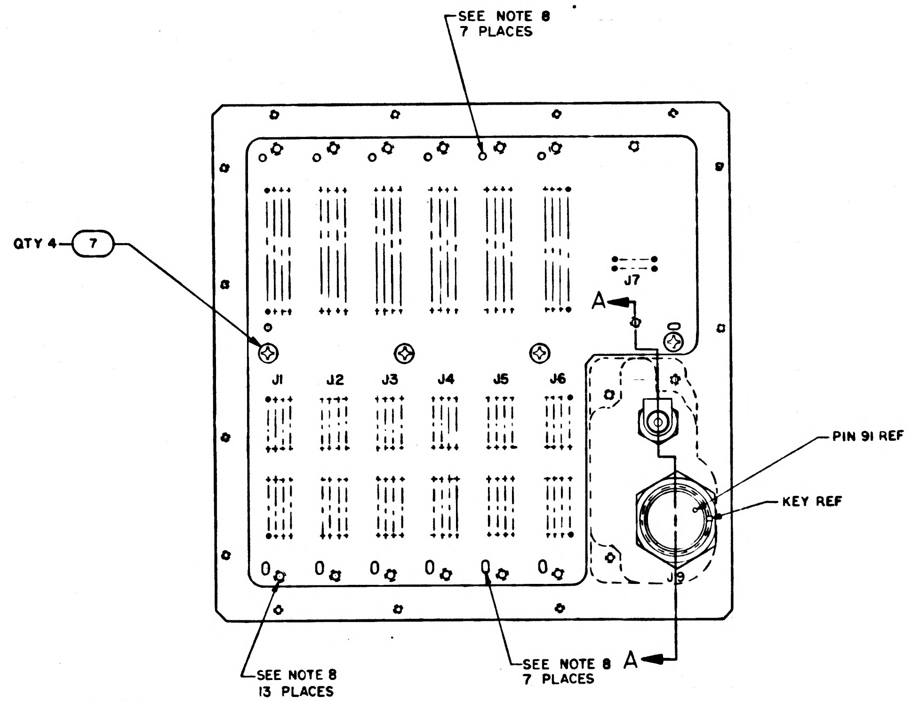
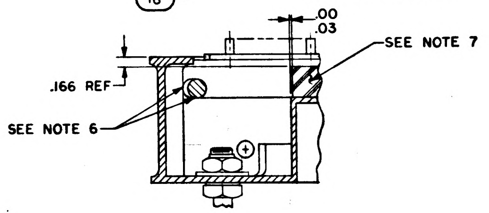
QTY 2 9
QTY 2 10
QTY 2 11


SEE NOTE 8
7 PLACES
QTY 4 7
J7
A
J1
J2
J3
J4
J5
J6
PIN 91 REF
KEY REF
J9
SEE NOTE 8
13 PLACES
SEE NOTE 8
7 PLACES
A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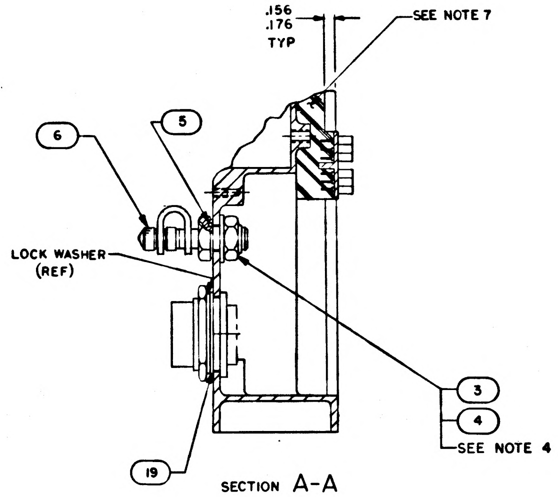
SEE NOTE 7
.166 REF
SEE NOTE 6

SECTION B-B


.156
.176
TYP
SEE NOTE 7
6
5
LOCK WASHER (REF)
3
4
SEE NOTE 4
19

SECTION A-A

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
3. WIRE PER ND1002031 USING LEAD ELECTRICAL
4. MOUNTING TORQUE FOR FIND NO. 3 TO BE 10 TO 11 FT-LBS
5. AR DENOTES AS REQUIRED
6. BOND FIND NO. 12 TO FIND NO. 1 PER ND1002004 TYPE IV IN AREAS INDICATED
7. ENCAPSULATE INDICATED AREAS PER ND1002236
8. INDICATED AREA AND HOLES TO BE FREE FROM ENCAPSULATING COMPOUND
9. LACE FIND NO. 12 TO FIND NO. 1 WHERE SHOWN USING FIND NO. 18
10. DRESS AND TRIM USING FIND NO. 18

LH

☒	2005901
1	1004546-5
AR	1012507-003
1	NAS1598D08N
1	MS35216-39
AR	1010807-22
AR	1010940-004
1	2004931
1	2003930-011
2	MS16633-4015
2	1004546-3
2	1004546-1
2	1004579-2
4	MS35200-25
1	1006345
1	1000169-14
1	MS15795-314
1	MS20364D624A
1	2003916-011
1	2003917-011
QTY REQD	PART OR IDENTIFYING N
011	

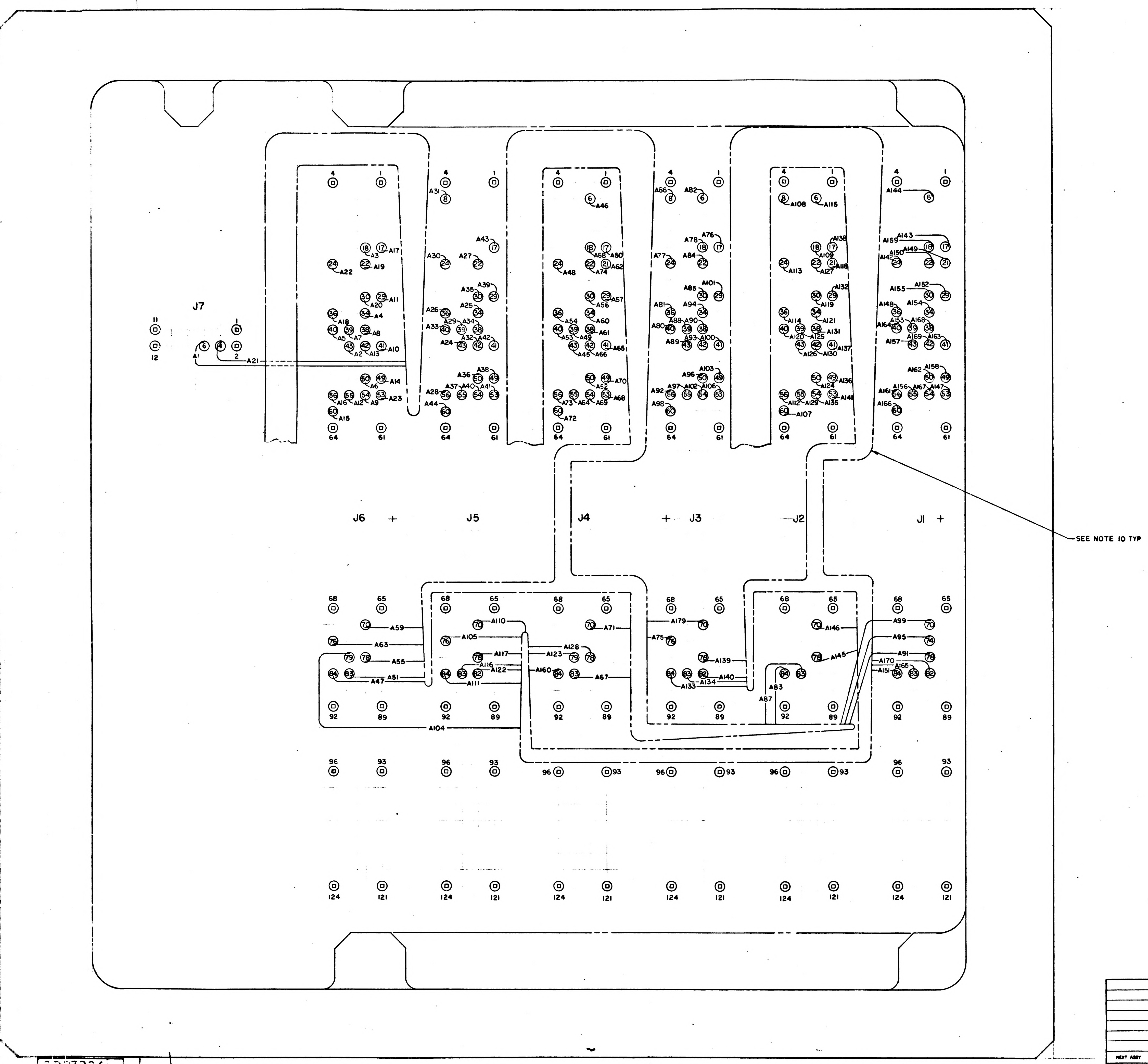
2003900	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LA
CAMBRIDGE, MASS
DWG NO
DRAWN
DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL W J
MIT APPROVAL

2003904

SYM	DESCRIPTION	DATE	APPROVAL
REVISIONS 2 of 3			



QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

HEAT TREATMENT

FINAL FINISH

M I T
INSTRUMENTATION LAB
Cambridge Mass

DRAWN A.J. Clemmont DATE 11 May 65
CHECKED O Cazzaniga 19 June 65
APPROVAL 19 June 65
APPROVAL Eldon C Hall 12 July 65
NASA APPROVAL W J Rhine
MIT APPROVAL 7-19-65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MAIN HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO 2003904
SCALE NONE
WT
SHEET 2 OF 3

2003904

2

2003904

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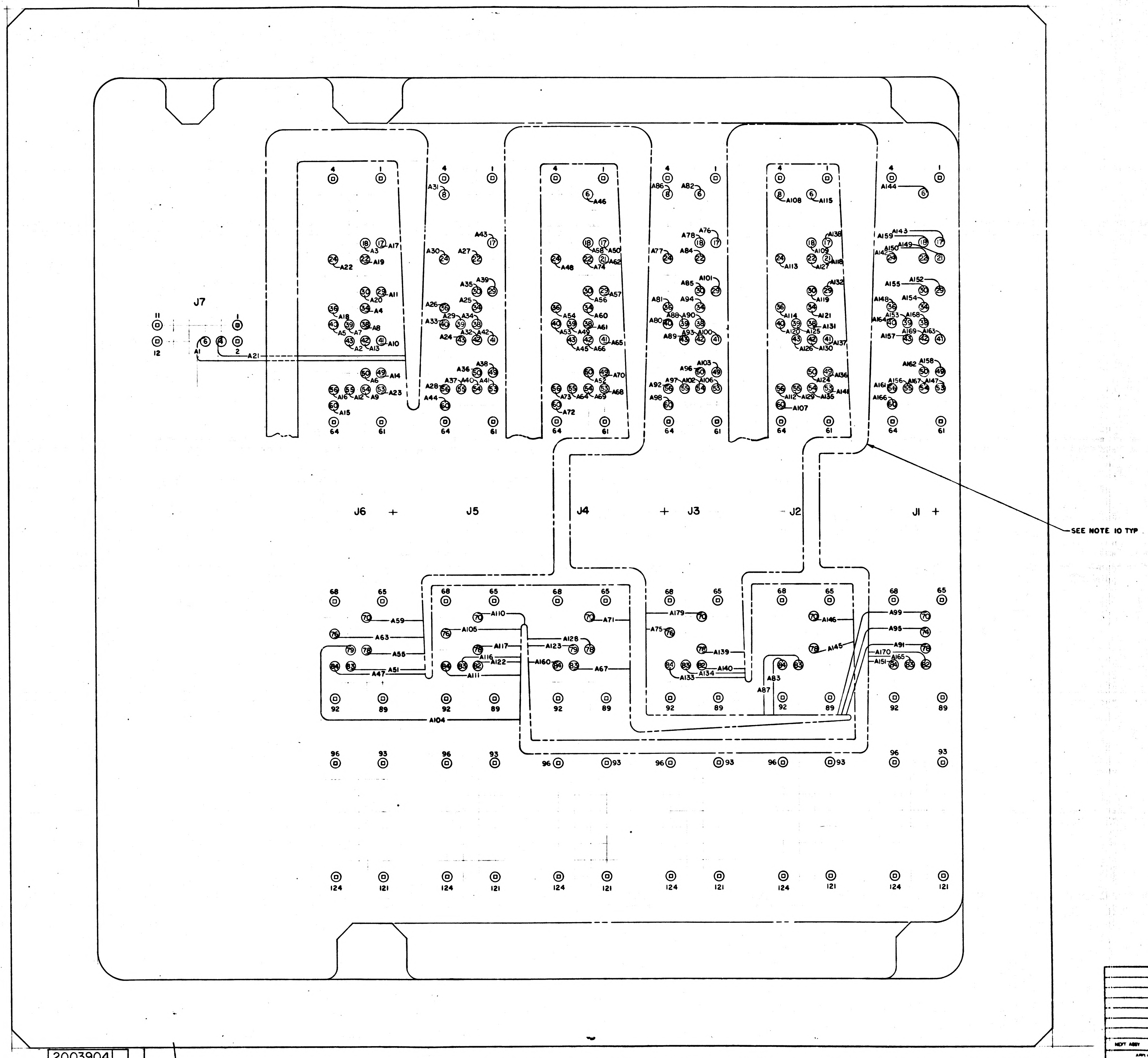
J7
J6
J5
J4
J3
J2
J1
11
1
12
2
A1
A21
SEE NOTE 10 TYP
A104
A179
A170
A151
A165
A99
A95
A91
A145
A146
A139
A140
A133
A134
A83
A87
A110
A105
A117
A116
A122
A111
A128
A123
A160
A67
A71
A75
A59
A63
A58
A51
A47
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92
89
96
93
124
121

2H

2003904

NEXT ASSY
USED ON
APPLICATION

6 5 4 3 2

4	3	2	1

2003904

REVISIONS [illegible]			
SYM	DESCRIPTION	DATE	APPROVAL

LEAD ELECTRICAL

S	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
	J12-[illegible]	14	YEL	30	AR	J7-6	
	-[illegible]	14	YEL	30		J6-43	
	-160	15	WHT	26		-8	
	-159	14	YEL	30		-34	
	-154					-40	
	-153					-50	
	-148	14	YEL	30		-[illegible]	
	-147	15	WHT	26		-38	
	-142	14	YEL	30		-54	
	-141					-41	
	-136					-29	
	-135					-55	
	-187					-42	
	-2[illegible]0	14	YEL	30		-49	
	-182	15	WHT	26		-60	
	-204	14	YEL	30		-56	
	-192					-17	
	-176					-36	
	-175					-22	
	-174					J6-30	
	-170					J7-4	
	-169					J6-24	
	-168					J6-53	
	-164					J5-43	
	-163					-34	
	-162					-36	
	-161					-22	
	-158					-56	
	-157					-39	
	-156	14	YEL	30		-24	
	-155	15	WHT	26		-8	
	-152	14	YEL	30		-42	
	-151	14	YEL	30		-40	
	-150	15	WHT	26		-38	
	-149	14	YEL	30		-30	
	-146					-50	
E 3	-145					-55	SEE NOTE 3
	-144					-49	
	-143					-29	
	-140					-54	
	-139					-53	
	-138					-41	
	-137	14	YEL	30		-17	
	-134	15	WHT	26		J5-60	
	-133	14	YEL	30		J4-43	
	-132					J4-6	
	-131					J6-84	
	-130					J4-24	
	-129					J4-39	
	-128					J4-17	
	-127					J6-83	
	-126					J4-50	
	-125					J4-40	
	-124					J4-36	
	-123					J6-78	
	-122					J4-30	
	-121					J4-29	
	-120					J4-18	
	-119					J6-70	
	-118					J4-34	
	-117					J4-38	
	-116					J4-21	
	-115					J6-76	
	-114					J4-55	
	-113					-41	
	-112					-42	
	-111					-83	
	-110					-53	
	-109					-54	
	-108					-49	
	-107					-70	
	J12-106	14	YEL	30	AR	J4-60	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A73		J12-105	14	YEL	30	AR	J4-56	
A74		-104					J4-22	
A75		-103					J3-76	
A76		-102					-17	
A77		-101	14	YEL	30		-24	
A78		-100	15	WHT	26		-18	
A79		-99	14	YEL	30		-70	
A80		-98	14	YEL	30		-40	
A81		-97	14	YEL	30		-36	
A82		-96	15	WHT	26		J3-6	
A83		-95	14	YEL	30		J2-84	
A84		-94	14	YEL	30		J3-22	
A85		-93	14	YEL	30		J3-30	
A86		-92	15	WHT	26		J3-8	
A87		-91	14	YEL	30		J2-83	
A88		-90	14	YEL	30		J3-39	
A89		-89	14	YEL	30		J3-43	
A90		-88	15	WHT	26		J3-38	
A91		-87	14	YEL	30		J1-78	
A92		-86					J3-56	
A93		-85					J3-42	
A94		-84					J3-34	
A95		-83					J1-74	
A96		-82					J3-50	
A97		-81	14	YEL	30		J3-55	
A98		-80	15	WHT	26		J3-60	
A99		-79	14	YEL	30		J1-70	
A100		-78					J3-41	
A101		-77					J3-29	
A102		-76					J3-54	
A103		-75					J3-49	
A104		-74					J6-79	
A105		-73					J5-76	
A106		-72					J3-53	
A107		-71	14	YEL	30		J2-60	
A108	SEE NOTE 3	-70	15	WHT	26		J2-8	SEE NOTE 3
A109		-69	14	YEL	30		J2-18	
A110		-68					J5-70	
A111		-67					J5-84	
A112		-66					J2-56	
A113		-65					J2-24	
A114		-64	14	YEL	30		J2-36	
A115		-63	15	WHT	26		J2-6	
A116		-62	14	YEL	30		J5-83	
A117		-61					J5-78	
A118		-60					J2-21	
A119		-59					J2-30	
A120		-58					J2-40	
A121		-57					J2-34	
A122		-56					J5-82	
A123		-55					J4-79	
A124		-54					J2-50	
A125		-53					J2-39	
A126		-52					J2-43	
A127		-51					J2-22	
A128		-50					J4-78	
A129		-48					J2-55	
A130		-47					J2-42	
A131		-46					J2-38	
A132		-45					J2-29	
A133		-44					J3-84	
A134		-43					J3-83	
A135		-42					J2-54	
A136		-41					J2-49	
A137		-40					J2-41	
A138		-39					J2-17	
A139		-38					J3-78	
A140		-37					J3-82	
A141		-36					J2-53	
A142		-35					J1-24	
A143		-34	14	YEL	30		J1-17	
A144		J12-33	15	WHT	26	AR	J1-6	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A145		J12-32	14	YEL	30	AR	J2-78	
A146		-31					J2-70	
A147		-30					J1-53	
A148		-29					-36	
A149		-28					-21	
A150		-27					-22	
A151		-25					-84	
A152		-24					-29	
A153		-23					-39	
A154		-22					-34	
A155		-21					-30	
A156	SEE NOTE 3	-18					-55	SEE NOTE 3
A157		-17					-43	
A158		-16					-49	
A159		-15					J1-18	
A160		-13					J4-84	
A161		-12					J1-56	
A162		-11					-50	
A163		-10					-41	
A164		-9					-40	
A165		-7					-83	
A166		-6					-60	
A167		-5					-54	
A168		-4					-38	
A169		-3					-42	
A170		J12-1	14	YEL	30	AR	J1-82	

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2003904

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
LIST OF MATERIALS			

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ± ANGLES ± DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB CAMBRIDGE MASS DWG NO CONTRACT	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
		MATERIAL	DRAWN J. L. Lamond DATE 30 APR 65 CHECKED [illegible] 19 Jun 65 APPROVAL [illegible] 19 Jun 65 APPROVAL Eldon C Hall 12 July 65	MAIN HOUSING ASSEMBLY AGC DSKY
		HEAT TREATMENT	NASA APPROVAL W J Rhine	CODE IDENT NO. 80230 SIZE J NASA DRAWING NO. 2003904
NEXT ASSY	USED ON	FINAL FINISH	MIT APPROVAL [illegible] 9-9-65	SCALE NONE WT SHEET 3 OF 3
APPLICATION				

2003904

4	3	2	1

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2003904

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A1	SEE NOTE 3	J12-166	14	YEL	30	AR	J7-6	SEE NOTE 3
A2		↑ -167	14	YEL	30	↑	J6-43	
A3		-160	15	WHT	26		↑ -18	
A4		-159	14	YEL	30		-34	
A5		-154	↑	↑	↑		-40	
A6		-153	↓	↓	↓		-50	
A7		-148	14	YEL	30		-39	
A8		-147	15	WHT	26		-38	
A9		-142	14	YEL	30		-54	
A10		-141	↑	↑	↑		-41	
A11		-136					-29	
A12		-135					-55	
A13		-187	↓	↓	↓		-42	
A14		-210	14	YEL	30		-49	
A15		-182	15	WHT	26		-60	
A16		-204	14	YEL	30		-56	
A17		-192	↑	↑	↑		-17	
A18		-176					-36	
A19		-175					↓ -22	
A20		-174					J6-30	
A21		-170					J7-4	
A22		-169					J6-24	
A23		-168					J6-53	
A24		-164					J5-43	
A25		-163					↑ -34	
A26		-162					-36	
A27		-161					-22	
A28		-158					-56	
A29		-157	↓	↓	↓		-39	
A30		-156	14	YEL	30		-24	
A31		-155	15	WHT	26		-8	
A32		-152	14	YEL	30		-42	
A33		-151	14	YEL	30		-40	
A34		-150	15	WHT	26		-38	
A35		-149	14	YEL	30		-30	
A36		-146	↑	↑	↑		-50	
A37		-145					-55	
A38		-144					-49	
A39		-143					-29	
A40		-140					-54	
A41		-139					-53	
A42		-138	↓	↓	↓		-41	
A43		-137	14	YEL	30		↓ -17	
A44		-134	15	WHT	26		J5-60	
A45		-133	14	YEL	30		J4-43	
A46		-132	↑	↑	↑		J4-6	
A47		-131					J6-84	
A48		-130					J4-24	
A49		-129					J4-39	
A50		-128					J4-17	
A51		-127					J6-83	
A52		-126					J4-50	
A53		-125					J4-40	
A54		-124					J4-36	
A55		-123					J6-78	
A56		-122					J4-30	
A57		-121					J4-29	
A58		-120					J4-18	
A59		-119					J6-70	
A60		-118					J4-34	
A61		-117					J4-38	
A62		-116					J4-21	
A63		-115					J6-76	
A64		-114					J4-55	
A65		-113					↑ -41	
A66		-112					-42	
A67		-111					-83	
A68		-110					-53	
A69		-109					-54	
A70		-108					-49	
A71		↓ -107	↓	↓	↓	↓	↓ -70	
A72		J12-106	14	YEL	30	AR	J4-60	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A73	SEE NOTE 3	J12-105	14	YEL	30	AR	J4-56	SEE NOTE 3
A74		↑ -104	↑	↑	↑	↑	J4-22	
A75		-103					J3-76	
A76		-102	↓	↓	↓		↑ -17	
A77		-101	14	YEL	30		-24	
A78		-100	15	WHT	26		-18	
A79		-99	14	YEL	30		-70	
A80		-98	14	YEL	30		-40	
A81		-97	14	YEL	30		↓ -36	
A82		-96	15	WHT	26		J3-6	
A83		-95	14	YEL	30		J2-84	
A84		-94	14	YEL	30		J3-22	
A85		-93	14	YEL	30		J3-30	
A86		-92	15	WHT	26		J3-8	
A87		-91	14	YEL	30		J2-83	
A88		-90	14	YEL	30		J3-39	
A89		-89	14	YEL	30		J3-43	
A90		-88	15	WHT	26		J3-38	
A91		-87	14	YEL	30		J1-78	
A92		-86	↑	↑	↑		J3-56	
A93		-85					J3-42	
A94		-84					J3-34	
A95		-83					J1-74	
A96		-82	↓	↓	↓		J3-50	
A97		-81	14	YEL	30		J3-55	
A98		-80	15	WHT	26		J3-60	
A99		-79	14	YEL	30		J1-70	
A100		-78	↑	↑	↑		J3-41	
A101		-77					J3-29	
A102		-76					J3-54	
A103		-75					J3-49	
A104		-74					J6-79	
A105		-73					J5-76	
A106		-72	↓	↓	↓		J3-53	
A107		-71	14	YEL	30		J2-60	
A108		-70	15	WHT	26		J2-8	
A109		-69	14	YEL	30		J2-18	
A110		-68	↑	↑	↑		J5-70	
A111		-67					J5-84	
A112		-66					J2-56	
A113		-65	↓	↓	↓		J2-24	
A114		-64	14	YEL	30		J2-36	
A115		-63	15	WHT	26		J2-6	
A116		-62	14	YEL	30		J5-83	
A117		-61	↑	↑	↑		J5-78	
A118		-60					J2-21	
A119		-59					J2-30	
A120		-58					J2-40	
A121		-57					J2-34	
A122		-56					J5-82	
A123		-55					J4-79	
A124		-54					J2-50	
A125		-53					J2-39	
A126		-52					J2-43	
A127		-51					J2-22	
A128		-50					J4-78	
A129		-48					J2-55	
A130		-47					J2-42	
A131		-46					J2-38	
A132		-45					J2-29	
A133		-44					J3-84	
A134		-43					J3-83	
A135		-42					J2-54	
A136		-41					J2-49	
A137		-40					J2-41	
A138		-39					J2-17	
A139		-38					J3-78	
A140		-37					J3-82	
A141		-36					J2-53	
A142		-35	↓	↓	↓		J1-24	
A143		↓ -34	14	YEL	30	↓	J1-17	
A144		J12-33	15	WHT	26	AR	J1-6	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A145	SEE NOTE 3	J12-32	14	YEL	30	AR	J2-78	SEE NOTE 3
A146		↑ -31	↑	↑	↑	↑	J2-70	
A147		-30					J1-53	
A148		-29					↑ -36	
A149		-28					-21	
A150		-27					-22	
A151		-25					-84	
A152		-24					-29	
A153		-23					-39	
A154		-22					-34	
A155		-21					-30	
A156		-18					-55	
A157		-17					-43	
A158		-16					↓ -49	
A159		-15					J1-18	
A160		-13					J4-84	
A161		-12					J1-56	
A162		-11					↑ -50	
A163		-10					-41	
A164		-9					-40	
A165		-7					-83	
A166		-6					-60	
A167		-5					-54	
A168		-4					-38	
A169		↓ -3	↓	↓	↓	↓	↓ -42	
A170		J12-1	14	YEL	30	AR	J1-82	

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ± ANGLES ± DO NOT SCALE THIS DRAWING
		MATERIAL
		HEAT TREATMENT
NEXT ASSY	USED ON	FINAL FINISH
APPLICATION		

QTY REQD | PART OR IDENTIFYING NO.

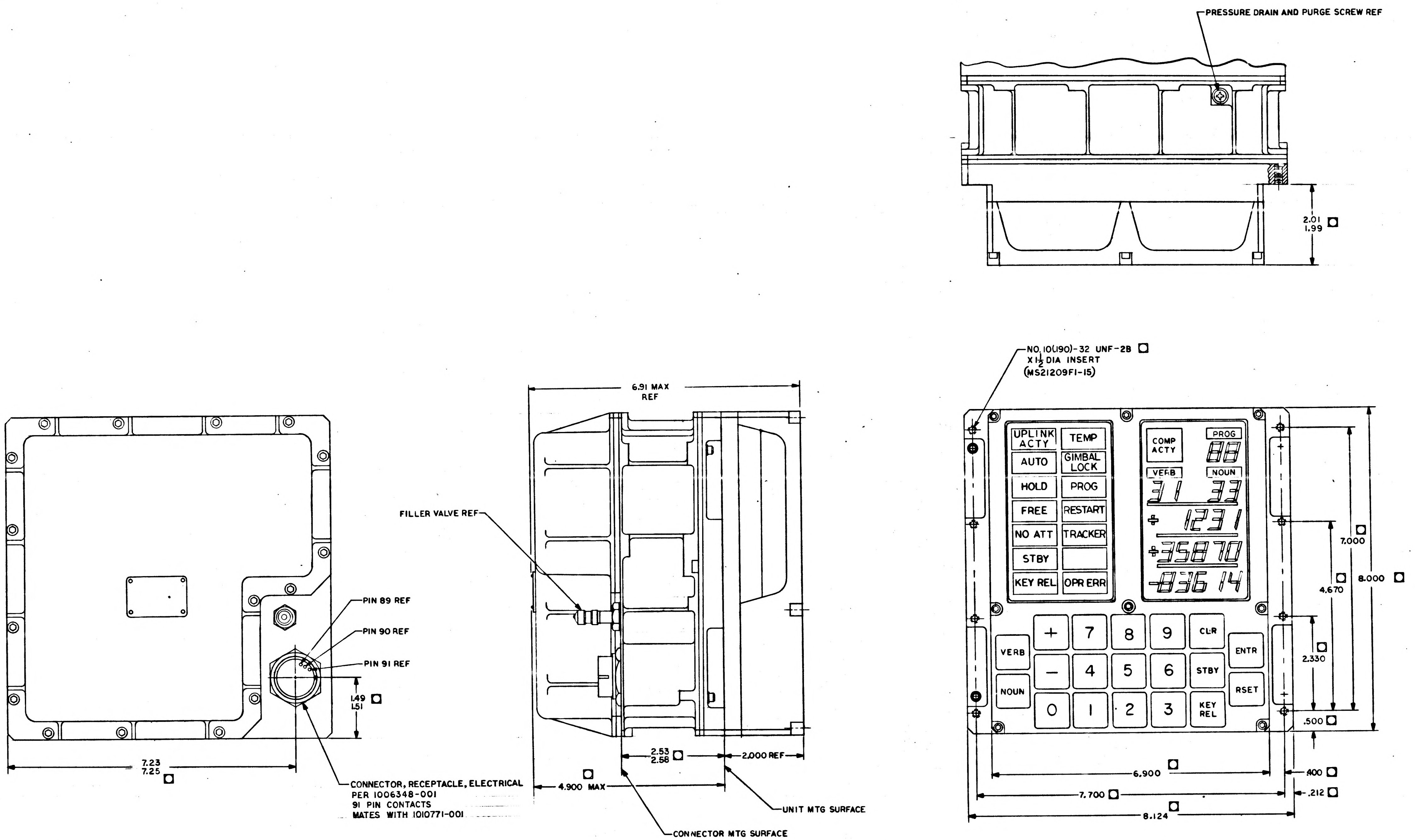
MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

2003904

REVISIONS 2 C…7

SYM	DESCRIPTION	DATE	APPROVAL


PRESSURE DRAIN AND PURGE SCREW REF
2.01
1.99 ☐
NO. 10(.190)-32 UNF-2B ☐
X 1½ DIA INSERT
(MS21209F1-15)
UPLINK ACTY
TEMP
AUTO
GIMBAL LOCK
HOLD
PROG
FREE
RESTART
NO ATT
TRACKER
STBY
KEY REL
OPR ERR
COMP ACTY
PROG
88
VERB
NOUN
31 33
+ 1231
+35870
-83614
+
7
8
9
CLR
VERB
ENTR
–
4
5
6
STBY
NOUN
RSET
0
1
2
3
KEY REL
7.000 ☐
4.670 ☐
8.000 ☐
2.330 ☐
.500 ☐
6.900 ☐
.400 ☐
7.700 ☐
.212 ☐
8.124 ☐
6.91 MAX
REF
FILLER VALVE REF
PIN 89 REF
PIN 90 REF
PIN 91 REF
1.49
1.51 ☐
7.23
7.25 ☐
CONNECTOR, RECEPTACLE, ELECTRICAL
PER 1006348-001
91 PIN CONTACTS
MATES WITH 1010771-001
2.53
2.58 ☐
2.000 REF
☐
4.900 MAX
UNIT MTG SURFACE
CONNECTOR MTG SURFACE

NOTES
1. ☐ DIMENSIONS CONTROLLED BY ICD MH01-
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
3. WEIGHT *Later*
4. ⊕ INDICATES CENTER OF GRAVITY *Locate Later*

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DOC NO CONTRACT
DRAWN DATE 21APR
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

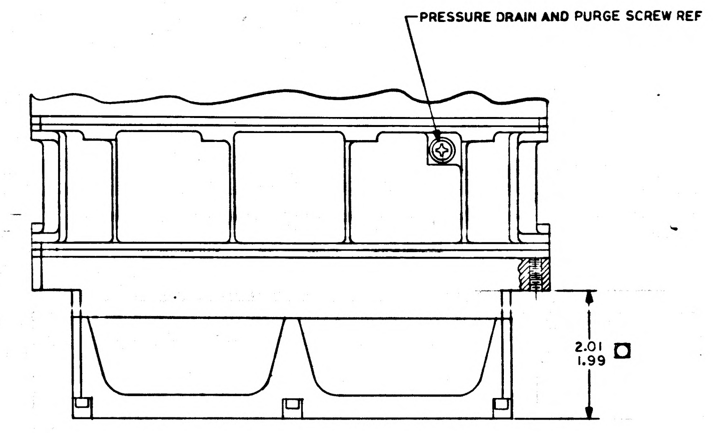
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

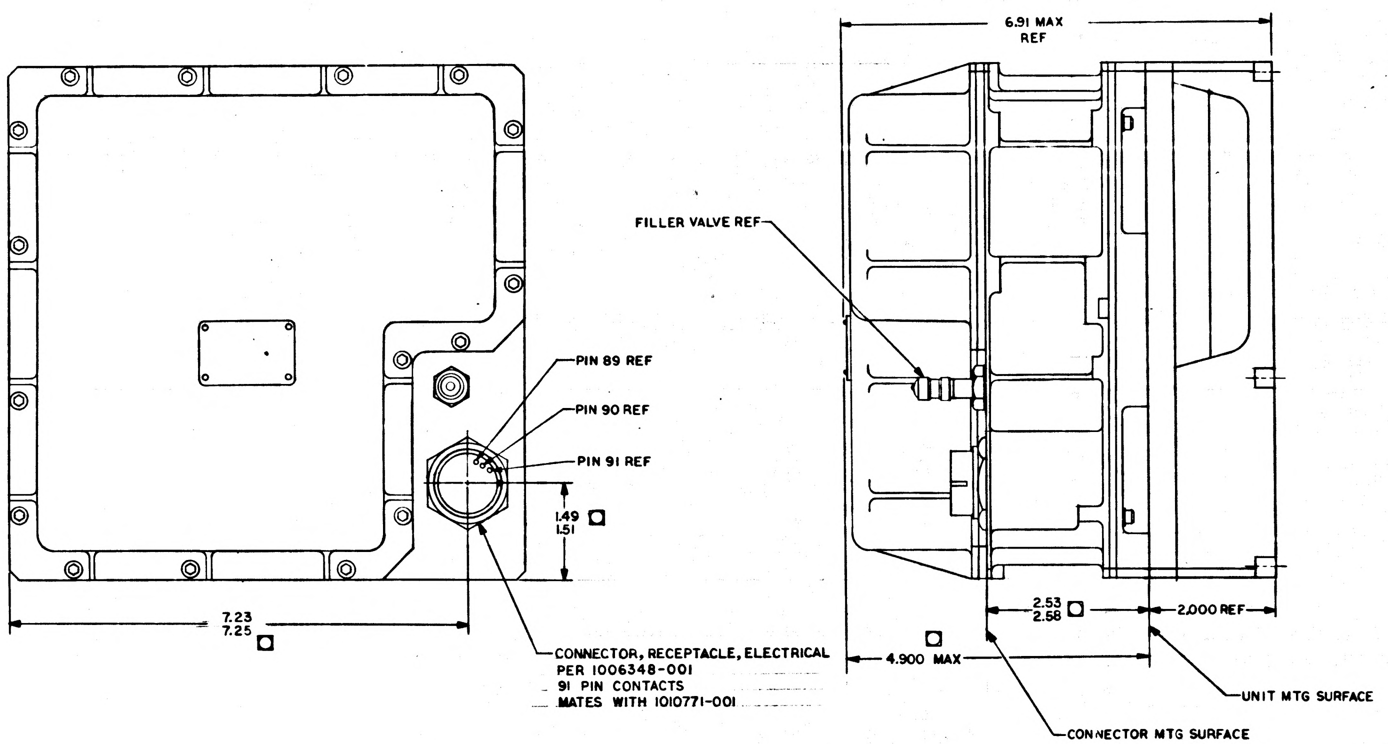
AGC DSKY
OUTLINE DRAWING

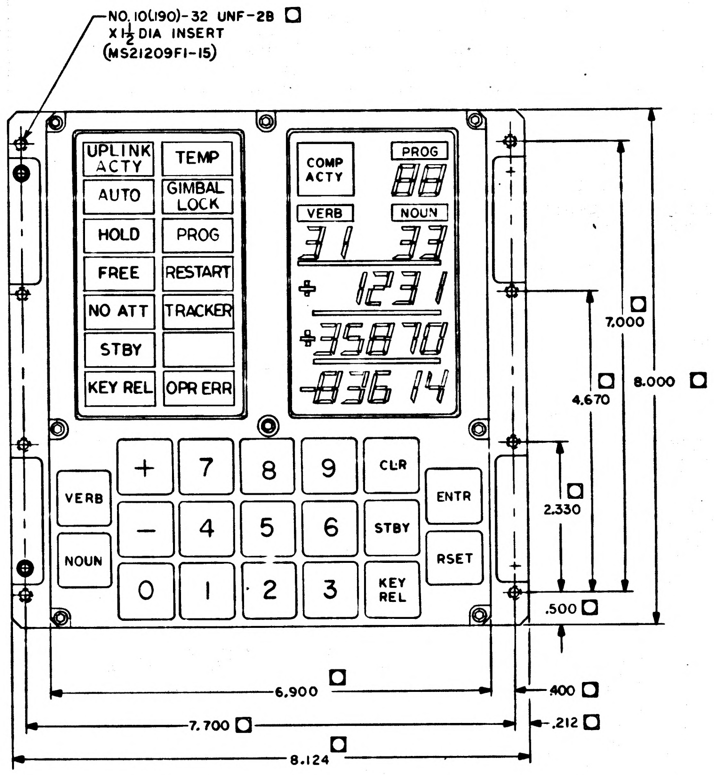
CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	J	2003906
SCALE 1/1	WT	SHEET 1 OF 1

REVISIONS

SYM	DESCRIPTION	DATE	APPROVED


PRESSURE DRAIN AND PURGE SCREW REF
2.01
1.99 ☐


FILLER VALVE REF
PIN 89 REF
PIN 90 REF
PIN 91 REF
1.49
1.51 ☐
7.23
7.25 ☐
CONNECTOR, RECEPTACLE, ELECTRICAL
PER 1006348-001
91 PIN CONTACTS
MATES WITH 1010771-001
6.91 MAX
REF
2.53
2.58 ☐
2.000 REF
☐ 4.900 MAX
UNIT MTG SURFACE
CONNECTOR MTG SURFACE


NO. 10(190)-32 UNF-2B ☐
X 1½ DIA INSERT
(MS21209F1-15)
UPLINK ACTY
TEMP
AUTO
GIMBAL LOCK
HOLD
PROG
FREE
RESTART
NO ATT
TRACKER
STBY
KEY REL
OPR ERR
COMP ACTY
PROG
88
VERB
NOUN
31 33
+ 1231
+35870
-83614
+ 7 8 9 CLR
VERB
ENTR
− 4 5 6 STBY
NOUN
RSET
0 1 2 3 KEY REL
7.000 ☐
8.000 ☐
4.670 ☐
2.330 ☐
.500 ☐
6.900 ☐
.400 ☐
7.700 ☐
.212 ☐
8.124 ☐

NOTES

1. ☐ DIMENSIONS CONTROLLED BY ICD MH01-
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
3. WEIGHT *Later*
4. ⊕ INDICATES CENTER OF GRAVITY *Locate Later*

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN *J. J. Bixon* DATE 2 APR
CHECKED
APPROVAL
APPROVAL 12 July 6
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

AGC DSKY
OUTLINE DRAWING

CODE IDENT NO.	SIZE	NASA DRAWING NO
80230	J	2003906
SCALE 1/1	WT	SHEET

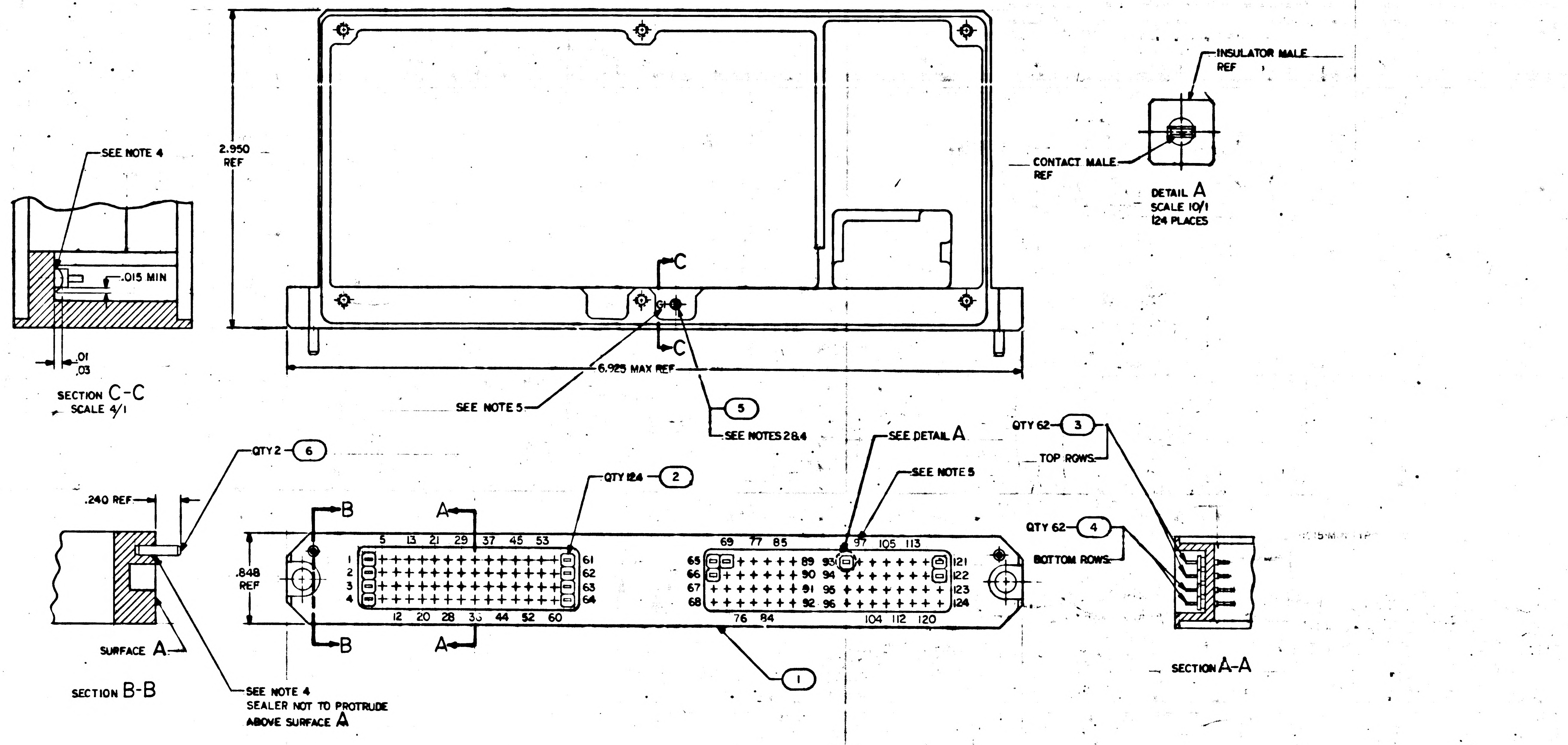
2003906

MASTER

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2003907 A

REVISIONS 20272						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 22162	JPL			



INSULATOR MALE REF
CONTACT MALE REF
DETAIL A
SCALE 10/1
124 PLACES
2.950 REF
6.925 MAX REF
C
C
SEE NOTE 4
.015 MIN
.01
.03
SECTION C-C
SCALE 4/1
SEE NOTE 5
5
SEE NOTES 2&4
SEE DETAIL A
SEE NOTE 5
QTY 62 3
TOP ROWS
QTY 62 4
BOTTOM ROWS
QTY 2 6
QTY 124 2
.240 REF
B
B
A
A
.848 REF
5 13 21 29 37 45 53
1 2 3 4
61 62 63 64
12 20 28 36 44 52 60
69 77 85
65 66 67 68
89 90 91 92
93 94 95 96
97 105 113
121 122 123 124
76 84
104 112 120
1
SURFACE A
SECTION B-B
SEE NOTE 4
SEALER NOT TO PROTRUDE
ABOVE SURFACE A
SECTION A-A

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE FOR FIND NO.5 TO BE 15-20 INCH OUNCES
3. ASSEMBLE FIND NO.2, FIND NO.3 & FIND NO.4 TO FIND NO.1 PER ND1002136
4. SEAL FIND NO.5 AND FIND NO.6 TO FIND NO.1 PER ND1002004, TYPE VI
5. MARK .05/.07 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-1, CENTRALIZE AS SHOWN
6. IDENTIFY WITH PART NO. PER ND1002019

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
2	MS16555-619		PIN, DOWEL	6
1	2004039		TERMINAL, THREADED	5
62	1006782-6		CONTACT, WRAPOST-MALE, MINATURE	4
62	1006782-1		CONTACT, WRAPOST-MALE, MINATURE	3
124	1006775		INSULATOR, WRAPOST-MALE, MINATURE	2
1	2004910		HEADER, HOUSING	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003902	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN J.P. Leonard 10 MAY 65
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

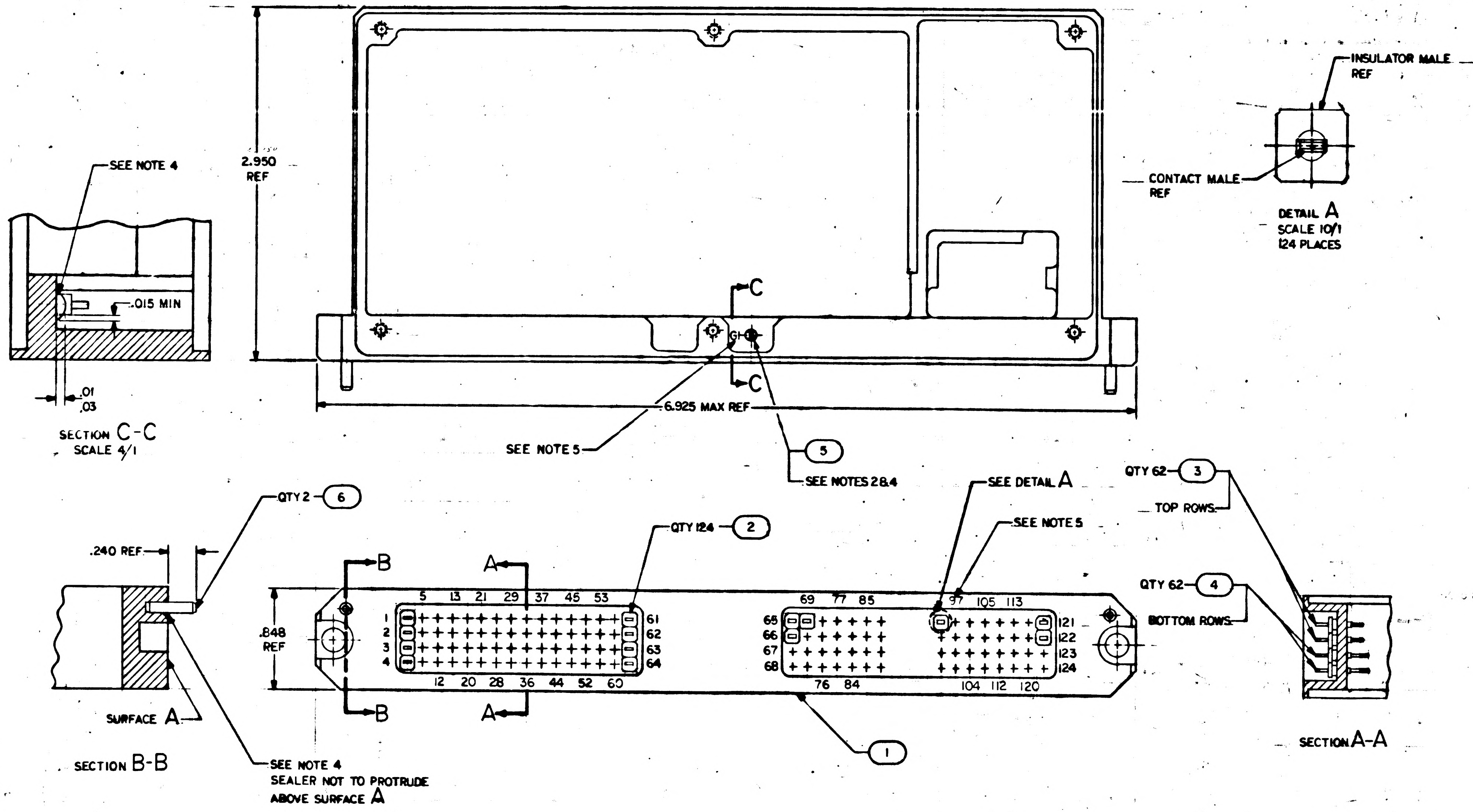
HEADER ASSY
INDICATOR DRIVER MODULE
AGC DSKY

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2003907
SCALE 2/1
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2003907 B

REVISIONS						20272
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 22162	JPE			
B		REVISED PER TDRR 25151	CJB			


2.950
REF
6.925 MAX REF
C
C
SEE NOTE 5
5
SEE NOTES 2&4
INSULATOR MALE
REF
CONTACT MALE
REF
DETAIL A
SCALE 10/1
124 PLACES
SEE NOTE 4
.015 MIN
.01
.03
SECTION C-C
SCALE 4/1
QTY 2
6
.240 REF
SURFACE A
SECTION B-B
SEE NOTE 4
SEALER NOT TO PROTRUDE
ABOVE SURFACE A
QTY 124
2
B
A
5 13 21 29 37 45 53
1 2 3 4
61 62 63 64
12 20 28 36 44 52 60
.848
REF
SEE DETAIL A
SEE NOTE 5
69 77 85
97 105 113
65 66 67 68
121 122 123 124
76 84
104 112 120
1
QTY 62
3
TOP ROWS
QTY 62
4
BOTTOM ROWS
SECTION A-A

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE FOR FIND NO.5 TO BE 15-20 INCH OUNCES
3. ASSEMBLE FIND. NO.2, FIND NO.3 & FIND NO.4 TO FIND NO.1 PER ND1002136
4. SEAL FIND NO.5 AND FIND NO.6 TO FIND NO.1 PER ND1002004, TYPE VI
5. MARK .05/.07 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-1 ; CENTRALIZE AS SHOWN
6. IDENTIFY WITH PART NO. PER ND1002019

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
2	MS16555-619		PIN, DOWEL	6
1	2004039		TERMINAL, THREADED	5
62	1006782-6		CONTACT, WRAPOST-MALE, MINATURE	4
62	1006782-1		CONTACT, WRAPOST-MALE, MINATURE	3
124	1006775		INSULATOR, WRAPOST-MALE, MINATURE	2
1	2004910		HEADER, HOUSING	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003952	
2003902	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	J.P. Leonard	18MAY65
CHECKED		24 May 65
APPROVED		
APPROVED		
APPROVED MIT	W. Rupfer	
APPROVED MSC		
	DATE	

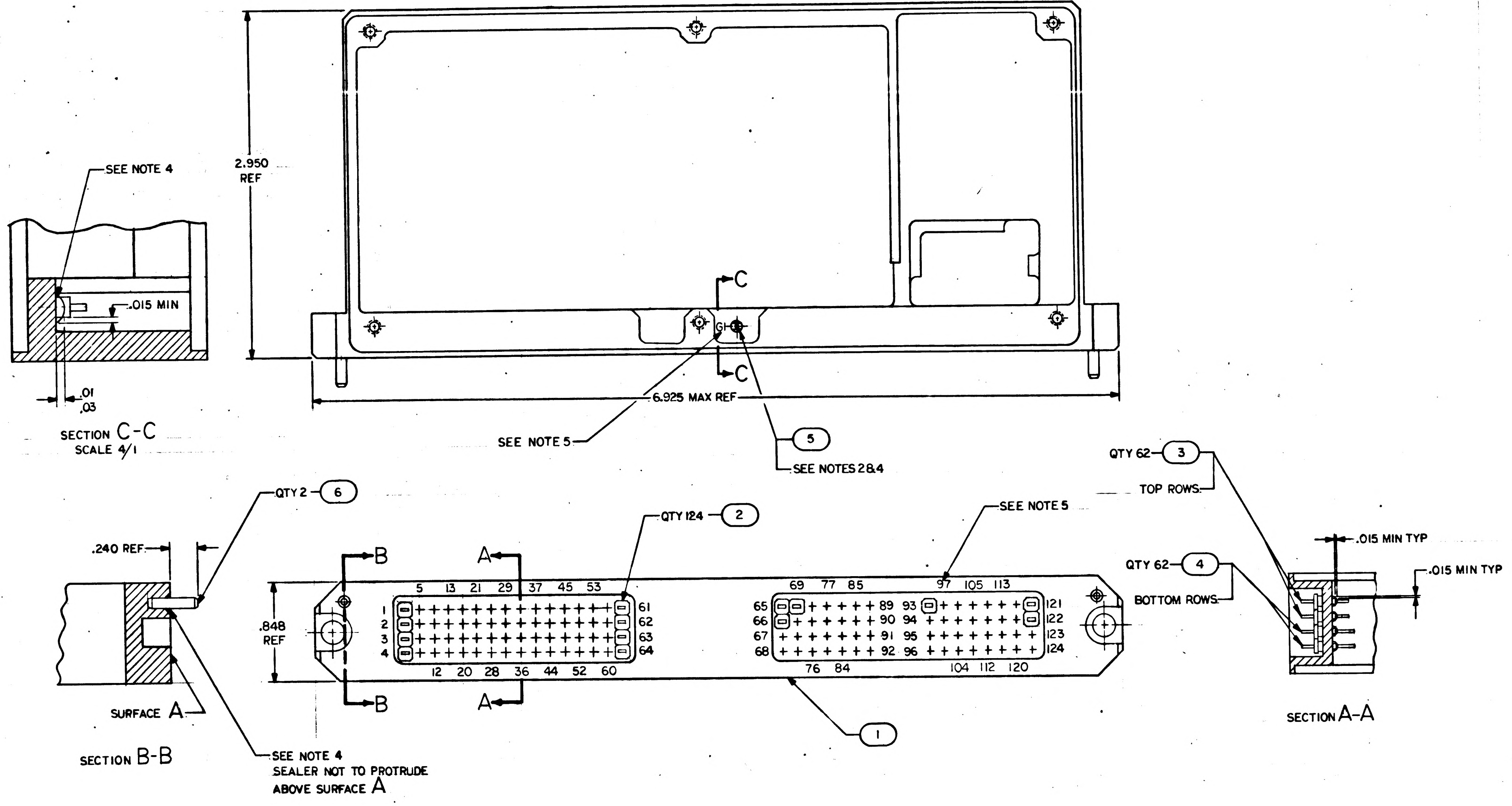
HEADER ASSY
INDICATOR DRIVER MODULE
AGC DSKY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2003907
SCALE 2/1		SHEET 1 OF 1

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2003907 | —

REVISIONS 20272						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED


2.950
REF
6.925 MAX REF
C
C
SEE NOTE 5
5
SEE NOTES 2&4
SEE NOTE 4
.015 MIN
.01
.03
SECTION C-C
SCALE 4/1
QTY 2 6
.240 REF
SURFACE A
SECTION B-B
SEE NOTE 4
SEALER NOT TO PROTRUDE
ABOVE SURFACE A
QTY 124 2
B
B
A
A
5 13 21 29 37 45 53
1 2 3 4
61 62 63 64
12 20 28 36 44 52 60
.848
REF
69 77 85 97 105 113
65 66 67 68
89 93 90 94 91 95 92 96
121 122 123 124
76 84 104 112 120
SEE NOTE 5
1
QTY 62 3
TOP ROWS
QTY 62 4
BOTTOM ROWS
.015 MIN TYP
.015 MIN TYP
SECTION A-A

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE FOR FIND NO.5 TO BE 15-20 INCH OUNCES
3. ASSEMBLE FIND NO.2, FIND NO.3 & FIND NO.4 TO FIND NO.1 PER ND1002136
4. SEAL FIND NO.2,3,4,5 AND FIND NO.6 TO FIND NO.1 PER ND1002004, TYPE VI
5. MARK .05/.07 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-1 CENTRALIZE AS SHOWN
6. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
2	MS16555-619		PIN, DOWEL	6
1	2004039		TERMINAL, THREADED	5
62	1006782-6		CONTACT, WRAPOST-MALE, MINATURE	4
62	1006782-1		CONTACT, WRAPOST-MALE, MINATURE	3
124	1006775		INSULATOR, WRAPOST-MALE, MINATURE	2
1	2004910		HEADER, HOUSING	1
011	LIST OF MATERIALS			

NEXT ASSY	USED ON
2003902	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	J. L. Leonard	18MAY65
CHECKED	R. Edward	24 May 65
APPROVED	G. Underhoffler	1 Jun 65
APPROVED	Eldon C Hall	21 Jun 65
APPROVED MIT	W Kupfer	22 Jun 65
APPROVED MSC		6/24/65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HEADER ASSY
INDICATOR DRIVER MODULE
AGC DSKY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2003907

SCALE 2/1 SHEET 1 OF 1

2003907 | 1

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2003908 A

REVISIONS 20272

SYM	DESCRIPTION	DATE	APPROVAL
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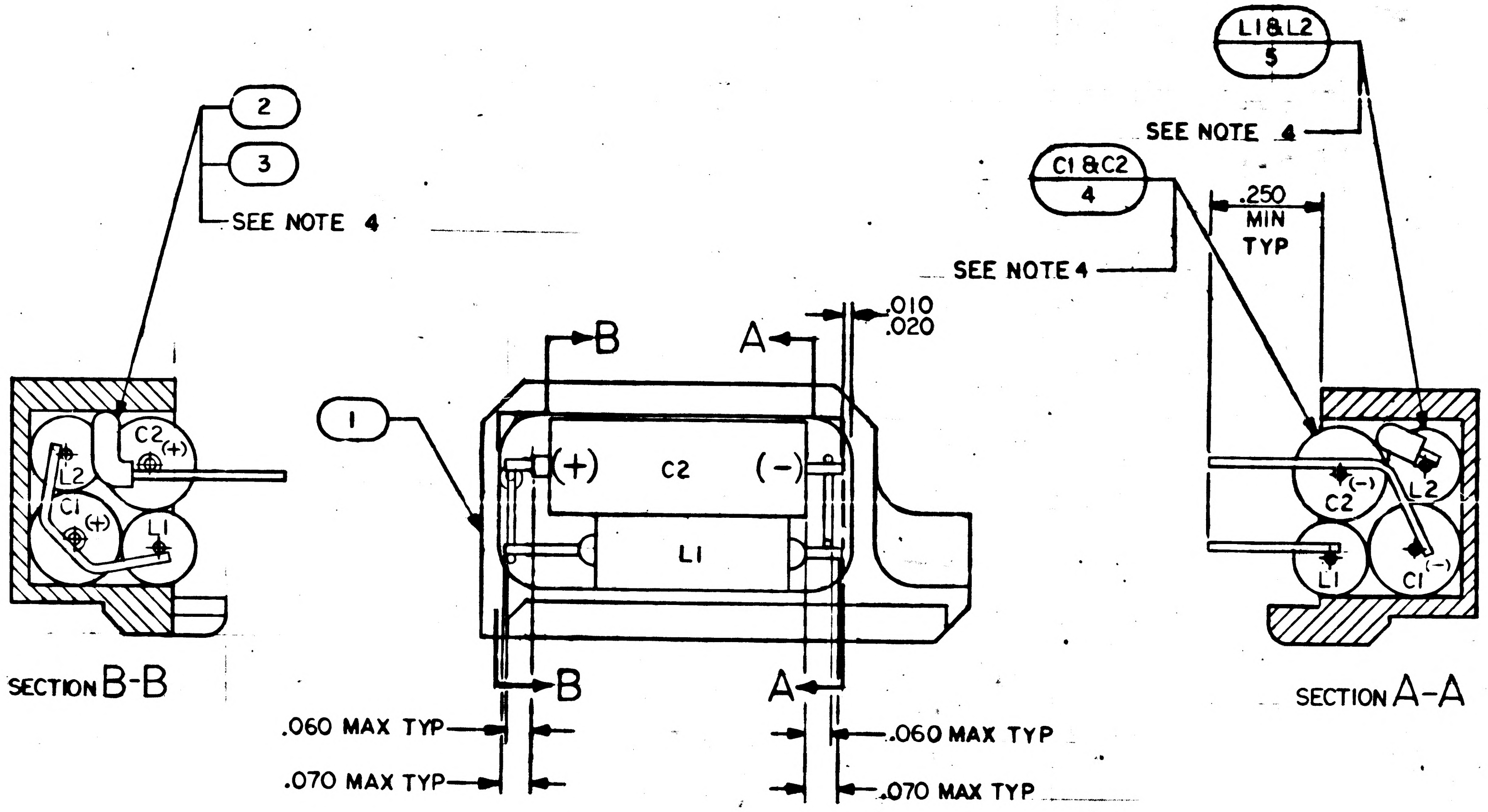

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
3. WELD PER ND1002005
4. STAKE FIND NO.2,3,4&5 TOGETHER & FIND NO.1 PER ND 1002004 TYPE V BEFORE WELDING
5. + DENOTES POSITIVE SIDE OF CAPACITOR
6. AR DENOTES AS REQUIRED
7. IDENTIFY WITH PART NO. PER ND 1002019

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2005902	SCHEMATIC	REF
2	1010406-7	COIL, RF, CHOKE	5
2	1006755-126	CAPACITOR, FIXED, ELECTROLYTIC	4
AR	1006776-22	SLEEVING, INSULATION	3
AR	1006757-8	WIRE, ELECTRICAL	2
1	2004909	BLOCK, COMPONENT	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003902	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

HEAT TREATMENT

FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO. CONTRACT

DRAWN J.L. [illegible] DATE [illegible]
CHECKED [illegible] 1 June 65
APPROVAL [illegible] 1 June 65
APPROVAL Eldon C Hall 21 June 65
NASA APPROVAL [illegible] 4/22/65
MIT APPROVAL [illegible] 22 June 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DECODING CIRCUIT ASSEMBLY INDICATOR DRIVER MODULE AGC DSKY

CODE IDENT NO. 80230
SIZE C
NASA DRAWING NO. 2003908
SCALE 4/1
WT
SHEET 1 OF 1

MASTER

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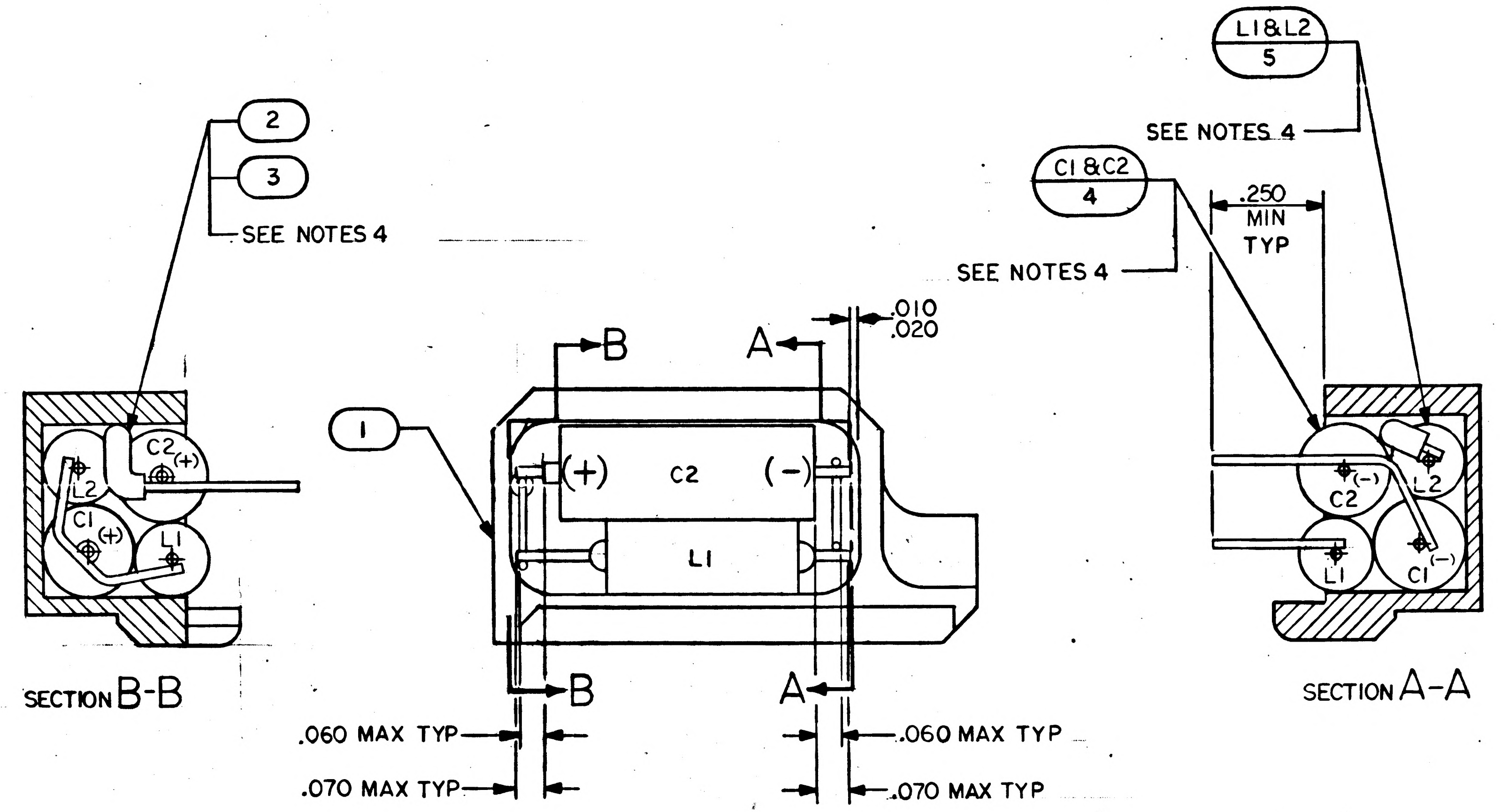
— 2003908

REVISIONS 20272

SYM	DESCRIPTION	DATE	APPROVAL



NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
3. WELD PER ND1002005
4. STAKE FIND NO.2,3,4&5 TOGETHER & FIND NO.1 PER ND 1002009 METHOD C OR D BEFORE WELDING
5. + DENOTES POSOTIVE SIDE OF CAPACITOR
6. AR DENOTES AS REQUIRED
7. IDENTIFY WITH DRAWING NO & REVISION PER ND 1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	2005902	SCHEMATIC	REF
2	1010406-7	COIL, RF, CHOKE	5
2	1006755-126	CAPACITOR, FIXED, ELECTROLYTIC	4
AR	1006776-22	SLEEVING, INSULATION	3
AR	1006757-8	WIRE, ELECTRICAL	2
1	2004909	BLOCK, COMPONENT	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003902	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO CONTRACT

DRAWN J.P. Leonard DATE 12 MAY 64
CHECKED F. Lozer 1 June 64
APPROVAL G. Underkoffler 1 Jun 65
APPROVAL Eldon C Hall 21 Jun 65

NASA APPROVAL 4/22/65

MIT APPROVAL 22 Jun 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DECODING CIRCUIT ASSEMBLY
INDICATOR DRIVER MODULE
AGC DSKY

CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	C	2003908

SCALE 4/1 WT SHEET 1 OF 1

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REVISIONS 20273

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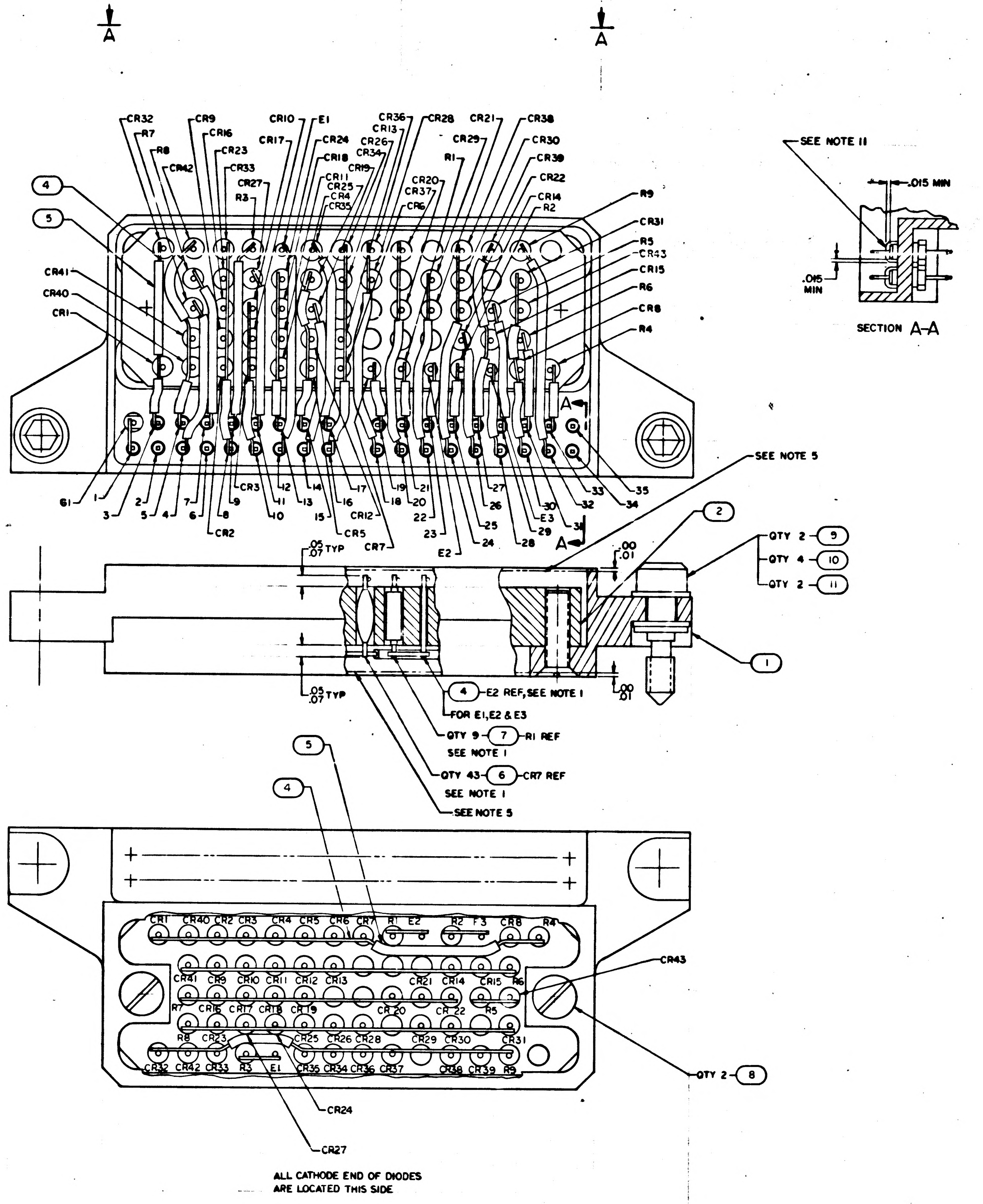

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CR18
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CR25
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CR21
CR29
CR38
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CR39
CR22
CR14
R2
R9
CR31
R5
CR43
CR15
R6
CR8
R4
CR41
CR40
CR1
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61
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E3
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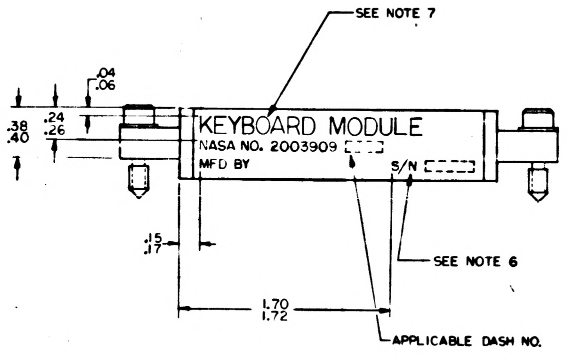
SEE NOTE 5
SEE NOTE 11
.015 MIN
.015 MIN
SECTION A-A
.05 .07 TYP
.00 .01
.05 .07 TYP
.00 .01
2
QTY 2 9
QTY 4 10
QTY 2 11
1
4 E2 REF, SEE NOTE 1
FOR E1, E2 & E3
QTY 9 7 R1 REF
SEE NOTE 1
QTY 43 6 CR7 REF
SEE NOTE 1
SEE NOTE 5
5
4
CR1 CR40 CR2 CR3 CR4 CR5 CR6 CR7 R1 E2 R2 E3 CR8 R4
CR41 CR9 CR10 CR11 CR12 CR13 CR21 CR14 CR15 R6
R7 CR16 CR17 CR18 CR19 CR20 CR22 R5
R8 CR23 CR25 CR26 CR28 CR29 CR30 CR31
CR32 CR42 CR33 R3 E1 CR35 CR34 CR36 CR37 CR38 CR39 R9
CR43
QTY 2 8
CR24
CR27

ALL CATHODE END OF DIODES ARE LOCATED THIS SIDE



SEE NOTE 7
KEYBOARD MODULE
NASA NO. 2003909
MFD BY
S/N
.04 .06
.24 .26
.38 .40
.15 .17
1.70 1.72
SEE NOTE 6
APPLICABLE DASH NO.

VIEW A-A
ROTATED 180°
SCALE 2/1

NOTES
1. STAKE FIND NO. 6 & 7 & E1, E2 & E3 TO FIND NO. 2 PER ND1002009 METHOD C OR D
2. WELD PER ND1002005
3. AR DENOTES AS REQUIRED
4. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
5. ENCAPSULATE PER ND1002236
6. MARK .070/.050 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122 TYPE II CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271-1
7. MARK .130/.110 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122 TYPE II CLASS 2 USING INK 1006271-1
8. IDENTIFY WITH PART NO. PER ND1002019
9. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
10. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003909
11. SEAL INSULATORS OF FIND NO. 1 PER ND1002004 TYPE VI

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	2005903	SCHEMATIC	REF
2	MS16633-4014	RING, RETAINING	11
4	1004546-4	WASHER, FLAT	10
2	2004932-002	SCREW, JACKING	9
2	MS35200-15	SCREW, FLAT HD	8
9	1006750-25	RESISTOR, FIXED FILM	7
43	2004103-001	SEMICONDUCTOR DEVICE, DIODE	6
AR	1006776-22	INSULATION, SLEEVING	5
AR	1006757-8	WIRE, ELECTRICAL	4
~~AR~~	~~1006757-1~~	~~WIRE, ELECTRICAL~~	~~3~~
1	2004926-011	BLOCK, COMPONENT	2
1	2003918-011	HEADER ASSY	1
011	LIST OF MATERIALS		

2003900	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE, MASS
REG. NO. CONTRACT
DRAWN B Jensen DATE 16 JUNE 65
CHECKED R. Edwards 17 June
APPROVAL
APPROVAL Eldon C. Hall
NASA APPROVAL
MIT APPROVAL 22 June 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

KEYBOARD ASSEMBLY
MODULE D8
AGC DSKY

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 2003909
SCALE 4/1
WT
SHEET 1 OF 1

APOLLO G&N Specification
PS 2003909 Rev. A
Original Issue Date: 5-10-66
Release Authority: TDRR 28638
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

KEYBOARD MODULE

DRAWING NO. 2003909

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
Ⓜ 1/6/67	A	32576	1, 2	WJ FG	WJ FG

This specification consists of pages 1 to 7 inclusive.

APPROVALS	A. C. METZGER	CC Hall	4/1/66 4-1-66
	NASA/MSC	MIT/IL	RAY

1. SCOPE

This specification establishes the detail requirements for complete identification and acceptance of the Keyboard Module Part Numbers 2003909-021, and 2003909-031.

2. APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein.

2.1 Effective Issues. Unless otherwise specified herein, Military and Government Standards and specifications shall be the issue in effect on the date of request for proposal or invitation to bid.

SPECIFICATIONS

APOLLO G & N

ND 1002214	General Specification, for Preservation, Packaging, Packing and Container Marking of APOLLO Guidance and Navigation Major Assemblies, Assemblies, Subassemblies, Parts and Associated Ground Support Equipment.

DRAWINGS

APOLLO G & N

2003909	KEYBOARD MODULE

(Copies of Specifications, Standards, Drawings, Bulletins and Publications required by suppliers in connection with specific procurement functions should be obtained from the Procuring Activity or as directed by the Contracting Officer).

2.2 Conflicting Requirements. In the event of conflict between the requirements of the contract, this Specification and the documents listed in this section, the following order of precedence shall apply and the contractor shall notify MIT Apollo Management of the conflict as soon as it is determined.

a. The contract
b. This Specification
c. Documents listed in this section.

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS 20273

SYM	DESCRIPTION	DATE	APPROVAL
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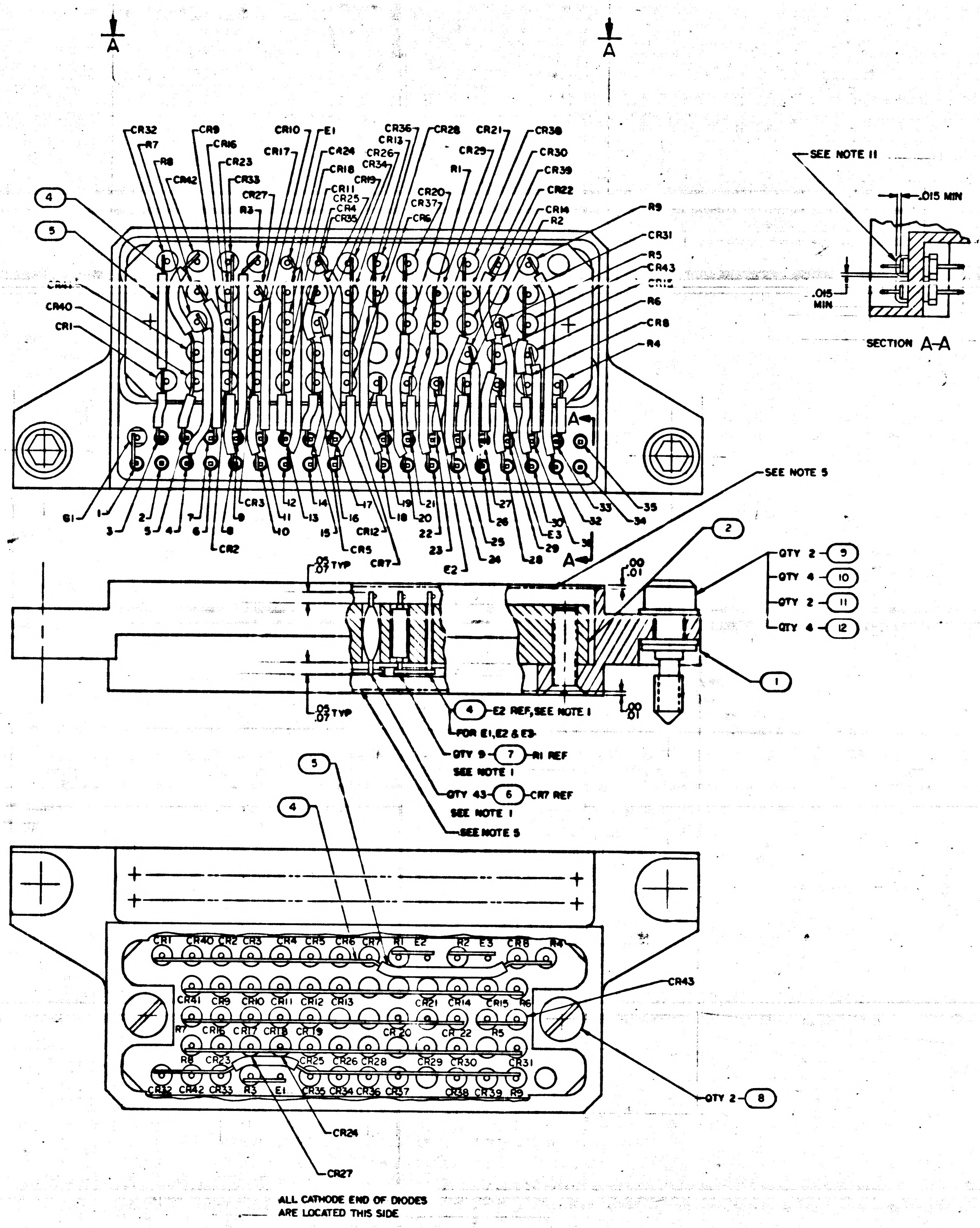
B	REVISED PER TDRR 27551 DR CHK C.K.F. APPD		


A
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CR32
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CR42
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CR16
CR23
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CR17
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CR24
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CR31
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CR43
CR15
R6
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R4
CR41
CR40
CR1
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G1
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CR3
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CR12
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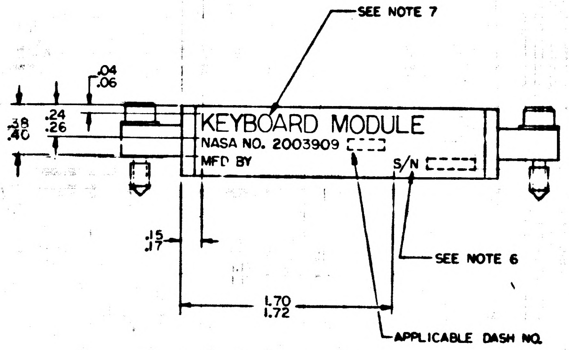
SEE NOTE 5
2
.05 .07 TYP
.00 .01
QTY 2 9
QTY 4 10
QTY 2 11
QTY 4 12
1
.05 .07 TYP
.00 .01
4 E2 REF, SEE NOTE 1
FOR E1, E2 & E3
QTY 9 7 R1 REF
SEE NOTE 1
QTY 43 6 CR7 REF
SEE NOTE 1
SEE NOTE 5
5
4
CR1 CR40 CR2 CR3 CR4 CR5 CR6 CR7 R1 E2 R2 E3 CR8 R4
CR41 CR9 CR10 CR11 CR12 CR13 CR21 CR14 CR15 R6
R7 CR16 CR17 CR18 CR19 CR 20 CR 22 R5
R8 CR23 CR25 CR26 CR28 CR29 CR30 CR31
CR32 CR42 CR33 R3 E1 CR35 CR34 CR36 CR37 CR38 CR39 R9
CR43
QTY 2 8
CR24
CR27
ALL CATHODE END OF DIODES ARE LOCATED THIS SIDE
SEE NOTE 11
.015 MIN
.015 MIN
SECTION A-A


SEE NOTE 7
.04 .06
.38 .40
.24 .26
KEYBOARD MODULE
NASA NO. 2003909
MFD BY
S/N
.15 .17
SEE NOTE 6
1.70 1.72
APPLICABLE DASH NO.

VIEW A-A
ROTATED 180°
SCALE 2/1

NOTES

1. STAKE FIND NO. 6 & 7 & E1, E2 & E3 TO FIND NO. 2 PER ND1002009 METHOD C OR D
2. WELD PER ND1002005
3. AR DENOTES AS REQUIRED
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10. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003909
11. SEAL INSULATORS OF FIND NO. 1 PER ND1002004 TYPE VI

⨯	⨯	2005903	SCHEMATIC	REF
4	—	2004984-004	WASHER, FLAT	12
2	2	MS16633-4014	RING, RETAINING	11
—	4	1004546-4	WASHER, FLAT	10
2	2	2004932-002	SCREW, JACKING	9
2	2	MS35200-15	SCREW, FLAT HD	8
9	9	1006750-25	RESISTOR, FIXED FILM	7
43	43	2004103-001	SEMICONDUCTOR DEVICE, DIODE	6
AR	AR	1006776-22	INSULATION, SLEEVING	5
AR	AR	1006757-8	WIRE, ELECTRICAL	4
—	~~AR~~	~~1006757-1~~	~~WIRE, ELECTRICAL~~	~~3~~
1	1	2004926-011	BLOCK, COMPONENT	2
1	1	2003918-011	HEADER ASSY	1
QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
021	011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2005950	
2003985	
2003900	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO. CONTRACT
DRAWN B. Jensen DATE 6 JUNE
CHECKED 17 June
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

KEYBOARD ASSEMBLY
MODULE D8
AGC DSKY

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 2003909
SCALE 4/1
WT
SHEET 1 OF 1

MASTER

APOLLO G&N Specification
PS 2003909 Rev. B
Original Issue Date: 5-10-66
Release Authority: TDRR 28638
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

KEYBOARD MODULE

DRAWING NO. 2003909

Record of Revisions

Ⓜ

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
1/6/67	A	32576	1, 2	WJ FZ	WJ FZ
4/13/67	B	33609	1, 5, 7	EMB FZ	EMB FZ

This specification consists of pages 1 to 7 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	CC Hall 5/4/66 [illegible] 5/10/66 MIT/IL	[illegible] 4/1/66 [illegible] 4/1/66 [illegible] 4-1-66 RAY

3.1.7.3 Leakage Test. The voltage monitored at the module input pins shall be not more than 2.0 VDC, when 14.0 ± 0.1 VDC is applied to all output pins, and the input pins are loaded as specified in paragraph 4.2.8.2.

3.1.8 Thermal. The module shall perform as specified in paragraph 3.1.7 when the ambient temperature is set to $-10^{\circ}\,^{+0^{\circ}\mathrm{C}}_{-2.8^{\circ}\mathrm{C}}$ and $80^{\circ}\,^{+2.8^{\circ}\mathrm{C}}_{-0^{\circ}\mathrm{C}}$. The voltage specified in paragraph 3.1.7.3 may deviate to not more than 7.0 VDC.

3.1.9 Vibration. The module shall perform as specified in paragraph 3.1.7 when subjected to the vibration limits specified below:

a. Frequency Range - 10 to 2000 to 10 cps.

b. Frequency Sweep Rate - at a logarithmic rate of one minute per octave.

c. Velocity - 3.14 ± 10% inches per second in the frequency range of 10 to 100 cps.

d. Acceleration - 5 g's ± 10% peak in the frequency range of 100 to 2000 cps.

e. Planes - each of the three mutually perpendicular axes.

3.2 PRODUCT CONFIGURATION

3.2.1 Drawings. The configuration of the module shall be in accordance with Apollo G&N Drawing 2003909 and all drawings and engineering data referenced thereon.

3.2.2 Weight. Weight of the module shall be recorded.

4. QUALITY ASSURANCE PROVISIONS

4.1 GENERAL. The contractor responsible for the manufacture of the assembly shall be responsible for the accomplishment of each test required herein. See Table 4-1, Product Performance and Configuration Requirement/Quality Verification Cross Reference Index.

TABLE 4-1

Requirement	Verification	Requirement	Verification
3.1.1	4.2.2	3.1.7	4.2.8
3.1.2	4.2.3	3.1.7.3	4.2.8.3
3.1.3	4.2.4	3.1.8	4.3.1
3.1.4	4.2.5	3.1.9	4.3.2
3.1.5	4.2.6	3.2.2	4.3.3
3.1.6	4.2.7		

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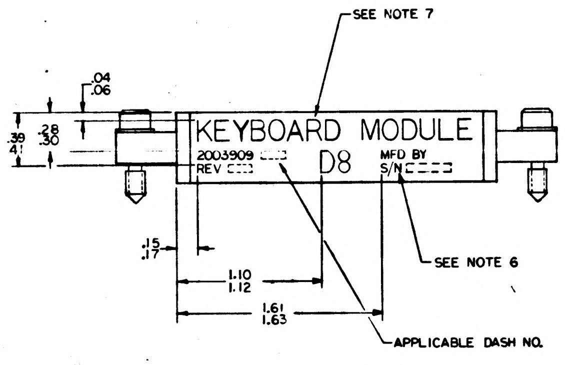
REVISIONS 20273			
SYM	DESCRIPTION	DATE	APPROVAL



SEE NOTE 7
KEYBOARD MODULE
2003909
REV
D8
MFD BY
S/N
SEE NOTE 6
APPLICABLE DASH NO.
.04
.06
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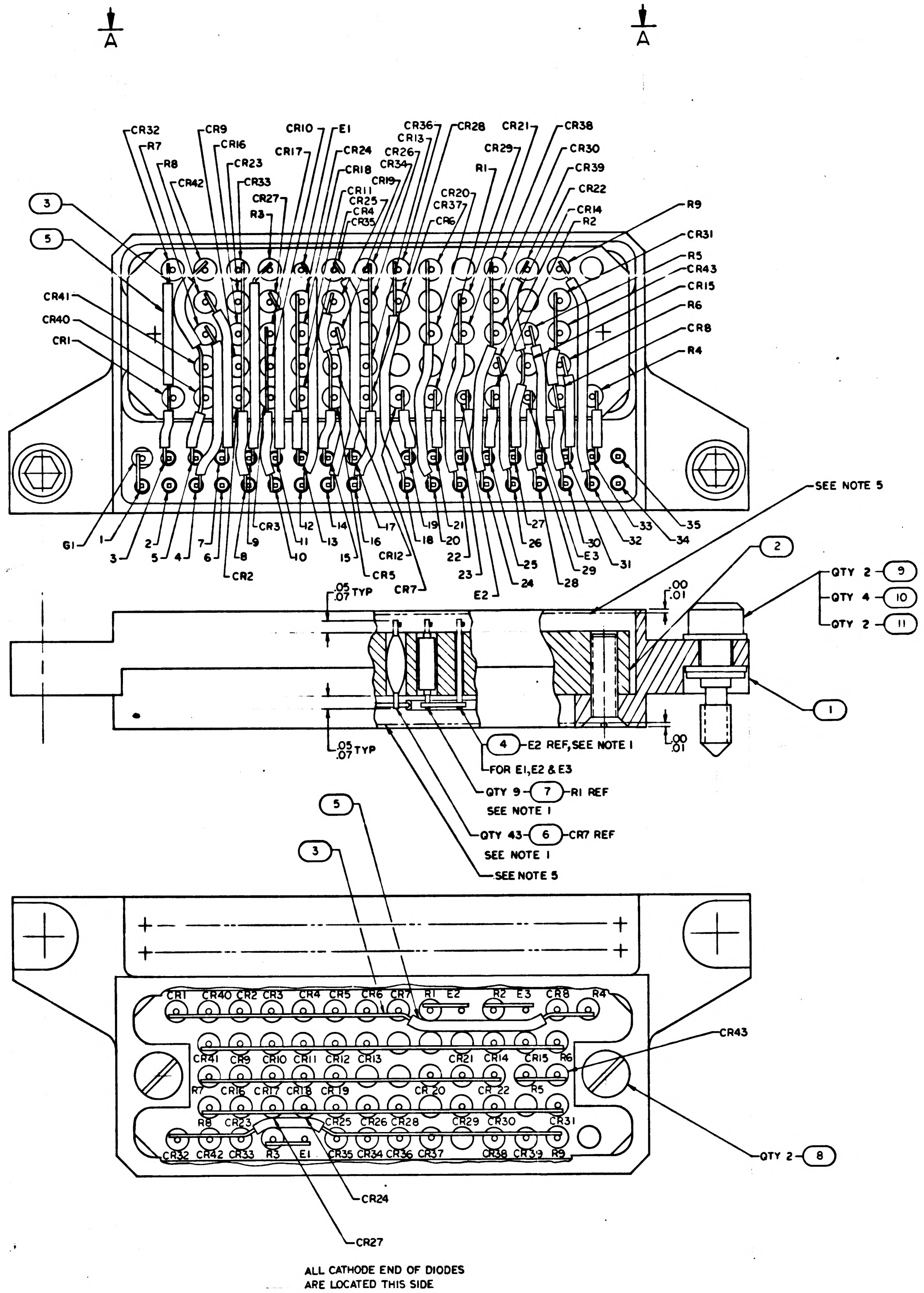
1.10
1.12
1.61
1.63

VIEW A-A
ROTATED 180°
SCALE 2/1



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CR32
R7
R8
CR42
CR9
CR16
CR23
CR33
CR27
R3
CR10
CR17
E1
CR24
CR18
CR11
CR25
CR4
CR35
CR36
CR13
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CR20
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CR6
CR21
CR29
R1
CR38
CR30
CR39
CR22
CR14
R2
R9
CR31
R5
CR43
CR15
R6
CR8
R4
CR41
CR40
CR1
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G1
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CR2
CR3
CR12
CR5
CR7
E2
E3
SEE NOTE 5
2
QTY 2 – 9
QTY 4 – 10
QTY 2 – 11
1
.05
.07 TYP
.00
.01
4 – E2 REF, SEE NOTE 1
FOR E1, E2 & E3
QTY 9 – 7 – R1 REF
SEE NOTE 1
QTY 43 – 6 – CR7 REF
SEE NOTE 1
SEE NOTE 5
QTY 2 – 8
CR24
CR27
ALL CATHODE END OF DIODES ARE LOCATED THIS SIDE

NOTES
1. STAKE FIND NO.4, 6 & 7 TO FIND NO.2 PER ND1002009 METHOD C OR D
2. WELD PER ND1002005
3. AR DENOTES AS REQUIRED
4. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
5. ENCAPSULATE PER ND1002236
6. MARK .070/.050 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122 TYPE II CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271-1
7. MARK .170/.150 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122 TYPE II CLASS 2 USING INK 1006271-1
8. IDENTIFY WITH DWG NO. AND REVISION PER ND1002019
9. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
10. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003909

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2005903	SCHEMATIC	REF
2	MS16633-4014	RING, RETAINING	11
4	1004546-4	WASHER, FLAT	10
2	2004932-002	SCREW, JACKING	9
2	MS35200-15	SCREW, FLAT HD	8
9	1006750-25	RESISTOR, FIXED FLM	7
43	2004103-001	SEMICONDUCTOR DEVICE, DIODE	6
AR	1006776-22	INSULATION, SLEEVING	5
AR	1006757-8	WIRE, ELECTRICAL	4
AR	1006757-1	WIRE, ELECTRICAL	3
1	2004926-011	BLOCK, COMPONENT	2
1	2003918-011	HEADER ASSY	1
011	LIST OF MATERIALS		

MASTER

2003900	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO
CONTRACT

DRAWN B Jensen DATE 16 JUNE 65
CHECKED R. Edwards 17 June 65
APPROVAL
APPROVAL Eldon C Hall 21 June 65
NASA APPROVAL
MIT APPROVAL 22 June 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

KEYBOARD ASSEMBLY
MODULE D8
AGC DSKY

CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	E	2003909
SCALE 4/1	WT	SHEET 1 OF 1

APOLLO G&N Specification
PS 2003909 Rev. -
Original Issue Date: 5-10-66
Release Authority: TDRR 28638
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

KEYBOARD MODULE

DRAWING NO. 2003909

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA

This specification consists of pages 1 to 13 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	CC Hall 5/2/66 [illegible] 10 5 66 MIT/IL	E. H. [illegible] 4/1/66 BC [illegible] 4/1/66 [illegible] 4-1-66 [illegible] 4/1/66 RAY

1. SCOPE

1-1 This specification establishes the detail requirements for complete identification and acceptance of the Keyboard Module Part. No. 2003909-021.

2. APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein.

2.1 Effective Issues. Unless otherwise specified herein, Military and Government Standards and specifications shall be the issue in effect on the date of request for proposal or invitation to bid.

SPECIFICATIONS

APOLLO G & N

ND 1002214	General Specification, for Preservation, Packaging, Packing and Container Marking of APOLLO Guidance and Navigation Major Assemblies, Assemblies, Subassemblies, Parts and Associated Ground Support Equipment.

DRAWINGS

APOLLO G & N

2003909	KEYBOARD MODULE

(Copies of Specifications, Standards, Drawings, Bulletins and Publications required by suppliers in connection with specific procurement functions should be obtained from the Procuring Activity or as directed by the Contracting Officer).

2.2 Conflicting Requirements. In the event of conflict between the requirements of the contract, this Specification and the documents listed in this section, the following order of precedence shall apply and the contractor shall notify MIT Apollo Management of the conflict as soon as it is determined.

a. The contract
b. This Specification
c. Documents listed in this section.

3.1.7.3 Leakage Test. The voltage monitored at the module input pins shall be not more than 2.0 VDC, when 14.0 ± 0.1 VDC is applied to all output pins, and the input pins are loaded as specified in paragraph 4.2.8.2.

3.1.8 Thermal. The module shall perform as specified in paragraph 3.1.7 when the ambient temperature is set to $-10^{\circ}{}^{+0^{\circ}C}_{-2.8^{\circ}C}$ and $80^{\circ}{}^{+2.8^{\circ}C}_{-0^{\circ}C}$. The voltage specified in paragraph 3.1.7.3 may deviate to not more than 7.0 VDC.

3.1.9 Vibration. The module shall perform as specified in paragraph 3.1.7 when subjected to the vibration limits specified below:

a. Frequency Range - 10 to 2000 to 10 cps.

b. Frequency Sweep Rate - at a logarithmic rate of one minute per octave.

c. Velocity - 3.14 ± 10% inches per second in the frequency range of 10 to 100 cps.

d. Acceleration - 5 g's ± 10% peak in the frequency range of 100 to 2000 cps.

e. Planes - each of the three mutually perpendicular axes.

3.2 PRODUCT CONFIGURATION

3.2.1 Drawings. The configuration of the module shall be in accordance with Apollo G&N Drawing 2003909 and all drawings and engineering data referenced thereon.

3.2.2 Weight. Maximum allowable weight of the module shall be 0.20 pounds.

4. QUALITY ASSURANCE PROVISIONS

4.1 GENERAL. The contractor responsible for the manufacture of the assembly shall be responsible for the accomplishment of each test required herein. See Table 4-1, Product Performance and Configuration Requirement/Quality Verification Cross Reference Index.

TABLE 4-1

Requirement	Verification	Requirement	Verification
3.1.1	4.2.2	3.1.7	4.2.8
3.1.2	4.2.3	3.1.7.3	4.2.8.3
3.1.3	4.2.4	3.1.8	4.3.1
3.1.4	4.2.5	3.1.9	4.3.2
3.1.5	4.2.6	3.2.2	4.3.3
3.1.6	4.2.7		

4.2.6 Resistance. Verify that the resistance measured between the designated module pins shall be as specified in paragraph 3.1.5.

4.2.7 Input Voltage. The input voltage specified in paragraph 3.1.6 shall be applied as detailed in paragraph 4.2.8.

4.2.8 Module Outputs. Apply the power specified in paragraph 4.2.7 to the module input pins as specified in paragraph 3.1.7. Verify that the outputs, monitored at the module output pins listed in Table 3-1, shall be a combination of logic "ones" and "zeros" as specified in paragraph 3.1.7.

4.2.8.1 Output Loads. A 510-ohm ± 5% resistance shall be connected between each output pin listed in Table 3-1 and 0 VDC.

4.2.8.2 Input Loads. A 1.0 megohm ± 5% resistance shall be connected between each input pin listed in Table 3-1 and 0 VDC.

4.2.8.3 Leakage Test. Verify that the voltage measured at the input pins shall be as specified in paragraph 3.1.7.3.

4.3 WORKMANSHIP. The following tests shall be performed under the conditions specified as a verification of good workmanship.

4.3.1 Thermal. Verify that the module shall perform as specified in paragraph 3.1.7 when the ambient temperature is set to the limits specified in paragraph 3.1.8. The module shall be subjected to the designated temperatures for one-half hour prior to performing any electrical tests.

4.3.2 Vibration. Subject the module to the vibration test specified in paragraph 3.1.9. Verify that the module performs in accordance with paragraph 3.1.9.

4.3.3 Weight. Weigh the module to the nearest .01 pound. Verify that the weight does not exceed the maximum allowable weight specified in paragraph 3.2.2.

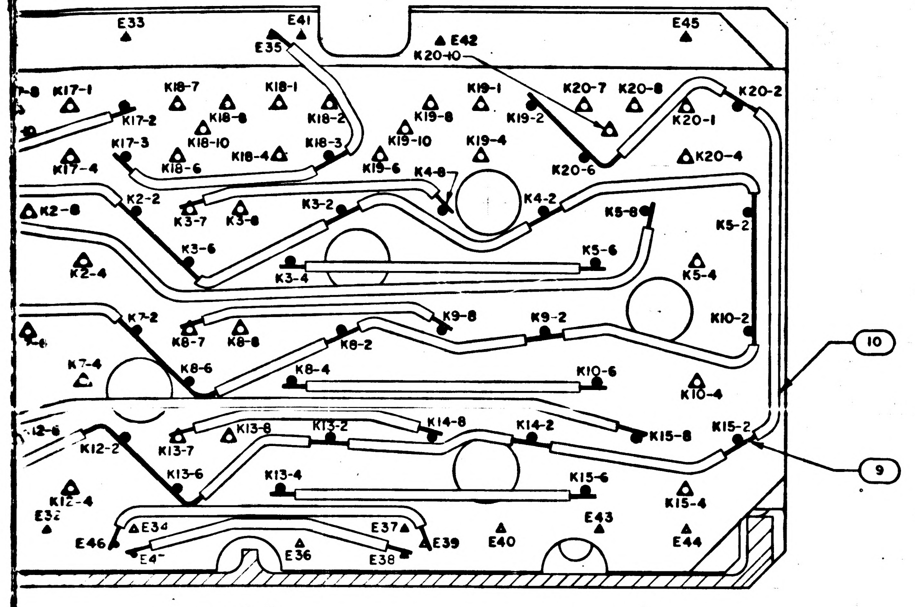
5. PREPARATION FOR DELIVERY

5.1 GENERAL. Preparation for delivery shall be in accordance with Specification ND 1002214.

6. NOTES: None.

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22162 DR J.P. [illegible] CHK [illegible]		

2003910 A



E33
E41
E35
E42
E45
K20-10
K17-1
K18-7
K18-1
K19-1
K20-7
K20-8
K20-2
K17-2
K18-8
K18-2
K19-8
K19-2
K20-1
K17-3
K18-10
K18-3
K19-10
K19-4
K20-4
K17-4
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K4-8
K20-6
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K2-2
K3-2
K4-2
K5-8
K3-7
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K5-2
K3-6
K5-6
K2-4
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K5-4
K7-2
K9-8
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K7-4
K8-6
K8-4
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K10-4
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K13-2
K14-8
K14-2
K15-8
K15-2
K12-2
K13-7
K13-6
K13-4
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K15-4
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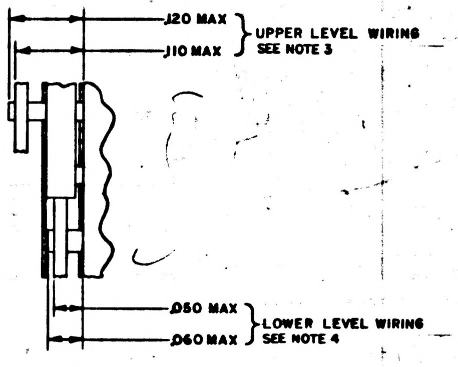
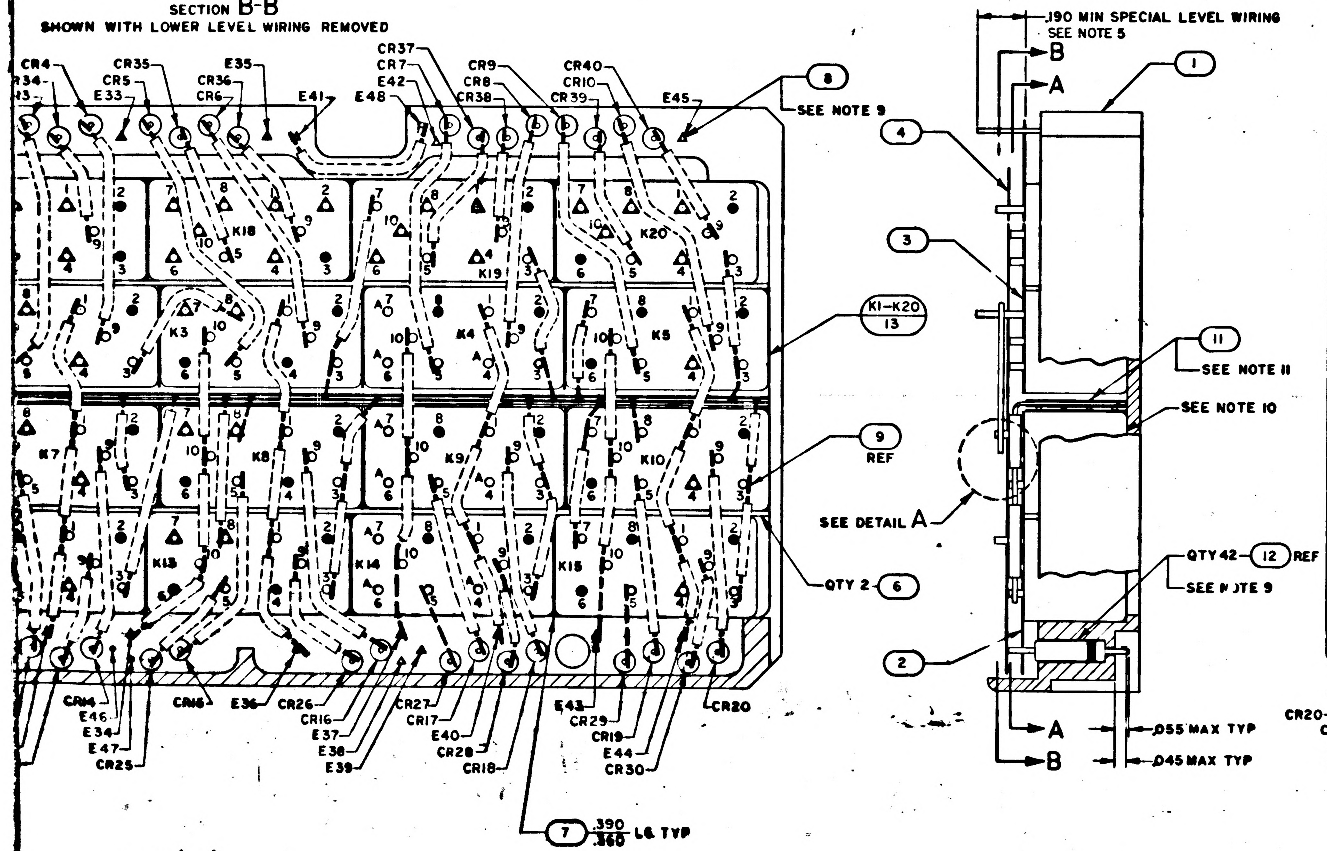
SECTION B-B
SHOWN WITH LOWER LEVEL WIRING REMOVED



.120 MAX
.110 MAX
UPPER LEVEL WIRING SEE NOTE 3
.050 MAX
.060 MAX
LOWER LEVEL WIRING SEE NOTE 4

DETAIL A
SCALE 10/1



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CR3
CR35
CR5
E33
CR36
CR6
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E42
E41
E48
CR9
CR8
CR38
CR40
CR10
CR39
E45
8
SEE NOTE 9
K18
K19
K20
K1-K20
13
K3
K4
K5
K7
K8
K9
K10
K13
K14
K15
9
REF
QTY 2
6
CR14
E46
E34
E47
CR25
CR16
E36
CR26
CR16
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E39
CR27
CR17
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CR28
CR18
E43
CR29
CR19
E44
CR30
CR20
7
.390
.360
LG TYP
.190 MIN SPECIAL LEVEL WIRING
SEE NOTE 5
B
A
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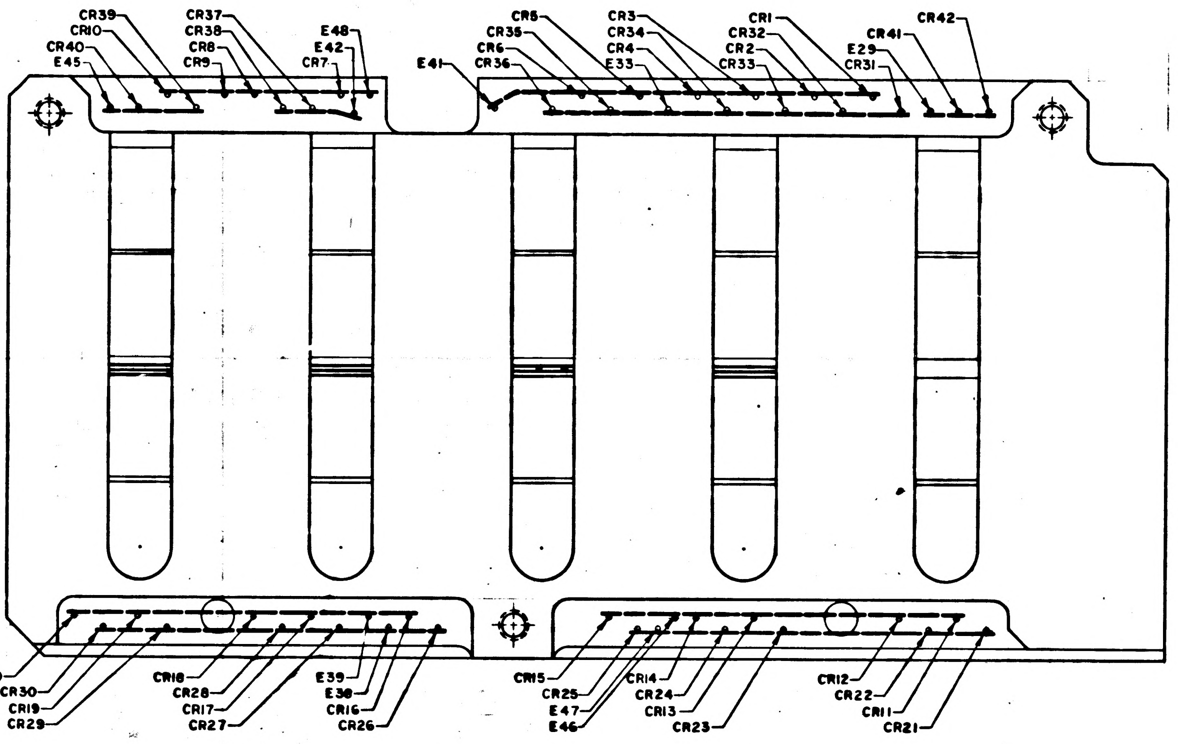
SEE NOTE 11
SEE NOTE 10
SEE DETAIL A
QTY 42
12
REF
SEE NOTE 9
2
A
B
.055 MAX TYP
.045 MAX TYP

SECTION A-A
N WITH FIRST LEVEL INSULATOR REMOVED



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CR36
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CR21

CATHODE END OF CR1 THRU CR40 LOCATED THIS SIDE

0327

02069

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2005902	SCHEMATIC	REF
2	1010784-9	RELAY	14
20	1006282-2	RELAY	13
42	2004103-001	DIODE	12
1	2003911	MATRIX ASSEMBLY	11
AR	1006776-22	INSULATION, SLEEVING ELECTRICAL	10
AR	1006757-1	WIRE, ELECTRICAL, .010 X.020	9
AR	1006757-8	WIRE, ELECTRICAL, .020 DIA	8
AR	1006806-24	INSULATION TAPE, ELECTRICAL	7
2	2004861	BOARD, INSULATOR	6
~~1~~		~~INSULATOR~~	~~5~~
1	2004916	INSULATOR	4
1	2004952	INSULATOR, B	3
1	2004933	INSULATOR, A	2
1	2004908	BLOCK, COMPONENT RELAY	1
011	LIST OF MATERIALS		

2003910 A

2003902	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

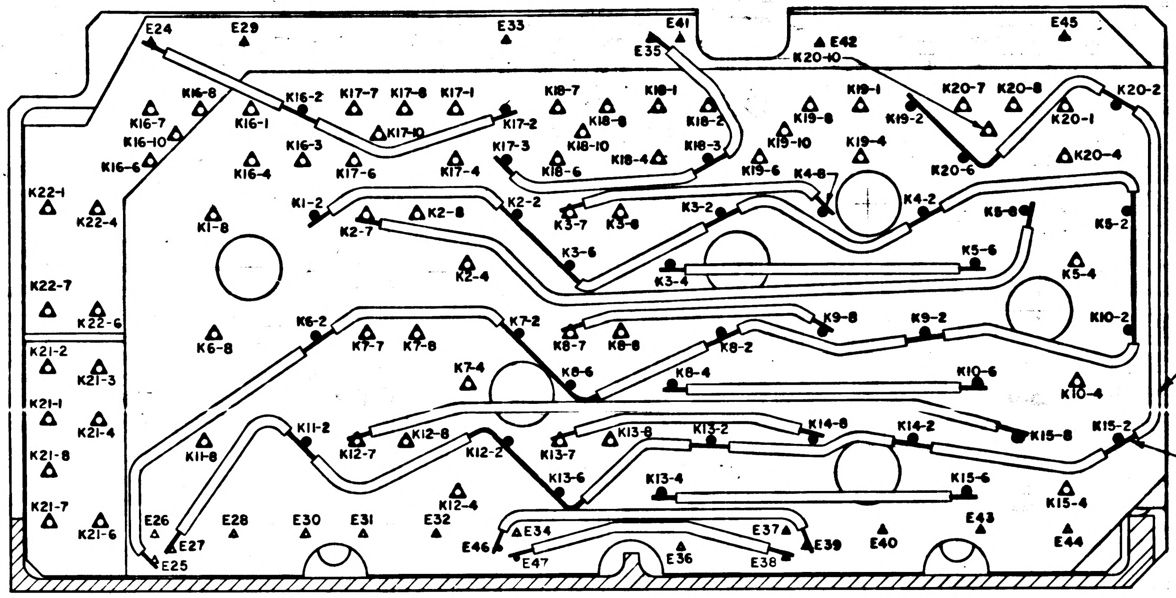
MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN R. [illegible] DATE 7 APR 65
CHECKED [illegible]
APPROVAL [illegible]
APPROVAL Ellen C. Hill
NASA APPROVAL [illegible]
MIT APPROVAL
MIT APPROVAL W. [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

RELAY CIRCUIT ASSEMBLY
INDICATOR DRIVER MODULE
AGC DSKY

CODE IDENT NO. 80230 SIZE J NASA DRAWING NO. 2003910
SCALE 4/1 WT SHEET 1 OF 1

F 2/2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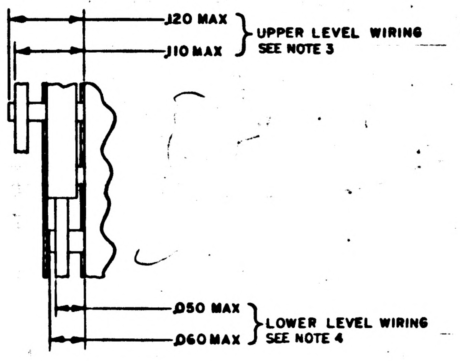
SECTION B-B
SHOWN WITH LOWER LEVEL WIRING REMOVED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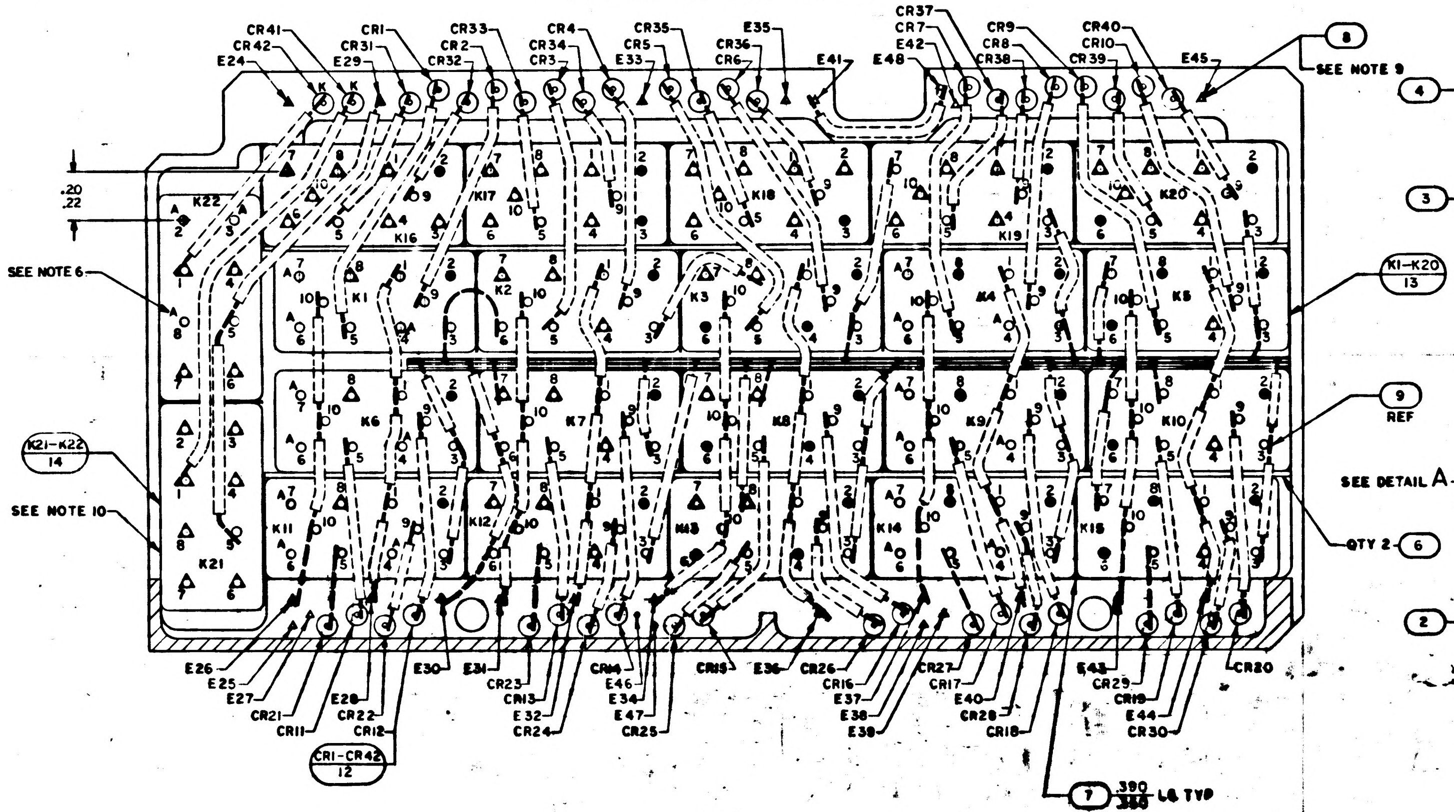
UPPER LEVEL WIRING
SEE NOTE 3
.050 MAX
.060 MAX
LOWER LEVEL WIRING
SEE NOTE 4

DETAIL A
SCALE 10/1


CR41
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CR38
CR40
CR10
CR39
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SEE NOTE 9
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.22
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K20
SEE NOTE 6
K1
K2
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K5
K1-K20
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K6
K7
K8
K9
K10
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REF
K21-K22
14
SEE NOTE 10
K11
K12
K13
K14
K15
K21
QTY 2
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E26
E25
E27
CR21
CR11
E28
CR22
CR12
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E31
CR23
CR13
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CR20
CR1-CR42
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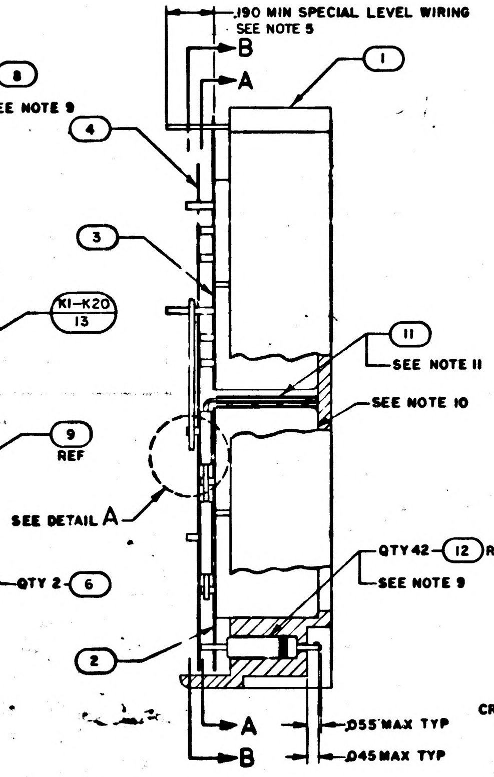
.390
.360
LG TYP

SECTION A-A
SHOWN WITH FIRST LEVEL INSULATOR REMOVED


.190 MIN SPECIAL LEVEL WIRING
SEE NOTE 5
B
A
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SEE NOTE 11
SEE NOTE 10
SEE DETAIL A
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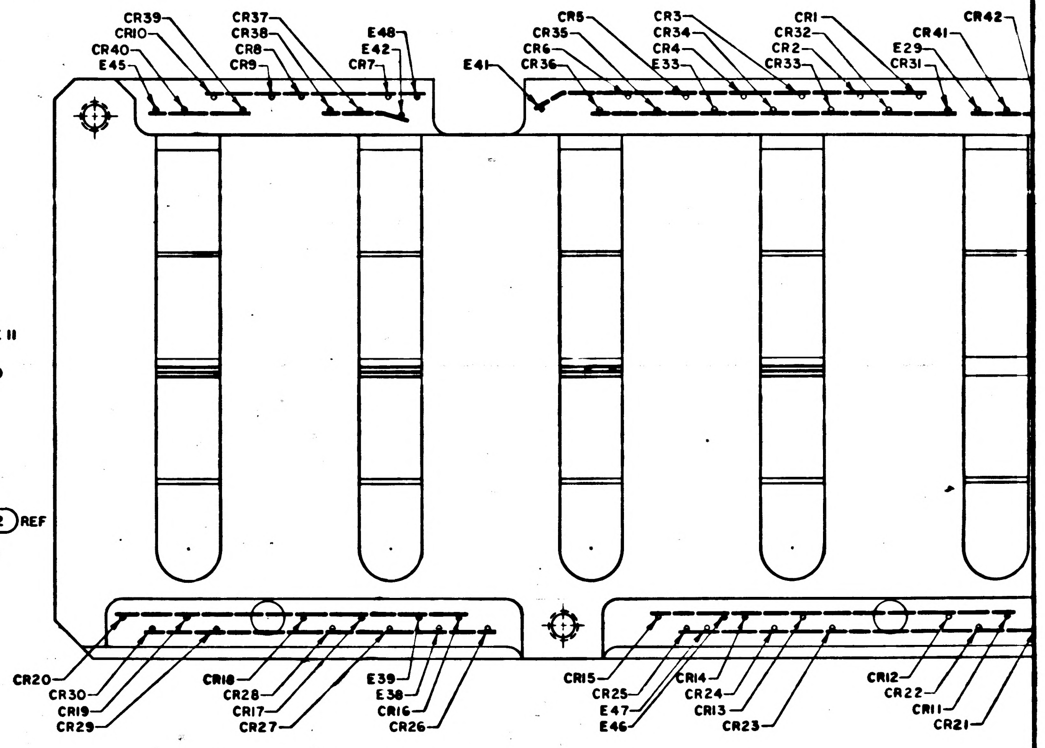
12
REF
SEE NOTE 9
2
A
B
.055 MAX TYP
.045 MAX TYP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CR16
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CR12
CR22
CR11
CR21

CATHODE END OF CR1 THRU CR40 LOCATED THIS SIDE

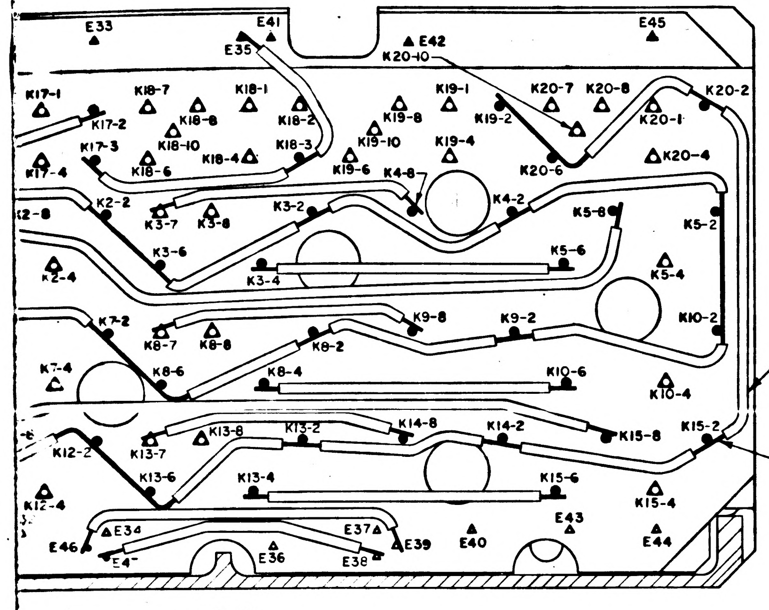
NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
4. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
5. △ INDICATES LEADS TO BE CUT FOR SPECIAL LEVEL WIRING
6. TRIM UNUSED LEADS MARKED ▲ OF FIND NO.13 & 14 .010/.030 FROM CASE
7. WELD PER ND1002005
8. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
9. STAKE FIND NO.8 & 12 TO FIND NO.1 PER ND1002009 METHOD C OR D
10. BOND FIND NO.13 & 14 TO FIND NO.1 PER ND1002004 TYPE IV
11. REMOVE PROTECTIVE LINER FROM FIND NO.11 AND ASSEMBLE
TO K6 THRU K10 AS SHOWN
12. K DENOTES CATHODE SIDE OF DIODE
13. IDENTIFY WITH PART NO. PER ND1002019

2003902	
NEXT ASSY	USED ON
APPLICATION	

2003910 B

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22162 DR J.P. [illegible] CHK [illegible]	[illegible]	[illegible]
B	REVISED PER TDRR 23126 DR R. [illegible] CHK [illegible]	[illegible]	[illegible]

REVISIONS 20272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K13-2
K14-8
K14-2
K15-8
K15-2
K13-6
K13-4
K15-6
K12-4
K15-4
E34
E37
E43
E46
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E44
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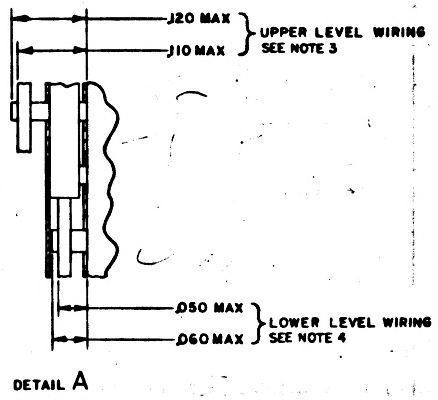
9

SECTION B-B
SHOWN WITH LOWER LEVEL WIRING REMOVED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UPPER LEVEL WIRING SEE NOTE 3
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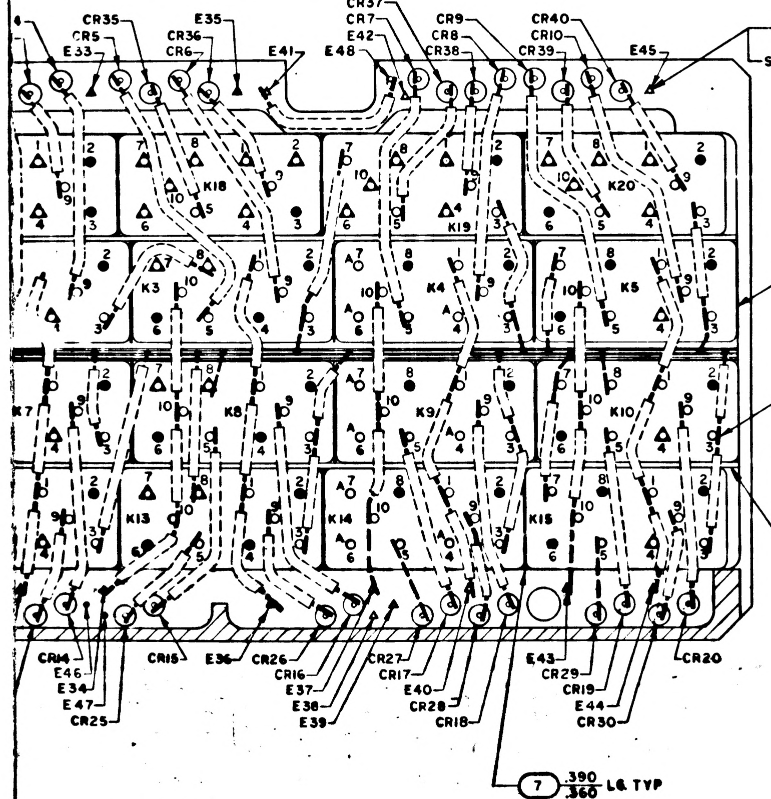
LOWER LEVEL WIRING SEE NOTE 4

DETAIL A
SCALE 10/1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CR39
E45
8
SEE NOTE 9
K18
K19
K20
K3
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K14
K15
K1-K20
13
9
REF
QTY 2
6
CR14
E46
E34
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CR25
CR15
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CR26
CR16
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CR27
CR17
E40
CR28
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CR30
CR20
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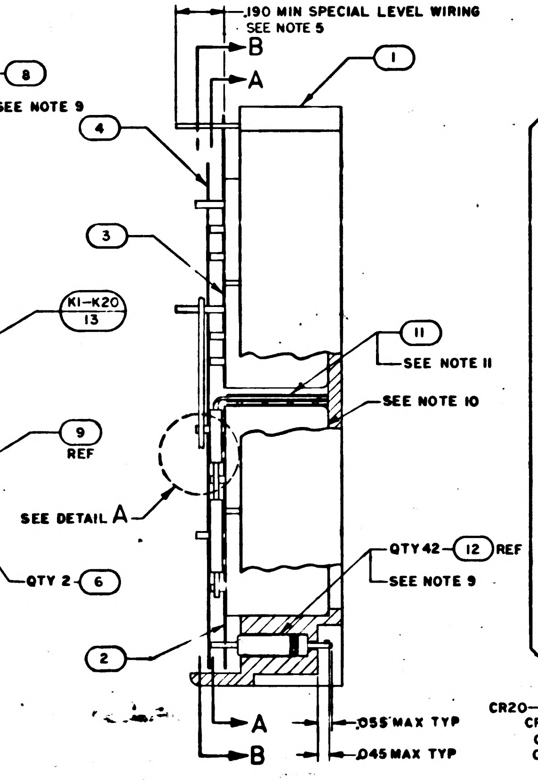
.390
.360 LG TYP

SECTION A-A
WITH FIRST LEVEL INSULATOR REMOVED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SEE NOTE 5
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SEE NOTE 10
SEE DETAIL A
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12
REF
SEE NOTE 9
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A
B
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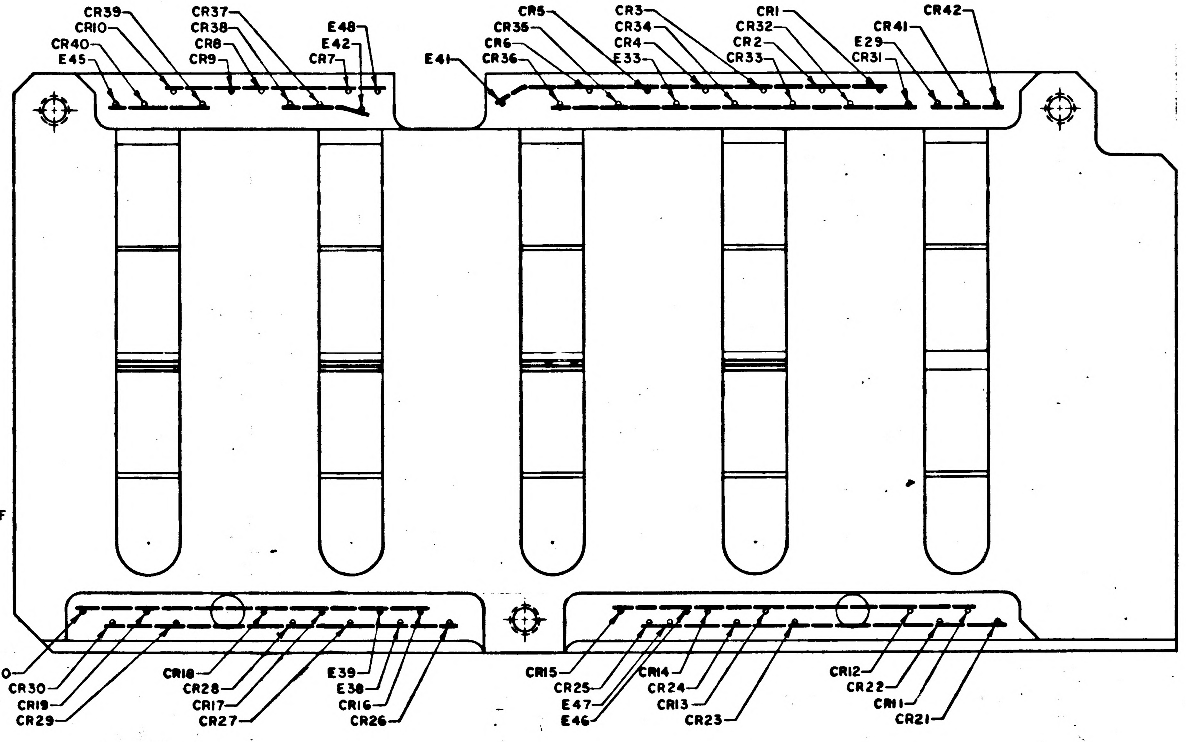
.045 MAX TYP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CR22
CR11
CR21

CATHODE END OF CR1 THRU CR40 LOCATED THIS SIDE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	2005902	SCHEMATIC	REF
2	1010784-9	RELAY	14
20	1006282-2	RELAY	13
42	2004103-001	DIODE	12
1	2003911	MATRIX ASSEMBLY	11
AR	1006776-22	INSULATION, SLEEVING ELECTRICAL	10
AR	1006757-1	WIRE, ELECTRICAL, .010 X .020	9
AR	1006757-8	WIRE, ELECTRICAL, .020 DIA	8
AR	1006806-24	INSULATION TAPE, ELECTRICAL	7
2	2004951	BOARD, INSULATOR	6
~~1~~	~~2004917~~	~~INSULATOR~~	~~5~~
1	2004916	INSULATOR	4
1	2004952	INSULATOR, B	3
1	2004933	INSULATOR, A	2
1	2004908	BLOCK, COMPONENT RELAY	1
011	LIST OF MATERIALS		

2003910 B

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

NEXT ASSY	USED ON
2003902	

APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN R. [illegible] DATE 7 APR 65
CHECKED [illegible]
APPROVAL [illegible]
APPROVAL Ellen C. Hall [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL
MIT APPROVAL W. [illegible]

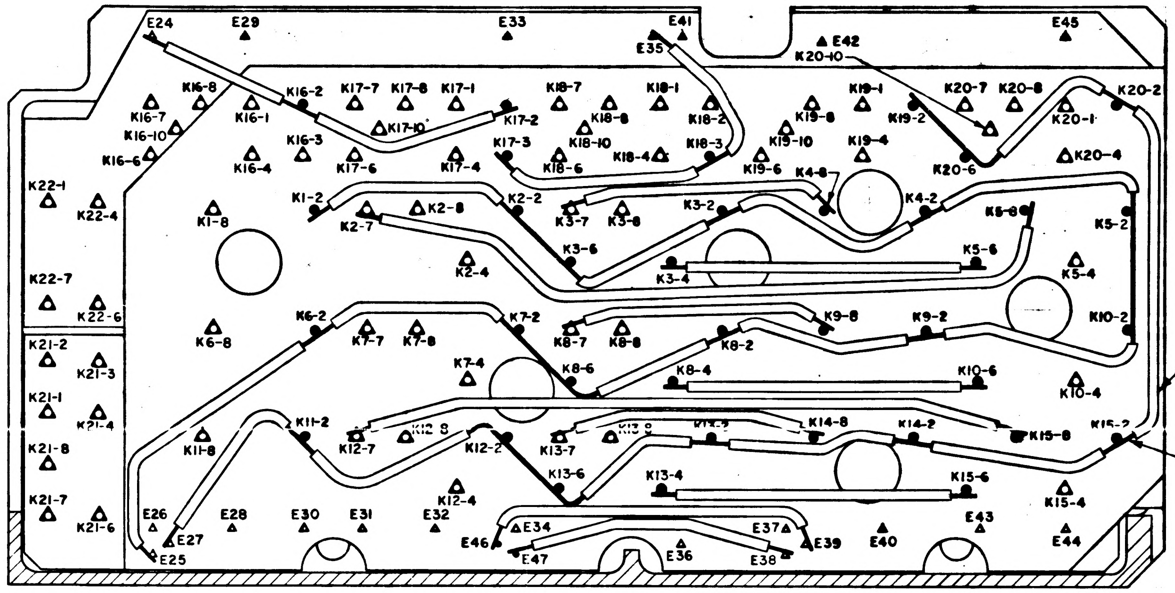
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

RELAY CIRCUIT ASSEMBLY
INDICATOR DRIVER MODULE
AGC DSKY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003910
SCALE 4/1
WT
SHEET 1 OF 1

MASTER

F 2/2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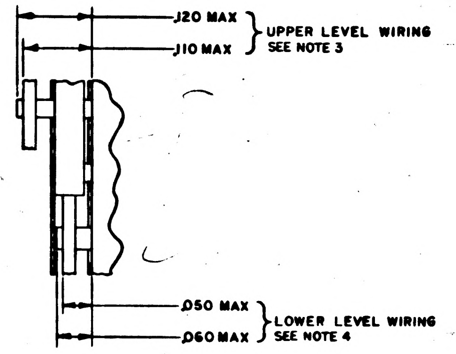
SECTION B-B
SHOWN WITH LOWER LEVEL WIRING REMOVED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UPPER LEVEL WIRING
SEE NOTE 3
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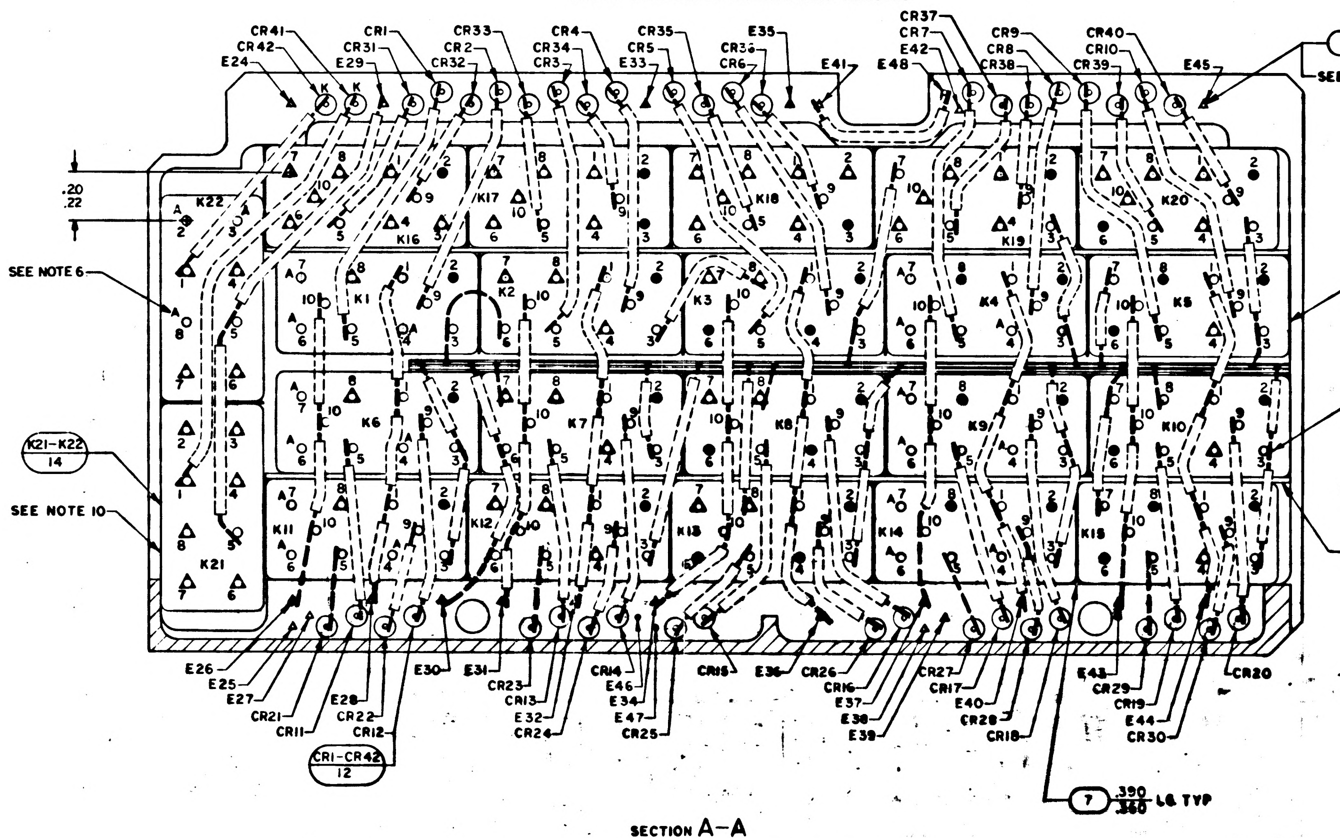
LOWER LEVEL WIRING
SEE NOTE 4

DETAIL A
SCALE 10/1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SEE NOTE 9
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SEE NOTE 6
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SEE NOTE 10
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QTY 2
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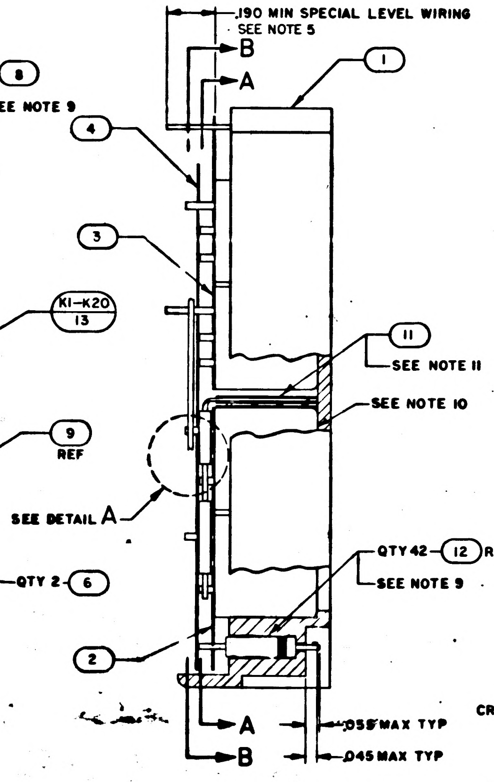
.390
.360
LG TYP

SECTION A-A
SHOWN WITH FIRST LEVEL INSULATOR REMOVED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SEE NOTE 5
B
A
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SEE NOTE 11
SEE NOTE 10
SEE DETAIL A
QTY 42
12
REF
SEE NOTE 9
2
A
B
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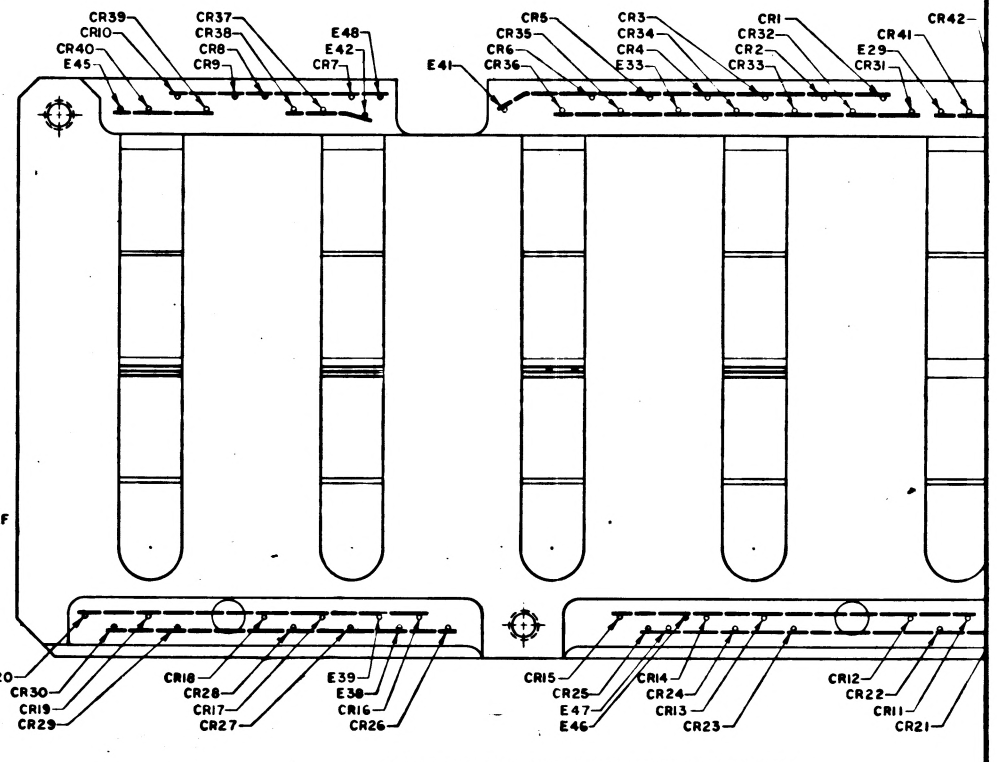
.045 MAX TYP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CR21

CATHODE END OF CR1 THRU CR40 LOCATED THIS SIDE

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
4. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
5. △ INDICATES LEADS TO BE CUT FOR SPECIAL LEVEL WIRING
6. TRIM UNUSED LEADS MARKED A OF FIND NO.13 & 14 .010/.030 FROM CASE
7. WELD PER ND1002005
8. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
9. STAKE FIND NO.8 & 12 TO FIND NO.1 PER ND1002009 METHOD C OR D
10. BOND FIND NO.13 & 14 TO FIND NO.1 PER ND1002004 TYPE V
11. REMOVE PROTECTIVE LINER FROM FIND NO.11 AND ASSEMBLE TO K6 THRU K10 AS SHOWN
12. K DENOTES CATHODE SIDE OF DIODE
13. IDENTIFY WITH PART NO. PER ND1002019

MASTER

2003902

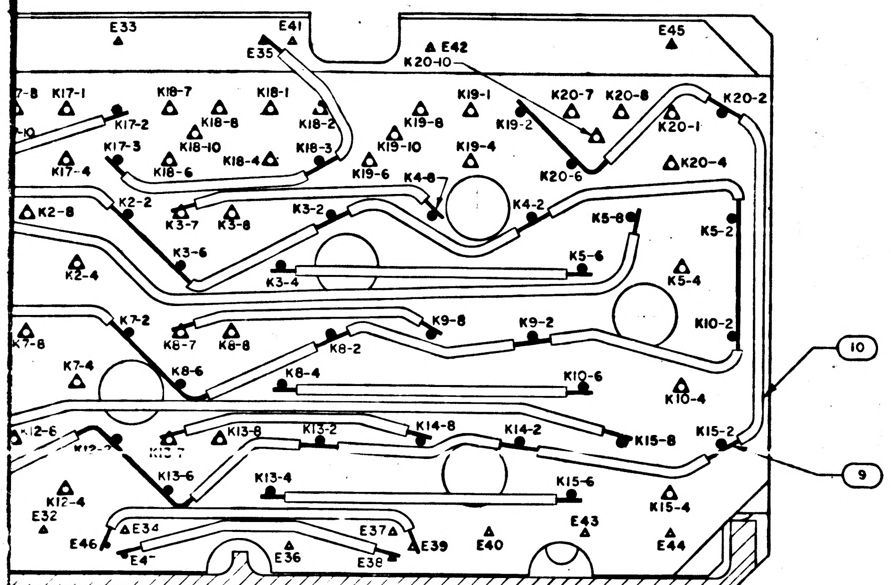
NEXT ASSY

APPLICATION

2003910 B

2003910 | C

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22162 DR J.P. CHK		
B	REVISED PER TDRR 23126 DR R. CHK JKJ		J.F. Smith
C	REVISED PER TDRR 26765 DR CHK JKJ	3/8/66	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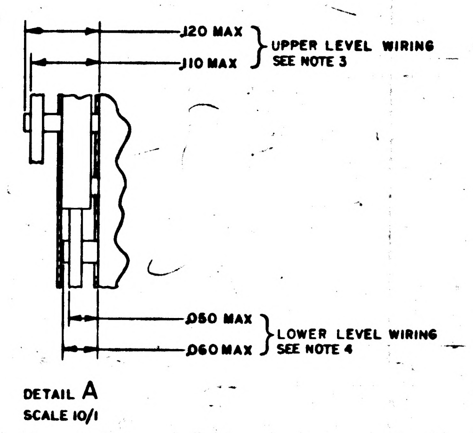
SECTION B-B
SHOWN WITH LOWER LEVEL WIRING REMOVED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UPPER LEVEL WIRING SEE NOTE 3
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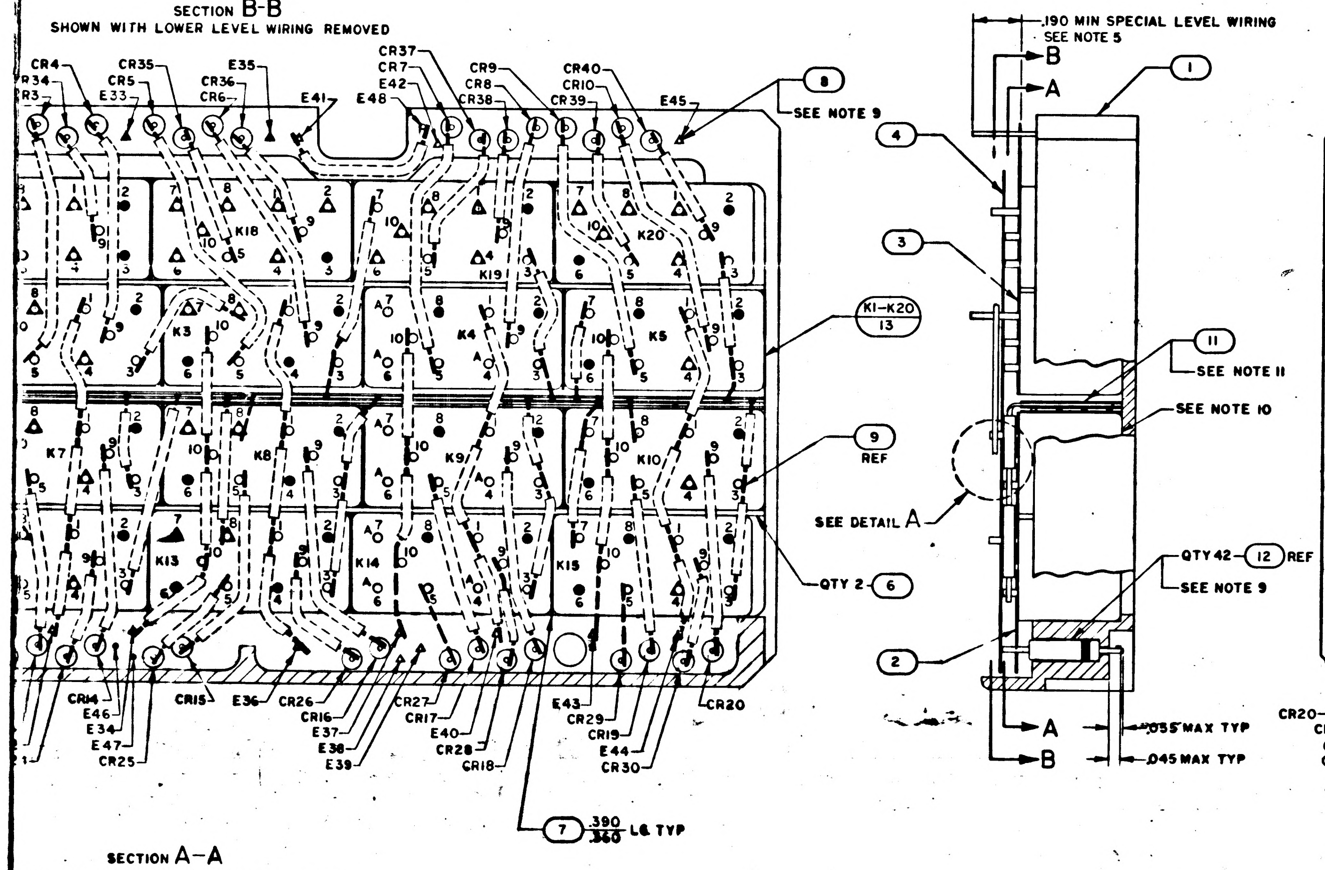
LOWER LEVEL WIRING SEE NOTE 4

DETAIL A
SCALE 10/1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SEE NOTE 5
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SEE NOTE 9
K1-K20
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SEE NOTE 11
SEE NOTE 10
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REF
SEE DETAIL A
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SEE NOTE 9
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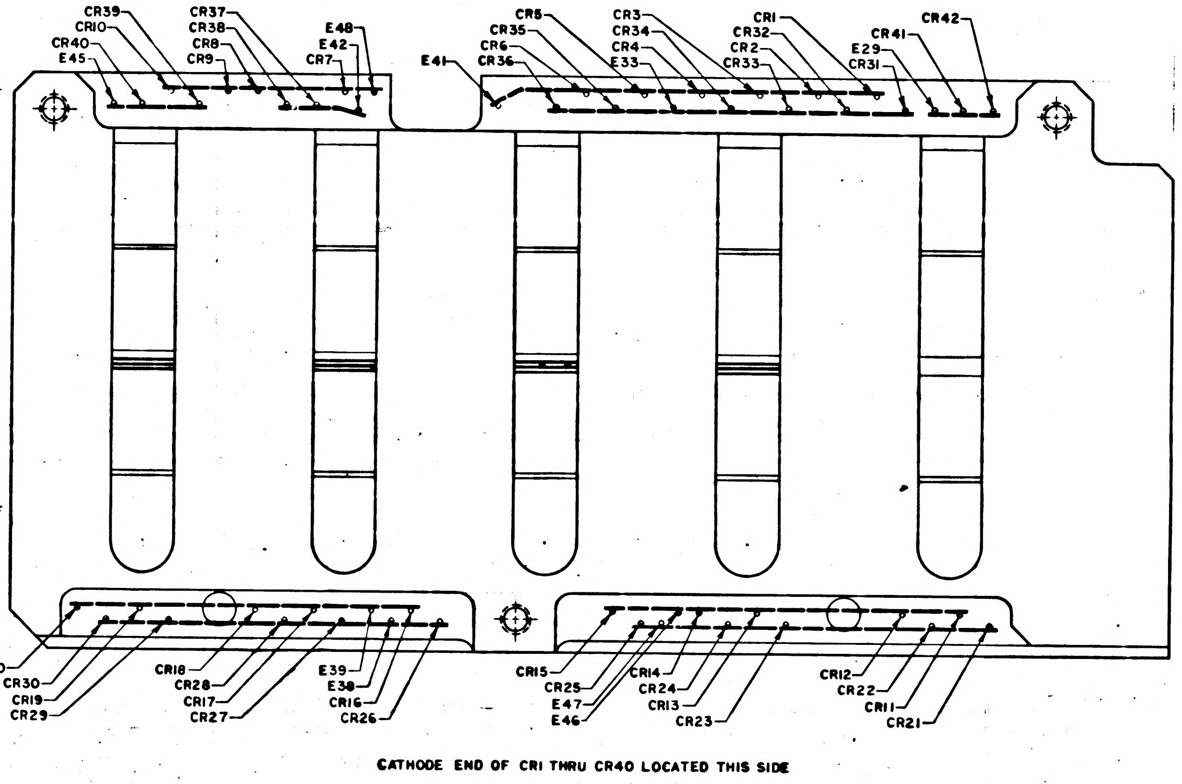
SECTION A-A
SHOWN WITH FIRST LEVEL INSULATOR REMOVED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CR21

CATHODE END OF CR1 THRU CR40 LOCATED THIS SIDE

'0327

002069

☒	2005902	SCHEMATIC	REF
2	1010784 - 11	RELAY	14
20	1006282-2	RELAY	13
42	2004103-001	DIODE	12
1	2003911	MATRIX ASSEMBLY	11
AR	1006776-22	INSULATION, SLEEVING ELECTRICAL	10
AR	1006757-1	WIRE, ELECTRICAL, .010 X .020	9
AR	1006757-8	WIRE, ELECTRICAL, .020 DIA	8
AR	1006806-24	INSULATION TAPE, ELECTRICAL	7
2	2004951	BOARD, INSULATOR	6
~~1~~	~~2004917~~	~~INSULATOR~~	~~5~~
1	2004916	INSULATOR	4
1	2004952	INSULATOR, B	3
1	2004933	INSULATOR, A	2
1	2004908	BLOCK, COMPONENT RELAY	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
011	LIST OF MATERIALS		

2003910 | C

2003952	
2003902	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN R. DATE 9 APR 65
CHECKED
APPROVAL
APPROVAL Eldon C. Hall
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

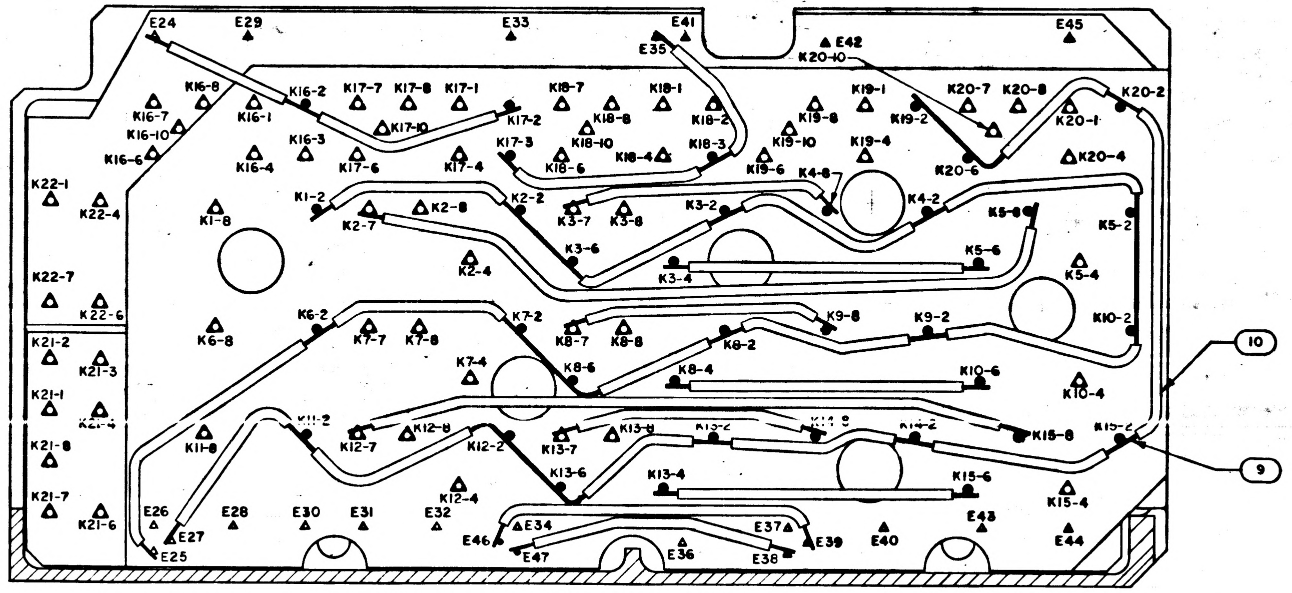
MANNED SPACECRAFT CENTER
HOUSTON TEXAS

RELAY CIRCUIT ASSEMBLY
INDICATOR DRIVER MODULE
AGC DSKY

CODE IDENT NO 80230 | SIZE J | NASA DRAWING NO 2003910
SCALE 4/1 | WT | SHEET 1 OF 1

2003910 C

F 2/12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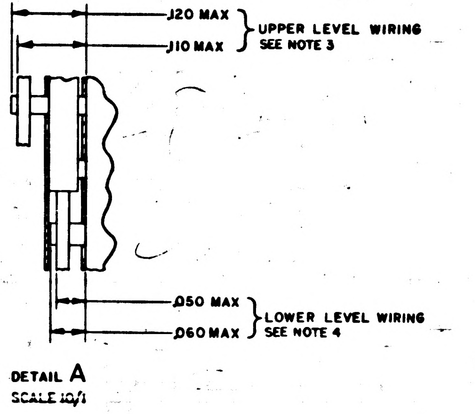
SECTION B-B

SHOWN WITH LOWER LEVEL WIRING REMOVED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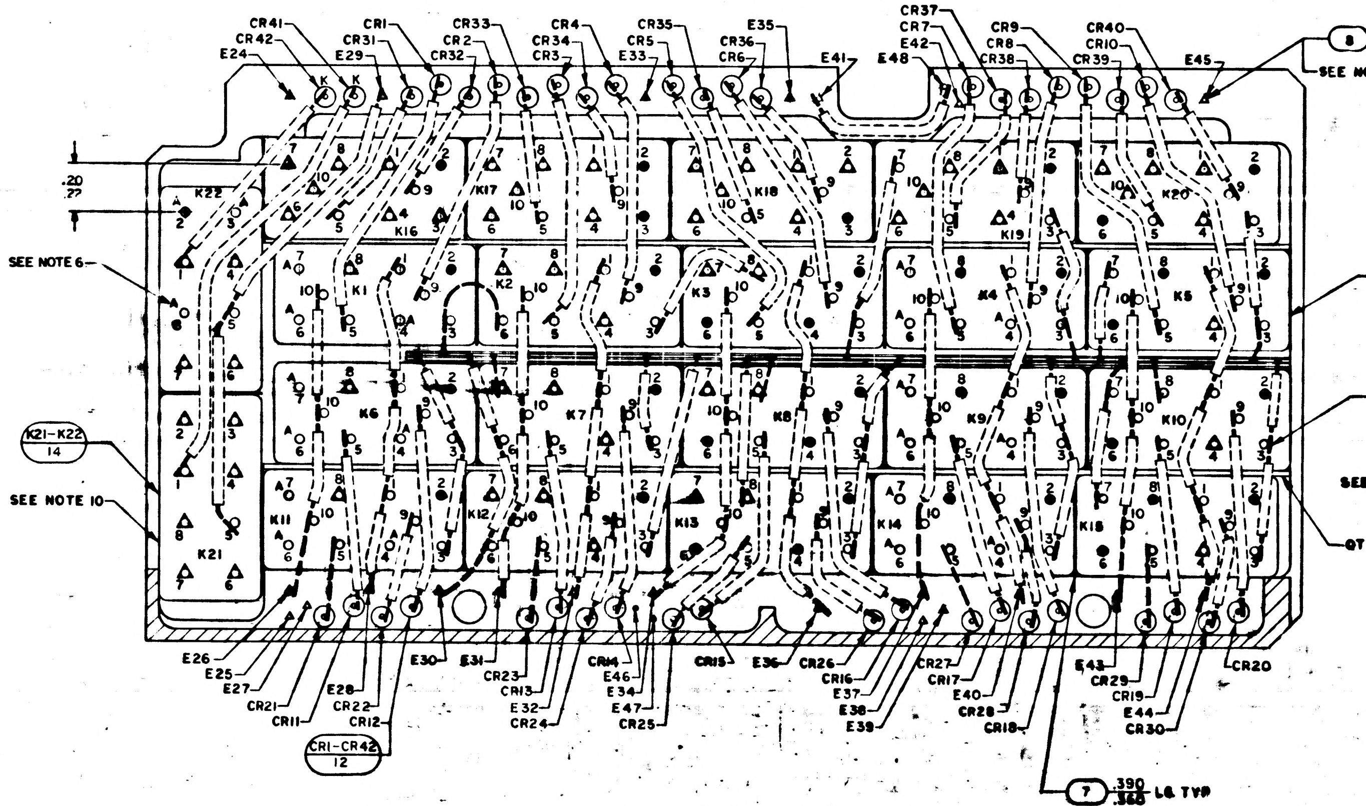
UPPER LEVEL WIRING
SEE NOTE 3
.050 MAX
.060 MAX
LOWER LEVEL WIRING
SEE NOTE 4

DETAIL A

SCALE 10/1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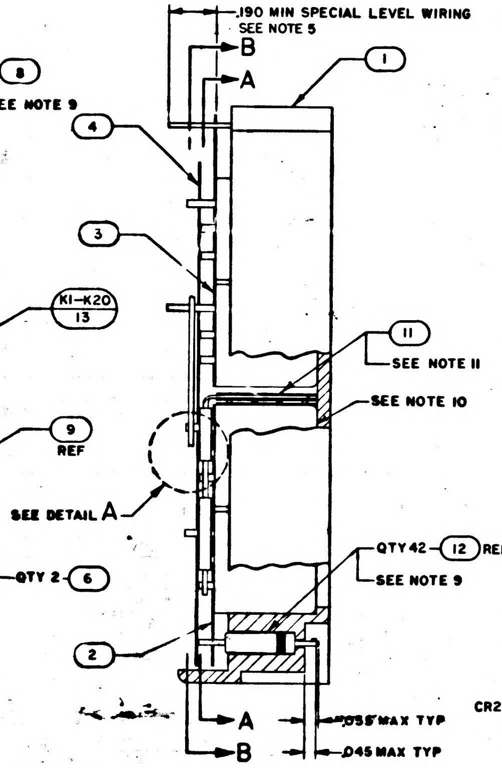
LG TYP

SECTION A-A

SHOWN WITH FIRST LEVEL INSULATOR REMOVED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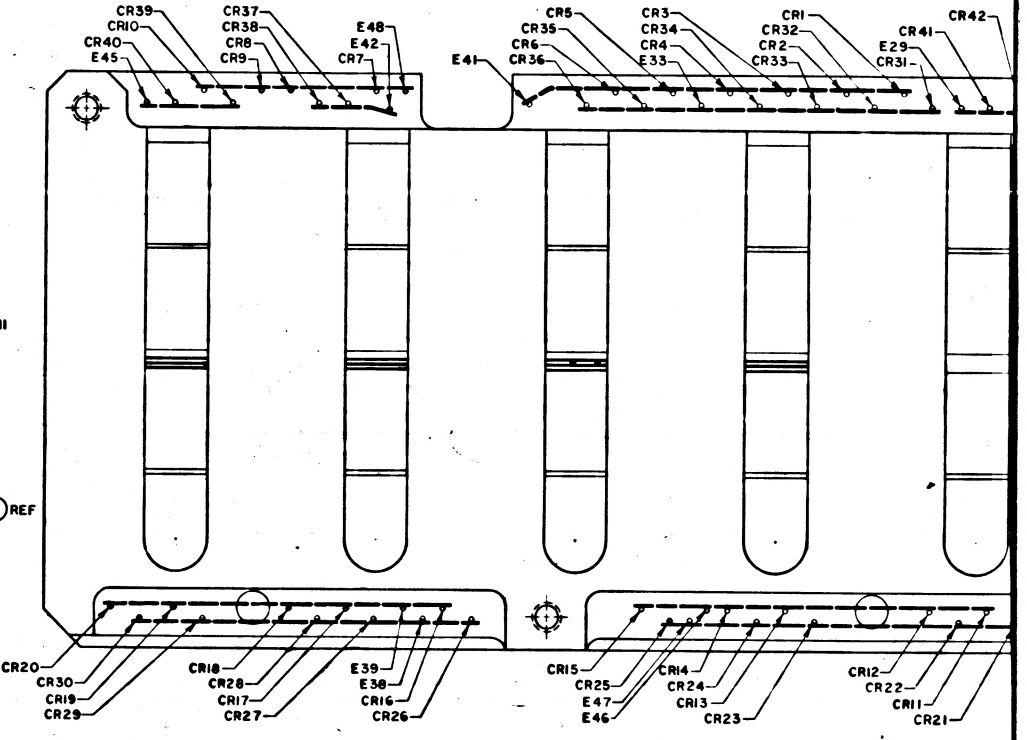
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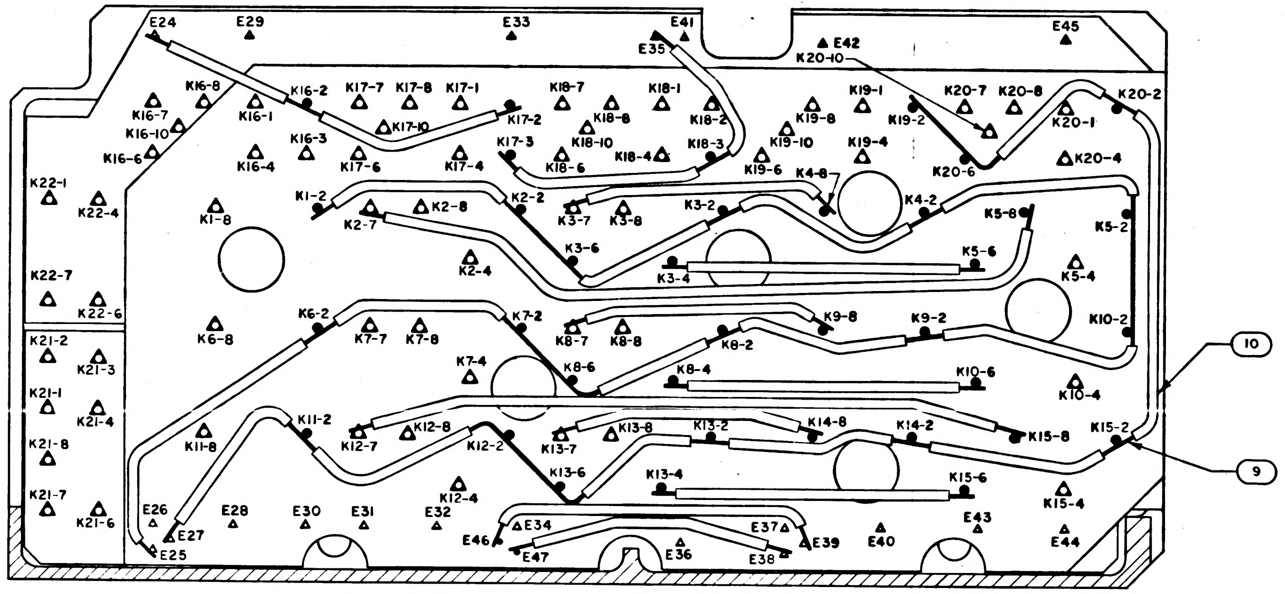
CATHODE END OF CR1 THRU CR40 LOCATED THIS SIDE

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
4. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
5. △ INDICATES LEADS TO BE CUT FOR SPECIAL LEVEL WIRING
6. TRIM UNUSED LEADS MARKED A OF FIND NO.13 & 14 .010/.030 FROM CASE
7. WELD PER ND1002005
8. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
9. STAKE FIND NO.8 & 12 TO FIND NO.1 PER ND1002009 METHOD C OR D
10. BOND FIND NO.13 & 14 TO FIND NO.1 PER ND1002004 TYPE V
11. REMOVE PROTECTIVE LINER FROM FIND NO.11 AND ASSEMBLE TO K6 THRU K10 AS SHOWN
[illegible] K DENOTES CATHODE SIDE OF DIODE
[illegible] IDENTIFY WITH PART NO. PER ND1002019

2003952	
2003902	
NEXT ASSY	USED ON
APPLICATION	

2003910 C

2003910 C F1/2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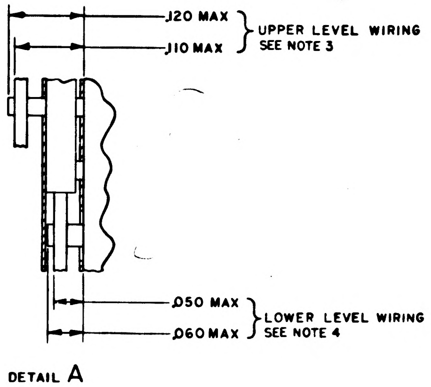
E43
E44
10
9

SECTION B-B
SHOWN WITH LOWER LEVEL WIRING REMOVED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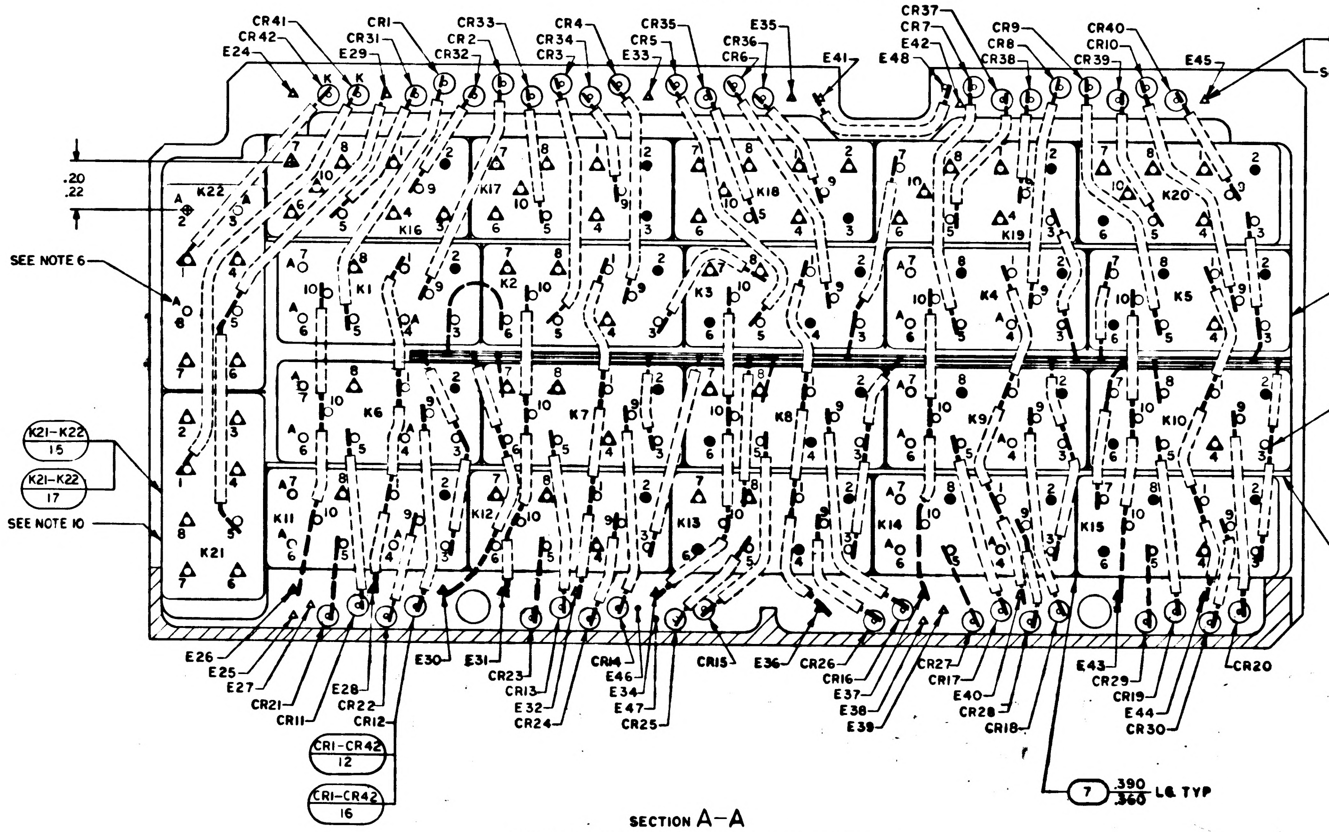
UPPER LEVEL WIRING
SEE NOTE 3
.050 MAX
.060 MAX
LOWER LEVEL WIRING
SEE NOTE 4

DETAIL A
SCALE 10/1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CR36
CR6
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CR7
E42
E48
CR9
CR8
CR38
CR40
CR10
CR39
E45
8
SEE NOTE 9
.20
.22
K22
SEE NOTE 6
K1-K20
13
K1-K20
18
K21-K22
15
K21-K22
17
SEE NOTE 10
9
REF
QTY 2
6
K21
K1
K2
K3
K4
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CR18
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CR29
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CR20
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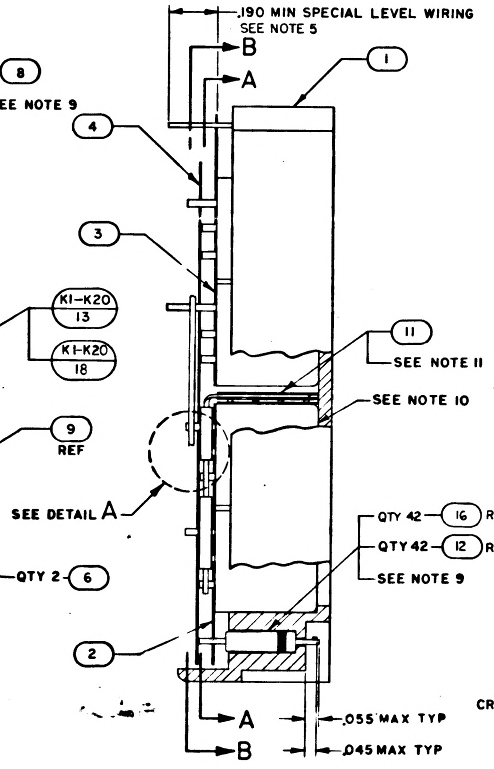
12
CR1-CR42
16
7
.390
.360
LG TYP

SECTION A-A
SHOWN WITH FIRST LEVEL INSULATOR REMOVED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SEE NOTE 5
B
A
1
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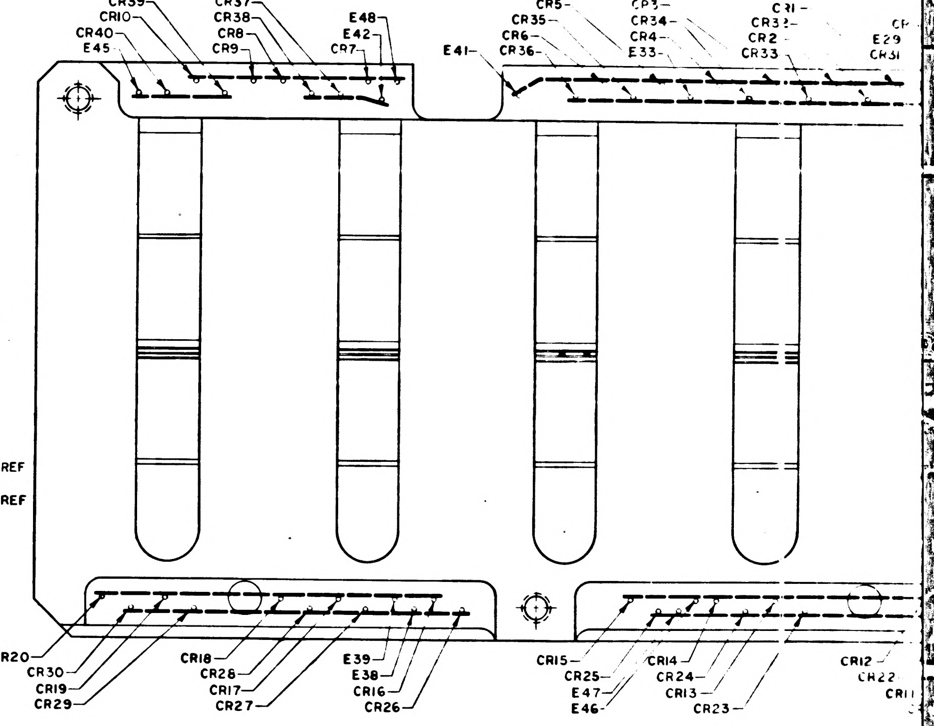
3
11
SEE NOTE 11
SEE NOTE 10
9
REF
SEE DETAIL A
QTY 42
16
REF
QTY 42
12
REF
SEE NOTE 9
QTY 2
6
2
A
.055 MAX TYP
B
.045 MAX TYP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CR30
CR19
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CR18
CR28
CR17
CR27
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CR16
CR26
CR15
CR25
E47
E46
CR14
CR24
CR13
CR23
CR12
CR22

CATHODE END OF CR1 THRU CR40 LOCATED THIS SIDE

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
4. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
5. △ INDICATES LEADS TO BE CUT FOR SPECIAL LEVEL WIRING
6. TRIM UNUSED LEADS MARKED A OF FIND NO.13, 15, 17 & 18 .010/.030 FROM CASE
7. WELD PER ND1002005
8. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
9. STAKE FIND NO. 8, 12 & 16 TO FIND NO. 1 PER ND1002009 METHOD C OR D.
10. BOND FIND NO. 13, 15, 17 & 18 TO FIND NO. 1 PER ND1002004 TYPE V.
11. REMOVE PROTECTIVE LINER FROM FIND NO. 11 AND ASSEMBLE
    TO K6 THRU K10 AS SHOWN
12. K DENOTES CATHODE SIDE OF DIODE
13. IDENTIFY WITH PART NO. PER ND1002019
14. FIND NO 18 SHALL BE 2004688-1 OR 2004688-2, EXCEPT NOT BOTH IN A GIVEN ASSEMBLY.

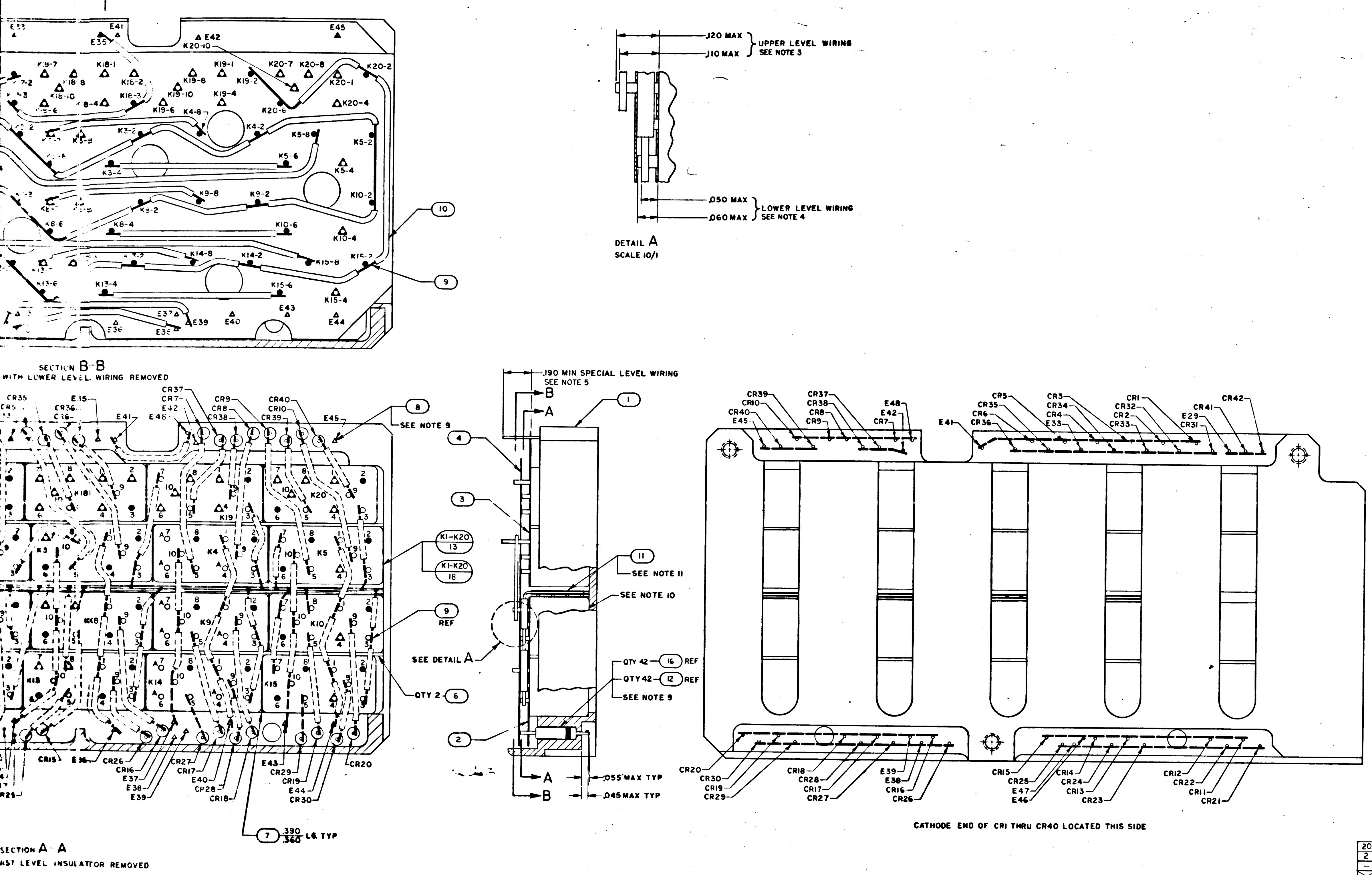
F1/2

2003910 D

2003910 D

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22162 DR J.P. [illegible] CHK [illegible]		
B	REVISED PER TDRR 23126 DR R. [illegible] CHK JCJ		
C	REVISED PER TDRR 26765 DR [illegible] CHK JCJ		
D	REVISED PER TDRR 32580 DR R. [illegible] CHK [illegible]	2367	F.R.R.

REVISIONS 20272



SECTION B-B
WITH LOWER LEVEL WIRING REMOVED
SECTION A-A
FIRST LEVEL INSULATOR REMOVED
DETAIL A
SCALE 10/1
.120 MAX
.110 MAX
UPPER LEVEL WIRING
SEE NOTE 3
.050 MAX
.060 MAX
LOWER LEVEL WIRING
SEE NOTE 4
.190 MIN SPECIAL LEVEL WIRING
SEE NOTE 5
SEE NOTE 9
SEE NOTE 11
SEE NOTE 10
SEE DETAIL A
QTY 42 16 REF
QTY 42 12 REF
QTY 2 6
K1-K20 13
K1-K20 18
9 REF
7 .390/.360 LG TYP
.055 MAX TYP
.045 MAX TYP
CATHODE END OF CR1 THRU CR40 LOCATED THIS SIDE
E41
E42
E43
E44
E45
E48
CR1
CR42
K1
K20

QTY REQD	QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
20	—	SEE NOTE 14	RELAY	18
2	—	2004689-2	RELAY	17
—		2005902	SCHEMATIC	REF
	—	2005940	SCHEMATIC	REF
42	—	2004183-001	DIODE	16
—	2	1010784-11	RELAY	15
~~—~~	~~2~~	~~1010784-9~~	~~RELAY~~	~~14~~
—	20	1006282-2	RELAY	13
—	42	2004103-001	DIODE	12
1	1	2003911-011	MATRIX ASSEMBLY	11
AR	AR	1006776-22	INSULATION, SLEEVING ELECTRICAL	10
AR	AR	1006757-1	WIRE, ELECTRICAL, .010 X.020	9
AR	AR	1006757-8	WIRE, ELECTRICAL, .020 DIA	8
AR	AR	1006806-24	INSULATION TAPE, ELECTRICAL	7
2	2	2004951	BOARD, INSULATOR	6
	~~1~~	~~2004917~~	~~INSULATOR~~	~~5~~
1	1	2004916	INSULATOR	4
1	1	2004952	INSULATOR, B	3
1	1	2004933	INSULATOR, A	2
1	1	2004908	BLOCK, COMPONENT RELAY	1
-021	-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003952	
2003902	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN R. [illegible] DATE 9 APR 65
CHECKED [illegible]
APPROVAL [illegible]
APPROVAL Eldon C Hall 21 Jun 65
NASA APPROVAL [illegible]
MIT APPROVAL
MIT APPROVAL W. Kupfer [illegible]

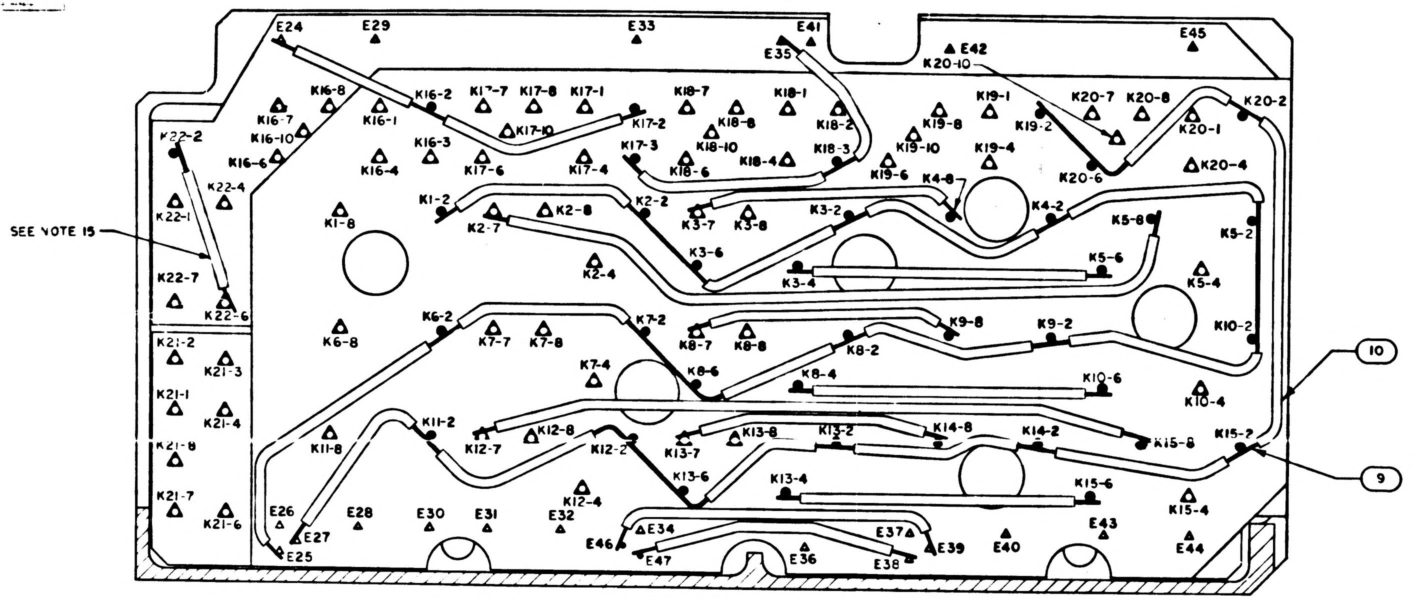
MANNED SPACECRAFT CENTER
HOUSTON TEXAS

RELAY CIRCUIT ASSEMBLY
INDICATOR DRIVER MODULE
AGC DSKY

CODE IDENT NO 80230 SIZE J NASA DRAWING NO 2003910
SCALE 4/1 WT SHEET 1 OF 1

2003910 D

R 2/2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SEE NOTE 15
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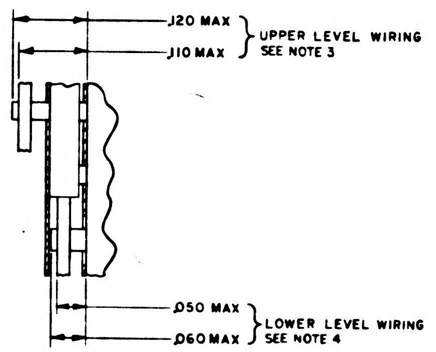
SECTION B-B
SHOWN WITH LOWER LEVEL WIRING REMOVED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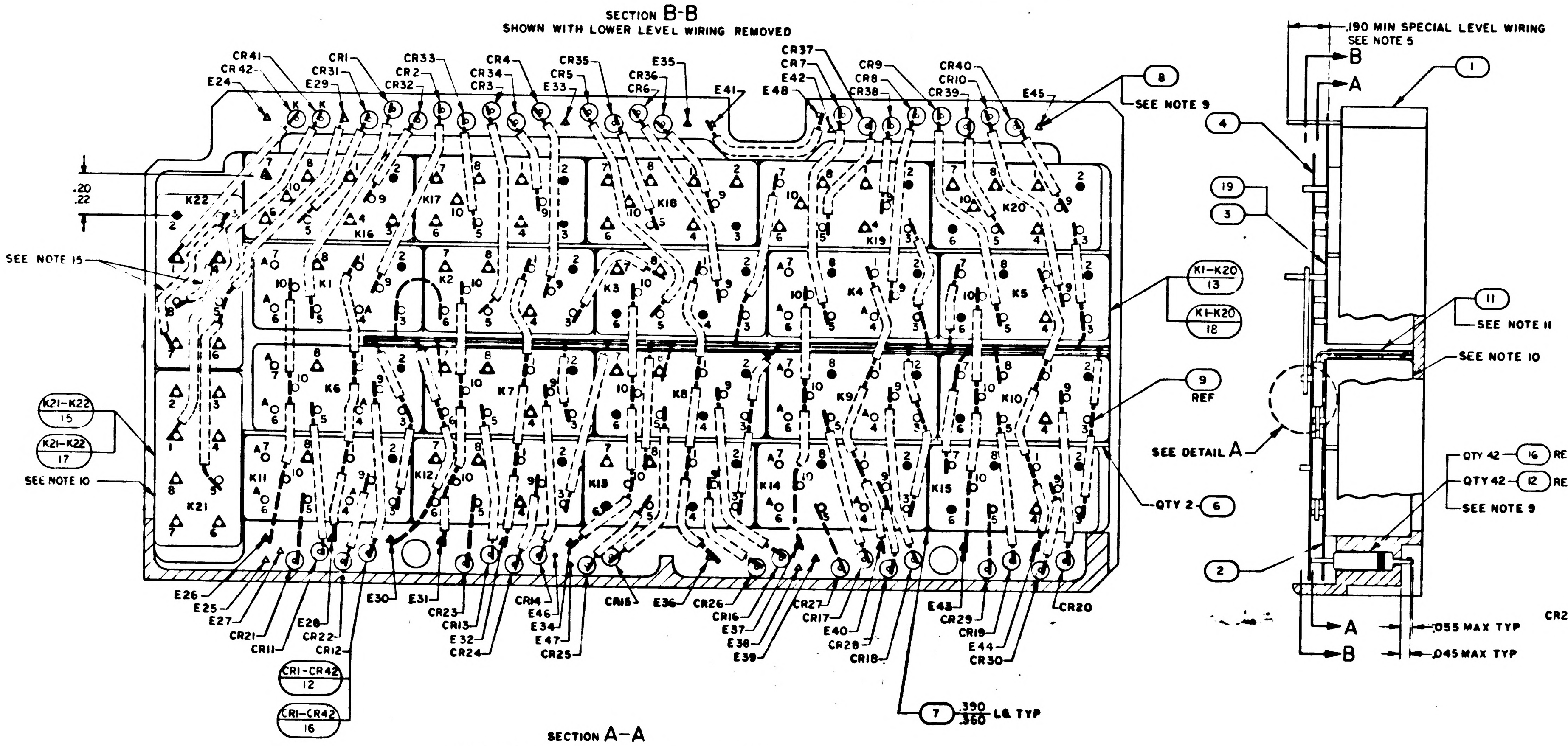
UPPER LEVEL WIRING
SEE NOTE 3
.050 MAX
.060 MAX
LOWER LEVEL WIRING
SEE NOTE 4

DETAIL A
SCALE 10/1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CR39
E45
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SEE NOTE 9
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SEE NOTE 15
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K1-K20
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K10
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REF
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SEE NOTE 10
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CR28
CR18
E43
CR29
CR19
E44
CR30
CR20
CR1-CR42
12
CR1-CR42
16
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.390
.360
LG TYP
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19
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11
SEE NOTE 11
SEE NOTE 10
SEE DETAIL A
QTY 42 16 REF
QTY 42 12 REF
SEE NOTE 9
2
A
B
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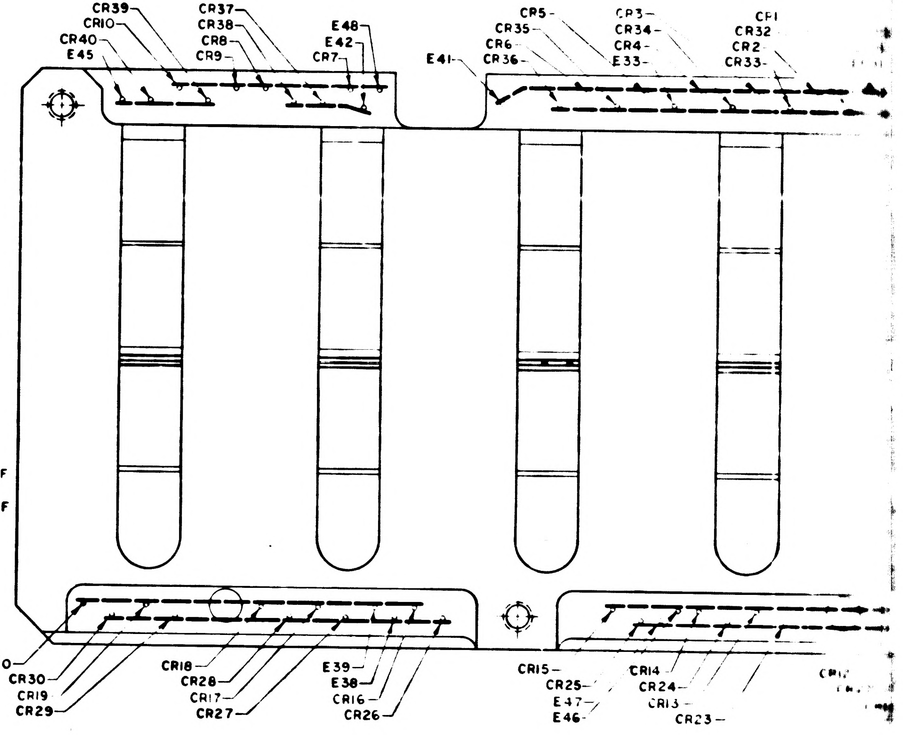
.045 MAX TYP

SECTION A-A
SHOWN WITH FIRST LEVEL INSULATOR REMOVED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CR17
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CR16
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E47
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CR14
CR24
CR13
CR23

CATHODE END OF CR1 THRU CR40 LOCATED THIS SIDE

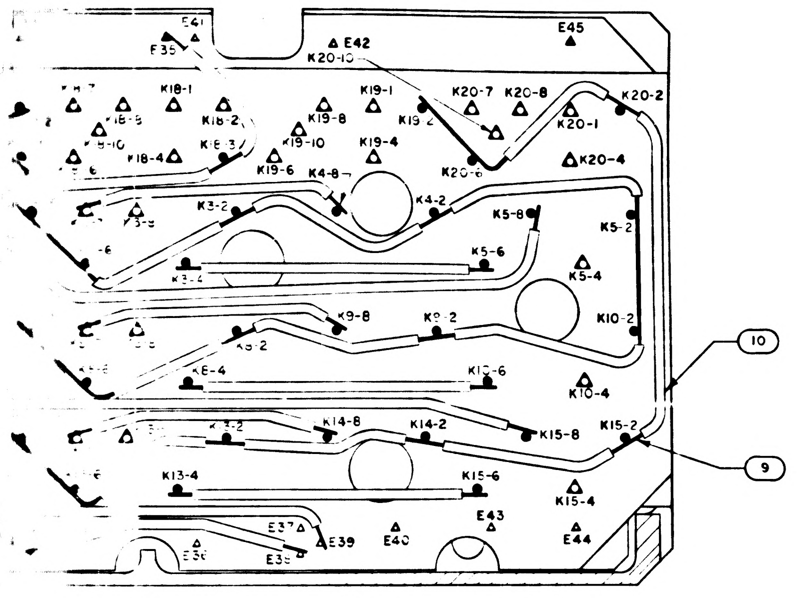
NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
4. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
5. △ INDICATES LEADS TO BE CUT FOR SPECIAL LEVEL WIRING
6. TRIM UNUSED LEADS MARKED A OF FIND NO.13, 15, 17 & 18 .010/.030 FROM CASE
7. WELD PER ND1002005
8. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
9. STAKE FIND NO. 8, 12 & 16 TO FIND NO. 1 PER ND1002009 METHOD C OR D.
10. BOND FIND NO. 13, 15, 17 & 18 TO FIND NO. 1 PER ND1002004 TYPE V.
11. REMOVE PROTECTIVE LINER FROM FIND NO. 11 AND ASSEMBLE
TO K6 THRU K10 AS SHOWN
12. K DENOTES CATHODE SIDE OF DIODE
13. IDENTIFY WITH PART NO. PER ND1002019
14. FIND NO. 8 SHALL BE 2004688-1 OR 2004688-2, EXCEPT NOT BOTH IN A GIVEN ASSEMBLY.
15. JUMPERS FROM K22-8 TO K22-4, K22-7 TO K22-3 AND K22-6 TO K22-2 FOR -021 CONFIGURATION ONLY

2003910 E

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22152 DR JPL CHK		
B	REVISED PER TDRR 23126 DR R. Luiford CHK JCJ		
C	REVISED PER TDRR 26765 DR CHK JCJ		
D	REVISED PER TDRR 32580 DR CHK	2307	F.R.R.
E	REVISED PER TDRR 34677 DR R.W. Fanko CHK		

20272



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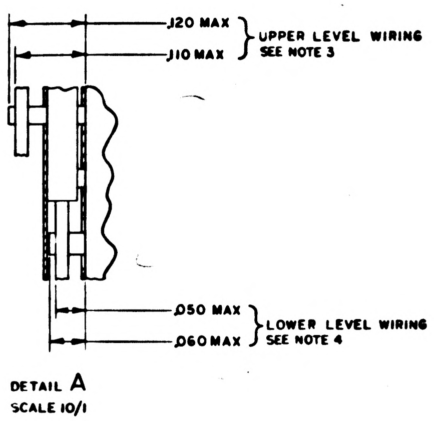
SECTION B-B
WER LEVEL WIRING REMOVED



.120 MAX
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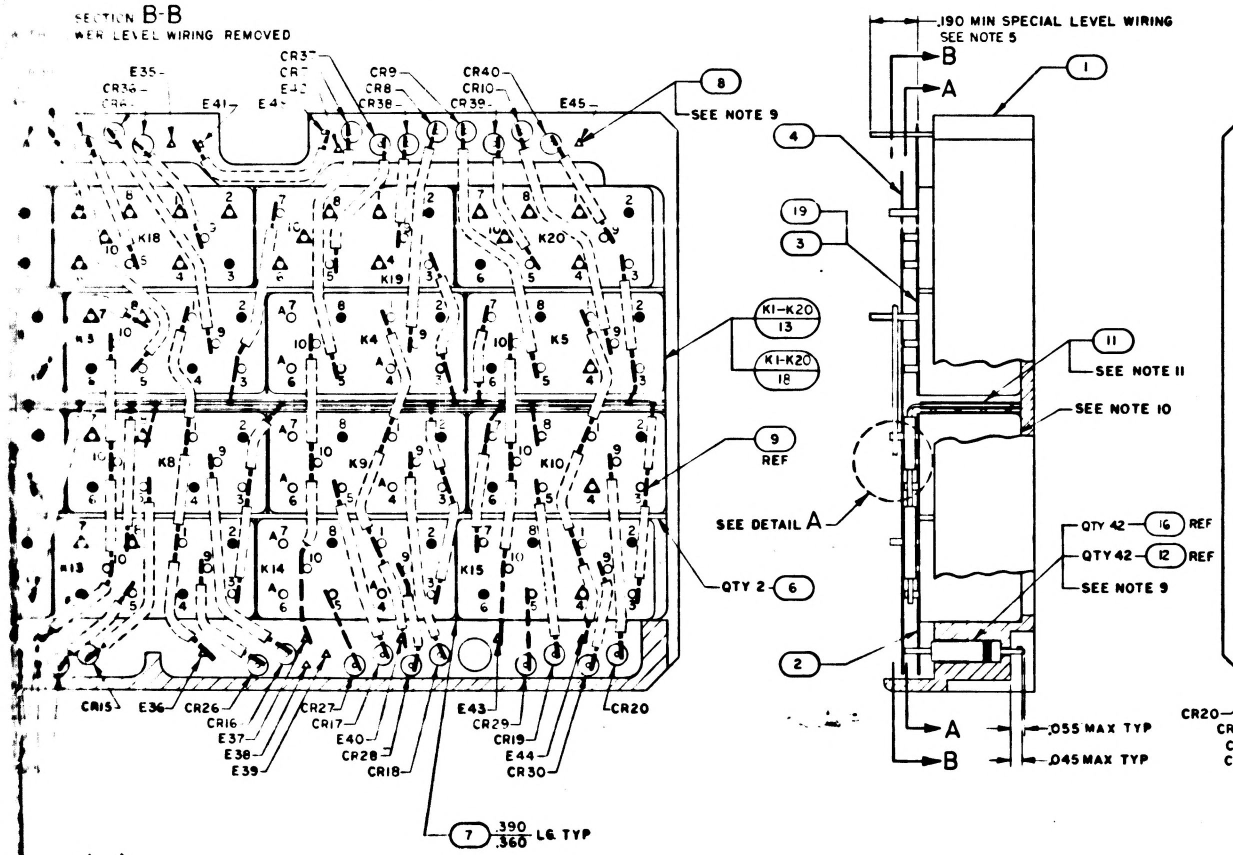
UPPER LEVEL WIRING SEE NOTE 3
.050 MAX
.060 MAX
LOWER LEVEL WIRING SEE NOTE 4

DETAIL A
SCALE 10/1



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SEE NOTE 9
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K20
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K4
K5
K1-K20 13
K1-K20 18
K8
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9 REF
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CR18
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CR29
CR19
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7 .390 .360 LG TYP
.190 MIN SPECIAL LEVEL WIRING SEE NOTE 5
B
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SEE NOTE 11
SEE NOTE 10
SEE DETAIL A
QTY 42 16 REF
QTY 42 12 REF
SEE NOTE 9
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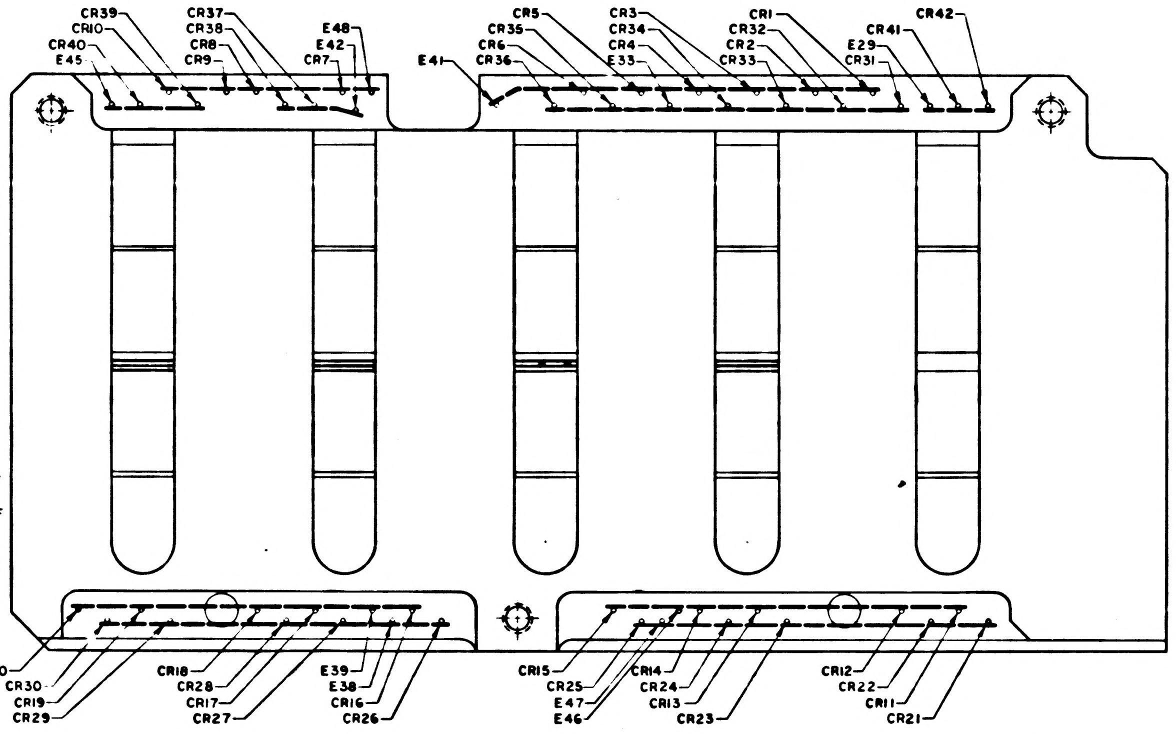
.055 MAX TYP
.045 MAX TYP

ION A-A
EVEL INSULATOR REMOVED



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CR11
CR21

CATHODE END OF CR1 THRU CR40 LOCATED THIS SIDE

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	ITEM NO
	—	2005973	SCHEMATIC	REF
1	—	2C04692	INSULATOR B	19
20	—	SEE NOTE 14	RELAY	18
2	—	2C04689-2	RELAY	17
—		2005902	SCHEMATIC	REF
~~[illegible]~~	~~—~~	~~[illegible]~~	~~SCHEMATIC~~	~~[illegible]~~
42	—	2C04183-C01	DIODE	16
—	2	1010784-11	RELAY	15
~~—~~	~~2~~	~~1010784-9~~	~~RELAY~~	~~14~~
—	20	1006282-2	RELAY	13
—	42	2004103-001	DIODE	12
1	1	2003911-011	MATRIX ASSEMBLY	11
AR	AR	1006776-22	INSULATION, SLEEVING ELECTRICAL	10
AR	AR	1006757-1	WIRE, ELECTRICAL, .010 X.020	9
AR	AR	1006757-8	WIRE, ELECTRICAL, .020 DIA	8
AR	AR	1006806-24	INSULATION TAPE, ELECTRICAL	7
2	2	2004951	BOARD, INSULATOR	6
~~—~~	~~1~~	~~2004917~~	~~INSULATOR~~	~~5~~
1	1	2004916	INSULATOR	4
~~—~~	1	2004952	INSULATOR, B	3
1	1	2004933	INSULATOR, A	2
1	1	2004908	BLOCK, COMPONENT RELAY	1

LIST OF MATERIALS

2003910

NEXT ASSY	USED ON
2003952	
2003902	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN R. Luiford DATE 9 APR 65
CHECKED
APPROVAL
APPROVAL Eldon C. Hall
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

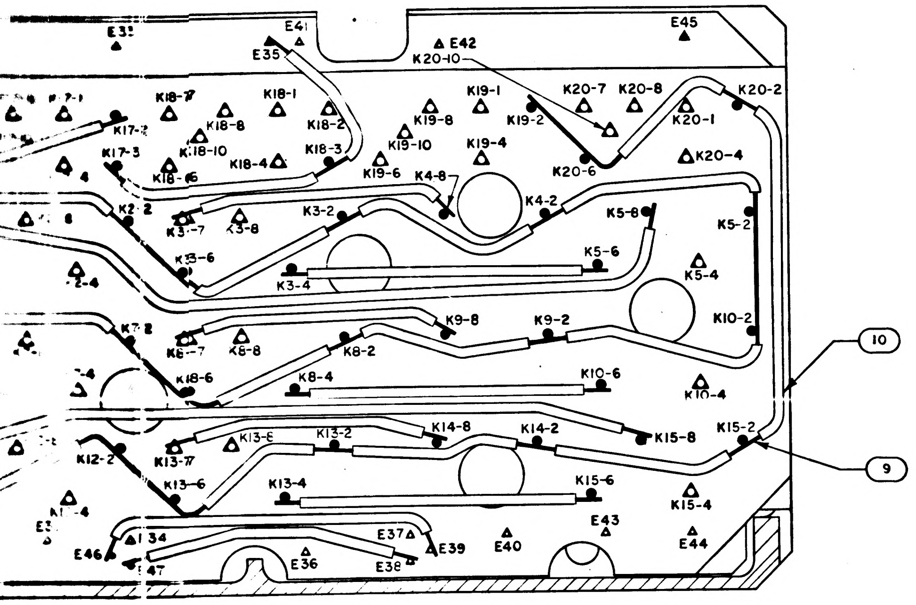
RELAY CIRCUIT ASSEMBLY
INDICATOR DRIVER MODULE
AGC DSKY

CODE IDENT NO 80230 SIZE J
NASA DRAWING NO 2003910
SCALE 4/1 WT SHEET 1 OF 1

F2/2

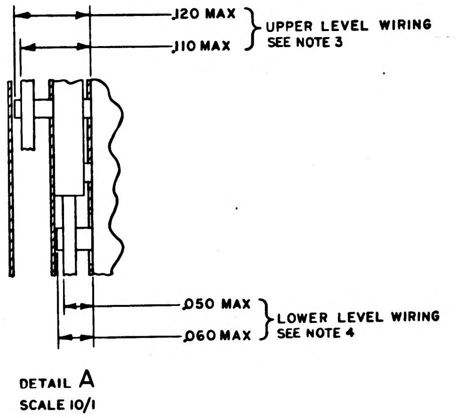
REVISIONS 24272

SYM	DESCRIPTION	DATE	APPROVAL



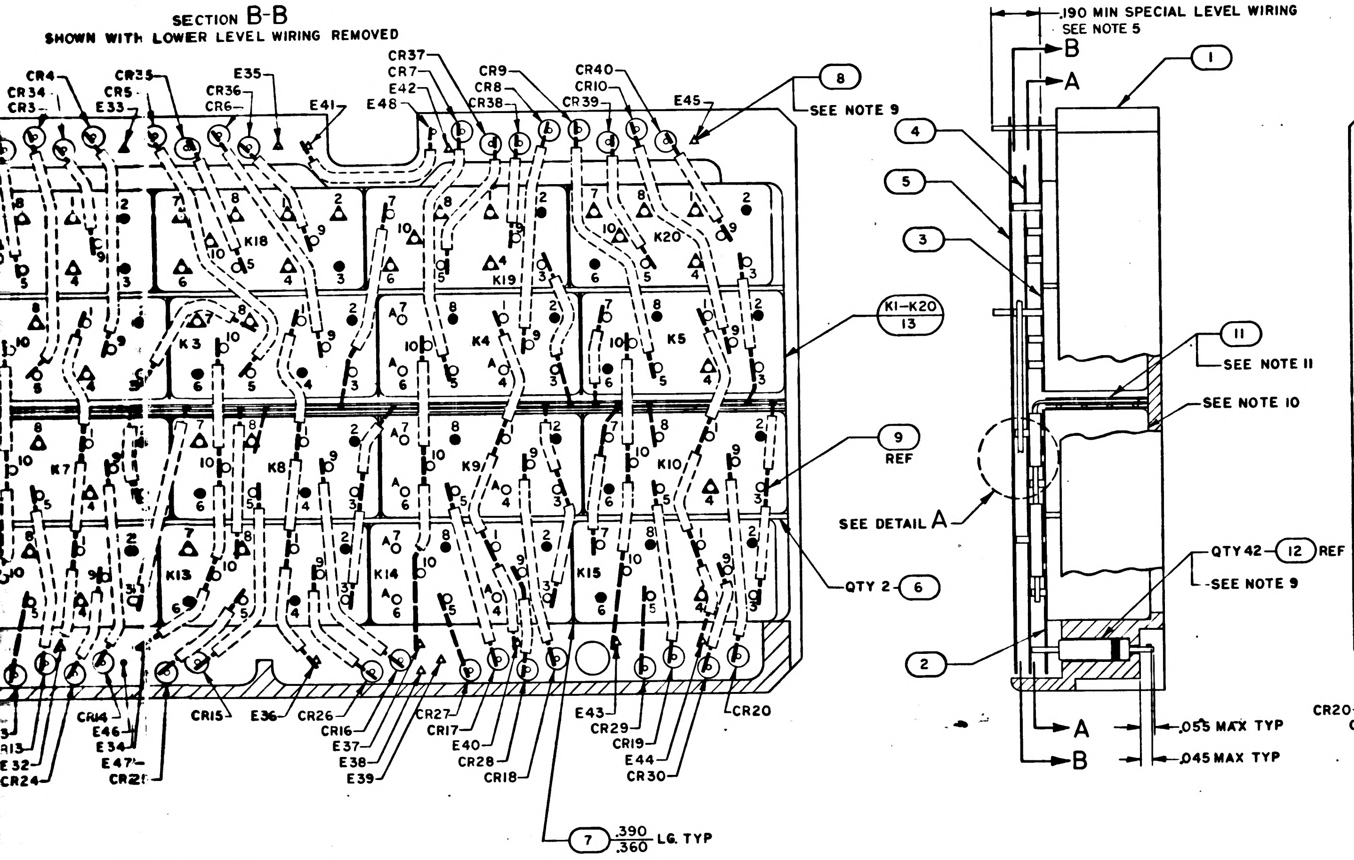
E41
E42
E45
K20-10
K19-1
K20-7
K20-8
K20-2
K20-1
K20-4
K18-1
K18-2
K18-3
K19-10
K19-4
K19-6
K4-8
K4-2
K3-2
K5-8
K5-2
K5-6
K5-4
K3-4
K9-8
K9-2
K10-2
K8-2
K8-4
K10-6
K10-4
K14-8
K14-2
K15-8
K15-2
K13-2
K13-4
K15-6
K15-4
E43
E44
E37
E39
E40
E36
E38
10
9

SECTION B-B
SHOWN WITH LOWER LEVEL WIRING REMOVED



.120 MAX
.110 MAX
UPPER LEVEL WIRING SEE NOTE 3
.050 MAX
.060 MAX
LOWER LEVEL WIRING SEE NOTE 4

DETAIL A
SCALE 10/1

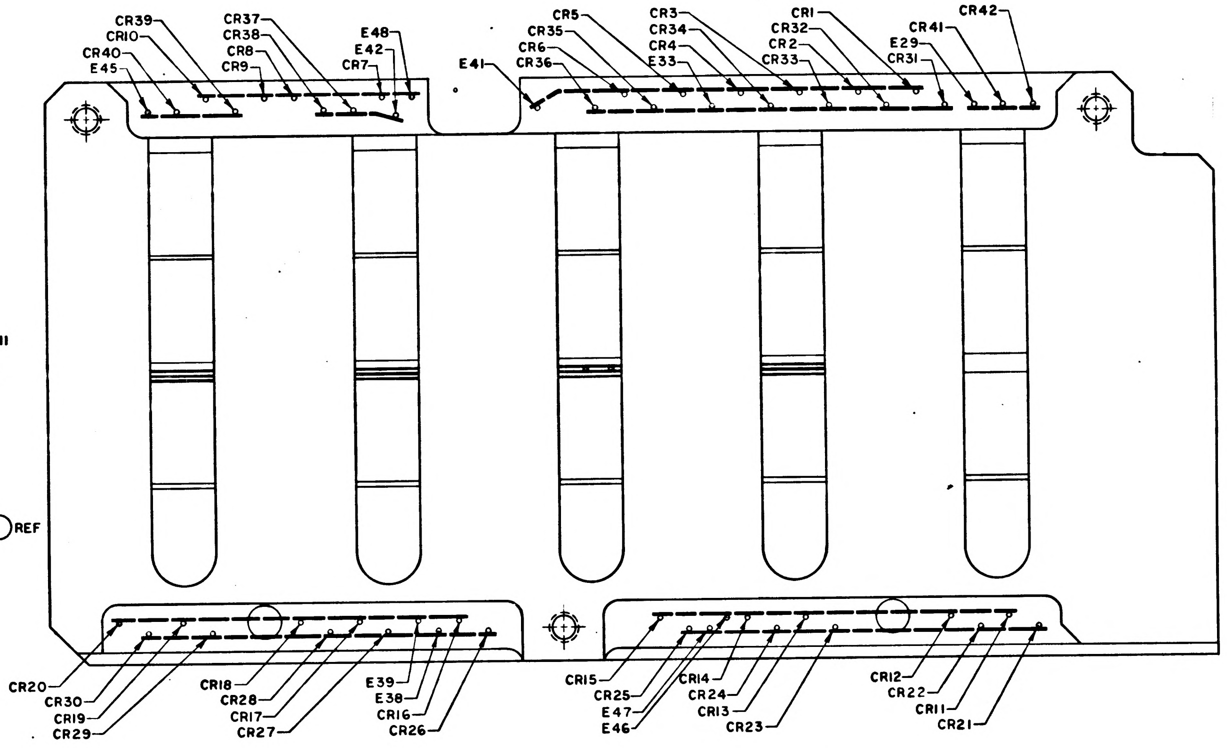


.190 MIN SPECIAL LEVEL WIRING SEE NOTE 5
B
A
1
4
5
3
8
SEE NOTE 9
K1-K20 13
11
SEE NOTE 11
SEE NOTE 10
9 REF
SEE DETAIL A
QTY 2 - 6
QTY 42 - 12 REF
-SEE NOTE 9
2
.055 MAX TYP
.045 MAX TYP
7 .390/.360 LG. TYP
CR34
CR4
CR3
CR35
CR5
CR36
CR6
E33
E35
E41
E48
CR37
CR7
E42
CR9
CR8
CR38
CR40
CR10
CR39
E45
K18
K19
K20
K3
K4
K5
K7
K8
K9
K10
K13
K14
K15
CR14
E46
E34
E47
CR21
CR24
CR15
E36
CR26
CR16
E37
E38
E39
CR27
CR17
E40
CR28
CR18
E43
CR29
CR19
E44
CR30
CR20

SECTION A-A
SHOWN WITH FIRST LEVEL INSULATOR REMOVED

-8-70327

ND1002069



CR39
CR10
CR40
E45
CR37
CR38
CR8
CR9
E48
E42
CR7
E41
CR5
CR35
CR6
CR36
CR3
CR34
CR4
E33
CR1
CR32
CR2
CR33
CR42
CR41
E29
CR31
CR20
CR30
CR19
CR29
CR18
CR28
CR17
CR27
E39
E38
CR16
CR26
CR15
CR25
E47
E46
CR14
CR24
CR13
CR23
CR12
CR22
CR11
CR21

CATHODE END OF CR1 THRU CR40 LOCATED THIS SIDE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	2005902	SCHEMATIC	REF
2	1010784-9	RELAY	14
20	1006282-2	RELAY	13
42	1006751	DIODE	12
1	2003911	MATRIX ASSEMBLY	11
AR	1006776-22	INSULATION, SLEEVING ELECTRICAL	10
AR	1006757-1	WIRE, ELECTRICAL, .010 X.020	9
AR	1006757-8	WIRE, ELECTRICAL, .020 DIA	8
AR	1006806-24	INSULATION TAPE, ELECTRICAL	7
2	2004951	BOARD, INSULATOR	6
1	2004917	INSULATOR	5
1	2004916	INSULATOR	4
1	2004952	INSULATOR, B	3
1	2004933	INSULATOR, A	2
1	2004908	BLOCK, COMPONENT RELAY	1
011	LIST OF MATERIALS		

2003910 —

2H

NEXT ASSY	USED ON
2003902	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN R. Lyford DATE 9APR65
CHECKED [illegible] 18May65
APPROVAL [illegible] 1 Jun 65
APPROVAL Eldon C Hall 21 Jun 65
NASA APPROVAL [illegible] 6/4/65
MIT APPROVAL
MIT APPROVAL [illegible] 22 Jun 65

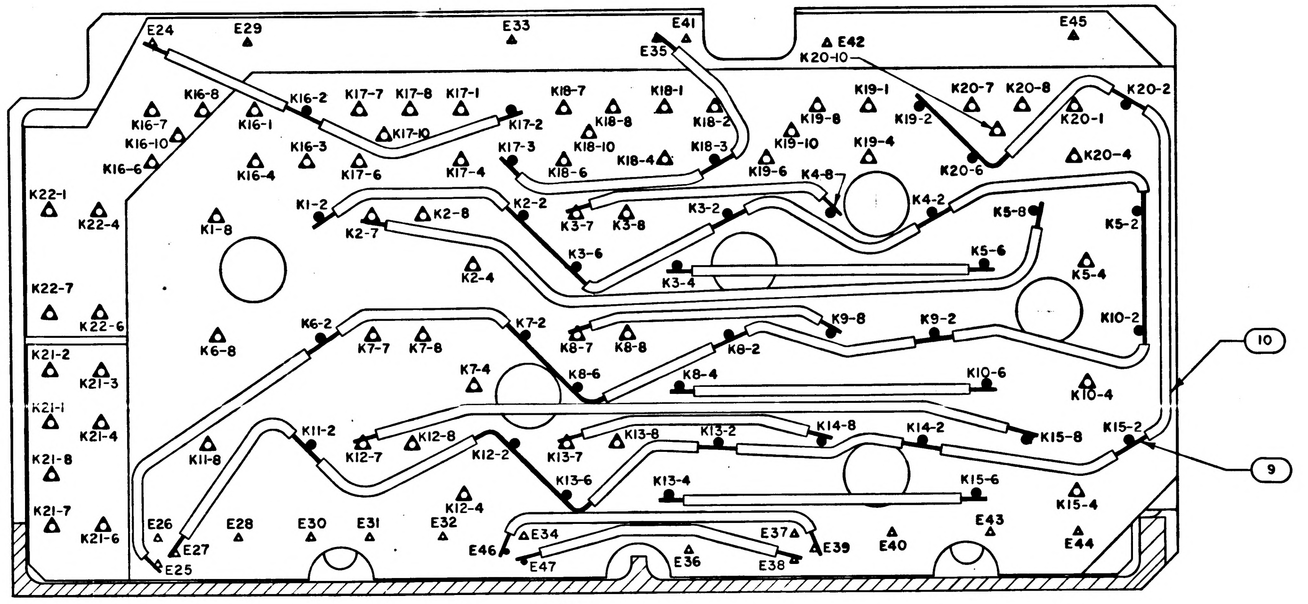
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

RELAY CIRCUIT ASSEMBLY
INDICATOR DRIVER MODULE
AGC DSKY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO 2003910
SCALE 4/1
WT
SHEET 1 OF 1

MASTER

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


E24
E29
E33
E41
E35
E42
E45
K20-10
K16-8
K16-2
K17-7
K17-8
K17-1
K18-7
K18-1
K19-1
K20-7
K20-8
K20-2
K20-1
K20-4
K22-1
K22-4
K22-7
K22-6
K21-2
K21-3
K21-1
K21-4
K21-8
K21-7
K21-6
K1-2
K1-8
K2-8
K2-7
K2-2
K2-4
K3-2
K3-6
K3-7
K3-8
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K12-7
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K12-4
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K13-8
K13-2
K13-6
K13-4
K14-8
K14-2
K15-8
K15-2
K15-6
K15-4
E25
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E31
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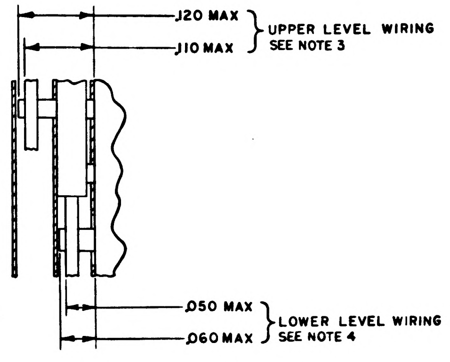
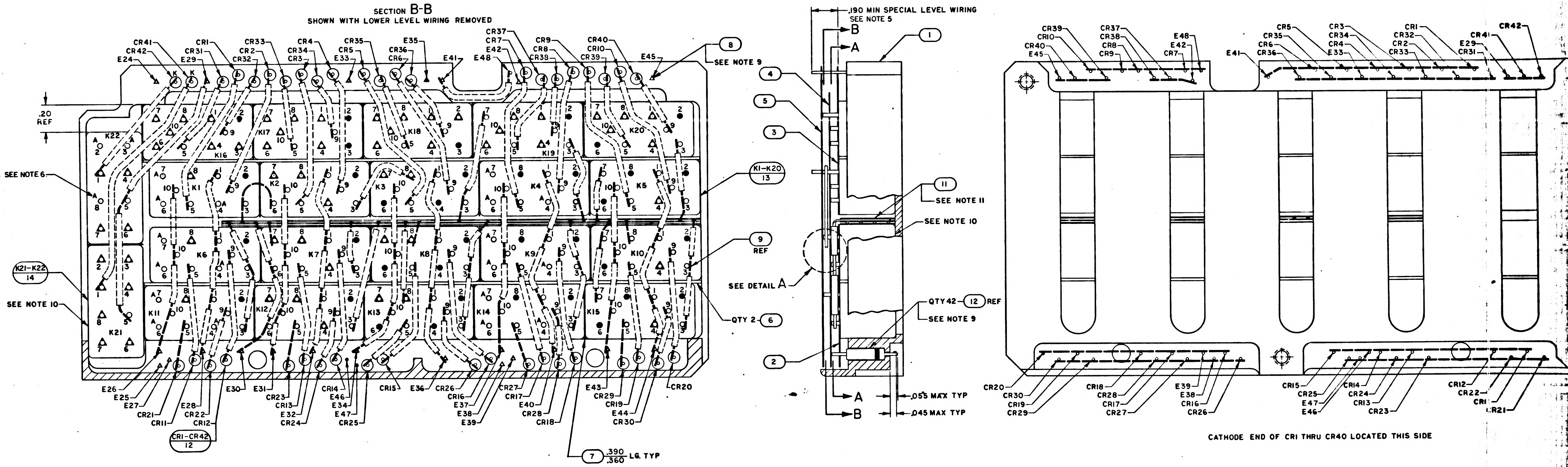
E34
E46
E47
E36
E37
E38
E39
E40
E43
E44
10
9

SECTION B-B
SHOWN WITH LOWER LEVEL WIRING REMOVED


.120 MAX
.110 MAX
UPPER LEVEL WIRING
SEE NOTE 3
.050 MAX
.060 MAX
LOWER LEVEL WIRING
SEE NOTE 4

DETAIL A
SCALE 10/1


.20 REF
SEE NOTE 6
K21-K22 14
SEE NOTE 10
CR1-CR42 12
8
SEE NOTE 9
K1-K20 13
9 REF
QTY 2 6
7 .390/.360 LG. TYP
.190 MIN SPECIAL LEVEL WIRING
SEE NOTE 5
B
A
1
4
5
3
11
SEE NOTE 11
SEE NOTE 10
SEE DETAIL A
QTY 42 12 REF
SEE NOTE 9
2
.055 MAX TYP
.045 MAX TYP
CR39
CR10
CR40
E45
CR37
CR38
CR8
CR9
E48
E42
CR7
E41
CR5
CR35
CR6
CR36
CR3
CR34
CR4
E33
CR1
CR32
CR2
CR33
CR41
E29
CR31
CR42
CR20
CR30
CR19
CR29
CR18
CR28
CR17
CR27
E39
E38
CR16
CR26
CR15
CR25
E47
E46
CR14
CR24
CR13
CR23
CR12
CR22
CR11
CR21

CATHODE END OF CR1 THRU CR40 LOCATED THIS SIDE

SECTION A–A
SHOWN WITH FIRST LEVEL INSULATOR REMOVED

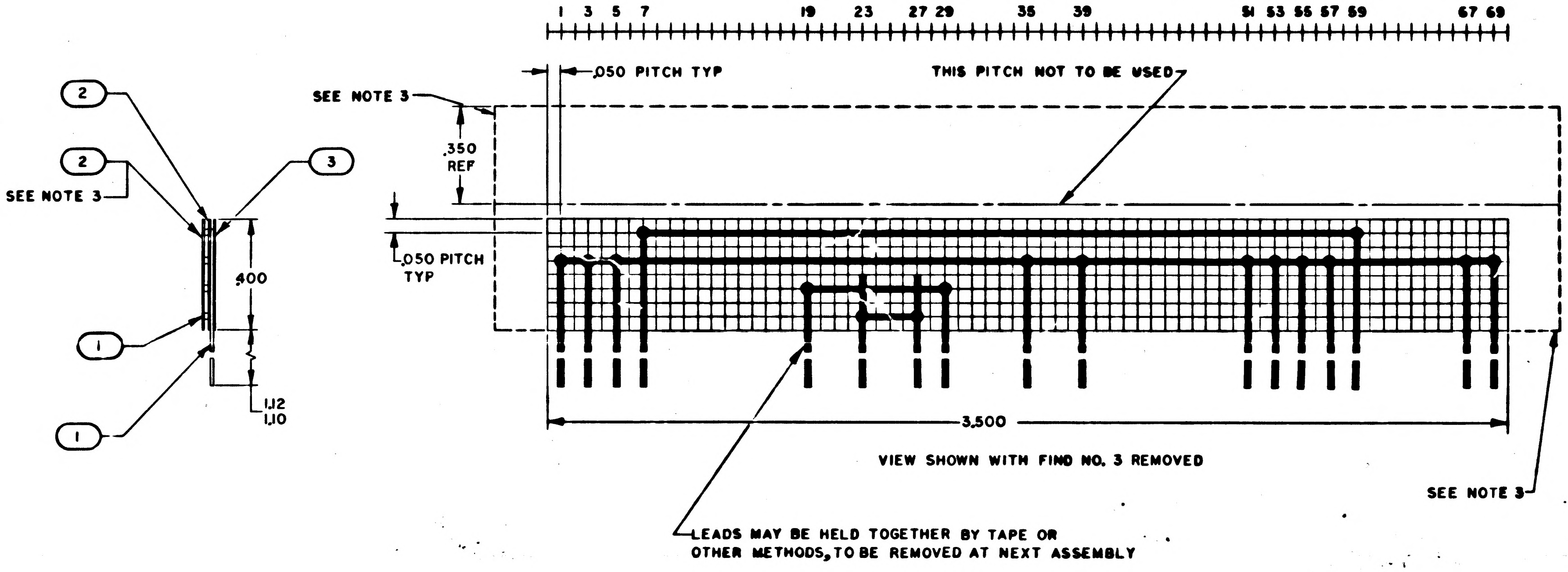
NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
4. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
5. △ INDICATES LEADS TO BE CUT FOR SPECIAL LEVEL WIRING
6. TRIM UNUSED LEADS MARKED A OF FIND NO.13 & 14 .010/.030 FROM CASE
7. WELD PER ND1002005
8. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
9. STAKE FIND NO.8 & 12 TO FIND NO.1 PER ND1002009 METHOD C OR D
10. BOND FIND NO.13 & 14 TO FIND NO.1 PER ND1002004 TYPE IV
11. REMOVE PROTECTIVE LINER FROM FIND NO.11 AND ASSEMBLE TO K6 THRU K10 AS SHOWN
12. K DENOTES CATHODE SIDE OF DIODE

MASTER

2003902	
NEXT ASSY	USED ON
APPLICATION	

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS			
SYM	DESCRIPTION 20272	DATE	APPROVED
A	REVISED PER TDRR 27084 DR CHK JCJ APPD	3/21/66	


1 3 5 7 19 23 27 29 35 39 51 53 55 57 59 67 69
.050 PITCH TYP
THIS PITCH NOT TO BE USED
SEE NOTE 3
.350 REF
.050 PITCH TYP
2
2
3
SEE NOTE 3
.400
1
1
1.12
1.10
3.500
VIEW SHOWN WITH FIND NO. 3 REMOVED
SEE NOTE 3
LEADS MAY BE HELD TOGETHER BY TAPE OR OTHER METHODS, TO BE REMOVED AT NEXT ASSEMBLY

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. FABRICATE PER ND1002030
3. INDICATED EXCESS MATERIAL & LINER OF FIND NO. 2 ARE TO BE UTILIZED FOR HANDLING PURPOSES ONLY & WILL BE REMOVED AT NEXT ASSEMBLY
4. AR DENOTES AS REQUIRED
5. IDENTIFY WITH PART NO. PER ND1002019

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006826-4	INSULATION TAPE, ELECTRICAL	3
AR	1006806-1	INSULATION TAPE, ELECTRICAL	2
AR	1006757-1	WIRE, ELECTRICAL .010 X .020	1
011	LIST OF MATERIALS		

MASTER

NEXT ASSY	USED ON
2003910	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN R. Guilbault DATE
CHECKED R Edwards 13 Apr 65
APPROVAL
APPROVAL
APPROVAL Eldon C. Hall 21 Jan 65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 22 Jan 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

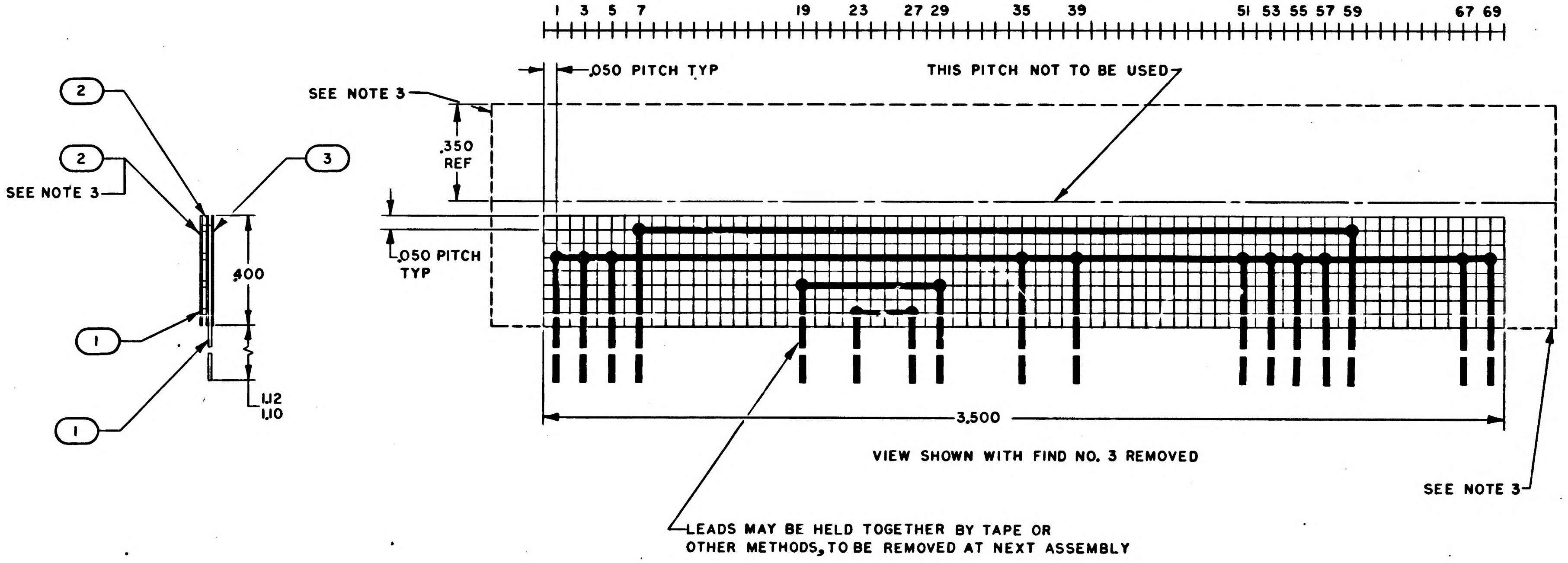
MATRIX ASSEMBLY
RELAY CIRCUIT ASSEMBLY
AGC DSKY

CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	D	2003911

SCALE 4/1 WT SHEET 1 OF 1

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS			
SYM	DESCRIPTION 20272	DATE	APPROVED



1 3 5 7
19
23
27 29
35
39
51 53 55 57 59
67 69
.050 PITCH TYP
THIS PITCH NOT TO BE USED
SEE NOTE 3
.350 REF
.050 PITCH TYP
2
2
SEE NOTE 3
3
.400
1
1
.112
.110
3.500
VIEW SHOWN WITH FIND NO. 3 REMOVED
SEE NOTE 3
LEADS MAY BE HELD TOGETHER BY TAPE OR OTHER METHODS, TO BE REMOVED AT NEXT ASSEMBLY

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. FABRICATE PER ND1002030
3. INDICATED EXCESS MATERIAL & LINER OF FIND NO. 2 ARE TO BE UTILIZED FOR HANDLING PURPOSES ONLY & WILL BE REMOVED AT NEXT ASSEMBLY
4. AR DENOTES AS REQUIRED
5. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

AR	1006826-4	INSULATION TAPE, ELECTRICAL	3
AR	1006806-1	INSULATION TAPE, ELECTRICAL	2
AR	1006757-1	WIRE, ELECTRICAL .010 X .020	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
011	LIST OF MATERIALS		

2003910	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO. CONTRACT

DRAWN R. Zuibord DATE 26 MAR 65
CHECKED R Edwards 13 Apr 65
APPROVAL 1 Jun 65
APPROVAL
APPROVAL Eldon C Hall 21 Jun 65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 22 Jun 65

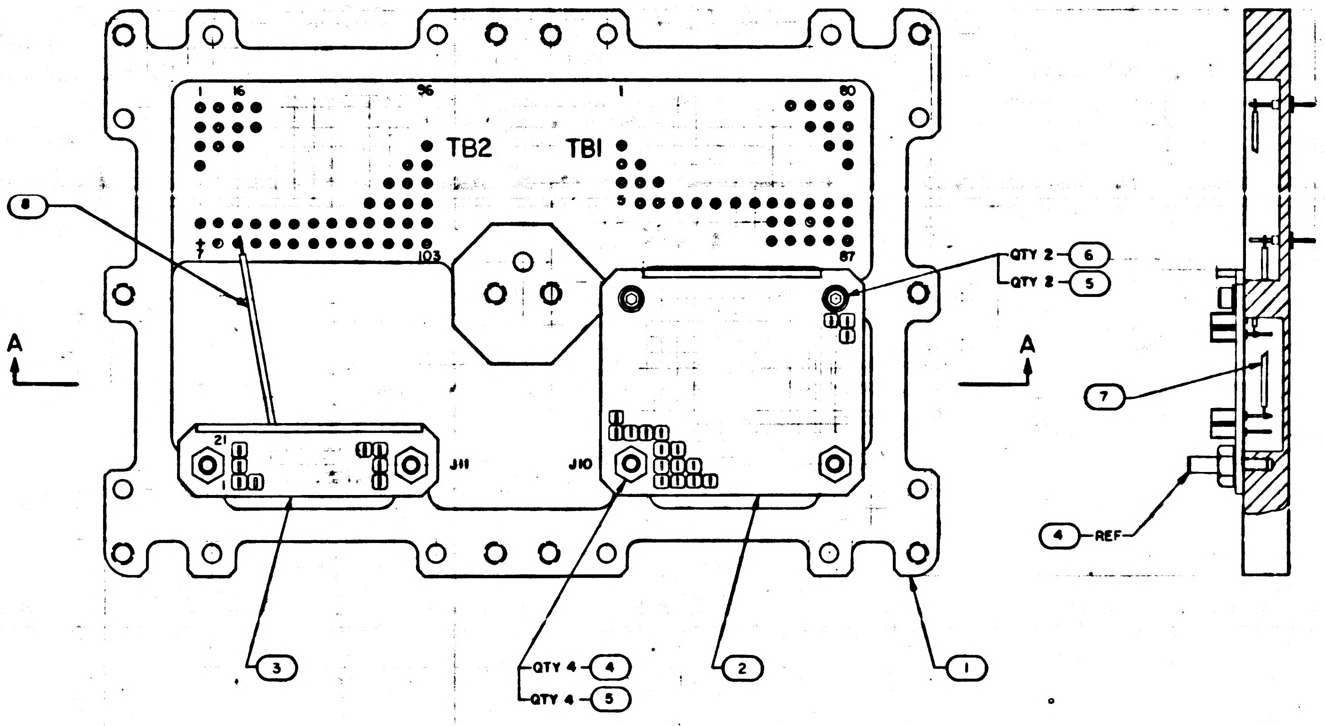
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

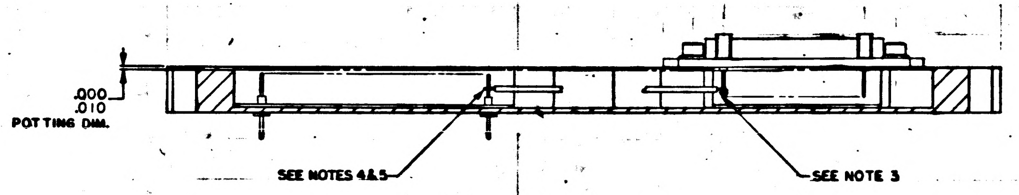
MATRIX ASSEMBLY
RELAY CIRCUIT ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230
SIZE D
NASA DRAWING NO. 2003911
SCALE 4/1
WT
SHEET 1 OF 1

NOTICE - [illegible]

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22315 DR RCJ CHK CAL		





SECTION A-A

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. WIRE WRAP PER WIRING LEGEND AND PER ND1002031 EXCEPT FIND NO 8 TO HAVE 5 MIN TO 7 MAX TURNS OF UNINSULATED WIRE, 1/2 TO 1 1/2 TURNS OF INSULATED WIRE, STRIP LENGTH OF 1.18 TO 1.00 AND A STRIP FORCE OF 5 LB MIN
4. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
5. WELD PER ND1002005
6. SOLDER PER ND1002071 USING SOLDER PER ND1002075
7. IDENTIFY WITH PART NO. PER ND1002019
8. ENCAPSULATE PER ND1002236
9. DRESS AND TRIM USING FIND NO.9

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1012507-003	TAPE, LACING	9
AR	1010807-22	WIRE, ELECTRICAL INSULATED	8
AR	1010940-001	WIRE, ELECTRICAL INSULATED	7
2	MS16995-10	SCREW, SOCKET HEAD	6
6	NAS620C4L	WASHER, FLAT	5
4	2004938	PIN, ALIGNMENT	4
1	2003914-011	CONNECTOR, PLATE ASSEMBLY	3
1	2003913-011	CONNECTOR, PLATE ASSEMBLY	2
1	2004919-011	PLATE, ADAPTER	1
011	LIST OF MATERIALS		

MASTER

NEXT ASSY	USED ON
2003903	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

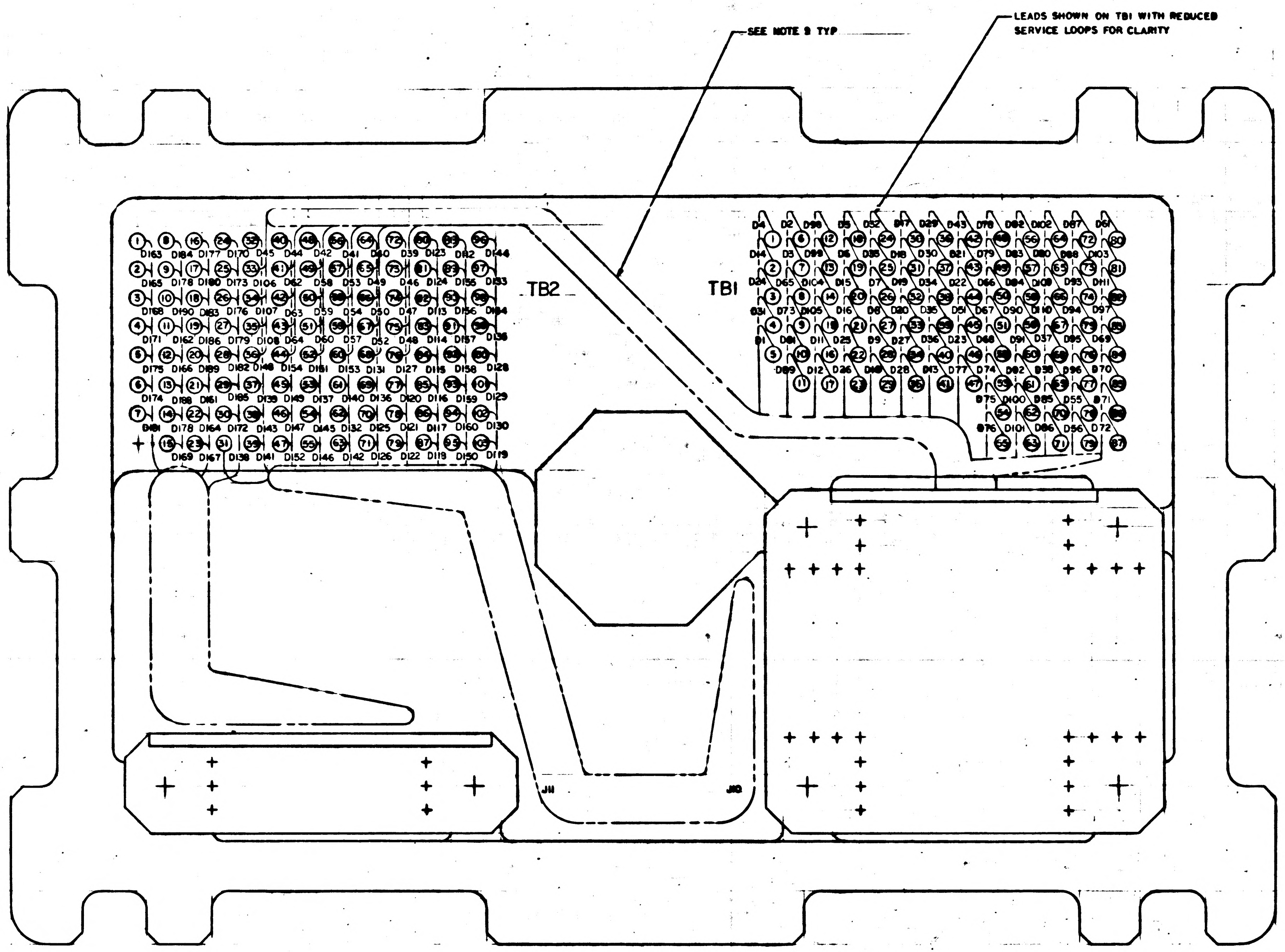
ADAPTER PLATE ASSY
AGC DSKY

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 2003912
SCALE 2/1
WT
SHEET 1 OF 3

2003912 A

2003912 A

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22315 DR R C Taylor CHK		


SEE NOTE 9 TYP
LEADS SHOWN ON TB1 WITH REDUCED SERVICE LOOPS FOR CLARITY
TB2
TB1
J11
J10

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN J. P. Lynard DATE
CHECKED
APPROVAL
APPROVAL Eldon C Hall
NASA APPROVAL
SUBCONTRACTOR APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ADAPTER PLATE ASSY

AGC DSKY

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 2003912
SCALE NONE
WT
SHEET 2 OF 3

MASTER

2003912 A

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22315 DR R. C. Taylor CHK	[illegible]	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
D1	SEE NOTE 3	J10-1	7	WHT	30	AR	TB1-5	SEE NOTE 5
D2		-2					-6	
D3		-3					-7	
D4		-4					-1	
D5		-5					-18	
D6		-6					-19	
D7		-7					-26	
D8		-8					-27	
D9		-9					-28	
D10		-10					-29	
D11		-11					-16	
D12		-12					-17	
D13		-13					-41	
D14		-14					-2	
D15		-15					-20	
D16		-16					-21	
D17		-17					-30	
D18		-18					-31	
D19		-19					-32	
D20		-20					-33	
D21		-21					-43	
D22		-22					-44	
D23		-23					-46	
D24		-24					-3	
D25		-25					-22	
D26		-26					-23	
D27		-27					-34	
D28		-28					-35	
D29		-29					-36	
D30		-30					-37	
D31		-37					-4	
D32		-38					-24	
D33		-39					-25	
D34		-40					-36	
D35		-41					-39	
D36		-42					-40	
D37		-43					-68	
D38		-44					TB1-69	
D39		-45					TB2-73	
D40		-46					-65	
D41		-53					-57	
D42		-54					TB2-49	
D43		-55					TB1-42	
D44		-56					TB2-41	
D45		-57					-33	
D46		-58					-74	
D47		-59					-75	
D48		-60					-76	
D49		-67					-66	
D50		-68					TB2-67	
D51		-69					TB1-45	
D52		-70					TB2-68	
D53		-71					TB2-58	
D54		-72					TB2-59	
D55		-73					TB1-78	
D56		-74					TB1-79	
D57		-81					TB2-60	
D58		-82					-50	
D59		-83					-51	
D60		-84					TB2-52	
D61		-85					TB1-80	
D62		-86					TB2-42	
D63		-87					TB2-43	
D64		-88					TB2-44	
D65		-95					TB1-8	
D66		-96					-50	
D67		-97					-51	
D68		-98					-52	
D69		-99					-84	
D70		-100					-85	
D71		-101					-86	
D72		J10-102	7	WHT	30	AR	TB1-87	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
D73	SEE NOTE 3	J10-109	7	WHT	30	AR	TB1-9	SEE NOTE 5
D74		-110					-53	
D75		-111					-54	
D76		-112					-55	
D77		-113					-47	
D78		-114					-48	
D79		-115					-49	
D80		-116					-65	
D81		-123					-10	
D82		-124					-56	
D83		-125					-57	
D84		-126					-58	
D85		-127					-70	
D86		-128					-71	
D87		-129					-72	
D88		-130					-73	
D89		-137					-11	
D90		-138					-59	
D91		-139					-60	
D92		-140					-61	
D93		-141					-74	
D94		-142					-75	
D95		-143					-76	
D96		-144					-77	
D97		-146					-83	
D98		-147					-12	
D99		-148					-13	
D100		-149					-62	
D101		-150					-63	
D102		-151					-64	
D103		-152					-61	
D104		-153					-14	
D105		-154					TB1-15	
D106		-155					TB2-34	
D107		-156					TB2-35	
D108		-157					TB2-36	
D109		-158					TB1-66	
D110		-159					TB1-67	
D111		-160					TB1-82	
D112		-145					TB2-88	
D113		-131					-82	
D114		-132					-83	
D115		-133					-84	
D116		-134					-85	
D117		-135					-86	
D118		-136					-87	
D119		-117					-103	
D120		-118					-77	
D121		-119					-78	
D122		-120					-79	
D123		-121					-80	
D124		-122					-81	
D125		-103					-70	
D126		-104					-71	
D127		-105					-72	
D128		-106					-100	
D129		-107					-101	
D130		-108					-102	
D131		-89					-64	
D132		-90					-62	
D133		-91					-97	
D134		-92					-98	
D135		-93					-99	
D136		-94					-69	
D137		-75					-53	
D138		-76					-31	
D139		-77					-37	
D140		-78					-61	
D141		-79					-39	
D142		-80					-63	
D143		-61					-38	
D144		J10-62	7	WHT	30	AR	TB2-96	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
D145	SEE NOTE 3	J10-63	7	WHT	30	AR	TB2-54	SEE NOTE 5
D146		-64					-55	
D147		-65					-46	
D148		-66					-32	
D149		-47					-45	
D150		-48					-95	
D151		-49					-48	
D152		-50					-47	
D153		-51					-56	
D154		-52					-40	
D155		-31					-89	
D156		-32					-90	
D157		-33					-91	
D158		-34					-92	
D159		-35					-93	
D160		J10-36	7	WHT	30		-94	
D161	SEE NOTE 3	J11-21	8	WHT	26		-21	SEE NOTE 5
D162		-11					-11	
D163		-1					-1	
D164		-22					-22	
D165		-12					-2	
D166		-2					-12	
D167		-23					-23	
D168		-15					-3	
D169		-3					-13	
D170		-24					-24	
D171		-4					-14	
D172		-13					-30	
D173		-25					-25	
D174		-6					-15	
D175		-5					-5	
D176		-26					-26	
D177		-16					-16	
D178		-14					-6	
D179		-27					-27	
D180		-17					-17	
D181		-7					-7	
D182		-28					-28	
D183		-18					-18	
D184		-8					-8	
D185		-29					-29	
D186		-19					-19	
D187		-9					-9	
D188		-30					-4	
D189		-20					-20	
D190		J11-10	8	WHT	26	AR	TB2-10	

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
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FRACTIONS ± DECIMALS ± ANGLES ±
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MATERIAL
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CAMBRIDGE, MASS

DRAWN J. Legrand DATE [illegible]
CHECKED A. Cappiano 19 Jan 65
APPROVAL [illegible] 19 Jan 65
APPROVAL [illegible] 19 Jan 65
NASA APPROVAL W. J. Blair
MIT APPROVAL M. G. Marley 2-19-65

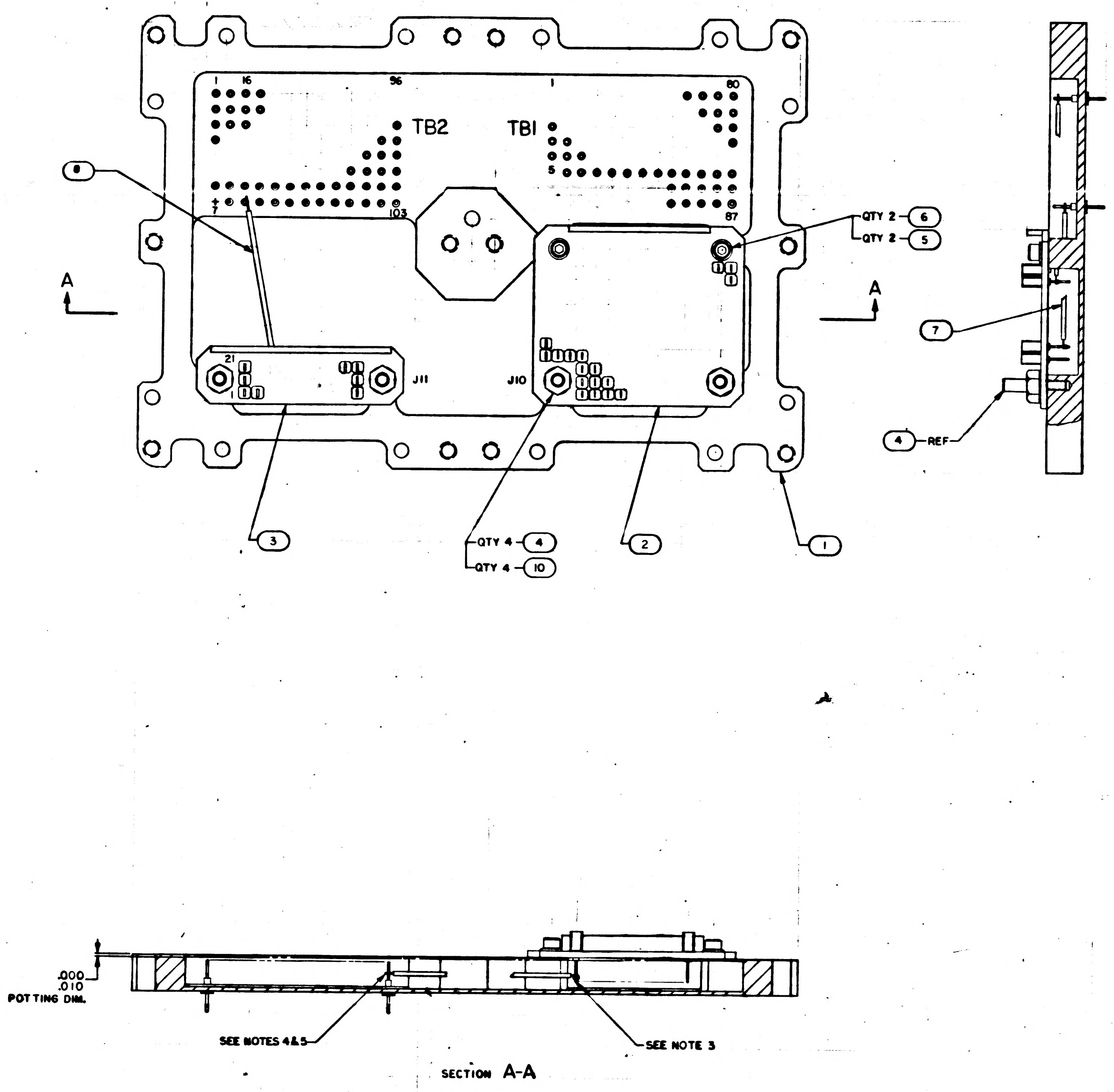
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ADAPTER PLATE ASSY
AGC DSKY

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO 2003912
SCALE NONE
WT
SHEET 3 OF [illegible]

2003912 A

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22315 DR CHK		
B	REVISED PER TDRR 23237 DR CHK		



NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. WIRE WRAP PER WIRING LEGEND AND PER ND1002031 EXCEPT FIND NO 8 TO HAVE 5 MIN TO 7 MAX TURNS OF UNINSULATED WIRE, 1/2 TO 1 1/2 TURNS OF INSULATED WIRE, STRIP LENGTH OF 1.18 TO 1.00 AND A STRIP FORCE OF 5 LB MIN
4. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
5. WELD PER ND1002005
6. SOLDER PER ND1002071 USING SOLDER PER ND1002075
7. IDENTIFY WITH PART NO. PER ND1002019
8. ENCAPSULATE PER ND1002236
9. DRESS AND TRIM USING FIND NO. 9

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
4	NAS620C-6L	WASHER, FLAT	10
AR	1012507-003	TAPE, LACING	9
AR	1010807-22	WIRE, ELECTRICAL INSULATED	8
AR	1010940-001	WIRE, ELECTRICAL INSULATED	7
2	MS16995-10	SCREW, SOCKET HEAD	6
2	NAS620C4L	WASHER, FLAT	5
4	2004938	PIN, ALIGNMENT	4
1	2003914-011	CONNECTOR, PLATE ASSEMBLY	3
1	2003913-011	CONNECTOR, PLATE ASSEMBLY	2
1	2004919-011	PLATE, ADAPTER	1
011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003903	
APPLICATION	

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CAMBRIDGE MASS
DRAWN DATE
CHECKED 9 NOV 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ADAPTER PLATE ASSY
AGC DSKY

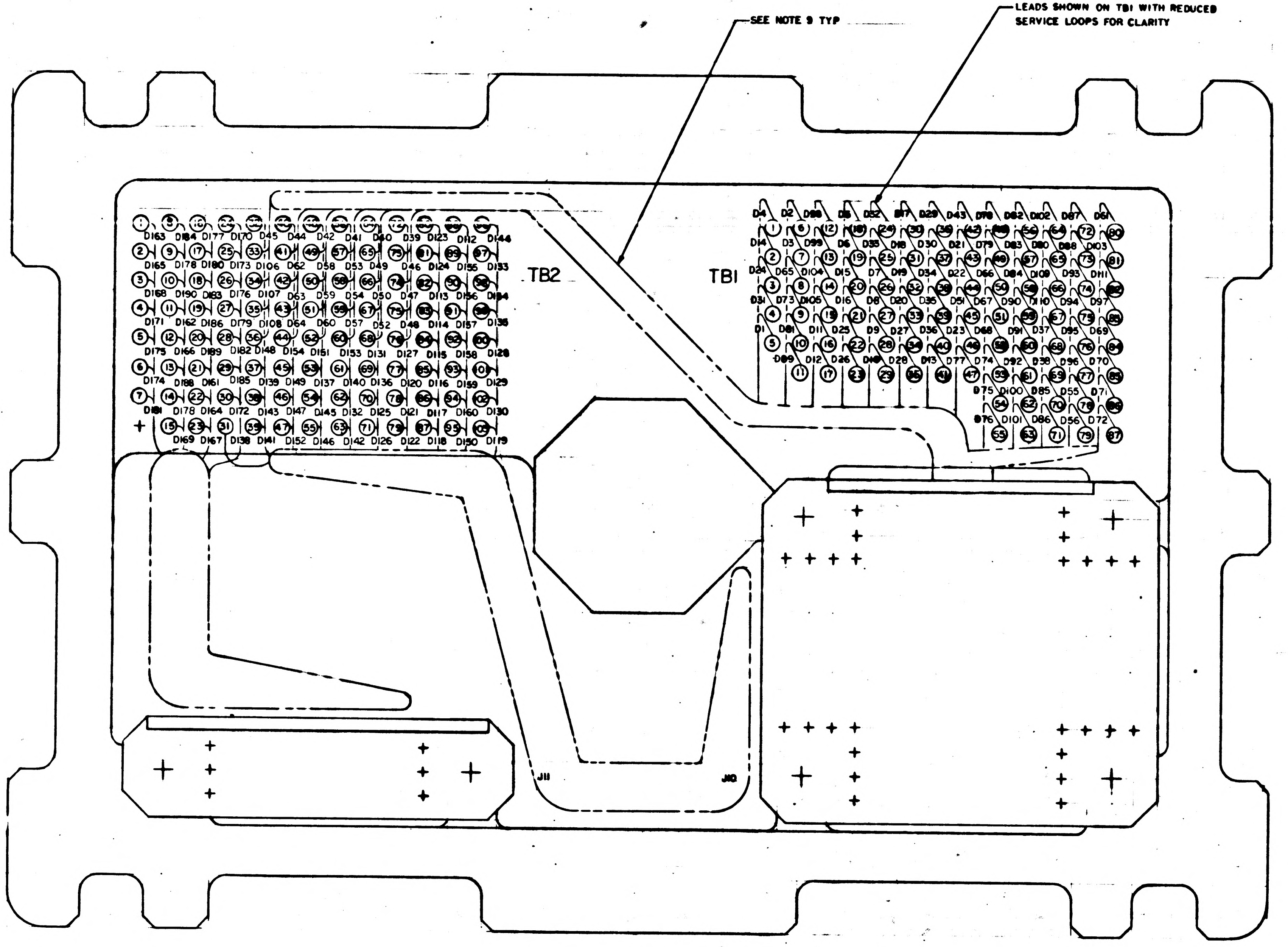
CODE IDENT NO. 80230 SIZE E NASA DRAWING NO. 2003912
SCALE 2/1 WT SHEET 1 OF 3

2003912 B

MASTER

2003912 B

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22315 DR R C Taylor CHK		
B	REVISED PER TDRR 23237 DR D.G. Clement CHK		



SEE NOTE 9 TYP
LEADS SHOWN ON TB1 WITH REDUCED SERVICE LOOPS FOR CLARITY
TB2
TB1
J11
J10

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
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TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
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DRAWN J. G. Leonard DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ADAPTER PLATE ASSY
AGC DSKY

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 2003912
SCALE NONE
WT
SHEET 2 OF 3

2003912 B

2003912	B

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22315 DR R. C. Taylor CHK		
B	REVISED PER TDRR 23237 DR D.A. Clement CHK		

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
D1	SEE NOTE 3	J10-1	7	WHT	30	AR	TB1-5	SEE NOTE 5
D2		-2					-6	
D3		-3					-7	
D4		-4					-1	
D5		-5					-18	
D6		-6					-19	
D7		-7					-26	
D8		-8					-27	
D9		-9					-28	
D10		-10					-29	
D11		-11					-16	
D12		-12					-17	
D13		-13					-41	
D14		-14					-2	
D15		-15					-20	
D16		-16					-21	
D17		-17					-30	
D18		-18					-31	
D19		-19					-32	
D20		-20					-33	
D21		-21					-43	
D22		-22					-44	
D23		-23					-46	
D24		-24					-3	
D25		-25					-22	
D26		-26					-23	
D27		-27					-34	
D28		-28					-35	
D29		-29					-36	
D30		-30					-37	
D31		-37					-4	
D32		-38					-24	
D33		-39					-25	
D34		-40					-38	
D35		-41					-39	
D36		-42					-40	
D37		-43					-68	
D38		-44					TB1-69	
D39		-45					TB2-73	
D40		-46					-65	
D41		-53					-57	
D42		-54					TB2-49	
D43		-55					TB1-42	
D44		-56					TB2-41	
D45		-57					-33	
D46		-58					-74	
D47		-59					-75	
D48		-60					-76	
D49		-67					-66	
D50		-68					TB2-67	
D51		-69					TB1-45	
D52		-70					TB2-68	
D53		-71					TB2-58	
D54		-72					TB2-59	
D55		-73					TB1-78	
D56		-74					TB1-79	
D57		-81					TB2-60	
D58		-82					-50	
D59		-83					-51	
D60		-84					TB2-52	
D61		-85					TB1-80	
D62		-86					TB2-42	
D63		-87					TB2-43	
D64		-88					TB2-44	
D65		-95					TB1-8	
D66		-96					-50	
D67		-97					-51	
D68		-98					-52	
D69		-99					-84	
D70		-100					-85	
D71		-101					-86	
D72		J10-102	7	WHT	30	AR	TB1-87	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
D73	SEE NOTE 3	J10-109	7	WHT	30	AR	TB1-9	SEE NOTE 5
D74		-110					-53	
D75		-111					-54	
D76		-112					-55	
D77		-113					-47	
D78		-114					-48	
D79		-115					-49	
D80		-116					-65	
D81		-123					-10	
D82		-124					-56	
D83		-125					-57	
D84		-126					-58	
D85		-127					-70	
D86		-128					-71	
D87		-129					-72	
D88		-130					-73	
D89		-137					-11	
D90		-138					-59	
D91		-139					-60	
D92		-140					-61	
D93		-141					-74	
D94		-142					-75	
D95		-143					-76	
D96		-144					-77	
D97		-146					-83	
D98		-147					-12	
D99		-148					-13	
D100		-149					-62	
D101		-150					-63	
D102		-151					-64	
D103		-152					-81	
D104		-153					-14	
D105		-154					TB1-15	
D106		-155					TB2-34	
D107		-156					TB2-35	
D108		-157					TB2-36	
D109		-158					TB1-66	
D110		-159					TB1-67	
D111		-160					TB1-82	
D112		-145					TB2-88	
D113		-131					-82	
D114		-132					-83	
D115		-133					-84	
D116		-134					-85	
D117		-135					-86	
D118		-136					-87	
D119		-117					-103	
D120		-118					-77	
D121		-119					-78	
D122		-120					-79	
D123		-121					-80	
D124		-122					-81	
D125		-103					-70	
D126		-104					-71	
D127		-105					-72	
D128		-106					-100	
D129		-107					-101	
D130		-108					-102	
D131		-89					-64	
D132		-90					-62	
D133		-91					-97	
D134		-92					-98	
D135		-93					-99	
D136		-94					-69	
D137		-75					-53	
D138		-76					-31	
D139		-77					-37	
D140		-78					-61	
D141		-79					-39	
D142		-80					-63	
D143		-61					-38	
D144		J10-62	7	WHT	30	AR	TB2-96	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
D145	SEE NOTE 3	J10-63	7	WHT	30	AR	TB2-54	SEE NOTE 5
D146		-64					-55	
D147		-65					-46	
D148		-66					-32	
D149		-47					-45	
D150		-48					-95	
D151		-49					-48	
D152		-50					-47	
D153		-51					-56	
D154		-52					-40	
D155		-31					-89	
D156		-32					-90	
D157		-33					-91	
D158		-34					-92	
D159		-35					-93	
D160		J10-36	7	WHT	30		-94	
D161	SEE NOTE 3	J11-21	8	WHT	26		-21	SEE NOTE 5
D162		-11					-11	
D163		-1					-1	
D164		-22					-22	
D165		-12					-2	
D166		-2					-12	
D167		-23					-23	
D168		-15					-3	
D169		-3					-13	
D170		-24					-24	
D171		-4					-14	
D172		-13					-30	
D173		-25					-25	
D174		-6					-15	
D175		-5					-5	
D176		-26					-26	
D177		-16					-16	
D178		-14					-6	
D179		-27					-27	
D180		-17					-17	
D181		-7					-7	
D182		-28					-28	
D183		-18					-18	
D184		-8					-8	
D185		-29					-29	
D186		-19					-19	
D187		-9					-9	
D188		-30					-4	
D189		-20					-20	
D190		J11-10	8	WHT	26	AR	TB2-10	

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
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MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ADAPTER PLATE ASSY

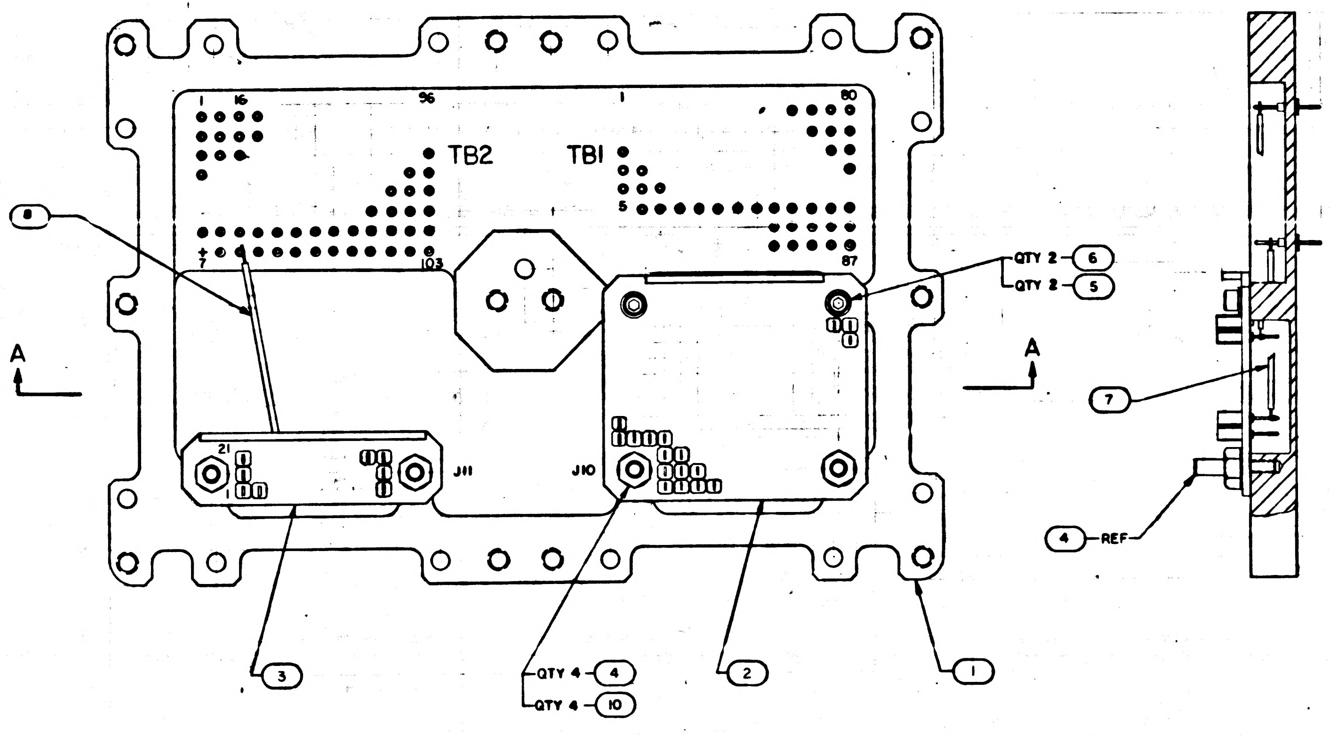
AGC DSKY

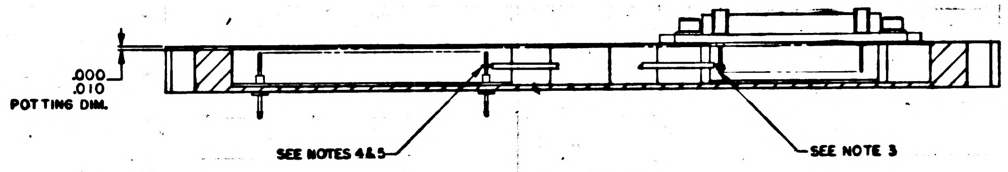
CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	E	2003912

SCALE NONE
WT
SHEET 3 OF 3

2003912	B

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22315 DR RCJ CHK		
B	REVISED PER TDRR 23237 DR CHK		
C	REVISED PER TDRR 23949 DR D.P. CHK	11/10/65	





SECTION A-A

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. WIRE WRAP PER WIRING LEGEND AND PER ND1002031 EXCEPT FIND NO 8 TO HAVE 5 MIN TO 7 MAX TURNS OF UNINSULATED WIRE, 1/2 TO 1 1/2 TURNS OF INSULATED WIRE, STRIP LENGTH OF 1.18 TO 1.00 AND A STRIP FORCE OF 5 LB MIN
4. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
5. WELD PER ND1002005
6. SOLDER PER ND1002071 USING SOLDER PER ND1002075
7. IDENTIFY WITH PART NO. PER ND1002019
8. ENCAPSULATE PER ND1002236
9. DRESS AND TRIM USING FIND NO.9

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
4	NAS620C-6L	WASHER, FLAT	10
AR	1012507-003	TAPE, LACING	9
AR	1010807-22	WIRE, ELECTRICAL INSULATED	8
AR	1006732-1	WIRE, ELECTRICAL INSULATED	7
2	MS16995-10	SCREW, SOCKET HEAD	6
2	NAS620C4L	WASHER, FLAT	5
4	[illegible]	PIN ALIGNMENT	4
1	2003914-011	CONNECTOR, PLATE ASSEMBLY	3
1	2003913-011	CONNECTOR, PLATE ASSEMBLY	2
1	2004919-011	PLATE, ADAPTER	1
011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003903	

APPLICATION

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CHECKED C. 9 JUN 65
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APPROVAL
NASA APPROVAL
ALT APPROVAL
ALT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ADAPTER PLATE ASSY
AGC DSKY

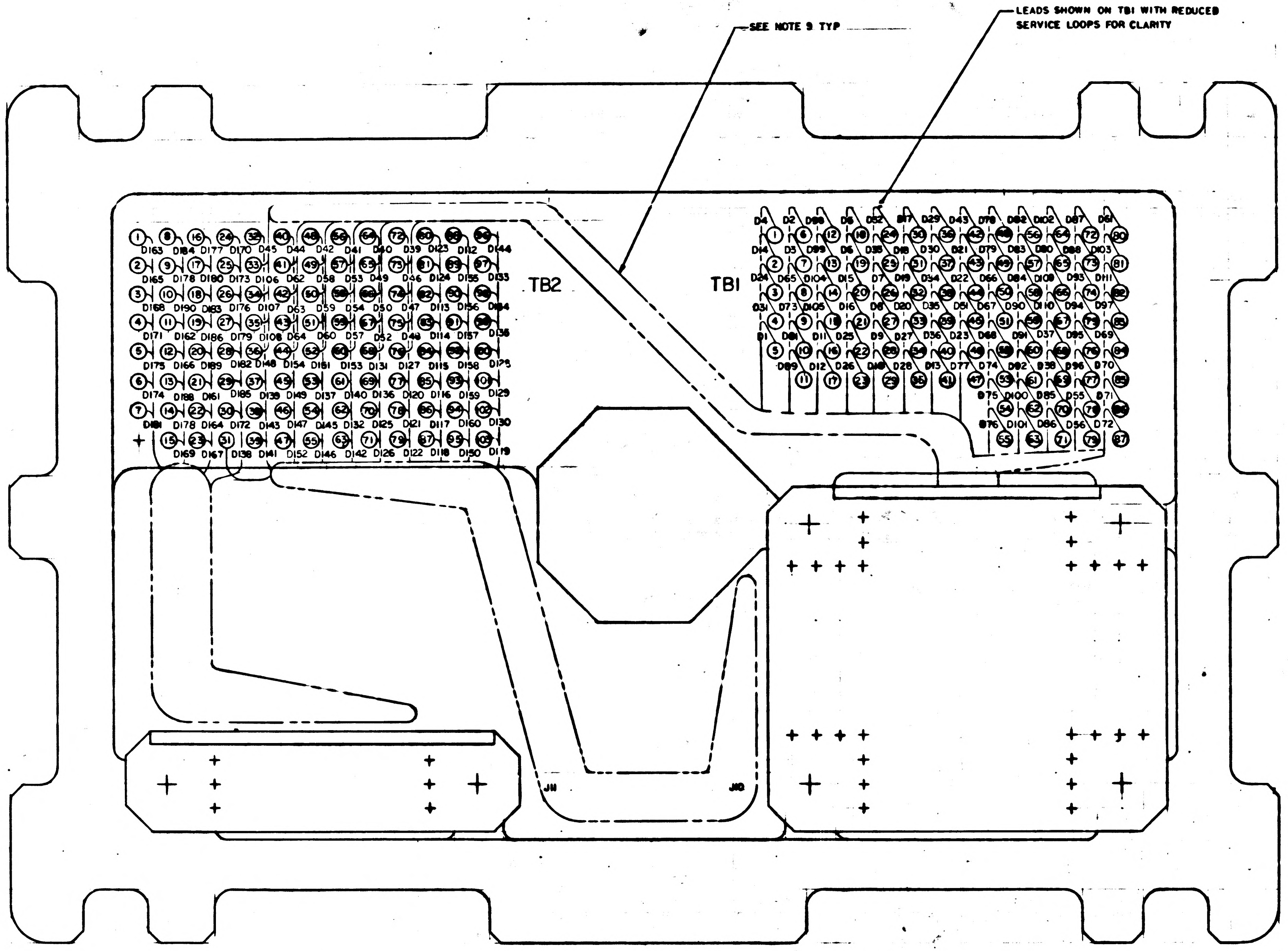
CODE IDENT NO 80230
SIZE E
NASA DRAWING NO. 2003912
SCALE 2/1
WT
SHEET 1 OF 3

2003912 C

MASTER

2003912 C

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22315 DR R.C. Taylor CHK		
	REVISED PER TDRR 23237 DR CHK		
C	REVISED PER TDRR 23949 DR CHK	11/12/65	



SEE NOTE 9 TYP
LEADS SHOWN ON TB1 WITH REDUCED SERVICE LOOPS FOR CLARITY
TB2
TB1
J11
J10

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
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MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ADAPTER PLATE ASSY

AGC DSKY

CODE IDENT NO 80230 SIZE E NASA DRAWING NO 2003912

SCALE NONE WT SHEET 2 OF 3

2003912 C

NOTICE - [illegible]

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22315 DR R. C. Taylor CHK	9/2/65	
B	REVISED PER TDRR 23237 DR D.A. CHK		
C	REVISED PER TDRR 23949 DR S.P. CHK	11/17/65	

2003912 C

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
D1	SEE NOTE 3	J10-1	7	YEL	30	AR	TB1-5	SEE NOTE 5
D2		-2					-6	
D3		-3					-7	
D4		-4					-1	
D5		-5					-18	
D6		-6					-19	
D7		-7					-20	
D8		-8					-27	
D9		-9					-28	
D10		-10					-29	
D11		-11					-16	
D12		-12					-17	
D13		-13					-41	
D14		-14					-2	
D15		-15					-20	
D16		-16					-21	
D17		-17					-30	
D18		-18					-31	
D19		-19					-32	
D20		-20					-33	
D21		-21					-43	
D22		-22					-44	
D23		-23					-46	
D24		-24					-3	
D25		-25					-22	
D26		-26					-23	
D27		-27					-34	
D28		-28					-35	
D29		-29					-36	
D30		-30					-37	
D31		-37					-4	
D32		-38					-24	
D33		-39					-25	
D34		-40					-38	
D35		-41					-39	
D36		-42					-40	
D37		-43					-68	
D38		-44					TB1-69	
D39		-45					TB2-73	
D40		-46					-65	
D41		-53					-57	
D42		-54					TB2-49	
D43		-55					TB1-42	
D44		-56					TB2-41	
D45		-57					-33	
D46		-58					-74	
D47		-59					-75	
D48		-60					-76	
D49		-67					-66	
D50		-68					TB2-67	
D51		-69					TB1-45	
D52		-70					TB2-68	
D53		-71					TB2-58	
D54		-72					TB2-59	
D55		-73					TB1-78	
D56		-74					TB1-79	
D57		-81					TB2-60	
D58		-82					-50	
D59		-83					-51	
D60		-84					TB2-52	
D61		-85					TB1-80	
D62		-86					TB2-42	
D63		-87					TB2-43	
D64		-88					TB2-44	
D65		-95					TB1-8	
D66		-96					-50	
D67		-97					-51	
D68		-98					-52	
D69		-99					-84	
D70		-100					-85	
D71		-101					-86	
D72		J10-102	7	YEL	30	AR	TB1-87	
D73	SEE NOTE 3	J10-109	7	YEL	30	AR	TB1-9	SEE NOTE 5
D74		-110					-53	
D75		-111					-54	
D76		-112					-55	
D77		-113					-47	
D78		-114					-48	
D79		-115					-49	
D80		-116					-65	
D81		-123					-10	
D82		-124					-56	
D83		-125					-57	
D84		-126					-58	
D85		-127					-70	
D86		-128					-71	
D87		-129					-72	
D88		-130					-73	
D89		-137					-11	
D90		-138					-59	
D91		-139					-60	
D92		-140					-61	
D93		-141					-74	
D94		-142					-75	
D95		-143					-76	
D96		-144					-77	
D97		-146					-83	
D98		-147					-12	
D99		-148					-13	
D100		-149					-62	
D101		-150					-63	
D102		-151					-64	
D103		-152					-81	
D104		-153					-14	
D105		-154					TB1-15	
D106		-155					TB2-34	
D107		-156					TB2-35	
D108		-157					TB2-36	
D109		-158					TB1-66	
D110		-159					TB1-67	
D111		-160					TB1-82	
D112		-145					TB2-88	
D113		-131					-82	
D114		-132					-83	
D115		-133					-84	
D116		-134					-85	
D117		-135					-86	
D118		-136					-87	
D119		-117					-103	
D120		-118					-77	
D121		-119					-78	
D122		-120					-79	
D123		-121					-80	
D124		-122					-81	
D125		-103					-70	
D126		-104					-71	
D127		-105					-72	
D128		-106					-100	
D129		-107					-101	
D130		-108					-102	
D131		-89					-64	
D132		-90					-62	
D133		-91					-97	
D134		-92					-98	
D135		-93					-99	
D136		-94					-69	
D137		-75					-53	
D138		-76					-31	
D139		-77					-37	
D140		-78					-61	
D141		-79					-39	
D142		-80					-63	
D143		-61					-38	
D144		J10-62	7	YEL	30	AR	TB2-96	
D145	SEE NOTE 3	J10-63	7	YEL	30	AR	TB2-54	SEE NOTE 5
D146		-64					-55	
D147		-65					-46	
D148		-66					-32	
D149		-47					-45	
D150		-48					-95	
D151		-49					-48	
D152		-50					-47	
D153		-51					-56	
D154		-52					-40	
D155		-31					-89	
D156		-32					-90	
D157		-33					-91	
D158		-34					-92	
D159		-35					-93	
D160		J10-36	7	YEL	30		-94	
D161	SEE NOTE 3	J11-21	8	WHT	26		-21	SEE NOTE 5
D162		-11					-11	
D163		-1					-1	
D164		-22					-22	
D165		-12					-2	
D166		-2					-12	
D167		-23					-23	
D168		-15					-3	
D169		-3					-13	
D170		-24					-24	
D171		-4					-14	
D172		-13					-30	
D173		-25					-25	
D174		-6					-15	
D175		-5					-5	
D176		-26					-26	
D177		-16					-16	
D178		-14					-6	
D179		-27					-27	
D180		-17					-17	
D181		-7					-7	
D182		-28					-28	
D183		-18					-18	
D184		-8					-8	
D185		-29					-29	
D186		-19					-19	
D187		-9					-9	
D188		-30					-4	
D189		-20					-20	
D190		J11-10	8	WHT	26	AR	TB2-10	

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
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DO NOT SCALE THIS DRAWING
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CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
TEST APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ADAPTER PLATE ASSY

AGC DSKY

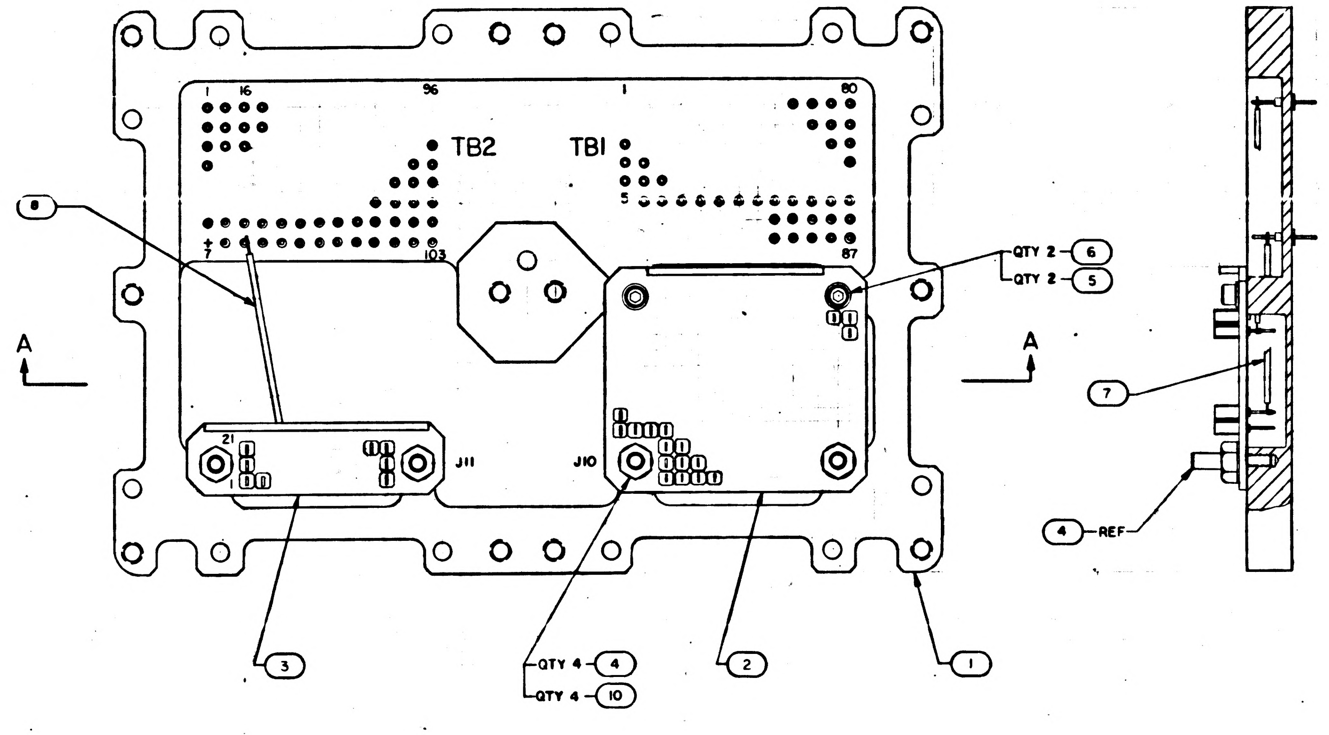
CODE IDENT NO.	SIZE	NASA DRAWING NO
80230	E	2003912

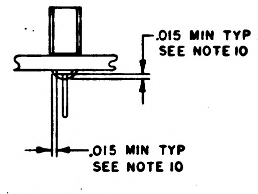
SCALE NONE WT SHEET 3 OF 3

2003912 C

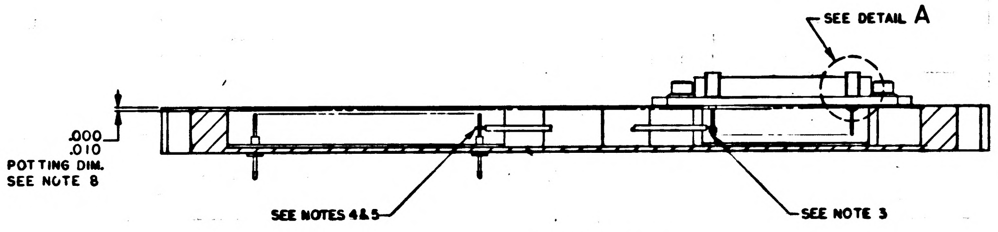
NOTICE - [illegible]

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22315 DR [illegible] CHK [illegible]	[illegible]	[illegible]
B	REVISED PER TDRR 23237 DR [illegible] CHK [illegible]	[illegible]	[illegible]
C	REVISED PER TDRR 23949 DR [illegible] CHK [illegible]	11/17/65	[illegible]
D	REVISED PER TDRR 24665 DR R.D. [illegible] CHK [illegible]	12/20/65	[illegible]





DETAIL A
SCALE 4/1



SECTION A-A

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. WIRE WRAP PER WIRING LEGEND AND PER ND1002031 EXCEPT FIND NO 8 TO HAVE 5 MIN TO 7 MAX TURNS OF UNINSULATED WIRE, 1/2 TO 1 1/2 TURNS OF INSULATED WIRE, STRIP LENGTH OF 1.18 TO 1.00 AND A STRIP FORCE OF 5 LB MIN
4. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
5. WELD PER ND1002005
6. ~~SOLDER PER ND1002071 USING SOLDER PER ND1002075~~
7. IDENTIFY WITH PART NO. PER ND1002019
8. ENCAPSULATE PER ND1002236
9. DRESS AND TRIM USING FIND NO. 9
10. SEAL INSULATORS ON FIND NO. 2 AND 3 PER ND1002004 TYPE XI

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
4	NAS620C-6L	WASHER, FLAT	10
AR	1012507-003	TAPE, LACING	9
AR	1010807-22	WIRE, ELECTRICAL INSULATED	8
AR	1006732-1	WIRE, ELECTRICAL INSULATED	7
2	MS16995-10	SCREW, SOCKET HEAD	6
2	NAS620C4L	WASHER, FLAT	5
4	2004938	PIN, ALIGNMENT	4
1	2003914-011	CONNECTOR, PLATE ASSEMBLY	3
1	2003913-011	CONNECTOR, PLATE ASSEMBLY	2
1	2004919-011	PLATE, ADAPTER	1
011	LIST OF MATERIALS		

2003903	
NEXT ASSY	USED ON
APPLICATION	

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CHECKED [illegible] 9 NOV 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ADAPTER PLATE ASSY
AGC DSKY

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO. 2003912
SCALE 2/1
WT
SHEET 1 OF 3

2003912 D

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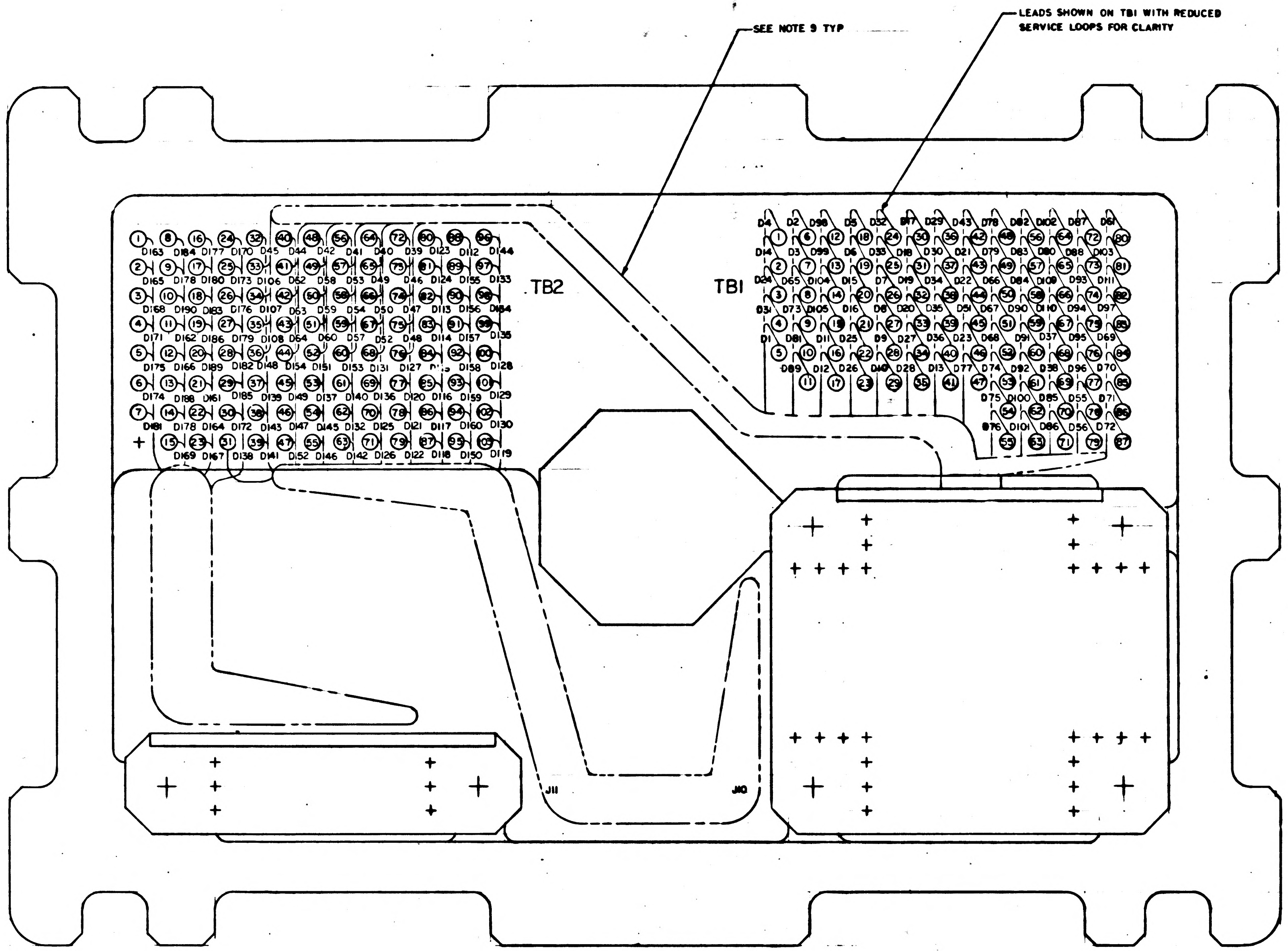
2003912 D

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22315 DR R.C. Taylor CHK [illegible]	[illegible]	[illegible]
B	REVISED PER TDRR 23237 DR D.G. Clement CHK [illegible]	[illegible]	[illegible]
C	REVISED PER TDRR 23949 DR D.P. [illegible] CHK [illegible]	[illegible]	[illegible]
D	REVISED PER TDRR 24665 DR R.D. [illegible] CHK [illegible]	[illegible]	[illegible]


SEE NOTE 9 TYP
LEADS SHOWN ON TB1 WITH REDUCED SERVICE LOOPS FOR CLARITY
TB2
TB1
J11
J10
D163 D184 D177 D170 D45 D44 D42 D41 D40 D39 D123 D112 D144
D165 D178 D180 D173 D106 D62 D58 D53 D49 D46 D124 D155 D133
D168 D190 D183 D176 D107 D63 D59 D54 D50 D47 D113 D156 D134
D171 D162 D186 D179 D108 D64 D60 D57 D52 D48 D114 D157 D135
D175 D166 D189 D182 D148 D154 D151 D153 D131 D127 D158 D128
D174 D188 D161 D185 D139 D149 D137 D140 D136 D120 D116 D159 D129
D181 D178 D164 D172 D143 D147 D145 D132 D125 D121 D117 D160 D130
D169 D167 D138 D141 D152 D146 D142 D126 D122 D118 D150 D119
D4 D2 D98 D5 D32 D17 D29 D43 D78 D82 D102 D87 D61
D14 D3 D99 D6 D33 D18 D30 D21 D79 D83 D80 D88 D103
D24 D65 D104 D15 D7 D19 D34 D22 D66 D84 D109 D93 D111
D31 D73 D105 D16 D8 D20 D35 D51 D67 D90 D110 D94 D97
D1 D81 D11 D25 D9 D27 D36 D23 D68 D91 D37 D95 D69
D89 D12 D26 D10 D28 D13 D77 D74 D92 D38 D96 D70
D75 D100 D85 D55 D71
D76 D101 D86 D56 D72

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

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CHECKED [illegible]
APPROVAL [illegible]
APPROVAL Eldon C. Hall [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ADAPTER PLATE ASSY

AGC DSKY

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO 2003912
SCALE NONE
WT
SHEET 2 OF 3

2003912 D

2003912 D

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22315 DR R. C. Taylor CHK		
B	REVISED PER TDRR 23237 DR D.A. Clement CHK		
C	REVISED PER TDRR 23949 DR CHK		
D	REVISED PER TDRR 24665 DR R.P. CHK		

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
D1	SEE NOTE 3	J10-1	7	YEL	30	AR	TB1-5	SEE NOTE 5
D2		-2					-6	
D3		-3					-7	
D4		-4					-1	
D5		-5					-18	
D6		-6					-19	
D7		-7					-26	
D8		-8					-27	
D9		-9					-28	
D10		-10					-29	
D11		-11					-16	
D12		-12					-17	
D13		-13					-41	
D14		-14					-2	
D15		-15					-20	
D16		-16					-21	
D17		-17					-30	
D18		-18					-31	
D19		-19					-32	
D20		-20					-33	
D21		-21					-43	
D22		-22					-44	
D23		-23					-46	
D24		-24					-3	
D25		-25					-22	
D26		-26					-23	
D27		-27					-34	
D28		-28					-35	
D29		-29					-36	
D30		-30					-37	
D31		-37					-4	
D32		-38					-24	
D33		-39					-25	
D34		-40					-38	
D35		-41					-39	
D36		-42					-40	
D37		-43					-68	
D38		-44					TB1-69	
D39		-45					TB2-73	
D40		-46					-65	
D41		-53					-57	
D42		-54					TB2-49	
D43		-55					TB1-42	
D44		-56					TB2-41	
D45		-57					-33	
D46		-58					-74	
D47		-59					-75	
D48		-60					-76	
D49		-67					-66	
D50		-68					TB2-67	
D51		-69					TB1-45	
D52		-70					TB2-68	
D53		-71					TB2-58	
D54		-72					TB2-59	
D55		-73					TB1-78	
D56		-74					TB1-79	
D57		-81					TB2-60	
D58		-82					-50	
D59		-83					-51	
D60		-84					TB2-52	
D61		-85					TB1-80	
D62		-86					TB2-42	
D63		-87					TB2-43	
D64		-88					TB2-44	
D65		-95					TB1-8	
D66		-96					-50	
D67		-97					-51	
D68		-98					-52	
D69		-99					-84	
D70		-100					-85	
D71		-101					-86	
D72		J10-102	7	YEL	30	AR	TB1-87	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
D73	SEE NOTE 3	J10-109	7	YEL	30	AR	TB1-9	SEE NOTE 5
D74		-110					-53	
D75		-111					-54	
D76		-112					-55	
D77		-113					-47	
D78		-114					-48	
D79		-115					-49	
D80		-116					-65	
D81		-123					-10	
D82		-124					-56	
D83		-125					-57	
D84		-126					-58	
D85		-127					-70	
D86		-128					-71	
D87		-129					-72	
D88		-130					-73	
D89		-137					-11	
D90		-138					-59	
D91		-139					-60	
D92		-140					-61	
D93		-141					-74	
D94		-142					-75	
D95		-143					-76	
D96		-144					-77	
D97		-146					-83	
D98		-147					-12	
D99		-148					-13	
D100		-149					-62	
D101		-150					-63	
D102		-151					-64	
D103		-152					-81	
D104		-153					-14	
D105		-154					TB1-15	
D106		-155					TB2-34	
D107		-156					TB2-35	
D108		-157					TB2-36	
D109		-158					TB1-66	
D110		-159					TB1-67	
D111		-160					TB1-82	
D112		-145					TB2-88	
D113		-131					-82	
D114		-132					-83	
D115		-133					-84	
D116		-134					-85	
D117		-135					-86	
D118		-136					-87	
D119		-117					-103	
D120		-118					-77	
D121		-119					-78	
D122		-120					-79	
D123		-121					-80	
D124		-122					-81	
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D138		-76					-31	
D139		-77					-37	
D140		-78					-61	
D141		-79					-39	
D142		-80					-63	
D143		-61					-38	
D144		J10-62	7	YEL	30	AR	TB2-96	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
D145	SEE NOTE 3	J10-63	7	YEL	30	AR	TB2-54	SEE NOTE 5
D146		-64					-55	
D147		-65					-46	
D148		-66					-32	
D149		-47					-45	
D150		-48					-95	
D151		-49					-48	
D152		-50					-47	
D153		-51					-56	
D154		-52					-40	
D155		-31					-89	
D156		-32					-90	
D157		-33					-91	
D158		-34					-92	
D159		-35					-93	
D160		J10-36	7	YEL	30		-94	
D161	SEE NOTE 3	J11-21	8	WHT	26		-21	SEE NOTE 5
D162		-11					-11	
D163		-1					-1	
D164		-22					-22	
D165		-12					-2	
D166		-2					-12	
D167		-23					-23	
D168		-15					-3	
D169		-3					-13	
D170		-24					-24	
D171		-4					-14	
D172		-13					-30	
D173		-25					-25	
D174		-6					-15	
D175		-5					-5	
D176		-26					-26	
D177		-16					-16	
D178		-14					-6	
D179		-27					-27	
D180		-17					-17	
D181		-7					-7	
D182		-28					-28	
D183		-18					-18	
D184		-8					-8	
D185		-29					-29	
D186		-19					-19	
D187		-9					-9	
D188		-30					-4	
D189		-20					-20	
D190		J11-10	8	WHT	26	AR	TB2-10	

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
CONTRACT
DRAWN J.L. DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

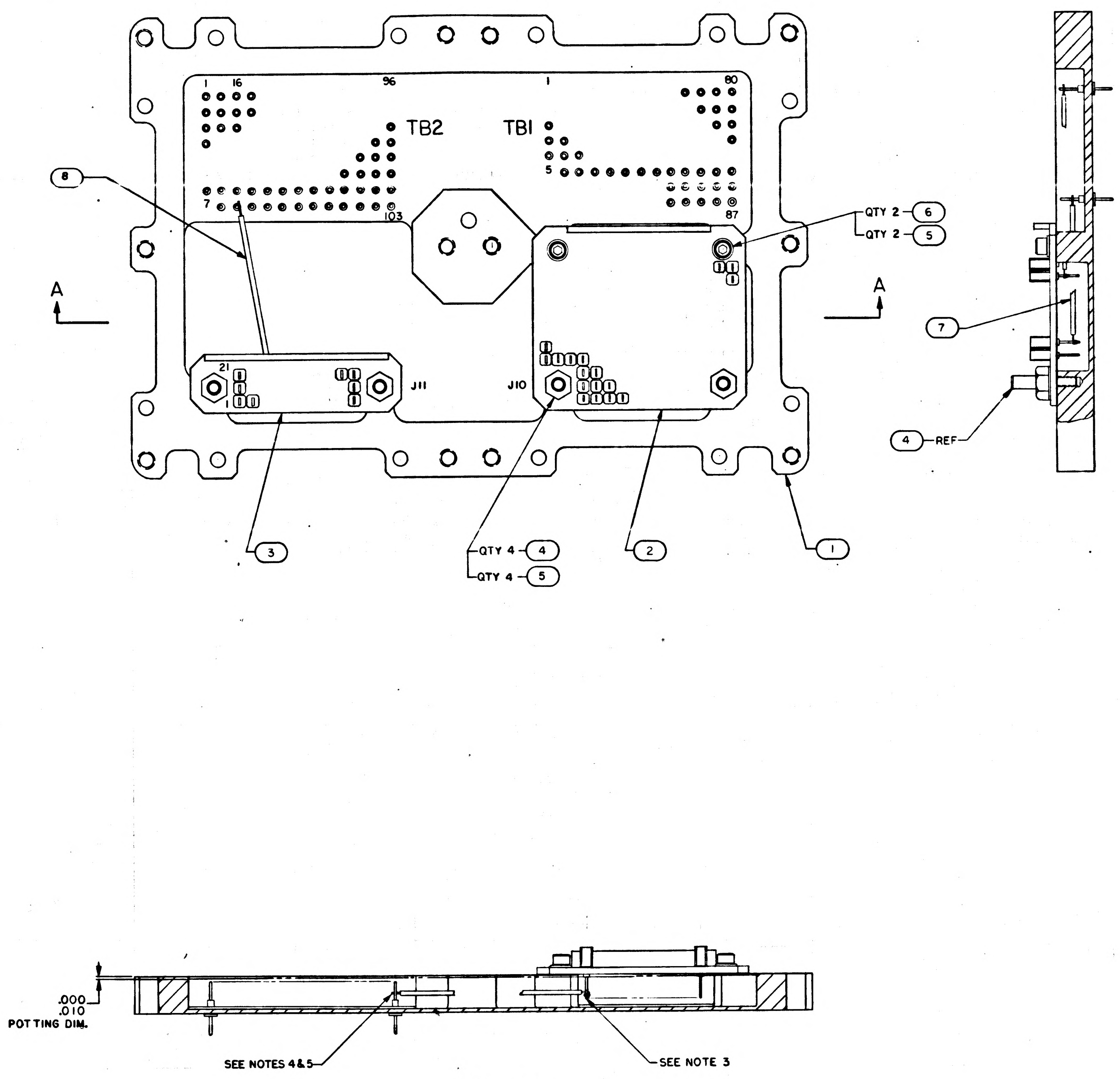
ADAPTER PLATE ASSY

AGC DSKY

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 2003912
SCALE NONE
WT
SHEET 3 OF 3

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL



SECTION A-A

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. WIRE WRAP PER WIRING LEGEND AND PER ND1002031
4. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
5. WELD PER ND1002005
6. SOLDER PER ND1002071 USING SOLDER PER ND1002075
7. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
8. ENCAPSULATE PER ND1002236
9. DRESS AND TRIM USING FIND NO.9

MASTER

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
AR	1012507-003	TAPE, LACING	9
AR	later	WIRE, ELECTRICAL INSULATED	8
AR	later	WIRE, ELECTRICAL INSULATED	7
2	MS16995-10	SCREW, SOCKET HEAD	6
6	NAS620C4L	WASHER, FLAT	5
4	2004938	PIN, ALIGNMENT	4
1	2003914-011	CONNECTOR, PLATE ASSEMBLY	3
1	2003913-011	CONNECTOR, PLATE ASSEMBLY	2
1	2004919-011	PLATE, ADAPTER	1
011	LIST OF MATERIALS		

2003903	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN J C Emmons DATE 3 Jun 65
CHECKED C Dellarocca 9 JUN 65
APPROVAL [illegible] 10 Jun 65
APPROVAL Eldon C Hall 12 July 65
NASA APPROVAL W J Rhine
MIT APPROVAL W C Hurley 7-13-65
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ADAPTER PLATE ASSY
AGC DSKY

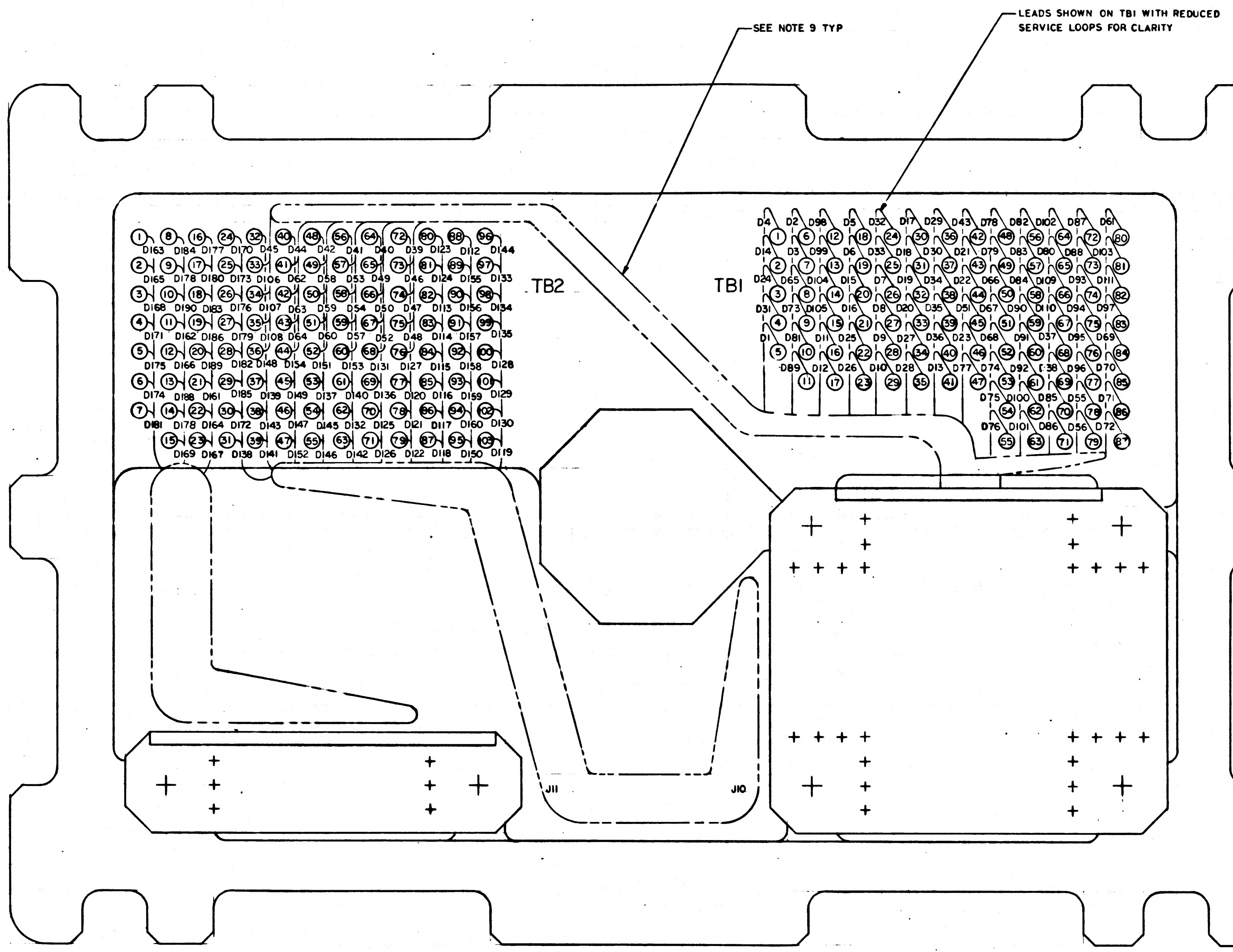
CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 2003912
SCALE 2/1
WT
SHEET 1 OF 3

2003912
B

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

SYM	DESCRIPTION	DATE	APPROVAL

REVISIONS



SEE NOTE 9 TYP

LEADS SHOWN ON TBI WITH REDUCED SERVICE LOOPS FOR CLARITY

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN J. P. Leonard DATE 9 Jun 65
CHECKED Caggiano 19 Jun 65
APPROVAL 19 Jun 65
APPROVAL Eldon C Hall 12 July 65
NASA APPROVAL W J
MIT APPROVAL 9-13-65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ADAPTER PLATE ASSY

AGC DSKY

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 2003912
SCALE NONE
WT
SHEET 2 OF 3

MASTER

2003912

SYM	DESCRIPTION	DATE	APPROVAL
REVISIONS			

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
D1	SEE NOTE 3	J10-1	7	WHT	30	AR	TB1-5	SEE NOTE 5
D2		-2					-6	
D3		-3					-7	
D4		-4					-1	
D5		-5					-18	
D6		-6					-19	
D7		-7					-20	
D8		-8					-27	
D9		-9					-28	
D10		-10					-29	
D11		-11					-16	
D12		-12					-17	
D13		-13					-41	
D14		-14					-2	
D15		-15					-20	
D16		-16					-21	
D17		-17					-30	
D18		-18					-31	
D19		-19					-32	
D20		-20					-33	
D21		-21					-43	
D22		-22					-44	
D23		-23					-46	
D24		-24					-3	
D25		-25					-22	
D26		-26					-23	
D27		-27					-34	
D28		-28					-35	
D29		-29					-36	
D30		-30					-37	
D31		-37					-4	
D32		-38					-24	
D33		-39					-25	
D34		-40					-38	
D35		-41					-39	
D36		-42					-40	
D37		-43					-68	
D38		-44					TB1-69	
D39		-45					TB2-73	
D40		-46					-65	
D41		-53					-57	
D42		-54					TB2-49	
D43		-55					TB1-42	
D44		-56					TB2-41	
D45		-57					-33	
D46		-58					-74	
D47		-59					-75	
D48		-60					-76	
D49		-67					-66	
D50		-68					TB2-67	
D51		-69					TB1-45	
D52		-70					TB2-68	
D53		-71					TB2-58	
D54		-72					TB2-59	
D55		-73					TB1-78	
D56		-74					TB1-79	
D57		-81					TB2-60	
D58		-82					-50	
D59		-83					-51	
D60		-84					TB2-52	
D61		-85					TB1-80	
D62		-86					TB2-42	
D63		-87					TB2-43	
D64		-88					TB2-44	
D65		-95					TB1-8	
D66		-96					-50	
D67		-97					-51	
D68		-98					-52	
D69		-99					-84	
D70		-100					-85	
D71		-101					-86	
D72		J10-102	7	WHT	30	AR	TB1-87	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
D73	SEE NOTE 3	J10-109	7	WHT	30	AR	TB1-9	SEE NOTE 5
D74		-110					-53	
D75		-111					-54	
D76		-112					-55	
D77		-113					-47	
D78		-114					-48	
D79		-115					-49	
D80		-116					-65	
D81		-123					-10	
D82		-124					-56	
D83		-125					-57	
D84		-126					-58	
D85		-127					-70	
D86		-128					-71	
D87		-129					-72	
D88		-130					-73	
D89		-137					-11	
D90		-138					-59	
D91		-139					-60	
D92		-140					-61	
D93		-141					-74	
D94		-142					-75	
D95		-143					-76	
D96		-144					-77	
D97		-146					-83	
D98		-147					-12	
D99		-148					-13	
D100		-149					-62	
D101		-150					-63	
D102		-151					-64	
D103		-152					-81	
D104		-153					-14	
D105		-154					TB1-15	
D106		-155					TB2-34	
D107		-156					TB2-35	
D108		-157					TB2-36	
D109		-158					TB1-66	
D110		-159					TB1-67	
D111		-160					TB1-82	
D112		-145					TB2-88	
D113		-131					-82	
D114		-132					-83	
D115		-133					-84	
D116		-134					-85	
D117		-135					-86	
D118		-136					-87	
D119		-117					-103	
D120		-118					-77	
D121		-119					-78	
D122		-120					-79	
D123		-121					-80	
D124		-122					-81	
D125		-103					-70	
D126		-104					-71	
D127		-105					-72	
D128		-106					-100	
D129		-107					-101	
D130		-108					-102	
D131		-89					-64	
D132		-90					-62	
D133		-91					-97	
D134		-92					-98	
D135		-93					-99	
D136		-94					-69	
D137		-75					-53	
D138		-76					-31	
D139		-77					-37	
D140		-78					-61	
D141		-79					-39	
D142		-80					-63	
D143		-61					-38	
D144		J10-62	7	WHT	30	AR	TB2-96	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
D145	SEE NOTE 3	J10-63	7	WHT	30	AR	TB2-54	SEE NOTE 5
D146		-64					-55	
D147		-65					-46	
D148		-66					-32	
D149		-47					-45	
D150		-48					-95	
D151		-49					-48	
D152		-50					-47	
D153		-51					-56	
D154		-52					-40	
D155		-31					-89	
D156		-32					-90	
D157		-33					-91	
D158		-34					-92	
D159		-35					-93	
D160		J10-36	7	WHT	30		-94	
D161	SEE NOTE 3	J11-21	8	WHT	26		-21	SEE NOTE 5
D162		-11					-11	
D163		-1					-1	
D164		-22					-22	
D165		-12					-2	
D166		-2					-12	
D167		-23					-23	
D168		-15					-3	
D169		-3					-13	
D170		-24					-24	
D171		-4					-14	
D172		-13					-30	
D173		-25					-25	
D174		-6					-15	
D175		-5					-5	
D176		-26					-26	
D177		-16					-16	
D178		-14					-6	
D179		-27					-27	
D180		-17					-17	
D181		-7					-7	
D182		-28					-28	
D183		-18					-18	
D184		-8					-8	
D185		-29					-29	
D186		-19					-19	
D187		-9					-9	
D188		-30					-4	
D189		-20					-20	
D190		J11-10	8	WHT	26	AR	TB2-10	

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO. CONTRACT
DRAWN J.L. Legrand DATE
CHECKED A Caggiano 19 Jan 65
APPROVAL 9 Jan 65
APPROVAL 12 July 65
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ADAPTER PLATE ASSY

AGC DSKY

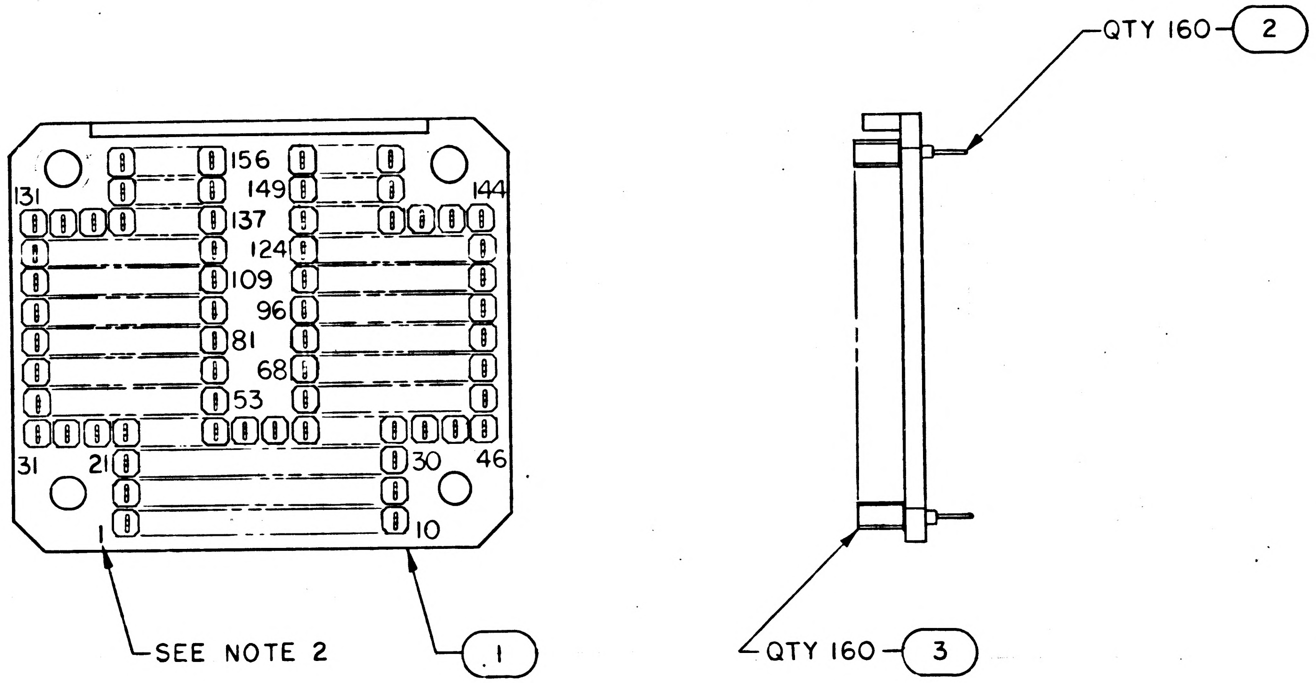
CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO 2003912
SCALE NONE
WT
SHEET 3 OF 3

2003912

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20855

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK NEAR & FARSIDE APPROXIMATELY WHERE SHOWN .07/.09 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 USING INK 1006271-11
3. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
4. ASSEMBLE FIND NO.2 AND FIND NO.3 TO FIND NO.1 PER ND1002136

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
160	1006774		INSULATOR, WRAPOST-FEMALE	3
160	1006781-1		CONTACT, WRAPOST-FEMALE	2
1	2004920		PLATE, CONNECTOR	1

011 LIST OF MATERIALS

2003912	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	J.C. Emmons	8 April 65
CHECKED	C. DeGreenia	4 JUN 65
APPROVED	G. Underhoffler	9 Jun 65
APPROVED	Eldon C. Hall	12 July 65
APPROVED MIT	M G Murdy	7-13-65
APPROVED MSC		7-13-65
		DATE

CONNECTOR PLATE ASSY
INDICATOR DIGITAL
AGC DSKY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2003913

SCALE 2/1 SHEET 1 OF 1

2003913

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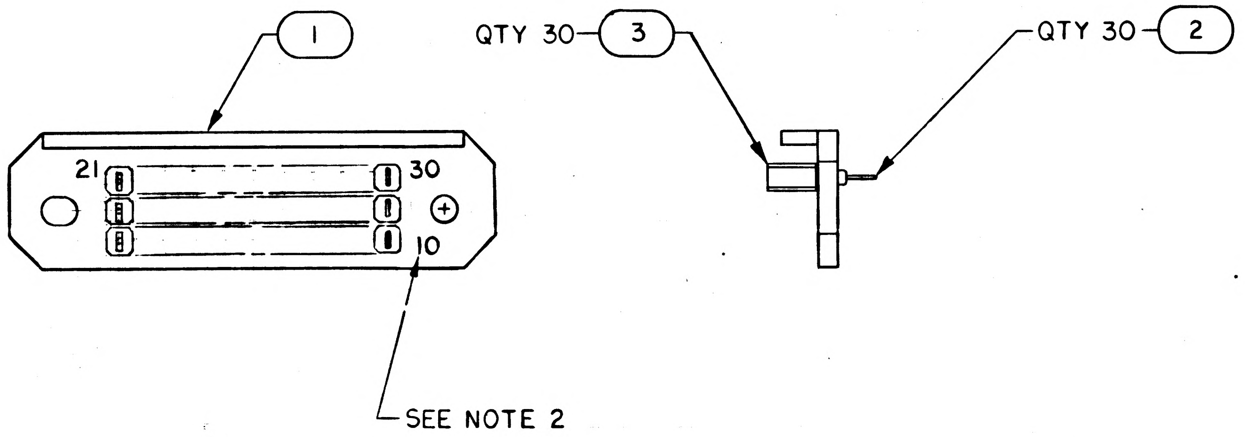
REVISIONS 20855

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK NEAR & FARSIDE APPROXIMATELY WHERE SHOWN .07/.09 HIGH BLACK CHARACTERS PER ND1002019 & ND1002122 TYPE II, CLASS 2, USING INK 1006271-11
3. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
4. ASSEMBLE FIND NO.2 AND FIND NO.3 TO FIND NO.1 PER ND1002136

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
30	1006774		INSULATOR, WRAPOST-FEMALE	3
30	1006781-1		CONTACT, WRAPOST-FEMALE	2
1	2004921		PLATE, CONNECTOR	1

011 LIST OF MATERIALS

2003912	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J.C. Economou 7 April 65
CHECKED C. DeGreenia 4 JUN 65
APPROVED A. Underkoffler 9 June 65
APPROVED Eldon C Hall 12 July 65
APPROVED MIT M G Mosley 7-13-65
APPROVED MSC W J Rhine 7-13-65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CONNECTOR PLATE ASSY
INDICATOR ALARM
AGC DSKY

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2003914
SCALE 2/1
SHEET 1 OF 1

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

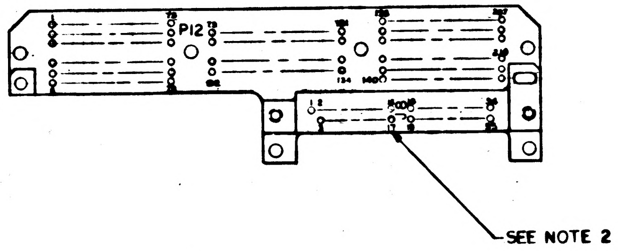
2003915 A

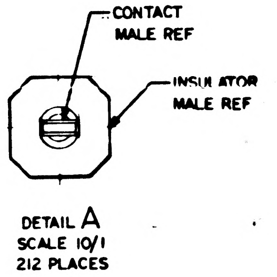
REVISIONS 20A

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 21399			4/7/65	

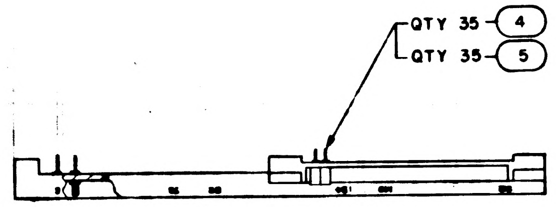
JUMPER LIST

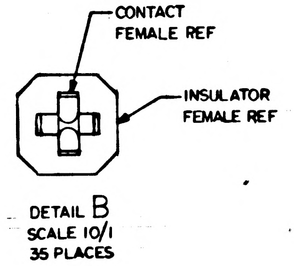
COND IDENT	REMARKS	FROM	FIND NO	COLOR	SIZE AWG	LENGTH	TO	REMARKS
F1		J8-4	6	YELLOW	30	AR	P12-188	
F2		-7					-198	
F3		-12					-199	
F4		-23					-180	
F5		-28					-206	
F6		-29					-200	
F7		-31					-205	
F8		-32					-212	
F9		J8-33	6	YELLOW	30	AR	P12-211	



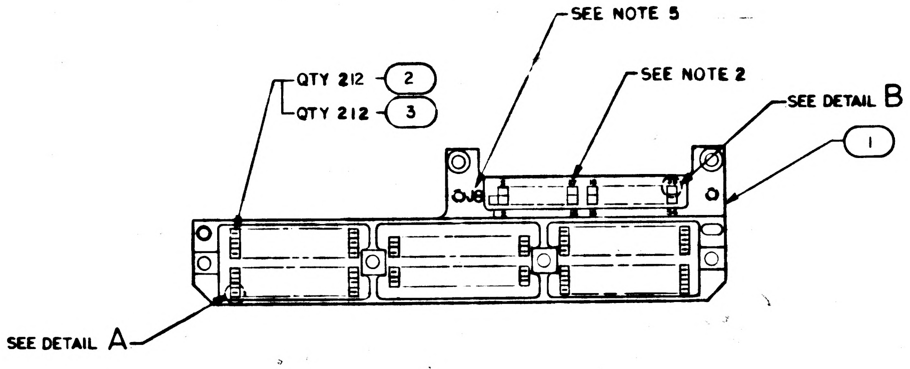


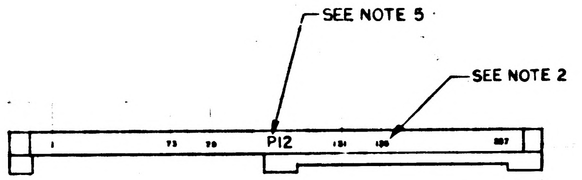
DETAIL A
SCALE 10/1
212 PLACES





DETAIL B
SCALE 10/1
35 PLACES





NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK APPROX. WHERE SHOWN .07/.05 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-10
3. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
4. ASSEMBLE FIND NO. 2 THRU 5 TO FIND NO. 1 PER ND1002136
5. MARK APPROX WHERE SHOWN .13/.11 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-10
6. WIRE WRAP USING JUMPER LIST PER ND1002031
7. AR DENOTES AS REQUIRED

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1010940-004		WIRE, ELECTRICAL	6
35	1006774		INSULATOR, WRAPOST FEMALE	5
35	1006781-1		CONTACT, WRAPOST FEMALE	4
212	1006775		INSULATOR, WRAPOST MALE	3
212	1006782-3		CONTACT, WRAPOST MALE	2
1	2004922-011		PLATE, CONNECTOR	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003903	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN [illegible] Apr 65
CHECKED [illegible]
APPROVED [illegible] Jun 65
APPROVED [illegible] 12 July 65
APPROVED MIT [illegible] 7-13-65
APPROVED MSC [illegible] 7-13-65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CONNECTOR PLATE ASSY
FRONT HOUSING
AGC DSKY

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2003915
SCALE 1/1
SHEET 1 OF 1

NOTICE WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2003915 B

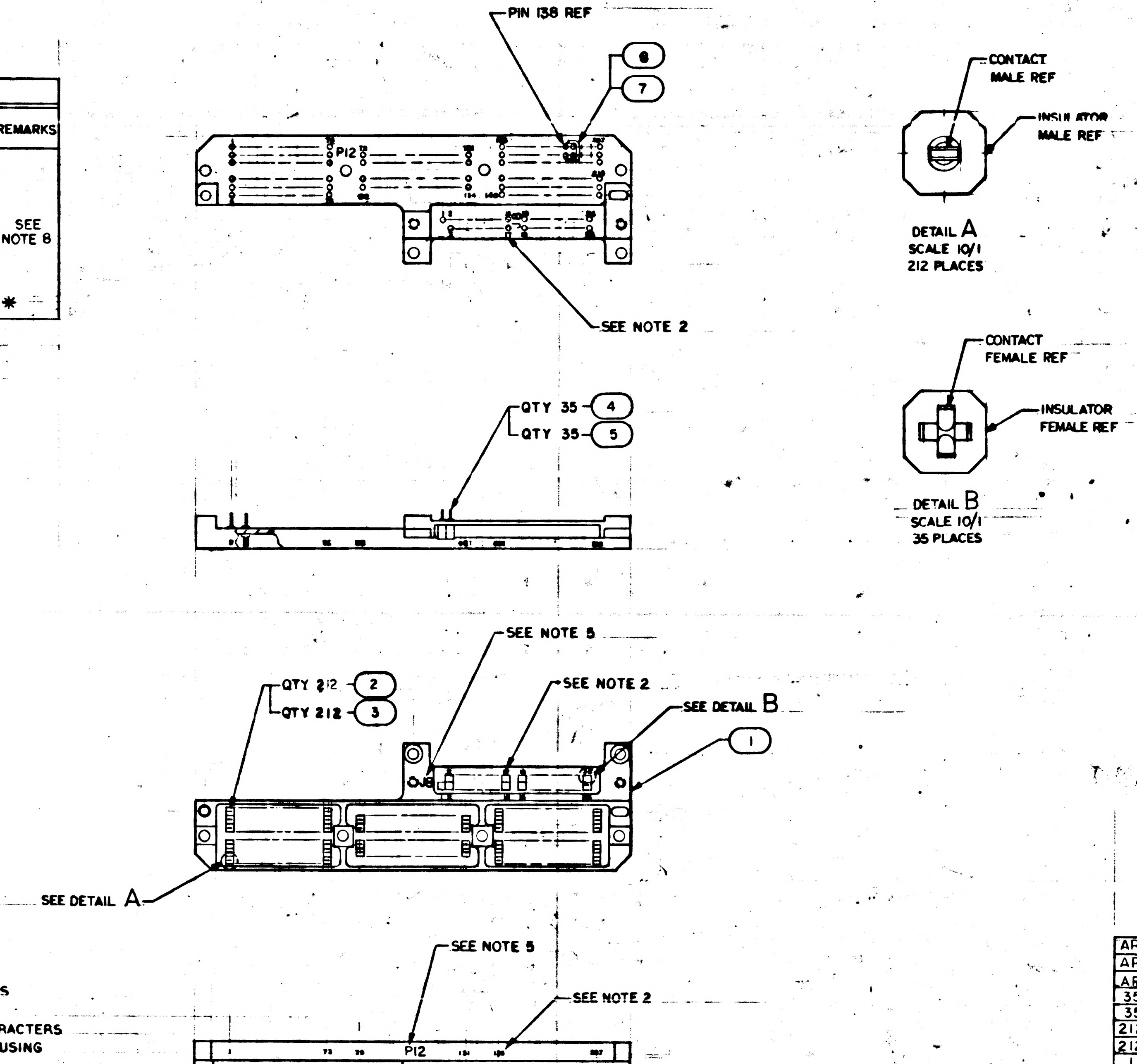
REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 21399				
B		REVISED PER TDRR 22316				

JUMPER LIST

COND IDENT	REMARKS	FROM	FIND NO	COLOR	SIZE AWG	LENGTH	TO	REMARKS
F1	SEE NOTE 6	J8-4	6	YELLOW	30	AR	P12-188	SEE NOTE 8
F2		-7					-198	
F3		-12					-199	
F4		-23					-180	
F5		-28					-206	
F6		-29					-200	
F7		-31					-205	
F8		-32					-212	
F9		J8-33	6	YELLOW	30		-211	
F10	SEE * NOTE 8	P12-183	7&8	—	.020DIA	AR	P12-184	*

* DENOTES MUST BE LOWER LEVEL



NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK APPROX. WHERE SHOWN .07/.05 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-10
3. IDENTIFY WITH PART NO. PER ND1002019
4. ASSEMBLE FIND NO. 2 THRU 5 TO FIND NO. 1 PER ND1002136
5. MARK APPROX WHERE SHOWN .13/.11 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-10
6. WIRE WRAP USING JUMPER LIST PER ND1002031
7. AR DENOTES AS REQUIRED
8. WELD PER ND1002005

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006776-22		INSULATION, SLEEVING	8
AR	1006756-8		WIRE, ELECTRICAL .020 DIA	7
AR	1010940-004		WIRE, ELECTRICAL	6
35	1006774		INSULATOR, WRAPOST FEMALE	5
35	1006781-1		CONTACT, WRAPOST FEMALE	4
212	1006775		INSULATOR, WRAPOST MALE	3
212	1006782-3		CONTACT, WRAPOST MALE	2
1	2004922-011		PLATE, CONNECTOR	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003903	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CONNECTOR PLATE ASSY
FRONT HOUSING
AGC DSKY

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2003915
SCALE 1/1
SHEET 1 OF 1

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2003915 C

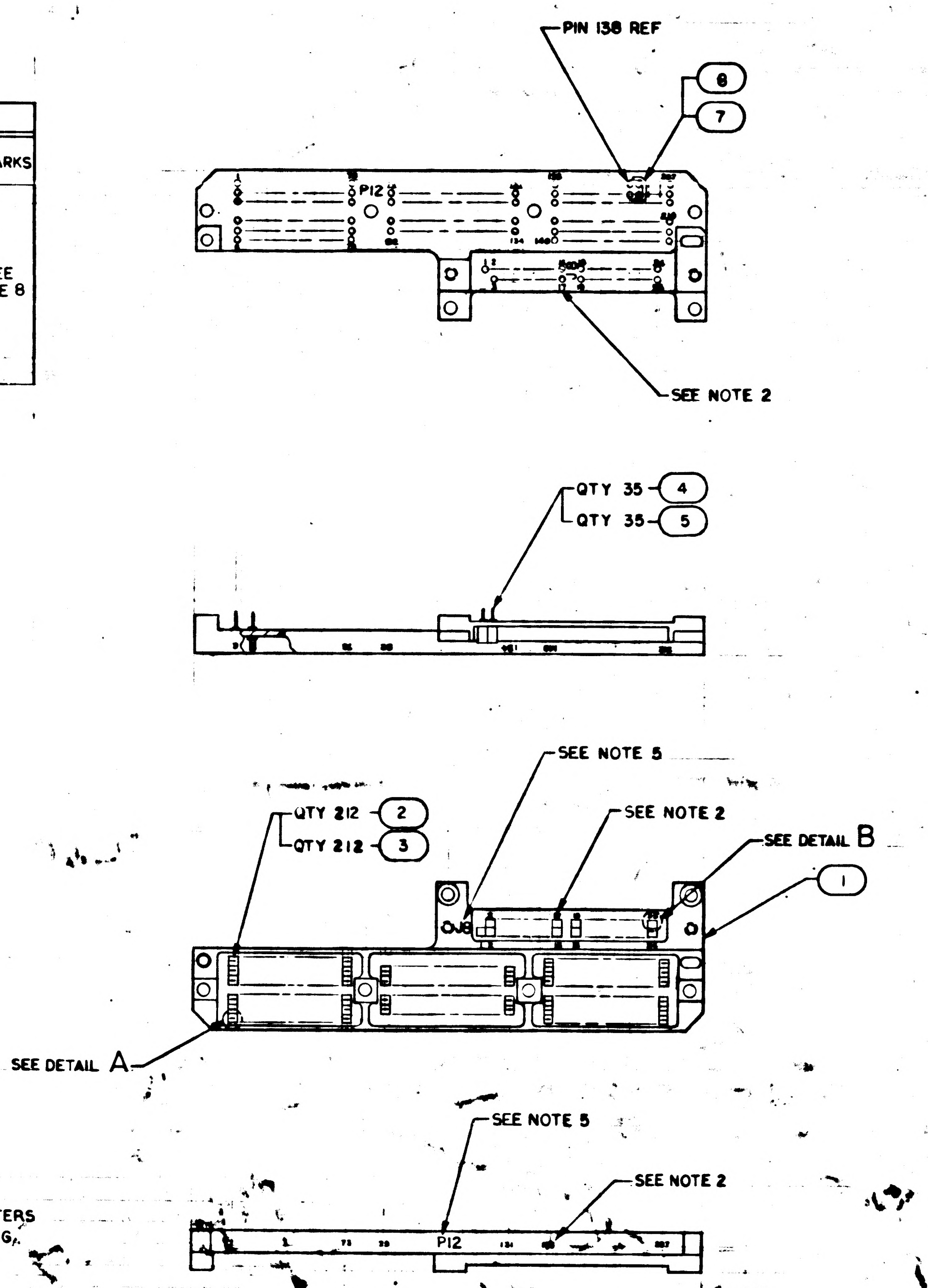
REVISIONS 20

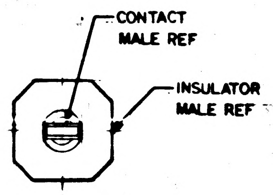
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 21399	J.P.S.			
B		REVISED PER TDRR 22316				
C		REVISED PER TDRR 23949	G.P.T.		4/2/65	

JUMPER LIST

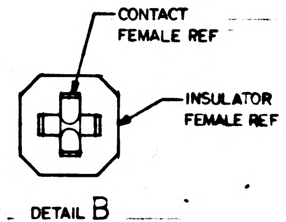
COND IDENT	REMARKS	FROM	FIND NO	COLOR	SIZE AWG	LENGTH	TO	REMARKS
F1	SEE NOTE 6	J8-4	6	YELLOW	30	AR	P12-188	SEE NOTE 8
F2		-7					-198	
F3		-12					-199	
F4		-23					-180	
F5		-28					-206	
F6		-29					-200	
F7		-31					-205	
F8		-32					-212	
F9		J8-33	6	YELLOW	30		-211	
F10	SEE NOTE 8 *	P12-183	7&8	—	.020DIA	AR	P12-184	*

* DENOTES MUST BE LOWER LEVEL





DETAIL A
SCALE 10/1
212 PLACES



DETAIL B
SCALE 10/1
35 PLACES

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK APPROX. WHERE SHOWN .07/.05 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122 TYPE I, CLASS 2 USING, INK 1006271-11
3. IDENTIFY WITH PART NO. PER ND1002019
4. ASSEMBLE FIND NO.2 THRU 5 TO FIND NO.1 PER ND1002136
5. MARK APPROX WHERE SHOWN .13/.11 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122. TYPE II, CLASS 2 USING INK 1006271-11
6. WIRE WRAP USING JUMPER LIST PER ND1002031
7. AR DENOTES AS REQUIRED
8. WELD PER ND1002005

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006776-22		INSULATION, SLEEVING	8
AR	1006756-8		WIRE, ELECTRICAL .020 DIA	7
AR	1006732-1		WIRE, ELECTRICAL	6
35	1006774		INSULATOR, WRAPOST FEMALE	5
35	1006781-1		CONTACT, WRAPOST FEMALE	4
212	1006775		INSULATOR, WRAPOST MALE	3
212	1006782-3		CONTACT, WRAPOST MALE	2
1	2004922-011		PLATE, CONNECTOR	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003903	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT 7-13-65
APPROVED MSC 7-13-65
DATE

CONNECTOR PLATE ASSY
FRONT HOUSING
AGC DSKY

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2003915
SCALE 1/1
SHEET 1 OF 1

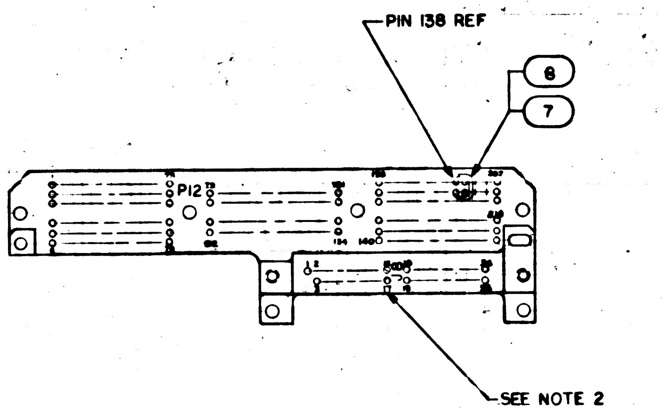
NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

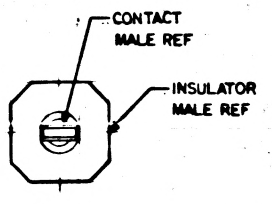
2003915 D

REVISIONS 20___						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 21399			4/17/65	
B		REVISED PER TDRR 22316			9/21/65	
C		REVISED PER TDRR 23949	G.P.T.			
D		REVISED PER TDRR 24665	P.D.Z.			

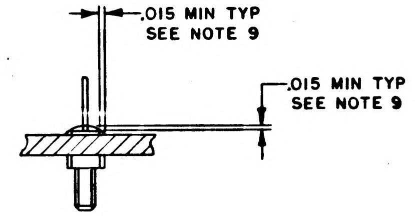
JUMPER LIST								
COND IDENT	REMARKS	FROM	FIND NO	COLOR	SIZE AWG	LENGTH	TO	REMARKS
F1	SEE NOTE 6	J8-4	6	YELLOW	30	AR	P12-188	SEE NOTE 8
F2		-7					-198	
F3		-12					-199	
F4		-23					-180	
F5		-28					-206	
F6		-29					-200	
F7		-31					-205	
F8		-32					-212	
F9		J8-33	6	YELLOW	30		-211	
F10	SEE * NOTE 8	P12-183	7 & 8	—	.020DIA	AR	P12-184	*

* DENOTES MUST BE LOWER LEVEL

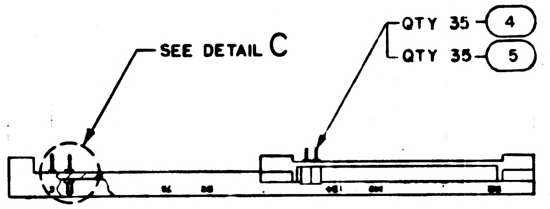


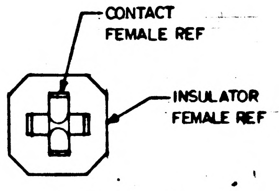


DETAIL A
SCALE 10/1
212 PLACES

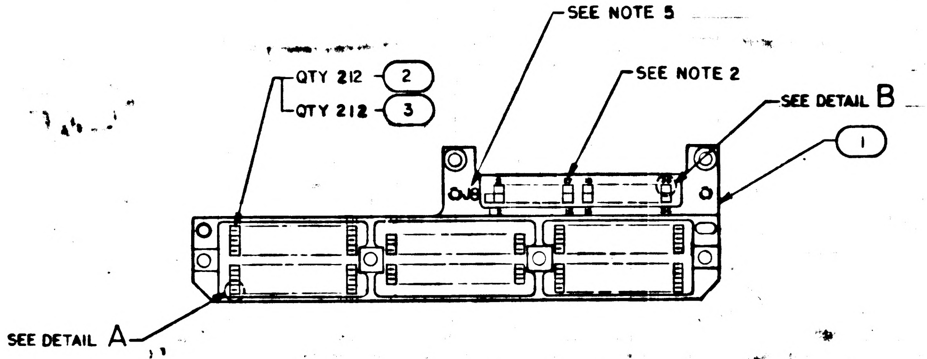


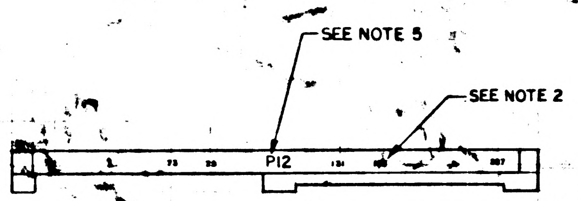
DETAIL C
SCALE 4/1





DETAIL B
SCALE 10/1
35 PLACES





NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK APPROX. WHERE SHOWN .07/.05 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING, INK 1006271-11
3. IDENTIFY WITH PART NO. PER ND1002019
4. ASSEMBLE FIND NO. 2 THRU 5 TO FIND NO. 1 PER ND1002136
5. MARK APPROX WHERE SHOWN .13/.11 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122. TYPE II, CLASS 2 USING INK 1006271-11
6. WIRE WRAP USING JUMPER LIST PER ND 1002031
7. AR DENOTES AS REQUIRED
8. WELD PER ND1002005
9. SEAL FIND NO. 2,3,4 AND 5 TO FIND NO. 1 PER ND1002004, TYPE VI

MASTER

AR	1006776-22		INSULATION, SLEEVING	8
AR	1006756-8		WIRE, ELECTRICAL .020 DIA	7
AR	1006732-1		WIRE, ELECTRICAL	6
35	1006774		INSULATOR, WRAPOST FEMALE	5
35	1006781-1		CONTACT, WRAPOST FEMALE	4
212	1006775		INSULATOR, WRAPOST MALE	3
212	1006782-3		CONTACT, WRAPOST MALE	2
1	2004922-011		PLATE, CONNECTOR	1
QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
011	LIST OF MATERIALS			

2003903	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN H.C. [illegible] Apr 65
CHECKED [illegible]
APPROVED [illegible]
APPROVED [illegible]
APPROVED MIT W G [illegible] 7-13-65
APPROVED MSC W J [illegible] 7-13-65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CONNECTOR PLATE ASSY
FRONT HOUSING
AGC DSKY

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2003915
SCALE 1/1
SHEET 1 OF 1

2003915 D

NOTICE WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2003915 E

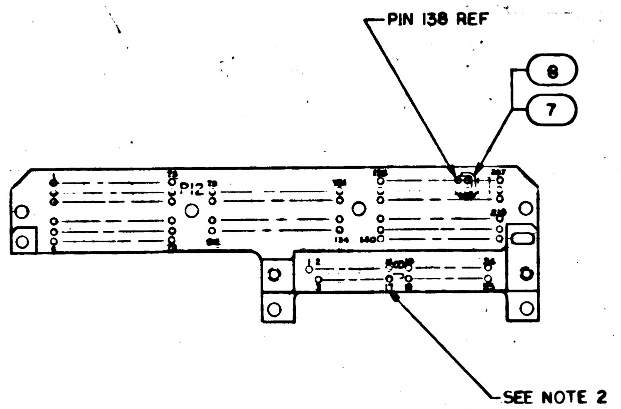
REVISIONS

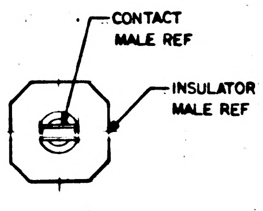
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 21399	J.P.S.		4/17/65	
B		REVISED PER TDRR 22316			9/7/65	
C		REVISED PER TDRR 23949	G.P.T.		11/2/65	
D		REVISED PER TDRR 24665			12/2/65	
E		REVISED PER TDRR 25310	J.P.S.		1/25/66	

JUMPER LIST

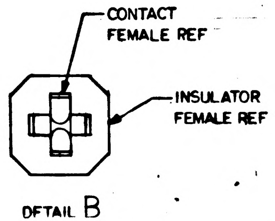
COND IDENT	REMARKS	FROM	FIND NO	COLOR	SIZE AWG	LENGTH	TO	REMARKS
F1	SEE NOTE 6	J8-4	6	YELLOW	30	AR	P12-188	SEE NOTE 8
F2		-7					-198	
F3		-12					-199	
F4		-23					-180	
F5		-28					-206	
F6		-29					-200	
F7		-31					-205	
F8		-32					-212	
F9		J8-33	6	YELLOW	30		-211	
F10	SEE NOTE 8 *	P12-183	7&8	—	.020DIA	AR	P12-184	*

* DENOTES MUST BE LOWER LEVEL

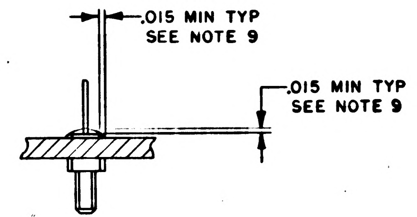




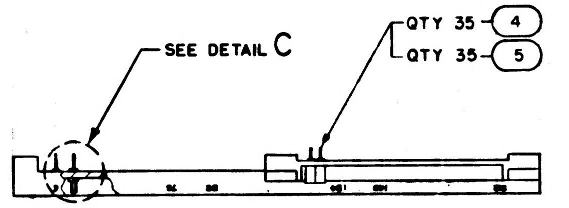
DETAIL A
SCALE 10/1
212 PLACES

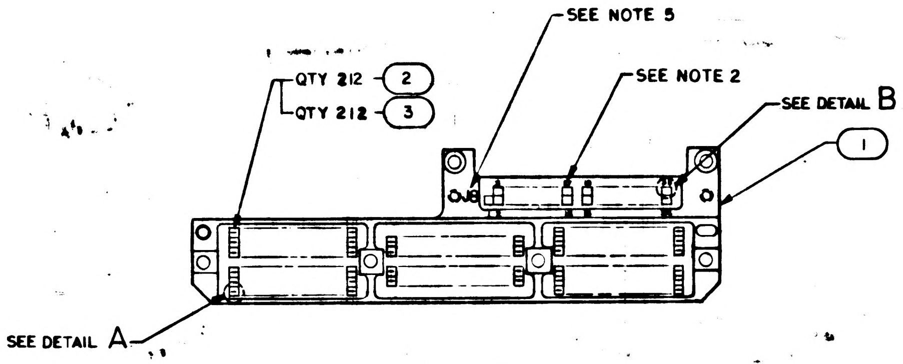


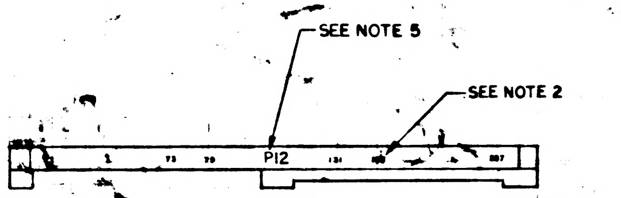
DETAIL B
SCALE 10/1
35 PLACES



DETAIL C
SCALE 4/1







NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK APPROX. WHERE SHOWN .07/.05 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122 TYPE I, CLASS 2 USING, INK 1006271-11
3. IDENTIFY WITH PART NO. PER ND1002019
4. ASSEMBLE FIND NO. 2 THRU 5 TO FIND NO. 1 PER ND1002136
5. MARK APPROX WHERE SHOWN .13/.11 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122. TYPE II, CLASS 2 USING INK 1006271-11
6. WIRE WRAP USING JUMPER LIST PER ND1002031
7. AR DENOTES AS REQUIRED
8. WELD PER ND1002005
9. SEAL FIND NO. 2,3,4 AND 5 TO FIND NO. 1 PER ND1002004, TYPE VI.

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006776-22		INSULATION, SLEEVING	8
AR	1006757-8		WIRE, ELECTRICAL .020 DIA	7
AR	1006732-1		WIRE, ELECTRICAL	6
35	1006774		INSULATOR, WRAPOST FEMALE	5
35	1006781-1		CONTACT. WRAPOST FEMALE	4
212	1006775		INSULATOR, WRAPOST MALE	3
212	1006782-3		CONTACT, WRAPOST MALE	2
1	2004922-011		PLATE, CONNECTOR	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003903	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN H C Greenwood Apr 65
CHECKED
APPROVED
APPROVED
APPROVED MIT W G Marley 7-13-65
APPROVED MSC 7-13-65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CONNECTOR PLATE ASSY
FRONT HOUSING
AGC DSKY

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2003915
SCALE 1/1
SHEET 1 OF 1

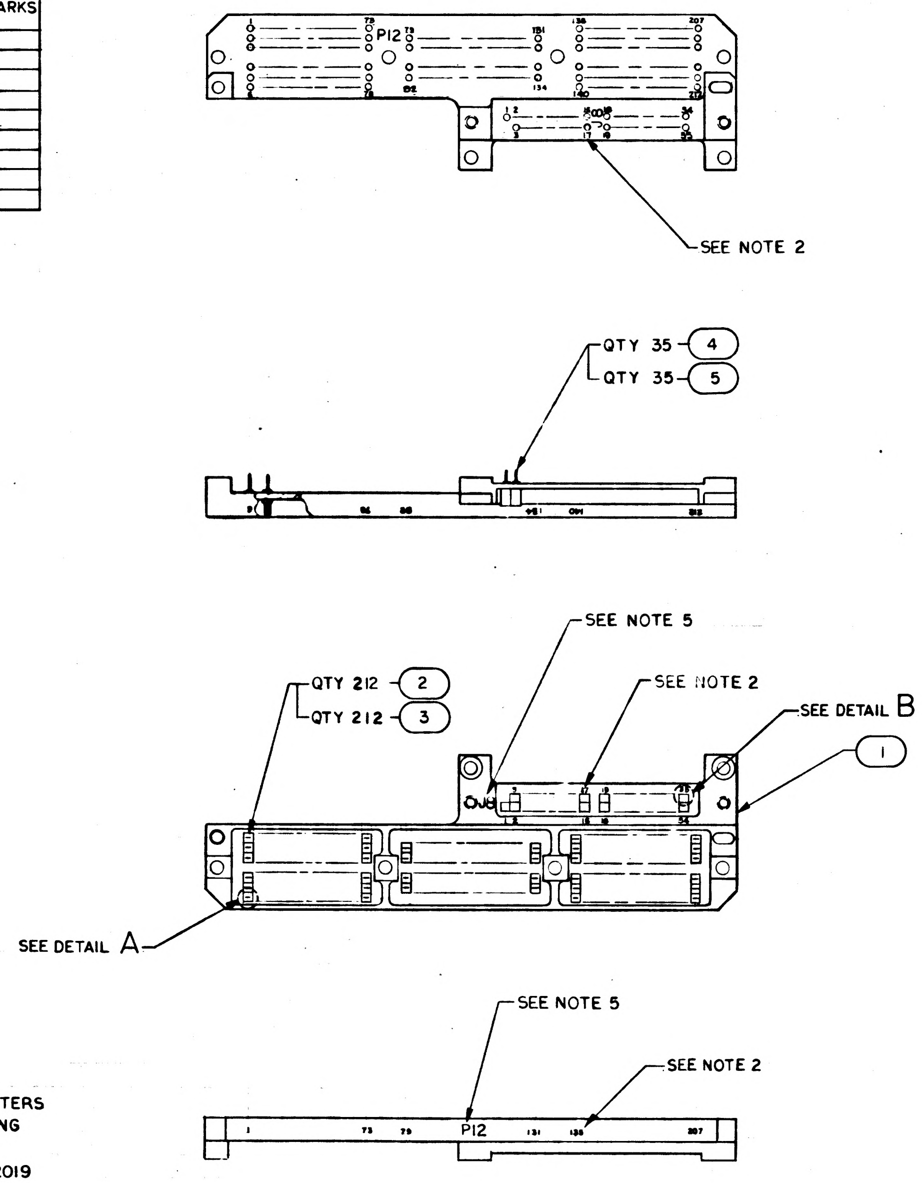
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

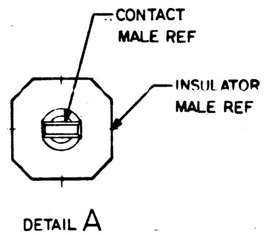
2003915

REVISIONS 202--						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

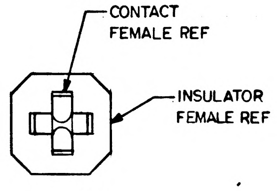
JUMPER LIST

COND IDENT	REMARKS	FROM	FIND NO	COLOR	SIZE AWG	LENGTH	TO	REMARKS
F1		J8-4	6	YELLOW	30	AR	P12-188	
F2		↑ -7	↑	↑	↑	↑	↑ -198	
F3		-12					-199	
F4		-23					-180	
F5		-28					-206	
F6		-29					-200	
F7		-31					-205	
F8		↓ -32	↓	↓	↓	↓	↓ -212	
F9		J8-33	6	YELLOW	30	AR	P12-211	





DETAIL A
SCALE 10/1
212 PLACES



DETAIL B
SCALE 10/1
35 PLACES

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK APPROX. WHERE SHOWN .07/.05 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-10
3. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
4. ASSEMBLE FIND NO. 2 THRU 5 TO FIND NO. 1 PER ND1002136
5. MARK APPROX WHERE SHOWN .13/.11 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-10
6. WIRE WRAP USING JUMPER LIST PER ND 1002031
7. AR DENOTES AS REQUIRED

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1010940-004		WIRE, ELECTRICAL	6
35	1006774		INSULATOR, WRAPOST FEMALE	5
35	1006781-1		CONTACT, WRAPOST FEMALE	4
212	1006775		INSULATOR, WRAPOST MALE	3
212	1006782-3		CONTACT, WRAPOST MALE	2
1	2004922-011		PLATE, CONNECTOR	1
011	LIST OF MATERIALS			

NEXT ASSY	USED ON
2003903	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN H C Grossman 9 Apr 65
CHECKED 11 June 65
APPROVED 11 June 65
APPROVED 12 July 65

APPROVED MIT W G Marley 7-13-65
APPROVED MSC W J Rhine 7-13-65
DATE

CONNECTOR PLATE ASSY
FRONT HOUSING
AGC DSKY

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2003915
SCALE 1/1
SHEET 1 OF 1

2003915

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

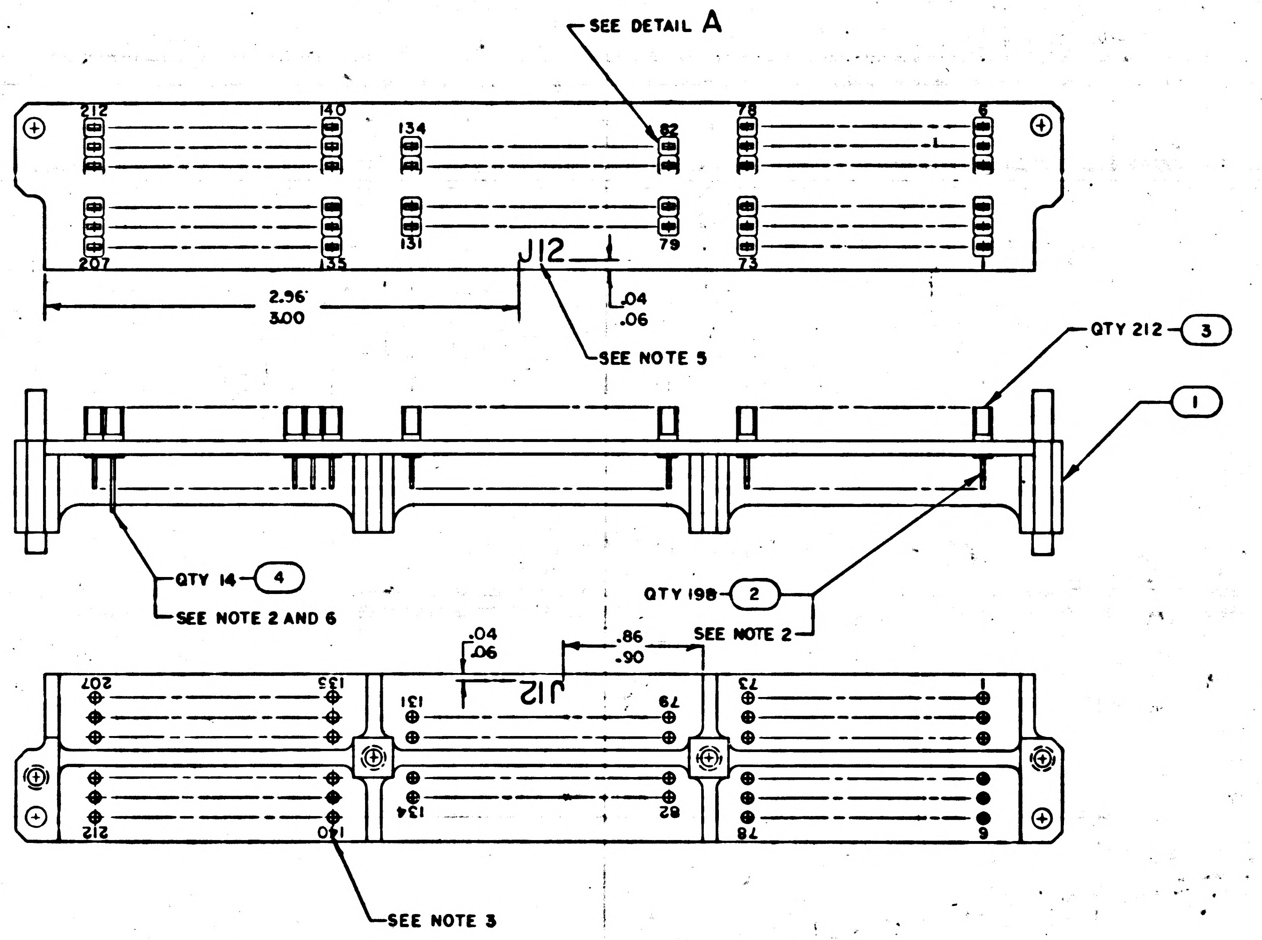
2003916 A

REVISIONS 20857						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 22316			9/21/65	

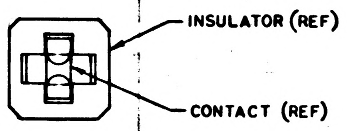
JUMPER LIST

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
E1	*	J12-186	5	WHT	26	AR	J12-191	
E2		J12-191					J12-197	
E3		J12-197					J12-203	
E4		J12-203					J12-202	
E5		J12-202					J12-201	
E6		J12-201					J12-207	
E7		J12-207					J12-208	
E8		J12-208					J12-209	
E9	*	J12-181					J12-185	
E10		J12-185					J12-190	
E11		J12-190					J12-196	
E12		J12-196					J12-195	
E13	*	J12-180					J12-179	
E14	*	J12-165					J12-166	
E15	*	J12-183	5	WHT	26	AR	J12-184	

* DENOTES MUST BE FIRST LEVEL



NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NO.2, FIND NO.3 AND FIND NO.4 TO FIND NO.1 PER ND1002136
3. MARK .05/.07 HIGH BLACK CHARACTERS LOCATE APPROX AS SHOWN PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-10
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
5. MARK .10/.14 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 USING INK 1006271-10.
6. FIND NO. 4 TO BE INSTALLED AT PIN POSITIONS 207, 180, 190, 191, 181, 185, 196, 197, 201, 202, 203, 186, 208, 165, 183 AND 184
7. WIRE WRAP USING JUMPER LIST PER ND1002031 EXCEPT FIND NO.5 TO HAVE; 5 MIN TO 7 MAX TURNS OF UNINSULATED WIRE; 1/2 TO 1 1/2 TURNS OF INSULATED WIRE; STRIP LENGTH OF 1.18 TO 1.00; AND A STRIP FORCE OF 6 LB MIN
8. AR DENOTES AS REQUIRED



DETAIL A
SCALE 10/1
212 PLACES

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1010807-22		WIRE, ELECTRICAL	5
16	1006781-2		CONTACT, WRAPOST, FEMALE	4
212	1006774		INSULATOR, WRAPOST, FEMALE	3
196	1006781-1		CONTACT, WRAPOST, FEMALE	2
1	2004923-011		PLATE, CONNECTOR	1
011	LIST OF MATERIALS			

NEXT ASSY	USED ON
2003904	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN R. Guibord 15 APR 65
CHECKED Hogan 9 June 65
APPROVED 10 June 65
APPROVED Ohne Hall 22 July 65
APPROVED MIT 7-13-65
APPROVED MSC W.J. Rh 7-13-65
DATE

CONNECTOR PLATE ASSY
MAIN HOUSING
AGC DSKY

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2003916
SCALE 2/1
SHEET 1 OF 1

NOTICE WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2003916 B

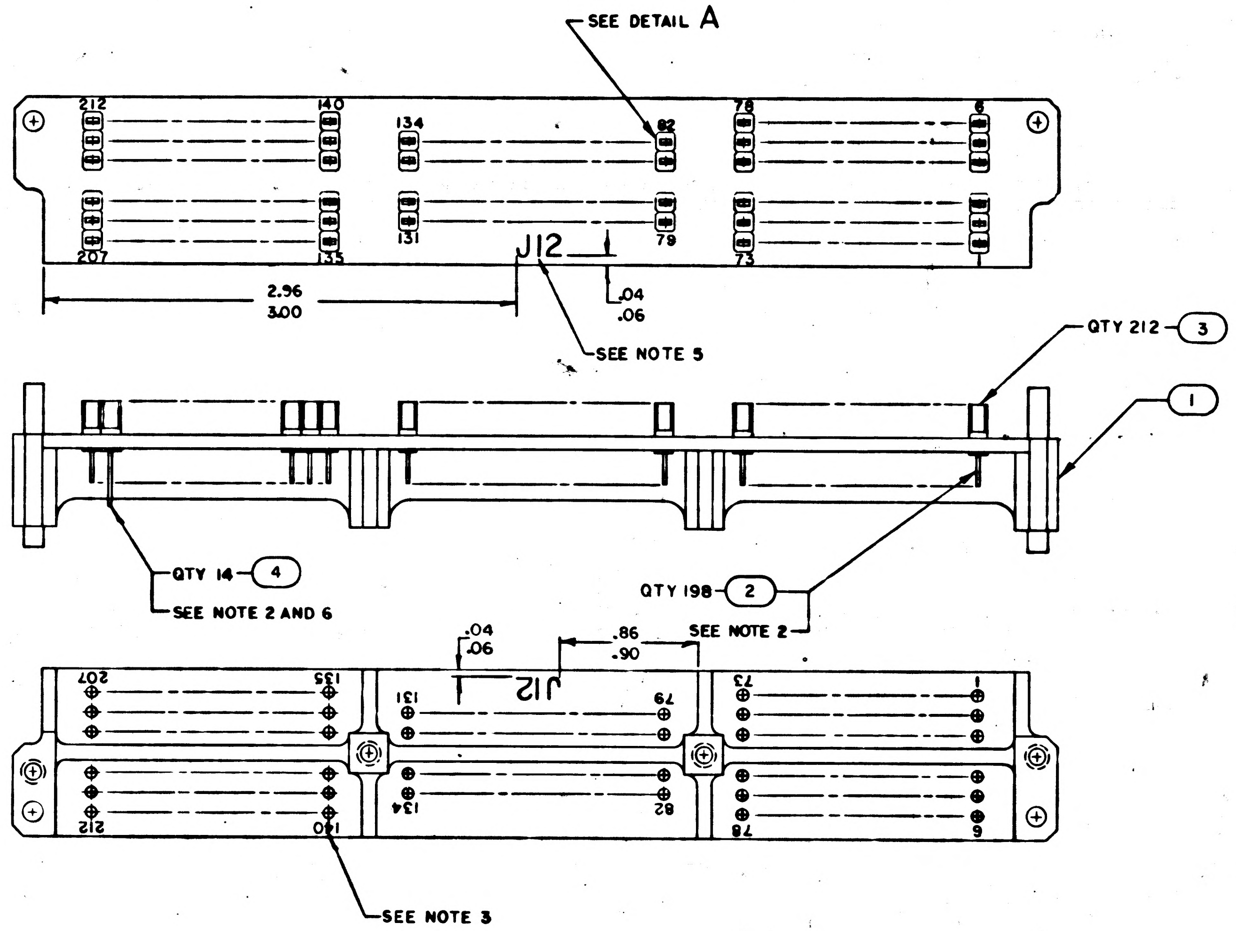
REVISIONS 20857

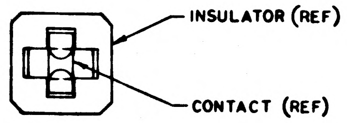
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 22316			9/21/65	
B		REVISED PER TDRR 23957			11/16/65	

JUMPER LIST

COND IDENT	REMARKS		FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
E1	SEE NOTE 7	*	J12-186	5	WHT	26	AR	J12-191	SEE NOTE 7
E2			J12-191	6	—			J12-197	
E3			J12-197	6	—			J12-203	
E4			J12-203	6	—			J12-202	
E5			J12-202	6	—			J12-201	
E6			J12-201	6	—			J12-207	
E7			J12-207	6	—			J12-208	
E8			J12-208	6	—			J12-209	
E9		*	J12-181	5	WHT			J12-185	
E10			J12-185	5	WHT			J12-190	
E11			J12-190	6	—			J12-196	
E12			J12-196	6	—			J12-195	
E13		*	J12-180	5	WHT			J12-179	
E14		*	J12-165	6	—			J12-166	
E15		*	J12-183	6	WHT	26	AR	J12-184	

* DENOTES MUST BE FIRST LEVEL





DETAIL A
SCALE 10/1
212 PLACES

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NO. 2, FIND NO. 3 AND FIND NO. 4 TO FIND NO. 1 PER ND1002136
3. MARK .05/.07 HIGH BLACK CHARACTERS LOCATE APPROX AS SHOWN PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-11
4. IDENTIFY WITH PART NO. PER ND1002019
5. MARK .10/.14 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 USING INK 1006271-11
6. FIND NO. 4 TO BE INSTALLED AT PIN POSITIONS 207, 180, 190, 191, 181, 185, 196, 197, 201, 202, 203, 186, 208, 165, 183 AND 184
7. WIRE WRAP USING JUMPER LIST PER ND1002031 EXCEPT FIND NO. 5 TO HAVE; 5 MIN TO 7 MAX TURNS OF UNINSULATED WIRE; 1/2 TO 1 1/2 TURNS OF INSULATED WIRE; STRIP LENGTH OF 1.18 TO 1.00; AND A STRIP FORCE OF 6 LB MIN, AND FIND NO. 6 TO HAVE 6 MIN TO 8 MAX TURNS OF BARE WIRE AND A STRIP FORCE OF 6 LB MIN
8. AR DENOTES AS REQUIRED

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	QQ-W-343 TYPE S		WIRE, AWG 26, SOFT COATED (a)	6
AR	1010807-22		WIRE, ELECTRICAL	5
16	1006781-2		CONTACT, WRAPOST, FEMALE	4
212	1006774		INSULATOR, WRAPOST, FEMALE	3
196	1006781-1		CONTACT, WRAPOST, FEMALE	2
1	2004923-011		PLATE, CONNECTOR	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003954	
2003904	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN 15 APR 65
CHECKED 9 June 65
APPROVED 12 June 65
APPROVED 12 July 65

APPROVED MIT 7-13-65
APPROVED MSC 7-13-65
DATE

CONNECTOR PLATE ASSY
MAIN HOUSING
AGC DSKY

CODE IDENT NO 80230
SIZE D
DRAWING NO. 2003916
SCALE 2/1
SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

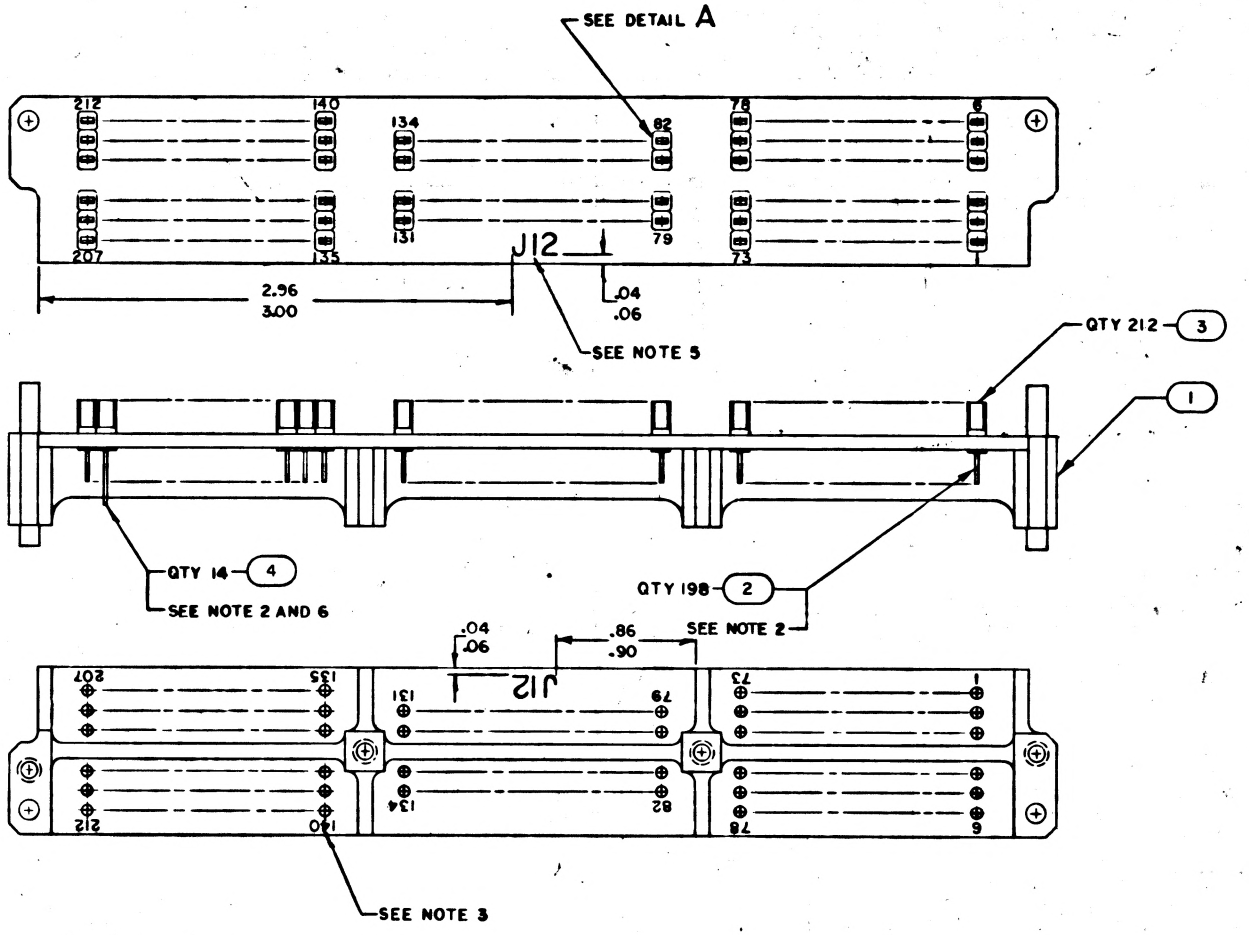
2003916 C

REVISIONS 20857						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 22316			1/27/65	
B		REVISED PER TDRR 23957	EAH		11/14/65	
C		REVISED PER TDRR 24470	J.P.S		12/13/65	

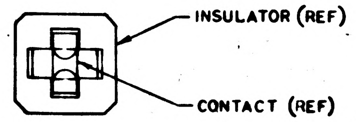
JUMPER LIST

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
E1	SEE NOTE 7 *	J12-186	5	WHT	26	AR	J12-191	SEE NOTE 7
E2		J12-191	6	—			J12-197	
E3		J12-197	6	—			J12-203	
E4		J12-203	6	—			J12-202	
E5		J12-202	6	—			J12-201	
E6		J12-201	6	—			J12-207	
E7		J12-207	6	—			J12-208	
E8		J12-208	6	—			J12-209	
E9	*	J12-181	5	WHT			J12-185	
E10		J12-185	5	WHT			J12-190	
E11		J12-190	6	—			J12-195	
E12		J12-195	6	—			J12-196	
E13	*	J12-180	5	WHT			J12-179	
E14	*	J12-166	6	—			J12-165	
E15	*	J12-183	6	WHT	26	AR	J12-184	

* DENOTES MUST BE FIRST LEVEL



NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NO.2, FIND NO.3 AND FIND NO.4 TO FIND NO.1 PER ND1002136
3. MARK .05/.07 HIGH BLACK CHARACTERS LOCATE APPROX AS SHOWN PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-11
4. IDENTIFY WITH PART NO. PER ND1002019
5. MARK .10/.14 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 USING INK 1006271-11
6. FIND NO. 4 TO BE INSTALLED AT PIN POSITIONS 207, 180, 190, 191, 181, 185, 195, 197, 201, 202, 203, 186, 208, 166, 183 AND 184
7. WIRE WRAP USING JUMPER LIST PER ND1002031 EXCEPT FIND NO.5 TO HAVE; 5 MIN TO 7 MAX TURNS OF UNINSULATED WIRE; 1/2 TO 1 1/2 TURNS OF INSULATED WIRE; STRIP LENGTH OF 1.18 TO 1.00; AND A STRIP FORCE OF 6 LB MIN, AND FIND NO. 6 TO HAVE 6 MIN TO 8 MAX TURNS OF BARE WIRE AND A STRIP FORCE OF 6 LB MIN
8. AR DENOTES AS REQUIRED



DETAIL A
SCALE 10/1
212 PLACES

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	QQ-W-343 TYPE S		WIRE, AWG 26, SOFT COATED (a)	6
AR	1010807-22		WIRE, ELECTRICAL	5
16	1006781-2		CONTACT, WRAPOST, FEMALE	4
212	1006774		INSULATOR, WRAPOST, FEMALE	3
196	1006781-1		CONTACT, WRAPOST, FEMALE	2
1	2004923-011		PLATE, CONNECTOR	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003954	
2003904	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN R. Guibord 15 APR 65
CHECKED 9 Jun 65
APPROVED 12 Jun 65
APPROVED 12 July 65
APPROVED MIT 7-15-65
APPROVED MSC 7-15-65
DATE

CONNECTOR PLATE ASSY
MAIN HOUSING
AGC DSKY

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2003916
SCALE 2/1
SHEET 1 OF 1

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2003916

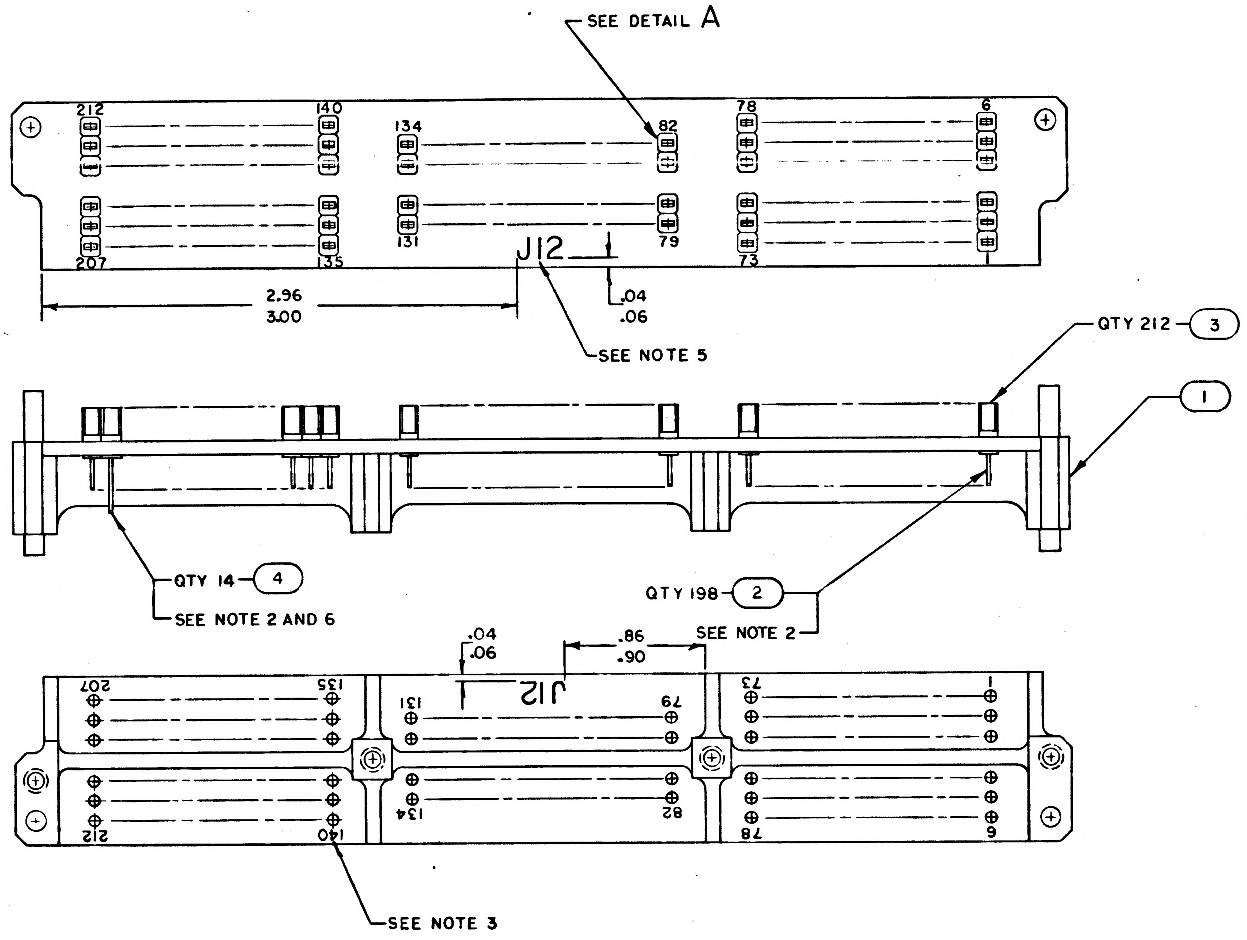
REVISIONS 20857

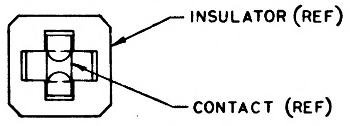
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

JUMPER LIST

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
E1	*	J12-186	5	WHT	26	AR	J12-191	
E2		J12-191					J12-197	
E3		J12-197					J12-203	
E4		J12-203					J12-202	
E5		J12-202					J12-201	
E6		J12-201					J12-207	
E7		J12-207					J12-208	
E8		J12-208					J12-209	
E9	*	J12-181					J12-185	
E10		J12-185					J12-190	
E11		J12-190					J12-196	
E12		J12-196					J12-195	
E13	*	J12-180					J12-179	
E14	*	J12-165	5	WHT	26	AR	J12-166	

* DENOTES MUST BE FIRST LEVEL





DETAIL A
SCALE 10/1
212 PLACES

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NO.2, FIND NO.3 AND FIND NO.4 TO FIND NO.1 PER ND1002136
3. MARK .05/.07 HIGH BLACK CHARACTERS LOCATE APPROX AS SHOWN PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-10
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
5. MARK .10/.14 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 USING INK 1006271-10.
6. FIND NO.4 TO BE INSTALLED AT PIN POSITIONS 207, 180, 190, 191, 181, 185, 196, 197, 201, 202, 203, 186, 208 AND 165
7. WIRE WRAP USING JUMPER LIST PER ND1002031
8. AR DENOTES AS REQUIRED

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1010807-22		WIRE, ELECTRICAL	5
14	1006781-2		CONTACT, WRAPOST, FEMALE	4
212	1006774		INSULATOR, WRAPOST, FEMALE	3
198	1006781-1		CONTACT, WRAPOST, FEMALE	2
1	2004923-011		PLATE, CONNECTOR	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003904	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	R. Guilford	15 APR 65
CHECKED	Alagar	9 June 65
APPROVED		10 June 65
APPROVED	Eldon Hall	12 July 65
APPROVED MIT		7-13-65
APPROVED MSC	W J Rhine	7-13-65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CONNECTOR PLATE ASSY
MAIN HOUSING
AGC DSKY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2003916

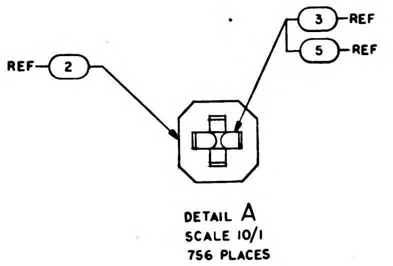
SCALE 2/1
SHEET 1 OF 1

2003916

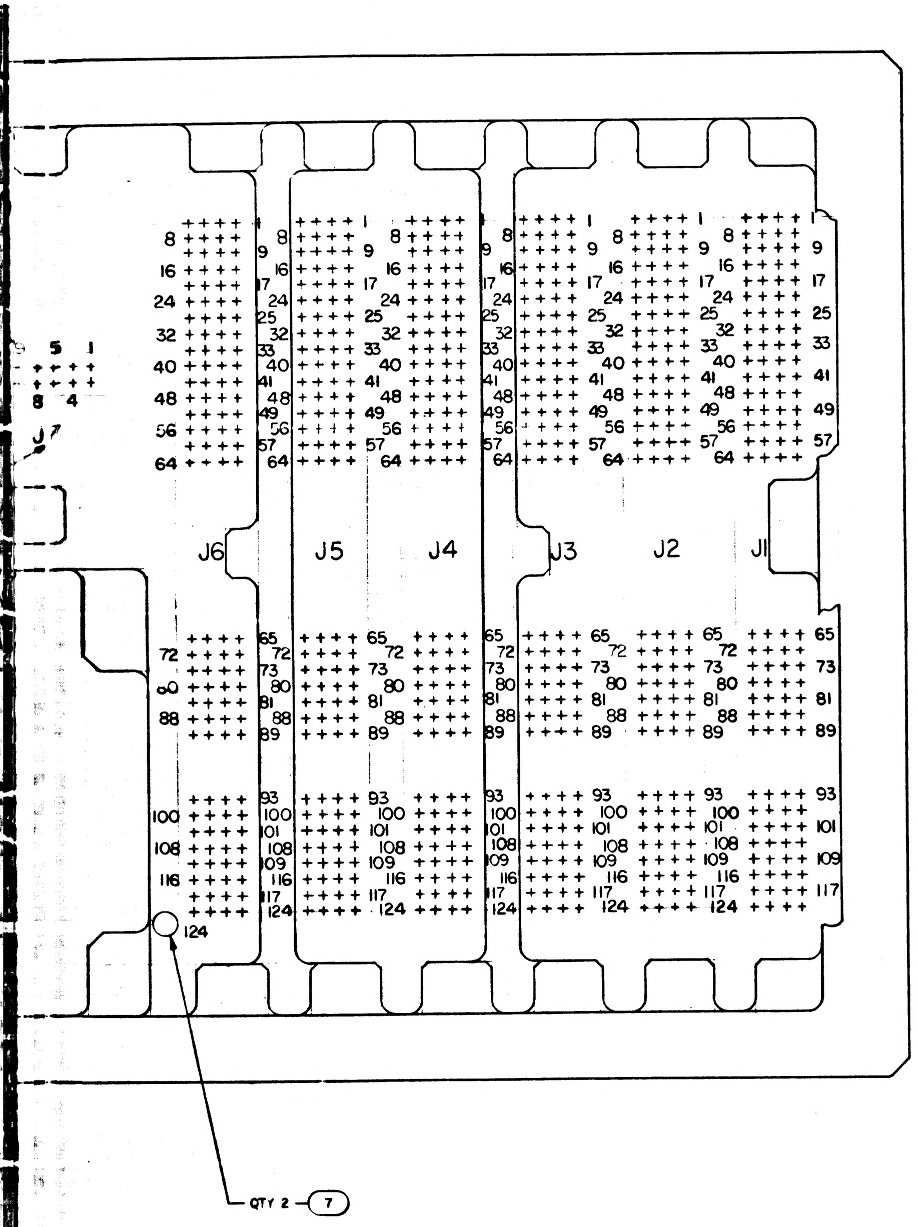
2003917 REVISIONS 20257

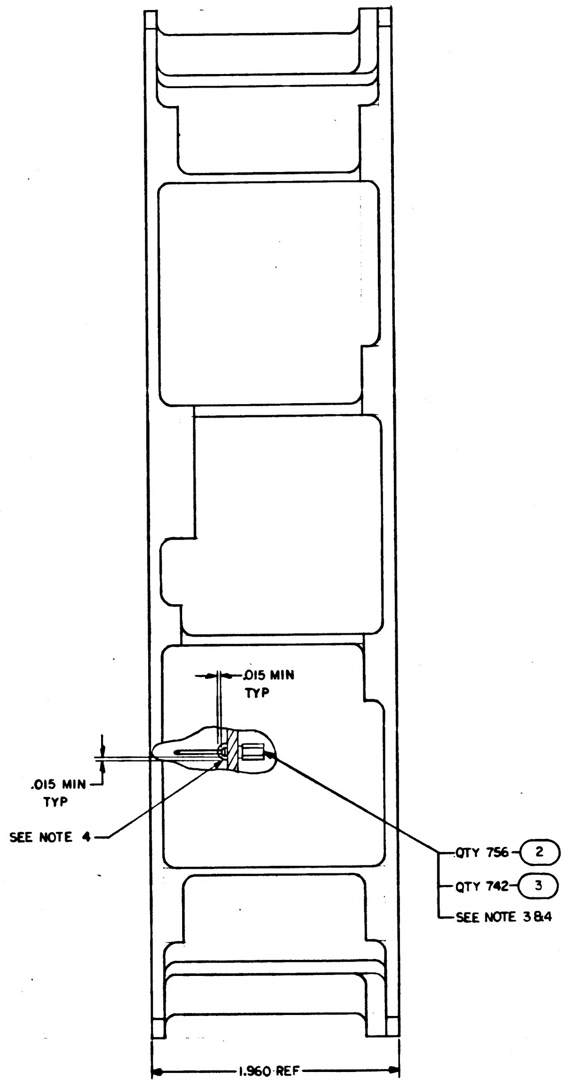
COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
61		* J1-3	6	WHT	26	AR	J2-3	
62		J2-3					J3-3	
63		J3-3					J3-9	
64		J3-9					J5-10	
65		J5-10					J6-9	
66		J6-9					J6-64	
67		* J2-10					J3-10	
68		J3-10					J3-64	
69		J3-64					J5-9	
610		J5-9	6	WHT	26	AR	J5-64	

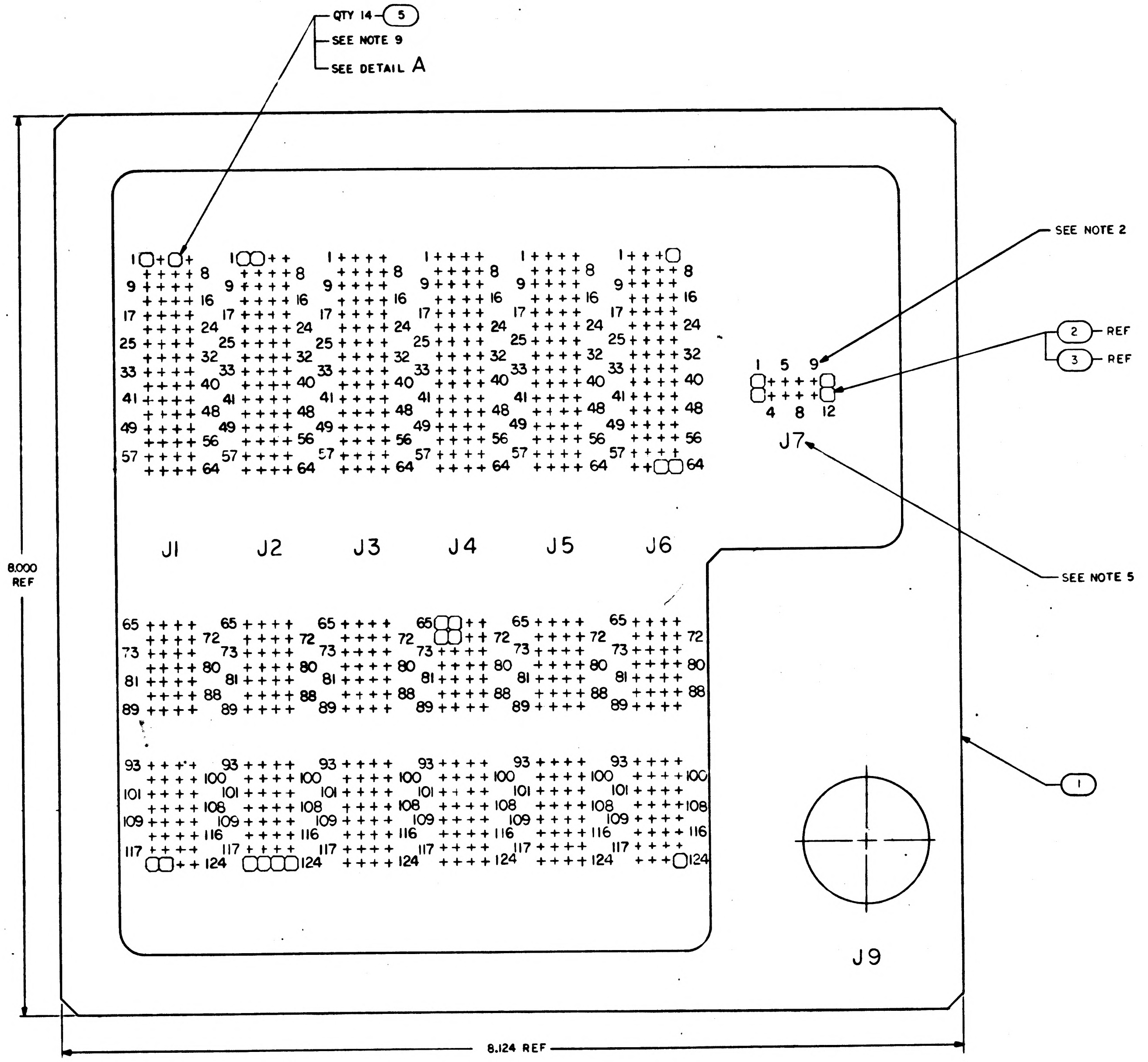
* DENOTES WIREWRAP MUST BE FIRST LEVEL


REF 2
3 REF
5 REF

DETAIL A
SCALE 10/1
756 PLACES


J6
J5
J4
J3
J2
J1
J7
QTY 2 7


.015 MIN TYP
.015 MIN TYP
SEE NOTE 4
QTY 756 2
QTY 742 3
SEE NOTE 3&4
1.960 REF


QTY 14 5
SEE NOTE 9
SEE DETAIL A
SEE NOTE 2
2 REF
3 REF
SEE NOTE 5
J1
J2
J3
J4
J5
J6
J7
J9
1
8.000 REF
8.124 REF

2+

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2005906	WIREWRAP CARD DECK	REF
2	2004961	PIN HARNESS	7
AR	1010807-22	WIRE, ELEC	6
14	1006781-2	CONTACT, WRAPOST-FEMALE, MINATURE	5
AR	1010940-003	WIRE, ELEC	4
742	1006781-4	CONTACT, WRAPOST-FEMALE, MINIATURE	3
756	1006774	INSULATOR, WRAPOST-FEMALE, MINIATURE	2
1	2004924-011	PLATE, IDM	1
011	LIST OF MATERIALS		

2003904 NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN J.L. Leonard DATE
CHECKED R. Edwards 15 June 65
APPROVAL 15 June 65
APPROVAL Eldon C Hall 12 July 65
NASA APPROVAL
MIT APPROVAL 7-13-65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIREWRAP IDM PLATE ASSY
MAIN HOUSING
AGC DSKY

CODE IDENT NO 80230 SIZE J NASA DRAWING NO. 2003917
SCALE 2/1 WT SHEET 1 OF 1

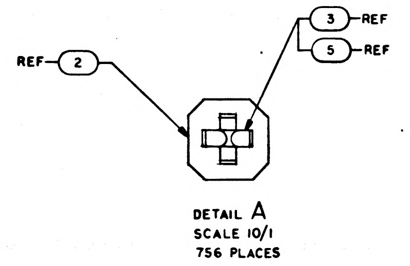
2003917

2003917

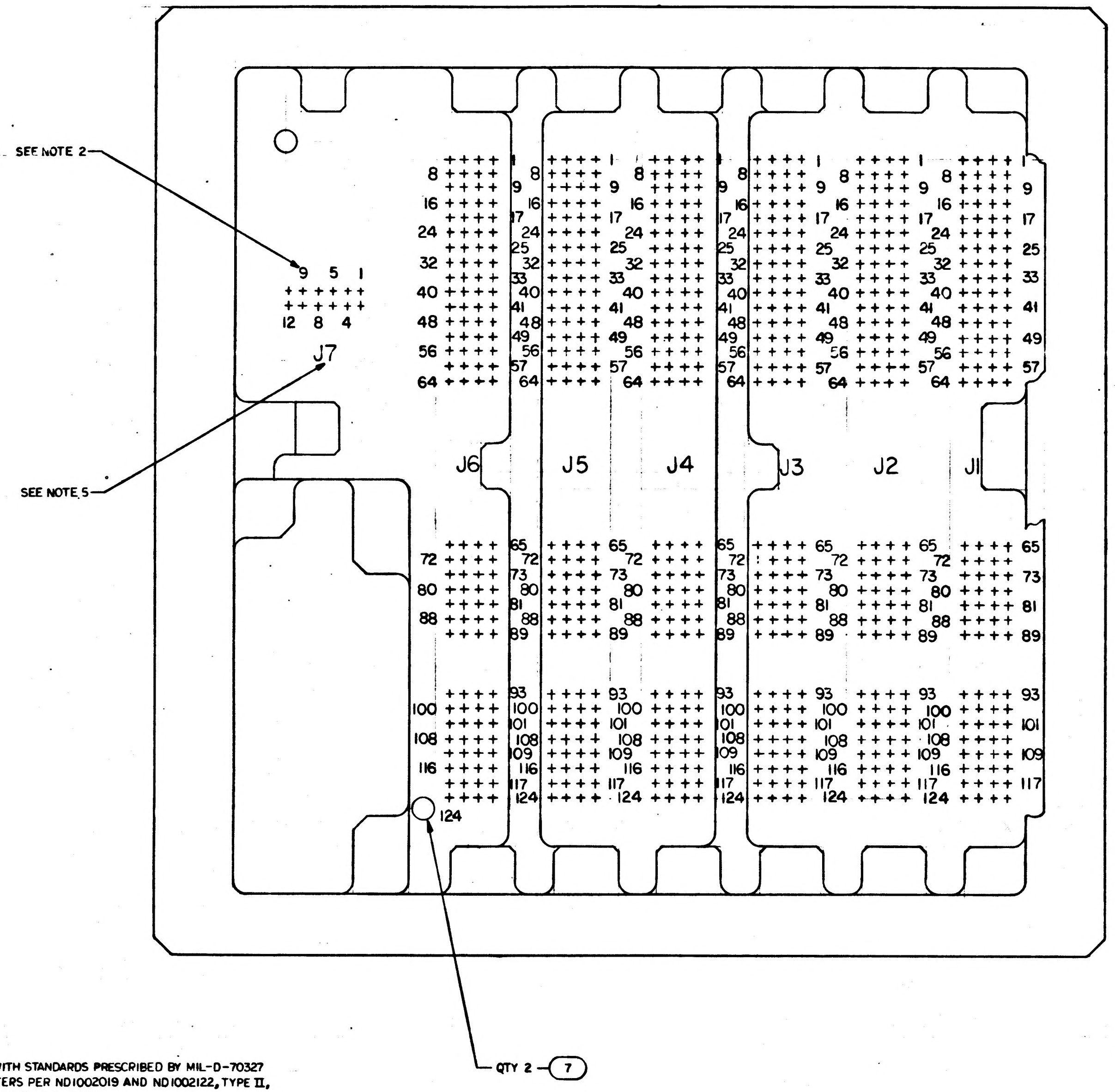
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

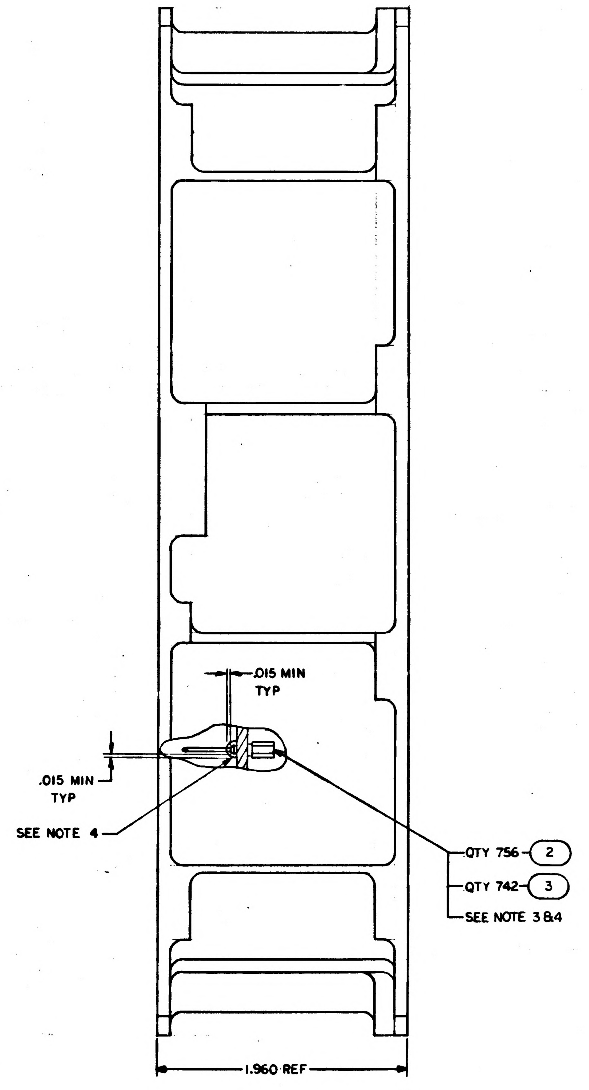
COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
G1		✱ J1-3	6	WHT	26	AR	J2-3	
G2		J2-3	↑	↑	↑	↑	J3-3	
G3		J3-3					J3-9	
G4		J3-9					J5-10	
G5		J5-10					J6-9	
G6		J6-9					J6-64	
G7		✱ J2-10					J3-10	
G8		J3-10					J3-64	
G9		J3-64	↓	↓	↓	↓	J5-9	
G10		J5-9	6	WHT	26	AR	J5-64	

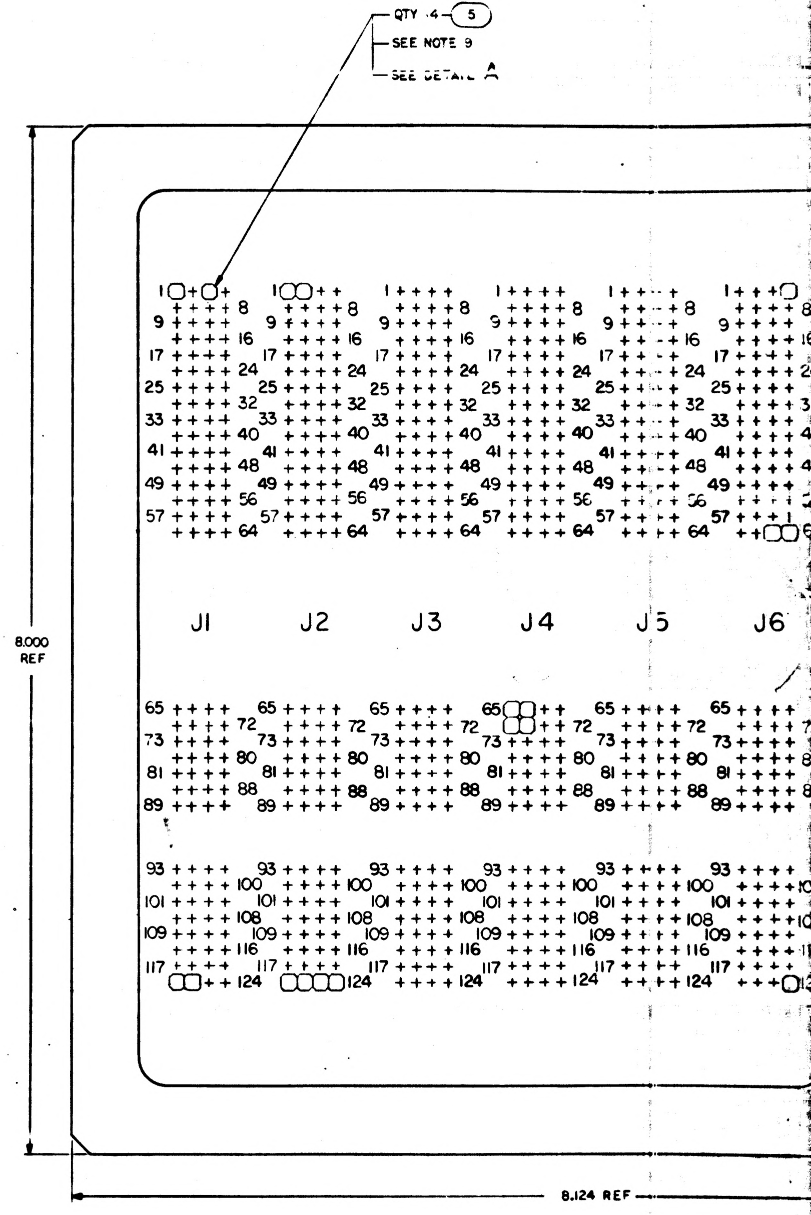
✱ DENOTES WIREWRAP MUST BE FIRST LEVEL


REF – 2
3 REF
5 REF

DETAIL A
SCALE 10/1
756 PLACES


SEE NOTE 2
9 5 1
12 8 4
J7
SEE NOTE 5
J6
J5
J4
J3
J2
J1
124
QTY 2 – 7


.015 MIN TYP
.015 MIN TYP
SEE NOTE 4
QTY 756 – 2
QTY 742 – 3
SEE NOTE 3&4
1.960 REF


QTY 4 – 5
SEE NOTE 9
SEE DETAIL A
8.000 REF
J1
J2
J3
J4
J5
J6
8.124 REF

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK .070/.050 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2, USING INK 1006271-11. CENTRALIZE AS SHOWN
3. ASSEMBLE FIND NO.2, FIND NO.3 AND FIND NO.5 TO FIND NO.1 PER ND1002136
4. SEAL FIND NO.2, FIND NO.3 AND FIND NO.5 TO FIND NO.1 PER ND1002004, TYPE VI
5. MARK .130/.110 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2, USING INK 1006271-11. CENTRALIZE AS SHOWN
6. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
7. AR DENOTES AS REQUIRED
8. WIREWRAP PER ND1002031 USING CHART AND WIREWRAP CARD DECK 2005906
9. INSTALL FIND NO.5 IN PIN POSITIONS J1-3, J2-1, J2-3, J2-10, J2-11, J3-3, J3-9, J3-10, J3-64, J5-9, J5-10, J6-9, J7-2 AND J7-9

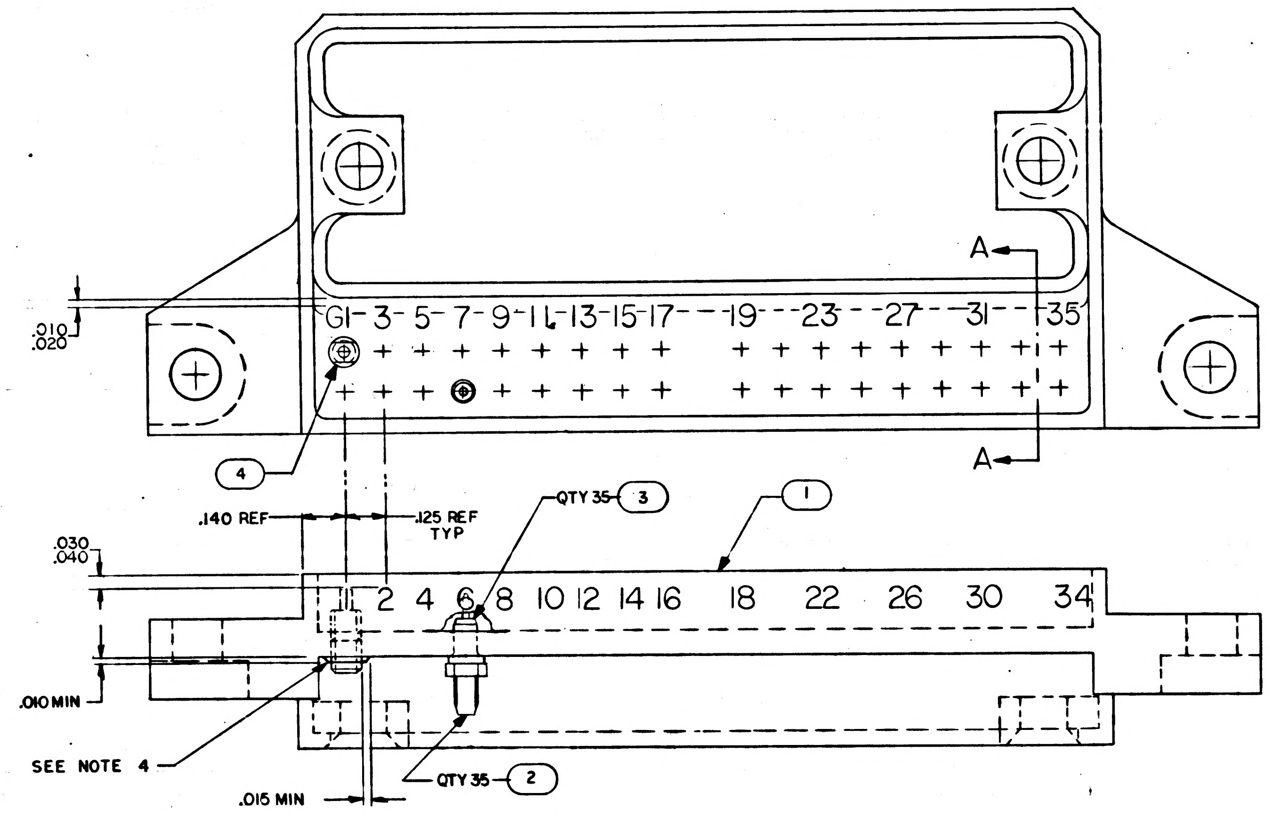
2003917

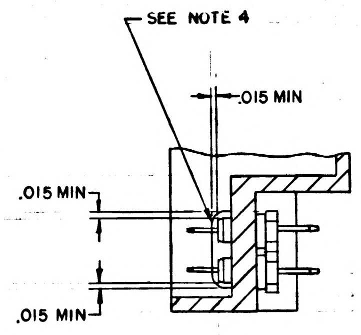
2003904
NEXT ASSY
APPLICATION

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2003918 | -

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		REVISIONS 20273				





SECTION A-A

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE FOR FIND NO.4 TO BE 15-20 INCH OUNCES.
3. ASSEMBLE FIND NO.2 AND FIND NO.3 TO FIND NO.1 PER ND1002136
4. SEAL FIND NO. 2,3 AND 4 TO FIND NO.1 PER ND1002004, TYPE VI
5. MARK .080/.100 HIGH WHITE CHARACTERS PER ND1002019. USING INK 1006271-1
6. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	2004039		TERMINAL, THREADED	4
35	1006775		INSULATOR, WRAPOST-MALE, MINATURE	3
35	1006782-1		CONTACT, WRAPOST-MALE, MINATURE	2
1	2004925		HEADER	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003909	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN R. Bucuvalas 9 Apr 65
CHECKED Clapp 29 Apr 65
APPROVED [illegible] 1 Jun 65
APPROVED Eldon C Hall 21 Jun 65
APPROVED MIT [illegible] 22 Jun 65
APPROVED MSC [illegible] 6/24/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

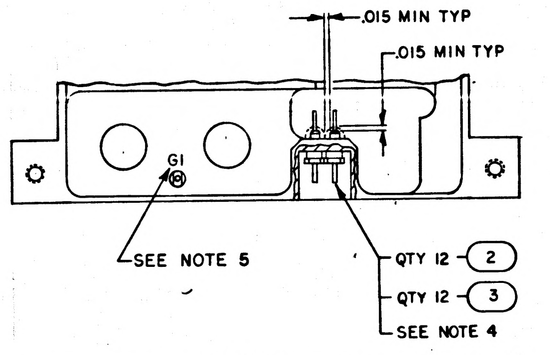
HEADER ASSEMBLY
KEYBOARD MODULE
AGC DSKY

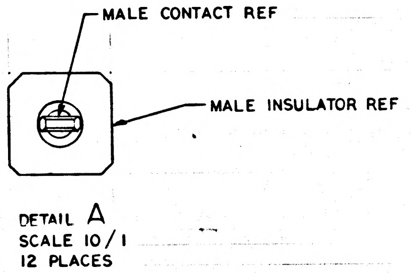
CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2003918
SCALE 4/1
SHEET 1 OF 1

2003918

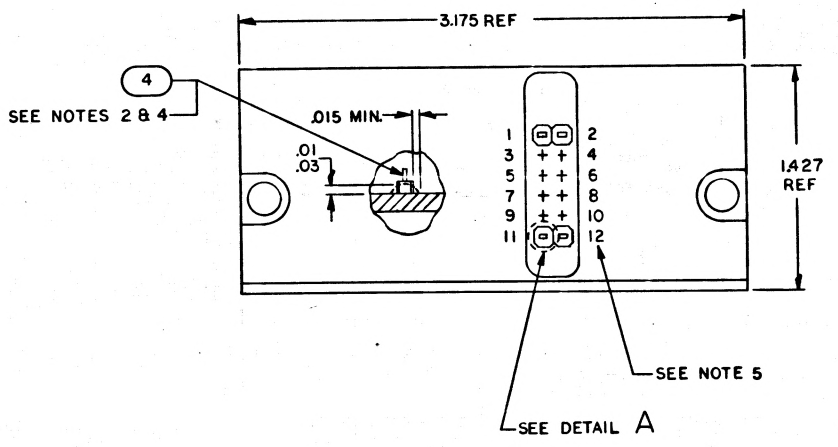
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

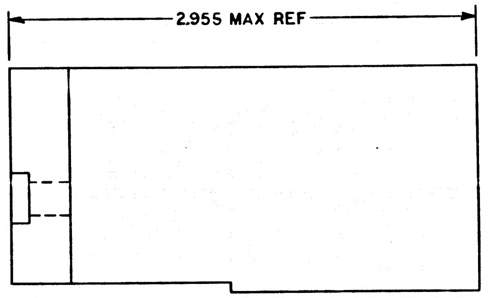
REVISIONS 20856			
SYM	DESCRIPTION	DATE	APPROVAL





DETAIL A
SCALE 10/1
12 PLACES





NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL–D–70327
2. MOUNTING TORQUE FOR FIND NO. 4 TO BE 15–20 INCH OUNCES
3. ASSEMBLE FIND NO. 2 & FIND NO. 3 TO FIND NO. 1 PER ND1002136
4. SEAL FIND NO. 2, 3 & FIND NO. 4 TO FIND NO. 1 PER ND1002004, TYPE VI
5. MARK .05/.07 HIGH WHITE CHARACTERS PER ND1002019 & ND1002122 TYPE II, CLASS 2 USING INK 1006271-1. CENTRALIZE AS SHOWN
6. IDENTIFY WITH DRAWING NO. & REVISION PER ND1002019

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	2004039	TERMINAL, THREADED	4
12	1006782-6	CONTACT, WRAPOST-MALE, MINATURE	3
12	1006775	INSULATOR, WRAPOST-MALE, MINATURE	2
1	2004907-011	HEADER	1
011	LIST OF MATERIALS		

MASTER

NEXT ASSY	USED ON
2003901	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN W. Brown DATE 2 June 65
CHECKED R. Edward 9 June 65
APPROVAL 10 June 65
APPROVAL 12 July 65
NASA APPROVAL 7-13-65
MIT APPROVAL 7-13-65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HEADER ASSY
POWER SUPPLY MODULE
AGC DSKY

CODE IDENT NO. 80230
SIZE D
NASA DRAWING NO. 2003921
SCALE 2/1
WT
SHEET 1 OF 1

2003921

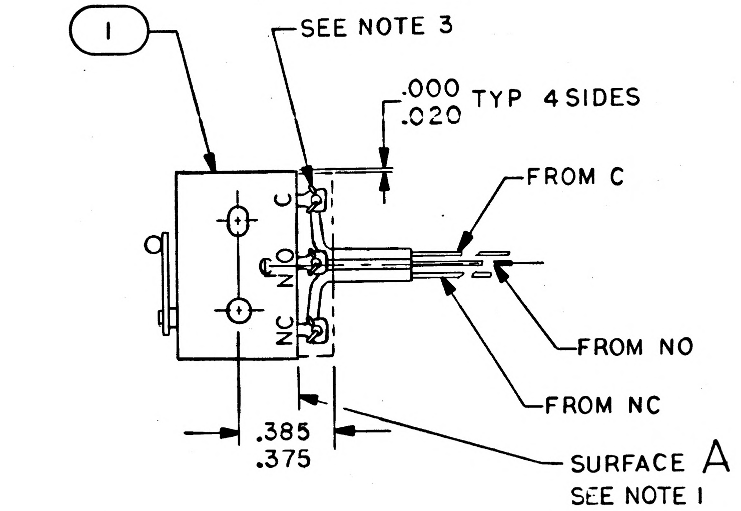
4 3 2 1

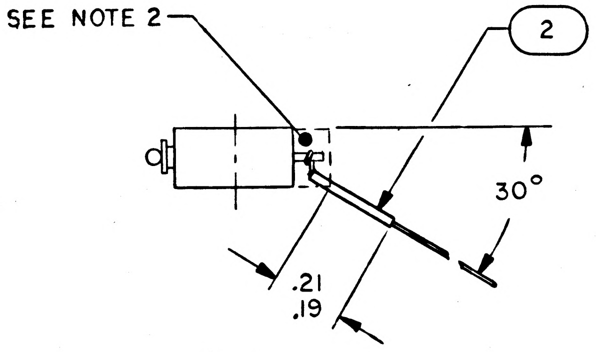
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

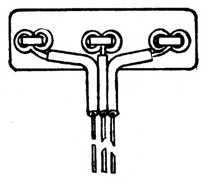
2003923 | –

REVISIONS 20855

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED







VIEW SHOWN WITH POTTING REMOVED

NOTES.

1. APPLY PRIMER TO SURFACE A AND SOLDERED TERMINALS USING 1006341
2. ENCAPSULATE PER ND1002009 TYPE C OR D
3. WRAP FIND NO. 2 TO TERMINALS OF FIND NO. 1 AS SHOWN AND SOLDER PER ND1002071 USING SOLDER PER ND1002075
4. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
5. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	2004957		CABLE, SPECIAL PURPOSE ELECTRICAL	2
1	1010901-2		SWITCH, SENSITIVE	1

011 LIST OF MATERIALS

MASTER

NEXT ASSY	USED ON
2003924	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ± 5°
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

		DATE
DRAWN	K.W. Simpson	3APR65
CHECKED	F. Loger	19May65
APPROVED	[illegible]	1June65
APPROVED	Eldon C Hall	12July65
APPROVED MIT	MG Whisky	7-13-65
APPROVED MSC	Wj Rhine	7-13-61

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SWITCH, POTTED ASSEMBLY
SWITCH, PUSH BUTTON
AGC DSKY

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2003923
SCALE 2/1
SHEET 1 OF 1

4 3 2 1

APOLLO G&N Specification
PS 2003925
Original Issue Date: 5/26/65
Release Authority: TDRR 19668
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

FOR

AGC DSKY PUSHBUTTON SWITCH SHAFT ASSEMBLY

DRAWING NO. 2003925

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA

This specification consists of pages 1 to 5 inclusive.

APPROVALS	5/26/65 NASA/MSC	EC Hall 5/26/65 MIT/IL	5-12-65 R. Peterson 5/12/65 5/14/65 RAY

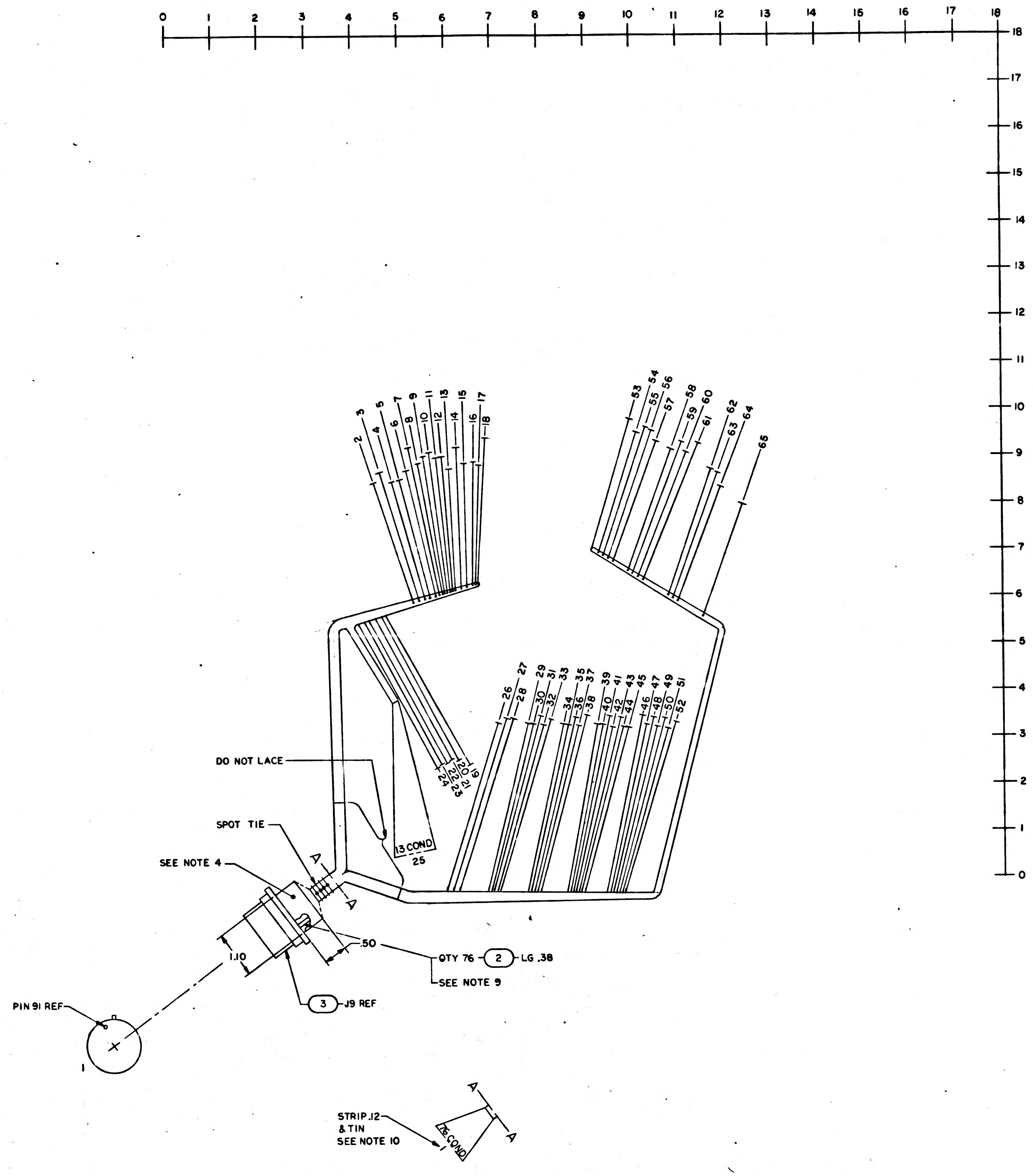
2003930

REVISIONS 20257

SYM	DESCRIPTION	DATE	APPROVAL

ASSEMBLY INFORMATION CHART

REMARKS	FROM COND IDENT	FROM STA NO.	FROM DESTINATION	DESCRIPTION COLOR	DESCRIPTION AWG	DESCRIPTION FIND NO.	TO STA NO.	TO DESTINATION	REMARKS
	B1		J9-37	WHITE	26	1	15	J5-6	
	B2		J9-85				58	J3-12	
	B3		J9-87				56	J4-10	
	B4	1	J9-86				62	J2-11	
	B5		J9-91				16	J5-5	
	B6		J9-28				25	J12-199	
	B7		J9-61				13	J5-3	
	B8		J9-59				11	J5-12	
	B9		J9-88				54	J4-8	
	B10		J9-89				57	J4-2	
	B11		J9-54				53	J4-12	
	B12		J9-27				36	J4-86	
	B13		J9-83				55	J4-11	
	B14		J9-47				43	J3-85	
	B15		J9-14				5	J6-2	
	B16		J9-4				22	J7-7	
	B17		J9-15				7	J6-10	
	B18		J9-12				26	J6-90	
	B19		J9-32				2	J6-8	
	B20		J9-26				38	J4-85	
	B21		J9-55				8	J6-1	
	B22		J9-46				48	J2-85	
	B23		J9-84				3	J6-11	
	B24	1	J9-72				52	J1-85	
	B25	1	J9-5				21	J7-5	
	B26	1	J9-3				42	J3-89	
	B27	1	J9-16				60	J3-15	
	B28	1	J9-11				29	J5-91	
	B29	1	J9-33				59	J3-20	
	B30	1	J9-25				31	J5-86	
	B31	1	J9-56				61	J3-21	
	B32	1	J9-45				27	J6-86	
	B33	1	J9-79				25	J12-211	
	B34	1	J9-71				46	J2-86	
	B35	1	J9-1				20	J7-3	
	B36	1	J9-2				49	J1-90	
	B37	1	J9-6				14	J5-15	
	B38	1	J9-10				35	J4-90	
	B39	1	J9-17				10	J5-20	
	B40	1	J9-24				34	J4-91	
	B41	1	J9-34				18	J5-21	
	B42	1	J9-44				41	J3-86	
	B43	1	J9-49				25	J12-206	
	B44	1	J9-70				50	J1-86	
	B45	1	J9-51				25	J12-212	
	B46	1	J9-8				19	J7-2	
	B47	1	J9-7				24	J7-11	
	B48	1	J9-9				51	J1-89	
	B49	1	J9-18				28	J6-85	
	B50	1	J9-23				37	J4-89	
	B51	1	J9-35				12	J5-11	
	B52	1	J9-43				39	J3-91	
	B53	1	J9-58				17	J5-1	
	B54	1	J9-69				33	J5-85	
	B55	1	J9-78				25	J12-198	
	B56	1	J9-21				23	J7-9	
	B57	1	J9-36				6	J6-6	
	B58	1	J9-22				45	J2-90	
	B59	1	J9-48				25	J12-200	
	B60	1	J9-42				30	J5-90	
	B61	1	J9-77				25	J12-183	
	B62	1	J9-68				44	J2-91	
	B63	1	J9-30				25	J12-180	
	B64	1	J9-57				64	J2-1	
	B65	1	J9-60				4	J6-3	
	B66	1	J9-40				25	J12-193	TWIST
	B67	1	J9-38				25	J12-194	
	B68	1	J9-41				47	J2-89	
	B69	1	J9-76				25	J12-205	
	B70	1	J9-67				32	J5-89	
	B71	1	J9-90				9	J6-5	
	B72	1	J9-64				65	J1-3	
	B73	1	J9-63				25	J12-181	
	B74	1	J9-65				25	J12-186	
	B75	1	J9-62				63	J2-10	
	B76	1	J9-66	WHITE	26	1	40	J3-90	



NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. FABRICATE PER ND1002032
3. STRIP ALL LEADS .12 AND DO NOT TIN UNLESS OTHERWISE SPECIFIED
4. POT INDICATED AREA PER ND 1002236
5. AR DENOTES AS REQUIRED
6. IDENTIFY WITH DRAWING NO. & REVISION PER ND1002019
7. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; PREFIX DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH
8. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED USING FIND NO. 4
9. DO NOT APPLY HEAT GREATER THAN 250° F TO FIND NO. 2
10. SOLDER PER ND1002071 USING ND1002075

✱ DENOTES LENGTH IN FEET

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1012507-003	TAPE, LACING	4
1	1006348-001	CONNECTOR, RECEPTACLE	3
✱ 2.5	1006322-004	SLEEVING, INSULATION	2
✱ 142	1010807-22	WIRE, INSULATED	1
-011	LIST OF MATERIALS		

2003904	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.06 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN D.A. Clement DATE 9 JUNE 65
CHECKED R. Coggins 14 June 65
APPROVAL J. R. [illegible] 14 June 65
APPROVAL Eldon C. Hall 15 July 65
NASA APPROVAL W J Rhine
MIT APPROVAL [illegible] 7-15-65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

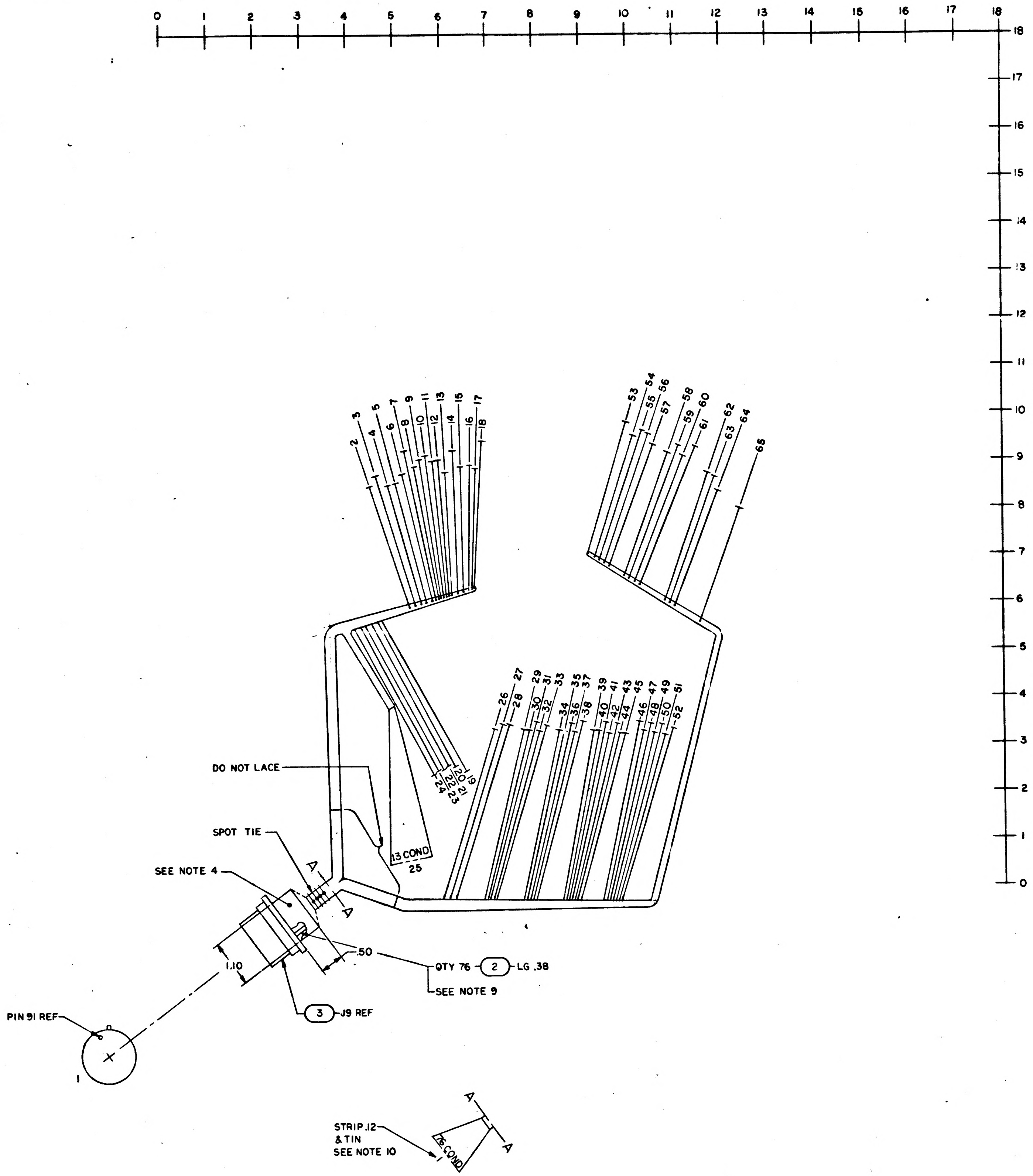
WIRING HARNESS, BRANCHED
AGC DSKY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO 2003930
SCALE 1/1
WT
SHEET 1 OF 1

2003930

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DESTINATION	COLOR	AWG	FIND NO.	STA NO.	DESTINATION	REMARKS
	B1	1	J9-37	WHITE	26	1	15	J5-6	
	B2	1	J9-85				58	J3-12	
	B3	1	J9-87				56	J4-10	
	B4	1	J9-86				62	J2-11	
	B5	1	J9-91				16	J5-5	
	B6	1	J9-28				25	J12-199	
	B7	1	J9-61				13	J5-3	
	B8	1	J9-59				11	J5-12	
	B9	1	J9-88				54	J4-8	
	B10	1	J9-89				57	J4-2	
	B11	1	J9-54				53	J4-12	
	B12	1	J9-27				36	J4-86	
	B13	1	J9-83				55	J4-11	
	B14	1	J9-47				43	J3-85	
	B15	1	J9-14				5	J6-2	
	B16	1	J9-4				22	J7-7	
	B17	1	J9-15				7	J6-10	
	B18	1	J9-12				26	J6-90	
	B19	1	J9-32				2	J6-8	
	B20	1	J9-26				38	J4-85	
	B21	1	J9-55				8	J6-1	
	B22	1	J9-46				48	J2-85	
	B23	1	J9-84				3	J6-11	
	B24	1	J9-72				52	J1-85	
	B25	1	J9-5				21	J7-5	
	B26	1	J9-3				42	J3-89	
	B27	1	J9-16				60	J3-15	
	B28	1	J9-11				29	J5-91	
	B29	1	J9-33				59	J3-20	
	B30	1	J9-25				31	J5-86	
	B31	1	J9-56				61	J3-21	
	B32	1	J9-45				27	J6-86	
	B33	1	J9-79				25	J12-211	
	B34	1	J9-71				46	J2-86	
	B35	1	J9-1				20	J7-3	
	B36	1	J9-2				49	J1-90	
	B37	1	J9-6				14	J5-15	
	B38	1	J9-10				35	J4-90	
	B39	1	J9-17				10	J5-20	
	B40	1	J9-24				34	J4-91	
	B41	1	J9-34				18	J5-21	
	B42	1	J9-44				41	J3-86	
	B43	1	J9-49				25	J12-206	
	B44	1	J9-70				50	J1-86	
	B45	1	J9-51				25	J12-212	
	B46	1	J9-8				19	J7-2	
	B47	1	J9-7				24	J7-11	
	B48	1	J9-9				51	J1-89	
	B49	1	J9-18				28	J6-85	
	B50	1	J9-23				37	J4-89	
	B51	1	J9-35				12	J5-11	
	B52	1	J9-43				39	J3-91	
	B53	1	J9-58				17	J5-1	
	B54	1	J9-69				33	J5-85	
	B55	1	J9-78				25	J12-198	
	B56	1	J9-21				23	J7-9	
	B57	1	J9-36				6	J6-6	
	B58	1	J9-22				45	J2-90	
	B59	1	J9-48				25	J12-200	
	B60	1	J9-42				30	J5-90	
	B61	1	J9-77				25	J12-188	
	B62	1	J9-68				44	J2-91	
	B63	1	J9-30				25	J12-180	
	B64	1	J9-57				64	J2-1	
	B65	1	J9-60				4	J6-3	
	B66	1	J9-40				25	J12-193	TWIST
	B67	1	J9-38				25	J12-194	
	B68	1	J9-41				47	J2-89	
	B69	1	J9-76				25	J12-205	
	B70	1	J9-67				32	J5-89	
	B71	1	J9-90				9	J6-5	
	B72	1	J9-64				65	J1-3	
	B73	1	J9-63				25	J12-181	
	B74	1	J9-65				25	J12-186	
	B75	1	J9-62				63	J2-10	
	B76	1	J9-66	WHITE	26	1	40	J3-90	



NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. FABRICATE PER ND1002032
3. STRIP ALL LEADS 1.12 AND DO NOT TIN UNLESS OTHERWISE SPECIFIED
4. POT INDICATED AREA PER ND1002236
5. AR DENOTES AS REQUIRED
6. IDENTIFY WITH DRAWING NO. & REVISION PER ND1002019
7. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; PREFIX DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH
8. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED USING FIND NO. 4
9. DO NOT APPLY HEAT GREATER THAN 250° F TO FIND NO. 2
10. SOLDER PER ND1002071 USING ND1002075

* DENOTES LENGTH IN FEET

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
AR	0 2507-003	TAPE, LACING
1	1006348-001	CONNECTOR, RECEPTACLE
* 2.5	1006322-004	SLEEVING, INSULATION
* 42	1010807-22	WIRE, INSULATED
-011	LIST OF MATERIALS	

2003904	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.06 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN D.C. Vernon DATE 9 JUNE 65
CHECKED R Cagiano 10 Jun 65
APPROVAL R Ritchie 6 Jun 65
APPROVAL Eldon C Hall 10 Jun 65
NASA APPROVAL W J Rhine
MIT APPROVAL 7-15-65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRAN

AGC DSKY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO 2003930
SCALE 1/1
WT
SHEET

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS 20948

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22310 DR R. Guichard CHK CAP	9/21/66	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO	DES	REMARKS
	H1	1	J13-1	WHT	26	9	2	P9-1	
	H2		-2					-2	
	H3		-3					-3	
	H4		-4					-4	
	H5		-5					-5	
	H6		-6					-6	
	H7		-7					-7	
	H8		-8					-8	
	H9		-9					-9	
	H10		-10					-10	
	H11		-11					-11	
	H12		-12					-12	
	H13		-13					-13	
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	H15		-15					-15	
	H16		-16					-16	
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	H19		-19					-91	
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TWIST	H38		-38					-38	TWIST
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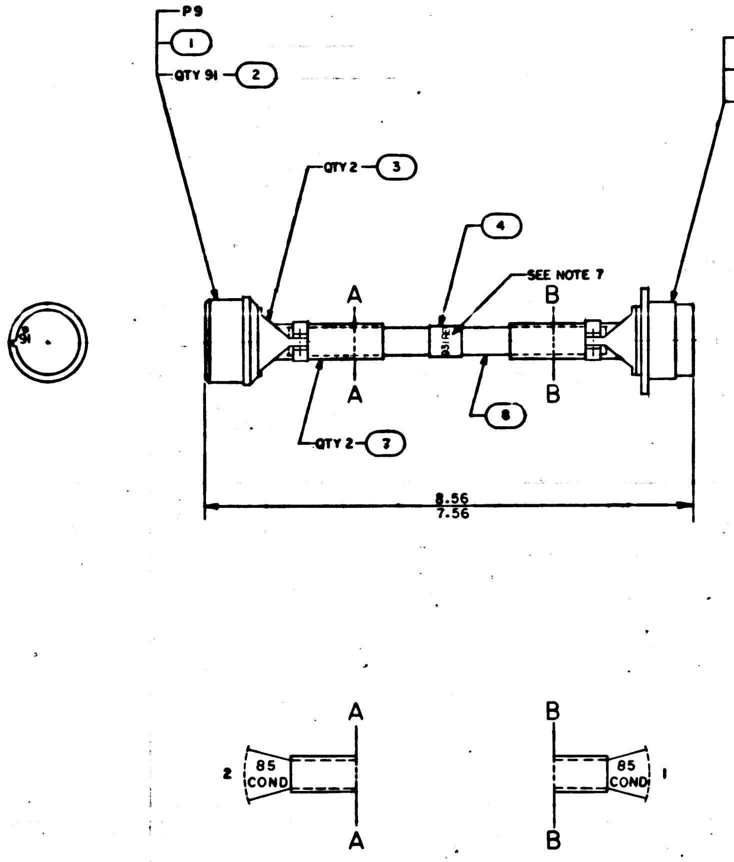
	H84		-84					-84	
	H85	1	J13-85	WHT	26	9	2	P9-90	



REFERENCE DRAWING
L 2005951 INTERCONNECTING DIAGRAM

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. FABRICATE PER ND1002032
3. STRIP ALL LEADS .25
4. AR DENOTES AS REQUIRED
5. IDENTIFY WITH PART NO. PER ND1002019
6. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX THE DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH
7. MARK .060/.100 HIGH WHITE CHARACTERS PER ND1002019 CENTRALIZE AS SHOWN
8. MIL-I-631, TYPE F, FORM U, GRADE A, CLASS 1, AWG SIZE 1/2
9. CRIMP PER ND1002206

* DENOTES LENGTH IN FEET

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1010416-20	WIRE, ELEC	9
* .416	SEE NOTE 8	INSULATION SLEEVING	8
2	MS39057-6	BUSHING, SLEEVE	7
85	1010770-1	CONTACT	6
1	1010937-103	CONNECTOR, RECEPTACLE, ELEC	5
1	MS18035-1	STRAP, CABLE	4
2	1010933-105	CLAMP, CABLE	3
91	1010770-2	CONTACT	2
1	1010771-001	CONNECTOR, PLUG, ELEC	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003900	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO. CONTRACT
DRAWN J.P. Leonard DATE 8 Jul 65
CHECKED R. Edwards 13 Jul 65
APPROVAL
APPROVAL Eldon C. Hall 16 Jul 65
NASA APPROVAL
MIT APPROVAL 20 Jul 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ADAPTER CABLE
AGC DSKY

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 2003931
SCALE 1/1
WT
SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS 20942			
SYM	DESCRIPTION	DATE	APPROVAL

ASSEMBLY INFOPMATION CHART

FROM				DESCRIPTION			TO		
REMAPKS	COND IDENT	STA NO.	DES	COLOR	AWG	FIND NO.	STA NO	DES	REMAPKS
	H1	1	J13-1	WHT	26	9	2	P9-1	
	H2		-2					-2	
	H3		-3					-3	
	H4		-4					-4	
	H5		-5					-5	
	H6		-6					-6	
	H7		-7					-7	
	H8		-8					-8	
	H9		-9					-9	
	H10		-10					-10	
	H11		-11					-11	
	H12		-12					-12	
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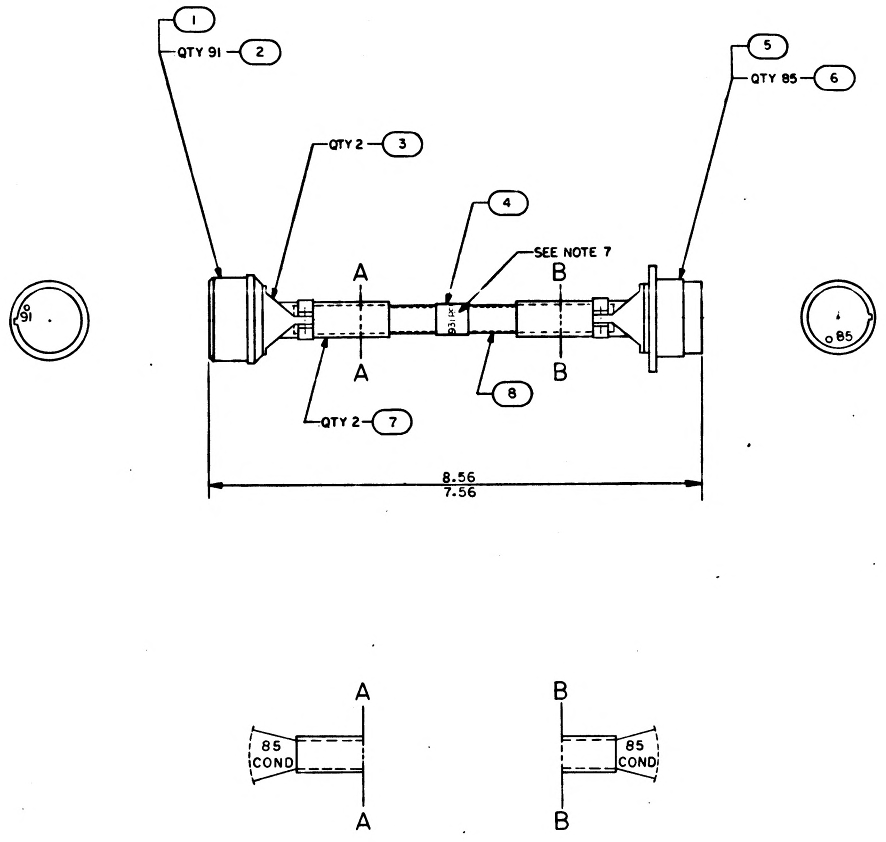

REFERENCE DRAWING
1. 2005951 INTERCONNECTING DIAGRAM

NOTES
1. INTERPPET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. FABRICATE PER ND1002032
3. STRIP ALL LEADS .25
4. AR DENOTES AS REQUIRED
5. IDENTIFY WITH DRAWING NO. & REVISION PER ND1002019
6. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX THE DESIGNATION WITH UNIT NUMBER OP ASSEMBLY DESIGNATION OR BOTH
7. MARK .060/.100 HIGH WHITE CHARACTERS PER ND1002019 CENTRALIZE AS SHOWN

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1010416-20	WIRE, ELEC	9
* .416	1006322-045	INSULATION SLEEVING	8
2	MS39057-6	BUSHING, SLEEVE	7
85	1010770-1	CONTACT	6
1	1010937-103	CONNECTOR, RECEPTACLE, ELEC	5
1	MS18035-1	STRAP, CABLE	4
2	1010933-105	CLAMP, CABLE	3
91	1010770-2	CONTACT	2
1	1010771-001	CONNECTOR, PLUG, ELEC	1

LIST OF MATERIALS

* DENOTES LENGTH IN FEET

2003900	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN P. Leonard DATE
CHECKED R. Edwards 13 July 65
APPROVAL
APPROVAL Eldon C. Hall 16 July 65
NASA APPROVAL
MIT APPROVAL 20 July 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ADAPTER CABLE
AGC DSKY

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 2003931
SCALE 1/1
WT
SHEET 1 OF 1

2003931

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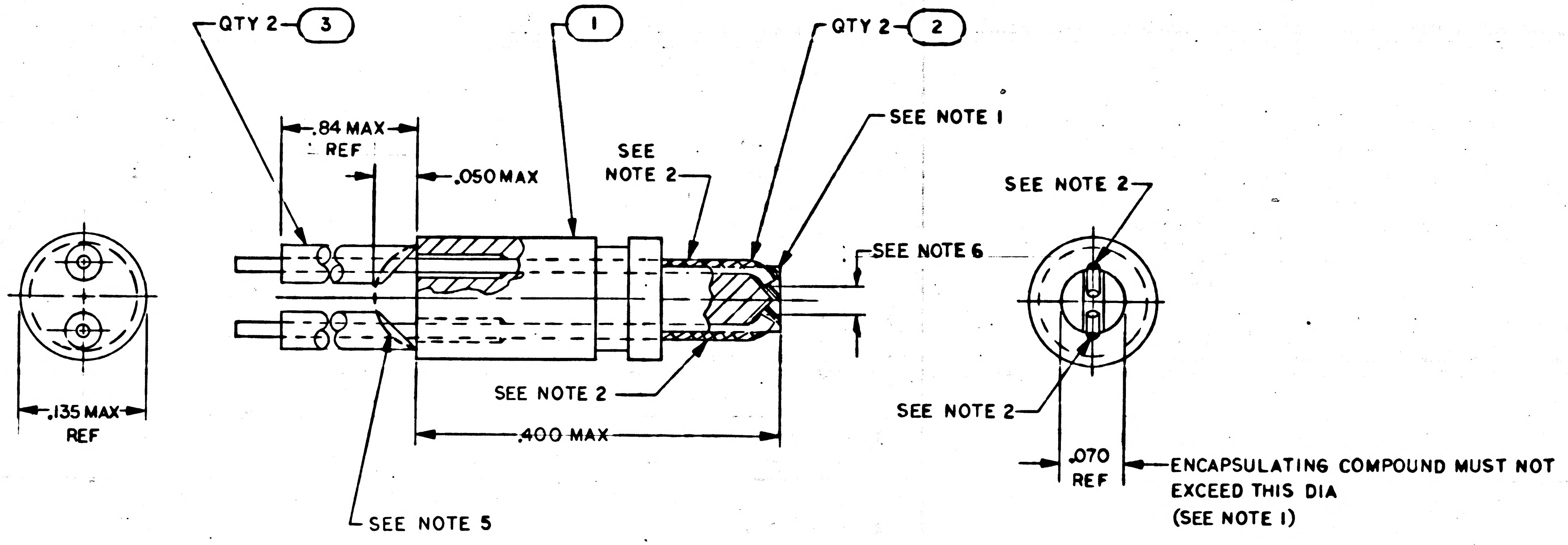
REVISIONS 21877

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 22312	W.D.		9/2/65	



NOTES

1. AREA TO BE FILLED PER ND1002004 TYPE IV
2. WIRE CONTACT AREA TO BE FREE OF EPOXY
3. IDENTIFY WITH PART NO. PER ND1002019
4. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
5. ENCAPSULATE AREA SHOWN USING 1006341 (RTV 112)
6. NO AIR VOIDS TOLERATED IN THIS AREA

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
2	2004962		INSULATION, SLEEVING	3
2	2004966		WIRE, PLUG CONTACT	2
1	2004963		PLUG	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003975	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN K.W. Simpson 6JUL65
CHECKED
APPROVED
APPROVED Eldon C Hall
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PLUG ASSEMBLY
PUSH BUTTON SWITCH
AGC DSKY

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2003932
SCALE 10/1
SHEET 1 OF 1

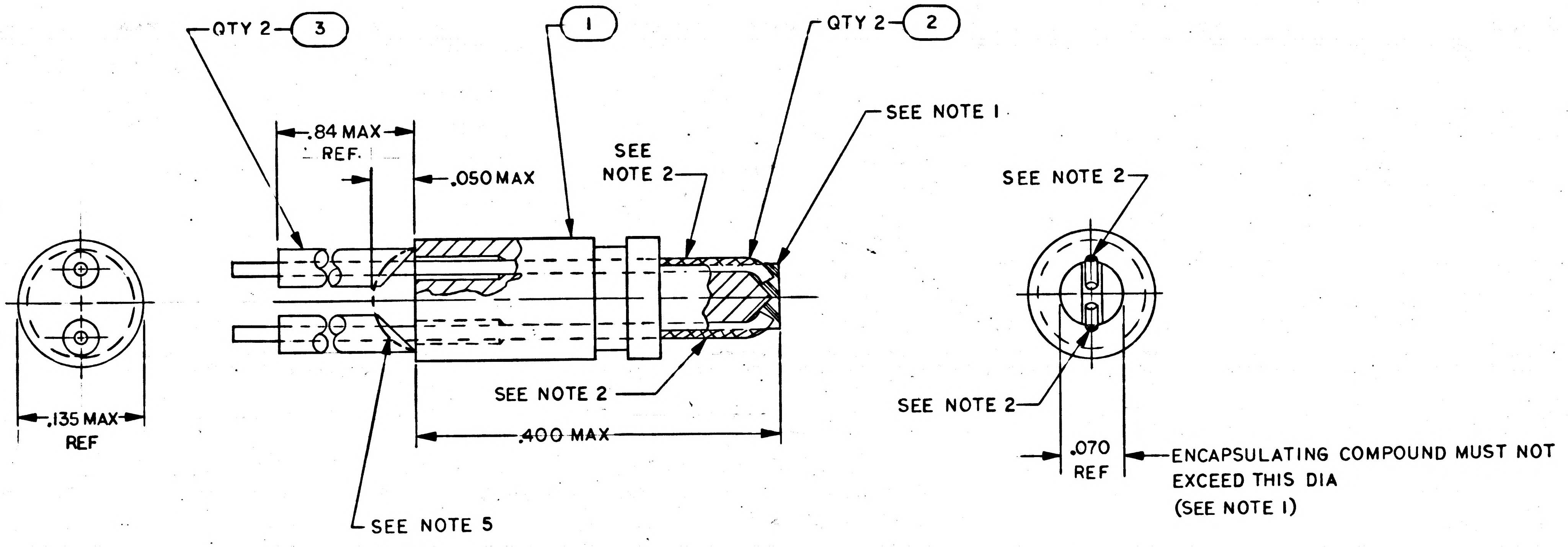
MASTER

MODERN BLUE PRINT CO. D-19550

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 21877

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



ENCAPSULATING COMPOUND MUST NOT EXCEED THIS DIA (SEE NOTE 1)

NOTES

1. AREA TO BE FILLED PER ND1002004 TYPE IV
2. WIRE CONTACT AREA TO BE FREE OF EPOXY
3. IDENTIFY WITH PART NO. PER ND1002019
4. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
5. ENCAPSULATE AREA SHOWN USING 1006341 (RTV 112)

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
2	2004962		INSULATION, SLEEVING	3
2	2004966		WIRE, PLUG CONTACT	2
1	2004963		PLUG	1

011 LIST OF MATERIALS

MASTER

2003975	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN K.W. Simpson 6JUL65
CHECKED 10 Aug 65
APPROVED 12 Aug 65
APPROVED Eldon C Hall 24 Aug 65
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PLUG ASSEMBLY
PUSH BUTTON SWITCH
AGC DSKY

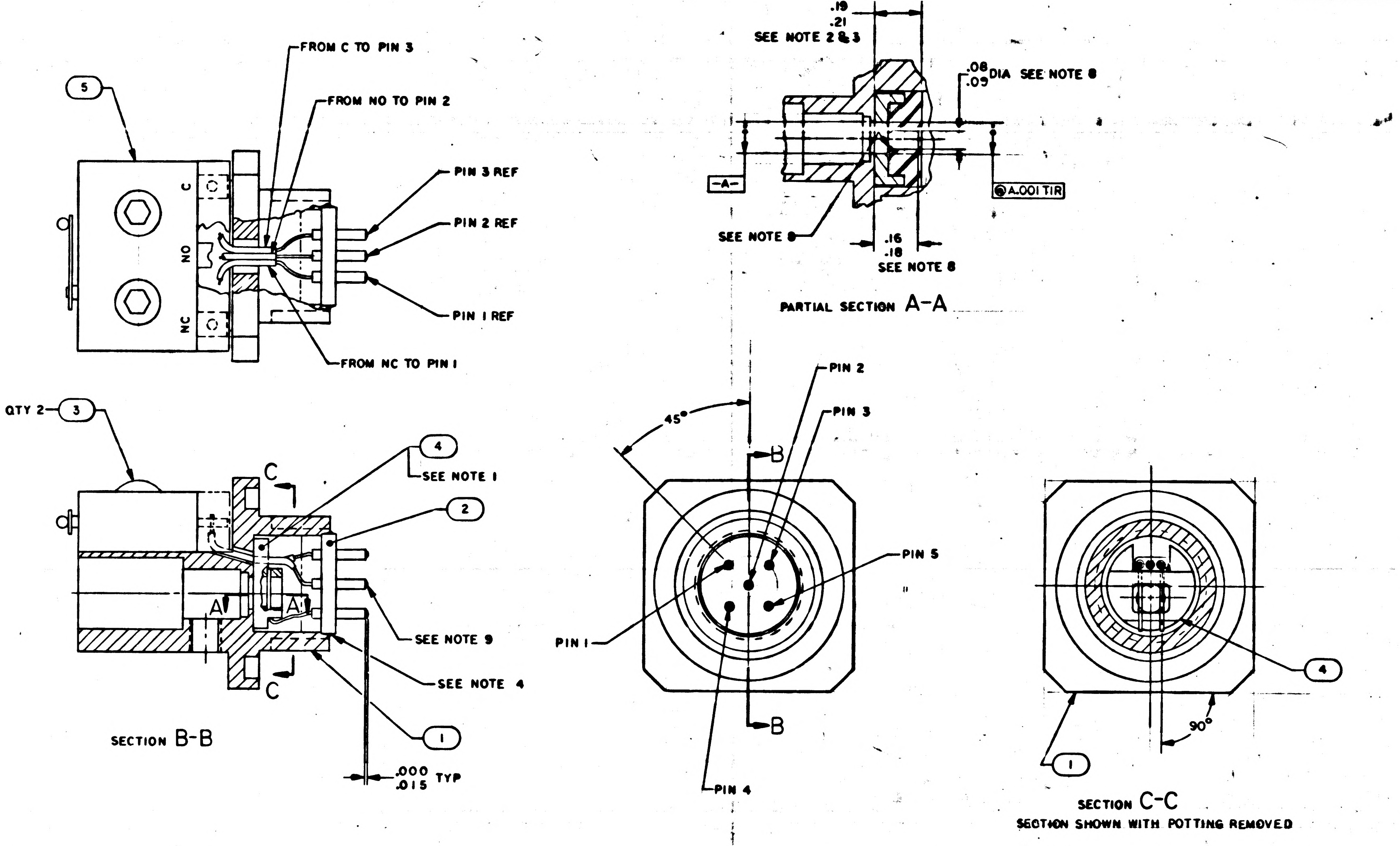
CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2003932
SCALE 10/1
SHEET 1 OF 1

MODERN BLUE PRINT CO. D-19550

NOTICE WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 21877

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 22746			10/4/65	



FROM C TO PIN 3
FROM NO TO PIN 2
5
C
NO
NC
PIN 3 REF
PIN 2 REF
PIN 1 REF
FROM NC TO PIN 1
.19
.21
SEE NOTE 2 & 3
.08
.05
DIA SEE NOTE 8
-A-
A .001 TIR
SEE NOTE 8
.16
.18
SEE NOTE 8
PARTIAL SECTION A-A
QTY 2
3
4
SEE NOTE 1
2
C
C
A
A
SEE NOTE 9
SEE NOTE 4
1
.000
.015
TYP
SECTION B-B
PIN 2
PIN 3
45°
B
B
PIN 5
PIN 1
PIN 4
4
1
90°
SECTION C-C
SECTION SHOWN WITH POTTING REMOVED

NOTES
1. BOND FIND NO. 4 TO FIND NO. 1 PER ND1002004 TYPE IV
2. APPLY PRIMER TO SURFACES AND WIRES TO BE ENCAPSULATED USING 1006341
3. ENCAPSULATE INDICATED AREA PER 1002009 TYPE C OR D
4. SOLDER PER ND 1002283
5. PINS INDICATED 1 THRU 5 ARE FOR REFERENCE ONLY AND ARE NOT TO BE MARKED
6. IDENTIFY WITH PART NO. PER ND 1002019
7. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
8. INDICATED AREA AND WIRE CONTACT AREA TO BE FREE FROM ENCAPSULATING COMPOUND
9. SOLDER PER ND1002071 USING SOLDER ND1002075

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	2003923-011	SWITCH, POTTED ASSY	5
1	2003934-011	DISK ASSY	4
2	1010618-3	SCREW, BUTTON HD	3
1	1006354	HEADER, HERMETIC SEAL	2
1	2004949	HOUSING, SWITCH MOUNTING	1
011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003974	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN 9JUL65
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HOUSING ASSY (MOUNTING)
PUSH BUTTON SWITCH
AGC DSKY

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2003933
SCALE 4/1
SHEET 1 OF 1

2003933 A

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 21877

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
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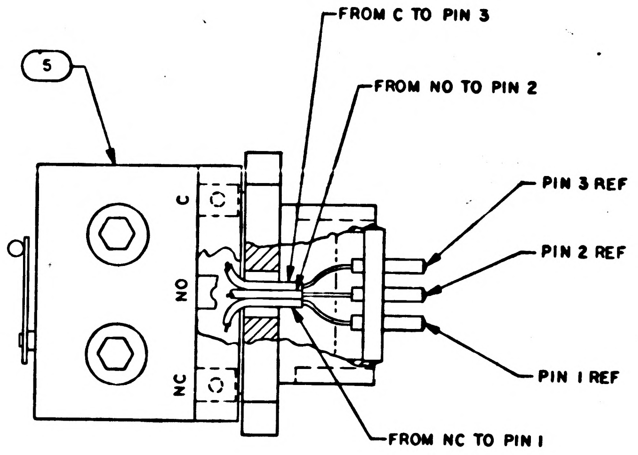
B		REVISED PER TDRR 23233			10/22/65	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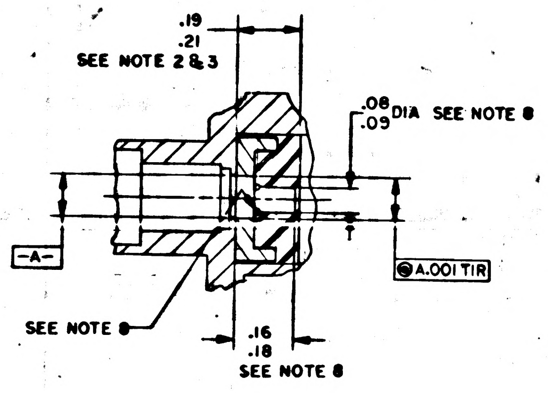
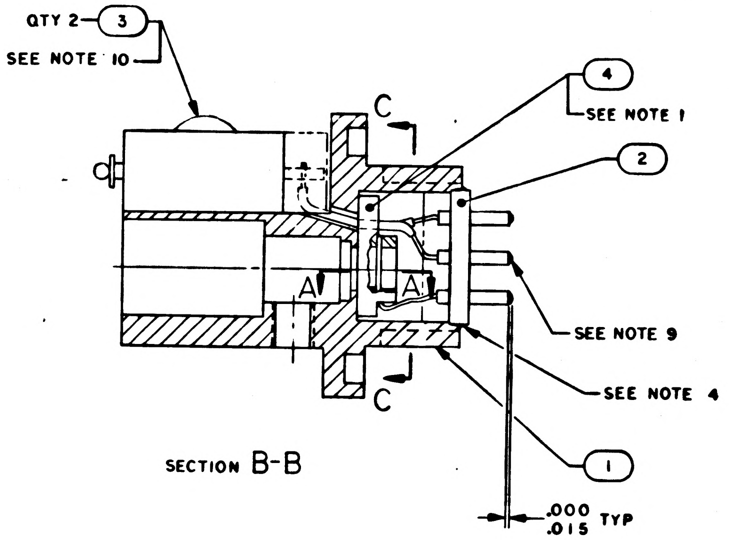
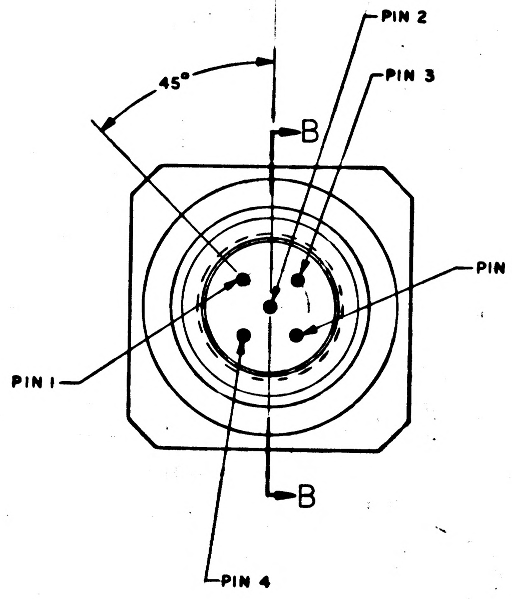
FROM C TO PIN 3
FROM NO TO PIN 2
PIN 3 REF
PIN 2 REF
PIN 1 REF
FROM NC TO PIN 1
C
NO
NC

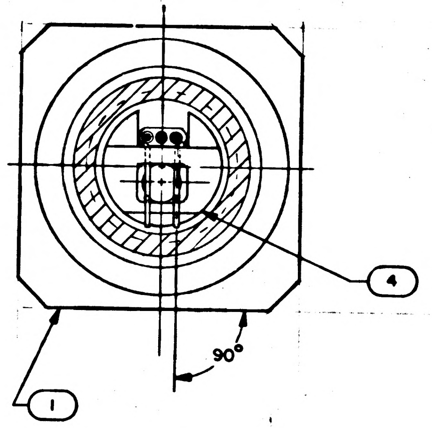

.19
.21
SEE NOTE 2 & 3
.08
.09 DIA SEE NOTE 8
-A-
A .001 TIR
SEE NOTE 8
.16
.18
SEE NOTE 8

PARTIAL SECTION A-A


QTY 2 3
SEE NOTE 10
C
4
SEE NOTE 1
2
A
A
SEE NOTE 9
SEE NOTE 4
C
1
.000
.015 TYP

SECTION B-B


PIN 2
PIN 3
45°
B
PIN 5
PIN 1
B
PIN 4



SECTION C-C

SECTION SHOWN WITH POTTING REMOVED

NOTES

1. BOND FIND NO. 4 TO FIND NO. 1 PER ND1002004 TYPE IV
2. APPLY PRIMER TO SURFACES AND WIRES TO BE ENCAPSULATED USING 1006341
3. ENCAPSULATE INDICATED AREA PER 1002009 TYPE C OR D
4. SOLDER PER ND 1002283
5. PINS INDICATED 1 THRU 5 ARE FOR REFERENCE ONLY AND ARE NOT TO BE MARKED
6. IDENTIFY WITH PART NO. PER ND 1002019
7. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
8. INDICATED AREA AND WIRE CONTACT AREA TO BE FREE FROM ENCAPSULATING COMPOUND
9. SOLDER PER ND1002071 USING SOLDER ND1002075
10. MOUNTING TORQUE FOR FIND NO. 3 TO BE 2-2.5 INCH POUNDS

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	2003923-011	SWITCH, POTTED ASSY	5
1	2003934-011	DISK ASSY	4
2	1010618-3	SCREW, BUTTON HD	3
1	1006354	HEADER, HERMETIC SEAL	2
1	2004949	HOUSING, SWITCH MOUNTING	1
011	LIST OF MATERIALS		

2003974	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN		
CHECKED		
APPROVED		
APPROVED		
APPROVED MIT		
APPROVED MSC		DATE

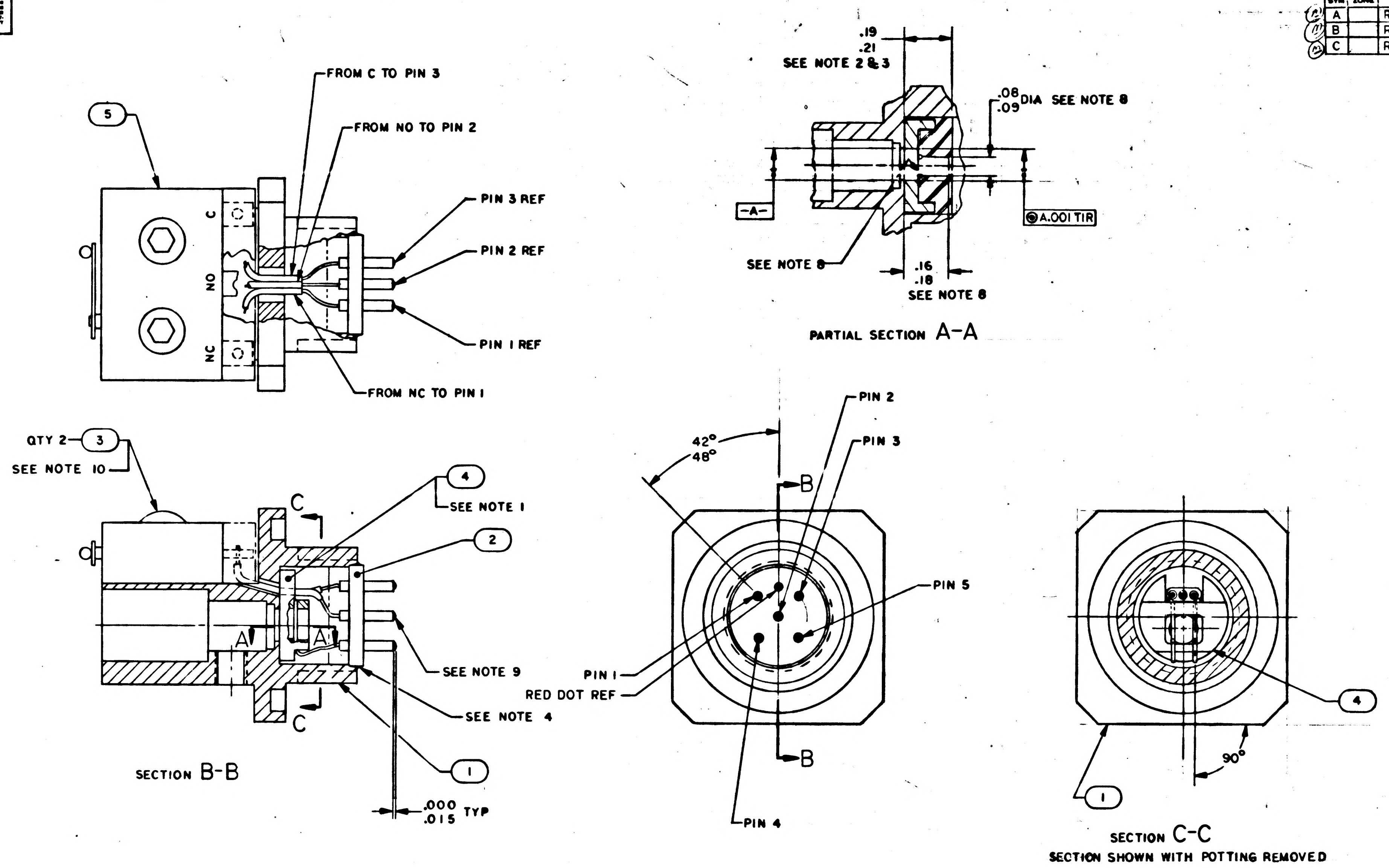
HOUSING ASSY (MOUNTING)
PUSH BUTTON SWITCH
AGC DSKY

CODE IDENT NO	SIZE	DRAWING NO.
80230	D	2003933
SCALE 4/1		SHEET 1 OF 1

NOTICE WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 21877

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 22746	awg.	[illegible]	10/4/65	[illegible]
B		REVISED PER TDRR 23233	BRP	[illegible]	10/22/65	[illegible]
C		REVISED PER TDRR 24237	EAU	[illegible]	12/6/65	[illegible]



5
FROM C TO PIN 3
FROM NO TO PIN 2
PIN 3 REF
PIN 2 REF
PIN 1 REF
FROM NC TO PIN 1
C
NO
NC
.19
.21
SEE NOTE 2 & 3
.08
.09 DIA SEE NOTE 8
-A-
A .001 TIR
SEE NOTE 8
.16
.18
SEE NOTE 8
PARTIAL SECTION A-A
QTY 2 3
SEE NOTE 10
C
4
SEE NOTE 1
2
A
A
SEE NOTE 9
SEE NOTE 4
C
1
.000
.015 TYP
SECTION B-B
42°
48°
PIN 2
PIN 3
B
PIN 5
PIN 1
RED DOT REF
B
PIN 4
4
90°
1
SECTION C-C
SECTION SHOWN WITH POTTING REMOVED

NOTES

1. BOND FIND NO. 4 TO FIND NO. 1 PER ND1002004 TYPE IV
2. APPLY PRIMER TO SURFACES AND WIRES TO BE ENCAPSULATED USING 1006341
3. ENCAPSULATE INDICATED AREA PER 1002009 TYPE C OR D
4. SOLDER PER ND 1002283
5. PINS INDICATED 1 THRU 5 ARE FOR REFERENCE ONLY AND ARE NOT TO BE MARKED
6. IDENTIFY WITH PART NO. PER ND 1002019
7. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
8. INDICATED AREA AND WIRE CONTACT AREA TO BE FREE FROM ENCAPSULATING COMPOUND
9. SOLDER PER ND1002071 USING SN30WRP2 SOLDER PER QQ-S-571
10. MOUNTING TORQUE FOR FIND NO. 3 TO BE 2-2.5 INCH POUNDS
11. TEST PER MIL-STD-202, METHOD 112, TEST CONDITION C, PROCEDURE 3a, USING HELIUM, FOR LEAK RATE NOT TO EXCEED 1×10^{-6} STD CC/SEC AT A DIFFERENTIAL PRESSURE OF 20 PSIA AND A TEMPERATURE OF 70° F ± 20° USE 1000159-7 "O" RING TO SEAL ASSEMBLY TO TEST FIXTURE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	2003923-011	SWITCH, POTTED ASSY	5
1	2003934-011	DISK ASSY	4
2	1010618-3	SCREW, BUTTON HD	3
1	1006354	HEADER, HERMETIC SEAL	2
1	2004949	HOUSING, SWITCH MOUNTING	1
011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003974	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN [illegible] 9 JUL 65
CHECKED [illegible]
APPROVED [illegible]
APPROVED Eldon Hall
APPROVED MIT [illegible]
APPROVED MSC [illegible]
DATE

HOUSING ASSY (MOUNTING)
PUSH BUTTON SWITCH
AGC DSKY

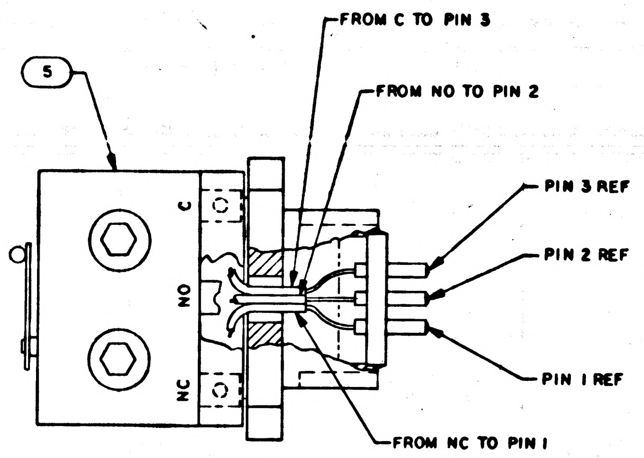
CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2003933

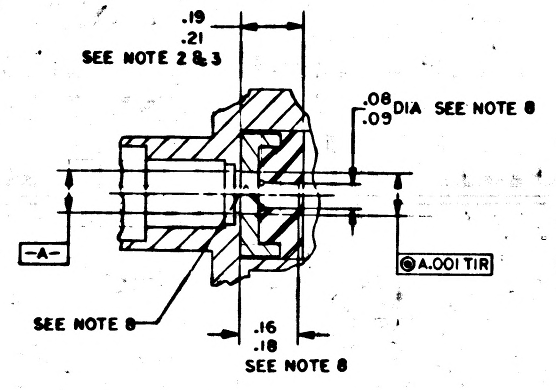
SCALE 4/1
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

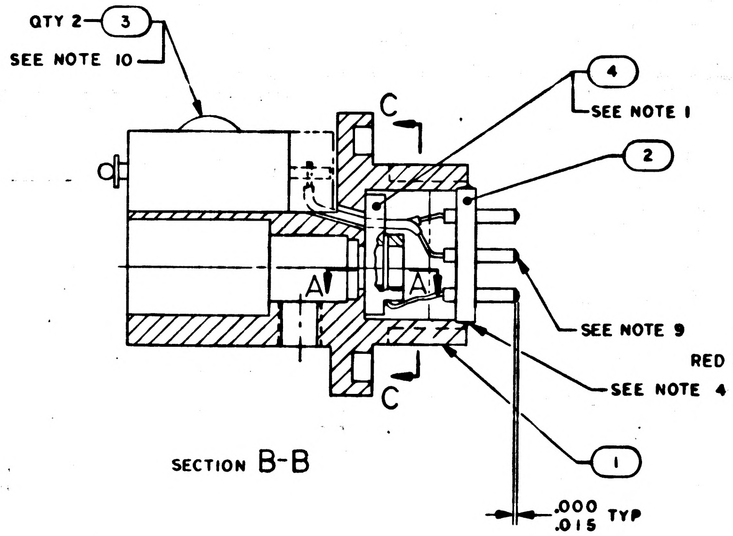
REVISIONS 21877

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 22746			10/4/65	
B		REVISED PER TDRR 23233	ORG		10/22/65	
C		REVISED PER TDRR 24237	EOU		12/6/65	
D		REVISED PER TDRR 27083			3/21/69	

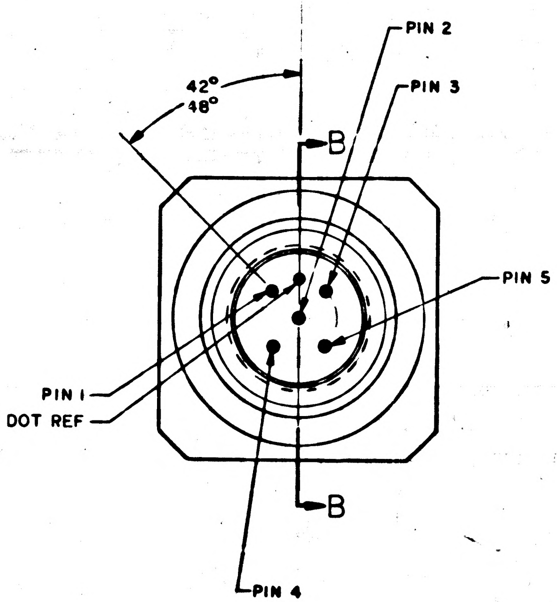


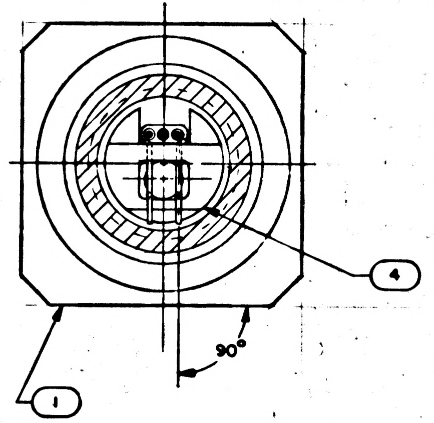


PARTIAL SECTION A-A



SECTION B-B





SECTION C-C

SECTION SHOWN WITH POTTING REMOVED

NOTES

1. BOND FIND NO. 4 TO FIND NO. 1 PER ND1002004 TYPE IV
2. APPLY PRIMER TO SURFACES AND WIRES TO BE ENCAPSULATED USING 1006341
3. ENCAPSULATE INDICATED AREA PER 1002009 TYPE C OR D
4. SOLDER PER ND 1002283
5. PINS INDICATED 1 THRU 5 ARE FOR REFERENCE ONLY AND ARE NOT TO BE MARKED
6. IDENTIFY WITH PART NO. PER ND 1002019
7. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
8. INDICATED AREA AND WIRE CONTACT AREA TO BE FREE FROM ENCAPSULATING COMPOUND
9. SOLDER PER ND1002071 USING SN30 FORM B TYPE S SOLDER PER QQ-S-571
10. MOUNTING TORQUE FOR FIND NO. 3 TO BE 2-2.5 INCH POUNDS
11. TEST PER MIL-STD-202, METHOD 112, TEST CONDITION C, PROCEDURE 3a, USING HELIUM, FOR LEAK RATE NOT TO EXCEED 1×10^{-6} STD CC/SEC AT A DIFFERENTIAL PRESSURE OF 20±1 PSIA AND A TEMPERATURE OF 70° F ± 20° USE 1000159-18 "O" RING TO SEAL ASSEMBLY TO TEST FIXTURE

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
1	2003923-011	SWITCH, POTTED ASSY	5
1	2003934-011	DISK ASSY	4
2	1010618-3	SCREW, BUTTON HD	3
1	1006354	HEADER, HERMETIC SEAL	2
1	2004949	HOUSING, SWITCH MOUNTING	1
011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003984	
2003974	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN 9 JUL 65
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HOUSING ASSY (MOUNTING)
PUSH BUTTON SWITCH
AGC DSKY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2003933

SCALE 4/1

SHEET 1 OF 1

NOTICE WHEN GOVERNMENT DRAWINGS SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 2-1877

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 22746	AWG	[illegible]	10/6/65	[illegible]
B		REVISED PER TDRR 23233	[illegible]	[illegible]	10/28/65	[illegible]
C		REVISED PER TDRR 24237	EAU	[illegible]	12/6/65	[illegible]
D		REVISED PER TDRR 27083	SPJ	[illegible]	3/21/66	[illegible]
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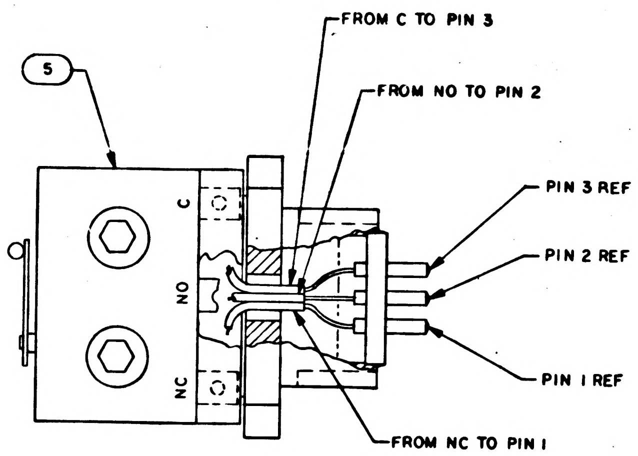
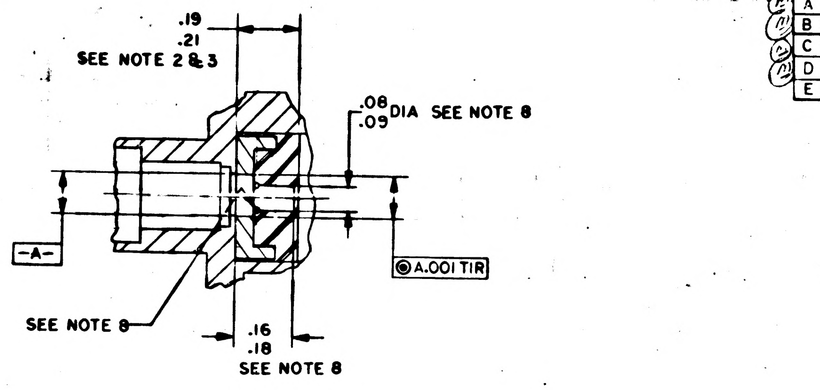
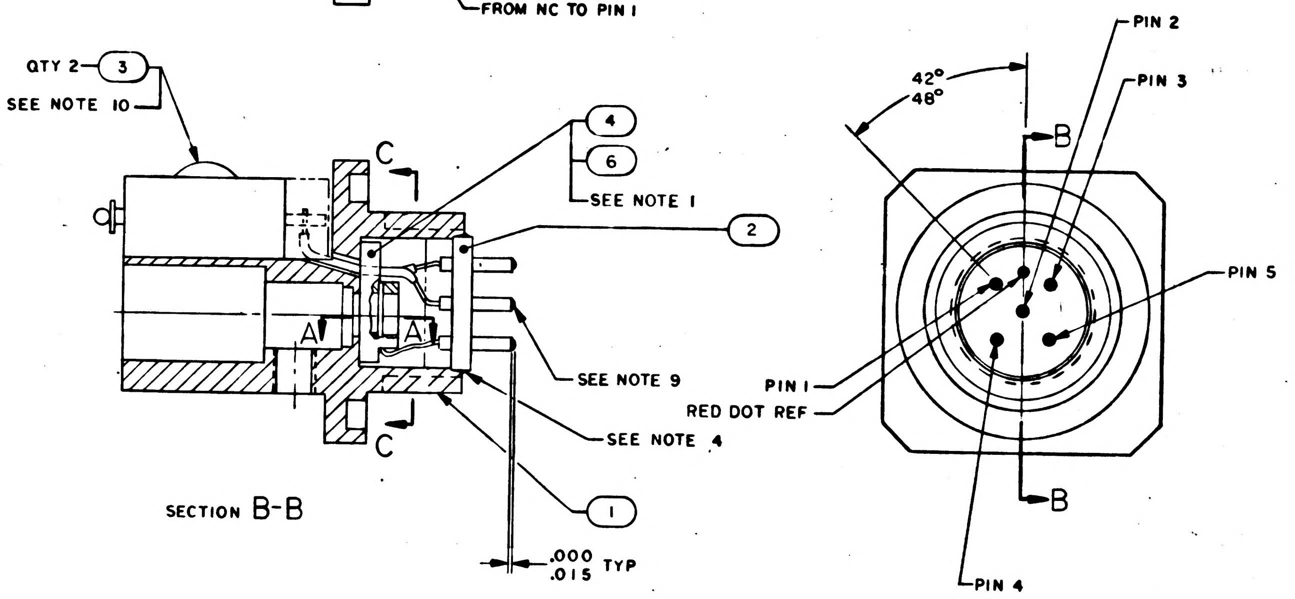
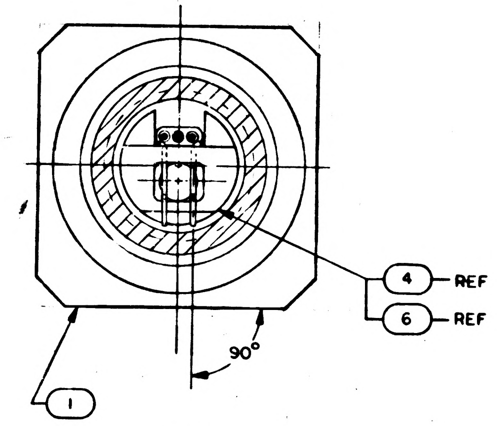




PARTIAL SECTION A-A



SECTION B-B



SECTION C-C
SECTION SHOWN WITH POTTING REMOVED

NOTES

1. BOND FIND NO. 4 OR FIND NO. 6 TO FIND NO. 1 PER ND1002004, TYPE IV
2. APPLY PRIMER TO SURFACES AND WIRES TO BE ENCAPSULATED USING 1006341
3. ENCAPSULATE INDICATED AREA PER 1002009 TYPE C OR D
4. SOLDER PER ND 1002283
5. PINS INDICATED 1 THRU 5 ARE FOR REFERENCE ONLY AND ARE NOT TO BE MARKED
6. IDENTIFY WITH PART NO. PER ND 1002019
7. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
8. INDICATED AREA AND WIRE CONTACT AREA TO BE FREE FROM ENCAPSULATING COMPOUND
9. SOLDER PER ND1002071 USING SN30 FORM B TYPE S SOLDER PER QQ-S-571
10. MOUNTING TORQUE FOR FIND NO. 3 TO BE 2-2.5 INCH POUNDS
11. TEST PER MIL-STD-202, METHOD 112, TEST CONDITION C, PROCEDURE 3a, USING HELIUM, FOR LEAK RATE NOT TO EXCEED 1×10^{-6} STD CC/SEC AT A DIFFERENTIAL PRESSURE OF 20±1 PSIA AND A TEMPERATURE OF 70°F±20° USE 1000159-18 "O" RING TO SEAL ASSEMBLY TO TEST FIXTURE

QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	—	2003934-021	DISK ASSY	6
1	1	2003923-011	SWITCH, POTTED ASSY	5
—	1	2003934-011	DISK ASSY	4
2	2	1010618-3	SCREW, BUTTON HD	3
1	1	1006354	HEADER, HERMETIC SEAL	2
1	1	2004949	HOUSING, SWITCH MOUNTING	1
-021	011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003875	
2003984	
2003974	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

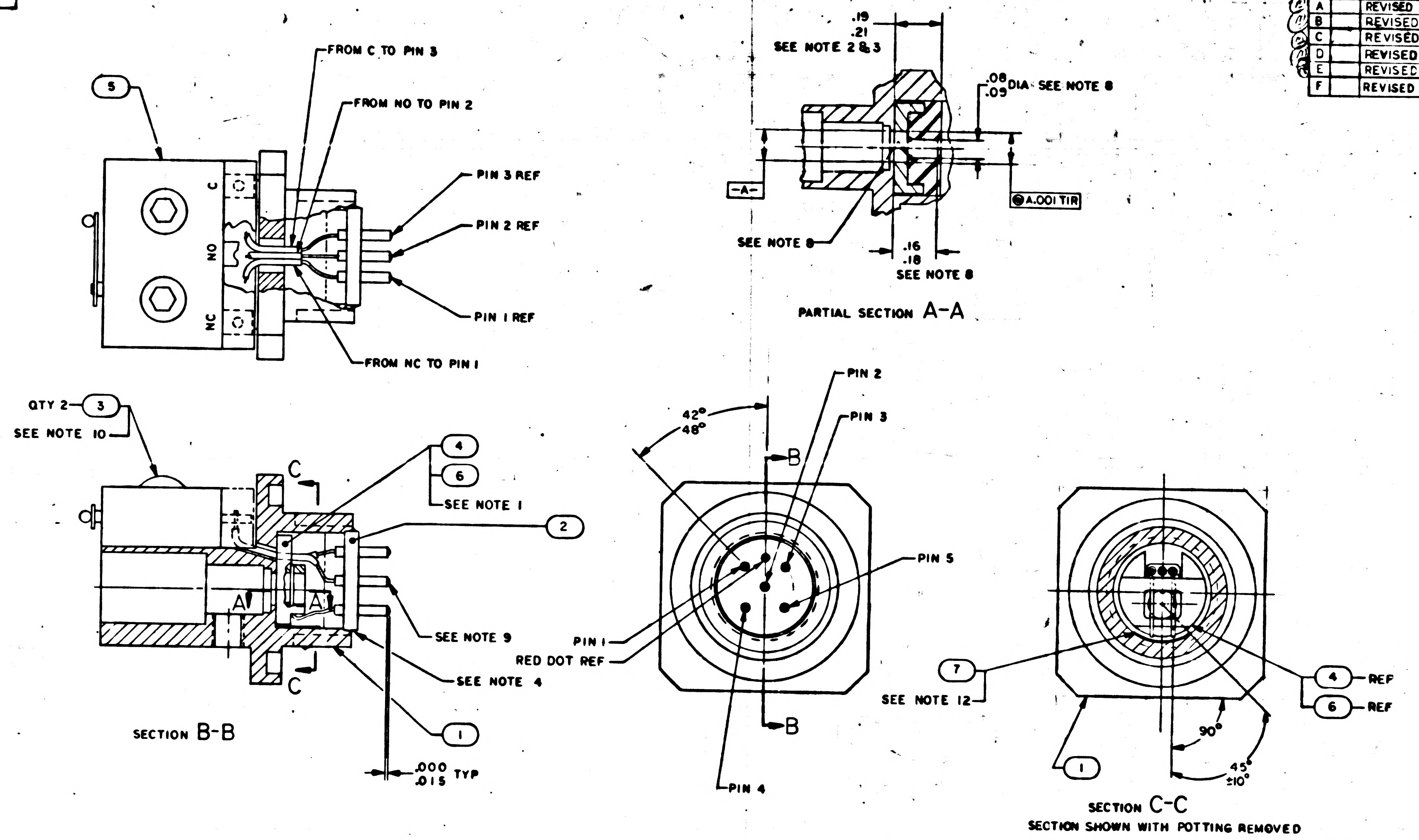
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HOUSING ASSY (MOUNTING)
PUSH BUTTON SWITCH
AGC DSKY

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2003933
SCALE 4/1
SHEET 1 OF 1

2003933 E

REVISIONS 21877						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 22746	[illegible]	[illegible]	[illegible]	[illegible]
B		REVISED PER TDRR 23233	[illegible]	[illegible]	[illegible]	[illegible]
C		REVISED PER TDRR 24237	[illegible]	[illegible]	[illegible]	[illegible]
D		REVISED PER TDRR 27083	[illegible]	[illegible]	3/4/66	[illegible]
E		REVISED PER TDRR 32580	[illegible]	[illegible]	[illegible]	[illegible]
F		REVISED PER TDRR 32863	[illegible]	[illegible]	2/16/67	TSR



5
FROM C TO PIN 3
FROM NO TO PIN 2
PIN 3 REF
PIN 2 REF
PIN 1 REF
FROM NC TO PIN 1
C
NO
NC
.19
.21
SEE NOTE 2 & 3
.08
.09 DIA SEE NOTE 8
-A-
A .001 TIR
SEE NOTE 8
.16
.18
SEE NOTE 8
PARTIAL SECTION A-A
QTY 2
3
SEE NOTE 10
C
4
6
SEE NOTE 1
2
A
A
SEE NOTE 9
SEE NOTE 4
C
1
.000
.015 TYP
SECTION B-B
PIN 2
PIN 3
42°
48°
B
PIN 5
PIN 1
RED DOT REF
B
PIN 4
7
SEE NOTE 12
4 REF
6 REF
1
90°
45°
±10°
SECTION C-C
SECTION SHOWN WITH POTTING REMOVED

NOTES
1. BOND FIND NO.4 OR FIND NO.6 TO FIND NO.1 PER ND1002004, TYPE IV
2. APPLY PRIMER TO SURFACES AND WIRES TO BE ENCAPSULATED USING 1006341
3. ENCAPSULATE INDICATED AREA PER 1002009 TYPE C OR D
4. SOLDER PER ND 1002283
5. PINS INDICATED 1 THRU 5 ARE FOR REFERENCE ONLY AND ARE NOT TO BE MARKED
6. IDENTIFY WITH PART NO. PER ND 1002019
7. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
8. INDICATED AREA AND WIRE CONTACT AREA TO BE FREE FROM ENCAPSULATING COMPOUND
9. SOLDER PER ND1002071 USING SN30 FORM B TYPE S SOLDER PER QQ-S-571
10. MOUNTING TORQUE FOR FIND NO.3 TO BE 2-2.5 INCH POUNDS
11. TEST PER MIL-STD-202, METHOD 112, TEST CONDITION C, PROCEDURE 3a, USING HELIUM, FOR LEAK RATE NOT TO EXCEED 1×10^{-6} STD CC/SEC AT A DIFFERENTIAL PRESSURE OF 20±1 PSIA AND A TEMPERATURE OF 70° F ± 20° USE 1000159-18 "O" RING TO SEAL ASSEMBLY TO TEST FIXTURE
12. INSTALL FIND NO.7 BEFORE FIND NO.6

QTY REQD -021	QTY REQD 011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
1	—	2004734	TAPE, ADHESIVE	7
1	—	2003934-021	DISK ASSY	6
1	1	2003923-011	SWITCH, POTTED ASSY	5
—	1	2003934-011	DISK ASSY	4
2	2	1010618-3	SCREW, BUTTON HD	3
1	1	1006354	HEADER, HERMETIC SEAL	2
1	1	2004949	HOUSING, SWITCH MOUNTING	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003875	
2003984	
2003974	

APPLICATION

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RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HOUSING ASSY (MOUNTING)
PUSH BUTTON SWITCH
AGC DSKY

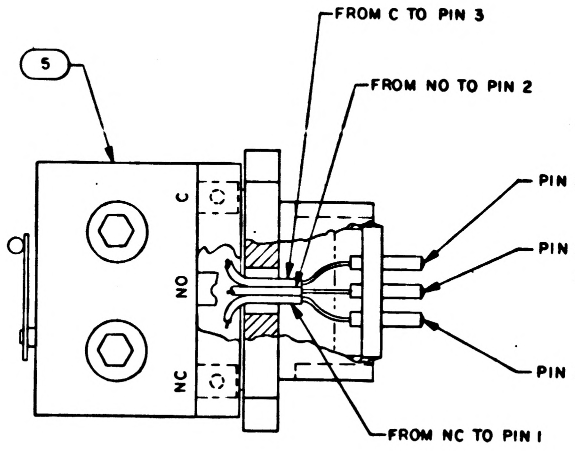
CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2003933
SCALE 4/1
SHEET 1 OF 1

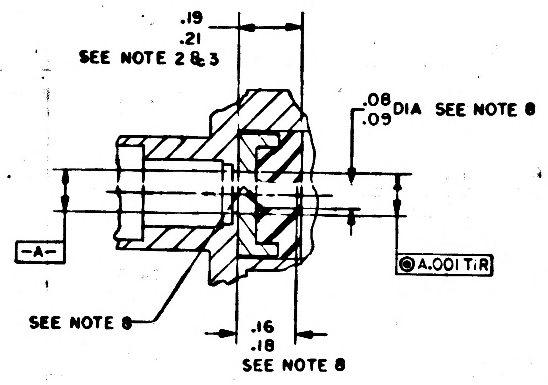
2003933 F

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

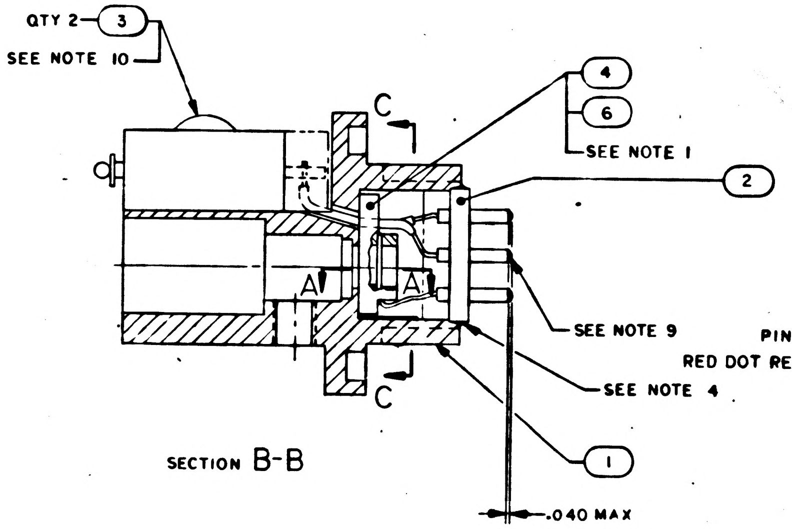
REVISIONS 2,8,7

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 22746			10/4/6	
B		REVISED PER TDRR 23233	BRG		10/24/6	
C		REVISED PER TDRR 24237	EOU		12/6/6	
D		REVISED PER TDRR 27083	DPT		3/21/66	
E		REVISED PER TDRR 32580			1/23/67	T.S.R.
F		REVISED PER TDRR 32863	SWT	BS	2/16/67	T.S.R.
G		REVISED PER TDRR 33440	PJT		4/17/6	T.S.L.

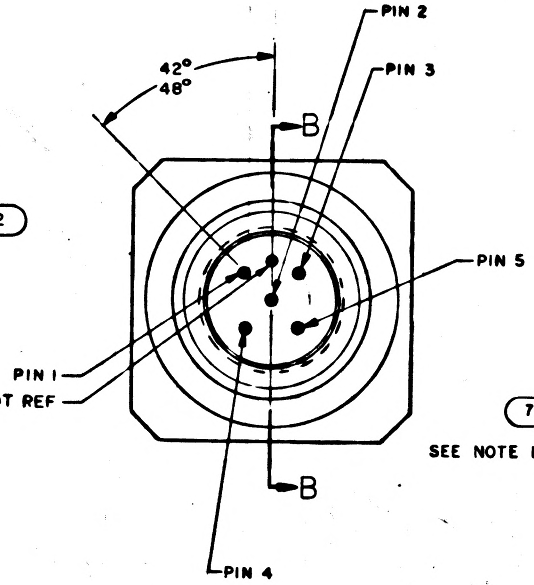


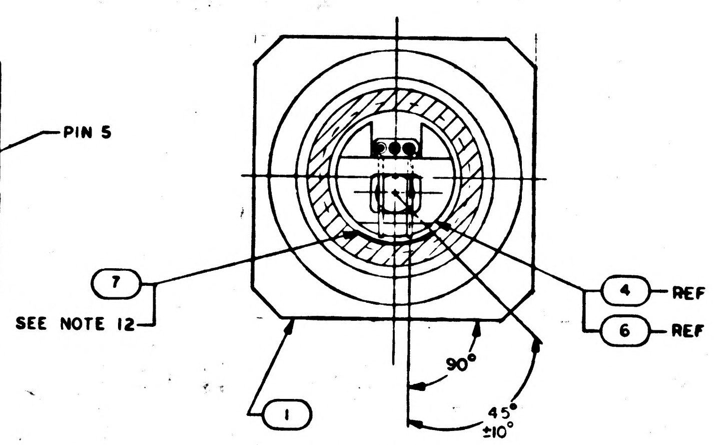


PARTIAL SECTION A-A



SECTION B-B





SECTION C-C
SECTION SHOWN WITH POTTING REMOVED

NOTES

1. BOND FIND NO.4 OR FIND NO.6 TO FIND NO.1 PER ND1002004, TYPE IV
2. APPLY PRIMER TO SURFACES AND WIRES TO BE ENCAPSULATED USING 1006341
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9. SOLDER PER ND1002071 USING SN30 FORM B TYPE S SOLDER PER QQ-S-571
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QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	—	2004734	TAPE, ADHESIVE	7
1	—	2003934-021	DISK ASSY	6
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—	1	2003934-011	DISK ASSY	4
2	2	1010618-3	SCREW, BUTTON HD	3
1	1	1006354	HEADER, HERMETIC SEAL	2
1	1	2004949	HOUSING, SWITCH MOUNTING	1
-021	011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003875	
2003984	
2003974	

APPLICATION

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RESISTOR VALUES ARE IN OHMS
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FRACTIONS ± DECIMALS ± ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED
APPROVED
APPROVED Ellis C Hall
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HOUSING ASSY (MOUNTING)
PUSH BUTTON SWITCH
AGC DSKY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2003933

SCALE 4/1
SHEET 1 OF 1

2003933 G

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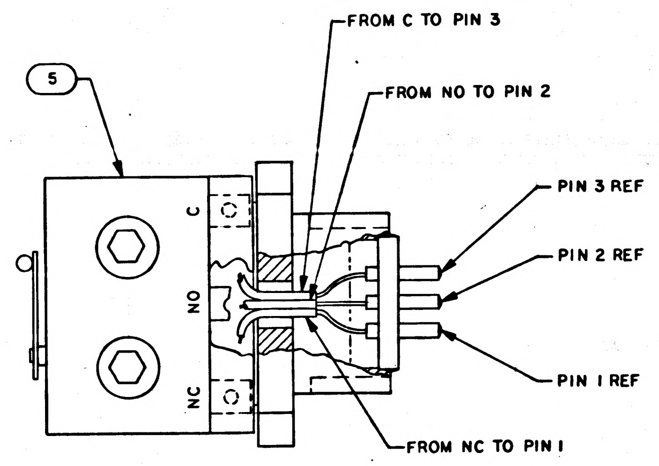
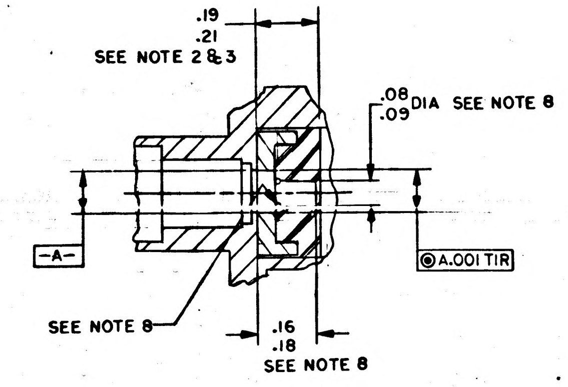
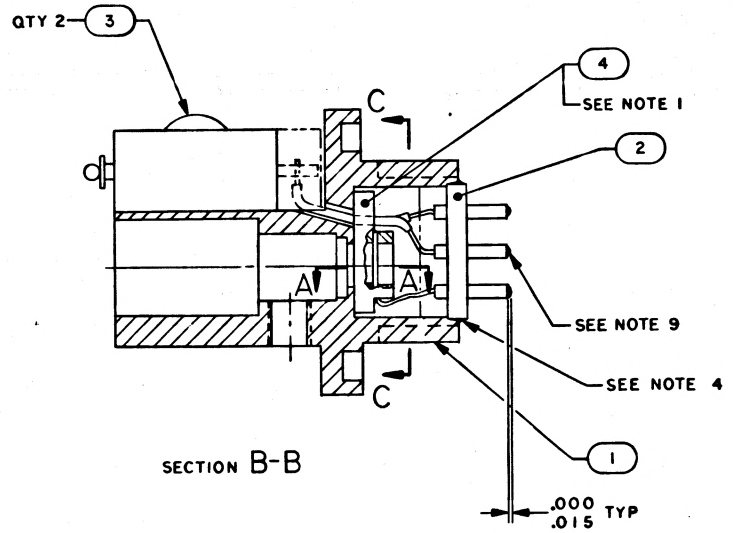
REVISIONS 21877

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

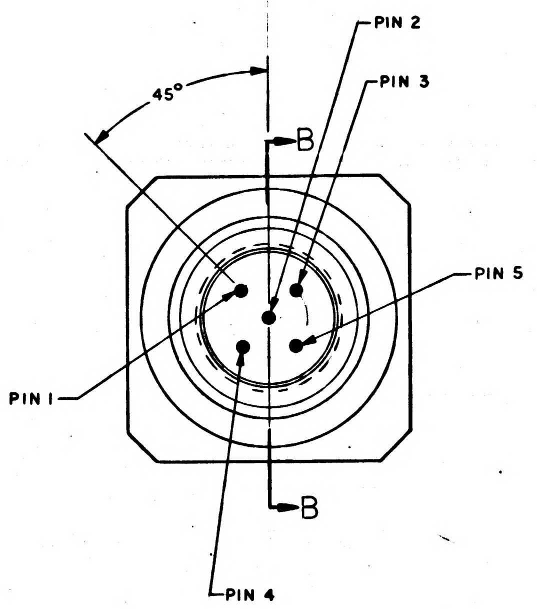


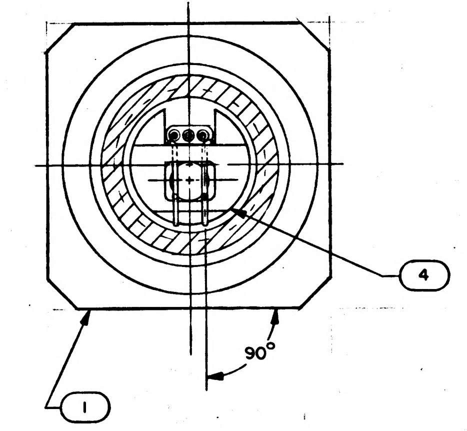


PARTIAL SECTION A-A



SECTION B-B





SECTION C-C
SECTION SHOWN WITH POTTING REMOVED

NOTES
1. BOND FIND NO.4 TO FIND NO.1 PER ND1002004 TYPE IV
2. APPLY PRIMER TO SURFACES AND WIRES TO BE ENCAPSULATED USING 1006341
3. ENCAPSULATE INDICATED AREA PER 1002009 TYPE C OR D
4. SOLDER PER later
5. PINS INDICATED 1 THRU 5 ARE FOR REFERENCE ONLY AND ARE NOT TO BE MARKED
6. IDENTIFY WITH PART NO. PER ND 1002019
7. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
8. INDICATED AREA AND WIRE CONTACT AREA TO BE FREE FROM ENCAPSULATING COMPOUND
9. SOLDER PER ND1002071 USING SOLDER ND1002075

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	2003923-011	SWITCH, POTTED ASSY	5
1	2003934-011	DISK ASSY	4
2	1010618-3	SCREW, BUTTON HD	3
1	1006354	HEADER, HERMETIC SEAL	2
1	2004949	HOUSING, SWITCH MOUNTING	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003974	

APPLICATION

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RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN K.W. Sampson 9 JUL 65
CHECKED Hagen Aug 65
APPROVED 12 Aug 65
APPROVED Ellis C Hall 24 Aug 65
APPROVED MIT Aug 65
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HOUSING ASSY (MOUNTING)
PUSH BUTTON SWITCH
AGC DSKY

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2003933
SCALE 4/1
SHEET 1 OF 1

2003933

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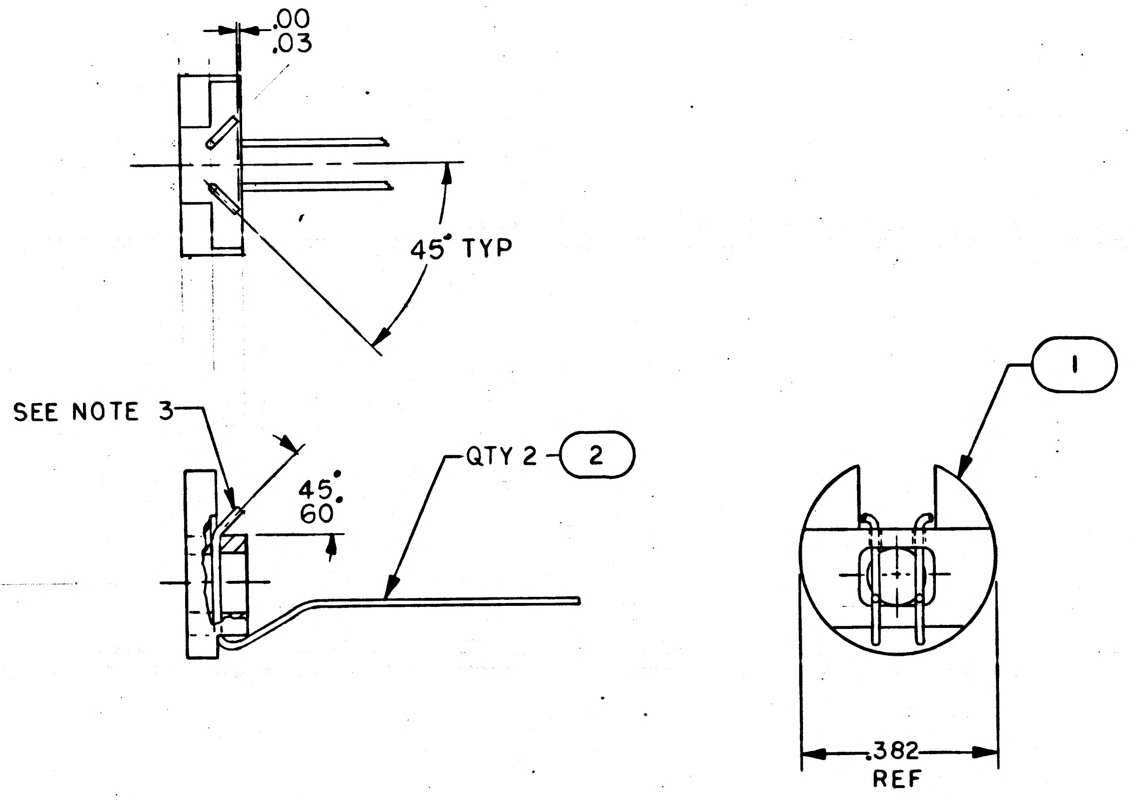
REVISIONS 21877						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES
1. IDENTIFY WITH PART NO PER ND1002019
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
3. CRIMP FIND NO. 2 AS SHOWN

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
2	2004967	WIRE, SOCKET CONTACT	2
1	2004964	DISK, RECEPTACLE	1
011	LIST OF MATERIALS		

2003933	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
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RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ± 5°
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	K.W. Simpson	12 JUL 65
CHECKED	E. Fager	12 Aug 65
APPROVED		12 Aug 65
APPROVED	Eldon C. Hall	24 Aug 65
APPROVED MIT	W Kupfer	24 Aug 65
APPROVED MSC		
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DISK ASSEMBLY
PUSH BUTTON SWITCH
AGC DSKY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2003934
SCALE 4/1		SHEET 1 OF 1

MASTER

2003934

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REVISIONS 23676

SYM	DESCRIPTION	DATE	APPROVAL

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	REMARKS
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WIRING INFORMATION CHART

REMARKS	COND IDENT	FROM	DESCRIPTION			TO	REMARKS
			COLOR	AWG	FIND NO		
	H80	12E	WHITE	28	5	82	
	H81	12H				83	
	H82	12M				84	
	H83	12N				85	
	H84	12J				86	
	H85	12K				87	
	H86	12F				88	
	H87	13E				89	
	H88	13H				90	
	H89	13M				91	
	H90	13N				92	
	H91	13J				93	
	H92	13K				94	
	H93	13F				95	
	H94	14E				96	
	H95	14H				97	
	H96	14M				98	
	H97	14N				99	
	H98	14J				100	
	H99	14K				101	
	H100	14F				102	
	H101	15E				103	
	H102	15H				104	
	H103	15M				105	
	H104	15N				106	
	H105	15J				107	
	H106	15K				108	
	H107	15F				109	
	H108	16A				110	
	H109	16B				111	
	H110	72K				152	
	H111	72F				153	
	H112	41F				118	
	H113	41E				112	
	H114	41H				113	
	H115	41M				114	
	H116	41N				115	
	H117	41J				116	
	H118	41K				117	
	H119	42F				125	
	H120	42E				119	
	H121	42H				120	
	H122	42M				121	
	H123	42N				122	
	H124	42J				123	
	H125	42K				124	
	H126	51F				132	
	H127	51E				126	
	H128	51H				127	
	H129	51M				128	
	H130	51N				129	
	H131	51J				130	
	H132	51K				131	
	H133	52F				139	
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	H138	52J				137	
	H139	52K				138	
	H140	71F				146	
	H141	71E				140	
	H142	71H				141	
	H143	71M				142	
	H144	71N				143	
	H145	71J				144	
	H146	71K				145	
	H147	72J				151	
	H148	72E				147	
	H149	72H				148	
	H150	72M				149	
	H151	72N				150	
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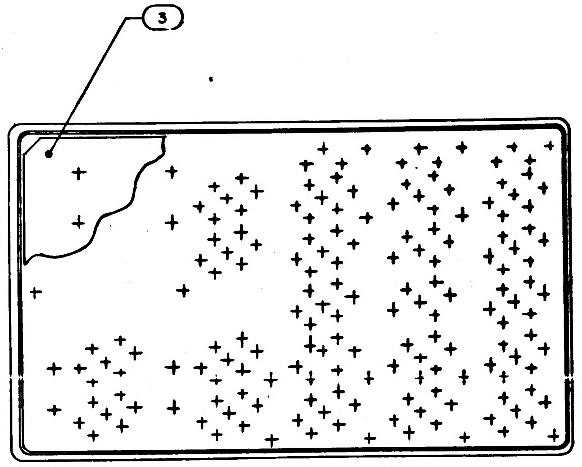
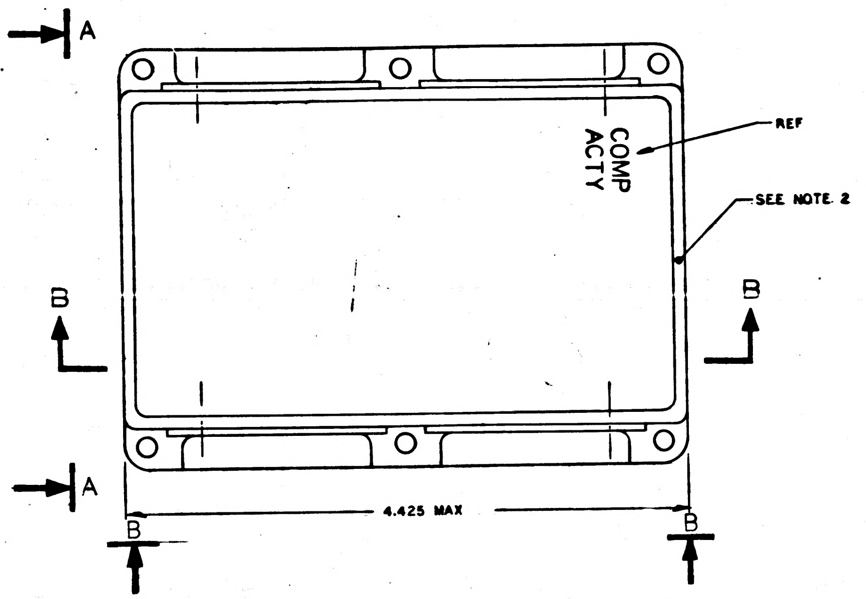
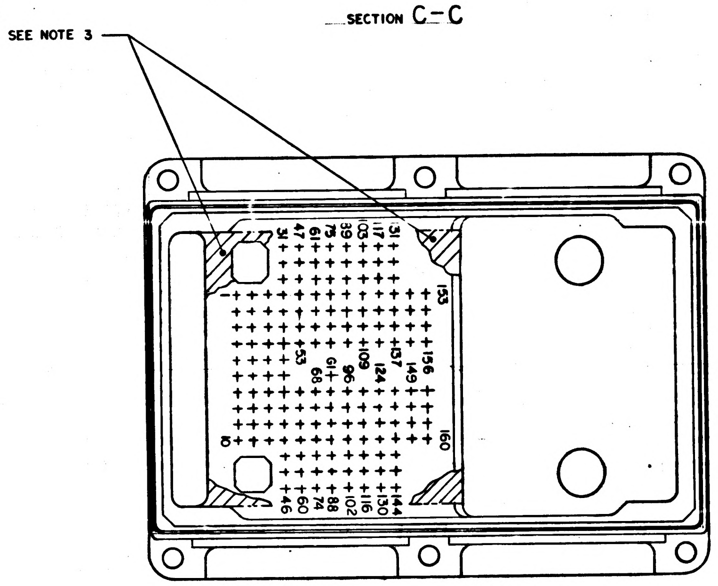
	H153	11E				75	
	H154	11H				76	
	H155	11M				77	
	H156	11N				78	
	H157	11J				79	
	H158	11K			5	80	
	H159	8A			8&9	8B	
	H160	8B				8C	
	H161	8C				8D	
	H162	8D				8E	
	H163	8E				8F	
	H164	8F				8H	
	H165	8H				8K	
	H166	8K				8M	
	H167	8M				8L	
	H168	8L				8J	
	H169	8J	WHITE		8&9	8G	
	H170	9D	BLACK		8&10	9F	
	H171	9F				9H	
	H172	9H				9G	
	H173	9G				9E	
	H174	9E				9C	
	H175	9C				9B	
	H176	9B	BLACK		8&10	9A	
	H177	61B	WHITE		8&9	61A	
	H178	16C	WHITE		8&9	16A	
	H179	26C	WHITE		8&9	26A	
	H180	36C	WHITE		8&9	36A	
	H181	CG	BLACK	28	4	158	

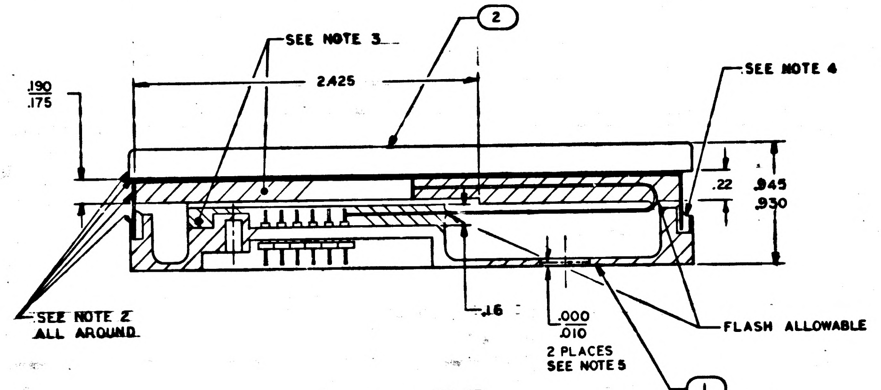


SECTION C-C





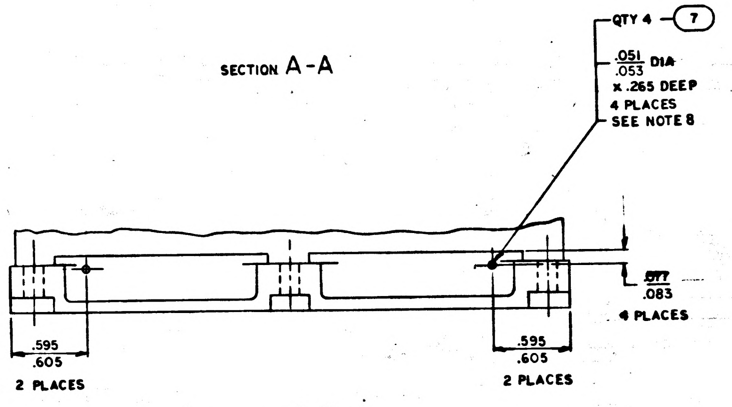
SECTION A-A



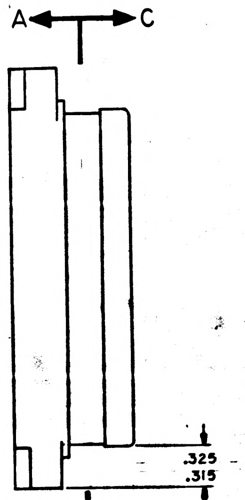
SECTION B-B

C

B



PARTIAL VIEW B-B



VIEW A-A

214

2003936

AR	1006776-48	SLEEVING, INSULATION	10
AR	1006776-23	SLEEVING, INSULATION	9
AR	QQ-W-343, TYPE S	WIRE, ELECTRICAL NO. 26 AWG	8
4	MS51923-141	PIN, SPRING	7
AR	1006732-3	WIRE, ELECTRICAL, INSULATED	6
AR	1010416-10	WIRE, ELECTRICAL, INSULATED	5
AR	1010416-1	WIRE, ELECTRICAL, INSULATED	4
1	2004972	INSULATOR, PHOTOMASTER	3
1	2004935	INDICATOR, DIGITAL	2
1	2003939-011	E/L HEADER SUBASSEMBLY	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
011	LIST OF MATERIALS		

A

2003985	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.01 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN A.J. [illegible] DATE [illegible]
CHECKED [illegible]
APPROVAL [illegible] 10-30-65
APPROVAL [illegible]
NASA APPROVAL A. C. METZGER
MIT APPROVAL W Kupfer 2[illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INDICATOR DIGITAL
AGC DSKY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003936
SCALE 2/1
WT
SHEET 1 OF 1

200393 -

4 3 2 1

F-2

WIRING INFORMATION CHART

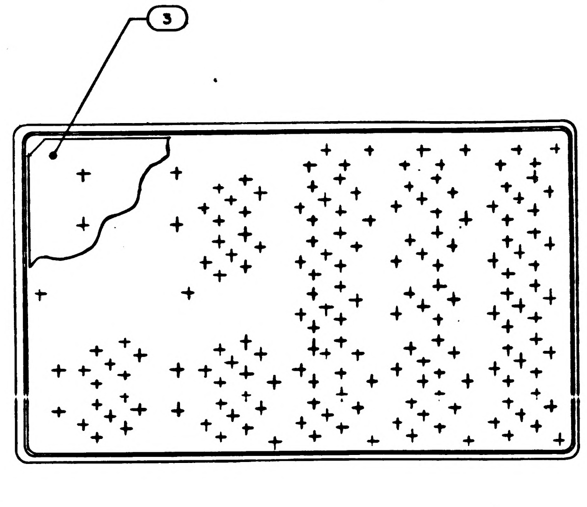
REMARKS	COND IDENT	FROM	DESCRIPTION			TO	REMARKS
			COLOR	AWG	FIND NO.		
	H1	32E	WHITE	28	5	8	
	H2	32H				9	
	H3	32M				10	
	H4	32N				11	
	H5	32J				12	
	H6	32K				13	
	H7	32F				14	
	H8	33E				15	
	H9	33H				16	
	H10	33M				17	
	H11	33N				18	
	H12	33J				19	
	H13	33K				20	
	H14	33F				21	
	H15	34E				22	
	H16	34H				23	
	H17	34M				24	
	H18	34N				25	
	H19	34J				26	
	H20	34K				27	
	H21	34F				28	
	H22	35E				29	
	H23	35H				30	
	H24	35M				31	
	H25	35N				32	
	H26	35J				33	
	H27	35K				34	
	H28	35F				35	
	H29	36A				36	
	H30	36B				37	
	H31	61A	WHITE		5	154	
	H32	9A	BLACK		4	155	
	H33	9D	BLACK		4	156	
	H34	21E	WHITE		5	38	
	H35	21H				39	
	H36	21M				40	
	H37	21N				41	
	H38	21J				42	
	H39	21K				43	
	H40	21F				44	
	H41	22E				45	
	H42	22H				46	
	H43	22M				47	
	H44	22N				48	
	H45	22J				49	
	H46	22K				50	
	H47	22F				51	
	H48	23E				52	
	H49	23H				53	
	H50	23M				54	
	H51	23N				55	
	H52	23J				56	
	H53	23K				57	
	H54	23F				58	
	H55	24E				59	
	H56	24H				60	
	H57	24M				61	
	H58	24N				62	
	H59	24J				63	
	H60	24K				64	
	H61	24F				65	
	H62	25E				66	
	H63	25H				67	
	H64	25M				68	
	H65	25N				69	
	H66	25J				70	
	H67	25K				71	
	H68	25F				72	
	H69	26A				73	
	H70	26B				74	
	H71	8G	WHITE	28	5	157	
SEE NOTE 7	H72	G1	BLUE	30	6	158	
	H73	31F	WHITE	28	5	7	
	H74	31E				1	
	H75	31H				2	
	H76	31M				3	
	H77	31N				4	
	H78	31J				5	
	H79	31K	WHITE	28	5	6	

WIRING INFORMATION CHART

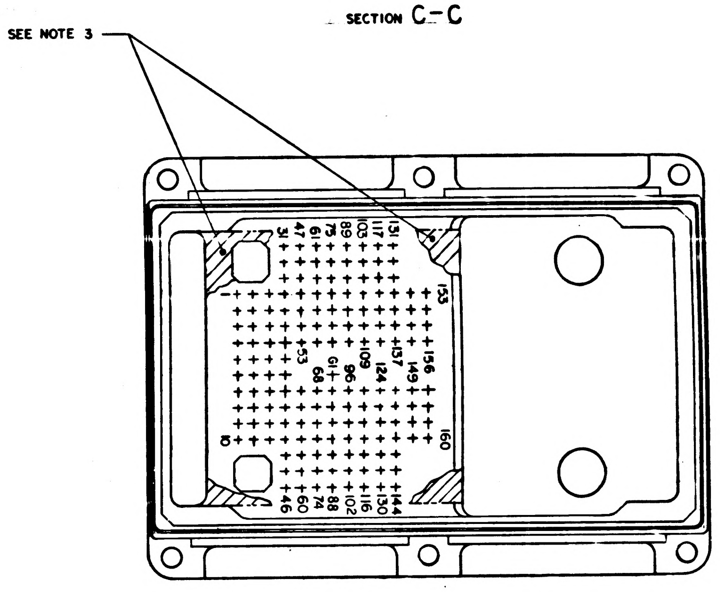
REMARKS	COND IDENT	FROM	DESCRIPTION			TO	REMARKS
			COLOR	AWG	FIND NO.		
	H80	12E	WHITE	28	5	82	
	H81	12H				83	
	H82	12M				84	
	H83	12N				85	
	H84	12J				86	
	H85	12K				87	
	H86	12F				88	
	H87	13E				89	
	H88	13H				90	
	H89	13M				91	
	H90	13N				92	
	H91	13J				93	
	H92	13K				94	
	H93	13F				95	
	H94	14E				96	
	H95	14H				97	
	H96	14M				98	
	H97	14N				99	
	H98	14J				100	
	H99	14K				101	
	H100	14F				102	
	H101	15E				103	
	H102	15H				104	
	H103	15M				105	
	H104	15N				106	
	H105	15J				107	
	H106	15K				108	
	H107	15F				109	
	H108	16A				110	
	H109	16B				111	
	H110	72K				152	
	H111	72F				153	
	H112	41F				118	
	H113	41E				112	
	H114	41H				113	
	H115	41M				114	
	H116	41N				115	
	H117	41J				116	
	H118	41K				117	
	H119	42F				125	
	H120	42E				119	
	H121	42H				120	
	H122	42M				121	
	H123	42N				122	
	H124	42J				123	
	H125	42K				124	
	H126	51F				132	
	H127	51E				126	
	H128	51H				127	
	H129	51M				128	
	H130	51N				129	
	H131	51J				130	
	H132	51K				131	
	H133	52F				159	
	H134	52E				133	
	H135	52H				134	
	H136	52M				135	
	H137	52N				136	
	H138	52J				137	
	H139	52K				138	
	H140	71F				146	
	H141	71E				140	
	H142	71H				141	
	H143	71M				142	
	H144	71N				143	
	H145	71J				144	
	H146	71K				145	
	H147	72J				151	
	H148	72E				147	
	H149	72H				148	
	H150	72M				149	
	H151	72N				150	
	H152	11F				81	
	H153	11E				75	
	H154	11H				76	
	H155	11M				77	
	H156	11N				78	
	H157	11J				79	
	H158	11K			5	80	
	H159	8A			8&9	8B	
	H160	8B				8C	
	H161	8C				8D	
	H162	8D				8E	
	H163	8E				8F	
	H164	8F				8H	
	H165	8H				8K	
	H166	8K				8M	
	H167	8M				8L	
	H168	8L				8J	
	H169	8J	WHITE		8&9	8G	
	H170	9D	BLACK		8&10	9F	
	H171	9F				9H	
	H172	9H				9G	
	H173	9G				9E	
	H174	9E				9C	
	H175	9C				9B	
	H176	9B	BLACK		8&10	9A	
	H177	61B	WHITE		8&9	61A	
	H178	16C	WHITE		8&9	16A	
	H179	26C	WHITE		8&9	26A	
	H180	36C	WHITE		8&9	36A	
	H181	C6	BLACK	28	4	158	

NOTES

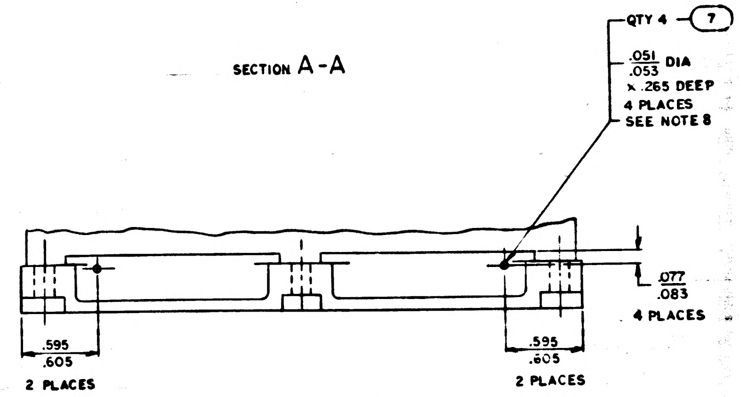
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. PAINT INDICATED SURFACES PER ND1002279 USING MEDIUM GREY PAINT 1008809-1
3. ENCAPSULATE PER ND1002236
4. BOND FIND 2 TO FIND 1 PER ND1002004, TYPE I
5. ENCAPSULATE PER ND1002009 METHOD J
6. SOLDER PER ND1002071 USING SOLDER PER ND1002075, UNLESS OTHERWISE SPECIFIED
7. WELD PER ND1002005
8. TOUCH UP BARE ALUMINUM SURFACES PER ND1002040
9. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF P.S. 2003936.



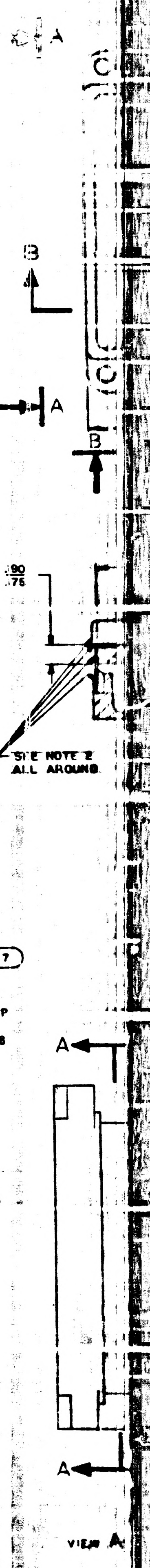
SECTION C–C



SECTION A-A



PARTIAL VIEW B-B



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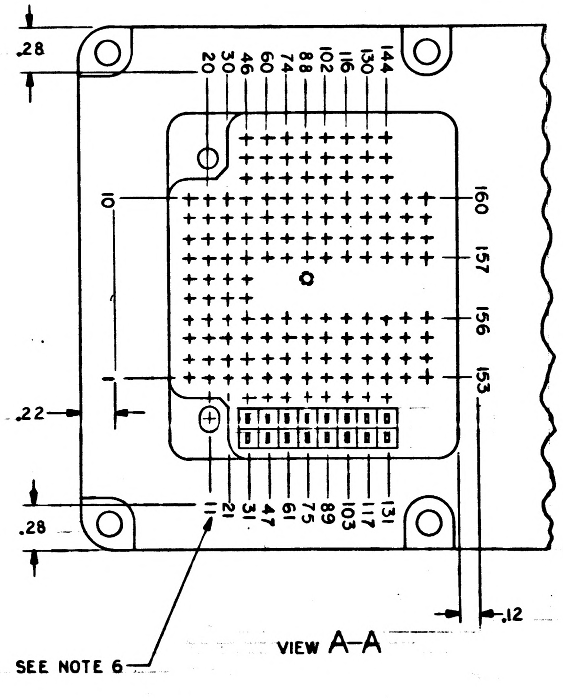
REVISIONS 23636						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED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.22
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20
30
46
60
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88
102
116
130
144
10
1
160
157
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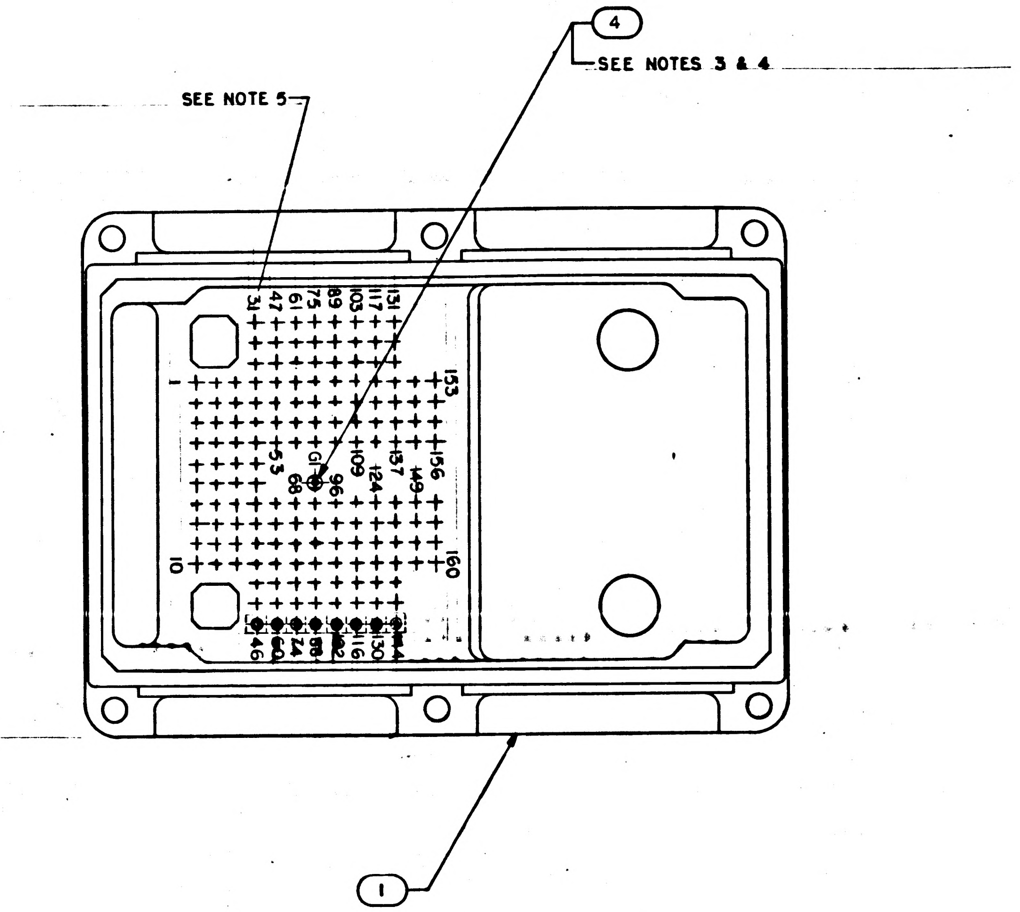
153
11
21
31
47
61
75
89
103
117
131
.12
SEE NOTE 6
VIEW A-A


4
SEE NOTES 3 & 4
SEE NOTE 5
31
47
61
75
89
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117
131
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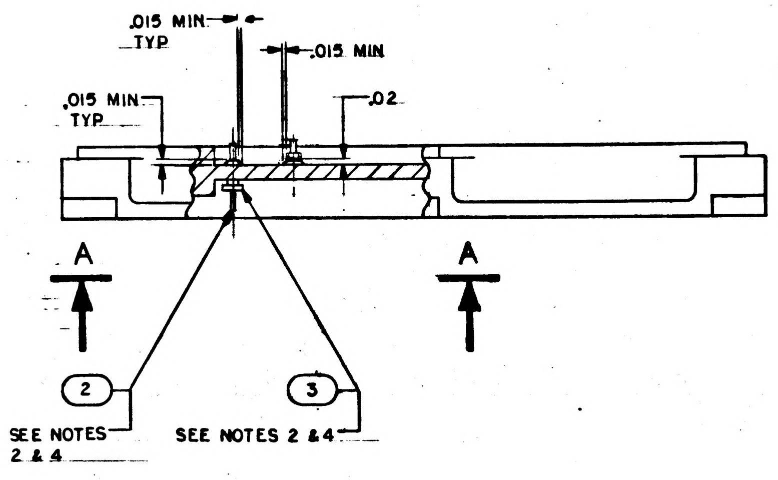
144
1


.015 MIN
TYP
.015 MIN
.015 MIN
TYP
.02
A
A
2
SEE NOTES 2 & 4
3
SEE NOTES 2 & 4

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. INSTALL FIND 2 & 3 TO FIND 1 PER ND1002136
3. MOUNTING TORQUE FOR FIND 4 TO BE 15-20 INCH OUNCES
4. SEAL FIND 2,3 & 4 TO FIND 1 PER ND1002004, TYPE VI
5. MARK .05/.07 HIGH WHITE PER ND 1002019 AND ND1002122, TYPE II, CLASS 2, USING MARKING INK 1006271-1. CENTRALIZE AS SHOWN
6. MARK .05/.07 HIGH BLACK PER ND1002019 AND ND1002122, TYPE II, CLASS 2, USING MARKING INK 1006271-10
7. IDENTIFY WITH PART NO. PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	2004039		TERMINAL, THREADED	4
160	1006775-1		INSULATOR, WRAPOST MALE	3
160	1006782-1		CONTACT, WRAPOST MALE	2
1	2004904		E/L HEADER	1
011	LIST OF MATERIALS			

NEXT ASSY	USED ON
2003936	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.01 ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN A.J. Greene 20 OCT 65
CHECKED R. Edwards 20 Oct
APPROVED 10-28-65
APPROVED 2 March
APPROVED MIT W Kupfer
A. C. METZGER
APPROVED MSC
DATE

E/L HEADER SUBASSEMBLY
AGC DSKY

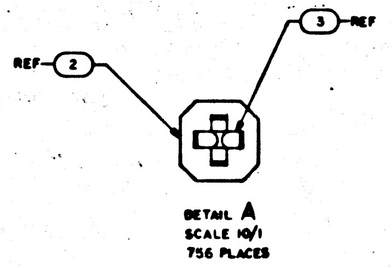
CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2003939
SCALE 2/1
SHEET 1 OF 1

2003939

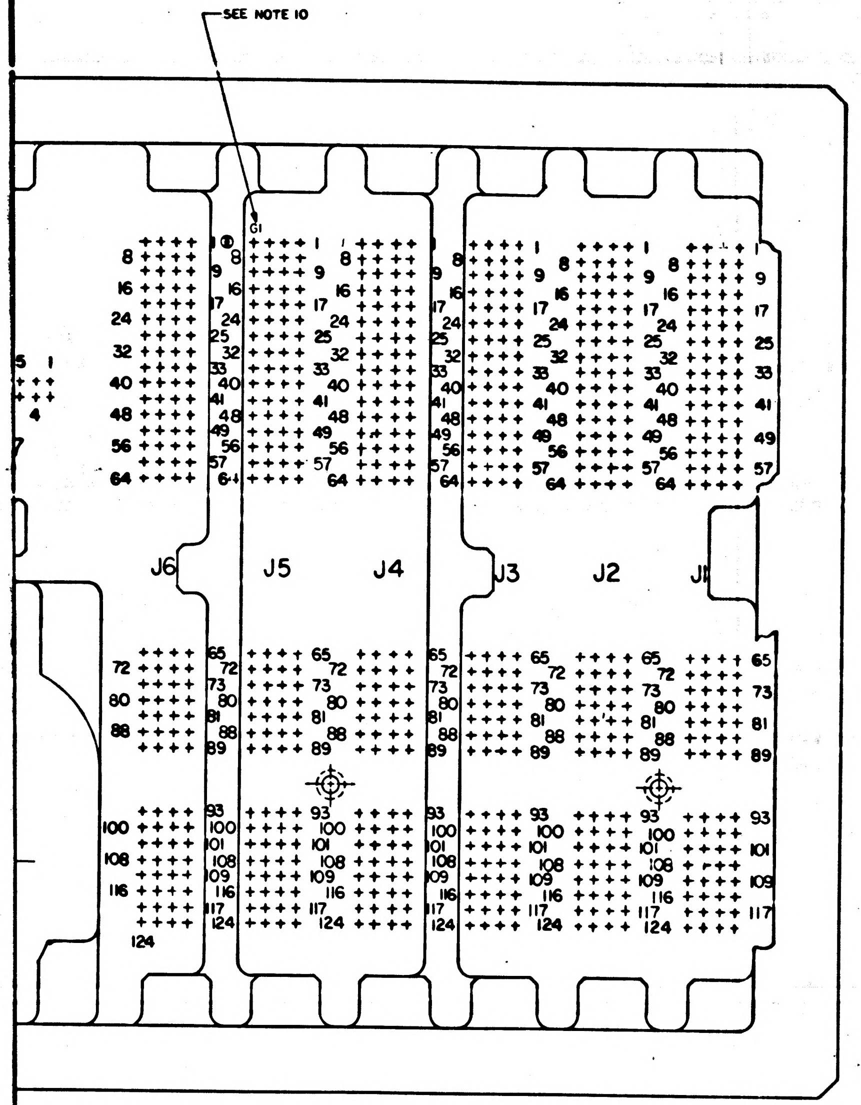
REVISIONS 26203						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 27552				

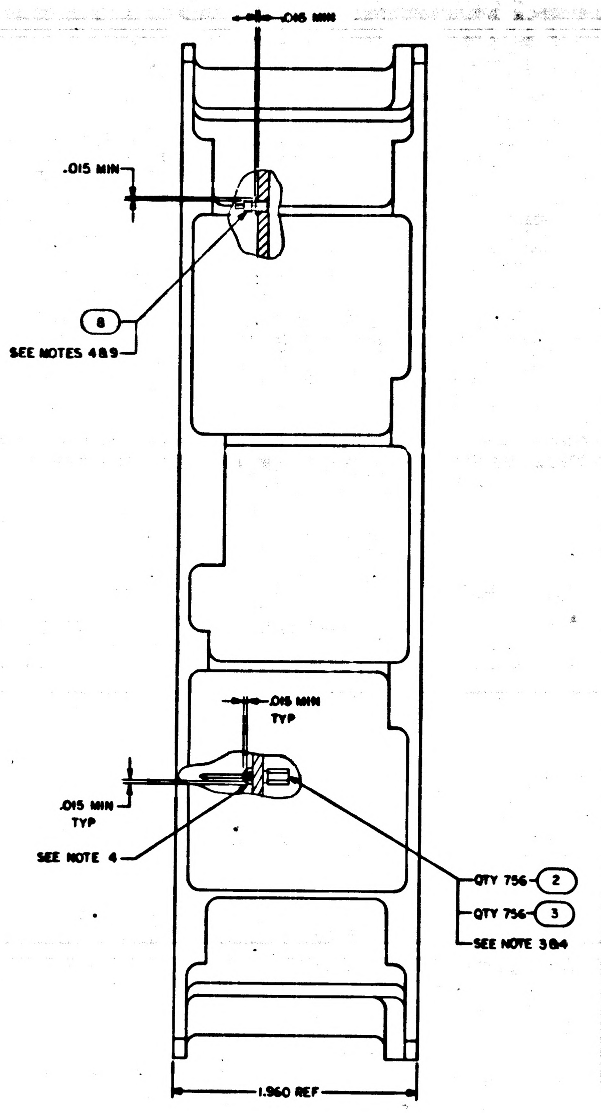
COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
G1	SEE NOTE 8	* J1-3	6	WHT	26	AR	J2-3	SEE NOTE 8
G2		* J3-3					J3-9	
G3		* J5-10					J6-9	
G4		* J2-10					J3-10	
G5		* J3-64					J5-9	
G6		* J2-68					J3-68	
G7		* J4-68					J5-68	
G8		* J6-68					J7-1	
G9		J1-68					J2-68	
G10		J3-68					J4-68	
G11		J5-68					J6-68	
G12		J7-1	6	WHT	26	AR	G1	SEE NOTE 13

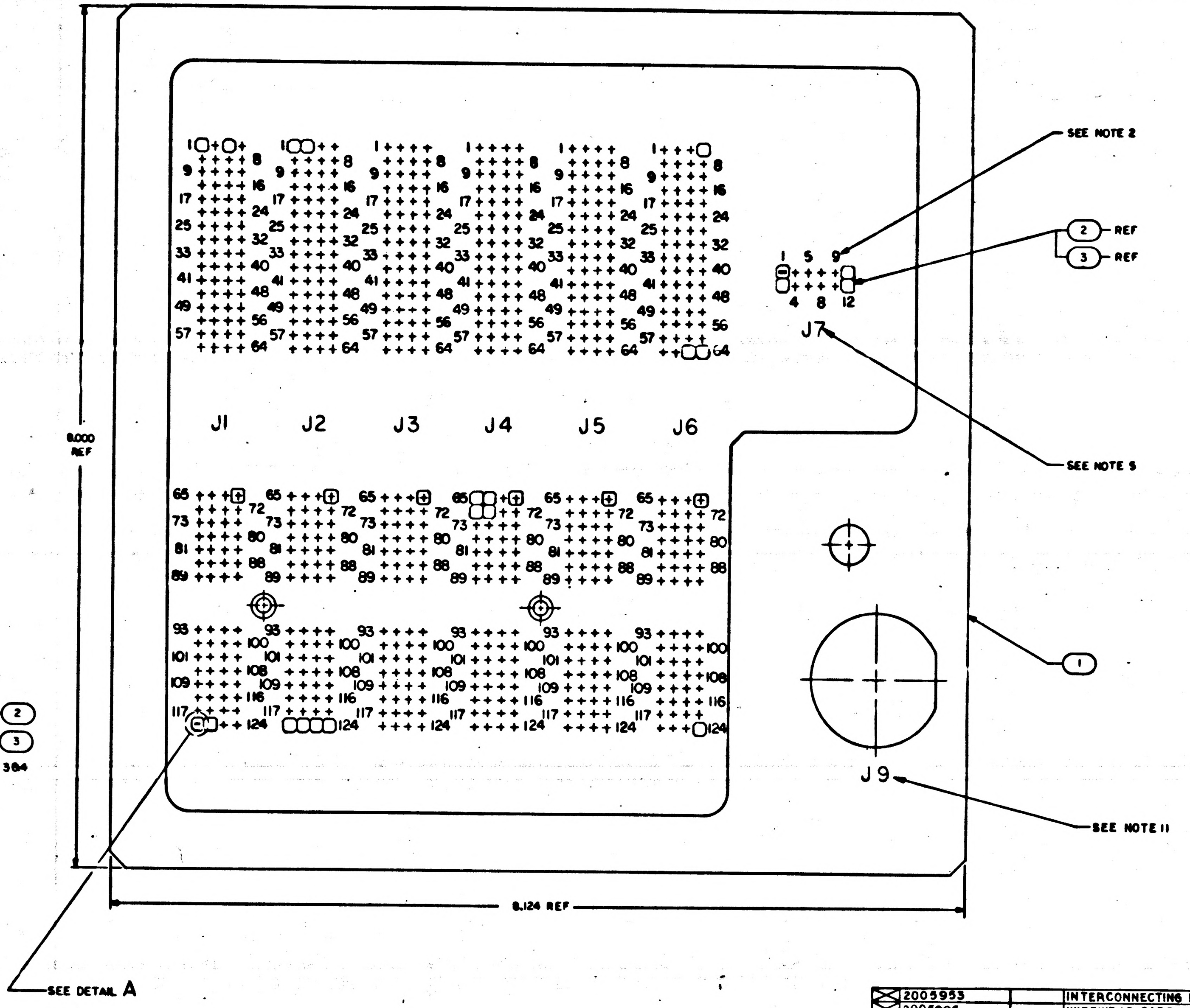
* DENOTES WIREWRAP MUST BE FIRST LEVEL



DETAIL A
SCALE 10/1
756 PLACES


SEE NOTE 10
G1
J6
J5
J4
J3
J2
J1


.015 MIN
.015 MIN
SEE NOTES 4 & 9
8
.015 MIN TYP
.015 MIN TYP
SEE NOTE 4
QTY 756 2
QTY 756 3
SEE NOTE 3 & 4
1.960 REF


SEE NOTE 2
2 REF
3 REF
J7
SEE NOTE 5
J1
J2
J3
J4
J5
J6
8.000 REF
1
J9
SEE NOTE 11
8.124 REF
SEE DETAIL A

BY MIL-
002122
002122
AP CAR
ULATED
87 TO
ND100
ND1002
D PER ND1002031

☒ 2005953			INTERCONNECTING DIAGRAM	REF
☒ 2005906			WIREWRAP CARD DECK	REF
1	2004039		TERMINAL, THREADED	9
~~7~~	~~1008818~~		~~SLEEVE, GROUNDING~~	~~7~~
AR	1010807-22		WIRE, ELEC	6
~~7~~	~~1008810-003~~		~~CONTACT, WRAPOST-FEMALE, GRD~~	~~5~~
~~AR~~	~~1006376-003~~		~~WIRE, ELEC~~	4
756	1006781-4		CONTACT, WRAPOST-FEMALE	3
756	1006774		INSULATOR, WRAPOST-FEMALE	2
1	2004705		PLATE, IDM	1
QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO
011	LIST OF MATERIALS			

2003955	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON:
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN A.J. G
CHECKED
APPROVED
APPROVED Eldon C. Hall
APPROVED MIT
APPROVED MSC
DATE

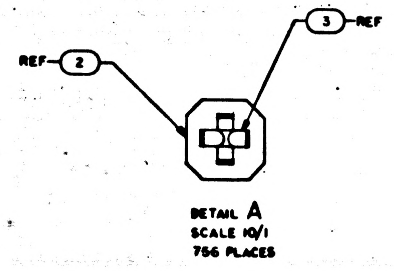
WIREWRAP IDM PLATE ASSY
MAIN HOUSING
AGC DSKY

CODE IDENT NO. 80230 SIZE J DRAWING NO. 2003947
SCALE 2/1 SHEET 1 OF 1

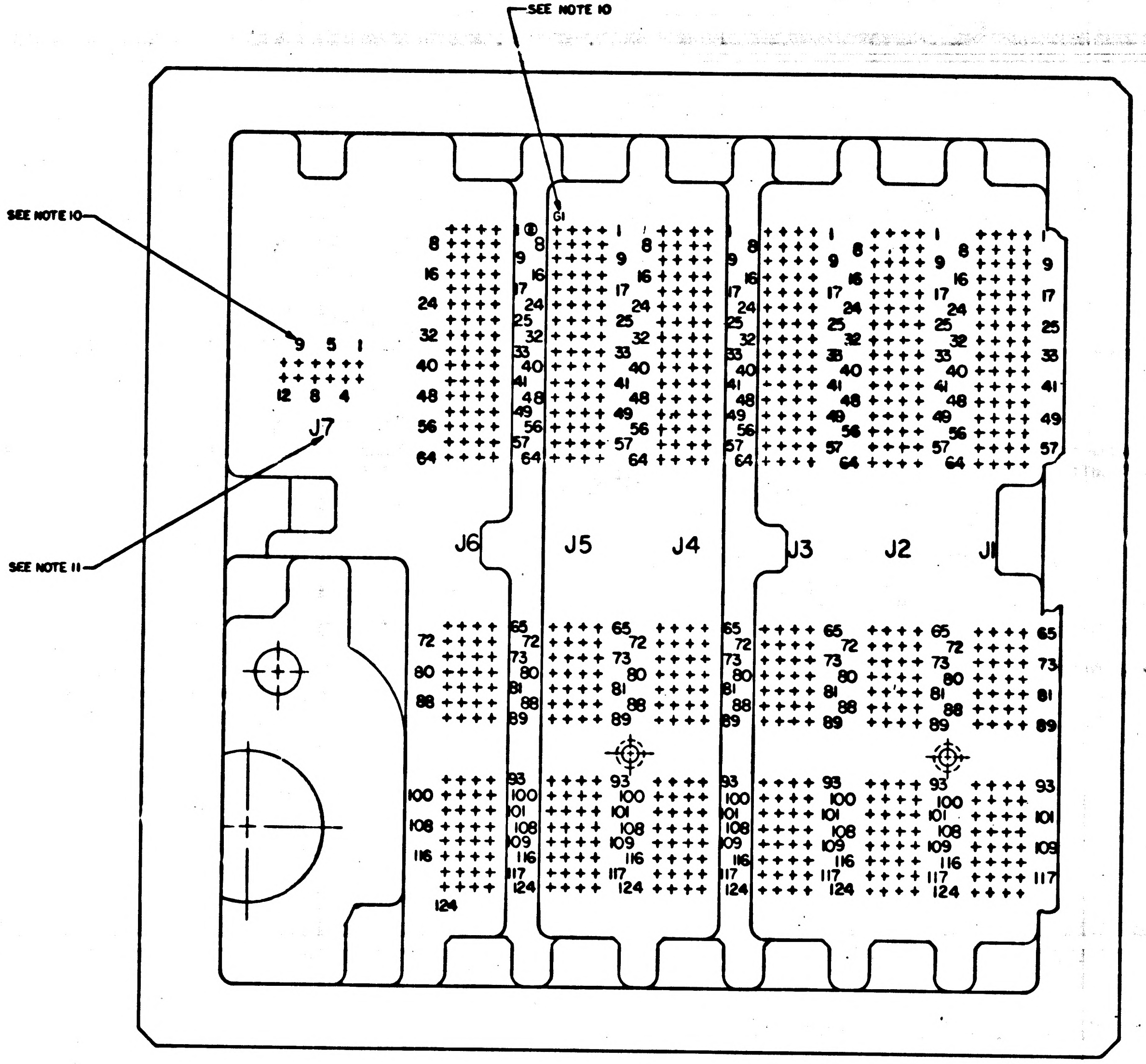
F 2 / 2

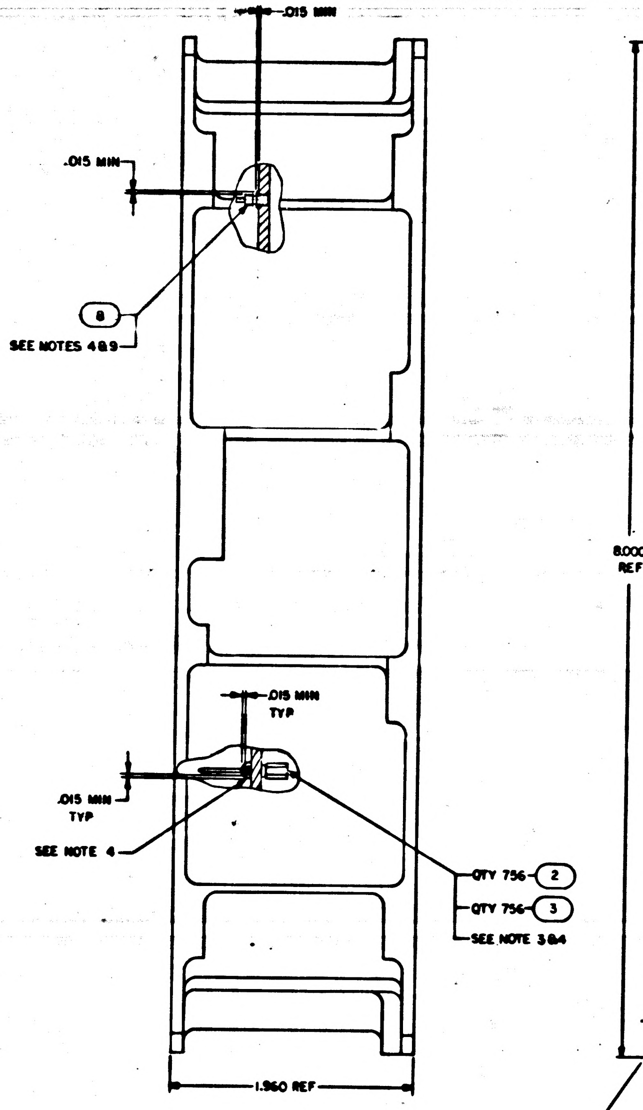
COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
G1	SEE NOTE 8	* J1-3	6	WHT	26	AR	J2-3	SEE NOTE 8
G2		* J3-3					J3-9	
G3		* J5-10					J6-9	
G4		* J2-10					J3-10	
G5		* J3-64					J5-9	
G6		* J2-68					J3-68	
G7		* J4-68					J5-68	
G8		* J6-68					J7-1	
G9		J1-68					J2-68	
G10		J3-68					J4-68	
G11		J5-68					J6-68	
G12		J7-1	6	WHT	26	AR	G1	SEE NOTE 13

* DENOTES WIREWRAP MUST BE FIRST LEVEL



DETAIL A
SCALE 10/1
756 PLACES


SEE NOTE 10
SEE NOTE 10
SEE NOTE 11
J7
J6
J5
J4
J3
J2
J1
G1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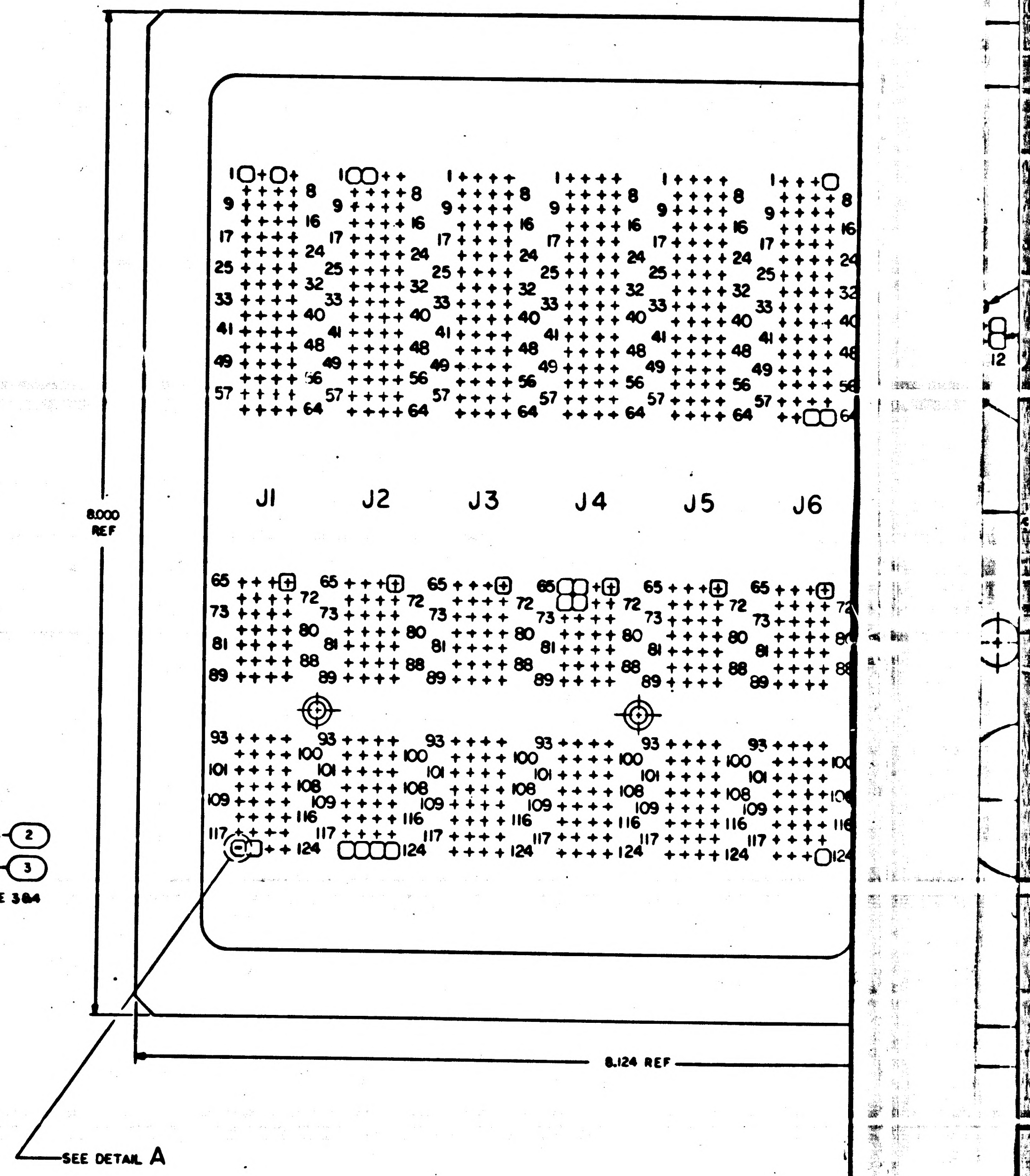
8
SEE NOTES 4&9
.015 MIN TYP
.015 MIN TYP
SEE NOTE 4
QTY 756 2
QTY 756 3
SEE NOTE 3&4
1.960 REF


8.000 REF
J1
J2
J3
J4
J5
J6
8.124 REF
SEE DETAIL A

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK .050/.070 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II. CLASS 2, USING INK 1006271-11 CENTRALIZE AS SHOWN
3. ASSEMBLE FIND NO.2 AND 3 TO FIND NO.1 PER ND1002136
4. SEAL FIND NO.2, 3 AND 8 TO FIND NO. 1 PER ND1002004, TYPE VI
5. MARK .110/.130 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2, USING INK 1006271-11. CENTRALIZE AS SHOWN
6. IDENTIFY WITH PART NO. PER ND1002019
7. AR DENOTES AS REQUIRED
8. WIREWRAP FIND NO.4 AND FIND NO.6 USING CHART AND WIREWRAP CARD DECK 2005906 AND PER ND1002031 EXCEPT FIND NO. 6 TO HAVE 5 MIN TO 6 MAX TURNS OF UNINSULATED WIRE, 1/2 TO 1 1/2 TURNS OF INSULATED WIRE, STRIP LENGTH OF 1.187 TO 1.000, STRIP FORCE OF 5 LB MIN.
9. MOUNTING TORQUE FOR FIND NO.8 TO BE 15-20 IN.OUNCES
10. MARK .050/.080 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II CLASS 2, USING INK 1006271-1 CENTRALIZE AS SHOWN
11. MARK .110/.130 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II CLASS 2, USING INK 1006271-1 CENTRALIZE AS SHOWN
~~12. COLOR OF FIND NO. 4 TO BE OPTIONAL~~
3. WELD PER ND1002005

2003955	
NEXT ASSY	USED ON
APPLICATION	

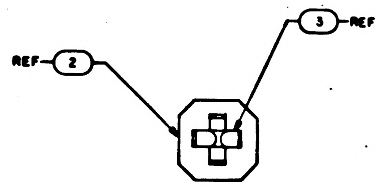
2003947 A

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
G1	SEE NOTE 8	✱ J1-3	6	WHT	26	AR	J2-3	SEE NOTE 8
G2		✱ J3-3					J3-9	
G3		✱ J5-10					J6-9	
G4		✱ J2-10					J3-10	
G5		✱ J3-64					J5-9	
G6		✱ J2-68					J3-68	
G7		✱ J4-68					J5-68	
G8		✱ J6-68					J7-1	
G9		J1-68					J2-68	
G10		J3-68					J4-68	
G11		J5-68					J6-68	
G12		J7-1	6	WHT	26	AR	G1	SEE NOTE 13

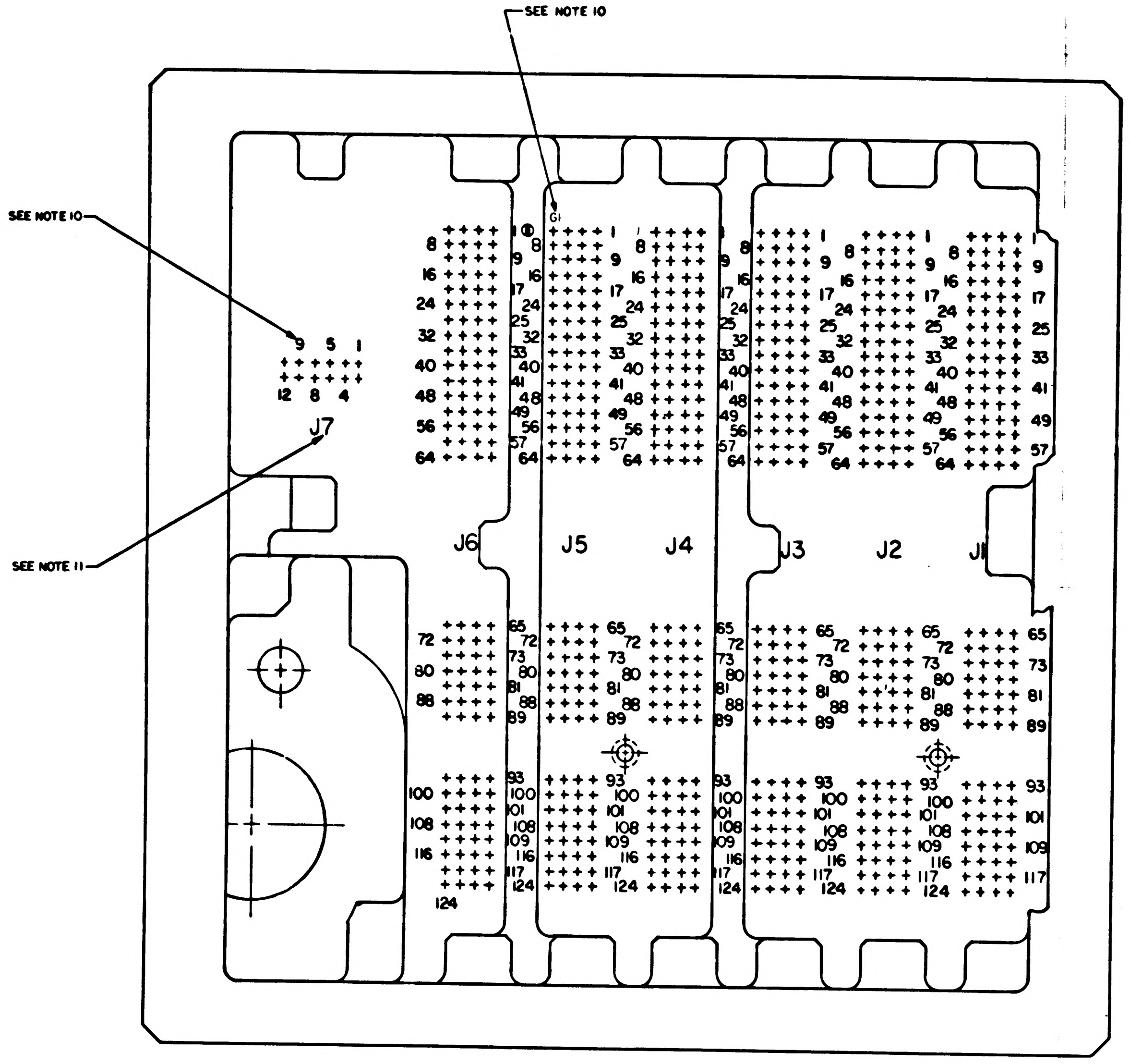
✱ DENOTES WIREWRAP MUST BE FIRST LEVEL

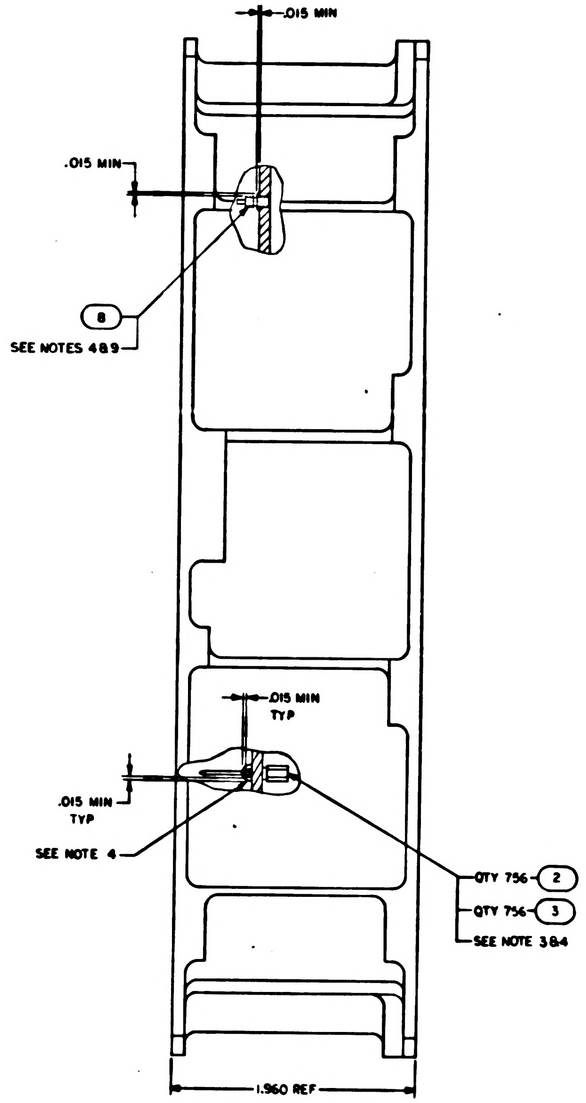
CHART A

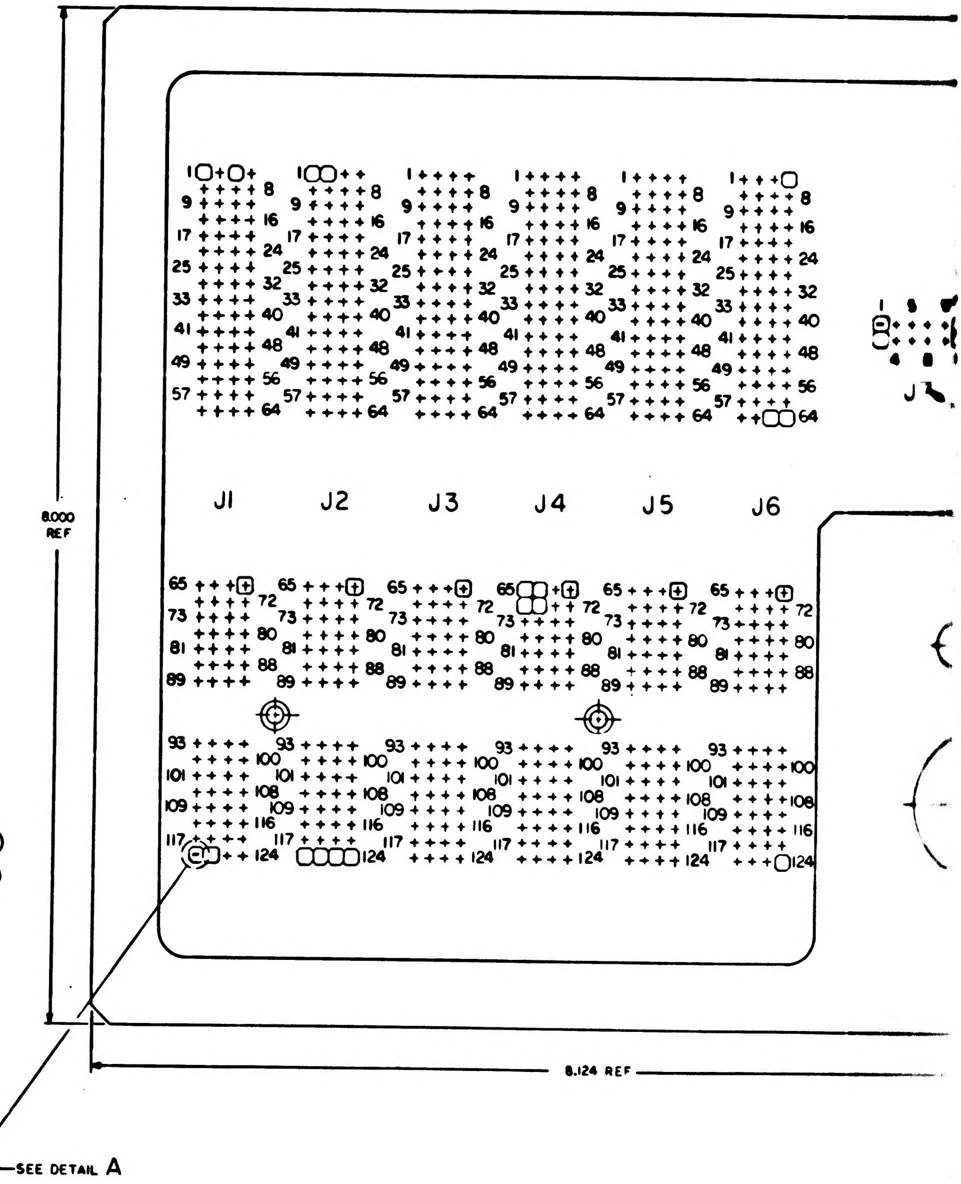
DELETE THE FOLLOWING WIRES					ADD THE FOLLOWING WIRES											
MOD PIN FROM	MOD PIN TO	SIGNAL	Z LEVEL	CARD NO.	SIGNAL	A TOOL X	A TOOL Y	MOD PIN FROM	B TOOL X	B TOOL Y	MOD PIN A TO	A DRESS X	A DRESS Y	B DRESS X	B DRESS Y	Z LEVEL
J3-048	J6A-065	YD-124	1	100009	YD 124	440	410	J3-048	530	[illegible]	J6A-065	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
J4-015	J6A-070	DS115E	1	100101	DS115E	470	370	J4-015	535	490	J6A-070	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
J3-004	J3A-087	WW135	1	100112	WW135	440	355	J3-004	435	[illegible]	J3A-087	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
J5-004	J5A-087	WW133	1	100120	WW133	505	510	J5A-087	510	355	J5-004	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
J5-007	J5B-095	WW131	1	100122	WW131	505	535	J5B-095	505	360	J5-007	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
J3-007	J3B-095	WW132	1	100129	WW132	435	360	J3-007	435	535	J3B-095	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
J6-061	J4A-072	YD 104	2	200102	YD 104	475	490	J4A-072	530	430	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
J1-047	J1A-069	XD 104	1	100110	XD 104	365	410	J1-047	355	490	J1A-069	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]



DETAIL A
SCALE 10/1
756 PLACES







NOTES

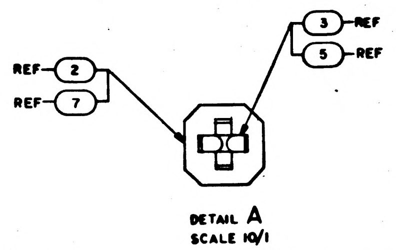
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK .050/.070 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II. CLASS 2, USING INK 1006271-11 CENTRALIZE AS SHOWN
3. ASSEMBLE FIND NO.2 AND 3 TO FIND NO.1 PER ND1002136
4. SEAL FIND NO.2, 3 AND 8 TO FIND NO.1 PER ND1002004, TYPE VI
5. MARK .110/.130 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2, USING INK 1006271-11. CENTRALIZE AS SHOWN
6. IDENTIFY WITH PART NO. PER ND1002019
7. AR DENOTES AS REQUIRED
8. WIREWRAP FIND NO.4 AND FIND NO.6 USING JUMPER CHART, CHART A AND WIREWRAP CARD DECK 2005906 AND PER ND1002031 EXCEPT FIND NO.6 TO HAVE 5 MIN TO 6 MAX TURNS OF UNINSULATED WIRE, 1/2 TO 1 1/2 TURNS OF INSULATED WIRE, STRIP LENGTH OF 1.187 TO 1.000, STRIP FORCE OF 5 LB MIN.
9. MOUNTING TORQUE FOR FIND NO.8 TO BE 15-20 IN.OUNCES
10. MARK .050/.080 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II CLASS 2, USING INK 1006271-1 CENTRALIZE AS SHOWN
11. MARK .110/.130 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II CLASS 2, USING INK 1006271-1 CENTRALIZE AS SHOWN
~~12. COLOR OF FIND NO. 4 TO BE OPTIONAL~~
13. WELD PER ND1002005

2003955	
NEXT ASSY	USED ON

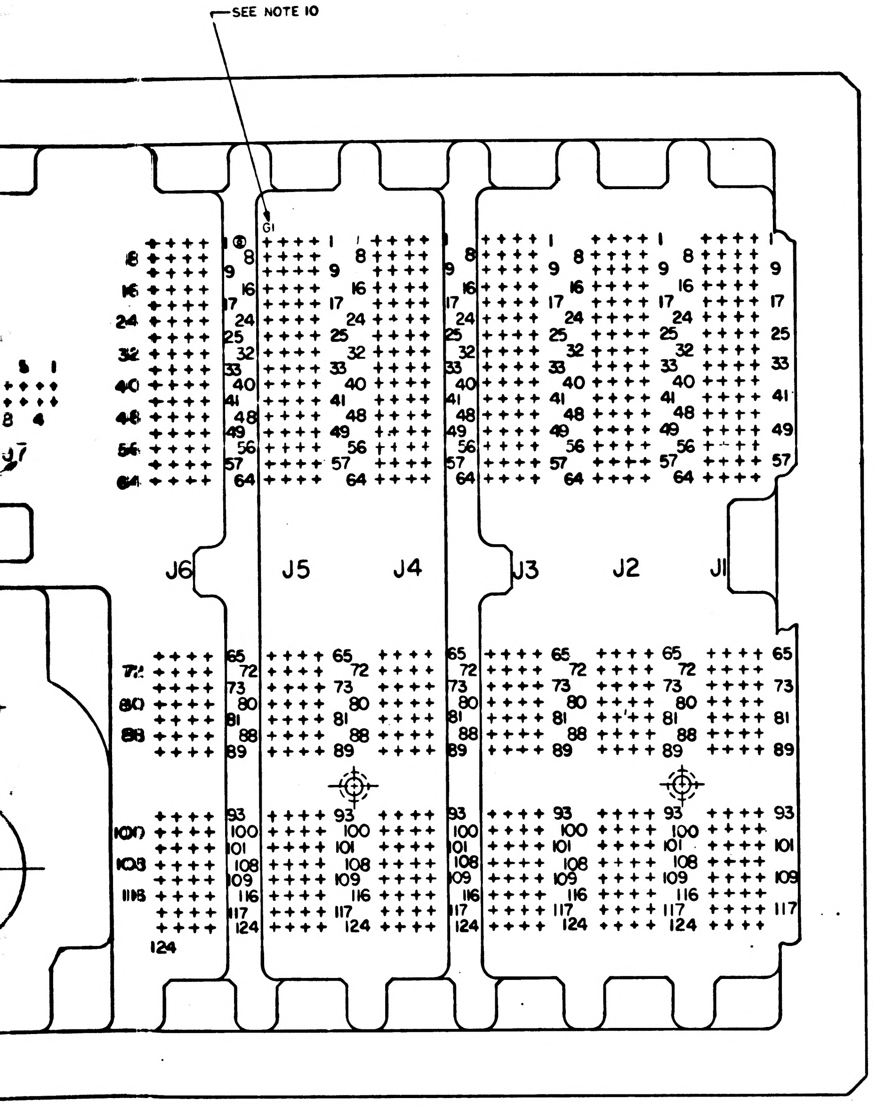
F 1/2

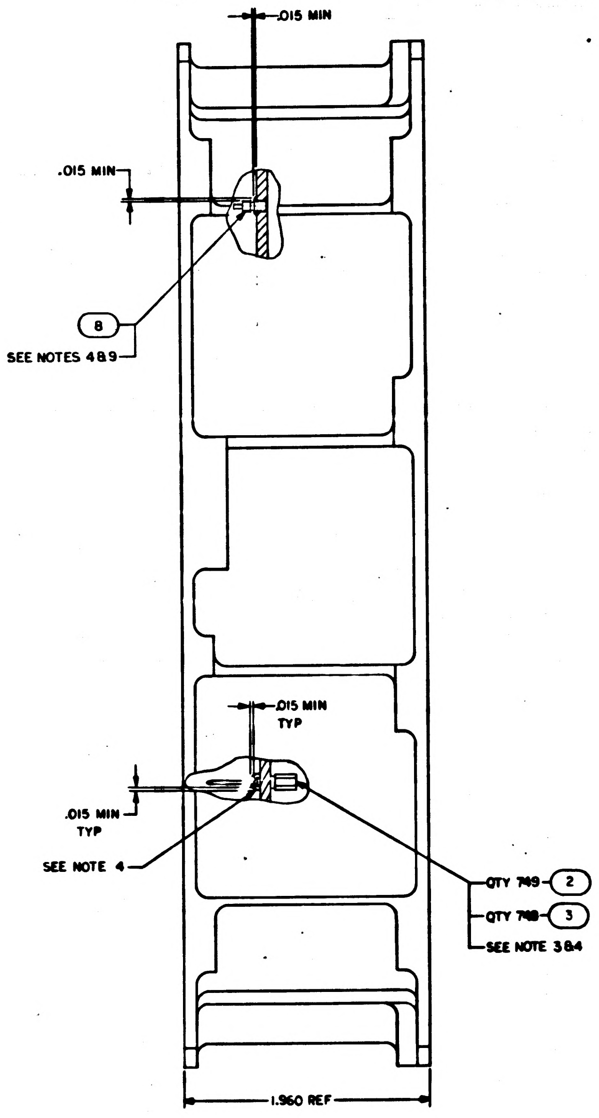
COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
61		* J1-3	6	WHT	26	AR	J2-3	
62		* J3-3	↕	↕	↕	↕	J3-9	
63		* J5-10	↕	↕	↕	↕	J6-9	
64		* J2-10	↕	↕	↕	↕	J3-10	
65		* J3-64	6	WHT	26	AR	J5-9	

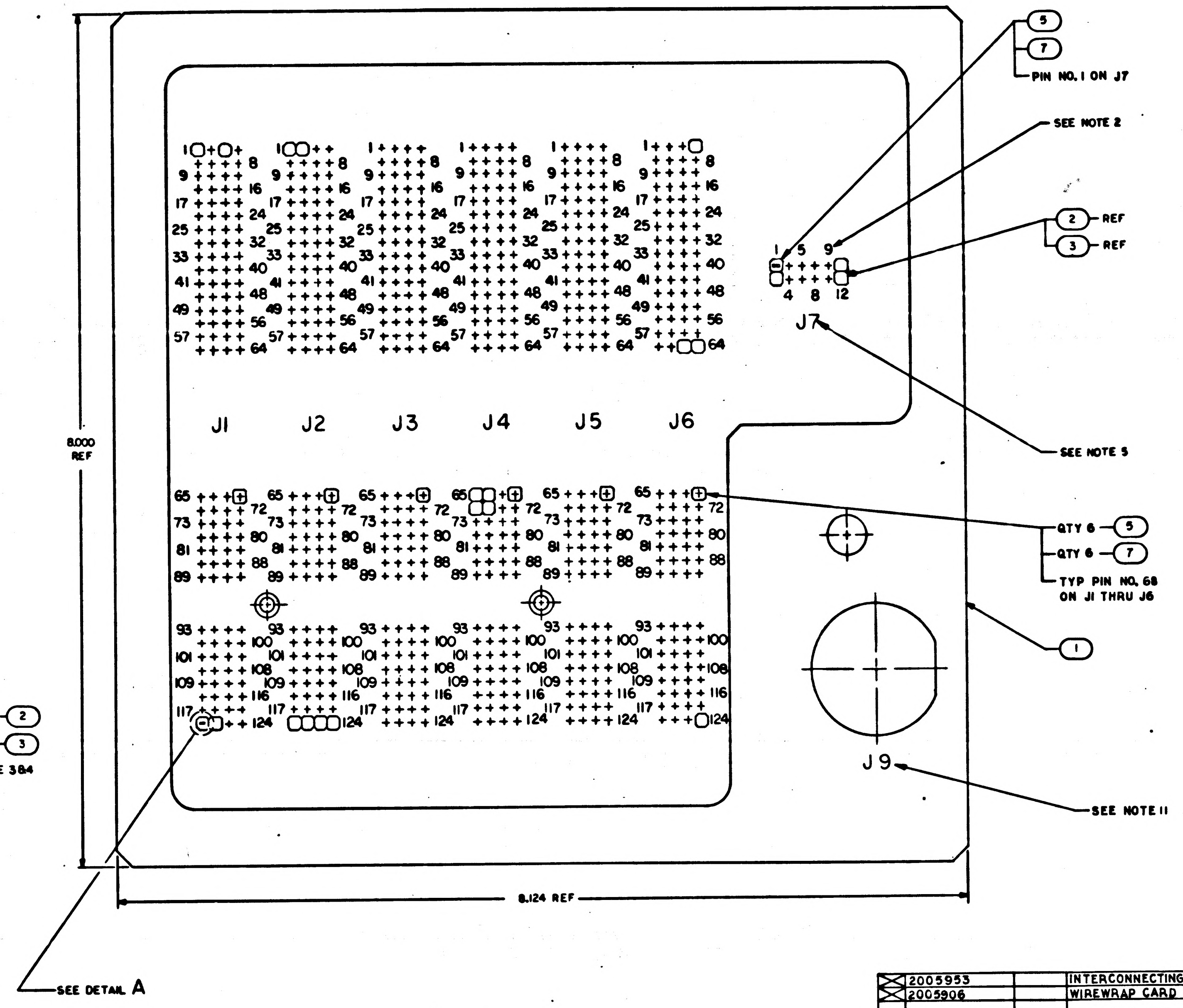
* DENOTES WIREWRAP MUST BE FIRST LEVEL


REF 2
REF 7
3 REF
5 REF

DETAIL A
SCALE 10/1
756 PLACES


SEE NOTE 10
G1
J6
J5
J4
J3
J2
J1


.015 MIN
.015 MIN
8
SEE NOTES 4 & 9
.015 MIN TYP
.015 MIN TYP
SEE NOTE 4
QTY 749 2
QTY 748 3
SEE NOTE 3 & 4
1.960 REF


5
7
PIN NO. 1 ON J7
SEE NOTE 2
2 REF
3 REF
J7
SEE NOTE 5
J1
J2
J3
J4
J5
J6
QTY 6 5
QTY 6 7
TYP PIN NO. 68 ON J1 THRU J6
1
J9
SEE NOTE 11
8.000 REF
8.124 REF
SEE DETAIL A

...ITH AND PER ND1002031

☒	2005953		INTERCONNECTING DIAGRAM	REF
☒	2005906		WIREWRAP CARD DECK	REF
1	2004039		TERMINAL, THREADED	8
7	1008819		SLEEVE, GROUNDING	7
AR	1010807-22		WIRE, ELEC	6
7	1008818 005		CONTACT, WRAPOST-FEMALE, GRD	5
AR	1006732	SEE NOTE 6	WIRE, ELEC	4
749	1006781-4		CONTACT, WRAPOST-FEMALE	3
749	1006774		INSULATOR, WRAPOST-FEMALE	2
1	2004705		PLATE, IDM	1
QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO
011	LIST OF MATERIALS			

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

2003947 —

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

NEXT ASSY	USED ON
2003955	
APPLICATION	

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN A.J. S...
CHECKED J.C. ...
APPROVED
APPROVED Ellen C. ...
APPROVED MIT
APPROVED MSC

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIREWRAP IDM PLATE ASSY
MAIN HOUSING
AGC DSKY

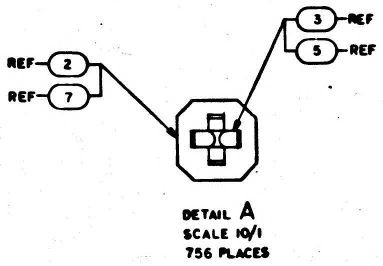
CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003947
SCALE 2/1
SHEET 1 OF 1

MASTER

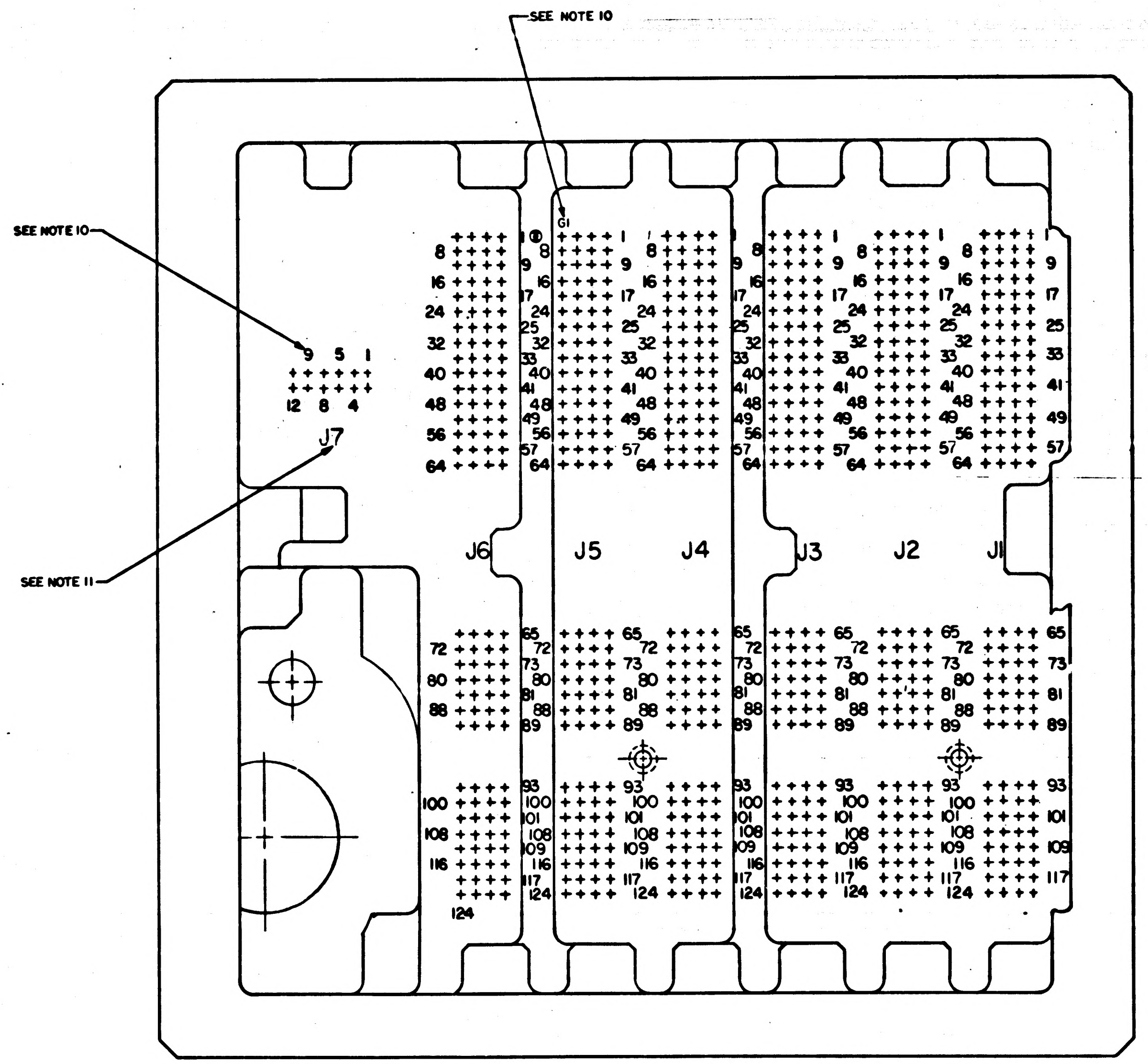
2003947 —

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
61		* J1-3	6	WHT	26	AR	J2-3	
62		* J3-3					J3-9	
63		* J5-10					J6-9	
64		* J2-10					J3-10	
65		* J3-64	6	WHT	26	AR	J5-9	

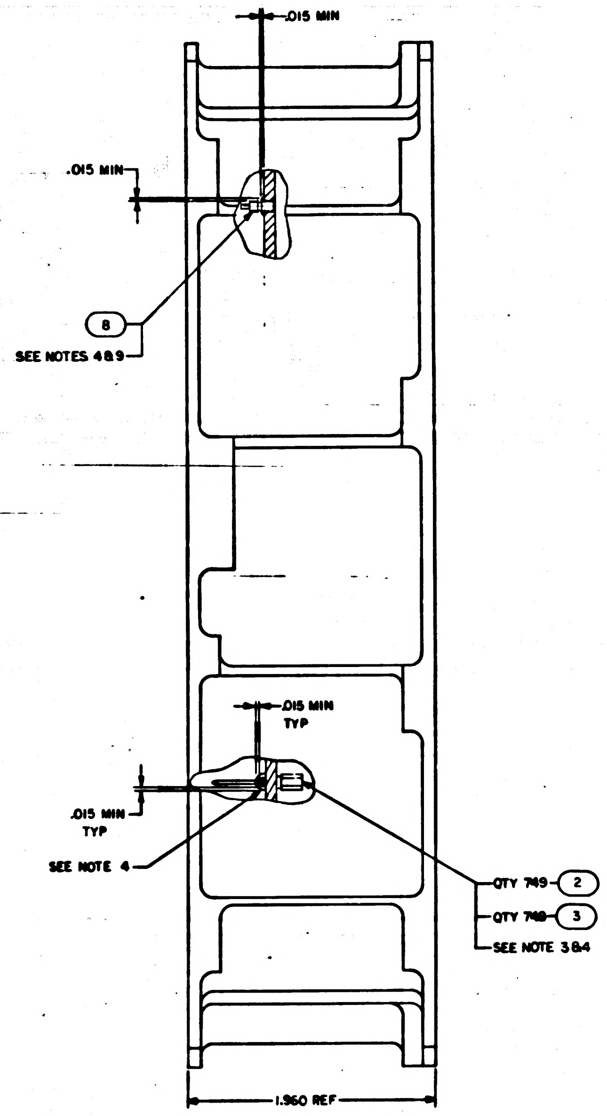
* DENOTES WIREWRAP MUST BE FIRST LEVEL



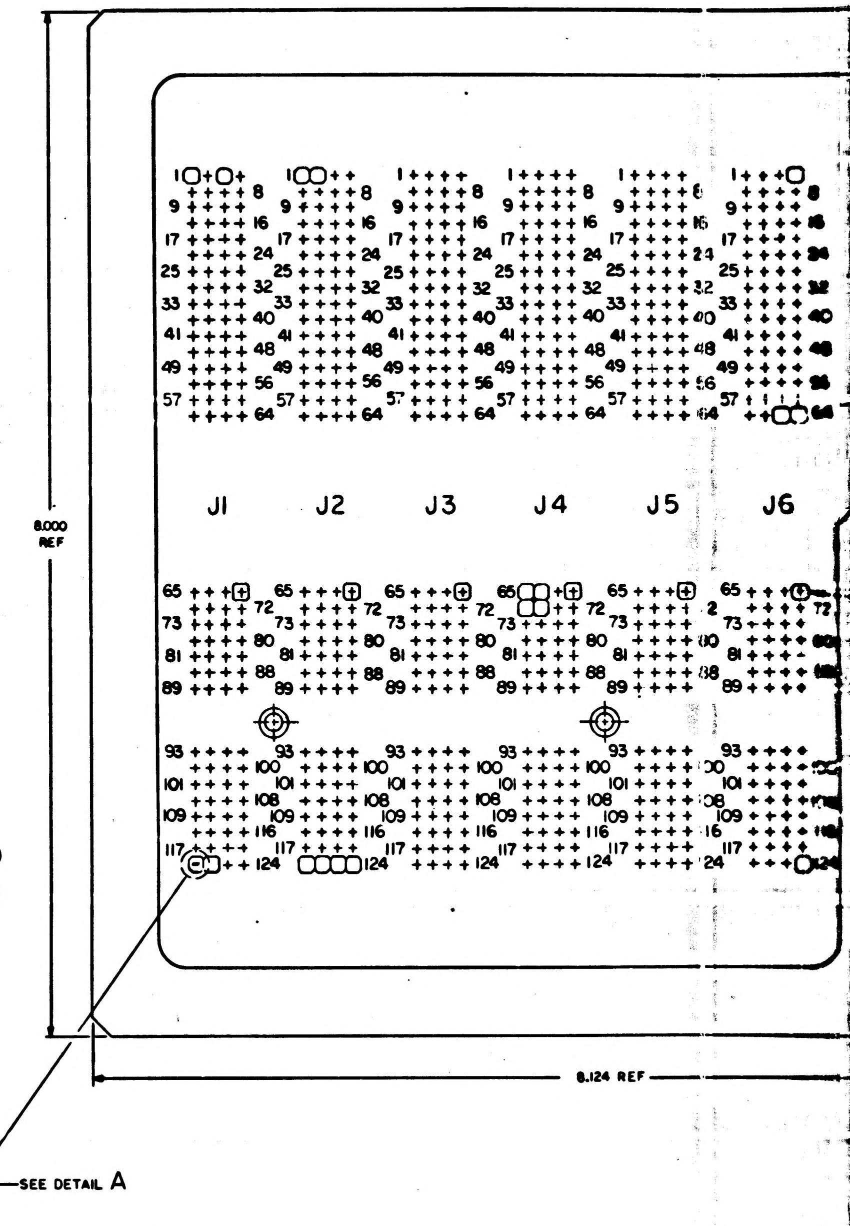
REF 2
REF 7
3 REF
5 REF
DETAIL A
SCALE 10/1
756 PLACES



SEE NOTE 10
SEE NOTE 10
G1
9 5 1
12 8 4
J7
SEE NOTE 11
J6
J5
J4
J3
J2
J1



.015 MIN
.015 MIN
8
SEE NOTES 4&9
.015 MIN TYP
.015 MIN TYP
SEE NOTE 4
QTY 749 2
QTY 748 3
SEE NOTE 3&4
1.960 REF



8.000 REF
J1
J2
J3
J4
J5
J6
8.124 REF
SEE DETAIL A

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK .050/.070 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II. CLASS 2, USING INK 1006271-11 CENTRALIZE AS SHOWN
3. ASSEMBLE FIND NO.2, 3, 5 & 7 TO FIND NO. 1 PER ND1002136
4. SEAL FIND NO.2, 3, 5, 7 & 8 TO FIND NO. 1 PER ND1002004, TYPE VI
5. MARK .110/130 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2, USING INK 1006271-11. CENTRALIZE AS SHOWN
6. IDENTIFY WITH PART NO. PER ND1002019
7. AR DENOTES AS REQUIRED
8. WIREWRAP FIND NO.4 AND FIND NO.6 USING CHART AND WIREWRAP CARD DECK 2005906 AND PER ND1002031 EXCEPT FIND NO. 6 TO HAVE 5 MIN TO 6 MAX TURNS OF UNINSULATED WIRE, 1/2 TO 1 1/2 TURNS OF INSULATED WIRE, STRIP LENGTH OF 1.187 TO 1.000, STRIP FORCE OF 5 LB MIN.
9. MOUNTING TORQUE FOR FIND NO.8 TO BE 15-20 IN.OUNCES
10. MARK .050/.080 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II CLASS 2, USING INK 1006271-1 CENTRALIZE AS SHOWN
11. MARK .110/.130 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II CLASS 2, USING INK 1006271-1 CENTRALIZE AS SHOWN
12. COLOR OF FIND NO. 4 TO BE OPTIONAL

MASTER

2003955

2003947

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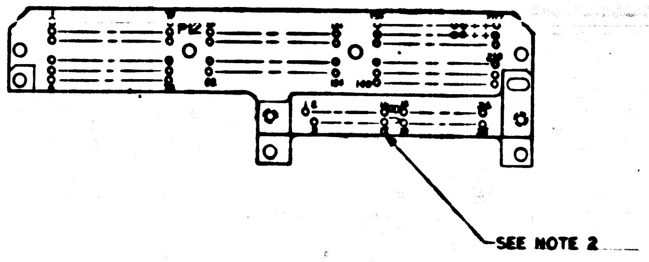
2003948 A

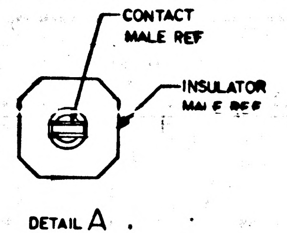
REVISIONS 26205						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 27552	D.M.		4/21/66	

JUMPER LIST

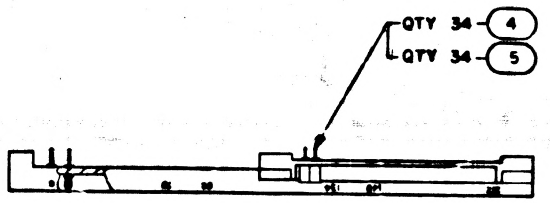
COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
F1	SEE NOTE 6	J8-4	6	BLUE	30	AR	P12-188	SEE NOTE 8
F2		-7					-198	
F3		-12					-199	
F4		-23					-180	
F5		-28					-206	
F6		-29					-200	
F7		-31					-205	
F8		-32					-212	
F9		-33					-211	
F10		J8-1	6	BLUE	30	AR	P12-184	*

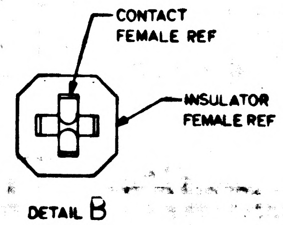
* DENOTES MUST BE LOWER LEVEL



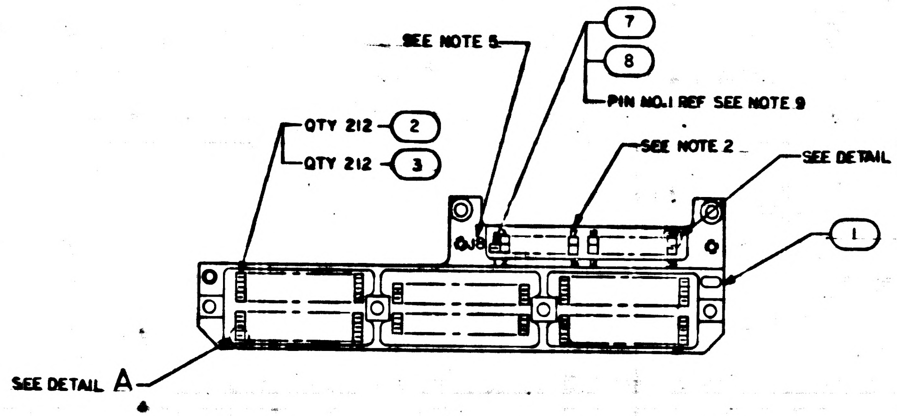


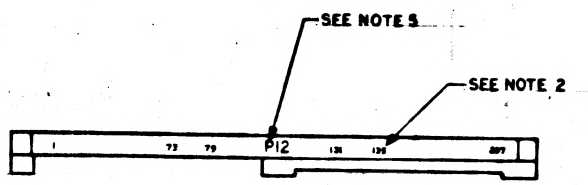
DETAIL A
SCALE 10/1
212 PLACES





DETAIL B
SCALE 10/1
35 PLACES





NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDANDS PRESCRIBED BY MIL-D-70327
2. MARK APPROX.WHERE SHOWN .07/.05 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-11
3. IDENTIFY WITH PART NO. PER ND1002019
4. ASSEMBLE FIND NO.2 THRU 5,7&8 TO FIND NO.1 PER ND1002136
5. MARK APPROX WHERE SHOWN .13/.11 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-11
6. WIREWRAP USING JUMPER LIST PER ND1002031
7. AR DENOTES
8. WELD PER ND1002005
9. INSTALL FIND NO.7& 8 IN PIN POSITION NO.1 IN J8

~~10 COLOR OF FIND NO. 6 TO BE OPTIONAL~~

~~SEE NOTE 10~~

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1008819		SLEEVE, GROUNDING	8
1	1008818-004		CONTACT, WRAPOST FEMALE GRD	7
AR	1006376-003		WIRE, ELECTRICAL	6
34	1006774		INSULATOR, WRAPOST FEMALE	5
34	1006781-1		CONTACT, WRAPOST FEMALE	4
212	1006775		INSULATOR, WRAPOST MALE	3
212	1006782-3		CONTACT, WRAPOST MALE	2
1	2004922-011		PLATE, CONNECTOR	1
011	LIST OF MATERIALS			

NEXT ASSY	USED ON
2003949	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	J.P. Reenarel	7DEC65
CHECKED		3FEB66
APPROVED		3FEB66
APPROVED		11FEB66
APPROVED MIT	A. G. METZGER	
APPROVED MSC		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CONNECTOR PLATE ASSY
FRONT HOUSING
AGC DSKY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2003948

SCALE 1/1 SHEET 1 OF 1

NOTICE WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

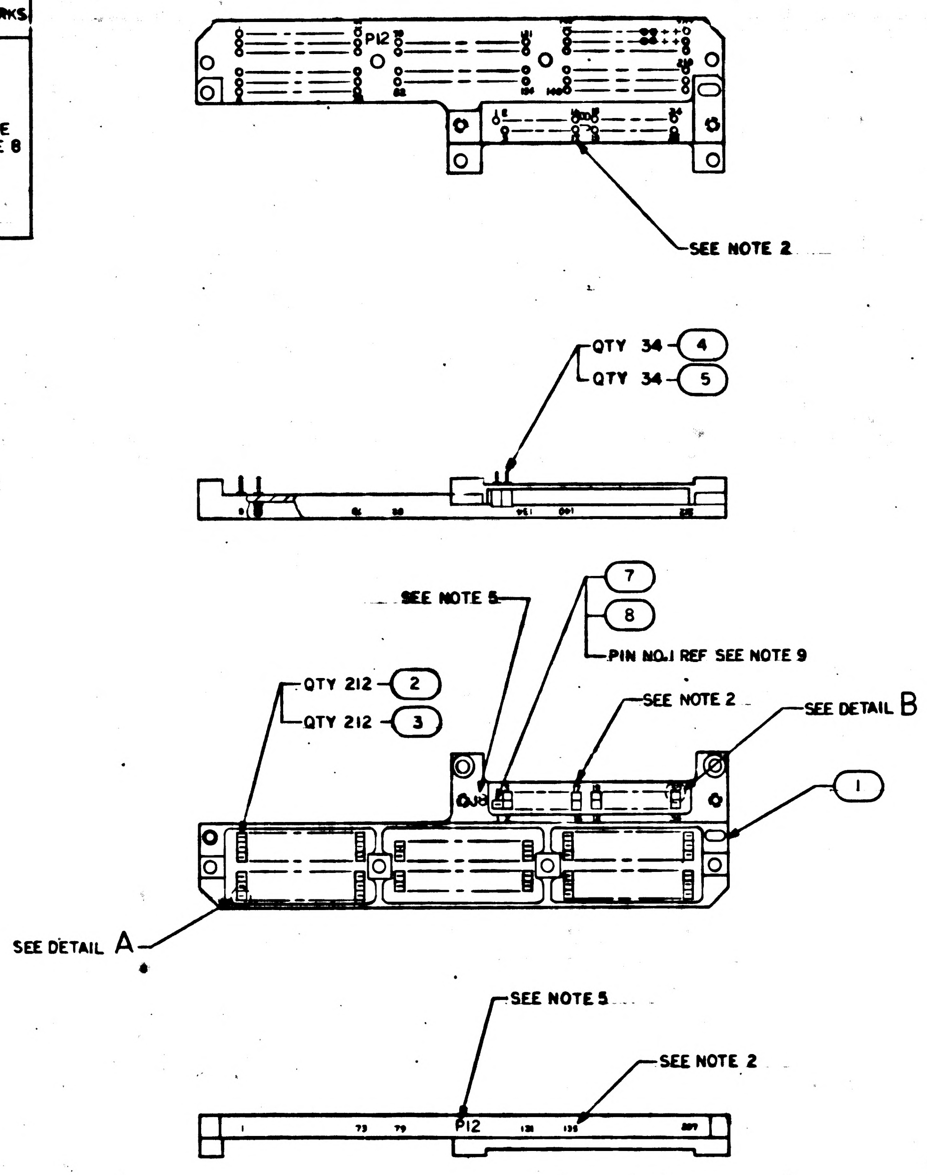
2003948 | B

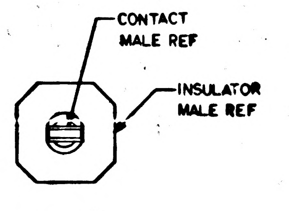
REVISIONS 26205						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 27552	D.M.		4/21/66	
B		REVISED PER TDRR 27739		JCJ	5/2/66	

JUMPER LIST

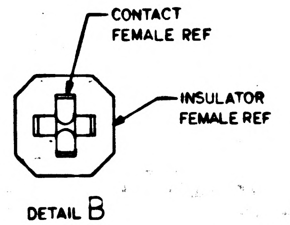
COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
F1	SEE NOTE 6	J8-4	6	BLUE	30	AR	P12-188	SEE NOTE 8
F2		-7					-198	
F3		-12					-199	
F4		-23					-180	
F5		-28					-206	
F6		-29					-200	
F7		-31					-205	
F8		-32					-212	
F9		-33					-211	
F10		J8-1	6	BLUE	30	AR	P12-184	*

* DENOTES MUST BE LOWER LEVEL





DETAIL A
SCALE 10/1
212 PLACES



DETAIL B
SCALE 10/1
35 PLACES

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDANDS PRESCRIBED BY MIL-D-70327
2. MARK APPROX. WHERE SHOWN .07/.05 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-11
3. IDENTIFY WITH PART NO. PER ND1002019
4. ASSEMBLE FIND NO. 2 THRU 5, 7 & 8 TO FIND NO. 1 PER ND1002136
5. MARK APPROX WHERE SHOWN .13/.11 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-11
6. WIREWRAP USING JUMPER LIST PER ND1002031
7. AR DENOTES
8. WELD PER ND1002005
9. INSTALL FIND NO. 7 & 8 IN PIN POSITION NO. 1 IN J8
~~10. COLOR OF FIND NO. 6 TO BE OPTIONAL~~

~~SEE NOTE 10~~

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1008819-003		SLEEVE, GROUNDING	8
1	1008818-004		CONTACT, WRAPOST FEMALE GRD	7
AR	1006376-003		WIRE, ELECTRICAL	6
34	1006774		INSULATOR, WRAPOST FEMALE	5
34	1006781-1		CONTACT, WRAPOST FEMALE	4
212	1006775		INSULATOR, WRAPOST MALE	3
212	1006782-3		CONTACT, WRAPOST MALE	2
1	2004922-011		PLATE, CONNECTOR	1

U11 LIST OF MATERIALS

2003949	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J.P. Leonard 7DEC65
CHECKED 3FEB66
APPROVED 3FEB66
APPROVED 11FEB66
APPROVED MIT A. G. METZGER
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CONNECTOR PLATE ASSY
FRONT HOUSING
AGC DSKY

CODE IDENT NO 80230
SIZE D
DRAWING NO. 2003948
SCALE 1/1
SHEET 1 OF 1

MASTER

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2003948 C

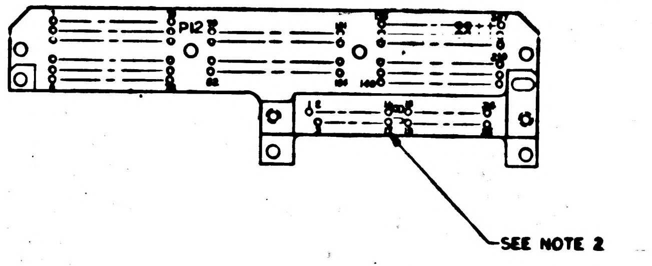
REVISIONS 26205

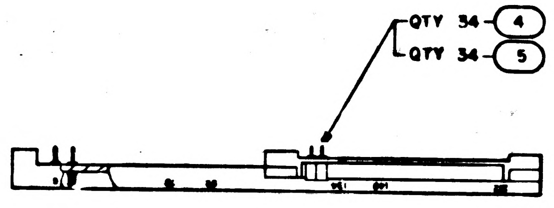
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 27552	D.M.		4/21/66	
B		REVISED PER TDRR 27739		JCJ	5/2/66	
C		REVISED PER TDRR 28252	J.P.L.	a.d.		

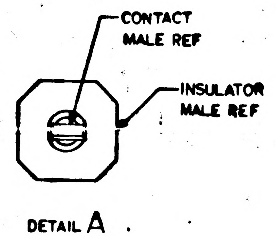
JUMPER LIST

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
F1		J8-4	6	BLUE	30	AR	P12-188	
F2	SEE NOTE 6	-7					-198	SEE NOTE 8
F3		-12					-199	
F4		-23					-180	
F5		-28					-206	
F6		-29					-200	
F7		-31					-205	
F8		-32					-212	
F9		-33					-211	
F10		J8-1	6	BLUE	30	AR	P12-184	*

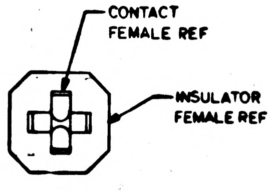
* DENOTES MUST BE LOWER LEVEL



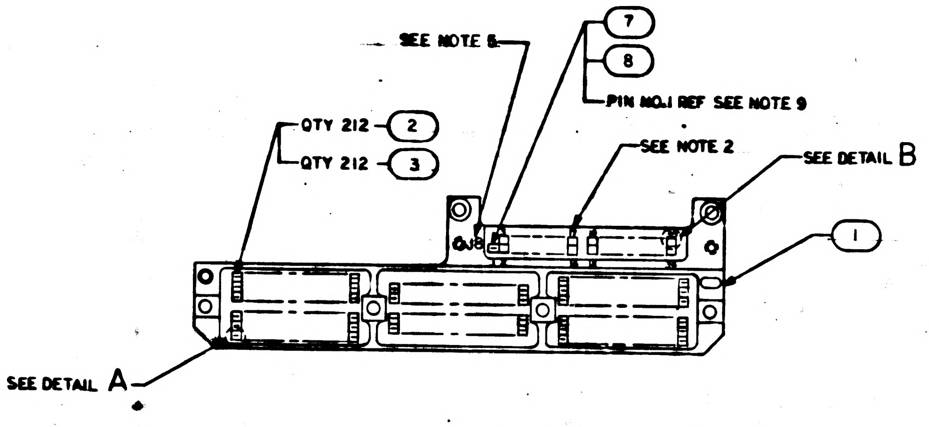


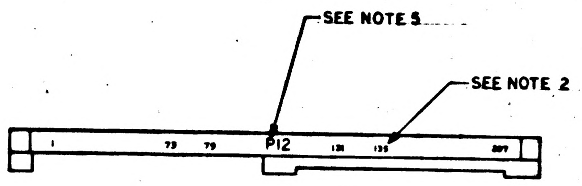


DETAIL A
SCALE 10/1
212 PLACES



DETAIL B
SCALE 10/1
35 PLACES





NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDANDS PRESCRIBED BY MIL-D-70327
2. MARK APPROX. WHERE SHOWN .07/.05 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-11
3. IDENTIFY WITH PART NO. PER ND1002019
4. ASSEMBLE FIND NO. 2 THRU 5, 7 & 8 TO FIND NO. 1 PER ND1002136
5. MARK APPROX WHERE SHOWN .13/.11 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-11
6. WIREWRAP USING JUMPER LIST PER ND1002031
7. AR DENOTES
8. WELD PER ND1002005
9. INSTALL FIND NO. 7 & 8 IN PIN POSITION NO. 1 IN J8

~~10. COLOR OF FIND NO. 6 TO BE OPTIONAL~~

~~SEE NOTE 8~~

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1008819-002		SLEEVE, GROUNDING	8
1	1008818-004		CONTACT, WRAPOST FEMALE GRD	7
AR	1006376-003		WIRE, ELECTRICAL	6
34	1006774		INSULATOR, WRAPOST FEMALE	5
34	1006781-1		CONTACT, WRAPOST FEMALE	4
212	1006775		INSULATOR, WRAPOST MALE	3
212	1006782-3		CONTACT, WRAPOST MALE	2
1	2004922-011		PLATE, CONNECTOR	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003949	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN J.P. Leonard 7 DEC 65
CHECKED 3 FEB 66
APPROVED 3 FEB 66
APPROVED 11 FEB 66
APPROVED MIT A. E. METZGER
APPROVED MSC
DATE

CONNECTOR PLATE ASSY
FRONT HOUSING
AGC DSKY

CODE IDENT NO 80230
SIZE D
DRAWING NO. 2003948
SCALE 1/1
SHEET 1 OF 1

NOTICE WHEN GOVERNMENT DRAWINGS SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2003948 D

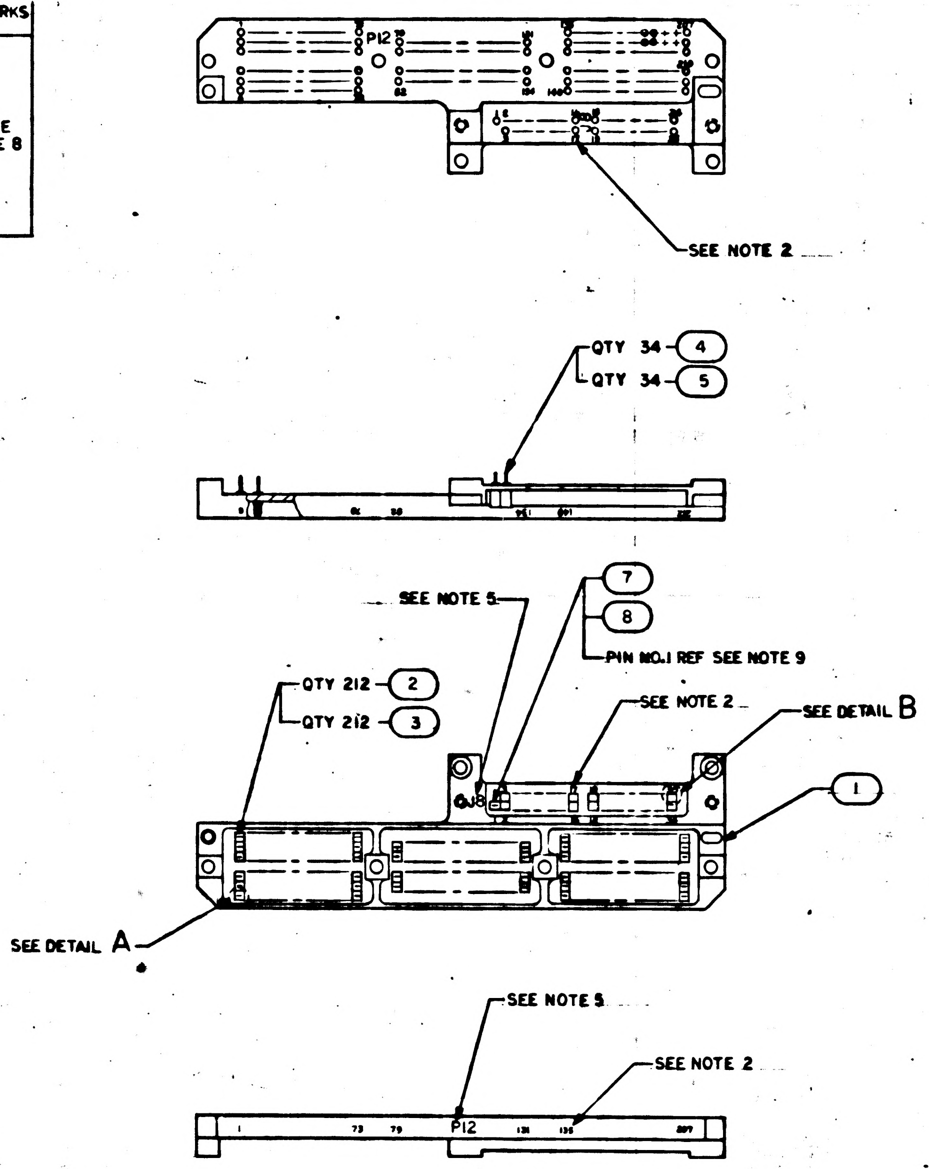
REVISIONS 26205

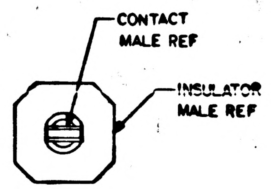
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 27552	D.M.		4/21/66	
B		REVISED PER TDRR 27739		JCJ	5/2/66	
C		REVISED PER TDPR 28252				
D		REVISED PER TDRR 29216			6-13-66	

JUMPER LIST

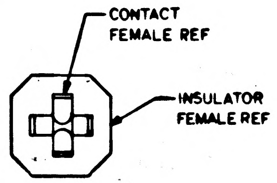
COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
F1	SEE NOTE 6	J8-4	6	SEE NOTE 10	30	AR	P12-188	SEE NOTE 8
F2		-7					-198	
F3		-12					-199	
F4		-23					-180	
F5		-28					-206	
F6		-29					-200	
F7		-31					-205	
F8		-32					-212	
F9		-33					-211	
F10		J8-1	6		30	AR	P12-184	*

* DENOTES MUST BE LOWER LEVEL





DETAIL A
SCALE 10/1
212 PLACES



DETAIL B
SCALE 10/1
35 PLACES

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDANDS PRESCRIBED BY MIL-D-70327
2. MARK APPROX. WHERE SHOWN .07/.05 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-11
3. IDENTIFY WITH PART NO. PER ND1002019
4. ASSEMBLE FIND NO.2 THRU 5,7&8 TO FIND NO.1 PER ND1002136
5. MARK APPROX WHERE SHOWN .13/.11 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-11
6. WIREWRAP USING JUMPER LIST PER ND1002031
7. AR DENOTES
8. WELD PER ND1002005
9. INSTALL FIND NO.7& 8 IN PIN POSITION NO.1 IN J8
10. COLOR OF FIND NO. 6 TO BE OPTIONAL

SEE NOTE 10

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1008819-002		SLEEVE, GROUNDING	8
1	1008818-004		CONTACT, WRAPOST FEMALE GRD	7
AR	1006732		WIRE, ELECTRICAL	6
34	100677[illegible]		INSULATOR, WRAPOST FEMALE	5
34	10067[illegible]1-1		CONTACT, WRAPOST FEMALE	4
212	10067[illegible]5		INSULATOR, WRAPOST MALE	3
212	10067[illegible]2-3		CONTACT, WRAPOST MALE	2
1	2004922-011		PLATE, CONNECTOR	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003949	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J.P. Leonard 7DEC65
CHECKED 3FEB66
APPROVED 3FEB66
APPROVED
APPROVED MIT A. B. METZGER
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CONNECTOR PLATE ASSY
FRONT HOUSING
AGC DSKY

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2003948
SCALE 1/1
SHEET 1 OF 1

2003948 D

— 2003948

REVISIONS 26205

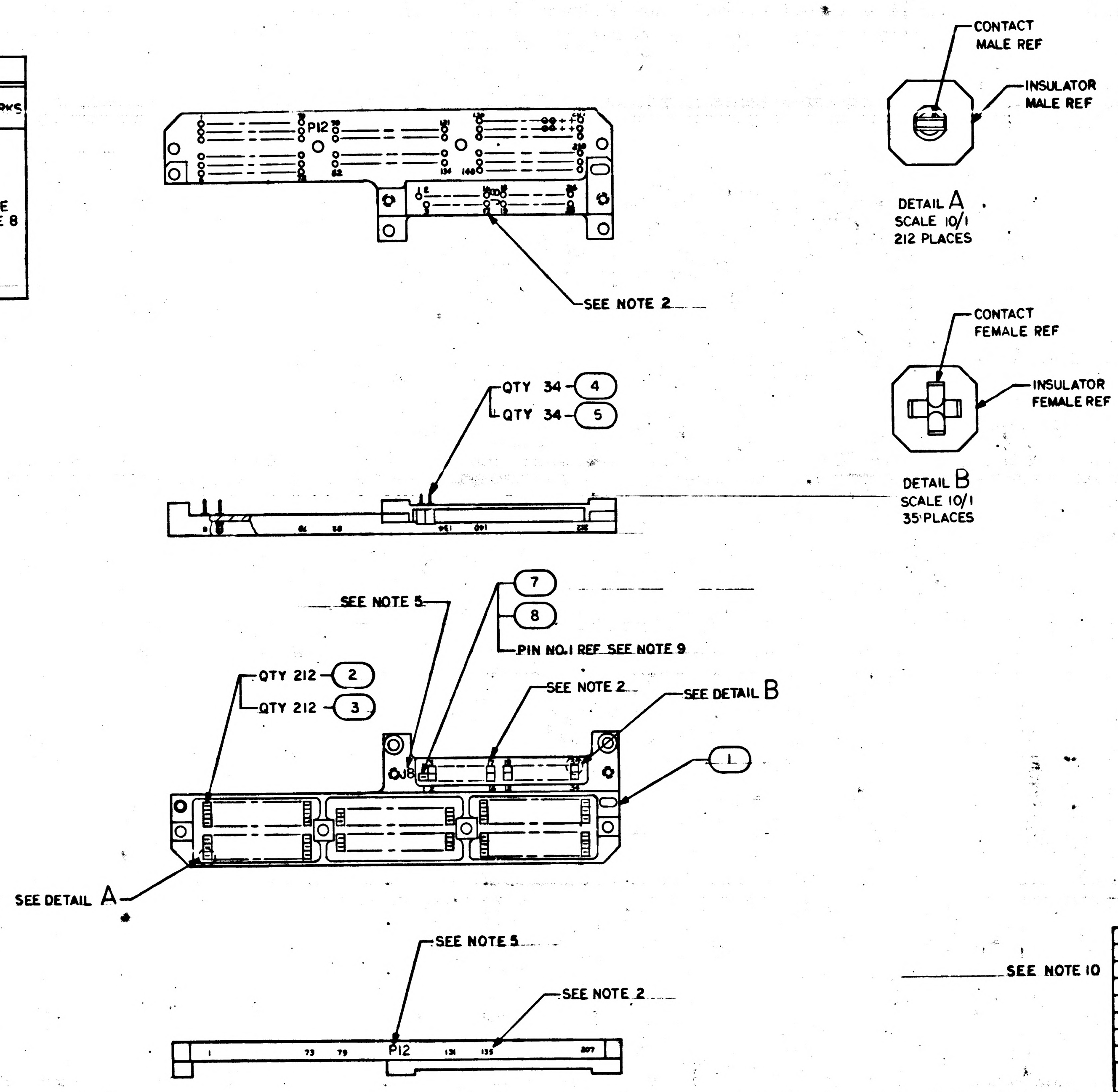
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

JUMPER LIST

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
F1	SEE NOTE 6	J8-4	6	SEE NOTE 10	30	AR	P12-188	SEE NOTE 8
F2		-7					-198	
F3		-12					-199	
F4		-23					-180	
F5		-28					-206	
F6		-29					-200	
F7		-31					-205	
F8		-32					-212	
F9		-33					-211	
F10		J8-1	6		30	AR	P12-184	*

* DENOTES MUST BE LOWER LEVEL



P12
SEE NOTE 2
CONTACT MALE REF
INSULATOR MALE REF
DETAIL A SCALE 10/1 212 PLACES
CONTACT FEMALE REF
INSULATOR FEMALE REF
DETAIL B SCALE 10/1 35 PLACES
QTY 34 ④
QTY 34 ⑤
SEE NOTE 5
⑦
⑧
PIN NO.1 REF SEE NOTE 9
QTY 212 ②
QTY 212 ③
SEE NOTE 2
SEE DETAIL B
J8
①
SEE DETAIL A
SEE NOTE 5
SEE NOTE 2
P12
SEE NOTE 10

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDANDS PRESCRIBED BY MIL-D-70327
2. MARK APPROX. WHERE SHOWN .07/.05 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-11
3. IDENTIFY WITH PART NO. PER ND1002019
4. ASSEMBLE FIND NO. 2 THRU 5, 7& 8 TO FIND NO. 1 PER ND1002136
5. MARK APPROX WHERE SHOWN .13/.11 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-11
6. WIREWRAP USING JUMPER LIST PER ND1002031
7. AR DENOTES
8. WELD PER ND1002005
9. INSTALL FIND NO. 7& 8 IN PIN POSITION NO. 1 IN J8
10. COLOR OF FIND NO. 6 TO BE OPTIONAL

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1008819		SLEEVE, GROUNDING	8
1	1008818-004		CONTACT, WRAPOST FEMALE GRD	7
AR	1006732		WIRE, ELECTRICAL	6
34	1006774		INSULATOR, WRAPOST FEMALE	5
34	1006781-1		CONTACT, WRAPOST FEMALE	4
212	1006775		INSULATOR, WRAPOST MALE	3
212	1006782-3		CONTACT, WRAPOST MALE	2
1	2004922-011		PLATE, CONNECTOR	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003949	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	J.P. Leonard	7DEC65
CHECKED	J.C. Gaulod	3FEB66
APPROVED		3FEB66
APPROVED	Eldon C. Hall	11FEB66
APPROVED MIT	W. Crafton A. G. METZGER	11FEB66
APPROVED MSC		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CONNECTOR PLATE ASSY
FRONT HOUSING
AGC DSKY

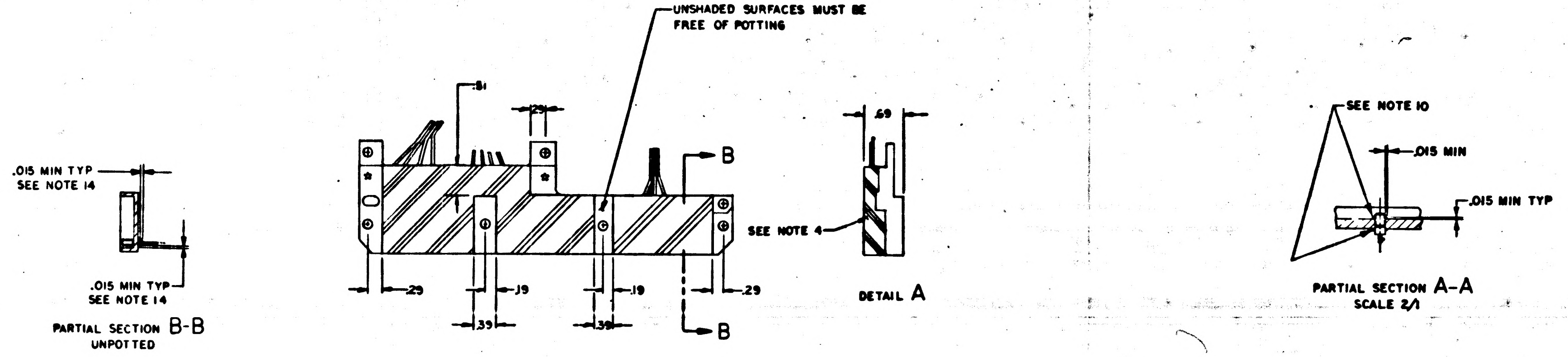
CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2003948

SCALE 1/1 SHEET 1 OF 1

[illegible]

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 26856	J.P.L.	T.M.		

REVISIONS 26285


.015 MIN TYP
SEE NOTE 14
.015 MIN TYP
SEE NOTE 14
PARTIAL SECTION B-B
UNPOTTED
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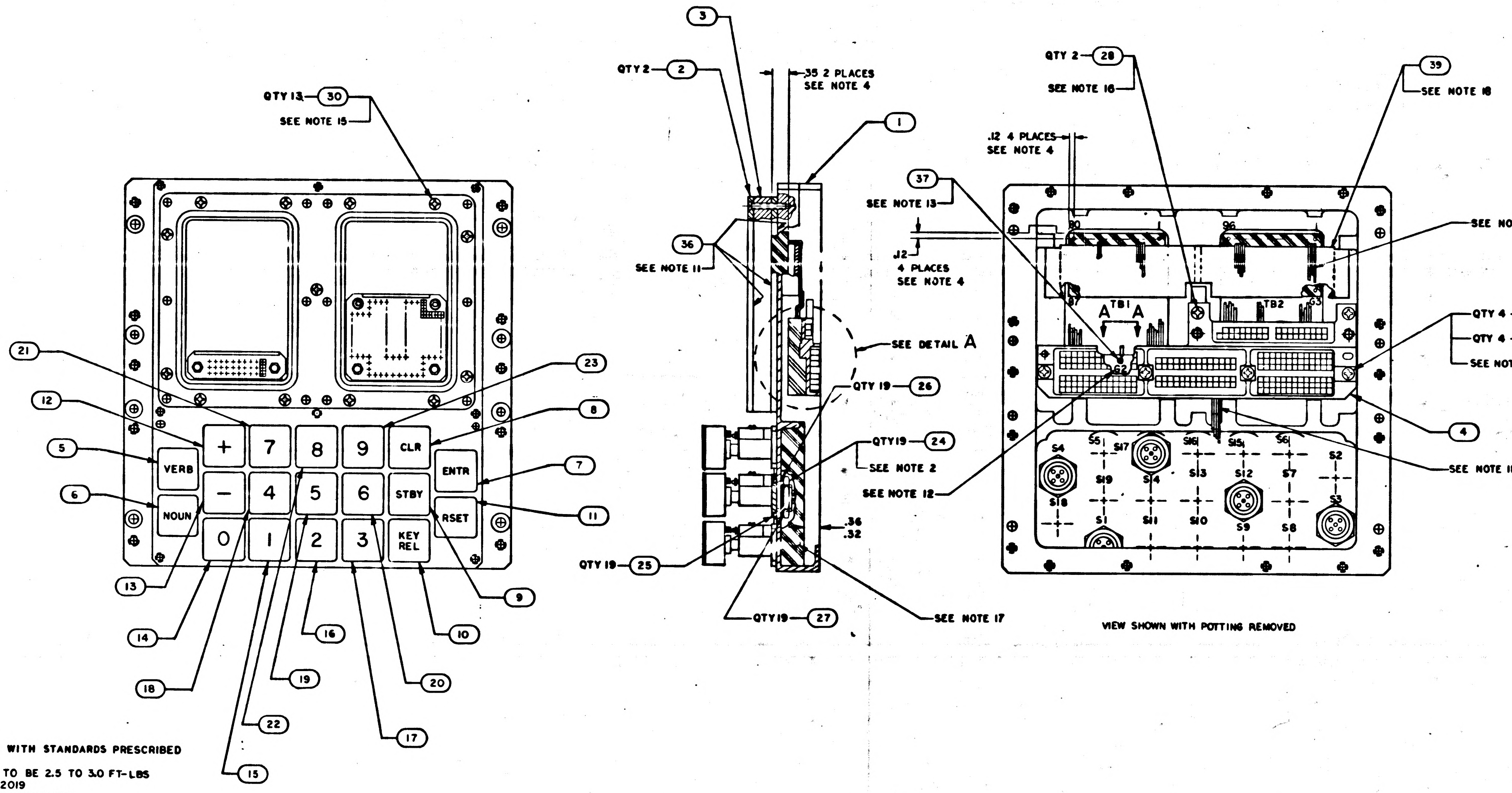
.29
UNSHADED SURFACES MUST BE FREE OF POTTING
B
.29
.19
.39
.19
.39
.29
B
.69
SEE NOTE 4
DETAIL A
SEE NOTE 10
.015 MIN
.015 MIN TYP
PARTIAL SECTION A-A
SCALE 2/1


QTY 13 30
SEE NOTE 15
+
7
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CLR
VERB
ENTR
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5
6
STBY
NOUN
RSET
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3
KEY REL
21
12
5
6
13
14
18
22
15
19
16
17
20
10
9
11
7
8
23
3
QTY 2 2
.35 2 PLACES
SEE NOTE 4
1
36
SEE NOTE 11
SEE DETAIL A
QTY 19 26
QTY19 24
SEE NOTE 2
SEE NOTE 12
.36
.32
QTY 19 25
QTY19 27
SEE NOTE 17
QTY 2 28
SEE NOTE 16
39
SEE NOTE 18
.12 4 PLACES
SEE NOTE 4
37
SEE NOTE 13
.12
4 PLACES
SEE NOTE 4
SEE NOTE 8
80
96
97
TB1
TB2
63
A
A
62
QTY 4 29
QTY 4 31
SEE NOTE 16
4
SEE NOTE 18
S4
S5
S17
S16
S15
S6
S2
S19
S14
S13
S12
S7
S18
S1
S11
S10
S9
S8
S3
VIEW SHOWN WITH POTTING REMOVED

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE FOR FIND NO. 24 TO BE 2.5 TO 3.0 FT-LBS
3. IDENTIFY WITH PART NO. PER ND1002019
4. ENCAPSULATE INDICATED AREAS PER ND1002236
5. SOLDER PER ND 1002071 USING SOLDER PER ND1002075
6. WELD PER ND1002005
7. AR DENOTES AS REQUIRED
8. BOND FIND NO. 32, 33, 38, 40 & 41 TO FIND NO. 39 PER ND1002004, TYPE IV
9. DRESS AND TRIM AT ASSEMBLY USING FIND NO. 34
10. SEAL FIND NO. 37 TO FIND NO. 1 PER ND1002004 TYPE VI
11. APPLY FIND NO. 36 TO INDICATED SURFACES OF FIND NO. 2. DO NOT APPLY TO BONDED RUBBER
12. MARK .07/.10 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122 TYPE II CLASS 2, USING MARKING INK 1006271-11
13. MOUNTING TORQUE FOR FIND NO. 37 TO BE 15-20 INCH OUNCES
14. SEAL INSULATORS ON FIND NO. 4 PER ND1002004 TYPE VI
15. MOUNTING TORQUE FOR FIND NO. 30 TO BE 3.5-4.5 INCH POUNDS
16. MOUNTING TORQUE FOR FIND NO. 28 AND FIND NO. 29 TO BE 8 TO 9 INCH POUNDS
17. ENCAPSULATE PER ND
18. BOND FIND NO. 39 & WIRES FROM S1 THRU S19 TO FIND NO. 1 PER ND1002004, TYPE IV

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
⊠	2005953	INTERCONNECTING DIAGRAM	REF
AR	1010807-22	WIRE INSULATED	41
AR	1010416-14	WIRE, INSULATED	40
1	2004898	SUPPORT, WIRE	39
AR	1010416-13	WIRE, INSULATED	38
1	2004039	TERMINAL, THREADED	37
AR	1006879	SILICONE COMPOUND	36
AR	1010416-15	WIRE, INSULATED	35
AR	1012507-003	TAPE, LACING	34
AR	1010416-20	WIRE, INSULATED	33
AR	1010848-1	WIRE, INSULATED	32
4	NAS620-6L	WASHER, FLAT	31
13	MS51959-20	SCREW, FLAT HD, CROSS RECESSED	30
4	MS51957-30	SCREW, PAN HD, CROSS RECESSED	29
2	MS51959-28	SCREW, FLAT HD, CROSS RECESSED	28
19	1010635-003	WASHER, LOCK	27
19	2004940-001	WASHER, PLAIN	26
19	1000159-18	O RING SEAL	25
19	2004942	NUT, HEX	24
1	2003984-211	SWITCH, ASSEMBLY PUSHBUTTON	23
1	-191		22
1	-181		21
1	-171		20
1	-161		19
1	-151		18
1	-141		17
1	-131		16
1	-121		15
1	-111		14
1	-091		13
1	-081		12
1	-071		11
1	-061		10
1	-051		9
1	-041		8
1	-031		7
1	-021		6
1	2003984-011	SWITCH, ASSEMBLY PUSHBUTTON	5
1	2003948-011	CONNECTOR, PLATE ASSEMBLY	4
1	2003959-011	ADAPTER, PLATE ASSEMBLY	3
2	1006351	GASKET, PREFORMED	2
1	2004968-011	HOUSING, FRONT	1
011			

LIST OF MATERIALS

NEXT ASSY	USED ON
2003950	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.01 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN J. P. Leonard
CHECKED J C
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC A. G. METCALF
DATE

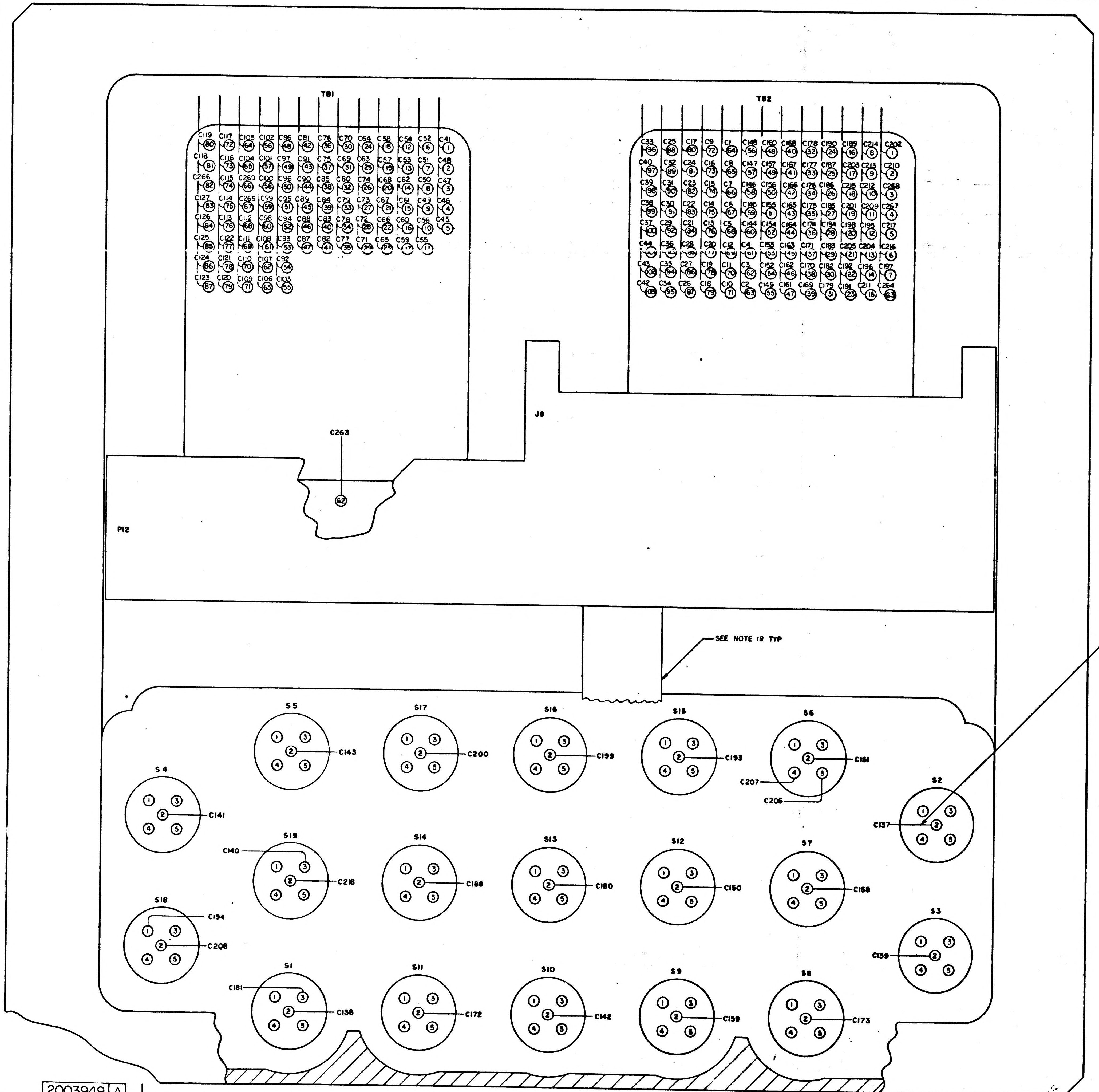
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003949
SCALE 1/1
SHEET 1 OF 3

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
REVISIONS 2620						
A		REVISED PER TDRR 26856				

2003949 A



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C105 64
C102 56
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C70 30
C64 24
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C54 12
C52 6
C41 1
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C116 73
C104 65
C101 57
C97 49
C91 43
C75 37
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C63 25
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C53 13
C51 7
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C269 66
C100 58
C96 50
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C85 38
C80 32
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C50 8
C47 3
C127 83
C114 75
C265 67
C99 59
C95 51
C89 45
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C67 21
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C113 76
C112 68
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C78 34
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C60 16
C56 10
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C125 85
C122 77
C111 69
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C87 47
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C8 65
C147 57
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SEE NOTE 18 TYP
SEE NOTE 9
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C206
S4
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4
5

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN J.L. Leonard 2DEC65
CHECKED J.C. 3FEB66
APPROVED
APPROVED Edward Hall

APPROVED MIT
APPROVED MSC A. C. METZGER

DATE

FRONT HOUSING ASSEMBLY

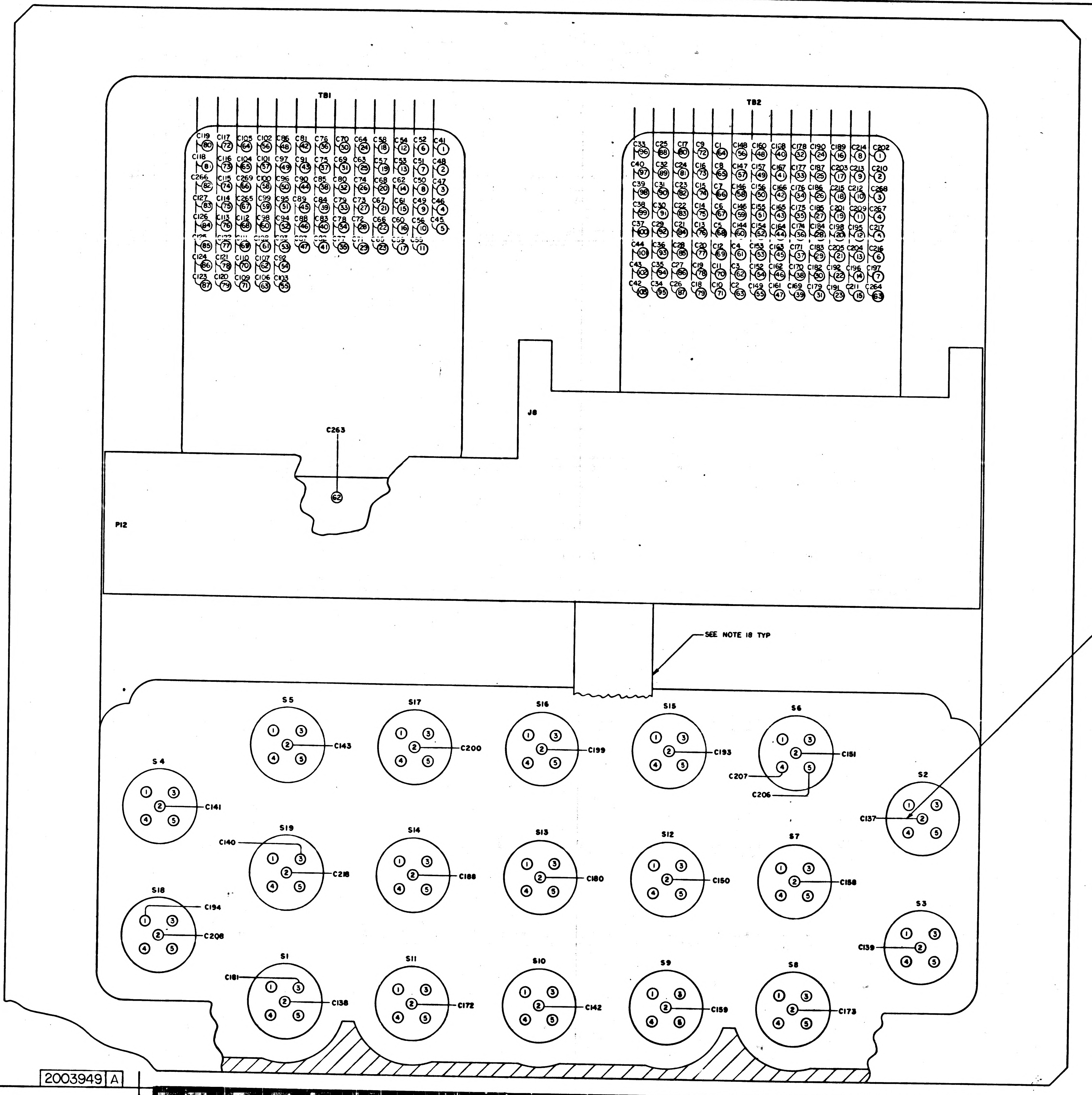
AGC DSKY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003949
SCALE NONE
SHEET 2 OF 3

2003949 A

2003949 A

F 2/2


TB1
C119 80, C117 72, C105 64, C102 56, C86 48, C81 42, C76 36, C70 30, C64 24, C58 18, C54 12, C52 6, C41 1
C118 81, C116 73, C104 65, C101 57, C97 49, C91 43, C75 37, C69 31, C63 25, C57 19, C53 13, C51 7, C48 2
C266 82, C115 74, C269 66, C100 58, C96 50, C90 44, C85 38, C80 32, C74 26, C68 20, C62 14, C50 8, C47 3
C127 83, C114 75, C265 67, C99 59, C95 51, C89 45, C84 39, C79 33, C73 27, C67 21, C61 15, C49 9, C46 4
C126 84, C113 76, C112 68, C98 60, C94 52, C88 46, C83 40, C78 34, C72 28, C66 22, C60 16, C56 10, C45 5
C125 85, C122 77, C111 69, C108 61, C93 53, C87 47, C82 41, C77 35, C71 23, C65 23, C59 17, C55 11
C124 86, C121 78, C110 70, C107 62, C92 54
C123 87, C120 79, C109 71, C106 63, C103 55
TB2
C33 96, C25 88, C17 80, C9 72, C1 64, C148 56, C160 48, C168 40, C178 32, C190 24, C189 16, C214 8, C202 1
C40 97, C32 89, C24 81, C16 73, C8 65, C147 57, C157 49, C167 41, C177 33, C187 25, C203 17, C213 9, C210 2
C39 98, C31 90, C23 82, C15 74, C7 66, C146 58, C156 50, C166 42, C176 34, C186 26, C215 18, C212 10, C268 3
C38 99, C30 91, C22 83, C14 75, C6 67, C145 59, C155 51, C165 43, C175 35, C185 27, C201 19, C209 11, C267 4
C37 100, C29 92, C21 84, C13 76, C5 68, C144 60, C154 52, C164 44, C174 36, C184 28, C198 20, C195 12, C217 5
C44 101, C36 93, C28 85, C20 77, C12 69, C4 61, C153 53, C163 45, C171 37, C183 29, C205 21, C204 13, C216 6
C43 102, C35 94, C27 86, C19 78, C11 70, C3 62, C152 54, C162 46, C170 38, C182 30, C192 22, C196 14, C197 7
C42 103, C34 95, C26 87, C18 79, C10 71, C2 63, C149 55, C161 47, C169 39, C179 31, C191 23, C211 15, C264 63
J8
C263
62
P12
SEE NOTE 18 TYP
SEE NOTE 9
S5 C143
S17 C200
S16 C199
S15 C193
S6 C151 C207 C206
S4 C141
S2 C137
S19 C140 C218
S14 C188
S13 C180
S12 C150
S7 C158
S18 C194 C208
S3 C139
S1 C181 C138
S11 C172
S10 C142
S9 C159
S8 C173
1 2 3 4 5

MA51

QTY REQD	PART OR IDENTIFYING NO

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LA
CAMBRIDGE MASS

DRAWN J.P. Leonard
CHECKED J.C. Gaucheb
APPROVED
APPROVED Edward Hall
APPROVED MIT
A. C. METZGER
APPROVED MSC

2003949 A F1/2 SHEET 2

2003949 A

REVISIONS 2-2-05						
SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
A		REVISED PER TDRR 26856	J.P.L.			

LEAD ELECTRICAL

FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
P12-131	32	WHT	26	AR	TB2-64	SEE NOTE 6
-132					TB2-63	
-133					TB2-62	
-134					TB2-61	
-127					TB2-68	
-128					TB2-67	
-129					TB2-66	
-130					TB2-65	
-123					TB2-72	
-124					TB2-71	
-125					TB2-70	
-126					TB2-69	
-119					TB2-76	
-120					TB2-75	
-121					TB2-74	
-122					TB2-73	
-115					TB2-80	
-116					TB2-79	
-117					TB2-78	
-118					TB2-77	
-111					TB2-84	
-112					TB2-83	
-113					TB2-82	
-114					TB2-81	
-107					TB2-88	
-108					TB2-87	
-109					TB2-86	
-110					TB2-85	
-103					TB2-92	
-104					TB2-91	
-105					TB2-90	
-106					TB2-89	
-99					TB2-96	
-100					TB2-95	
-101					TB2-94	
-102					TB2-93	
-95					TB2-100	
-96					TB2-99	
-97					TB2-98	
-98					TB2-97	
-91					TB1-1	
-92					TB2-103	
-93					TB2-102	
-94					TB2-101	
-87					TB1-5	
-88					TB1-4	
-89					TB1-3	
-90					TB1-2	
-83					TB1-9	
-84					TB1-8	
-85					TB1-7	
-86					TB1-6	
-79					TB1-13	
-80					TB1-12	
-81					TB1-11	
-82					TB1-10	
-73					TB1-19	
-74					TB1-18	
-75					TB1-17	
-76					TB1-16	
-77					TB1-15	
-78					TB1-14	
-67					TB1-25	
-68					TB1-24	
-69					TB1-23	
-70					TB1-22	
-71					TB1-21	
-72					TB1-20	
-61					TB1-31	
-62					TB1-30	
-63					TB1-29	
-64					TB1-28	
-65					TB1-27	
-66					TB1-26	
-55					TB1-37	
-56					TB1-36	
-57					TB1-35	
-58					TB1-34	
-59					TB1-33	
-60					TB1-32	
-50					TB1-42	
-51					TB1-41	
-52					TB1-40	
-53					TB1-39	
-54					TB1-38	
-43					TB1-48	
-44					TB1-47	
P12-45	32	WHT	26	AR	TB1-46	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C89	SEE NOTE 6	P12-46	32	WHT	26	AR	TB1-45	SEE NOTE 6
C90		-47					TB1-44	
C91		-48					TB1-43	
C92		-37					TB1-54	
C93		-38					TB1-53	
C94		-39					TB1-52	
C95		-40					TB1-51	
C96		-41					TB1-50	
C97		-42					TB1-49	
C98		-31					TB1-60	
C99		-32					TB1-59	
C100		-33					TB1-58	
C101		-34					TB1-57	
C102		-35					TB1-56	
C103		-36					TB1-55	
C104		-25					TB1-66	
C105		-27					TB1-64	
C106		-28					TB1 63	
C107		-29					TB1-62	
C108		-30					TB1 61	
C109		-21					TB1-71	
C110		-22					TB1-70	
C111		-23					TB1-69	
C112		-24					TB1-68	
C113		-13					TB1-76	
C114		-15					TB1-75	
C115		-16					TB1-74	
C116		-17					TB1-73	
C117		-18					TB1-72	
C118		-7					TB1-81	
C119		-9					TB1-80	
C120		-10					TB1-79	
C121		-11					TB1-78	
C122		-12					TB1-77	
C123		-1					TB1-87	
C124		-3					TB1-86	
C125		-4					TB1-85	
C126		-5					TB1-84	
C127		P12-6	32	WHT			TB1-83	
C128	SEE NOTE 5	S16-1	35	YEL			S17-3	SEE NOTE 5
C129		S5-4	38	RED			S19-4	
C130		S5-5	40	ORN			S19-5	
C131		S19-4	38	RED			S1-4	
C132		S19-5	40	ORN			S1-5	
C133		S1-4	38	RED			S18-4	
C134		S1-5	40	ORN			S18-5	
C135		S18-4	38	RED			S4-4	
C136		S18-5	40	ORN			S4-5	
C137		J8-3	33	WHT			S2-2	
C138		-5					S1-2	
C139		-8					S3-2	
C140		-9					S19-3	
C141		-10					S4-2	
C142		-11					S10-2	
C143		J8-13	33				S5-2	
C144	SEE NOTE 6	P12-135	32				TB2-60	SEE NOTE 6
C145		-136					TB2-59	
C146		-137					TB2-58	
C147		-138					TB2-57	
C148		-139					TB2-56	
C149		P12-140	32				TB2-55	
C150	SEE NOTE 5	J8-14	33				S12-2	SEE NOTE 5
C151		J8-15	33				S6-2	
C152	SEE NOTE 6	P12-141	32				TB2-54	SEE NOTE 6
C153		-142					TB2-53	
C154		-143					TB2-52	
C155		-144					TB2-51	
C156		-145					TB2-50	
C157		P12-146	32				TB2-49	
C158	SEE NOTE 5	J8-16	33				S7-2	SEE NOTE 5
C159		J8-17	33				S9-2	
C160	SEE NOTE 6	P12-147	32				TB2-48	SEE NOTE 6
C161		-148					-47	
C162		-149					-46	
C163		-150					-45	
C164		-151					-44	
C165		-152					-43	
C166		-153					-42	
C167		-154					-41	
C168		-155					-40	
C169		-156					-39	
C170		-157					-38	
C171		P12-158	32				TB2-37	
C172	SEE NOTE 5	J8-18	33				S11-2	SEE NOTE 5
C173		J8-19	33				S8-2	
C174	SEE NOTE 6	P12-159	32				TB2-36	SEE NOTE 6
C175		P12-160	32				TB2-35	
C176		P12-161	32	WHT	26	AR	TB2-34	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C177	SEE NOTE 6	P12-162	32	WHT	26	AR	TB2-33	SEE NOTE 6
C178		P12-163	32				TB2-32	
C179		P12-164	32				TB2-31	
C180	SEE NOTE 5	J8-20	33				S13-2	SEE NOTE 5
C181		J8-21	33				S1-3	
C182	SEE NOTE 6	P12-165	32				TB2-30	SEE NOTE 6
C183		-166					-29	
C184		-167					-28	
C185		-168					-27	
C186		-169					-26	
C187		P12-170	32				TB2-25	
C188	SEE NOTE 5	J8-22	33				S14-2	SEE NOTE 5
C189	SEE NOTE 6	P12-190	32				TB2-16	SEE NOTE 6
C190		-174					-24	
C191		-175					-23	
C192		P12-176	32				TB2-22	
C193	SEE NOTE 5	J8-24	33				S15-2	SEE NOTE 5
C194		J8-25	33				S18-1	
C195	SEE NOTE 6	P12-196	32				TB2-12	SEE NOTE 6
C196		-192					-14	
C197		-204					-7	
C198		P12-182	32				TB2-20	
C199	SEE NOTE 5	J8-26	33				S16-2	SEE NOTE 5
C200		J8-27	33				S17-2	
C201	SEE NOTE 6	P12-185	32				TB2-19	SEE NOTE 6
C202		-210					-1	
C203		-187					-17	
C204		-195					-13	
C205		-181	32	WHT			TB2-21	
C206	SEE NOTE 5	-193	40	ORN			S6-5	SEE NOTE 5
C207		P12-194	38	RED			S6-4	
C208		J8-30	33	WHT			S18-2	
C209	SEE NOTE 6	P12-197	32	WHT			TB2-11	SEE NOTE 6
C210		-209					-2	
C211		-191					-15	
C212		-201					-10	
C213		-202					-9	
C214		-203					-8	
C215		-186					-18	
C216		-207					-6	
C217		-208	32	WHT			TB2-5	
C218	SEE NOTE 5	P12-179	33	WHT			S19-2	SEE NOTE 5
C219		S1-1	35	YEL			S2-3	
C220		S2-1					S3-3	
C221		S3-1					S4-3	
C222		S4-1					S5-3	
C223		S5-1					S6-3	
C224		S6-1					S7-3	
C225		S7-1					S8-3	
C226		S8-1					S9-3	
C227		S9-1					S10-3	
C228		S10-1					S11-3	
C229		S11-1					S12-3	
C230		S12-1					S13-3	
C231		S13-1					S14-3	
C232		S14-1					S15-3	
C233		S15-1	35	YEL			S16-3	
C234		S17-4	38	RED			S5-4	
C235		S17-5	40	ORN			S5-5	
C236		S6-4	38	RED			S2-4	
C237		S6-5	40	ORN			S2-5	
C238		S2-4	38	RED			S7-4	
C239		S2-5	40	ORN			S7-5	
C240		S7-4	38	RED			S3-4	
C241		S7-5	40	ORN			S3-5	
C242		S3-4	38	RED			S8-4	
C243		S3-5	40	ORN			S8-5	
C244		S8-4	38	RED			S9-4	
C245		S8-5	40	ORN			S9-5	
C246		S9-4	38	RED			S12-4	
C247		S9-5	40	ORN			S12-5	
C248		S12-4	38	RED			S15-4	
C249		S12-5	40	ORN			S15-5	
C250		S15-4	38	RED			S16-4	
C251		S15-5	40	ORN			S16-5	
C252		S16-4	38	RED			S13-4	
C253		S16-5	40	ORN			S13-5	
C254		S13-4	38	RED			S10-4	
C255		S13-5	40	ORN			S10-5	
C256		S10-4	38	RED			S11-4	
C257		S10-5	40	ORN			S11-6	
C258		S11-4	38	RED			S14-4	
C259		S11-5	40	ORN			S14-5	
C260		S14-4	38	RED			S17-4	
C261		S14-5	40	ORN			S17-5	
C262		S17-1	35	YEL			S18-3	
C263	SEE NOTE 3	P12-184	32	WHT			62	SEE NOTE 6
C264	SEE NOTE 6	P12-183	41				63	SEE NOTE 5
C265	SEE NOTE 6	P12-20	32				TB1-67	SEE NOTE 6
C266		P12-8					TB1-82	
C267		P12-173					TB2-4	
C268		P12-177					TB2-3	
C269		P12-19	32	WHT	26	AR	TB1-66	

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

NEXT ASSY | USED ON
APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	J.P. Leonard	2 DEC 64
CHECKED		3 FEB 65
APPROVED		
APPROVED		
APPROVED MIT		
APPROVED MSC	E. G. METZGER	DATE

FRONT HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2003949

SCALE NONE
SHEET 3 OF 3

2003949 A

F2/2

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2003949 A

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C1	SEE NOTE 6	P12-131	32	WHT	26	A R	TB2-64	SEE NOTE 6
C2		-132					TB2-63	
C3		-133					TB2-62	
C4		-134					TB2-61	
C5		-127					TB2-68	
C6		-128					TB2-67	
C7		-129					TB2-66	
C8		-130					TB2-65	
C9		-123					TB2-72	
C10		-124					TB2-71	
C11		-125					TB2-70	
C12		-126					TB2-69	
C13		-119					TB2-76	
C14		-120					TB2-75	
C15		-121					TB2-74	
C16		-122					TB2-73	
C17		-115					TB2-80	
C18		-116					TB2-79	
C19		-117					TB2-78	
C20		-118					TB2-77	
C21		-111					TB2-84	
C22		-112					TB2-83	
C23		-113					TB2-82	
C24		-114					TB2-81	
C25		-107					TB2-88	
C26		-108					TB2-87	
C27		-109					TB2-86	
C28		-110					TB2-85	
C29		-103					TB2-92	
C30		-104					TB2-91	
C31		-105					TB2-90	
C32		-106					TB2-89	
C33		-99					TB2-96	
C34		-100					TB2-95	
C35		-101					TB2-94	
C36		-102					TB2-93	
C37		-95					TB2-100	
C38		-96					TB2-99	
C39		-97					TB2-98	
C40		-98					TB2-97	
C41		-91					TB1-1	
C42		-92					TB2-103	
C43		-93					TB2-102	
C44		-94					TB2-101	
C45		-87					TB1-5	
C46		-88					TB1-4	
C47		-89					TB1-3	
C48		-90					TB1-2	
C49		-83					TB1-9	
C50		-84					TB1-8	
C51		-85					TB1-7	
C52		-86					TB1-6	
C53		-79					TB1-13	
C54		-80					TB1-12	
C55		-81					TB1-11	
C56		-82					TB1-10	
C57		-73					TB1-19	
C58		-74					TB1-18	
C59		-75					TB1-17	
C60		-76					TB1-16	
C61		-77					TB1-15	
C62		-78					TB1-14	
C63		-67					TB1-25	
C64		-68					TB1-24	
C65		-69					TB1-23	
C66		-70					TB1-22	
C67		-71					TB1-21	
C68		-72					TB1-20	
C69		-61					TB1-31	
C70		-62					TB1-30	
C71		-63					TB1-29	
C72		-64					TB1-28	
C73		-65					TB1-27	
C74		-66					TB1-26	
C75		-55					TB1-37	
C76		-56					TB1-36	
C77		-57					TB1-35	
C78		-58					TB1-34	
C79		-59					TB1-33	
C80		-60					TB1-32	
C81		-50					TB1-42	
C82		-51					TB1-41	
C83		-52					TB1-40	
C84		-53					TB1-39	
C85		-54					TB1-38	
C86		-43					TB1-48	
C87		-44					TB1-47	
C88		P12-45	32	WHT	26	AR	TB1-46	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C89	SEE NOTE 6	P12-46	32	WHT	26	A R	TB1-45	SEE NOTE 6
C90		-47					TB1-44	
C91		-48					TB1-43	
C92		-37					TB1-54	
C93		-38					TB1-53	
C94		-39					TB1-52	
C95		-40					TB1-51	
C96		-41					TB1-50	
C97		-42					TB1-49	
C98		-31					TB1-60	
C99		-32					TB1-59	
C100		-33					TB1-58	
C101		-34					TB1-57	
C102		-35					TB1-56	
C103		-36					TB1-55	
C104		-25					TB1-66	
C105		-27					TB1-64	
C106		-28					TB1 63	
C107		-29					TB1-62	
C108		-30					TB1 61	
C109		-21					TB1-71	
C110		-22					TB1-70	
C111		-23					TB1-69	
C112		-24					TB1-68	
C113		-13					TB1-26	
C114		-15					TB1-75	
C115		-16					TB1-74	
C116		-17					TB1-73	
C117		-18					TB1-72	
C118		-7					TB1-81	
C119		-9					TB1-80	
C120		-10					TB1-79	
C121		-11					TB1-78	
C122		-12					TB1-77	
C123		-1					TB1-87	
C124		-3					TB1-86	
C125		-4					TB1-85	
C126		-5					TB1-84	
C127		P12-6	32	WHT			TB1-83	
C128	SEE NOTE 5	S16-1	35	YEL			S17-3	SEE NOTE 5
C129		S5-4	38	RED			S19-4	
C130		S5-5	40	ORN			S19-5	
C131		S19-4	38	RED			S1-4	
C132		S19-5	40	ORN			S1-5	
C133		S1-4	38	RED			S18-4	
C134		S1-5	40	ORN			S18-5	
C135		S18-4	38	RED			S4-4	
C136		S18-5	40	ORN			S4-5	
C137		J8-3	33	WHT			S2-2	
C138		-5					S1-2	
C139		-8					S3-2	
C140		-9					S19-3	
C141		-10					S4-2	
C142		-11					S10-2	
C143		J8-13	33				S5-2	
C144	SEE NOTE 6	P12-135	32				TB2-60	SEE NOTE 6
C145		-136					TB2-59	
C146		-137					TB2-58	
C147		-138					TB2-57	
C148		-139					TB2-56	
C149		P12-140	32				TB2-55	
C150	SEE NOTE 5	J8-14	33				S12-2	SEE NOTE 5
C151		J8-15	33				S6-2	
C152	SEE NOTE 6	P12-141	32				TB2-54	SEE NOTE 6
C153		-142					TB2-53	
C154		-143					TB2-52	
C155		-144					TB2-51	
C156		-145					TB2-50	
C157		P12-146	32				TB2-49	
C158	SEE NOTE 5	J8-16	33				S7-2	SEE NOTE 5
C159		J8-17	33				S9-2	
C160	SEE NOTE 6	P12-147	32				TB2-48	SEE NOTE 6
C161		-148					-47	
C162		-149					-46	
C163		-150					-45	
C164		-151					-44	
C165		-152					-43	
C166		-153					-42	
C167		-154					-41	
C168		-155					-40	
C169		-156					-39	
C170		-157					-38	
C171		P12-158	32				TB2-37	
C172	SEE NOTE 5	J8-18	33				S11-2	SEE NOTE 5
C173		J8-19	33				S8-2	
C174	SEE NOTE 6	P12-159	32				TB2-36	SEE NOTE 6
C175		P12-160	32				TB2-35	
C176		P12-161	32	WHT	26	AR	TB2-34	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C177	SEE NOTE 6	P12-162	32	WHT	26	A R	TB2-33	SEE NOTE 6
C178		P12-163	32				TB2-32	
C179		P12-164	32				TB2-31	
C180	SEE NOTE 5	J8-20	33				S13-2	SEE NOTE 5
C181		J8-21	33				S1-3	
C182	SEE NOTE 6	P12-165	32				TB2-30	SEE NOTE 6
C183		-166					-29	
C184		-167					-28	
C185		-168					-27	
C186		-169					-26	
C187		P12-170	32				TB2-25	
C188	SEE NOTE 5	J8-22	33				S14-2	SEE NOTE 5
C189	SEE NOTE 6	P12-190	32				TB2-16	SEE NOTE 6
C190		-174					-24	
C191		-175					-23	
C192		P12-176	32				TB2-22	
C193	SEE NOTE 5	J8-24	33				S15-2	SEE NOTE 5
C194		J8-25	33				S18-1	
C195	SEE NOTE 6	P12-196	32				TB2-12	SEE NOTE 6
C196		-192					-14	
C197		-204					-7	
C198		P12-182	32				TB2-20	
C199	SEE NOTE 5	J8-26	33				S16-2	SEE NOTE 5
C200		J8-27	33				S17-2	
C201	SEE NOTE 6	P12-185	32				TB2-19	SEE NOTE 6
C202		-210					-1	
C203		-187					-17	
C204		-195					-13	
C205		-181	32	WHT			TB2-21	
C206	SEE NOTE 5	-193	40	ORN			S6-5	SEE NOTE 5
C207		P12-194	38	RED			S6-4	
C208		J8-30	33	WHT			S18-2	
C209	SEE NOTE 6	P12-197	32	WHT			TB2-11	SEE NOTE 6
C210		-209					-2	
C211		-191					-15	
C212		-201					-10	
C213		-202					-9	
C214		-203					-8	
C215		-186					-18	
C216		-207					-6	
C217		-208	32	WHT			TB2-5	
C218	SEE NOTE 5	P12-179	33	WHT			S19-2	SEE NOTE 5
C219		S1-1	35	YEL			S2-3	
C220		S2-1					S3-3	
C221		S3-1					S4-3	
C222		S4-1					S5-3	
C223		S5-1					S6-3	
C224		S6-1					S7-3	
C225		S7-1					S8-3	
C226		S8-1					S9-3	
C227		S9-1					S10-3	
C228		S10-1					S11-3	
C229		S11-1					S12-3	
C230		S12-1					S13-3	
C231		S13-1					S14-3	
C232		S14-1					S15-3	
C233		S15-1	35	YEL			S16-3	
C234		S17-4	38	RED			S5-4	
C235		S17-5	40	ORN			S5-5	
C236		S6-4	38	RED			S2-4	
C237		S6-5	40	ORN			S2-5	
C238		S2-4	38	RED			S7-4	
C239		S2-5	40	ORN			S7-5	
C240		S7-4	38	RED			S3-4	
C241		S7-5	40	ORN			S3-5	
C242		S3-4	38	RED			S8-4	
C243		S3-5	40	ORN			S8-5	
C244		S8-4	38	RED			S9-4	
C245		S8-5	40	ORN			S9-5	
C246		S9-4	38	RED			S12-4	
C247		S9-5	40	ORN			S12-5	
C248		S12-4	38	RED			S15-4	
C249		S12-5	40	ORN			S15-5	
C250		S15-4	38	RED			S16-4	
C251		S15-5	40	ORN			S16-5	
C252		S16-4	38	RED			S13-4	
C253		S16-5	40	ORN			S13-5	
C254		S13-4	38	RED			S10-4	
C255		S13-5	40	ORN			S10-5	
C256		S10-4	38	RED			S11-4	
C257		S10-5	40	ORN			S11-6	
C258		S11-4	38	RED			S14-4	
C259		S11-5	40	ORN			S14-5	
C260		S14-4	38	RED			S17-4	
C261		S14-5	40	ORN			S17-5	
C262		S17-1	35	YEL			S18-3	
C263	SEE NOTE 6	P12-184	32	WHT			62	SEE NOTE 6
C264	SEE NOTE 6	P12-183	41				63	SEE NOTE 5
C265	SEE NOTE 6	P12-20	32				TB1-67	SEE NOTE 6
C266		P12-8					TB1-82	
C267		P12-173					TB2-4	
C268		P12-177					TB2-3	
C269		P12-19	32	WHT	26	AR	TB1-66	

QTY REQD	PART OR IDENTIFYING NO

NEXT ASSY	USED ON	
APPLICATION		

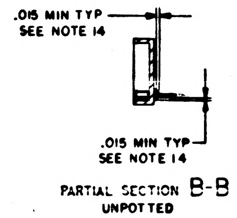
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

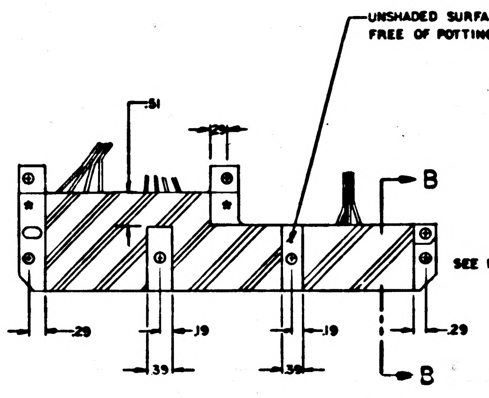
MIT
INSTRUMENTATION
CAMBRIDGE MASS

DRAWN J.P. Leonard
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 26856	J.P.L.	[illegible]	[illegible]	[illegible]
B		REVISED PER TDRR 27913	JPT	[illegible]	[illegible]	[illegible]


.015 MIN TYP
SEE NOTE 14
.015 MIN TYP
SEE NOTE 14

PARTIAL SECTION B-B
UNPOTTED


UNSHADED SURFACES MUST BE
FREE OF POTTING
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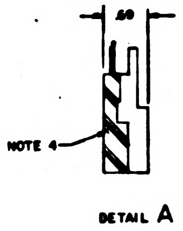
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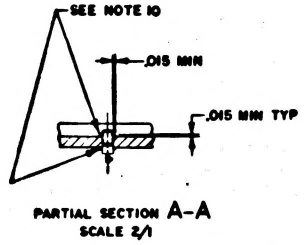
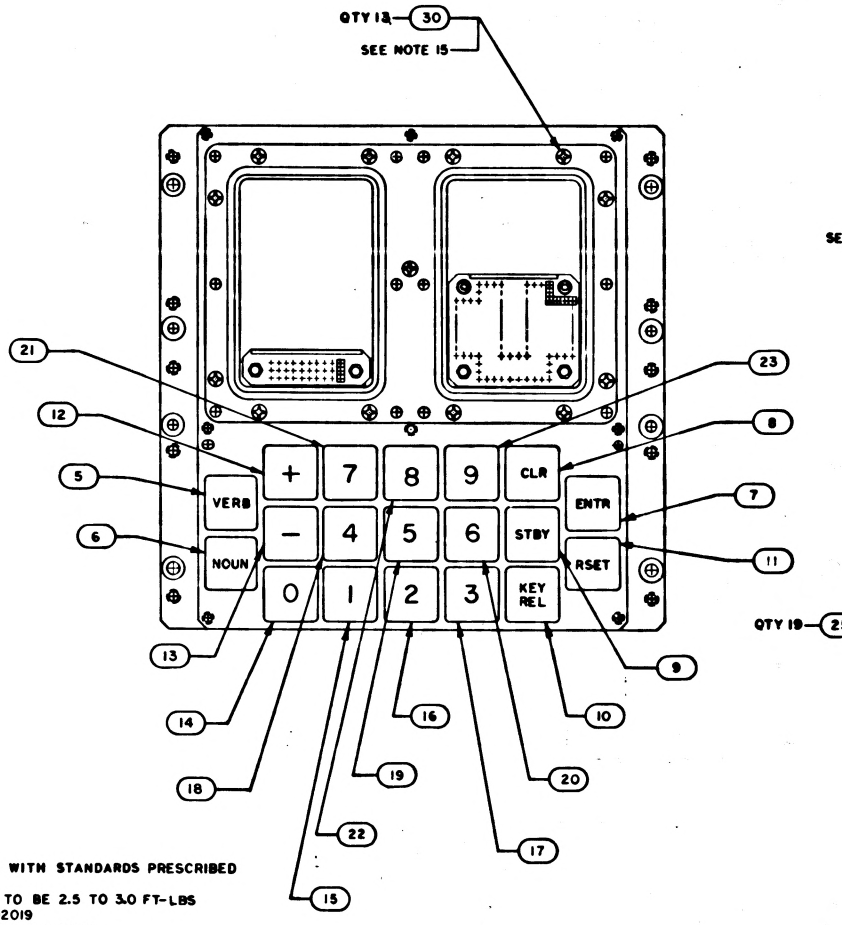
SEE NOTE 4

DETAIL A


SEE NOTE 10
.015 MIN
.015 MIN TYP

PARTIAL SECTION A-A
SCALE 2/1


QTY 13 30
SEE NOTE 15
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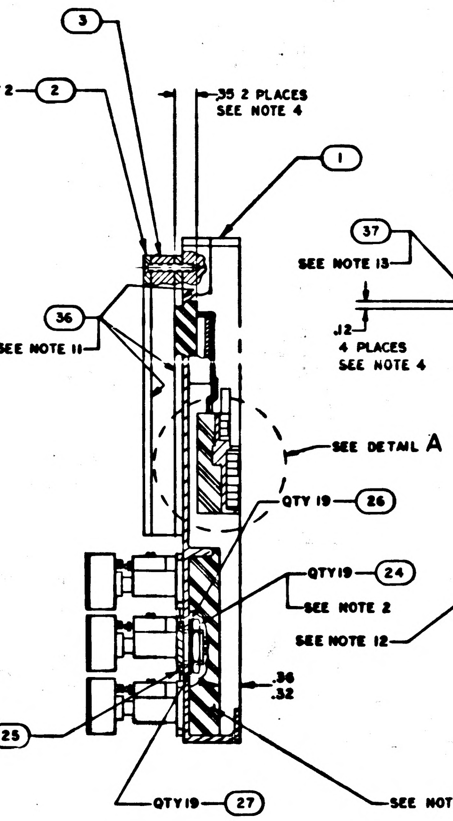
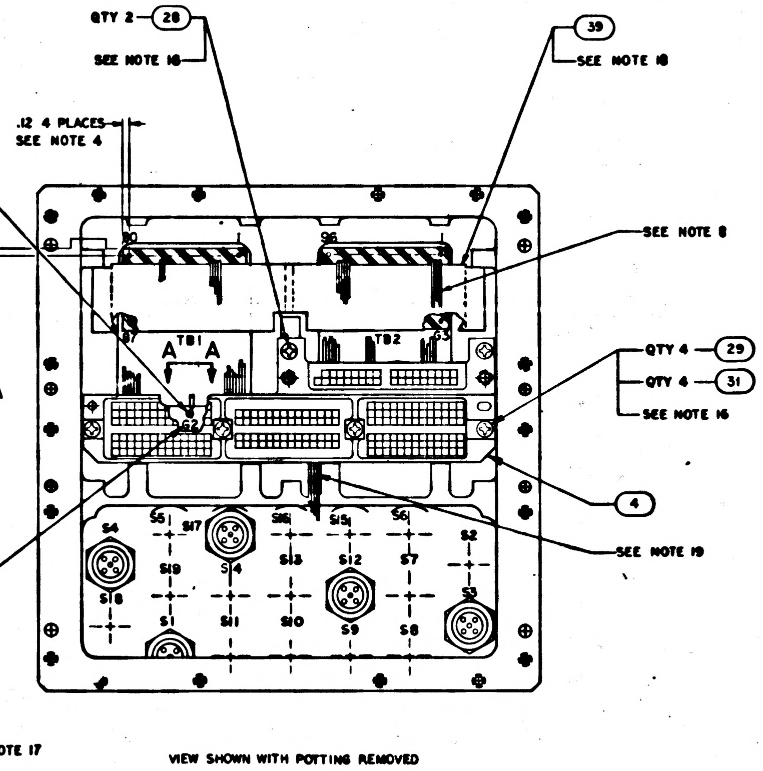

3
QTY 2 2
.35 2 PLACES
SEE NOTE 4
1
36
SEE NOTE 11
SEE NOTE 13
J2
4 PLACES
SEE NOTE 4
SEE DETAIL A
QTY 19 26
QTY19 24
SEE NOTE 2
SEE NOTE 12
.36
.32
QTY 19 25
QTY19 27
SEE NOTE 17


QTY 2 28
SEE NOTE 16
39
SEE NOTE 18
.12 4 PLACES
SEE NOTE 4
37
SEE NOTE 8
90
96
TB1
TB2
A
A
QTY 4 29
QTY 4 31
SEE NOTE 16
4
SEE NOTE 19
S4
S6
S17
S16
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S9
S8

VIEW SHOWN WITH POTTING REMOVED

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE FOR FIND NO. 24 TO BE 2.5 TO 3.0 FT-LBS
3. IDENTIFY WITH PART NO. PER ND1002019
4. ENCAPSULATE INDICATED AREAS PER ND1002236
5. SOLDER PER ND 1002071 USING SOLDER PER ND1002075
6. WELD PER ND1002005
7. AR DENOTES AS REQUIRED
8. BOND FIND NO. 32, 33, 38, 40 & 41 TO FIND NO. 39 PER ND1002009, METHOD C
9. DRESS AND TRIM AT ASSEMBLY USING FIND NO. 34
10. SEAL FIND NO. 37 TO FIND NO. 1 PER ND1002004 TYPE VI
11. APPLY FIND NO. 36 TO INDICATED SURFACES OF FIND NO. 2. DO NOT APPLY TO BONDED RUBBER
12. MARK .07/.10 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122 TYPE II CLASS 2, USING MARKING INK 1006271-11
13. MOUNTING TORQUE FOR FIND NO. 37 TO BE 15-20 INCH OUNCES
14. SEAL INSULATORS ON FIND NO. 4 PER ND1002004 TYPE VI
15. MOUNTING TORQUE FOR FIND NO. 30 TO BE 3.5-4.5 INCH POUNDS
16. MOUNTING TORQUE FOR FIND NO. 28 AND FIND NO. 29 TO BE 8 TO 9 INCH POUNDS
17. ENCAPSULATE INDICATED AREA PER ND1002295
18. BOND FIND NO. 39 TO FIND NO. 1 PER ND1002004, TYPE IV
19. BOND FIND NO. 33, 38 AND 40 TO FIND NO. 1 PER ND1002009, METHOD C

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2005953	INTERCONNECTING DIAGRAM	REF
AR	1010807-22	WIRE INSULATED	41
AR	1010416-14	WIRE, INSULATED	40
1	2004898	SUPPORT, WIRE	39
AR	1010416-13	WIRE, INSULATED	38
1	2004039	TERMINAL, THREADED	37
AR	1006879	SILICONE COMPOUND	36
AR	1010416-15	WIRE, INSULATED	35
AR	1012507-003	TAPE, LACING	34
AR	1010416-20	WIRE, INSULATED	33
AR	1010848-1	WIRE, INSULATED	32
4	NAS620-6L	WASHER, FLAT	31
13	MS51959-20	SCREW, FLAT HD, CROSS RECESSED	30
4	MS51957-30	SCREW, PAN HD, CROSS RECESSED	29
2	MS51959-28	SCREW, FLAT HD, CROSS RECESSED	28
19	1010635-003	WASHER, LOCK	27
19	2004940-001	WASHER, PLAIN	26
19	1000159-18	O RING SEAL	25
19	2004942	NUT, HEX	24
1	2003984-211	SWITCH, ASSEMBLY PUSHBUTTON	23
1	-191		22
1	-181		21
1	-171		20
1	-161		19
1	-151		18
1	-141		17
1	-131		16
1	-121		15
1	-111		14
1	-091		13
1	-081		12
1	-071		11
1	-061		10
1	-051		9
1	-041		8
1	-031		7
1	-021		6
1	2003984-011	SWITCH, ASSEMBLY PUSHBUTTON	5
1	2003948-011	CONNECTOR, PLATE ASSEMBLY	4
1	2003959-011	ADAPTER, PLATE ASSEMBLY	3
2	1006351	GASKET, PREFORMED	2
1	2004968-011	HOUSING, FRONT	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003950	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.01 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN J. P. Leonard
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

FRONT HOUSING ASSEMBLY
AGC DSKY

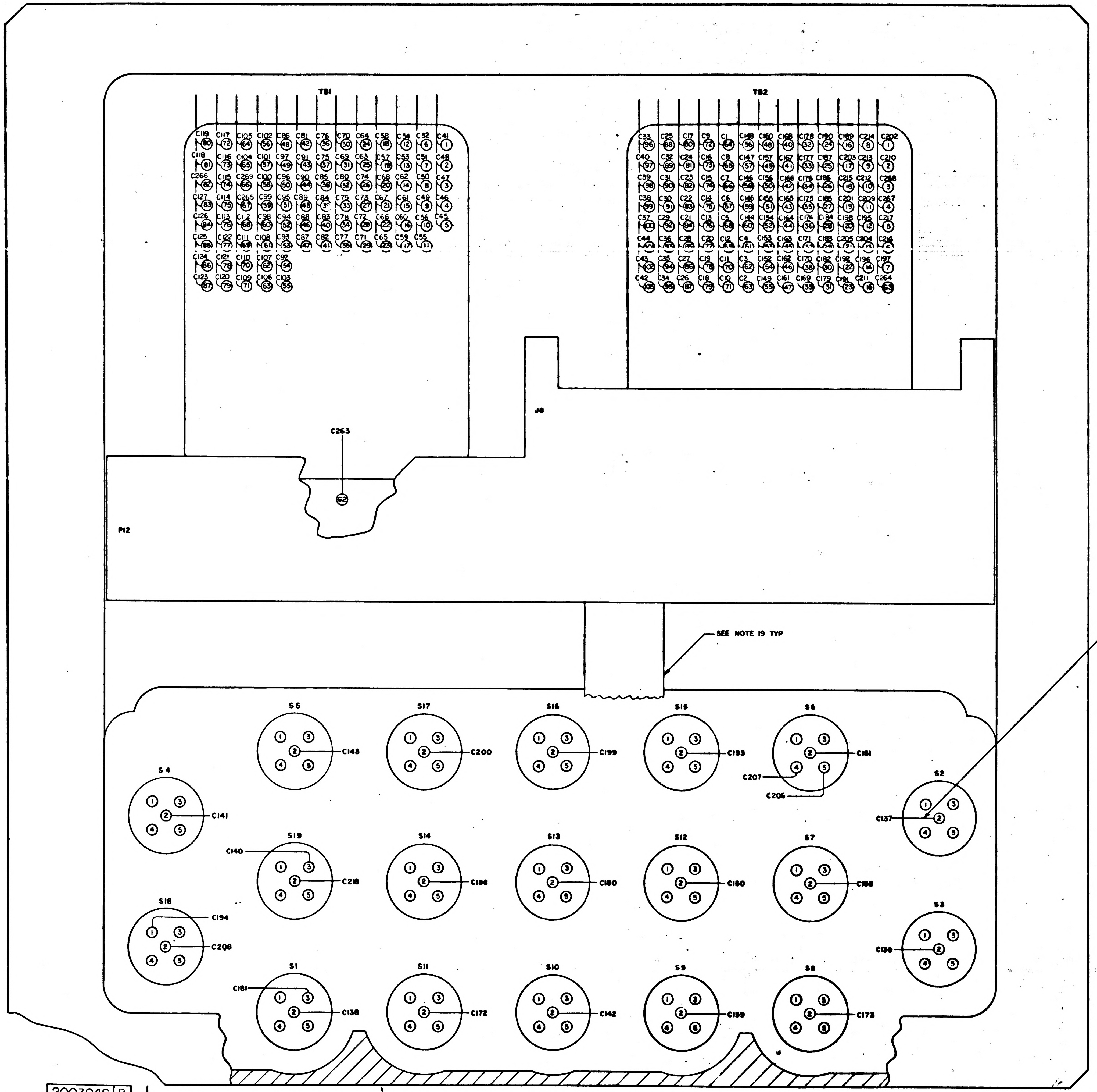
CODE IDENT NO. 80230 SIZE J DRAWING NO. 2003949
SCALE 1/1 SHEET 1 OF 3

2003949 B

MASTER

2003949 B

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 26856	J.P.S.			
B		REVISED PER TDRR 27913	J.P.T.			



TB1
TB2
J8
C263
62
P12
SEE NOTE 19 TYP
SEE NOTE 9
S5
C143
S17
C200
S16
C199
S15
C193
S6
C181
C207
C206
S4
C141
S2
C137
S19
C140
C218
S14
C188
S13
C180
S12
C150
S7
C186
S3
C139
S18
C194
C208
S1
C181
C138
S11
C172
S10
C142
S9
C159
S8
C173
1
2
3
4
5

2003949 B

MAS

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

NEXT ASSY | USED ON
APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J.P. Leonard
CHECKED J.C. [illegible]
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT HOUSING ASSEMBLY

AGC DSKY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003949
SCALE NONE
SHEET 2 OF 3

F 2/2

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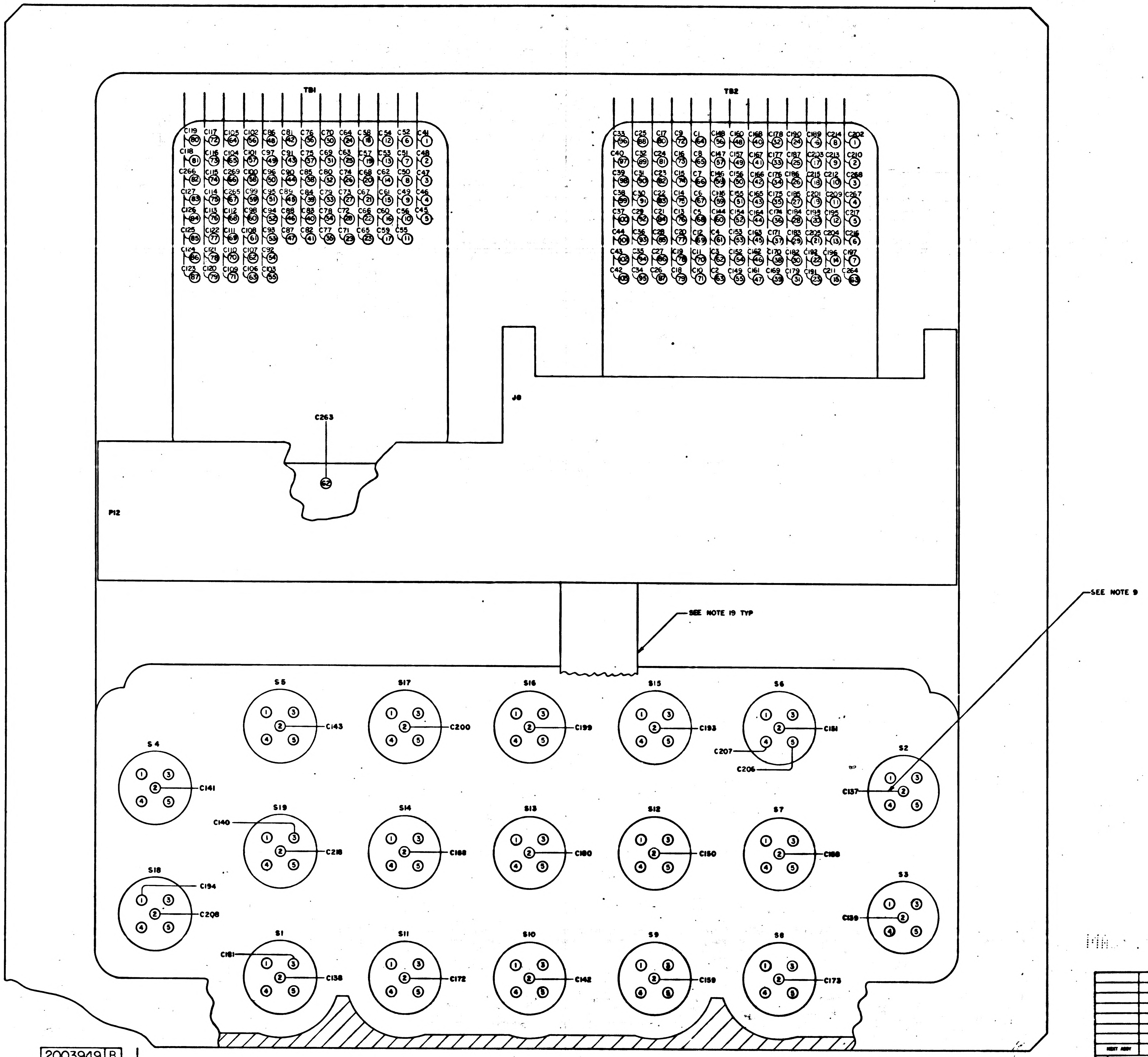
2003949 B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C109 71
C106 63
C103 55
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C185 27
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C209 11
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C20 77
C12 69
C4 61
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C183 29
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C35 94
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C26 87
C18 79
C10 71
C2 63
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C161 47
C169 39
C179 31
C191 23
C211 15
C264 63
C263
62
J8
P12
SEE NOTE 19 TYP
SEE NOTE 9
S5
C143
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C180
S12
C150
S7
C198
S3
C139
S18
C194
C208
S1
C181
C138
S11
C172
S10
C142
S9
C159
S8
C173
1
2
3
4
5

QTY REQD	PART OR IDENTIFYING NO.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

NEXT ASSY	USED ON
APPLICATION	

MIT
INSTRUMENTATION
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED Edward Hall
APPROVED MIT
APPROVED MSC

2003949 B

2003949 B F1/2 SHEET 2

2003949 | B

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 26856	J.P.S.			
B		REVISED PER TDRR 27913				

LEAD ELECTRICAL

EMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
E NOTE 6	P12-131	32	WHT	26	AR	TB2-64	SEE NOTE 6
	-132					TB2-63	
	-133					TB2-62	
	-134					TB2-61	
	-127					TB2-68	
	-128					TB2-67	
	-129					TB2-66	
	-130					TB2-65	
	-123					TB2-72	
	-124					TB2-71	
	-125					TB2-70	
	-126					TB2-69	
	-119					TB2-76	
	-120					TB2-75	
	-121					TB2-74	
	-122					TB2-73	
	-115					TB2-80	
	-116					TB2-79	
	-117					TB2-78	
	-118					TB2-77	
	-111					TB2-84	
	-112					TB2-83	
	-113					TB2-82	
	-114					TB2-81	
	-107					TB2-88	
	-108					TB2-87	
	-109					TB2-86	
	-110					TB2-85	
	-103					TB2-92	
	-104					TB2-91	
	-105					TB2-90	
	-106					TB2-89	
	-99					TB2-96	
	-100					TB2-95	
	-101					TB2-94	
	-102					TB2-93	
	-95					TB2-100	
	-96					TB2-99	
	-97					TB2-98	
	-98					TB2-97	
	-91					TB1-1	
	-92					TB2-103	
	-93					TB2-102	
	-94					TB2-101	
	-87					TB1-5	
	-88					TB1-4	
	-89					TB1-3	
	-90					TB1-2	
	-83					TB1-9	
	-84					TB1-8	
	-85					TB1-7	
	-86					TB1-6	
	-79					TB1-13	
	-80					TB1-12	
	-81					TB1-11	
	-82					TB1-10	
	-73					TB1-19	
	-74					TB1-18	
	-75					TB1-17	
	-76					TB1-16	
	-77					TB1-15	
	-78					TB1-14	
	-67					TB1-25	
	-68					TB1-24	
	-69					TB1-23	
	-70					TB1-22	
	-71					TB1-21	
	-72					TB1-20	
	-61					TB1-31	
	-62					TB1-30	
	-63					TB1-29	
	-64					TB1-28	
	-65					TB1-27	
	-66					TB1-26	
	-55					TB1-37	
	-56					TB1-36	
	-57					TB1-35	
	-58					TB1-34	
	-59					TB1-33	
	-60					TB1-32	
	-50					TB1-42	
	-51					TB1-41	
	-52					TB1-40	
	-53					TB1-39	
	-54					TB1-38	
	-43					TB1-48	
	-44					TB1-47	
	P12-45	32	WHT	26	AR	TB1-46	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C89	SEE NOTE 6	P12-46	32	WHT	26	AR	TB1-45	SEE NOTE 6
C90		-47					TB1-44	
C91		-48					TB1-43	
C92		-37					TB1-54	
C93		-38					TB1-53	
C94		-39					TB1-52	
C95		-40					TB1-51	
C96		-41					TB1-50	
C97		-42					TB1-49	
C98		-31					TB1-60	
C99		-32					TB1-59	
C100		-33					TB1-58	
C101		-34					TB1-57	
C102		-35					TB1-56	
C103		-36					TB1-57	
C104		-25					TB1-65	
C105		-27					TB1-64	
C106		-28					TB1-63	
C107		-29					TB1-62	
C108		-30					TB1-61	
C109		-21					TB1-71	
C110		-22					TB1-70	
C111		-23					TB1-69	
C112		-24					TB1-68	
C113		-13					TB1-76	
C114		-15					TB1-75	
C115		-16					TB1-74	
C116		-17					TB1-73	
C117		-18					TB1-72	
C118		-7					TB1-81	
C119		-9					TB1-80	
C120		-10					TB1-79	
C121		-11					TB1-78	
C122		-12					TB1-77	
C123		-1					TB1-87	
C124		-3					TB1-86	
C125		-4					TB1-85	
C126		-5					TB1-84	
C127		P12-6	32	WHT			TB1-83	
C128	SEE NOTE 5	S16-1	35	YEL			S17-3	SEE NOTE 5
C129		S5-4	38	RED			S19-4	
C130		S5-5	40	ORN			S19-5	
C131		S19-4	38	RED			S1-4	
C132		S19-5	40	ORN			S1-5	
C133		S1-4	38	RED			S18-4	
C134		S1-5	40	ORN			S18-5	
C135		S18-4	38	RED			S4-4	
C136		S18-5	40	ORN			S4-5	
C137		J8-3	33	WHT			S2-2	
C138		-5					S1-2	
C139		-8					S3-2	
C140		-9					S19-3	
C141		-10					S4-2	
C142		-11					S10-2	
C143		J8-13	33				S5-2	
C144	SEE NOTE 6	P12-135	32				TB2-60	SEE NOTE 6
C145		-136					TB2-59	
C146		-137					TB2-58	
C147		-138					TB2-57	
C148		-139					TB2-56	
C149		P12-140	32				TB2-55	
C150	SEE NOTE 5	J8-14	33				S12-2	SEE NOTE 5
C151		J8-15	33				S6-2	
C152	SEE NOTE 6	P12-141	32				TB2-54	SEE NOTE 6
C153		-142					TB2-53	
C154		-143					TB2-52	
C155		-144					TB2-51	
C156		-145					TB2-50	
C157		P12-146	32				TB2-49	
C158	SEE NOTE 5	J8-16	33				S7-2	SEE NOTE 5
C159		J8-17	33				S9-2	
C160	SEE NOTE 6	P12-147	32				TB2-48	SEE NOTE 6
C161		-148					-47	
C162		-149					-46	
C163		-150					-45	
C164		-151					-44	
C165		-152					-43	
C166		-153					-42	
C167		-154					-41	
C168		-155					-40	
C169		-156					-39	
C170		-157					-38	
C171		P12-158	32				TB2-37	
C172	SEE NOTE 5	J8-18	33				S11-2	SEE NOTE 5
C173		J8-19	33				S8-2	
C174	SEE NOTE 6	P12-159	32				TB2-36	SEE NOTE 6
C175		P12-160	32				TB2-35	
C176		P12-161	32	WHT	26	AR	TB2-34	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C177	SEE NOTE 6	P12-162	32	WHT	26	AR	TB2-33	SEE NOTE 6
C178		P12-163	32				TB2-32	
C179		P12-164	32				TB2-31	
C180	SEE NOTE 5	J8-20	33				S13-2	SEE NOTE 5
C181		J8-21	33				S1-3	
C182	SEE NOTE 6	P12-165	32				TB2-30	SEE NOTE 6
C183		-166					-29	
C184		-167					-28	
C185		-168					-27	
C186		-169					-26	
C187		P12-170	32				TB2-25	
C188	SEE NOTE 5	J8-22	33				S14-2	SEE NOTE 5
C189	SEE NOTE 6	P12-190	32				TB2-16	SEE NOTE 6
C190		-174					-24	
C191		-175					-23	
C192		P12-176	32				TB2-22	
C193	SEE NOTE 5	J8-24	33				S15-2	SEE NOTE 5
C194		J8-25	33				S18-1	
C195	SEE NOTE 6	P12-196	32				TB2-12	SEE NOTE 6
C196		-192					-14	
C197		-204					-7	
C198		P12-182	32				TB2-20	
C199	SEE NOTE 5	J8-26	33				S16-2	SEE NOTE 5
C200		J8-27	33				S17-2	
C201	SEE NOTE 6	P12-185	32				TB2-19	SEE NOTE 6
C202		-210					-1	
C203		-187					-17	
C204		-195					-13	
C205		-181	32	WHT			TB2-21	
C206	SEE NOTE 5	-193	40	ORN			S6-5	SEE NOTE 5
C207		P12-194	38	RED			S6-4	
C208		J8-30	33	WHT			S18-2	
C209	SEE NOTE 6	P12-197	32	WHT			TB2-11	SEE NOTE 6
C210		-209					-2	
C211		-191					-15	
C212		-201					-10	
C213		-202					-9	
C214		-203					-8	
C215		-186					-18	
C216		-207					-6	
C217		-208	32	WHT			TB2-5	
C218	SEE NOTE 5	P12-179	33	WHT			S19-2	SEE NOTE 5
C219		S1-1	35	YEL			S2-3	
C220		S2-1					S3-3	
C221		S3-1					S4-3	
C222		S4-1					S5-3	
C223		S5-1					S6-3	
C224		S6-1					S7-3	
C225		S7-1					S8-3	
C226		S8-1					S9-3	
C227		S9-1					S10-3	
C228		S10-1					S11-3	
C229		S11-1					S12-3	
C230		S12-1					S13-3	
C231		S13-1					S14-3	
C232		S14-1					S15-3	
C233		S15-1	35	YEL			S16-3	
C234		S17-4	38	RED			S5-4	
C235		S17-5	40	ORN			S5-5	
C236		S6-4	38	RED			S2-4	
C237		S6-5	40	ORN			S2-5	
C238		S2-4	38	RED			S7-4	
C239		S2-5	40	ORN			S7-5	
C240		S7-4	38	RED			S3-4	
C241		S7-5	40	ORN			S3-5	
C242		S3-4	38	RED			S8-4	
C243		S3-5	40	ORN			S8-5	
C244		S8-4	38	RED			S9-4	
C245		S8-5	40	ORN			S9-5	
C246		S9-4	38	RED			S12-4	
C247		S9-5	40	ORN			S12-5	
C248		S12-4	38	RED			S15-4	
C249		S12-5	40	ORN			S15-5	
C250		S15-4	38	RED			S16-4	
C251		S15-5	40	ORN			S16-5	
C252		S16-4	38	RED			S13-4	
C253		S16-5	40	ORN			S13-5	
C254		S13-4	38	RED			S10-4	
C255		S13-5	40	ORN			S10-5	
C256		S10-4	38	RED			S11-4	
C257		S10-5	40	ORN			S11-5	
C258		S11-4	38	RED			S14-4	
C259		S11-5	40	ORN			S14-5	
C260		S14-4	38	RED			S17-4	
C261		S14-5	40	ORN			S17-5	
C262		S17-1	35	YEL			S18-3	
C263	SEE NOTE 6	P12-184	32	WHT			62	SEE NOTE 6
C264	SEE NOTE 6	P12-183	41				63	SEE NOTE 5
C265	SEE NOTE 6	P12-20	32				TB1-67	SEE NOTE 6
C266		P12-8					TB1-82	
C267		P12-173					TB2-4	
C268		P12-177					TB2-3	
C269		P12-19	32	WHT	26	AR	TB1-56	

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY | USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN J.P. Lemond
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC E. G. METZGER
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230 | SIZE J | DRAWING NO. 2003949

SCALE NONE | SHEET 3 OF 3

2003949 | B

F 2/2

2003949 B

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LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C1	SEE NOTE 6	P12-131	32	WHT	26	AR	TB2-64	SEE NOTE 6
C2		-132					TB2-63	
C3		-133					TB2-62	
C4		-134					TB2-61	
C5		-127					TB2-68	
C6		-128					TB2-67	
C7		-129					TB2-66	
C8		-130					TB2-65	
C9		-123					TB2-72	
C10		-124					TB2-71	
C11		-125					TB2-70	
C12		-126					TB2-69	
C13		-119					TB2-76	
C14		-120					TB2-75	
C15		-121					TB2-74	
C16		-122					TB2-73	
C17		-115					TB2-80	
C18		-116					TB2-79	
C19		-117					TB2-78	
C20		-118					TB2-77	
C21		-111					TB2-84	
C22		-112					TB2-83	
C23		-113					TB2-82	
C24		-114					TB2-81	
C25		-107					TB2-88	
C26		-108					TB2-87	
C27		-109					TB2-86	
C28		-110					TB2-85	
C29		-103					TB2-92	
C30		-104					TB2-91	
C31		-105					TB2-90	
C32		-106					TB2-89	
C33		-99					TB2-96	
C34		-100					TB2-95	
C35		-101					TB2-94	
C36		-102					TB2-93	
C37		-95					TB2-100	
C38		-96					TB2-99	
C39		-97					TB2-98	
C40		-98					TB2-97	
C41		-91					TB1-1	
C42		-92					TB2-103	
C43		-93					TB2-102	
C44		-94					TB2-101	
C45		-87					TB1-5	
C46		-88					TB1-4	
C47		-89					TB1-3	
C48		-90					TB1-2	
C49		-83					TB1-9	
C50		-84					TB1-8	
C51		-85					TB1-7	
C52		-86					TB1-6	
C53		-79					TB1-13	
C54		-80					TB1-12	
C55		-81					TB1-11	
C56		-82					TB1-10	
C57		-73					TB1-19	
C58		-74					TB1-18	
C59		-75					TB1-17	
C60		-76					TB1-16	
C61		-77					TB1-15	
C62		-78					TB1-14	
C63		-67					TB1-25	
C64		-68					TB1-24	
C65		-69					TB1-23	
C66		-70					TB1-22	
C67		-71					TB1-21	
C68		-72					TB1-20	
C69		-61					TB1-31	
C70		-62					TB1-30	
C71		-63					TB1-29	
C72		-64					TB1-28	
C73		-65					TB1-27	
C74		-66					TB1-26	
C75		-55					TB1-37	
C76		-56					TB1-36	
C77		-57					TB1-35	
C78		-58					TB1-34	
C79		-59					TB1-33	
C80		-60					TB1-32	
C81		-50					TB1-42	
C82		-51					TB1-41	
C83		-52					TB1-40	
C84		-53					TB1-39	
C85		-54					TB1-38	
C86		-43					TB1-48	
C87		-44					TB1-47	
C88		P12-45	32	WHT	26	AR	TB1-46	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C89	SEE NOTE 6	P12-46	32	WHT	26	AR	TB1-45	SEE NOTE 6
C90		-47					TB1-44	
C91		-48					TB1-43	
C92		-37					TB1-54	
C93		-38					TB1-53	
C94		-39					TB1-52	
C95		-40					TB1-51	
C96		-41					TB1-50	
C97		-42					TB1-49	
C98		-31					TB1-60	
C99		-32					TB1-59	
C100		-33					TB1-58	
C101		-34					TB1-57	
C102		-35					TB1-56	
C103		-36					TB1-57	
C104		-25					TB1-65	
C105		-27					TB1-64	
C106		-28					TB1-63	
C107		-29					TB1-62	
C108		-30					TB1-61	
C109		-21					TB1-71	
C110		-22					TB1-70	
C111		-23					TB1-69	
C112		-24					TB1-68	
C113		-13					TB1-76	
C114		-15					TB1-75	
C115		-16					TB1-74	
C116		-17					TB1-73	
C117		-18					TB1-72	
C118		-7					TB1-81	
C119		-9					TB1-80	
C120		-10					TB1-79	
C121		-11					TB1-78	
C122		-12					TB1-77	
C123		-1					TB1-87	
C124		-3					TB1-86	
C125		-4					TB1-85	
C126		-5					TB1-84	
C127		P12-6	32	WHT			TB1-83	
C128	SEE NOTE 5	S16-1	35	YEL			S17-3	SEE NOTE 5
C129		S5-4	38	RED			S19-4	
C130		S5-5	40	ORN			S19-5	
C131		S19-4	38	RED			S1-4	
C132		S19-5	40	ORN			S1-5	
C133		S1-4	38	RED			S18-4	
C134		S1-5	40	ORN			S18-5	
C135		S18-4	38	RED			S4-4	
C136		S18-5	40	ORN			S4-5	
C137		J8-3	33	WHT			S2-2	
C138		-5					S1-2	
C139		-8					S3-2	
C140		-9					S19-3	
C141		-10					S4-2	
C142		-11					S10-2	
C143		J8-13	33				S5-2	
C144	SEE NOTE 6	P12-135	32				TB2-60	SEE NOTE 6
C145		-136					TB2-59	
C146		-137					TB2-58	
C147		-138					TB2-57	
C148		-139					TB2-56	
C149		P12-140	32				TB2-55	
C150	SEE NOTE 5	J8-14	33				S12-2	SEE NOTE 5
C151		J8-15	33				S6-2	
C152	SEE NOTE 6	P12-141	32				TB2-54	SEE NOTE 6
C153		-142					TB2-53	
C154		-143					TB2-52	
C155		-144					TB2-51	
C156		-145					TB2-50	
C157		P12-146	32				TB2-49	
C158	SEE NOTE 5	J8-16	33				S7-2	SEE NOTE 5
C159		J8-17	33				S9-2	
C160	SEE NOTE 6	P12-147	32				TB2-48	SEE NOTE 6
C161		-148					-47	
C162		-149					-46	
C163		-150					-45	
C164		-151					-44	
C165		-152					-43	
C166		-153					-42	
C167		-154					-41	
C168		-155					-40	
C169		-156					-39	
C170		-157					-38	
C171		P12-158	32				TB2-37	
C172	SEE NOTE 5	J8-18	33				S11-2	SEE NOTE 5
C173		J8-19	33				S8-2	
C174	SEE NOTE 6	P12-159	32				TB2-36	SEE NOTE 6
C175		P12-160	32				TB2-35	
C176		P12-161	32	WHT	26	AR	TB2-34	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C177	SEE NOTE 6	P12-162	32	WHT	26	AR	TB2-33	SEE NOTE 6
C178		P12-163	32				TB2-32	
C179		P12-164	32				TB2-31	
C180	SEE NOTE 5	J8-20	33				S13-2	SEE NOTE 5
C181		J8-21	33				S1-3	
C182	SEE NOTE 6	P12-165	32				TB2-30	SEE NOTE 6
C183		-166					-29	
C184		-167					-28	
C185		-168					-27	
C186		-169					-26	
C187		P12-170	32				TB2-25	
C188	SEE NOTE 5	J8-22	33				S14-2	SEE NOTE 5
C189	SEE NOTE 6	P12-190	32				TB2-16	SEE NOTE 6
C190		-174					-24	
C191		-175					-23	
C192		P12-176	32				TB2-22	
C193	SEE NOTE 5	J8-24	33				S15-2	SEE NOTE 5
C194		J8-25	33				S18-1	
C195	SEE NOTE 6	P12-196	32				TB2-12	SEE NOTE 6
C196		-192					-14	
C197		-204					-7	
C198		P12-182	32				TB2-20	
C199	SEE NOTE 5	J8-26	33				S16-2	SEE NOTE 5
C200		J8-27	33				S17-2	
C201	SEE NOTE 6	P12-185	32				TB2-19	SEE NOTE 6
C202		-210					-1	
C203		-187					-17	
C204		-195					-13	
C205		-181	32	WHT			TB2-21	
C206	SEE NOTE 5	-193	40	ORN			S6-5	SEE NOTE 5
C207		P12-194	38	RED			S6-4	
C208		J8-30	33	WHT			S18-2	
C209	SEE NOTE 6	P12-197	32	WHT			TB2-11	SEE NOTE 6
C210		-209					-2	
C211		-191					-15	
C212		-201					-10	
C213		-202					-9	
C214		-203					-8	
C215		-186					-18	
C216		-207					-6	
C217		-208	32	WHT			TB2-5	
C218	SEE NOTE 5	P12-179	33	WHT			S19-2	SEE NOTE 5
C219		S1-1	35	YEL			S2-3	
C220		S2-1					S3-3	
C221		S3-1					S4-3	
C222		S4-1					S5-3	
C223		S5-1					S6-3	
C224		S6-1					S7-3	
C225		S7-1					S8-3	
C226		S8-1					S9-3	
C227		S9-1					S10-3	
C228		S10-1					S11-3	
C229		S11-1					S12-3	
C230		S12-1					S13-3	
C231		S13-1					S14-3	
C232		S14-1					S15-3	
C233		S15-1	35	YEL			S16-3	
C234		S17-4	38	RED			S5-4	
C235		S17-5	40	ORN			S5-5	
C236		S6-4	38	RED			S2-4	
C237		S6-5	40	ORN			S2-5	
C238		S2-4	38	RED			S7-4	
C239		S2-5	40	ORN			S7-5	
C240		S7-4	38	RED			S3-4	
C241		S7-5	40	ORN			S3-5	
C242		S3-4	38	RED			S8-4	
C243		S3-5	40	ORN			S8-5	
C244		S8-4	38	RED			S9-4	
C245		S8-5	40	ORN			S9-5	
C246		S9-4	38	RED			S12-4	
C247		S9-5	40	ORN			S12-5	
C248		S12-4	38	RED			S15-4	
C249		S12-5	40	ORN			S15-5	
C250		S15-4	38	RED			S16-4	
C251		S15-5	40	ORN			S16-5	
C252		S16-4	38	RED			S13-4	
C253		S16-5	40	ORN			S13-5	
C254		S13-4	38	RED			S10-4	
C255		S13-5	40	ORN			S10-5	
C256		S10-4	38	RED			S11-4	
C257		S10-5	40	ORN			S11-6	
C258		S11-4	38	RED			S14-4	
C259		S11-5	40	ORN			S14-5	
C260		S14-4	38	RED			S17-4	
C261		S14-5	40	ORN			S17-5	
C262		S17-1	35	YEL			S18-3	
C263	SEE NOTE 6	P12-184	32	WHT			62	SEE NOTE 6
C264	SEE NOTE 6	P12-183	41				63	SEE NOTE 5
C265	SEE NOTE 6	P12-20	32				TB1-67	SEE NOTE 6
C266		P12-8					TB1-82	
C267		P12-173					TB2-4	
C268		P12-177					TB2-3	
C269		P12-19	32	WHT	26	AR	TB1-66	

QTY REQD	PART IDENTIF

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTA
CAMBRIDGE

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED NASC

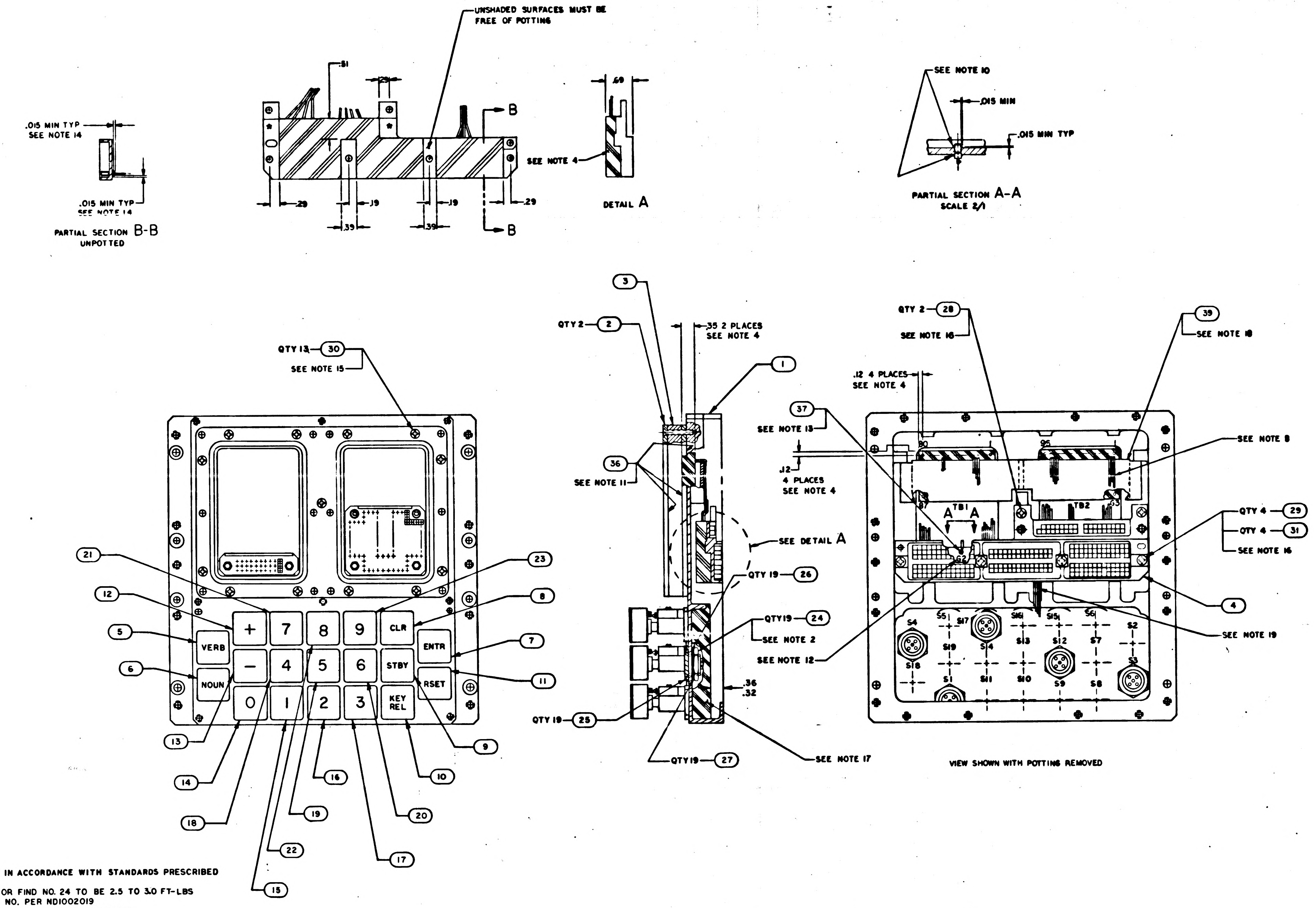
2003949 B

2003949 B F1/2

SHEET 3

2003949 | C

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		REVISIONS 26205				
A		REVISED PER TDRR 26856	J.P.T.			
B		REVISED PER TDRR 27913	JPT	ABB		
C		REVISED PER TDRR 28178	JPT.			


UNSHADED SURFACES MUST BE FREE OF POTTING
.015 MIN TYP SEE NOTE 14
.015 MIN TYP SEE NOTE 14
PARTIAL SECTION B-B UNPOTTED
.51
.29
.29
.19
.19
.39
.39
B
B
SEE NOTE 4
.69
DETAIL A
SEE NOTE 10
.015 MIN
.015 MIN TYP
PARTIAL SECTION A-A SCALE 2/1
QTY 13 30
SEE NOTE 15
3
QTY 2 2
.35 2 PLACES SEE NOTE 4
1
36
SEE NOTE 11
SEE DETAIL A
QTY 19 26
QTY19 24
SEE NOTE 2
SEE NOTE 12
QTY 19 25
QTY19 27
SEE NOTE 17
.36
.32
QTY 2 28
SEE NOTE 16
39
SEE NOTE 18
.12 4 PLACES SEE NOTE 4
37
SEE NOTE 13
.12 4 PLACES SEE NOTE 4
SEE NOTE 8
QTY 4 29
QTY 4 31
SEE NOTE 16
4
SEE NOTE 19
TB1
TB2
A A
S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12 S13 S14 S15 S16 S17 S18 S19
VERB
NOUN
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0 1 2 3 4 5 6 7 8 9
CLR
ENTR
STBY
RSET
KEY REL
21 12 5 6 13 14 18 22 15 19 16 17 20 10 9 11 7 8 23
VIEW SHOWN WITH POTTING REMOVED

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE FOR FIND NO. 24 TO BE 2.5 TO 3.0 FT-LBS
3. IDENTIFY WITH PART NO. PER ND1002019
4. ENCAPSULATE INDICATED AREAS PER ND1002236
5. SOLDER PER ND 1002071 USING SOLDER PER ND1002075
6. WELD PER ND1002005
7. AR DENOTES AS REQUIRED
8. BOND FIND NO. 32, 33, 38, 40 & 41 TO FIND NO. 39 PER ND1002009, METHOD C
9. DRESS AND TRIM AT ASSEMBLY USING FIND NO. 34
10. SEAL FIND NO. 37 TO FIND NO. 1 PER ND1002004 TYPE VI
11. APPLY FIND NO. 36 TO INDICATED SURFACES OF FIND NO. 2. DO NOT APPLY TO BONDED RUBBER
12. MARK .07/.10 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122 TYPE II CLASS 2, USING MARKING INK 1006271-11
13. MOUNTING TORQUE FOR FIND NO. 37 TO BE 15-20 INCH OUNCES
14. SEAL INSULATORS ON FIND NO. 4 PER ND1002004 TYPE VI
15. MOUNTING TORQUE FOR FIND NO. 30 TO BE 3.5-4.5 INCH POUNDS
16. MOUNTING TORQUE FOR FIND NO. 28 AND FIND NO. 29 TO BE 8 TO 9 INCH POUNDS
17. ENCAPSULATE INDICATED AREA PER ND1002295
18. BOND FIND NO. 39 TO FIND NO. 1 PER ND1002004, TYPE IV
19. BOND FIND NO. 33, 38 AND 40 TO FIND NO. 1 PER ND1002009, METHOD C

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2005953	INTERCONNECTING DIAGRAM	REF
AR	1010807-22	WIRE INSULATED	41
AR	1010416-14	WIRE, INSULATED	40
1	2004898	SUPPORT, WIRE	39
AR	1010416-13	WIRE, INSULATED	38
1	2004039	TERMINAL, THREADED	37
AR	1006879	SILICONE COMPOUND	36
AR	1010416-15	WIRE, INSULATED	35
AR	1012507-003	TAPE, LACING	34
AR	1010416-20	WIRE, INSULATED	33
AR	1010848-1	WIRE, INSULATED	32
4	NAS620-6L	WASHER, FLAT	31
13	MS51959-20	SCREW, FLAT HD, CROSS RECESSED	30
4	MS51957-30	SCREW, PAN HD, CROSS RECESSED	29
2	MS51959-28	SCREW, FLAT HD, CROSS RECESSED	28
19	1010635-003	WASHER, LOCK	27
19	2004940-001	WASHER, PLAIN	26
19	1000159-18	O RING SEAL	25
19	2004942	NUT, HEX	24
1	2003984-211	SWITCH, ASSEMBLY PUSHBUTTON	23
1	-191		22
1	-181		21
1	-171		20
1	-161		19
1	-151		18
1	-141		17
1	-131		16
1	-121		15
1	-111		14
1	-091		13
1	-081		12
1	-071		11
1	-061		10
1	-051		9
1	-041		8
1	-031		7
1	-021		6
1	2003984-011	SWITCH, ASSEMBLY PUSHBUTTON	5
1	2003948-011	CONNECTOR, PLATE ASSEMBLY	4
1	2003959-011	ADAPTER, PLATE ASSEMBLY	3
2	1006351	GASKET, PREFORMED	2
1	2004968-021	HOUSING, FRONT	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003950	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.01 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN J. P. Leonard
CHECKED J C
APPROVED
APPROVED
APPROVED MIT
APPROVED NASA A. G. METZGER
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

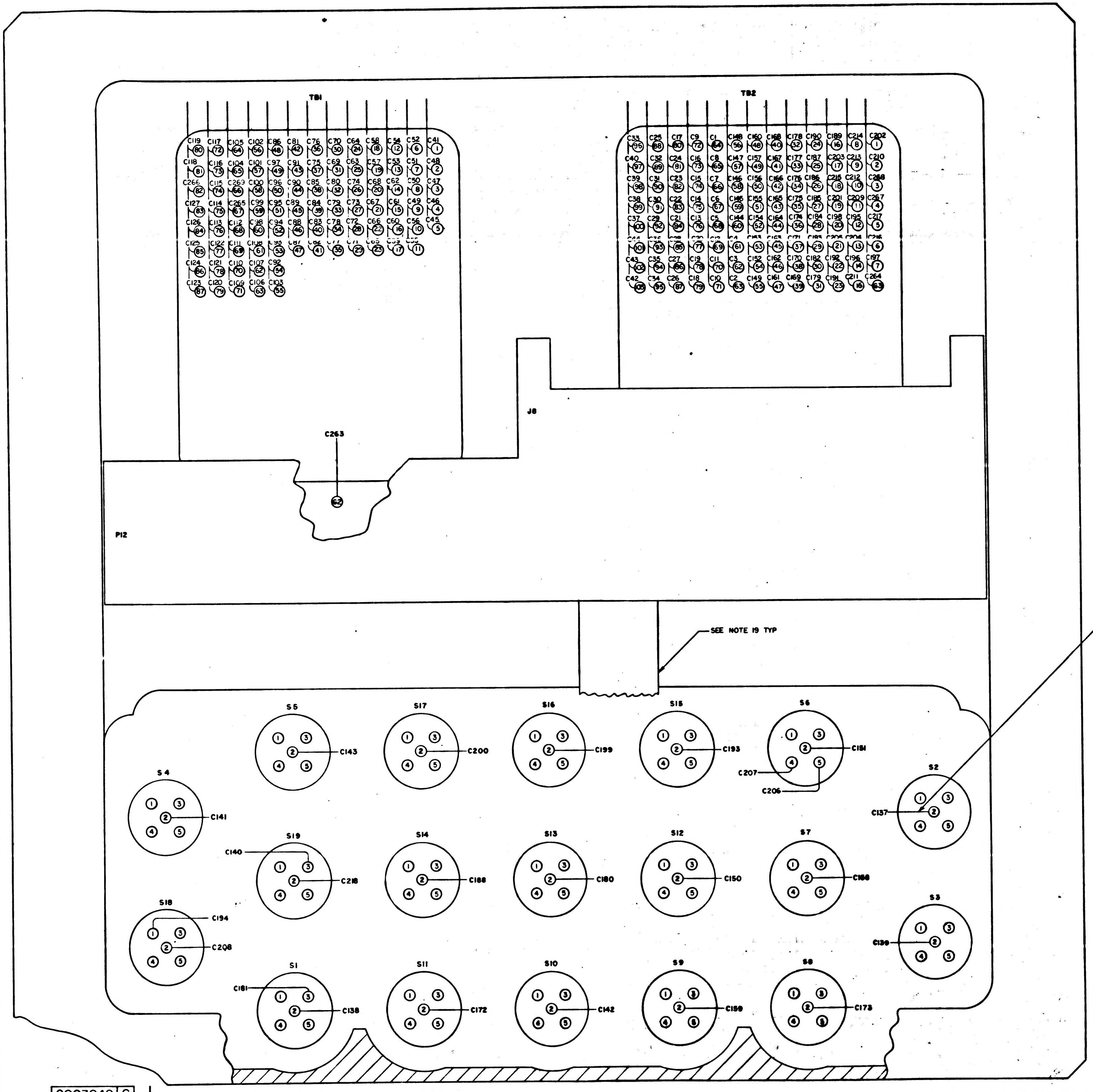
FRONT HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003949
SCALE 1/1
SHEET 1 OF

2003949 | C

2003949 C

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 26856	J.P.S.			
B		REVISED PER TDRR 27913	SPT			
C		REVISED PER TDRR 28178	S.P.T.	J.J		


TB1
TB2
J8
P12
C263
62
SEE NOTE 19 TYP
SEE NOTE 9
S5 C143
S17 C200
S16 C199
S15 C193
S6 C181 C207 C206
S4 C141
S2 C137
S19 C140 C218
S14 C188
S13 C180
S12 C150
S7 C168
S18 C194 C208
S3 C139
S1 C181 C138
S11 C172
S10 C142
S9 C159
S8 C173
1 2 3 4 5

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

NEXT ASSY | USED ON
APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

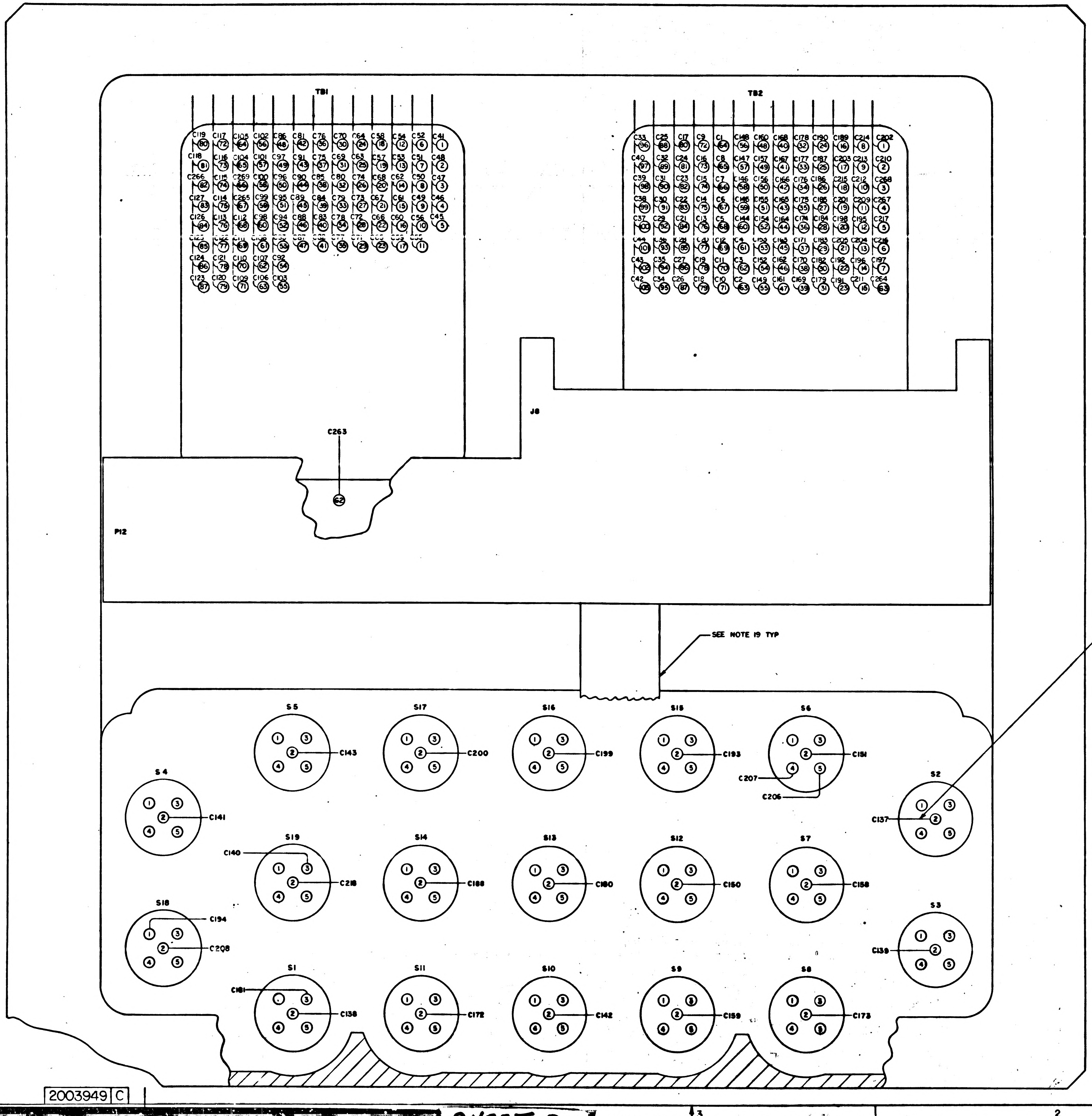
FRONT HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003949
SCALE NONE
SHEET 2 OF 3

2003949 C

F 2 / 2

2003949 C


TB1
C119 80, C117 72, C105 64, C102 56, C86 48, C81 42, C76 36, C70 30, C64 24, C58 18, C54 12, C52 6, C41 1
C118 81, C116 73, C104 65, C101 57, C97 49, C91 43, C75 37, C69 31, C63 25, C57 19, C53 13, C51 7, C48 2
C266 82, C115 74, C269 66, C100 58, C96 50, C90 44, C85 38, C80 32, C74 26, C68 20, C62 14, C50 8, C47 3
C127 83, C114 75, C265 67, C99 59, C95 51, C89 45, C84 39, C79 33, C73 27, C67 21, C61 15, C49 9, C46 4
C126 84, C113 76, C112 68, C98 60, C94 52, C88 46, C83 40, C78 34, C72 28, C66 22, C60 16, C56 10, C45 5
C125 85, C122 77, C111 69, C108 61, C93 53, C87 47, C82 41, C77 35, C71 29, C65 23, C59 17, C55 11
C124 86, C121 78, C110 70, C107 62, C92 54
C123 87, C120 79, C109 71, C106 63, C103 55
TB2
C33 96, C25 88, C17 80, C9 72, C1 64, C148 56, C160 48, C168 40, C178 32, C190 24, C189 16, C214 8, C202 1
C40 97, C32 89, C24 81, C16 73, C8 65, C147 57, C157 49, C167 41, C177 33, C187 25, C203 17, C213 9, C210 2
C39 98, C31 90, C23 82, C15 74, C7 66, C146 58, C156 50, C166 42, C176 34, C186 26, C215 18, C212 10, C268 3
C38 99, C30 91, C22 83, C14 75, C6 67, C145 59, C155 51, C165 43, C175 35, C185 27, C201 19, C209 11, C267 4
C37 100, C29 92, C21 84, C13 76, C5 68, C144 60, C154 52, C164 44, C174 36, C184 28, C198 20, C195 12, C217 5
C44 101, C36 93, C28 85, C20 77, C12 69, C4 61, C153 53, C163 45, C171 37, C183 29, C205 21, C204 13, C216 6
C43 102, C35 94, C27 86, C19 78, C11 70, C3 62, C152 54, C162 46, C170 38, C182 30, C192 22, C196 14, C197 7
C42 103, C34 95, C26 87, C18 79, C10 71, C2 63, C149 55, C161 47, C169 39, C179 31, C191 23, C211 15, C264 63
J8
C263
62
P12
SEE NOTE 19 TYP
SEE NOTE 9
S5 C143
S17 C200
S16 C199
S15 C193
S6 C151 C207 C206
S4 C141
S2 C137
S19 C140 C218
S14 C188
S13 C180
S12 C150
S7 C158
S18 C194 C208
S3 C139
S1 C181 C138
S11 C172
S10 C142
S9 C159
S8 C173
1 2 3 4 5

2003949 C

QTY REQD	PART OR IDENTIFYING NO

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION
CAMBRIDGE MASS

DRAWN J. L. Leonard
CHECKED J. C. Gould
APPROVED
APPROVED Eldon C. Hall
APPROVED MIT
A. C. METZGER
APPROVED MSC

2003949 C F1/2 SHEET 2

			REVISIONS			
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 26856	J.P.L.			
B		REVISED PER TDRR 27913	SPT			
C		REVISED PER TDRR 28178	SPT			

LEAD ELECTRICAL

FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
P12-131	32	WHT	26	AR	TB2-64	
-132					TB2-63	
-133					TB2-62	
-134					TB2-61	
-127					TB2-68	
-128					TB2-67	
-129					TB2-66	
-130					TB2-65	
-123					TB2-72	
-124					TB2-71	
-125					TB2-70	
-126					TB2-69	
-119					TB2-76	
-120					TB2-75	
-121					TB2-74	
-122					TB2-73	
-115					TB2-80	
-116					TB2-79	
-117					TB2-78	
-118					TB2-77	
-111					TB2-84	
-112					TB2-83	
-113					TB2-82	
-114					TB2-81	
-107					TB2-88	
-108					TB2-87	
-109					TB2-86	
-110					TB2-85	
-103					TB2-92	
-104					TB2-91	
-105					TB2-90	
-106					TB2-89	
-99					TB2-96	
-100					TB2-95	
-101					TB2-94	
-102					TB2-93	
-95					TB2-100	
-96					TB2-99	
-97					TB2-98	
-98					TB2-97	
-91					TB1-1	
-92					TB2-103	
-93					TB2-102	
-94					TB2-101	SEE NOTE 6
-87					TB1-5	
-88					TB1-4	
-89					TB1-3	
-90					TB1-2	
-83					TB1-9	
-84					TB1-8	
-85					TB1-7	
-86					TB1-6	
-79					TB1-13	
-80					TB1-12	
-81					TB1-11	
-82					TB1-10	
-73					TB1-19	
-74					TB1-18	
-75					TB1-17	
-76					TB1-16	
-77					TB1-15	
-78					TB1-14	
-67					TB1-25	
-68					TB1-24	
-69					TB1-23	
-70					TB1-22	
-71					TB1-21	
-72					TB1-20	
-61					TB1-31	
-62					TB1-30	
-63					TB1-29	
-64					TB1-28	
-65					TB1-27	
-66					TB1-26	
-55					TB1-37	
-56					TB1-36	
-57					TB1-35	
-58					TB1-34	
-59					TB1-33	
-60					TB1-32	
-50					TB1-42	
-51					TB1-41	
-52					TB1-40	
-53					TB1-39	
-54					TB1-38	
-43					TB1-48	
-44					TB1-47	
P12-45	32	WHT	26	AR	TB1-46	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C89		P12-46	32	WHT	26	AR	TB1-45	
C90		-47					TB1-44	
C91		-48					TB1-43	
C92		-37					TB1-54	
C93		-38					TB1-53	
C94		-39					TB1-52	
C95		-40					TB1-51	
C96		-41					TB1-50	
C97		-42					TB1-49	
C98		-31					TB1-60	
C99		-32					TB1-59	
C100		-33					TB1-58	
C101		-34					TB1-57	
C102		-35					TB1-56	
C103		-36					TB1-57	
C104		-25					TB1-65	
C105		-27					TB1-64	
C106	SEE NOTE 6	-28					TB1-63	SEE NOTE 6
C107		-29					TB1-62	
C108		-30					TB1-61	
C109		-21					TB1-71	
C110		-22					TB1-70	
C111		-23					TB1-69	
C112		-24					TB1-68	
C113		-13					TB1-76	
C114		-15					TB1-75	
C115		-16					TB1-74	
C116		-17					TB1-73	
C117		-18					TB1-72	
C118		-7					TB1-81	
C119		-9					TB1-80	
C120		-10					TB1-79	
C121		-11					TB1-78	
C122		-12					TB1-77	
C123		-1					TB1-87	
C124		-3					TB1-86	
C125		-4					TB1-85	
C126		-5					TB1-84	
C127		P12-6	32	WHT			TB1-83	
C128		S16-1	35	YEL			S17-3	
C129		S5-4	38	RED			S19-4	
C130		S5-5	40	ORN			S19-5	
C131		S19-4	38	RED			S1-4	
C132		S19-5	40	ORN			S1-5	
C133		S1-4	38	RED			S18-4	
C134		S1-5	40	ORN			S18-5	
C135	SEE NOTE 5	S18-4	38	RED			S4-4	SEE NOTE 5
C136		S18-5	40	ORN			S4-5	
C137		J8-3	33	WHT			S2-2	
C138		-5					S1-2	
C139		-8					S3-2	
C140		-9					S19-3	
C141		-10					S4-2	
C142		-11					S10-2	
C143		J8-13	33				S5-2	
C144		P12-135	32				TB2-60	
C145		-136					TB2-59	
C146		-137					TB2-58	
C147	SEE NOTE 6	-138					TB2-57	SEE NOTE 6
C148		-139					TB2-56	
C149		P12-140	32				TB2-55	
C150	SEE NOTE 5	J8-14	33				S12-2	SEE NOTE 5
C151		J8-15	33				S6-2	
C152		P12-141	32				TB2-54	
C153		-142					TB2-53	
C154	SEE NOTE 6	-143					TB2-52	SEE NOTE 6
C155		-144					TB2-51	
C156		-145					TB2-50	
C157		P12-146	32				TB2-49	
C158	SEE NOTE 5	J8-16	33				S7-2	SEE NOTE 5
C159		J8-17	33				S9-2	
C160		P12-147	32				TB2-48	
C161		-148					-47	
C162		-149					-46	
C163		-150					-45	
C164		-151					-44	
C165	SEE NOTE 6	-152					-43	SEE NOTE 6
C166		-153					-42	
C167		-154					-41	
C168		-155					-40	
C169		-156					-39	
C170		-157					-38	
C171		P12-158	32				TB2-37	
C172	SEE NOTE 5	J8-18	33				S11-2	SEE NOTE 5
C173		J8-19	33				S8-2	
C174		P12-159	32				TB2-36	
C175	SEE NOTE 6	P12-160	32				TB2-35	SEE NOTE 6
C176		P12-161	32	WHT	26	AR	TB2-34	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C177		P12-162	32	WHT	26	AR	TB2-33	
C178	SEE NOTE 6	P12-163	32				TB2-32	SEE NOTE 6
C179		P12-164	32				TB2-31	
C180	SEE NOTE 5	J8-20	33				S13-2	SEE NOTE 5
C181		J8-21	33				S1-3	
C182		P12-165	32				TB2-30	
C183		-166					-29	
C184	SEE NOTE 6	-167					-28	SEE NOTE 6
C185		-168					-27	
C186		-169					-26	
C187		P12-170	32				TB2-25	
C188	SEE NOTE 5	J8-22	33				S14-2	SEE NOTE 5
C189		P12-190	32				TB2-16	
C190		-174					-24	
C191	SEE NOTE 6	-175					-23	SEE NOTE 6
C192		P12-176	32				TB2-22	
C193	SEE NOTE 5	J8-24	33				S15-2	SEE NOTE 5
C194		J8-25	33				S18-1	
C195		P12-196	32				TB2-12	
C196	SEE NOTE 6	-192					-14	SEE NOTE 6
C197		-204					-7	
C198		P12-182	32				TB2-20	
C199	SEE NOTE 5	J8-26	33				S16-2	SEE NOTE 5
C200		J8-27	33				S17-2	
C201		P12-185	32				TB2-19	
C202		-210					-1	
C203	SEE NOTE 6	-187					-17	SEE NOTE 6
C204		-195					-13	
C205		-181	32	WHT			TB2-21	
C206	SEE NOTE 5	-193	40	ORN			S6-5	
C207		P12-194	38	RED			S6-4	SEE NOTE 5
C208		J8-30	33	WHT			S18-2	
C209		P12-197	32	WHT			TB2-11	
C210		-209					-2	
C211		-191					-15	
C212		-201					-10	
C213	SEE NOTE 6	-202					-9	SEE NOTE 6
C214		-203					-8	
C215		-186					-18	
C216		-207					-6	
C217		-208	32	WHT			TB2-5	
C218		P12-179	33	WHT			S19-2	
C219		S1-1	35	YEL			S2-3	
C220		S2-1					S3-3	
C221		S3-1					S4-3	
C222		S4-1					S5-3	
C223		S5-1					S6-3	
C224		S6-1					S7-3	
C225		S7-1					S8-3	
C226		S8-1					S9-3	
C227		S9-1					S10-3	
C228		S10-1					S11-3	
C229		S11-1					S12-3	
C230		S12-1					S13-3	
C231		S13-1					S14-3	
C232		S14-1					S15-3	
C233		S15-1	35	YEL			S16-3	
C234	SEE NOTE 5	S17-4	38	RED			S5-4	
C235		S17-5	40	ORN			S5-5	
C236		S6-4	38	RED			S2-4	
C237		S6-5	40	ORN			S2-5	
C238		S2-4	38	RED			S7-4	
C239		S2-5	40	ORN			S7-5	SEE NOTE 5
C240		S7-4	38	RED			S3-4	
C241		S7-5	40	ORN			S3-5	
C242		S3-4	38	RED			S8-4	
C243		S3-5	40	ORN			S8-5	
C244		S8-4	38	RED			S9-4	
C245		S8-5	40	ORN			S9-5	
C246		S9-4	38	RED			S12-4	
C247		S9-5	40	ORN			S12-5	
C248		S12-4	38	RED			S15-4	
C249		S12-5	40	ORN			S15-5	
C250		S15-4	38	RED			S16-4	
C251		S15-5	40	ORN			S16-5	
C252		S16-4	38	RED			S13-4	
C253		S16-5	40	ORN			S13-5	
C254		S13-4	38	RED			S10-4	
C255		S13-5	40	ORN			S10-5	
C256		S10-4	38	RED			S11-4	
C257		S10-5	40	ORN			S11-5	
C258		S11-4	38	RED			S14-4	
C259		S11-5	40	ORN			S14-5	
C260		S14-4	38	RED			S17-4	
C261		S14-5	40	ORN			S17-5	
C262		S17-1	35	YEL			S18-3	
C263	SEE NOTE 6	P12-184	32	WHT			62	SEE NOTE 6
C264	SEE NOTE 6	P12-183	41				63	SEE NOTE 5
C265		P12-20	32				TB1-67	
C266	SEE NOTE 6	P12-8					TB1-82	SEE NOTE 6
C267		P12-173					TB2-4	
C268		P12-177					TB2-3	
C269		P12-19	32	WHT	26	AR	TB1-66	

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2003949

SCALE NONE
SHEET 3 OF 3

2003949 | C

F2/2

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C1	SEE NOTE 6	P12-131	32	WHT	26	A R	TB2-64	SEE NOTE 6
C2		-132					TB2-63	
C3		-133					TB2-62	
C4		-134					TB2-61	
C5		-127					TB2-68	
C6		-128					TB2-67	
C7		-129					TB2-66	
C8		-130					TB2-65	
C9		-123					TB2-72	
C10		-124					TB2-71	
C11		-125					TB2-70	
C12		-126					TB2-69	
C13		-119					TB2-76	
C14		-120					TB2-75	
C15		-121					TB2-74	
C16		-122					TB2-73	
C17		-115					TB2-80	
C18		-116					TB2-79	
C19		-117					TB2-78	
C20		-118					TB2-77	
C21		-111					TB2-84	
C22		-112					TB2-83	
C23		-113					TB2-82	
C24		-114					TB2-81	
C25		-107					TB2-88	
C26		-108					TB2-87	
C27		-109					TB2-86	
C28		-110					TB2-85	
C29		-103					TB2-92	
C30		-104					TB2-91	
C31		-105					TB2-90	
C32		-106					TB2-89	
C33		-99					TB2-96	
C34		-100					TB2-95	
C35		-101					TB2-94	
C36		-102					TB2-93	
C37		-95					TB2-100	
C38		-96					TB2-99	
C39		-97					TB2-98	
C40		-98					TB2-97	
C41		-91					TB1-1	
C42		-92					TB2-103	
C43		-93					TB2-102	
C44		-94					TB2-101	
C45		-87					TB1-5	
C46		-88					TB1-4	
C47		-89					TB1-3	
C48		-90					TB1-2	
C49		-83					TB1-9	
C50		-84					TB1-8	
C51		-85					TB1-7	
C52		-86					TB1-6	
C53		-79					TB1-13	
C54		-80					TB1-12	
C55		-81					TB1-11	
C56		-82					TB1-10	
C57		-73					TB1-19	
C58		-74					TB1-18	
C59		-75					TB1-17	
C60		-76					TB1-16	
C61		-77					TB1-15	
C62		-78					TB1-14	
C63		-67					TB1-25	
C64		-68					TB1-24	
C65		-69					TB1-23	
C66		-70					TB1-22	
C67		-71					TB1-21	
C68		-72					TB1-20	
C69		-61					TB1-31	
C70		-62					TB1-30	
C71		-63					TB1-29	
C72		-64					TB1-28	
C73		-65					TB1-27	
C74		-66					TB1-26	
C75		-55					TB1-37	
C76		-56					TB1-36	
C77		-57					TB1-35	
C78		-58					TB1-34	
C79		-59					TB1-33	
C80		-60					TB1-32	
C81		-50					TB1-42	
C82		-51					TB1-41	
C83		-52					TB1-40	
C84		-53					TB1-39	
C85		-54					TB1-38	
C86		-43					TB1-48	
C87		-44					TB1-47	
C88		P12-45	32	WHT	26	A R	TB1-46	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C89	SEE NOTE 6	P12-46	32	WHT	26	A R	TB1-45	SEE NOTE 6
C90		-47					TB1-44	
C91		-48					TB1-43	
C92		-37					TB1-54	
C93		-38					TB1-53	
C94		-39					TB1-52	
C95		-40					TB1-51	
C96		-41					TB1-50	
C97		-42					TB1-49	
C98		-31					TB1-60	
C99		-32					TB1-59	
C100		-33					TB1-58	
C101		-34					TB1-57	
C102		-35					TB1-56	
C103		-36					TB1-57	
C104		-25					TB1-65	
C105		-27					TB1-64	
C106		-28					TB1-63	
C107		-29					TB1-62	
C108		-30					TB1-61	
C109		-21					TB1-71	
C110		-22					TB1-70	
C111		-23					TB1-69	
C112		-24					TB1-68	
C113		-13					TB1-76	
C114		-15					TB1-75	
C115		-16					TB1-74	
C116		-17					TB1-73	
C117		-18					TB1-72	
C118		-7					TB1-81	
C119		-9					TB1-80	
C120		-10					TB1-79	
C121		-11					TB1-78	
C122		-12					TB1-77	
C123		-1					TB1-87	
C124		-3					TB1-86	
C125		-4					TB1-85	
C126		-5					TB1-84	
C127		P12-6	32	WHT			TB1-83	
C128	SEE NOTE 5	S16-1	35	YEL			S17-3	SEE NOTE 5
C129		S5-4	38	RED			S19-4	
C130		S5-5	40	ORN			S19-5	
C131		S19-4	38	RED			S1-4	
C132		S19-5	40	ORN			S1-5	
C133		S1-4	38	RED			S18-4	
C134		S1-5	40	ORN			S18-5	
C135		S18-4	38	RED			S4-4	
C136		S18-5	40	ORN			S4-5	
C137		J8-3	33	WHT			S2-2	
C138		-5					S1-2	
C139		-8					S3-2	
C140		-9					S19-3	
C141		-10					S4-2	
C142		-11					S10-2	
C143		J8-13	33				S5-2	
C144	SEE NOTE 6	P12-135	32				TB2-60	SEE NOTE 6
C145		-136					TB2-59	
C146		-137					TB2-58	
C147		-138					TB2-57	
C148		-139					TB2-56	
C149		P12-140	32				TB2-55	
C150	SEE NOTE 5	J8-14	33				S12-2	SEE NOTE 5
C151		J8-15	33				S6-2	
C152	SEE NOTE 6	P12-141	32				TB2-54	SEE NOTE 6
C153		-142					TB2-53	
C154		-143					TB2-52	
C155		-144					TB2-51	
C156		-145					TB2-50	
C157		P12-146	32				TB2-49	
C158	SEE NOTE 5	J8-16	33				S7-2	SEE NOTE 5
C159		J8-17	33				S9-2	
C160	SEE NOTE 6	P12-147	32				TB2-48	SEE NOTE 6
C161		-148					-47	
C162		-149					-46	
C163		-150					-45	
C164		-151					-44	
C165		-152					-43	
C166		-153					-42	
C167		-154					-41	
C168		-155					-40	
C169		-156					-39	
C170		-157					-38	
C171		P12-158	32				TB2-37	
C172	SEE NOTE 5	J8-18	33				S11-2	SEE NOTE 5
C173		J8-19	33				S8-2	
C174	SEE NOTE 6	P12-159	32				TB2-36	SEE NOTE 6
C175		P12-160	32				TB2-35	
C176		P12-161	32	WHT	26	AR	TB2-34	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C177	SEE NOTE 6	P12-162	32	WHT	26	A R	TB2-33	SEE NOTE 6
C178		P12-163	32				TB2-32	
C179		P12-164	32				TB2-31	
C180	SEE NOTE 5	J8-20	33				S13-2	SEE NOTE 5
C181		J8-21	33				[illegible]	
C182	SEE NOTE 6	P12-165	32				TB2-30	SEE NOTE 6
C183		-166					-29	
C184		-167					-28	
C185		-168					-27	
C186		-169					-26	
C187		P12-170	32				TB2-25	
C188	SEE NOTE 5	J8-22	33				S14-2	SEE NOTE 5
C189	SEE NOTE 6	P12-190	32				TB2-16	SEE NOTE 6
C190		-174					-24	
C191		-175					-23	
C192		P12-176	32				TB2-22	
C193	SEE NOTE 5	J8-24	33				S15-2	SEE NOTE 5
C194		J8-25	33				S18-1	
C195	SEE NOTE 6	P12-196	32				TB2-12	SEE NOTE 6
C196		-192					-14	
C197		-204					-7	
C198		P12-182	32				TB2-20	
C199	SEE NOTE 5	J8-26	33				S16-2	SEE NOTE 5
C200		J8-27	33				S17-2	
C201	SEE NOTE 6	P12-185	32				TB2-19	SEE NOTE 6
C202		-210					-1	
C203		-187					-17	
C204		-195					-13	
C205		-181	32	WHT			TB2-21	
C206	SEE NOTE 5	-193	40	ORN			S6-5	SEE NOTE 5
C207		P12-194	38	RED			S6-4	
C208		J8-30	33	WHT			S18-2	
C209	SEE NOTE 6	P12-197	32	WHT			TB2-11	SEE NOTE 6
C210		-209					-2	
C211		-191					-15	
C212		-201					-10	
C213		-202					-9	
C214		-203					-8	
C215		-186					-18	
C216		-207					-6	
C217		-208	32	WHT			TB2-5	
C218	SEE NOTE 5	P12-179	33	WHT			S19-2	SEE NOTE 5
C219		S1-1	35	YEL			S2-3	
C220		S2-1					S3-3	
C221		S3-1					S4-3	
C222		S4-1					S5-3	
C223		S5-1					S6-3	
C224		S6-1					S7-3	
C225		S7-1					S8-3	
C226		S8-1					S9-3	
C227		S9-1					S10-3	
C228		S10-1					S11-3	
C229		S11-1					S12-3	
C230		S12-1					S13-3	
C231		S13-1					S14-3	
C232		S14-1					S15-3	
C233		S15-1	35	YEL			S16-3	
C234		S17-4	38	RED			S5-4	
C235		S17-5	40	ORN			S5-5	
C236		S6-4	38	RED			S2-4	
C237		S6-5	40	ORN			S2-5	
C238		S2-4	38	RED			S7-4	
C239		S2-5	40	ORN			S7-5	
C240		S7-4	38	RED			S3-4	
C241		S7-5	40	ORN			S3-5	
C242		S3-4	38	RED			S8-4	
C243		S3-5	40	ORN			S8-5	
C244		S8-4	38	RED			S9-4	
C245		S8-5	40	ORN			S9-5	
C246		S9-4	38	RED			S12-4	
C247		S9-5	40	ORN			S12-5	
C248		S12-4	38	RED			S15-4	
C249		S12-5	40	ORN			S15-5	
C250		S15-4	38	RED			S16-4	
C251		S15-5	40	ORN			S16-5	
C252		S16-4	38	RED			S13-4	
C253		S16-5	40	ORN			S13-5	
C254		S13-4	38	RED			S10-4	
C255		S13-5	40	ORN			S10-5	
C256		S10-4	38	RED			S11-4	
C257		S10-5	40	ORN			S11-6	
C258		S11-4	38	RED			S14-4	
C259		S11-5	40	ORN			S14-5	
C260		S14-4	38	RED			S17-4	
C261		S14-5	40	ORN			S17-5	
C262		S17-1	35	YEL			S18-3	
C263	SEE NOTE 6	P12-184	32	WHT			62	SEE NOTE 6
C264	SEE NOTE 6	P12-183	41				63	SEE NOTE 5
C265	SEE NOTE 6	P12-20	32				TB1-67	SEE NOTE 6
C266		P12-8					TB1-82	
C267		P12-173					TB2-4	
C268		P12-177					TB2-3	
C269		P12-19	32	WHT	26	AR	TB1-66	

QTY REQD	PART OR IDENTIFYING NO.

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

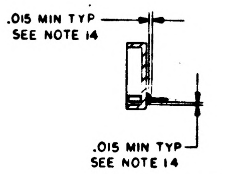
DRAWN J.P. Leonard
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC D. G. METZGER

2003949 C F1/2

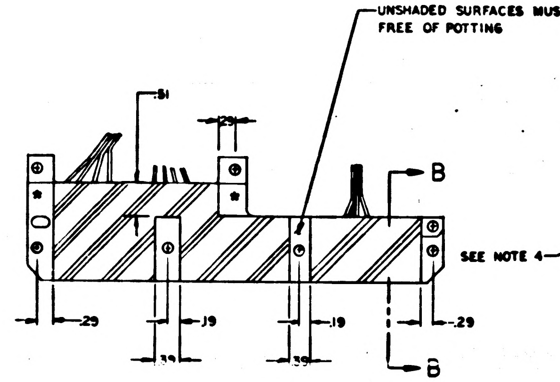
SHEET 3

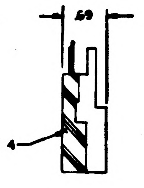
2003949 D

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 26856	J.P.L.			
B		REVISED PER TDRR 27913	JPT			
C		REVISED PER TDRR 28178	JPT			
D		REVISED PER TDRR 29705				

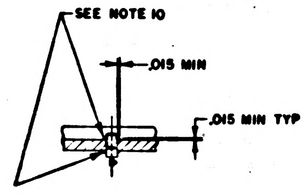

.015 MIN TYP
SEE NOTE 14
.015 MIN TYP
SEE NOTE 14

PARTIAL SECTION B-B
UNPOTTED

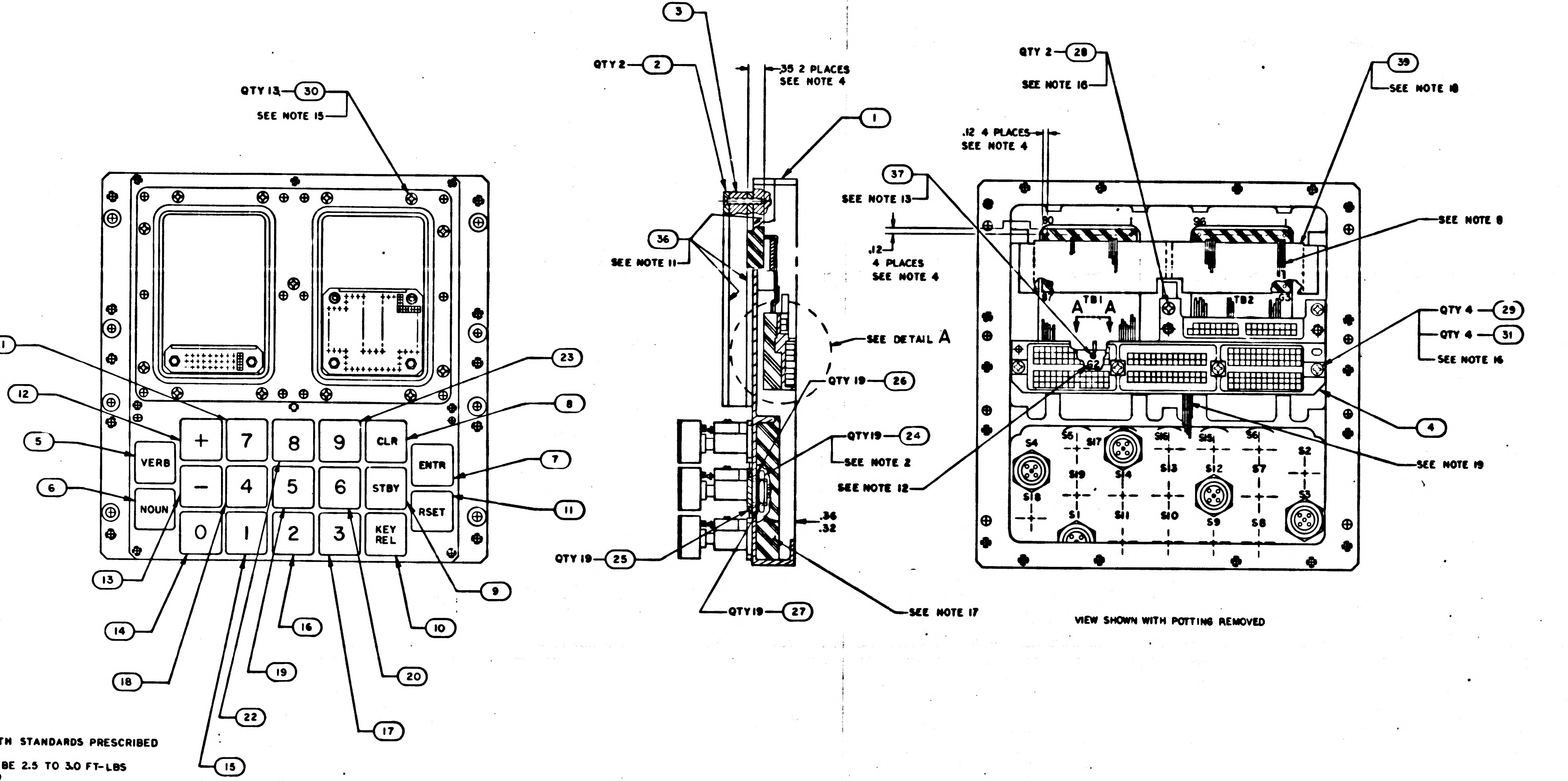

UNSHADED SURFACES MUST BE FREE OF POTTING
.81
.29
B
SEE NOTE 4
.29
.19
.39
.19
.39
.29
B



DETAIL A


SEE NOTE 10
.015 MIN
.015 MIN TYP

PARTIAL SECTION A-A
SCALE 2/1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10
9
11
7
8
23
3
QTY 2 2
.35 2 PLACES
SEE NOTE 4
1
36
SEE NOTE 11
SEE DETAIL A
QTY 19 26
QTY19 24
SEE NOTE 2
SEE NOTE 12
.36
.32
QTY 19 25
QTY19 27
SEE NOTE 17
QTY 2 28
SEE NOTE 16
.12 4 PLACES
SEE NOTE 4
37
SEE NOTE 13
.12
4 PLACES
SEE NOTE 4
39
SEE NOTE 18
SEE NOTE 8
TB1
TB2
A
A
QTY 4 29
QTY 4 31
SEE NOTE 16
4
SEE NOTE 19
S4
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S17
S16
S15
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S9
S8

VIEW SHOWN WITH POTTING REMOVED

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE FOR FIND NO. 24 TO BE 2.5 TO 3.0 FT-LBS
3. IDENTIFY WITH PART NO. PER ND1002019
4. ENCAPSULATE INDICATED AREAS PER ND1002236
5. SOLDER PER ND 1002071 USING SOLDER PER ND1002075
6. WELD PER ND1002005
7. AR DENOTES AS REQUIRED
8. BOND FIND NO. 32,33,38, 40 & 41 TO FIND NO. 39 PER ND1002009, METHOD C
9. DRESS AND TRIM AT ASSEMBLY USING FIND NO. 34
10. SEAL FIND NO.37 TO FIND NO.1 PER ND1002004 TYPE VI
11. APPLY FIND NO.36 TO INDICATED SURFACES OF FIND NO. 2. DO NOT APPLY TO BONDED RUBBER
12. MARK .07/.10 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122 TYPE II CLASS 2, USING MARKING INK 1006271-11
13. MOUNTING TORQUE FOR FIND NO.37 TO BE 15-20 INCH OUNCES
14. SEAL INSULATORS ON FIND NO. 4 PER ND1002004 TYPE VI
15. MOUNTING TORQUE FOR FIND NO.30 TO BE 3.5-4.5 INCH POUNDS
16. MOUNTING TORQUE FOR FIND NO. 28 AND FIND NO. 29 TO BE 8 TO9 INCH POUNDS
17. ENCAPSULATE INDICATED AREA PER ND1002295, EXCEPT CURE AT 155±5°F FOR 2 HOURS MINIMUM
18. BOND FIND NO. 39 TO FIND NO.1 PER ND1002004, TYPE IV
19. BOND FIND NO. 33, 38 AND 40 TO FIND NO.1 PER ND1002009, METHOD C
20 THIS ASSEMBLY NOT TO EXCEED 160°F IN MANUFACTURING PROCESS

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2005953	INTERCONNECTING DIAGRAM	REF
AR	1010807-22	WIRE INSULATED	41
AR	1010416-14	WIRE, INSULATED	40
1	2004898	SUPPORT, WIRE	39
AR	1010416-13	WIRE, INSULATED	38
1	2004039	TERMINAL, THREADED	37
AR	1006879	SILICONE COMPOUND	36
AR	1010416-15	WIRE, INSULATED	35
AR	1012507-003	TAPE, LACING	34
AR	1010416-20	WIRE, INSULATED	33
AR	1010848-1	WIRE, INSULATED	32
4	NAS620-6L	WASHER, FLAT	31
13	MS51959-20	SCREW, FLAT HD, CROSS RECESSED	30
4	MS51957-30	SCREW, PAN HD, CROSS RECESSED	29
2	MS51959-28	SCREW, FLAT HD, CROSS RECESSED	28
19	1010635-003	WASHER, LOCK	27
19	2004940-001	WASHER, PLAIN	26
19	1000159-18	O RING SEAL	25
19	2004942	NUT, HEX	24
1	2003984-211	SWITCH, ASSEMBLY PUSHBUTTON	23
1	-191		22
1	-181		21
1	-171		20
1	-161		19
1	-151		18
1	-141		17
1	-131		16
1	-121		15
1	-111		14
1	-091		13
1	-081		12
1	-071		11
1	-061		10
1	-051		9
1	-041		8
1	-031		7
1	-021		6
1	2003984-011	SWITCH, ASSEMBLY PUSHBUTTON	5
1	2003948-011	CONNECTOR, PLATE ASSEMBLY	4
1	2003959-011	ADAPTER, PLATE ASSEMBLY	3
2	1006351	GASKET, PREFORMED	2
1	2004968-021	HOUSING, FRONT	1

011 LIST OF MATERIALS

2003949 D

20C3950	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.01 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN J. P. Leonard
CHECKED J. C. [illegible]
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC A. C. METZGER

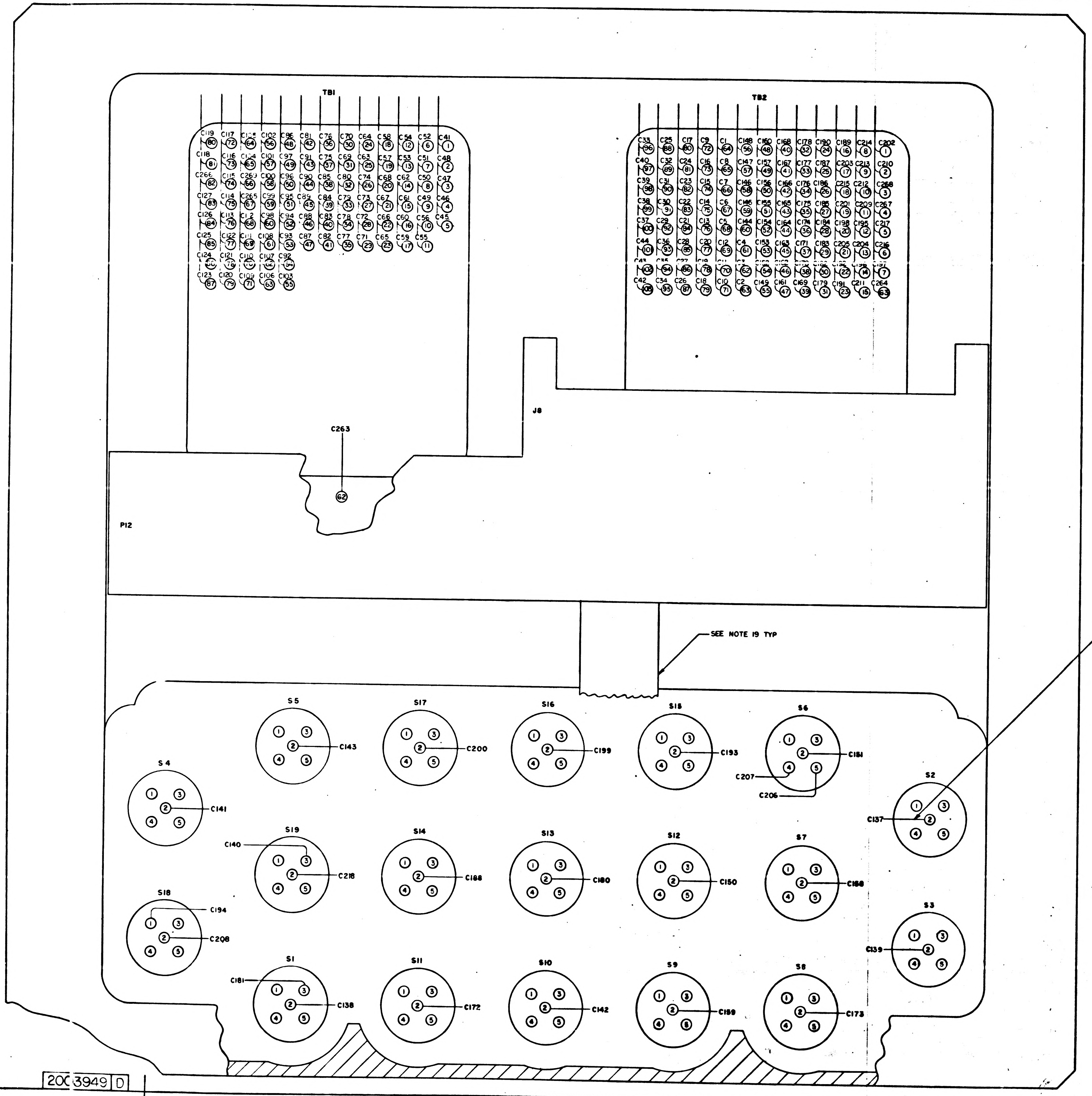
FRONT HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230 SIZE J DRAWING NO. 2003949
SCALE 1/1 SHEET 1 OF 3

2003949 D

2003949 D

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVER
		REVISIONS 26205				
A		REVISED PER TDRR 26856	J.P.S.			
B		REVISED PER TDRR 27913	JPT			
C		REVISED PER TDRR 28178	S.P.T.			
D		REVISED PER TDRR 29705				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C118 81 C116 73 C104 65 C101 57 C97 49 C91 43 C75 37 C69 31 C63 25 C57 19 C53 13 C51 7 C48 2
C266 82 C115 74 C269 66 C100 58 C96 50 C90 44 C85 38 C80 32 C74 26 C68 20 C62 14 C50 8 C47 3
C127 83 C114 75 C265 67 C99 59 C95 51 C89 45 C84 39 C79 33 C73 27 C67 21 C61 15 C49 9 C46 4
C126 84 C113 76 C1 2 68 C98 60 C94 52 C88 46 C83 40 C78 34 C72 28 C66 22 C60 16 C56 10 C45 5
C125 85 C122 77 C111 69 C108 61 C93 53 C87 47 C82 41 C77 35 C71 23 C65 23 C59 17 C55 11
C124 C121 78 C110 70 C107 62 C92 54
C123 87 C120 79 C109 71 C106 63 C103 55
TB2
C33 96 C25 88 C17 80 C9 72 C1 64 C148 56 C160 48 C168 40 C178 32 C190 24 C189 16 C214 8 C202 1
C40 97 C32 89 C24 81 C16 73 C8 65 C147 57 C157 49 C167 41 C177 33 C187 25 C203 17 C213 9 C210 2
C39 98 C31 90 C23 82 C15 74 C7 66 C146 58 C156 50 C166 42 C176 34 C186 26 C215 18 C212 10 C268 3
C38 99 C30 91 C22 83 C14 75 C6 67 C145 59 C155 51 C165 43 C175 35 C185 27 C201 19 C209 11 C267 4
C37 100 C29 92 C21 84 C13 76 C5 68 C144 60 C154 52 C164 44 C174 36 C184 28 C198 20 C195 12 C217 5
C44 101 C36 93 C28 85 C20 77 C12 69 C4 61 C153 53 C163 45 C171 37 C183 29 C205 21 C204 13 C216 6
C43 102 C35 94 C27 86 C19 78 70 62 54 46 38 30 22 14 7
C42 103 C34 95 C26 87 C18 79 C10 71 C2 63 C149 55 C161 47 C169 39 C179 31 C191 23 C211 15 C264 63
J8
C263
62
P12
SEE NOTE 19 TYP
SEE NOTE 9
S5 C143
S17 C200
S16 C199
S15 C193
S6 C181
C207
C206
S4 C141
S2 C137
S19 C140 C218
S14 C188
S13 C180
S12 C150
S7 C168
S3 C139
S18 C194 C208
S1 C181 C138
S11 C172
S10 C142
S9 C169
S8 C173
1 2 3 4 5

2H

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCE: ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN J.P. Leonard 20DEC65
CHECKED J.C. 3FEB66
APPROVED 3FEB66
APPROVED
APPROVED MIT
APPROVED MSC
DATE

FRONT HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230 SIZE J DRAWING NO. 2003949
SCALE NONE SHEET 2 OF 3

2003949 D

SYM	ZONE	
A		RE
B		RE
C		REV
D		REV

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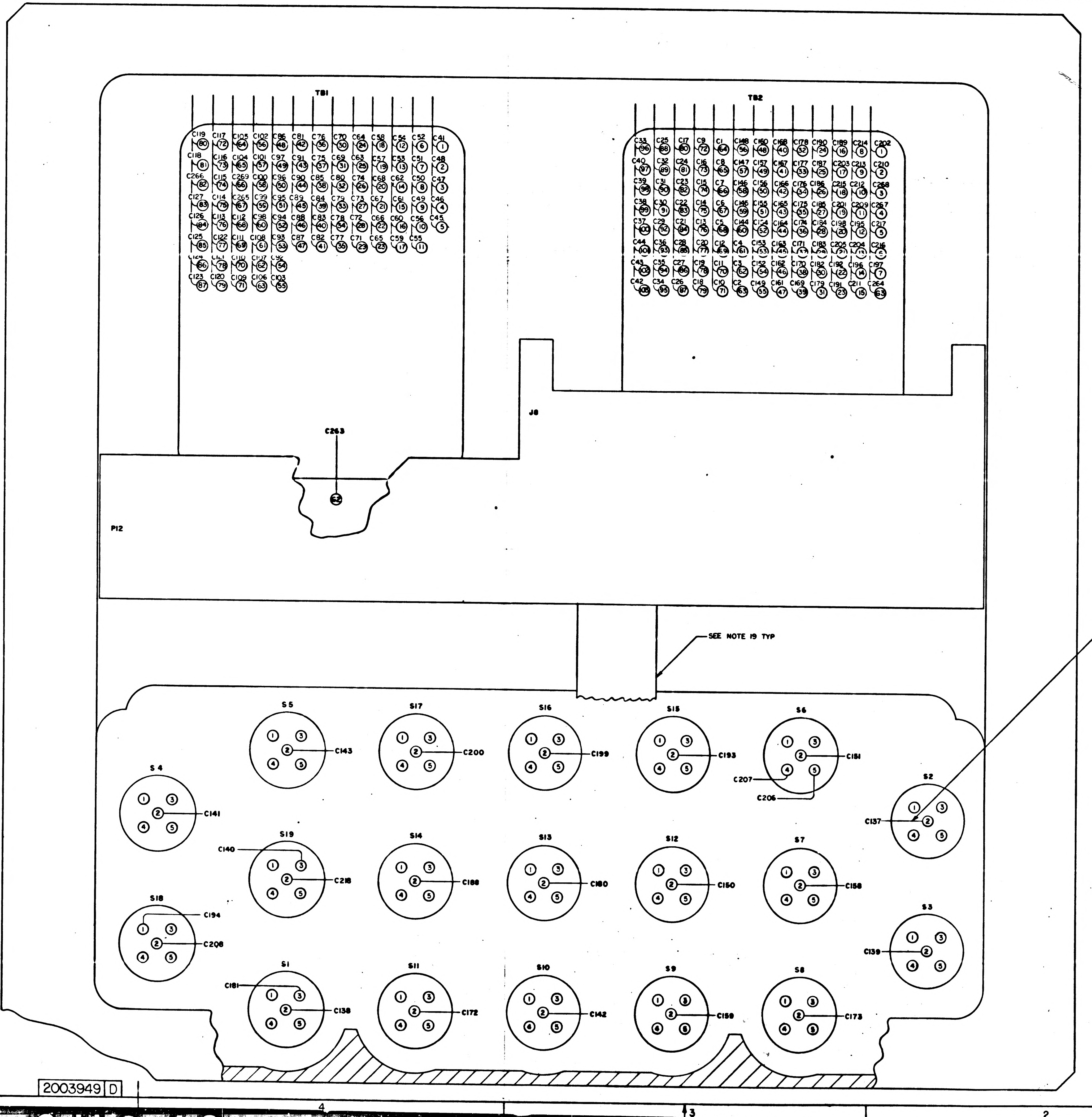
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C75 37
C69 31
C63 25
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C53 13
C51 7
C48 2
C266 82
C115 74
C269 66
C100 58
C96 50
C90 44
C85 38
C80 32
C74 26
C68 20
C62 14
C50 8
C47 3
C127 83
C114 75
C265 67
C99 59
C95 51
C89 45
C84 39
C79 33
C73 27
C67 21
C61 15
C49 9
C46 4
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C112 68
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C94 52
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C83 40
C78 34
C72 28
C66 22
C60 16
C56 10
C45 5
C125 85
C122 77
C111 69
C108 61
C93 53
C87 47
C82 41
C77 35
C71 23
C65 23
C59 17
C55 11
C124 86
C121 78
C110 70
C107 62
C92 54
C123 87
C120 79
C109 71
C106 63
C103 55
TB2
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C189 16
C214 8
C202 1
C40 97
C32 89
C24 81
C16 73
C8 65
C147 57
C157 49
C167 41
C177 33
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C210 2
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C7 66
C146 58
C156 50
C166 42
C176 34
C186 26
C215 18
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C22 83
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C6 67
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C5 68
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C204 13
C216 6
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C19 78
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C152 54
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C26 87
C18 79
C10 71
C2 63
C149 55
C161 47
C169 39
C179 31
C191 23
C211 15
C264 63
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J8
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SEE NOTE 19 TYP
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S5
C143
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C173
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MASTER

QTY REQD	PART OR IDENTIFYING NO.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

NEXT ASSY	USED ON
APPLICATION	

MIT
INSTRUMENTATION LA
CAMBRIDGE MASS

DRAWN J.L. Leonard 2/26
CHECKED J. [illegible] 3/
APPROVED [illegible]
APPROVED Elaine Hall
APPROVED MIT
APPROVED MSC
A. C. METZGER
DA

2003949 D

SH2/3 F1/2

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 26856	J.P.S			
B		REVISED PER TDRR 27913	SPT	HRB		
C		REVISED PER TDRR 28178	SPT			
D		REVISED PER TDRR 29705			6-20	JJR

2003949 D

D ELECTRICAL

FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
32	WHT	26	AR	TB2-64	SEE NOTE 6
				TB2-63	
				TB2-62	
				TB2-61	
				TB2-68	
				TB2-67	
				TB2-66	
				TB2-65	
				TB2-72	
				TB2-71	
				TB2-70	
				TB2-69	
				TB2-76	
				TB2-75	
				TB2-74	
				TB2-73	
				TB2-80	
				TB2-79	
				TB2-78	
				TB2-77	
				TB2-84	
				TB2-83	
				TB2-82	
				TB2-81	
				TB2-88	
				TB2-87	
				TB2-86	
				TB2-85	
				TB2-92	
				TB2-91	
				TB2-90	
				TB2-89	
				TB2-96	
				TB2-95	
				TB2-94	
				TB2-93	
				TB2-100	
				TB2-99	
				TB2-98	
				TB2-97	
				TB1-1	
				TB2-103	
				TB2-102	
				TB2-101	
				TB1-5	
				TB1-4	
				TB1-3	
				TB1-2	
				TB1-9	
				TB1-8	
				TB1-7	
				TB1-6	
				TB1-13	
				TB1-12	
				TB1-11	
				TB1-10	
				TB1-19	
				TB1-18	
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				TB1-16	
				TB1-15	
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				TB1-25	
				TB1-24	
				TB1-23	
				TB1-22	
				TB1-21	
				TB1-20	
				TB1-31	
				TB1-30	
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				TB1-28	
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				TB1-35	
				TB1-34	
				TB1-33	
				TB1-32	
				TB1-42	
				TB1-41	
				TB1-40	
				TB1-39	
				TB1-38	
				TB1-48	
				TB1-47	
32	WHT	26	AR	TB1-46	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C89	SEE NOTE 6	P12-46	32	WHT	26	AR	TB1-45	SEE NOTE 6
C90		-47					TB1-44	
C91		-48					TB1-43	
C92		-37					TB1-54	
C93		-38					TB1-53	
C94		-39					TB1-52	
C95		-40					TB1-51	
C96		-41					TB1-50	
C97		-42					TB1-49	
C98		-31					TB1-60	
C99		-32					TB1-59	
C100		-33					TB1-58	
C101		-34					TB1-57	
C102		-35					TB1-56	
C103		-36					TB1-57	
C104		-25					TB1-65	
C105		-27					TB1-64	
C106		-28					TB1-63	
C107		-29					TB1-62	
C108		-30					TB1-61	
C109		-21					TB1-71	
C110		-22					TB1-70	
C111		-23					TB1-69	
C112		-24					TB1-68	
C113		-13					TB1-76	
C114		-15					TB1-75	
C115		-16					TB1-74	
C116		-17					TB1-73	
C117		-18					TB1-72	
C118		-7					TB1-81	
C119		-9					TB1-80	
C120		-10					TB1-79	
C121		-11					TB1-78	
C122		-12					TB1-77	
C123		-1					TB1-87	
C124		-3					TB1-86	
C125		-4					TB1-85	
C126		-5					TB1-84	
C127		P12-6	32	WHT			TB1-83	
C128	SEE NOTE 5	S16-1	35	YEL			S17-3	SEE NOTE 5
C129		S5-4	38	RED			S19-4	
C130		S5-5	40	ORN			S19-5	
C131		S19-4	38	RED			S1-4	
C132		S19-5	40	ORN			S1-5	
C133		S1-4	38	RED			S18-4	
C134		S1-5	40	ORN			S18-5	
C135		S18-4	38	RED			S4-4	
C136		S18-5	40	ORN			S4-5	
C137		J8-3	33	WHT			S2-2	
C138		-5					S1-2	
C139		-8					S3-2	
C140		-9					S19-3	
C141		-10					S4-2	
C142		-11					S10-2	
C143		J8-13	33				S5-2	
C144	SEE NOTE 6	P12-135	32				TB2-60	SEE NOTE 6
C145		-136					TB2-59	
C146		-137					TB2-58	
C147		-138					TB2-57	
C148		-139					TB2-56	
C149		P12-140	32				TB2-55	
C150	SEE NOTE 5	J8-14	33				S12-2	SEE NOTE 5
C151		J8-15	33				S6-2	
C152	SEE NOTE 6	P12-141	32				TB2-54	SEE NOTE 6
C153		-142					TB2-53	
C154		-143					TB2-52	
C155		-144					TB2-51	
C156		-145					TB2-50	
C157		P12-146	32				TB2-49	
C158	SEE NOTE 5	J8-16	33				S7-2	SEE NOTE 5
C159		J8-17	33				S9-2	
C160	SEE NOTE 6	P12-147	32				TB2-48	SEE NOTE 6
C161		-148					-47	
C162		-149					-46	
C163		-150					-45	
C164		-151					-44	
C165		-152					-43	
C166		-153					-42	
C167		-154					-41	
C168		-155					-40	
C169		-156					-39	
C170		-157					-38	
C171		P12-158	32				TB2-37	
C172	SEE NOTE 5	J8-18	33				S11-2	SEE NOTE 5
C173		J8-19	33				S8-2	
C174	SEE NOTE 6	P12-159	32				TB2-36	SEE NOTE 6
C175		P12-160	32				TB2-35	
C176		P12-161	32	WHT	26	AR	TB2-34	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C177	SEE NOTE 6	P12-162	32	WHT	26	AR	TB2-33	SEE NOTE 6
C178		P12-163	32				TB2-32	
C179		P12-164	32				TB2-31	
C180	SEE NOTE 5	J8-20	33				S13-2	SEE NOTE 5
C181		J8-21	33				S1-3	
C182	SEE NOTE 6	P12-165	32				TB2-30	SEE NOTE 6
C183		[illegible]					-29	
C184		-167					-28	
C185		-168					-27	
C186		-169					-26	
C187		P12-170	32				TB2-25	
C188	SEE NOTE 5	J8-22	33				S14-2	SEE NOTE 5
C189	SEE NOTE 6	P12-190	32				TB2-16	SEE NOTE 6
C190		-174					-24	
C191		-175					-23	
C192		P12-176	32				TB2-22	
C193	SEE NOTE 5	J8-24	33				S15-2	SEE NOTE 5
C194		J8-25	33				S18-1	
C195	SEE NOTE 6	P12-196	32				TB2-12	SEE NOTE 6
C196		-192					-14	
C197		-204					-7	
C198		P12-182	32				TB2-20	
C199	SEE NOTE 5	J8-26	33				S16-2	SEE NOTE 5
C200		J8-27	33				S17-2	
C201	SEE NOTE 6	P12-185	32				TB2-19	SEE NOTE 6
C202		-210					-1	
C203		-187					-17	
C204		-195					-13	
C205		-181	32	WHT			TB2-21	
C206	SEE NOTE 5	-193	40	ORN			S6-5	SEE NOTE 5
C207		P12-194	38	RED			S6-4	
C208		J8-30	33	WHT			S18-2	
C209	SEE NOTE 6	P12-197	32	WHT			TB2-11	SEE NOTE 6
C210		-209					-2	
C211		-191					-15	
C212		-201					-10	
C213		-202					-9	
C214		-203					-8	
C215		-186					-18	
C216		-207					-6	
C217		-208	32	WHT			TB2-5	
C218	SEE NOTE 5	P12-179	33	WHT			S19-2	SEE NOTE 5
C219		S1-1	35	YEL			S2-3	
C220		S2-1					S3-3	
C221		S3-1					S4-3	
C222		S4-1					S5-3	
C223		S5-1					S6-3	
C224		S6-1					S7-3	
C225		S7-1					S8-3	
C226		S8-1					S9-3	
C227		S9-1					S10-3	
C228		S10-1					S11-3	
C229		S11-1					S12-3	
C230		S12-1					S13-3	
C231		S13-1					S14-3	
C232		S14-1					S15-3	
C233		S15-1	35	YEL			S16-3	
C234		S17-4	38	RED			S5-4	
C235		S17-5	40	ORN			S5-5	
C236		S6-4	38	RED			S2-4	
C237		S6-5	40	ORN			S2-5	
C238		S2-4	38	RED			S7-4	
C239		S2-5	40	ORN			S7-5	
C240		S7-4	38	RED			S3-4	
C241		S7-5	40	ORN			S3-5	
C242		S3-4	38	RED			S8-4	
C243		S3-5	40	ORN			S8-5	
C244		S8-4	38	RED			S9-4	
C245		S8-5	40	ORN			S9-5	
C246		S9-4	38	RED			S12-4	
C247		S9-5	40	ORN			S12-5	
C248		S12-4	38	RED			S15-4	
C249		S12-5	40	ORN			S15-5	
C250		S15-4	38	RED			S16-4	
C251		S15-5	40	ORN			S16-5	
C252		S16-4	38	RED			S13-4	
C253		S16-5	40	ORN			S13-5	
C254		S13-4	38	RED			S10-4	
C255		S13-5	40	ORN			S10-5	
C256		S10-4	38	RED			S11-4	
C257		S10-5	40	ORN			S11-6	
C258		S11-4	38	RED			S14-4	
C259		S11-5	40	ORN			S14-5	
C260		S14-4	38	RED			S17-4	
C261		S14-5	40	ORN			S17-5	
C262		S17-1	35	YEL			S18-3	
C263	SEE NOTE 6	P12-184	32	WHT			62	SEE NOTE 6
C264	SEE NOTE 6	P12-183	41				63	SEE NOTE 5
C265	SEE NOTE 6	P12-20	32				TB1-67	SEE NOTE 6
C266		P12-8					TB1-82	
C267		P12-173					TB2-4	
C268		P12-177					TB2-3	
C269		P12-19	32	WHT	26	AR	TB1-66	

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN J.P.
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC R. W. METZGER
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003949
SCALE NONE
SHEET 3 OF 3

2003949 D

2003949 D

2

F 2/2

2003949 D

SYM		
A		REV
B		REV
C		REV
D		REV

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C1	SEE NOTE 6	P12-131	32	WHT	26	AR	TB2-64	SEE NOTE 6
C2		-132					TB2-63	
C3		-133					TB2-62	
C4		-134					TB2-61	
C5		-127					TB2-68	
C6		-128					TB2-67	
C7		-129					TB2-66	
C8		-130					TB2-65	
C9		-123					TB2-72	
C10		-124					TB2-71	
C11		-125					TB2-70	
C12		-126					TB2-69	
C13		-119					TB2-76	
C14		-120					TB2-75	
C15		-121					TB2-74	
C16		-122					TB2-73	
C17		-115					TB2-80	
C18		-116					TB2-79	
C19		-117					TB2-78	
C20		-118					TB2-77	
C21		-111					TB2-84	
C22		-112					TB2-83	
C23		-113					TB2-82	
C24		-114					TB2-81	
C25		-107					TB2-88	
C26		-108					TB2-87	
C27		-109					TB2-86	
C28		-110					TB2-85	
C29		-103					TB2-92	
C30		-104					TB2-91	
C31		-105					TB2-90	
C32		-106					TB2-89	
C33		-99					TB2-96	
C34		-100					TB2-95	
C35		-101					TB2-94	
C36		-102					TB2-93	
C37		-95					TB2-100	
C38		-96					TB2-99	
C39		-97					TB2-98	
C40		-98					TB2-97	
C41		-91					TB1-1	
C42		-92					TB2-103	
C43		-93					TB2-102	
C44		-94					TB2-101	
C45		-87					TB1-5	
C46		-88					TB1-4	
C47		-89					TB1-3	
C48		-90					TB1-2	
C49		-83					TB1-9	
C50		-84					TB1-8	
C51		-85					TB1-7	
C52		-86					TB1-6	
C53		-79					TB1-13	
C54		-80					TB1-12	
C55		-81					TB1-11	
C56		-82					TB1-10	
C57		-73					TB1-19	
C58		-74					TB1-18	
C59		-75					TB1-17	
C60		-76					TB1-16	
C61		-77					TB1-15	
C62		-78					TB1-14	
C63		-67					TB1-25	
C64		-68					TB1-24	
C65		-69					TB1-23	
C66		-70					TB1-22	
C67		-71					TB1-21	
C68		-72					TB1-20	
C69		-61					TB1-31	
C70		-62					TB1-30	
C71		-63					TB1-29	
C72		-64					TB1-28	
C73		-65					TB1-27	
C74		-66					TB1-26	
C75		-55					TB1-37	
C76		-56					TB1-36	
C77		-57					TB1-35	
C78		-58					TB1-34	
C79		-59					TB1-33	
C80		-60					TB1-32	
C81		-50					TB1-42	
C82		-51					TB1-41	
C83		-52					TB1-40	
C84		-53					TB1-39	
C85		-54					TB1-38	
C86		-43					TB1-48	
C87		-44					TB1-47	
C88		P12-45	32	WHT	26	AR	TB1-46	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C89	SEE NOTE 6	P12-46	32	WHT	26	AR	TB1-45	SEE NOTE 6
C90		-47					TB1-44	
C91		-48					TB1-43	
C92		-37					TB1-54	
C93		-38					TB1-53	
C94		-39					TB1-52	
C95		-40					TB1-51	
C96		-41					TB1-50	
C97		-42					TB1-49	
C98		-31					TB1-60	
C99		-32					TB1-59	
C100		-33					TB1-58	
C101		-34					TB1-57	
C102		-35					TB1-56	
C103		-36					TB1-57	
C104		-25					TB1-65	
C105		-27					TB1-64	
C106		-28					TB1-63	
C107		-29					TB1-62	
C108		-30					TB1-61	
C109		-21					TB1-71	
C110		-22					TB1-70	
C111		-23					TB1-69	
C112		-24					TB1-68	
C113		-13					TB1-76	
C114		-15					TB1-75	
C115		-16					TB1-74	
C116		-17					TB1-73	
C117		-18					TB1-72	
C118		-7					TB1-81	
C119		-9					TB1-80	
C120		-10					TB1-79	
C121		-11					TB1-78	
C122		-12					TB1-77	
C123		-1					TB1-87	
C124		-3					TB1-86	
C125		-4					TB1-85	
C126		-5					TB1-84	
C127		P12-6	32	WHT			TB1-83	
C128	SEE NOTE 5	S16-1	35	YEL			S17-3	SEE NOTE 5
C129		S5-4	38	RED			S19-4	
C130		S5-5	40	ORN			S19-5	
C131		S19-4	38	RED			S1-4	
C132		S19-5	40	ORN			S1-5	
C133		S1-4	38	RED			S18-4	
C134		S1-5	40	ORN			S18-5	
C135		S18-4	38	RED			S4-4	
C136		S18-5	40	ORN			S4-5	
C137		J8-3	33	WHT			S2-2	
C138		-5					S1-2	
C139		-8					S3-2	
C140		-9					S19-3	
C141		-10					S4-2	
C142		-11					S10-2	
C143		J8-13	33				S5-2	
C144	SEE NOTE 6	P12-135	32				TB2-60	SEE NOTE 6
C145		-136					TB2-59	
C146		-137					TB2-58	
C147		-138					TB2-57	
C148		-139					TB2-56	
C149		P12-140	32				TB2-55	
C150	SEE NOTE 5	J8-14	33				S12-2	SEE NOTE 5
C151		J8-15	33				S6-2	
C152	SEE NOTE 6	P12-141	32				TB2-54	SEE NOTE 6
C153		-142					TB2-53	
C154		-143					TB2-52	
C155		-144					TB2-51	
C156		-145					TB2-50	
C157		P12-146	32				TB2-49	
C158	SEE NOTE 5	J8-16	33				S7-2	SEE NOTE 5
C159		J8-17	33				S9-2	
C160	SEE NOTE 6	P12-147	32				TB2-48	SEE NOTE 6
C161		-148					-47	
C162		-149					-46	
C163		-150					-45	
C164		-151					-44	
C165		-152					-43	
C166		-153					-42	
C167		-154					-41	
C168		-155					-40	
C169		-156					-39	
C170		-157					-38	
C171		P12-158	32				TB2-37	
C172	SEE NOTE 5	J8-18	33				S11-2	SEE NOTE 5
C173		J8-19	33				S8-2	
C174	SEE NOTE 6	P12-159	32				TB2-36	SEE NOTE 6
C175		P12-160	32				TB2-35	
C176		P12-161	32	WHT	26	AR	TB2-34	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C177	SEE NOTE 6	P12-162	32	WHT	26	AR	TB2-33	SEE NOTE 6
C178		P12-163	32				TB2-32	
C179		P12-164	32				TB2-31	
C180	SEE NOTE 5	J8-20	33				S13-2	SEE NOTE 5
C181		J8-21	33				S13-3	
C182	SEE NOTE 6	P12-165	32				TB2-30	SEE NOTE 6
C183		-166					-29	
C184		-167					-28	
C185		-168					-27	
C186		-169					-26	
C187		P12-170	32				TB2-25	
C188	SEE NOTE 5	J8-22	33				S14-2	SEE NOTE 5
C189	SEE NOTE 6	P12-190	32				TB2-16	SEE NOTE 6
C190		-174					-24	
C191		-175					-23	
C192		P12-176	32				TB2-22	
C193	SEE NOTE 5	J8-24	33				S15-2	SEE NOTE 5
C194		J8-25	33				S18-1	
C195	SEE NOTE 6	P12-196	32				TB2-12	SEE NOTE 6
C196		-192					-14	
C197		-204					-7	
C198		P12-182	32				TB2-20	
C199	SEE NOTE 5	J8-26	33				S16-2	SEE NOTE 5
C200		J8-27	33				S17-2	
C201	SEE NOTE 6	P12-185	32				TB2-19	SEE NOTE 6
C202		-210					-1	
C203		-187					-17	
C204		-195					-13	
C205		-181	32	WHT			TB2-21	
C206	SEE NOTE 5	-193	40	ORN			S6-5	SEE NOTE 5
C207		P12-194	38	RED			S6-4	
C208		J8-30	33	WHT			S18-2	
C209	SEE NOTE 6	P12-197	32	WHT			TB2-11	SEE NOTE 6
C210		-209					-2	
C211		-191					-15	
C212		-201					-10	
C213		-202					-9	
C214		-203					-8	
C215		-186					-18	
C216		-207					-6	
C217		-208	32	WHT			TB2-5	
C218	SEE NOTE 5	P12-179	33	WHT			S19-2	SEE NOTE 5
C219		S1-1	35	YEL			S2-3	
C220		S2-1					S3-3	
C221		S3-1					S4-3	
C222		S4-1					S5-3	
C223		S5-1					S6-3	
C224		S6-1					S7-3	
C225		S7-1					S8-3	
C226		S8-1					S9-3	
C227		S9-1					S10-3	
C228		S10-1					S11-3	
C229		S11-1					S12-3	
C230		S12-1					S13-3	
C231		S13-1					S14-3	
C232		S14-1					S15-3	
C233		S15-1	35	YEL			S16-3	
C234		S17-4	38	RED			S5-4	
C235		S17-5	40	ORN			S5-5	
C236		S6-4	38	RED			S2-4	
C237		S6-5	40	ORN			S2-5	
C238		S2-4	38	RED			S7-4	
C239		S2-5	40	ORN			S7-5	
C240		S7-4	38	RED			S3-4	
C241		S7-5	40	ORN			S3-5	
C242		S3-4	38	RED			S8-4	
C243		S3-5	40	ORN			S8-5	
C244		S8-4	38	RED			S9-4	
C245		S8-5	40	ORN			S9-5	
C246		S9-4	38	RED			S12-4	
C247		S9-5	40	ORN			S12-5	
C248		S12-4	38	RED			S15-4	
C249		S12-5	40	ORN			S15-5	
C250		S15-4	38	RED			S16-4	
C251		S15-5	40	ORN			S16-5	
C252		S16-4	38	RED			S13-4	
C253		S16-5	40	ORN			S13-5	
C254		S13-4	38	RED			S10-4	
C255		S13-5	40	ORN			S10-5	
C256		S10-4	38	RED			S11-4	
C257		S10-5	40	ORN			S11-6	
C258		S11-4	38	RED			S14-4	
C259		S11-5	40	ORN			S14-5	
C260		S14-4	38	RED			S17-4	
C261		S14-5	40	ORN			S17-5	
C262		S17-1	35	YEL			S18-3	
C263	SEE NOTE 6	P12-184	32	WHT			62	SEE NOTE 6
C264	SEE NOTE 6	P12-183	41				63	SEE NOTE 5
C265	SEE NOTE 6	P12-20	32				TB1-67	SEE NOTE 6
C266		P12-8					TB1-82	
C267		P12-173					TB2-4	
C268		P12-177					TB2-3	
C269		P12-19	32	WHT	26	AR	TB1-66	

MASTER

QTY REQD	PART OR IDENTIFYING N

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
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FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

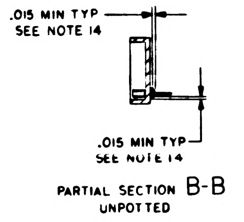
MIT
INSTRUMENTATION LA
CAMBRIDGE MASS

DRAWN J. P. Leonard
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED A. G. METZGER
MSC

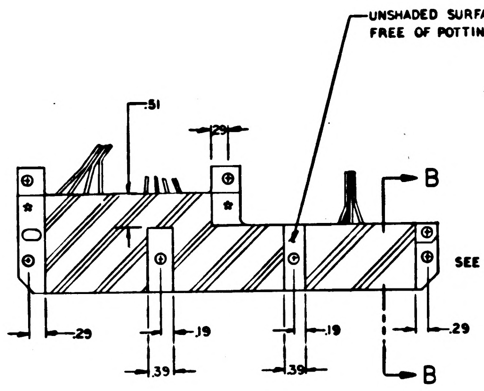
2003949 D

F1/2 SH3/3

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 26856	J.P.L.	[illegible]	[illegible]	[illegible]
B		REVISED PER TDRR 27913	SPT	[illegible]	[illegible]	[illegible]
C		REVISED PER TDRR 28178	SPT	[illegible]	[illegible]	[illegible]
D		REVISED PER TDRR 29705	[illegible]	[illegible]	[illegible]	[illegible]
E		REVISED PER TDRR 32580	[illegible]	[illegible]	[illegible]	[illegible]


.015 MIN TYP
SEE NOTE 14
.015 MIN TYP
SEE NOTE 14

PARTIAL SECTION B-B
UNPOTTED


UNSHADED SURFACES MUST BE FREE OF POTTING
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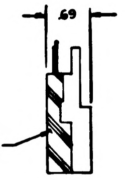
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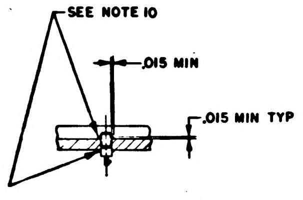
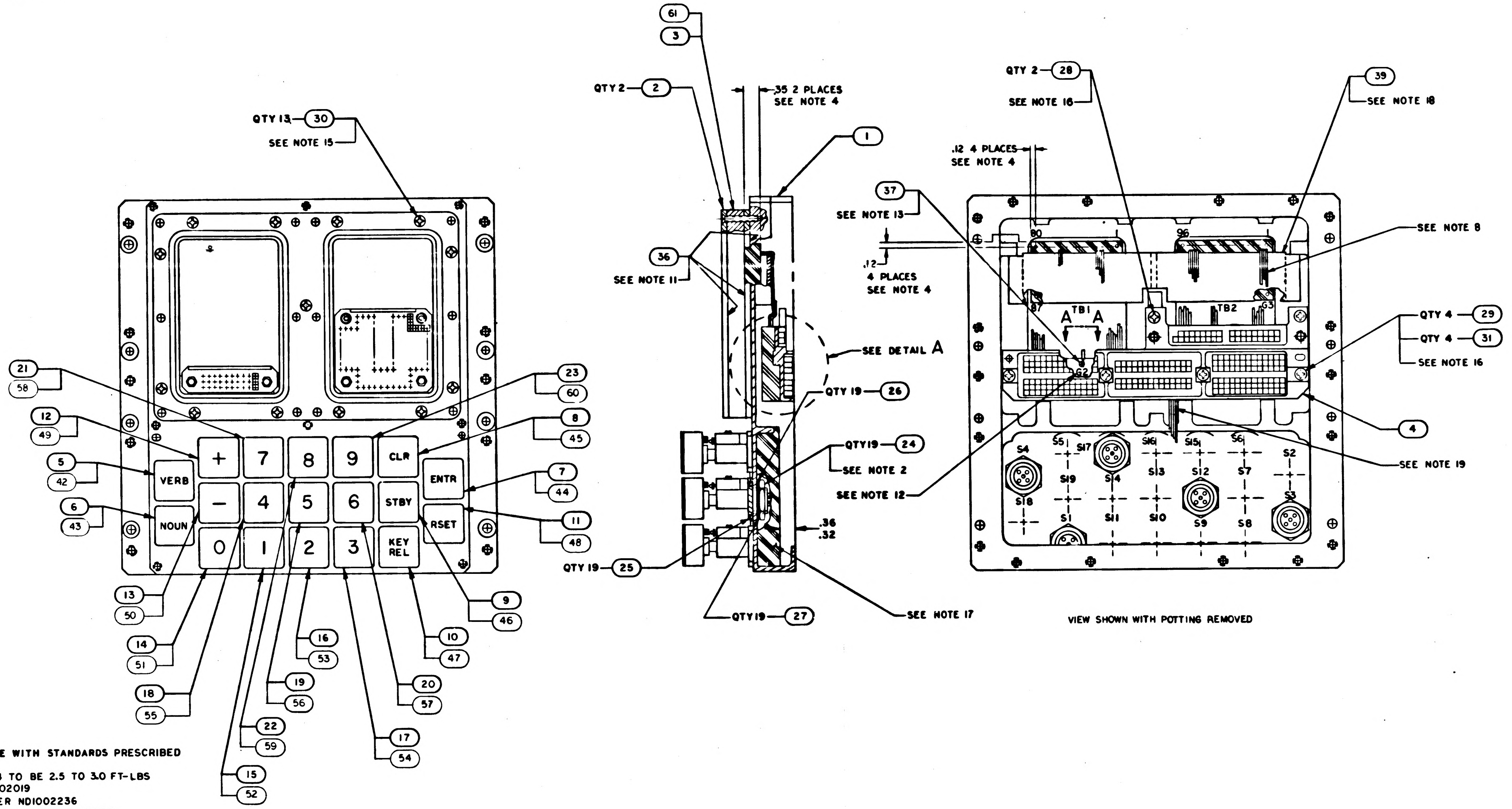
SEE NOTE 4

DETAIL A


SEE NOTE 10
.015 MIN
.015 MIN TYP

PARTIAL SECTION A-A
SCALE 2/1


QTY 13
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S8

VIEW SHOWN WITH POTTING REMOVED

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE FOR FIND NO. 24 TO BE 2.5 TO 3.0 FT-LBS
3. IDENTIFY WITH PART NO. PER ND1002019
4. ENCAPSULATE INDICATED AREAS PER ND1002236
5. SOLDER PER ND 1002071 USING SOLDER PER ND1002075
6. WELD PER ND1002005
7. AR DENOTES AS REQUIRED
8. BOND FIND NO. 32,33,38, 40 & 41 TO FIND NO. 39 PER ND1002009, METHOD C
9. DRESS AND TRIM AT ASSEMBLY USING FIND NO. 34
10. SEAL FIND NO. 37 TO FIND NO. 1 PER ND1002004 TYPE VI
11. APPLY FIND NO. 36 TO INDICATED SURFACES OF FIND NO. 2. DO NOT APPLY TO BONDED RUBBER
12. MARK .07/.10 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122 TYPE II CLASS 2, USING MARKING INK 1006271-11
13. MOUNTING TORQUE FOR FIND NO. 37 TO BE 15−20 INCH OUNCES
14. SEAL INSULATORS ON FIND NO. 4 PER ND1002004 TYPE VI
15. MOUNTING TORQUE FOR FIND NO. 30 TO BE 3.5−4.5 INCH POUNDS
16. MOUNTING TORQUE FOR FIND NO. 28 AND FIND NO. 29 TO BE 8 TO 9 INCH POUNDS
17. ENCAPSULATE INDICATED AREA PER ND1002295, EXCEPT CURE AT 155±5°F FOR 2 HOURS MINIMUM
18. BOND FIND NO. 39 TO FIND NO. 1 PER ND1002004, TYPE IV
19. BOND FIND NO. 33, 38 AND 40 TO FIND NO. 1 PER ND1002009, METHOD C
20 THIS ASSEMBLY NOT TO EXCEED 160°F IN MANUFACTURING PROCESS

QTY REQD -021	QTY REQD 011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	—	2003884-011	ADAPTER PLATE ASSEMBLY	61
1	—	2003875-211	SWITCH ASSEMBLY, PUSHBUTTON	60
1	—	-191		59
1	—	-181		58
1	—	-171		57
1	—	-161		56
1	—	-151		55
1	—	-141		54
1	—	-131		53
1	—	-121		52
1	—	-111		51
1	—	-091		50
1	—	-081		49
1	—	-071		48
1	—	-061		47
1	—	-051		46
1	—	-041		45
1	—	-031		44
1	—	-021		43
1	—	2003875-011	SWITCH ASSEMBLY, PUSHBUTTON	42
		2005953	INTERCONNECTING DIAGRAM	REF
AR	AR	1010807-22	WIRE INSULATED	41
AR	AR	1010416-14	WIRE, INSULATED	40
1	1	2004898	SUPPORT, WIRE	39
AR	AR	1010416-13	WIRE, INSULATED	38
1	1	2004039	TERMINAL, THREADED	37
AR	AR	1006879	SILICONE COMPOUND	36
AR	AR	1010416-15	WIRE, INSULATED	35
AR	AR	1012507-003	TAPE, LACING	34
AR	AR	1010416-20	WIRE, INSULATED	33
AR	AR	1010848-1	WIRE, INSULATED	32
4	4	NAS620-6L	WASHER, FLAT	31
13	13	MS51959-20	SCREW, FLAT HD, CROSS RECESSED	30
4	4	MS51957-30	SCREW, PAN HD, CROSS RECESSED	29
2	2	MS51959-28	SCREW, FLAT HD, CROSS RECESSED	28
19	19	1010635-003	WASHER, LOCK	27
19	19	2004940-001	WASHER, PLAIN	26
19	19	1000159-18	O RING SEAL	25
19	19	2004942	NUT, HEX	24
—	1	2003984-211	SWITCH ASSEMBLY, PUSHBUTTON	23
—	1	-191		22
—	1	-181		21
—	1	-171		20
—	1	-161		19
—	1	-151		18
—	1	-141		17
—	1	-131		16
—	1	-121		15
—	1	-111		14
—	1	-091		13
—	1	-081		12
—	1	-071		11
—	1	-061		10
—	1	-051		9
—	1	-041		8
—	1	-031		7
—	1	-021		6
—	1	2003984-011	SWITCH ASSEMBLY, PUSHBUTTON	5
1	1	2003948-011	CONNECTOR, PLATE ASSEMBLY	4
—	1	2003959-011	ADAPTER, PLATE ASSEMBLY	3
2	2	1006351	GASKET, PREFORMED	2
1	1	2004968-021	HOUSING, FRONT	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003994	
2003950	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.01 ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

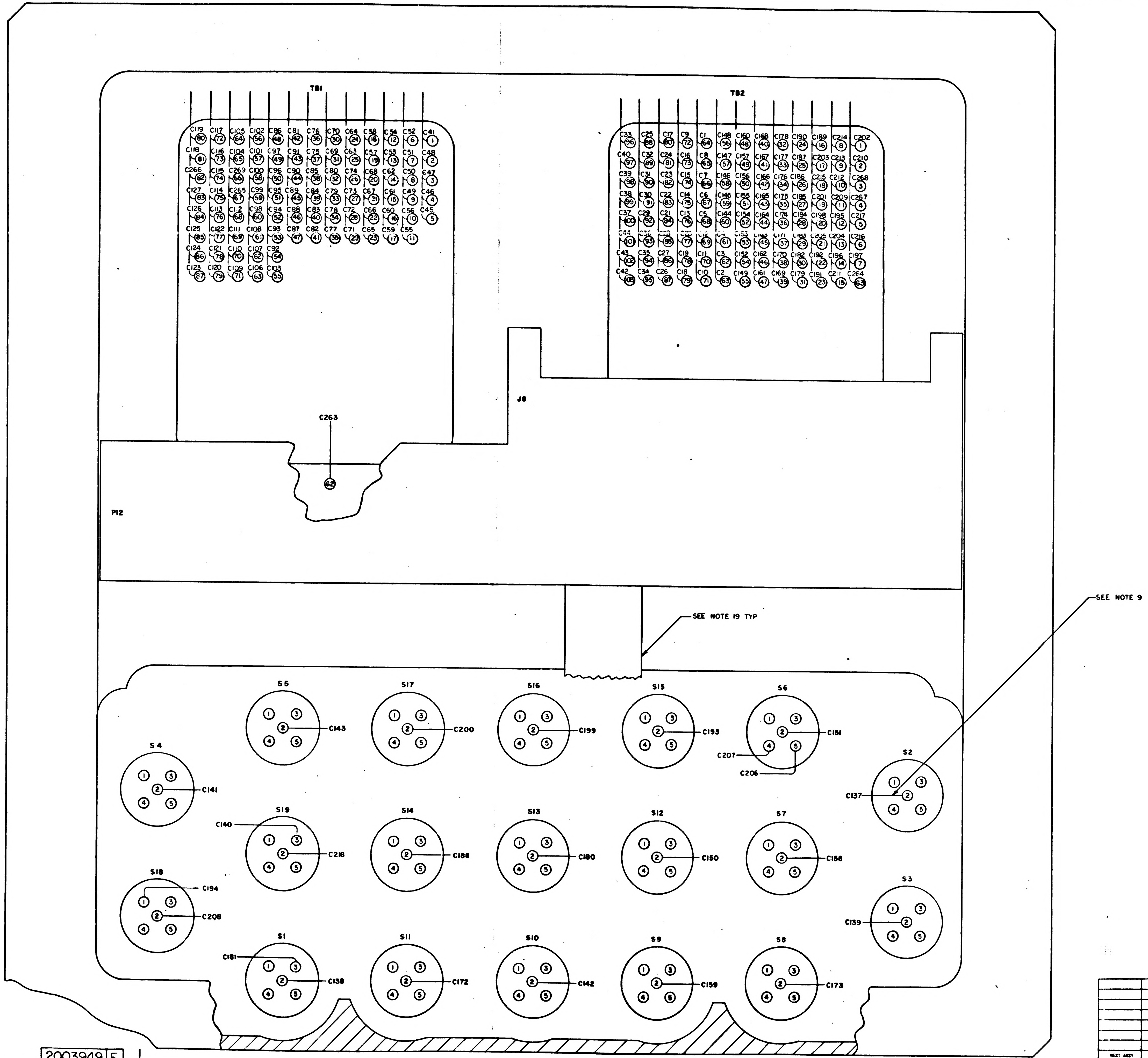
MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC A. C. METZGER
DATE

FRONT HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO 80230
SIZE J
DRAWING NO. 2003949
SCALE 1/1
SHEET 1 OF 3


TB1
TB2
C263
62
J8
P12
SEE NOTE 19 TYP
SEE NOTE 9
S5
C143
S17
C200
S16
C199
S15
C193
S6
C151
C207
C206
S4
C141
S2
C137
S19
C140
C218
S14
C188
S13
C180
S12
C150
S7
C158
S18
C194
C208
S3
C139
S1
C181
C138
S11
C172
S10
C142
S9
C159
S8
C173

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

QTY REQD | PART OR IDENTIFYING NO.

MIT
INSTRUMENTATION LAB

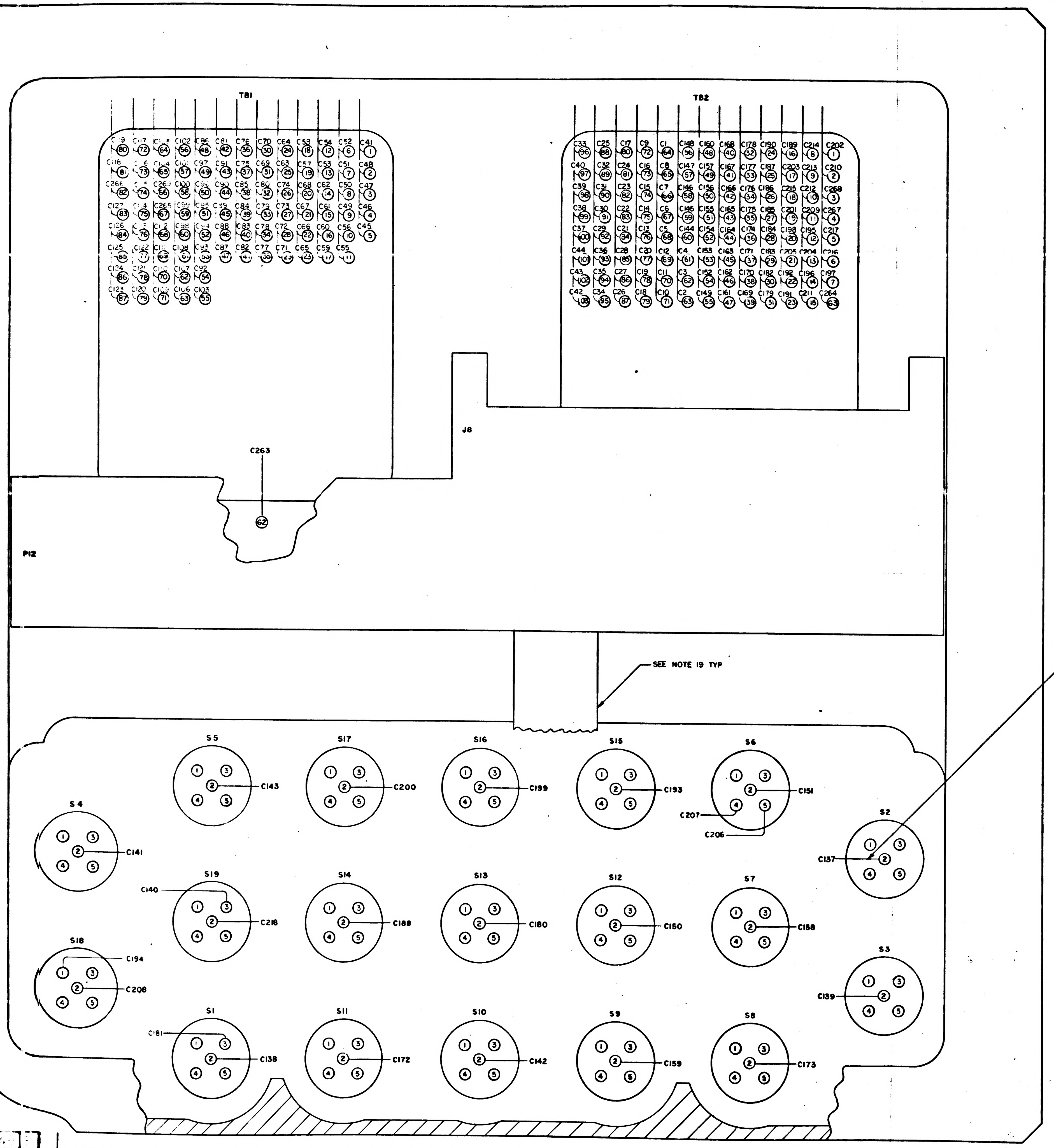
DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED NSC

SH2/3 2003949 E F1/2

2003949 E

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 26856	J.P.L.			
B		REVISED PER TDRR 27913	JPT	ARB		
C		REVISED PER TDRR 28178	S.P.T			
D		REVISED PER TDRR 29705				
E		REVISED PER TDRR 32580				

REVISIONS 26205


TB1
TB2
J8
P12
C263
62
SEE NOTE 19 TYP
SEE NOTE 9
S5
C143
S17
C200
S16
C199
S15
C193
S6
C151
C207
C206
S4
C141
S2
C137
S19
C140
C218
S14
C188
S13
C180
S12
C150
S7
C158
S18
C194
C208
S3
C139
S1
C181
C138
S11
C172
S10
C142
S9
C159
S8
C173

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN J.P. Leonard 2DEC65
CHECKED 3FEB66
APPROVED
APPROVED
APPROVED MIT
A. C. METZGER
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003949
SCALE NONE
SHEET 2 OF 3

2003949 E

F 2 / 2

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C1	SEE NOTE 6	P12-131	32	WHT	26	AR	TB2-64	SEE NOTE 6
C2		-132					TB2-63	
C3		-133					TB2-62	
C4		-134					TB2-61	
C5		-127					TB2-68	
C6		-128					TB2-67	
C7		-129					TB2-66	
C8		-130					TB2-65	
C9		-123					TB2-72	
C10		-124					TB2-71	
C11		-125					TB2-70	
C12		-126					TB2-69	
C13		-119					TB2-76	
C14		-120					TB2-75	
C15		-121					TB2-74	
C16		-122					TB2-73	
C17		-115					TB2-80	
C18		-116					TB2-79	
C19		-117					TB2-78	
C20		-118					TB2-77	
C21		-111					TB2-84	
C22		-112					TB2-83	
C23		-113					TB2-82	
C24		-114					TB2-81	
C25		-107					TB2-88	
C26		-108					TB2-87	
C27		-109					TB2-86	
C28		-110					TB2-85	
C29		-103					TB2-92	
C30		-104					TB2-91	
C31		-105					TB2-90	
C32		-106					TB2-89	
C33		-99					TB2-96	
C34		-100					TB2-95	
C35		-101					TB2-94	
C36		-102					TB2-93	
C37		-95					TB2-100	
C38		-96					TB2-99	
C39		-97					TB2-98	
C40		-98					TB2-97	
C41		-91					TB1-1	
C42		-92					TB2-103	
C43		-93					TB2-102	
C44		-94					TB2-101	
C45		-87					TB1-5	
C46		-88					TB1-4	
C47		-89					TB1-3	
C48		-90					TB1-2	
C49		-83					TB1-9	
C50		-84					TB1-8	
C51		-85					TB1-7	
C52		-86					TB1-6	
C53		-79					TB1-13	
C54		-80					TB1-12	
C55		-81					TB1-11	
C56		-82					TB1-10	
C57		-73					TB1-19	
C58		-74					TB1-18	
C59		-75					TB1-17	
C60		-76					TB1-16	
C61		-77					TB1-15	
C62		-78					TB1-14	
C63		-67					TB1-25	
C64		-68					TB1-24	
C65		-69					TB1-23	
C66		-70					TB1-22	
C67		-71					TB1-21	
C68		-72					TB1-20	
C69		-61					TB1-31	
C70		-62					TB1-30	
C71		-63					TB1-29	
C72		-64					TB1-28	
C73		-65					TB1-27	
C74		-66					TB1-26	
C75		-55					TB1-37	
C76		-56					TB1-36	
C77		-57					TB1-35	
C78		-58					TB1-34	
C79		-59					TB1-33	
C80		-60					TB1-32	
C81		-50					TB1-42	
C82		-51					TB1-41	
C83		-52					TB1-40	
C84		-53					TB1-39	
C85		-54					TB1-38	
C86		-43					TB1-48	
C87		-44					TB1-47	
C88		P12-45	32	WHT	26	AR	TB1-46	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C89	SEE NOTE 6	P12-46	32	WHT	26	AR	TB1-45	SEE NOTE 6
C90		-47					TB1-44	
C91		-48					TB1-43	
C92		-37					TB1-54	
C93		-38					TB1-53	
C94		-39					TB1-52	
C95		-40					TB1-51	
C96		-41					TB1-50	
C97		-42					TB1-49	
C98		-31					TB1-60	
C99		-32					TB1-59	
C100		-33					TB1-58	
C101		-34					TB1-57	
C102		-35					TB1-56	
C103		-36					TB1-57	
C104		-25					TB1-65	
C105		-27					TB1-64	
C106		-28					TB1-63	
C107		-29					TB1-62	
C108		-30					TB1-61	
C109		-21					TB1-71	
C110		-22					TB1-70	
C111		-23					TB1-69	
C112		-24					TB1-68	
C113		-13					TB1-76	
C114		-15					TB1-75	
C115		-16					TB1-74	
C116		-17					TB1-73	
C117		-18					TB1-72	
C118		-7					TB1-81	
C119		-9					TB1-80	
C120		-10					TB1-79	
C121		-11					TB1-78	
C122		-12					TB1-77	
C123		-1					TB1-87	
C124		-3					TB1-86	
C125		-4					TB1-85	
C126		-5					TB1-84	
C127		P12-6	32	WHT			TB1-83	
C128	SEE NOTE 5	S16-1	35	YEL			S17-3	SEE NOTE 5
C129		S5-4	38	RED			S19-4	
C130		S5-5	40	ORN			S19-5	
C131		S19-4	38	RED			S1-4	
C132		S19-5	40	ORN			S1-5	
C133		S1-4	38	RED			S18-4	
C134		S1-5	40	ORN			S18-5	
C135		S18-4	38	RED			S4-4	
C136		S18-5	40	ORN			S4-5	
C137		J8-3	33	WHT			S2-2	
C138		-5					S1-2	
C139		-8					S3-2	
C140		-9					S19-3	
C141		-10					S4-2	
C142		-11					S10-2	
C143		J8-13	33				S5-2	
C144	SEE NOTE 6	P12-135	32				TB2-60	SEE NOTE 6
C145		-136					TB2-59	
C146		-137					TB2-58	
C147		-138					TB2-57	
C148		-139					TB2-56	
C149		P12-140	32				TB2-55	
C150	SEE NOTE 5	J8-14	33				S12-2	SEE NOTE 5
C151		J8-15	33				S6-2	
C152	SEE NOTE 6	P12-141	32				TB2-54	SEE NOTE 6
C153		-142					TB2-53	
C154		-143					TB2-52	
C155		-144					TB2-51	
C156		-145					TB2-50	
C157		P12-146	32				TB2-49	
C158	SEE NOTE 5	J8-16	33				S7-2	SEE NOTE 5
C159		J8-17	33				S9-2	
C160	SEE NOTE 6	P12-147	32				TB2-48	SEE NOTE 6
C161		-148					-47	
C162		-149					-46	
C163		-150					-45	
C164		-151					-44	
C165		-152					-43	
C166		-153					-42	
C167		-154					-41	
C168		-155					-40	
C169		-156					-39	
C170		-157					-38	
C171		P12-158	32				TB2-37	
C172	SEE NOTE 5	J8-18	33				S11-2	SEE NOTE 5
C173		J8-19	33				S8-2	
C174	SEE NOTE 6	P12-159	32				TB2-36	SEE NOTE 6
C175		P12-160	32				TB2-35	
C176		P12-161	32	WHT	26	AR	TB2-34	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C177	SEE NOTE 6	P12-162	32	WHT	26	AR	TB2-33	SEE NOTE 6
C178		P12-163	32				TB2-32	
C179		P12-164	32				TB2-31	
C180	SEE NOTE 5	J8-20	33				S13-2	SEE NOTE 5
C181		J8-21	33				S1-3	
C182	SEE NOTE 6	P12-165	32				TB2-30	SEE NOTE 6
C183		-166					-29	
C184		-167					-28	
C185		-168					-27	
C186		-169					-26	
C187		P12-170	32				TB2-25	
C188	SEE NOTE 5	J8-22	33				S14-2	SEE NOTE 5
C189	SEE NOTE 6	P12-190	32				TB2-16	SEE NOTE 6
C190		-174					-24	
C191		-175					-23	
C192		P12-176	32				TB2-22	
C193	SEE NOTE 5	J8-24	33				S15-2	SEE NOTE 5
C194		J8-25	33				S18-1	
C195	SEE NOTE 6	P12-196	32				TB2-12	SEE NOTE 6
C196		-192					-14	
C197		-204					-7	
C198		P12-182	32				TB2-20	
C199	SEE NOTE 5	J8-26	33				S16-2	SEE NOTE 5
C200		J8-27	33				S17-2	
C201	SEE NOTE 6	P12-185	32				TB2-19	SEE NOTE 6
C202		-210					-1	
C203		-187					-17	
C204		-195					-13	
C205		-181	32	WHT			TB2-21	
C206	SEE NOTE 5	-193	40	ORN			S6-5	SEE NOTE 5
C207		P12-194	38	RED			S6-4	
C208		J8-30	33	WHT			S18-2	
C209	SEE NOTE 6	P12-197	32	WHT			TB2-11	SEE NOTE 6
C210		-209					-2	
C211		-191					-15	
C212		-201					-10	
C213		-202					-9	
C214		-203					-8	
C215		-186					-18	
C216		-207					-6	
C217		-208	32	WHT			TB2-5	
C218	SEE NOTE 5	P12-179	33	WHT			S19-2	SEE NOTE 5
C219		S1-1	35	YEL			S2-3	
C220		S2-1					S3-3	
C221		S3-1					S4-3	
C222		S4-1					S5-3	
C223		S5-1					S6-3	
C224		S6-1					S7-3	
C225		S7-1					S8-3	
C226		S8-1					S9-3	
C227		S9-1					S10-3	
C228		S10-1					S11-3	
C229		S11-1					S12-3	
C230		S12-1					S13-3	
C231		S13-1					S14-3	
C232		S14-1					S15-3	
C233		S15-1	35	YEL			S16-3	
C234		S17-4	38	RED			S5-4	
C235		S17-5	40	ORN			S5-5	
C236		S6-4	38	RED			S2-4	
C237		S6-5	40	ORN			S2-5	
C238		S2-4	38	RED			S7-4	
C239		S2-5	40	ORN			S7-5	
C240		S7-4	38	RED			S3-4	
C241		S7-5	40	ORN			S3-5	
C242		S3-4	38	RED			S8-4	
C243		S3-5	40	ORN			S8-5	
C244		S8-4	38	RED			S9-4	
C245		S8-5	40	ORN			S9-5	
C246		S9-4	38	RED			S12-4	
C247		S9-5	40	ORN			S12-5	
C248		S12-4	38	RED			S15-4	
C249		S12-5	40	ORN			S15-5	
C250		S15-4	38	RED			S16-4	
C251		S15-5	40	ORN			S16-5	
C252		S16-4	38	RED			S13-4	
C253		S16-5	40	ORN			S13-5	
C254		S13-4	38	RED			S10-4	
C255		S13-5	40	ORN			S10-5	
C256		S10-4	38	RED			S11-4	
C257		S10-5	40	ORN			S11-6	
C258		S11-4	38	RED			S14-4	
C259		S11-5	40	ORN			S14-5	
C260		S14-4	38	RED			S17-4	
C261		S14-5	40	ORN			S17-5	
C262		S17-1	35	YEL			S18-3	
C263	SEE NOTE 6	P12-184	32	WHT			G2	SEE NOTE 6
C264	SEE NOTE 6	P12-183	41				G3	SEE NOTE 5
C265	SEE NOTE 6	P12-20	32				TB1-67	SEE NOTE 6
C266		P12-8					TB1-82	
C267		P12-173					TB2-4	
C268		P12-177					TB2-3	
C269		P12-19	32	WHT	26	AR	TB1-66	

F1/2

SH3/3

QTY REQD	PART OR IDENTIFYING NO

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

M I T
INSTRUMENTATION LA

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC

2003949 E

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 26856	P.S.			
B		REVISED PER TDRR 27913	SPT	HRB		
C		REVISED PER TDRR 28178	SPT			
D		REVISED PER TDRR 29705				
E		REVISED PER TDRR 32580				

LEAD ELECTRICAL

FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
P12-131	32	WHT	26	AR	TB2-64	SEE NOTE 6
-132					TB2-63	
-133					TB2-62	
-134					TB2-61	
-127					TB2-68	
-128					TB2-67	
-129					TB2-66	
-130					TB2-65	
-123					TB2-72	
-124					TB2-71	
-125					TB2-70	
-126					TB2-69	
-119					TB2-76	
-120					TB2-75	
-121					TB2-74	
-122					TB2-73	
-115					TB2-80	
-116					TB2-79	
-117					TB2-78	
-118					TB2-77	
-111					TB2-84	
-112					TB2-83	
-113					TB2-82	
-114					TB2-81	
-107					TB2-88	
-108					TB2-87	
-109					TB2-86	
-110					TB2-85	
-103					TB2-92	
-104					TB2-91	
-105					TB2-90	
-106					TB2-89	
-99					TB2-96	
-100					TB2-95	
-101					TB2-94	
-102					TB2-93	
-95					TB2-100	
-96					TB2-99	
-97					TB2-98	
-98					TB2-97	
-91					TB1-1	
-92					TB2-103	
-93					TB2-102	
-94					TB2-101	
-87					TB1-5	
-88					TB1-4	
-89					TB1-3	
-90					TB1-2	
-83					TB1-9	
-84					TB1-8	
-85					TB1-7	
-86					TB1-6	
-79					TB1-13	
-80					TB1-12	
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-82					TB1-10	
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-74					TB1-18	
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-69					TB1-23	
-70					TB1-22	
-71					TB1-21	
-72					TB1-20	
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-62					TB1-30	
-63					TB1-29	
-64					TB1-28	
-65					TB1-27	
-66					TB1-26	
-55					TB1-37	
-56					TB1-36	
-57					TB1-35	
-58					TB1-34	
-59					TB1-33	
-60					TB1-32	
-50					TB1-42	
-51					TB1-41	
-52					TB1-40	
-53					TB1-39	
-54					TB1-38	
-43					TB1-48	
-44					TB1-47	
2-45	32	WHT	26	AR	TB1-46	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C89	SEE NOTE 6	P12-46	32	WHT	26	AR	TB1-45	SEE NOTE 6
C90		-47					TB1-44	
C91		-48					TB1-43	
C92		-37					TB1-54	
C93		-38					TB1-53	
C94		-39					TB1-52	
C95		-40					TB1-51	
C96		-41					TB1-50	
C97		-42					TB1-49	
C98		-31					TB1-60	
C99		-32					TB1-59	
C100		-33					TB1-58	
C101		-34					TB1-57	
C102		-35					TB1-56	
C103		-36					TB1-57	
C104		-25					TB1-65	
C105		-27					TB1-64	
C106		-28					TB1-63	
C107		-29					TB1-62	
C108		-30					TB1-61	
C109		-21					TB1-71	
C110		-22					TB1-70	
C111		-23					TB1-69	
C112		-24					TB1-68	
C113		-13					TB1-76	
C114		-15					TB1-75	
C115		-16					TB1-74	
C116		-17					TB1-73	
C117		-18					TB1-72	
C118		-7					TB1-81	
C119		-9					TB1-80	
C120		-10					TB1-79	
C121		-11					TB1-78	
C122		-12					TB1-77	
C123		-1					TB1-87	
C124		-3					TB1-86	
C125		-4					TB1-85	
C126		-5					TB1-84	
C127		P12-6	32	WHT			TB1-83	
C128	SEE NOTE 5	S16-1	35	YEL			S17-3	SEE NOTE 5
C129		S5-4	38	RED			S19-4	
C130		S5-5	40	ORN			S19-5	
C131		S19-4	38	RED			S1-4	
C132		S19-5	40	ORN			S1-5	
C133		S1-4	38	RED			S18-4	
C134		S1-5	40	ORN			S18-5	
C135		S18-4	38	RED			S4-4	
C136		S18-5	40	ORN			S4-5	
C137		J8-3	33	WHT			S2-2	
C138		-5					S1-2	
C139		-8					S3-2	
C140		-9					S19-3	
C141		-10					S4-2	
C142		-11					S10-2	
C143		J8-13	33				S5-2	
C144	SEE NOTE 6	P12-135	32				TB2-60	SEE NOTE 6
C145		-136					TB2-59	
C146		-137					TB2-58	
C147		-138					TB2-57	
C148		-139					TB2-56	
C149		P12-140	32				TB2-55	
C150	SEE NOTE 5	J8-14	33				S12-2	SEE NOTE 5
C151		J8-15	33				S6-2	
C152	SEE NOTE 6	P12-141	32				TB2-54	SEE NOTE 6
C153		-142					TB2-53	
C154		-143					TB2-52	
C155		-144					TB2-51	
C156		-145					TB2-50	
C157		P12-146	32				TB2-49	
C158	SEE NOTE 5	J8-16	33				S7-2	SEE NOTE 5
C159		J8-17	33				S9-2	
C160	SEE NOTE 6	P12-147	32				TB2-48	SEE NOTE 6
C161		-148					-47	
C162		-149					-46	
C163		-150					-45	
C164		-151					-44	
C165		-152					-43	
C166		-153					-42	
C167		-154					-41	
C168		-155					-40	
C169		-156					-39	
C170		-157					-38	
C171		P12-158	32				TB2-37	
C172	SEE NOTE 5	J8-18	33				S11-2	SEE NOTE 5
C173		J8-19	33				S8-2	
C174	SEE NOTE 6	P12-159	32				TB2-36	SEE NOTE 6
C175		P12-160	32				TB2-35	
C176		P12-161	32	WHT	26	AR	TB2-34	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C177	SEE NOTE 6	P12-162	32	WHT	26	AR	TB2-33	SEE NOTE 6
C178		P12-163	32				TB2-32	
C179		P12-164	32				TB2-31	
C180	SEE NOTE 5	J8-20	33				S13-2	SEE NOTE 5
C181		J8-21	33				S1-3	
C182	SEE NOTE 6	P12-165	32				TB2-30	SEE NOTE 6
C183		-166					-29	
C184		-167					-28	
C185		-168					-27	
C186		-169					-26	
C187		P12-170	32				TB2-25	
C188	SEE NOTE 5	J8-22	33				S14-2	SEE NOTE 5
C189	SEE NOTE 6	P12-190	32				TB2-16	SEE NOTE 6
C190		-174					-24	
C191		-175					-23	
C192		P12-176	32				TB2-22	
C193	SEE NOTE 5	J8-24	33				S15-2	SEE NOTE 5
C194		J8-25	33				S18-1	
C195	SEE NOTE 6	P12-196	32				TB2-12	SEE NOTE 6
C196		-192					-14	
C197		-204					-7	
C198		P12-182	32				TB2-20	
C199	SEE NOTE 5	J8-26	33				S16-2	SEE NOTE 5
C200		J8-27	33				S17-2	
C201	SEE NOTE 6	P12-185	32				TB2-19	SEE NOTE 6
C202		-210					-1	
C203		-187					-17	
C204		-195					-13	
C205		-181	32	WHT			TB2-21	
C206	SEE NOTE 5	-193	40	ORN			S6-5	SEE NOTE 5
C207		P12-194	38	RED			S6-4	
C208		J8-30	33	WHT			S18-2	
C209	SEE NOTE 6	P12-197	32	WHT			TB2-11	SEE NOTE 6
C210		-209					-2	
C211		-191					-15	
C212		-201					-10	
C213		-202					-9	
C214		-203					-8	
C215		-186					-18	
C216		-207					-6	
C217		-208	32	WHT			TB2-5	
C218	SEE NOTE 5	P12-179	33	WHT			S19-2	SEE NOTE 5
C219		S1-1	35	YEL			S2-3	
C220		S2-1					S3-3	
C221		S3-1					S4-3	
C222		S4-1					S5-3	
C223		S5-1					S6-3	
C224		S6-1					S7-3	
C225		S7-1					S8-3	
C226		S8-1					S9-3	
C227		S9-1					S10-3	
C228		S10-1					S11-3	
C229		S11-1					S12-3	
C230		S12-1					S13-3	
C231		S13-1					S14-3	
C232		S14-1					S15-3	
C233		S15-1	35	YEL			S16-3	
C234		S17-4	38	RED			S5-4	
C235		S17-5	40	ORN			S5-5	
C236		S6-4	38	RED			S2-4	
C237		S6-5	40	ORN			S2-5	
C238		S2-4	38	RED			S7-4	
C239		S2-5	40	ORN			S7-5	
C240		S7-4	38	RED			S3-4	
C241		S7-5	40	ORN			S3-5	
C242		S3-4	38	RED			S8-4	
C243		S3-5	40	ORN			S8-5	
C244		S8-4	38	RED			S9-4	
C245		S8-5	40	ORN			S9-5	
C246		S9-4	38	RED			S12-4	
C247		S9-5	40	ORN			S12-5	
C248		S12-4	38	RED			S15-4	
C249		S12-5	40	ORN			S15-5	
C250		S15-4	38	RED			S16-4	
C251		S15-5	40	ORN			S16-5	
C252		S16-4	38	RED			S13-4	
C253		S16-5	40	ORN			S13-5	
C254		S13-4	38	RED			S10-4	
C255		S13-5	40	ORN			S10-5	
C256		S10-4	38	RED			S11-4	
C257		S10-5	40	ORN			S11-6	
C258		S11-4	38	RED			S14-4	
C259		S11-5	40	ORN			S14-5	
C260		S14-4	38	RED			S17-4	
C261		S14-5	40	ORN			S17-5	
C262		S17-1	35	YEL			S18-3	
C263	SEE NOTE 6	P12-184	32	WHT			62	SEE NOTE 6
C264	SEE NOTE 6	P12-183	41				63	SEE NOTE 5
C265	SEE NOTE 6	P12-20	32				TB1-67	SEE NOTE 6
C266		P12-8					TB1-82	
C267		P12-173					TB2-4	
C268		P12-177					TB2-3	
C269		P12-19	32	WHT	26	AR	TB1-66	

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
A. G. METZGER
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT HOUSING ASSEMBLY

AGC DSKY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003949
SCALE NONE
SHEET 3 OF 3

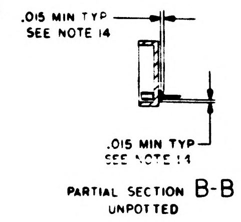
2003949 E

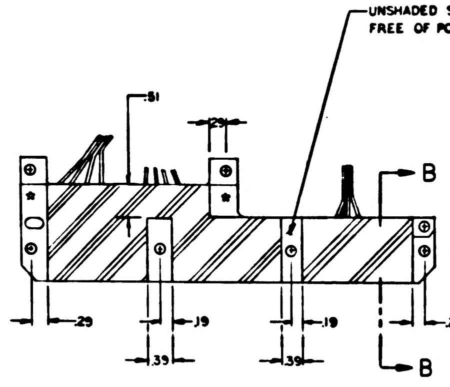
2003949

F-2/2

2003949 G

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 26856				
B		REVISED PER TDRR 27913				
C		REVISED PER TDRR 28178				
D		REVISED PER TDRR 29705				
E		REVISED PER TDRR 32590				
F		REVISED PER TDRR 33[illegible]				
G		REVISED PER TDRR 34492				


.015 MIN TYP
SEE NOTE 14
.015 MIN TYP
SEE NOTE 14
PARTIAL SECTION B-B
UNPOTTED


UNSHADED SURFACES MUST BE FREE OF POTTING
51
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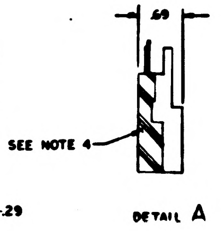
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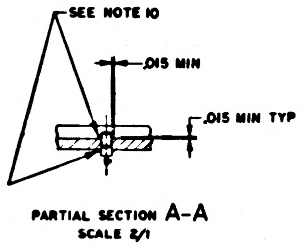
SEE NOTE 4
DETAIL A


SEE NOTE 10
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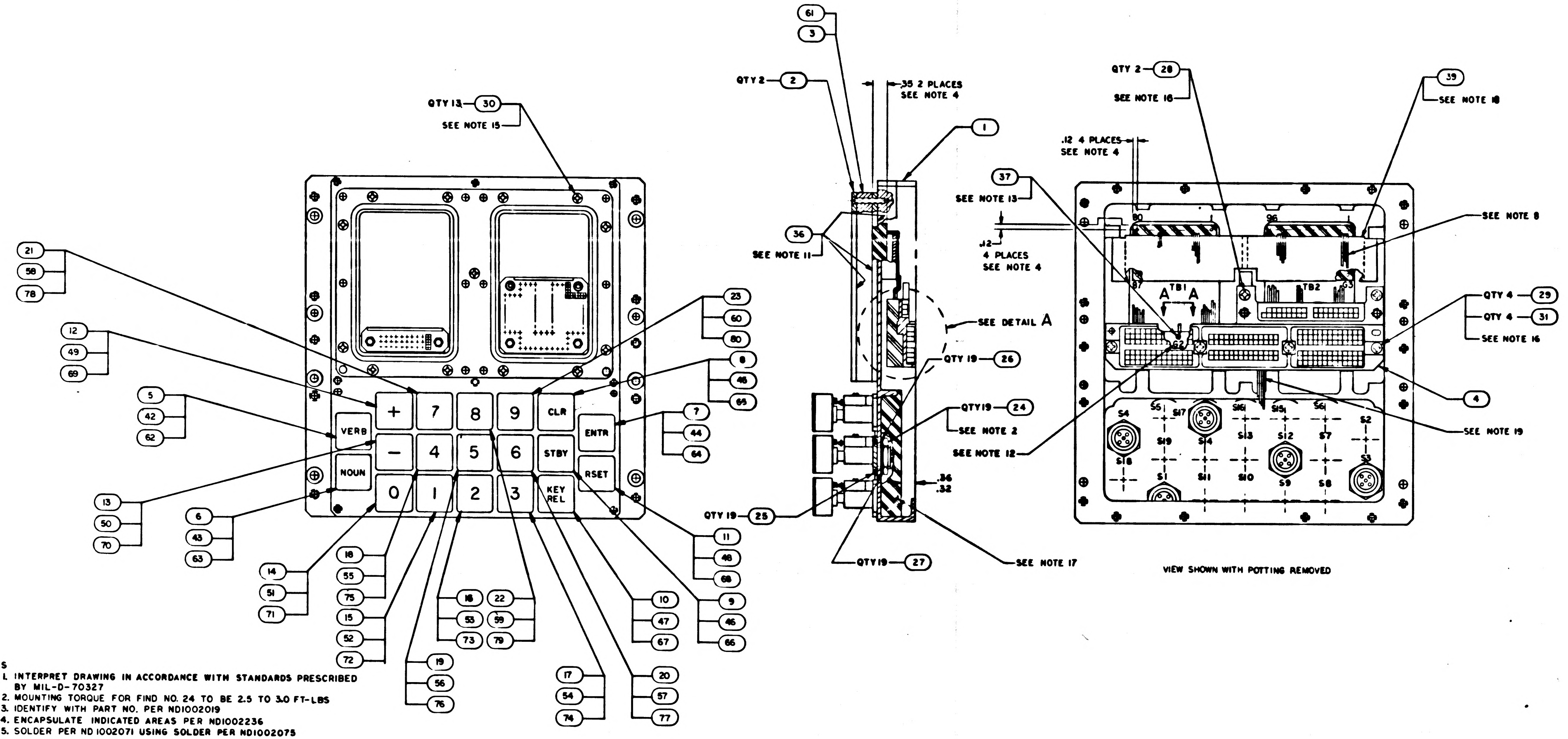
.015 MIN TYP
PARTIAL SECTION A-A
SCALE 2/1


QTY 13 30
SEE NOTE 15
21
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SEE NOTE 4
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SEE NOTE 13
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SEE NOTE 11
.12 4 PLACES
SEE NOTE 4
SEE DETAIL A
QTY 19 26
QTY 19 24
SEE NOTE 2
SEE NOTE 12
.36
.32
QTY 19 25
QTY 19 27
SEE NOTE 17
QTY 2 28
SEE NOTE 18
39
SEE NOTE 18
.12 4 PLACES
SEE NOTE 4
37
SEE NOTE 8
80
96
TB1
TB2
A
A
QTY 4 29
QTY 4 31
SEE NOTE 16
4
SEE NOTE 19
S4 S5 S17 S16 S15 S6 S2
S19 S14 S13 S12 S7
S18 S3
S1 S11 S10 S9 S8
VIEW SHOWN WITH POTTING REMOVED

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE FOR FIND NO. 24 TO BE 2.5 TO 3.0 FT-LBS
3. IDENTIFY WITH PART NO. PER ND1002019
4. ENCAPSULATE INDICATED AREAS PER ND1002236
5. SOLDER PER ND1002071 USING SOLDER PER ND1002075
6. WELD PER ND1002005
7. AR DENOTES AS REQUIRED
8. BOND FIND NO. 32, 33, 38, 40 & 41 TO FIND NO. 39 PER ND1002009, METHOD C
9. DRESS AND TRIM AT ASSEMBLY USING FIND NO. 34
10. SEAL FIND NO. 37 TO FIND NO. 1 PER ND1002004 TYPE VI
11. APPLY FIND NO. 36 TO INDICATED SURFACES OF FIND NO. 2. DO NOT APPLY TO BONDED RUBBER
12. MARK .07/.10 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122 TYPE II CLASS 2, USING MARKING INK 1006271-11
13. MOUNTING TORQUE FOR FIND NO. 37 TO BE 15-20 INCH OUNCES
14. SEAL INSULATORS ON FIND NO. 4 PER ND1002187 TYPE III
15. MOUNTING TORQUE FOR FIND NO. 30 TO BE 3.5-4.5 INCH POUNDS
16. MOUNTING TORQUE FOR FIND NO. 28 AND FIND NO. 29 TO BE 8 TO 9 INCH POUNDS
17. ENCAPSULATE INDICATED AREA PER ND1002295, EXCEPT CURE AT 155±5°F FOR 2 HOURS MINIMUM
18. BOND FIND NO. 39 TO FIND NO. 1 PER ND1002004, TYPE IV
19. BOND FIND NO. 33, 38 AND 40 TO FIND NO. 1 PER ND1002009, METHOD C
20. THIS ASSEMBLY NOT TO EXCEED 160°F IN MANUFACTURING PROCESS

1	—	—	2003894-211	SWITCH ASSEMBLY, PUSHBUTTON	80
1	—	—	-191		79
1	—	—	-181		78
1	—	—	-171		77
1	—	—	-161		76
1	—	—	-151		75
1	—	—	-141		74
1	—	—	-131		73
1	—	—	-121		72
1	—	—	-111		71
1	—	—	-091		70
1	—	—	-081		69
1	—	—	-071		68
1	—	—	-061		67
1	—	—	-051		66
1	—	—	-041		65
1	—	—	-031		64
1	—	—	-021		63
1	—	—	2003894-011	SWITCH ASSEMBLY, PUSHBUTTON	62
—	1	—	2003664-011	ADAPTER PLATE ASSEMBLY	61
—	1	—	2003875-211	SWITCH ASSEMBLY, PUSHBUTTON	60
—	1	—	-191		59
—	1	—	-181		58
—	1	—	-171		57
—	1	—	-161		56
—	1	—	-151		55
—	1	—	-141		54
—	1	—	-131		53
—	1	—	-121		52
—	1	—	-111		51
—	1	—	-091		50
—	1	—	-081		49
—	1	—	-071		48
—	1	—	-061		47
—	1	—	-051		46
—	1	—	-041		45
—	1	—	-031		44
—	1	—	-021		43
—	1	—	2003875-011	SWITCH ASSEMBLY, PUSHBUTTON	42
			2005953	INTERCONNECTING DIAGRAM	REF
AR	AR	AR	1010807-22	WIRE INSULATED	41
AR	AR	AR	1010416-14	WIRE, INSULATED	40
1	1	1	2004898	SUPPORT, WIRE	39
AR	AR	AR	1010416-13	WIRE, INSULATED	38
1	1	1	2004039	TERMINAL, THREADED	37
AR	AR	AR	1006879	SILICONE COMPOUND	36
AR	AR	AR	1010416-15	WIRE, INSULATED	35
AR	AR	AR	1012507-003	TAPE, LACING	34
AR	AR	AR	1010416-20	WIRE, INSULATED	33
AR	AR	AR	1010848-1	WIRE, INSULATED	32
4	4	4	NAS620-[illegible]L	WASHER, FLAT	31
13	13	13	MS51959-20	SCREW, FLAT HD, CROSS RECESSED	30
4	4	4	MS51957-30	SCREW, PAN HD, CROSS RECESSED	29
2	2	2	MS51959-28	SCREW, FLAT HD, CROSS RECESSED	28
19	19	19	1010635-003	WASHER, LOCK	27
19	19	19	2004940-001	WASHER, PLAIN	26
19	19	19	1000159-18	O RING SEAL	[illegible]
19	19	19	2004942	NUT, HEX	24
—	—	1	2003984-211	SWITCH ASSEMBLY, PUSHBUTTON	23
—	—	1	-191		22
—	—	1	-181		21
—	—	1	-171		20
—	—	1	-161		[illegible]
—	—	1	-151		[illegible]
—	—	1	-141		17
—	—	1	-131		[illegible]
—	—	1	-121		15
—	—	1	-111		14
—	—	1	-091		13
—	—	1	-081		12
—	—	1	-071		11
—	—	1	-061		[illegible]
—	—	1	-051		9
—	—	1	-041		8
—	—	1	-031		[illegible]
—	—	1	-021		6
—		1	2003984-011	SWITCH ASSEMBLY, PUSHBUTTON	[illegible]
1	1	1	2003948-011	CONNECTOR, PLATE ASSEMBLY	[illegible]
1	—	1	2003959-011	ADAPTER, PLATE ASSEMBLY	3
2	2	2	1006351	GASKET, PREFORMED	2
1	1	1	2004968-021	HOUSING, FRONT	[illegible]
QTY REQD	QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-031	-021	011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003994	
2003950	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.01 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN J. P. Leonard
CHECKED J C Joubert
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC A. G. METZGER

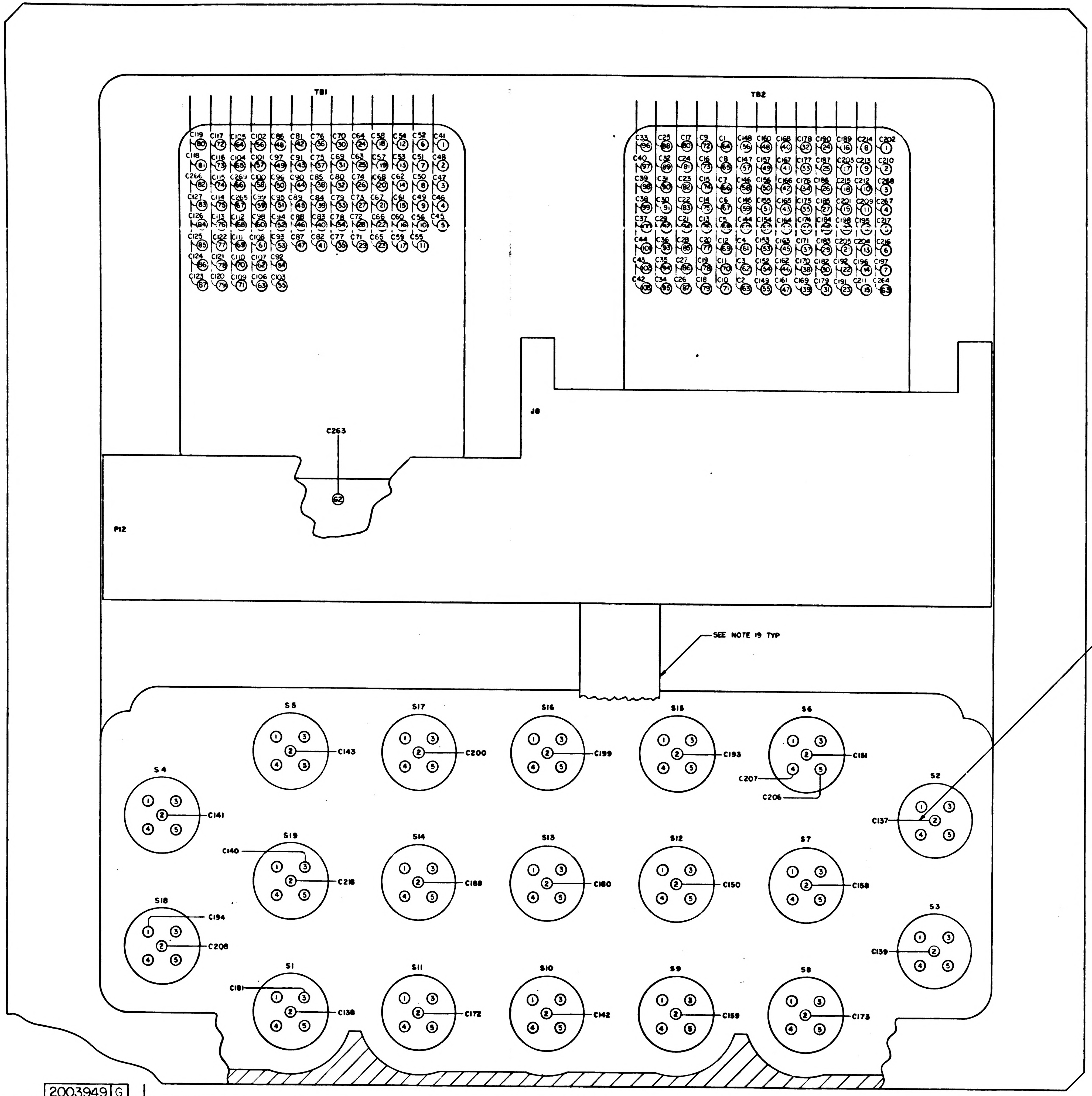
MANNED SPACECRAFT CENTER
HOUSTON TEXAS

FRONT HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO 80230
SIZE J
DRAWING NO 2003949
SCALE 1/1
SHEET 1 OF 3

2003949 G

2003949


TB1
C119 80, C117 72, C105 64, C102 56, C86 48, C81 42, C76 36, C70 30, C64 24, C58 18, C54 12, C52 6, C41 1
C118 81, C116 73, C104 65, C101 57, C97 49, C91 43, C75 37, C69 31, C63 25, C57 19, C53 13, C51 7, C48 2
C266 82, C115 74, C269 66, C100 58, C96 50, C90 44, C85 38, C80 32, C74 26, C68 20, C62 14, C50 8, C47 3
C127 83, C114 75, C265 67, C99 59, C95 51, C89 45, C84 39, C79 33, C73 27, C67 21, C61 15, C49 9, C46 4
C126 84, C113 76, C112 68, C98 60, C94 52, C88 46, C83 40, C78 34, C72 28, C66 22, C60 16, C56 10, C45 5
C125 85, C122 77, C111 69, C108 61, C93 53, C87 47, C82 41, C77 35, C71 23, C65 23, C59 17, C55 11
C124 86, C121 78, C110 70, C107 62, C92 54
C123 87, C120 79, C109 71, C106 63, C103 55
TB2
C33 96, C25 88, C17 80, C9 72, C1 64, C148 56, C160 48, C168 40, C178 32, C190 24, C189 16, C214 8, C202 1
C40 97, C32 89, C24 81, C16 73, C8 65, C147 57, C157 49, C167 41, C177 33, C187 25, C203 17, C213 9, C210 2
C39 98, C31 90, C23 82, C15 74, C7 66, C146 58, C156 50, C166 42, C176 34, C186 26, C215 18, C212 10, C268 3
C38 99, C30 91, C22 83, C14 75, C6 67, C145 59, C155 51, C165 43, C175 35, C185 27, C201 19, C209 11, C267 4
C37, C29, C21, C13, C5, C144, C154, C164, C174, C184, C198, C195, C217
C44 101, C36 93, C28 85, C20 77, C12 69, C4 61, C153 53, C163 45, C171 37, C183 29, C205 21, C204 13, C216 6
C43 102, C35 94, C27 86, C19 78, C11 70, C3 62, C152 54, C162 46, C170 38, C182 30, C192 22, C196 14, C197 7
C42 103, C34 95, C26 87, C18 79, C10 71, C2 63, C149 55, C161 47, C169 39, C179 31, C191 23, C211 15, C264 63
C263
62
J8
P12
SEE NOTE 19 TYP
SEE NOTE 9
S5 C143
S17 C200
S16 C199
S15 C193
S6 C151 C207 C206
S4 C141
S2 C137
S19 C140 C218
S14 C188
S13 C180
S12 C150
S7 C158
S18 C194 C208
S3 C139
S1 C181 C138
S11 C172
S10 C142
S9 C159
S8 C173
1 2 3 4 5

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING.
MATERIAL

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS

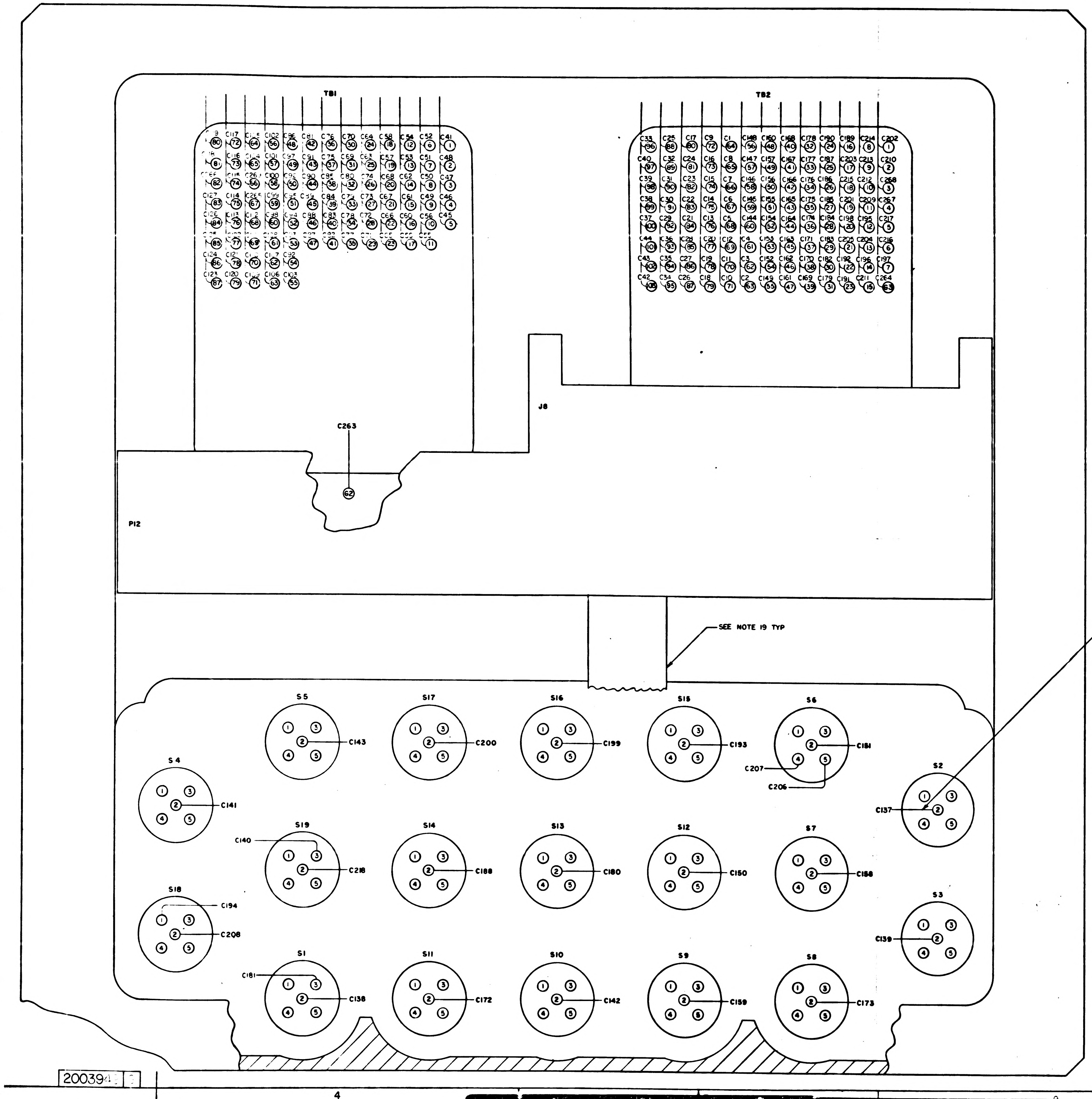
APPROVED M I T
A C METZGER
APPROVED NASA

2003949 G

SH273 2003949 G E1/2

2003949 G

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 26856				
B		REVISED PER TDRR 27913				
C		REVISED PER TDRR 28178				
D		REVISED PER TDRR 29705				
E		REVISED PER TDRR 32560				
F		REVISED PER TDRR 33340				
G		REVISED PER TDRR 34492				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C117 72
C102 56
C96 48
C81 42
C76 36
C70 30
C64 24
C58 18
C54 12
C52 6
C41 1
C116 73
C101 57
C97 49
C91 43
C75 37
C69 31
C63 25
C57 19
C53 13
C51 7
C48 2
C100 58
C90 44
C85 38
C80 32
C74 26
C68 20
C62 14
C50 8
C47 3
C127 83
C114 75
C265 67
C99 59
C95 51
C89 45
C84 39
C79 33
C73 27
C67 21
C61 15
C49 9
C46 4
C126 84
C113 76
C98 60
C94 52
C88 46
C83 40
C78 34
C72 28
C66 22
C60 16
C56 10
C45 5
C87 47
C82 41
C77 35
C55 11
C124 86
C107 62
C92 54
C123 87
C120 79
C106 63
C103 55
TB2
C33 96
C25 88
C17 80
C9 72
C1 64
C148 56
C160 48
C168 40
C178 32
C190 24
C189 16
C214 8
C202 1
C40 97
C32 89
C24 81
C16 73
C8 65
C147 57
C157 49
C167 41
C177 33
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C203 17
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C210 2
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C23 82
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C7 66
C146 58
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C215 18
C212 10
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C38 99
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C6 67
C145 59
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C185 27
C201 19
C209 11
C267 4
C37 100
C29 92
C21 84
C13 76
C5 68
C144 60
C154 52
C164 44
C174 36
C184 28
C198 20
C195 12
C217 5
C44 101
C36 93
C28 85
C20 77
C12 69
C4 61
C153 53
C163 45
C171 37
C183 29
C205 21
C204 13
C216 6
C43 102
C35 94
C27 86
C19 78
C11 70
C3 62
C152 54
C162 46
C170 38
C182 30
C192 22
C196 14
C197 7
C42 103
C34 95
C26 87
C18 79
C10 71
C2 63
C149 55
C161 47
C169 39
C179 31
C191 23
C211 15
C264 63
J8
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P12
SEE NOTE 19 TYP
SEE NOTE 9
S5
C143
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C172
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QTY REQD	PART OR IDENTIFYING NO	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

NEXT ASSY | USED ON
APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN 20DEC65
CHECKED
APPROVED
APPROVED
APPROVED MIT
A. C. METZGER
APPROVED NSC

FRONT HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO 80230
SIZE J
DRAWING NO 2003949
SCALE NONE
SHEET 2 OF 3

2003949 G

E2/2 2003949 G

2003949

2003949

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C1	SEE NOTE 6	P12-131	32	WHT	26	AR	TB2-64	SEE NOTE 6
C2		-132					TB2-63	
C3		-133					TB2-62	
C4		-134					TB2-61	
C5		-127					TB2-68	
C6		-128					TB2-67	
C7		-129					TB2-66	
C8		-130					TB2-65	
C9		-123					TB2-72	
C10		-124					TB2-71	
C11		-125					TB2-70	
C12		-126					TB2-69	
C13		-119					TB2-76	
C14		-120					TB2-75	
C15		-121					TB2-74	
C16		-122					TB2-73	
C17		-115					TB2-80	
C18		-116					TB2-79	
C19		-117					TB2-78	
C20		-118					TB2-77	
C21		-111					TB2-84	
C22		-112					TB2-83	
C23		-113					TB2-82	
C24		-114					TB2-81	
C25		-107					TB2-88	
C26		-108					TB2-87	
C27		-109					TB2-86	
C28		-110					TB2-85	
C29		-103					TB2-92	
C30		-104					TB2-91	
C31		-105					TB2-90	
C32		-106					TB2-89	
C33		-99					TB2-96	
C34		-100					TB2-95	
C35		-101					TB2-94	
C36		-102					TB2-93	
C37		-95					TB2-100	
C38		-96					TB2-99	
C39		-97					TB2-98	
C40		-98					TB2-97	
C41		-91					TB1-1	
C42		-92					TB2-103	
C43		-93					TB2-102	
C44		-94					TB2-101	
C45		-87					TB1-5	
C46		-88					TB1-4	
C47		-89					TB1-3	
C48		-90					TB1-2	
C49		-83					TB1-9	
C50		-84					TB1-8	
C51		-85					TB1-7	
C52		-86					TB1-6	
C53		-79					TB1-13	
C54		-80					TB1-12	
C55		-81					TB1-11	
C56		-82					TB1-10	
C57		-73					TB1-19	
C58		-74					TB1-18	
C59		-75					TB1-17	
C60		-76					TB1-16	
C61		-77					TB1-15	
C62		-78					TB1-14	
C63		-67					TB1-25	
C64		-68					TB1-24	
C65		-69					TB1-23	
C66		-70					TB1-22	
C67		-71					TB1-21	
C68		-72					TB1-20	
C69		-61					TB1-31	
C70		-62					TB1-30	
C71		-63					TB1-29	
C72		-64					TB1-28	
C73		-65					TB1-27	
C74		-66					TB1-26	
C75		-55					TB1-37	
C76		-56					TB1-36	
C77		-57					TB1-35	
C78		-58					TB1-34	
C79		-59					TB1-33	
C80		-60					TB1-32	
C81		-50					TB1-42	
C82		-51					TB1-41	
C83		-52					TB1-40	
C84		-53					TB1-39	
C85		-54					TB1-38	
C86		-43					TB1-48	
C87		-44					TB1-47	
C88		P12-45	32	WHT	26	AR	TB1-46	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C89	SEE NOTE 6	P12-46	32	WHT	26	AR	TB1-45	SEE NOTE 6
C90		-47					TB1-44	
C91		-48					TB1-43	
C92		-37					TB1-54	
C93		-38					TB1-53	
C94		-39					TB1-52	
C95		-40					TB1-51	
C96		-41					TB1-50	
C97		-42					TB1-49	
C98		-31					TB1-60	
C99		-32					TB1-59	
C100		-33					TB1-58	
C101		-34					TB1-57	
C102		-35					TB1-56	
C103		-36					TB1-57	
C104		-25					TB1-65	
C105		-27					TB1-64	
C106		-28					TB1-63	
C107		-29					TB1-62	
C108		-30					TB1-61	
C109		-21					TB1-71	
C110		-22					TB1-70	
C111		-23					TB1-69	
C112		-24					TB1-68	
C113		-13					TB1-76	
C114		-15					TB1-75	
C115		-16					TB1-74	
C116		-17					TB1-73	
C117		-18					TB1-72	
C118		-7					TB1-81	
C119		-9					TB1-80	
C120		-10					TB1-79	
C121		-11					TB1-78	
C122		-12					TB1-77	
C123		-1					TB1-87	
C124		-3					TB1-86	
C125		-4					TB1-85	
C126		-5					TB1-84	
C127		P12-6	32	WHT			TB1-83	
C128	SEE NOTE 5	S16-1	35	YEL			S17-3	SEE NOTE 5
C129		S5-4	38	RED			S19-4	
C130		S5-5	40	ORN			S19-5	
C131		S19-4	38	RED			S1-4	
C132		S19-5	40	ORN			S1-5	
C133		S1-4	38	RED			S18-4	
C134		S1-5	40	ORN			S18-5	
C135		S18-4	38	RED			S4-4	
C136		S18-5	40	ORN			S4-5	
C137		J8-3	33	WHT			S2-2	
C138		-5					S1-2	
C139		-8					S3-2	
C140		-9					S19-3	
C141		-10					S4-2	
C142		-11					S10-2	
C143		J8-13	33				S5-2	
C144	SEE NOTE 6	P12-135	32				TB2-60	SEE NOTE 6
C145		-136					TB2-59	
C146		-137					TB2-58	
C147		-138					TB2-57	
C148		-139					TB2-56	
C149		P12-140	32				TB2-55	
C150	SEE NOTE 5	J8-14	33				S12-2	SEE NOTE 5
C151		J8-15	33				S6-2	
C152	SEE NOTE 6	P12-141	32				TB2-54	SEE NOTE 6
C153		-142					TB2-53	
C154		-143					TB2-52	
C155		-144					TB2-51	
C156		-145					TB2-50	
C157		P12-146	32				TB2-49	
C158	SEE NOTE 5	J8-16	33				S7-2	SEE NOTE 5
C159		J8-17	33				S9-2	
C160	SEE NOTE 6	P12-147	32				TB2-48	SEE NOTE 6
C161		-148					-47	
C162		-149					-46	
C163		-150					-45	
C164		-151					-44	
C165		-152					-43	
C166		-153					-42	
C167		-154					-41	
C168		-155					-40	
C169		-156					-39	
C170		-157					-38	
C171		P12-158	32				TB2-37	
C172	SEE NOTE 5	J8-18	33				S11-2	SEE NOTE 5
C173		J8-19	33				S8-2	
C174	SEE NOTE 6	P12-159	32				TB2-36	SEE NOTE 6
C175		P12-160	32				TB2-35	
C176		P12-161	32	WHT	26	AR	TB2-34	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C177	SEE NOTE 6	P12-162	32	WHT	26	AR	TB2-33	SEE NOTE 6
C178		P12-163	32				TB2-32	
C179		P12-164	32				TB2-31	
C180	SEE NOTE 5	J8-20	33				S13-2	SEE NOTE 5
C181		J8-21	33				S1-3	
C182	SEE NOTE 6	P12-165	32				TB2-30	SEE NOTE 6
C183		-166					-29	
C184		-167					-28	
C185		-168					-27	
C186		-169					-26	
C187		P12-170	32				TB2-25	
C188	SEE NOTE 5	J8-22	33				S14-2	SEE NOTE 5
C189	SEE NOTE 6	P12-190	32				TB2-16	SEE NOTE 6
C190		-174					-24	
C191		-175					-23	
C192		P12-176	32				TB2-22	
C193	SEE NOTE 5	J8-24	33				S15-2	SEE NOTE 5
C194		J8-25	33				S18-1	
C195	SEE NOTE 6	P12-196	32				TB2-12	SEE NOTE 6
C196		-192					-14	
C197		-204					-7	
C198		P12-182	32				TB2-20	
C199	SEE NOTE 5	J8-26	33				S16-2	SEE NOTE 5
C200		J8-27	33				S17-2	
C201	SEE NOTE 6	P12-185	32				TB2-19	SEE NOTE 6
C202		-210					-1	
C203		-197					-17	
C204		-195					-13	
C205		-181	32	WHT			TB2-21	
C206	SEE NOTE 5	-193	40	ORN			S6-5	SEE NOTE 5
C207		P12-194	38	RED			S6-4	
C208		J8-30	33	WHT			S18-2	
C209	SEE NOTE 6	P12-197	32	WHT			TB2-11	SEE NOTE 6
C210		-209					-2	
C211		-191					-15	
C212		-201					-10	
C213		-202					-9	
C214		-203					-8	
C215		-186					-18	
C216		-207					-6	
C217		-208	32	WHT			TB2-5	
C218	SEE NOTE 5	P12-179	33	WHT			S19-2	SEE NOTE 5
C219		S1-1	35	YEL			S2-3	
C220		S2-1					S3-3	
C221		S3-1					S4-3	
C222		S4-1					S5-3	
C223		S5-1					S6-3	
C224		S6-1					S7-3	
C225		S7-1					S8-3	
C226		S8-1					S9-3	
C227		S9-1					S10-3	
C228		S10-1					S11-3	
C229		S11-1					S12-3	
C230		S12-1					S13-3	
C231		S13-1					S14-3	
C232		S14-1					S15-3	
C233		S15-1	35	YEL			S16-3	
C234		S17-4	38	RED			S5-4	
C235		S17-5	40	ORN			S5-5	
C236		S6-4	38	RED			S2-4	
C237		S6-5	40	ORN			S2-5	
C238		S2-4	38	RED			S7-4	
C239		S2-5	40	ORN			S7-5	
C240		S7-4	38	RED			S3-4	
C241		S7-5	40	ORN			S3-5	
C242		S3-4	38	RED			S8-4	
C243		S3-5	40	ORN			S8-5	
C244		S8-4	38	RED			S9-4	
C245		S8-5	40	ORN			S9-5	
C246		S9-4	38	RED			S12-4	
C247		S9-5	40	ORN			S12-5	
C248		S12-4	38	RED			S15-4	
C249		S12-5	40	ORN			S15-5	
C250		S15-4	38	RED			S16-4	
C251		S15-5	40	ORN			S16-5	
C252		S16-4	38	RED			S13-4	
C253		S16-5	40	ORN			S13-5	
C254		S13-4	38	RED			S10-4	
C255		S13-5	40	ORN			S10-5	
C256		S10-4	38	RED			S11-4	
C257		S10-5	40	ORN			S11-5	
C258		S11-4	38	RED			S14-4	
C259		S11-5	40	ORN			S14-5	
C260		S14-4	38	RED			S17-4	
C261		S14-5	40	ORN			S17-5	
C262		S17-1	35	YEL			S18-3	
C263	SEE NOTE 6	P12-184	32	WHT			62	SEE NOTE 6
C264	SEE NOTE 6	P12-183	41				63	SEE NOTE 5
C265	SEE NOTE 6	P12-20	32				TB1-67	SEE NOTE 6
C266		P12-8					TB1-82	
C267		P12-173					TB2-4	
C268		P12-177					TB2-3	
C269		P12-19	32	WHT	26	AR	TB1-66	

QTY REQD	PART OR IDENTIFYING NO.

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μF
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LABORATORY
CAMBRIDGE, MASS.

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED NASA

MASTER

2003949 G

F1/2 - 2003949 - G SH3/3

2003949 G

REVISIONS

	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 26856				
B		REVISED PER TDRR 27913				
C		REVISED PER TDRR 28178				
D		REVISED PER TDRR 29705				
E		REVISED PER TDRR 32580				
F		REVISED PER TDRR 33940				
G		REVISED PER TDRR 34492				

LEAD ELECTRICAL

FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
[illegible]	32	WHT	26	AR	TB2-64	SEE NOTE 6
[illegible]					TB2-63	
133					TB2-62	
134					TB2-61	
[illegible]					TB2-68	
128					TB2-67	
129					TB2-66	
130					TB2-65	
[illegible]					TB2-72	
124					TB2-71	
[illegible]					TB2-70	
[illegible]					TB2-69	
[illegible]					TB2-76	
120					TB2-75	
[illegible]					TB2-74	
[illegible]					TB2-73	
[illegible]					TB2-80	
[illegible]					TB2-79	
[illegible]					TB2-78	
118					TB2-77	
111					TB2-84	
112					TB2-83	
[illegible]					TB2-82	
114					TB2-81	
107					TB2-88	
108					TB2-87	
[illegible]					TB2-86	
110					TB2-85	
103					TB2-92	
104					TB2-91	
105					TB2-90	
[illegible]					TB2-89	
99					TB2-96	
100					TB2-95	
101					TB2-94	
102					TB2-93	
95					TB2-100	
96					TB2-99	
[illegible]					TB2-98	
[illegible]					TB2-97	
[illegible]					TB1-1	
92					TB2-103	
[illegible]					TB2-102	
[illegible]					TB2-101	
87					TB1-5	
88					TB1-4	
89					TB1-3	
90					TB1-2	
83					TB1-9	
84					TB1-8	
85					TB1-7	
86					TB1-6	
79					TB1-13	
80					TB1-12	
81					TB1-11	
82					TB1-10	
73					TB1-19	
74					TB1-18	
75					TB1-17	
76					TB1-16	
77					TB1-15	
[illegible]					TB1-14	
[illegible]					TB1-25	
68					TB1-24	
69					TB1-23	
70					TB1-22	
[illegible]					TB1-21	
72					TB1-20	
61					TB1-31	
62					TB1-30	
63					TB1-29	
64					TB1-28	
65					TB1-27	
[illegible]					TB1-26	
55					TB1-37	
56					TB1-36	
57					TB1-35	
58					TB1-34	
[illegible]					TB1-33	
60					TB1-32	
50					TB1-42	
51					TB1-41	
[illegible]					TB1-40	
53					TB1-39	
54					TB1-38	
43					TB1-48	
44					TB1-47	
45	32	WHT	26	AR	TB1-46	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C89	SEE NOTE 6	P12-46	32	WHT	26	AR	TB1-45	SEE NOTE 6
C90		-47					TB1-44	
C91		-48					TB1-43	
C92		-37					TB1-54	
C93		-38					TB1-53	
C94		-39					TB1-52	
C95		-40					TB1-51	
C96		-41					TB1-50	
C97		-42					TB1-49	
C98		-31					TB1-60	
C99		-32					TB1-59	
C100		-33					TB1-58	
C101		-34					TB1-57	
C102		-35					TB1-56	
C103		-36					TB1-57	
C104		-25					TB1-65	
C105		-27					TB1-64	
C106		-28					TB1-63	
C107		-29					TB1-62	
C108		-30					TB1-61	
C109		-21					TB1-71	
C110		-22					TB1-70	
C111		-23					TB1-69	
C112		-24					TB1-68	
C113		-13					TB1-76	
C114		-15					TB1-75	
C115		-16					TB1-74	
C116		-17					TB1-73	
C117		-18					TB1-72	
C118		-7					TB1-81	
C119		-9					TB1-80	
C120		-10					TB1-79	
C121		-11					TB1-78	
C122		-12					TB1-77	
C123		-1					TB1-87	
C124		-3					TB1-86	
C125		-4					TB1-85	
C126		-5					TB1-84	
C127		P12-6	32	WHT			TB1-83	
C128	SEE NOTE 5	S16-1	35	YEL			S17-3	SEE NOTE 5
C129		S5-4	38	RED			S19-4	
C130		S5-5	40	ORN			S19-5	
C131		S19-4	38	RED			S1-4	
C132		S19-5	40	ORN			S1-5	
C133		S1-4	38	RED			S18-4	
C134		S1-5	40	ORN			S18-5	
C135		S18-4	38	RED			S4-4	
C136		S18-5	40	ORN			S4-5	
C137		J8-3	33	WHT			S2-2	
C138		-5					S1-2	
C139		-8					S3-2	
C140		-9					S19-3	
C141		-10					S4-2	
C142		-11					S10-2	
C143		J8-13	33				S5-2	
C144	SEE NOTE 6	P12-135	32				TB2-60	SEE NOTE 6
C145		-136					TB2-59	
C146		-137					TB2-58	
C147		-138					TB2-57	
C148		-139					TB2-56	
C149		P12-140	32				TB2-55	
C150	SEE NOTE 5	J8-14	33				S12-2	SEE NOTE 5
C151		J8-15	33				S6-2	
C152	SEE NOTE 6	P12-141	32				TB2-54	SEE NOTE 6
C153		-142					TB2-53	
C154		-143					TB2-52	
C155		-144					TB2-51	
C156		-145					TB2-50	
C157		P12-146	32				TB2-49	
C158	SEE NOTE 5	J8-16	33				S7-2	SEE NOTE 5
C159		J8-17	33				S9-2	
C160	SEE NOTE 6	P12-147	32				TB2-48	SEE NOTE 6
C161		-148					-47	
C162		-149					-46	
C163		-150					-45	
C164		-151					-44	
C165		-152					-43	
C166		-153					-42	
C167		-154					-41	
C168		-155					-40	
C169		-156					-39	
C170		-157					-38	
C171		P12-158	32				TB2-37	
C172	SEE NOTE 5	J8-18	33				S11-2	SEE NOTE 5
C173		J8-19	33				S8-2	
C174	SEE NOTE 6	P12-159	32				TB2-36	SEE NOTE 6
C175		P12-160	32				TB2-35	
C176		P12-161	32	WHT	26	AR	TB2-34	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C177	SEE NOTE 6	P12-162	32	WHT	26	AR	TB2-33	SEE NOTE 6
C178		P12-163	32				TB2-32	
C179		P12-164	32				TB2-31	
C180	SEE NOTE 5	J8-20	33				S13-2	SEE NOTE 5
C181		J8-21	33				S1-3	
C182	SEE NOTE 6	P12-165	32				TB2-30	SEE NOTE 6
C183		-166					-29	
C184		-167					-28	
C185		-168					-27	
C186		-169					-26	
C187		P12-170	32				TB2-25	
C188	SEE NOTE 5	J8-22	33				S14-2	SEE NOTE 5
C189	SEE NOTE 6	P12-190	32				TB2-16	SEE NOTE 6
C190		-174					-24	
C191		-175					-23	
C192		P12-176	32				TB2-22	
C193	SEE NOTE 5	J8-24	33				S15-2	SEE NOTE 5
C194		J8-25	33				S18-1	
C195	SEE NOTE 6	P12-196	32				TB2-12	SEE NOTE 6
C196		-192					-14	
C197		-204					-7	
C198		P12-182	32				TB2-20	
C199	SEE NOTE 5	J8-26	33				S16-2	SEE NOTE 5
C200		J8-27	33				S17-2	
C201	SEE NOTE 6	P12-185	32				TB2-19	SEE NOTE 6
C202		-210					-1	
C203		-187					-17	
C204		-195					-13	
C205		-181	32	WHT			TB2-21	
C206	SEE NOTE 5	-193	40	ORN			S6-5	SEE NOTE 5
C207		P12-194	38	RED			S6-4	
C208		J8-30	33	WHT			S18-2	
C209	SEE NOTE 6	P12-197	32	WHT			TB2-11	SEE NOTE 6
C210		-209					-2	
C211		-191					-15	
C212		-201					-10	
C213		-202					-9	
C214		-203					-8	
C215		-186					-18	
C216		-207					-6	
C217		-208	32	WHT			TB2-5	
C218	SEE NOTE 5	P12-179	33	WHT			S19-2	SEE NOTE 5
C219		S1-1	35	YEL			S2-3	
C220		S2-1					S3-3	
C221		S3-1					S4-3	
C222		S4-1					S5-3	
C223		S5-1					S6-3	
C224		S6-1					S7-3	
C225		S7-1					S8-3	
C226		S8-1					S9-3	
C227		S9-1					S10-3	
C228		S10-1					S11-3	
C229		S11-1					S12-3	
C230		S12-1					S13-3	
C231		S13-1					S14-3	
C232		S14-1					S15-3	
C233		S15-1	35	YEL			S16-3	
C234		S17-4	38	RED			S5-4	
C235		S17-5	40	ORN			S5-5	
C236		S6-4	38	RED			S2-4	
C237		S6-5	40	ORN			S2-5	
C238		S2-4	38	RED			S7-4	
C239		S2-5	40	ORN			S7-5	
C240		S7-4	38	RED			S3-4	
C241		S7-5	40	ORN			S3-5	
C242		S3-4	38	RED			S8-4	
C243		S3-5	40	ORN			S8-5	
C244		S8-4	38	RED			S9-4	
C245		S8-5	40	ORN			S9-5	
C246		S9-4	38	RED			S12-4	
C247		S9-5	40	ORN			S12-5	
C248		S12-4	38	RED			S15-4	
C249		S12-5	40	ORN			S15-5	
C250		S15-4	38	RED			S16-4	
C251		S15-5	40	ORN			S16-5	
C252		S16-4	38	RED			S13-4	
C253		S16-5	40	ORN			S13-5	
C254		S13-4	38	RED			S10-4	
C255		S13-5	40	ORN			S10-5	
C256		S10-4	38	RED			S11-4	
C257		S10-5	40	ORN			S11-5	
C258		S11-4	38	RED			S14-4	
C259		S11-5	40	ORN			S14-5	
C260		S14-4	38	RED			S17-4	
C261		S14-5	40	ORN			S17-5	
C262		S17-1	35	YEL			S18-3	
C263	SEE NOTE 6	P12-184	32	WHT			62	SEE NOTE 6
C264	SEE NOTE 6	P12-183	41				63	SEE NOTE 5
C265	SEE NOTE 6	P12-20	32				TB1-67	SEE NOTE 6
C266		P12-8					TB1-82	
C267		P12-173					TB2-4	
C268		P12-177					TB2-3	
C269		P12-19	32	WHT	26	AR	TB1-66	

MASTER

QTY REQD	PART OR IDENTIFYING NO	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC A. C. METZGER
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO	SIZE	DRAWING NO
80230	J	2003949

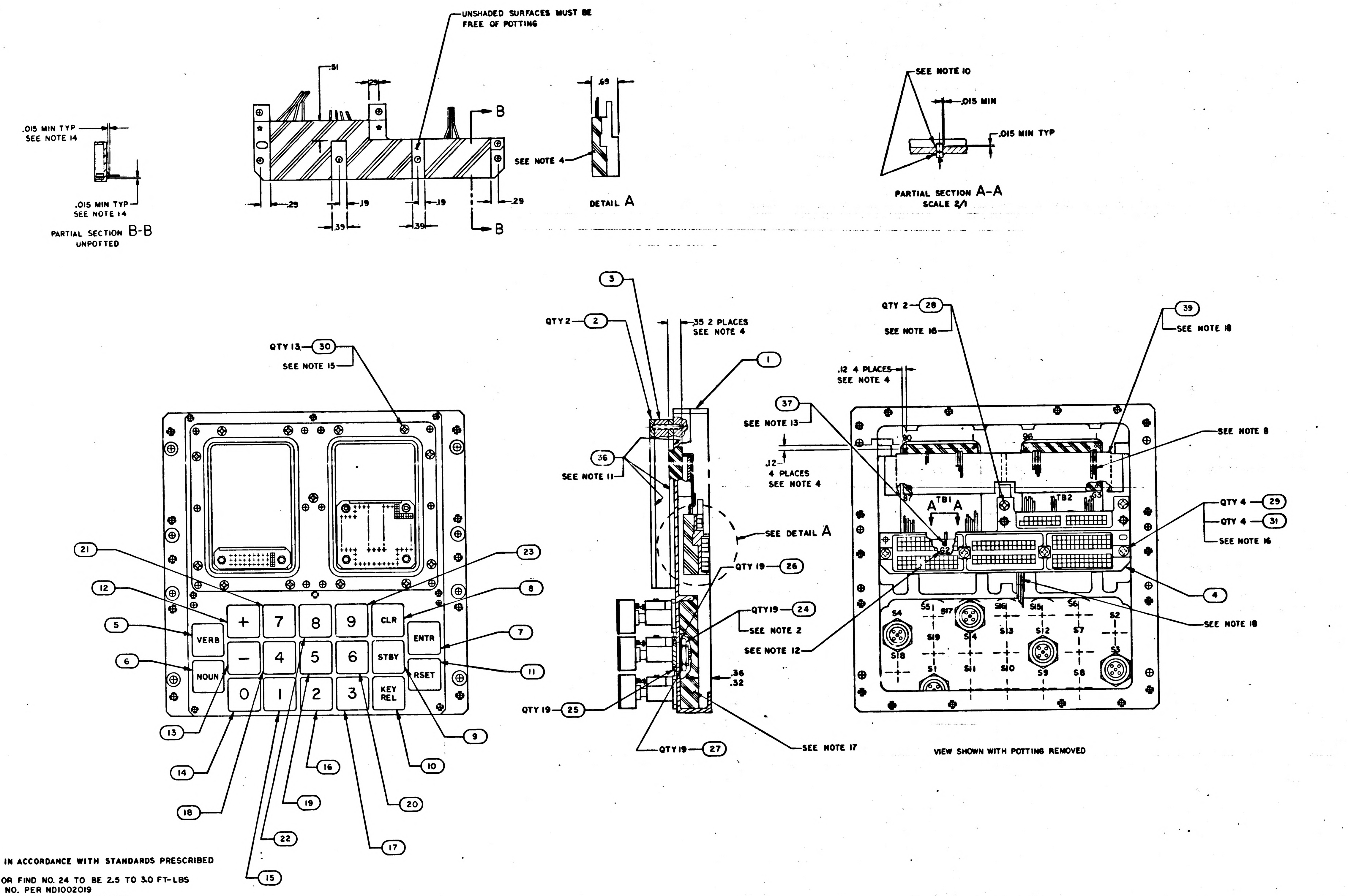
SCALE NONE
SHEET 3 OF 3

2003949 G

2003949

2003949

F 2/2 2003949 G


UNSHADED SURFACES MUST BE FREE OF POTTING
.015 MIN TYP SEE NOTE 14
PARTIAL SECTION B-B UNPOTTED
DETAIL A
SEE NOTE 4
SEE NOTE 10
.015 MIN
.015 MIN TYP
PARTIAL SECTION A-A SCALE 2/1
QTY 13 — 30 SEE NOTE 15
QTY 2 — 2
.35 2 PLACES SEE NOTE 4
SEE NOTE 11
SEE DETAIL A
QTY 19 — 26
QTY 19 — 24 SEE NOTE 2
SEE NOTE 12
QTY 19 — 25
QTY 19 — 27
SEE NOTE 17
QTY 2 — 28 SEE NOTE 16
SEE NOTE 18
.12 4 PLACES SEE NOTE 4
SEE NOTE 13
SEE NOTE 8
QTY 4 — 29
QTY 4 — 31
SEE NOTE 16
VERB
NOUN
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ENTR
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RSET
KEY REL
TB1
TB2
VIEW SHOWN WITH POTTING REMOVED

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE FOR FIND NO. 24 TO BE 2.5 TO 3.0 FT-LBS
3. IDENTIFY WITH PART NO. PER ND1002019
4. ENCAPSULATE INDICATED AREAS PER ND1002236
5. SOLDER PER ND 1002071 USING SOLDER PER ND1002075
6. WELD PER ND1002005
7. AR DENOTES AS REQUIRED
8. BOND FIND NO. 32,33,38, 40 & 41 TO FIND NO. 39 PER ND1002004, TYPE IV
9. DRESS AND TRIM AT ASSEMBLY USING FIND NO. 34
10. SEAL FIND NO. 37 TO FIND NO. 1 PER ND1002004 TYPE VI
11. APPLY FIND NO. 36 TO INDICATED SURFACES OF FIND NO. 2. DO NOT APPLY TO BONDED RUBBER
12. MARK .07/.10 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122 TYPE II CLASS 2, USING MARKING INK 1006271-11
13. MOUNTING TORQUE FOR FIND NO. 37 TO BE 15-20 INCH OUNCES
14. SEAL INSULATORS ON FIND NO. 4 PER ND1002004 TYPE VI
15. MOUNTING TORQUE FOR FIND NO. 30 TO BE 3.5-4.5 INCH POUNDS
16. MOUNTING TORQUE FOR FIND NO. 28 AND FIND NO. 29 TO BE 8 TO 9 INCH POUNDS
17. ENCAPSULATE PER ND
18. BOND FIND NO. 39 & WIRES FROM S1 THRU S19 TO FIND NO. 1 PER ND1002004, TYPE IV

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2005953	INTERCONNECTING DIAGRAM	REF
AR	1010807-22	WIRE INSULATED	41
AR	1010416-14	WIRE, INSULATED	40
1	2004898	SUPPORT, WIRE	39
AR	1010416-13	WIRE, INSULATED	38
1	2004039	TERMINAL, THREADED	37
AR	1006879	SILICONE COMPOUND	36
AR	1010416-15	WIRE, INSULATED	35
AR	1012507-003	TAPE, LACING	34
AR	1010416-20	WIRE, INSULATED	33
AR	1010846-1	WIRE, INSULATED	32
4	NAS620-6L	WASHER, FLAT	31
13	MS51959-20	SCREW, FLAT HD, CROSS RECESSED	30
4	MS51957-30	SCREW, PAN HD, CROSS RECESSED	29
2	MS51959-28	SCREW, FLAT HD, CROSS RECESSED	28
19	1010635-003	WASHER, LOCK	27
19	2004940	WASHER, PLAIN	26
19	1000159-7	O RING SEAL	25
19	2004942	NUT, HEX	24
1	2003984-211	SWITCH, ASSEMBLY PUSHBUTTON	23
1	-191		22
1	-181		21
1	-171		20
1	-161		19
1	-151		18
1	-141		17
1	-131		16
1	-121		15
1	-111		14
1	-091		13
1	-081		12
1	-071		11
1	-061		10
1	-051		9
1	-041		8
1	-031		7
1	-021		6
1	2003984-011	SWITCH, ASSEMBLY PUSHBUTTON	5
1	2003948-011	CONNECTOR, PLATE ASSEMBLY	4
1	2003959-011	ADAPTER, PLATE ASSEMBLY	3
2	1006351	GASKET, PREFORMED	2
1	2004968-011	HOUSING, FRONT	1

011 LIST OF MATERIALS

2003950	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.01 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN P. Leonard 11 DEC 65
CHECKED J.C. [illegible] 7 FEB 66
APPROVED [illegible] FEB 66
APPROVED Elden C. Hall FEB 66
APPROVED MIT
APPROVED NBC A.E. METZGER
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

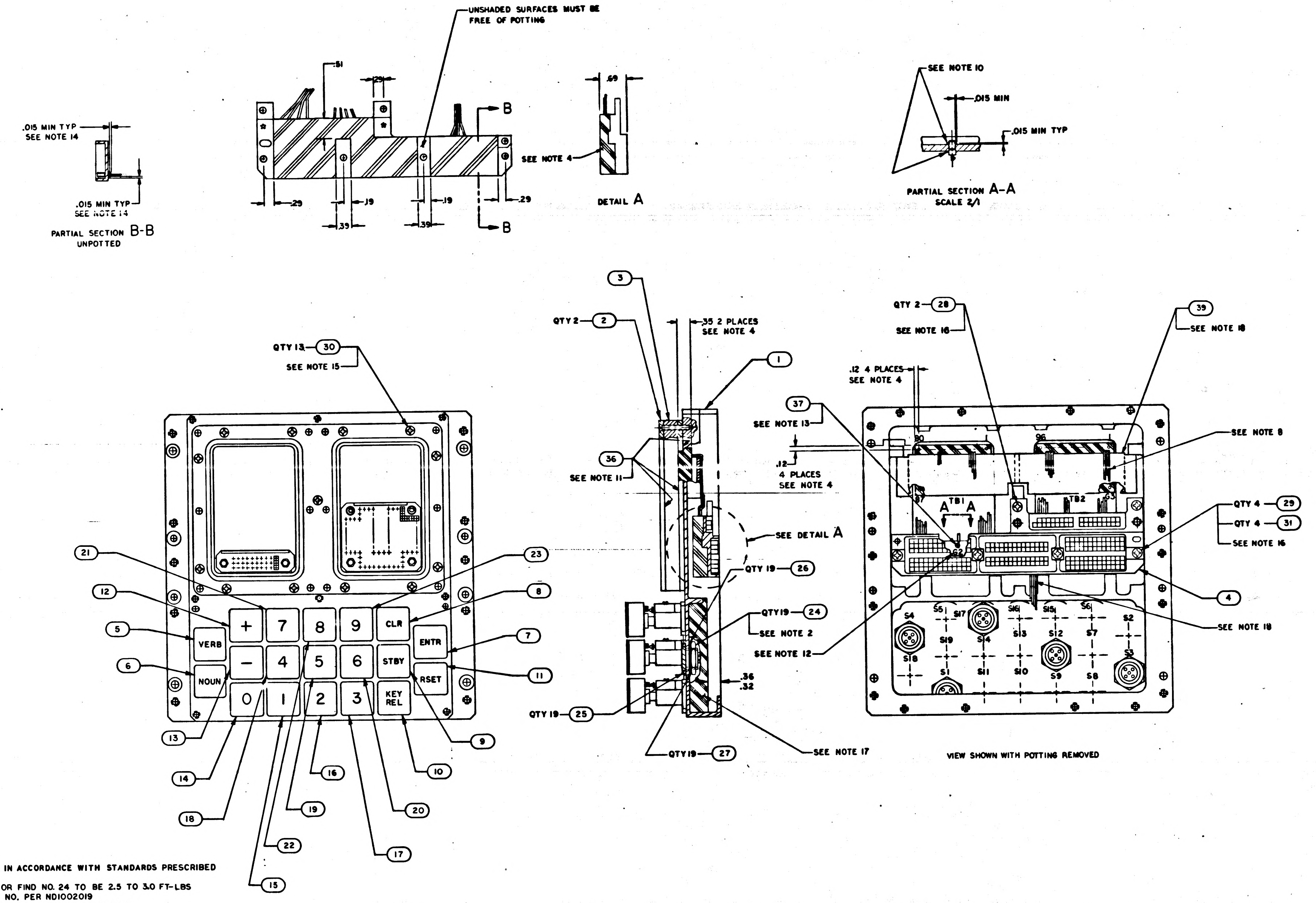
FRONT HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003949
SCALE 1/1
SHEET 1 OF 3

2003949 —

MASTER

2003949 -


UNSHADED SURFACES MUST BE FREE OF POTTING
S1
.29
B
B
.29
.19
.19
.29
.39
.39
SEE NOTE 4
.69
DETAIL A
.015 MIN TYP
SEE NOTE 14
.015 MIN TYP
SEE NOTE 14
PARTIAL SECTION B-B
UNPOTTED
SEE NOTE 10
.015 MIN
.015 MIN TYP
PARTIAL SECTION A-A
SCALE 2/1
QTY 13 30
SEE NOTE 15
21
23
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QTY 2 2
.35 2 PLACES
SEE NOTE 4
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37
SEE NOTE 13
36
SEE NOTE 11
.12 4 PLACES
SEE NOTE 4
SEE DETAIL A
QTY 19 26
QTY 19 24
SEE NOTE 2
SEE NOTE 12
.36
.32
QTY 19 25
QTY 19 27
SEE NOTE 17
QTY 2 28
SEE NOTE 16
.12 4 PLACES
SEE NOTE 4
39
SEE NOTE 18
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A
QTY 4 29
QTY 4 31
SEE NOTE 16
4
SEE NOTE 18
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S10
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S8
VIEW SHOWN WITH POTTING REMOVED

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MOUNTING TORQUE FOR FIND NO. 24 TO BE 2.5 TO 3.0 FT-LBS
3. IDENTIFY WITH PART NO. PER ND1002019
4. ENCAPSULATE INDICATED AREAS PER ND1002236
5. SOLDER PER ND 1002071 USING SOLDER PER ND1002075
6. WELD PER ND1002005
7. AR DENOTES AS REQUIRED
8. BOND FIND NO. 32, 33, 38, 40 & 41 TO FIND NO. 39 PER ND1002004, TYPE IV
9. DRESS AND TRIM AT ASSEMBLY USING FIND NO. 34
10. SEAL FIND NO. 37 TO FIND NO. 1 PER ND1002004 TYPE VI
11. APPLY FIND NO. 36 TO INDICATED SURFACES OF FIND NO. 2. DO NOT APPLY TO BONDED RUBBER
12. MARK .07/.10 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122 TYPE II CLASS 2, USING MARKING INK 1006271-11
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18. BOND FIND NO. 39 & WIRES FROM S1 THRU S19 TO FIND NO. 1 PER ND1002004, TYPE IV

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
☒	2005953	INTERCONNECTING DIAGRAM
AR	1010807-22	WIRE INSULATED
AR	1010416-14	WIRE, INSULATED
1	2004898	SUPPORT, WIRE
AR	1010416-13	WIRE, INSULATED
1	2004039	TERMINAL, THREADED
AR	1006879	SILICONE COMPOUND
AR	1010416-15	WIRE, INSULATED
AR	1012507-003	TAPE, LACING
AR	1010416-20	WIRE, INSULATED
AR	1010848-1	WIRE, INSULATED
4	NAS620-6L	WASHER, FLAT
13	MS51959-20	SCREW, FLAT HD, CROSS RECESSED
4	MS51957-30	SCREW, PAN HD, CROSS RECESSED
2	MS51959-28	SCREW, FLAT HD, CROSS RECESSED
19	1010635-003	WASHER, LOCK
19	2004940	WASHER, PLAIN
19	1000159-7	O RING SEAL
19	2004942	NUT, HEX
1	2003984-211	SWITCH, ASSEMBLY PUSHBUTTON
1	-191	
1	-181	
1	-171	
1	-161	
1	-151	
1	-141	
1	-131	
1	-121	
1	-111	
1	-091	
1	-081	
1	-071	
1	-061	
1	-051	
1	-041	
1	-031	
1	-021	
1	2003984-011	SWITCH, ASSEMBLY PUSHBUTTON
1	2003948-011	CONNECTOR, PLATE ASSEMBLY
1	2003959-011	ADAPTER, PLATE ASSEMBLY
2	1006351	GASKET, PREFORMED
1	2004968-011	HOUSING, FRONT

011 LIST OF MATERIALS

2003950	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.01 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN E. Fiorentino 1 DEC 65
CHECKED J.C. Jenkins 7 FEB 66
APPROVED 8 FEB 66
APPROVED Eldon C. Hall 11 Feb 66
APPROVED MIT
APPROVED MSC A. S. METZGER
DATE

FRONT HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003949
SCALE 1/1

REVISIONS
SYM ZONE DESCRIPTION DATE CHK'D APP'D

2003949 -

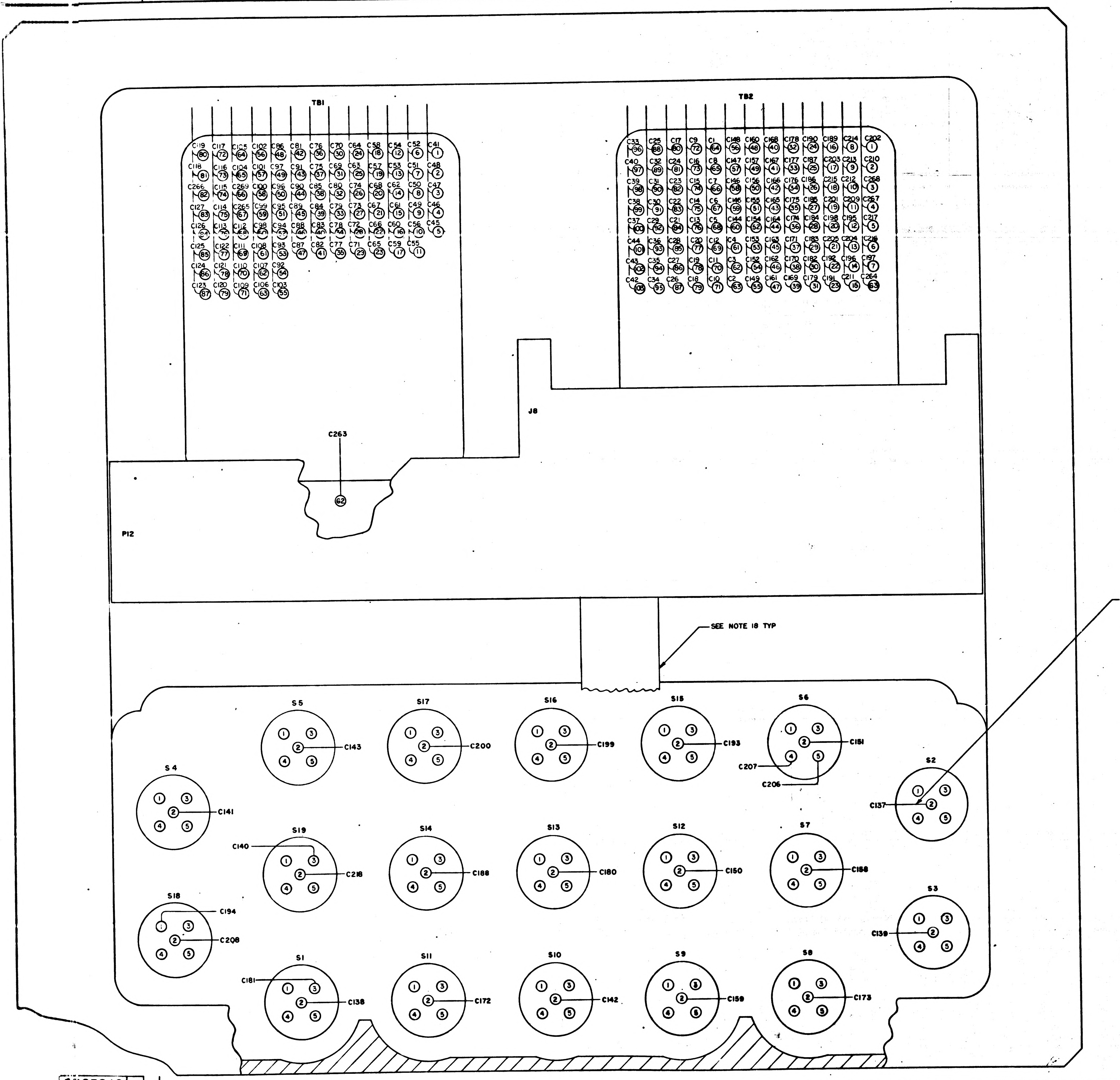
MASTER

MASTER

2003949 | –

REVISIONS 2-20-

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED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C266 82 · C115 74 · C269 66 · C100 58 · C96 50 · C90 44 · C85 38 · C80 32 · C74 26 · C68 20 · C62 14 · C50 8 · C47 3
C127 83 · C114 75 · C265 67 · C99 59 · C95 51 · C89 45 · C84 39 · C79 33 · C73 27 · C67 21 · C61 15 · C49 9 · C46 4
C126 84 · C113 76 · C112 68 · C98 60 · C94 52 · C88 46 · C83 40 · C78 34 · C72 28 · C66 22 · C60 16 · C56 10 · C45 5
C125 85 · C122 77 · C111 69 · C108 61 · C93 53 · C87 47 · C82 41 · C77 35 · C71 23 · C65 23 · C59 17 · C55 11
C124 86 · C121 78 · C110 70 · C107 62 · C92 54
C123 87 · C120 79 · C109 71 · C106 63 · C103 55
TB2
C33 96 · C25 88 · C17 80 · C9 72 · C1 64 · C148 56 · C160 48 · C168 40 · C178 32 · C190 24 · C189 16 · C214 8 · C202 1
C40 97 · C32 89 · C24 81 · C16 73 · C8 65 · C147 57 · C157 49 · C167 41 · C177 33 · C187 25 · C203 17 · C213 9 · C210 2
C39 98 · C31 90 · C23 82 · C15 74 · C7 66 · C146 58 · C156 50 · C166 42 · C176 34 · C186 26 · C215 18 · C212 10 · C268 3
C38 99 · C30 91 · C22 83 · C14 75 · C6 67 · C145 59 · C155 51 · C165 43 · C175 35 · C185 27 · C201 19 · C209 11 · C267 4
C37 100 · C29 92 · C21 84 · C13 76 · C5 68 · C144 60 · C154 52 · C164 44 · C174 36 · C184 28 · C198 20 · C195 12 · C217 5
C44 101 · C36 93 · C28 85 · C20 77 · C12 69 · C4 61 · C153 53 · C163 45 · C171 37 · C183 29 · C205 21 · C204 13 · C216 6
C43 102 · C35 94 · C27 86 · C19 78 · C11 70 · C3 62 · C152 54 · C162 46 · C170 38 · C182 30 · C192 22 · C196 14 · C197 7
C42 103 · C34 95 · C26 87 · C18 79 · C10 71 · C2 63 · C149 55 · C161 47 · C169 39 · C179 31 · C191 23 · C211 15 · C264 63
J8
C263
62
P12
SEE NOTE 18 TYP
SEE NOTE 9
S5 C143
S17 C200
S16 C199
S15 C193
S6 C181 C207 C206
S4 C141
S2 C137
S19 C140 C218
S14 C188
S13 C180
S12 C150
S7 C158
S18 C194 C208
S3 C139
S1 C181 C138
S11 C172
S10 C142
S9 C159
S8 C173
1 2 3 4 5

2

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

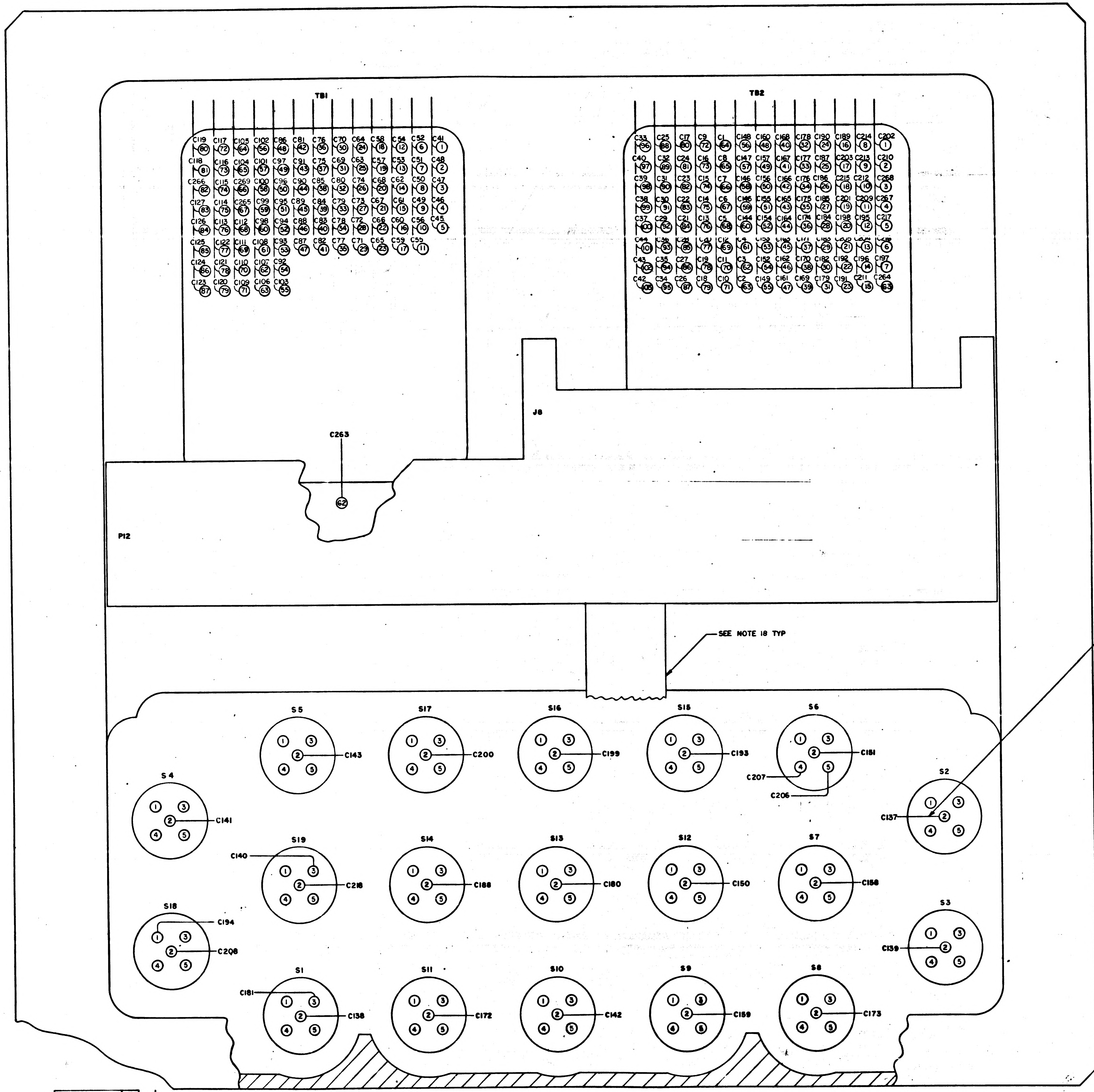
DRAWN J. L. Leonard 2 DEC 63
CHECKED J. C. 3 FEB 64
APPROVED 3 FEB 64
APPROVED Eldon C Hall
APPROVED MIT
A. C. METZGER
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003949
SCALE NONE
SHEET 2 OF 3

2003949 | –


TB1
C119 80
C117 72
C105 64
C102 56
C86 48
C81 42
C76 36
C70 30
C64 24
C58 18
C54 12
C52 6
C41 1
C118 81
C116 73
C104 65
C101 57
C97 49
C91 43
C75 37
C69 31
C63 25
C57 19
C53 13
C51 7
C48 2
C266 82
C115 74
C269 66
C100 58
C96 50
C90 44
C85 38
C80 32
C74 26
C68 20
C62 14
C50 8
C47 3
C127 83
C114 75
C265 67
C99 59
C95 51
C89 45
C84 39
C79 33
C73 27
C67 21
C61 15
C49 9
C46 4
C126 84
C113 76
C112 68
C98 60
C94 52
C88 46
C83 40
C78 34
C72 28
C66 22
C60 16
C56 10
C45 5
C125 85
C122 77
C111 69
C108 61
C93 53
C87 47
C82 41
C77 35
C71 23
C65 23
C59 17
C55 11
C124 86
C121 78
C110 70
C107 62
C92 54
C123 87
C120 79
C109 71
C106 63
C103 55
TB2
C33 96
C25 88
C17 80
C9 72
C1 64
C148 56
C160 48
C168 40
C178 32
C190 24
C189 16
C214 8
C202 1
C40 97
C32 89
C24 81
C16 73
C8 65
C147 57
C157 49
C167 41
C177 33
C187 25
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C213 9
C210 2
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C31 90
C23 82
C15 74
C7 66
C146 58
C156 50
C166 42
C176 34
C186 26
C215 18
C212 10
C268 3
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C14 75
C6 67
C145 59
C155 51
C165 43
C175 35
C185 27
C201 19
C209 11
C267 4
C37 100
C29 92
C21 84
C13 76
C5 68
C144 60
C154 52
C164 44
C174 36
C184 28
C198 20
C195 12
C217 5
C44 101
C36 93
C28 85
C20 77
C12 69
C4 61
C153 53
C163 45
C171 37
C183 29
C205 21
C204 13
C216 6
C43 102
C35 94
C27 86
C19 78
C11 70
C3 62
C152 54
C162 46
C170 38
C182 30
C192 22
C196 14
C197 7
C42 103
C34 95
C26 87
C18 79
C10 71
C2 63
C149 55
C161 47
C169 39
C179 31
C191 23
C211 15
C264 63
J8
C263
62
P12
SEE NOTE 18 TYP
SEE NOTE 9
S5
C143
S17
C200
S16
C199
S15
C193
S6
C151
C207
C206
S4
C141
S2
C137
S19
C140
C218
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C180
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C150
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C194
C208
S3
C139
S1
C181
C138
S11
C172
S10
C142
S9
C159
S8
C173
1 2 3 4 5

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MAT'L OR NO

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FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

NEXT ASSY | USED ON
APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC

—	2003949

REVISIONS 26205

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

LEAD ELECTRICAL

FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
P12-131	32	WHT	26	AR	TB2-64	SEE NOTE 6
-132					TB2-63	
-133					TB2-62	
-134					TB2-61	
-127					TB2-68	
-128					TB2-67	
-129					TB2-66	
-130					TB2-65	
-123					TB2-72	
-124					TB2-71	
-125					TB2-70	
-126					TB2-69	
-119					TB2-76	
-120					TB2-75	
-121					TB2-74	
-122					TB2-73	
-115					TB2-80	
-116					TB2-79	
-117					TB2-78	
-118					TB2-77	
-111					TB2-84	
-112					TB2-83	
-113					TB2-82	
-114					TB2-81	
-107					TB2-88	
-108					TB2-87	
-109					TB2-86	
-110					TB2-85	
-103					TB2-92	
-104					TB2-91	
-105					TB2-90	
-106					TB2-89	
-99					TB2-96	
-100					TB2-95	
-101					TB2-94	
-102					TB2-93	
-95					TB2-100	
-96					TB2-99	
-97					TB2-98	
-98					TB2-97	
-91					TB1-1	
-92					TB2-103	
-93					TB2-102	
-94					TB2-101	
-87					TB1-5	
-88					TB1-4	
-89					TB1-3	
-90					TB1-2	
-83					TB1-9	
-84					TB1-8	
-85					TB1-7	
-86					TB1-6	
-79					TB1-13	
-80					TB1-12	
-81					TB1-11	
-82					TB1-10	
-73					TB1-19	
-74					TB1-18	
-75					TB1-17	
-76					TB1-16	
-77					TB1-15	
-78					TB1-14	
-67					TB1-25	
-68					TB1-24	
-69					TB1-23	
-70					TB1-22	
-71					TB1-21	
-72					TB1-20	
-61					TB1-31	
-62					TB1-30	
-63					TB1-29	
-64					TB1-28	
-65					TB1-27	
-66					TB1-26	
-55					TB1-37	
-56					TB1-36	
-57					TB1-35	
-58					TB1-34	
-59					TB1-33	
-60					TB1-32	
-50					TB1-42	
-51					TB1-41	
-52					TB1-40	
-53					TB1-39	
-54					TB1-38	
-43					TB1-48	
-44					TB1-47	
P12-45	32	WHT	26	AR	TB1-46	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C89	SEE NOTE 6	P12-46	32	WHT	26	AR	TB1-45	SEE NOTE 6
C90		-47					TB1-44	
C91		-48					TB1-43	
C92		-37					TB1-54	
C93		-38					TB1-53	
C94		-39					TB1-52	
C95		-40					TB1-51	
C96		-41					TB1-50	
C97		-42					TB1-49	
C98		-31					TB1-60	
C99		-32					TB1-59	
C100		-33					TB1-58	
C101		-34					TB1-57	
C102		-35					TB1-56	
C103		-36					TB1-55	
C104		-25					TB1-65	
C105		-27					TB1-64	
C106		-28					TB1 63	
C107		-29					TB1-62	
C108		-30					TB1 61	
C109		-21					TB1-71	
C110		-22					TB1-70	
C111		-23					TB1-69	
C112		-24					TB1-68	
C113		-13					TB1-76	
C114		-15					TB1-75	
C115		-16					TB1-74	
C116		-17					TB1-73	
C117		-18					TB1-72	
C118		-7					TB1-81	
C119		-9					TB1-80	
C120		-10					TB1-79	
C121		-11					TB1-78	
C122		-12					TB1-77	
C123		-1					TB1-87	
C124		-3					TB1-86	
C125		-4					TB1-85	
C126		-5					TB1-84	
C127		P12-6	32	WHT			TB1-83	
C128	SEE NOTE 5	S16-1	35	YEL			S17-3	SEE NOTE 5
C129		S5-4	38	RED			S19-4	
C130		S5-5	40	ORN			S19-5	
C131		S19-4	38	RED			S1-4	
C132		S19-5	40	ORN			S1-5	
C133		S1-4	38	RED			S18-4	
C134		S1-5	40	ORN			S18-5	
C135		S18-4	38	RED			S4-4	
C136		S18-5	40	ORN			S4-5	
C137		J8-3	33	WHT			S2-2	
C138		-5					S1-2	
C139		-8					S3-2	
C140		-9					S19-3	
C141		-10					S4-2	
C142		-11					S10-2	
C143		J8-13	33				S5-2	
C144	SEE NOTE 6	P12-135	32				TB2-60	SEE NOTE 6
C145		-136					TB2-59	
C146		-137					TB2-58	
C147		-138					TB2-57	
C148		-139					TB2-56	
C149		P12-140	32				TB2-55	
C150	SEE NOTE 5	J8-14	33				S12-2	SEE NOTE 5
C151		J8-15	33				S6-2	
C152	SEE NOTE 6	P12-141	32				TB2-54	SEE NOTE 6
C153		-142					TB2-53	
C154		-143					TB2-52	
C155		-144					TB2-51	
C156		-145					TB2-50	
C157		P12-146	32				TB2-49	
C158	SEE NOTE 5	J8-16	33				S7-2	SEE NOTE 5
C159		J8-17	33				S9-2	
C160	SEE NOTE 6	P12-147	32				TB2-48	SEE NOTE 6
C161		-148					-47	
C162		-149					-46	
C163		-150					-45	
C164		-151					-44	
C165		-152					-43	
C166		-153					-42	
C167		-154					-41	
C168		-155					-40	
C169		-156					-39	
C170		-157					-38	
C171		P12-158	32				TB2-37	
C172	SEE NOTE 5	J8-18	33				S11-2	SEE NOTE 5
C173		J8-19	33				S8-2	
C174	SEE NOTE 6	P12-159	32				TB2-36	SEE NOTE 6
C175		P12-160	32				TB2-35	
C176		P12-161	32	WHT	26	AR	TB2-34	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C177	SEE NOTE 6	P12-162	32	WHT	26	AR	TB2-33	SEE NOTE 6
C178		P12-163	32				TB2-32	
C179		P12-164	32				TB2-31	
C180	SEE NOTE 5	J8-20	33				S13-2	SEE NOTE 5
C181		J8-21	33				S1-3	
C182	SEE NOTE 6	P12-165	32				TB2-30	SEE NOTE 6
C183		-166					-29	
C184		-167					-28	
C185		-168					-27	
C186		-169					-26	
C187		P12-170	32				TB2-25	
C188	SEE NOTE 5	J8-22	33				S14-2	SEE NOTE 5
C189	SEE NOTE 6	P12-190	32				TB2-16	SEE NOTE 6
C190		-174					-24	
C191		-175					-23	
C192		P12-176	32				TB2-22	
C193	SEE NOTE 5	J8-24	33				S15-2	SEE NOTE 5
C194		J8-25	33				S18-1	
C195	SEE NOTE 6	P12-196	32				TB2-12	SEE NOTE 6
C196		-192					-14	
C197		-204					-7	
C198		P12-182	32				TB2-20	
C199	SEE NOTE 5	J8-26	33				S16-2	SEE NOTE 5
C200		J8-27	33				S17-2	
C201	SEE NOTE 6	P12-185	32				TB2-19	SEE NOTE 6
C202		-210					-1	
C203		-187					-17	
C204		-195					-13	
C205		-181	32	WHT			TB2-21	
C206	SEE NOTE 5	-193	40	ORN			S6-5	SEE NOTE 5
C207		P12-194	38	RED			S6-4	
C208		J8-30	33	WHT			S18-2	
C209	SEE NOTE 6	P12-197	32	WHT			TB2-11	SEE NOTE 6
C210		-209					-2	
C211		-191					-15	
C212		-201					-10	
C213		-202					-9	
C214		-203					-8	
C215		-186					-18	
C216		-207					-6	
C217		-208	32	WHT			TB2-5	
C218	SEE NOTE 5	P12-179	33	WHT			S19-2	SEE NOTE 5
C219		S1-1	35	YEL			S2-3	
C220		S2-1					S3-3	
C221		S3-1					S4-3	
C222		S4-1					S5-3	
C223		S5-1					S6-3	
C224		S6-1					S7-3	
C225		S7-1					S8-3	
C226		S8-1					S9-3	
C227		S9-1					S10-3	
C228		S10-1					S11-3	
C229		S11-1					S12-3	
C230		S12-1					S13-3	
C231		S13-1					S14-3	
C232		S14-1					S15-3	
C233		S15-1	35	YEL			S16-3	
C234		S17-4	38	RED			S5-4	
C235		S17-5	40	ORN			S5-5	
C236		S6-4	38	RED			S2-4	
C237		S6-5	40	ORN			S2-5	
C238		S2-4	38	RED			S7-4	
C239		S2-5	40	ORN			S7-5	
C240		S7-4	38	RED			S3-4	
C241		S7-5	40	ORN			S3-5	
C242		S3-4	38	RED			S8-4	
C243		S3-5	40	ORN			S8-5	
C244		S8-4	38	RED			S9-4	
C245		S8-5	40	ORN			S9-5	
C246		S9-4	38	RED			S12-4	
C247		S9-5	40	ORN			S12-5	
C248		S12-4	38	RED			S15-4	
C249		S12-5	40	ORN			S15-5	
C250		S15-4	38	RED			S16-4	
C251		S15-5	40	ORN			S16-5	
C252		S16-4	38	RED			S13-4	
C253		S16-5	40	ORN			S13-5	
C254		S13-4	38	RED			S10-4	
C255		S13-5	40	ORN			S10-5	
C256		S10-4	38	RED			S11-4	
C257		S10-5	40	ORN			S11-5	
C258		S11-4	38	RED			S14-4	
C259		S11-5	40	ORN			S14-5	
C260		S14-4	38	RED			S17-4	
C261		S14-5	40	ORN			S17-5	
C262		S17-1	35	YEL			S18-3	
C263	SEE NOTE 6	P12-184	32	WHT			G2	SEE NOTE 6
C264	SEE NOTE 6	P12-183	41				G3	SEE NOTE 5
C265	SEE NOTE 6	P12-20	32				TB1-67	SEE NOTE 6
C266		P12-8					TB1-82	
C267		P12-173					TB2-4	
C268		P12-177					TB2-3	
C269		P12-19	32	WHT	26	AR	TB1-66	

MASTER

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MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC [illegible] METZGER
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRONT HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2003949

SCALE NONE SHEET 3 OF 3

2003949	—

2003949 | -

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C1	SEE NOTE 6	P12-131	32	WHT	26	AR	TB2-64	SEE NOTE 6
C2		-132					TB2-63	
C3		-133					TB2-62	
C4		-134					TB2-61	
C5		-127					TB2-68	
C6		-128					TB2-67	
C7		-129					TB2-66	
C8		-130					TB2-65	
C9		-123					TB2-72	
C10		-124					TB2-71	
C11		-125					TB2-70	
C12		-126					TB2-69	
C13		-119					TB2-76	
C14		-120					TB2-75	
C15		-121					TB2-74	
C16		-122					TB2-73	
C17		-115					TB2-80	
C18		-116					TB2-79	
C19		-117					TB2-78	
C20		-118					TB2-77	
C21		-111					TB2-84	
C22		-112					TB2-83	
C23		-113					TB2-82	
C24		-114					TB2-81	
C25		-107					TB2-88	
C26		-108					TB2-87	
C27		-109					TB2-86	
C28		-110					TB2-85	
C29		-103					TB2-92	
C30		-104					TB2-91	
C31		-105					TB2-90	
C32		-106					TB2-89	
C33		-99					TB2-96	
C34		-100					TB2-95	
C35		-101					TB2-94	
C36		-102					TB2-93	
C37		-95					TB2-100	
C38		-96					TB2-99	
C39		-97					TB2-98	
C40		-98					TB2-97	
C41		-91					TB1-1	
C42		-92					TB2-103	
C43		-93					TB2-102	
C44		-94					TB2-101	
C45		-87					TB1-5	
C46		-88					TB1-4	
C47		-89					TB1-3	
C48		-90					TB1-2	
C49		-83					TB1-9	
C50		-84					TB1-8	
C51		-85					TB1-7	
C52		-86					TB1-6	
C53		-79					TB1-13	
C54		-80					TB1-12	
C55		-81					TB1-11	
C56		-82					TB1-10	
C57		-73					TB1-19	
C58		-74					TB1-18	
C59		-75					TB1-17	
C60		-76					TB1-16	
C61		-77					TB1-15	
C62		-78					TB1-14	
C63		-67					TB1-25	
C64		-68					TB1-24	
C65		-69					TB1-23	
C66		-70					TB1-22	
C67		-71					TB1-21	
C68		-72					TB1-20	
C69		-61					TB1-31	
C70		-62					TB1-30	
C71		-63					TB1-29	
C72		-64					TB1-28	
C73		-65					TB1-27	
C74		-66					TB1-26	
C75		-55					TB1-37	
C76		-56					TB1-36	
C77		-57					TB1-35	
C78		-58					TB1-34	
C79		-59					TB1-33	
C80		-60					TB1-32	
C81		-50					TB1-42	
C82		-51					TB1-41	
C83		-52					TB1-40	
C84		-53					TB1-39	
C85		-54					TB1-38	
C86		-43					TB1-48	
C87		-44					TB1-47	
C88		P12-45	32	WHT	26	AR	TB1-46	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C89	SEE NOTE 6	P12-46	32	WHT	26	AR	TB1-45	SEE NOTE 6
C90		-47					TB1-44	
C91		-48					TB1-43	
C92		-37					TB1-54	
C93		-38					TB1-53	
C94		-39					TB1-52	
C95		-40					TB1-51	
C96		-41					TB1-50	
C97		-42					TB1-49	
C98		-31					TB1-60	
C99		-32					TB1-59	
C100		-33					TB1-58	
C101		-34					TB1-57	
C102		-35					TB1-56	
C103		-36					TB1-55	
C104		-25					TB1-66	
C105		-27					TB1-64	
C106		-28					TB1 63	
C107		-29					TB1-62	
C108		-30					TB1 61	
C109		-21					TB1-71	
C110		-22					TB1-70	
C111		-23					TB1-69	
C112		-24					TB1-68	
C113		-13					TB1-76	
C114		-15					TB1-75	
C115		-16					TB1-74	
C116		-17					TB1-73	
C117		-18					TB1-72	
C118		-7					TB1-81	
C119		-9					TB1-80	
C120		-10					TB1-79	
C121		-11					TB1-78	
C122		-12					TB1-77	
C123		-1					TB1-87	
C124		-3					TB1-86	
C125		-4					TB1-85	
C126		-5					TB1-84	
C127		P12-6	32	WHT			TB1-83	
C128	SEE NOTE 5	S16-1	35	YEL			S17-3	SEE NOTE 5
C129		S5-4	38	RED			S19-4	
C130		S5-5	40	ORN			S19-5	
C131		S19-4	38	RED			S1-4	
C132		S19-5	40	ORN			S1-5	
C133		S1-4	38	RED			S18-4	
C134		S1-5	40	ORN			S18-5	
C135		S18-4	38	RED			S4-4	
C136		S18-5	40	ORN			S4-5	
C137		J8-3	33	WHT			S2-2	
C138		-5					S1-2	
C139		-8					S3-2	
C140		-9					S19-3	
C141		-10					S4-2	
C142		-11					S10-2	
C143		J8-13	33				S5-2	
C144	SEE NOTE 6	P12-135	32				TB2-60	SEE NOTE 6
C145		-136					TB2-59	
C146		-137					TB2-58	
C147		-138					TB2-57	
C148		-139					TB2-56	
C149		P12-140	32				TB2-55	
C150	SEE NOTE 5	J8-14	33				S12-2	SEE NOTE 5
C151		J8-15	33				S6-2	
C152	SEE NOTE 6	P12-141	32				TB2-54	SEE NOTE 6
C153		-142					TB2-53	
C154		-143					TB2-52	
C155		-144					TB2-51	
C156		-145					TB2-50	
C157		P12-146	32				TB2-49	
C158	SEE NOTE 5	J8-16	33				S7-2	SEE NOTE 5
C159		J8-17	33				S9-2	
C160	SEE NOTE 6	P12-147	32				TB2-48	SEE NOTE 6
C161		-148					-47	
C162		-149					-46	
C163		-150					-45	
C164		-151					-44	
C165		-152					-43	
C166		-153					-42	
C167		-154					-41	
C168		-155					-40	
C169		-156					-39	
C170		-157					-38	
C171		P12-158	32				TB2-37	
C172	SEE NOTE 5	J8-18	33				S11-2	SEE NOTE 5
C173		J8-19	33				S8-2	
C174	SEE NOTE 6	P12-159	32				TB2-36	SEE NOTE 6
C175		P12-160	32				TB2-35	
C176		P12-161	32	WHT	26	AR	TB2-34	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
C177	SEE NOTE 6	P12-162	32	WHT	26	AR	TB2-33	SEE NOTE 6
C178		P12-163	32				TB2-32	
C179		P12-164	32				TB2-31	
C180	SEE NOTE 5	J8-20	33				S13-2	SEE NOTE 5
C181		J8-21	33				S1-3	
C182	SEE NOTE 6	P12-165	32				TB2-30	SEE NOTE 6
C183		-166					-29	
C184		-167					-28	
C185		-168					-27	
C186		-169					-26	
C187		P12-170	32				TB2-25	
C188	SEE NOTE 5	J8-22	33				S14-2	SEE NOTE 5
C189	SEE NOTE 6	P12-190	32				TB2-16	SEE NOTE 6
C190		-174					-24	
C191		-175					-23	
C192		P12-176	32				TB2-22	
C193	SEE NOTE 5	J8-24	33				S15-2	SEE NOTE 5
C194		J8-25	33				S18-1	
C195	SEE NOTE 6	P12-196	32				TB2-12	SEE NOTE 6
C196		-192					-14	
C197		-204					-7	
C198		P12-182	32				TB2-20	
C199	SEE NOTE 5	J8-26	33				S16-2	SEE NOTE 5
C200		J8-27	33				S17-2	
C201	SEE NOTE 6	P12-185	32				TB2-19	SEE NOTE 6
C202		-210					-1	
C203		-187					-17	
C204		-195					-13	
C205		-181	32	WHT			TB2-21	
C206	SEE NOTE 5	-193	40	ORN			S6-5	SEE NOTE 5
C207		P12-194	38	RED			S6-4	
C208		J8-[illegible]	33	WHT			S18-2	
C209	SEE NOTE 6	P12-197	32	WHT			TB2-11	SEE NOTE 6
C210		-209					-2	
C211		-191					-15	
C212		-201					-10	
C213		-202					-9	
C214		-203					-8	
C215		-186					-18	
C216		-207					-6	
C217		-208	32	WHT			TB2-5	
C218	SEE NOTE 5	P12-179	33	WHT			S19-2	SEE NOTE 5
C219		S1-1	35	YEL			S2-3	
C220		S2-1					S3-3	
C221		S3-1					S4-3	
C222		S4-1					S5-3	
C223		S5-1					S6-3	
C224		S6-1					S7-3	
C225		S7-1					S8-3	
C226		S8-1					S9-3	
C227		S9-1					S10-3	
C228		S10-1					S11-3	
C229		S11-1					S12-3	
C230		S12-1					S13-3	
C231		S13-1					S14-3	
C232		S14-1					S15-3	
C233		S15-1	35	YEL			S16-3	
C234		S17-4	38	RED			S5-4	
C235		S17-5	40	ORN			S5-5	
C236		S6-4	38	RED			S2-4	
C237		S6-5	40	ORN			S2-5	
C238		S2-4	38	RED			S7-4	
C239		S2-5	40	ORN			S7-5	
C240		S7-4	38	RED			S3-4	
C241		S7-5	40	ORN			S3-5	
C242		S3-4	38	RED			S8-4	
C243		S3-5	40	ORN			S8-5	
C244		S8-4	38	RED			S9-4	
C245		S8-5	40	ORN			S9-5	
C246		S9-4	38	RED			S12-4	
C247		S9-5	40	ORN			S12-5	
C248		S12-4	38	RED			S15-4	
C249		S12-5	40	ORN			S15-5	
C250		S15-4	38	RED			S16-4	
C251		S15-5	40	ORN			S16-5	
C252		S16-4	38	RED			S13-4	
C253		S16-5	40	ORN			S13-5	
C254		S13-4	38	RED			S10-4	
C255		S13-5	40	ORN			S10-5	
C256		S10-4	38	RED			S11-4	
C257		S10-5	40	ORN			S11-6	
C258		S11-4	38	RED			S14-4	
C259		S11-5	40	ORN			S14-5	
C260		S14-4	38	RED			S17-4	
C261		S14-5	40	ORN			S17-5	
C262		S17-1	35	YEL			S18-3	
C263	SEE NOTE 6	P12-184	32	WHT			62	SEE NOTE 6
C264	SEE NOTE 6	P12-183	41				63	SEE NOTE 5
C265	SEE NOTE 6	P12-20	32				TB1-67	SEE NOTE 6
C266		P12-8					TB1-82	
C267		P12-173					TB2-4	
C268		P12-177					TB2-3	
C269		P12-19	32	WHT	26	AR	TB1-66	

MASTER

NEXT ASSY	USED ON
APPLICATION	

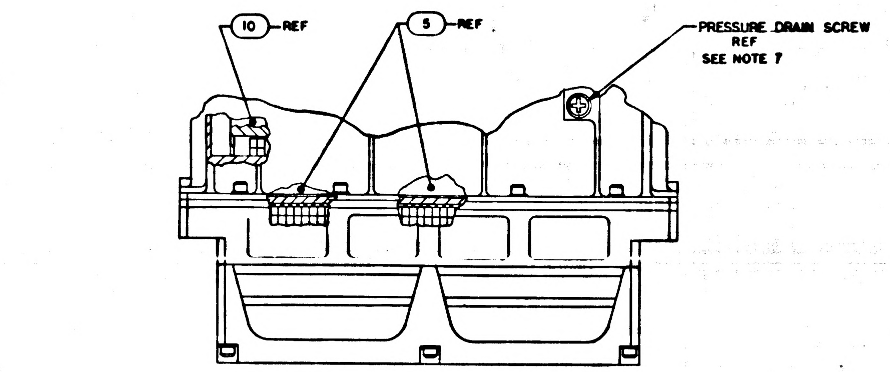
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

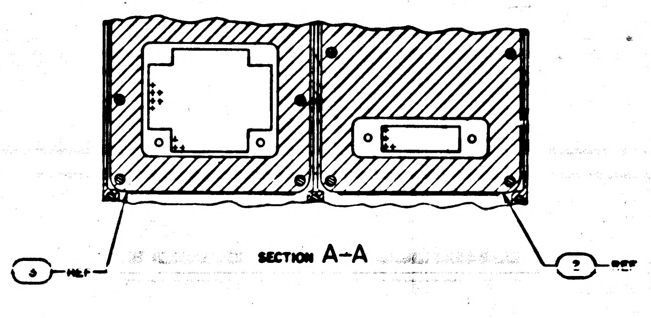
QTY REQ'D | PART OR IDENTIFYING NO.

MIT
INSTRUMENTATION LA
CAMBRIDGE, MASS

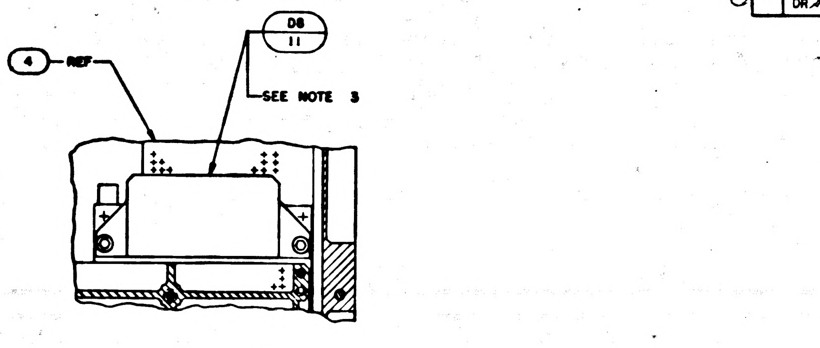
DRAWN J.P. [illegible]
CHECKED [illegible]
APPROVED [illegible]
APPROVED [illegible]
APPROVED [illegible]
APPROVED R. G. MERTZACKER

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 27551 DR CHK APPD		

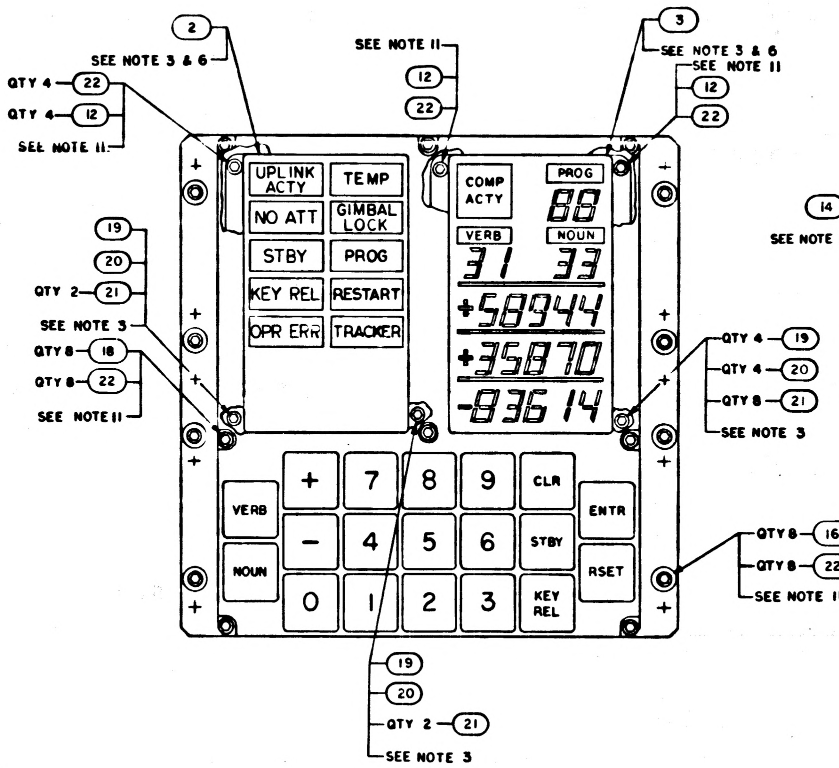

10 REF
5 REF
PRESSURE DRAIN SCREW REF SEE NOTE 7

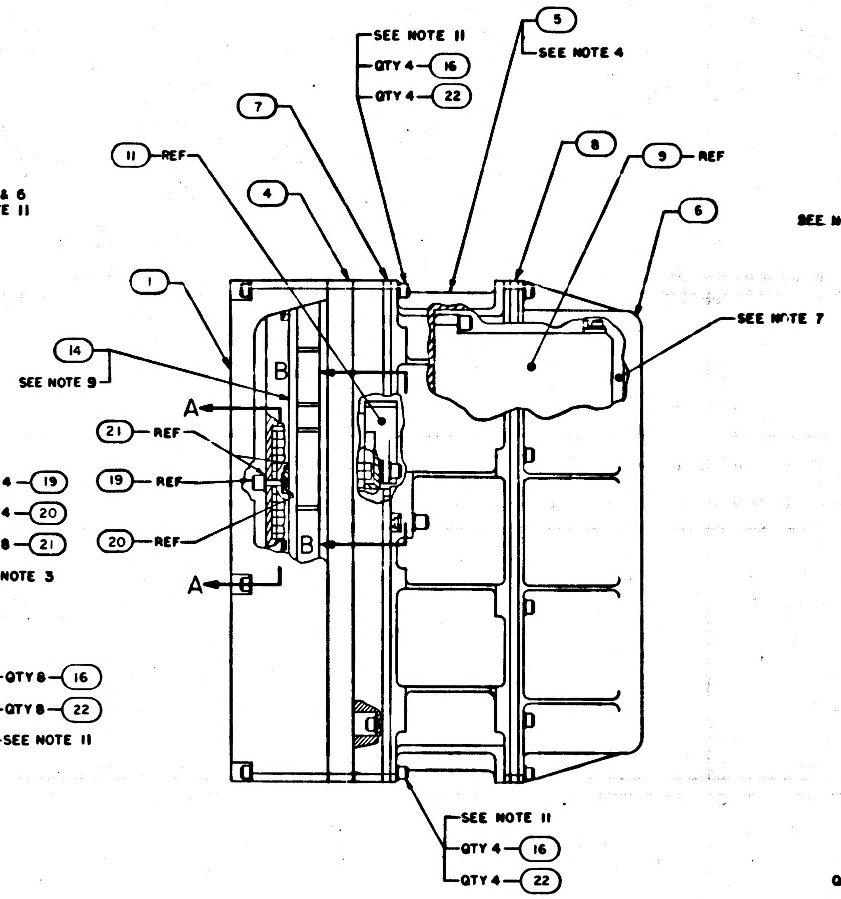


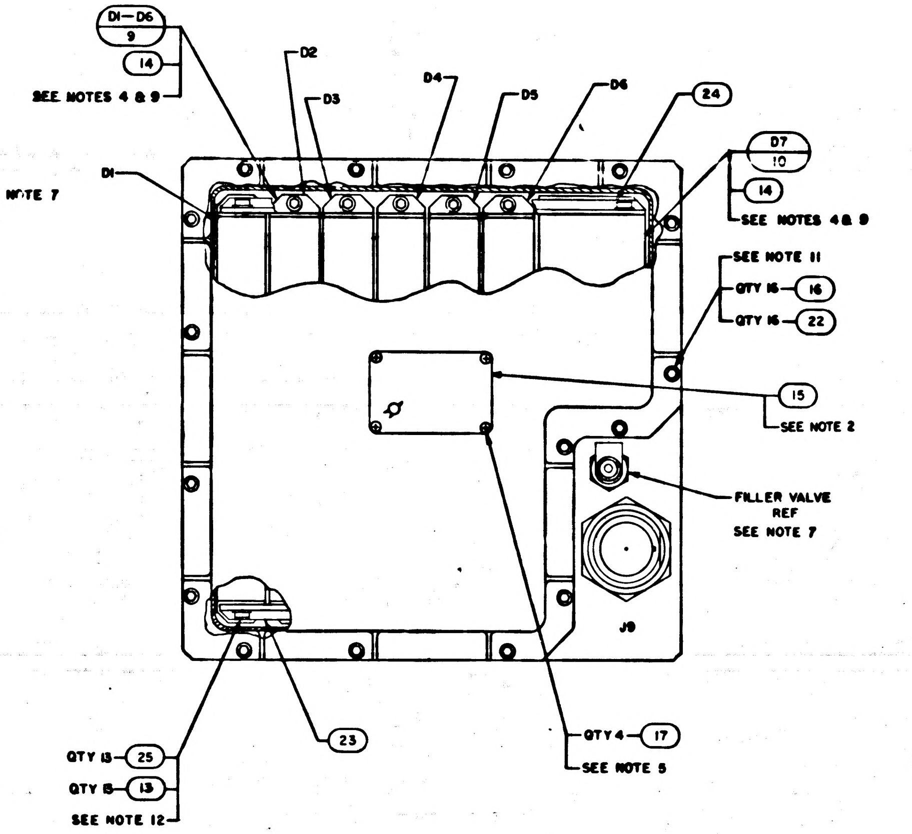
SECTION A-A


4 REF
D8
11
SEE NOTE 3

PARTIAL SECTION B-B


2
SEE NOTE 3 & 6
QTY 4 22
QTY 4 12
SEE NOTE 11
SEE NOTE 11
12
22
3
SEE NOTE 3 & 6
SEE NOTE 11
12
22
UPLINK ACTY
TEMP
NO ATT
GIMBAL LOCK
STBY
PROG
KEY REL
RESTART
OPR ERR
TRACKER
COMP ACTY
PROG
88
VERB
NOUN
31
33
+58944
+35870
-83614
19
20
QTY 2 21
SEE NOTE 3
QTY 8 18
QTY 8 22
SEE NOTE 11
QTY 4 19
QTY 4 20
QTY 8 21
SEE NOTE 3
VERB
NOUN
+
7
8
9
CLR
−
4
5
6
STBY
0
1
2
3
KEY REL
ENTR
RSET
QTY 8 16
QTY 8 22
SEE NOTE 11
19
20
QTY 2 21
SEE NOTE 3


SEE NOTE 11
QTY 4 16
QTY 4 22
5
SEE NOTE 4
7
8
9 REF
11 REF
4
6
SEE NOTE 7
1
14
SEE NOTE 9
A
B
21 REF
19 REF
20 REF
B
A
SEE NOTE 11
QTY 4 16
QTY 4 22


D1-D6
9
14
SEE NOTES 4 & 9
D2
D3
D4
D5
D6
24
D1
D7
10
14
SEE NOTES 4 & 9
SEE NOTE 11
QTY 16 16
QTY 16 22
15
SEE NOTE 2
FILLER VALVE REF SEE NOTE 7
J9
QTY 13 25
QTY 8 13
SEE NOTE 12
23
QTY 4 17
SEE NOTE 5

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK "AGC DSKY ASSEMBLY" AND ITS RESPECTIVE PART NO., SERIAL NO., AND CONTRACT NO. MARKING TO BE PER ND1002019 AND SERIALIZE PER ND1002023
3. MOUNTING TORQUE FOR FIND NO. 19 AND JACK SCREWS OF FIND NO. 11 TO BE 8.5-9.5 INCH POUNDS
4. MOUNTING TORQUE FOR JACK SCREWS OF FIND NO. 5, 9 & 10 TO BE 15-19 INCH POUNDS
5. APPLY SEALING COMPOUND MIL-S-22473 GRADE HV TO FIND NO. 17
6. FIND NO. 2 AND 3 TO BE ASSEMBLED TO HEIGHT OF BONDED RUBBER OF FIND NO. 4 USING FIND NO. 19. BEFORE INSTALLING FIND NO. 12. ASSEMBLE IN AN ENVIRONMENT HAVING A TEMPERATURE OF 72° ±5° AND A RELATIVE HUMIDITY OF 50% OR LESS
7. FILL WITH A MINIMUM OF 87% NITROGEN AND 8.7% HELIUM AND A MAXIMUM OF 4.3% AIR TO 1.05/1.10 ATMOSPHERES. DO NOT EXCEED 2 ATMOSPHERES DURING PRESSURIZATION
8. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003950
9. APPLY FIND NO. 14 TO MATING SURFACES OF FIND NO. 4, 9 AND 10 DO NOT APPLY TO BONDED RUBBER OF FIND NO. 4,
10. AR DENOTES AS REQUIRED
11. MOUNTING TORQUE FOR FIND NO. 16, 18 AND 12 TO BE 8-9 INCH POUNDS
12. MOUNTING TORQUE FOR FIND NO. 13 TO BE 3.5-4.5 INCH POUNDS

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2003956	OUTLINE DRAWING	REF
☒	2005957	SIGNAL PIN ASSIGNMENT	REF
☒	2005953	INTERCONNECTING DIAGRAM	REF
☒	2005918	SIGNAL FLOW DIAGRAM	REF
13	NAS620C4	WASHER, FLAT	25
1	2004958	BRACKET, MODULE	24
1	2004959	BRACKET, MODULE	23
46	NAS620C6	WASHER, FLAT	22
12	1004546-4	WASHER, FLAT	21
6	MS16633-4014	RING, RETAINING	20
6	2004932-001	SCREW, JACKING	19
8	1001489-59	SCREW, HEX SOCKET HEAD	18
4	MS35216-1	SCREW, PAN HEAD, CROSS RECESSED	17
32	MS16995-18	SCREW, HEX, SOCKET HEAD	16
1	1004260-20	NAMEPLATE	15
AR	1006879	SILICONE COMPOUND	14
13	MS16995-10	SCREW, HEX SOCKET HEAD	13
6	MS16995-20	SCREW, HEX, SOCKET HEAD	12
1	2003909-021	KEYBOARD MODULE ASSY D8	11
1	2003901-021	POWER SUPPLY ASSY MODULE D7	10
6	2003952-021	INDICATOR DRIVER MODULE D1-D6	9
1	1006349	GASKET, BONDED, RUBBER	8
1	1006350	GASKET, BONDED, RUBBER	7
1	2004900	COVER, REAR	6
1	2003955-011	MAIN HOUSING ASSY	5
1	2003949-011	FRONT HOUSING ASSY	4
1	1006315	INDICATOR, DIGITAL	3
1	1006387	INDICATOR, ALARM	2
1	2004929-011	COVER, FRONT	1
011	LIST OF MATERIALS		

MASTER

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN DATE
CHECKED 3 FEB 66
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC DSKY ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO 2003950
SCALE 1/1
WT
SHEET 1 OF 1

APOLLO G&N Specification
PS 2003950 Rev. A
Original Issue Date: 5-11-66
Release Authority: TDRR 28742
Class Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

DISPLAY AND KEYBOARD ASSEMBLY

DRAWING NO. 2003950

Record of Revisions

Ⓜ

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
7/24/66	A	29907	1, 6, 10, & 11		

This specification consists of pages 1 to 17 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	C C Hall 5/11/66 5-11-66 MIT/IL	4/22/66 4/26/66 RAY

3.1.11 Status and Caution Indicators. With a logic "one" applied to an input pin of J9 as specified in Table 3-2 and the input voltage set to 5.0 ± 0.1 VDC the corresponding status or caution indicator shall be illuminated at 15 ± 3 Foot - Lamberts. The exception shall be the COMP ACTY indicator, which shall be illuminated at 10 - 18 Foot - Lamberts with the 10K ohm potentiometer (ref paragraph 3.1.4) set to maximum resistance. Also a contact closure shall exist between pins of J9 as specified in Table 3-2.

TABLE 3-2

Logic Input	J9 Input Pin	Indicator Illuminated	Indicator Color (reference only)	Contact Closure Between pins of J9
1	47	UPLINK ACTY	White	
1	25	STBY	White	58 and 35
1	71	TEMP	Yellow	57 and 31
1	44	RESTART	Yellow	57 and 31
1	26	COMP ACTY	Green*	
1	69			37 and 61
1	46	KEY REL	White	
1	18			36 and 60
1	45			55 and 84
1	45			15 and 32
1	27			80 and 81
1	27			57 and 83
1	66			33 and 56
1	72	OPR ERR	White	
0	66			31 and 53
0	44			31 and 53
0	18			36 and 85
0	45			57 and 84
0	45			14 and 32
0	69			19 and 37
0	27			54 and 83
0	27			82 and 81
0	25			59 and 35

*Electroluminescent indicator

3.1.14.4 High Marginal Voltages/High Temperature. The assembly shall perform as specified in paragraphs 3.1.4 and 3.1.6 thru 3.1.13 when the 25V supply is set to 30.0 ± 0.1 VDC, and the 14V supply is set to 16.0 ± 0.1 VDC, while the ambient temperature is maintained at $65^{\circ}\mathrm{C}\,^{+2.8\mathrm{C}^{\circ}}_{-0\mathrm{C}^{\circ}}$.

During marginal voltage and thermal extremes, no light intensity limits shall apply. Visual indication will insure system operation. The Keyboard shall not be energized at high thermal limits.

3.1.15 Vibration. The assembly shall perform as specified in paragraphs 3.1.4 thru 3.1.13 when subjected to the vibration limits specified below:

a. Frequency Range	10 to 2000 to 10 cps
b. Frequency Sweep Rate	at a logarithmic rate of one minute per octave.
c. Velocity	1.83 ± 10% inches per second in the frequency range of 10 to 100 cps.
d. Acceleration	3 g's ± 10% peak in the frequency range of 100 to 2000 cps.
e. Planes	each of the three mutually perpendicular axes.

3.1.15.1 Switch Chatter. During vibration there shall be no evidence of Keyboard switch chatter as specified below:

Key Lines - No contact closures of more than 50 usec duration.

Key Reset - No contact opens of more than 50 usec duration.

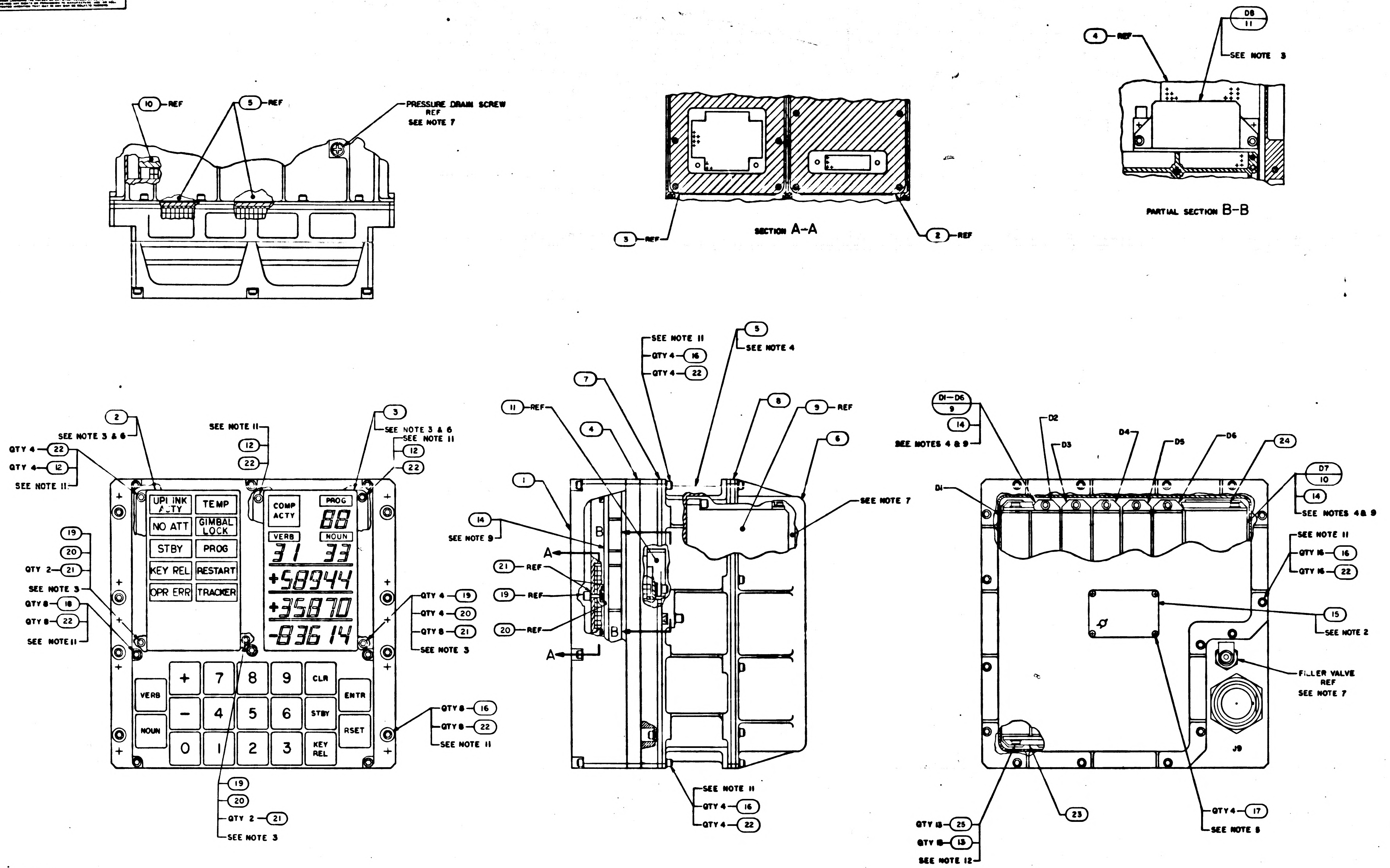
3.1.16 Leak Rate. With the assembly pressurized to 2 psig at 70°F using a mixture of 90% nitrogen and 10% helium, the leak rate shall not exceed 1.0×10^{-4} cc/atm/sec.

3.2 PRODUCT CONFIGURATION

3.2.1 Drawings. The configuration of the assembly shall be in accordance with Apollo G&N Drawings 2003950 and all drawings and engineering data referenced thereon.

3.2.2 Weight. The assembly shall weigh not more than 16.5 pounds.

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 27551 DR CHK APPD		
B	REVISED PER TDRR 28178 DR CHK J-J APPD		


10 REF
5 REF
PRESSURE DRAIN SCREW REF SEE NOTE 7
3 REF
SECTION A-A
2 REF
4 REF
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SEE NOTE 3
PARTIAL SECTION B-B
2
SEE NOTE 3 & 6
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20 REF
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SEE NOTES 4 & 9
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D7 10
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SEE NOTES 4 & 9
D1
SEE NOTE 11
QTY 16 16
QTY 16 22
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SEE NOTE 2
FILLER VALVE REF SEE NOTE 7
J9
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QTY 13 25
QTY 13 13
SEE NOTE 12
QTY 4 17
SEE NOTE 5

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK "AGC DSKY ASSEMBLY" AND ITS RESPECTIVE PART NO., SERIAL NO., AND CONTRACT NO. MARKING TO BE PER ND1002019 AND SERIALIZE PER ND1002023
3. MOUNTING TORQUE FOR FIND NO. 19 AND JACK SCREWS OF FIND NO. 11 TO BE 8.5-9.5 INCH POUNDS
4. MOUNTING TORQUE FOR JACK SCREWS OF FIND NO. 5, 9 & 10 TO BE 15-19 INCH POUNDS
5. APPLY SEALING COMPOUND MIL-S-22473 GRADE HV TO FIND NO. 17
6. FIND NO. 2 AND 3 TO BE ASSEMBLED TO HEIGHT OF BONDED RUBBER OF FIND NO. 4 USING FIND NO. 19. BEFORE INSTALLING FIND NO. 12. ASSEMBLE IN AN ENVIRONMENT HAVING A TEMPERATURE OF 72° ±5° AND A RELATIVE HUMIDITY OF 50% OR LESS
7. FILL WITH A MINIMUM OF 87% NITROGEN AND 8.7% HELIUM AND A MAXIMUM OF 4.3% AIR TO 1.05/1.10 ATMOSPHERES. DO NOT EXCEED 2 ATMOSPHERES DURING PRESSURIZATION
8. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003950
9. APPLY FIND NO. 14 TO MATING SURFACES OF FIND NO. 4, 9 AND 10 DO NOT APPLY TO BONDED RUBBER OF FIND NO. 4,
10. AR DENOTES AS REQUIRED
11. MOUNTING TORQUE FOR FIND NO. 16, 18 AND 12 TO BE 8-9 INCH POUNDS
12. MOUNTING TORQUE FOR FIND NO. 13 TO BE 3.5-4.5 INCH POUNDS

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2003956	OUTLINE DRAWING	REF
☒	2005957	SIGNAL PIN ASSIGNMENT	REF
☒	2005953	INTERCONNECTING DIAGRAM	REF
☒	2005918	SIGNAL FLOW DIAGRAM	REF
13	NAS620C4	WASHER, FLAT	25
1	2004958	BRACKET, MODULE	24
1	2004959	BRACKET, MODULE	23
46	NAS620C6	WASHER, FLAT	22
12	1004546-4	WASHER, FLAT	21
6	MS16633-4014	RING, RETAINING	20
6	2004932-001	SCREW, JACKING	19
8	1001489-59	SCREW, HEX SOCKET HEAD	18
4	MS35216-1	SCREW, PAN HEAD, CROSS RECESSED	17
32	MS16995-18	SCREW, HEX, SOCKET HEAD	16
1	1004260-20	NAMEPLATE	15
AR	1006879	SILICONE COMPOUND	14
13	MS16995-10	SCREW, HEX SOCKET HEAD	13
6	MS16995-20	SCREW, HEX, SOCKET HEAD	12
1	2003909-021	KEYBOARD MODULE ASSY D8	11
1	2003901-021	POWER SUPPLY ASSY MODULE D7	10
6	2003952-021	INDICATOR DRIVER MODULE D1-D6	9
1	1006349	GASKET, BONDED, RUBBER	8
1	1006350	GASKET, BONDED, RUBBER	7
1	2004900	COVER, REAR	6
1	2003955-011	MAIN HOUSING ASSY	5
1	2003949-011	FRONT HOUSING ASSY	4
1	1006315-001	INDICATOR, DIGITAL	3
1	1006387-001	INDICATOR, ALARM	2
1	2004929-021	COVER, FRONT	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
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MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN DATE
CHECKED 3 FEB 66
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC DSKY ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003950
SCALE 1/1
WT
SHEET 1 OF 1

2003950 B

APOLLO G&N Specification
PS 2003950 Rev. B
Original Issue Date: 5-11-66
Release Authority: TDRR 28742
Class Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

DISPLAY AND KEYBOARD ASSEMBLY

DRAWING NO. 2003950

B 30652 1 & 11

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
Ⓜ 7/26/66	A	29907	1, 6, 10, & 11		
8/26/66	B	30652	1, 11		

This specification consists of pages 1 to 17 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	CC Hall 5/11/66 5-11-66 MIT/IL	4/22/66 4/26/66 RAY

3.1.14.4 High Marginal Voltages/High Temperature. The assembly shall perform as specified in paragraphs 3.1.4 and 3.1.6 thru 3.1.13 when the 25V supply is set to 30.0 ± 0.1 VDC, and the 14V supply is set to 16.0 ± 0.1 VDC, while the ambient temperature is maintained at $65^{\circ}\mathrm{C}\ {}^{+\,2.8\mathrm{C}^{\circ}}_{-\,0\mathrm{C}^{\circ}}$.

During marginal voltage and thermal extremes, no light intensity limits shall apply. Visual indication will insure system operation. The Keyboard shall not be energized at high thermal limits.

3.1.15 Vibration. The assembly shall perform as specified in paragraphs 3.1.4 thru 3.1.13 when subjected to the vibration limits specified below:

a. Frequency Range	10 to 2000 to 10 cps
b. Frequency Sweep Rate	at a logarithmic rate of one minute per octave.
c. Velocity	1.83 ± 10% inches per second in the frequency range of 10 to 100 cps.
d. Acceleration	3 g's ± 10% peak in the frequency range of 100 to 2000 cps.
e. Planes	each of the three mutually perpendicular axes.

3.1.15.1 Switch Chatter. During vibration there shall be no evidence of Keyboard switch chatter as specified below:

Key Lines - No contact closures of more than 50 usec duration.

Key Reset - No contact opens of more than 50 usec duration.

3.1.16 Leak Rate. With the assembly pressurized to 2 psig at 70°F using a mixture of 90% nitrogen and 10% helium, the leak rate shall not exceed 1.0×10^{-4} cc/atm/sec.

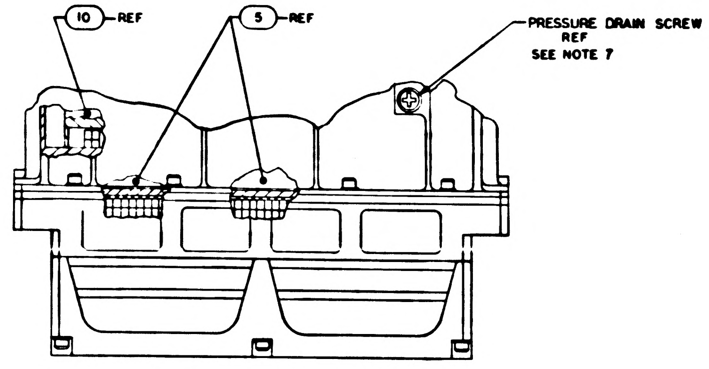
3.2 PRODUCT CONFIGURATION

3.2.1 Drawings. The configuration of the assembly shall be in accordance with Apollo G&N Drawings 2003950 and all drawings and engineering data referenced thereon.

3.2.2 Weight. The assembly shall weigh not more than 17.5 pounds.

2003950 C

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 27551 DR CHK APPD		
B	REVISED PER TDRR 28178 DR CHK APPD		
C	REVISED PER TDRR 34492 DR CHK APPD	10 Sep 67	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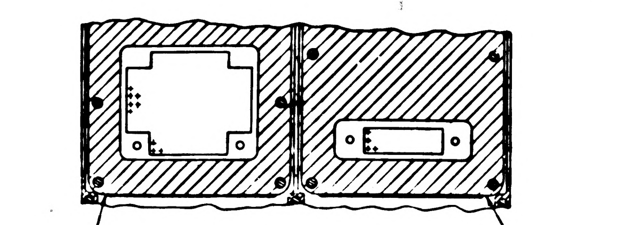
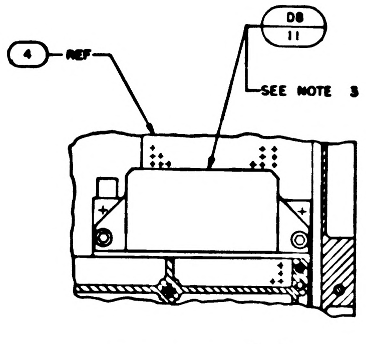
5 — REF
PRESSURE DRAIN SCREW REF SEE NOTE 7



SECTION A–A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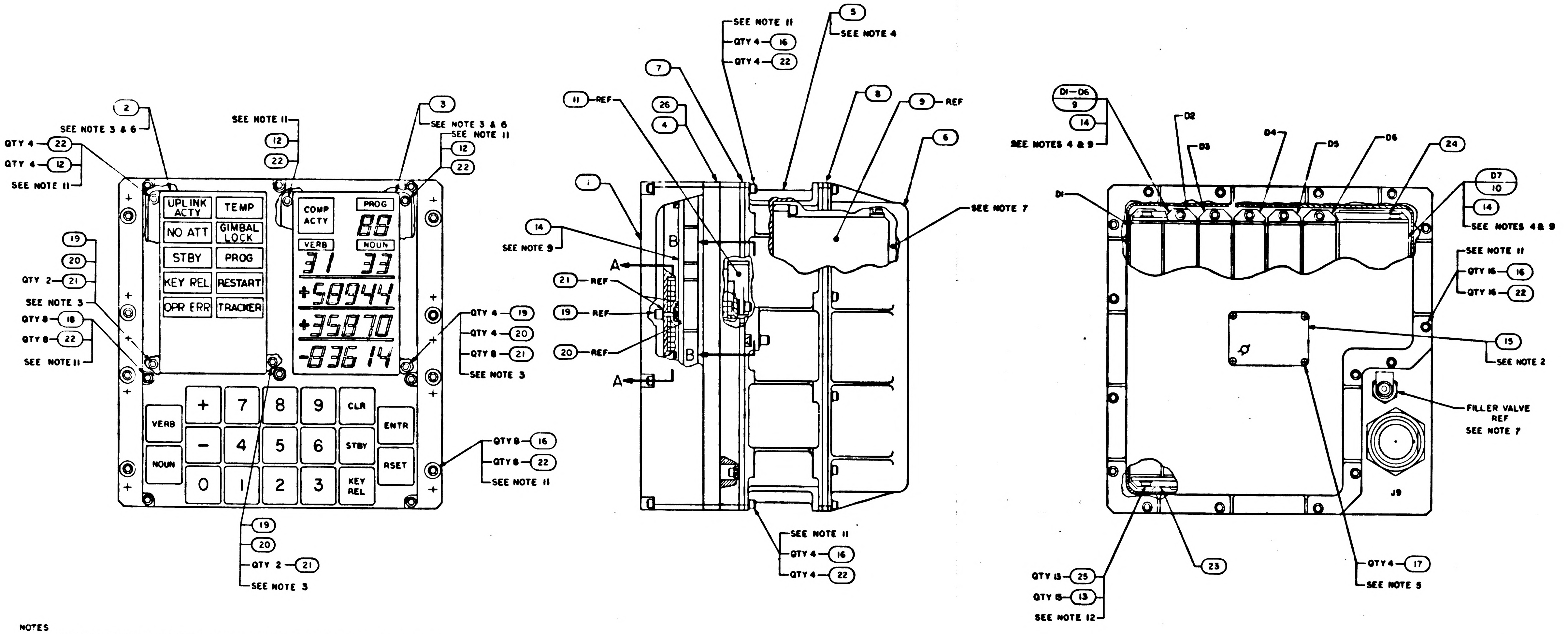
D8
11
SEE NOTE 3

PARTIAL SECTION B–B


2
SEE NOTE 3 & 6
QTY 4 — 22
QTY 4 — 12
SEE NOTE 11
SEE NOTE 11
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3
SEE NOTE 3 & 6
SEE NOTE 11
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22
UPLINK ACTY
TEMP
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20 — REF
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QTY 4 — 22
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D3
D4
D5
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D7
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14
SEE NOTES 4 & 9
SEE NOTE 11
QTY 16 — 16
QTY 16 — 22
15
SEE NOTE 2
FILLER VALVE REF SEE NOTE 7
J9
23
QTY 13 — 25
QTY 13 — 13
SEE NOTE 12
QTY 4 — 17
SEE NOTE 5

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK "AGC DSKY ASSEMBLY" AND ITS RESPECTIVE PART NO., SERIAL NO., AND CONTRACT NO. MARKING TO BE PER ND1002019 AND SERIALIZE PER ND1002023
3. MOUNTING TORQUE FOR FIND NO. 19 AND JACK SCREWS OF FIND NO. 11 TO BE 8.5-9.5 INCH POUNDS
4. MOUNTING TORQUE FOR JACK SCREWS OF FIND NO. 5, 9 & 10 TO BE 15-19 INCH POUNDS
5. APPLY SEALING COMPOUND MIL-S-22473 GRADE HV TO FIND NO. 17
6. FIND NO. 2 AND 3 TO BE ASSEMBLED TO HEIGHT OF BONDED RUBBER OF FIND NO. 4 OR FIND NO. 26 USING FIND NO. 19. BEFORE INSTALLING FIND NO. 12. ASSEMBLE IN AN ENVIRONMENT HAVING A TEMPERATURE OF 72° ±5° AND A RELATIVE HUMIDITY OF 50% OR LESS
7. FILL WITH A MINIMUM OF 87% NITROGEN AND 8.7% HELIUM AND A MAXIMUM OF 4.3% AIR TO 1.05-1.10 ATMOSPHERES. DO NOT EXCEED 2 ATMOSPHERES DURING PRESSURIZATION
8. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003950
9. APPLY FIND NO. 14 TO MATING SURFACES OF FIND NO. 4, 9 AND 10 DO NOT APPLY TO BONDED RUBBER OF FIND NO. 4, OR FIND NO. 26,
10. AR DENOTES AS REQUIRED
11. MOUNTING TORQUE FOR FIND NO. 16, 18 AND 12 TO BE 8-9 INCH POUNDS
12. MOUNTING TORQUE FOR FIND NO. 13 TO BE 3.5-4.5 INCH POUNDS

QTY REQD	QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	☒	2003956	OUTLINE DRAWING	REF
☒	☒	2005957	SIGNAL PIN ASSIGNMENT	REF
☒	☒	2005953	INTERCONNECTING DIAGRAM	REF
☒	☒	2005918	SIGNAL FLOW DIAGRAM	REF
1	–	2003949-031	FRONT HOUSING ASSY	26
13	13	NAS620C4	WASHER, FLAT	25
1	1	2004958	BRACKET, MODULE	24
1	1	2004959	BRACKET, MODULE	23
46	46	NAS620C6	WASHER, FLAT	22
12	12	1004546-4	WASHER, FLAT	21
6	6	MS16633-4014	RING, RETAINING	20
6	6	2004932-001	SCREW, JACKING	19
8	8	1001489-59	SCREW, HEX SOCKET HEAD	18
4	4	MS35216-1	SCREW, PAN HEAD, CROSS RECESSED	17
32	32	MS16995-18	SCREW HEX SOCKET HEAD	16
1	1	1004260-20	NAMEPLATE	15
AR	AR	1006879	SILICONE COMPOUND	14
13	13	MS16995-10	SCREW, HEX SOCKET HEAD	13
6	6	MS16995-20	SCREW, HEX, SOCKET HEAD	12
1	1	2003909-021	KEYBOARD MODULE ASSY D8	11
1	1	2003901-021	POWER SUPPLY ASSY MODULE D7	10
6	6	2003952-021	INDICATOR DRIVER MODULE D1-D6	9
1	1	1006349	GASKET, BONDED, RUBBER	8
1	1	1006350	GASKET, BONDED, RUBBER	7
1	1	2004900	COVER, REAR	6
1	1	2003955-011	MAIN HOUSING ASSY	5
–	1	2003949-011	FRONT HOUSING ASSY	4
1	1	1006315-001	INDICATOR, DIGITAL	3
1	1	1006387-001	INDICATOR, ALARM	2
1	1	2004929-021	COVER, FRONT	
021	011	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
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FRACTIONS ± DECIMALS ± ANGLES ±
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APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

AGC DSKY ASSEMBLY

CODE IDENT NO 80230 SIZE J NASA DRAWING NO 2003950
SCALE 1/1 WT SHEET 1 OF 1

MASTER

2003950 C

APOLLO G&N Specification
PS 2003950 Rev. C
Original Issue Date: 5-11-66
Release Authority: TDRR 28742
Class Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

DISPLAY AND KEYBOARD ASSEMBLY

DRAWING NO. 2003950

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
7/[illegible]/66	A	29907	1, 6, 10, & 11		
[illegible]/26/66	B	30652	1, 11		
8-31-67	C	34491	1, 2		

This specification consists of pages 1 **to** 17**inclusive.**

APPROVALS	A. C. METZGER NASA/MSC	CC Hall 5/11/66 MIT/IL	4/22/66 4/26/66 RAY

1. SCOPE

1.1 This specification establishes the detail requirements for complete identification and acceptance of the Display and Keyboard Assembly Part No. 2003950-011 and 2003950-021.

2. APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein.

2.1 Effective Issues. Unless otherwise specified herein, Military and Government Standards and specifications shall be the issue in effect on the date of request for proposal or invitation to bid.

SPECIFICATIONS

APOLLO G&N

ND 1002214	General Specification for Preservation, Packaging, Packing and Container Marking of APOLLO Guidance and Navigation Major Assemblies, Assemblies, Subassemblies, Parts and Associated Ground Support Equipment.

DRAWINGS

APOLLO G&N

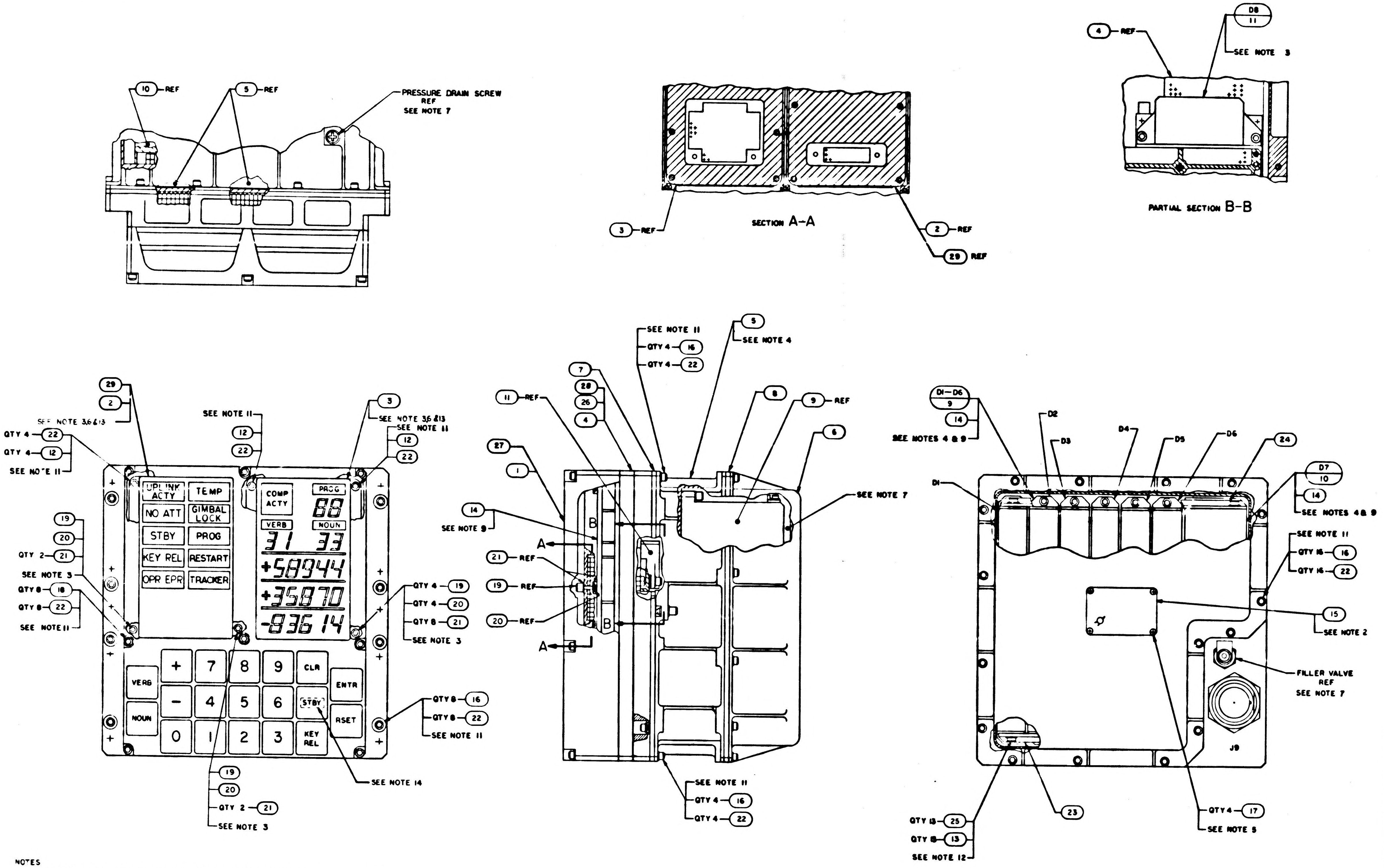
2003950	DISPLAY AND KEYBOARD ASSEMBLY

(Copies of Specifications, Standards, Drawings, Bulletins and Publications required by suppliers in connection with specific procurement functions should be obtained from the Procuring Activity or as directed by the Contracting Officer).

2.2 Conflicting Requirements. In the event of conflict between the requirements of the contract, this Specification and the documents listed in this section, the following order of precendence shall apply and the contractor shall notify MIT Apollo Management of the conflict as soon as it is determined.

a. The contract
b. This Specification
c. Documents listed in this section

LTR	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 27551 DR CHK APPD		
B	REVISED PER TDRR 28178 DR CHK APPD		
C	REVISED PER TDRR 34492 DR CHK APPD	10 Jul 67	
D	REVISED PER TDRR [illegible] DR CHK APPD		



10 — REF
5 — REF
PRESSURE DRAIN SCREW REF SEE NOTE 7
3 — REF
SECTION A-A
2 — REF
29 REF
4 — REF
D8 11
SEE NOTE 3
PARTIAL SECTION B-B
29
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SEE NOTE 3,6 & 13
QTY 4 — 22
QTY 4 — 12
SEE NOTE 11
SEE NOTE 11
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SEE NOTE 3,6 & 13
SEE NOTE 11
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UPLINK ACTY
TEMP
NO ATT
GIMBAL LOCK
STBY
PROG
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OPR ERR
TRACKER
COMP ACTY
PROG
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31 33
+58944
+35870
-93614
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20 — REF
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QTY 16 — 22
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SEE NOTE 2
FILLER VALVE REF SEE NOTE 7
J9
QTY 13 — 25
QTY 13 — 13
SEE NOTE 12
23
QTY 4 — 17
SEE NOTE 5

NOTES

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3. MOUNTING TORQUE FOR FIND NO. 19 AND JACK SCREWS OF FIND NO. 11 & 29 TO BE 8.5-9.5 INCH POUNDS
4. MOUNTING TORQUE FOR JACK SCREWS OF FIND NO. 5, 9 & 10 TO BE 15-19 INCH POUNDS
5. APPLY SEALING COMPOUND MIL-S-22473 GRADE HV TO FIND NO. 17
6. FIND NO. 2 AND 3 TO BE ASSEMBLED TO HEIGHT OF BONDED RUBBER OF FIND NO. 4 OR FIND NO. 26 USING FIND NO. 19. BEFORE INSTALLING FIND NO. 12. ASSEMBLE IN AN ENVIRONMENT HAVING A TEMPERATURE OF 72° ±5° AND A RELATIVE HUMIDITY OF 50% OR LESS
7. FILL WITH A MINIMUM OF 87% NITROGEN AND 8.7% HELIUM AND A MAXIMUM OF 4.3% AIR TO 1.05-1.10 ATMOSPHERES. DO NOT EXCEED 2 ATMOSPHERES DURING PRESSURIZATION
8. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003950
9. APPLY FIND NO. 14 TO MATING SURFACES OF FIND NO. 4, 9, 10, 26 & 28 DO NOT APPLY TO BONDED RUBBER OF FIND NO. 4, 26 OR 28
10. AR DENOTES AS REQUIRED
11. MOUNTING TORQUE FOR FIND NO. 16, 18 AND 12 TO BE 8-9 INCH POUNDS
12. MOUNTING TORQUE FOR FIND NO. 18 TO BE 3.5-4.5 INCH POUNDS
13. FIND NO. 3 TO BE ASSEMBLED TO HEIGHT OF BONDED RUBBER OF FIND NO. 28 USING FIND NO. 19 BEFORE INSTALLING FIND NO. 12. FIND NO. 29 TO BE ASSEMBLED USING EXISTING JACKING SCREWS. ASSEMBLE IN AN ENVIRONMENT HAVING A TEMPERATURE OF 72° ± 5° F AND A RELATIVE HUMIDITY OF 50% OR LESS
14. THE-011 & -021 CONFIGURATION SHALL REFLECT A NOMENCLATURE AS SHOWN, THE-031 CONFIGURATION SHALL REFLECT "PRO" IN KEY POSITION INDICATED.

DASH NO	APPLICABLE NOTES
-031	1 THRU 5, 7 THRU 14
-021	1 THRU 12 & 14
-011	1 THRU 12 & 14

NOTE APPLICATION

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			2005957	SIGNAL PIN ASSIGNMENT	REF
			2005953	INTERCONNECTING DIAGRAM	REF
			2005918	SIGNAL FLOW DIAGRAM	REF
1	—	—	2003939-001	INDICATOR, ALARM & COVER ASSY	29
1	—	—	2003949-051	FRONT HOUSING ASSY	28
1	—	—	2004739	COVER, FRONT	27
—	1	—	2003949-031	FRONT HOUSING ASSY	26
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42	46	46	NAS620C6	WASHER, FLAT	22
8	12	12	1004546-4	WASHER, FLAT	21
4	6	6	MS16633-4014	RING, RETAINING	20
4	6	6	2004932-001	SCREW, JACKING	19
8	8	8	1001489-59	SCREW, HEX SOCKET HEAD	18
4	4	4	MS35216-1	SCREW, PAN HEAD, CROSS RECESSED	17
32	32	32	MS16995-18	SCREW, HEX SOCKET HEAD	16
1	1	1	1004260-20	NAMEPLATE	15
AR	AR	AR	1006879	SILICONE COMPOUND	14
13	13	13	MS16995-10	SCREW, HEX SOCKET HEAD	13
6	6	6	MS16995-20	SCREW, HEX, SOCKET HEAD	12
1	1	1	2003909-021	KEYBOARD MODULE ASSY D8	11
1	1	1	2003901-021	POWER SUPPLY ASSY MODULE D7	10
2	6	6	2003952-021	INDICATOR DRIVER MODULE D1-D6	9
1	1	1	1006349	GASKET, BONDED, RUBBER	8
	1	1	1006350	GASKET, BONDED, RUBBER	7
1	1	1	2004900	COVER, REAR	6
	1	1	2003955-011	MAIN HOUSING ASSY	5
—	—	1	2003949-011	FRONT HOUSING ASSY	4
1	1	1	1006315-001	INDICATOR, DIGITAL	3
—	1	1	1006387-001	INDICATOR, ALARM	2
—	1	1	2004929-021	COVER, FRONT	
031	021	011	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
- ± -
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
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M I T
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC DSKY ASSEMBLY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO 2003950
SCALE 1/1
WT
SHEET OF 1

APOLLO G&N Specification
PS 2003950 Rev. D
Original Issue Date: 5-11-66
Release Authority: TDRR 28742
Class Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

DISPLAY AND KEYBOARD ASSEMBLY

DRAWING NO. 2003950

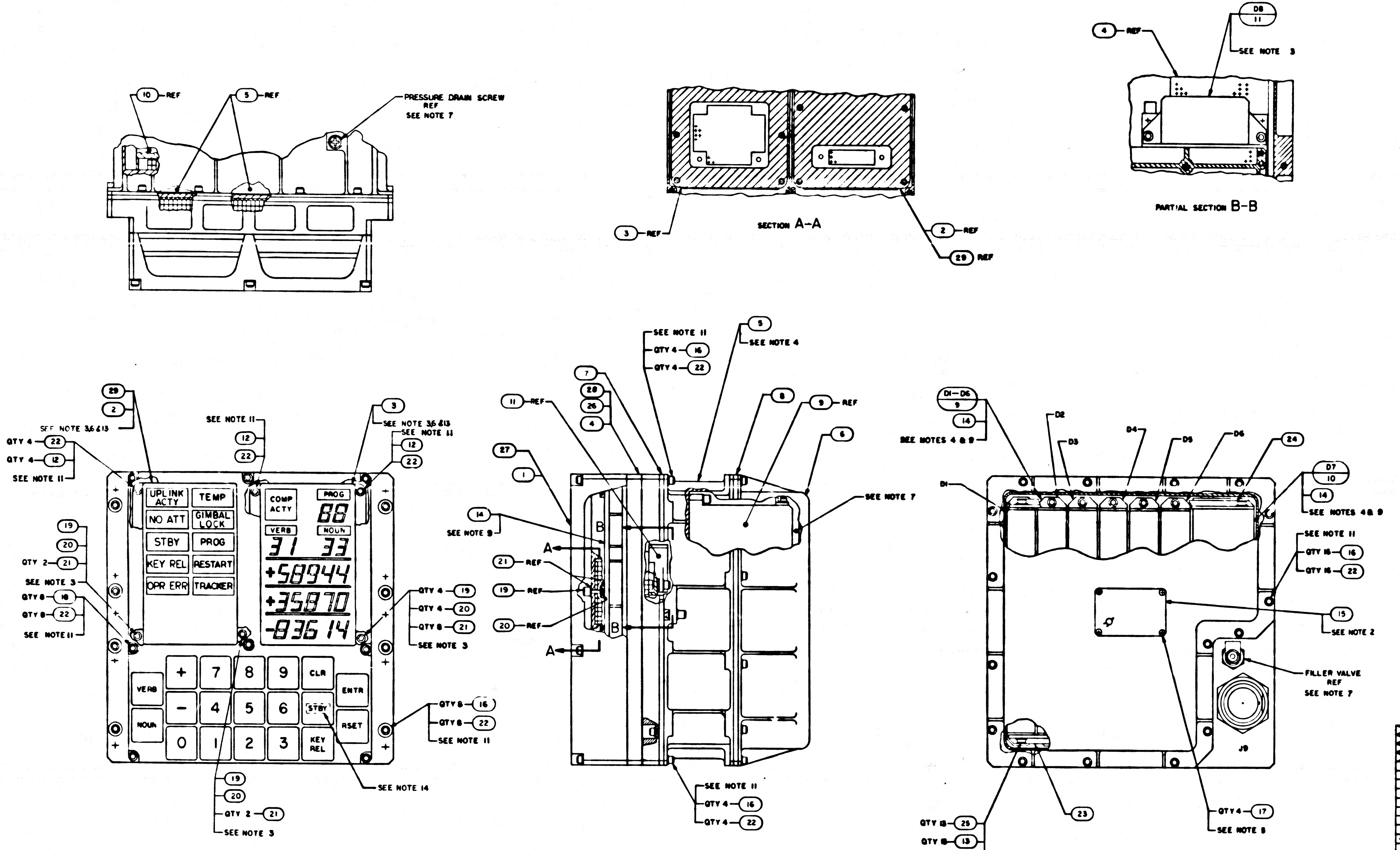
Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
7/[illegible]	A	29907	1, 6, 10, & 11	[illegible] FD	[illegible] FD
[illegible]/26/66	B	30652	1, 11	[illegible] FD	[illegible] FD
8-31-67	C	34491	1, 2	[illegible] FA	[illegible] FA
11-16-67	D	35070	1, 2	FA	FA

This specification consists of pages 1 to 17 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	C C Hall 5/11/66 [illegible] 5/11/66 MIT/IL	4/22/66 4/26/66 RAY

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 27551 DR CHK APPD		
B	REVISED PER TDRR 28178 DR CHK APPD		
C	REVISED PER TDRR 34492 DR CHK APPD		
D	REVISED PER TDRR 35075 DR CHK APPD		
E	REVISED PER TDRR 36015 DR CHK		


10 REF
5 REF
PRESSURE DRAIN SCREW REF SEE NOTE 7
3 REF
SECTION A-A
2 REF
29 REF
4 REF
D8 11
SEE NOTE 3
PARTIAL SECTION B-B
SEE NOTE 11
QTY 4 16
QTY 4 22
5
SEE NOTE 4
29
2
SEE NOTE 3,6 &13
QTY 4 22
QTY 4 12
SEE NOTE 11
SEE NOTE 11
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22
UPLINK ACTY
TEMP
NO ATT
GIMBAL LOCK
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RESTART
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TRACKER
COMP ACTY
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+58944
+35870
-83614
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QTY 4 19
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19 REF
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9 REF
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SEE NOTE 7
SEE NOTE 11
QTY 4 16
QTY 4 22
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SEE NOTES 4 & 9
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SEE NOTES 4 & 9
SEE NOTE 11
QTY 16 16
QTY 16 22
15
SEE NOTE 2
FILLER VALVE REF SEE NOTE 7
J9
QTY 13 25
QTY 13 13
SEE NOTE 12
23
QTY 4 17
SEE NOTE 5

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK "AGC DSKY ASSEMBLY" AND ITS RESPECTIVE PART NO., SERIAL NO., AND CONTRACT NO. MARKING TO BE PER ND1002019 AND SERIALIZE PER ND1002023
3. MOUNTING TORQUE FOR FIND NO. 19 AND JACK SCREWS OF FIND NO. 11&29 TO BE 8.5-9.5 INCH POUNDS
4. MOUNTING TORQUE FOR JACK SCREWS OF FIND NO. 5, 9 & 10 TO BE 15-19 INCH POUNDS
5. APPLY SEALING COMPOUND PER 1008953-003 TO FIND NO. 17
6. FILL FEMALE INSULATOR OF FIND NO. 4 OR FIND NO. 26 USING SILICONE COMPOUND PER 1008954 PRIOR TO ASSEMBLY OF FIND NO. 2 AND FIND NO 3 FIND NO 2 AND 3 TO BE ASSEMBLED TO HEIGHT OF BONDED RUBBER OF FIND NO. 4 OR FIND NO. 26 USING FIND NO. 19 BEFORE INSTALLING FIND NO. 12
7. FILL WITH A MINIMUM OF 87% NITROGEN AND 8.7% HELIUM AND A MAXIMUM OF 4.3% AIR TO 1.05/1.10 ATMOSPHERES. DO NOT EXCEED 2 ATMOSPHERES DURING PRESSURIZATION
8. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003950
9. APPLY FIND NO. 14 TO MATING SURFACES OF FIND NO. 4, 9, 10, 26 & 28 DO NOT APPLY TO BONDED RUBBER OF FIND NO. 4, 26 OR 28
10. AR DENOTES AS REQUIRED
11. MOUNTING TORQUE FOR FIND NO. 16, 18 AND 12 TO BE 8-9 INCH POUNDS
12. MOUNTING TORQUE FOR FIND NO. 13 TO BE 3.5-4.5 INCH POUNDS
13. FILL FEMALE INSULATOR OF FIND NO 28 USING SILICONE COMPOUND PER 1008954 PRIOR TO ASSEMBLY OF FIND NO. 3. FIND NO. 3 TO BE ASSEMBLED TO HEIGHT OF BONDED RUBBER OF FIND NO. 28 USING FIND NO. 19 BEFORE INSTALLING FIND NO. 12. FIND NO. 29 TO BE ASSEMBLED USING EXISTING JACKING SCREWS
14. THE-011&-021 CONFIGURATION SHALL REFLECT A NOMENCLATURE AS SHOWN, THE-031 CONFIGURATION SHALL REFLECT "PRO" IN KEY POSITION INDICATED.

-031	1 THRU 5, 7 THRU 14
-021	1 THRU 12 & 14
-011	1 THRU 12 & 14
DASH NO	APPLICABLE NOTES
NOTE APPLICATION	

			2003956	OUTLINE DRAWING	REF
			2005957	SIGNAL PIN ASSIGNMENT	REF
			2005953	INTERCONNECTING DIAGRAM	REF
			2005918	SIGNAL FLOW DIAGRAM	REF
1	—	—	2003899-001	INDICATOR, ALARM & COVER ASSY	[illegible]
1	—	—	2003949-051	FRONT HOUSING ASSY	[illegible]
1	—	—	2004739	COVER, FRONT	[illegible]
—	1	—	2003949-031	FRONT HOUSING ASSY	26
13	13	13	NAS620C4	WASHER, FLAT	25
1	1	1	2004958	BRACKET, MODULE	24
1	1	1	2004959	BRACKET, MODULE	23
42	46	46	NAS620C6	WASHER, FLAT	22
8	12	12	1004546-4	WASHER, FLAT	21
4	6	6	MS16633-4014	RING, RETAINING	20
4	6	6	2004932-001	SCREW, JACKING	19
6	8	8	1001489-59	SCREW, HEX SOCKET HEAD	18
4	4	4	MS35216-1	SCREW, PAN HEAD, CROSS RECESSED	17
32	32	32	MS16995-18	SCREW, HEX SOCKET HEAD	16
1	1	1	1004260-20	NAMEPLATE	15
AR	AR	AR	1006879	SILICONE COMPOUND	14
13	13	13	MS16995-10	SCREW, HEX SOCKET HEAD	13
6	6	6	MS16995-20	SCREW, HEX, SOCKET HEAD	12
1	1	1	2003909-021	KEYBOARD MODULE ASSY D8	11
1	1	1	2003901-021	POWER SUPPLY ASSY MODULE D7	10
2	6	6	2003952-021	INDICATOR DRIVER MODULE D1-D6	9
1	1	1	1006349	GASKET, BONDED, RUBBER	8
1	1	1	1006350	GASKET, BONDED, RUBBER	7
1	1	1	2004900	COVER, REAR	6
1	1	1	2003955-011	MAIN HOUSING ASSY	5
—	—	1	2003949-011	FRONT HOUSING ASSY	4
1	1	1	1006315-001	INDICATOR, DIGITAL	3
—	1	1	1006387-001	INDICATOR, ALARM	2
—	1	1	2004929-021	COVER, FRONT	
QTY REQD	QTY REQD	QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
031	021	011	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

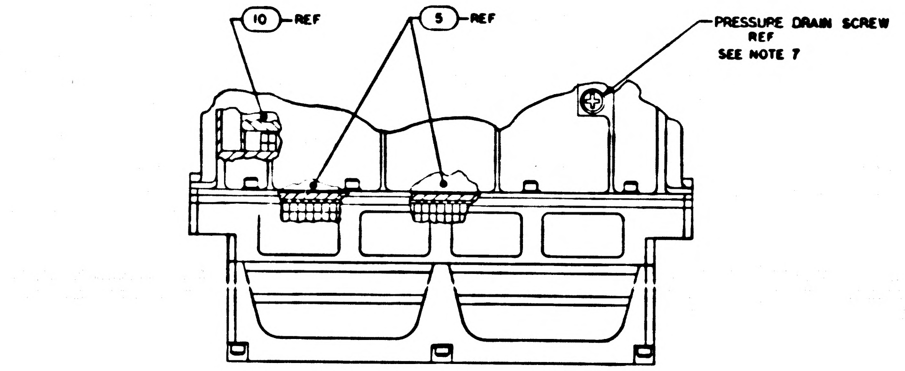
AGC DSKY ASSEMBLY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO 2003950
SCALE 1/1
WT
SHEET 1 OF 1

2003950 E

2003950 G

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 27551 DR CHK APPD		
B	REVISED PER TDRR 28178 DR CHK APPD		
C	REVISED PER TDRR 34492 DR CHK APPD		
D	REVISED PER [illegible] DR [illegible]		
E	REVISED PER TDRR 36015 DR CHK		
F	REVISED [illegible] DR [illegible]		
G	REVISED PER TDRR 36655 DR CHK ENG		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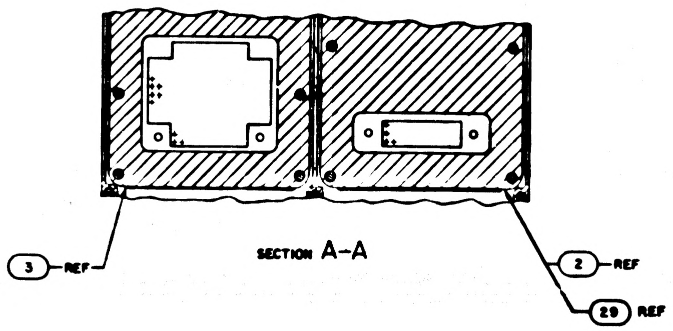
5 REF
PRESSURE DRAIN SCREW
REF
SEE NOTE 7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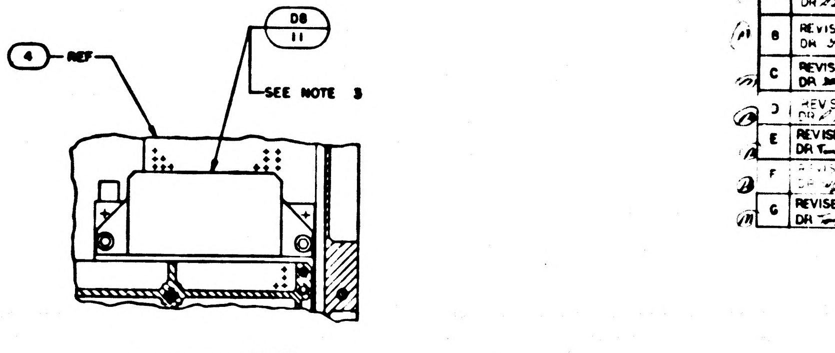
2 REF
29 REF

SECTION A-A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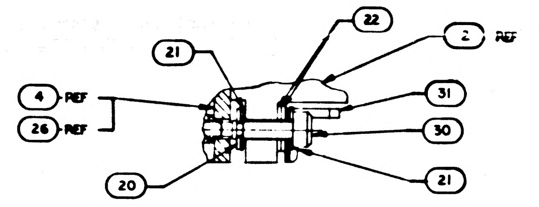
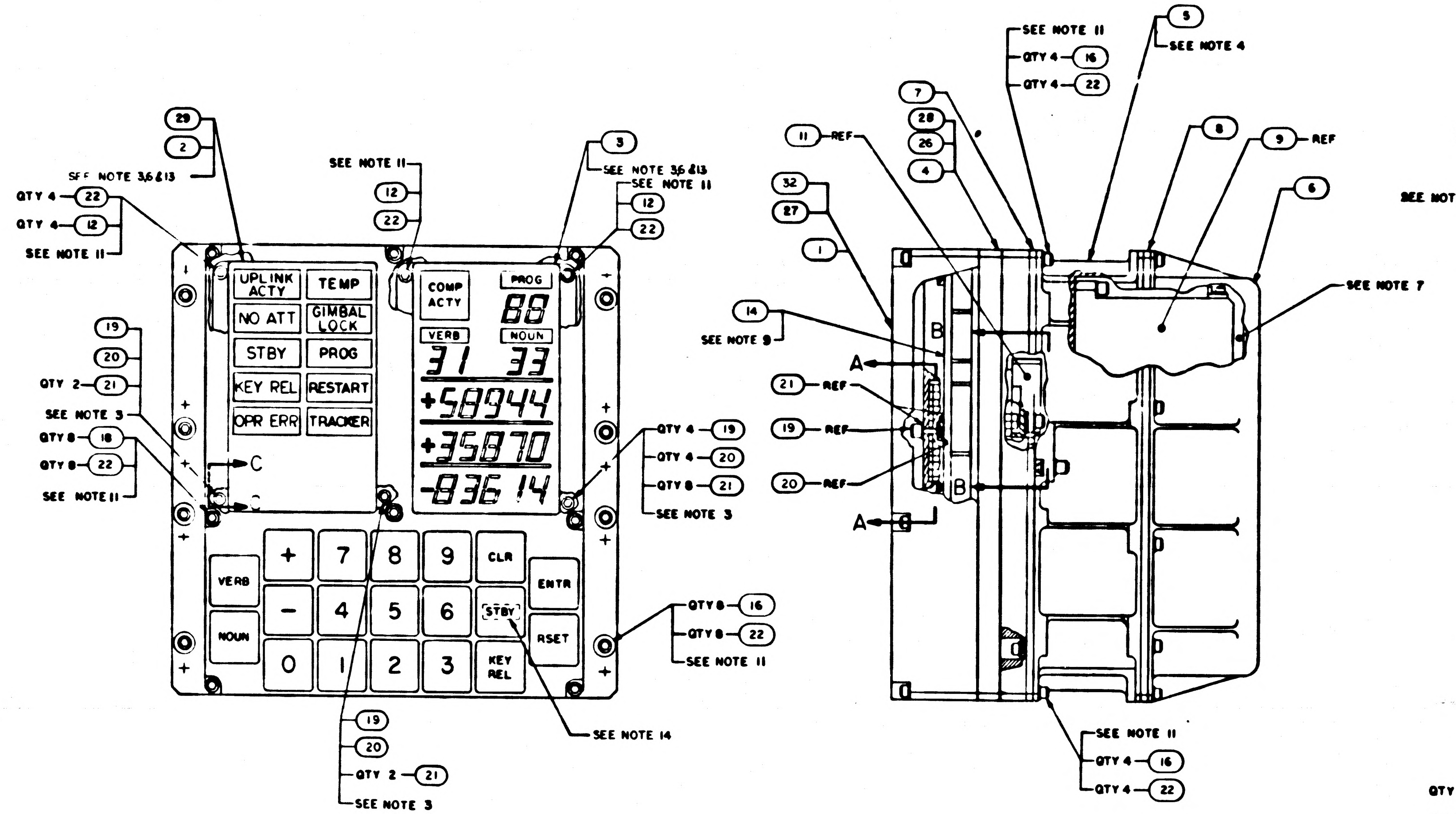
SEE NOTE 3

PARTIAL SECTION B-B


22
2 REF
21
31
30
21
4 REF
26 REF
20

SECTION C-C
NO SCALE
-041 & 051 ONLY
TYP 12 PLACES


29
2
SEE NOTE 3,6 & 13
QTY 4 22
QTY 4 12
SEE NOTE 11
SEE NOTE 11
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SEE NOTE 3,6 & 13
SEE NOTE 11
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22
UPLINK ACTY
TEMP
NO ATT
GIMBAL LOCK
STBY
PROG
KEY REL
RESTART
OPR ERR
TRACKER
COMP ACTY
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VERB
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11 REF
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9 REF
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SEE NOTE 11
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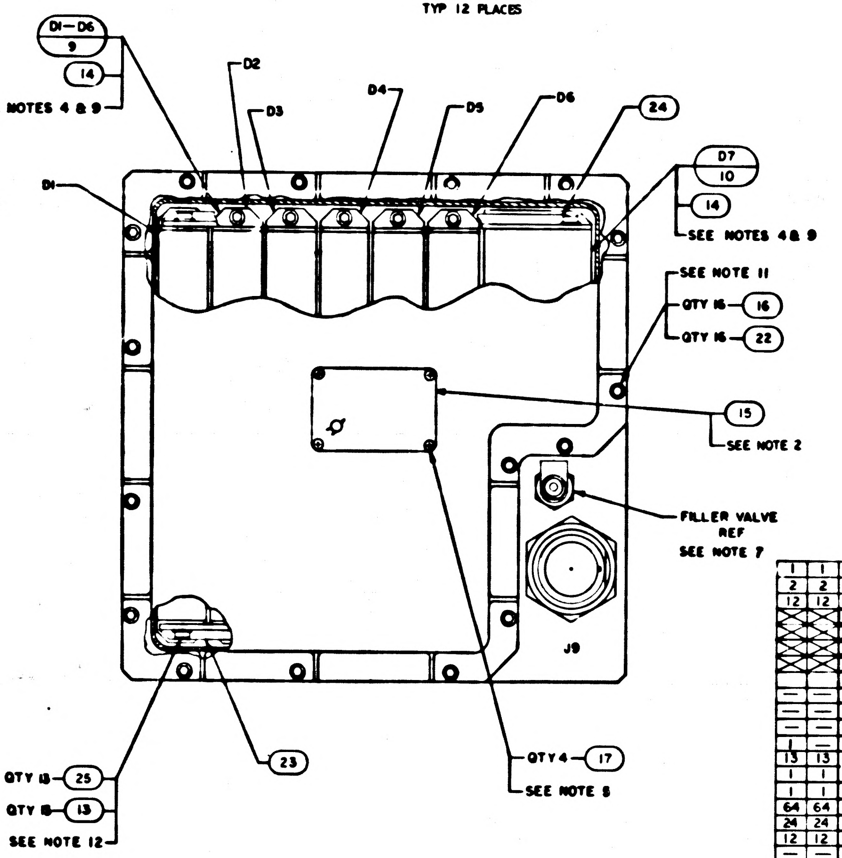
QTY 4 22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SEE NOTES 4 & 9
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D3
D4
D5
D6
24
D1
D7
10
14
SEE NOTES 4 & 9
SEE NOTE 11
QTY 16 16
QTY 16 22
15
SEE NOTE 2
FILLER VALVE
REF
SEE NOTE 7
J9
QTY 13 25
QTY 13 13
SEE NOTE 12
23
QTY 4 17
SEE NOTE 8

QTY REQD 051	QTY REQD 041	QTY REQD 031	QTY REQD 021	QTY REQD 011	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
1	1	—	—	—	2004739-001	COVER, FRONT	32
2	2	—	—	—	2003897-041	COVER ASSY	31
12	12	—	—	—	2004932-004	SCREW, JACKING	30
					2003956	OUTLINE DRAWING	REF
					2005957	SIGNAL PIN ASSIGNMENT	REF
					2005953	INTERCONNECTING DIAGRAM	REF
					2005918	SIGNAL FLOW DIAGRAM	REF
—	—	1	—	—	2003899-011	INDICATOR, ALARM & COVER ASSY	9
—	—	1	—	—	2003949-051	FRONT HOUSING ASSY	8
—	—	1	—	—	2004739-000	COVER, FRONT	[illegible]
1	—	—	1	—	2003949-031	FRONT HOUSING ASSY	26
13	13	13	13	13	NAS620C4	WASHER, FLAT	25
1	1	1	1	1	2004958	BRACKET, MODULE	24
1	1	1	1	1	2004959	BRACKET, MODULE	23
64	64	42	46	46	NAS620C6	WASHER, FLAT	22
24	24	8	12	12	1004546 4	WASHER, FLAT	21
12	12	4	6	6	MS16633-4014	RING, RETAINING	20
—	—	4	6	6	2004932-001	SCREW, JACKING	19
8	8	6	8	8	1001489-59	SCREW, HEX SOCKET HEAD	18
4	4	4	4	4	MS35216-1	SCREW, PAN HEAD, CROSS RECESSED	17
32	32	32	32	32	MS16995-18	SCREW, HEX SOCKET HEAD	16
1	1	1	1	1	1004260-20	NAMEPLATE	15
AR	AR	AR	AR	AR	1006879	SILICONE COMPOUND	14
13	13	13	13	13	MS16995-10	SCREW, HEX SOCKET HEAD	13
—	—	2	6	6	MS16995-20	SCREW, HEX. SOCKET HEAD	12
1	1	1	1	1	2003909-021	KEYBOARD MODULE ASSY D8	11
1	1	1	1	1	2003901-021	POWER SUPPLY ASSY MODULE D7	10
6	6	6	6	6	2003952-021	INDICATOR DRIVER MODULE D1-D6	9
1	1	1	1	1	1006349	GASKET, BONDED, RUBBER	8
1	1	1	1	1	1006350	GASKET, BONDED, RUBBER	7
1	1	1	1	1	2004900	COVER, REAR	6
1	1		1	1	2003955-011	MAIN HOUSING ASSY	5
—	1	—	—	1	2003949-011	FRONT HOUSING ASSY	4
1	1	1	1	1	1006315-001	INDICATOR, DIGITAL	3
1	1	—	1	1	1006387-001	INDICATOR, ALARM	2
—	—	—	1	1	2004929-021	COVER, FRONT	

LIST OF MATERIALS

DASH NO	APPLICABLE NOTES
-051	1 THRU 5, 7 THRU 12, 14
-041	1 THRU 5, 7 THRU 12, 14
-031	1 THRU 5, 7 THRU 14
-021	1 THRU 12 & 14
-011	1 THRU 12 & 14

NOTE APPLICATION

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK "AGC DSKY ASSEMBLY" AND ITS RESPECTIVE PART NO., SERIAL NO., AND CONTRACT NO. MARKING TO BE PER ND1002019 AND SERIALIZE PER ND1002023
3. MOUNTING TORQUE FOR FIND NO.19 & FIND NO.30 AND JACK SCREWS OF FIND NO. 11 & 29 TO BE 8.5-9.5 INCH POUNDS
4. MOUNTING TORQUE FOR JACK SCREWS OF FIND NO. 5, 9 & 10 TO BE 15-19 INCH POUNDS
5. APPLY SEALING COMPOUND PER 1008953-003 TO FIND NO.17
6. FILL FEMALE INSULATORS OF FIND NO.4 OR FIND NO 26 USING SILICONE COMPOUND PER 1008954 PRIOR TO ASSEMBLY OF FIND NO.2 AND FIND NO 3. FIND NO 2 AND 3 TO BE ASSEMBLED TO HEIGHT OF BONDED RUBBER OF FIND NO.4 OR FIND NO 26 USING FIND NO.19 BEFORE INSTALLING FIND NO.12
7. FILL WITH A MINIMUM OF 87% NITROGEN AND 8.7% HELIUM AND A MAXIMUM OF 4.3% AIR TO 1.05 1.10 ATMOSPHERES. DO NOT EXCEED 2 ATMOSPHERES DURING PRESSURIZATION
8. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003950
9. APPLY FIND NO. 14 TO MATING SURFACES OF FIND NO.4,9,10,26 & 28 DO NOT APPLY TO BONDED RUBBER OF FIND NO.4, 26 OR 28
10. AR DENOTES AS REQUIRED
11. MOUNTING TORQUE FOR FIND NO. 16, 18 AND 12 TO BE 6-9 INCH POUNDS
12. MOUNTING TORQUE FOR FIND NO. 18 TO BE 3.5-4.5 INCH POUNDS
13. FILL FEMALE INSULATOR OF FIND NO 28 USING SILICONE COMPOUND PER 1008954 PRIOR TO ASSEMBLY OF FIND NO.3. FIND NO.3 TO BE ASSEMBLED TO HEIGHT OF BONDED RUBBER OF FIND NO.28 USING FIND NO.19 BEFORE INSTALLING FIND NO.12. FIND NO.29 TO BE ASSEMBLED USING EXISTING JACKING SCREWS
14. THE -011 -021 -041 & -051 CONFIGURATION SHALL REFLECT A NOMENCLATURE AS SHOWN, THE -031 CONFIGURATION SHALL REFLECT "PRO" IN KEY POSITION INDICATED.

NEXT ASSY	USED ON	APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

AGC DSKY ASSEMBLY

CODE IDENT NO	SIZE	NASA DRAWING NO
80230	J	2003950
SCALE 1/1	WT	SHEET 1 OF 1

2003950 G

ZONE	REV	DESCRIPTION	DATE	APPROVAL
	A	REVISED PER TDRR 27551 DR CHK APPD		
	B	REVISED PER TDRR 28178 DR CHK APPD		
	C	REVISED PER TDRR 34492 DR CHK APPD		
	D	REVISED PER TDRR [illegible] DR CHK [illegible]		
	E	REVISED PER TDRR 36015 DR CHK		
	F	REVISED PER TDRR [illegible] DR CHK [illegible]		
	G	REVISED PER TDRR 36655 DR CHK ENG		
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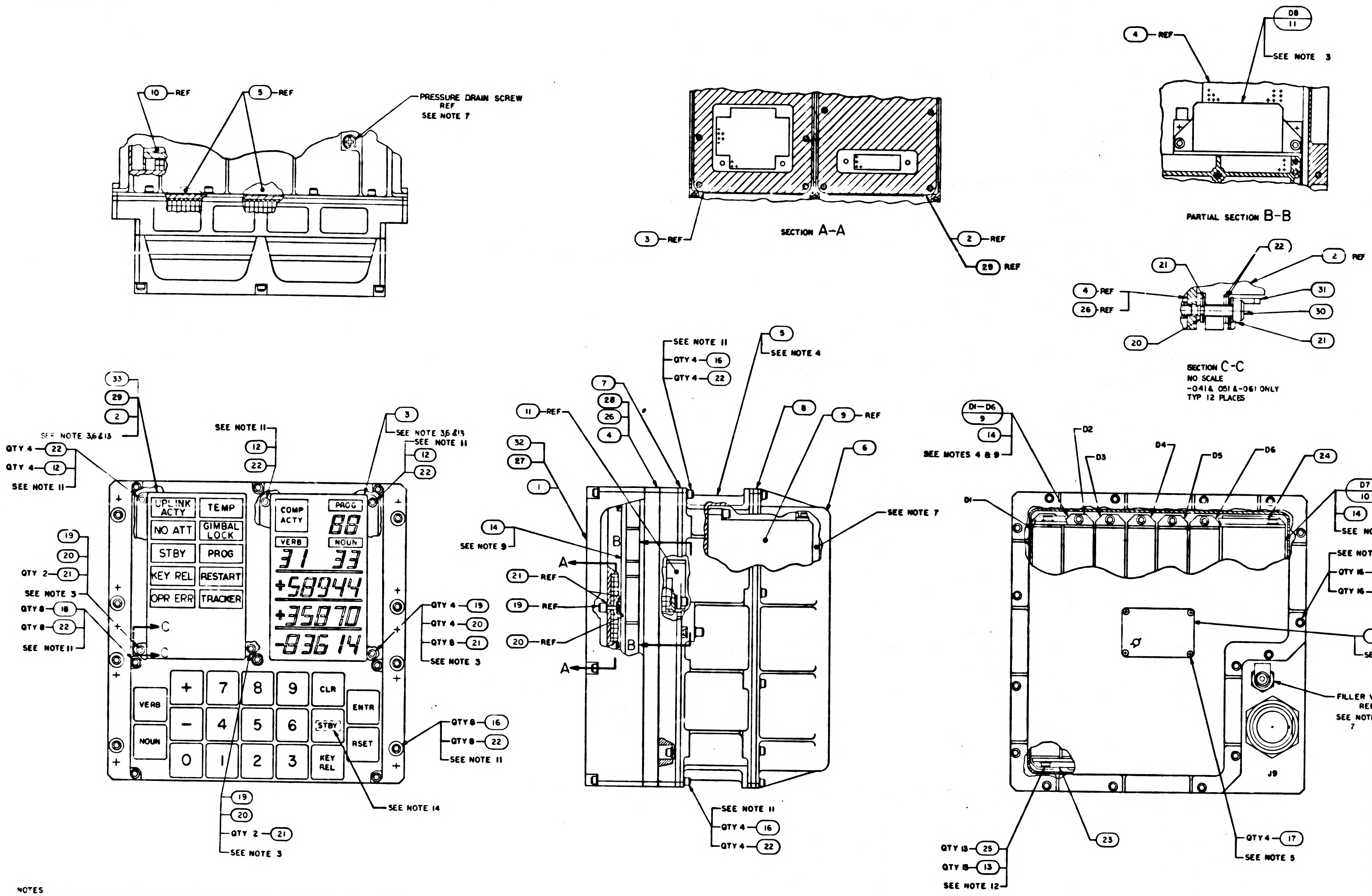

10 REF
5 REF
PRESSURE DRAIN SCREW REF SEE NOTE 7
3 REF
SECTION A-A
2 REF
29 REF
4 REF
D8 11
SEE NOTE 3
PARTIAL SECTION B-B
22
2 REF
21
31
4 REF
26 REF
30
20
21
SECTION C-C
NO SCALE
-041& 051 &-061 ONLY
TYP 12 PLACES
33
29
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SEE NOTE 3,6 & 13
QTY 4 22
QTY 4 12
SEE NOTE 11
SEE NOTE 11
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SEE NOTE 3,6 & 13
SEE NOTE 11
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UPLINK ACTY
TEMP
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RESTART
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SEE NOTE 7
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D1-D6
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SEE NOTES 4 & 9
SEE NOTE 11
QTY 16 16
QTY 16 22
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SEE NOTE 2
FILLER VALVE REF
SEE NOTE 7
J9
QTY 13 25
QTY 13 13
SEE NOTE 12
23
QTY 4 17
SEE NOTE 5

NOTES

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4. MOUNTING TORQUE FOR JACK SCREWS OF FIND NO. 5, 9 & 10 TO BE 15-19 INCH POUNDS
5. APPLY SEALING COMPOUND PER 1008953-003 TO FIND NO.17
6. FILL FEMALE INSULATORS OF FIND NO.4 OR FIND NO 26 USING SILICONE COMPOUND PER 1008954 PRIOR TO ASSEMBLY OF FIND NO.2 AND FIND NO.3. FIND NO.2 AND 3 TO BE ASSEMBLED TO HEIGHT OF BONDED RUBBER OF FIND NO.4 OR FIND NO. 26 USING FIND NO.19 BEFORE INSTALLING FIND NO.12
7. FILL WITH A MINIMUM OF 87% NITROGEN AND 8.7% HELIUM AND A MAXIMUM OF 4.3% AIR TO 1.05/1.10 ATMOSPHERES. DO NOT EXCEED 2 ATMOSPHERES DURING PRESSURIZATION
8. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003950
9. APPLY FIND NO. 14 TO MATING SURFACES OF FIND NO.4,9,10,26 & 28 DO NOT APPLY TO BONDED RUBBER OF FIND NO.4,26 OR 28
10. AR DENOTES AS REQUIRED
11. MOUNTING TORQUE FOR FIND NO. 16,18 AND 12 TO BE 8-9 INCH POUNDS
12. MOUNTING TORQUE FOR FIND NO. 18 TO BE 3.5-4.5 INCH POUNDS
13. FILL FEMALE INSULATOR OF FIND NO 28 USING SILICONE COMPOUND PER 1008954 PRIOR TO ASSEMBLY OF FIND NO.3. FIND NO 3 TO BE ASSEMBLED TO HEIGHT OF BONDED RUBBER OF FIND NO. 28 USING FIND NO.19 BEFORE INSTALLING FIND NO.12. FIND NO.29 TO BE ASSEMBLED USING EXISTING JACKING SCREWS
14. THE-011 -021 [illegible] CONFIGURATION SHALL REFLECT A NOMENCLATURE AS SHOWN, THE -031 & 061 CONFIGURATION SHALL REFLECT "PROG" IN KEY POSITION INDICATED.
15. FIND NO 33 TO BE EITHER 1006387-002 OR 1006387-003

DASH NO	APPLICABLE NOTES
-061	1 THRU 5 7 THRU 14,15
-051	1 THRU 5, 7 THRU 12,14
-041	1 THRU 5, 7 THRU 12,14
-031	1 THRU 5. 7 THRU 14
-021	1 THRU 12 & 14
-011	1 THRU 12 & 14

NOTE APPLICATION

QTY REQD -061	QTY REQD -051	QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
1	—	—	—	—	—	SEE NOTE 15	INDICATOR ALARM	33
1	1	1	—	—	—	2004739-001	COVER, FRONT	32
2	2	2	—	—	—	2003897-041	COVER ASSY	31
12	12	12	—	—	—	2004932-004	SCREW, JACKING	30
☒	☒	☒	☒	☒	☒	2003956	OUTLINE DRAWING	REF
☒	☒	☒	☒	☒	☒	2005957	SIGNAL PIN ASSIGNMENT	REF
☒	☒	☒	☒	☒	☒	2005953	INTERCONNECTING DIAGRAM	REF
☒	☒	☒	☒	☒	☒	2005918	SIGNAL FLOW DIAGRAM	REF
—	—	—	1	—	—	2003899-011	INDICATOR, ALARM & COVER ASSY	29
1	—	—	1	—	—	2003949-051	FRONT HOUSING ASSY	28
—	—	—	1	—	—	2004739-000	COVER, FRONT	27
—	1	—	—	1	—	2003949-031	FRONT HOUSING ASSY	26
13	13	13	13	13	13	NAS620C4	WASHER, FLAT	25
1	1	1	1	1	1	2004958	BRACKET, MODULE	24
1	1	1	1	1	1	2004959	BRACKET, MODULE	23
64	64	64	42	46	46	NAS620C6	WASHER, FLAT	22
24	24	24	8	12	12	1004546-4	WASHER, FLAT	21
12	12	12	4	6	6	MS16633-4014	RING, RETAINING	20
—	—	—	4	6	6	2004932-001	SCREW, JACKING	19
8	8	8	8	8	8	1001489-59	SCREW, HEX SOCKET HEAD	18
4	4	4	4	4	4	MS35216-1	SCREW, PAN HEAD, CROSS RECESSED	17
32	32	32	32	32	32	MS16995-18	SCREW, HEX SOCKET HEAD	16
1	1	1	1	1	1	1004260-20	NAMEPLATE	15
AR	AR	AR	AR	AR	AR	1006879	SILICONE COMPOUND	14
13	13	13	13	13	13	MS16995-10	SCREW, HEX SOCKET HEAD	13
—	—	—	2	6	6	MS16995-20	SCREW, HEX, SOCKET HEAD	12
1	1	1		1	1	2003909-021	KEYBOARD MODULE ASSY D8	11
1	1	1	1	1	1	2003901-021	POWER SUPPLY ASSY MODULE D7	10
6	6	6	6	6	6	2003952-021	INDICATOR DRIVER MODULE D1-D6	9
1	1	1	1	1	1	1006349	GASKET, BONDED, RUBBER	8
1	1	1	1	1	1	1006350	GASKET, BONDED, RUBBER	7
1	1	1		1	1	2004900	COVER, REAR	6
1	1	1		1	1	2003955-011	MAIN HOUSING ASSY	5
—	—	1	—	—	1	2003949-011	FRONT HOUSING ASSY	4
1	1	1	1	1	1	1006315-001	INDICATOR, DIGITAL	3
—	1	1	—	1	1	1006387-001	INDICATOR, ALARM	2
—	—	—	—	1	1	2004929-021	COVER, FRONT	

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN DATE 20 DEC 65
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

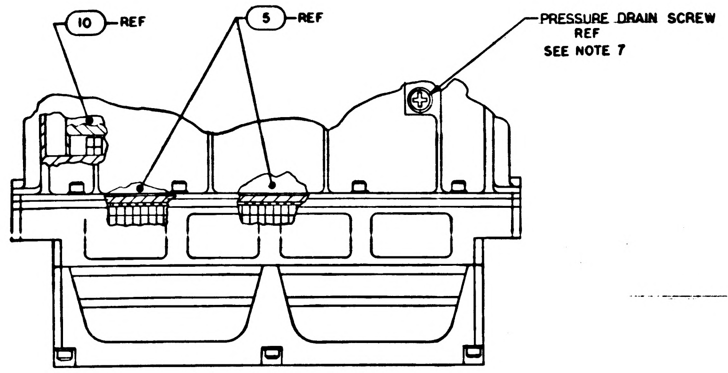
MANNED SPACECRAFT CENTER
HOUSTON TEXAS

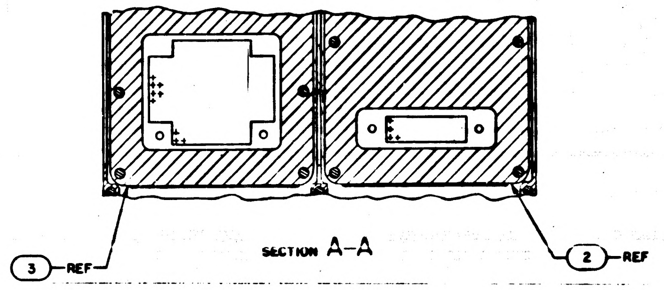
AGC DSKY ASSEMBLY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO 2003950
SCALE 1/1
WT
SHEET 1 OF 1

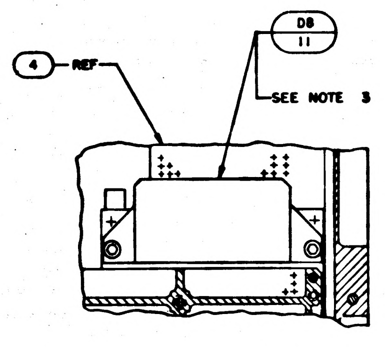
2003950 —

	REVISIONS 26205		
SYM	DESCRIPTION	DATE	APPROVAL


10 REF
5 REF
PRESSURE DRAIN SCREW
REF
SEE NOTE 7



SECTION A-A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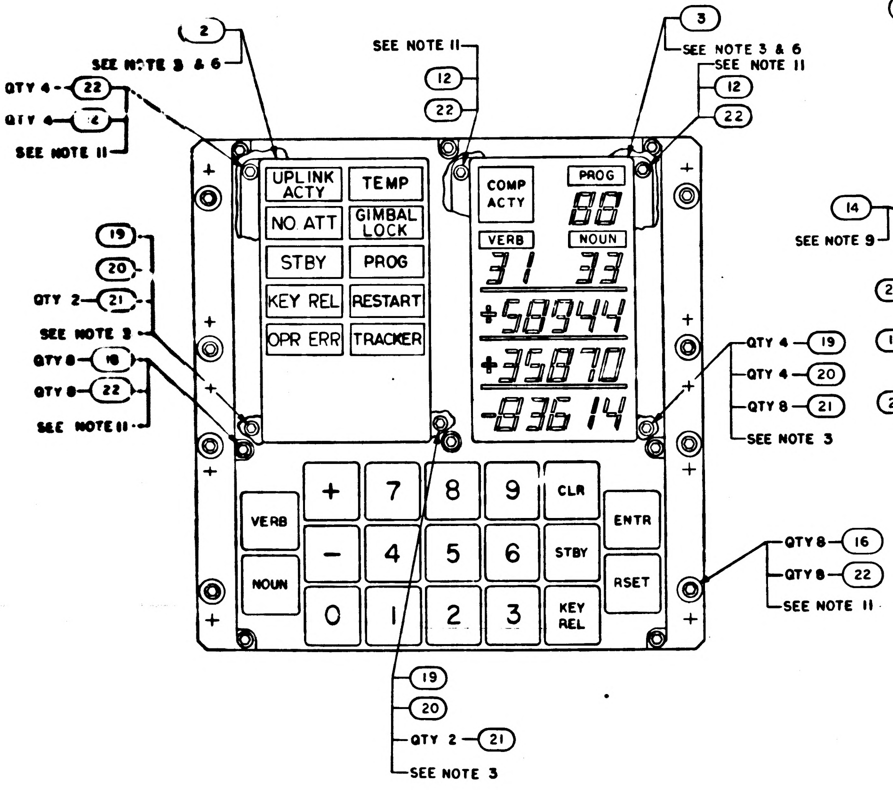
D8
11
SEE NOTE 3

PARTIAL SECTION B-B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SEE NOTE 3 & 6
QTY 4 22
QTY 4 14
SEE NOTE 11
SEE NOTE 11
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22
3
SEE NOTE 3 & 6
SEE NOTE 11
12
22
UPLINK ACTY
TEMP
NO ATT
GIMBAL LOCK
STBY
PROG
KEY REL
RESTART
OPR ERR
TRACKER
COMP ACTY
PROG
88
VERB
NOUN
31 33
+58344
+35870
-83614
19
20
QTY 2 21
SEE NOTE 3
QTY 8 18
QTY 8 22
SEE NOTE 11
QTY 4 19
QTY 4 20
QTY 8 21
SEE NOTE 3
+
7
8
9
CLR
VERB
ENTR
−
4
5
6
STBY
NOUN
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KEY REL
QTY 8 16
QTY 8 22
SEE NOTE 11
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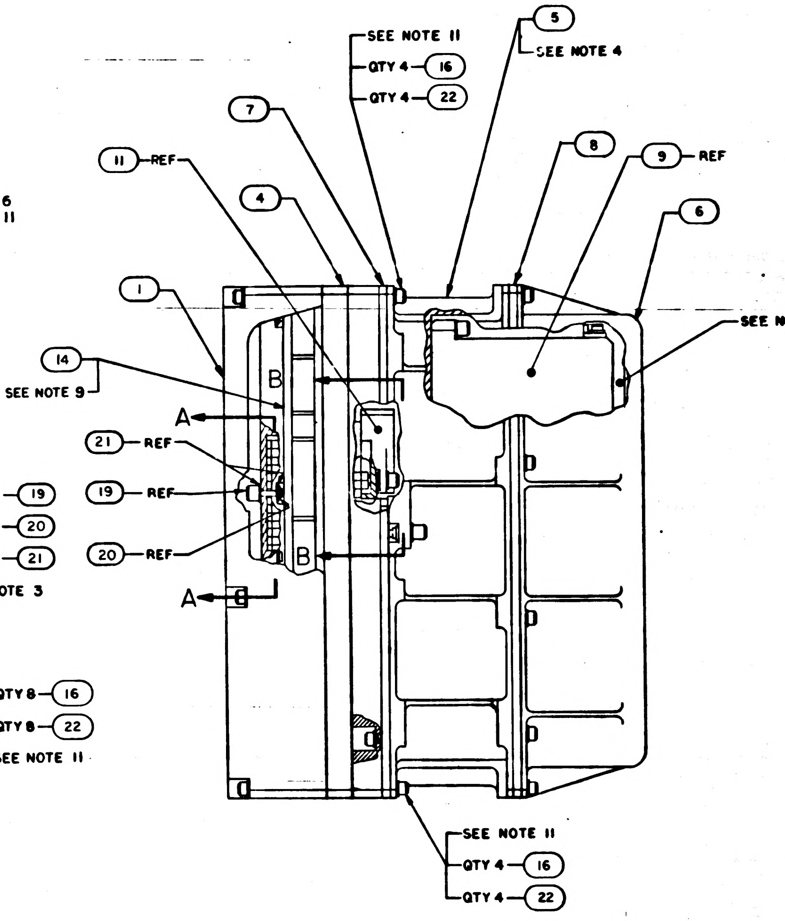
20
QTY 2 21
SEE NOTE 3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QTY 4 16
QTY 4 22
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11 REF
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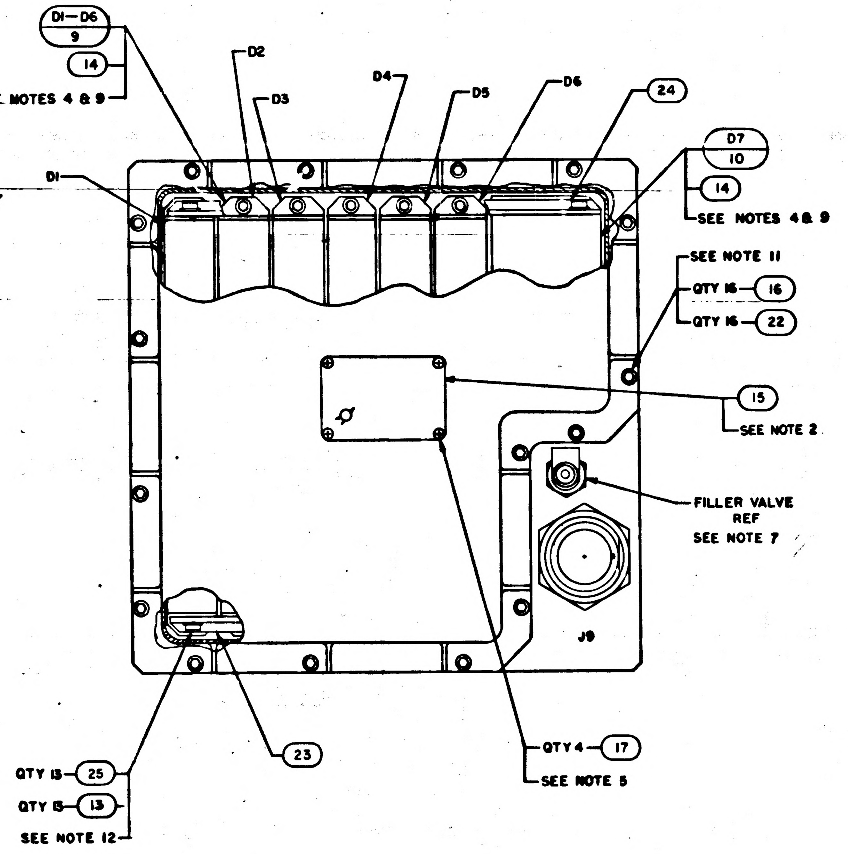
QTY 4 22


D1-D6
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14
SEE NOTES 4 & 9
D2
D3
D4
D5
D6
24
D7
10
14
SEE NOTES 4 & 9
D1
SEE NOTE 11
QTY 16 16
QTY 16 22
15
SEE NOTE 2
FILLER VALVE
REF
SEE NOTE 7
J9
23
QTY 4 17
SEE NOTE 5
QTY 13 25
QTY 13 13
SEE NOTE 12

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK "AGC DSKY ASSEMBLY" AND ITS RESPECTIVE PART NO., SERIAL NO., AND CONTRACT NO. MARKING TO BE PER ND1002019 AND SERIALIZE PER ND1002023
3. MOUNTING TORQUE FOR FIND NO. 19 AND JACK SCREWS OF FIND NO. 11 TO BE 8.5-9.5 INCH POUNDS
4. MOUNTING TORQUE FOR JACK SCREWS OF FIND NO. 5, 9 & 10 TO BE 15-19 INCH POUNDS
5. APPLY SEALING COMPOUND MIL-S-22473 GRADE HV TO FIND NO. 17
6. FIND NO. 2 AND 3 TO BE ASSEMBLED TO HEIGHT OF BONDED RUBBER OF FIND NO. 4 USING FIND NO. 19. BEFORE INSTALLING FIND NO. 12. ASSEMBLE IN AN ENVIRONMENT HAVING A TEMPERATURE OF 72° ±5° AND A RELATIVE HUMIDITY OF 50% OR LESS
7. FILL WITH A MINIMUM OF 87% NITROGEN AND 8.7% HELIUM AND A MAXIMUM OF 4.3% AIR TO 1.05/1.10 ATMOSPHERES. DO NOT EXCEED 2 ATMOSPHERES DURING PRESSURIZATION
8. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003950
9. APPLY FIND NO. 14 TO MATING SURFACES OF FIND NO. 4, 9 AND 10 DO NOT APPLY TO BONDED RUBBER OF FIND NO. 4,
10. AR DENOTES AS REQUIRED
11. MOUNTING TORQUE FOR FIND NO. 16, 18 AND 12 TO BE 8-9 INCH POUNDS
12. MOUNTING TORQUE FOR FIND NO. 13 TO BE 3.5-4.5 INCH POUNDS

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2003956	OUTLINE DRAWING	REF
☒	2005957	SIGNAL PIN ASSIGNMENT	REF
☒	2005953	INTERCONNECTING DIAGRAM	REF
☒	2005918	SIGNAL FLOW DIAGRAM	REF
13	NAS620C4	WASHER, FLAT	25
1	2004958	BRACKET, MODULE	24
1	2004959	BRACKET, MODULE	23
46	NAS620C6	WASHER, FLAT	22
12	1004546-4	WASHER, FLAT	21
6	MS16633-4014	RING, RETAINING	20
6	2004732-001	SCREW, JACKING	19
8	1001489-59	SCREW, HEX SOCKET HEAD	18
4	MS35216-1	SCREW, PAN HEAD, CROSS RECESSED	17
32	MS16995-18	SCREW, HEX, SOCKET HEAD	16
1	1004260-20	NAMEPLATE	15
AR	1006879	SILICONE COMPOUND	14
13	MS16995-10	SCREW, HEX SOCKET HEAD	13
6	MS16995-20	SCREW, HEX, SOCKET HEAD	12
1	2003909-011	KEYBOARD MODULE ASSY D8	11
1	2003901-011	POWER SUPPLY ASSY MODULE D7	10
6	2003952-011	INDICATOR DRIVER MODULE D1-D6	9
1	1006349	GASKET, BONDED, RUBBER	8
1	1006350	GASKET, BONDED, RUBBER	7
1	2004900	COVER, REAR	6
1	2003955-011	MAIN HOUSING ASSY	5
1	2003949-011	FRONT HOUSING ASSY	4
1	1006315	INDICATOR, DIGITAL	3
1	1006387	INDICATOR, ALARM	2
1	2004929-011	COVER, FRONT	1
011	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN DATE
CHECKED 3 FEB 66
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC DSKY ASSEMBLY

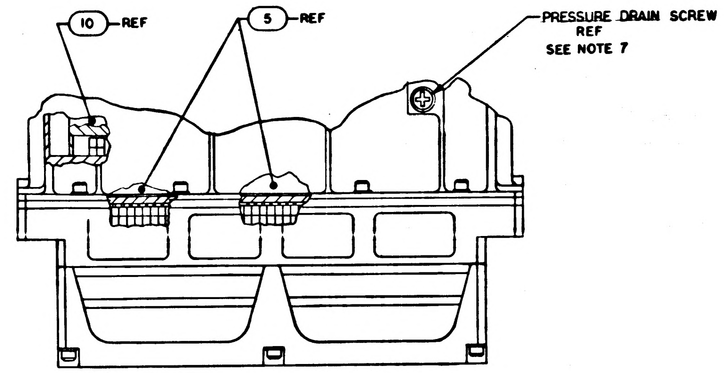
CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	J	2003950
SCALE 1/1	WT	SHEET 1 OF 1

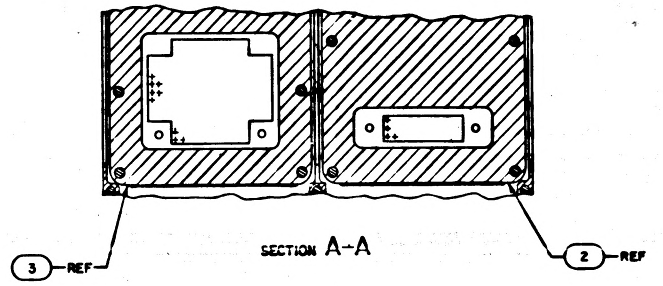
2003950 —

2H

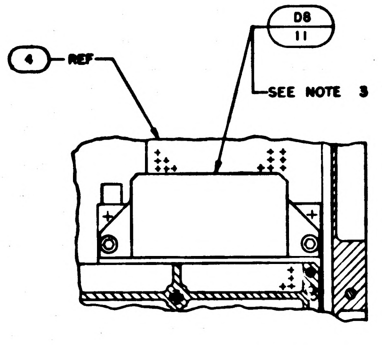
MASTER

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

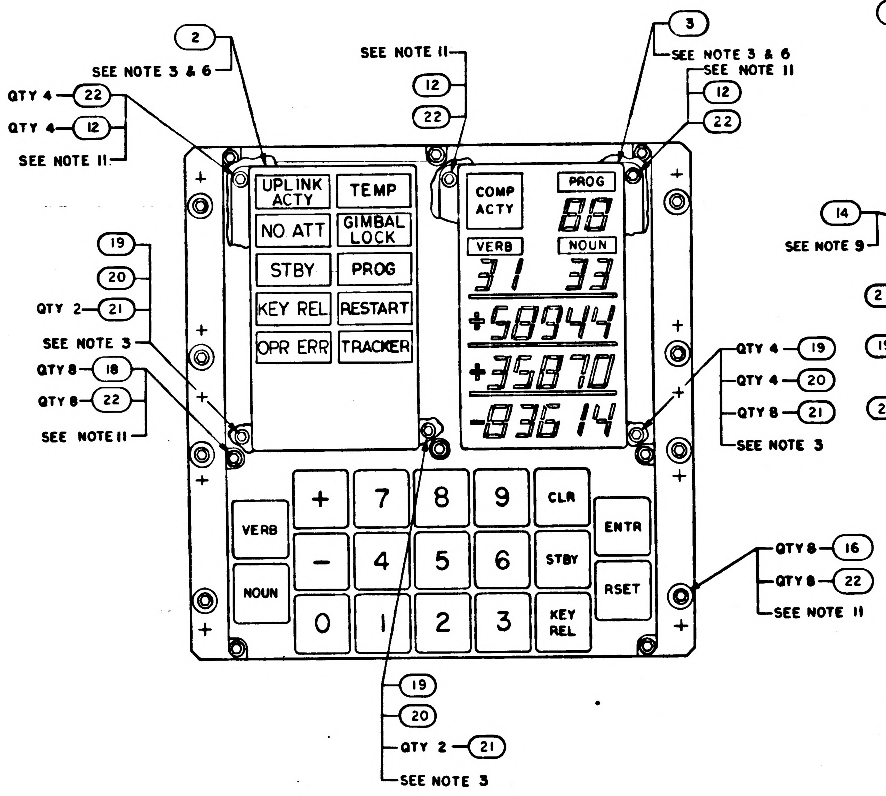

10 — REF
5 — REF
PRESSURE DRAIN SCREW
REF
SEE NOTE 7



SECTION A-A


4 — REF
D8
11
SEE NOTE 3

PARTIAL SECTION B-B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SEE NOTE 3 & 6
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SEE NOTE 11
SEE NOTE 11
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22
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SEE NOTE 3 & 6
SEE NOTE 11
12
22
UPLINK ACTY
TEMP
NO ATT
GIMBAL LOCK
STBY
PROG
KEY REL
RESTART
OPR ERR
TRACKER
COMP ACTY
PROG
88
VERB
NOUN
31 33
+58944
+35870
-83614
19
20
QTY 2 — 21
SEE NOTE 3
QTY 8 — 18
QTY 8 — 22
SEE NOTE 11
QTY 4 — 19
QTY 4 — 20
QTY 8 — 21
SEE NOTE 3
+ 7 8 9 CLR
VERB
ENTR
− 4 5 6 STBY
NOUN
RSET
0 1 2 3 KEY REL
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QTY 8 — 22
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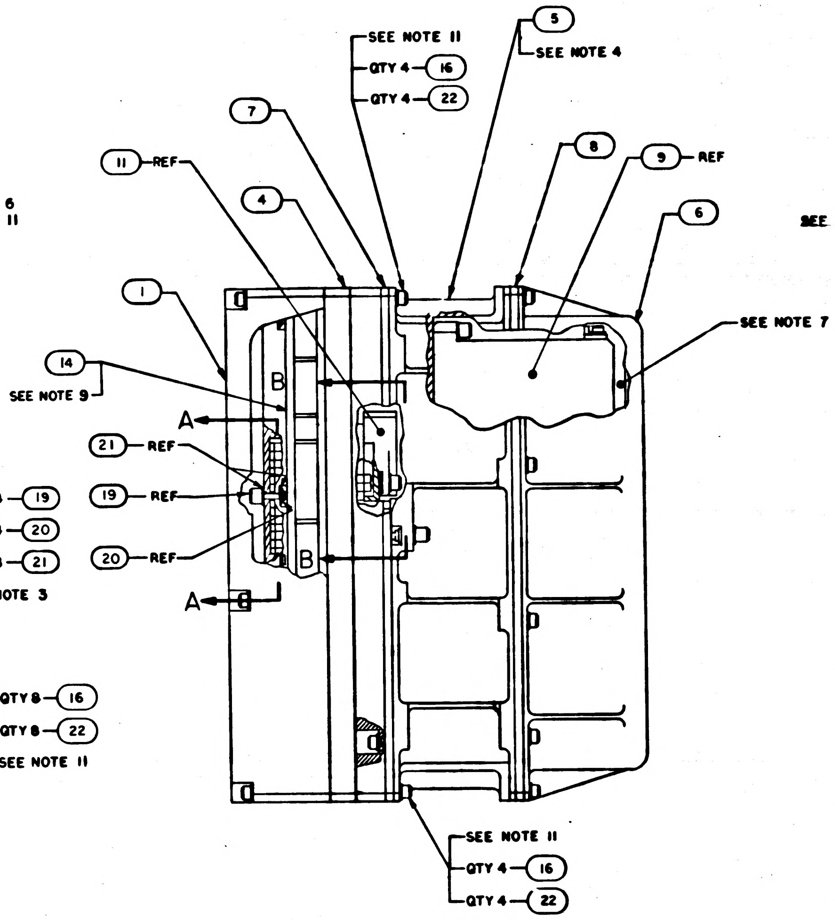
QTY 2 — 21
SEE NOTE 3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11 — REF
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SEE NOTE 9
21 — REF
19 — REF
20 — REF
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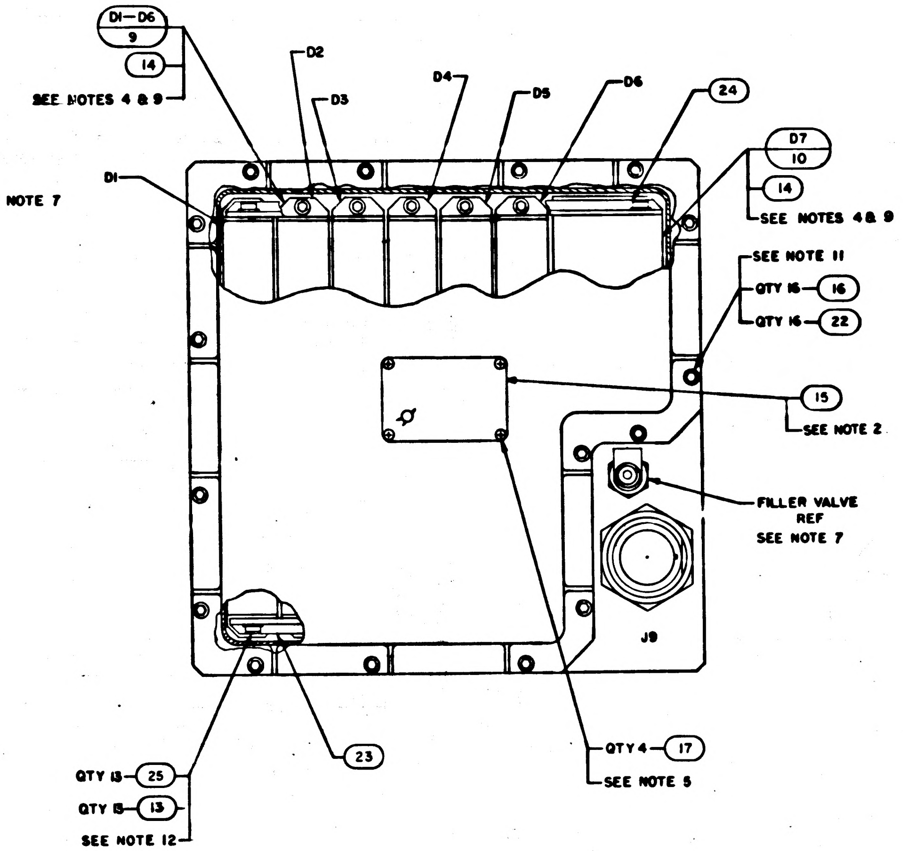
SEE NOTE 11
QTY 4 — 16
QTY 4 — 22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14
SEE NOTES 4 & 9
D1
D2
D3
D4
D5
D6
24
D7
10
14
SEE NOTES 4 & 9
SEE NOTE 11
QTY 16 — 16
QTY 16 — 22
15
SEE NOTE 2
FILLER VALVE
REF
SEE NOTE 7
J9
23
QTY 4 — 17
SEE NOTE 5
QTY 13 — 25
QTY 13 — 13
SEE NOTE 12

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK "AGC DSKY ASSEMBLY" AND ITS RESPECTIVE PART NO., SERIAL NO., AND CONTRACT NO. MARKING TO BE PER ND1002019 AND SERIALIZE PER ND1002023
3. MOUNTING TORQUE FOR FIND NO. 19 AND JACK SCREWS OF FIND NO. 11 TO BE 8.5-9.5 INCH POUNDS
4. MOUNTING TORQUE FOR JACK SCREWS OF FIND NO. 5, 9 & 10 TO BE 15-19 INCH POUNDS
5. APPLY SEALING COMPOUND MIL-S-22473 GRADE HV TO FIND NO. 17
6. FIND NO. 2 AND 3 TO BE ASSEMBLED TO HEIGHT OF BONDED RUBBER OF FIND NO. 4 USING FIND NO. 19. BEFORE INSTALLING FIND NO. 12. ASSEMBLE IN AN ENVIRONMENT HAVING A TEMPERATURE OF 72° ±5° AND A RELATIVE HUMIDITY OF 50% OR LESS
7. FILL WITH A MINIMUM OF 87% NITROGEN AND 8.7% HELIUM AND A MAXIMUM OF 4.3% AIR TO 1.05/1.10 ATMOSPHERES. DO NOT EXCEED 2 ATMOSPHERES DURING PRESSURIZATION
8. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003950
9. APPLY FIND NO. 14 TO MATING SURFACES OF FIND NO. 4, 9 AND 10 DO NOT APPLY TO BONDED RUBBER OF FIND NO. 4,
10. AR DENOTES AS REQUIRED
11. MOUNTING TORQUE FOR FIND NO. 16, 18 AND 12 TO BE 8-9 INCH POUNDS
12. MOUNTING TORQUE FOR FIND NO. 13 TO BE 3.5-4.5 INCH POUNDS

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
☒	2003956	OUTLINE DRAWING
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☒	2005953	INTERCONNECTING DIAGRAM
☒	2005918	SIGNAL FLOW DIAGRAM
13	NAS620C4	WASHER, FLAT
1	2004958	BRACKET, MODULE
1	2004959	BRACKET, MODULE
46	NAS620C6	WASHER, FLAT
12	1004546-4	WASHER, FLAT
6	MS16633-4014	RING, RETAINING
6	2004932-001	SCREW, JACKING
8	1001489-59	SCREW, HEX SOCKET HEAD
4	MS35216-1	SCREW, PAN HEAD, CROSS RECESSED
32	MS16995-18	SCREW, HEX SOCKET HEAD
1	1004260-20	NAMEPLATE
AR	1006879	SILICONE COMPOUND
13	MS16995-10	SCREW, HEX SOCKET HEAD
6	MS16995-20	SCREW, HEX, SOCKET HEAD
1	2003909-011	KEYBOARD MODULE ASSY D8
1	2003901-011	POWER SUPPLY ASSY MODULE D7
6	2003952-011	INDICATOR DRIVER MODULE D1-D6
1	1006349	GASKET, BONDED, RUBBER
1	1006350	GASKET, BONDED, RUBBER
1	2004900	COVER, REAR
1	2003955-011	MAIN HOUSING ASSY
1	2003949-011	FRONT HOUSING ASSY
1	1006315	INDICATOR, DIGITAL
1	1006387	INDICATOR, ALARM
1	2004929-011	COVER, FRONT
011	LIST OF MATERIALS	

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS - DECIMALS ± ANGLES -
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN A. S. DATE 20 DEC 65
CHECKED SC 3 FEB 66
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

AGC DSKY ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003950
SCALE 1/1
WT
SHEET 1 OF

MASTER

3.1.13 Numerical Electroluminescent Indicators. With the 10K potentiometer (ref. paragraph 3.1.4) set to maximum resistance, and the appropriate RLYWD and RLYBT combinations of logic "ones" and "zeros" applied as specified in Tables 3-4 and 3-5, the corresponding Noun, Verb, and Program legend numerical characters and the numerical characters of all registers shall be illuminated at 10-18 Foot-Lamberts.

TABLE 3-4

RLYWD				RLYBT										
Word Bits				Sign Bit	Character 2 Bits					Character 1 Bits				
16	14	13	12	11	10	9	8	7	6	5	4	3	2	1
DSKY INPUT PINS														
68	43	24	11	12	67	42	23	10	3	66	41	22	9	2
1	0	1	1		← PROGRAM CHAR 2 →					← PROGRAM CHAR			1 →	
1	0	1	0		← VERB CHAR 2 →					← VERB CHAR			1 →	
1	0	0	1		← NOUN CHAR 2 →					← NOUN CHAR			1 →	
1	0	0	0							← REG 1 CHAR			5 →	
0	1	1	1	R1(+)	← REG 1 CHAR 4 →					← REG 1 CHAR			3 →	
0	1	1	0	R1(-)	← REG 1 CHAR 2 →					← REG 1 CHAR			1 →	
0	1	0	1	R2(+)	← REG 2 CHAR 5 →					← REG 2 CHAR			4 →	
0	1	0	0	R2(-)	← REG 2 CHAR 3 →					← REG 2 CHAR			2 →	
0	0	1	1		← REG 2 CHAR 1 →					← REG 3 CHAR			5 →	
0	0	1	0	R3(+)	← REG 3 CHAR 4 →					← REG 3 CHAR			3 →	
0	0	0	1	R3(-)	← REG 3 CHAR 2 →					← REG 3 CHAR			1 →	

3.1.13.1 With the numerical electroluminescent characters programmed for 8's (ref. Tables 3-4 and 3-5) and the 10K ohm potentiometer set to minimum resistance all numerical electroluminescent indicators shall be OFF.

APOLLO G&N Specification
PS 2003950 **Rev.** -
Original Issue Date: 5-11-66
Release Authority: TDRR 28742
Class Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

DISPLAY AND KEYBOARD ASSEMBLY

DRAWING NO. 2003950

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA

This specification consists of pages 1 **to** 17**inclusive.**

APPROVALS	**A. C. METZGER** **NASA/MSC**	CC Hall 5/11/66 5-11-66 **MIT/IL**	4/22/66 4/26/66 **RAY**

1. SCOPE

1.1 This specification establishes the detail requirements for complete identification and acceptance of the Display and Keyboard Assembly Part No. 2003950-011.

2. APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein.

2.1 Effective Issues. Unless otherwise specified herein, Military and Government Standards and specifications shall be the issue in effect on the date of request for proposal or invitation to bid.

SPECIFICATIONS

APOLLO G&N

ND 1002214	General Specification for Preservation, Packaging, Packing and Container Marking of APOLLO Guidance and Navigation Major Assemblies, Assemblies, Subassemblies, Parts and Associated Ground Support Equipment.

DRAWINGS

APOLLO G&N

2003950	DISPLAY AND KEYBOARD ASSEMBLY

(Copies of Specifications, Standards, Drawings, Bulletins and Publications required by suppliers in connection with specific procurement functions should be obtained from the Procuring Activity or as directed by the Contracting Officer).

2.2 Conflicting Requirements. In the event of conflict between the requirements of the contract, this Specification and the documents listed in this section, the following order of precendence shall apply and the contractor shall notify MIT Apollo Management of the conflict as soon as it is determined.

a. The contract
b. This Specification
c. Documents listed in this section

3.1.4 Legend Illumination. With a 10K ohm potentiometer, connected between pins 4 and 5 of J9, varied from minimum to maximum resistance the brightness of the legends (Noun, Verb, Program, and the horizontal bars above each register) shall vary from OFF to 10-18 Foot-Lamberts.

3.1.5 Keyboard Illumination. With the 115 VRMS supply set to 115 ± 5 VRMS for one minute and then reduced to 75.0 ± 1.5 VRMS, the Keyboard keys shall be illuminated at 0.5 ± 0.3 Foot-Lamberts.

3.1.6 Keyboard Outputs. With each Keyboard key depressed individually, the outputs monitored at the output pins listed in Table 3-1 shall be logic "ones" and "zeros" as indicated in Table 3-1.

3.1.6.1 Logic One. A logic one shall be the equivalent of the 28 VDC supply applied thru a 1.0K ohm series resistance and a series diode.

3.1.6.2 Logic Zero. A logic zero shall be equivalent to an open circuit (no output).

3.1.7 Incandescent Indicators. To insure that the incandescent indicators and their associated latching relays are OFF, a logic input as specified below shall be applied to the pins of J9 as listed below:

Pins of J9	68	43	24	11	12	67	42	23	10	3	66	41	22	9	2
Logic Input	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0

3.1.7.1 Logic One. A logic one shall be generated from a source of 4K ohms ± 5% returned to not more than 0.4 Volts for 9.5 ± 0.3 msec.

3.1.7.2 Logic Zero. A logic zero shall be generated from a source of 680K ohms ± 5% to ground (0 VDC).

3.1.8 Flashing Alarm Characters. With the flashing timing pulse applied to pins 46 and 72 of J9, the alarm indicators KEY REL and OPR ERR shall flash.

3.1.8.1 Flasher Timing Pulse. The Flasher Timing Pulse applied to the assembly shall be generated from a source having the following characteristics:

a. High Level	680K ohms ± 5% to ground (0 VDC)
b. Low Level	4K ohms ± 5% returned to not more than 0.4V
c. Frequency	1.5 ± 0.3 cps
d. Duty Cycle	approximately 50% (for reference only)

3.1.9 Flashing Noun Characters. With the Flasher Timing Pulse specified in paragraph 3.1.8.1 applied to pin 70 of J9 and the Noun numerical characters programmed for 8's (ref. Tables 3-4 and 3-5), the numerical characters shall flash.

3.1.11 Status and Caution Indicators. With a logic "one" applied to an input pin of J9 as specified in Table 3-2 and the input voltage set to 5.0 ± 0.1 VDC the corresponding status or caution indicator shall be illuminated at 15 ∓ 3 Foot - Lamberts. The exception shall be the COMP ACTY indicator, which shall be illuminated at 10 - 18 Foot - Lamberts with the 10K ohm potentiometer (ref paragraph 3.1.4) set to maximum resistance. Also a contact closure shall exist between pins of J9 as specified in Table 3-2.

TABLE 3-2

Logic Input	J9 Input Pin	Indicator Illuminated	Indicator Color (reference only)	Contact Closure Between pins of J9
1	47	UPLINK ACTY	White	
1	25	STBY	White	58 and 35
1	71	TEMP	Yellow	57 and 31
1	44	RESTART	Yellow	57 and 31
1	26	COMP ACTY	Green*	
1	69			37 and 61
1	46	KEY REL	White	
1	18			36 and 60
1	45			55 and 84
1	45			15 and 32
1	27			80 and 81
1	27			57 and 83
1	72	OPR ERR	White	
0	44			31 and 53
0	18			36 and 85
0	45			57 and 84
0	45			14 and 32
0	69			19 and 37
0	27			54 and 83
0	27			82 and 81
0	25			59 and 35

*Electroluminescent indicator

3.1.11.1 Logic Zero Input. With a logic "zero" applied to an input pin of J9 as specified in Table 3-2, contact closure shall exist between pins of J9 as specified in Table 3-2.

3.1.11.2 Logic One and Zero. The logic "ones" and "zeros" referenced in this section shall be as specified in sections 3.1.7.1 and 3.1.7.2.

3.1.12 Isolated Relay Indicators. When programmed for RLYWD 12, and a logic "one" applied to an input pin of J9 as specified in Table 3-3, the corresponding isolated relay indicator shall be illuminated at 15 ± 3 Foot - Lamberts. Also contact closure shall exist between pins of J9 as specified in Table 3-3.

3.1.12.1 Logic Zero Input. With a logic "zero" applied to an input pin of J9 specified in Table 3-3, a contact closure shall exist between pins of J9 as specified in Table 3-3.

TABLE 3-3

Logic Input	J9 Input Pin	Indicator Illuminated	Contact Closure Between Pins
1	41	NO ATT	
1	3	GIMBAL LOCK	57 and 31
1	10		17 and 34
1	23	TRACKER	57 and 31
1	42	PROG	57 and 31
0	10		6 and 34

3.1.12.2 Logic One and Zero. The logic "ones" and "zeros" referenced in this section shall be as specified in sections 3.1.7.1 and 3.1.7.2.

3.1.12.3 RLYWD 12 Input. The RLYWD 12 input shall be applied at the same time the indicator input pins receive a logic input signal. RLYWD 12 shall be a combination of logic "ones" and "zeros" (ref. section 3.1.13.2) applied to the pins of J9 as listed below:

Pins of J9	68	43	24	11
Logic Input	1	1	0	0

3.1.13.3 Logic One and Zero. The logic "ones" and "zeros" referenced in this section shall be as specified in paragraphs 3.1.7.1 and 3.1.7.2.

3.1.14 Thermal Cycle Extremes and Marginal Voltages.

3.1.14.1 Thermal Cycle. The assembly shall be subjected to the thermal cycle specified below. Dynamic tests shall be performed during the last two thermal extremes as specified in paragraphs 3.1.14.2 thru 3.1.14.4.

a. Set ambient temperature to $0^{\circ}C \,^{+0C^{\circ}}_{-2.8C^{\circ}}$ for 8 ± 1 hours.

b. Increase the ambient temperature to $65^{\circ}C \,^{+2.8C^{\circ}}_{-0C^{\circ}}$ in not less than 40 minutes. This temperature shall be maintained for 8 hours.

c. Decrease the ambient temperature to $0^{\circ}C \,^{+0C^{\circ}}_{-2.8C^{\circ}}$ in not less than 40 minutes. This temperature shall be maintained for 1.5 hours.

d. Increase the ambient temperature to $65^{\circ}C \,^{+2.8C^{\circ}}_{-0C^{\circ}}$ in not less than 40 minutes. This temperature shall be maintained for 1.5 hours.

e. Decrease the ambient temperature to $0^{\circ}C \,^{+0C^{\circ}}_{-2.8C^{\circ}}$ in not less than 40 minutes. This temperature shall be maintained for 1.5 hours.

f. Increase the ambient temperature to $65^{\circ}C \,^{+2.8C^{\circ}}_{-0C^{\circ}}$ in not less than 40 minutes. This temperature shall be maintained for 1.5 hours.

3.1.14.2 Low Marginal Voltages/Low Temperature. The assembly shall perform as specified in paragraphs 3.1.4 thru 3.1.13 when the 25V supply is set to 20.0 ± 0.1 VDC, and the 14V supply is set to 12.2 ± 0.1 VDC, while the ambient temperature is maintained at $0^{\circ}C \,^{+0C^{\circ}}_{2.8C^{\circ}}$.

3.1.14.3 Low Marginal Voltages/High Temperature. The assembly shall perform as specified in paragraphs 3.1.4 thru 3.1.13 when the 25V supply is set to 21.5 ± 0.1 VDC, and the 14V supply is set to 12.2 ± 0.1 VDC, while the ambient temperature is maintained at $65^{\circ}C \,^{+2.8C^{\circ}}_{-0C^{\circ}}$.

3.1.14.4 High Marginal Voltages/High Temperature. The assembly shall perform as specified in paragraphs 3.1.4 thru 3.1.13 when the 25V supply is set to 30.0 ± 0.1 VDC, and the 14V supply is set to 16.0 ± 0.1 VDC, while the ambient temperature is maintained at $65^{\circ}C \begin{smallmatrix} + 2.8C^{\circ} \\ - 0C^{\circ} \end{smallmatrix}$.

During marginal voltage and thermal extremes, no light intensity limits shall apply. Visual indication will insure system operation.

3.1.15 Vibration. The assembly shall perform as specified in paragraphs 3.1.4 thru 3.1.13 when subjected to the vibration limits specified below:

a.	Frequency Range	10 to 2000 to 10 cps
b.	Frequency Sweep Rate	at a logarithmic rate of one minute per octave.
c.	Velocity	1.83 ± 10% inches per second in the frequency range of 10 to 100 cps.
d.	Acceleration	3 g's ± 10% peak in the frequency range of 100 to 2000 cps.
e.	Planes	each of the three mutually perpendicular axes.

3.1.15.1 Switch Chatter. During vibration there shall be no evidence of Keyboard switch chatter as specified below:

Key Lines - No contact closures of more than 50 usec duration.

Key Reset - No contact opens of more than 50 usec duration.

3.1.16 Leak Rate. With the assembly pressurized to 2 psig at 70°F using a mixture of 90% nitrogen and 10% helium, the leak rate shall not exceed 1.0×10^{-4} cc/atm/sec.

3.2 PRODUCT CONFIGURATION

3.2.1 Drawings. The configuration of the assembly shall be in accordance with Apollo G&N Drawings 2003950 and all drawings and engineering data referenced thereon.

3.2.2 Weight. The assembly shall weigh not more than 16.5 pounds.

4. QUALITY ASSURANCE PROVISIONS

4.1 GENERAL. The contractor responsible for the manufacture of the assembly shall be responsible for the accomplishment of each test required herein. See Table 4-1, Product Performance and Configuration Requirements/Quality Verification Cross Reference Index.

TABLE 4-1

Requirement	Verification	Requirement	Verification
3.1.1	4.2.2	3.1.11	4.2.14
3.1.2	4.2.3	3.1.11.1	4.2.14.1
3.1.3.2	4.2.4.1	3.1.12	4.2.15
3.1.3.2	4.2.4.2	3.1.12.1	4.2.15.1
3.1.3.2	4.2.4.3	3.1.13	4.2.16
3.1.3.3	4.2.5	3.1.13.1	4.2.16.1
3.1.3.4	4.2.4.4	3.1.14.1	4.3.1.1
3.1.4	4.2.7	3.1.14.2	4.3.1.2
3.1.5	4.2.8	3.1.14.3	4.3.1.3
3.1.6	4.2.9	3.1.14.4	4.3.1.4
3.1.7	4.2.10	3.1.15	4.3.2
3.1.8	4.2.11	3.1.15.1	4.3.2.1
3.1.9	4.2.12	3.1.16	4.3.3
3.1.10	4.2.13	3.2.2	4.3.4

4.2.4.2 25V Supply. The 25 VDC Supply shall be applied to pins 21 and 30 with pin 8 used as the DC return.

4.2.4.3 5V Supply. The 5 VDC Supply shall be applied to pins 62 and 64 with pins 63 and 65 used as the DC returns.

4.2.4.4 Input Sync Pulse. The Input Sync Pulse specified in paragraph 3.1.3.4 shall be applied to pin 7.

4.2.5 115V Supply. The 115 VRMS Supply shall be applied to pin 38 with pin 40 used as the AC return.

4.2.6 Intensity Measurements. Display indicator intensity measurements shall be calculated in the following manner:

a. Electroluminescent Displays - intensity measurements shall be the average of six sample locations.

b. Incandescent Displays - intensity measurements shall be the average of six sample locations at least 1/8 inch in from the illuminated segment border.

c. Push Switches - intensity measurements shall be the average of a single centrally located reading for each of the push switches.

Display indicators shall be visually inspected for abnormal dark spots and light intensity variations.

4.2.7 Legend Illumination. Apply all inputs specified in paragraph 4.2.4. Vary the 10K ohm potentiometer from minimum to maximum resistance and verify that the brightness of the legends shall be as specified in paragraph 3.1.4.

4.2.8 Keyboard Illumination. Apply the voltage specified in paragraph 4.2.5, and set the 115V Supply as described in paragraph 3.1.5. Verify that the Keyboard keys are illuminated as specified in paragraph 3.1.5.

4.2.9 Keyboard Outputs. Apply all inputs specified in section 4.2.4. Depress each Keyboard key individually and verify that the outputs, monitored at the output pins, are as specified in paragraph 3.1.6.

4.2.9.1 Keyboard Loads. Each Keyboard output pin listed in Table 3-1 shall be loaded with a 20K ohm ± 5% resistance to ground (0 VDC).

4.2.10 Incandescent Indicators. Apply all inputs specified in paragraph 4.2.4. Apply the logic input as specified in paragraph 3.1.7 and verify that all incandescent indicators are OFF.

4.2.11 Flashing Alarm Characters. Apply all inputs specified in paragraph 4.2.4. Apply the Flasher Timing Pulse as specified in paragraph 3.1.8 and verify that the alarm indicators KEY REL and OPR ERR flash in cccordance with paragraph 3.1.8.

4.2.12 Flashing Noun Characters. Apply all inputs specified in paragraph 4.2.4. Apply the Flasher Timing Pulse and logic inputs specified in paragraph 3.1.9. Verify that the Noun numerical characters flash in accordance with paragraph 3.1.9.

4.2.13 Flashing Verb Characters. Apply all inputs specified in paragraph 4.2.4. Apply the Flasher Timing Pulse and logic inputs specified in paragraph 3.1.10. Verify that the Verb numerical characters flash in accordance with paragraph 3.1.10.

4.2.14 Status and Caution Indicators. Apply all inputs specified in paragraph 4.2.4. Apply logic "ones" (ref para. 3.1.11.2) as specified in paragraph 3.1.11. Verify that the contact closures between the pins listed in Table 3-2, and the status and caution indicators are illuminated in accordance with paragraph 3.1.11.

4.2.14.1 Logic Zero Input. Apply all inputs specified in paragraph 4.2.4. Apply logic "zeros" (ref para. 3.1.11.2) as specified in paragraph 3.1.11.1. Verify that the contact closures between the pins listed in Table 3-2 are in accordance with paragraph 3.1.11.1.

4.2.14.2 Logic Input. Only one logic input shall be applied at any one time.

4.2.15 Isolated Relay Indicators. Apply all inputs specified in paragraph 4.2.4. Apply RLYWD 12 (ref para. 3.1.12.3) and logic "ones" (ref para. 3.1.12.2) as specified in paragraph 3.1.12. Verify that the contact closures between the pins listed in Table 3-3, and the isolated relay indicators are illuminated in accordance with paragraph 3.1.12.

4.2.15.1 Logic Zero Input. Apply all inputs specified in paragraph 4.2.4. Apply logic "zeros" (ref para. 3.1.12.3) as specified in paragraph 3.1.12.1. Verify that the contact closures between the pins listed in Table 3-3 are in accordance with paragraph 3.1.12.1

4.2.15.2 Logic Inputs. Only one logic input shall be applied at any one time.

4.2.16 Numerical Electroluminiscent Indicators. Apply all inputs specified in section 4.2.4. Set the 10K ohm potentiometer for maximum resistance. Apply the appropriate RLYWD and ELYBT combinations specified in Tables 3-4 and 3-5, and verify that the specified numerical electroluminescent indicators are illuminated in accordance with paragraph 3.1.13.

4.2.16.1 Apply all inputs specified in paragraph 4.2.4. Set the 10K ohm potentiometer to minimum resistance. Program numerical electroluminescent indicators as specified paragraph 3.1.13.1. Verify that the numerical electroluminescent indicators shall be OFF.

4.3 WORKMANSHIP. The following tests shall be performed under the conditions specified as a verification of good workmanship.

4.3.1 Marginal Voltage and Thermal Extremes.

4.3.1.1 Thermal Cycle. Verify that the assembly is subjected to the thermal extremes specified in paragraph 3.1.14.1 prior to the Marginal Voltage and Thermal Extremes test.

4.3.1.2 Low Marginal Voltages/Low Temperature. Set the input supply voltages and the ambient temperature to the limits specified in paragraph 3.1.14.2. Verify that the module shall perform in accordance with paragraph 3.1.14.2.

4.3.1.3 Low Marginal Voltages/High Temperature. Set the input supply voltage and the ambient temperature to the limits specified in paragraph 3.1.14.3. Verify that the module shall perform in accordance with paragraph 3.1.14.3.

4.3.1.4 High Marginal Voltages/High Temperature. Set the input supply voltage and the ambient temperature to the limits specified in paragraph 3.1.14.4. Verify that the module shall perform in accordance with paragraph 3.1.14.4.

The DSKY shall be subjected to the designated temperatures for one-half hour prior to performing any electrical tests.

This test may be performed with a set of test display indicators. Original assembly indicators will be reinstalled in the DSKY after completion of this test.

4.3.2 Vibration. Subject the assembly to the vibration specified in paragraph 3.1.15. Verify that the assembly performs in accordance with paragraph 3.1.15.

4.3.2.1 Switch Chatter. Verify that there is no keyboard switch chatter as specified in paragraph 3.1.15.1.

4.3.3 Leak Rate. Pressurize the assembly to 2 psig at 25°C ± 10C° using the mixture specified in paragraph 3.1.16. After pressurization place assembly in a vacuum, and verify that the leak rate does not exceed that specified in paragraph 3.1.16 when measured at 25°C ± 10C°.

4.3.4 Weight. Weigh the assembly to the nearest .01 pound. Verify that the weight is in accordance with paragraph 3.2.2.

5. PREPARATION FOR DELIVERY

5.1 GENERAL. Preparation for delivery shall be in accordance with Specification ND 1002214. The assembly shall be pressurized to .7 to 1.5 psig.

6. NOTES. None.

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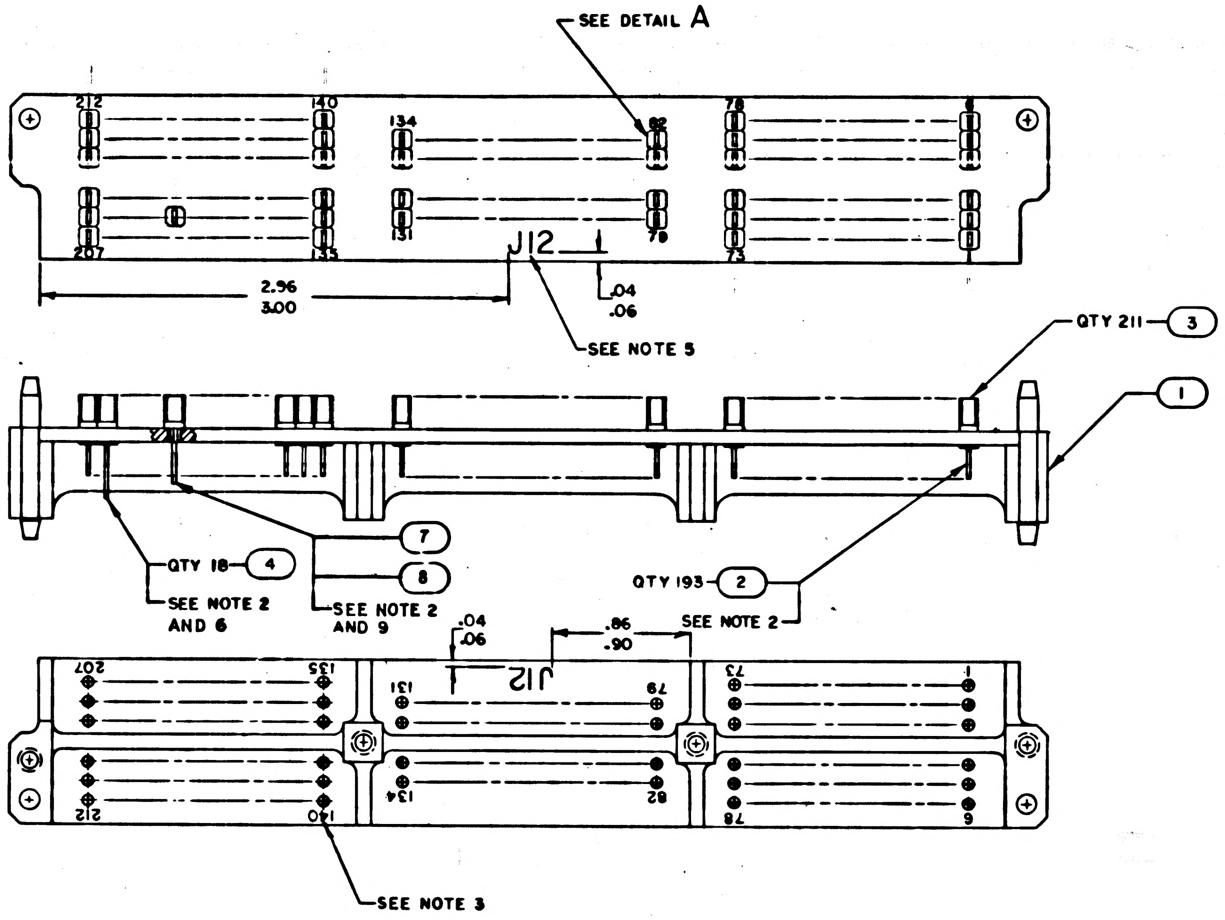
2003951 A

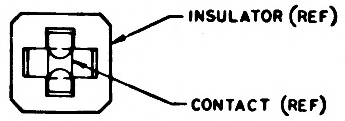
REVISIONS 26205						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 27086	JPJ	JC	3/21/66	

JUMPER LIST

COND IDENT	REMARKS		FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
E1	SEE NOTE 7	*	J12-186	5	WHT	26	AR	J12-191	SEE NOTE 7
E2			J12-191	6	—			J12-197	
E3			J12-197	6	—			J12-203	
E4			J12-203	6				J12-202	
E5			J12-202	6	—			J12-201	
E6			J12-201	6	—			J12-207	
E7			J12-207	6	—			J12-208	
E8			J12-208	6	—			J12-209	
E9		*	J12-181	5	WHT			J12-185	
E10			J12-185	5	WHT			J12-190	
E11			J12-190	6	—			J12-195	
E12			J12-195	6	—			J12-196	
E13		*	J12-180	5	WHT			J12-179	
E14		*	J12-166	6	—			J12-165	
E15		*	J12-183	6	—			J12-177	
E16			J12-177	5	WHT	26	AR	J12-19	
E17		*	J12-19	5	WHT	26	AR	J12-184	

* DENOTES MUST BE FIRST LEVEL





DETAIL A
SCALE 10/1
212 PLACES

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NO. 2, 3, 4, 7 & 8 TO FIND NO. 1 PER ND1002136
3. MARK .05/.07 HIGH BLACK CHARACTERS LOCATE APPROX AS SHOWN PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-11
4. IDENTIFY WITH PART NO. PER ND1002019
5. MARK .10/.14 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 USING INK 1006271-11
6. FIND NO. 4 TO BE INSTALLED AT PIN POSITIONS 207, 180, 190, 191, 181, 185, 195, 197, 201, 202, 203, 186, 208, 166, 171, 183, 177 & 19
7. WIRE WRAP USING JUMPER LIST PER ND1002031 EXCEPT FIND NO. 5 TO HAVE; 5 MIN TO 7 MAX TURNS OF UNINSULATED WIRE; 1/2 TO 1 1/2 TURNS OF INSULATED WIRE; STRIP LENGTH OF 1.18 TO 1.00; AND A STRIP FORCE OF 6 LB MIN, AND FIND NO. 6 TO HAVE 6 MIN TO 8 MAX TURNS OF BARE WIRE AND A STRIP FORCE OF 6 LB MIN
8. AR DENOTES AS REQUIRED
9. INSTALL FIND NO. 7 AND 8 IN PIN POSITION 184

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO
1	1008819		SLEEVE, GROUNDING	8
1	1008818-005		CONTACT, WRAPOST, FEMALE, GRD	7
AR	QQ-W-343 TYPE S		WIRE, AWG 26, SOFT COATED (a)	6
AR	1010807-22		WIRE, ELECTRICAL	5
18	1006781-2		CONTACT, WRAPOST, FEMALE	4
211	1006774		INSULATOR, WRAPOST, FEMALE	3
193	1006781-1		CONTACT, WRAPOST, FEMALE	2
1	2004923-011		PLATE, CONNECTOR	1
011	LIST OF MATERIALS			

NEXT ASSY	USED ON
2003955	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN
CHECKED 3 FEB 66
APPROVED 3 FEB 66
APPROVED 11 Feb 66
APPROVED MIT 11 Feb 66
APPROVED MSC G. METZGER
DATE

CONNECTOR PLATE ASSY
MAIN HOUSING
AGC DSKY

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2003951
SCALE 2/1
SHEET 1 OF 1

2003951 B

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		REVISIONS 26205				
A		REVISED PER TDRR 27086	SPJ	JC	3/21/66	
B		REVISED PER TDRR 27739	SPJ	AEB	4/13/66	

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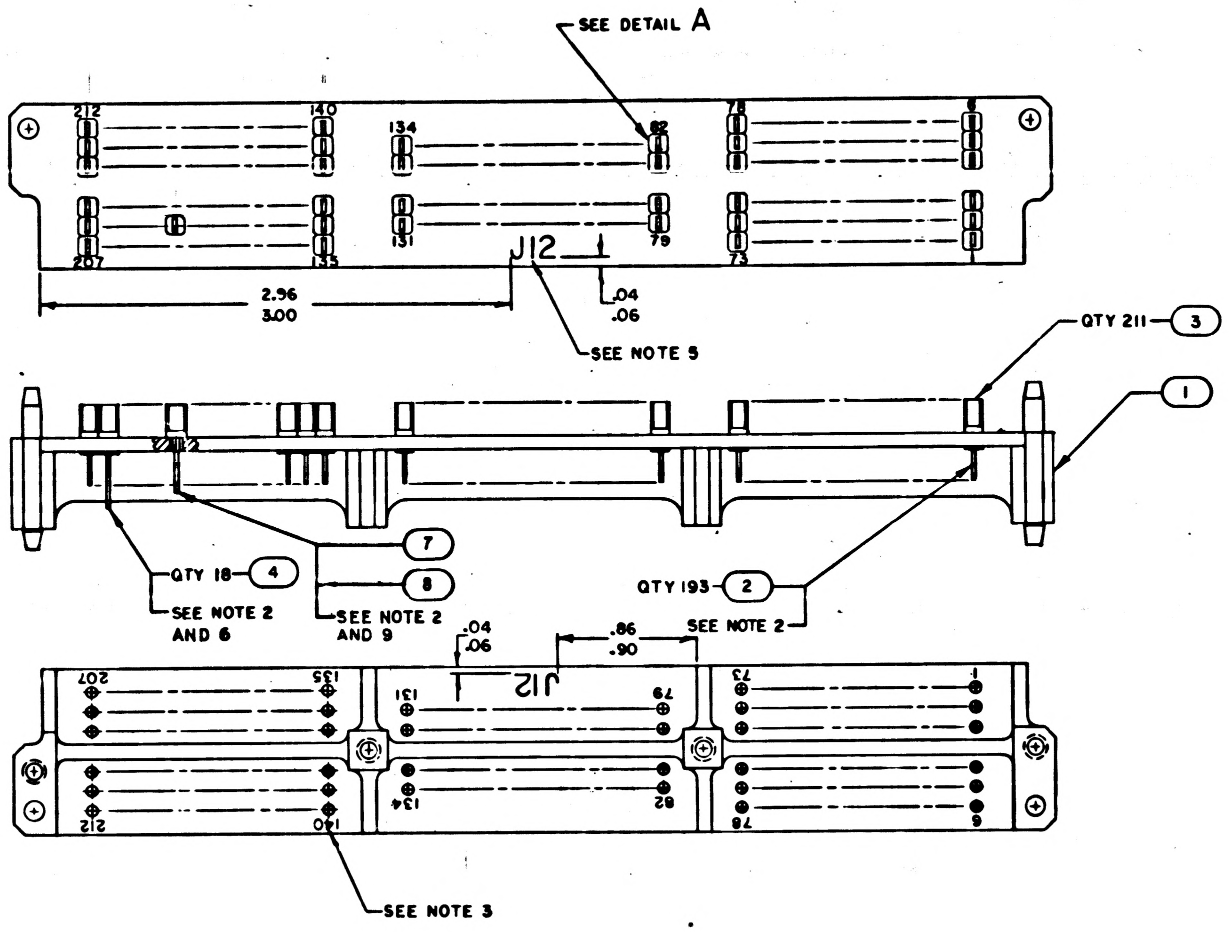
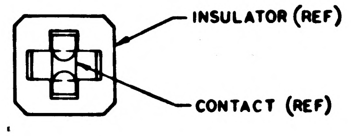
JUMPER LIST

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
E1	SEE NOTE 7 *	J12-186	5	WHT	26	AR	J12-191	SEE NOTE 7
E2		J12-191	6	—			J12-197	
E3		J12-197	6	—			J12-203	
E4		J12-203	6	—			J12-202	
E5		J12-202	6	—			J12-201	
E6		J12-201	6	—			J12-207	
E7		J12-207	6	—			J12-208	
E8		J12-208	6	—			J12-209	
E9	*	J12-181	5	WHT			J12-185	
E10		J12-185	5	WHT			J12-190	
E11		J12-190	6	—			J12-195	
E12		J12-195	6	—			J12-196	
E13	*	J12-180	5	WHT			J12-179	
E14	*	J12-166	6	—			J12-165	
E15	*	J12-183	6	—			J12-177	
E16		J12-177	5	WHT	26	AR	J12-19	
E17	*	J12-19	5	WHT	26	AR	J12-184	

* DENOTES MUST BE FIRST LEVEL





DETAIL A
SCALE 10/1
212 PLACES

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NO. 2, 3, 4, 7 & 8 TO FIND NO. 1 PER ND1002136
3. MARK .05/.07 HIGH BLACK CHARACTERS LOCATE APPROX AS SHOWN PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-11
4. IDENTIFY WITH PART NO. PER ND1002019
5. MARK .10/.14 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 USING INK 1006271-11
6. FIND NO. 4 TO BE INSTALLED AT PIN POSITIONS 207, 180, 190, 191, 181, 185, 195, 197, 201, 202, 203, 186, 208, 166, 171, 183, 177 & 19
7. WIRE WRAP USING JUMPER LIST PER ND1002031 EXCEPT FIND NO.5 TO HAVE; 5 MIN TO 7 MAX TURNS. OF UNINSULATED WIRE; 1/2 TO 1 1/2 TURNS OF INSULATED WIRE; STRIP LENGTH OF 1.18 TO 1.00; AND A STRIP FORCE OF 6 LB MIN, AND FIND NO. 6 TO HAVE 6 MIN TO 8 MAX TURNS OF BARE WIRE AND A STRIP FORCE OF 6 LB MIN
8. AR DENOTES AS REQUIRED
9. INSTALL FIND NO. 7 AND 8 IN PIN POSITION 184

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO
1	1008819-003		SLEEVE, GROUNDING	8
1	1008818-005		CONTACT, WRAPOST, FEMALE, GRD	7
AR	QQ-W-343 TYPE S		WIRE, AWG 26, SOFT COATED (a)	6
AR	1010807-22		WIRE, ELECTRICAL	5
18	1006781-2		CONTACT, WRAPOST, FEMALE	4
211	1006774		INSULATOR, WRAPOST, FEMALE	3
193	1006781-1		CONTACT, WRAPOST, FEMALE	2
1	2004923-011		PLATE, CONNECTOR	1
011	LIST OF MATERIALS			

NEXT ASSY	USED ON
2003955	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN		3 DEC 65
CHECKED	J. C. Jaschuk	3 FEB 66
APPROVED		3 FEB 66
APPROVED	Eldon C. Hall	4 Feb 66
APPROVED MIT		
APPROVED MSC	A. G. METZGER	DATE

CONNECTOR PLATE ASSY
MAIN HOUSING
AGC DSKY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2003951

SCALE 2/1 SHEET 1 OF 1

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2003951 C

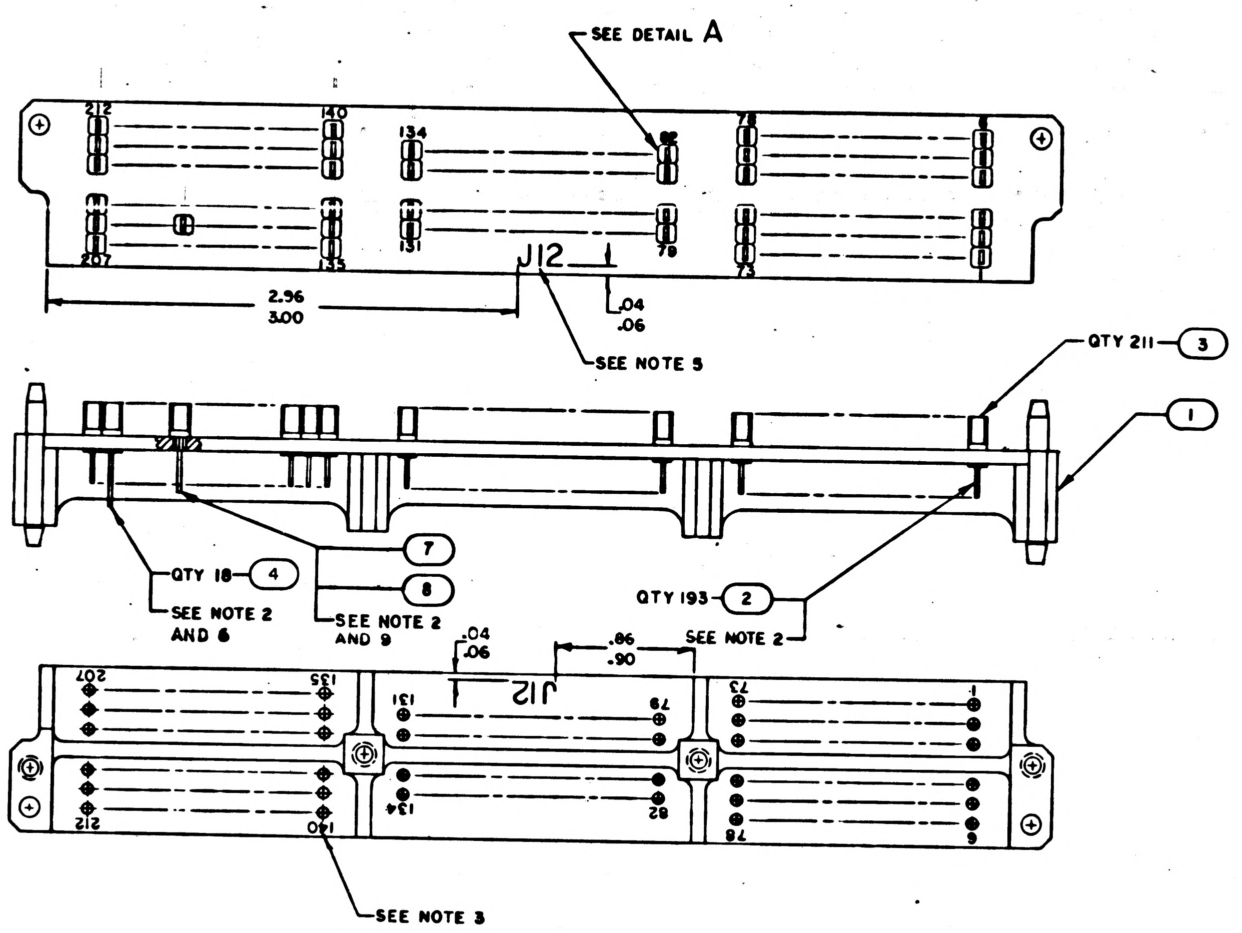
REVISIONS 26205

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 27086	BPJ	JC	3/21/66	
B		REVISED PER TDRR 27739	BPJ	AE	4/12/6	
C		REVISED PER TDRR 28252	J.P.S.	a.d.	5/ /66	

JUMPER LIST

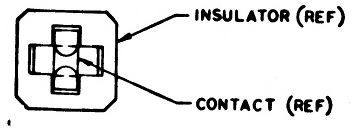
COND IDENT	REMARKS		FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
E1	SEE NOTE 7	*	J12-186	5	WHT	26	AR	J12-191	SEE NOTE 7
E2			J12-191	6	—			J12-197	
E3			J12-197	6	—			J12-203	
E4			J12-203	6	—			J12-202	
E5			J12-202	6	—			J12-201	
E6			J12-201	6	—			J12-207	
E7			J12-207	6	—			J12-208	
E8			J12-208	6	—			J12-209	
E9		*	J12-181	5	WHT			J12-185	
E10			J12-185	5	WHT			J12-190	
E11			J12-190	6	—			J12-195	
E12			J12-195	6	—			J12-196	
E13		*	J12-180	5	WHT			J12-179	
E14		*	J12-166	6	—			J12-165	
E15		*	J12-183	6	—			J12-177	
E16			J12-177	5	WHT	26	AR	J12-19	
E17		*	J12-19	5	WHT	26	AR	J12-184	

* DENOTES MUST BE FIRST LEVEL



NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NO. 2, 3, 4, 7 & 8 TO FIND NO. 1 PER ND1002136
3. MARK .05/.07 HIGH BLACK CHARACTERS LOCATE APPROX AS SHOWN PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-11
4. IDENTIFY WITH PART NO. PER ND1002019
5. MARK .10/.14 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 USING INK 1006271-11
6. FIND NO. 4 TO BE INSTALLED AT PIN POSITIONS 207, 180, 190, 191, 181, 185, 195, 197, 201, 202, 203, 186, 208, 166, 171, 183, 177 & 19
7. WIRE WRAP USING JUMPER LIST PER ND1002031 EXCEPT FIND NO.5 TO HAVE; 5 MIN TO 7 MAX TURNS OF UNINSULATED WIRE; 1/2 TO 1 1/2 TURNS OF INSULATED WIRE; STRIP LENGTH OF 1.18 TO 1.00; AND A STRIP FORCE OF 6 LB MIN, AND FIND NO. 6 TO HAVE 6 MIN TO 8 MAX TURNS OF BARE WIRE AND A STRIP FORCE OF 6 LB MIN
8. AR DENOTES AS REQUIRED
9. INSTALL FIND NO. 7 AND 8 IN PIN POSITION 184



DETAIL A
SCALE 10/1
212 PLACES

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO
1	1008819-002		SLEEVE, GROUNDING	8
1	1008818-005		CONTACT, WRAPOST, FEMALE, GRD	7
AR	QQ-W-343 TYPE S		WIRE, AWG 26, SOFT COATED (a)	6
AR	1010807-22		WIRE, ELECTRICAL	5
18	1006781-2		CONTACT, WRAPOST, FEMALE	4
211	1006774		INSULATOR, WRAPOST, FEMALE	3
193	1006781-1		CONTACT, WRAPOST, FEMALE	2
1	2004923-011		PLATE, CONNECTOR	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003955	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	A. J.	3 DEC 63
CHECKED	J. C.	3 FEB 64
APPROVED		3 FEB 64
APPROVED	Elden C. Hall	11 Feb 64
APPROVED MIT		4 Feb 64
APPROVED MSC	A. C. METZGER	

CONNECTOR PLATE ASSY
MAIN HOUSING
AGC DSKY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2003951

DATE
SCALE 2/1
SHEET 1 OF 1

MASTER

2003951 C

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2003951 D

REVISIONS 26205

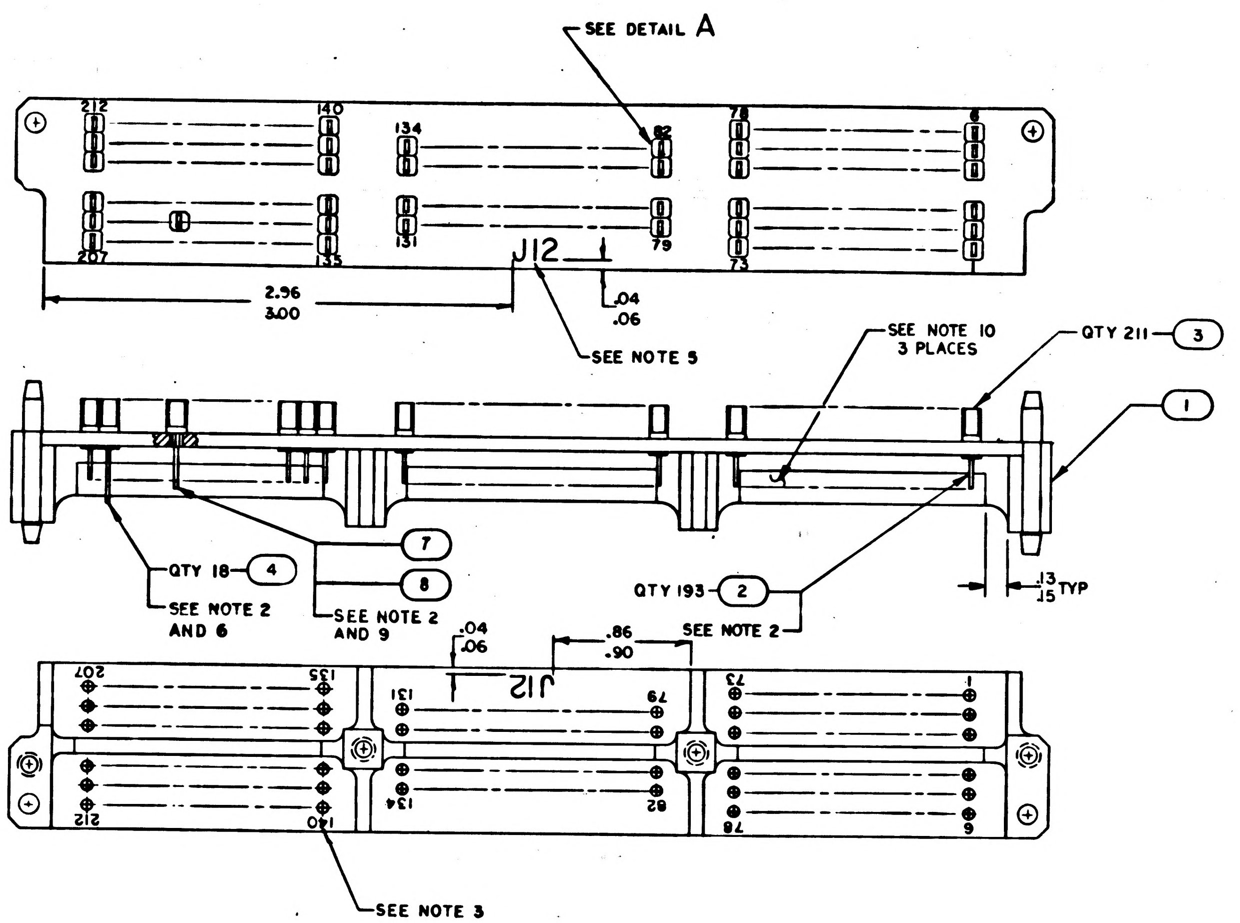
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APP
A		REVISED PER TDRR 27086	APJ		3/21/66	
B		REVISED PER TDRR 27739	APJ			
C		REVISED PER TDRR 28252	J.P.L.			
D		REVISED PER TDRR 32580				

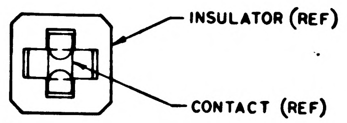
JUMPER LIST

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
E1	SEE NOTE 7 *	J12-186	5	WHT	26	AR	J12-191	SEE NOTE 7
E2		J12-191	6	—			J12-197	
E3		J12-197	6	—			J12-203	
E4		J12-203	6	—			J12-202	
E5		J12-202	6	—			J12-201	
E6		J12-201	6	—			J12-207	
E7		J12-207	6	—			J12-208	
E8		J12-208	6	—			J12-209	
E9	*	J12-181	5	WHT			J12-185	
E10		J12-185	5	WHT			J12-190	
E11		J12-190	6	—			J12-195	
E12		J12-195	6	—			J12-196	
E13	*	J12-180	5	WHT			J12-179	
E14	*	J12-166	6	—			J12-165	
E15	*	J12-183	6	—			J12-177	
E14	*	J12-166	6	—			J12-165	
E15	*	J12-183	6	WHT			J12-177	
E16		J12-177	5	WHT			J12-19	**
E17	*	J12-19	5	WHT	26	AR	J12-184	**

*DENOTES MUST BE FIRST LEVEL

**DENOTES JUMPERS NOT TO BE INCORPORATED ON -021 CONFIGURATION





DETAIL A
SCALE 10/1
212 PLACES

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NO. 2, 3, 4, 7 & 8 TO FIND NO. 1 PER ND1002136
3. MARK .05/.07 HIGH BLACK CHARACTERS LOCATE APPROX AS SHOWN PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-11
4. IDENTIFY WITH PART NO. PER ND1002019
5. MARK .10/.14 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 USING INK 1006271-11
6. FIND NO. 4 TO BE INSTALLED AT PIN POSITIONS 207, 180, 190, 191, 181, 185, 195, 197, 201, 202, 203, 186, 208, 166, 171, 183, 177 & 19
7. WIRE WRAP USING JUMPER LIST PER ND1002031 EXCEPT FIND NO.5 TO HAVE; 5 MIN TO 7 MAX TURNS OF UNINSULATED WIRE; 1/2 TO 1 1/2 TURNS OF INSULATED WIRE; STRIP LENGTH OF 1.18 TO 1.00; AND A STRIP FORCE OF 6 LB MIN, AND FIND NO. 6 TO HAVE 6 MIN TO 8 MAX TURNS OF BARE WIRE AND A STRIP FORCE OF 6 LB MIN
8. AR DENOTES AS REQUIRED
9. INSTALL FIND NO. 7 AND 8 IN PIN POSITION 184
10. APPLY TAPE PER MIL-T-23594, TYPE I, 1/2 INCH WIDE, TO INDICATED SURFACES. CENTRALIZE AS SHOWN

2003951 D

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO
AR	—	MIL-T-23594	SEE NOTE 10	TAPE, INSULATION	9
1	1	1008819-002		SLEEVE, GROUNDING	8
1	1	1008818-005		CONTACT, WRAPOST, FEMALE, GRD	7
AR	AR	QQ-W-343 TYPE S		WIRE, AWG 26, SOFT COATED (a)	6
AR	AR	1010807-22		WIRE, ELECTRICAL	5
18	18	1006781-2		CONTACT, WRAPOST, FEMALE	4
211	211	1006774		INSULATOR, WRAPOST, FEMALE	3
193	193	1006781-1		CONTACT, WRAPOST, FEMALE	2
1	1	2004923-011		PLATE, CONNECTOR	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003882	
2003955	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN	A. J. G	3 DEC 65
CHECKED		3 FEB 66
APPROVED		3 FEB 66
APPROVED		
APPROVED MIT		
APPROVED MSC	G. METZGER	

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CONNECTOR PLATE ASSY
MAIN HOUSING
AGC DSKY

CODE IDENT NO 80230 | SIZE D | DRAWING NO. 2003951

SCALE 2/1 | SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2003951

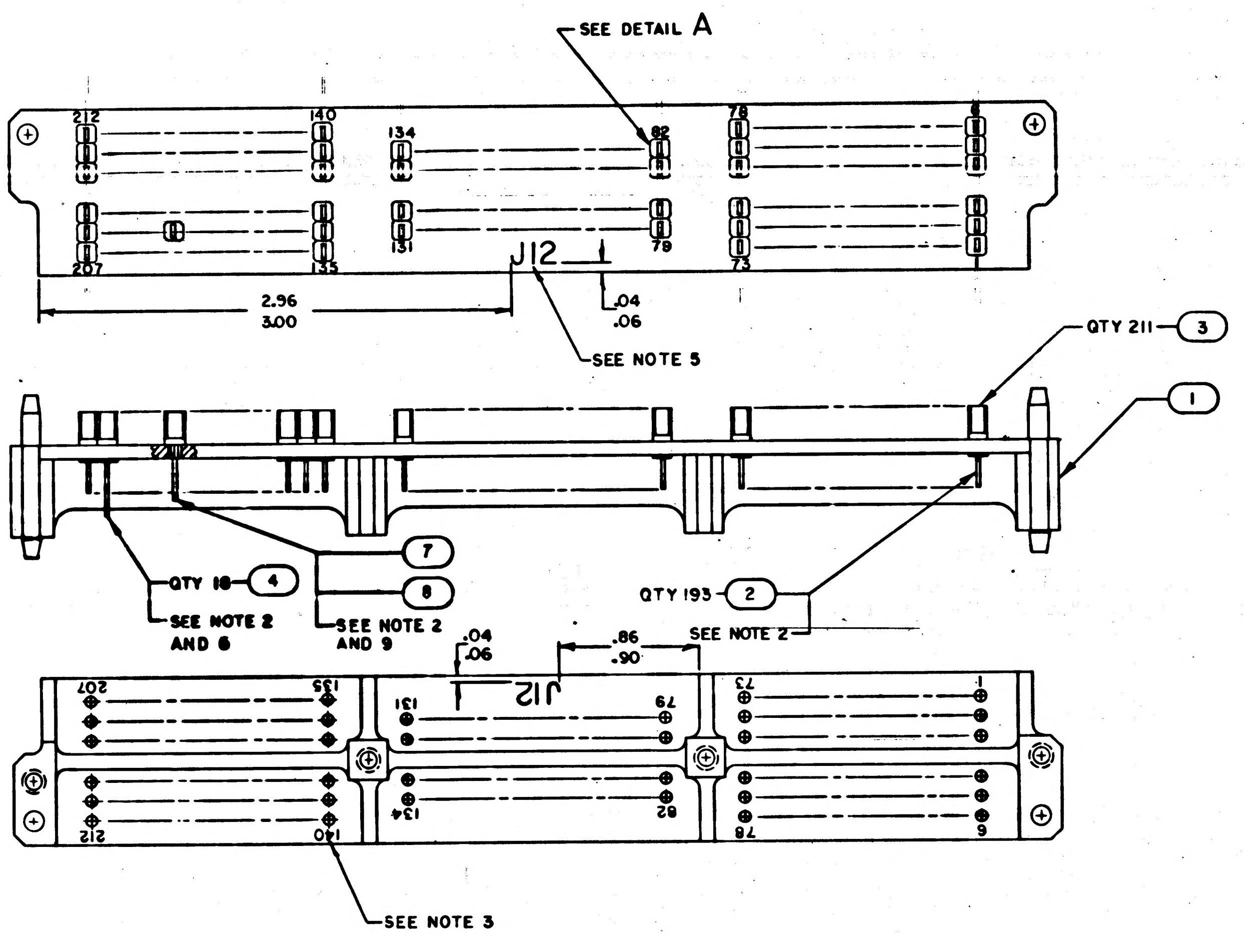
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

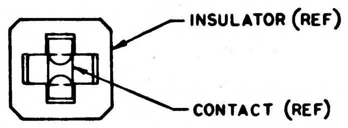
REVISIONS 26205

JUMPER LIST

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
E1	SEE NOTE 7 *	J12-186	5	WHT	26	AR	J12-191	SEE NOTE 7
E2		J12-191	6	—			J12-197	
E3		J12-197	6	—			J12-203	
E4		J12-203	6	—			J12-202	
E5		J12-202	6	—			J12-201	
E6		J12-201	6	—			J12-207	
E7		J12-207	6	—			J12-208	
E8		J12-208	6	—			J12-209	
E9	*	J12-181	5	WHT			J12-185	
E10		J12-185	5	WHT			J12-190	
E11		J12-190	6	—			J12-195	
E12		J12-195	6	—			J12-196	
E13	*	J12-180	5	WHT			J12-179	
E14	*	J12-166	6	—			J12-165	
E15	*	J12-183	6	WHT			J12-177	
E16		J12-177	6	WHT	26	AR	J12-19	
E17	*	J12-19	6	WHT	26	AR	J12-184	

* DENOTES MUST BE FIRST LEVEL





DETAIL A
SCALE 10/1
212 PLACES

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ASSEMBLE FIND NO. 2, 3, 4, 7 & 8 TO FIND NO. 1 PER ND1002136
3. MARK .05/.07 HIGH BLACK CHARACTERS LOCATE APPROX AS SHOWN PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-11
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7. WIRE WRAP USING JUMPER LIST PER ND1002031 EXCEPT FIND NO.5 TO HAVE; 5 MIN TO 7 MAX TURNS. OF UNINSULATED WIRE; 1/2 TO 1 1/2 TURNS OF INSULATED WIRE; STRIP LENGTH OF 1.18 TO 1.00; AND A STRIP FORCE OF 6 LB MIN, AND FIND NO. 6 TO HAVE 6 MIN TO 8 MAX TURNS OF BARE WIRE AND A STRIP FORCE OF 6 LB MIN
8. AR DENOTES AS REQUIRED
9. INSTALL FIND NO. 7 AND 8 IN PIN POSITION 184

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO
1	1008819		SLEEVE, GROUNDING	8
1	1008818-005		CONTACT, WRAPOST, FEMALE, GRD	7
AR	QQ-W-343 TYPE S		WIRE, AWG 26, SOFT COATED (a)	6
AR	1010807-22		WIRE, ELECTRICAL	5
18	1006781-2		CONTACT, WRAPOST, FEMALE	4
211	1006774		INSULATOR, WRAPOST, FEMALE	3
193	1006781-1		CONTACT, WRAPOST, FEMALE	2
1	2004923-011		PLATE, CONNECTOR	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003955	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN A. J. [illegible] 3 DEC 65
CHECKED J. C. [illegible] 3 FEB 66
APPROVED [illegible] 3 FEB 66
APPROVED [illegible] 11 Feb 66
APPROVED MIT [illegible] 11 Feb 66
APPROVED MSC A. G. METZGER
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CONNECTOR PLATE ASSY
MAIN HOUSING
AGC DSKY

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2003951
SCALE 2/1
SHEET 1 OF 1

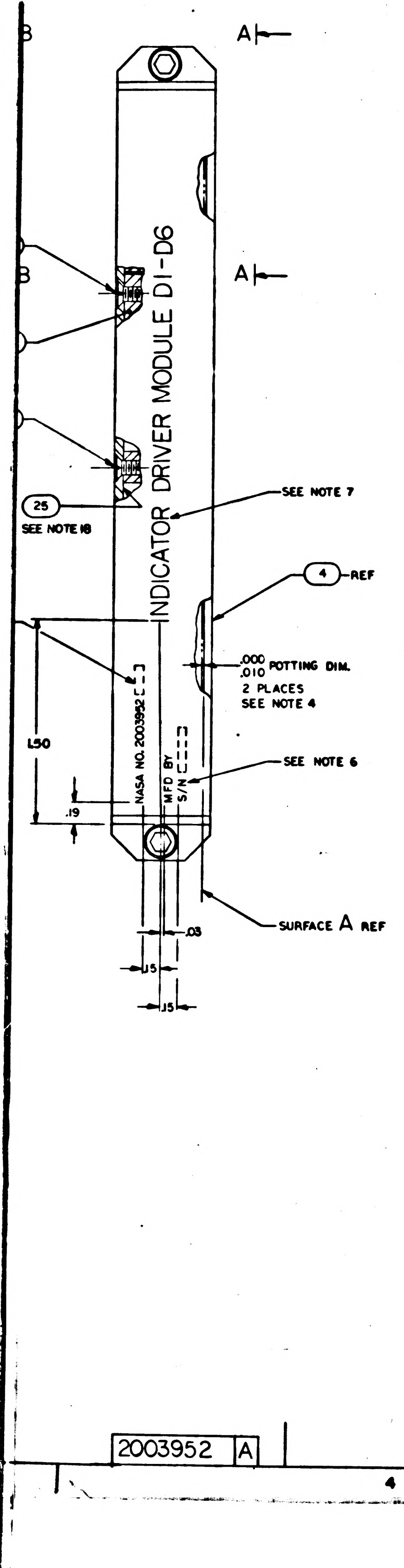
2003951

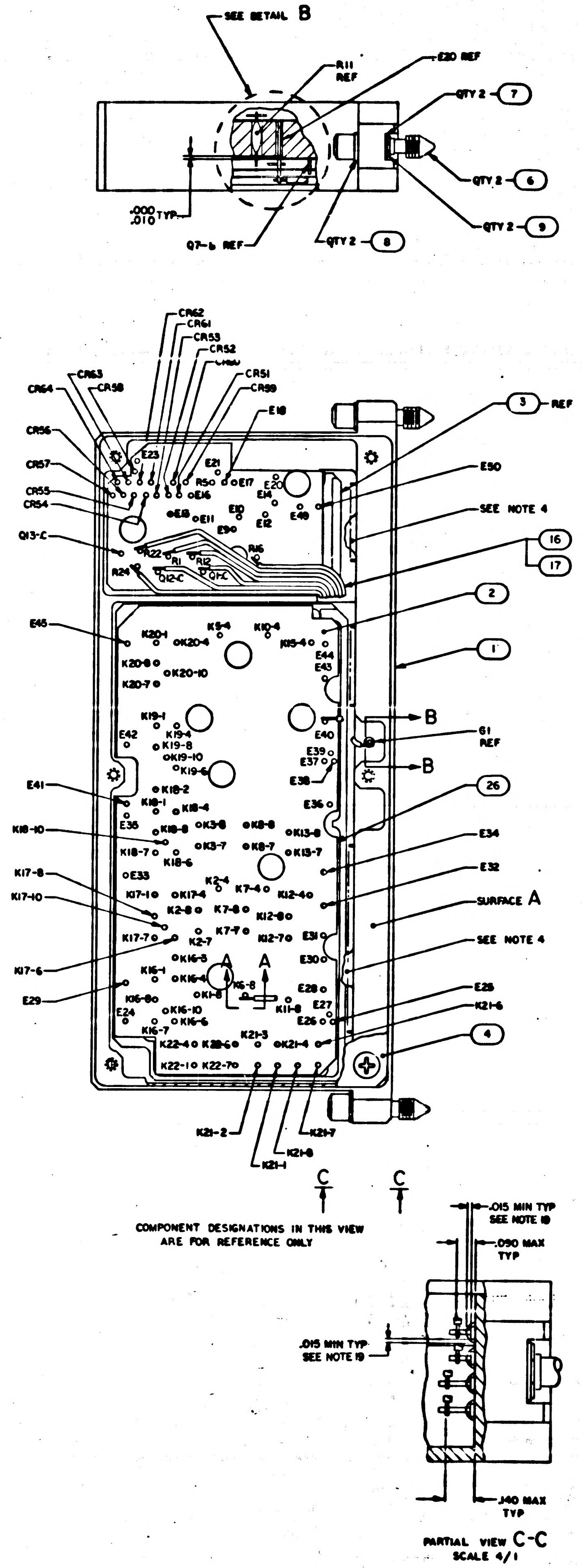
MASTER

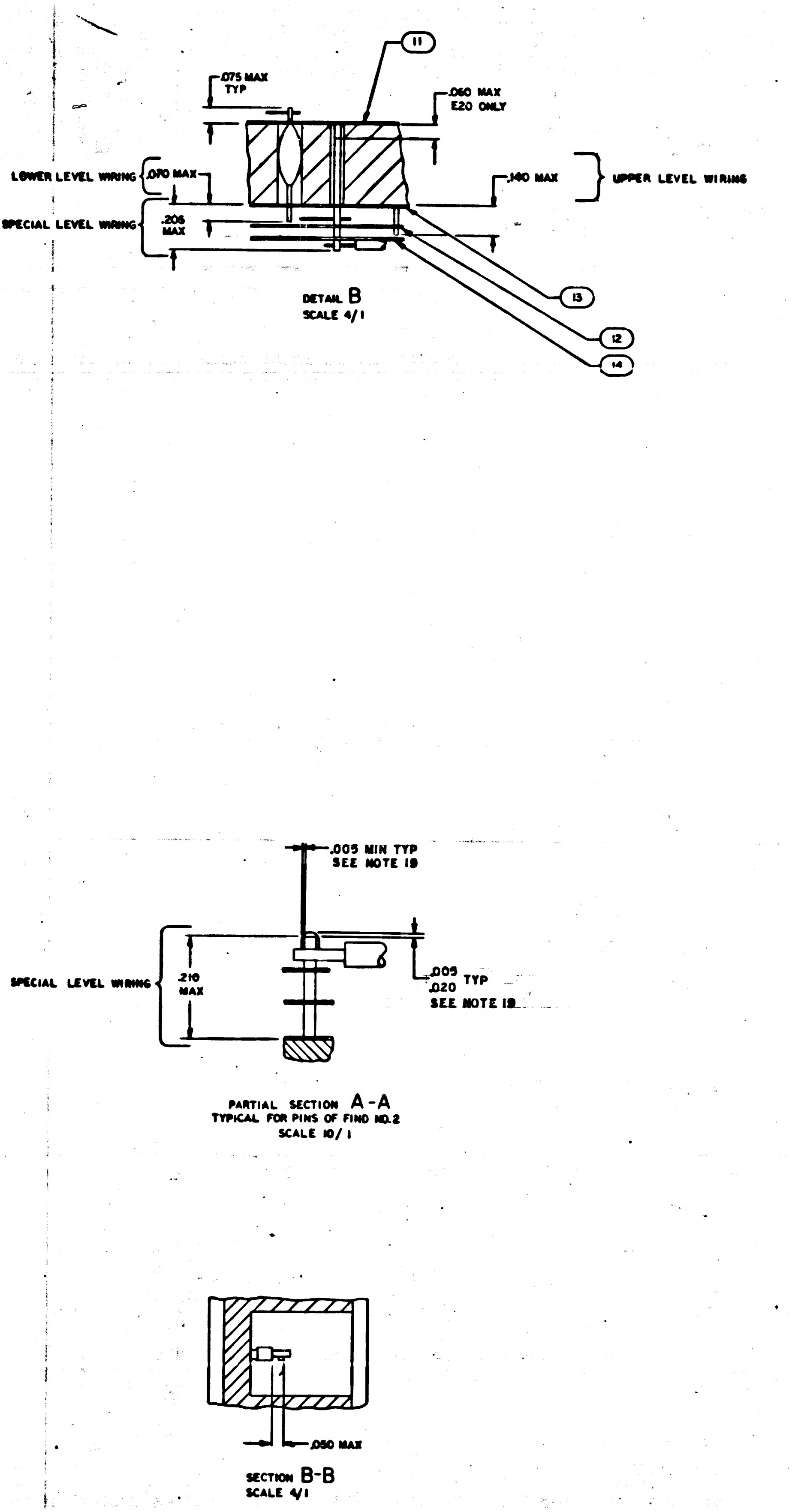
FROM PIN NO.	TO COMPONENT
101	E10
102	E11
103	E9
104	E13
105	E49
106	E14
107	E12
108	CR52
109	CR60
110	CR51
111	E16
112	E50
113	E17
114	E18
115	R5
116	CR59
117	CR62
118	CR61
119	E21
120	E20
121	E23
122	CR64
123	CR58
124	CR63

REVISIONS 24373			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 25151 DR CHK	1/14/66	

2003952 A


INDICATOR DRIVER MODULE D1-D6
NASA NO. 2003952
MFD BY
S/N
A
A
B
B
25
SEE NOTE 18
SEE NOTE 7
4 REF
.000 .010 POTTING DIM.
2 PLACES
SEE NOTE 4
SEE NOTE 6
1.50
.19
.03
.15
.15
SURFACE A REF


SEE DETAIL B
R11 REF
E20 REF
QTY 2 7
QTY 2 6
QTY 2 9
QTY 2 8
.000 .010 TYP
Q7-b REF
CR62
CR61
CR53
CR52
CR51
CR59
CR63
CR58
CR64
CR56
CR57
CR55
CR54
Q13-C
E18
E23
E21
R50
E17
E16
E20
E14
E15
E11
E10
E90
E12
E49
R22
R1
R12
R16
R24
Q12-C
Q11-C
3 REF
E50
SEE NOTE 4
16
17
2
1
E45
K20-1
K20-4
K5-4
K10-4
K15-4
E44
E43
K20-8
K20-10
K20-7
K19-1
K19-4
K19-8
K19-10
K19-6
E42
E40
E39
E37
E38
61 REF
B
B
E41
K18-2
K18-1
K18-4
E35
E36
26
K18-10
K18-8
K3-8
K8-8
K13-8
E34
K18-7
K3-7
K8-7
K13-7
K18-6
E33
K2-4
K7-4
K12-4
E32
K17-8
K17-10
K17-1
K17-4
K2-8
K7-8
K12-8
SURFACE A
K17-7
K2-7
K7-7
K12-7
E31
SEE NOTE 4
K17-6
K16-5
E30
A
A
E25
K16-1
K16-4
K6-8
E28
K21-6
E29
K1-8
E27
K11-8
E26
K16-8
K16-10
K16-6
E24
K16-7
K21-3
K22-4
K22-6
K21-4
4
K22-10
K22-7
K21-2
K21-1
K21-8
K21-7
C
C
COMPONENT DESIGNATIONS IN THIS VIEW ARE FOR REFERENCE ONLY
.015 MIN TYP SEE NOTE 19
.090 MAX TYP
.015 MIN TYP SEE NOTE 19
.140 MAX TYP
PARTIAL VIEW C-C
SCALE 4/1


11
.075 MAX TYP
.060 MAX E20 ONLY
LOWER LEVEL WIRING
.070 MAX
.140 MAX
UPPER LEVEL WIRING
SPECIAL LEVEL WIRING
.205 MAX
13
12
14
DETAIL B
SCALE 4/1
.005 MIN TYP SEE NOTE 19
SPECIAL LEVEL WIRING
.210 MAX
.005 .020 TYP
SEE NOTE 19
PARTIAL SECTION A-A
TYPICAL FOR PINS OF FIND NO. 2
SCALE 10/1
.050 MAX
SECTION B-B
SCALE 4/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2005952	SCHEMATIC	REF
5	1006750-39	RESISTOR, FIXED FILM	27
1	2004917	INSULATOR	26
AR	1006879	COMPOUND, SILICONE THERMOCONDUCTIVE	25
AR	1006757-1	WIRE, ELECTRICAL .010×.020	24
7	2004004-002	TRANSISTOR	23
6	2004004-001	TRANSISTOR	22
3	1006750-62	RESISTOR, FIXED FILM	21
15	1006750-56	RESISTOR, FIXED FILM	20
22	2004103-001	SEMICONDUCTOR DEVICE, DIODE	19
5	1006755-106	CAPACITOR, FIXED	18
AR	1006776-22	SLEEVING, INSULATION	17
AR	1006757-8	WIRE, ELECTRICAL .020 DIA	16
2	1006750-32	RESISTOR, FIXED FILM	15
1	2004993	INSULATOR, PHOTOMASTER, SPECIAL LEVEL	14
1	2004992-011	INSULATOR, PHOTOMASTER, LOWER LEVEL	13
1	2004991	INSULATOR, PHOTOMASTER, UPPER LEVEL	12
1	2004990-011	INSULATOR, PHOTOMASTER, REAR	11
15	MS24693-C2	SCREW, FLAT HD, CROSS RECESSED	10
2	MS16633-4015	RING, RETAINING, EXTERNAL	9
2	1004546-1	WASHER, FLAT	8
2	1004546-3	WASHER, FLAT	7
2	1004579-1	SCREW, JACKING	6
1	2004956	COVER, REAR	5
1	2004911	COVER	4
1	2003908-011	DECODING CIRCUIT ASSY	3
1	2003910-011	RELAY CIRCUIT ASSY	2
1	2003907-011	HEADER ASSY	1
011	LIST OF MATERIALS		

A 2003952

2003985	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

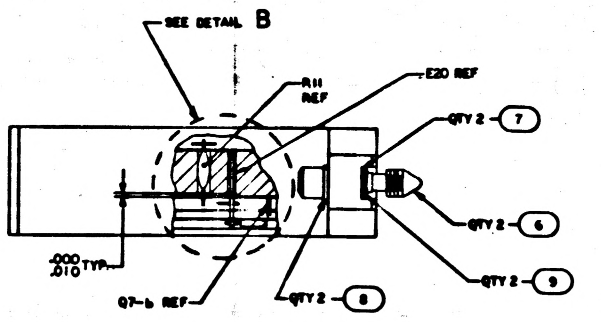
INDICATOR DRIVER ASSY
MODULE D1-D6
AGC DSKY

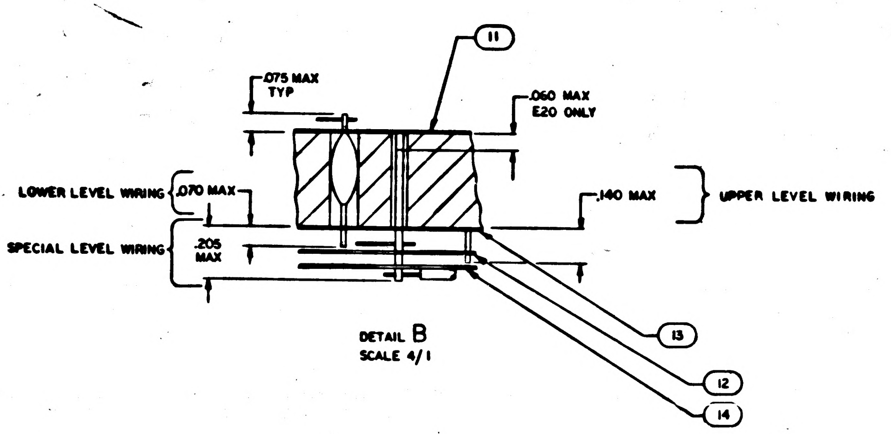
CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	J	2003952
SCALE 2/1	WT	SHEET 1 OF 1

2003952 A

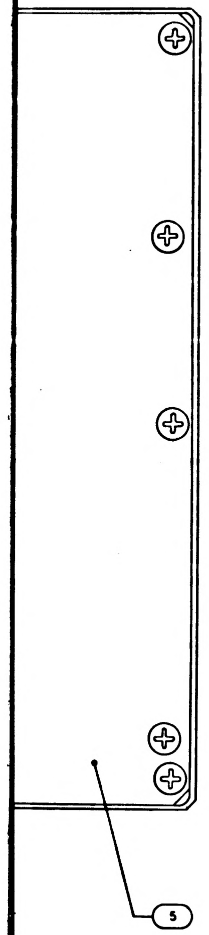
WIRING LEGEND

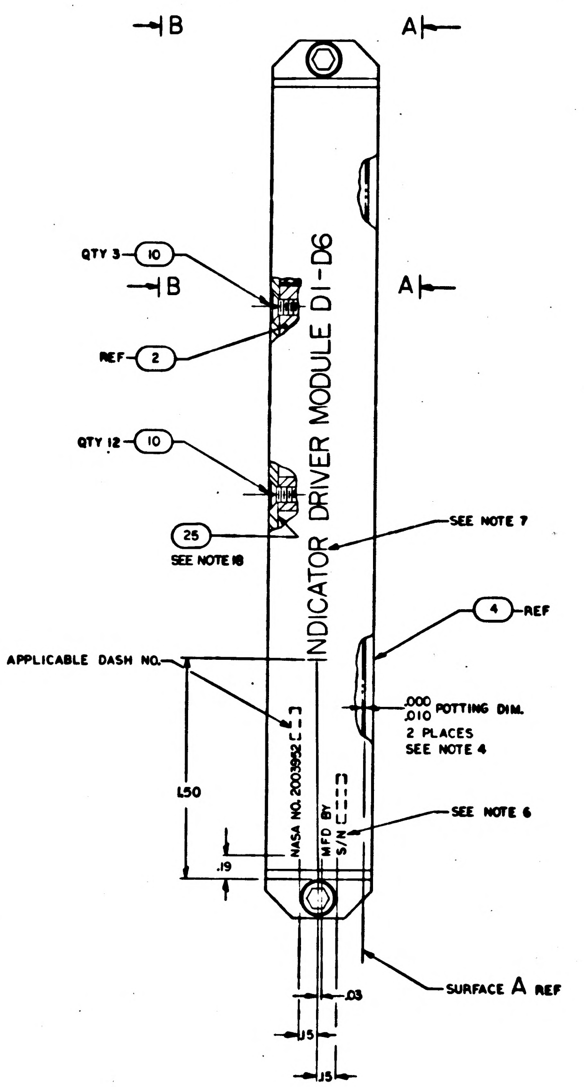
…NENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT
7	26	E29	51	E34	76	K19-4	101	E10
2	27	K16-3	52	K18-10	77	E44	102	E11
7	28	K16-1	53	K13-8	78	K15-4	103	E9
1	29	K12-7	54	K8-8	79	K20-8	104	E13
6	30	K2-7	55	K3-8	80	K20-10	105	E49
4	31	K17-6	56	K3-7	81	K20-1	106	E14
1	32	E30	57	E35	82	K20-4	107	E12
8	33	K17-10	58	K18-4	83	K5-4	108	CR52
	34	K12-8	59	K18-1	84	K10-4	109	CR60
3	35	E31	60	K18-8	85	R22	110	CR51
4	36	K7-7	61	E37	86	R24	111	E16
6	37	K17-4	62	E36	87	Q12-C	112	E50
	38	K17-8	63	K19-6	88	E45	113	E17
	39	K2-8	64	K18-2	89	R16	114	E18
7	40	K7-8	65	E40	90	R12	115	R5
	41	K2-4	66	E39	91	R1	116	CR59
8	42	K7-4	67	E38	92	Q1-C	117	CR62
8	43	K12-4	68	G1	93	SPARE	118	CR61
10	44	E32	69	E42	94	CR57	119	E21
6	45	K18-6	70	K19-8	95	Q13-C	120	E20
4	46	K18-7	71	E41	96	SPARE	121	E23
8	47	E33	72	K19-10	97	CR53	122	CR64
	48	K17-1	73	E43	98	CR54	123	CR58
8	49	K8-7	74	K20-7	99	CR55	124	CR63
7	50	K13-7	75	K19-1	100	CR56		

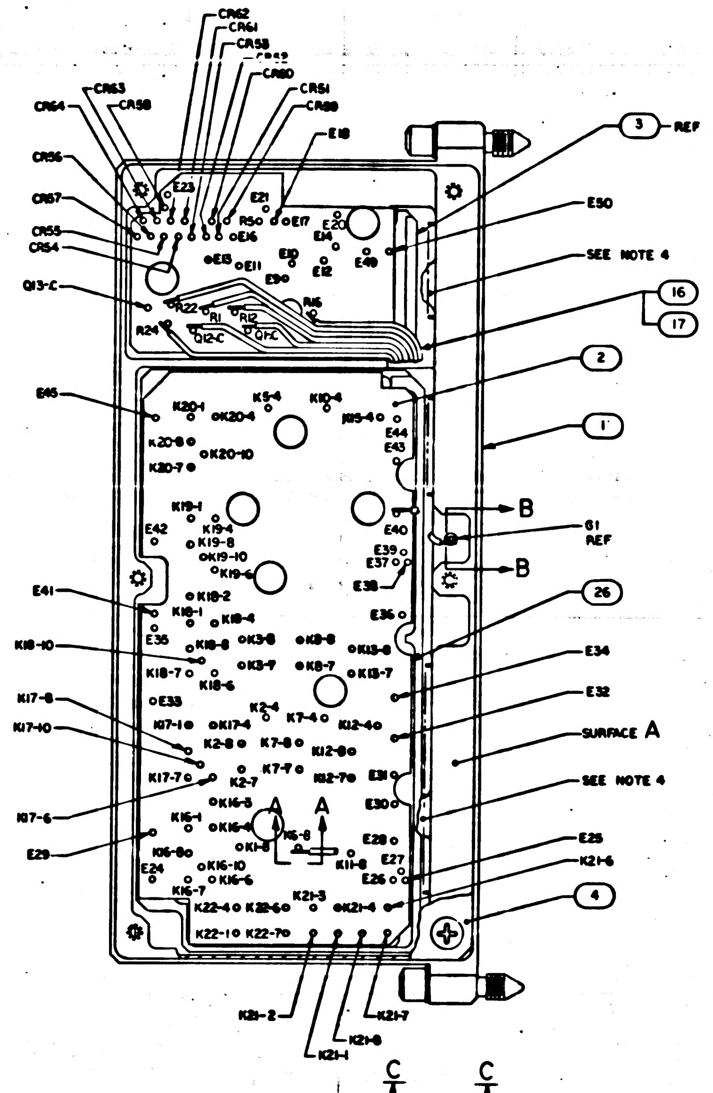

SEE DETAIL B
R11 REF
E20 REF
QTY 2 7
QTY 2 6
QTY 2 9
QTY 2 8
.000 .010 TYP.
Q7-b REF


11
.075 MAX TYP
.060 MAX E20 ONLY
LOWER LEVEL WIRING .070 MAX
.140 MAX
UPPER LEVEL WIRING
SPECIAL LEVEL WIRING .205 MAX
13
12
14

DETAIL B
SCALE 4/1

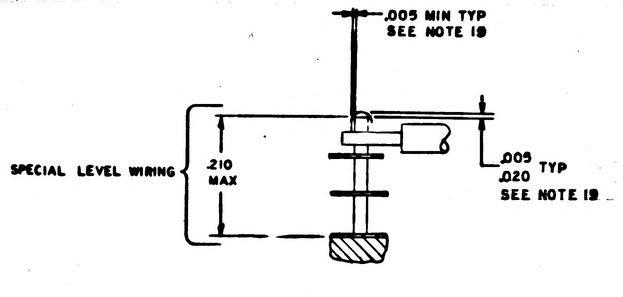



B
A
QTY 3 10
REF 2
QTY 12 10
25
SEE NOTE 18
INDICATOR DRIVER MODULE D1-D6
SEE NOTE 7
4 REF
APPLICABLE DASH NO.
.000 .010 POTTING DIM.
2 PLACES
SEE NOTE 4
1.50
NASA NO. 2003952
MFD BY S/N
SEE NOTE 6
.19
SURFACE A REF
.03
.15
.15

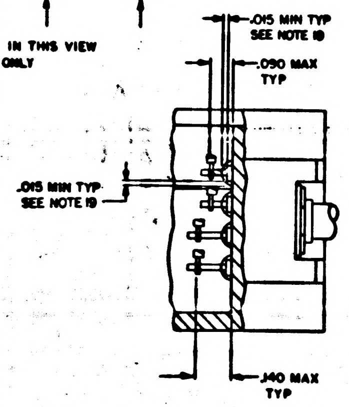

CR62
CR61
CR58
CR63
CR60
CR64
CR59
CR51
CR56
CR53
E18
CR57
E23
E21
CR55
CR54
R50
E17
E20
E16
E14
E13
E11
E10
E12
E49
E9
E50
Q13-C
R22
R1
R12
R16
Q12-C
Q1-C
R24
3 REF
SEE NOTE 4
16
17
2
1
E45
K20-1
K20-4
K5-4
K10-4
K15-4
E44
E43
K20-8
K20-7
K20-10
K19-1
K19-4
K19-8
K19-10
K19-6
E42
E40
61 REF
B
E39
E37
E38
E41
K18-2
K18-1
K18-4
E35
K18-10
K18-8
K3-8
K8-8
K13-8
E36
26
K18-7
K3-7
K8-7
K13-7
E34
K18-6
K17-8
E33
K2-4
K7-4
K12-4
E32
K17-10
K17-1
K17-4
K2-8
K7-8
K12-8
SURFACE A
K17-7
K2-7
K7-7
K12-7
E31
E30
SEE NOTE 4
K17-6
K16-3
K16-1
K16-8
K11-8
A
E28
E27
E25
K21-6
E29
K16-8
E24
K16-10
K16-6
K16-7
E26
K21-3
4
K22-4
K22-6
K21-4
K22-10
K22-7
K21-2
K21-7
K21-8
K21-1

C C

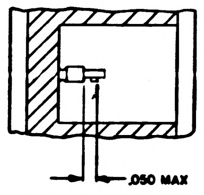
COMPONENT DESIGNATIONS IN THIS VIEW ARE FOR REFERENCE ONLY


.005 MIN TYP
SEE NOTE 19
SPECIAL LEVEL WIRING
.210 MAX
.005 TYP
.020
SEE NOTE 19

PARTIAL SECTION A-A
TYPICAL FOR PINS OF FIND NO.2
SCALE 10/1


.015 MIN TYP
SEE NOTE 19
.090 MAX
TYP
.015 MIN TYP
SEE NOTE 19
.140 MAX
TYP

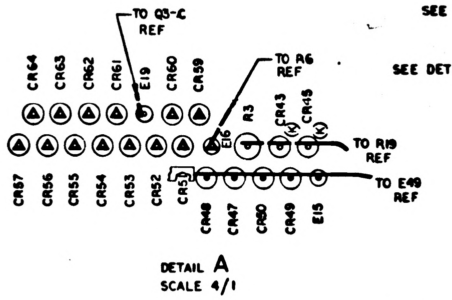
PARTIAL VIEW C-C
SCALE 4/1



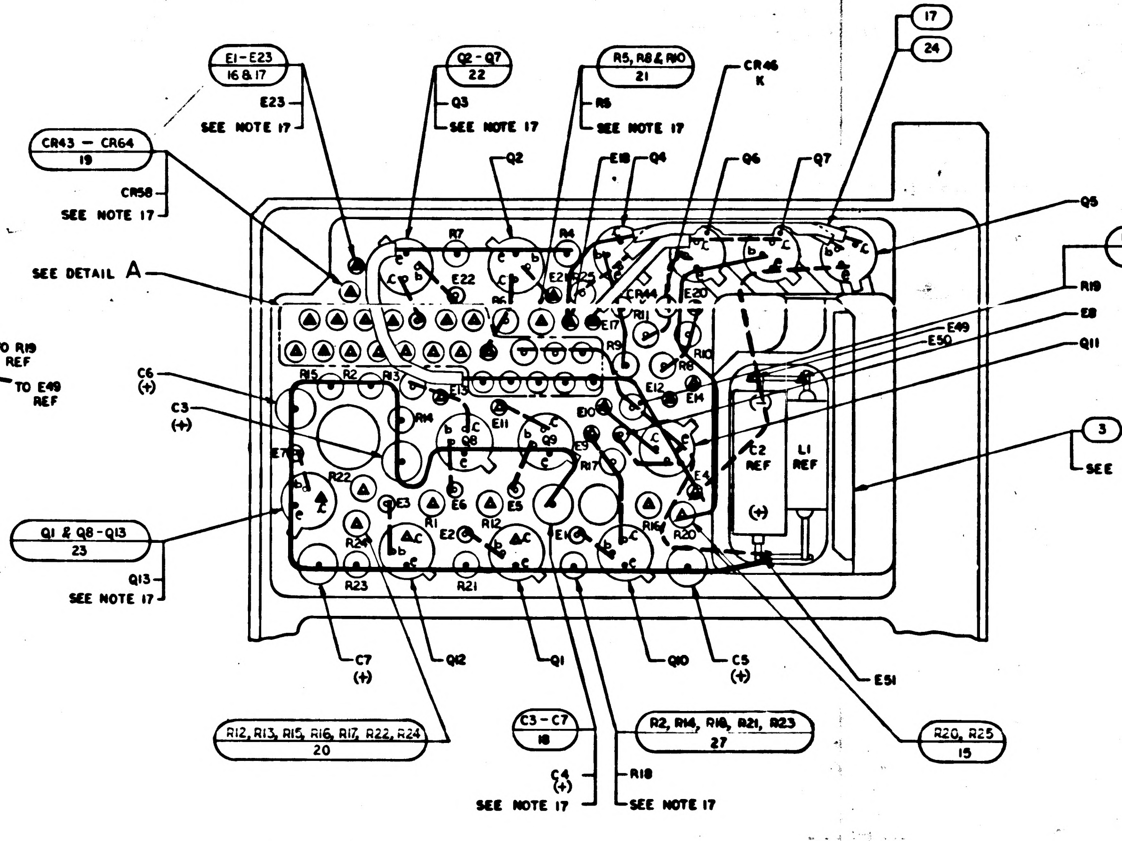
SECTION B-B
SCALE 4/1

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ±.02 ANGLES ± DO NOT SCALE THIS DRAWING
		MATERIAL
2003985		HEAT TREATMENT
NEXT ASSY	USED ON	FINAL FINISH
APPLICATION		

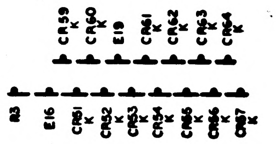
NOTICE - [illegible]


TO Q3-C REF
CR64
CR63
CR62
CR61
E19
CR60
CR59
TO R6 REF
E16
R3
CR43 (K)
CR45 (K)
TO R19 REF
CR57
CR56
CR55
CR54
CR53
CR52
CR51
CR48
CR47
CR50
CR49
E15
TO E49 REF

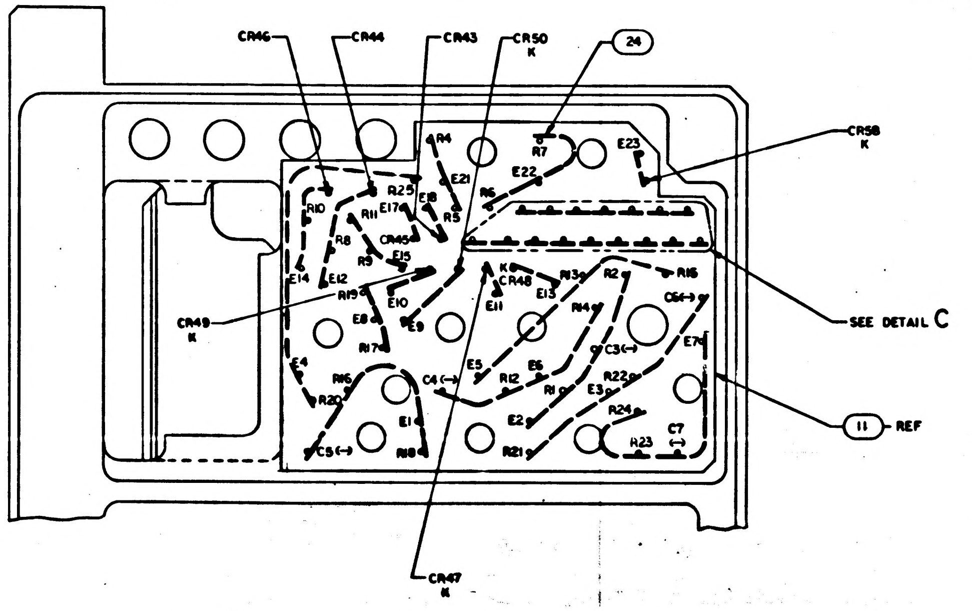
DETAIL A
SCALE 4/1


E1-E23
16 & 17
E23
SEE NOTE 17
Q2-Q7
22
Q3
SEE NOTE 17
R5, R8 & R10
21
R6
SEE NOTE 17
CR46
K
17
24
CR43 — CR64
19
CR58
SEE NOTE 17
Q2
E18
Q4
Q6
Q7
Q5
R1, R3, R4, R6, R7, R9, R11, R19
20
R19
E8
E49
E50
Q11
SEE DETAIL A
C6 (+)
C3 (+)
R7
R4
E22
E21
R25
CR44
E20
E17
R11
R9
R10
R8
R6
R15
R2
R13
E13
R14
E11
E12
E14
E10
Q8
Q9
E9
R17
E4
C2 REF
L1 REF
(+)
3
SEE NOTE 15
E7
R22
E3
E6
E5
R1
R12
R24
E2
E1
R16
R20
R23
R21
Q1 & Q8-Q13
23
Q13
SEE NOTE 17
C7 (+)
Q12
Q1
Q10
C5 (+)
E51
R12, R13, R15, R16, R17, R22, R24
20
C3 - C7
18
C4 (+)
SEE NOTE 17
R2, R14, R18, R21, R23
27
R18
SEE NOTE 17
R20, R25
15

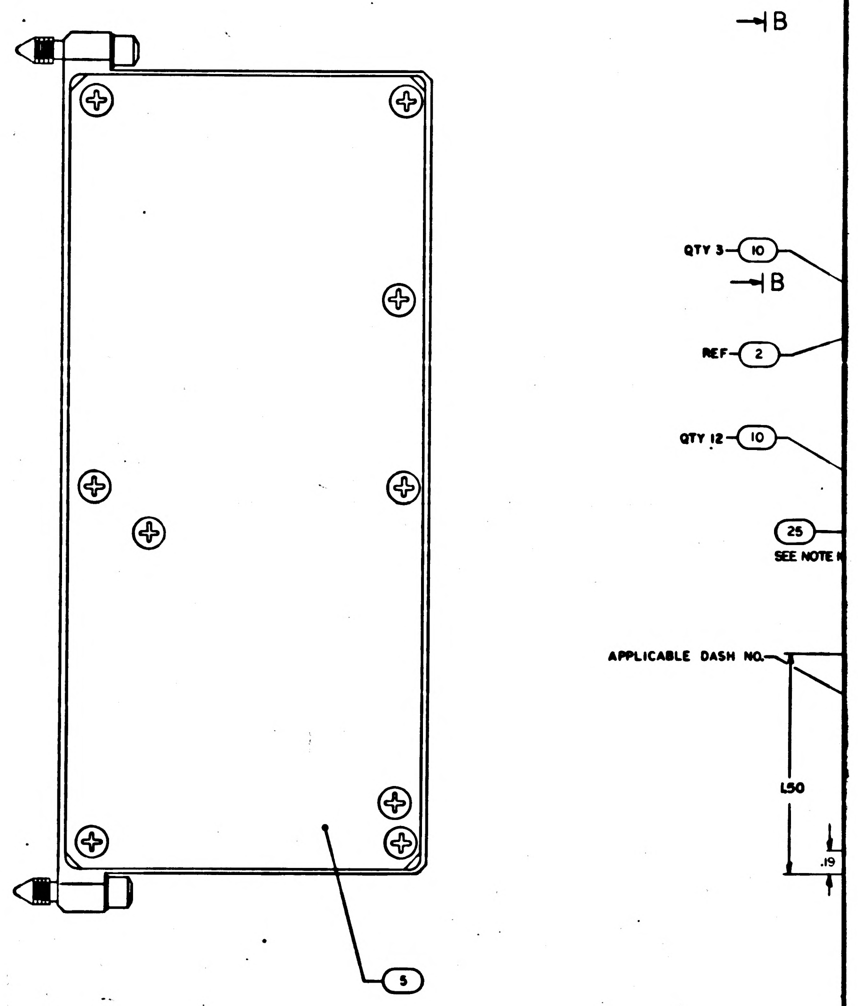
VIEW A-A
SCALE 4/1
VIEW SHOWN WITH FIND NO. 4, 12, 13, 14
AND SPECIAL LEVEL WIRING REMOVED


CR59 K
CR60 K
E19
CR61 K
CR62 K
CR63 K
CR64 K
R3
E16
CR51 K
CR52 K
CR53 K
CR54 K
CR55 K
CR56 K
CR57 K

DETAIL C
SCALE 4/1


CR46
CR44
CR43
CR50
K
24
R4
R7
E23
E22
E21
R25
E18
R6
R5
R10
R11
E17
R8
CR45
R9
E15
E14
E12
R19
E10
E9
K
CR48
R13
R2
R16
E11
E13
R14
C6(-)
E8
R17
C3(-)
E7
E4
R16
C4(-)
E5
R12
E6
R1
R22
E3
R20
E1
E2
R24
C7
(-)
R23
C5(-)
R18
R21
CR58
K
SEE DETAIL C
CR49
K
11
REF
CR47
K

VIEW B-B
SCALE 4/1
COMPONENT DESIGNATIONS IN THIS VIEW
ARE FOR REFERENCE ONLY


B
QTY 3
10
B
REF
2
QTY 12
10
25
SEE NOTE
APPLICABLE DASH NO.
1.50
.19
5

WIRING LEGEND

FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT
1	K21-7	26	E29	51	E34	76	K19-4
2	K21-2	27	K16-3	52	K18-10	77	E44
3	K22-7	28	K16-1	53	K13-8	78	K15-4
4	K22-1	29	K12-7	54	K8-8	79	K20-8
5	K22-6	30	K2-7	55	K3-8	80	K20-10
6	K22-4	31	K17-6	56	K3-7	81	K20-1
7	K21-1	32	E30	57	E35	82	K20-4
8	K21-8	33	K17-10	58	K18-4	83	K5-4
9	E24	34	K12-8	59	K18-1	84	K10-4
10	K21-3	35	E31	60	K18-8	85	R22
11	K21-4	36	K7-7	61	E37	86	R24
12	K21-6	37	K17-4	62	E36	87	Q12-C
13	E27	38	K17-8	63	K19-6	88	E45
14	E26	39	K2-8	64	K18-2	89	R16
15	K16-7	40	K7-8	65	E40	90	R12
16	E25	41	K2-4	66	E39	91	R1
17	K11-8	42	K7-4	67	E38	92	Q1-C
18	K16-8	43	K12-4	68	G1	93	SPARE
19	K16-10	44	E32	69	E42	94	CR57
20	K16-6	45	K18-6	70	K19-8	95	Q13-C
21	K16-4	46	K18-7	71	E41	96	SPARE
22	K1-8	47	E33	72	K19-10	97	CR53
23	E28	48	K17-1	73	E43	98	CR54
24	K6-8	49	K8-7	74	K20-7	99	CR55
25	K17-7	50	K13-7	75	K19-1	100	CR56

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. WELD PER ND1002005
3. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
4. ENCAPSULATE PER ND1002236
5. K DENOTES CATHODE SIDE OF DIODE
6. MARK .05/.07 HIGH WHITE CHARACTERS PER ND1002019 & ND1002122 TYPE II, CLASS 2 & SERIALIZE PER ND1002023 USING INK 1006271-1
7. MARK .18/.20 HIGH WHITE CHARACTERS PER ND1002019 & ND1002122 TYPE II, CLASS 2 USING INK 1006271-1
8. AR DENOTES AS REQUIRED
9. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
10. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
11. ▲ AND CLEAR LEADS INDICATE SPECIAL LEVEL WIRING
12. — DENOTES NEGATIVE SIDE OF CAPACITOR
13. + DENOTES POSITIVE SIDE OF CAPACITOR
14. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX THE DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH.
15. BOND FIND NO. 3 TO FIND NO. 1 PER ND1002004 TYPE IV
16. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH & SHALL MEET ALL THE REQUIREMENTS OF P.S. 2003902
17. STAKE FIND 15, 17 THRU 23, & FIND 27 TO FIND NO. 1 PER ND1002009 METHOD C OR D
18. APPLY FIND NO. 25 TO INDICATED SURFACE
19. SEAL INSULATORS ON FIND NO. 1 AND COAT LEADS THAT EXTEND THROUGH FIND NO. 14 AND FIND NO. 26 PER ND1002004 TYPE VI

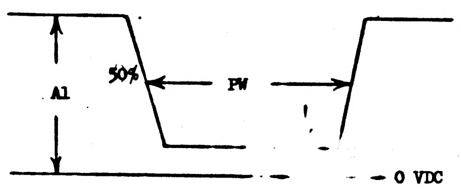

50%
PW
A1
0 VDC

Figure 3-6A

High Level (A1)	NLT 80% of B+
Low Level (A2)	0.70 + 0.20Volts
Pulse Width (PW)	15 ± 10 msec

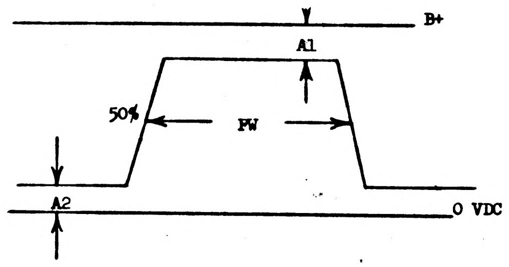

B+
A1
50%
PW
A2
0 VDC

Figure 3-6B

High Level (A1)	NMT 0.1V below B+
Low Level (A2)	0.70 + 0.20Volts
Pulse Width (PW)	15 ± 10 msec

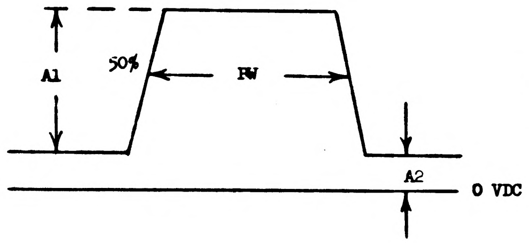

A1
50%
PW
A2
0 VDC

Figure 3-6C

High Level (A1)	0.8 + 0.2 Volts
Low Level (A2)	NMT 0.1 Volts
Pulse Width (PW)	15 ± 10 msec

Figure 3-6 Diode Decoding Output Pulse Characteristics

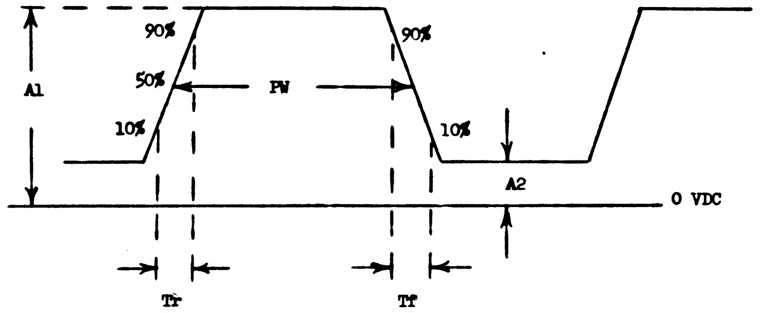


Figure 3-4A

High Level (A1)	2.25 ± 0.25 volts *
Low Level (A2)	1.0 ± 0.1 volt
Pulse Width (PW)	15 ± 10 msec
Rise Time (Tr)	NMT 1.0 usec
Fall Time (Tf)	NMT 1.0 usec
Duty Cycle	20% - 30%

When measured at either thermal extreme this characteristic shall be 2.25 ± 0.4 Volts.

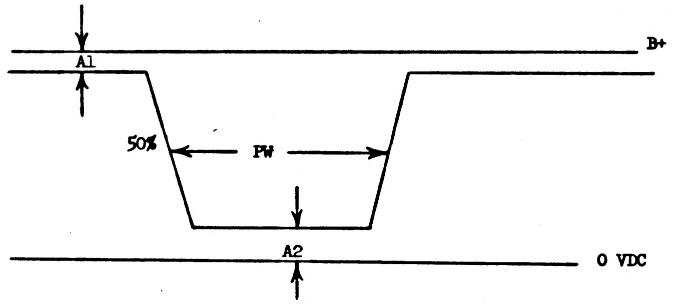


Figure 3-4B

High Level (A1)	NMT 0.1V below B+
Low Level (A2)	NMT 1.6 volts
Pulse Width (PW)	15 ± 10 msec

Figure 3-4 X Line Drivers Pulse Characteristics

4.1.1 Nonconforming Units. Failure of the unit to pass any examination or test of this specification shall automatically classify the unit as nonconforming. Each nonconforming unit corrected by the contractor shall be reinspected. Reinspection may be limited to the test or examination which defined the nonconformance, or, when directed by the cognizant inspector, a complete retest and re-examination may be required. Nonconforming units which have not been corrected will be considered for acceptance only upon formal application by the contractor to the cognizant NASA representative.

4.1.2 Test Conditions

4.1.2.1 Environmental. The assembly shall be tested under the following ambient conditions:

a. Temperature: 25° ± 10°C

b. Relative Humidity: 90% max

c. Barometric Pressure: 28 to 32 inches Hg

4.1.2.2 Module Case Ground. The dynamic tests specified in sections 3.1.18 thru 3.1.27 shall be conducted with module pin 68 connected to case ground (0 VDC).

4.2 TESTS

4.2.1 Drawing Compliance. The module shall be visually examined for compliance to the requirements of APOLLO G&N Drawing 2003952. Particular attention shall be given to inspection for damage to surfaces, structure, and equipment, including contaminants, pin misslignment, and legibility and appearance of marking.

4.2.2 Thermal Conditioning. Verify that the module was subjected to two complete thermal cycles as specified in paragraph 3.1.1 prior to performing the acceptance tests specified herein.

4.2.3 Continuity. Verify that the resistances measured between module pin 68 and chassis complies with that specified in paragraph 3.1.2. Anodizing may be penetrated to assure good electrical connection.

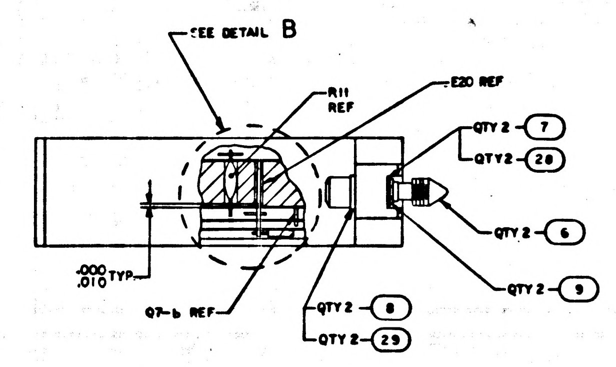
4.2.4 Insulation Resistance. Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between pin 68 and every other module pin. Verify that the resistance complies with that specified in paragraph 3.1.3.

4.2.5 Insulation Resistance.- Pin Group A. Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between the module pins specified in paragraph 3.1.4. Verify that the resistance complies with that specified in paragraph 3.1.4.

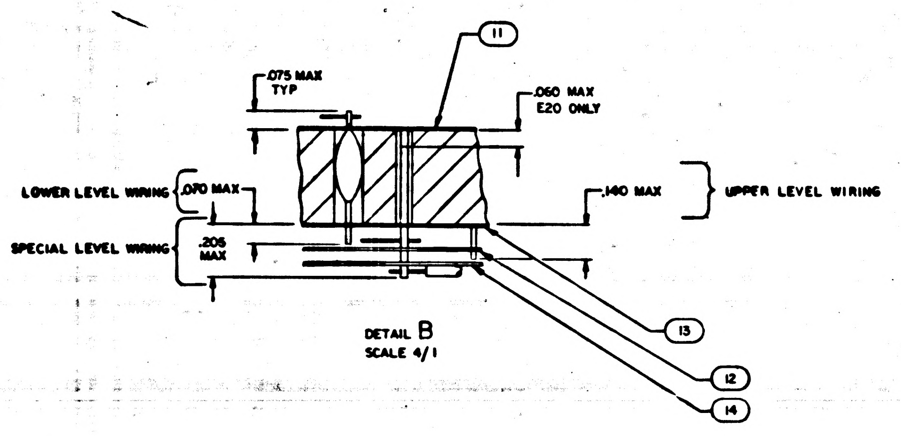
2003952	B		

SYM	DESCRIPTION	DATE	APPROVAL
	REVISIONS 24373		
A	REVISED PER TDRR 25151 DR Q.J. CHK	1/14/66	
B	REVISED PER TDRR 27551 DR R.P. CHK APPD		

FROM PIN NO.	TO COMPONENT
101	E10
102	E11
103	E9
104	E13
105	E49
106	E14
107	E12
108	CR52
109	CR60
110	CR51
111	E16
112	E50
113	E17
114	E18
115	R5
116	CR59
117	CR62
118	CR61
119	E21
120	E20
121	E23
122	CR64
123	CR58
124	CR63

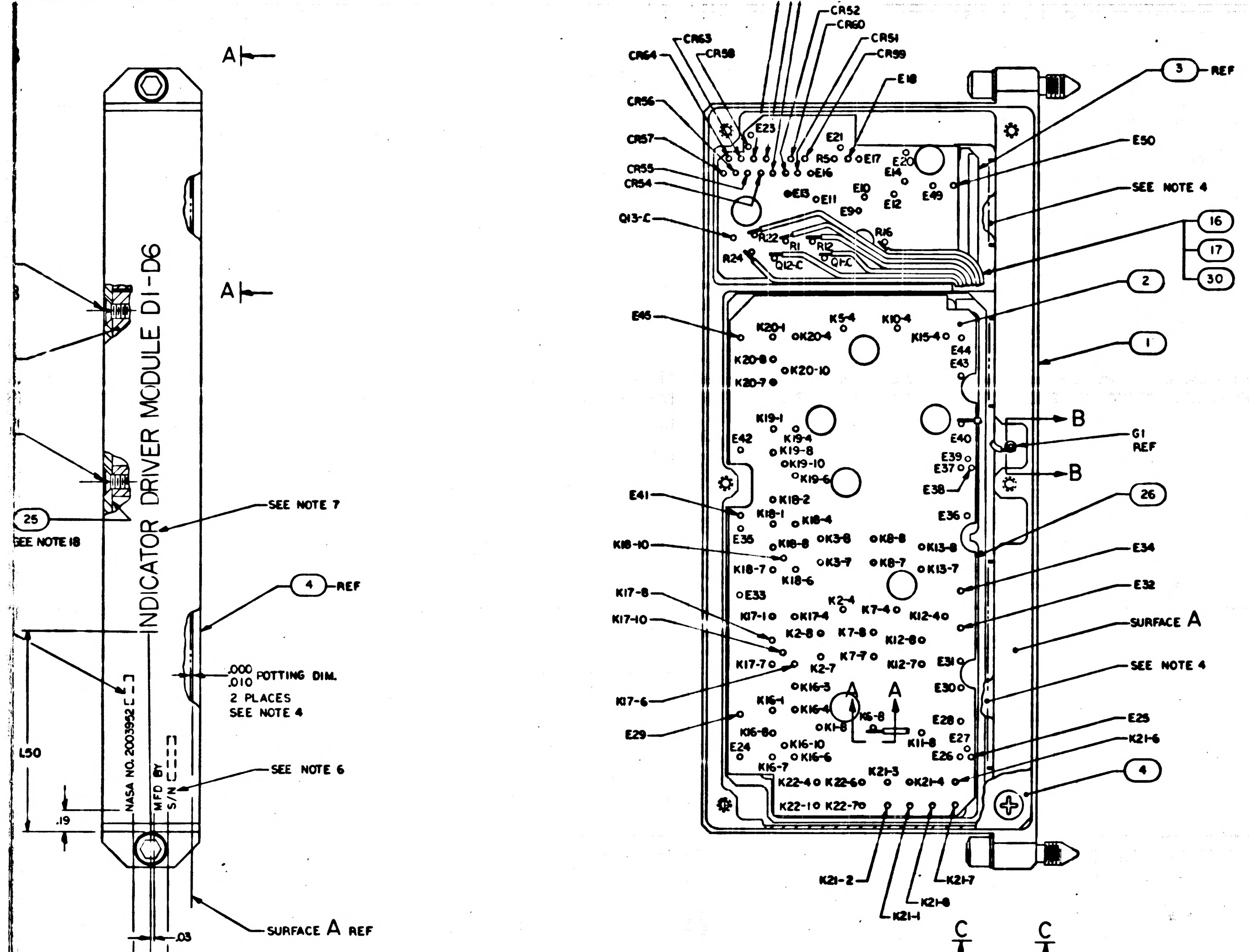


SEE DETAIL B
R11 REF
E20 REF
QTY 2 7
QTY 2 28
QTY 2 6
QTY 2 9
QTY 2 8
QTY 2 29
.000 .010 TYP
Q7-b REF



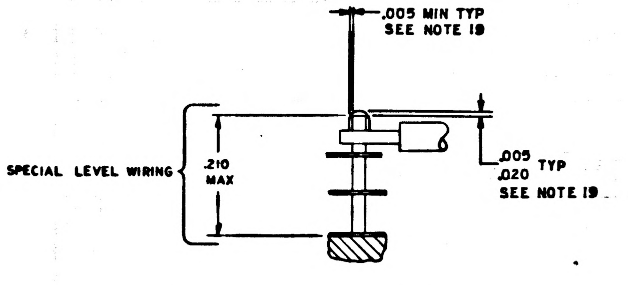
.075 MAX TYP
11
.060 MAX E20 ONLY
LOWER LEVEL WIRING
.070 MAX
.140 MAX
UPPER LEVEL WIRING
SPECIAL LEVEL WIRING
.205 MAX
13
12
14

DETAIL B
SCALE 4/1



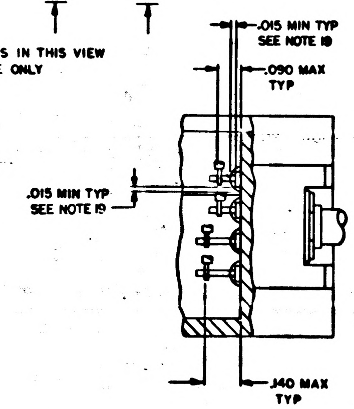
A
A
INDICATOR DRIVER MODULE D1-D6
25
SEE NOTE 18
SEE NOTE 7
4 REF
.000 .010 POTTING DIM. 2 PLACES SEE NOTE 4
NASA NO. 2003952
MFD BY
S/N
SEE NOTE 6
1.50
.19
SURFACE A REF
.03
.15
.15
CR62
CR61
CR59
CR52
CR60
CR51
CR99
CR63
CR58
CR64
CR56
CR57
CR55
CR54
Q13-C
E18
E23
E21
R50
E17
E16
E13
E11
E10
E14
E20
E49
E9
E12
R22
R1
R12
Q12-C
Q14C
R16
R24
3 REF
E50
SEE NOTE 4
16
17
30
2
1
E45
K20-1
K20-4
K20-8
K20-10
K20-7
K5-4
K10-4
K15-4
E44
E43
K19-1
K19-4
K19-8
K19-10
K19-6
E42
E40
E39
E37
E38
G1 REF
B
B
E41
K18-2
K18-1
K18-4
E35
K18-8
K3-8
K8-8
K13-8
K18-10
K18-7
K3-7
K8-7
K13-7
K18-6
E36
26
E34
E33
K2-4
K7-4
K12-4
E32
K17-8
K17-10
K17-4
K2-8
K7-8
K12-8
SURFACE A
K17-7
K2-7
K7-7
K12-7
SEE NOTE 4
K17-6
K16-1
K16-4
K16-3
K16-8
K1-8
K11-8
E31
E30
E29
E28
E27
E26
E25
K21-6
K16-8
E24
K16-10
K16-6
K16-7
K22-4
K22-6
K21-3
K21-4
4
K22-1
K22-7
K21-2
K21-1
K21-8
K21-7
C
C

COMPONENT DESIGNATIONS IN THIS VIEW ARE FOR REFERENCE ONLY



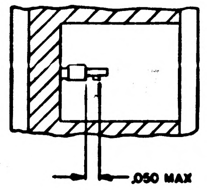
.005 MIN TYP SEE NOTE 19
SPECIAL LEVEL WIRING
.210 MAX
.005 .020 TYP SEE NOTE 19

PARTIAL SECTION A-A
TYPICAL FOR PINS OF FIND NO.2
SCALE 10/1



.015 MIN TYP SEE NOTE 19
.090 MAX TYP
.015 MIN TYP SEE NOTE 19
.140 MAX TYP

PARTIAL VIEW C-C
SCALE 4/1



SECTION B-B
SCALE 4/1

⨯	⨯	2005952	SCHEMATIC	REF
AR	—	1010848-1	WIRE, INSULATED	30
2	—	2004984-001	WASHER, FLAT	29
2	—	2004984-003	WASHER, FLAT	28
5	5	1006750-39	RESISTOR, FIXED FILM	27
1	1	2004917	INSULATOR	26
AR	AR	1006879	COMPOUND, SILICONE THERMOCONDUCTIVE	25
AR	AR	1006757-1	WIRE, ELECTRICAL .010 X .020	24
7	7	2004004-002	TRANSISTOR	23
6	6	2004004-001	TRANSISTOR	22
3	3	1006750-62	RESISTOR, FIXED FILM	21
15	15	1006750-56	RESISTOR, FIXED FILM	20
22	22	2004103-001	SEMICONDUCTOR DEVICE, DIODE	19
5	5	1006755-106	CAPACITOR, FIXED	18
AR	AR	1006776-22	SLEEVING, INSULATION	17
—	AR	1006757-8	WIRE, ELECTRICAL .020 DIA	16
2	2	1006750-32	RESISTOR, FIXED FILM	15
1	1	2004993	INSULATOR, PHOTOMASTER, SPECIAL LEVEL	14
1	1	2004992-011	INSULATOR, PHOTOMASTER, LOWER LEVEL	13
1	1	2004991	INSULATOR, PHOTOMASTER, UPPER LEVEL	12
1	1	2004990-011	INSULATOR, PHOTOMASTER, REAR	11
15	15	MS24693-C2	SCREW, FLAT HD, CROSS RECESSED	10
2	2	MS16633-4015	RING, RETAINING, EXTERNAL	9
—	2	1004546-1	WASHER, FLAT	8
—	2	1004546-3	WASHER, FLAT	7
2	2	1004579-1	SCREW, JACKING	6
1	1	2004956	COVER, REAR	5
1	1	2004911	COVER	4
1	1	2003908-011	DECODING CIRCUIT ASSY	3
1	1	2003910-011	RELAY CIRCUIT ASSY	2
1	1	2003907-011	HEADER ASSY	1
QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
021	011	LIST OF MATERIALS		

2003952 B

NEXT ASSY	USED ON
2003950	
2003985	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN DATE 24 NOV
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

INDICATOR DRIVER ASSY
MODULE D1-D6
AGC DSKY

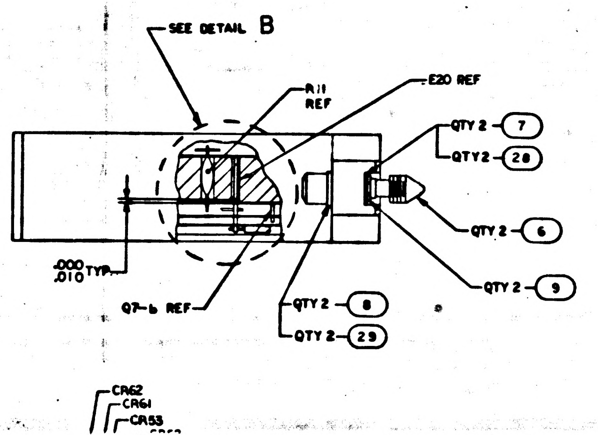
CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	J	2003952
SCALE 2/1	WT	SHEET 1 OF 1

2003952 B

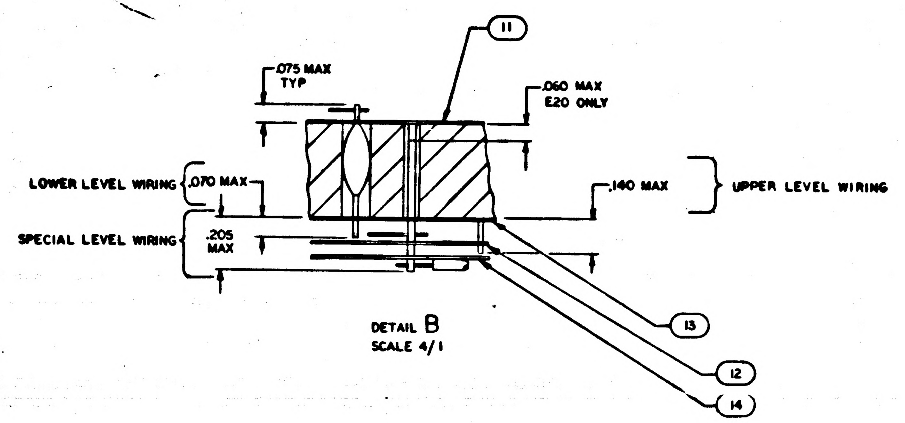
F3/13

WIRING LEGEND

FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT
1	K21-7	26	E29	51	E34	76	K19-4	101	E10
2	K21-2	27	K16-3	52	K18-10	77	E44	102	E11
3	K22-7	28	K16-1	53	K13-8	78	K15-4	103	E9
4	K22-1	29	K12-7	54	K8-8	79	K20-8	104	E13
5	K22-6	30	K2-7	55	K3-8	80	K20-10	105	E49
6	K22-4	31	K17-6	56	K3-7	81	K20-1	106	E14
7	K21-1	32	E30	57	E35	82	K20-4	107	E12
8	K21-8	33	K17-10	58	K18-4	83	K5-4	108	CR52
9	E24	34	K12-8	59	K18-1	84	K10-4	109	CR60
10	K21-3	35	E31	60	K18-8	85	R22	110	CR51
11	K21-4	36	K7-7	61	E37	86	R24	111	E16
12	K21-6	37	K17-4	62	E36	87	Q12-C	112	E50
13	E27	38	K17-8	63	K19-6	88	E45	113	E17
14	E26	39	K2-8	64	K18-2	89	R16	114	E18
15	K16-7	40	K7-8	65	E40	90	R12	115	R5
16	E25	41	K2-4	66	E39	91	R1	116	CR59
17	K11-8	42	K7-4	67	E38	92	Q1-C	117	CR62
18	K16-8	43	K12-4	68	G1	93	SPARE	118	CR61
19	K16-10	44	E32	69	E42	94	CR57	119	E21
20	K16-6	45	K18-6	70	K19-8	95	Q13-C	120	E20
21	K16-4	46	K18-7	71	E41	96	SPARE	121	E23
22	K1-8	47	E33	72	K19-10	97	CR53	122	CR64
23	E28	48	K17-1	73	E43	98	CR54	123	CR58
24	K6-8	49	K8-7	74	K20-7	99	CR55	124	CR63
25	K17-7	50	K13-7	75	K19-1	100	CR56		

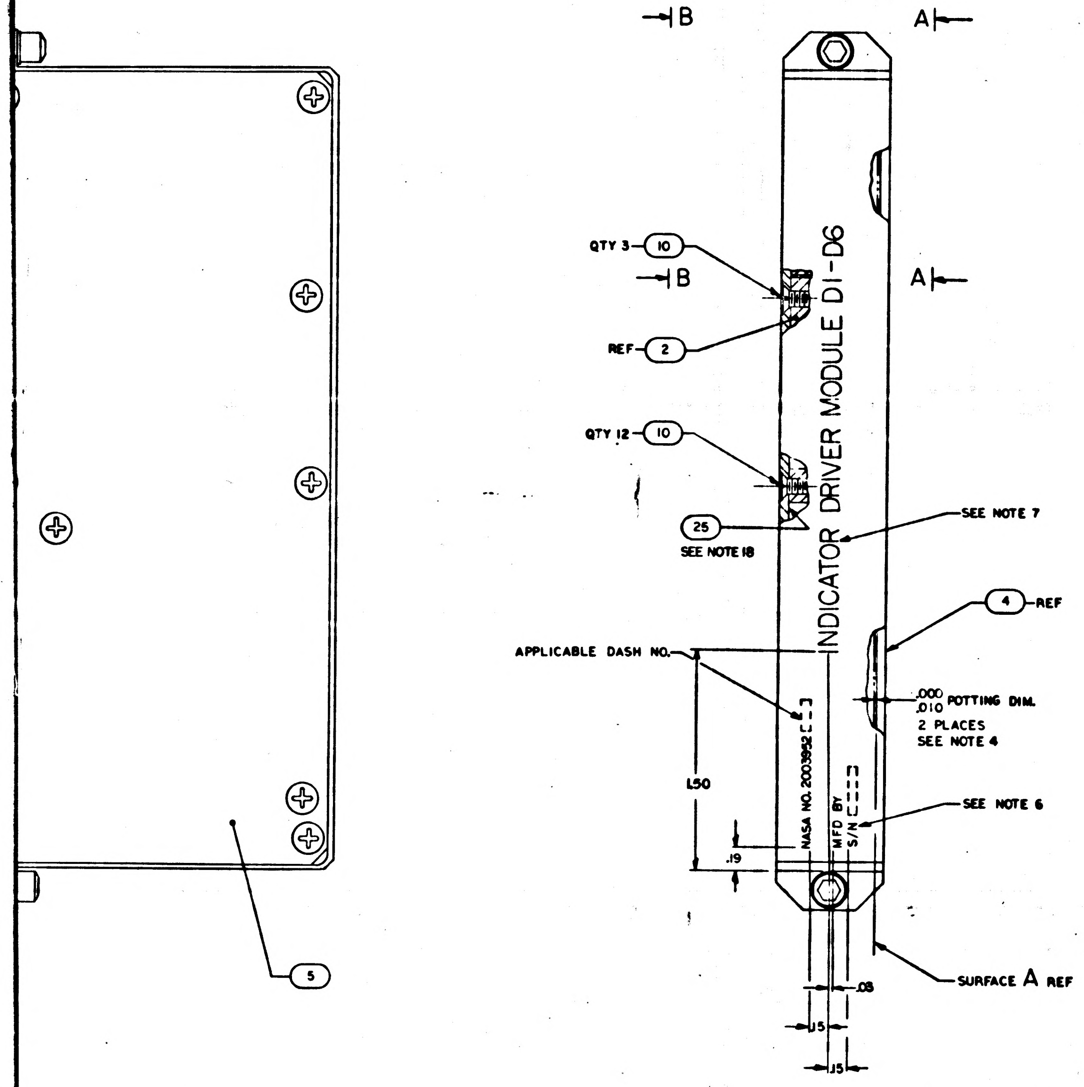


SEE DETAIL B
R11 REF
E20 REF
QTY 2 (7)
QTY 2 (28)
QTY 2 (6)
QTY 2 (9)
QTY 2 (8)
QTY 2 (29)
.000 .010 TYP
Q7-b REF

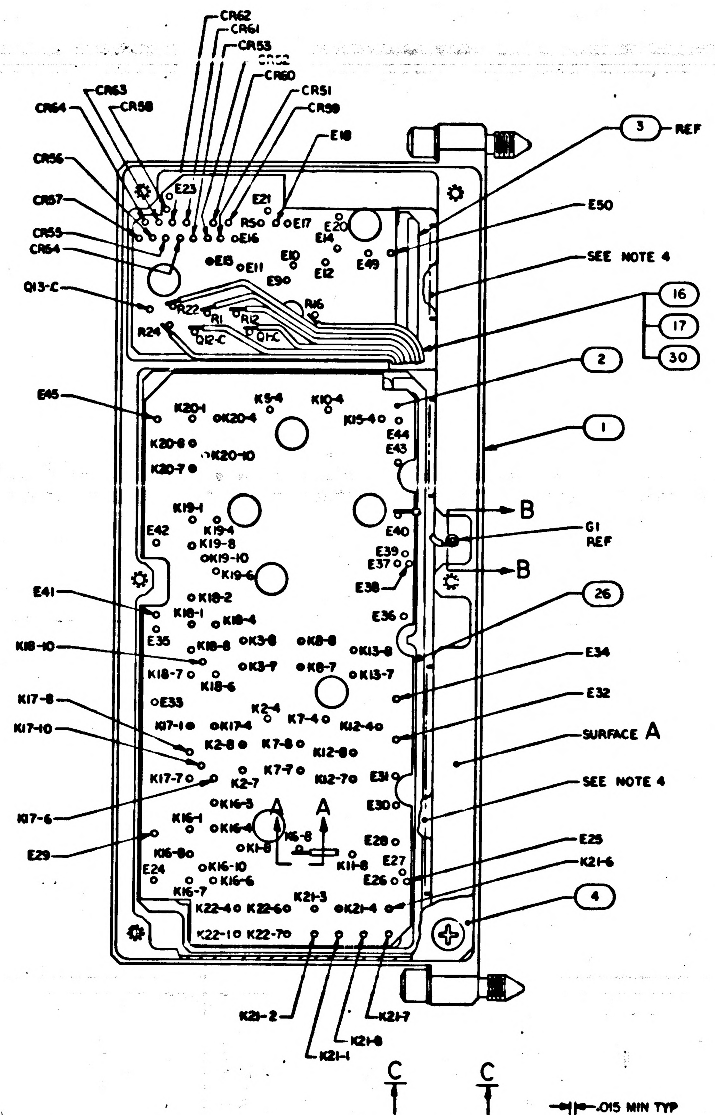


(11)
.075 MAX TYP
.060 MAX E20 ONLY
LOWER LEVEL WIRING
.070 MAX
.140 MAX
UPPER LEVEL WIRING
SPECIAL LEVEL WIRING
.205 MAX
(13)
(12)
(14)

DETAIL B
SCALE 4/1

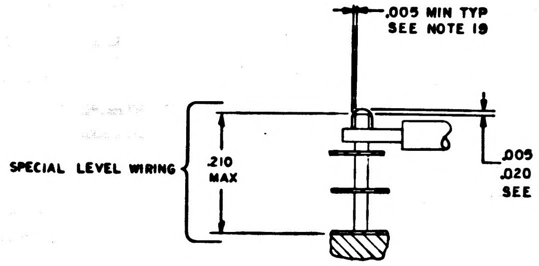


B
A
QTY 3 (10)
B
A
REF (2)
QTY 12 (10)
(25) SEE NOTE 18
INDICATOR DRIVER MODULE DI-D6
SEE NOTE 7
(4) REF
APPLICABLE DASH NO.
.000 .010 POTTING DIM. 2 PLACES SEE NOTE 4
NASA NO. 2003952
MFD BY
S/N
SEE NOTE 6
1.50
.19
SURFACE A REF
.08
.15
.15
(5)



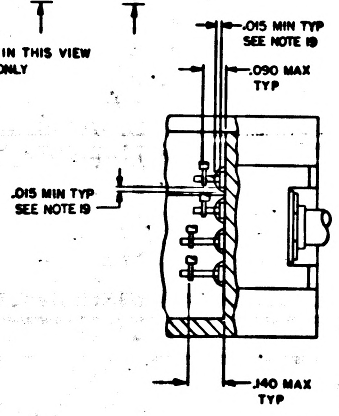
CR62
CR61
CR53
CR52
CR60
CR51
CR59
CR63
CR58
CR64
CR56
CR57
CR55
CR54
Q13-C
E23
E21
E18
(3) REF
E50
SEE NOTE 4
(16)
(17)
(30)
(2)
(1)
E45
K20-1
K20-4
K5-4
K10-4
K15-4
E44
E43
K20-8
K20-10
K20-7
K19-1
K19-4
K19-8
K19-10
K19-6
E42
E40
B
G1 REF
E39
E37
B
E41
E38
K18-2
K18-1
K18-4
E36
(26)
K18-10
E35
K18-8
K3-8
K8-8
K13-8
K18-7
K3-7
K8-7
K13-7
E34
K18-6
E33
E32
K17-8
K2-4
K7-4
K12-4
K17-10
K17-1
K17-4
K2-8
K7-8
K12-8
SURFACE A
K17-7
K2-7
K7-7
K12-7
E31
SEE NOTE 4
K17-6
K16-3
E30
A
A
K16-1
K16-4
K11-8
K16-8
E28
E25
E29
K16-8
K16-10
K16-6
E27
K21-6
E24
K16-7
E26
K22-4
K22-6
K21-3
K21-4
(4)
K22-10
K22-7
K21-2
K21-8
K21-1
K21-7
R50
E17
E20
E16
E14
E15
E11
E10
E12
E49
E9
R16
R22
R11
R12
R24
Q12-C
Q1-C
C
C

COMPONENT DESIGNATIONS IN THIS VIEW
ARE FOR REFERENCE ONLY



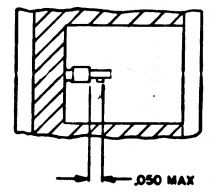
.005 MIN TYP
SEE NOTE 19
SPECIAL LEVEL WIRING
.210 MAX
.005 .020 TYP
SEE NOTE 19

PARTIAL SECTION A-A
TYPICAL FOR PINS OF FIND NO. 2
SCALE 10/1



.015 MIN TYP
SEE NOTE 19
.090 MAX TYP
.015 MIN TYP
SEE NOTE 19
.140 MAX TYP

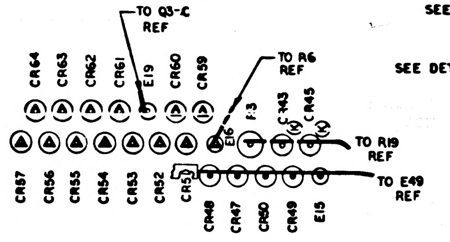
PARTIAL VIEW C-C
SCALE 4/1



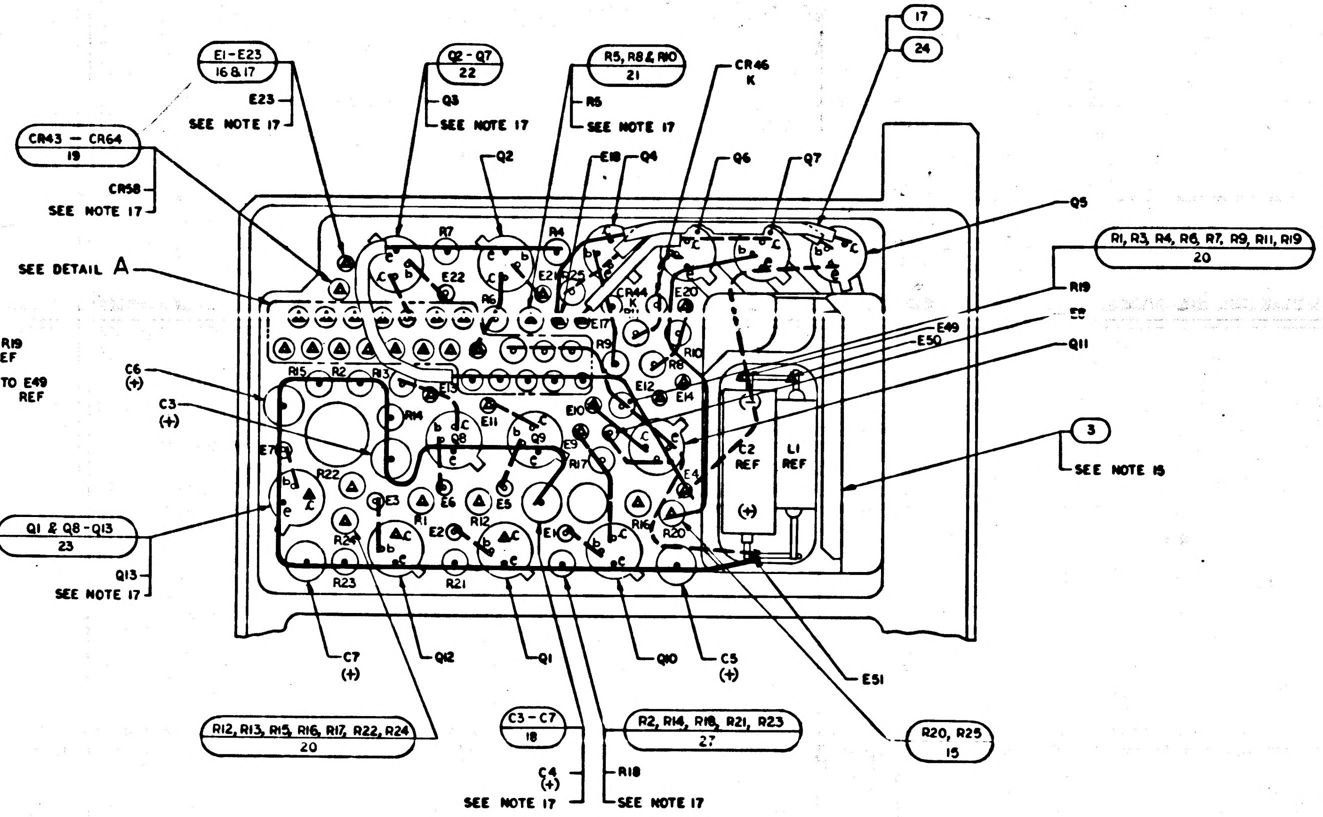
SECTION B-B
SCALE 4/1

2003950	
2003985	
NEXT ASSY	USED ON
APPLICATION	

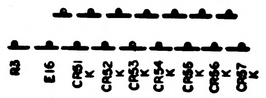
2003952 B


TO Q3-C REF
TO R6 REF
TO R19 REF
TO E49 REF
CR64
CR63
CR62
CR61
E19
CR60
CR59
F3
CR43
CR45
CR57
CR56
CR55
CR54
CR53
CR52
CR51
CR48
CR47
CR50
CR49
E15

DETAIL A
SCALE 4/1

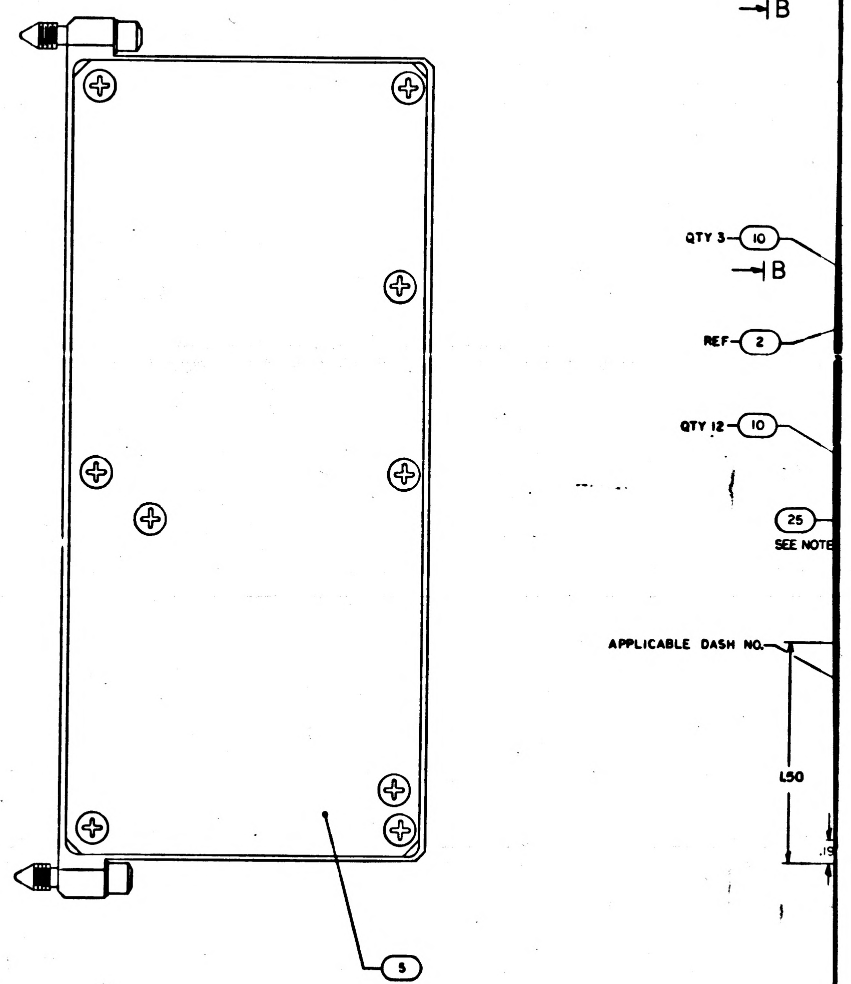

E1-E23 16 & 17
E23
SEE NOTE 17
Q2-Q7 22
Q3
SEE NOTE 17
R5, R8 & R10 21
R5
SEE NOTE 17
CR46 K
17
24
CR43 - CR64 19
CR58
SEE NOTE 17
SEE DETAIL A
Q2
E18
Q4
Q6
Q7
Q5
R1, R3, R4, R6, R7, R9, R11, R19 20
R19
E49
E50
Q11
C6 (+)
C3 (+)
3
SEE NOTE 15
L1 REF
C2 REF
Q1 & Q8-Q13 23
Q13
SEE NOTE 17
C7 (+)
Q12
Q1
Q10
C5 (+)
E51
R12, R13, R15, R16, R17, R22, R24 20
C3-C7 18
R2, R14, R18, R21, R23 27
R20, R25 15
C4 (+)
R18
SEE NOTE 17
SEE NOTE 17

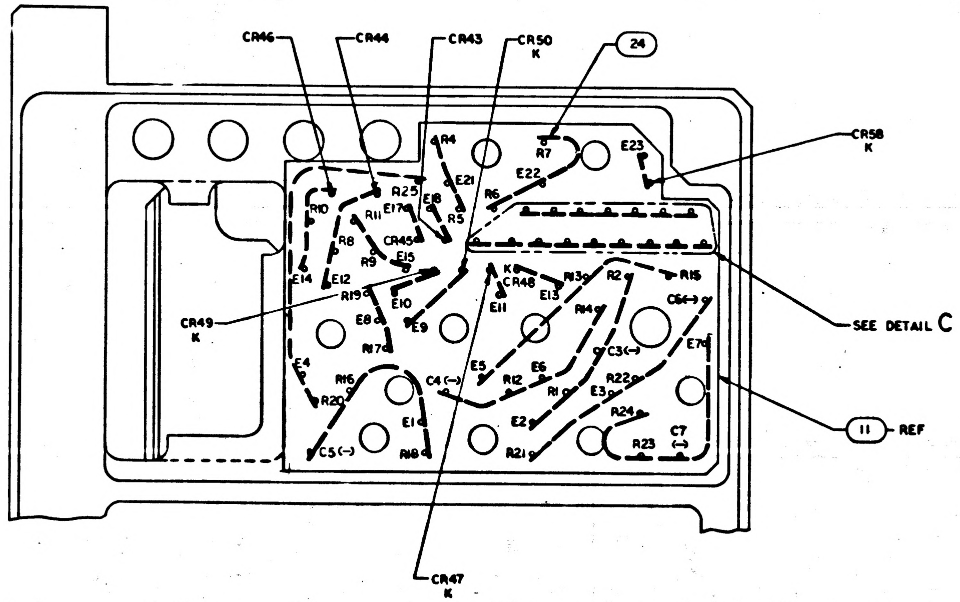
VIEW A-A
SCALE 4/1
VIEW SHOWN WITH FIND NO. 4, 12, 13, 14
AND SPECIAL LEVEL WIRING REMOVED


CR59 K
CR50 K
E18
CR61 K
CR62 K
CR63 K
CR64 K
R3
E16
CR60 K
CR52 K
CR53 K
CR54 K
CR56 K
CR55 K
CR57 K

DETAIL C
SCALE 4/1

WIRING LEGEND							
FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT
1	K21-7	26	E29	51	E34	76	K19-4
2	K21-2	27	K16-3	52	K18-10	77	E44
3	K22-7	28	K16-1	53	K13-8	78	K15-4
4	K22-1	29	K12-7	54	K8-8	79	K20-8
5	K22-6	30	K2-7	55	K3-8	80	K20-10
6	K22-4	31	K17-6	56	K3-7	81	K20-1
7	K21-1	32	E30	57	E35	82	K20-4
8	K21-8	33	K17-10	58	K18-4	83	K5-4
9	E24	34	K12-8	59	K18-1	84	K10-4
10	K21-3	35	E31	60	K18-8	85	R22
11	K21-4	36	K7-7	61	E37	86	R24
12	K21-6	37	K17-4	62	E36	87	Q12-C
13	E27	38	K17-8	63	K19-6	88	E45
14	E26	39	K2-8	64	K18-2	89	R16
15	K16-7	40	K7-8	65	E40	90	R12
16	E25	41	K2-4	66	E39	91	R1
17	K11-8	42	K7-4	67	E38	92	Q1-C
18	K16-8	43	K12-4	68	G1	93	SPARE
19	K16-10	44	E32	69	E42	94	CR57
20	K16-6	45	K18-6	70	K19-8	95	Q13-C
21	K16-4	46	K18-7	71	E41	96	SPARE
22	K1-8	47	E33	72	K19-10	97	CR53
23	E28	48	K17-1	73	E43	98	CR54
24	K6-8	49	K8-7	74	K20-7	99	CR55
25	K17-7	50	K13-7	75	K19-1	100	CR56


B
QTY 3
10
B
REF
2
QTY 12
10
25
SEE NOTE
APPLICABLE DASH NO.
.150
5


CR46
CR44
CR43
CR50 K
24
CR58 K
SEE DETAIL C
CR49 K
11
REF
CR47 K
R4
R7
E23
E22
E21
R6
R25
R10
E17
R11
E18
R5
CR45
R8
R9
E15
E14
E12
R19
E10
CR48
R13
R2
R15
E11
E13
R14
C6(+)
E8
E9
R17
C3(-)
E7
E4
R16
C4(-)
R12
E5
E6
R1
R22
E3
R24
R20
C5(-)
E1
R18
E2
R21
R23
C7 (-)

VIEW B-B
SCALE 4/1
COMPONENT DESIGNATIONS IN THIS VIEW
ARE FOR REFERENCE ONLY

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. WELD PER ND1002005
3. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
4. ENCAPSULATE PER ND1002236
5. K DENOTES CATHODE SIDE OF DIODE
6. MARK .05/.07 HIGH WHITE CHARACTERS PER ND1002019 & ND1002122 TYPE II, CLASS 2 & SERIALIZE PER ND1002023 USING INK 1006271-1
7. MARK .18/.20 HIGH WHITE CHARACTERS PER ND1002019 & ND1002122 TYPE II, CLASS 2 USING INK 1006271-1
8. AR DENOTES AS REQUIRED
9. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
10. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
11. ▲ AND CLEAR LEADS INDICATE SPECIAL LEVEL WIRING
12. − DENOTES NEGATIVE SIDE OF CAPACITOR
13. + DENOTES POSITIVE SIDE OF CAPACITOR
14. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX THE DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH.
15. BOND FIND NO. 3 TO FIND NO. 1 PER ND1002004 TYPE IV
16. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH & SHALL MEET ALL THE REQUIREMENTS OF P.S. 2003902
17. STAKE FIND 15, 17 THRU 23, & FIND 27 TO FIND NO. 1 PER ND1002009 METHOD C OR D
18. APPLY FIND NO. 25 TO INDICATED SURFACE
19. SEAL INSULATORS ON FIND NO. 1 AND COAT LEADS THAT EXTEND THROUGH FIND NO. 14 AND FIND NO. 26 PER ND1002004 TYPE VI

2003952 B

APOLLO G&N Specification
PS 2003952 Rev. B
Original Issue Date: 5-10-66
Release Authority: TDRR 28638
Class Release

PROCUREMENT SPECIFICATION
PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS
INDICATOR DRIVER MODULE
DRAWING NO. 2003952

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals MIT	Approvals NASA
Ⓜ [illegible]	A	29210	1, 16, 18, 22	[illegible]	[illegible]
Ⓜ 9/15/66	B	31060	1,3,4,5,20,21,22,23,2425	[illegible]	[illegible]

This specification consists of pages 1 to 28 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	5/9/66 5-9-66 MIT/IL	4/22/66 4/22/66 4/22/66 RAY

3.1.29 Vibration. The module shall perform as specified in paragraphs 3.1.18 through 3.1.27 when installed in an operating DSKY which is being subjected to the vibration requirements specified in the applicable specifications for the DSKY. Acceptance criteria for the module shall be the compliance of the DSKY with its applicable specifications.

3.2 PRODUCT CONFIGURATION

3.2.1 Drawings. The configuration of the module shall be in accordance with Apollo G&N Drawing 2003952 and all drawings and engineering data referenced thereon.

3.2.2 Weight. Maximum allowable weight of the module shall 1.11 pounds.

4. QUALITY ASSURANCE PROVISIONS

4.1 GENERAL. The contractor responsible for the manufacture of the assembly shall be responsible for the accomplishment of each test required herein. See Table 4-1, Product Performance and Configuration Requirement/Quality Verification Cross Reference Index.

TABLE 4-1

Requirement	Verification	Requirements	Verification
3.1.1	4.2.2	3.1.7.1	4.2.8.1
3.1.2	4.2.3	3.1.7.2	4.2.8.2
3.1.3	4.2.4	3.1.7.3	4.2.8.3
3.1.5	4.2.6	3.1.8	4.2.9
3.1.6	4.2.7	3.1.8.1	4.2.9.1
3.1.7	4.2.8	3.1.8.2	4.2.9.2

TABLE 4-1 (Cont'd)

Requirement	Verification	Requirement	Verification
3.1.8.3	4.2.9.3	3.1.20	4.2.20
3.1.8.4	4.2.9.4	3.1.20.1	4.2.20.1
3.1.8.5	4.2.9.5	3.1.21	4.2.21
3.1.8.6	4.2.9.6	3.1.21.1	4.2.21.1
3.1.9	4.2.10	3.1.22	4.2.22
3.1.9.1	4.2.10.1	3.1.22.1	4.2.22.1
3.1.9.2	4.2.10.2	3.1.23	4.2.23
3.1.9.3	4.2.10.3	3.1.23.1	4.2.23.1
3.1.9.4	4.2.10.4	3.1.23.2	4.2.23.2
3.1.9.5	4.2.10.5	3.1.24	4.2.24
3.1.9.6	4.2.10.6		
3.1.10	4.2.11	3.1.25	4.2.25
3.1.11	4.2.12	3.1.26	4.2.26
3.1.12	4.2.13	3.1.27	4.2.27
3.1.13	4.2.14	3.1.27.1	4.2.27
3.1.14	4.2.15	3.1.28.1	4.3.1.1
3.1.15	4.2.16	3.1.28.2	4.3.1.2
3.1.16	4.2.17	3.1.28.3	4.3.1.3
3.1.18	4.2.18	3.1.29	4.3.2
3.1.19	4.2.19	3.2.2	4.3.3
3.1.19.1	4.2.19.1		

4.1.1 Nonconforming Units. Failure of the unit to pass any examination or test of this specification shall automatically classify the unit as nonconforming. Each nonconforming unit corrected by the contractor shall be reinspected. Reinspection may be limited to the test or examination which defined the nonconformance, or, when directed by the cognizant inspector, a complete retest and re-examination may be required. Nonconforming units which have not been corrected will be considered for acceptance only upon formal application by the contractor to the cognizant NASA representative.

4.1.2 Test Conditions

4.1.2.1 Environmental. The assembly shall be tested under the following ambient conditions:

a. Temperature: 25° ± 10°C

b. Relative Humidity: 90% max

c. Barometric Pressure: 28 to 32 inches Hg

4.1.2.2 Module Case Ground. The dynamic tests specified in sections 3.1.18 thru 3.1.27 shall be conducted with module pin 68 connected to case ground (0 VDC).

4.2 TESTS

4.2.1 Drawing Compliance. The module shall be visually examined for compliance to the requirements of APOLLO G&N Drawing 2003952. Particular attention shall be given to inspection for damage to surfaces, structure, and equipment, including contaminants, pin misalignment, and legibility and appearance of marking.

4.2.2 Thermal Conditioning. Verify that the module was subjected to two complete thermal cycles as specified in paragraph 3.1.1 prior to performing the acceptance tests specified herein.

4.2.3 Continuity. Verify that the resistances measured between module pin 68 and chassis complies with that specified in paragraph 3.1.2. Anodizing may be penetrated to assure good electrical connection.

4.2.4 Insulation Resistance. Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between pin 68 and every other module pin. Verify that the resistance complies with that specified in paragraph 3.1.3.

4.2.5 ~~Insulation Resistance - Pin Group A. Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between the module pins specified in paragraph 3.1.4. Verify that the resistance complies with that specified in paragraph 3.1.4.~~

4.2.6 Insulation Resistance - Pin Group B. Using test equipment with a test potential of 50 VDC limited to a short circuit current of 50 microamperes, measure the resistance between the module pins specified in paragraph 3.1.5. Verify that the resistance complies with that specified in paragraph 3.1.5.

4.2.7 Insulation Resistance - Pin Group C. Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between the module pins specified in paragraph 3.1.6. Verify that the resistance complies with that specified in paragraph 3.1.6.

4.2.8 Insulation Resistance - Pin Group D. Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between the module pins specified in paragraph 3.1.7. Verify that the resistance complies with that specified in paragraph 3.1.7.

4.2.8.1 Connect module pins 3, 5, and 6 together. Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between these pins and the remaining pins of Pin Group D. Verify that the resistance complies with that specified in paragraph 3.1.7.1.

4.2.8.2 Connect module pins 1, 11, and 12 together. Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between these pins and the remaining pins of Pin Group D. Verify that the resistance complies with that specified in paragraph 3.1.7.2.

4.2.8.3 Connect module pins 2, 8, and 10 together. Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between these pins and the remaining pins of Group D. Verify that the resistance complies with that specified in paragraph 3.1.7.3.

4.2.9 Insulation Resistance - Pin Group E. Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between the module pins specified in paragraph 3.1.8. Verify that the resistance complies with that specified in paragraph 3.1.8.

4.2.9.1 Connect module pins 25, 31, and 37 together. Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between these pins and the remaining pins of Pin Group E. Verify that the resistance complies with that specified in paragraph 3.1.8.1.

4.2.9.2 Connect module pins 9, 38, and 57 together. Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between these pins and the remaining pins of Pin Group E except pins 18, 27, 60, and 64. Verify that the resistance complies with that specified in paragraph 3.1.8.2.

4.2.9.3 Connect module pins 9, 18, and 27 together. Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between these pins and the remaining pins of Pin Group E except pins 38, 57, and 60. Verify that the resistance complies with that specified in paragraph 3.1.8.3.

4.2.9.4 Connect module pins 57, 60, and 64 together. Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between these pins and the remaining pins of Pin Group E except pins 9, 18, 27, and 38. Verify that the resistance complies with that specified in paragraph 3.1.8.4.

4.2.9.5 Connect module pins 15, 20, and 21 together. Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between these pins and the remaining pins of Pin Group E. Verify that the resistance complies with that specified in paragraph 3.1.8.5.

4.2.9.6 Connect module pins 45, 46, and 58 together. Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between these pins and the remaining pins of Pin Group E. Verify that the resistance complies with that specified in paragraph 3.1.8.6.

4.2.10 Insulation Resistance - Pin Group F. Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between the module pins specified in paragraph 3.1.9. Verify that the resistance complies with that specified in paragraph 3.1.9.

4.2.10.1 Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between the module pins specified in paragraph 3.1.9.1. Verify that the resistance complies with that specified in paragraph 3.1.9.1.

4.2.10.2 Connect module pins 32, 63, and 74 together. Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between these pins and the pins specified in paragraph 3.1.9.2. Verify that the resistance complies with that specified in paragraph 3.1.9.2.

4.2.10.3 Connect module pins 69, 72, and 75 together. Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between these pins and the remaining pins of Pin Group F. Verify that the resistance complies with that specified in paragraph 3.1.9.3.

4.2.10.4 Connect module pins 80, 81, and 88 together. Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between these pins and the remaining pins of Pin Group F. Verify that the resistance complies with that specified in paragraph 3.1.9.4.

4.2.10.5 Connect module pins 13, 16, and 32 together. Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between these pins and the pins specified in paragraph 3.1.9.5. Verify that the resistance complies with that specified in paragraph 3.1.9.5.

4.2.10.6 Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between the module pins specified in paragraph 3.1.9.6. Verify that the resistance complies with that specified in paragraph 3.1.9.6.

4.2.11 Resistance - Pin Group G. Using test equipment with a test potential of 6 VDC limited to a short circuit current of 50 microamperes, measure the resistance between any two of the pins specified in paragraph 3.1.10. Verify that the resistance complies with that specified in paragraph 3.1.10.

4.2.12 Resistance - Pin Group H. Using test equipment with a test potential of 6 VDC limited to a short circuit current of 50 microamperes, measure the resistance between any two of the pins specified in paragraph 3.1.11. Verify that the resistance complies with that specified in paragraph 3.1.11.

4.2.13 Front to Back Resistance Ratio. Verify that the front to back resistance ratio between the designated module pins shall be in accordance with paragraph 3.1.12.

4.2.14 Resistance. Verify that the resistance measured between the designated module pins shall be in accordance with paragraph 3.1.13.

4.2.15 Capacitance. Verify that the capacitance measured, at a frequency of not more than 1 kc, between the designated module pins shall be in accordance with paragraph 3.1.14.

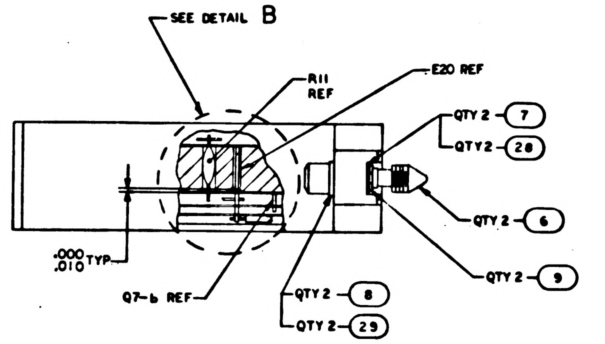
4.2.16 Inductance. Verify that the inductance measured, at a frequency of not less than 90 kc, between the designated module pins shall be in accordance with paragraph 3.1.15.

4.2.17 Input Voltage. The input voltage specified in paragraph 3.1.16 shall be applied as detailed in the following paragraphs.

4.2.18 Relay Contact Closures. Apply the input specified in paragraph 3.1.18 to the module input pins listed in Table 3-1. Verify contact closures by switching not less than 375 VDC between the output pins listed in Table 3-1.

4.2.19 Relay Contact Closures. Apply an input of 17.7 ± 0.1 VDC to the designated module pins as specified in paragraph 3.1.19. Verify contact closure by switching not less than 375 VDC between the module pins specified in paragraph 3.1.1.

FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT
76	K19-4	101	E10
77	E44	102	E11
78	K15-4	103	E9
79	K20-8	104	E13
80	K20-10	105	E49
81	K20-[illegible]	106	E14
82	K20-4	107	E12
83	K5-4	108	CR52
84	K10-4	109	CR60
85	R22	110	CR51
86	R24	111	E16
87	Q12-C	112	E50
88	E45	113	E17
89	R16	114	E18
90	R12	115	R5
91	R1	116	CR59
92	Q1-C	117	CR62
93	SPARE	118	CR61
94	CR57	119	E21
95	Q3-C	120	E20
96	SPARE	121	E23
97	CR53	122	CR64
98	CR54	123	CR58
99	CR55	124	CR63
100	CR56		

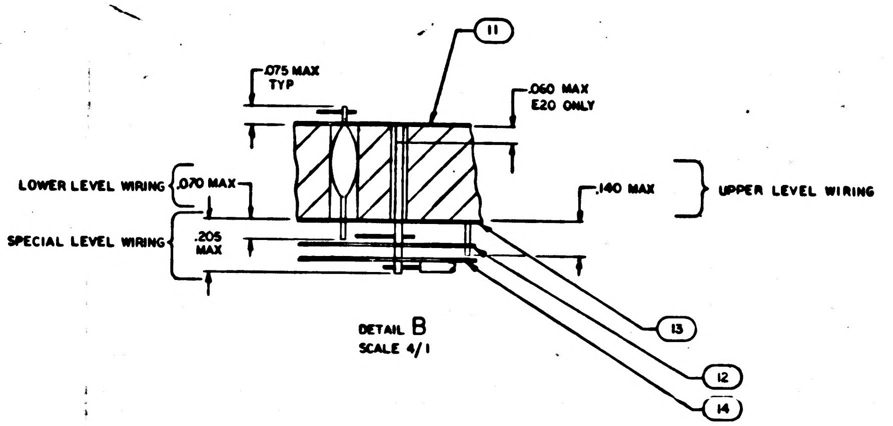


SEE DETAIL B
R11 REF
E20 REF
QTY 2 7
QTY 2 28
QTY 2 6
QTY 2 9
.000 .010 TYP
Q7-6 REF
QTY 2 8
QTY 2 29

2003952 C

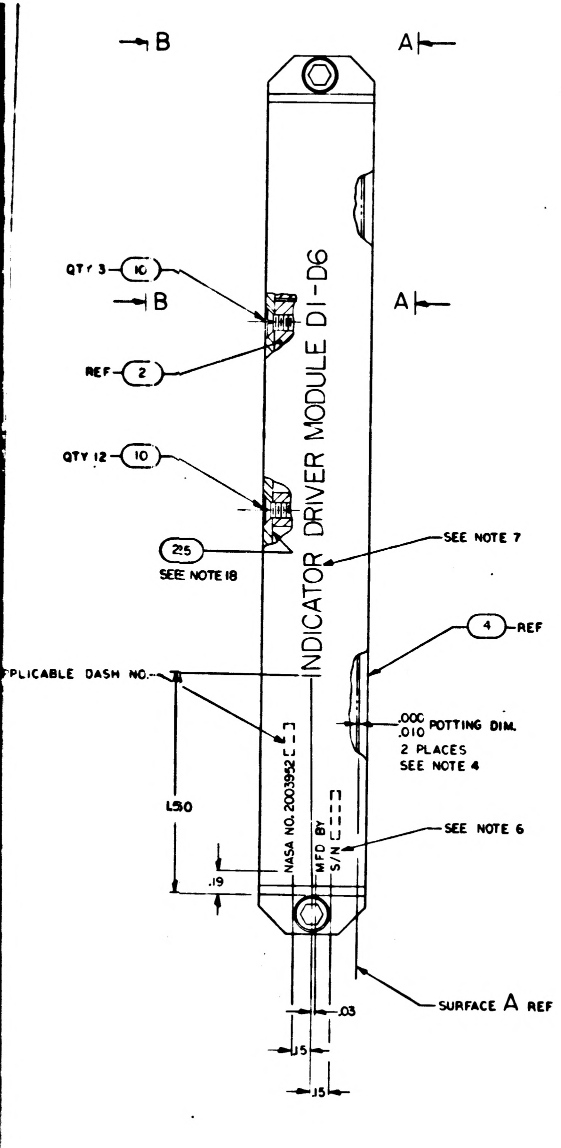
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 25151 DR Q.J. CHK J.J.	11/14/66	
B	REVISED PER TDRR 27551 DR R.P. CHK APPD		
C	REVISED PER TDRR 28817 DR CHK APPD		

REVISIONS 24373

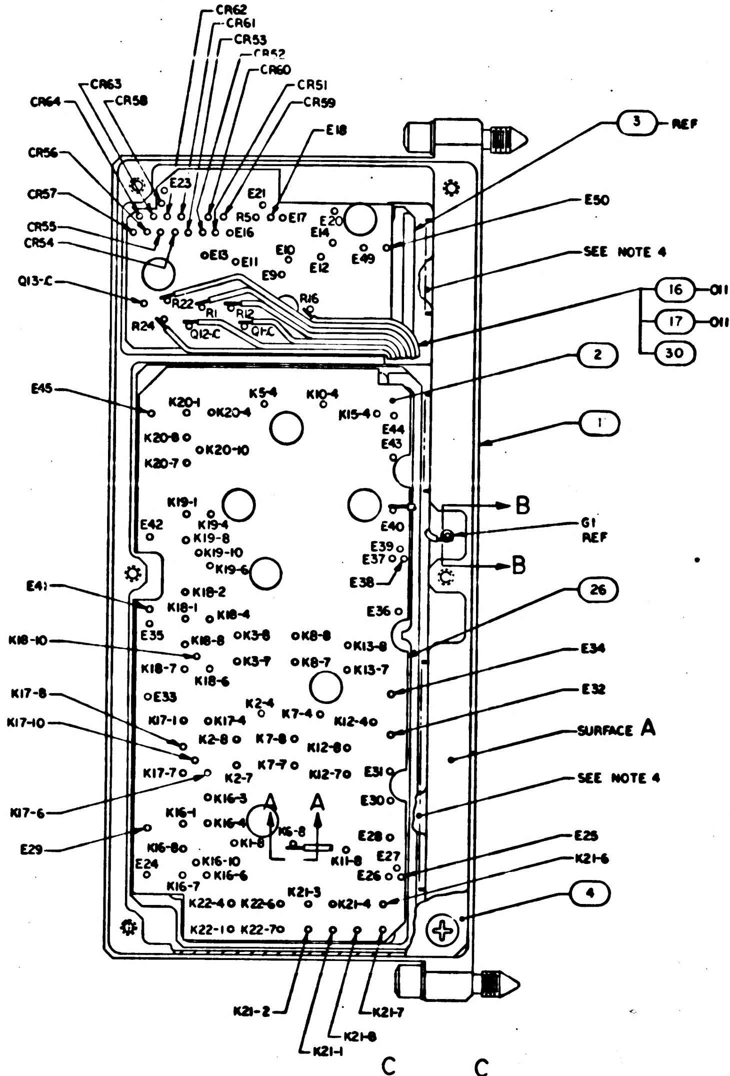


11
.075 MAX TYP
.060 MAX E20 ONLY
LOWER LEVEL WIRING .070 MAX
.140 MAX
UPPER LEVEL WIRING
SPECIAL LEVEL WIRING .205 MAX
13
12
14

DETAIL B
SCALE 4/1

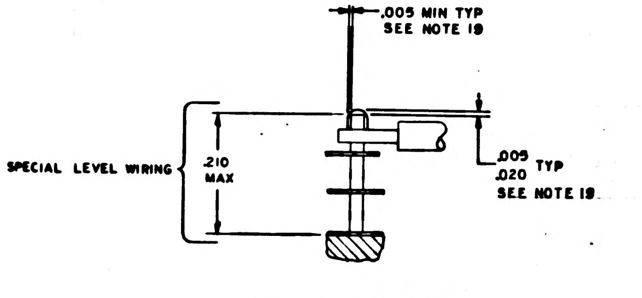


B
A
QTY 3 16
B
A
REF 2
QTY 12 10
25 SEE NOTE 18
SEE NOTE 7
INDICATOR DRIVER MODULE D1-D6
4 REF
APPLICABLE DASH NO.
.000 .010 POTTING DIM. 2 PLACES SEE NOTE 4
NASA NO. 2003952
MFD BY
S/N
SEE NOTE 6
1.50
.19
.03
.15
.15
SURFACE A REF



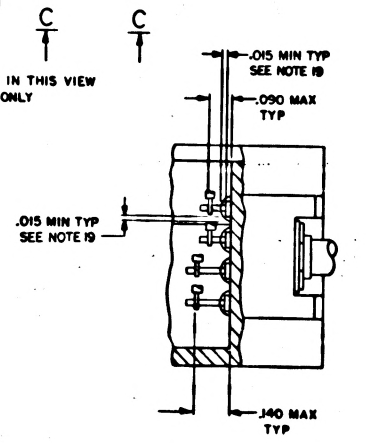
CR62
CR61
CR53
CR52
CR63
CR60
CR64
CR58
CR51
CR59
E18
3 REF
CR56
E23
E21
R50
E17
E20
E14
E50
CR57
CR55
CR54
E16
E13
E11
E10
E12
E49
E90
SEE NOTE 4
Q13-C
R22
R1
R12
R16
16 011
17 011
30
R24
Q12-C
Q1-C
2
E45
K20-1
K20-4
K5-4
K10-4
K15-4
1
K20-8
E44
E43
K20-10
K20-7
K19-1
K19-4
E42
K19-8
K19-10
K19-6
E40
E39
E37
B
G1 REF
B
E38
26
E41
K18-2
K18-1
K18-4
E35
E36
K18-10
K18-8
K3-8
K8-8
K13-8
E34
K18-7
K3-7
K8-7
K13-7
K18-6
K17-8
E33
E32
K17-10
K17-1
K17-4
K2-4
K7-4
K12-4
K2-8
K7-8
K12-8
SURFACE A
K7-7
K17-7
K2-7
K12-7
E31
K17-6
K16-3
A
A
E30
SEE NOTE 4
K16-1
K16-4
K6-8
E29
K16-8
K11-8
E28
E25
E27
K21-6
E24
K16-10
K16-6
E26
K16-7
K21-3
K22-4
K22-6
K21-4
4
K22-10
K22-7
K21-2
K21-7
K21-8
K21-1

COMPONENT DESIGNATIONS IN THIS VIEW ARE FOR REFERENCE ONLY



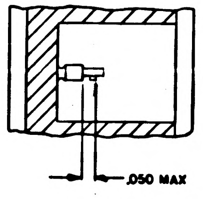
.005 MIN TYP SEE NOTE 19
SPECIAL LEVEL WIRING
.210 MAX
.005 .020 TYP SEE NOTE 19

PARTIAL SECTION A-A
TYPICAL FOR PINS OF FIND NO. 2
SCALE 10/1



C
C
.015 MIN TYP SEE NOTE 19
.090 MAX TYP
.015 MIN TYP SEE NOTE 19
.140 MAX TYP

PARTIAL VIEW C-C
SCALE 4/1



SECTION B-B
SCALE 4/1

QTY REQD 021	QTY REQD 011	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
		2005952	SCHEMATIC	REF
AR	–	1010848-1	WIRE, INSULATED	30
2	–	2004984-001	WASHER, FLAT	29
2	–	2004984-003	WASHER, FLAT	28
5	5	1006750-39	RESISTOR, FIXED FILM	27
1	1	2004917	INSULATOR	26
AR	AR	1006879	COMPOUND, SILICONE THERMOCONDUCTIVE	25
AR	AR	1006757-1	WIRE, ELECTRICAL .010 × .020	24
7	7	2004004-002	TRANSISTOR	23
6	6	2004004-001	TRANSISTOR	22
3	3	1006750-62	RESISTOR, FIXED FILM	21
15	15	1006750-56	RESISTOR, FIXED FILM	20
22	22	2004103-001	SEMICONDUCTOR DEVICE, DIODE	19
5	5	1006755-106	CAPACITOR, FIXED	18
AR	AR	1006776-22	SLEEVING, INSULATION	17
AR	AR	1006757-8	WIRE, ELECTRICAL .020 DIA	16
2	2	1006750-32	RESISTOR, FIXED FILM	15
1	1	2004993	INSULATOR, PHOTOMASTER, SPECIAL LEVEL	14
1	1	2004992-011	INSULATOR, PHOTOMASTER, LOWER LEVEL	13
1	1	2004991	INSULATOR, PHOTOMASTER, UPPER LEVEL	12
1	1	2004990-011	INSULATOR, PHOTOMASTER, REAR	11
15	15	MS24693-C2	SCREW, FLAT HD, CROSS RECESSED	10
2	2	MS16633-4015	RING, RETAINING, EXTERNAL	9
–	2	1004546-1	WASHER, FLAT	8
–	2	1004546-3	WASHER, FLAT	7
2	2	1004579-1	SCREW, JACKING	6
1	1	2004956	COVER, REAR	5
1	1	2004911	COVER	4
1	1	2003908-011	DECODING CIRCUIT ASSY	3
1	1	2003910-011	RELAY CIRCUIT ASSY	2
1	1	2003907-011	HEADER ASSY	1

LIST OF MATERIALS

2003952 C

3H

NEXT ASSY	USED ON
2003950	
2003985	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN DATE 24 NOV 64
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

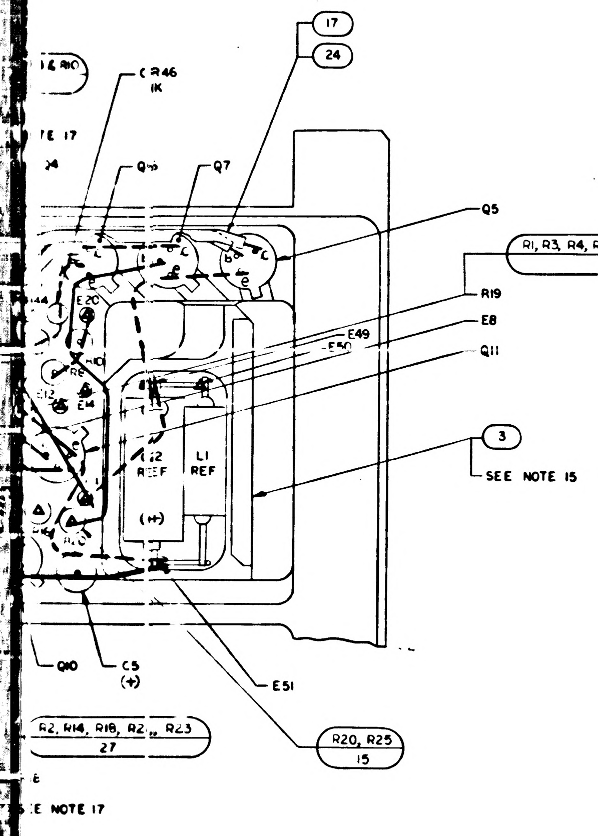
INDICATOR DRIVER ASSY
MODULE D1-D6
AGC DSKY

CODE IDENT NO	SIZE	NASA DRAWING NO
80230	J	2003952

SCALE 2/1 WT SHEET 1 OF 1

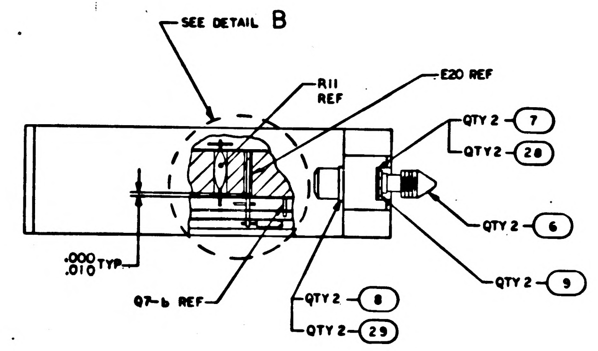
2003952 C

F3/3

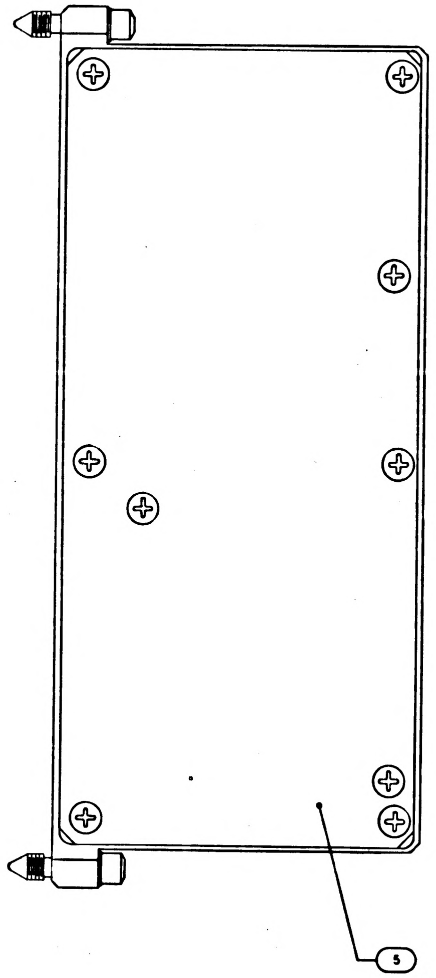

17
24
CR46
1K
Q7
Q5
R1, R3, R4, R6, R7, R9, R11, R19
20
R19
E8
Q11
E49
E50
E20
E14
E2 REF
L1 REF
(+)
3
SEE NOTE 15
Q10
C5
(+)
E51
R2, R14, R18, R2, R23
27
R20, R25
15
SEE NOTE 17

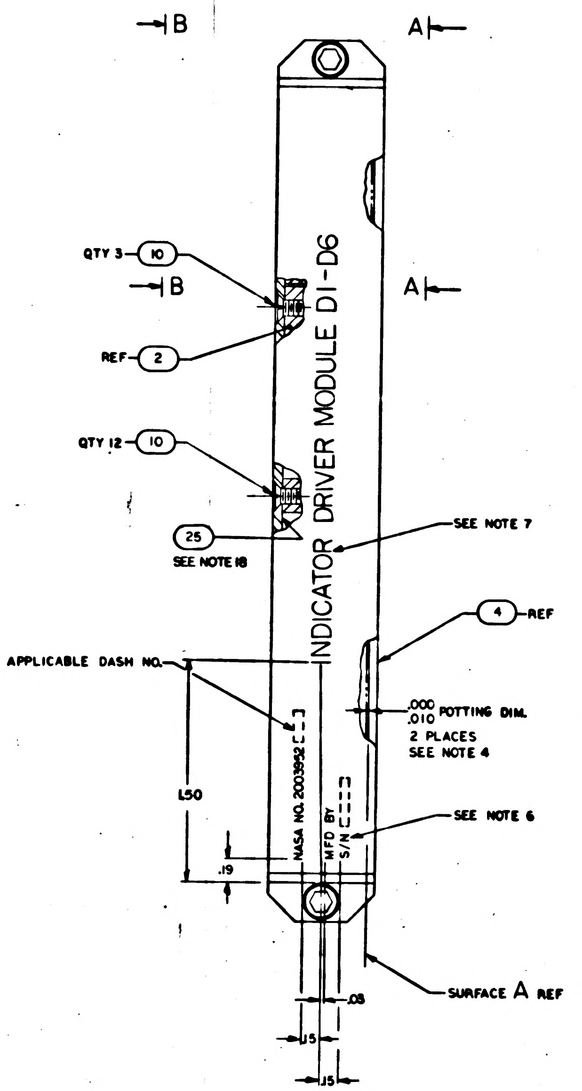
WIRING LEGEND

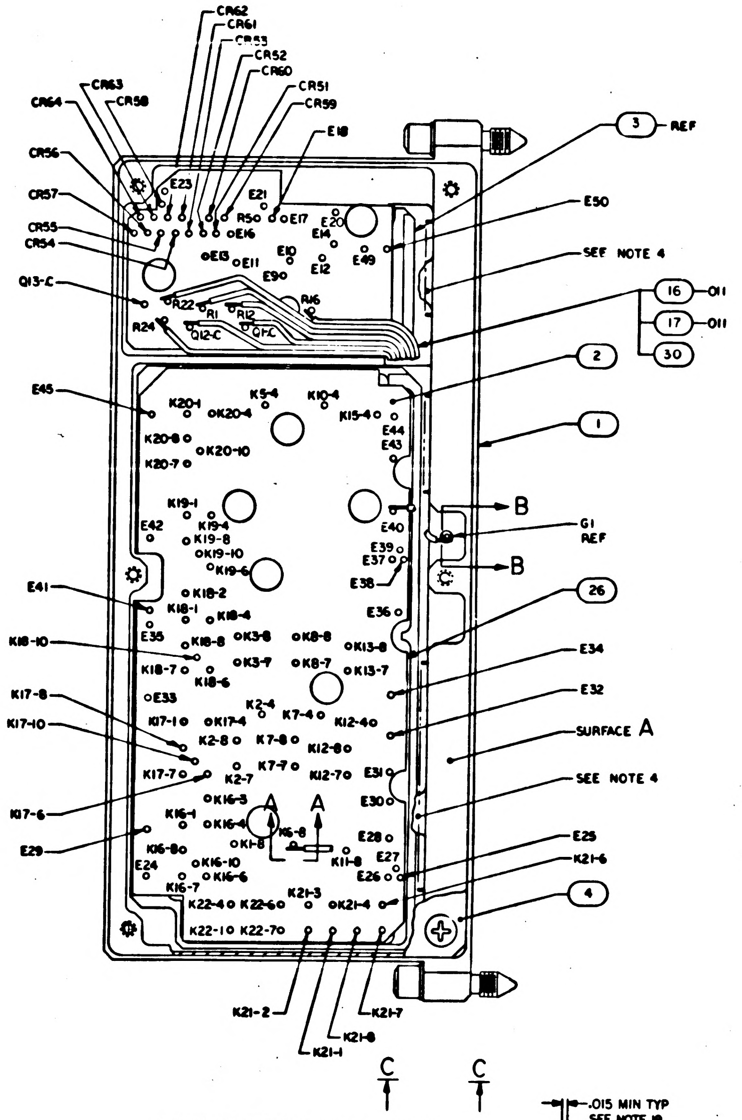
FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT
1	K21-7	26	E29	51	E34	76	K19-4	101	E10
2	K21-2	27	K16-3	52	K18-10	77	E44	102	E11
3	K22-7	28	K16-1	53	K13-8	78	K15-4	103	E9
4	K22-1	29	K12-7	54	K8-8	79	K20-8	104	E13
5	K22-6	30	K2-7	55	K3-8	80	K20-10	105	E49
6	K22-4	31	K17-6	56	K3-7	81	K20-1	106	E14
7	K21-1	32	E30	57	E35	82	K20-4	107	E12
8	K21-8	33	K17-10	58	K18-4	83	K5-4	108	CR52
9	E24	34	K12-8	59	K18-1	84	K10-4	109	CR60
10	K21-3	35	E31	60	K18-8	85	R22	110	CR51
11	K21-4	36	K7-7	61	E37	86	R24	111	E16
12	K21-6	37	K17-4	62	E36	87	Q12-C	112	E50
13	E27	38	K17-8	63	K19-6	88	E45	113	E17
14	E26	39	K2-8	64	K18-2	89	R16	114	E18
15	K16-7	40	K7-8	65	E40	90	R12	115	R5
16	E25	41	K2-4	66	E39	91	R1	116	CR59
17	K11-8	42	K7-4	67	E38	92	Q1-C	117	CR62
18	K16-8	43	K12-4	68	G1	93	SPARE	118	CR61
19	K16-10	44	E32	69	E42	94	CR57	119	E21
20	K16-6	45	K18-6	70	K19-8	95	Q13-C	120	E20
21	K16-4	46	K18-7	71	E41	96	SPARE	121	E23
22	K1-8	47	E33	72	K19-10	97	CR53	122	CR64
23	E28	48	K17-1	73	E43	98	CR54	123	CR58
24	K6-8	49	K8-7	74	K20-7	99	CR55	124	CR63
25	K17-7	50	K13-7	75	K19-1	100	CR56		


SEE DETAIL B
R11
REF
E20 REF
QTY 2 7
QTY 2 28
QTY 2 6
QTY 2 9
.000
.010 TYP
Q7-b REF
QTY 2 8
QTY 2 29

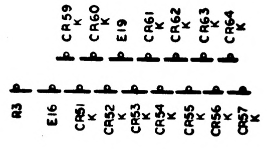
LOWER LEVEL WIRING
.070 MAX
SPECIAL LEVEL WIRING
.205
MAX
SPECIAL LEVEL WIRING
.210
MAX



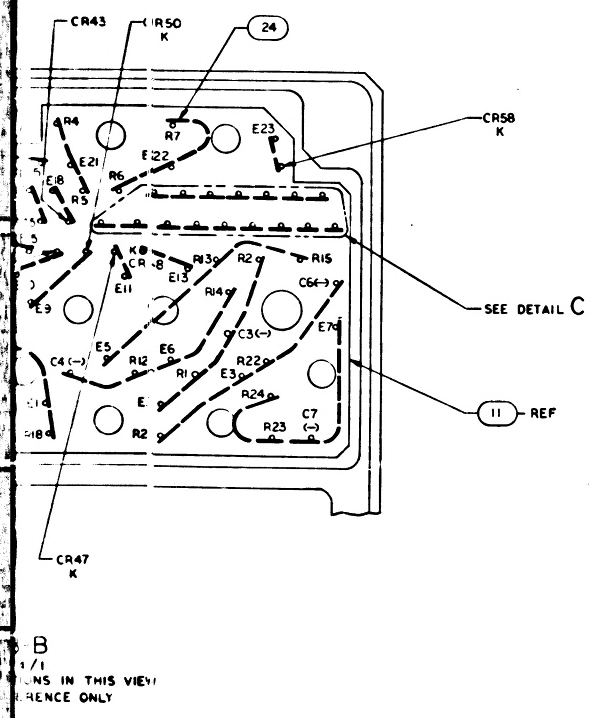

B
A
QTY 3 10
B
A
REF 2
QTY 12 10
25
SEE NOTE 18
INDICATOR DRIVER MODULE D1-D6
SEE NOTE 7
4 REF
APPLICABLE DASH NO.
.000
.010 POTTING DIM.
2 PLACES
SEE NOTE 4
NASA NO. 2003952
MFD BY
S/N
SEE NOTE 6
L50
.19
SURFACE A REF
.08
.15
.15

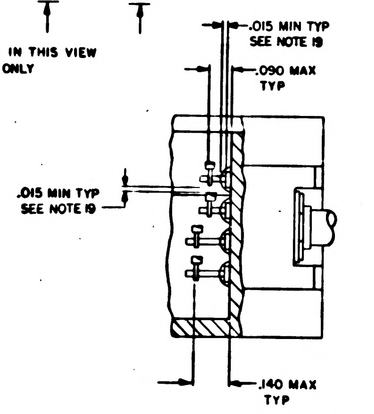

CR62
CR61
CR53
CR52
CR60
CR51
CR59
CR63
CR58
CR64
E18
CR56
CR57
CR55
CR54
Q13-C
E23
E21
R50
E17
E16
E20
E14
E13
E11
E10
E12
E90
E49
3 REF
E50
SEE NOTE 4
16 .011
17 .011
30
R22
R1
R16
R12
Q1-C
Q12-C
R24
2
1
E45
K20-1
K20-4
K5-4
K10-4
K15-4
K20-8
K20-10
K20-7
E44
E43
K19-1
K19-4
K19-8
K19-10
K19-6
E42
E40
G1
REF
B
E39
E37
E38
B
E41
26
K18-1
K18-2
K18-4
E35
K18-8
K18-10
K18-7
K18-6
K3-8
K8-8
K13-8
K3-7
K8-7
K13-7
E36
E34
E33
E32
K17-8
K2-4
K17-4
K7-4
K12-4
K17-10
K2-8
K7-8
K12-8
K17-7
K2-7
K7-7
K12-7
SURFACE A
E31
E30
SEE NOTE 4
K17-6
K16-3
K16-1
K16-4
K6-8
K1-8
K16-6
K16-8
K16-10
K11-8
E28
E27
E26
E25
E29
E24
K16-7
K21-3
K22-4
K22-6
K21-4
K21-6
K22-1
K22-7
4
K21-2
K21-1
K21-8
K21-7
A
A
C
C

COMPONENT DESIGNATIONS IN THIS VIEW ARE FOR REFERENCE ONLY


CR59 K
CR60 K
E19
CR61 K
CR62 K
CR63 K
CR64 K
R3
E16
CR51 K
CR52 K
CR53 K
CR54 K
CR55 K
CR56 K
CR57 K

DETAIL C
SCALE 4/1


CR43
CR50
K
24
R4
R7
E21
E22
E23
CR58
K
E8
R6
R5
K8
CR-8
R13
E13
R2
R15
E11
R14
C6(-)
E9
E5
E6
C3(-)
E7
C4(-)
R12
R1
E3
R22
E
R24
C7
(-)
R2
R23
SEE DETAIL C
11 REF
CR47
K
B
1/1
NS IN THIS VIEW
RENCE ONLY


.015 MIN TYP
SEE NOTE 19
.090 MAX
TYP
.015 MIN TYP
SEE NOTE 19
.140 MAX
TYP

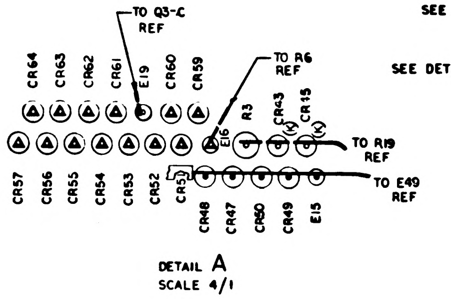
PARTIAL VIEW C-C
SCALE 4/1

F2/3

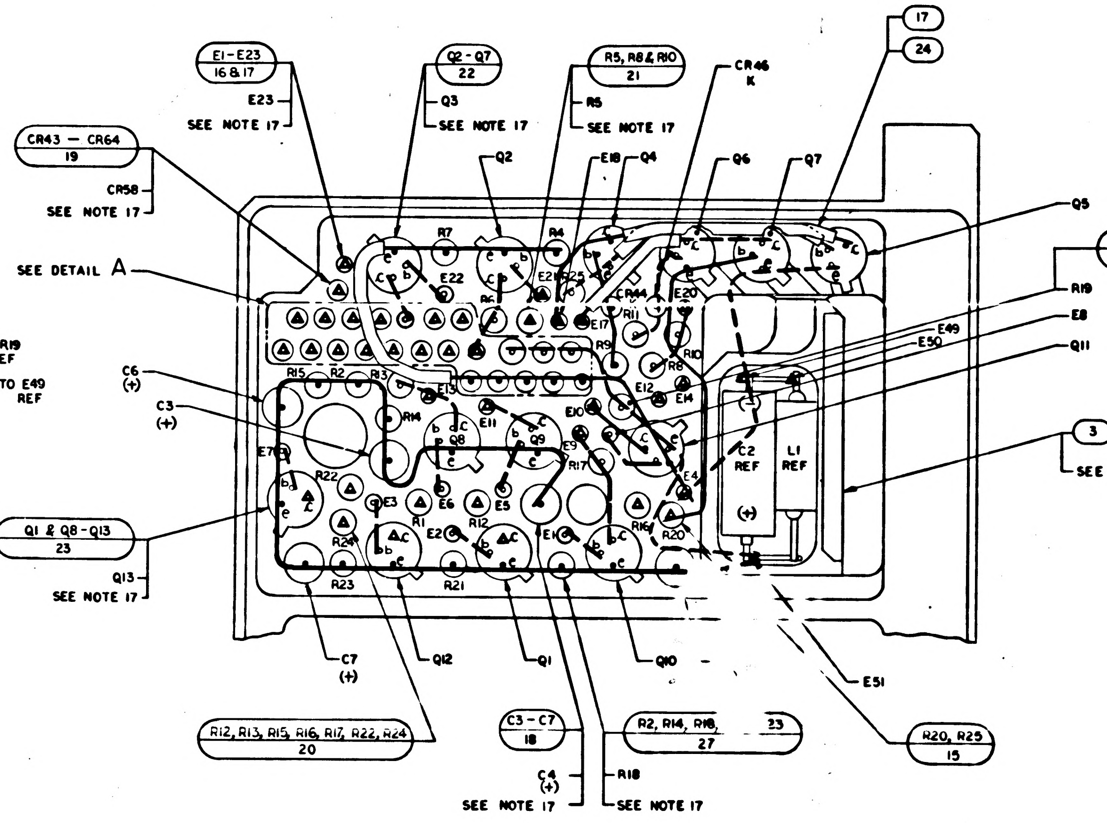
2003952 C

WIRING LEGEND

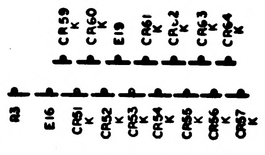
FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT
1	K21-7	26	E29	51	E34	76	K19-4	101	E10
2	K21-2	27	K16-3	52	K18-10	77	E44	102	E11
3	K22-7	28	K16-1	53	K13-8	78	K15-4	103	E9
4	K22-1	29	K12-7	54	K8-8	79	K20-8	104	E13
5	K22-6	30	K2-7	55	K3-8	80	K20-10	105	E49
6	K22-4	31	K17-6	56	K3-7	81	K20-1	106	E14
7	K21-1	32	E30	57	E35	82	K20-4	107	E12
8	K21-8	33	K17-10	58	K18-4	83	K5-4	108	CR52
9	E24	34	K12-8	59	K18-1	84	K10-4	109	CR60
10	K21-3	35	E31	60	K18-8	85	R22	110	CR51
11	K21-4	36	K7-7	61	E37	86	R24	111	E16
12	K21-6	37	K17-4	62	E36	87	Q12-C	112	E50
13	E27	38	K17-8	63	K19-6	88	E45	113	E17
14	E26	39	K2-8	64	K18-2	89	R16	114	E18
15	K16-7	40	K7-8	65	E40	90	R12	115	R5
16	E25	41	K2-4	66	E39	91	R1	116	CR59
17	K11-8	42	K7-4	67	E38	92	Q1-C	117	CR62
18	K16-8	43	K12-4	68	G1	93	SPARE	118	CR61
19	K16-10	44	E32	69	E42	94	CR57	119	E21
20	K16-6	45	K18-6	70	K19-8	95	Q13-C	120	E20
21	K16-4	46	K18-7	71	E41	96	SPARE	121	E23
22	K1-8	47	E33	72	K19-10	97	CR53	122	CR64
23	E28	48	K17-1	73	E43	98	CR54	123	CR58
24	K5-3	49	K8-7	74	K20-7	99	CR55	124	CR63
25	K17-7	50	K13-7	75	K19-1	100	CR56		


TO Q3-C REF
TO R6 REF
TO R19 REF
TO E49 REF
CR64 CR63 CR62 CR61 E19 CR60 CR59 E6 R3 CR43 CR15
CR57 CR56 CR55 CR54 CR53 CR52 CR48 CR47 CR50 CR49 E15

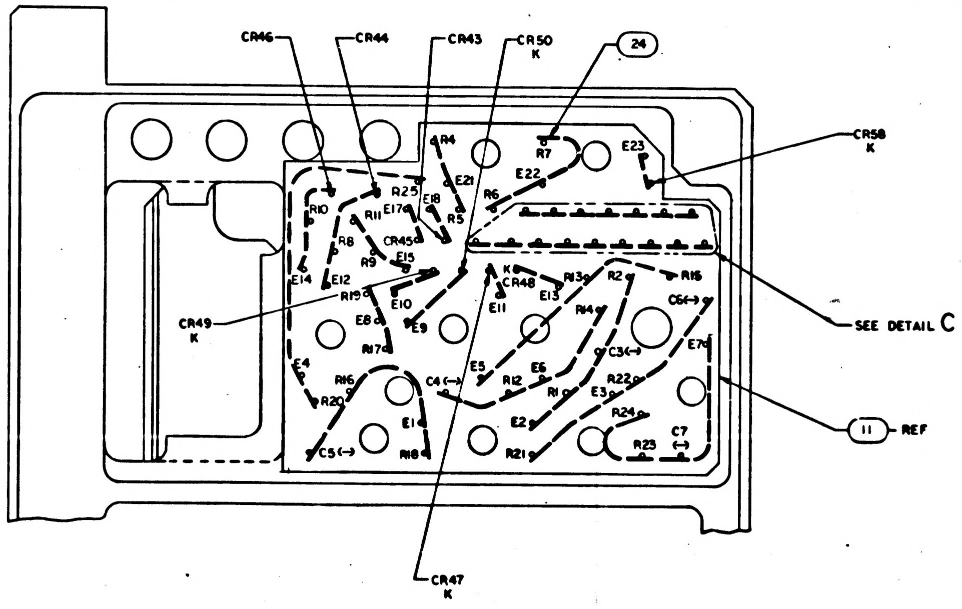
DETAIL A
SCALE 4/1


E1-E23 16 & 17
E23
SEE NOTE 17
Q2-Q7 22
Q3
SEE NOTE 17
R5, R8 & R10 21
R5
SEE NOTE 17
CR46 K
17
24
CR43 — CR64 19
CR58
SEE NOTE 17
Q2
E18 — Q4
Q6
Q7
Q5
SEE DETAIL A
R1, R3, R4, R6, R7, R9, R11, R19 20
R19
E8
Q11
E49
E50
C6 (+)
C3 (+)
3
SEE NOTE 15
C2 REF
L1 REF
Q1 & Q8-Q13 23
Q13
SEE NOTE 17
C7 (+)
Q12
Q1
Q10
E51
R12, R13, R15, R16, R17, R22, R24 20
C3 - C7 18
C4 (+)
SEE NOTE 17
R2, R14, R18, 27
23
R18
SEE NOTE 17
R20, R25 15

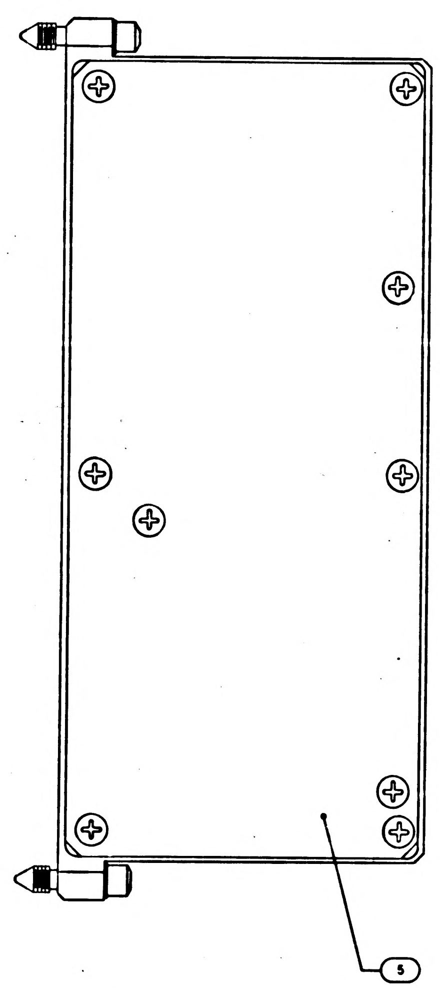
VIEW A-A
SCALE 4/1
VIEW SHOWN WITH FIND NO. 4, 12, 13, 14
AND SPECIAL LEVEL WIRING REMOVED

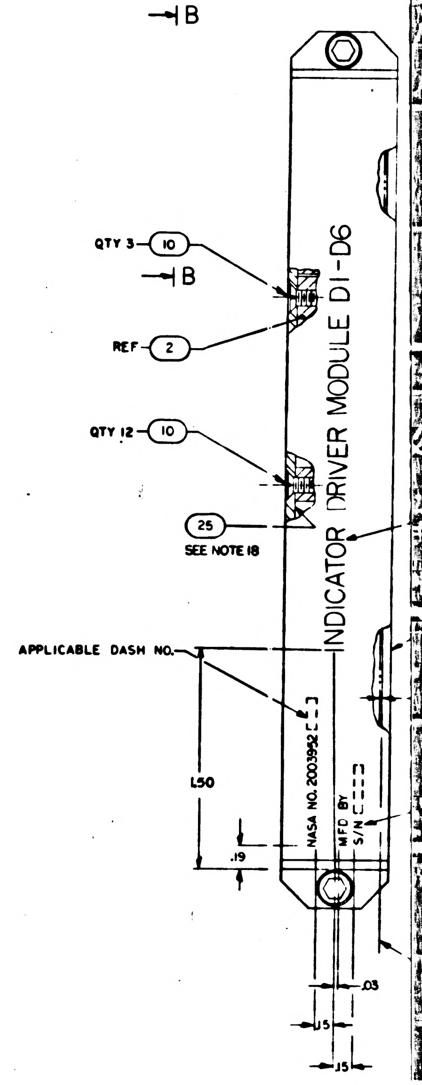

CR59 K CR60 K E19 CR61 K CR62 K CR63 K CR64 K
R3 E16 CR51 K CR52 K CR53 K CR54 K CR55 K CR56 K CR57 K

DETAIL C
SCALE 4/1


CR46
CR44
CR43
CR50 K
24
CR58 K
SEE DETAIL C
CR49 K
11
REF
CR47 K

VIEW B-B
SCALE 4/1
COMPONENT DESIGNATIONS IN THIS VIEW
ARE FOR REFERENCE ONLY




B
QTY 3
10
B
REF
2
QTY 12
10
25
SEE NOTE 18
INDICATOR DRIVER MODULE D1-D6
APPLICABLE DASH NO.
NASA NO. 2003952
MFD BY
S/N
L50
.19
.03
.15
.15

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. WELD PER ND1002005
3. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
4. ENCAPSULATE PER ND1002236
5. K DENOTES CATHODE SIDE OF DIODE
6. MARK .05/.07 HIGH WHITE CHARACTERS PER ND1002019 & ND1002122 TYPE II, CLASS 2 & SERIALIZE PER ND1002023 USING INK 1006271-1
7. MARK .18/.20 HIGH WHITE CHARACTERS PER ND1002019 & ND1002122 TYPE II, CLASS 2 USING INK 1006271-1
8. AR DENOTES AS REQUIRED
9. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
10. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
11. ▲ AND CLEAR LEADS INDICATE SPECIAL LEVEL WIRING
12. — DENOTES NEGATIVE SIDE OF CAPACITOR
13. + DENOTES POSITIVE SIDE OF CAPACITOR
14. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX THE DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH.
15. BOND FIND NO. 3 TO FIND NO. 1 PER ND1002004 TYPE IV
16. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH & SHALL MEET ALL THE REQUIREMENTS OF P.S. 2003902
17. STAKE FIND 15, 17 THRU 23, 27 & FIND NO 30 TO FIND NO. 1 PER ND1002009 METHOD C OR D
18. APPLY FIND NO. 25 TO INDICATED SURFACE
19. SEAL INSULATORS ON FIND NO. 1 AND COAT LEADS THAT EXTEND THROUGH FIND NO. 14 AND FIND NO. 26 PER ND1002004 TYPE VI

F1/3

2003952 C

APOLLO G&N Specification
PS 2003952 **Rev. C**
Original Issue Date: 5-10-66
Release Authority: TDRR 28638
Class Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

INDICATOR DRIVER MODULE

DRAWING NO. 2003952

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
	A	29210	1, 16, 18, 22		
9/15/66	B	31060	1,3,4,5,20,21,22,23,24,25		
4/13/67	C	33609	1, 20, 28		

This specification consists of pages 1 to 28 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	5/9/66 MIT/IL	4/22/66 RAY

4.3 WORKMANSHIP. The following tests shall be performed under the conditions specified as a verification of good workmanship.

4.3.1 Marginal Voltages and Thermal Extremes.

4.3.1.1 Low Marginal Voltage/Low Temperature. Set the ambient temperature and the input voltages as specified in paragraph 3.1.28.1. Verify that the module performs in accordance with paragraph 3.1.28.1.

4.3.1.2 Low Marginal Voltage/High Temperature. Set the ambient temperature and the input voltages as specified in paragraph 3.1.28.2. Verify that the module performs in accordance with paragraph 3.1.28.2.

4.3.1.3 High Marginal Voltage/High Temperature. Set the ambient temperature and the input voltages as specified in paragraph 3.1.28.3. Verify that the module performs in accordance with paragraph 3.1.28.3.

4.3.2 Vibration. Install the module in a DSKY. Subject the DSKY to the vibration tests specified in paragraph 3.1.29. Verify that the DSKY meets the requirements of the applicable specification.

4.3.3 Weight. Weigh and record the weight of the module to the nearest .01 pound per paragraph 3.2.2.

5. PREPARATION FOR DELIVERY

5.1 GENERAL. Preparation for delivery shall be in accordance with Specification ND 1002214.

6. NOTES. None.

3.1.29 Vibration. The module shall perform as specified in paragraphs 3.1.18 through 3.1.27 when installed in an operating DSKY which is being subjected to the vibration requirements specified in the applicable specifications for the DSKY. Acceptance criteria for the module shall be the compliance of the DSKY with its applicable specifications.

3.2 PRODUCT CONFIGURATION

3.2.1 Drawings. The configuration of the module shall be in accordance with Apollo G&N Drawing 2003952 and all drawings and engineering data referenced thereon.

3.2.2 Weight. Weight of the module shall be recorded.

4. QUALITY ASSURANCE PROVISIONS

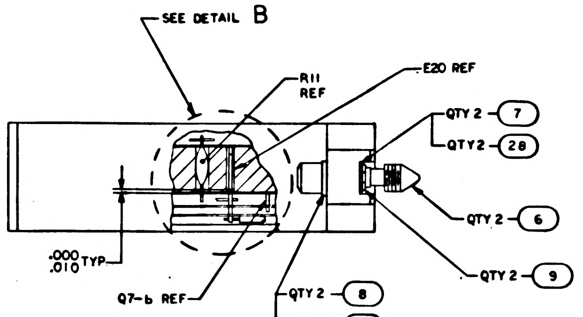
4.1 GENERAL. The contractor responsible for the manufacture of the assembly shall be responsible for the accomplishment of each test required herein. See Table 4-1, Product Performance and Configuration Requirement/Quality Verification Cross Reference Index.

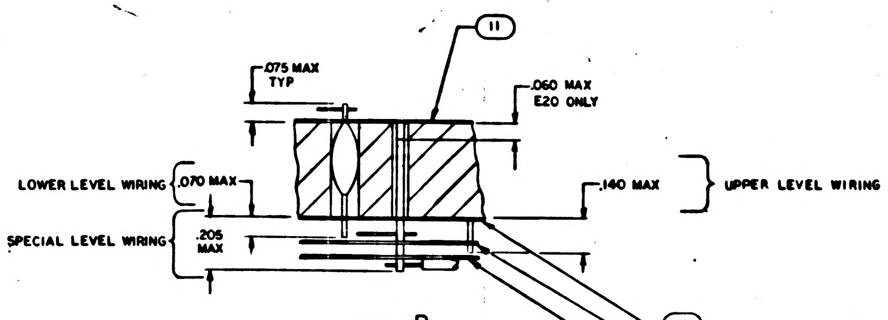
TABLE 4-1

Requirement	Verification	Requirements	Verification
3.1.1	4.2.2	3.1.7.1	4.2.8.1
3.1.2	4.2.3	3.1.7.2	4.2.8.2
3.1.3	4.2.4	3.1.7.3	4.2.8.3
3.1.5	4.2.6	3.1.8	4.2.9
3.1.6	4.2.7	3.1.8.1	4.2.9.1
3.1.7	4.2.8	3.1.8.2	4.2.9.2

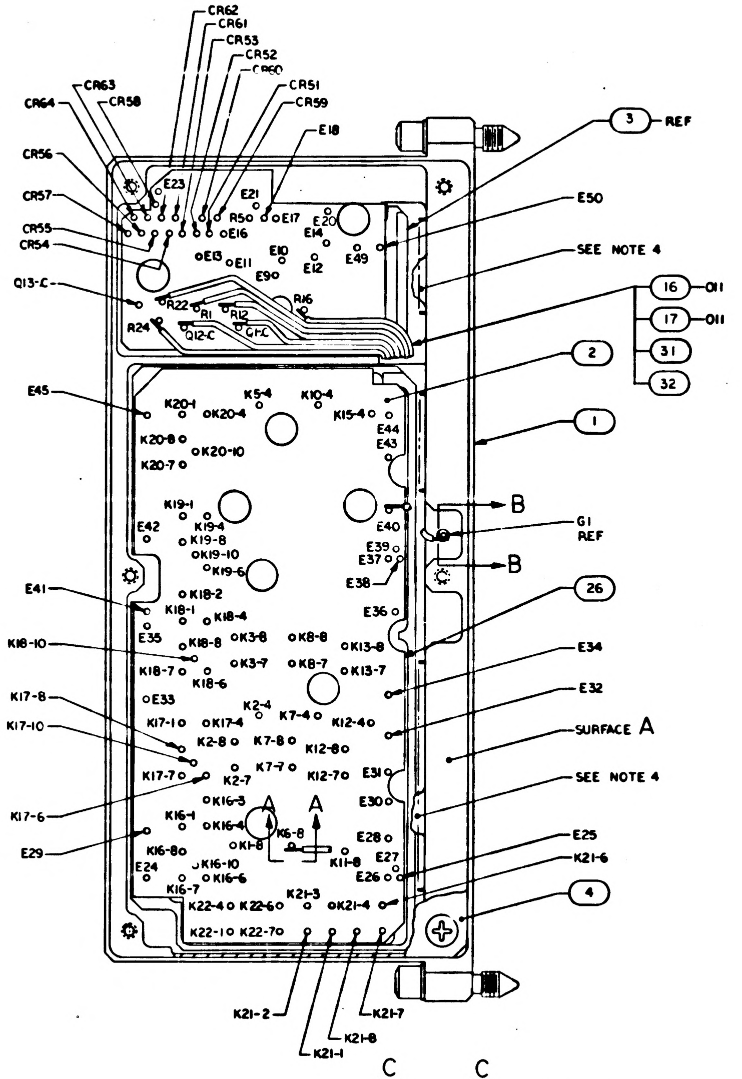
2003952 D

SYM	DESCRIPTION	DATE	APPROVAL
	REVISIONS 24373		
A	REVISED PER TDRR 25151 DR Q. J. Brown CHK J. J. BM	11/14/66	J. ...
B	REVISED PER TDRR 27551 DR R. P. Leibel CHK APPD	[illegible]	[illegible]
C	REVISED PER TDRR 28817 DR R. Richards CHK APPD	27 MAY 66	P.B.R.
D	REVISED PER TDRR 29738 DR J. Roberts CHK APPD	1 June 66	[illegible]

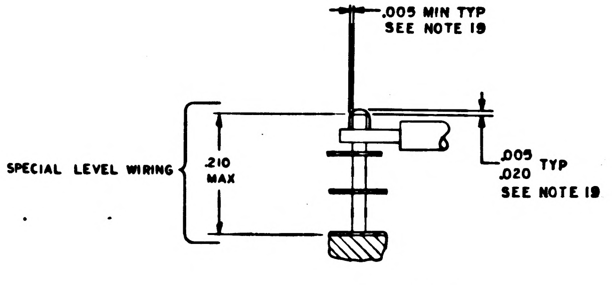

SEE DETAIL B
R11 REF
E20 REF
QTY 2 7
QTY 2 28
QTY 2 6
QTY 2 9
.000 .010 TYP
Q7-b REF
QTY 2 8
QTY 2 29


11
.075 MAX TYP
.060 MAX E20 ONLY
LOWER LEVEL WIRING
.070 MAX
.140 MAX
UPPER LEVEL WIRING
SPECIAL LEVEL WIRING
.205 MAX
13
12
14

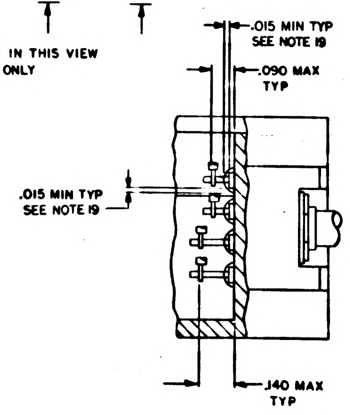
DETAIL B
SCALE 4/1


CR62
CR61
CR53
CR52
CR60
CR63
CR58
CR51
CR59
CR64
CR56
CR57
CR55
CR54
E18
E23
E21
R50
E17
E20
E16
E14
E13
E11
E10
E49
E9
E12
Q13-C
R22
R1
R12
R16
R24
Q12-C
Q1-C
3 REF
E50
SEE NOTE 4
16 011
17 011
31
32
2
1
E45
K20-1
K20-4
K5-4
K10-4
K15-4
E44
E43
K20-8
K20-10
K20-7
K19-1
K19-4
K19-8
K19-10
K19-6
E42
E40
E39
E37
E38
B
G1 REF
B
26
E41
K18-2
K18-1
K18-4
E36
E35
K18-8
K3-8
K8-8
K13-8
K18-10
K18-7
K3-7
K8-7
K13-7
K18-6
E34
E33
K17-8
K2-4
K7-4
K17-1
K17-4
K12-4
E32
K17-10
K2-8
K7-8
K12-8
SURFACE A
K17-7
K2-7
K7-7
K12-7
E31
SEE NOTE 4
K17-6
K16-3
A
A
E30
K16-1
K16-4
K6-8
E28
E29
K16-8
K1-8
K11-8
E27
E25
E24
K16-10
K16-6
E26
K21-6
K16-7
K21-3
K22-4
K22-6
K21-4
4
K22-10
K22-7
K21-2
K21-7
K21-8
K21-1
C
C

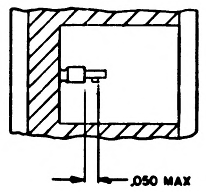
COMPONENT DESIGNATIONS IN THIS VIEW ARE FOR REFERENCE ONLY


.005 MIN TYP SEE NOTE 19
SPECIAL LEVEL WIRING
.210 MAX
.005 .020 TYP
SEE NOTE 19

PARTIAL SECTION A-A
TYPICAL FOR PINS OF FIND NO. 2
SCALE 10/1


.015 MIN TYP SEE NOTE 19
.090 MAX TYP
.015 MIN TYP SEE NOTE 19
.140 MAX TYP

PARTIAL VIEW C-C
SCALE 4/1



SECTION B-B
SCALE 4/1

SEE NOTE 7

4 REF

POTTING DIM.

PLACES

SEE NOTE 4

SEE NOTE 6

SURFACE A REF

QTY REQD	QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	☒	2005952	SCHEMATIC	REF
AR	—	1006776-23	SLEEVING, INSULATION	32
AR	—	1006757-27	WIRE, ELECTRICAL .015 DIA	31
~~AR~~	~~—~~	~~1010848-1~~	~~WIRE, INSULATED~~	~~30~~
2	–	2004984-001	WASHER, FLAT	29
2	–	2004984-003	WASHER, FLAT	28
5	5	1006750-39	RESISTOR, FIXED FILM	27
1	1	2004917	INSULATOR	26
AR	AR	1006879	COMPOUND, SILICONE THERMOCONDUCTIVE	25
AR	AR	1006757-1	WIRE, ELECTRICAL .010 × .020	24
7	7	2004004-002	TRANSISTOR	23
6	6	2004004-001	TRANSISTOR	22
3	3	1006750-62	RESISTOR, FIXED FILM	21
15	15	1006750-56	RESISTOR, FIXED FILM	20
22	22	2004103-001	SEMICONDUCTOR DEVICE, DIODE	19
5	5	1006755-106	CAPACITOR, FIXED	18
AR	AR	1006776-22	SLEEVING, INSULATION	17
AR	AR	1006757-8	WIRE, ELECTRICAL .020 DIA	16
2	2	1006750-32	RESISTOR, FIXED FILM	15
1	1	2004993	INSULATOR, PHOTOMASTER, SPECIAL LEVEL	14
1	1	2004992-011	INSULATOR, PHOTOMASTER, LOWER LEVEL	13
1	1	2004991	INSULATOR, PHOTOMASTER, UPPER LEVEL	12
1	1	2004990-011	INSULATOR, PHOTOMASTER, REAR	11
15	15	MS24693-C2	SCREW, FLAT HD, CROSS RECESSED	10
2	2	MS16633-4015	RING, RETAINING, EXTERNAL	9
—	2	1004546-1	WASHER, FLAT	8
—	2	1004546-3	WASHER, FLAT	7
2	2	1004579-1	SCREW, JACKING	6
1	1	2004956	COVER, REAR	5
1	1	2004911	COVER	4
1	1	2003908-011	DECODING CIRCUIT ASSY	3
1	1	2003910-011	RELAY CIRCUIT ASSY	2
1	1	2003907-011	HEADER ASSY	1
021	011	LIST OF MATERIALS		

2003952 D

3H

NEXT ASSY	USED ON
2003950	
2003985	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN A. Vorce DATE 24 NOV 65
CHECKED C. J. McCracken 24 Nov 65
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL A. C. MI. [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

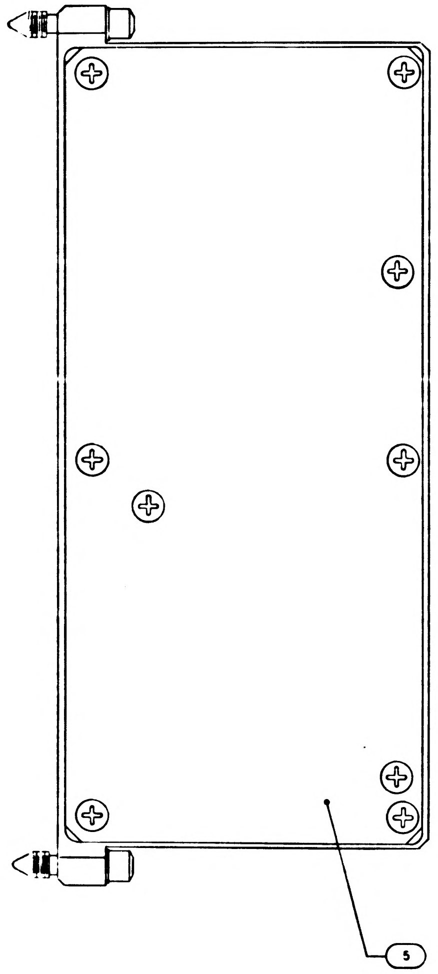
INDICATOR DRIVER ASSY
MODULE D1-D6
AGC DSKY

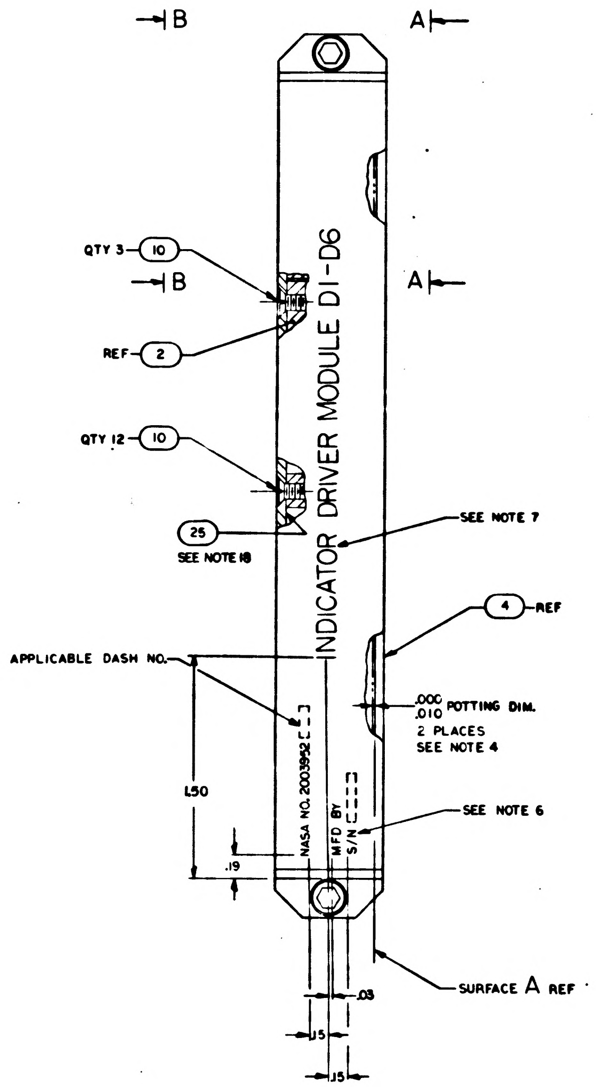
CODE IDENT NO. 80230 SIZE J NASA DRAWING NO 2003952
SCALE 2/1 WT SHEET 1 OF 1

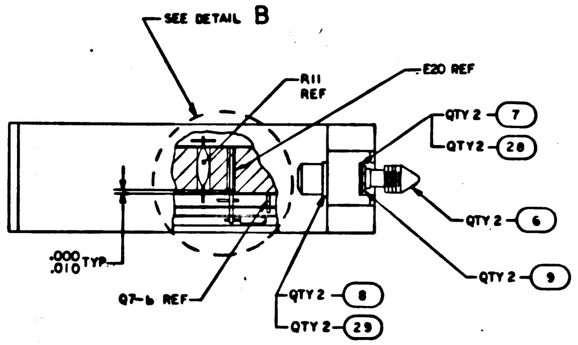
F3/3

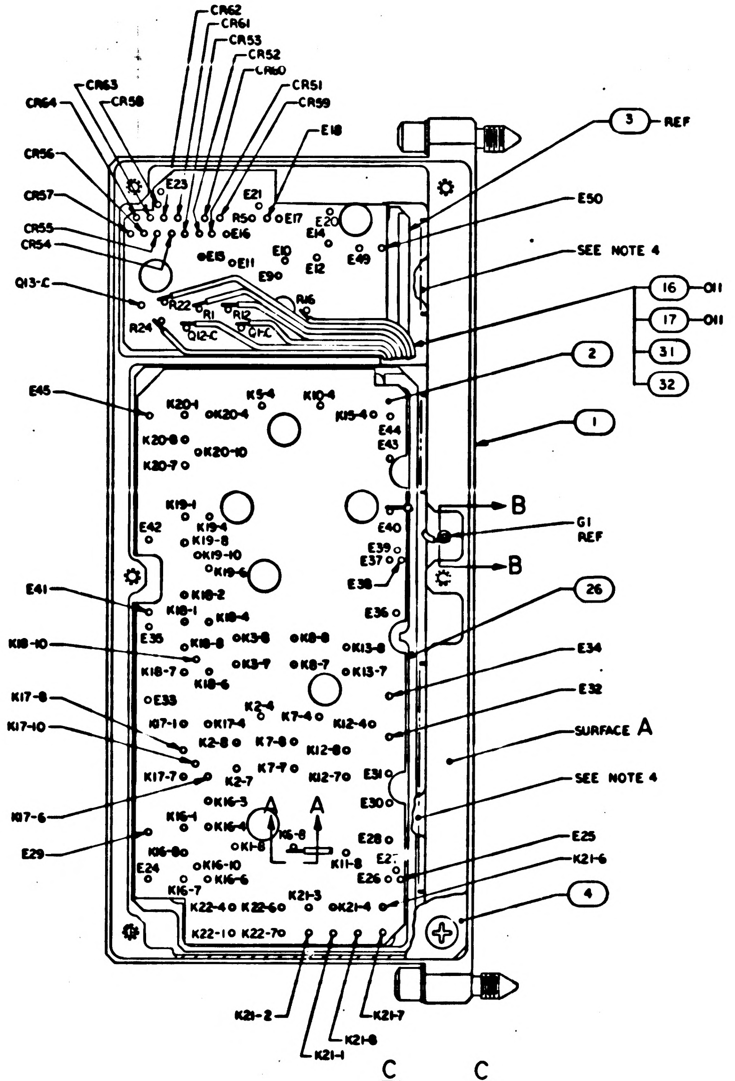
WIRING LEGEND

FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT
1	K21-7	26	E29	51	E34	76	K19-4	101	E10
2	K21-2	27	K16-3	52	K18-10	77	E44	102	E11
3	K22-7	28	K16-1	53	K13-8	78	K15-4	103	E9
4	K22-1	29	K12-7	54	K8-8	79	K20-8	104	E13
5	K22-6	30	K2-7	55	K3-8	80	K20-10	105	E49
6	K22-4	31	K17-6	56	K3-7	81	K20-1	106	E14
7	K21-1	32	E30	57	E35	82	K20-4	107	E12
8	K21-8	33	K17-10	58	K18-4	83	K5-4	108	CR52
9	E24	34	K12-8	59	K18-1	84	K10-4	109	CR60
10	K21-3	35	E31	60	K18-8	85	R22	110	CR51
11	K21-4	36	K7-7	61	E37	86	R24	111	E16
12	K21-6	37	K17-4	62	E36	87	Q12-C	112	E50
13	E27	38	K17-8	63	K19-6	88	E45	113	E17
14	E26	39	K2-8	64	K18-2	89	R16	114	E18
15	K16-7	40	K7-8	65	E40	90	R12	115	R5
16	E25	41	K2-4	66	E39	91	R1	116	CR59
17	K11-8	42	K7-4	67	E38	92	Q1-C	117	CR62
18	K16-8	43	K12-4	68	G1	93	SPARE	118	CR61
19	K16-10	44	E32	69	E42	94	CR57	119	E21
20	K16-6	45	K18-6	70	K19-8	95	Q13-C	120	E20
21	K16-4	46	K18-7	71	E41	96	SPARE	121	E23
22	K1-8	47	E33	72	K19-10	97	CR53	122	CR64
23	E28	48	K17-1	73	E43	98	CR54	123	CR58
24	K6-8	49	K8-7	74	K20-7	99	CR55	124	CR63
25	K17-7	50	K13-7	75	K19-1	100	CR56		

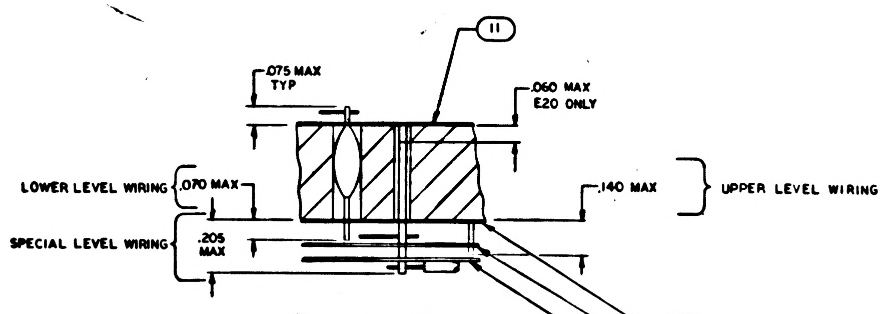



B
A
QTY 3 (10)
B
A
REF (2)
QTY 12 (10)
(25)
SEE NOTE 18
INDICATOR DRIVER MODULE D1-D6
SEE NOTE 7
(4) REF
APPLICABLE DASH NO.
NASA NO. 2003952
MFD BY
S/N
L50
.19
.000
.010 POTTING DIM.
2 PLACES
SEE NOTE 4
SEE NOTE 6
SURFACE A REF
.03
.15
.15

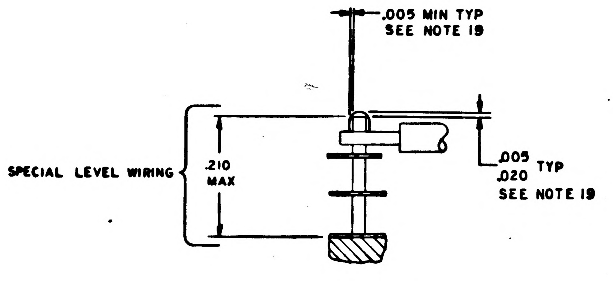

SEE DETAIL B
R11
REF
E20 REF
QTY 2 (7)
QTY 2 (28)
QTY 2 (6)
QTY 2 (9)
.000
.010 TYP
Q7-b REF
QTY 2 (8)
QTY 2 (29)


CR62
CR61
CR53
CR52
CR60
CR51
CR59
CR63
CR64
CR58
E18
CR56
CR57
CR55
CR54
Q13-C
(3) REF
E50
SEE NOTE 4
(16) O11
(17) O11
(31)
(32)
(2)
(1)
E23
E21
R50
E17
E20
E16
E14
E15
E11
E10
E9
E12
E49
R22
R1
R12
R16
R24
Q12-C
Q1-C
E45
K20-1
K20-4
K5-4
K10-4
K15-4
E44
E43
K20-8
K20-10
K20-7
K19-1
K19-4
K19-8
K19-10
K19-6
E42
E40
E39
E37
E38
B
G1
REF
B
(26)
E41
K18-2
K18-1
K18-4
E35
E36
K18-10
K18-8
K3-8
K8-8
K13-8
K18-7
K3-7
K8-7
K13-7
K18-6
E34
E33
K2-4
K7-4
K12-4
E32
K17-8
K17-1
K17-4
K2-8
K7-8
K12-8
SURFACE A
K17-10
K17-7
K2-7
K7-7
K12-7
E31
K17-6
K16-3
E30
SEE NOTE 4
A
A
K16-1
K16-4
K6-8
E28
E25
E29
K16-8
K1-8
K11-8
E27
K21-6
E24
K16-10
K16-6
E26
(4)
K16-7
K21-3
K22-4
K22-6
K21-4
K22-1
K22-7
K21-2
K21-7
K21-8
K21-1
C
C

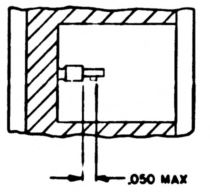
COMPONENT DESIGNATIONS IN THIS VIEW ARE FOR REFERENCE ONLY


(11)
.075 MAX
TYP
.060 MAX
E20 ONLY
LOWER LEVEL WIRING
.070 MAX
.140 MAX
UPPER LEVEL WIRING
SPECIAL LEVEL WIRING
.205
MAX
(13)
(12)
(14)

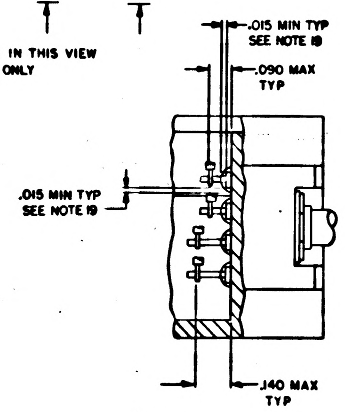
DETAIL B
SCALE 4/1


.005 MIN TYP
SEE NOTE 19
SPECIAL LEVEL WIRING
.210
MAX
.005
.020 TYP
SEE NOTE 19

PARTIAL SECTION A-A
TYPICAL FOR PINS OF FIND NO. 2
SCALE 10/1



SECTION B-B
SCALE 4/1


.015 MIN TYP
SEE NOTE 18
.090 MAX
TYP
.015 MIN TYP
SEE NOTE 19
.140 MAX
TYP

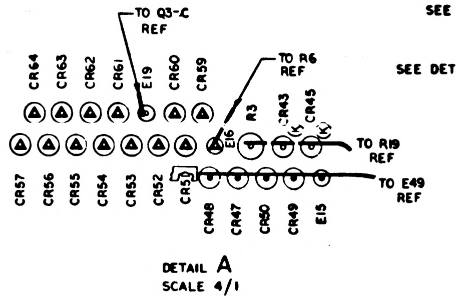
PARTIAL VIEW C-C
SCALE 4/1

F2/3

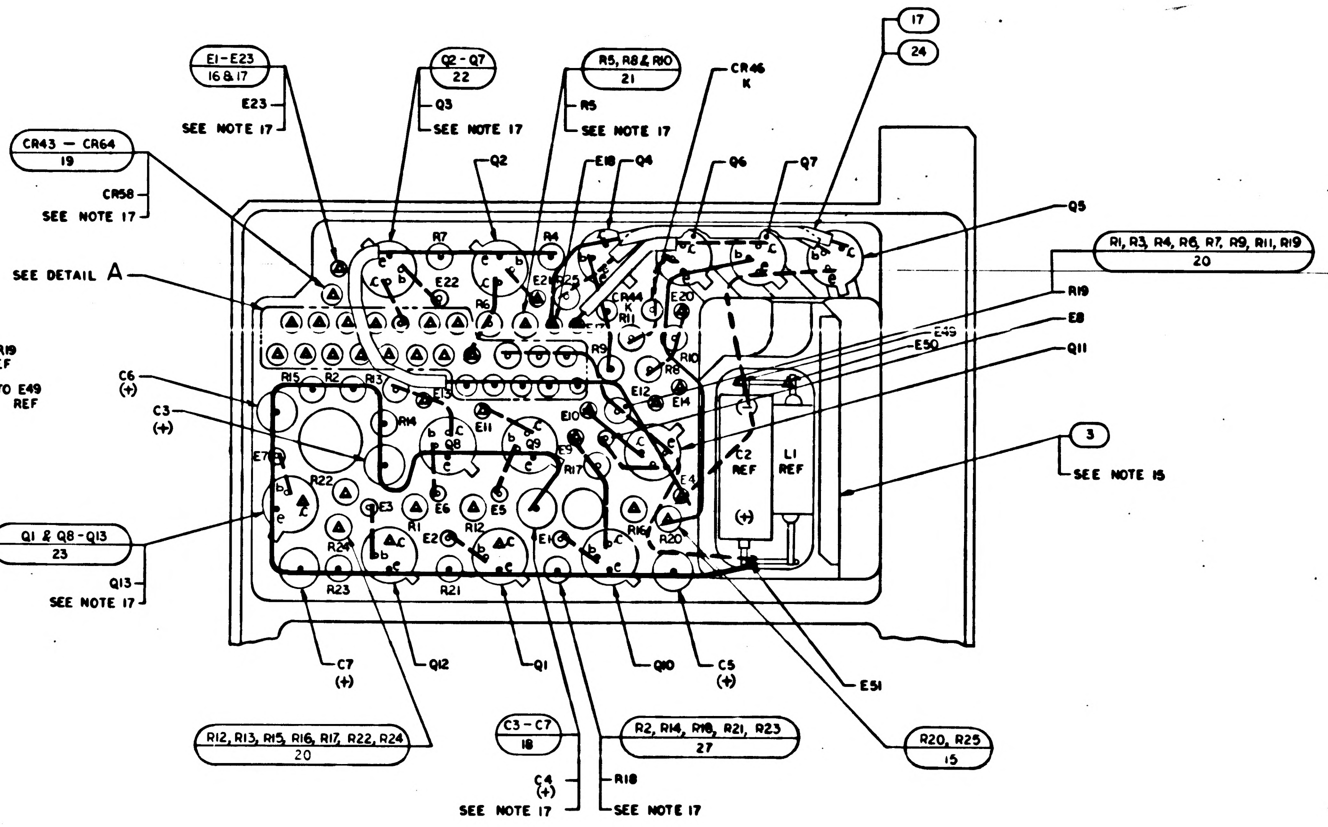
2003950	
2003985	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS
±.02
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

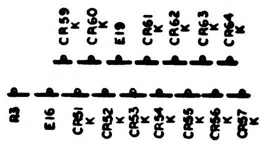
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


TO Q3-C
REF
CR64
CR63
CR62
CR61
E19
CR60
CR59
TO R6
REF
E16
R3
CR43
CR44
CR45
TO R19
REF
TO E49
REF
CR57
CR56
CR55
CR54
CR53
CR52
CR51
CR48
CR47
CR50
CR49
E15

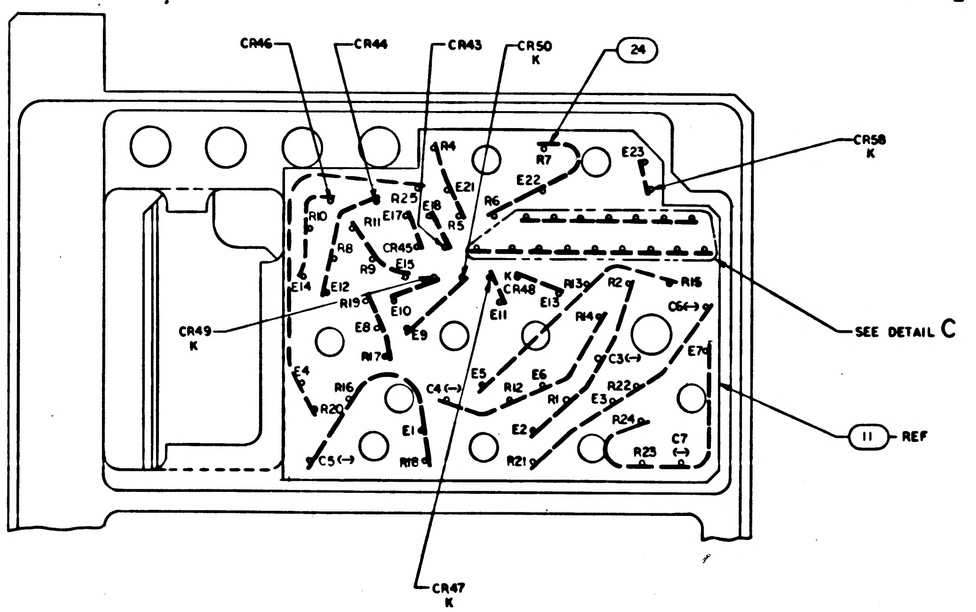
DETAIL A
SCALE 4/1


E1-E23
16 & 17
E23
SEE NOTE 17
Q2-Q7
22
Q3
SEE NOTE 17
R5, R8 & R10
21
R5
SEE NOTE 17
CR46
K
17
24
CR43 - CR64
19
CR58
SEE NOTE 17
Q2
E18
Q4
Q6
Q7
Q5
SEE DETAIL A
R1, R3, R4, R6, R7, R9, R11, R19
20
R19
E8
Q11
E49
E50
C6
(+)
C3
(+)
3
SEE NOTE 15
C2
REF
L1
REF
Q1 & Q8-Q13
23
Q13
SEE NOTE 17
C7
(+)
Q12
Q1
Q10
C5
(+)
E51
R12, R13, R15, R16, R17, R22, R24
20
C3-C7
18
R2, R14, R18, R21, R23
27
R20, R25
15
C4
(+)
SEE NOTE 17
R18
SEE NOTE 17

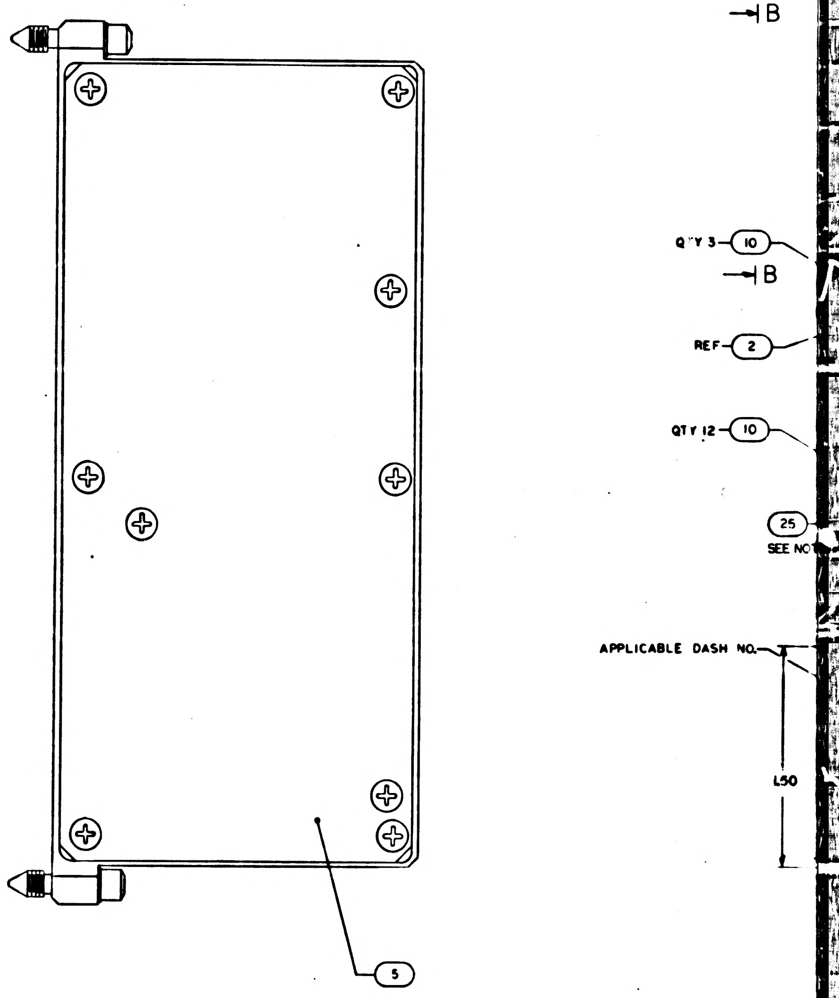
VIEW A-A
SCALE 4/1
VIEW SHOWN WITH FIND NO. 4, 12, 13, 14
AND SPECIAL LEVEL WIRING REMOVED


CR59
K
CR60
K
E19
CR61
K
CR62
K
CR63
K
CR64
K
R3
E16
CR51
K
CR52
K
CR53
K
CR54
K
CR55
K
CR56
K
CR57
K

DETAIL C
SCALE 4/1


CR46
CR44
CR43
CR50
K
24
CR58
K
R4
R7
E23
E22
E21
R10
R25
E17
E18
R6
R11
R5
R8
CR45
R9
E15
K
CR48
R13
R2
R15
E14
E12
E11
E13
R19
E10
R14
C6(-)
CR49
K
E8
E9
C3(-)
E7
E4
R16
R17
C4(-)
E5
R12
E6
R22
R20
R1
E3
E1
E2
C5(-)
R18
R21
R23
C7
(-)
SEE DETAIL C
11
REF
CR47
K

VIEW B-B
SCALE 4/1
COMPONENT DESIGNATIONS IN THIS VIEW
ARE FOR REFERENCE ONLY


B
QTY 3
10
B
REF
2
QTY 12
10
25
SEE NO
APPLICABLE DASH NO.
L50
5

WIRING LEGEND

FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT
1	K21-7	26	E29	51	E34	76	K19-4
2	K21-2	27	K16-3	52	K18-10	77	E44
3	K22-7	29	K16-1	53	K13-8	78	K15-4
4	K22-1	29	K12-7	54	K8-8	79	K20-8
5	K22-6	30	K2-7	55	K3-8	80	K20-10
6	K22-4	31	K17-6	56	K3-7	81	K20-1
7	K21-1	32	E30	57	E35	82	K20-4
8	K21-8	33	K17-10	58	K18-4	83	K5-4
9	E24	34	K12-8	59	K18-1	84	K10-4
10	K21-3	35	E31	60	K18-8	85	R22
11	K21-4	36	K7-7	61	E37	86	R24
12	K21-6	37	K17-4	62	E36	87	Q12-C
13	E27	38	K17-8	63	K19-6	88	E45
14	E26	39	K2-8	64	K18-2	89	R16
15	K16-7	40	K7-8	65	E40	90	R12
16	E25	41	K2-4	66	E39	91	R1
17	K11-8	42	K7-4	67	E38	92	Q1-C
18	K16-8	43	K12-4	68	G1	93	SPARE
19	K16-10	44	E32	69	E42	94	CR57
20	K16-6	45	K18-6	70	K19-8	95	Q13-C
21	K16-4	46	K18-7	71	E41	96	SPARE
22	K1-8	47	E33	72	K19-10	97	CR53
23	E28	48	K17-1	73	E43	98	CR54
24	K6-8	49	K8-7	74	K20-7	99	CR55
25	K17-7	50	K13-7	75	K19-1	100	CR56

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. WELD PER ND1002005
3. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
4. ENCAPSULATE PER ND1002236
5. K DENOTES CATHODE SIDE OF DIODE
6. MARK .05/.07 HIGH WHITE CHARACTERS PER ND1002019 & ND1002122 TYPE II, CLASS 2 & SERIALIZE PER ND1002023 USING INK 1006271-1
7. MARK .18/.20 HIGH WHITE CHARACTERS PER ND1002019 & ND1002122 TYPE II, CLASS 2 USING INK 1006271-1
8. AR DENOTES AS REQUIRED
9. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
10. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
11. ▲ AND CLEAR LEADS INDICATE SPECIAL LEVEL WIRING
12. − DENOTES NEGATIVE SIDE OF CAPACITOR
13. + DENOTES POSITIVE SIDE OF CAPACITOR
14. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX THE DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH.
15. BOND FIND NO. 3 TO FIND NO. 1 PER ND1002004 TYPE IV
16. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH & SHALL MEET ALL THE REQUIREMENTS OF P.S. 2003902
17. STAKE FIND 15, 17 THRU 23 & FIND NO. 27 TO FIND NO. 1 PER ND1002009 METHOD C OR D
18. APPLY FIND NO. 25 TO INDICATED SURFACE
19. SEAL INSULATORS ON FIND NO. 1 AND COAT LEADS THAT EXTEND THROUGH FIND NO. 14 AND FIND NO. 26 PER ND1002004 TYPE VI

2003952 | D

F1/3

APOLLO G&N Specification
PS 2003952 Rev. D
Original Issue Date: 5-10-66
Release Authority: TDRR 28638
Class Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

INDICATOR DRIVER MODULE

DRAWING NO. 2003952

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
[illegible]	A	2921C	1, 16, 18, 22	Emm FK	Emm FK
9/15/66	B	31060	1,3,4,5,20,21,22,23,24,25	FK	FK
[illegible]/13/67	C	33609	1, 20, 28	FK	FK
[illegible]	D	34129	1, 16	FK	FK

This specification consists of pages 1 to 28 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	5/9/66 5-?-66 MIT/IL	4/22/66 4/22/66 4/22/66 RAY

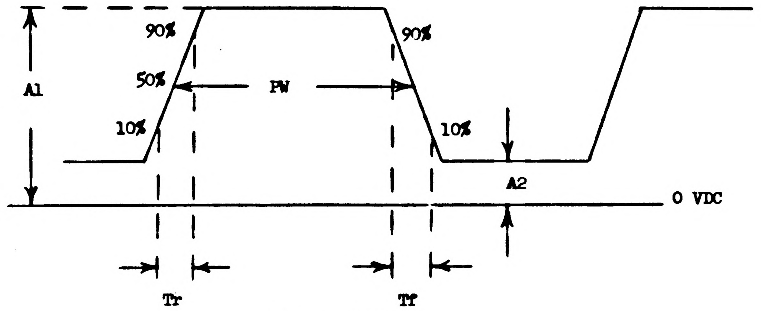


Figure 3-4A

High Level (A1)	2.25 ± 0.25 volts *
Low Level (A2)	1.0 ± 0.1 volt
Pulse Width (PW)	15 ± 10 msec
Rise Time (Tr)	NMT 1.0 usec
Fall Time (Tf)	NMT 1.0 usec
Duty Cycle	20% - 30%

When measured at either thermal extreme this characteristic shall be 2.25 +0.4 at -10°C
-0.5 at +80°C

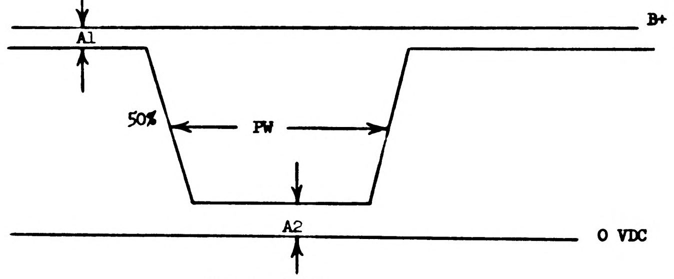


Figure 3-4B

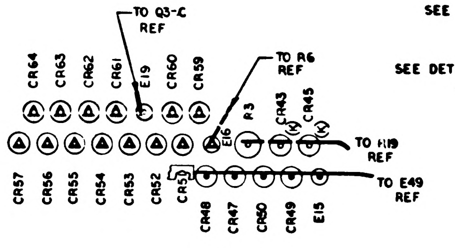
High Level (A1)	NMT 0.1V below B+
Low Level (A2)	NMT 1.6 volts
Pulse Width (PW)	15 ± 10 msec

Figure 3-4 X Line Drivers Pulse Characteristics

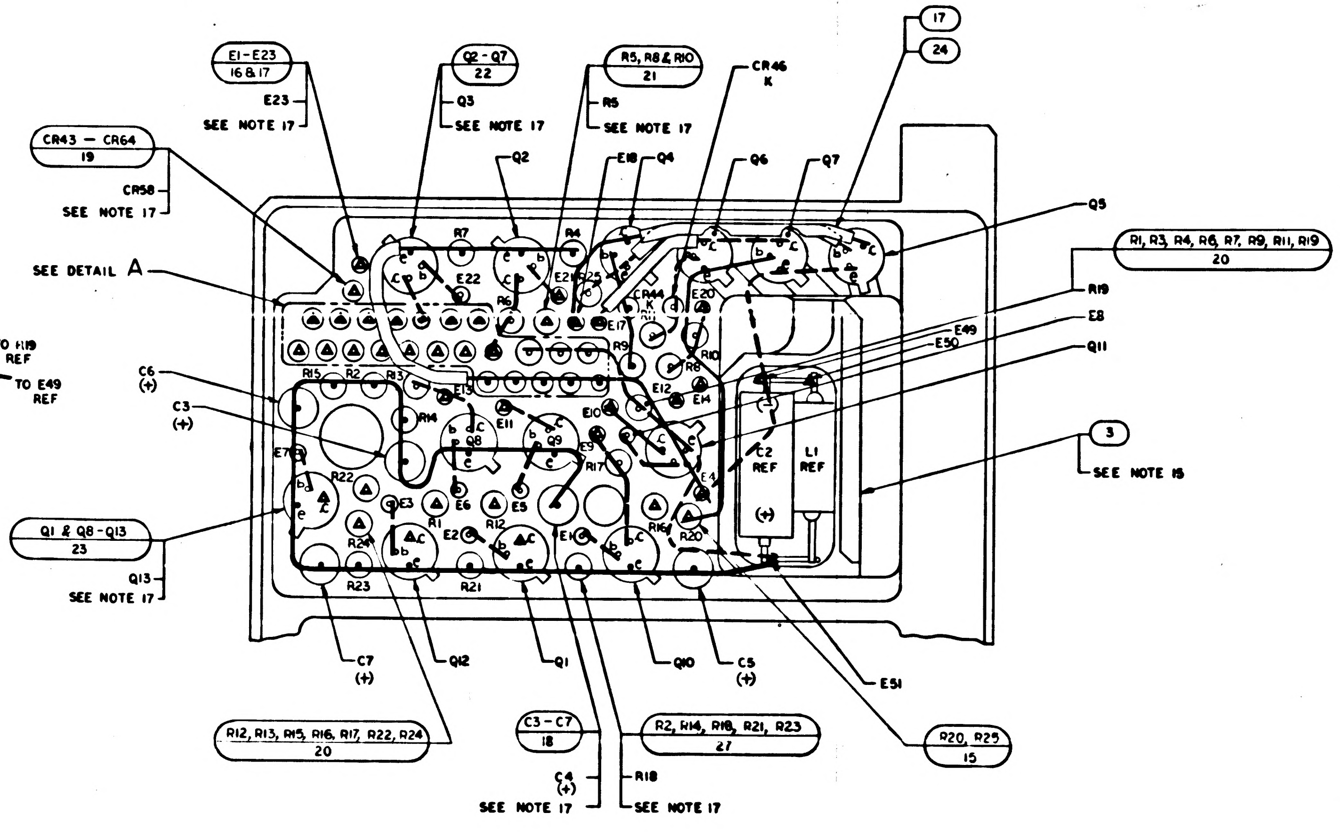
[illegible]

FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT
1	K21-7	26	E29	51	E34	76	K19-4	101	E10
2	K21-2	27	K16-3	52	K18-10	77	E44	102	E11
3	K22-7	28	K16-1	53	K13-8	78	K15-4	103	E9
4	K22-1	29	K12-7	54	K8-8	79	K20-8	104	E13
5	K22-6	30	K2-7	55	K3-8	80	K20-10	105	E49
6	K22-4	31	K17-6	56	K3-7	81	K20-1	106	E14
7	K21-1	32	E30	57	E35	82	K20-4	107	E12
8	K21-8	33	K17-10	58	K18-4	83	K5-4	108	CR52
9	E24	34	K12-8	59	K18-1	84	K10-4	109	CR60
10	K21-3	35	E31	60	K18-8	85	R22	110	CR51
11	K21-4	36	K7-7	61	E37	86	R24	111	E16
12	K21-6	37	K17-4	62	E36	87	Q12-C	112	E50
13	E27	38	K17-8	63	K19-6	88	E45	113	E17
14	E26	39	K2-8	64	K18-2	89	R16	114	E18
15	K16-7	40	K7-8	65	E40	90	R12	115	R5
16	E25	41	K2-4	66	E39	91	R1	116	CR59
17	K11-8	42	K7-4	67	E38	92	Q1-C	117	CR62
18	K16-8	43	K12-4	68	G1	93	SPARE	118	CR61
19	K16-10	44	E32	69	E42	94	CR57	119	E21
20	K16-6	45	K18-6	70	K19-8	95	Q13-C	120	E20
21	K16-4	46	K18-7	71	E41	96	SPARE	121	E23
22	K1-8	47	E33	72	K19-10	97	CR53	122	CR64
23	E28	48	K17-1	73	E43	98	CR54	123	CR58
24	K6-8	49	K8-7	74	K20-7	99	CR55	124	CR63
25	K17-7	50	K13-7	75	K19-1	100	CR56		

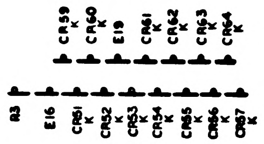
WIRING LEGEND


TO Q3-C REF
TO R6 REF
TO R19 REF
TO E49 REF
CR64
CR63
CR62
CR61
E19
CR60
CR59
E16
R3
CR43
CR45
CR57
CR56
CR55
CR54
CR53
CR52
CR51
CR48
CR47
CR50
CR49
E15

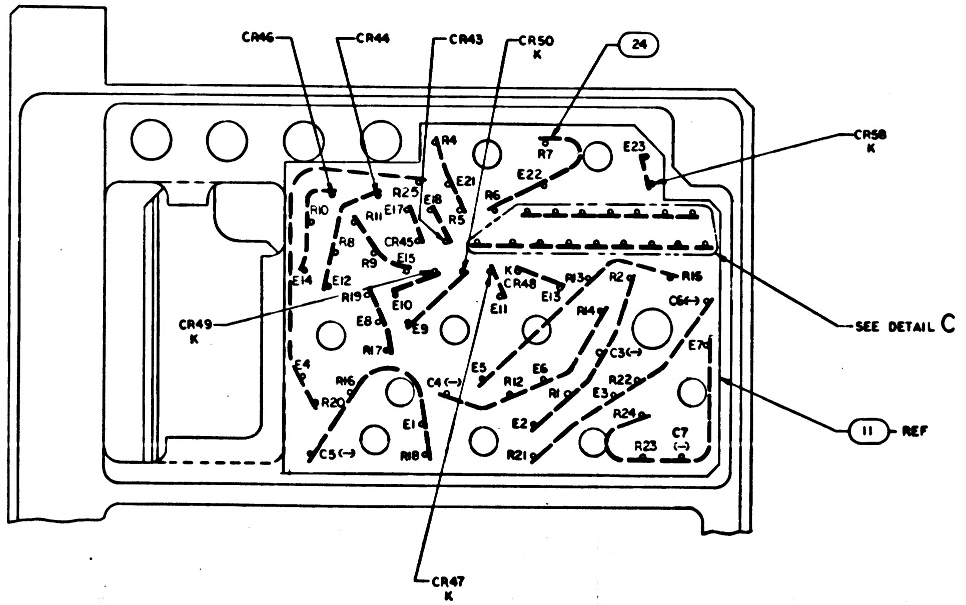
DETAIL A
SCALE 4/1


E1-E23 16 & 17
E23
SEE NOTE 17
Q2-Q7 22
Q3
SEE NOTE 17
R5, R8 & R10 21
R5
SEE NOTE 17
CR46 K
17
24
CR43 - CR64 19
CR58
SEE NOTE 17
Q2
E18
Q4
Q6
Q7
Q5
SEE DETAIL A
R1, R3, R4, R6, R7, R9, R11, R19 20
R19
E8
Q11
E49
E50
C6 (+)
C3 (+)
3
SEE NOTE 15
Q1 & Q8-Q13 23
Q13
SEE NOTE 17
C2 REF
L1 REF
C7 (+)
Q12
Q1
Q10
C5 (+)
E51
R12, R13, R15, R16, R17, R22, R24 20
C3 - C7 18
R2, R14, R18, R21, R23 27
R20, R25 15
C4 (+)
R18
SEE NOTE 17
SEE NOTE 17

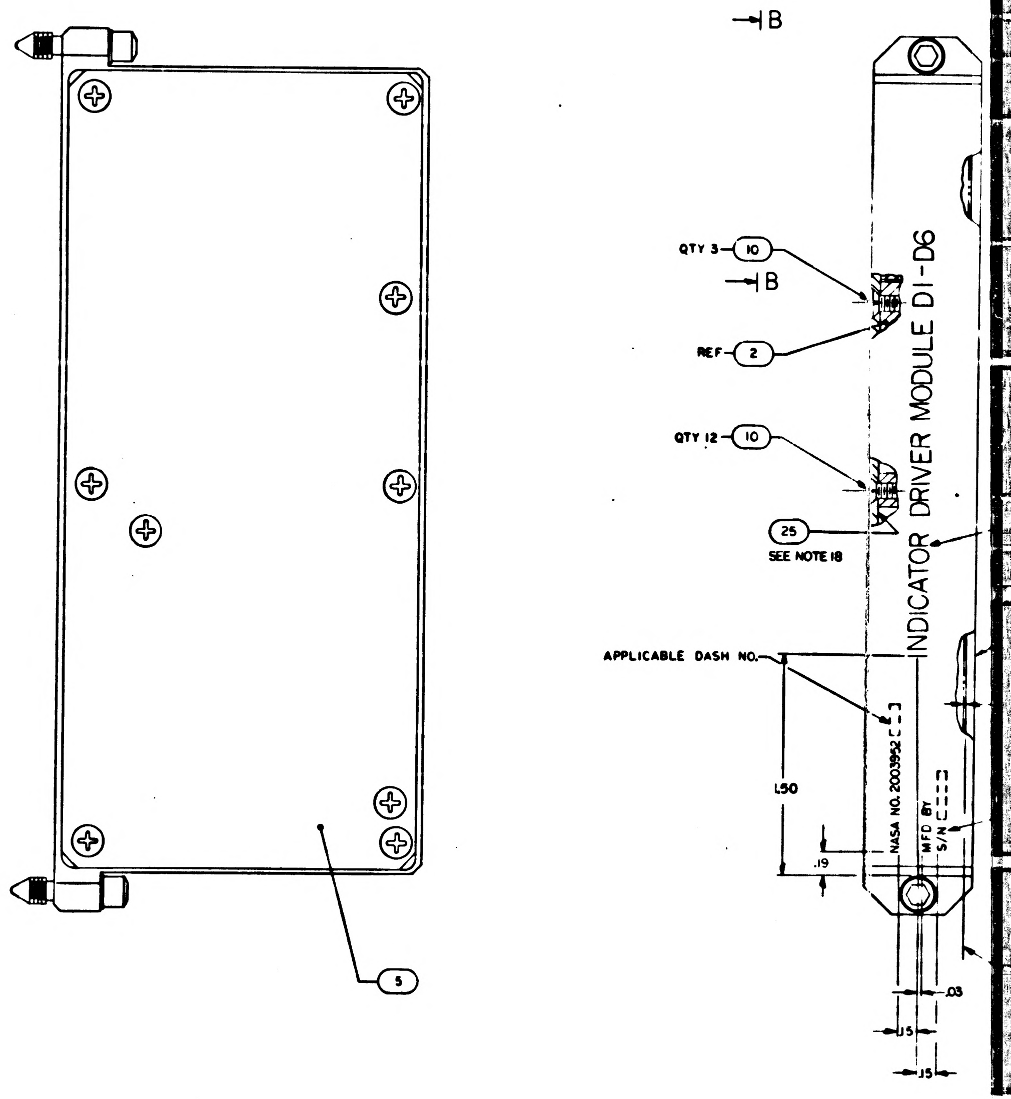
VIEW A-A
SCALE 4/1
VIEW SHOWN WITH FIND NO. 4, 12, 13, 14
AND SPECIAL LEVEL WIRING REMOVED


CR59 K
CR60 K
E19
CR61 K
CR62 K
CR63 K
CR64 K
R3
E16
CR51 K
CR52 K
CR53 K
CR54 K
CR55 K
CR56 K
CR57 K

DETAIL C
SCALE 4/1

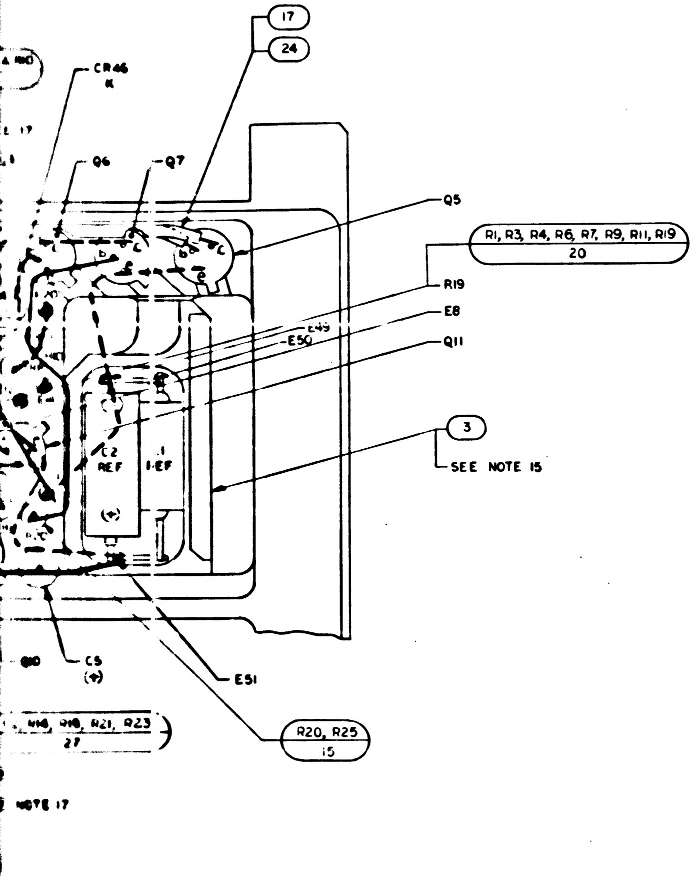

CR46
CR44
CR43
CR50 K
24
CR58 K
R4
R7
E23
E22
E21
R6
R25
R10
R11
E17
E18
R5
R8
CR45
E14
E12
E15
R9
CR49 K
R19
E8
E10
E9
CR48
E11
R13
E13
R2
R16
R14
C6
C3
E7
R17
E4
R16
C4
E5
R12
E6
R1
E3
R22
R20
E1
E2
R24
C5
R18
R21
R23
C7
SEE DETAIL C
11 REF
CR47 K

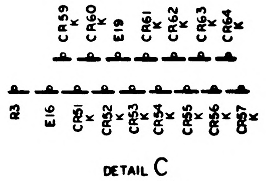
VIEW B-B
SCALE 4/1
COMPONENT DESIGNATIONS IN THIS VIEW
ARE FOR REFERENCE ONLY


B
B
QTY 3 10
REF 2
QTY 12 10
25
SEE NOTE 18
INDICATOR DRIVER MODULE D1-D6
APPLICABLE DASH NO.
NASA NO. 2003952
MFD BY
S/N
1.50
.19
.03
.15
.15
5

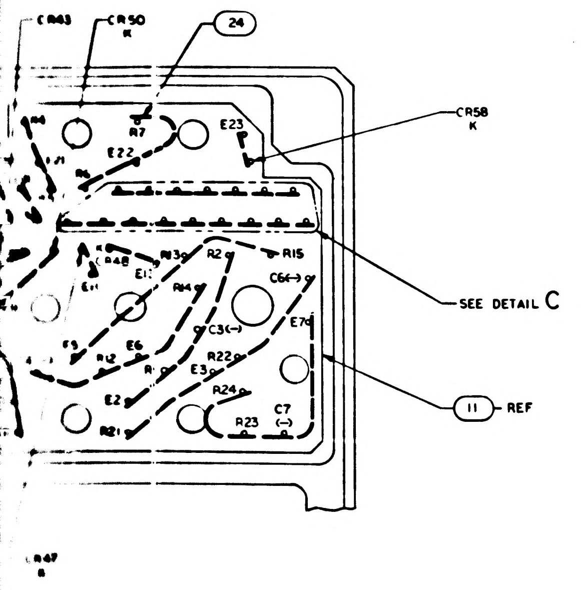
NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. WELD PER ND1002005
3. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
4. ENCAPSULATE PER ND1002236, EXCEPT VISUAL INSPECTION CRITERIA IN LIEU OF 4.2.1. TO BE AS FOLLOWS: THE POTTING COMPOUND SHALL NOT CONTAIN VOIDS OR BUBBLES AT OR BELOW THE SURFACE WHICH ARE LARGER THAN 1/4 INCH IN DIAMETER, OR AN AGGLOMERATION OF VOIDS OR BUBBLES LARGER THEN 3/8 INCH IN DIAMETER. A MINIMUM OF .050 INCH OR 75% OF THE TOTAL DISTANCE, WHICHEVER IS LARGER ACCUMULATIVE TOTAL OF CLEAR (VOID FREE) POTTING SHALL BE PRESENT BETWEEN ELECTRICAL CONTACTS, COMPONENTS, AND THE EXTERIOR SURFACE OF THE ENCAPSULANT
5. K DENOTES CATHODE SIDE OF DIODE
6. MARK .05/.07 HIGH WHITE CHARACTERS PER ND1002019 & ND1002122 TYPE II, CLASS 2 & SERIALIZE PER ND1002023 USING INK 1006271-1
7. MARK .18/.20 HIGH WHITE CHARACTERS PER ND1002019 & ND1002122 TYPE II, CLASS 2 USING INK 1006271-1
8. AR DENOTES AS REQUIRED
9. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
10. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
11. ▲ AND CLEAR LEADS INDICATE SPECIAL LEVEL WIRING
12. − DENOTES NEGATIVE SIDE OF CAPACITOR
13. + DENOTES POSITIVE SIDE OF CAPACITOR
14. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX THE DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH.
15. BOND FIND NO. 3 TO FIND NO. 1 PER ND1002004 TYPE IV
16. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH & SHALL MEET ALL THE REQUIREMENTS OF P.S. 2003902
17. STAKE FIND 15, 17 THRU 23 & FIND NO. 27 TO FIND NO. 1 PER ND1002009 METHOD C OR D
18. APPLY FIND NO. 25 TO INDICATED SURFACES SO AS TO ESTABLISH A CONTINUOUS THERMAL CONTACT BETWEEN SAME
19. SEAL INSULATORS ON FIND NO. 1 AND COAT LEADS THAT EXTEND THROUGH FIND NO. 14 AND FIND NO. 26 PER ND1002004 TYPE VI

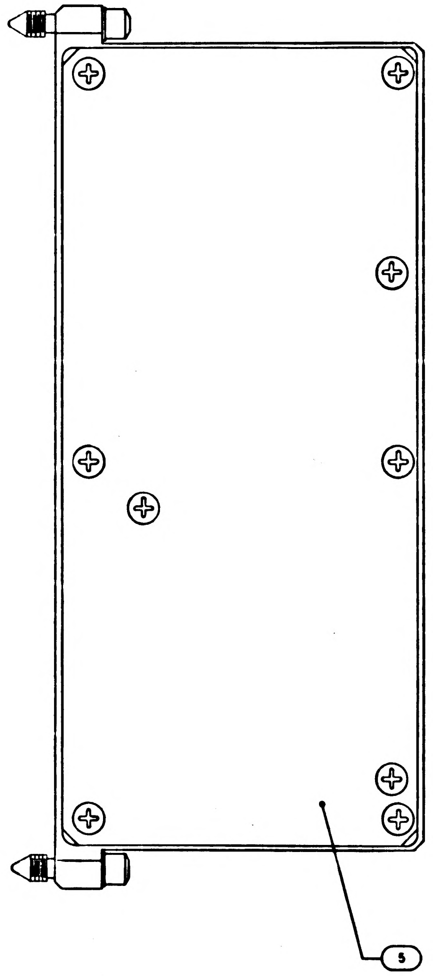
WIRING LEGEND									
FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT
1	K21-7	26	E29	51	E34	76	K19-4	101	E10
2	K21-2	27	K16-3	52	K18-10	77	E44	102	E11
3	K22-7	28	K16-1	53	K13-8	78	K15-4	103	E9
4	K22-1	29	K12-7	54	K8-8	79	K20-8	104	E13
5	K22-6	30	K2-7	55	K3-8	80	K20-10	105	E49
6	K22-4	31	K17-6	56	K3-7	81	K20-1	106	E14
7	K21-1	32	E30	57	E35	82	K20-4	107	E12
8	K21-8	33	K17-10	58	K18-4	83	K5-4	108	CR52
9	E24	34	K12-8	59	K18-1	84	K10-4	109	CR60
10	K21-3	35	E31	60	K18-8	85	R22	110	CR51
11	K21-4	36	K7-7	61	E37	86	R24	111	E16
12	K21-6	37	K17-4	62	E36	87	Q12-C	112	E50
13	E27	38	K17-8	63	K19-6	88	E45	113	E17
14	E26	39	K2-8	64	K18-2	89	R16	114	E18
15	K16-7	40	K7-8	65	E40	90	R12	115	R5
16	E25	41	K2-4	66	E39	91	R1	116	CR59
17	K11-8	42	K7-4	67	E38	92	Q1-C	117	CR62
18	K16-8	43	K12-4	68	G1	93	SPARE	118	CR61
19	K16-10	44	E32	69	E42	94	CR57	119	E21
20	K16-6	45	K18-6	70	K19-8	95	Q13-C	120	E20
21	K16-4	46	K18-7	71	E41	96	SPARE	121	E23
22	K1-8	47	E33	72	K19-10	97	CR53	122	CR64
23	E28	48	K17-1	73	E43	98	CR54	123	CR58
24	K6-8	49	K8-7	74	K20-7	99	CR55	124	CR63
25	K17-7	50	K13-7	75	K19-1	100	CR56		

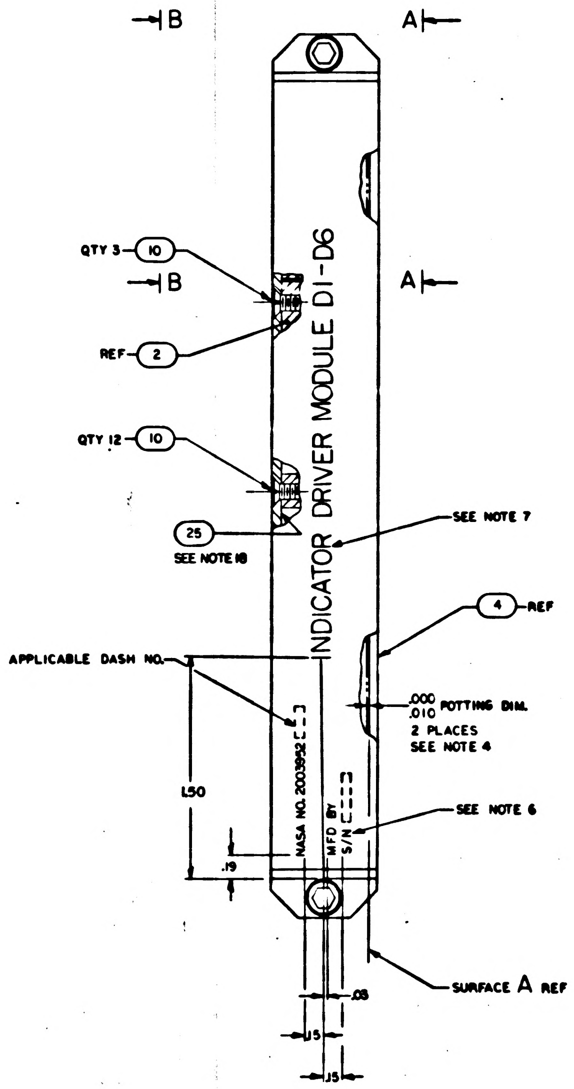

17
24
CR46
K
Q6
Q7
Q5
R1, R3, R4, R6, R7, R9, R11, R19
20
R19
E8
Q11
E49
E50
3
SEE NOTE 15
C5
(+)
E51
R20, R25
15
27
NOTE 17

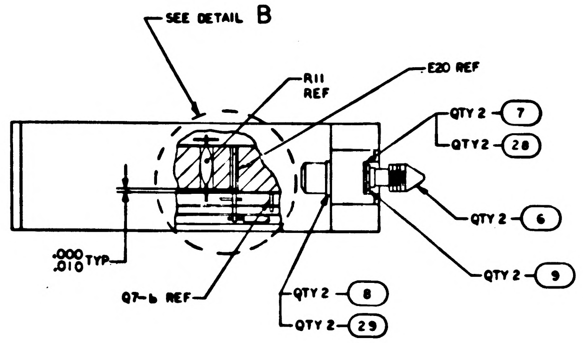

CR59 K
CR60 K
E19
CR61 K
CR62 K
CR63 K
CR64 K
R3
E16
CR51 K
CR52 K
CR53 K
CR54 K
CR55 K
CR56 K
CR57 K

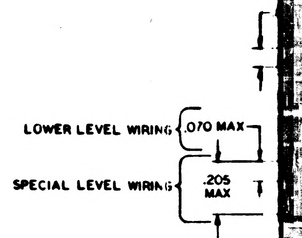
DETAIL C
SCALE 4/1

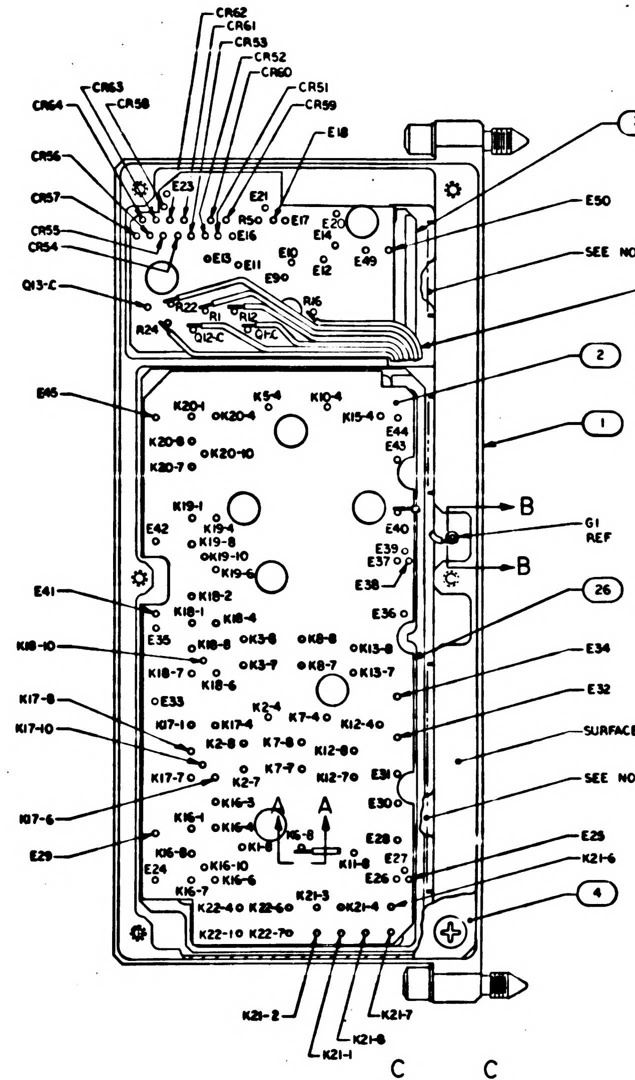

CR43
CR50
K
24
R7
E22
E23
CR58
K
SEE DETAIL C
R48
E1
R13
R2
R15
R14
C6(-)
C3(-)
E7
E5
R12
E6
R22
E3
R24
E2
R21
R23
C7
(-)
11
REF



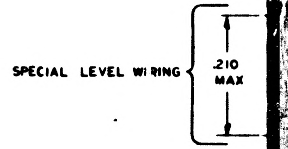

B
A
QTY 3
10
B
A
REF
2
QTY 12
10
25
SEE NOTE 18
INDICATOR DRIVER MODULE D1-D6
SEE NOTE 7
4
REF
APPLICABLE DASH NO.
NASA NO. 2003952
MFD BY
S/N
1.50
.19
.000
.010 POTTING DIM.
2 PLACES
SEE NOTE 4
SEE NOTE 6
SURFACE A REF
.03
.15
.15

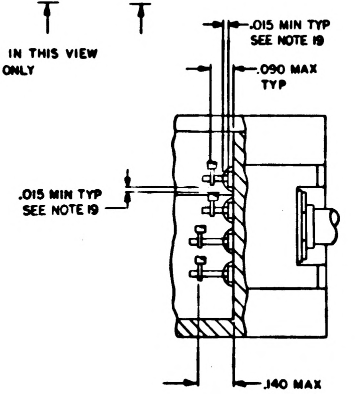

SEE DETAIL B
R11
REF
E20 REF
QTY 2
7
QTY 2
28
QTY 2
6
QTY 2
9
.000
.010 TYP
Q7-b REF
QTY 2
8
QTY 2
29


LOWER LEVEL WIRING
.070 MAX
SPECIAL LEVEL WIRING
.205
MAX


CR62
CR61
CR53
CR52
CR60
CR51
CR59
CR63
CR58
CR64
CR56
CR57
CR55
CR54
Q13-C
E23
E21
R50
E17
E20
E18
E16
E14
E13
E11
E10
E12
E9
E49
R16
R22
R1
R12
R24
Q12-C
Q1-C
3
REF
E50
SEE NOTE 4
16
O11
17
O11
31
32
2
1
E45
K20-1
K20-4
K5-4
K10-4
K15-4
E44
E43
K20-8
K20-10
K20-7
K19-1
K19-4
K19-8
K19-10
K19-6
E42
E40
E39
E37
E38
G1
REF
B
B
26
E41
K18-2
K18-1
K18-4
E36
E35
K18-8
K3-8
K8-8
K13-8
E34
K18-10
K18-7
K3-7
K8-7
K13-7
K18-6
E32
K17-8
E33
K2-4
K7-4
K12-4
K17-10
K17-1
K17-4
K2-8
K7-8
K12-8
SURFACE A
K17-7
K2-7
K7-7
K12-7
E31
SEE NOTE 4
K17-6
K16-3
A
A
E30
K16-1
K16-4
K16-8
E28
E29
K16-8
K1-8
K11-8
E27
K21-6
E24
K16-10
K16-6
E26
E25
K16-7
K22-4
K22-6
K21-3
K21-4
4
K22-1
K22-7
K21-2
K21-8
K21-7
K21-1
C
C

COMPONENT DESIGNATIONS IN THIS VIEW
ARE FOR REFERENCE ONLY


SPECIAL LEVEL WIRING
.210
MAX

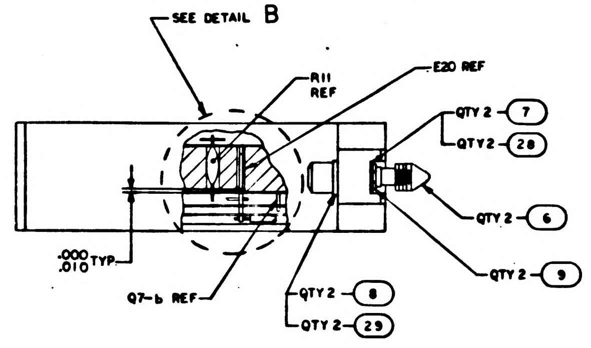

.015 MIN TYP
SEE NOTE 19
.090 MAX
TYP
.015 MIN TYP
SEE NOTE 19
.140 MAX
TYP

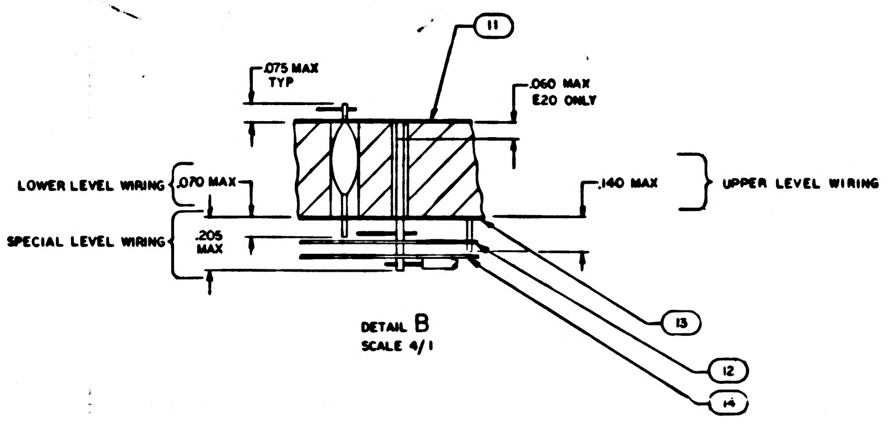
PARTIAL VIEW C-C
SCALE 4/1

ROM N NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT
76	K19-4	101	E10
77	E44	102	E11
78	K15-4	103	E9
79	K20-8	104	E13
80	K20-10	105	E49
81	K20-1	106	E14
82	K20-4	107	E12
83	K5-4	108	CR52
84	K10-4	109	CR60
85	R22	110	CR51
86	R24	111	E16
87	Q12-C	112	E30
88	E45	113	E17
89	R16	114	E18
90	R12	115	R5
91	R1	116	CR59
92	Q1-C	117	CR62
93	SPARE	118	CR61
94	CR57	119	E21
95	Q13-C	120	E20
96	SPARE	121	E23
97	CR53	122	CR64
98	CR54	123	CR58
99	CR55	124	CR63
100	CR56		

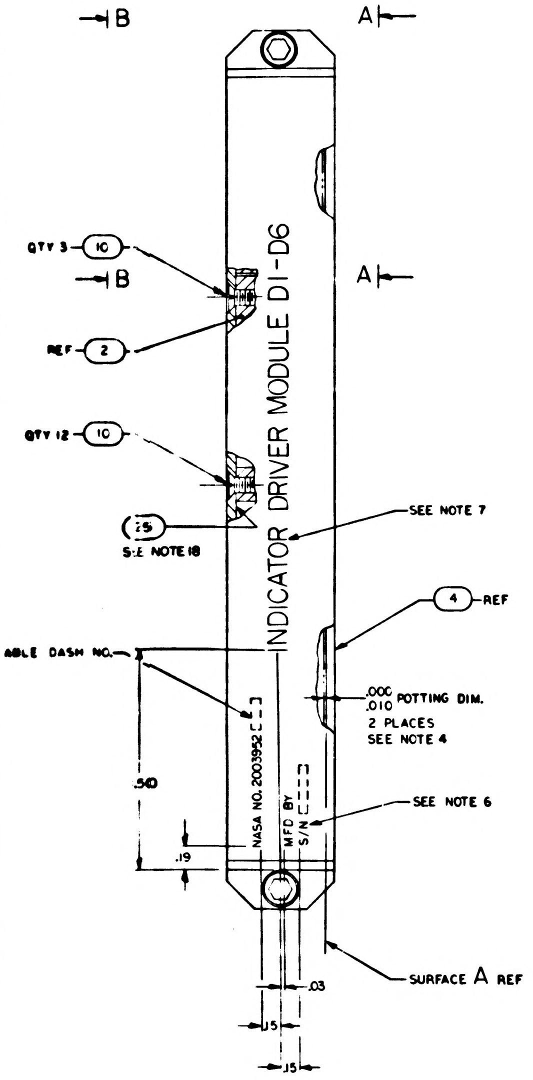
2003952 E

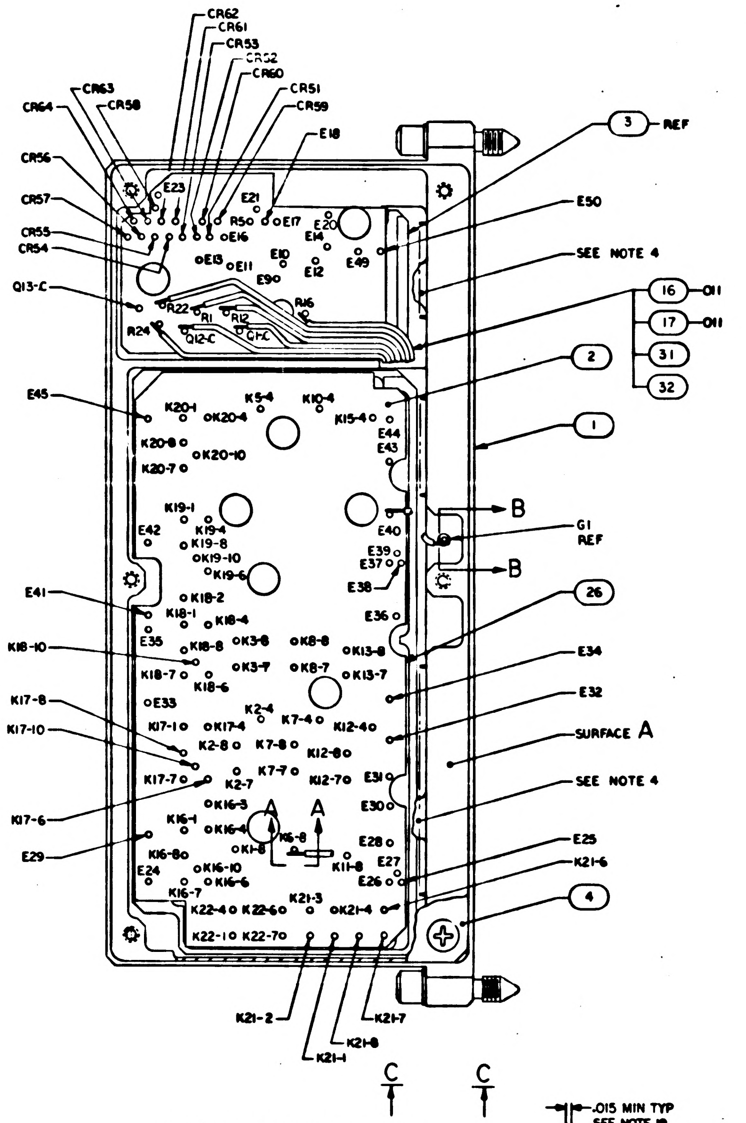
REVISIONS 24373			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 25151 DR CHK	11/4/64	
B	REVISED PER TDRR 27551 DR R P CHK APPD		
C	REVISED PER TDRR 28817 DR CHK APPD		P.B.R.
D	REVISED PER TDRR 29738 DR J Roberts CHK APPD		
E	REVISED PER TDRR 30651 DR CHK APPD		P.B.R.


SEE DETAIL B
R11 REF
E20 REF
QTY 2 – 7
QTY 2 – 28
QTY 2 – 6
QTY 2 – 9
QTY 2 – 8
QTY 2 – 29
.000 .010 TYP.
Q7-b REF

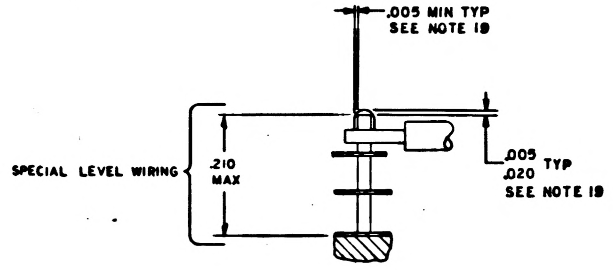

.075 MAX TYP
11
.060 MAX E20 ONLY
LOWER LEVEL WIRING
.070 MAX
.140 MAX
UPPER LEVEL WIRING
SPECIAL LEVEL WIRING
.205 MAX
13
12
14

DETAIL B
SCALE 4/1

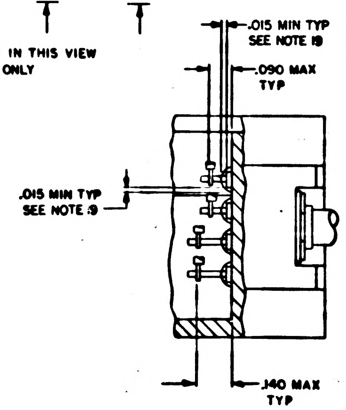

B
A
QTY 3 – 10
B
A
REF – 2
QTY 12 – 10
15
SEE NOTE 18
INDICATOR DRIVER MODULE D1-D6
SEE NOTE 7
4 – REF
APPLICABLE DASH NO.
.000 .010 POTTING DIM.
2 PLACES
SEE NOTE 4
NASA NO. 2003952
MFD BY
S/N
SEE NOTE 6
.510
.19
SURFACE A REF
.03
.15
.15


CR62
CR61
CR53
CR52
CR60
CR51
CR59
E18
CR63
CR64
CR58
CR56
CR57
CR55
CR54
Q13-C
R24
E23
E21
R50
E17
E20
E14
E16
E13
E11
E10
E12
E9
E49
R22
R16
R1
R12
Q12-C
Q1-C
3 – REF
E50
SEE NOTE 4
16 – 011
17 – 011
31
32
2
1
E45
K20-1
K20-4
K5-4
K10-4
K15-4
E44
E43
K20-8
K20-10
K20-7
K19-1
K19-4
K19-8
K19-10
K19-6
E42
E40
E39
E37
E38
E36
B
G1 REF
B
26
E41
K18-2
K18-1
K18-4
E35
K18-10
K18-8
K3-8
K8-8
K13-8
K18-7
K3-7
K8-7
K13-7
K18-6
E34
E33
E32
K17-8
K17-10
K2-4
K7-4
K12-4
SURFACE A
K17-4
K2-8
K7-8
K12-8
E31
K17-7
K2-7
K7-7
K12-7
SEE NOTE 4
K17-6
K16-3
K16-4
K16-8
A
A
E30
E29
K16-1
K1-8
K11-8
E28
E27
K16-8
E24
K16-10
K16-6
E26
E25
K21-6
K16-7
K21-3
K22-4
K22-6
K21-4
4
K22-1
K22-7
K21-2
K21-1
K21-8
K21-7
C
C

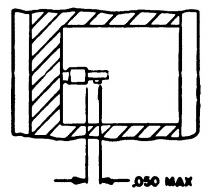
COMPONENT DESIGNATIONS IN THIS VIEW ARE FOR REFERENCE ONLY


.005 MIN TYP
SEE NOTE 19
SPECIAL LEVEL WIRING
.210 MAX
.005 TYP
.020
SEE NOTE 19

PARTIAL SECTION A-A
TYPICAL FOR PINS OF FIND NO. 2
SCALE 10/1


.015 MIN TYP
SEE NOTE 19
.090 MAX TYP
.015 MIN TYP
SEE NOTE 19
.140 MAX TYP

PARTIAL VIEW C-C
SCALE 4/1



SECTION B-B
SCALE 4/1

	2005952		SCHEMATIC	REF
AR	—	1006776-23	SLEEVING, INSULATION	32
AR	—	1006757-27	WIRE, ELECTRICAL .015 DIA	31
~~AR~~	~~—~~	~~1010848-1~~	~~WIRE, INSULATED~~	~~30~~
2	–	2004984-001	WASHER, FLAT	29
2	–	2004984-003	WASHER, FLAT	28
5	5	1006750-39	RESISTOR, FIXED FILM	27
1	1	2004917	INSULATOR	26
AR	AR	1006879	COMPOUND, SILICONE THERMOCONDUCTIVE	25
AR	AR	1006757-1	WIRE, ELECTRICAL .010 × .020	24
7	7	2004004-002	TRANSISTOR	23
6	6	2004004-001	TRANSISTOR	22
3	3	1006750-62	RESISTOR, FIXED FILM	21
15	15	1006750-56	RESISTOR, FIXED FILM	20
22	22	2004103-001	SEMICONDUCTOR DEVICE, DIODE	19
5	5	1006755-106	CAPACITOR, FIXED	18
AR	AR	1006776-22	SLEEVING, INSULATION	17
AR	AR	1006757-8	WIRE, ELECTRICAL .020 DIA	16
2	2	1006750-32	RESISTOR, FIXED FILM	15
1	1	2004993	INSULATOR, PHOTOMASTER, SPECIAL LEVEL	14
1	1	2004992-011	INSULATOR, PHOTOMASTER, LOWER LEVEL	13
1	1	2004991	INSULATOR, PHOTOMASTER, UPPER LEVEL	12
1	1	2004990-011	INSULATOR, PHOTOMASTER REAR	11
15	15	MS24693-C2	SCREW, FLAT HD, CROSS RECESSED	10
2	2	MS16633-4015	RING, RETAINING, EXTERNAL	9
–	2	1004546-1	WASHER, FLAT	8
–	2	1004546-3	WASHER, FLAT	7
2	2	1004579-1	SCREW, JACKING	6
1	1	2004956	COVER, REAR	5
1	1	2004911	COVER	4
1	1	2003908-011	DECODING CIRCUIT ASSY	3
1	1	2003910-011	RELAY CIRCUIT ASSY	2
1	1	2003907-011	HEADER ASSY	1
QTY REQD	QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
021	011	LIST OF MATERIALS		

E 2003952

3 4

2003950	
2003985	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO
CONTRACT
DRAWN A. Vorce DATE 24 NOV 64
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL A. C. M
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

INDICATOR DRIVER ASSY
MODULE D1-D6
AGC DSKY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO 2003952
SCALE 2/1
WT
SHEET 1 OF 1

APOLLO G&N Specification
PS 2003952 Rev. DE
Original Issue Date: 5-10-66
Release Authority: TDRR 28638
Class Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

INDICATOR DRIVER MODULE

DRAWING NO. 2003952

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
[illegible]	A	[illegible]	1, 16, 18, 22	FK	FK
[illegible]/15/66	B	31060	1,3,4,5,20,21,22,23,24,25	FK	FK
4/13/67	C	33609	1, 20, 28	FK	FK
[illegible]	D	[illegible]	1, 16	FK	FK
8-3-67	E	34282	1, 16	FK	FK

This specification consists of pages 1 to 28 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	5/9/66 MIT/IL	4/22/66 4/22/66 RAY

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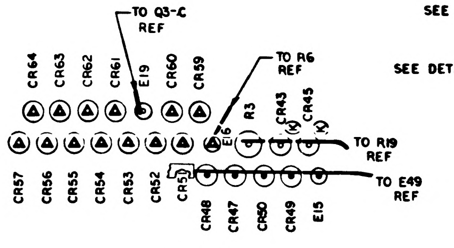
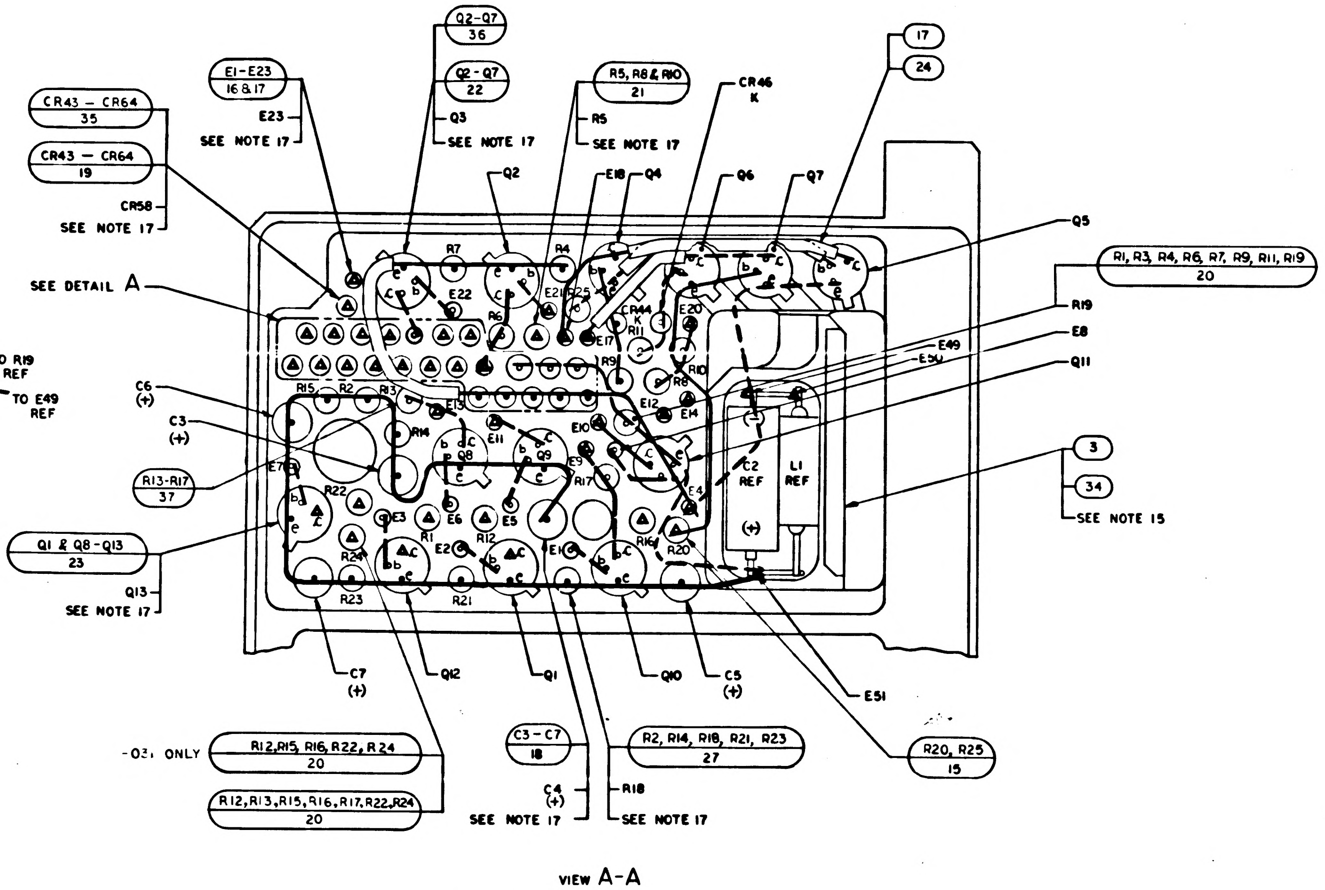
WIRING LEGEND

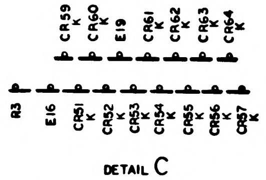
FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT
1	K21-7	26	E29	51	E34	76	K19
2	K21-2	27	K16-3	52	K18-10	77	E44
3	K22-7	28	K16-1	53	K13-8	78	K15
4	K22-1	29	K12-7	54	K8-8	79	K20
5	K22-6	30	K2-7	55	K3-8	80	K20
6	K22-4	31	K17-6	56	K3-7	81	K20
7	K21-1	32	E30	57	E35	82	K20
8	K21-8	33	K17-10	58	K18-4	83	K5-
9	E24	34	K12-8	59	K18-1	84	K10
10	K21-3	35	E31	60	K18-8	85	R22
11	K21-4	36	K7-7	61	E37	86	R24
12	K21-6	37	K17-4	62	E36	87	Q12-
13	E27	38	K17-8	63	K19-6	88	E45
14	E26	39	K2-8	64	K18-2	89	R16
15	K16-7	40	K7-8	65	E40	90	R12
16	E25	41	K2-4	66	E39	91	R1
17	K11-8	42	K7-4	67	E38	92	Q1-
18	K16-8	43	K12-4	68	G1	93	SPAR
19	K16-10	44	E32	69	E42	94	CR5
20	K16-6	45	K18-6	70	K19-8	95	Q13-
21	K16-4	46	K18-7	71	E41	96	SPAR
22	K1-8	47	E33	72	K19-10	97	CR53
23	E28	48	K17-1	73	E43	98	CR5
24	K6-8	49	K8-7	74	K20-7	99	CR55
25	K17-7	50	K13-7	75	K19-1	100	CR5


TO Q3-C REF
CR64
CR63
CR62
CR61
E19
CR60
CR59
TO R6 REF
E6
R3
CR43 (K)
CR45 (K)
TO R19 REF
TO E49 REF
CR57
CR56
CR55
CR54
CR53
CR52
CR51
CR48
CR47
CR50
CR49
E15

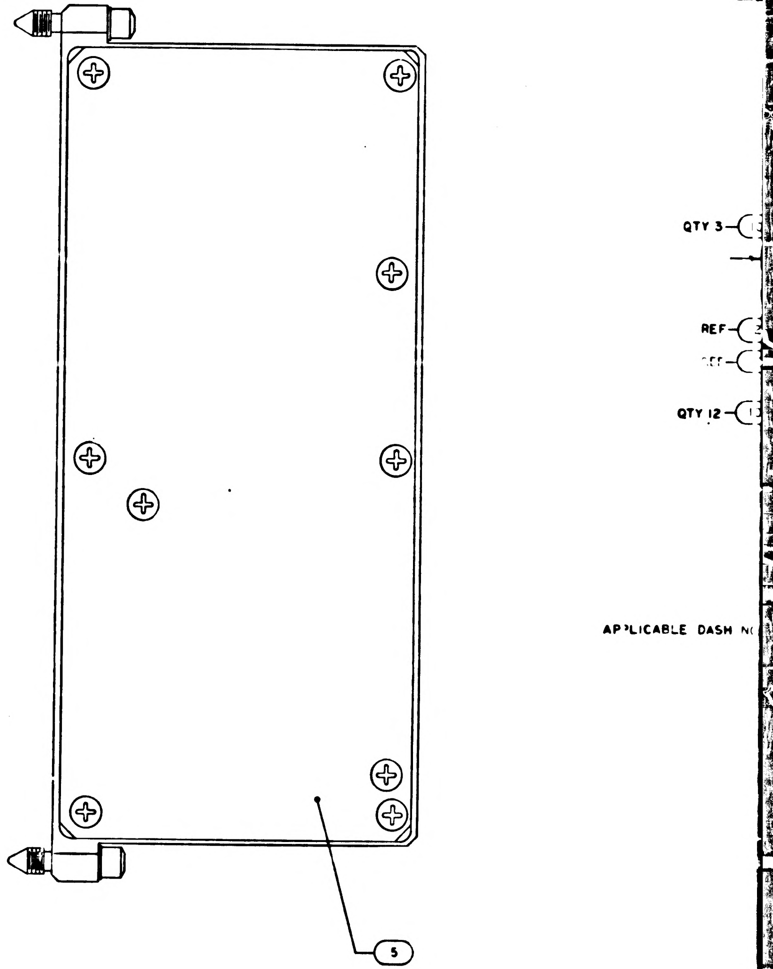
DETAIL A
SCALE 4/1


E1-E23
16 & 17
E23
SEE NOTE 17
Q2-Q7
36
Q2-Q7
22
Q3
SEE NOTE 17
R5, R8 & R10
21
R5
SEE NOTE 17
CR46
K
17
24
CR43 - CR64
35
CR43 - CR64
19
CR58
SEE NOTE 17
Q2
E18
Q4
Q6
Q7
Q5
SEE DETAIL A
R1, R3, R4, R6, R7, R9, R11, R19
20
R19
E8
Q11
E49
E50
C6
(+)
C3
(+)
R13-R17
37
Q1 & Q8-Q13
23
Q13
SEE NOTE 17
3
34
SEE NOTE 15
C2 REF
L1 REF
(+)
C7
(+)
Q12
Q1
Q10
C5
(+)
E51
R20, R25
15
-031 ONLY
R12, R15, R16, R22, R24
20
R12, R13, R15, R16, R17, R22, R24
20
C3 - C7
18
C4
(+)
SEE NOTE 17
R2, R14, R18, R21, R23
27
R18
SEE NOTE 17

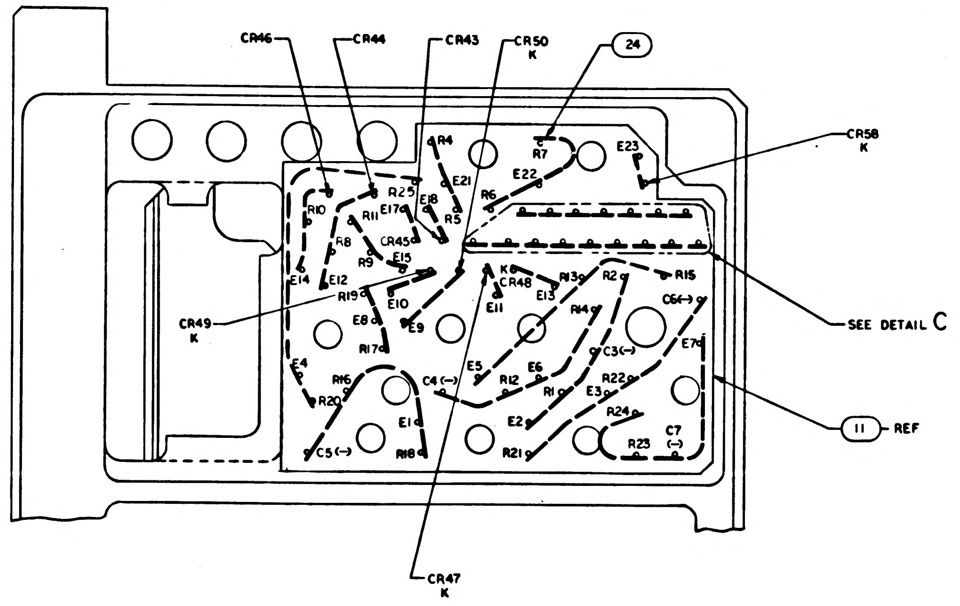
VIEW A-A
SCALE 4/1
VIEW SHOWN WITH FIND NO. 4, 12, 13, 14
AND SPECIAL LEVEL WIRING REMOVED


CR59 K
CR60 K
E19
CR61 K
CR62 K
CR63 K
CR64 K
R3
E16
CR51 K
CR52 K
CR53 K
CR54 K
CR55 K
CR56 K
CR57 K

DETAIL C
SCALE 4/1


QTY 3
REF
QTY 12
5

APPLICABLE DASH N


CR46
CR44
CR43
CR50
K
24
CR58
K
SEE DETAIL C
CR49
K
11
REF
CR47
K
R4
R7
E23
E21
E22
R10
R25
E18
R5
R6
R11
E17
R8
CR45
R9
E15
E12
E14
R19
E10
E8
E9
K6
CR48
R13
E13
E11
R2
R15
C6(+)
R14
C3(-)
E7
R17
E4
R16
R20
C4(-)
E5
R12
E6
R1
R22
E3
E1
E2
R24
C5(-)
R18
R21
R23
C7
(-)

VIEW B-B
SCALE 4/1
COMPONENT DESIGNATIONS IN THIS VIEW
ARE FOR REFERENCE ONLY

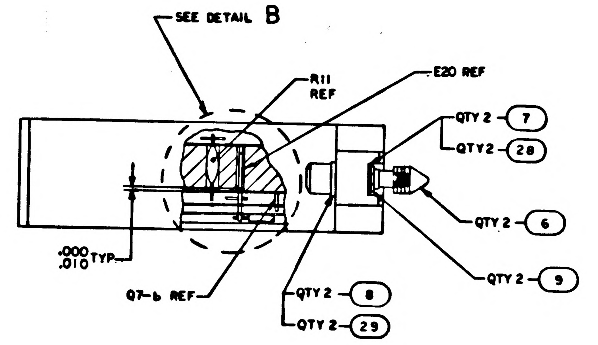
NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. WELD PER ND1002005
3. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
4. ENCAPSULATE PER ND1002236, EXCEPT VISUAL INSPECTION CRITERIA IN LIEU OF 4.3J. TO BE AS FOLLOWS: THE POTTING COMPOUND SHALL NOT CONTAIN VOIDS OR BUBBLES AT OR BELOW THE SURFACE WHICH ARE LARGER THAN 1/4 INCH IN DIAMETER, OR AN AGGLOMERATION OF VOIDS OR BUBBLES LARGER THEN 3/8 INCH IN DIAMETER. A MINIMUM OF .050 INCH OR 75% OF THE DISTANCE, WHICHEVER IS LARGER, ACCUMULATIVE TOTAL OF CLEAR (VOID FREE) POTTING SHALL BE PRESENT BETWEEN ELECTRICAL CONTACTS, COMPONENTS, AND THE EXTERIOR SURFACE OF THE ENCAPSULANT
5. K DENOTES CATHODE SIDE OF DIODE
6. MARK .05/.07 HIGH WHITE CHARACTERS PER ND1002019 & ND1002122 TYPE II, CLASS 2 & SERIALIZE PER ND1002023 USING INK 1006271-1
7. MARK .18/.20 HIGH WHITE CHARACTERS PER ND1002019 & ND1002122 TYPE II, CLASS 2 USING INK 1006271-1
8. AR DENOTES AS REQUIRED
9. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
10. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
11. ▲ AND CLEAR LEADS INDICATE SPECIAL LEVEL WIRING
12. − DENOTES NEGATIVE SIDE OF CAPACITOR
13. + DENOTES POSITIVE SIDE OF CAPACITOR
14. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX THE DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH.
15. BOND FIND NO.3 OR 34 TO FIND NO.1 PER ND1002004 TYPE IV
16. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH & SHALL MEET ALL THE REQUIREMENTS OF P.S. 2003952 FOR -011 AND -021 CONFIGURATION, FOR -031 CONFIGURATION USE PS2016009
17. STAKE FIND 15, 17 THRU 23, 27, 35, 36 AND 37 TO FIND NO.1 PER ND1002009 METHOD C OR D
18. APPLY FIND NO. 25 TO INDICATED SURFACES SO AS TO ESTABLISH A CONTINUOUS THERMAL CONTACT BETWEEN SAME
19. SEAL INSULATORS ON FIND NO.1 AND COAT LEADS THAT EXTEND THROUGH FIND NO. 14 AND FIND NO. 26 PER ND1002004 TYPE VI
20. COLOR OF FIND NO. 32 TO BE OPTIONAL

2003952 F

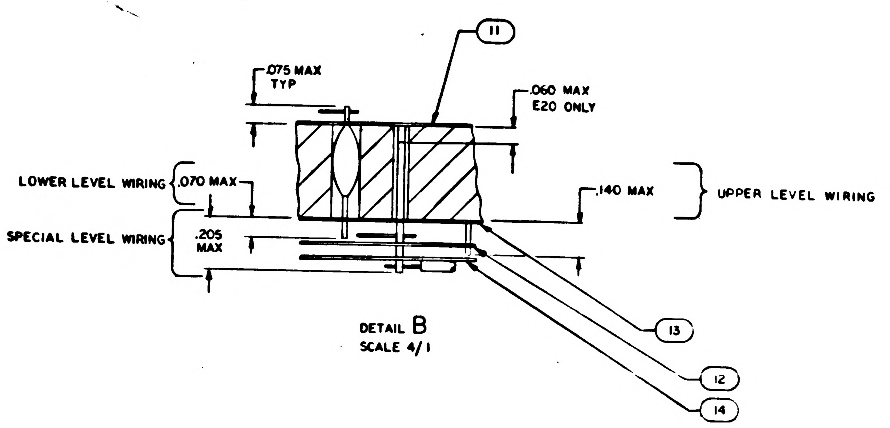
2003952 F F1/3

WIRING LEGEND

FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT
1	K21-7	26	E29	51	E34	76	K19-4	101	E10
2	K21-2	27	K16-3	52	K18-10	77	E44	102	E11
3	K22-7	28	K16-1	53	K13-8	78	K15-4	103	E9
4	K22-1	29	K12-7	54	K8-8	79	K20-8	104	E13
5	K22-6	30	K2-7	55	K3-8	80	K20-10	105	E49
6	K22-4	31	K17-6	56	K3-7	81	K20-1	106	E14
7	K21-1	32	E30	57	E35	82	K20-4	107	E12
8	K21-8	33	K17-10	58	K18-4	83	K5-4	108	CR52
9	E24	34	K12-8	59	K18-1	84	K10-4	109	CR60
10	K21-3	35	E31	60	K18-8	85	R22	110	CR51
11	K21-4	36	K7-7	61	E37	86	R24	111	E16
12	K21-6	37	K17-4	62	E36	87	Q12-C	112	E50
13	E27	38	K17-8	63	K19-6	88	E45	113	E17
14	E26	39	K2-8	64	K18-2	89	R16	114	E18
15	K16-7	40	K7-8	65	E40	90	R12	115	R5
16	E25	41	K2-4	66	E39	91	R1	116	CR59
17	K11-8	42	K7-4	67	E38	92	Q1-C	117	CR62
18	K16-8	43	K12-4	68	G1	93	SPARE	118	CR61
19	K16-10	44	E32	69	E42	94	CR57	119	E21
20	K16-6	45	K18-6	70	K19-8	95	Q13-C	120	E20
21	K16-4	46	K18-7	71	E41	96	SPARE	121	E23
22	K1-8	47	E33	72	K19-10	97	CR53	122	CR64
23	E28	48	K17-1	73	E43	98	CR54	123	CR58
24	K6-8	49	K8-7	74	K20-7	99	CR55	124	CR63
25	K17-7	50	K13-7	75	K19-1	100	CR56		

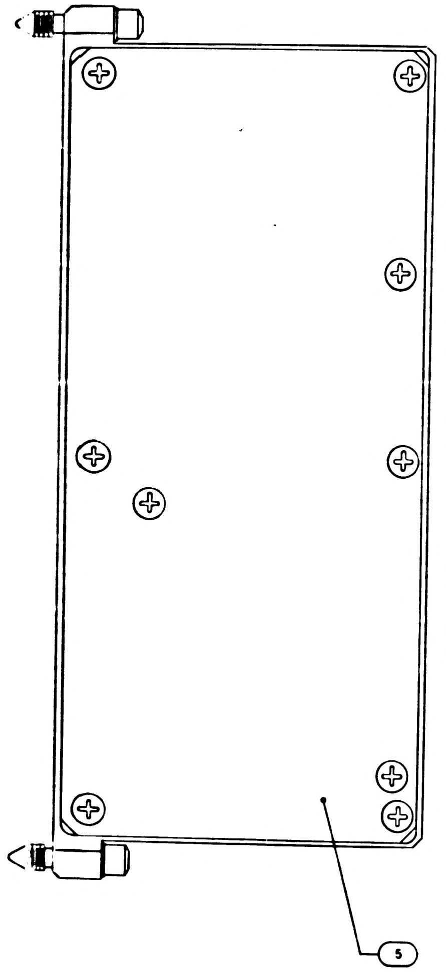


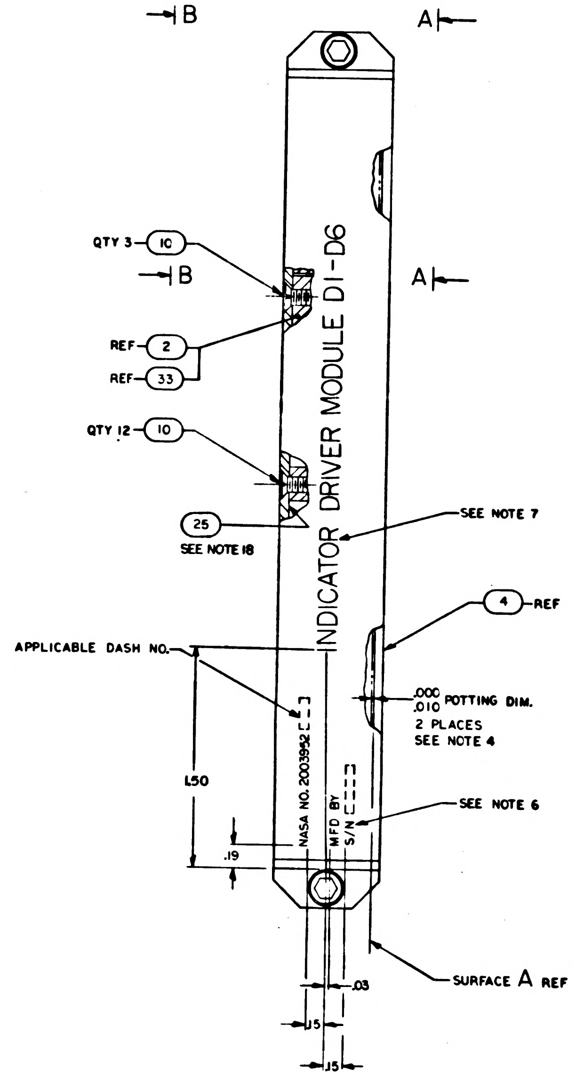
SEE DETAIL B
R11 REF
E20 REF
QTY 2 7
QTY 2 28
QTY 2 6
QTY 2 9
.000 .010 TYP
Q7-b REF
QTY 2 8
QTY 2 29



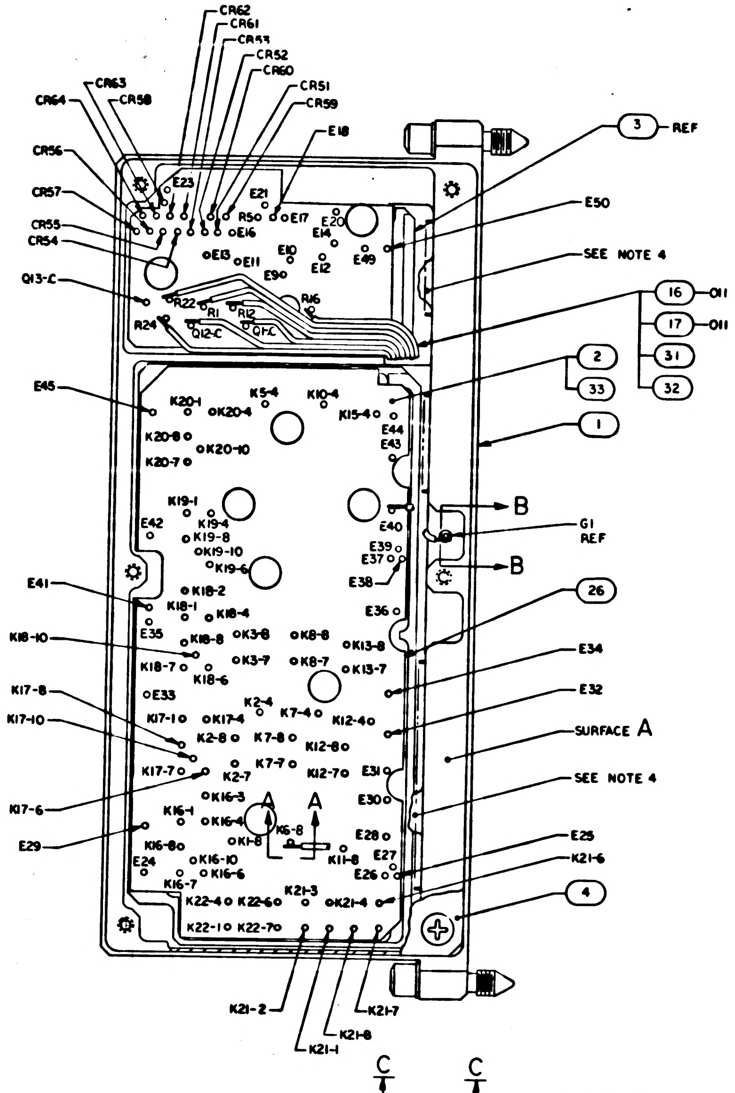
11
.075 MAX TYP
.060 MAX E20 ONLY
LOWER LEVEL WIRING .070 MAX
.140 MAX
UPPER LEVEL WIRING
SPECIAL LEVEL WIRING .205 MAX
13
12
14

DETAIL B
SCALE 4/1



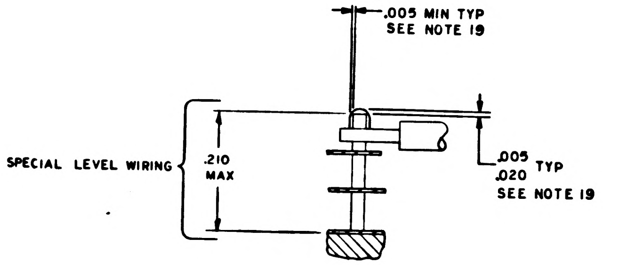


B
A
QTY 3 10
B
A
REF 2
REF 33
QTY 12 10
25
SEE NOTE 18
SEE NOTE 7
INDICATOR DRIVER MODULE DI-D6
4 REF
APPLICABLE DASH NO.
.000 .010 POTTING DIM.
2 PLACES
SEE NOTE 4
NASA NO. 2003952
MFD BY
S/N
SEE NOTE 6
1.50
.19
SURFACE A REF
.03
.15
.15



CR62
CR61
CR53
CR52
CR60
CR63
CR64
CR58
CR51
CR59
E18
CR56
CR57
CR55
CR54
Q13-C
E23
E21
R50
E17
E16
E13
E11
E10
E20
E14
E12
E49
E90
R22
R1
R12
R16
R24
Q12-C
Q1-C
3 REF
E50
SEE NOTE 4
16 011
17 011
31
32
2
33
1
E45
K20-1
K20-4
K5-4
K10-4
K15-4
E44
E43
K20-8
K20-10
K20-7
K19-1
K19-4
K19-8
K19-10
K19-6
E42
B
G1 REF
B
E40
E39
E37
E38
E41
K18-2
K18-1
K18-4
E36
26
E35
K18-10
K18-8
K3-8
K8-8
K13-8
K18-7
K18-6
K3-7
K8-7
K13-7
E34
E33
K2-4
K7-4
K12-4
E32
K17-8
K17-10
K17-1
K17-4
K2-8
K7-8
K12-8
SURFACE A
K17-7
K2-7
K7-7
K12-7
E31
SEE NOTE 4
K17-6
K16-3
A
A
E30
K16-1
K16-4
K6-8
E28
E29
K1-8
E27
K16-8
K16-10
K11-8
E26
E25
E24
K16-6
K21-6
K16-7
K22-4
K22-6
K21-3
K21-4
4
K22-1
K22-7
K21-2
K21-7
K21-8
K21-1
C
C

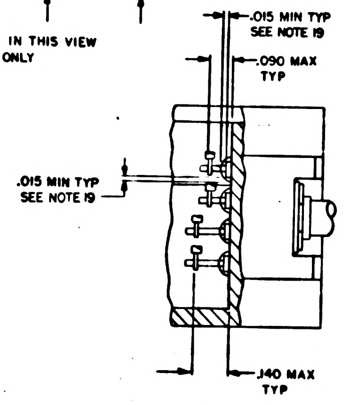
COMPONENT DESIGNATIONS IN THIS VIEW ARE FOR REFERENCE ONLY



.005 MIN TYP
SEE NOTE 19
SPECIAL LEVEL WIRING .210 MAX
.005 .020 TYP
SEE NOTE 19

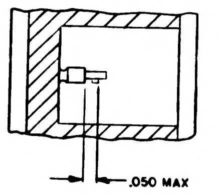
PARTIAL SECTION A-A
TYPICAL FOR PINS OF FIND NO. 2
SCALE 10/1

SEE NOTE 2



.015 MIN TYP
SEE NOTE 19
.090 MAX TYP
.015 MIN TYP
SEE NOTE 19
.140 MAX TYP

PARTIAL VIEW C-C
SCALE 4/1



SECTION B-B
SCALE 4/1

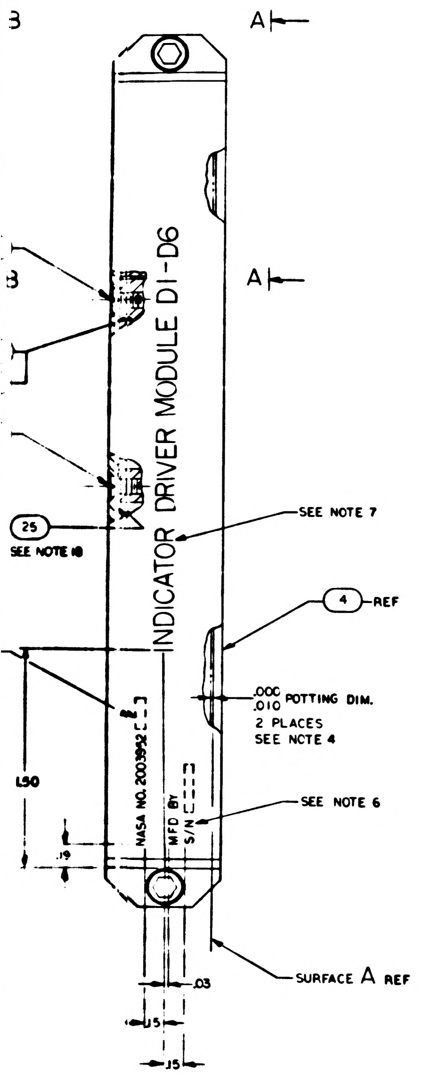
2003994	
2003950	
2003985	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

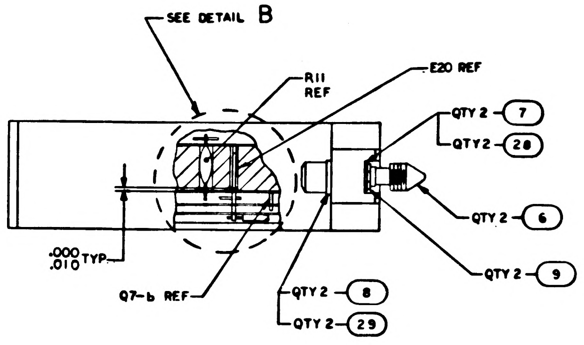
F2/3

2003952 F

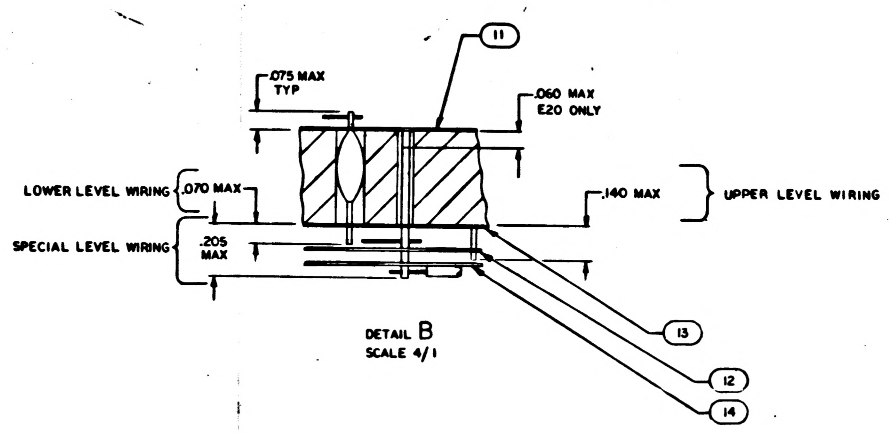
FROM PIN NO.	TO COMPONENT
101	E10
102	E11
103	E9
104	E13
105	E49
106	E14
107	E12
108	CR52
109	CR60
110	CR51
111	E16
112	E50
113	E17
114	E18
115	R5
116	CR59
117	CR62
118	CR61
119	E2
12C	E20
12	E23
122	CR64
123	CR58
124	CR63



A
A
B
B
INDICATOR DRIVER MODULE D1-D6
25
SEE NOTE 18
SEE NOTE 7
4 REF
.000 .010 POTTING DIM.
2 PLACES
SEE NOTE 4
NASA NO. 2003952
MFD BY
S/N
SEE NOTE 6
1.50
.19
.03
.15
.15
SURFACE A REF

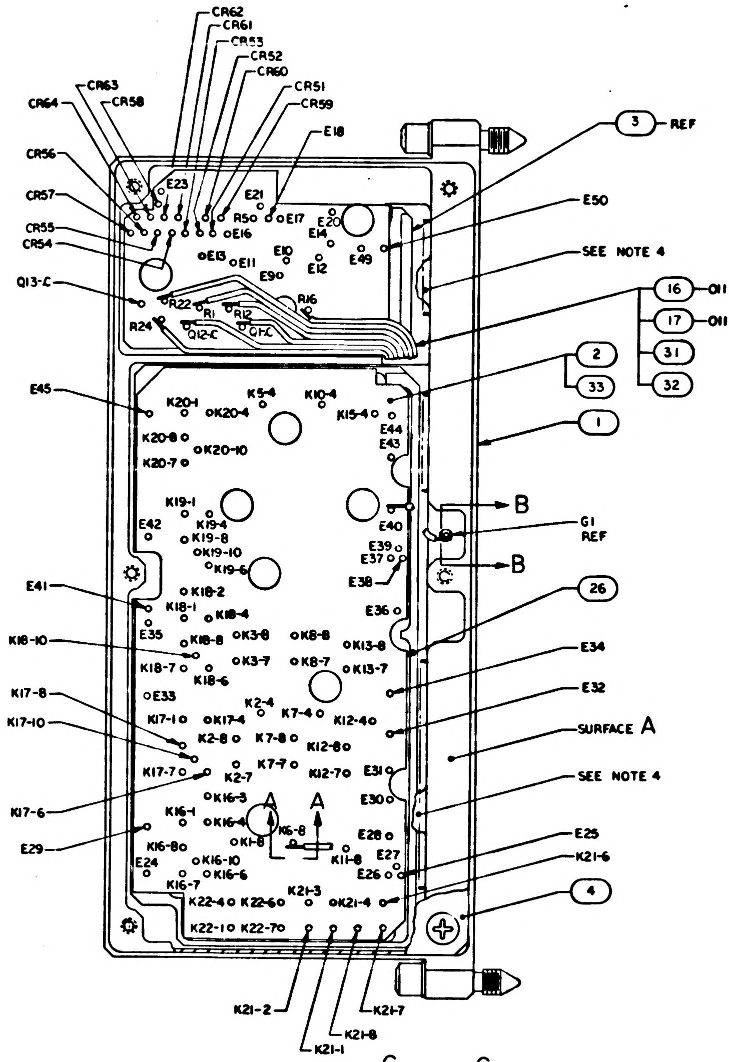


SEE DETAIL B
R11 REF
E20 REF
QTY 2 7
QTY 2 28
QTY 2 6
QTY 2 9
QTY 2 8
QTY 2 29
.000 .010 TYP
Q7-b REF



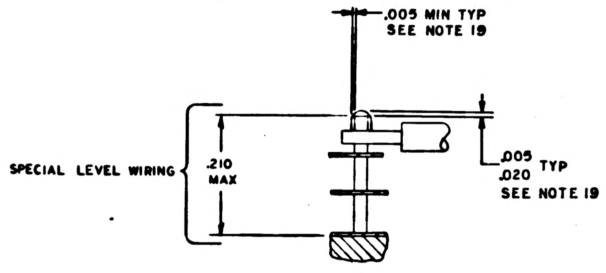
.075 MAX TYP
11
.060 MAX E20 ONLY
LOWER LEVEL WIRING
.070 MAX
.140 MAX
UPPER LEVEL WIRING
SPECIAL LEVEL WIRING
.205 MAX
13
12
14

DETAIL B
SCALE 4/1



CR62
CR61
CR53
CR52
CR60
CR51
CR59
CR63
CR58
CR64
E18
CR56
CR57
CR55
CR54
E23
E21
R50
E17
E20
E16
E14
E13
E11
E10
E9
E12
E49
Q13-C
R16
R22
R1
R12
R24
Q12-C
3 REF
E50
SEE NOTE 4
16 -011
17 -011
31
32
2
33
1
E45
K20-1
K20-4
K5-4
K10-4
K15-4
K20-8
K20-10
K20-7
E44
E43
K19-1
K19-4
K19-8
K19-10
K19-6
E42
E40
E39
E37
E38
B
G1 REF
B
26
E41
K18-2
K18-1
K18-4
E35
E36
K18-10
K18-8
K3-8
K8-8
K13-8
K18-7
K3-7
K8-7
K13-7
K18-6
E34
K17-8
E33
K2-4
K7-4
E32
K17-10
K17-1
K17-4
K12-4
K2-8
K7-8
K12-8
SURFACE A
K17-7
K2-7
K7-7
K12-7
E31
SEE NOTE 4
K17-6
K16-3
A
A
E30
K16-1
K16-4
K6-8
K16-8
K11-8
E28
E25
E29
E24
K16-10
K16-6
E27
K21-6
K16-7
E26
K22-4
K22-6
K21-3
K21-4
4
K22-1
K22-7
K21-2
K21-8
K21-1
K21-7
C
C

COMPONENT DESIGNATIONS IN THIS VIEW ARE FOR REFERENCE ONLY

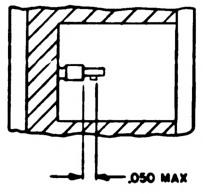


.005 MIN TYP
SEE NOTE 19
SPECIAL LEVEL WIRING
.210 MAX
.005 .020 TYP
SEE NOTE 19

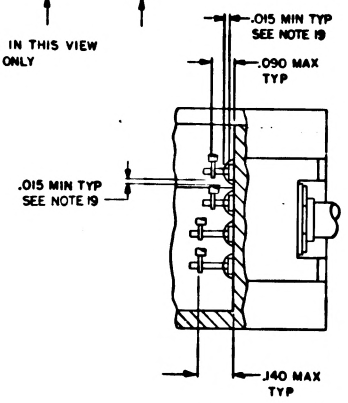
PARTIAL SECTION A-A
TYPICAL FOR PINS OF FIND NO. 2
SCALE 10/1

SEE NOTE 20

QTY REQD	QTY REQD	QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	—	—	2005940	SCHEMATIC	REF
—	☒	☒	2005952	SCHEMATIC	REF
2	—	—	1006750-63	RESISTOR, FIXED FILM	37
6	—	—	2004184-005	TRANSISTOR, POTTED	36
22	—	—	2004183-001	DIODE	35
1	—	—	2003908-021	DECODING CIRCUIT ASSY	34
1	—	—	2003910-021	RELAY CIRCUIT ASSY	33
AR	AR	—	1006776	SLEEVING, INSULATION AWG 26	32
AR	AR	—	1006757-27	WIRE, ELECTRICAL .015 DIA	31
	~~AR~~	~~—~~	~~1010848-1~~	~~WIRE, INSULATED~~	30
2	2	—	2004984-001	WASHER, FLAT	29
2	2	—	2004984-003	WASHER, FLAT	28
5	5	5	1006750-39	RESISTOR, FIXED FILM	27
1	1	1	2004917	INSULATOR	26
AR	AR	AR	1006879	COMPOUND, SILICONE THERMOCONDUCTIVE	25
AR	AR	AR	1006757-1	WIRE, ELECTRICAL .010×.020	24
7	7	7	2004004-002	TRANSISTOR	23
—	6	6	2004004-001	TRANSISTOR	22
3	3	3	1006750-62	RESISTOR, FIXED FILM	21
13	15	15	1006750-56	RESISTOR, FIXED FILM	20
—	22	22	2004103-001	SEMICONDUCTOR DEVICE, DIODE	19
5	5	5	1006755-106	CAPACITOR, FIXED	18
AR	AR	AR	1006776-22	SLEEVING, INSULATION	17
AR	AR	AR	1006757-8	WIRE, ELECTRICAL .020 DIA	16
2	2	2	1006750-32	RESISTOR, FIXED FILM	15
1	1	1	2004993	INSULATOR, PHOTOMASTER, SPECIAL LEVEL	14
1	1	1	2004992-011	INSULATOR, PHOTOMASTER, LOWER LEVEL	13
1	1	1	2004991	INSULATOR, PHOTOMASTER, UPPER LEVEL	12
1	1	1	2004990-011	INSULATOR, PHOTOMASTER, REAR	11
15	15	15	MS24693-C2	SCREW, FLAT HD, CROSS RECESSED	10
2	2	2	MS16633-4015	RING, RETAINING, EXTERNAL	9
—	—	2	1004546-1	WASHER, FLAT	8
—	—	2	1004546-3	WASHER, FLAT	7
2	2	2	1004579-1	SCREW, JACKING	6
1	1	1	2004956	COVER, REAR	5
1	1	1	2004911	COVER	4
—	1	1	2003908-011	DECODING CIRCUIT ASSY	3
—	1	1	2003910-011	RELAY CIRCUIT ASSY	2
1	1	1	2003907-011	HEADER ASSY	1
031	021	011	LIST OF MATERIALS		



SECTION B-B
SCALE 4/1



.015 MIN TYP
SEE NOTE 19
.090 MAX TYP
.015 MIN TYP
SEE NOTE 19
.140 MAX TYP

PARTIAL VIEW C-C
SCALE 4/1

REVISIONS 22373			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 25151 DR CHK	11/14/66	
B	REVISED PER TDRR 27551 DR CHK APPD		
C	REVISED PER TDRR 28817 DR CHK APPD	27 MAY 66	P.B.R.
D	REVISED PER TDRR 29738 DR J. Roberts CHK APPD		
E	REVISED PER TDRR 30651 DR CHK APPD		P.B.R.
F	REVISED PER TDRR 32580 DR CHK APPD		F.I.R

2003952 F

2003994	
2003950	
2003985	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN A. Vorce DATE 24 NOV 64
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

INDICATOR DRIVER ASSY
MODULE D1-D6
AGC DSKY

CODE IDENT NO 80230 SIZE J NASA DRAWING NO 2003952
SCALE 2/1 WT SHEET 1 OF 1

2003952 F

F3/3

APOLLO G&N Specification
PS 2003952 Rev. F
Original Issue Date: 5-10-66
Release Authority: TDRR 28638
Class Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

INDICATOR DRIVER MODULE

DRAWING NO. 2003952

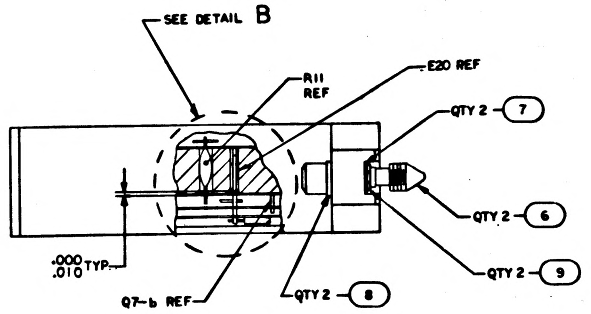
Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
[illegible]	A	2920[illegible]	1, 16, 18, 22	FK	FK
9/15/66	B	31060	1,3,4,5,20,21,22,23,24,25	FK	FK
[illegible]/13/67	C	33609	1, 20, 28	FK	FK
[illegible]	D	34129	1, 16	FK	FK
8-3-67	E	34282	1, 16	FK	FK
12-21-67	F	35334	1, 18	GB FK	GB FK

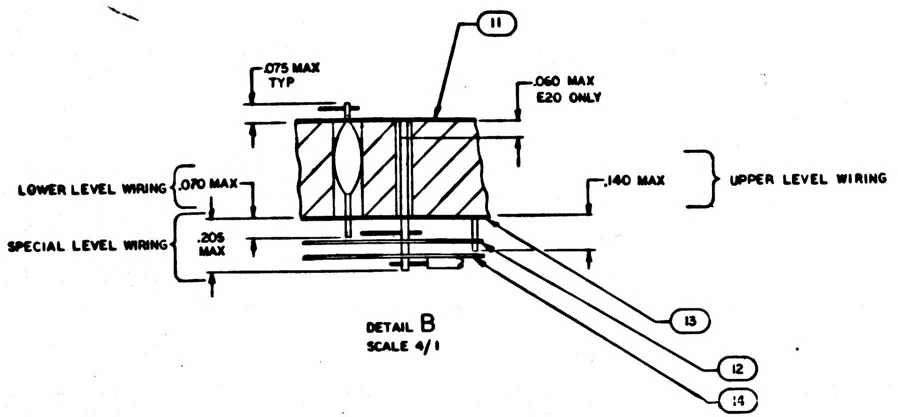
This specification consists of pages 1 to 28 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	5/9/66 MIT/IL	RAY

FROM PIN NO.	TO COMPONENT	FROM PIN NO.	TO COMPONENT
76	K15-4	101	E10
77	E44	102	E11
78	K19-4	103	E9
79	K20-8	104	E13
80	K20-10	105	E49
81	K20-1	106	E14
82	K20-4	107	E12
83	K5-4	108	CR52
84	K10-4	109	CR60
85	R22	110	CR51
86	R24	111	E16
87	Q12-C	112	E50
88	E43	113	E17
89	R16	114	E18
90	R12	115	R5
91	R11	116	CR59
92	Q11-C	117	CR62
93	SPARE	118	CR61
94	CR57	119	E21
95	Q13-C	120	E20
96	SPARE	121	E23
97	CR53	122	CR64
98	CR54	123	CR58
99	CR55	124	CR63
100	CR56		

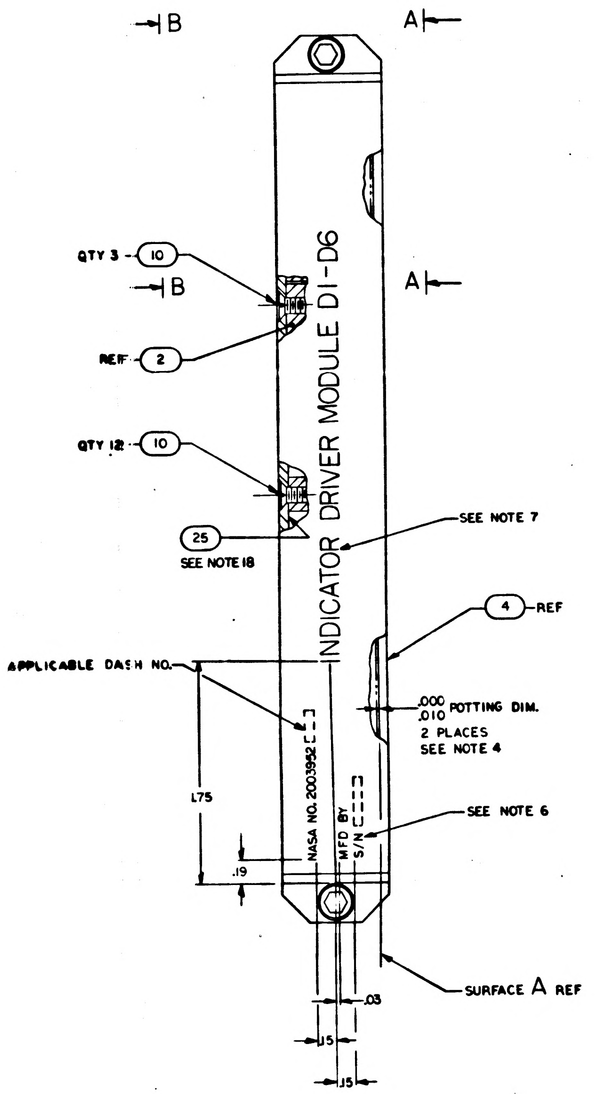


SEE DETAIL B
R11 REF
E20 REF
QTY 2 - 7
QTY 2 - 6
QTY 2 - 9
QTY 2 - 8
.000 .010 TYP
Q7-b REF

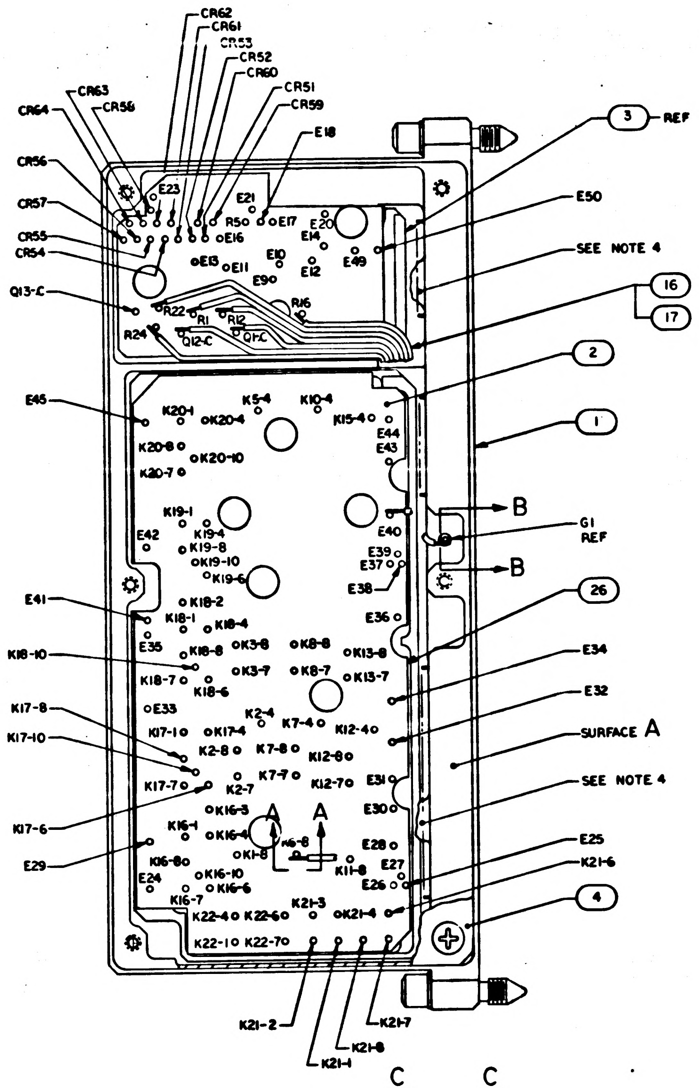


11
.075 MAX TYP
.060 MAX E20 ONLY
LOWER LEVEL WIRING
.070 MAX
.140 MAX
UPPER LEVEL WIRING
SPECIAL LEVEL WIRING
.205 MAX
13
12
14

DETAIL B
SCALE 4/1

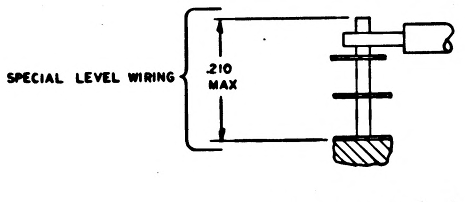


B
A
QTY 3 - 10
B
A
REF - 2
QTY 12 - 10
25
SEE NOTE 18
SEE NOTE 7
INDICATOR DRIVER MODULE D1-D6
4 - REF
APPLICABLE DASH NO.
.000 .010 POTTING DIM.
2 PLACES
SEE NOTE 4
NASA NO. 2003952
MFD BY
S/N
SEE NOTE 6
1.75
.19
SURFACE A REF
.03
.15
.15



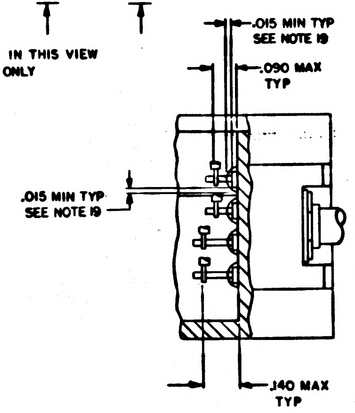
CR62
CR61
CR53
CR52
CR60
CR51
CR59
CR63
CR56
CR64
E18
3 - REF
CR56
E50
CR57
SEE NOTE 4
CR55
CR54
16
17
Q13-C
2
E45
1
G1 REF
B
B
E41
26
K18-10
E34
E32
K17-8
K17-10
SURFACE A
SEE NOTE 4
K17-6
E25
E29
K21-6
4
K21-2
K21-7
K21-1
K21-8
C
C
E23
E21
R50
E17
E20
E14
E16
E13
E11
E10
E12
E49
E90
R16
R22
R1
R12
R24
Q12-C
Q11-C
K20-1
K20-4
K5-4
K10-4
K15-4
E44
E43
K20-8
K20-10
K20-7
K19-1
K19-4
K19-8
K19-10
K19-6
E42
E40
E39
E37
E38
E36
K18-1
K18-2
K18-4
E35
K18-8
K3-8
K8-8
K13-8
K18-7
K3-7
K8-7
K13-7
K18-6
E33
K2-4
K7-4
K12-4
K17-10
K17-4
K2-8
K7-8
K12-8
K17-7
K2-7
K7-7
K12-7
E31
K16-3
A
A
E30
K16-1
K16-4
K1-8
K6-8
E28
K16-8
K16-10
K11-8
E27
E24
K16-6
E26
K16-7
K22-4
K22-6
K21-3
K21-4
K22-10
K22-7

COMPONENT DESIGNATIONS IN THIS VIEW ARE FOR REFERENCE ONLY



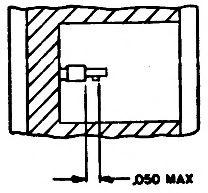
SPECIAL LEVEL WIRING
.210 MAX

PARTIAL SECTION A-A
TYPICAL FOR PINS OF FIND NO. 2
SCALE 10/1



.015 MIN TYP
SEE NOTE 19
.090 MAX TYP
.015 MIN TYP
SEE NOTE 19
.140 MAX TYP

PARTIAL VIEW C-C
SCALE 4/1



SECTION B-B
SCALE 4/1

	2005952	SCHEMATIC	REF
5	1006750-39	RESISTOR, FIXED FILM	27
1	2004917	INSULATOR	26
AR	1006879	COMPOUND, SILICONE THERMOCONDUCTIVE	25
AR	1006757-1	WIRE, ELECTRICAL .010 × .020	24
7	2004004-002	TRANSISTOR	23
6	2004004-001	TRANSISTOR	22
3	1006750-62	RESISTOR, FIXED FILM	21
15	1006750-56	RESISTOR, FIXED FILM	20
22	2004103-001	SEMICONDUCTOR DEVICE, DIODE	19
5	1006755-106	CAPACITOR, FIXED	18
AR	1006776-22	SLEEVING, INSULATION	17
AR	1006757-8	WIRE, ELECTRICAL .020 DIA	16
2	1006750-32	RESISTOR, FIXED FILM	15
1	2004993	INSULATOR, PHOTOMASTER, SPECIAL LEVEL	14
1	2004992-011	INSULATOR, PHOTOMASTER, LOWER LEVEL	13
1	2004991	INSULATOR, PHOTOMASTER, UPPER LEVEL	12
1	2004990-011	INSULATOR, PHOTOMASTER, REAR	11
15	MS24693-C2	SCREW, FLAT HD, CROSS RECESSED	10
2	MS16633-4015	RING, RETAINING, EXTERNAL	9
2	1004546-1	WASHER, FLAT	8
2	1004546-3	WASHER, FLAT	7
2	1004579-1	SCREW, JACKING	6
1	2004956	COVER, REAR	5
1	2004911	COVER	4
1	2003908-011	DECODING CIRCUIT ASSY	3
1	2003910-011	RELAY CIRCUIT ASSY	2
1	2003907-011	HEADER ASSY	1
QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
011	LIST OF MATERIALS		

2003985	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO
CONTRACT
DRAWN A. Vorce DATE 24 NOV
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

INDICATOR DRIVER ASSY
MODULE D1-D6
AGC DSKY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003952
SCALE 2/1
WT
SHEET 1 OF 1

2003952 -

MASTER

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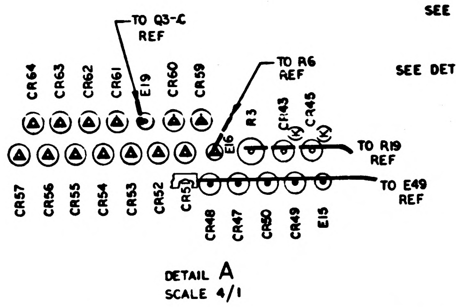
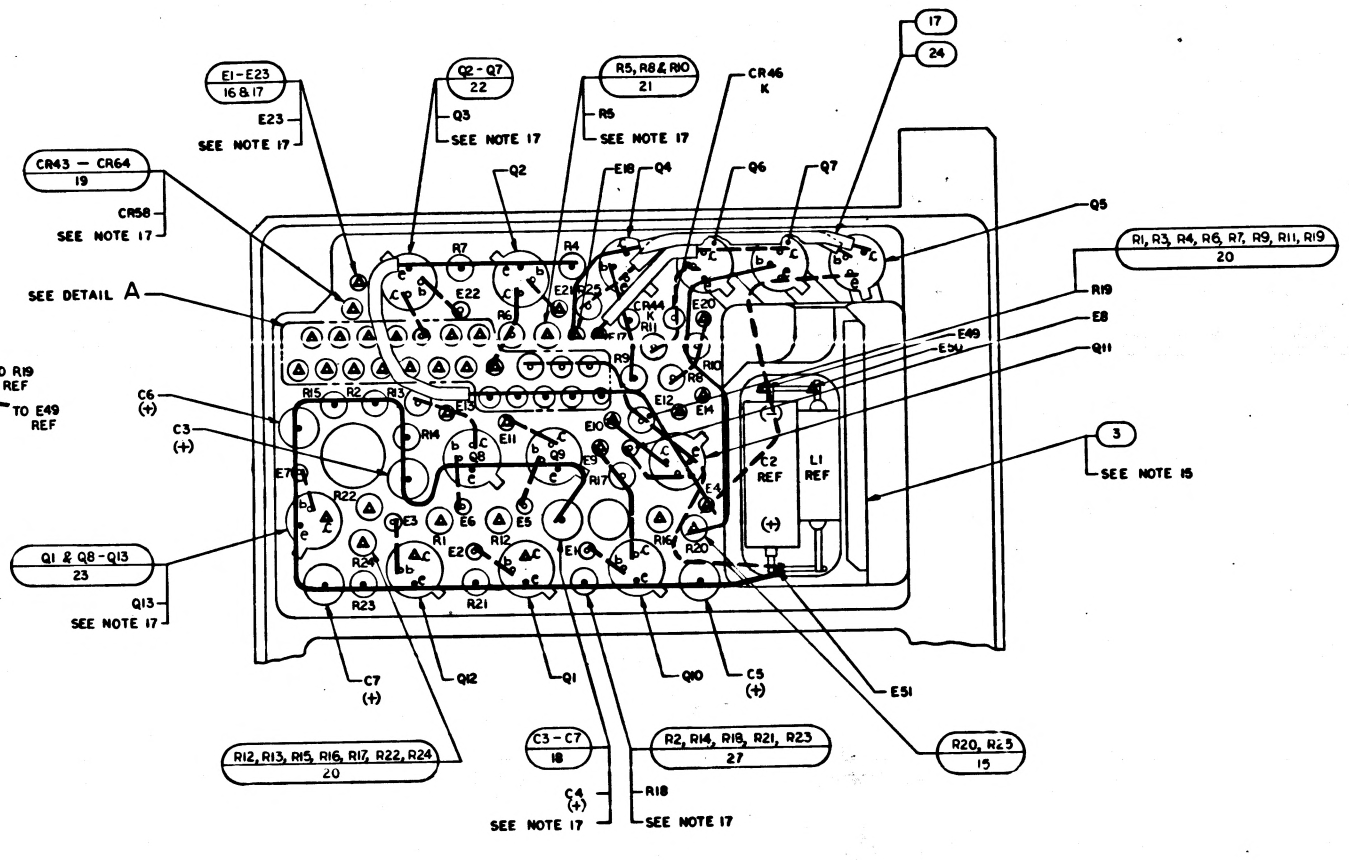
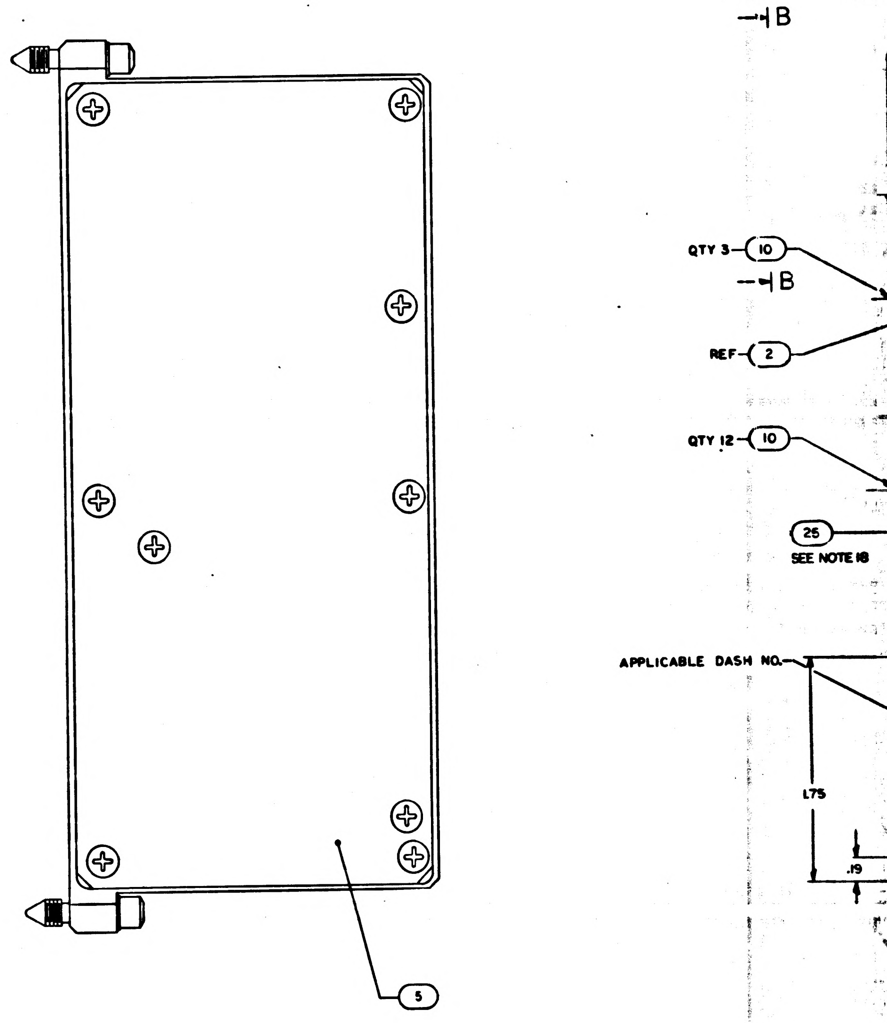

TO Q3-C REF
TO R6 REF
TO R19 REF
TO E49 REF
CR64
CR63
CR62
CR61
E19
CR60
CR59
R3
E16
CR43 (K)
CR45 (K)
CR57
CR56
CR55
CR54
CR53
CR52
CR51
CR48
CR47
CR50
CR49
E15

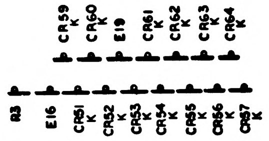
DETAIL A
SCALE 4/1


E1-E23 16 & 17
E23
SEE NOTE 17
Q2-Q7 22
Q3
SEE NOTE 17
R5, R8 & R10 21
R5
SEE NOTE 17
CR46 K
17
24
CR43 — CR64 19
CR58
SEE NOTE 17
Q2
E18
Q4
Q6
Q7
Q5
R1, R3, R4, R6, R7, R9, R11, R19 20
SEE DETAIL A
R7
R4
E22
R6
E21
R25
CR44 K
R11
E20
R19
E8
E49
E50
Q11
R9
R10
R8
C6 (+)
C3 (+)
R15
R2
R13
E13
R14
E12
E14
E10
E11
Q8
Q9
E9
R17
E4
C2 REF
L1 REF
(+)
3
SEE NOTE 15
E7
R22
E3
E6
E5
R1
R12
E2
E1
R16
R20
R24
Q1 & Q8-Q13 23
Q13
SEE NOTE 17
R23
R21
C7 (+)
Q12
Q1
Q10
C5 (+)
E51
R12, R13, R15, R16, R17, R22, R24 20
C3 - C7 18
R2, R14, R18, R21, R23 27
R20, R25 15
C4 (+)
SEE NOTE 17
R18
SEE NOTE 17

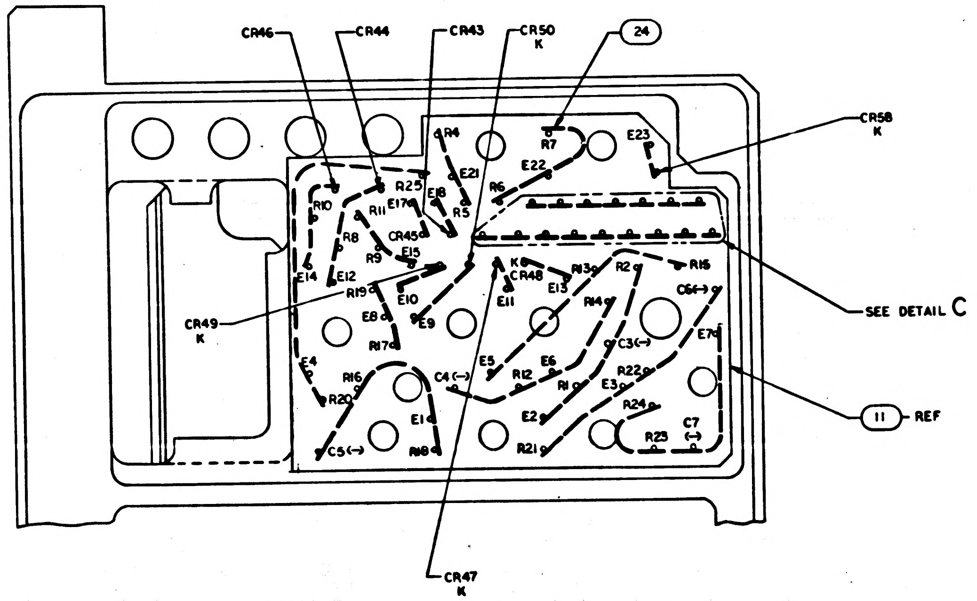
VIEW A-A
SCALE 4/1
VIEW SHOWN WITH FIND NO. 4, 12, 13, 14
AND SPECIAL LEVEL WIRING REMOVED

WIRING LEGEND													
FROM PIN NO.	TO COMPONENT		FROM PIN NO.	TO COMPONENT		FROM PIN NO.	TO COMPONENT		FROM PIN NO.	TO COMPONENT		FROM PIN NO.	
1	K21-7		26	E29		51	E34		76	K19-4		101	
2	K21-2		27	K16-3		52	K18-10		77	E44		102	
3	K22-7		28	K16-1		53	K13-8		78	K15-4		103	
4	K22-1		29	K12-7		54	K8-8		79	K20-8		104	
5	K22-6		30	K2-7		55	K3-8		80	K20-10		105	
6	K22-4		31	K17-6		56	K3-7		81	K20-1		106	
7	K21-1		32	E30		57	E35		82	K20-4		107	
8	K21-8		33	K17-10		58	K18-4		83	K5-4		108	
9	E24		34	K12-8		59	K18-1		84	K10-4		109	
10	K21-3		35	E31		60	K18-8		85	R22		110	
11	K21-4		36	K7-7		61	E37		86	R24		111	
12	K21-6		37	K17-4		62	E36		87	Q12-C		112	
13	E27		38	K17-8		63	K19-6		88	E45		113	
14	E26		39	K2-8		64	K18-2		89	R16		114	
15	K16-7		40	K7-8		65	E40		90	R12		115	
16	E25		41	K2-4		66	E39		91	R1		116	
17	K11-8		42	K7-4		67	E38		92	Q1-C		117	
18	K16-8		43	K12-4		68	G1		93	SPARE		118	
19	K16-10		44	E32		69	E42		94	CR57		119	
20	K16-6		45	K18-6		70	K19-8		95	Q13-C		120	
21	K16-4		46	K18-7		71	E41		96	SPARE		121	
22	K1-8		47	E33		72	K19-10		97	CR53		122	
23	E28		48	K17-1		73	E43		98	CR54		123	
24	K6-8		49	K8-7		74	K20-7		99	CR55		124	
25	K17-7		50	K13-7		75	K19-1		100	CR56			


B
QTY 3 - 10
B
REF - 2
QTY 12 - 10
25
SEE NOTE 18
APPLICABLE DASH NO.
1.75
.19
5


CR59 K
CR60 K
E19
CR61 K
CR62 K
CR63 K
CR64 K
R3
E16
CR51 K
CR52 K
CR53 K
CR54 K
CR55 K
CR56 K
CR57 K

DETAIL C
SCALE 4/1


CR46
CR44
CR43
CR50 K
24
CR58 K
CR45
R7
E23
E22
R25
E17
E18
R5
E21
R6
R10
R11
R8
R9
E15
E14
E12
R19
E8
E10
E9
K CR48
E11
E13
R13
R4
R2
R15
C6(+)
E7
C3(-)
R17
E4
R16
R20
C4(-)
E5
R12
E6
R1
E3
R22
R24
E1
E2
R21
R23
C7 (-)
C5(-)
R18
CR49 K
SEE DETAIL C
11 REF
CR47 K

VIEW B-B
SCALE 4/1
COMPONENT DESIGNATIONS IN THIS VIEW
ARE FOR REFERENCE ONLY

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. WELD PER ND1002005
3. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
4. ENCAPSULATE PER ND1002236
5. K DENOTES CATHODE SIDE OF DIODE
6. MARK .05/.07 HIGH WHITE CHARACTERS PER ND1002019 & ND1002122 TYPE II, CLASS 2 & SERIALIZE PER ND1002023 USING INK 1006271-1
7. MARK .18/.20 HIGH WHITE CHARACTERS PER ND1002019 & ND1002122 TYPE II, CLASS 2 USING INK 1006271-1
8. AR DENOTES AS REQUIRED
9. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
10. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
11. ▲ AND CLEAR LEADS INDICATE SPECIAL LEVEL WIRING
12. – DENOTES NEGATIVE SIDE OF CAPACITOR
13. + DENOTES POSITIVE SIDE OF CAPACITOR
14. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. PREFIX THE DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH.
15. BOND FIND NO. 3 TO FIND NO. 1 PER ND1002004 TYPE IV
16. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH & SHALL MEET ALL THE REQUIREMENTS OF P.S. 2003902
17. STAKE FIND 15, 17 THRU 23, & FIND 27 TO FIND NO. 1 PER ND1002009 METHOD C OR D
18. APPLY FIND NO. 25 TO INDICATED SURFACE
19. SEAL INSULATORS ON FIND NO. 1 PER ND1002004 TYPE VI

APOLLO G&N Specification
PS 2003952 Rev. -
Original Issue Date: 5-10-66
Release Authority: TDRR 28638
Class Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

INDICATOR DRIVER MODULE

DRAWING NO. 2003952

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA

This specification consists of pages 1 to 28 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	5/9/66 5-10-66 MIT/IL	4/22/66 4/22/66 4/22/66 4/22/66 RAY

4.3.1.3 High Marginal Voltage/High Temperature. Set the ambient temperature and the input voltages as specified in paragraph 3.1.28.3. Verify that the module performs in accordance with paragraph 3.1.28.3.

4.3.2 Vibration. Install the module in a DSKY. Subject the DSKY to the vibration tests specified in paragraph 3.1.29. Verify that the DSKY meets the requirements of the applicable specification.

4.3.3 Weight. Weigh the module to the nearest .01 pound. Verify that the weight does not exceed the maximum allowable weight specified in paragraph 3.2.2.

5. PREPARATION FOR DELIVERY

5.1 GENERAL. Preparation for delivery shall be in accordance with Specification ND 1002214.

6. NOTES. None.

3. REQUIREMENTS

3.1 PERFORMANCE. The Indicator Driver Module is made up of a relay matrix, and relay control and driver circuits. The control and driver circuits govern the operation of the relay matrix. Energizing relays within the matrix allows the display voltage from the power supply to be routed through the relay contacts to various segments of the DSKY electroluminescent indicators.

3.1.1 Thermal Conditioning. The module shall be subjected to two complete thermal cycles, as specified below prior to acceptance testing:

> 25°C down to $-10^\circ C \pm 3C^\circ$ in not less than 20 minutes, held at $-10^\circ C \pm 3C^\circ$ for not less than 30 minutes, raised to $70^\circ C \pm 3C^\circ$ in not less than 40 minutes, held at $70^\circ C \pm 3C^\circ$ for not less than 30 minutes, lowered to 25°C in not less than 20 minutes.

3.1.2 Continuity. The resistance between pin 68 and chassis shall be 0.5 ohms maximum.

3.1.3 Insulation Resistance. The insulation resistance between pin 68 and all other pins connected together shall be 100 megohms minimum.

3.1.4 Insulation Resistance - Pin Group A. The insulation resistance between each pin in the group listed below, and all other module pins not included in this group, shall be not less than 100 megohms.

85, 86, 87, 89, 90, 91, 92, 94, 95, 97, 98, 99,

100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111,

112, 113, 114, 115, 116, 117, 118, 119, 120, 122, 124

3.1.5 Insulation Resistance - Pin Group B. The insulation resistance between module pins 121 and 123, and all other module pins shall be not less than 100 megohms.

3.1.6 Insulation Resistance - Pin Group C. The insulation resistance between module pins 93 and 96, and all other module pins shall be not less than 100 megohms.

3.1.7 Insulation Resistance - Pin Group D. The insulation resistance between each pin in the group listed below, and all other module pins not included in this group, shall be not less than 100 megohms.

1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12

3.1.7.1 With module pins 3, 5, and 6 connected together, the insulation resistance between pin 6 and the remaining pins specified in Group D shall be not less than 100 megohms.

3.1.7.2 With module pins 1, 11, and 12 connected together, the insulation resistance between pin 11 and the remaining pins specified in Group D shall be not less than 100 megohms.

3.1.8 Insulation Resistance - Pin Group E. The insulation resistance between each pin in the group listed below, and all other module pins not included in this group, shall be not less than 100 megohms.

9, 15, 18, 19, 20, 21, 25, 27, 28, 31, 33, 37,

38, 45, 46, 47, 48, 52, 57, 58, 59, 60, 64

3.1.8.1 With module pins 25, 31, and 37 connected together, the insulation resistance between pin 37 and the remaining pins specified in Group E shall be not less than 100 megohms.

3.1.8.2 With module pins 9, 38, and 57 connected together, the insulation resistance between pin 57 and the remaining pins specified in Group E, except pins 18, 27, 60, and 64 shall be not less than 100 megohms.

3.1.8.3 With module pins 9, 18, and 27 connected togetner, the insulation resistance between pin 27 and the remaining pins specified in Group E, except pins 38, 57, and 60 shall be not less than 100 megohms.

3.1.8.4 With module pins 57, 60, and 64 connected together, the insulation resistance between pin 64 and the remaining pins specified in Group E, except pins 9, 18, 27, and 38 shall be not less than 100 megohms.

3.1.8.5 With module pins 15, 20, and 21 connected together, the insulation resistance between pin 21 and the remaining pins specified in Group E, shall be not less than 100 megohms.

3.1.8.6 With module pins 45, 46, and 58 connected together, the insulation resistance between pin 58 and the remaining pins specified in Group E shall be not less than 100 megohms.

3.1.9 Insulation Resistance - Pin Group F. The insulation resistance between each pin in the group listed below, and all other module pins not included in this group, shall be not less than 100 megohms.

13, 14, 16, 17, 22, 23, 24, 29, 30, 32, 34, 35, 36,

39, 40, 41, 42, 43, 44, 49, 50, 51, 53, 54, 55,

56, 61, 62, 63, 65, 66, 67, 69, 70, 71, 72, 73,

74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 88

3.1.9.1 The insulation resistance between module pin 32 and module pins 13 and 16 shall be not less than 100 megohms.

3.1.9.2 With module pins 32, 63, and 76 connected together, the insulation resistance between pin 76 and the following pins shall be not less than 100 megohms.

14, 23, 35, 44, 51, 61, 62, 65, 66, 67, 69, 71,

73, 75, 77, 80, 81, 88

3.1.9.3 With module pins 69, 72, and 75 connected together, the insulation resistance between pin 75 and the remaining pins specified in Group F shall be not less than 100 megohms.

3.1.9.4 With module pins 80, 81, and 88 connected together, the insulation resistance between pin 88 and the remaining pins specified in Group F shall be not less than 100 megohms.

3.1.9.5 With module pins 13, 16, and 32 connected together, the insulation resistance between pin 32 and the following pins shall be not less than 100 megohms.

14, 23, 35, 44, 51, 61, 62, 65, 66, 67, 71, 73, 77

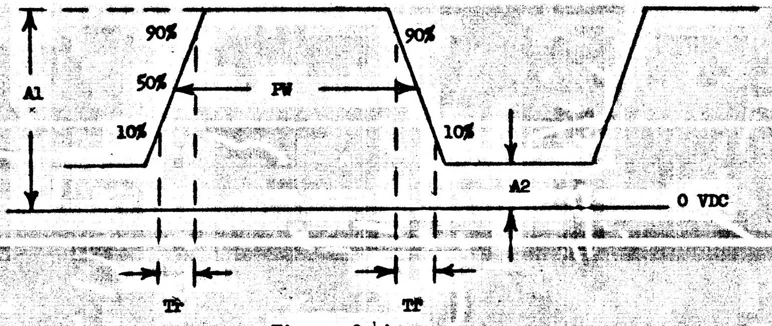

A1
90%
50%
10%
PW
90%
10%
A2
0 VDC
Tr
Tf

Figure 3-4A

High Level (A1)	2.25 ± 0.25 volts
Low Level (A2)	1.0 ± 0.1 volt
Pulse Width (PW)	15 ± 10 msec
Rise Time (Tr)	NMT 1.0 usec
Fall Time (Tf)	NMT 1.0 usec
Duty Cycle	20% - 30%

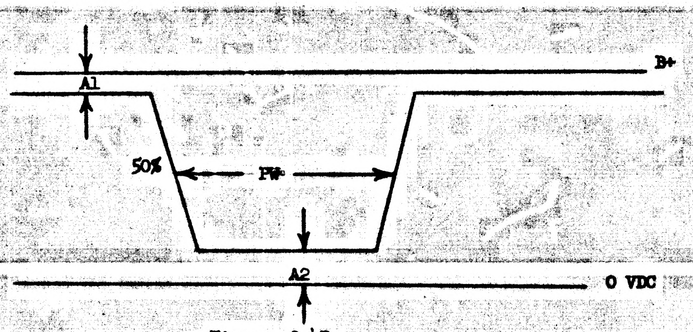

B+
A1
50%
PW
A2
0 VDC

Figure 3-4B

High Level (A1)	NMT 0.1V below B+
Low Level (A2)	NMT 1.6 volts
Pulse Width (PW)	15 ± 10 msec

Figure 3-4 X Line Drivers Pulse Characteristics

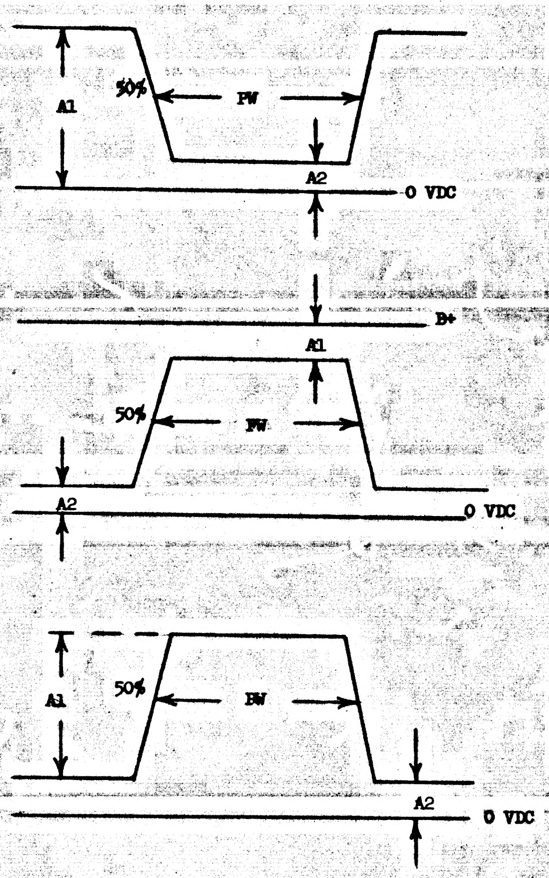

A1
50%
PW
A2
0 VDC
B+
A1
50%
PW
A2
0 VDC
A1
50%
PW
A2
0 VDC

Figure 3-6A

High Level (A1)	NLT 80% of B+
Low Level (A2)	0.70 + 0.15Volts
Pulse Width (PW)	15 ± 10 msec

Figure 3-6B

High Level (A1)	NMT 0.1V below B+
Low Level (A2)	0.70 + 0.15Volts
Pulse Width (PW)	15 ± 10 msec

Figure 3-6C

High Level (A1)	0.8 + 0.2 Volts
Low Level (A2)	NMT 0.1 Volts
Pulse Width (PW)	15 ± 10 msec

Figure 3-6 Diode Decoding Output Pulse Characteristics

3.1.29 Vibration. The module shall perform as specified in paragraphs 3.1.18 through 3.1.27 when installed in an operating DSKY which is being subjected to the vibration requirements specified in the applicable specifications for the DSKY. Acceptance criteria for the module shall be the compliance of the DSKY with its applicable specifications.

3.2 PRODUCT CONFIGURATION

3.2.1 Drawings. The configuration of the module shall be in accordance with Apollo G&N Drawing 2003952 and all drawings and engineering data referenced thereon.

3.2.2 Weight. Maximum allowable weight of the module shall be 1.10 pounds.

4. QUALITY ASSURANCE PROVISIONS

4.1 GENERAL. The contractor responsible for the manufacture of the assembly shall be responsible for the accomplishment of each test required herein. See Table 4-1, Product Performance and Configuration Requirement/Quality Verification Cross Reference Index.

TABLE 4-1

Requirement	Verification		Requirement	Verification
3.1.1	4.2.2		3.1.7	4.2.8
3.1.2	4.2.3		3.1.7.1	4.2.8.1
3.1.3	4.2.4		3.1.7.2	4.2.8.2
3.1.4	4.2.5		3.1.8	4.2.9
3.1.5	4.2.6		3.1.8.1	4.2.9.1
3.1.6	4.2.7		3.1.8.2	4.2.9.2

TABLE 4-1 (Cont'd)

Requirement	Verification	Requirement	Verification
3.1.8.3	4.2.9.3	3.1.20	4.2.20
3.1.8.4	4.2.9.4	3.1.20.1	4.2.20.1
3.1.8.5	4.2.9.5	3.1.21	4.2.21
3.1.8.6	4.2.9.6	3.1.21.1	4.2.21.1
3.1.9	4.2.10	3.1.22	4.2.22
3.1.9.1	4.2.10.1	3.1.22.1	4.2.22.1
3.1.9.2	4.2.10.2	3.1.23	4.2.23
3.1.9.3	4.2.10.3	3.1.23.1	4.2.23.1
3.1.9.4	4.2.10.4	3.1.23.2	4.2.23.2
3.1.9.5	4.2.10.5	3.1.24	4.2.24
3.1.10	4.2.11	3.1.25	4.2.25
3.1.11	4.2.12	3.1.26	4.2.26
3.1.12	4.2.13	3.1.27	4.2.27
3.1.13	4.2.14	3.1.27.1	4.2.27
3.1.14	4.2.15	3.1.28.1	4.3.1.1
3.1.15	4.2.16	3.1.28.2	4.3.1.2
3.1.16	4.2.17	3.1.28.3	4.3.1.3
3.1.18	4.2.18	3.1.29	4.3.2
3.1.19	4.2.19	3.2.2	4.3.3
3.1.19.1	4.2.19.1		

4.1.1 Nonconforming Units. Failure of the unit to pass any examination or test of this specification shall automatically classify the unit as nonconforming. Each nonconforming unit corrected by the contractor shall be reinspected. Reinspection may be limited to the test or examination which defined the nonconformance, or, when directed by the cognizant inspector, a complete retest and re-examination may be required. Nonconforming units which have not been corrected will be considered for acceptance only upon formal application by the contractor to the cognizant NASA representative.

4.1.2 Test Conditions

4.1.2.1 Environmental. The assembly shall be tested under the following ambient conditions:

a. Temperature: $25^\circ \pm 10^\circ C$

b. Relative Humidity: 90% max

c. Barometric Pressure: 28 to 32 inches Hg

4.1.2.2 Module Case Ground. The dynamic tests specified in sections 3.1.18 thru 3.1.27 shall be conducted with module pin 68 connected to case ground (0 VDC).

4.2 TESTS

4.2.1 Drawing Compliance. The module shall be visually examined for compliance to the requirements of APOLLO G&N Drawing 2003952. Particular attention shall be given to inspection for damage to surfaces, structure, and equipment, including contaminants, pin misalignment, and legibility and appearance of marking.

4.2.2 Thermal Conditioning. Verify that the module was subjected to two complete thermal cycles as specified in paragraph 3.1.1 prior to performing the acceptance tests specified herein.

4.2.3 Continuity. Verify that the resistances measured between module pin 68 and chassis complies with that specified in paragraph 3.1.2.

4.2.4 Insulation Resistance. Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between pin 68 and every other module pin. Verify that the resistance complies with that specified in paragraph 3.1.3.

4.2.5 Insulation Resistance.- Pin Group A. Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between the module pins specified in paragraph 3.1.4. Verify that the resistance complies with that specified in paragraph 3.1.4.

4.2.6 Insulation Resistance - Pin Group B. Using test equipment with a test potential of 500 VDC limted to a short circuit current of one milliampere, measure the resistance between the module pins specified in paragraph 3.1.5. Verify that the resistance complies with that specified in paragraph 3.1.5.

4.2.7 Insulation Resistance - Pin Group C. Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between the module pins specified in paragraph 3.1.6. Verify that the resistance complies with that specified in paragraph 3.1.6.

4.2.8 Insulation Resistance - Pin Group D. Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between the module pins specified in paragraph 3.1.7. Verify that the resistance complies with that specified in paragraph 3.1.7.

4.2.8.1 Connect module pins 3, 5, and 6 together. Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between these pins and the remaining pins of Pin Group D. Verify that the resistance complies with that specified in paragraph 3.1.7.1.

4.2.8.2 Connect module pins 1, 11, and 12 together. Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between these pins and the remaining pins of Pin Group D. Verify that the resistance complies with that specified in paragraph 3.1.7.2.

4.2.9 Insulation Resistance - Pin Group E. Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between the module pins specified in paragraph 3.1.8. Verify that the resistance complies with that specified in paragraph 3.1.8.

4.2.9.1 Connect module pins 25, 31, and 37 together. Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between these pins and the remaining pins of Pin Group E. Verify that the resistance complies with that specified in paragraph 3.1.8.1.

4.2.9.2 Connect module pins 9, 38, and 57 together. Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between these pins and the remaining pins of Pin Group E except pins 18, 27, 60, and 64. Verify that the resistance complies with that specified in paragraph 3.1.8.2.

4.2.9.3 Connect module pins 9, 18, and 27 together. Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between these pins and the remaining pins of Pin Group E except pins 38, 57, and 60. Verify that the resistance complies with that specified in paragraph 3.1.8.3.

4.2.9.4 Connect module pins 57, 60, and 64 together. Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between these pins and the remaining pins of Pin Group E except pins 9, 18, 27, and 38. Verify that the resistance complies with that specified in paragraph 3.1.8.4.

4.2.9.5 Connect module pins 15, 20, and 21 together. Using test equipment with a test potential of 500 VDC limited to a short circuit current of one milliampere, measure the resistance between these pins and the remaining pins of Pin Group E. Verify that the resistance complies with that specified in paragraph 3.1.8.5.

4.2.9.6 Connect module pins 45, 46, and 58 together. Using test equipment with a test potential of 500 VDC limited to a short circuit current of **one milliampere**, measure the resistance between these pins and the remaining pins of Pin Group E. Verify that the resistance complies with that specified in paragraph 3.1.8.6.

4.2.10 Insulation Resistance - Pin Group F. Using test equipment with a test potential of 500 VDC limited to a short circuit current of **one milliampere**, measure the resistance between the module pins specified in paragraph 3.1.9. Verify that the resistance complies with that specified in paragraph 3.1.9.

4.2.10.1 Using test equipment with a test potential of 500 VDC limited to a short circuit current of **one milliampere**, measure the resistance between the module pins specified in paragraph 3.1.9.1. Verify that the resistance complies with that specified in paragraph 3.1.9.1.

4.2.10.2 Connect module pins 32, 63, and 76 together. Using test equipment with a test potential of 500 VDC limited to a short circuit current of **one milliampere**, measure the resistance between these pins and the pins specified in paragraph 3.1.9.2. Verify that the resistance complies with that specified in paragraph 3.1.9.2.

4.2.10.3 Connect module pins 69, 72, and 75 together. Using test equipment with a test potential of 500 VDC limited to a short circuit current of **one milliampere**, measure the resistance between these pins and the remaining pins of Pin Group F. Verify that the resistance complies with that specified in paragraph 3.1.9.3.

4.2.10.4 Connect module pins 80, 81, and 88 together. Using test equipment with a test potential of 500 VDC limited to a short circuit current of **one milliampere**, measure the resistance between these pins and the remaining pins of Pin Group F. Verify that the resistance complies with that specified in paragraph 3.1.9.4.

4.2.10.5 Connect module pins 13, 16, and 32 together. Using test equipment with a test potential of 500 VDC limited to a short circuit current of **one milliampere**, measure the resistance between these pins and the pins specified in paragraph 3.1.9.5. Verify that the resistance complies with that specified in paragraph 3.1.9.5.

4.2.11 Resistance - Pin Group G. Using test equipment with a test potential of 6 VDC limited to a short circuit current of 50 microamperes, measure the resistance between any two of the pins specified in paragraph 3.1.10. Verify that the resistance complies with that specified in paragraph 3.1.10.

4.2.12 Resistance - Pin Group H. Using test equipment with a test potential of 6 VDC limited to a short circuit current of 50 microamperes, measure the resistance between any two of the pins specified in paragraph 3.1.11. Verify that the resistance complies with that specified in paragraph 3.1.11.

4.2.13 Front to Back Resistance Ratio. Verify that the front to back resistance ratio between the designated module pins shall be in accordance with paragraph 3.1.12.

4.2.14 Resistance. Verify that the resistance measured between the designated module pins shall be in accordance with paragraph 3.1.13.

4.2.15 Capacitance. Verify that the capacitance measured, at a frequency of not more than 1 kc, between the designated module pins shall be in accordance with paragraph 3.1.14.

4.2.16 Inductance. Verify that the inductance measured, at a frequency of not less than 90 kc, between the designated module pins shall be in accordance with paragraph 3.1.15.

4.2.17 Input Voltage. The input voltage specified in paragraph 3.1.16 shall be applied as detailed in the following paragraphs.

4.2.18 Relay Contact Closures. Apply the input specified in paragraph 3.1.18 to the module input pins listed in Table 3-1. Verify contact closures by switching not less than 375 VDC between the output pins listed in Table 3-1.

4.2.19 Relay Contact Closures. Apply an input of 17.7 ± 0.1 VDC to the designated module pins as specified in paragraph 3.1.19. Verify contact closure by switching not less than 375 VDC between the module pins specified in paragraph 3.1.19.

4.2.19.1 Apply an input of 17.7 ± 0.1 VDC to the designated module pins as specified in paragraph 3.1.19.1. Verify that the contact closure conditions remain as specified in paragraph 4.2.19.

4.2.20 Relay Contact Closures. Apply an input of 17.7 ± 0.1 VDC to the designated module pins as specified in paragraph 3.1.20. Verify contact closure by switching not less than 375 VDC between the module pins specified in paragraph 3.1.20.

4.2.20.1 Apply an input of 17.7 ± 0.1 VDC to the designated module pins as specified in paragraph 3.1.20.1. Verify that the contact closure conditions remain as specified in paragraph 4.2.20.

4.2.21 Relay Contact Closures. Apply an input of 17.7 ± 0.1 VDC to the designated module pins as specified in paragraph 3.1.21. Verify contact closure by switching not less than 375 VDC between the module pins specified in paragraph 3.1.21 (a). Verify that no contact closure is made between the module pins specified in paragraph 3.1.21 (b).

4.2.21.1 Apply an input of 17.7 ± 0.1 VDC to the designated module pins as specified in paragraph 3.1.21.1. Verify that the contact closure conditions remain as specified in paragraph 4.2.21.

4.2.22 Relay Contact Closures. Apply an input of 17.7 ± 0.1 VDC to the designated module pins as specified in paragraph 3.1.22. Verify contact closure by switching not less than 375 VDC between the module pins specified in paragraph 3.1.22 (a). Verify that no contact closure is made between the module pins specified in paragraph 3.1.22 (b).

4.2.22.1 Apply an input of 17.7 ± 0.1 VDC to the designated module pins as specified in paragraph 3.1.22.1. Verify that the contact closure conditions remain as specified in paragraph 4.2.22.

4.2.23 Relay Contact Closures. Verify contact closure by switching not less than 375 VDC between the module pins specified in paragraph 3.1.23.

4.2.23.1 Verify that no contact closure is made between the module pins specified in paragraph 3.1.23.1.

4.2.23.2 Apply an input of 19.3 ± 0.1 VDC to the designated module pins as specified in paragraph 3.1.23.2. Verify contact closure by switching not less than 375 VDC between the module pins specified in paragraph 3.1.23.2 (a). Verify that no contact closure is made between the module pins specified in paragraph 3.1.23.2 (b).

4.2.24 Alarm Drivers. Apply the input voltage specified in paragraph 3.1.16 (c). Apply the input pulse to the module input pins as specified in paragraph 3.1.24. Verify that the output pulse monitored at the module output pins, has the characteristics specified in paragraph 3.1.24.

4.2.24.1 Input Source. In the absence of an input pulse, the input source shall be equivalent to a 680K ohm ± 5% resistance to ground (0 VDC).

4.2.24.2 Output Load. The output load shall be a 680-ohm ± 5% resistance connected between each module output pin specified in paragraph 3.1.24 and 0 VDC.

4.2.25 Y Line Drivers. Apply the input voltage specified in paragraph 3.1.16 (c). Apply the input pulse to the module input pins as specified in paragraph 3.1.25. Verify that the output pulses, monitored at the module output pins, have the characteristics specified in paragraph 3.1.25.

4.2.25.1 Input Source. In the absence of an input pulse, the input source shall be equivalent to a 680K ohm ± 5% resistance to ground (0 VDC).

4.2.25.2 Output Load. The output load shall be a 680-ohm ± 5% resistance connected between each module output pin and 0 VDC.

4.2.26 X Line Drivers. Apply the input voltage specified in paragraph 3.1.16 (c). Apply the input pulse to the module input pins as specified in paragraph 3.1.26. Verify that the output pulse, monitored at the output pins, has the characteristics specified in paragraph 3.1.26.

4.2.26.1 Low Level Input. The low level of the input pulse shall be equivalent to the output of a saturated NOR Gate (NASA Dwg. 1006321) measured at the collector.

4.2.26.2 High Level Input. The high level of the input pulse shall be equivalent to 2.25 volts measured at the module input pins with a source impedance of not less than 1.0 megohms to ground (0 VDC).

4.2.27 Diode Decoding. Apply the input voltage specified in paragraph 3.1.16 (c), and connect the designated module pins together. Apply the input pulse specified in paragraph 3.1.27 to module pin 91. Verify that the output pulse, monitored at the output pins, has the characteristics specified in paragraph 3.1.27.1.

4.2.27.1 Input Source. In the absence of an input pulse, the input source shall be equivalent to a 680K ohm ± 5% resistance to ground (0 VDC).

4.2.27.2 Output Load. The output load shall be an 18K ohm ± 5% resistance connected between each module output pin and the 22.5 VDC supply.

4.2.27.3 The following module pins shall be connected together:

pin 121 to pin 111

pin 92 to pin 115

4.3 WORKMANSHIP. The following tests shall be performed under the conditions specified as a verification of good workmanship.

4.3.1 Marginal Voltages and Thermal Extremes.

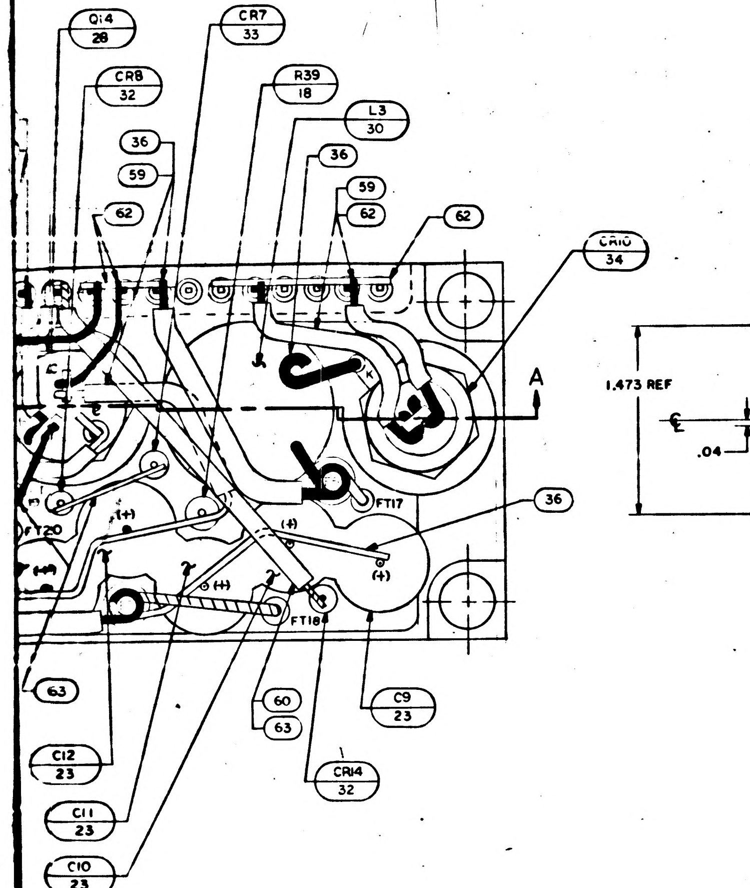
4.3.1.1 Low Marginal Voltage/Low Temperature. Set the ambient temperature and the input voltages as specified in paragraph 3.1.28.1. Verify that the module performs in accordance with paragraph 3.1.28.1.

4.3.1.2 Low Marginal Voltage/High Temperature. Set the ambient temperature and the input voltages as specified in paragraph 3.1.28.2. Verify that the module performs in accordance with paragraph 3.1.28.2.

2003953 A

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 27309 DR. CHK APPD		

REVISIONS 26197



Q14 28
CR7 33
CR8 32
R39 18
L3 30
36
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62
36
59
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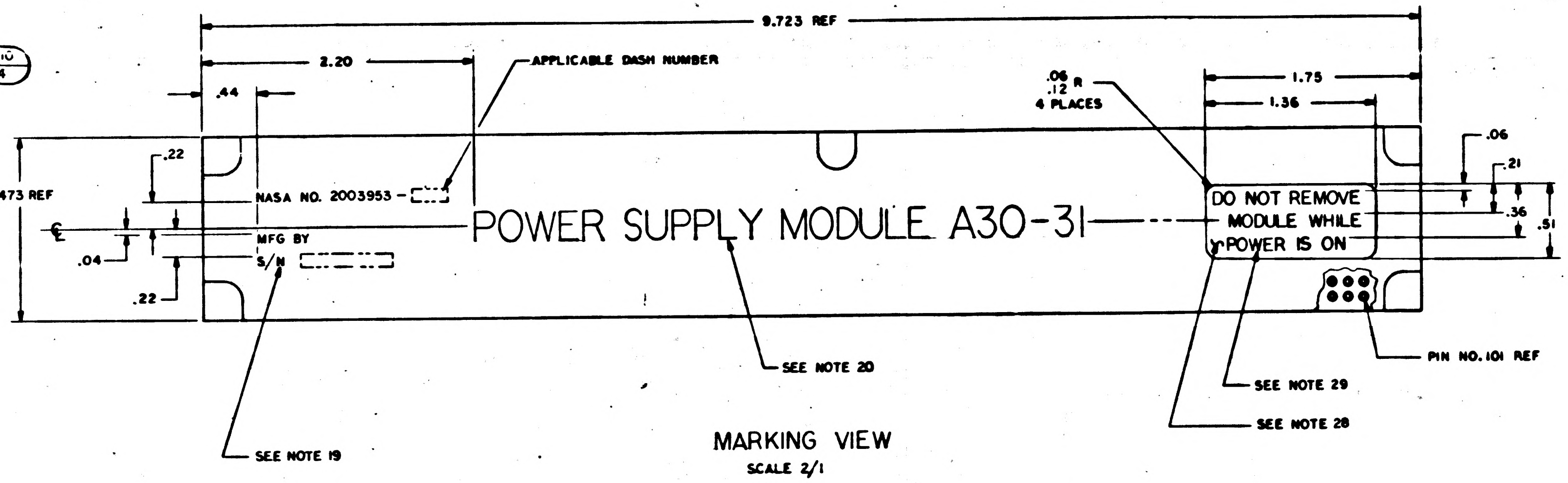
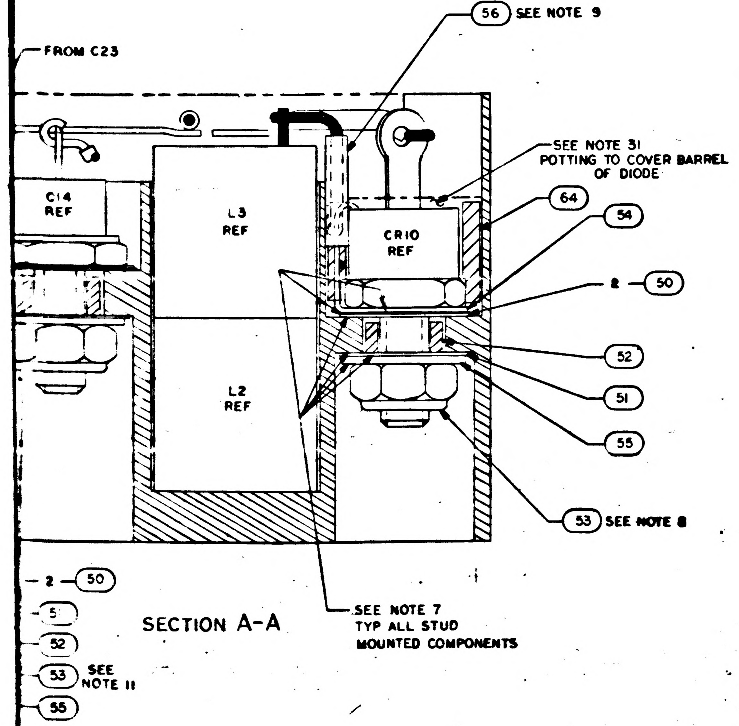
62
CR10 34
A
FT20
FT17
FT18
36
63
60
63
CR14 32
C9 23
C12 23
C11 23
C10 23
C70 23



9.723 REF
2.20
APPLICABLE DASH NUMBER
.44
.06 .12 R 4 PLACES
1.75
1.36
.06
.21
.36
.51
1.473 REF
.22
.04
.22
NASA NO. 2003953 -
MFG BY
S/N
POWER SUPPLY MODULE A30-31
DO NOT REMOVE MODULE WHILE POWER IS ON
SEE NOTE 20
SEE NOTE 19
SEE NOTE 29
SEE NOTE 28
PIN NO. 101 REF

MARKING VIEW
SCALE 2/1



56 SEE NOTE 9
FROM C23
SEE NOTE 31 POTTING TO COVER BARREL OF DIODE
C14 REF
L3 REF
CR10 REF
L2 REF
64
54
2 50
52
51
55
53 SEE NOTE 8
SEE NOTE 7 TYP ALL STUD MOUNTED COMPONENTS
2 50
51
52
53 SEE NOTE 11
55

SECTION A-A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	2005916	SCHEMATIC	REF
1	2004028	SLEEVE, THERMAL	64
AR	1006757-13	WIRE, ELEC	63
AR	1006757-23	WIRE, ELEC	62
3	2004039	TERMINAL, THREADED	61
AR	1006776-22	INSULATION, SLEEVING	60
AR	1006776-20	INSULATION, SLEEVING	59
AR	1006776-18	INSULATION, SLEEVING	58
AR	QQ-W-343, TYPE S, 18	WIRE, ELEC	57
AR	1006776-30	INSULATION, SLEEVING	56
4	1008071-2	WASHER, FLAT	55
2	2008013-5	TERMINAL, LUG	54
4	MS21083B3	NUT, HEX, SELF-LOCKING	53
4	1008025-5	BUSHING, INSULATOR	52
4	1008024-1	WASHER, INSULATOR	51
8	1008024-2	WASHER, INSULATOR	50
1	MS21083B5	NUT, HEX, SELF-LOCKING	49
1	1008071-7	WASHER, FLAT	48
1	2008020-3	BUSHING, INSULATOR	47
2	1008024-5	WASHER, INSULATOR	46
1	1008024-6	WASHER, INSULATOR	45
5	2004984-003	WASHER, FLAT	44
14	1006708	TERMINAL, STUD	43
1	1004722-2	SCREW, CAPTIVE	42
4	MS16633-4015	RING, RETAINING, EXTERNAL "E"	41
4	2004984-001	WASHER, FLAT	40
4	1004579-1	SCREW, JACKING	39
1	1006304-002	RELAY	38
AR	1006757-22	WIRE, ELEC	37
AR	1006757-21	WIRE, ELEC	36
1	2004897	SELECTION LIST	35
2	1006329	DIODE	34
1	2004112-001	DIODE	33
3	2004103-001	DIODE	32
1	1006328	INDUCTOR	31
3	1006327	INDUCTOR	30
3	2004004-002	TRANSISTOR, POTTED	29
2	1006363-001	TRANSISTOR	28
4	2004004-001	TRANSISTOR, POTTED	27
1	1006317-001	TRANSISTOR	26
2	1006755-126	CAPACITOR	25
1	1006755-79	↕	24
9	1006755-134		23
6	1006755-89	CAPACITOR	22
1	1006750-56	RESISTOR	21
1	1006750-49	↕	20
2	1006330-001		19
1	1010604-50		18
1	1010389-23		17
1	1010389-113		16
1	1010389-51		15
1	1006760-32		14
1	1006750-43		13
1	1006750-39		12
3	1006750-15		11
1	1006750-1		10
1	SEE NOTE 26		9
1	SEE NOTE 26	RESISTOR	8
1	2004892	INSULATOR D	7
1	2004890-002	INSULATOR C	6
1	2004890-001	INSULATOR C	5
1	2004889	INSULATOR B	4
1	2004893	INSULATOR A	3
1	2003029-021	CONTROL CIRCUIT SUB ASSY	2
1	2003057-021	HEADER HOUSING ASSY	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003200	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

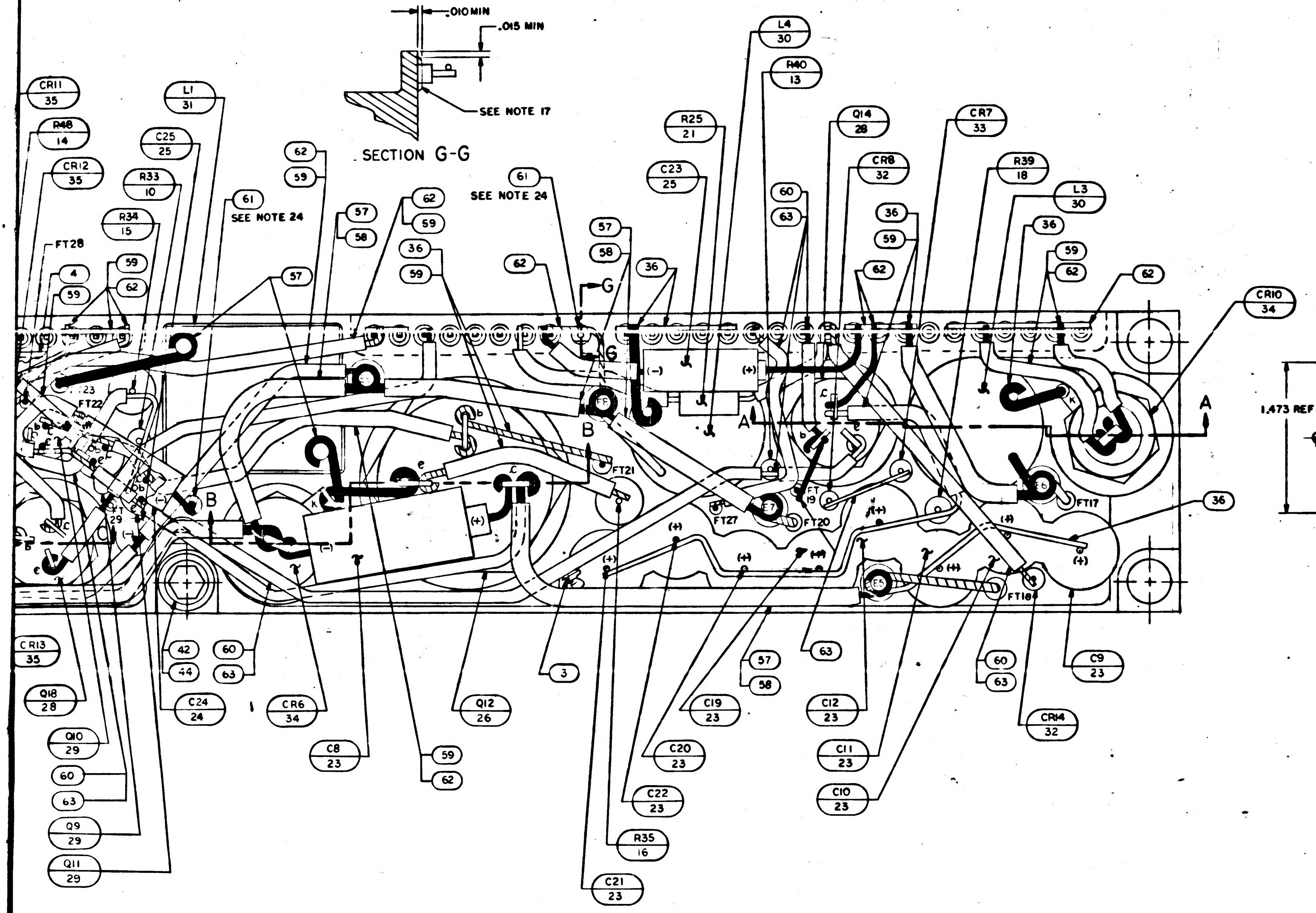
POWER SUPPLY MODULE A30-31 ASSEMBLY

CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	J	2003953

SCALE 4/1 WT SHEET 1 OF 1

2003953 A

MASTER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.015 MIN
SEE NOTE 17
SECTION G-G
CR11 35
R48 14
CR12 35
R33 10
R34 15
L1 31
C25 25
FT28
4
59
62
57
61 SEE NOTE 24
62 59
57 58
62 59
36 59
61 SEE NOTE 24
62
57 58
36
G
C23 25
R25 21
L4 30
R40 13
Q14 28
CR7 33
CR8 32
60 63
36 59
62
R39 18
L3 30
36
59 62
62
CR10 34
A
B
FT22
FT21
FT27
FT20
FT19
FT17
FT18
(+)
(−)
36
CR13 35
Q18 28
Q10 29
60
63
Q9 29
Q11 29
42
44
60 63
C24 24
CR6 34
C8 23
59
62
Q12 26
3
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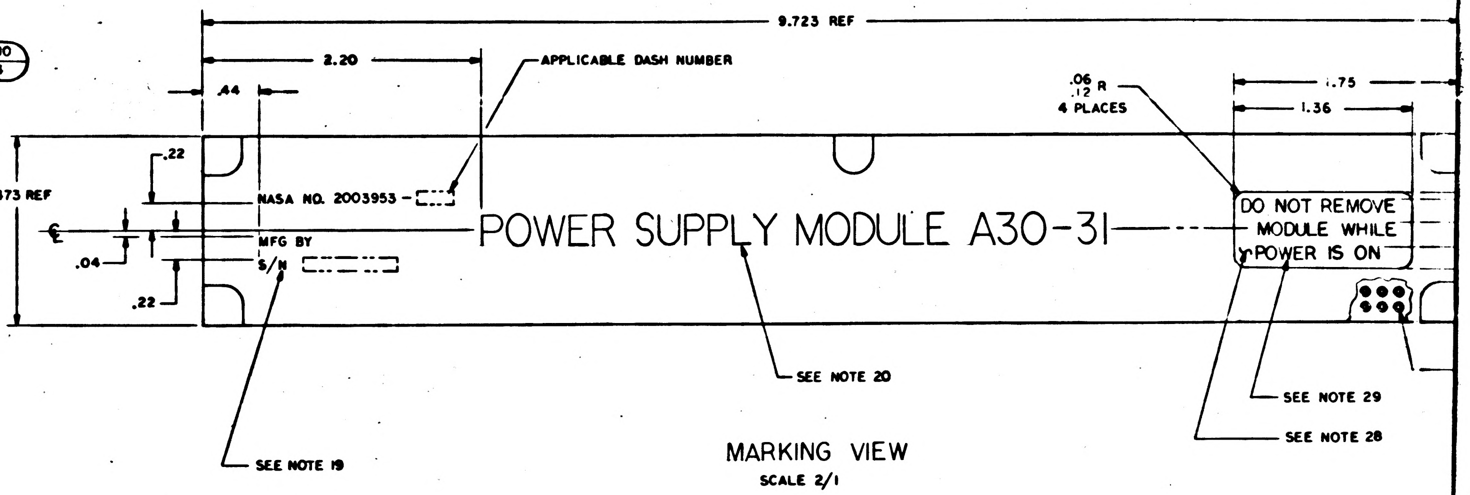
C10 23
60 63
CR14 32
C9 23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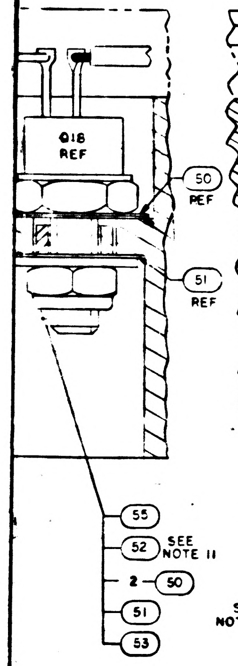
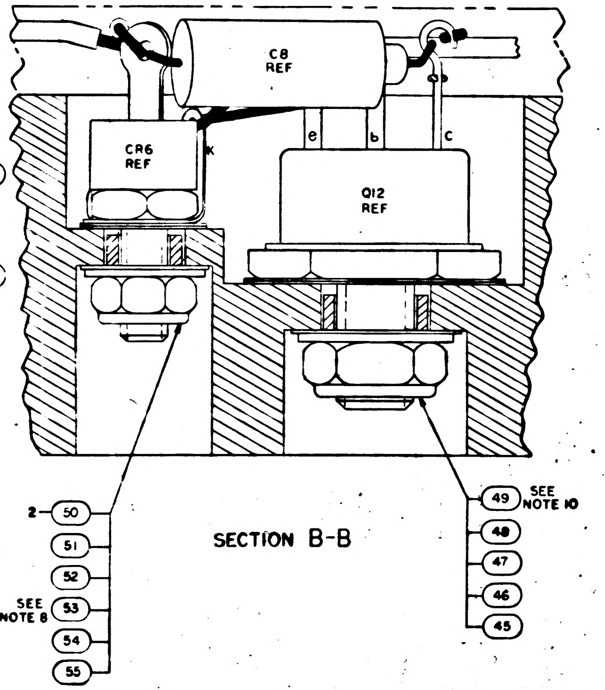
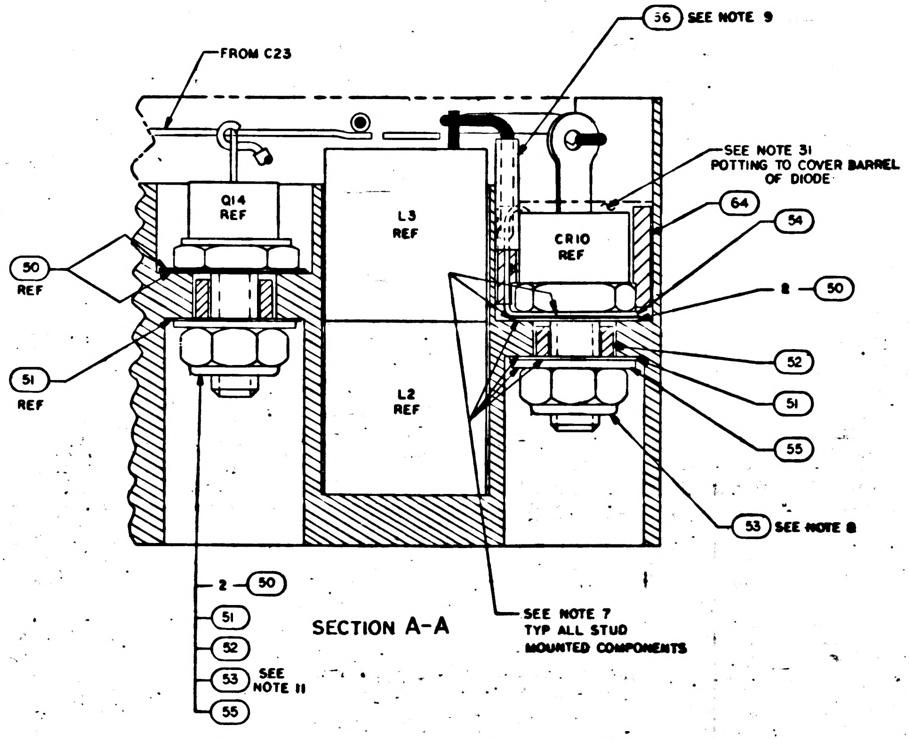
2.20
.44
APPLICABLE DASH NUMBER
.06 R
.12
4 PLACES
1.75
1.36
.22
1.473 REF
℄
.04
.22
NASA NO. 2003953 -
MFG BY
S/N
POWER SUPPLY MODULE A30-31
DO NOT REMOVE
MODULE WHILE
POWER IS ON
SEE NOTE 20
SEE NOTE 29
SEE NOTE 28
SEE NOTE 19

MARKING VIEW
SCALE 2/1


Q18 REF
50 REF
51 REF
55
52 SEE NOTE 11
2 50
51
53

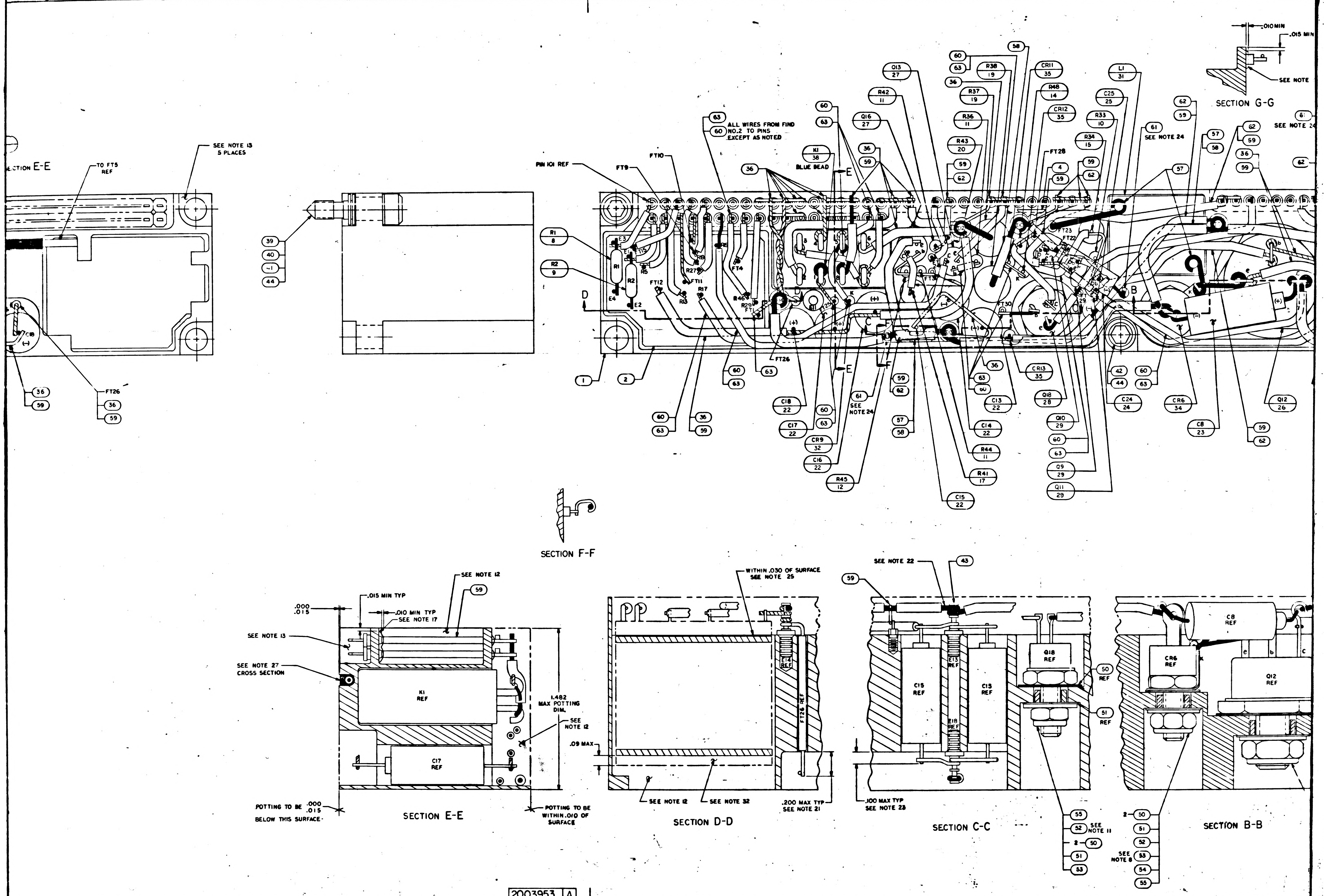

C8 REF
CR6 REF
Q12 REF
k
e
b
c
2 50
51
52
SEE NOTE 8 53
54
55
49 SEE NOTE 10
48
47
46
45

SECTION B-B

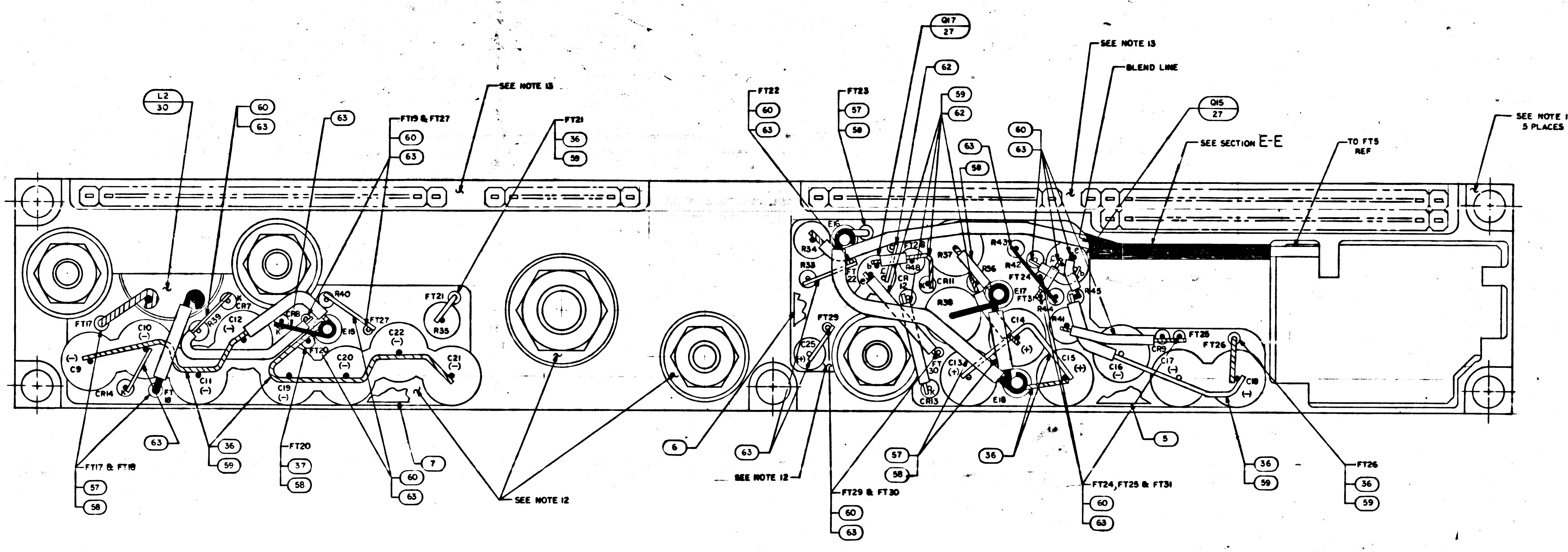

36 SEE NOTE 9
FROM C23
Q14 REF
L3 REF
L2 REF
CR10 REF
SEE NOTE 31 POTTING TO COVER BARREL OF DIODE
64
54
2 50
52
51
55
53 SEE NOTE 8
50 REF
51 REF
2 50
51
52
53 SEE NOTE 11
55
SEE NOTE 7 TYP ALL STUD MOUNTED COMPONENTS

SECTION A-A

MASTER


SECTION E-E
TO FT5 REF
SEE NOTE 13 5 PLACES
FT26
36
59
39
40
41
44
PIN 101 REF
FT9
FT10
R1 8
R2 9
E3
E4
E2
T15
R5
R27
R18
FT11
FT12
R13
R17
R46
R29
FT4
FT26
1
2
60
63
36
59
ALL WIRES FROM FIND NO.2 TO PINS EXCEPT AS NOTED
K1 38 BLUE BEAD
Q16 27
R42 11
Q13 27
R38 19
R37 19
R36 11
R43 20
CR11 35
R48 14
CR12 35
C25 25
R33 10
R34 15
L1 31
FT28
FT23
FT22
FT30
61 SEE NOTE 24
57
58
62
4
E
D
B
C18 22
C17 22
CR9 32
C16 22
R45 12
61 SEE NOTE 24
C13 22
C14 22
R44 11
R41 17
C15 22
CR13 35
Q18 28
Q10 29
Q9 29
Q11 29
42
44
C24 24
CR6 34
C8 23
Q12 26
SECTION G-G
.010 MIN
.015 MIN
SEE NOTE
SEE NOTE 24
SECTION F-F
.000 .015
.015 MIN TYP
.010 MIN TYP SEE NOTE 17
SEE NOTE 12
SEE NOTE 13
SEE NOTE 27 CROSS SECTION
K1 REF
C17 REF
1.482 MAX POTTING DIM.
SEE NOTE 12
POTTING TO BE .000 .015 BELOW THIS SURFACE
POTTING TO BE WITHIN .010 OF SURFACE
SECTION E-E
WITHIN .030 OF SURFACE SEE NOTE 25
E14 REF
FT26 REF
.09 MAX
SEE NOTE 12
SEE NOTE 32
.200 MAX TYP SEE NOTE 21
SECTION D-D
SEE NOTE 22
43
E13 REF
E18 REF
C15 REF
C13 REF
Q18 REF
50 REF
51 REF
.100 MAX TYP SEE NOTE 23
55
52 SEE NOTE 11
2 - 50
51
53
SECTION C-C
C8 REF
CR6 REF
Q12 REF
2 - 50
51
52
SEE NOTE 8 53
54
55
SECTION B-B

2003953 A


L2
30
60
63
63
FT19 & FT27
60
63
SEE NOTE 13
FT21
36
59
FT22
60
63
FT23
57
58
Q17
27
62
59
62
63
58
60
63
SEE NOTE 13
BLEND LINE
Q15
27
SEE SECTION E-E
TO FT5
REF
SEE NOTE 13
5 PLACES
FT17
C10
(–)
C9
(–)
CR14
FT 18
R39
C12
(–)
CR7
CR8
K
R40
E15
FT20
FT27
C11
(–)
C19
(–)
C20
(–)
C22
(–)
C21
(–)
FT21
R35
E16
R34
R33
FT 22
FT29
C25
(+)
CR 12
R48
R37
CR11
R36
R43
R42
FT24
E17
FT31
R38
R44
R45
C14
(+)
R41
C13
(+)
FT 30
CR13
E18
C15
(+)
C16
(–)
CR9
FT25
FT26
C17
(–)
C18
(–)
63
FT17 & FT18
57
58
36
59
FT20
37
58
7
60
63
SEE NOTE 12
6
63
SEE NOTE 12
FT29 & FT30
60
63
57
58
36
5
FT24, FT25 & FT31
60
63
36
59
FT26
36
59

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. WELD PER ND1002005
3. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
4. SOLDER PER ND1002071 USING SOLDER COMP SN60 FORM WIRE SOLID PER ND1002075 EXCEPT AS SHOWN
5. K DENOTES CATHODE SIDE OF DIODE
6. AR DENOTES AS REQUIRED
7. APPLY SILICONE GREASE, 1006879, TO INDICATED AREAS OF CR6, CR10 Q12, Q14 AND Q18
8. MOUNTING TORQUE FOR CR6 AND CR10 TO BE 25/30 INCH POUNDS
9. FIND NO. 56 TO COVER SOLDER JOINT OF FIND NO. 36 AND FIND NO. 54
10. MOUNTING TORQUE FOR Q12 TO BE 15/30 INCH POUNDS
11. MOUNTING TORQUE FOR Q14 AND Q18 TO BE 13/15 INCH POUNDS
12. ENCAPSULATE PER ND1002002. REMOVE FLASHING
13. INDICATED AREAS TO BE FREE OF ENCAPSULATION
14. STAKE FIND NO.10 THRU 19,22,23,27,29 THRU 33 & 38 PER ND1002009 METHOD C OR D
15. FT DENOTES FEED THRU
16. + DENOTES POSITIVE SIDE OF CAPACITOR
17. SEAL INSULATORS, CONTACTS AND FIND NO.61 TO HEADER PER ND1002004, TYPE VI
18. E DENOTES STAND-OFF
19. MARK .10/.08 HIGH WHITE CHARACTERS PER ND 1002019 AND ND1002122 TYPE II, CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271-1
20. MARK .26/.24 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-1
21. BLACK DOT & CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
22. BLACK DOT & SOLID BLACK WIRING INDICATES SPECIAL LEVEL WIRING
23. WHITE DOT & CLEAR WIRING INDICATES LOWER LEVEL WIRING
24. MOUNTING TORQUE FOR FIND NO.61 TO BE 15/20 INCH POUNDS
25. ENCAPSULATE FIND NO. 2 IN FIND NO. 1 TO DIM. SHOWN PER ND1002009, METHOD F
26. SELECT FIND NO. 8 & 9 PER APPLICABLE P.S. FROM APPROPRIATE CHART
27. STAKE WIRE IN PLACE PER ND1002004, TYPE VI
28. BACKGROUND TO BE RED USING MARKING INK 1006271-9
29. MARK .10/.08 HIGH WHITE PER ND1002019 & ND1002122 TYPE II, CLASS 2, USING INK 1006271-1. CENTRALIZE AS SHOWN
30. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL REQUIREMENTS OF PS 2003953
31. ENCAPSULATE FIND NO 34 TO FIND NO. 1 PER ND1002009, METHOD F
32. SEAL BOTTOM OF FIND NO. 2 PER ND1002009 METHOD C OR D PRIOR TO ENCAPSULATION PER NOTE 25

R1 AND R2	
PART NO.	VALUE
1006750-1	51
-2	56
-3	62
-4	68
-5	75
-6	82
-7	91
-8	100
-9	110
-10	120
-11	130
-12	150
-13	160
-14	180
-15	200
-16	220
-17	240
-18	270
-19	300
-20	330
-21	360
-22	390
-23	430
-24	470
1006750-25	510

2003953 | A

2003953 A F1/41

3.1.4 Vibration. With power applied the module shall perform as specified herein when subjected to vibration limits specified below:

Frequency Range: 10 to 2000 to 10 cps
Frequency Sweep Rate: at a logarithmic rate of one minute per octave.
Velocity: 3.14 ± 10% inches per second in the frequency range of 10 to 100 cps.
Acceleration: 5 g's ± 10% peak in the frequency range of 100 to 2000 cps.

3.2 PRODUCT CONFIGURATION

3.2.1 Drawings. The configuration of the module shall be in accordance with APOLLO G&N Drawing 2003953 and all drawings and engineering data referenced thereon.

3.2.2 Weight. Maximum weight of the module shall be 1.40 pounds.

4. QUALITY ASSURANCE PROVISIONS

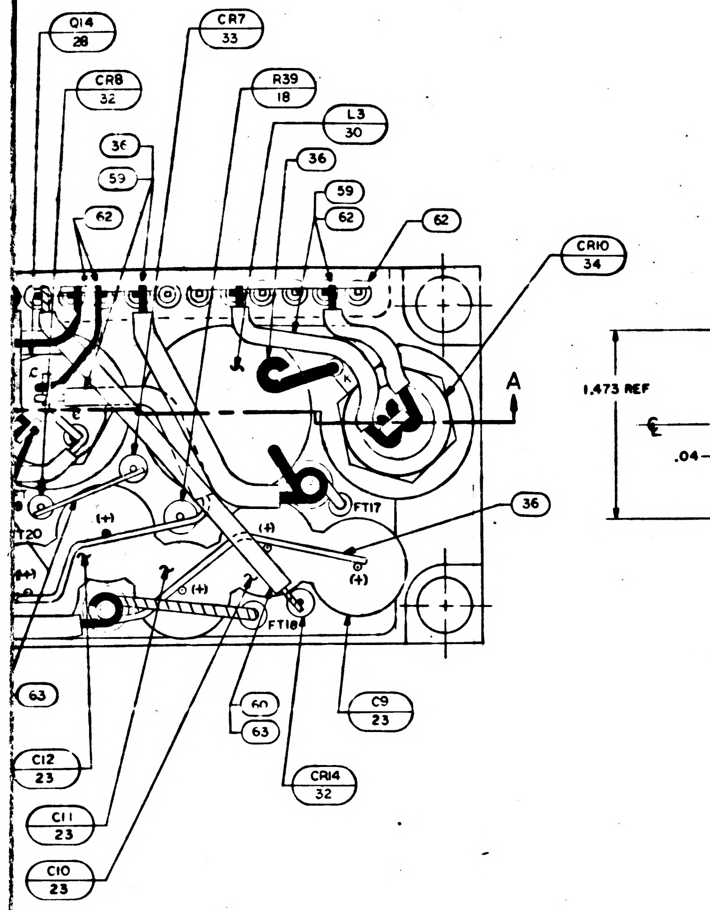
4.1 GENERAL. The contractor responsible for the manufacture of the module shall be responsible for the accomplishment of each test required. The cross reference index (Table 4-1) shows the relationship between the performance requirements in section 3 and verification of those requirements in section 4.

TABLE 4-1

Requirement	Verification	Requirement	Verification
3.1.1.1	4.1.2.2	3.1.2.8	4.2.2.2.4
3.1.1.2	4.2.2.1.1	3.1.2.9a	4.2.2.2.5
3.1.1.3	4.2.2.1.2	3.1.2.9b	4.2.2.2.5
3.1.1.4	4.2.2.1.3	3.1.2.10a	4.2.2.2.6
3.1.1.5	4.2.2.1.4	3.1.2.10b	4.2.2.2.7
3.1.2.1	4.2.2.2.1	3.1.2.10c	4.2.2.2.8
3.1.2.2	4.2.2.2.1	3.1.2.5e	4.2.2.2.10
3.1.2.2	4.2.2.2.2	3.1.2.6e	4.2.2.2.10
3.1.2.2.1	4.2.2.2.1	3.1.2.9a	4.2.2.2.11
3.1.2.3	4.2.2.2.1	3.1.2.9b	4.2.2.2.11
3.1.2.3	4.2.2.2.2	3.1.2.10a	4.2.2.2.12
3.1.2.3.1	4.2.2.2.1	3.1.2.10b	4.2.2.2.13
3.1.2.4	4.2.2.2.9	3.1.2.10c	4.2.2.2.14
3.1.2.5	4.2.2.2.9	3.1.2.11	4.2.2.2.15
3.1.2.5.1	4.2.2.2.9	3.2.2	4.2.3
3.1.2.6	4.2.2.2.9	3.1.3	4.3.1
3.1.2.6.1	4.2.2.2.9	3.1.4	4.3.2
3.1.2.7	4.2.2.2.3		

2003953 | B

		REVISIONS 26197		
	SYM	DESCRIPTION	DATE	APPROVAL
ⓐ	A	REVISED PER TDRR 27309 DR S. Tafil CHK C.B.S. APPD	3/6/66	
ⓐ	B	REVISED PER TDRR 28253 DR S. Tafil CHK P.W. APPD	5/16/66	



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CR7 33
R39 18
L3 30
36
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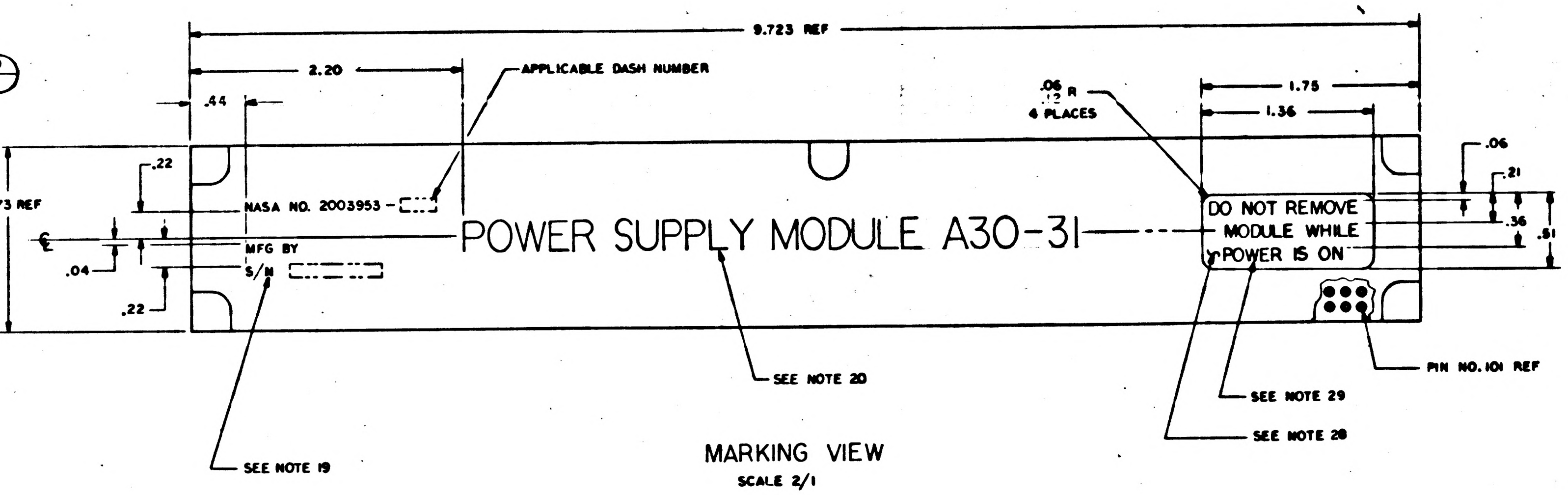
62
36
59
62
62
CR10 34
A
FT20
FT17
FT18
(+)
36
63
C12 23
C11 23
C10 23
60
63
CR14 32
C9 23



9.723 REF
2.20
APPLICABLE DASH NUMBER
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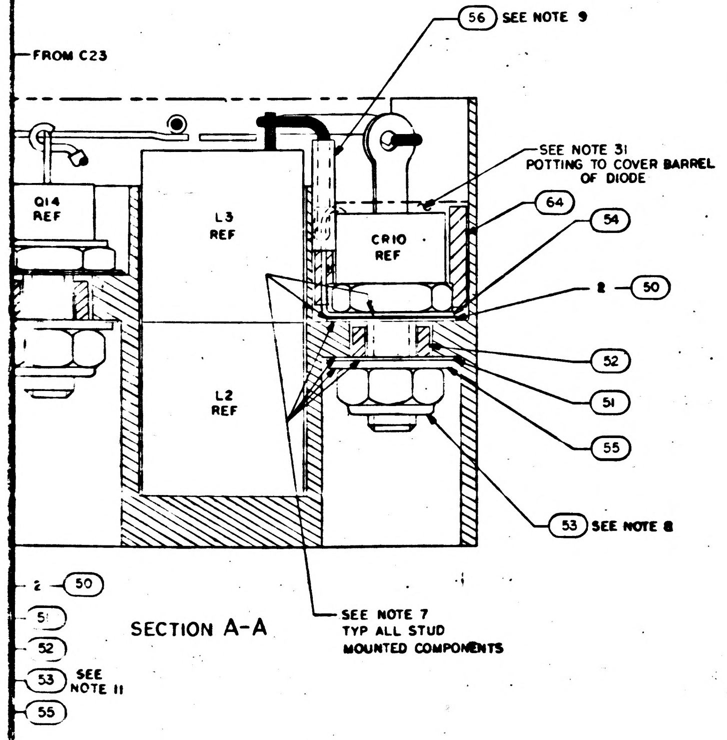
.06 R
.12
4 PLACES
1.75
1.36
.06
.21
.36
.51
1.473 REF
.22
.04
.22
℄
NASA NO. 2003953 -
MFG BY
S/N
POWER SUPPLY MODULE A30-31
DO NOT REMOVE
MODULE WHILE
POWER IS ON
PIN NO. 101 REF
SEE NOTE 20
SEE NOTE 29
SEE NOTE 28
SEE NOTE 19

MARKING VIEW
SCALE 2/1



56 SEE NOTE 9
FROM C23
SEE NOTE 31
POTTING TO COVER BARREL OF DIODE
64
54
2 - 50
52
51
55
53 SEE NOTE 8
Q14 REF
L3 REF
L2 REF
CR10 REF
2 - 50
51
52
53 SEE NOTE 11
55
SEE NOTE 7
TYP ALL STUD MOUNTED COMPONENTS

SECTION A-A

	2005916	SCHEMATIC	REF
1	2004928	SLEEVE, THERMAL	64
AR	1006757-13	WIRE, ELEC	63
AR	1006757-23	WIRE, ELEC	62
3	2004039	TERMINAL, THREADED	61
AR	1006776-22	INSULATION, SLEEVING	60
AR	1006776-20	INSULATION, SLEEVING	59
AR	1006776-16	INSULATION, SLEEVING	58
AR	QQ-W-343, TYPE S, 18	WIRE, ELEC	57
AR	1006776-30	INSULATION, SLEEVING	56
4	1008071-2	WASHER, FLAT	55
2	2008013-5	TERMINAL, LUG	54
4	MS21083B3	NUT, HEX, SELF-LOCKING	53
4	1008025-5	BUSHING, INSULATOR	52
4	1008024-1	WASHER, INSULATOR	51
8	1008024-2	WASHER, INSULATOR	50
1	MS21083B5	NUT, HEX, SELF-LOCKING	49
1	1008071-7	WASHER, FLAT	48
1	2008020-3	BUSHING, INSULATOR	47
2	1008024-5	WASHER, INSULATOR	46
1	1008024-6	WASHER, INSULATOR	45
5	2004984-003	WASHER, FLAT	44
14	1006708	TERMINAL, STUD	43
1	1004722-2	SCREW, CAPTIVE	42
4	MS16633-4015	RING, RETAINING, EXTERNAL "E"	41
4	2004984-001	WASHER, FLAT	40
4	1004579-1	SCREW, JACKING	39
1	1006304-002	RELAY	38
AR	1006757-22	WIRE, ELEC	37
AR	1006757-21	WIRE, ELEC	36
1	2004897	SELECTION LIST	35
2	1006329	DIODE	34
1	2004112-001	DIODE	33
3	2004103-001	DIODE	32
1	1006328	INDUCTOR	31
3	1006327	INDUCTOR	30
3	2004004-002	TRANSISTOR, POTTED	29
2	1006363-001	TRANSISTOR	28
4	2004004-001	TRANSISTOR, POTTED	27
1	1006317-001	TRANSISTOR	26
2	1006755-126	CAPACITOR	25
1	1006755-79	↕	24
9	1006755-134	↕	23
6	1006755-89	CAPACITOR	22
~~1~~	~~1006750-[illegible]~~	~~RESISTOR~~	~~21~~
1	1006750-49	RESISTOR	20
2	1006330-001	↕	19
1	1010604-50		18
1	1010389-23		17
1	1010389-113		16
1	1010389-51		15
1	1006760-32		14
1	1006750-43		13
1	1006750-39		12
3	1006750-15		11
1	1006750-1		10
1	SEE NOTE 26	↕	9
1	SEE NOTE 26	RESISTOR	8
1	2004892	INSULATOR D	7
1	2004890-002	INSULATOR C	6
1	2004890-001	INSULATOR C	5
1	2004889	INSULATOR B	4
1	2004893	INSULATOR A	3
1	2003029-021	CONTROL CIRCUIT SUB ASSY	2
1	2003057-021	HEADER HOUSING ASSY	1
QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO.
011	LIST OF MATERIALS		

2003953 | B

NEXT ASSY	USED ON
2003200	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

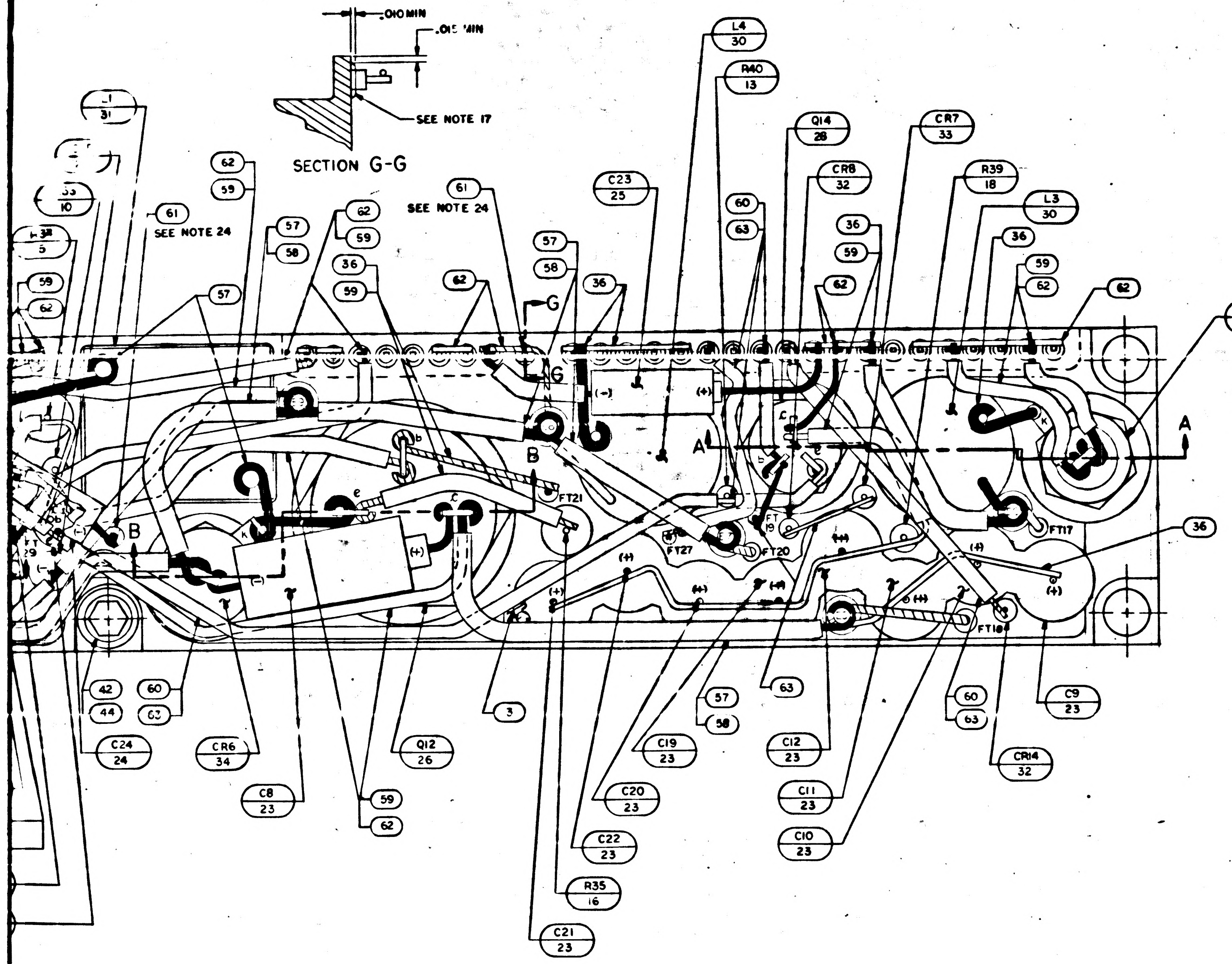
POWER SUPPLY MODULE
A30 - 31
ASSEMBLY

CODE IDENT NO. 80230 | SIZ J | NASA DRAWING NO 2003953
SCALE 4/1 | WT | SHEET 1 OF 1

MASTER

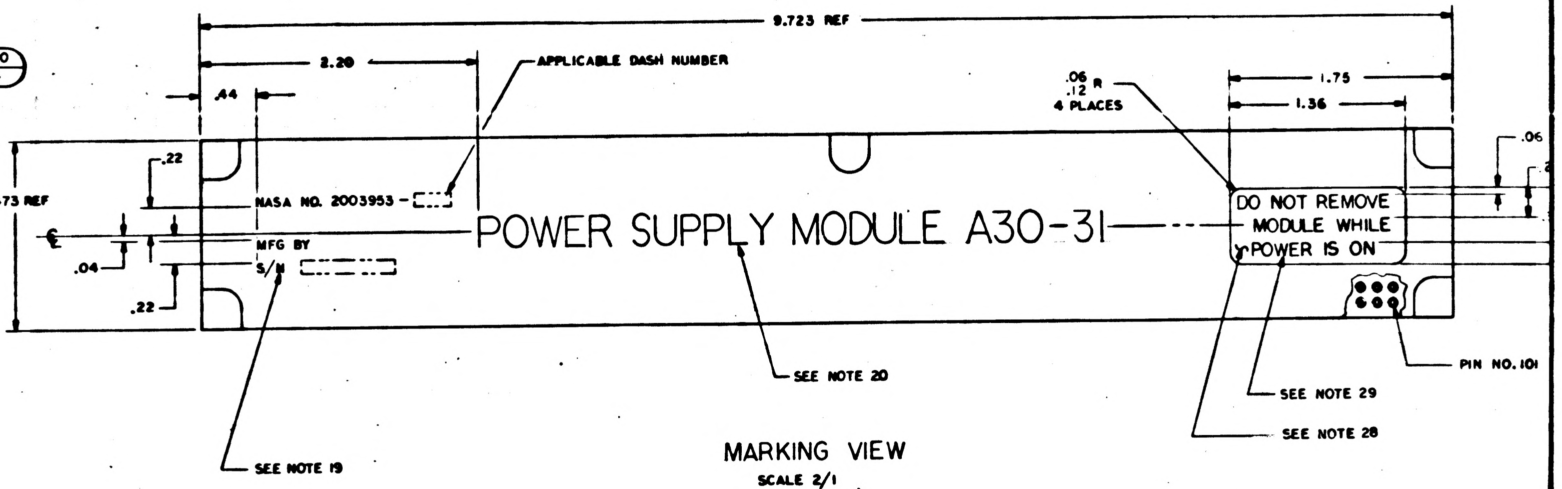
2003953 | B

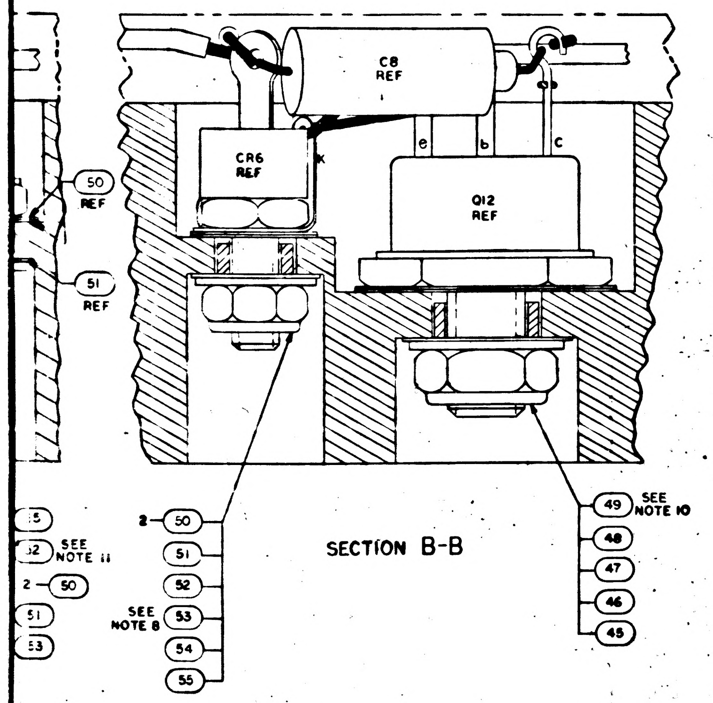
F4/14


.010 MIN
.015 MIN
SEE NOTE 17
SECTION G-G
1
31
33
10
38
5
59
62
61
SEE NOTE 24
62
59
57
58
62
59
36
59
61
SEE NOTE 24
62
57
58
36
C23
25
L4
30
R40
13
60
63
Q14
28
CR8
32
CR7
33
36
59
62
R39
18
L3
30
36
59
62
62
CR10
34
G
G
A
A
B
B
FT21
FT27
FT19
FT20
FT17
FT18
FT29
(+)
(-)
36
42
44
60
63
C24
24
CR6
34
C8
23
59
62
Q12
26
3
C19
23
C20
23
C22
23
R35
16
C21
23
57
58
63
C12
23
C11
23
C10
23
60
63
CR14
32
C9
23

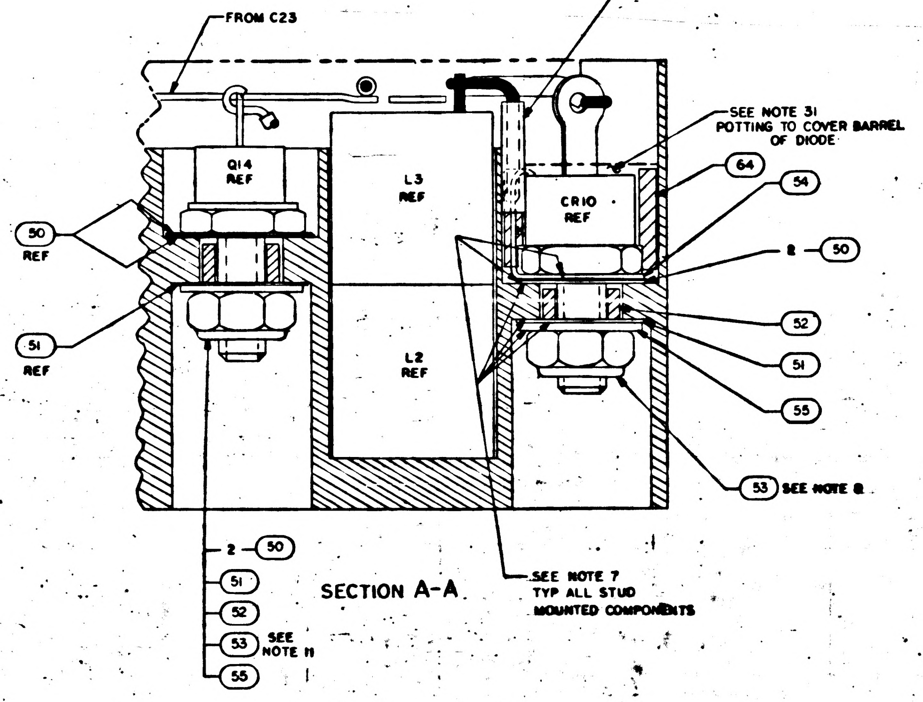
MARKING VIEW

SCALE 2/1


9.723 REF
2.20
.44
APPLICABLE DASH NUMBER
.06
.12 R
4 PLACES
1.75
1.36
.06
.22
1.473 REF
.04
.22
NASA NO. 2003953 -
MFG BY
S/N
POWER SUPPLY MODULE A30-31
DO NOT REMOVE
MODULE WHILE
POWER IS ON
SEE NOTE 20
SEE NOTE 19
SEE NOTE 29
SEE NOTE 28
PIN NO. 101

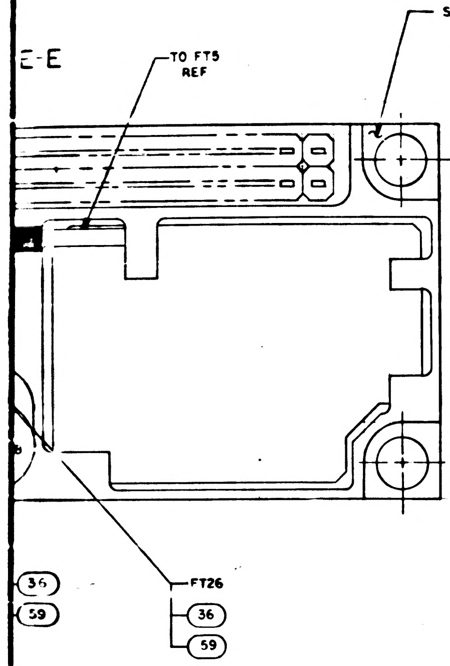

C8
REF
CR6
REF
Q12
REF
K
e
b
c
50
REF
51
REF
5
52 SEE NOTE 11
2 - 50
51
53
2 - 50
51
52
SEE NOTE 8 53
54
55
49 SEE NOTE 10
48
47
46
45

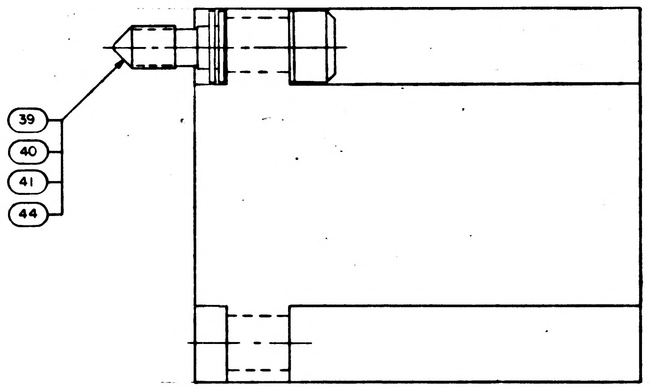
SECTION B-B

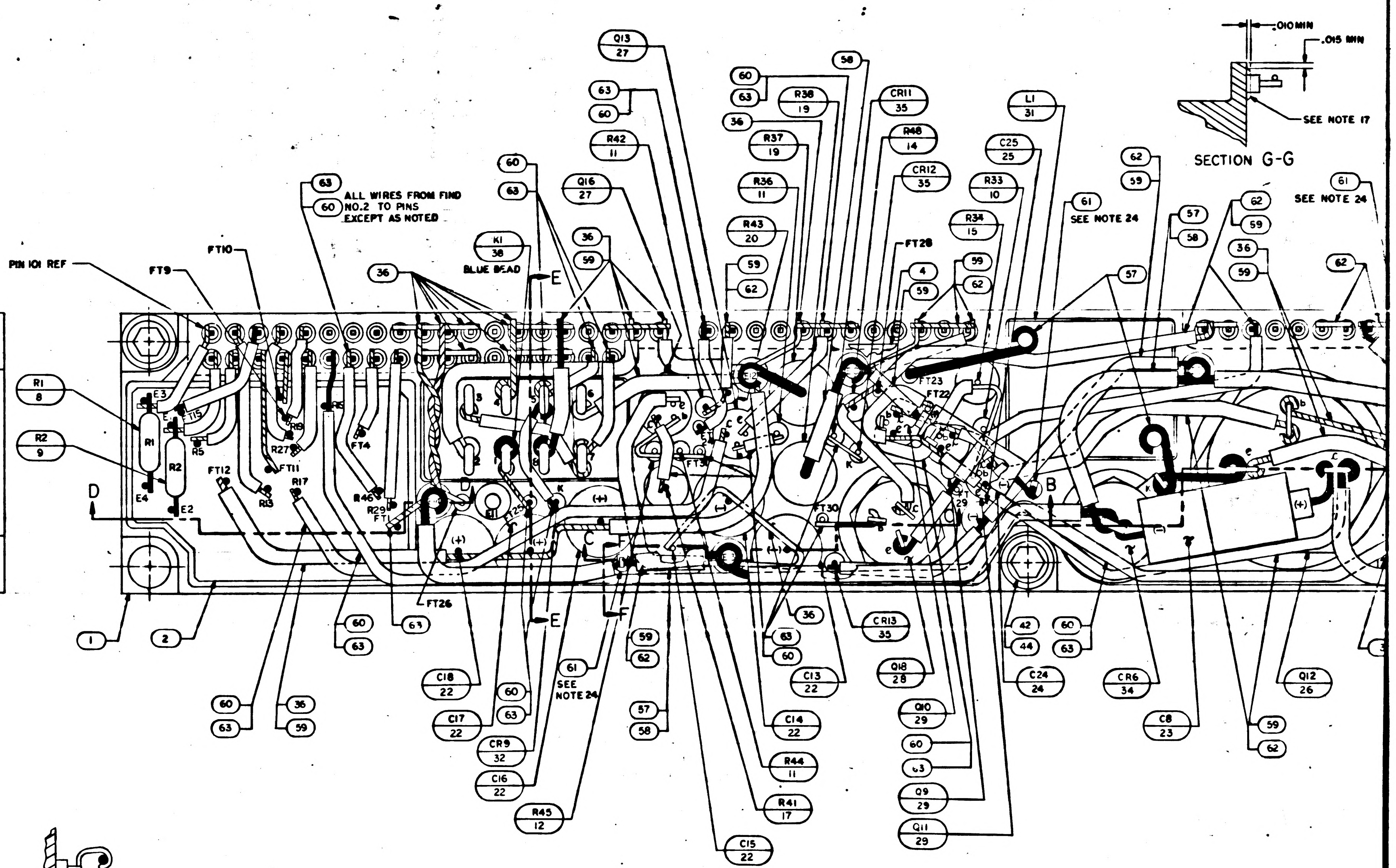

56 SEE NOTE 9
FROM C23
SEE NOTE 31
POTTING TO COVER BARREL
OF DIODE
Q14
REF
L3
REF
L2
REF
CR10
REF
64
54
2 - 50
52
51
55
53 SEE NOTE 8
50
REF
51
REF
2 - 50
51
52
53 SEE NOTE 11
55
SEE NOTE 7
TYP ALL STUD
MOUNTED COMPONENTS

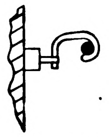
SECTION A-A

MASTER

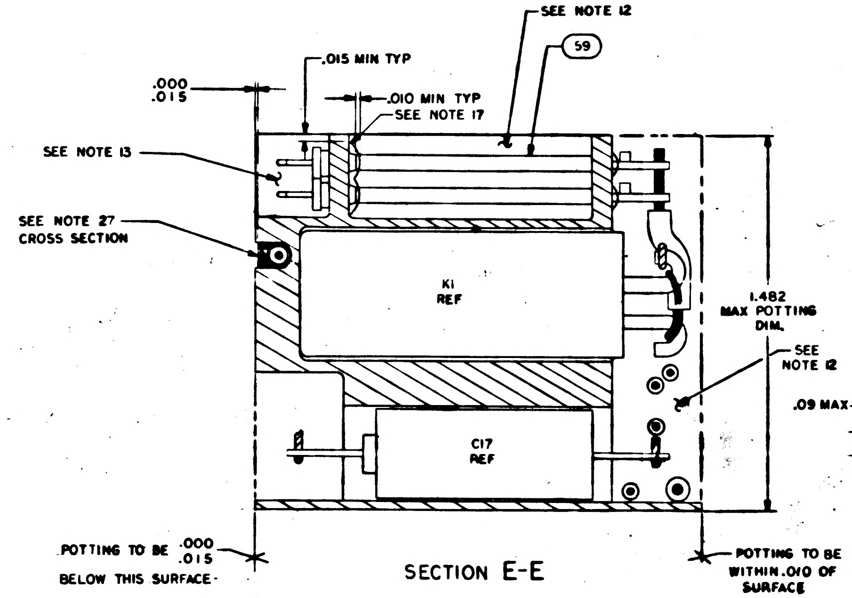

E-E
TO FT5 REF
SEE NOTE 13 5 PLACES
FT26
36
59
36
59



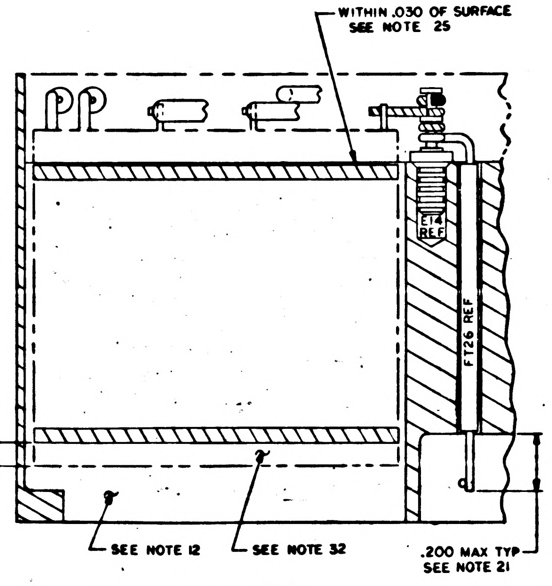

.010 MIN
.015 MIN
SEE NOTE 17
SECTION G-G
Q13 27
63
60
60
63
36
R38 19
58
CR11 35
R48 14
R42 11
R37 19
R36 11
CR12 35
L1 31
C25 25
R33 10
R34 15
R43 20
63
60
ALL WIRES FROM FIND NO.2 TO PINS EXCEPT AS NOTED
60
63
Q16 27
K1 38 BLUE BEAD
36
59
36
59
62
FT28
4
59
59
62
61 SEE NOTE 24
62
59
57
58
62
59
36
59
61 SEE NOTE 24
62
57
PIN 101 REF
FT9
FT10
E
R1 8
R2 9
E3
E4
E2
R5
R27
R18
FT11
FT12
R13
R17
R46
R29
FT1
FT4
FT25
FT23
FT22
FT30
FT31
E12
E11
D
B
C
F
(+)
(–)
1
2
FT26
60
63
63
60
63
36
59
C18 22
C17 22
60
63
CR9 32
C16 22
R45 12
61 SEE NOTE 24
59
62
57
58
E
F
36
63
60
C13 22
C14 22
R44 11
R41 17
C15 22
CR13 35
Q18 28
Q10 29
60
63
Q9 29
Q11 29
42
44
60
63
C24 24
CR6 34
C8 23
59
62
Q12 26



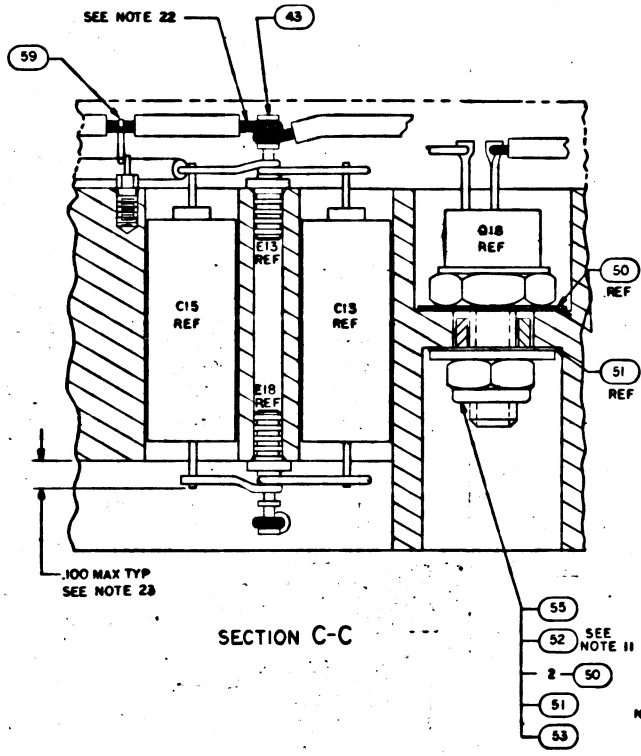
SECTION F-F


.015 MIN TYP
.000 .015
.010 MIN TYP
SEE NOTE 17
SEE NOTE 12
59
SEE NOTE 13
SEE NOTE 27 CROSS SECTION
K1 REF
C17 REF
1.482 MAX POTTING DIM.
SEE NOTE 12
.09 MAX
POTTING TO BE .000 .015 BELOW THIS SURFACE
POTTING TO BE WITHIN .010 OF SURFACE

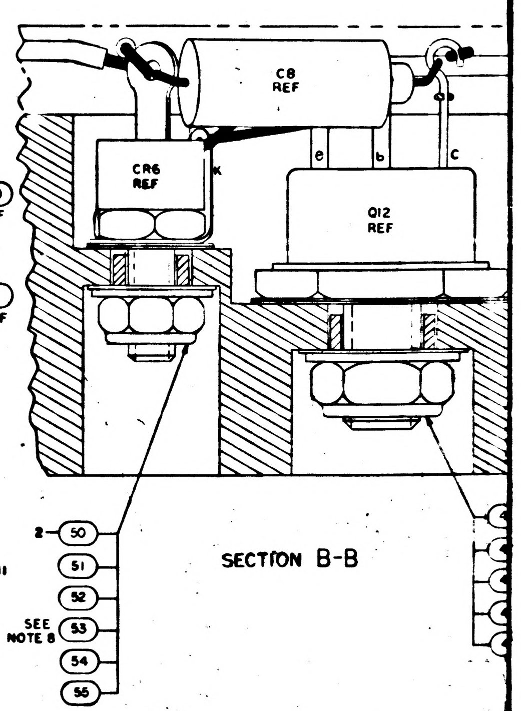
SECTION E-E


WITHIN .030 OF SURFACE SEE NOTE 25
E14 REF
FT26 REF
SEE NOTE 12
SEE NOTE 32
.200 MAX TYP SEE NOTE 21

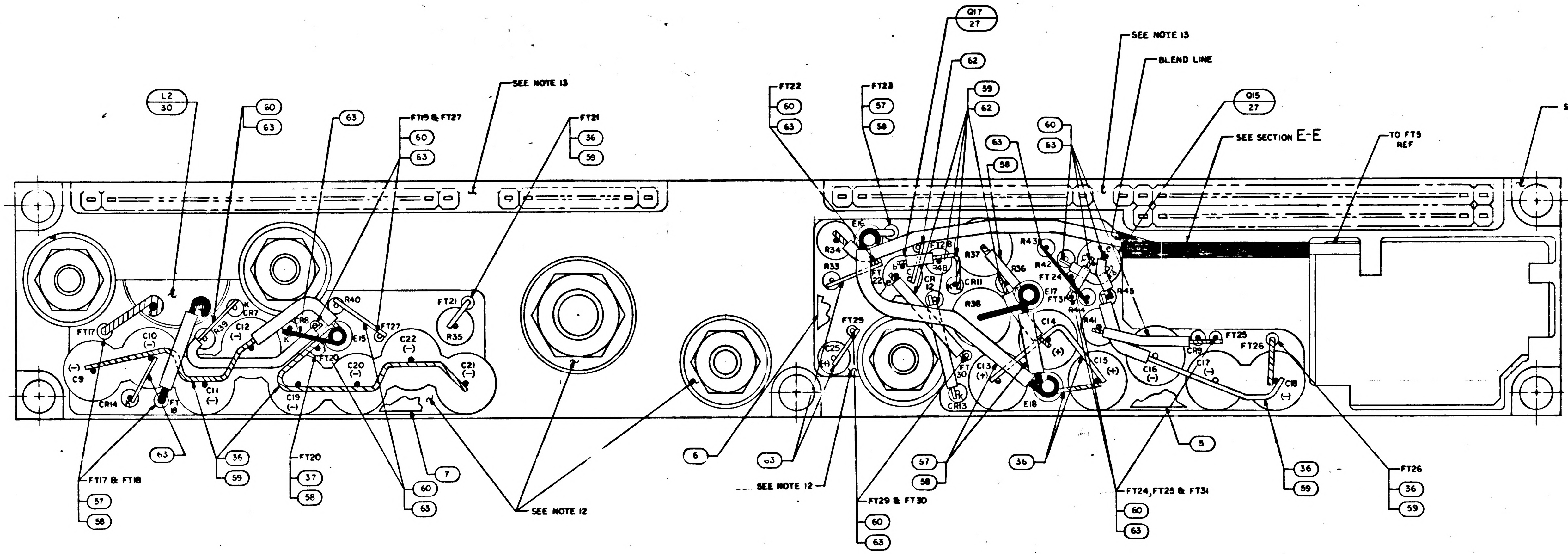
SECTION D-D


SEE NOTE 22
43
59
E13 REF
C15 REF
C13 REF
E18 REF
Q18 REF
50 REF
51 REF
.100 MAX TYP SEE NOTE 23
55
52 SEE NOTE 11
2 – 50
51
53

SECTION C-C


C8 REF
CR6 REF
Q12 REF
k
e
b
c
2 – 50
51
52
SEE NOTE 8 53
54
56

SECTION B-B


SEE NOTE 13
L2
30
60
63
63
FT19 & FT27
60
63
FT21
36
59
FT17
C10
(-)
(+)
C9
CR14
FT
18
R19
K
CR7
C12
(-)
C11
(-)
CR8
K
FT20
C19
(-)
R40
E15
FT27
C20
(-)
C22
(-)
C21
(-)
FT21
R35
63
35
59
FT20
37
58
7
60
63
FT17 & FT18
57
58
6
SEE NOTE 12
FT22
60
63
FT28
57
58
Q17
27
62
59
62
63
58
60
63
SEE NOTE 13
BLEND LINE
Q15
27
SEE SECTION E-E
TO FT5
REF
SEE NOTE 13
5 PLACES
E16
R34
R33
FT
22
FT28
R48
C
CR
12
R37
CR11
R43
R36
R42
FT24
E17
FT31
R45
R38
R41
R44
FT29
C25
(+)
C14
FT
30
C13
(+)
(+)
C15
(+)
CR13
E18
C16
(-)
CR9
FT25
FT26
C17
(-)
C18
(-)
63
SEE NOTE 12
FT29 & FT30
60
63
57
58
36
5
FT24, FT25 & FT31
60
63
36
59
FT26
36
59

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. WELD PER ND1002005
3. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
4. SOLDER PER ND1002071 USING SOLDER COMP SN60 FORM WIRE SOLID PER ND1002075 EXCEPT AS SHOWN
5. K DENOTES CATHODE SIDE OF DIODE
6. AR DENOTES AS REQUIRED
7. APPLY SILICONE GREASE, 1006879, TO INDICATED AREAS OF CR6, CR10 Q12, Q14 AND Q18
8. MOUNTING TORQUE FOR CR6 AND CR10 TO BE 25/30 INCH POUNDS
9. FIND NO.56 TO COVER SOLDER JOINT OF FIND NO.36 AND FIND NO.54
10. MOUNTING TORQUE FOR Q12 TO BE 15/30 INCH POUNDS
11. MOUNTING TORQUE FOR Q14 AND Q18 TO BE 13/15 INCH POUNDS
12. ENCAPSULATE PER ND1002002. REMOVE FLASHING
13. INDICATED AREAS TO BE FREE OF ENCAPSULATION
14. STAKE FIND NO.10 THRU 19,22,23,27,29 THRU 33 & 38 PER ND1002009 METHOD C OR D
15. FT DENOTES FEED THRU
16. + DENOTES POSITIVE SIDE OF CAPACITOR
17. SEAL INSULATORS, CONTACTS AND FIND NO.61 TO HEADER PER ND1002004, TYPE VI
18. E DENOTES STAND-OFF
19. MARK .10/.08 HIGH WHITE CHARACTERS PER ND 1002019 AND ND1002122 TYPE II, CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271-1
20. MARK .26/.24 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-1
21. BLACK DOT & CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
22. BLACK DOT & SOLID BLACK WIRING INDICATES SPECIAL LEVEL WIRING
23. WHITE DOT & CLEAR WIRING INDICATES LOWER LEVEL WIRING
24. MOUNTING TORQUE FOR FIND NO.61 TO BE 15/20 INCH POUNDS
25. ENCAPSULATE FIND NO. 2 IN FIND NO. 1 TO DIM. SHOWN PER ND1002009, METHOD F
26. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST. R1 AND R2 TO BE SELECTED FROM APPROPRIATE CHART
27. STAKE WIRE IN PLACE PER ND1002004, TYPE VI
28. BACKGROUND TO BE RED USING MARKING INK 1006271-9
29. MARK .10/.08 HIGH WHITE PER ND1002019 & ND1002122 TYPE II, CLASS 2, USING INK 1006271-1. CENTRALIZE AS SHOWN
30. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL REQUIREMENTS OF PS 2003953
31. ENCAPSULATE FIND NO.34 TO FIND NO.1 PER ND1002009, METHOD F
32. SEAL BOTTOM OF FIND NO.2 PER ND1002009 METHOD C OR D PRIOR TO ENCAPSULATION PER NOTE 25

R1 AND R2

PART NO.	VALUE
1006750-1	51
-2	56
-3	62
-4	68
-5	75
-6	82
-7	91
-8	100
-9	110
-10	120
-11	130
-12	150
-13	160
-14	180
-15	200
-16	220
-17	240
-18	270
-19	300
-20	330
-21	360
-22	390
-23	430
-24	470
1006750-25	510

SEE N

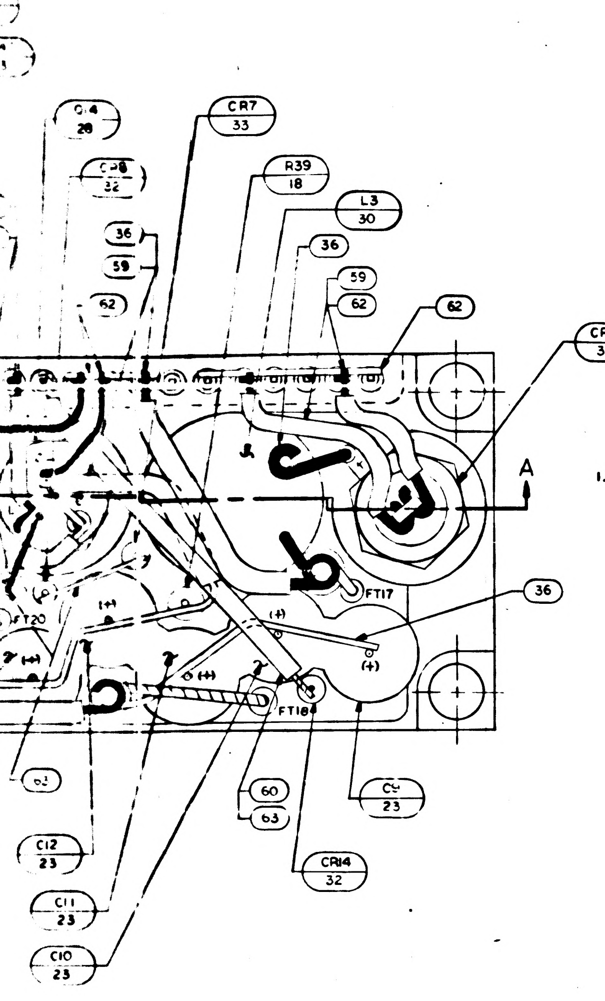
SEE NOTE
CROSS SE

POT
SE

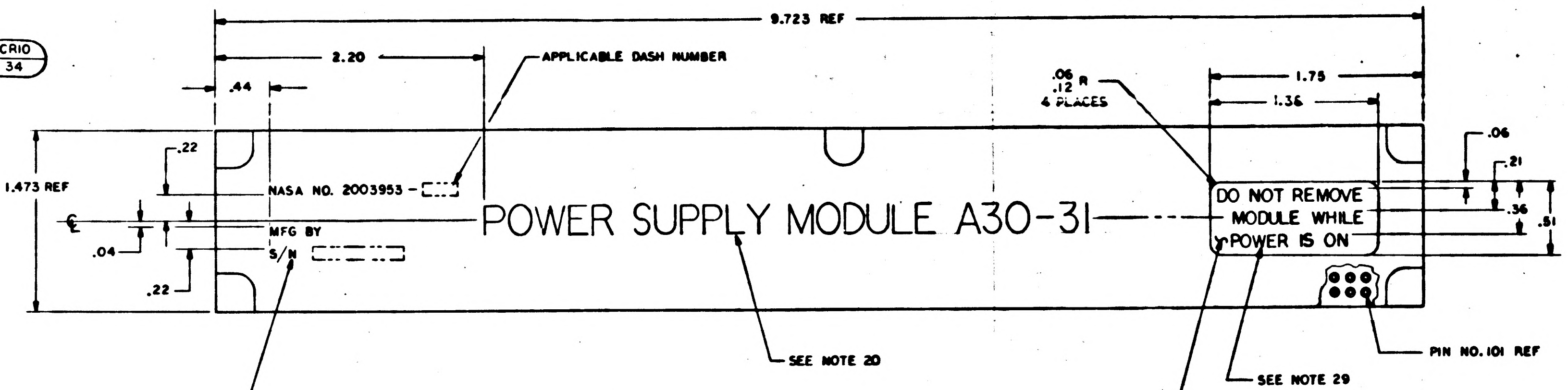
C	2003953		

REVISIONS 26147

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 27309 DR CHK APPD		
B	REVISED PER TDRR 28253 DR CHK APPD		
C	REVISED PER TDRR 28623 DR CHK APPO	-1-66	

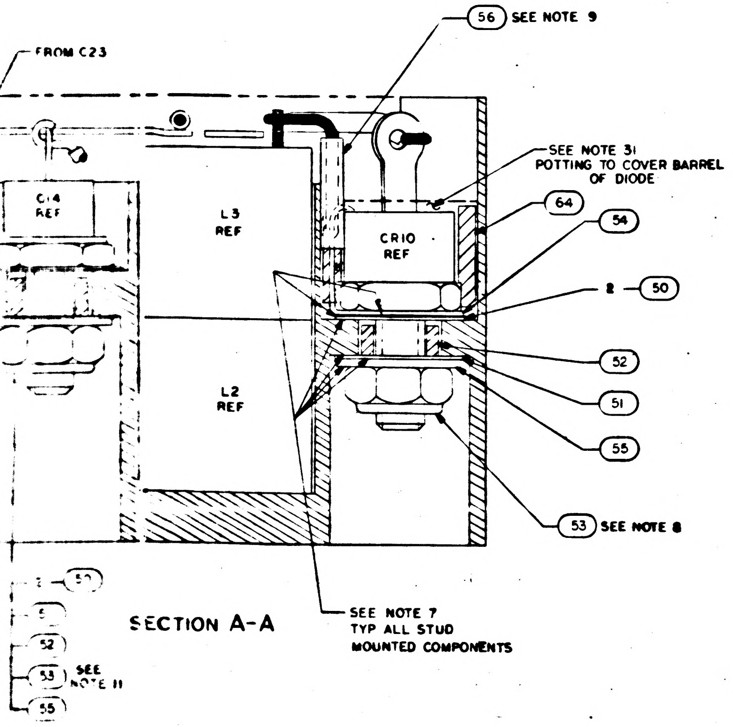


C14 28
CR7 33
C18 32
R39 18
L3 30
36
59
62
36
59
62
62
CR10 34
A
FT17
36
(+)
(+)
(+)
FT20
FT18
60
63
C12 23
C11 23
C10 23
CR14 32
C? 23



9.723 REF
2.20
APPLICABLE DASH NUMBER
.44
.06 R
.12
4 PLACES
1.75
1.36
.06
.21
.36
.81
1.473 REF
.22
.04
.22
NASA NO. 2003953 -
MFG BY
S/N
POWER SUPPLY MODULE A30-31
DO NOT REMOVE
MODULE WHILE
POWER IS ON
PIN NO. 101 REF
SEE NOTE 20
SEE NOTE 29
SEE NOTE 28
SEE NOTE 19

MARKING VIEW
SCALE 2/1



56 SEE NOTE 9
FROM C23
SEE NOTE 31
POTTING TO COVER BARREL
OF DIODE
64
54
2 — 50
52
51
55
53 SEE NOTE 8
C14 REF
L3 REF
CR10 REF
L2 REF
SEE NOTE 7
TYP ALL STUD
MOUNTED COMPONENTS
52
53 SEE NOTE 11
55

SECTION A-A

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	2005916	SCHEMATIC	REF
1	2004928	SLEEVE, THERMAL	64
AR	1006757-13	WIRE, ELEC	63
AR	1006757-23	WIRE, ELEC	62
3	2004030	TERMINAL, THREADED	61
AR	1006776-22	INSULATION, SLEEVING	60
AR	1006776-20	INSULATION, SLEEVING	59
AR	1006776-18	INSULATION, SLEEVING	58
AR	QQ-W-343, TYPE S, 18	WIRE, ELEC	57
AR	1006776-30	INSULATION, SLEEVING	56
4	1008071-2	WASHER, FLAT	55
2	2008013-5	TERMINAL LUG	54
4	MS21083B3	NUT, HEX, SELF-LOCKING	53
4	1008025-5	BUSHING, INSULATOR	52
4	1008024-1	WASHER, INSULATOR	51
8	1008024-2	WASHER, INSULATOR	50
1	MS21083B5	NUT, HEX, SELF-LOCKING	49
1	1008071-7	WASHER, FLAT	48
1	2008020-3	BUSHING, INSULATOR	47
2	1008024-5	WASHER, INSULATOR	46
1	1008024-6	WASHER, INSULATOR	45
5	2004984-003	WASHER, FLAT	44
14	1006708	TERMINAL, STUD	43
1	1004722-2	SCREW, CAPTIVE	42
4	MS16633-4015	RING, RETAINING, EXTERNAL "E"	41
4	2004984-001	WASHER, FLAT	40
4	1004579-1	SCREW, JACKING	39
1	1006304-002	RELAY	38
~~AR~~	~~[illegible]~~	~~WIRE, ELEC~~	~~37~~
AR	1006757-21	WIRE, ELEC	36
1	2004897	SELECTION LIST	35
2	1006329	DIODE	34
1	2004112-001	DIODE	33
3	2004103-001	DIODE	32
1	1006328	INDUCTOR	31
3	1006327	INDUCTOR	30
3	2004004-002	TRANSISTOR, POTTED	29
2	1006363-001	TRANSISTOR	28
4	2004004-001	TRANSISTOR, POTTED	27
1	1006317-001	TRANSISTOR	26
2	1006755-126	CAPACITOR	25
1	1006755-79		24
9	1006755-134		23
6	1006755-89	CAPACITOR	22
~~1~~	~~[illegible]~~	~~RESISTOR~~	~~21~~
1	1006750-49	RESISTOR	20
2	1006330-001		19
1	1010604-50		18
1	1010389-23		17
1	1010389-113		16
1	1010389-51		15
1	1006760-32		14
1	1006750-43		13
1	1006750-39		12
3	1006750-15		11
1	1006750-1		10
1	SEE NOTE 26		9
1	SEE NOTE 26	RESISTOR	8
1	2004892	INSULATOR D	7
1	2004890-002	INSULATOR C	6
1	2004890-001	INSULATOR C	5
1	2004889	INSULATOR B	4
1	2004893	INSULATOR A	3
1	2003029-021	CONTROL CIRCUIT SUB ASSY	2
1	2003057-021	HEADER HOUSING ASSY	1
011	LIST OF MATERIALS		

2003200	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN DATE 2 FEB 66
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL

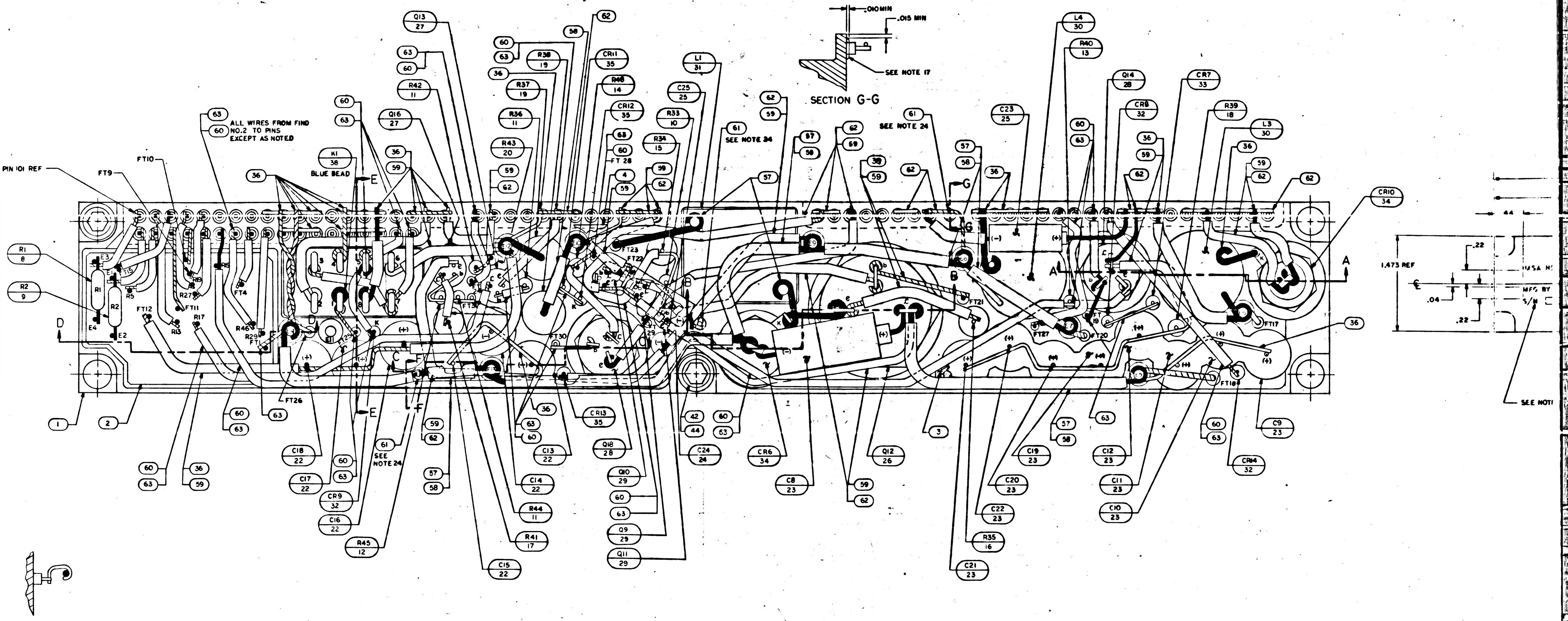
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

POWER SUPPLY MODULE A30 - 31 ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003953
SCALE 4/1
WT
SHEET 1 OF 1

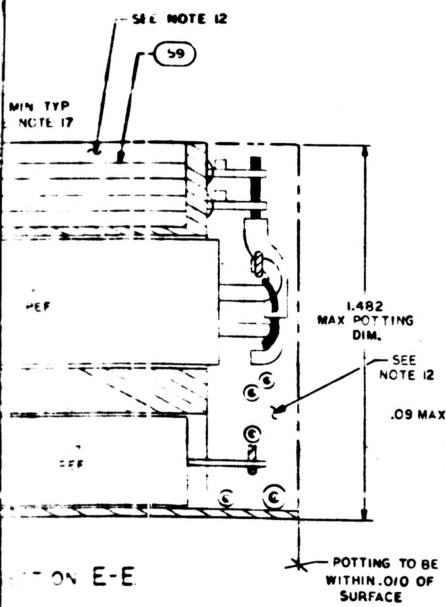
2003953 C

4H

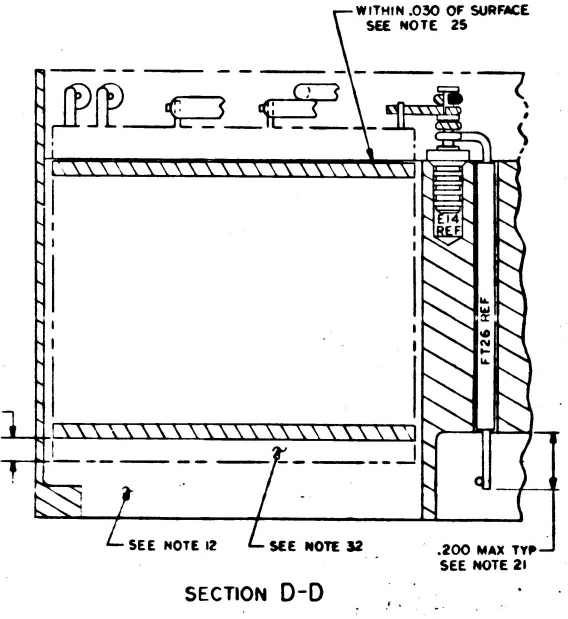

PIN 101 REF
FT9
FT10
ALL WIRES FROM FIND NO.2 TO PINS EXCEPT AS NOTED
K1 38 BLUE BEAD
Q13 27
Q16 27
R42 11
R38 19
R37 19
R36 11
R43 20
CR11 35
R46 14
CR12 35
R33 10
R34 15
FT 28
L1 31
C25 25
SEE NOTE 24
SEE NOTE 17
.010 MIN
.015 MIN
C23 25
L4 30
R40 13
Q14 28
CR8 32
CR7 33
R39 18
L3 30
CR10 34
R1 8
R2 9
E1 E2 E3 E4
R5
FT12
R13
R17
R46
R29
FT1
FT4
FT11
R19
R27
FT26
FT13
FT30
FT23
FT22
FT21
FT27
FT20
FT19
FT17
FT18
1.473 REF
.44
.22
.04
.22
MFG BY
USA
SEE NOTE
A B C D E F G
C18 22
C17 22
CR9 32
C16 22
R45 12
C15 22
C13 22
C14 22
R44 11
R41 17
CR13 35
Q18 28
Q10 29
Q9 29
Q11 29
C24 24
CR6 34
C8 23
Q12 26
C19 23
C20 23
C22 23
R35 16
C21 23
C12 23
C11 23
C10 23
CR14 32
C9 23
SEE NOTE 24
1 2 3 4 36 42 44 57 58 59 60 61 62 63

SECTION G-G

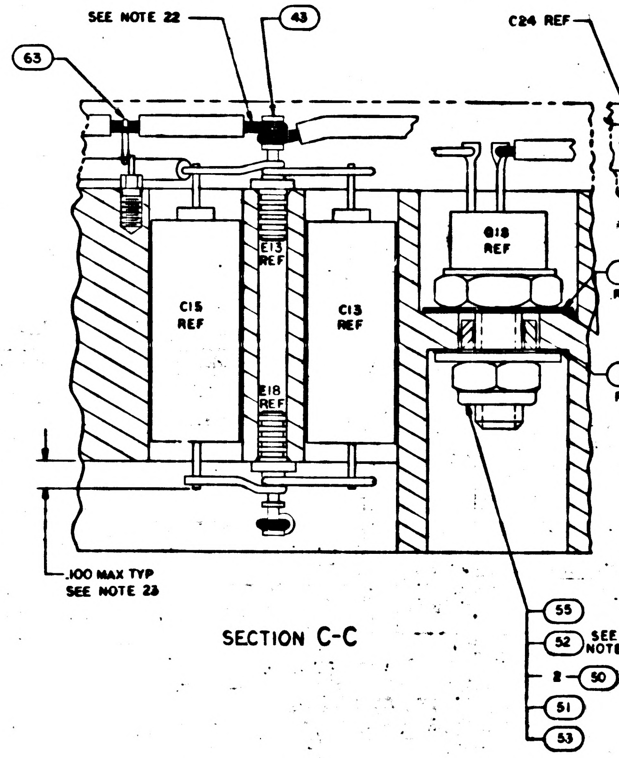
SECTION F-F


SEE NOTE 12
59
MIN TYP NOTE 17
REF
1.482 MAX POTTING DIM.
SEE NOTE 12
POTTING TO BE WITHIN .010 OF SURFACE

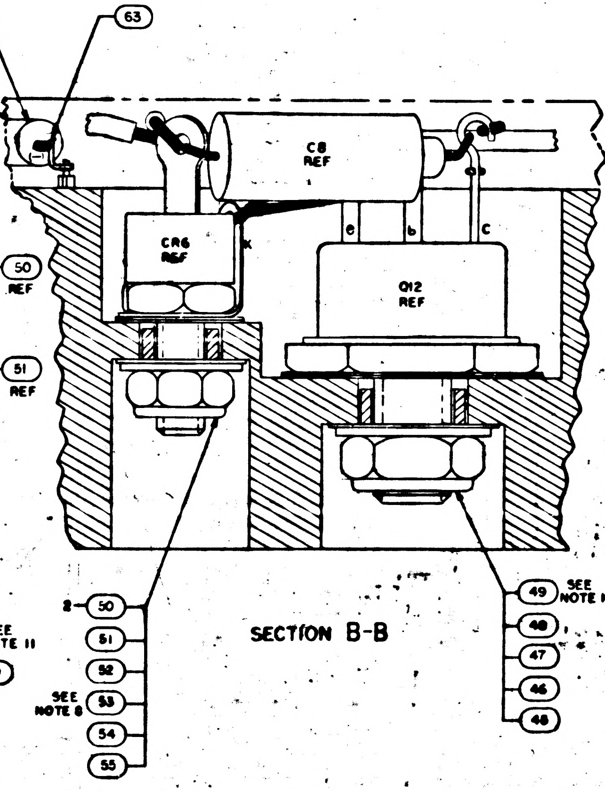
ON E-E


WITHIN .030 OF SURFACE SEE NOTE 25
.09 MAX
E14 REF
FT26 REF
SEE NOTE 12
SEE NOTE 32
.200 MAX TYP SEE NOTE 21

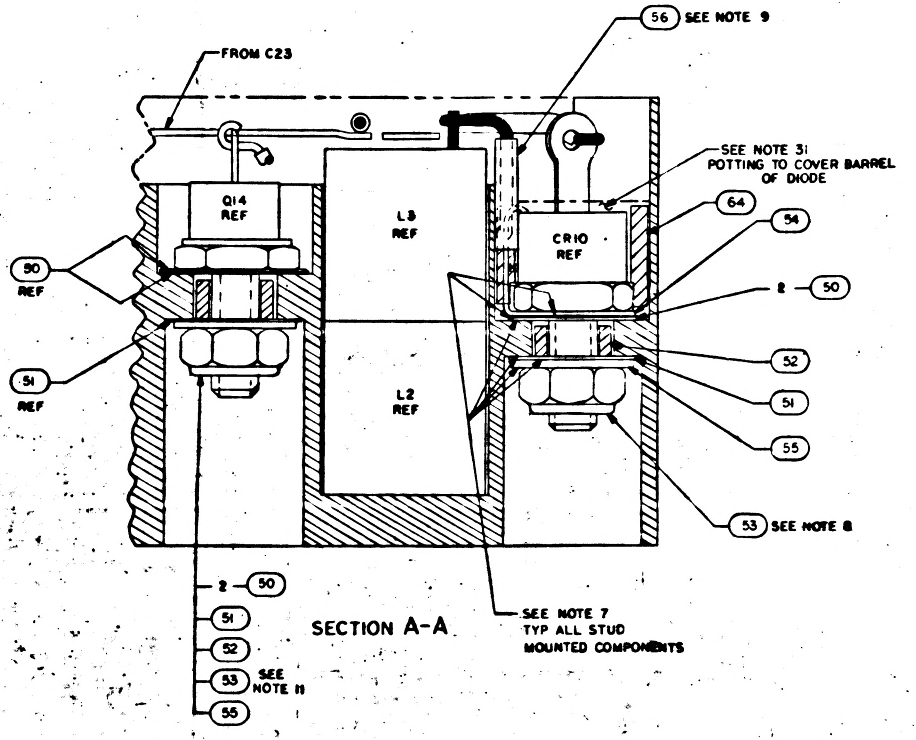
SECTION D-D


SEE NOTE 22
43
63
C15 REF
E13 REF
E18 REF
C13 REF
Q18 REF
50 REF
51 REF
.100 MAX TYP SEE NOTE 23
55
52 SEE NOTE 11
2 — 50
51
53

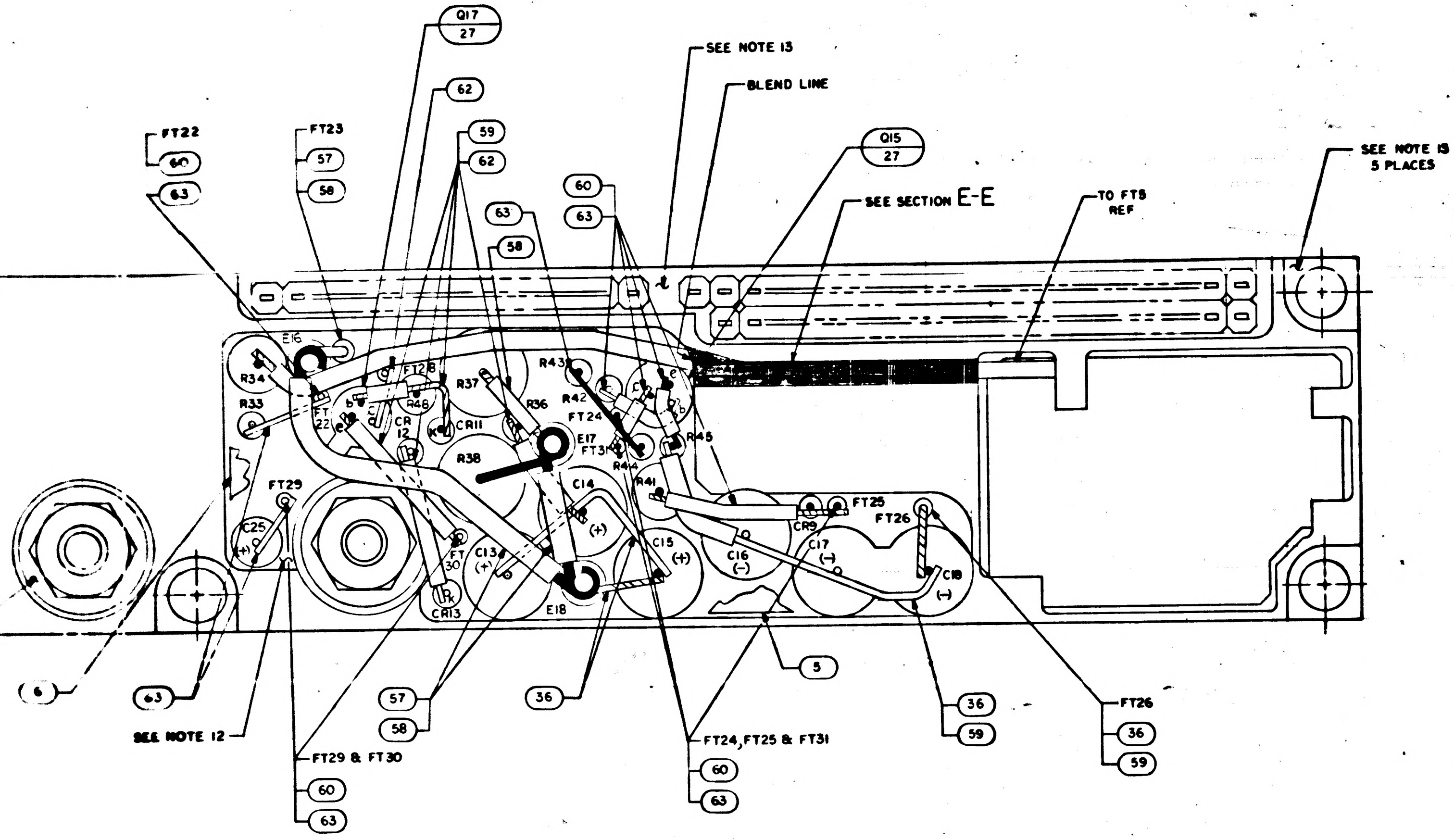
SECTION C-C

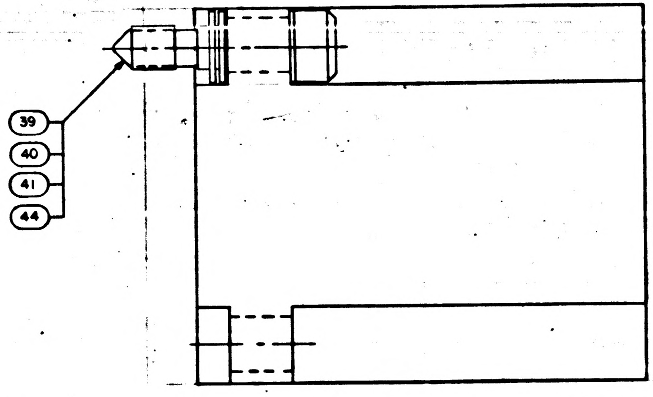

C24 REF
63
C8 REF
CR6 REF
Q12 REF
e b c
2 — 50
51
52
SEE NOTE 8 53
54
55
49 SEE NOTE 10
48
47
46
48

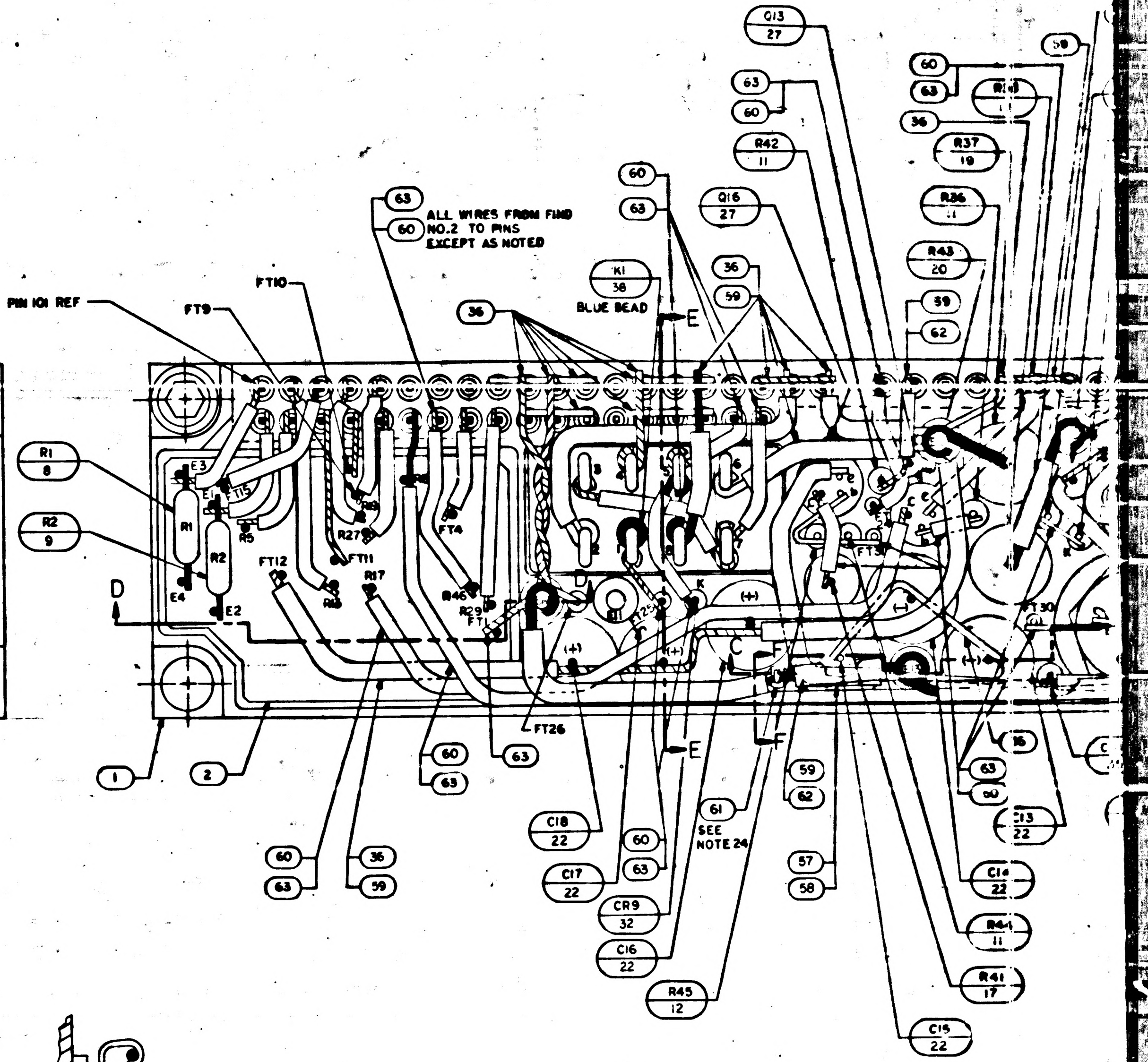
SECTION B-B

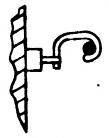

FROM C23
56 SEE NOTE 9
SEE NOTE 31 POTTING TO COVER BARREL OF DIODE
64
54
2 — 50
52
51
55
53 SEE NOTE 8
50 REF
51 REF
Q14 REF
L3 REF
L2 REF
CR10 REF
2 — 50
51
52
53 SEE NOTE 11
55
SEE NOTE 7 TYP ALL STUD MOUNTED COMPONENTS

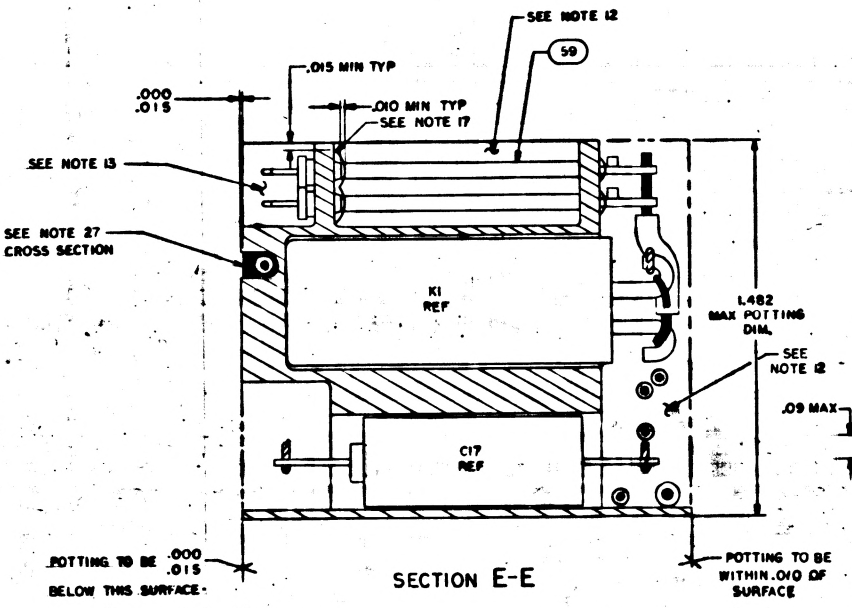
SECTION A-A

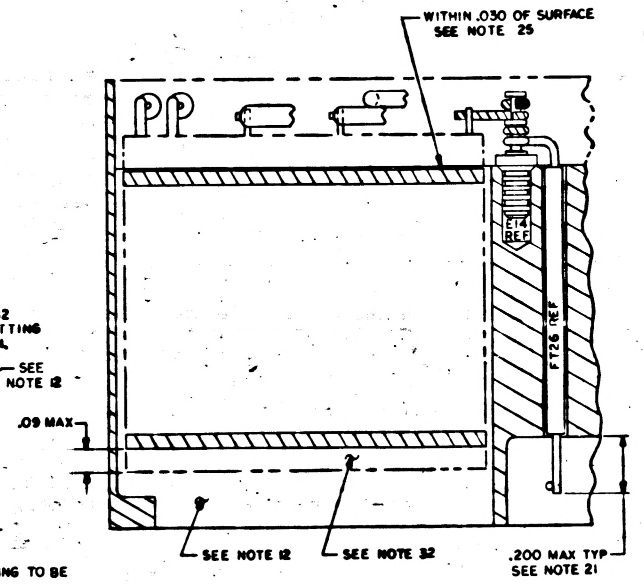

FT22
60
63
FT23
57
58
Q17
27
62
59
62
63
58
60
63
SEE NOTE 13
BLEND LINE
Q15
27
SEE SECTION E-E
TO FT5
REF
SEE NOTE 13
5 PLACES
E16
R34
R33
FT22
FT12
R46
R37
CR11
R36
R43
R42
FT24
E17
FT31
R44
R45
R38
C14
(+)
C13
(+)
C25
FT29
FT30
CR13
E18
C15
(+)
R41
C16
(-)
CR9
FT25
C17
(-)
FT26
C18
(-)
5
6
63
SEE NOTE 12
FT29 & FT30
60
63
57
58
36
FT24, FT25 & FT31
60
63
36
59
FT26
36
59

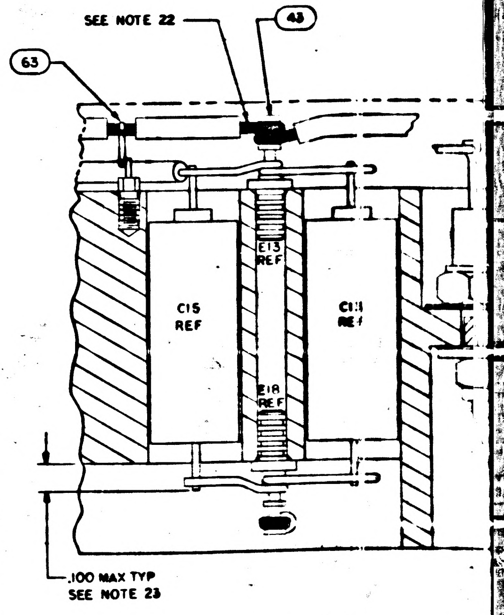



Q13
27
63
60
60
63
R48
36
R37
19
R42
11
R36
11
60
63
Q16
27
63
60
ALL WIRES FROM FIND
NO.2 TO PINS
EXCEPT AS NOTED
K1
38
BLUE BEAD
36
59
R43
20
59
62
36
PIN 101 REF
FT9
FT10
E
R1
8
R2
9
E3
E1
E4
E2
R5
FT11
FT12
R27
R17
FT4
R46
R29
FT26
D
FT30
C
E
F
1
2
60
63
63
60
63
36
59
C18
22
C17
22
60
63
CR9
32
C16
22
R45
12
61
SEE
NOTE 24
59
62
57
58
16
63
C13
22
C14
22
R44
11
R41
17
C15
22


SECTION F-F

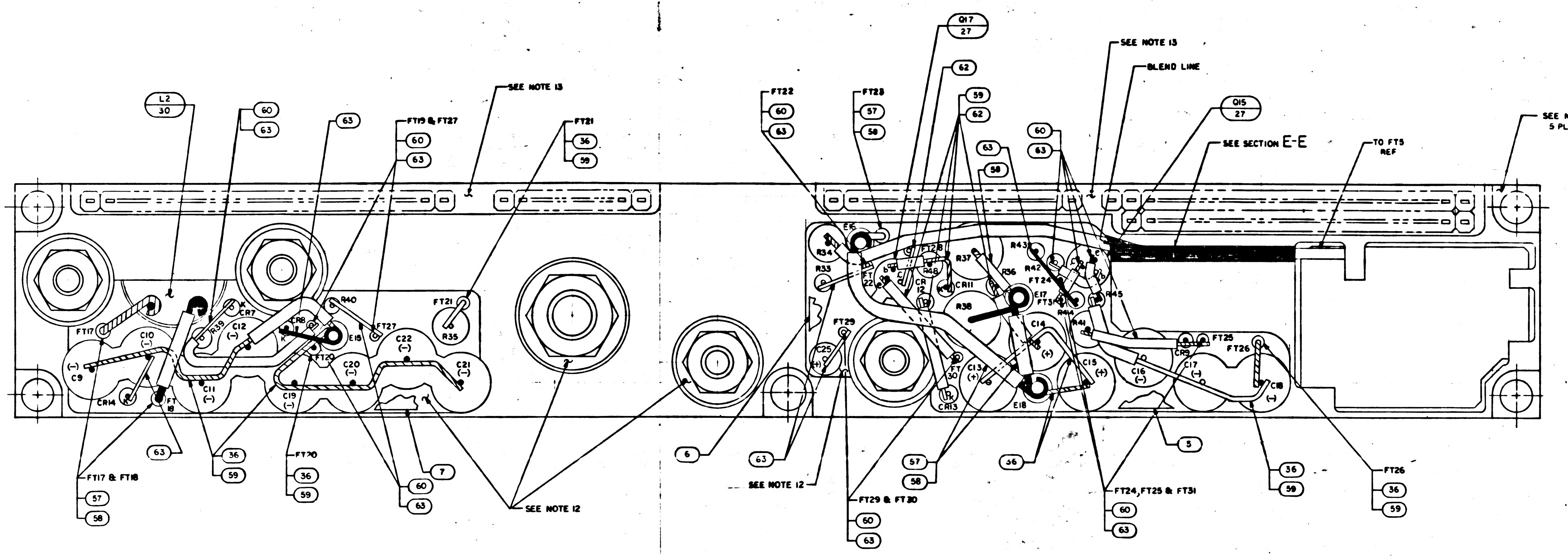

SEE NOTE 12
59
.015 MIN TYP
.010 MIN TYP
SEE NOTE 17
.000
.015
SEE NOTE 13
SEE NOTE 27
CROSS SECTION
K1
REF
1.482
MAX POTTING
DIM.
SEE
NOTE 12
C17
REF
POTTING TO BE .000
.015
BELOW THIS SURFACE
POTTING TO BE
WITHIN .010 OF
SURFACE
SECTION E-E

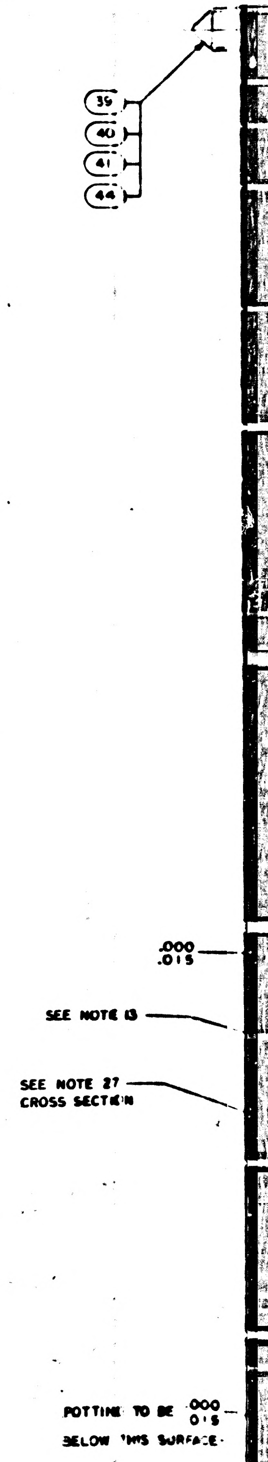

WITHIN .030 OF SURFACE
SEE NOTE 25
E14
REF
FT26 REF
.09 MAX
SEE NOTE 12
SEE NOTE 32
.200 MAX TYP
SEE NOTE 21
SECTION D-D


SEE NOTE 22
43
63
E13
REF
C15
REF
C13
REF
E18
REF
.100 MAX TYP
SEE NOTE 23
SECTION C-C

AND R2

VALUE
51
56
62
66
75
82
91
100
110
120
130
150
160
180
200
220
240
270
300
330
360
390
430
470
510


L2 / 30
60
63
63
FT19 & FT27
60
63
SEE NOTE 13
FT21
36
59
FT17
C10 (−)
(−) C9
CR14
K
FT 18
R39
K CR7
C12 (−)
CR8
K
R40
E15
FT27
FT20
C11 (−)
C19 (−)
C20 (−)
C22 (−)
C21 (−)
FT21
R35
63
36
59
FT17 & FT18
57
58
FT20
36
59
60
63
7
6
SEE NOTE 12
FT22
60
63
FT23
57
58
Q17 / 27
62
59
62
63
58
60
63
SEE NOTE 13
BLEND LINE
Q15 / 27
SEE SECTION E-E
TO FT5 REF
SEE NOTE 13 5 PLACES
E16
R34
R33
FT 22
b
c
e
FT28
R48
CR 12
CR11
R37
R36
R43
R42
FT24
E17
FT31
R38
R44
R41
R45
C14 (+)
C15 (+)
C16 (−)
C17 (−)
C18 (−)
CR9
FT25
FT26
FT29
C25 (+)
FT 30
C13 (+)
CR13
E18
63
SEE NOTE 12
FT29 & FT30
60
63
57
58
36
5
FT24, FT25 & FT31
60
63
36
59
FT26
36
59


39
40
41
44
.000 .015
SEE NOTE 13
SEE NOTE 27 CROSS SECTION
POTTING TO BE .000 .015 BELOW THIS SURFACE

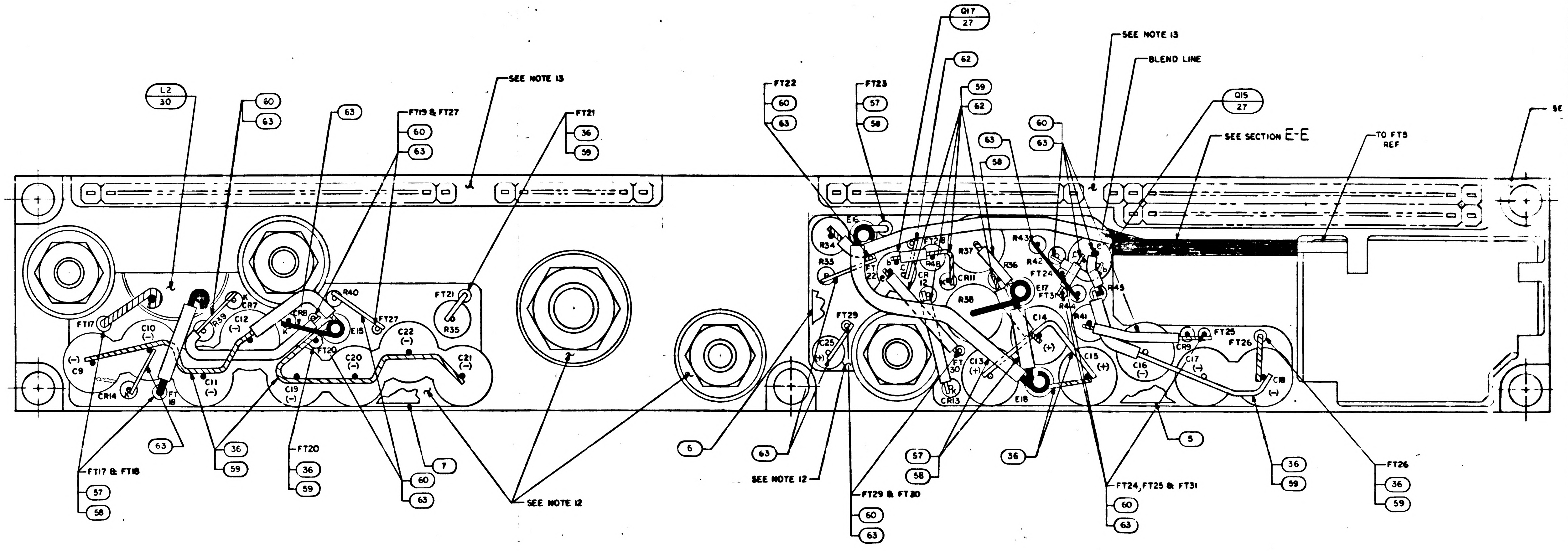
NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. WELD PER ND1002005
3. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
4. SOLDER PER ND1002071 USING SOLDER COMP SN60 FORM WIRE SOLID PER ND1002075 EXCEPT AS SHOWN
5. K DENOTES CATHODE SIDE OF DIODE
6. AR DENOTES AS REQUIRED
7. APPLY SILICONE GREASE, 1006879, TO INDICATED AREAS OF CR6, CR10 Q12, Q14 AND Q18
8. MOUNTING TORQUE FOR CR6 AND CR10 TO BE 25/30 INCH POUNDS
9. FIND NO.56 TO COVER SOLDER JOINT OF FIND NO.36 AND FIND NO.54
10. MOUNTING TORQUE FOR Q12 TO BE 15/30 INCH POUNDS
11. MOUNTING TORQUE FOR Q14 AND Q18 TO BE 13/15 INCH POUNDS
12. ENCAPSULATE PER ND1002002. REMOVE FLASHING
13. INDICATED AREAS TO BE FREE OF ENCAPSULATION
14. STAKE FIND NO.10 THRU 19, 22, 23, 27, 29 THRU 33 & 38 PER ND1002009 METHOD C OR D
15. FT DENOTES FEED THRU
16. + DENOTES POSITIVE SIDE OF CAPACITOR
17. SEAL INSULATORS, CONTACTS AND FIND NO.61 TO HEADER PER ND1002004, TYPE VI
18. E DENOTES STAND-OFF
19. MARK .10/.08 HIGH WHITE CHARACTERS PER ND 1002019 AND ND1002122 TYPE II, CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271-1
20. MARK .26/.24 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-1
21. BLACK DOT & CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
22. BLACK DOT & SOLID BLACK WIRING INDICATES SPECIAL LEVEL WIRING
23. WHITE DOT & CLEAR WIRING INDICATES LOWER LEVEL WIRING
24. MOUNTING TORQUE FOR FIND NO.61 TO BE 15/20 INCH POUNDS
25. ENCAPSULATE FIND NO. 2 IN FIND NO. 1 TO DIM. SHOWN PER ND1002009, METHOD F
26. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST. R1 AND R2 TO BE SELECTED FROM APPROPRIATE CHART
27. STAKE WIRE IN PLACE PER ND1002004, TYPE VI
28. BACKGROUND TO BE RED USING MARKING INK 1006271-9
29. MARK .10/.08 HIGH WHITE PER ND1002019 & ND1002122 TYPE II, CLASS 2, USING INK 1006271-1. CENTRALIZE AS SHOWN
30. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL REQUIREMENTS OF PS 2003953
31. ENCAPSULATE FIND NO34 TO FIND NO.1 PER ND1002009 METHOD F
32. SEAL BOTTOM OF FIND NO.2 PER ND1002009 METHOD C OR D PRIOR TO ENCAPSULATION PER NOTE 25

R1 AND R2

PART NO.	VALUE
1006750-1	51
-2	56
-3	62
-4	68
-5	75
-6	82
-7	91
-8	100
-9	110
-10	120
-11	130
-12	150
-13	160
-14	180
-15	200
-16	220
-17	240
-18	270
-19	300
-20	330
-21	360
-22	390
-23	430
-24	470
1006750-25	510

2003953

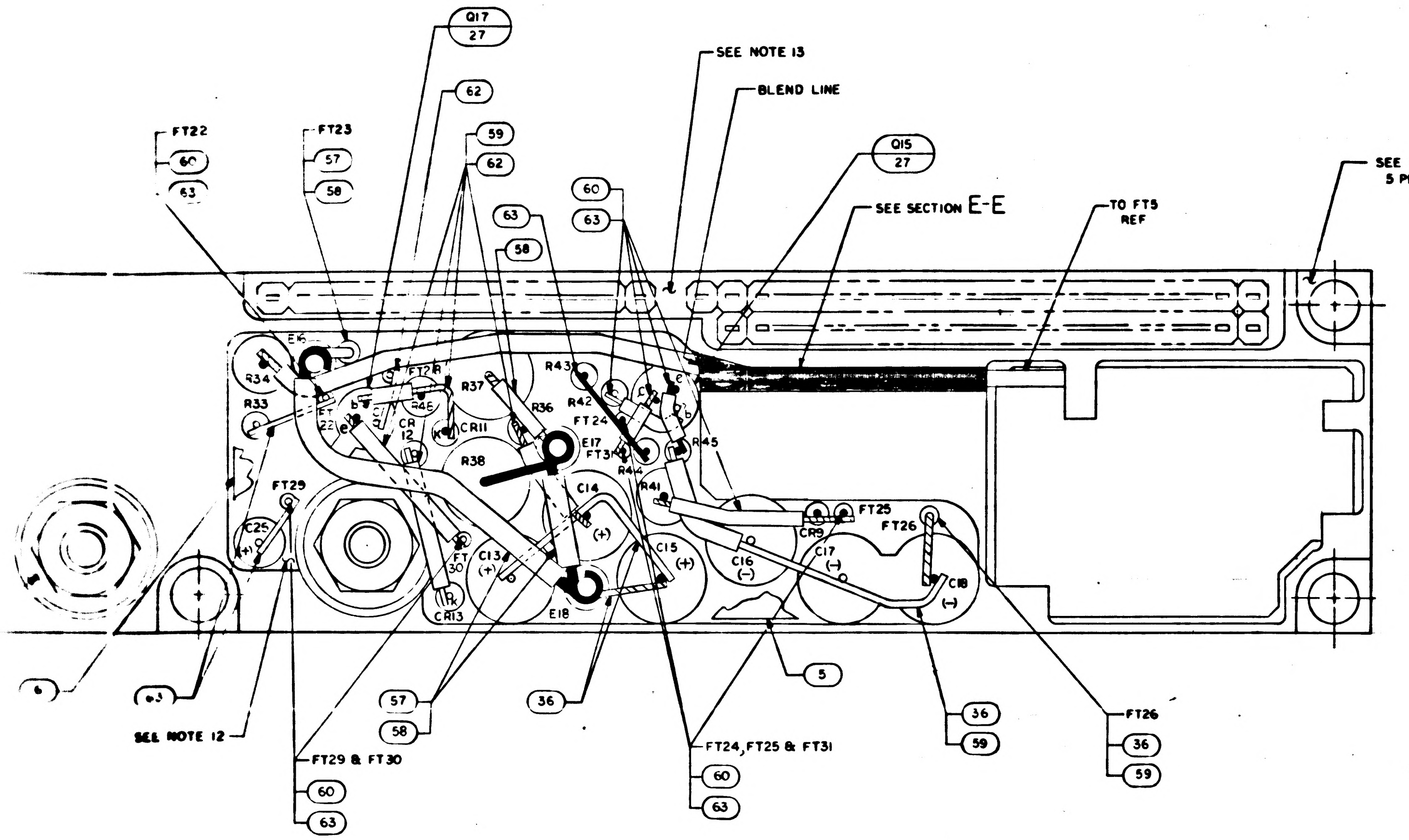

L2
30
60
63
63
FT19 & FT27
60
63
SEE NOTE 13
FT21
36
59
FT22
60
63
FT23
57
58
Q17
27
62
59
62
63
58
60
63
SEE NOTE 13
BLEND LINE
Q15
27
SEE SECTION E-E
TO FT5
REF
FT17
C10
(−)
(−)
C9
CR14
FT
18
K
CR7
R39
C12
(−)
CR8
K
E15
R40
FT27
C22
(−)
FT20
C20
(−)
C11
(−)
C19
(−)
C21
(−)
FT21
R35
E16
R34
R33
FT
22
CR
12
R48
CR11
R37
R36
R43
R42
FT24
E17
FT31
R38
R45
R44
R41
FT29
C25
(+)
FT
30
CR13
C13
(+)
C14
(+)
E18
C15
(+)
C16
(−)
CR9
C17
(−)
FT25
FT26
C18
(−)
63
FT17 & FT18
57
58
36
59
FT20
36
59
60
63
7
SEE NOTE 12
6
63
SEE NOTE 12
FT29 & FT30
60
63
57
58
36
5
FT24, FT25 & FT31
60
63
36
59
FT26
36
59

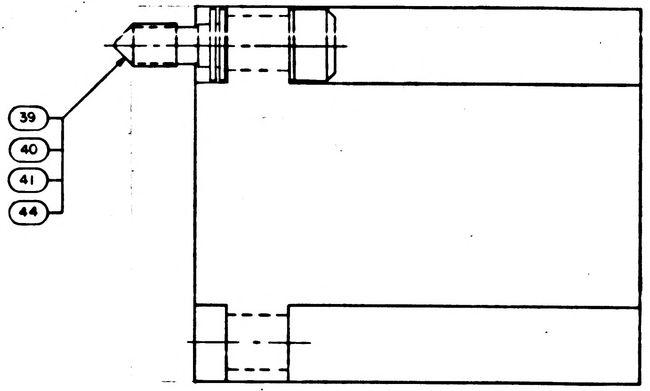
NOTES

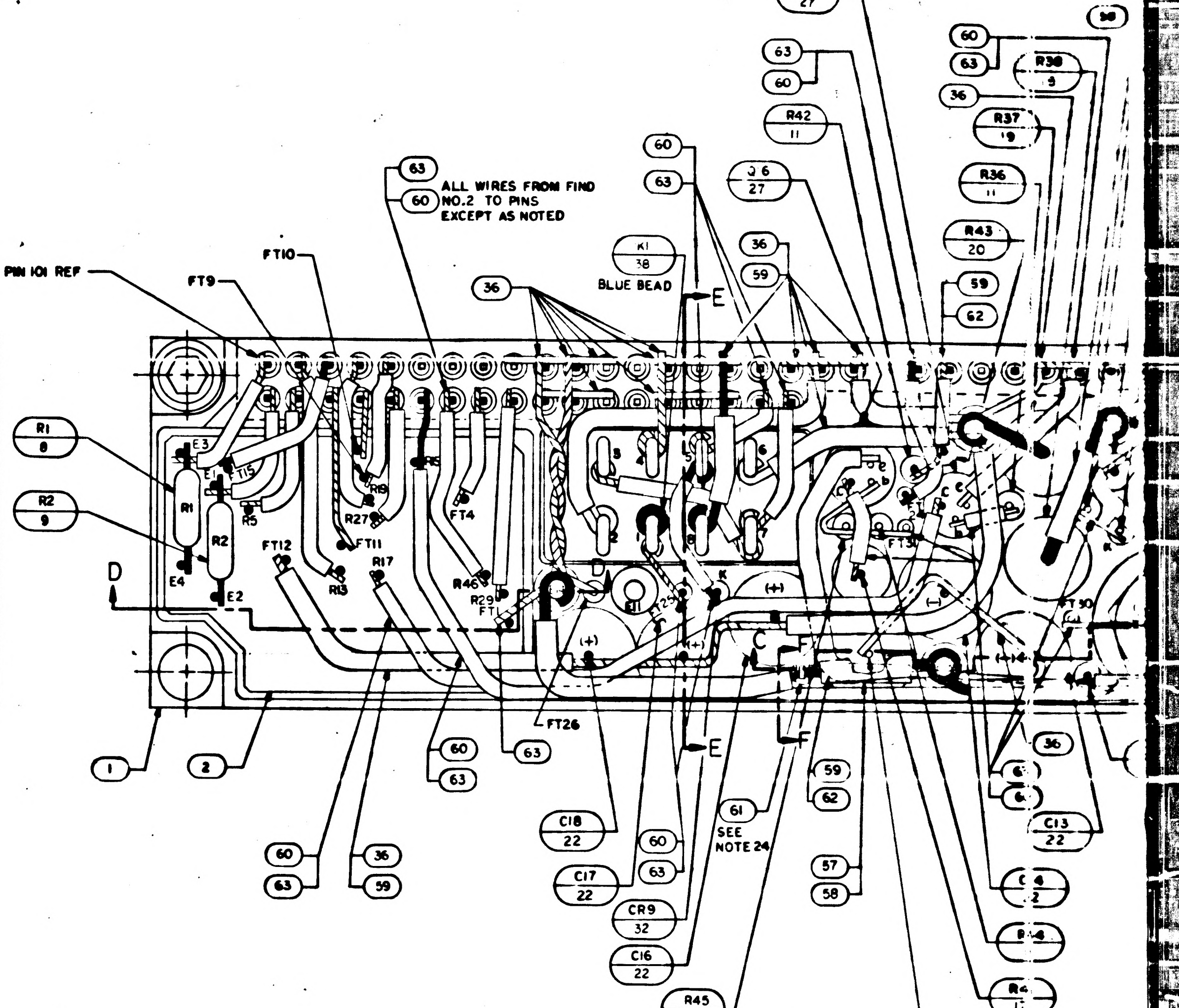
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. WELD PER ND1002005
3. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
4. SOLDER PER ND1002071 USING SOLDER COMP SN60 FORM WIRE SOLID PER ND1002075 EXCEPT AS SHOWN
5. K DENOTES CATHODE SIDE OF DIODE
6. AR DENOTES AS REQUIRED
7. APPLY SILICONE GREASE, 1006879, TO INDICATED AREAS OF CR6, CR10 Q12, Q14 AND Q18
8. MOUNTING TORQUE FOR CR6 AND CR10 TO BE 25/30 INCH POUNDS
9. FIND NO.56 TO COVER SOLDER JOINT OF FIND NO.36 AND FIND NO.54
10. MOUNTING TORQUE FOR Q12 TO BE 15/30 INCH POUNDS
11. MOUNTING TORQUE FOR Q14 AND Q18 TO BE 13/15 INCH POUNDS
12. ENCAPSULATE PER ND1002002. REMOVE FLASHING
13. INDICATED AREAS TO BE FREE OF ENCAPSULATION
14. STAKE FIND NO.10 THRU 19, 22, 23, 27, 29 THRU 33 & 38 PER ND1002009 METHOD C OR D
15. FT DENOTES FEED THRU
16. + DENOTES POSITIVE SIDE OF CAPACITOR
17. SEAL INSULATORS, CONTACTS AND FIND NO.61 TO HEADER PER ND1002004, TYPE VI
18. E DENOTES STAND-OFF
19. MARK .10/.08 HIGH WHITE CHARACTERS PER ND 1002019 AND ND1002122 TYPE II, CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271-1
20. MARK .26/.24 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-1
21. BLACK DOT & CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
22. BLACK DOT & SOLID BLACK WIRING INDICATES SPECIAL LEVEL WIRING
23. WHITE DOT & CLEAR WIRING INDICATES LOWER LEVEL WIRING
24. MOUNTING TORQUE FOR FIND NO.61 TO BE 15/20 INCH POUNDS
25. ENCAPSULATE FIND NO. 2 IN FIND NO. 1 TO DIM. SHOWN PER ND1002009, METHOD F
26. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST. R1 AND R2 TO BE SELECTED FROM APPROPRIATE CHART
27. STAKE WIRE IN PLACE PER ND1002004, TYPE VI
28. BACKGROUND TO BE RED USING MARKING INK 1006271-9
29. MARK .10/.08 HIGH WHITE PER ND1002019 & ND1002122 TYPE II, CLASS 2, USING INK 1006271-1. CENTRALIZE AS SHOWN
30. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL REQUIREMENTS OF PS 2003953
31. ENCAPSULATE FIND NO34 TO FIND NO.1 PER ND1002009, METHOD F
32. SEAL BOTTOM OF FIND NO.2 PER ND1002009 METHOD C OR D PRIOR TO ENCAPSULATION PER NOTE 25

R1 AND R2

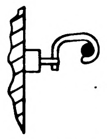
PART NO.		VALUE
1006750-1		51
	-2	56
	-3	62
	-4	68
	-5	75
	-6	82
	-7	91
	-8	100
	-9	110
	-10	120
	-11	130
	-12	150
	-13	160
	-14	180
	-15	200
	-16	220
	-17	240
	-18	270
	-19	300
	-20	330
	-21	360
	-22	390
	-23	430
	-24	470
1006750-25		510


FT22
60
63
FT23
57
58
Q17
27
62
59
62
63
58
SEE NOTE 13
BLEND LINE
Q15
27
60
63
SEE SECTION E-E
TO FT5 REF
SEE NOTE 13 5 PLACES
R34
R33
E6
FT 22
FT12
R37
R43
R42
FT24
FT3
E17
R36
R38
CR 12
CR11
R44
R41
R45
FT29
C25
C13
C14
C15
C16
C17
C18
CR9
FT25
FT26
FT 30
CR13
E18
(+)
(−)
5
36
57
58
63
SEE NOTE 12
FT29 & FT30
60
63
FT24, FT25 & FT31
60
63
36
59
FT26
36
59




Q13
27
60
63
R38
9
36
R37
19
R36
11
R42
11
63
60
Q16
27
R43
20
59
62
63
60
ALL WIRES FROM FIND NO.2 TO PINS EXCEPT AS NOTED
K1
38
BLUE BEAD
36
PIN 101 REF
FT9
FT10
R1
8
R2
9
E3
E1
FT15
R5
R8
R27
FT11
FT4
FT12
R17
R13
R46
R29
E4
E2
D
E
C
F
(+)
(−)
FT26
FT30
1
2
60
63
63
60
63
36
59
C18
22
60
63
C17
22
CR9
32
C16
22
R45
12
61
SEE NOTE 24
59
62
57
58
36
C13
22
C15
22

SECTION F-F



…AND R2
VALUE
[illegible]
56
62
68
75
82
91
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
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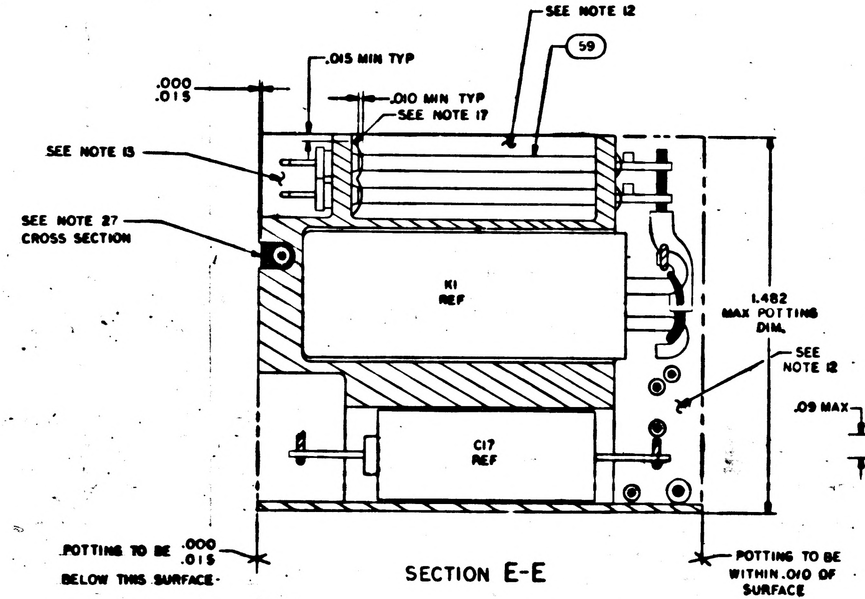
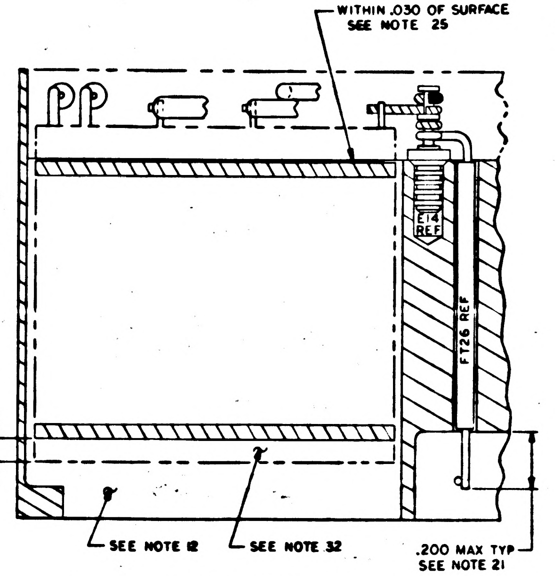
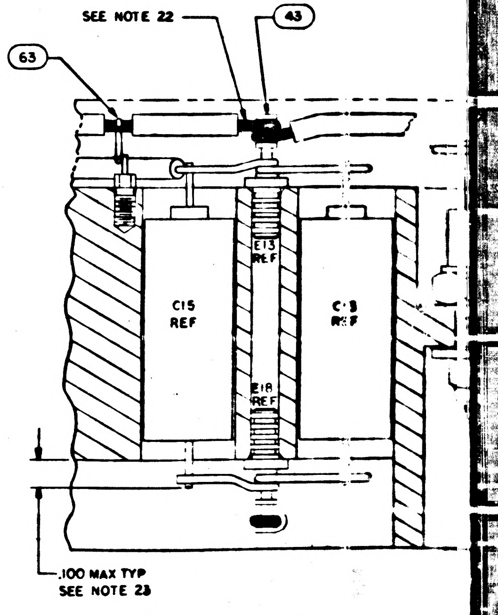
[illegible]


SEE NOTE 12
59
.000
.015
.015 MIN TYP
.010 MIN TYP
SEE NOTE 17
SEE NOTE 13
SEE NOTE 27 CROSS SECTION
K1 REF
C17 REF
1.482 MAX POTTING DIM.
SEE NOTE 12
.09 MAX
POTTING TO BE .000 .015 BELOW THIS SURFACE
POTTING TO BE WITHIN .010 OF SURFACE

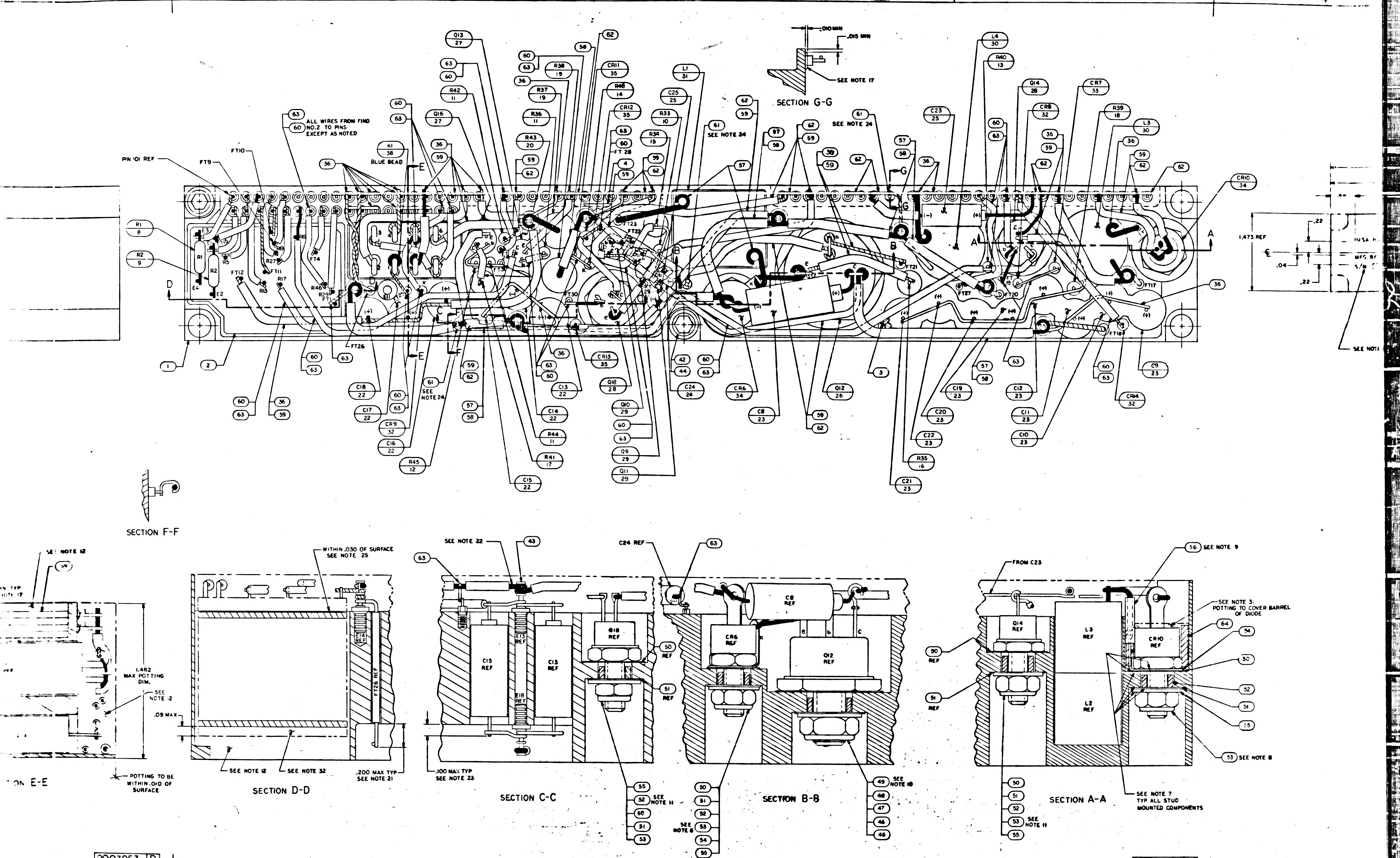
SECTION E-E


WITHIN .030 OF SURFACE SEE NOTE 25
E14 REF
FT26 REF
SEE NOTE 12
SEE NOTE 32
.200 MAX TYP SEE NOTE 21

SECTION D-D


SEE NOTE 22
43
63
E13 REF
C15 REF
C13 REF
E18 REF
.100 MAX TYP SEE NOTE 23

SECTION C-C



Q13 27
62
58
60
63
R38 19
CR11 35
63
60
36
R48 14
R42 11
R37 19
L1 31
C25 25
CR12 35
R36 11
R33 10
62 59
63
60
ALL WIRES FROM FIND NO.2 TO PINS EXCEPT AS NOTED
Q16 27
R43 20
R34 15
61 SEE NOTE 24
63
60
FT 28
4
59
62
K1 38 BLUE BEAD
PIN 101 REF
FT9
FT10
36
E
L4 30
R40 13
Q14 28
CR7 33
C23 25
CR8 32
R39 18
L3 30
.010 MIN
.015 MIN
SEE NOTE 17
SECTION G-G
61 SEE NOTE 24
57
58
62
59
36
G
CR10 34
A
1.473 REF
.22
.04
.22
USA
MFG BY
S/N
SEE NOTE
R1 8
R2 9
E3
E4
E2
R5
R13
R17
R27
R29
R46
FT11
FT12
FT4
FT1
FT26
FT30
FT23
FT22
FT21
FT27
FT19
FT20
FT17
FT18
B
C
D
F
1
2
3
60 63
63
36
CR13 35
Q18 28
42 44
60 63
C24 24
CR6 34
Q12 26
C8 23
59 62
C19 23
C20 23
C22 23
57 58
63
C12 23
C11 23
C10 23
60 63
CR14 32
C9 23
R35 16
C21 23
C18 22
C17 22
CR9 32
C16 22
R45 12
61 SEE NOTE 24
59 62
57 58
C13 22
C14 22
R44 11
R41 17
C15 22
Q10 29
60
63
Q9 29
Q11 29
60 63
36 59
SEE NOTE 12
1.482 MAX POTTING DIM.
SEE NOTE 12
.09 MAX
POTTING TO BE WITHIN .010 OF SURFACE
WITHIN .030 OF SURFACE SEE NOTE 25
E14 REF
FT26 REF
SEE NOTE 12
SEE NOTE 32
.200 MAX TYP SEE NOTE 21
SEE NOTE 22
43
63
C15 REF
E13 REF
E18 REF
C13 REF
Q18 REF
50 REF
51 REF
.100 MAX TYP SEE NOTE 23
55 52 60 51 53 SEE NOTE 11
C24 REF
63
C8 REF
CR6 REF
Q12 REF
50 51 52 53 54 55 SEE NOTE 8
49 48 47 46 48 SEE NOTE 10
FROM C23
56 SEE NOTE 9
Q14 REF
L3 REF
L2 REF
CR10 REF
SEE NOTE 31 POTTING TO COVER BARREL OF DIODE
64
54
50
52
51
55
53 SEE NOTE 8
50 REF
51 REF
50 51 52 53 55 SEE NOTE 11
SEE NOTE 7 TYP ALL STUD MOUNTED COMPONENTS
9 8 7 6 5 4
3 8 7 6 5 4

SECTION F-F

SECTION E-E

SECTION D-D

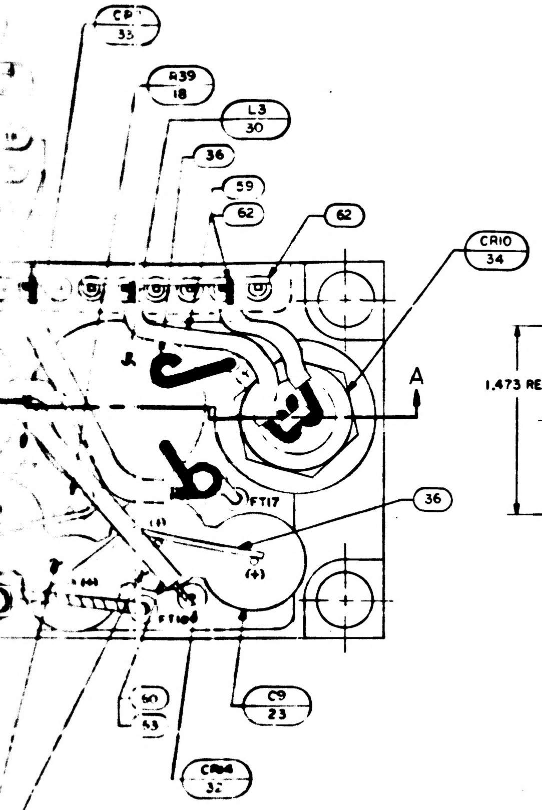
SECTION C-C

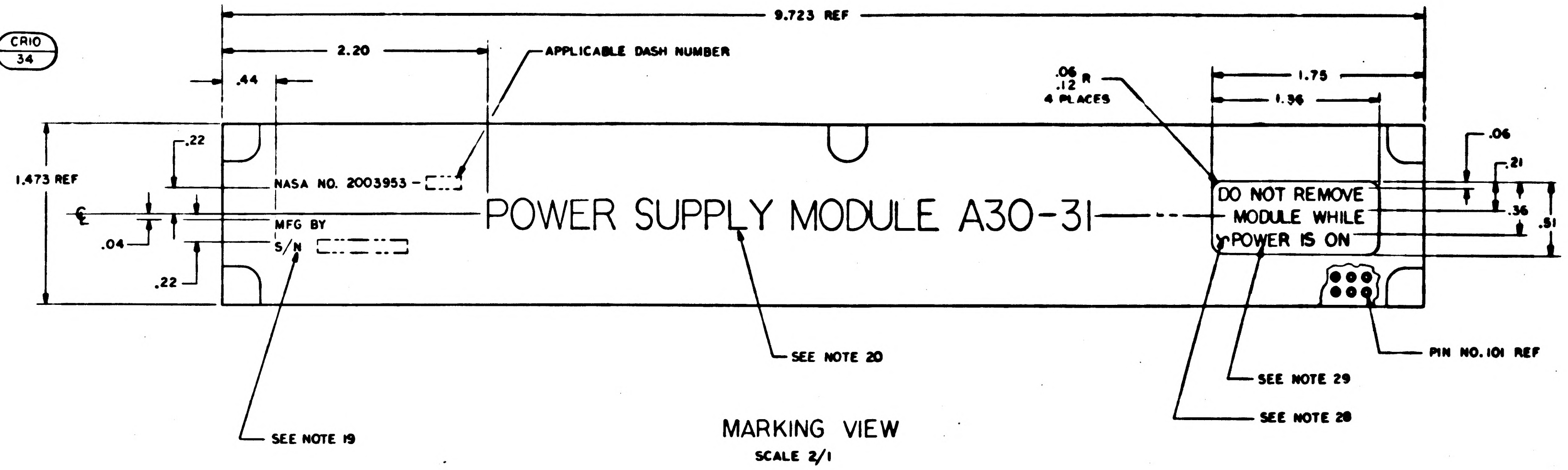
SECTION B-B

SECTION A-A

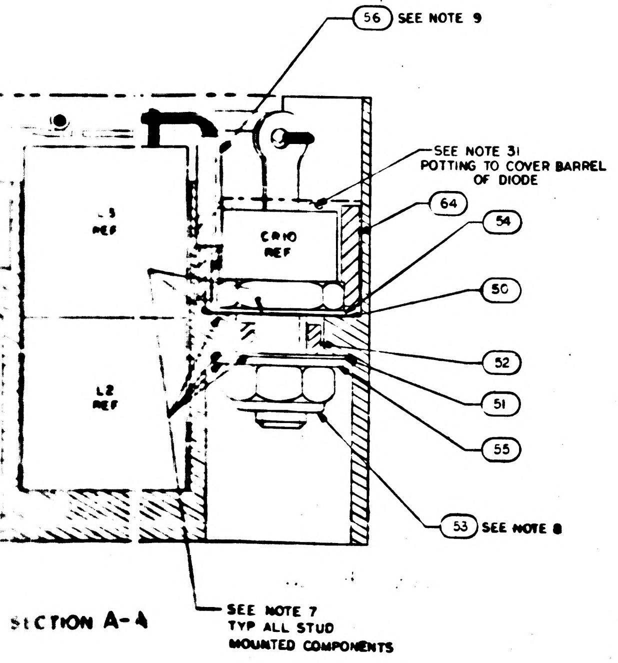
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 27309 DR CHK APPD		
B	REVISED PER TDRR 28253 DR CHK APPD		
C	REVISED PER TDRR 28623 DR CHK APPD	6-1-66	
D	REVISED PER TDRR 30173 DR CHK APPD	8-10-66	F.L.R

REVISIONS 2617


CP 33
R39 18
L3 30
36
59
62
62
CR10 34
A
FT17
36
(+)
C9 23
60
58
CR46 32


9.723 REF
2.20
APPLICABLE DASH NUMBER
.44
.06 R
.12
4 PLACES
1.75
1.36
.06
.21
.36
.51
1.473 REF
.22
.04
.22
℄
NASA NO. 2003953 -
MFG BY
S/N
POWER SUPPLY MODULE A30-31
DO NOT REMOVE
MODULE WHILE
POWER IS ON
SEE NOTE 20
SEE NOTE 29
SEE NOTE 28
PIN NO. 101 REF
SEE NOTE 19

MARKING VIEW
SCALE 2/1


56 SEE NOTE 9
SEE NOTE 31
POTTING TO COVER BARREL
OF DIODE
64
54
50
52
51
55
53 SEE NOTE 8
L3 REF
CR10 REF
L2 REF
SEE NOTE 7
TYP ALL STUD
MOUNTED COMPONENTS

SECTION A-A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2005916	SCHEMATIC	REF
1	2004928	SLEEVE, THERMAL	64
AR	1006757-13	WIRE, ELEC	63
AR	1006757-23	WIRE, ELEC	62
3	2004039	TERMINAL, THREADED	61
AR	1006776-22	INSULATION, SLEEVING	60
AR	1006776-20	INSULATION, SLEEVING	59
AR	1006776-18	INSULATION, SLEEVING	58
AR	QQ-W-343, TYPE S, 18	WIRE, ELEC	57
AR	1006776-30	INSULATION, SLEEVING	56
4	1008071-2	WASHER, FLAT	55
2	2008013-5	TERMINAL, LUG	54
4	MS21083B3	NUT, HEX, SELF-LOCKING	53
4	1008025-5	BUSHING, INSULATOR	52
4	1008024-1	WASHER, INSULATOR	51
4	1008024-2	WASHER, INSULATOR	50
1	MS21083B5	NUT, HEX, SELF-LOCKING	49
1	1008071-7	WASHER, FLAT	48
1	2008020-3	BUSHING, INSULATOR	47
1	1008024-5	WASHER, INSULATOR	46
1	1008024-6	WASHER, INSULATOR	45
5	2004984-003	WASHER, FLAT	44
14	1006708	TERMINAL, STUD	43
1	1004722-2	SCREW, CAPTIVE	42
4	MS16633-4015	RING, RETAINING, EXTERNAL "E"	41
4	2004984-001	WASHER, FLAT	40
4	1004579-1	SCREW, JACKING	39
1	1006304-002	RELAY	38
~~AR~~	~~[illegible]~~	~~WIRE, ELEC~~	~~37~~
AR	1006757-21	WIRE, ELEC	36
1	2004897	SELECTION LIST	35
2	1006329	DIODE	34
1	2004112-001	DIODE	33
3	2004103-001	DIODE	32
1	1006328	INDUCTOR	31
3	1006327	INDUCTOR	30
3	2004004-002	TRANSISTOR, POTTED	29
2	1006363-001	TRANSISTOR	28
4	2004004-001	TRANSISTOR, POTTED	27
1	1006317-001	TRANSISTOR	26
2	1006755-126	CAPACITOR	25
1	1006755-79		24
9	1006755-134		23
6	1006755-89	CAPACITOR	22
~~1~~	~~[illegible]~~	~~RESISTOR~~	~~21~~
1	1006750-49	RESISTOR	20
2	1006330-001		19
1	1010604-50		18
1	1010389-23		17
1	1010389-113		16
1	1010389-51		15
1	1006760-32		14
1	1006750-43		13
1	1006750-39		12
3	1006750-15		11
1	1006750-1		10
1	SEE NOTE 26		9
1	SEE NOTE 26	RESISTOR	8
1	2004892	INSULATOR D	7
1	2004890-002	INSULATOR C	6
1	2004890-001	INSULATOR C	5
1	2004889	INSULATOR B	4
1	2004893	INSULATOR A	3
1	2003029-021	CONTROL CIRCUIT SUB ASSY	2
1	2003057-021	HEADER HOUSING ASSY	1

011 LIST OF MATERIALS

2003953 D

4H

NEXT ASSY	USED ON
2003200	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL

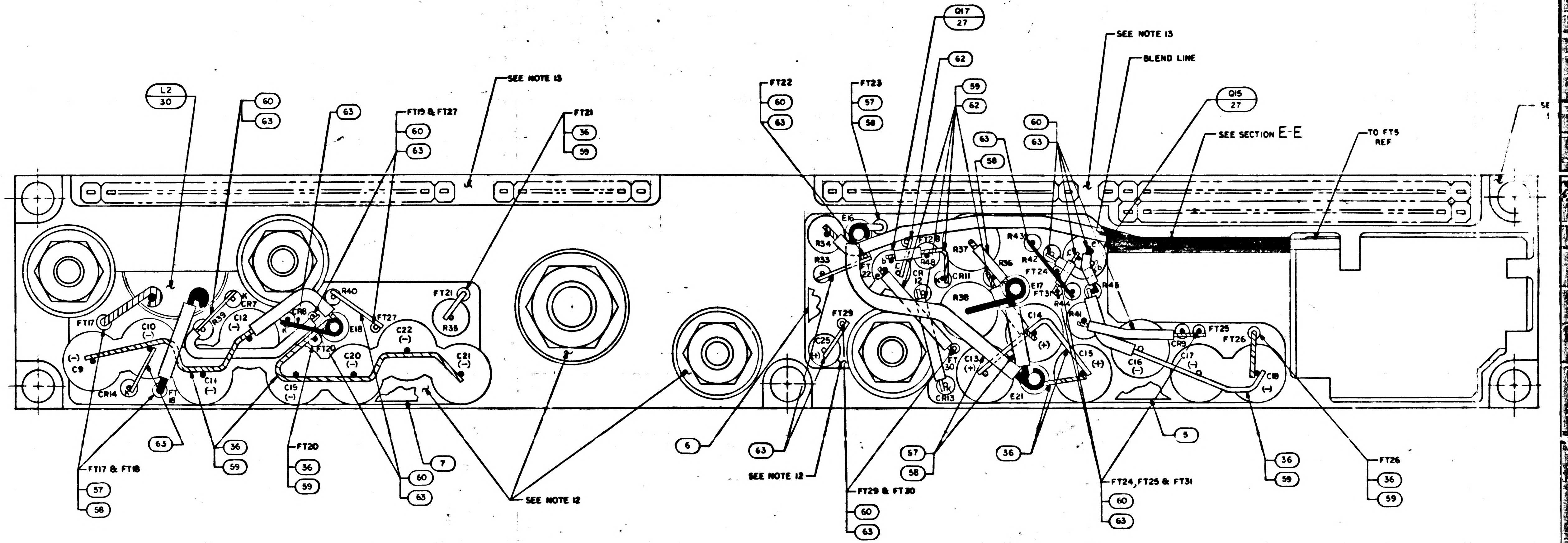
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

POWER SUPPLY MODULE
A30 - 31
ASSEMBLY

CODE IDENT NO. 80230 SIZE J NASA DRAWING NO. 2003953
SCALE 4/1 WT SHEET 1 OF 8

MASTER

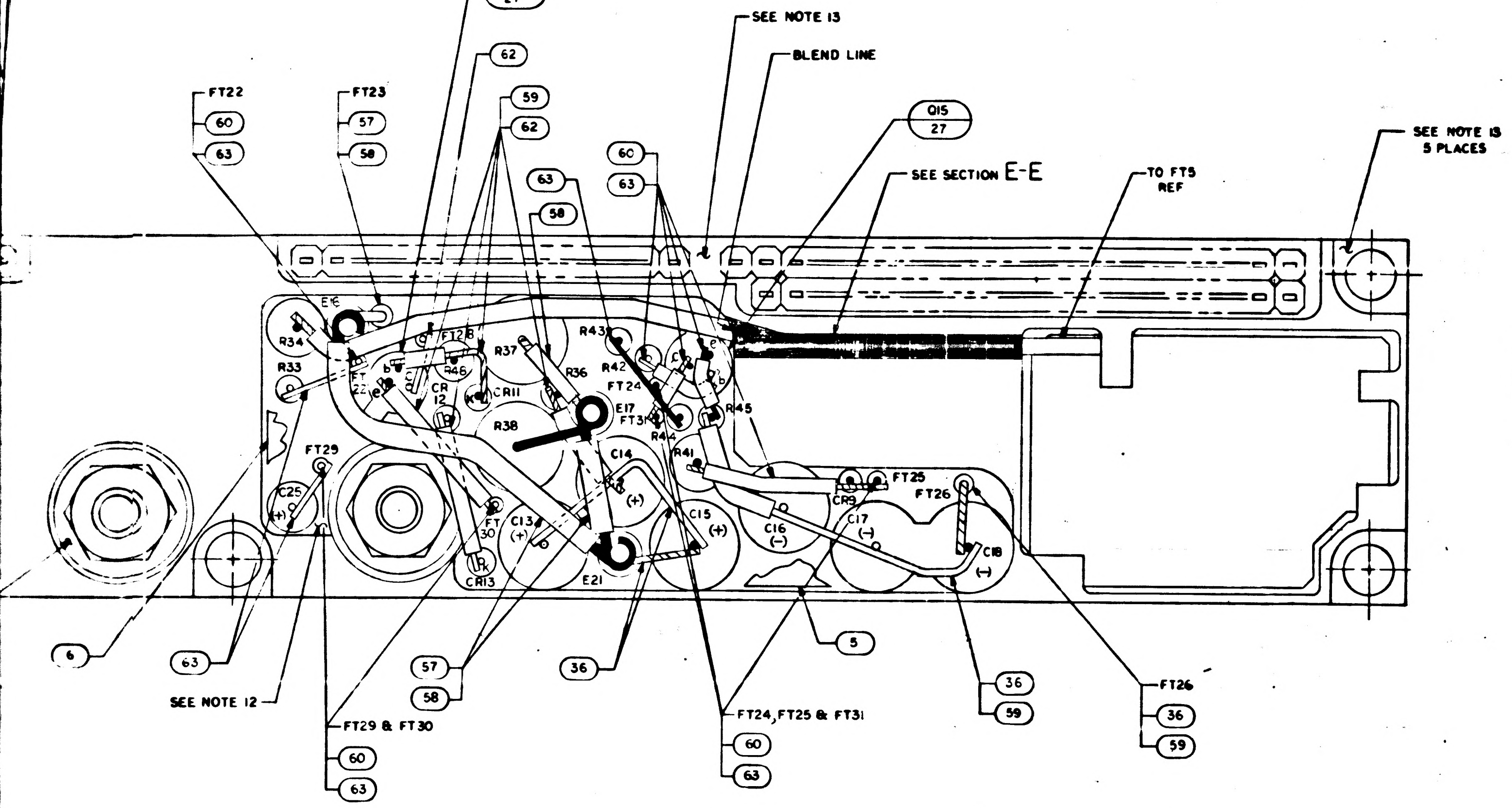
E4 X4

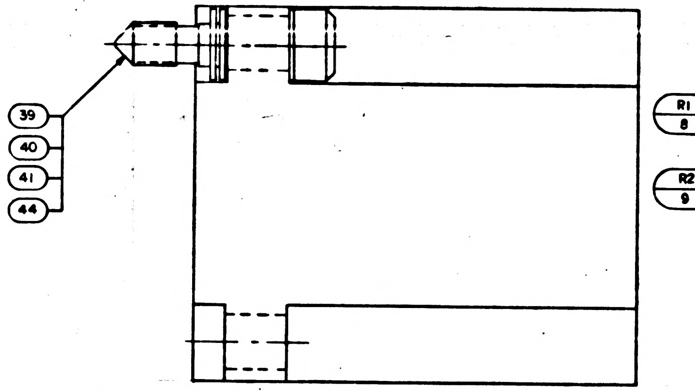

L2
30
60
63
63
FT19 & FT27
60
63
SEE NOTE 13
FT21
36
59
FT22
60
63
FT23
57
58
Q17
27
62
59
62
63
58
60
63
SEE NOTE 13
BLEND LINE
Q15
27
SEE SECTION E-E
TO FT5
REF
FT17
C10
(−)
C9
(−)
CR14
FT
18
R39
C12
(−)
CR7
K
C11
(−)
CR8
R40
FT27
E18
FT20
C15
(−)
C20
(−)
C22
(−)
C21
(−)
FT21
R35
E16
R34
R33
FT
22
CR
12
FT28
R48
R37
CR11
R36
R43
R42
FT24
E17
FT31
R38
R44
R45
R41
FT29
C25
(+)
CR13
FT
30
C13
(+)
C14
(+)
E21
C15
(+)
C16
(−)
CR9
FT25
C17
(−)
FT26
C18
(−)
63
FT17 & FT18
57
58
36
59
FT20
36
59
60
63
7
SEE NOTE 12
6
63
SEE NOTE 12
FT29 & FT30
60
63
57
58
36
5
FT24, FT25 & FT31
60
63
36
59
FT26
36
59

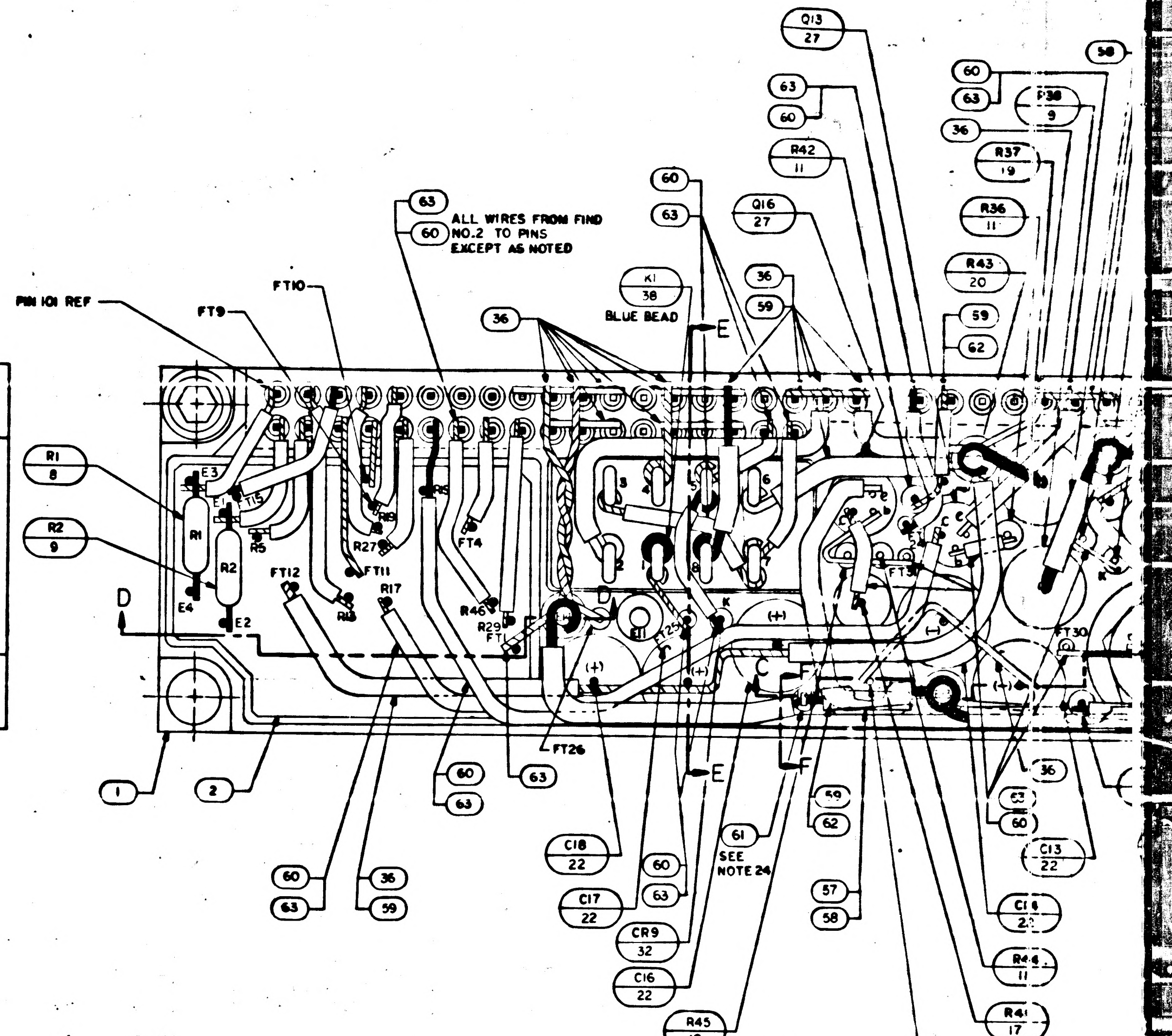
NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-1000
2. WELD PER ND1002006
3. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
4. SOLDER PER ND1002071 USING SOLDER COMP SN60 FORM WIRE SOLID PER ND1002075 EXCEPT AS SHOWN
5. K DENOTES CATHODE SIDE OF DIODE
6. AR DENOTES AS REQUIRED
7. APPLY SILICONE GREASE, 1006879, TO INDICATED AREAS OF CR6, CR10 Q12, Q14 AND Q18
8. MOUNTING TORQUE FOR CR6 AND CR10 TO BE 25/30 INCH POUNDS
9. FIND NO.56 TO COVER SOLDER JOINT OF FIND NO.36 AND FIND NO.54
10. MOUNTING TORQUE FOR Q12 TO BE 15/30 INCH POUNDS
11. MOUNTING TORQUE FOR Q14 AND Q18 TO BE 13/15 INCH POUNDS
12. ENCAPSULATE PER ND1002002. REMOVE FLASHING
13. INDICATED AREAS TO BE FREE OF ENCAPSULATION
14. STAKE FIND NO.10 THRU 19, 22, 23, 27, 29 THRU 33 & 38 PER ND1002009 METHOD C OR D
15. FT DENOTES FEED THRU
16. + DENOTES POSITIVE SIDE OF CAPACITOR
17. SEAL INSULATORS, CONTACTS AND FIND NO.61 TO HEADER PER ND1002004, TYPE VI
18. E DENOTES STAND-OFF
19. MARK .10/.08 HIGH WHITE CHARACTERS PER ND 1002019 AND ND1002122 TYPE II, CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271-1
20. MARK .26/.24 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-1
21. BLACK DOT & CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
22. BLACK DOT & SOLID BLACK WIRING INDICATES SPECIAL LEVEL WIRING
23. WHITE DOT & CLEAR WIRING INDICATES LOWER LEVEL WIRING
24. MOUNTING TORQUE FOR FIND NO.61 TO BE 15/20 INCH OUNCES
25. ENCAPSULATE FIND NO. 2 IN FIND NO. 1 TO DIM. SHOWN PER ND1002009, METHOD F
26. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST. R1 AND R2 TO BE SELECTED FROM APPROPRIATE CHART
27. STAKE WIRE IN PLACE PER ND1002004, TYPE VI
28. BACKGROUND TO BE RED USING MARKING INK 1006271-9
29. MARK .10/.08 HIGH WHITE PER ND1002019 & ND1002122 TYPE II, CLASS 2, USING INK 1006271-1. CENTRALIZE AS SHOWN
30. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL REQUIREMENTS OF PS 2003953
31. ENCAPSULATE FIND NO34 TO FIND NO.1 PER ND1002009, METHOD F
32. SEAL BOTTOM OF FIND NO.2 PER ND1002009 METHOD C OR D PRIOR TO ENCAPSULATION PER NOTE 25

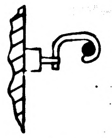
R1 AND R2	
PART NO.	VALUE
1006750-1	51
-2	56
-3	62
-4	68
-5	75
-6	82
-7	91
-8	100
-9	110
-10	120
-11	130
-12	150
-13	160
-14	180
-15	200
-16	220
-17	240
-18	270
-19	300
-20	330
-21	360
-22	390
-23	430
-24	470
1006750-25	510


Q17
27
62
59
62
FT22
60
63
FT23
57
58
SEE NOTE 13
BLEND LINE
Q15
27
SEE SECTION E-E
TO FT5
REF
SEE NOTE 13
5 PLACES
60
63
63
58
E16
R34
R33
R37
R43
R42
FT24
FT31
E17
R36
R38
R45
R41
C14
C13
C15
C16
C17
C18
CR9
CR11
CR12
CR13
FT25
FT26
FT29
FT30
C25
E21
R44
R46
(+)
(-)
6
63
SEE NOTE 12
FT29 & FT30
60
63
57
58
36
FT24, FT25 & FT31
60
63
5
36
59
FT26
36
59



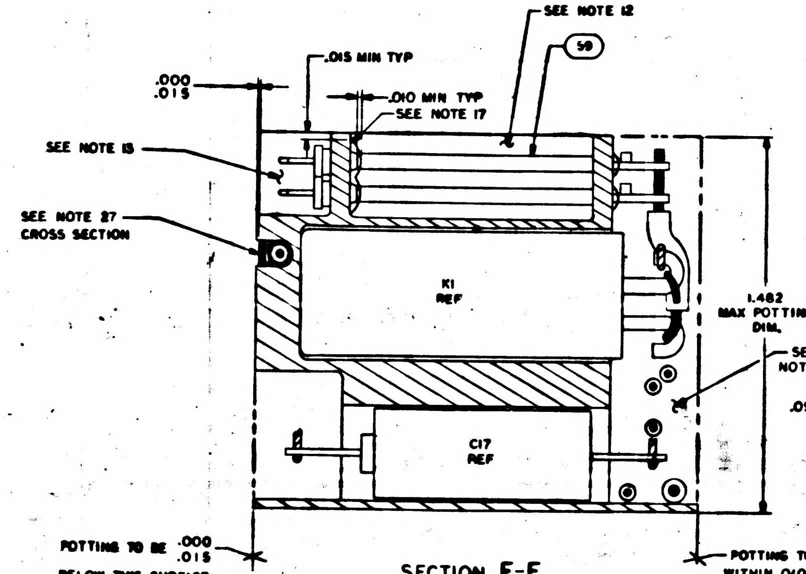

Q13
27
60
63
R38
9
36
R37
19
63
60
R42
11
60
63
Q16
27
R36
11
R43
20
59
62
63
60
ALL WIRES FROM FIND NO.2 TO PINS EXCEPT AS NOTED
K1
38
BLUE BEAD
36
36
59
FT10
FT9
PIN 101 REF
E
R1
8
R2
9
E3
E1
E4
E2
R1
R2
R5
FT12
FT11
FT4
R27
R17
R46
R29
FT1
R13
D
FT26
FT30
FT13
(+)
(-)
C
E
1
2
60
63
63
60
63
36
59
C18
22
C17
22
60
63
61
SEE NOTE 24
59
62
CR9
32
57
58
C16
22
R45
12
36
63
60
C13
22
C16
22
R44
11
R41
17

C15
22

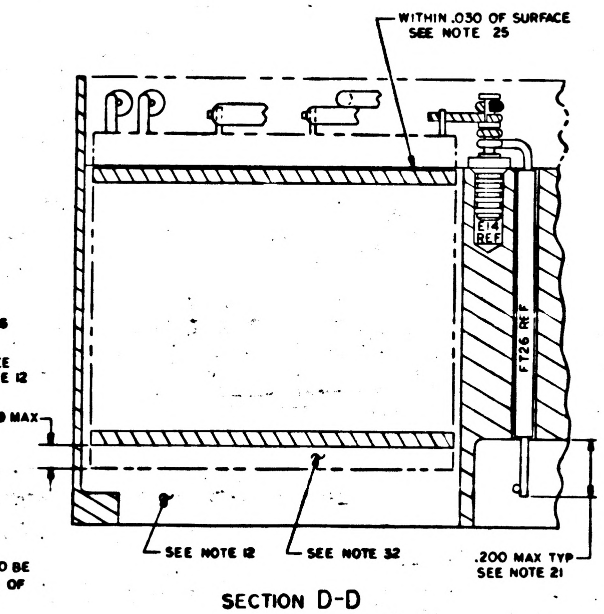


SECTION F-F

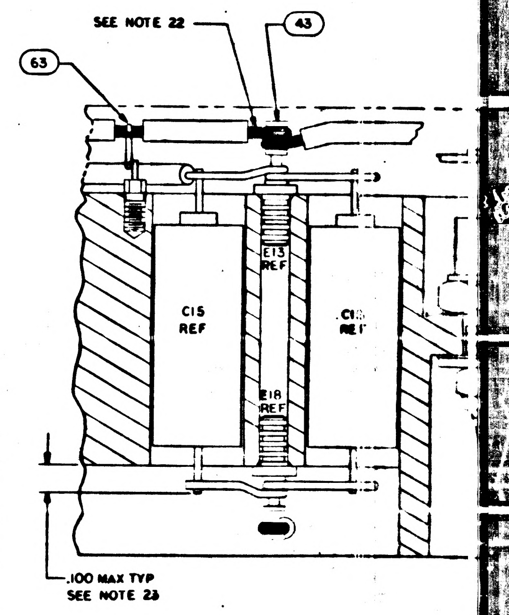
AND R2	
O.	VALUE
1	51
2	56
3	62
4	68
5	75
6	82
7	91
8	100
9	110
10	120
11	130
12	150
13	160
14	180
15	200
16	220
17	240
18	270
19	300
20	330
21	360
22	390
23	430
24	470
25	510


SEE NOTE 12
59
.015 MIN TYP
.010 MIN TYP
SEE NOTE 17
.000
.015
SEE NOTE 13
SEE NOTE 27
CROSS SECTION
K1
REF
1.482
MAX POTTING
DIM.
SEE
NOTE 12
C17
REF
POTTING TO BE .000
.015
BELOW THIS SURFACE
POTTING TO BE
WITHIN .010 OF
SURFACE

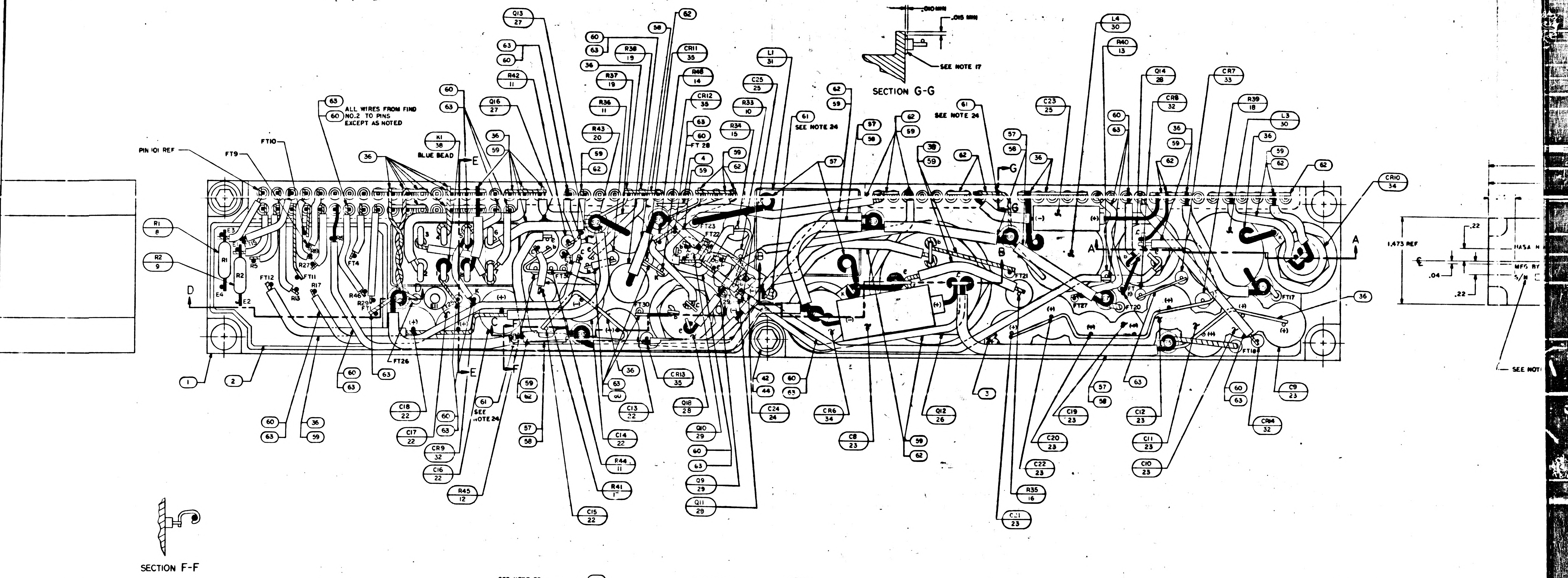
SECTION E-E


WITHIN .030 OF SURFACE
SEE NOTE 25
E14
REF
FT26 REF
.09 MAX
SEE NOTE 12
SEE NOTE 32
.200 MAX TYP
SEE NOTE 21

SECTION D-D


SEE NOTE 22
43
63
E13
REF
C15
REF
C1
REF
E18
REF
.100 MAX TYP
SEE NOTE 23

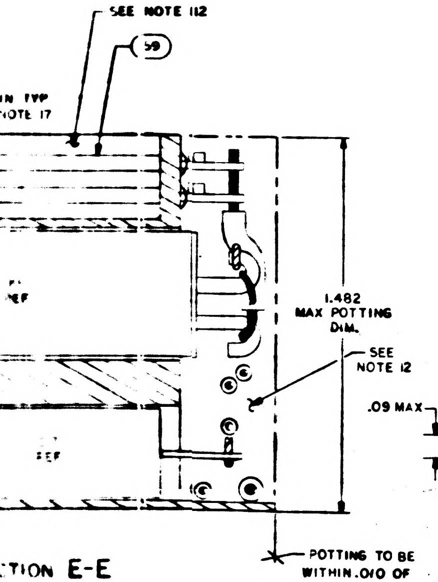
SECTION C-C



ALL WIRES FROM FIND NO.2 TO PINS EXCEPT AS NOTED
PIN 101 REF
FT9
FT10
FT11
FT12
FT19
FT20
FT21
FT22
FT23
FT26
FT27
FT28
FT30
FT17
FT18
K1 38 BLUE BEAD
R1 8
R2 9
E1
E2
E3
E4
R5
R13
R17
R27
R29
R46
Q13 27
Q16 27
R42 11
R38 19
R37 19
R36 11
R43 20
CR11 35
R48 14
CR12 35
R33 10
R34 15
L1 31
C25 25
L4 30
R40 13
Q14 28
CR7 33
CR8 32
C23 25
R39 18
L3 30
CR10 34
C18 22
C17 22
CR9 32
C16 22
R45 12
C13 22
C14 22
R44 11
R41 17
C15 22
CR13 35
Q18 28
Q10 29
Q9 29
Q11 29
C24 24
CR6 34
C8 23
Q12 26
C19 23
C20 23
C22 23
R35 16
C21 23
C12 23
C11 23
C10 23
C9 23
CR14 32
SEE NOTE 24
SEE NOTE 17
.010 MIN
.015 MIN
1.473 REF
.22
.04
NASA
MFG BY
S/N
SEE NOTE
A
B
D
E
F
G

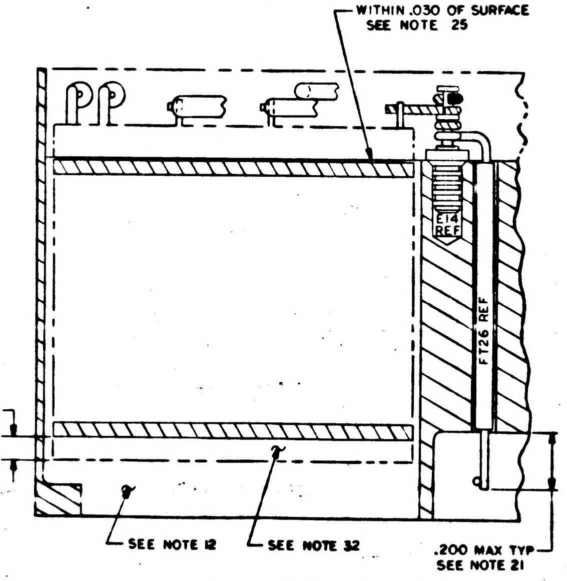
SECTION G-G

SECTION F-F



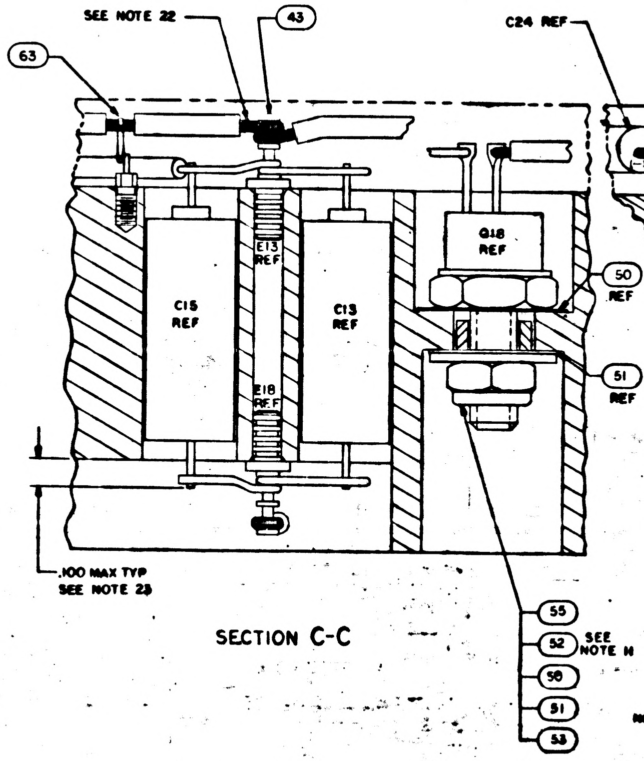
SEE NOTE 112
59
TYP
NOTE 17
1.482 MAX POTTING DIM.
SEE NOTE 12
.09 MAX
POTTING TO BE WITHIN .010 OF SURFACE
REF

SECTION E-E



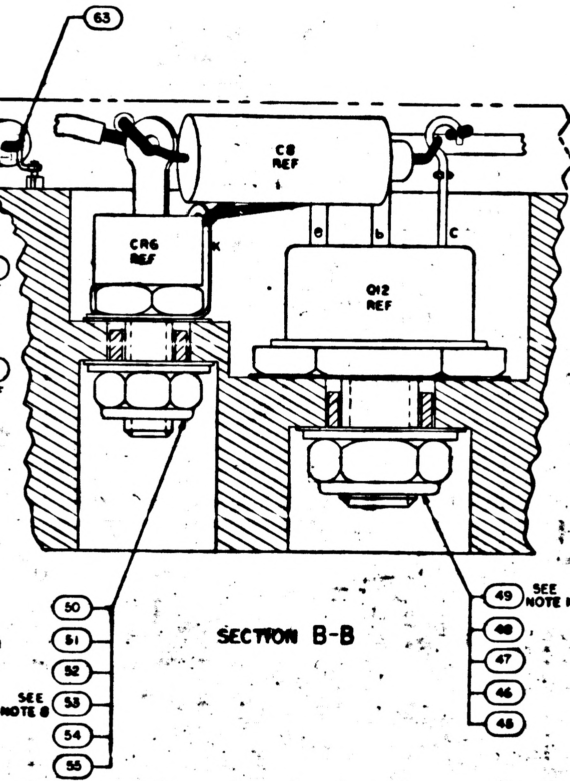
WITHIN .030 OF SURFACE SEE NOTE 25
E14 REF
FT26 REF
SEE NOTE 12
SEE NOTE 32
.200 MAX TYP SEE NOTE 21

SECTION D-D



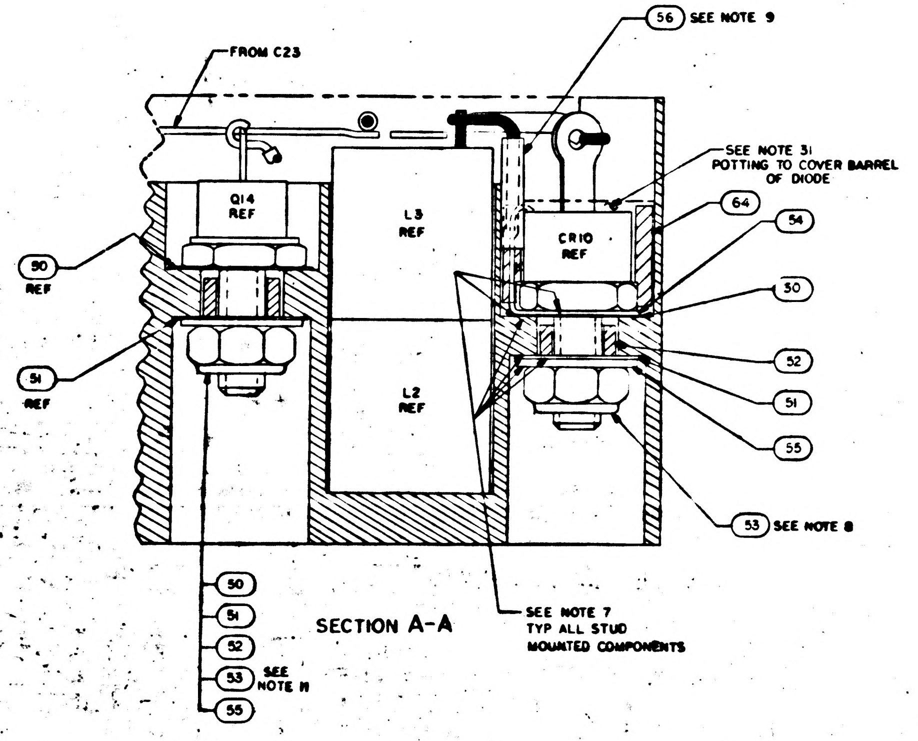
SEE NOTE 22
43
63
C15 REF
E13 REF
E18 REF
C13 REF
Q18 REF
50 REF
51 REF
.100 MAX TYP SEE NOTE 23
55
52 SEE NOTE 11
56
51
53

SECTION C-C



C24 REF
63
C8 REF
CR6 REF
Q12 REF
50
51
52
SEE NOTE 8 53
54
55
49 SEE NOTE 10
48
47
46
45

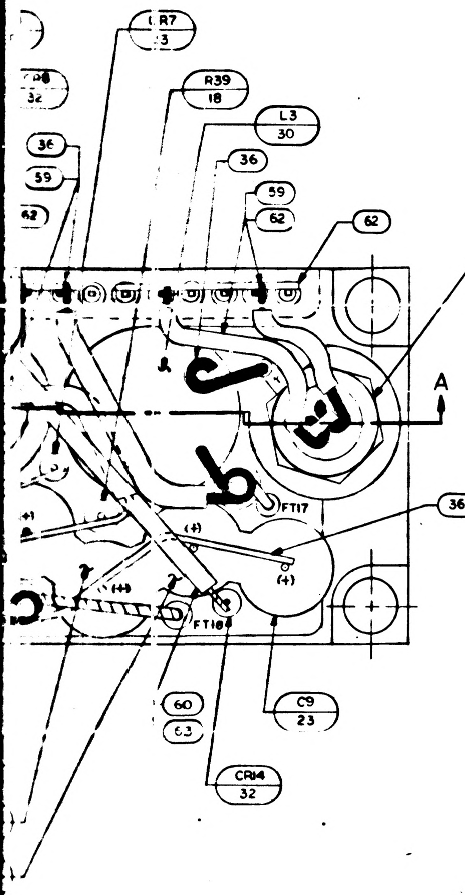
SECTION B-B



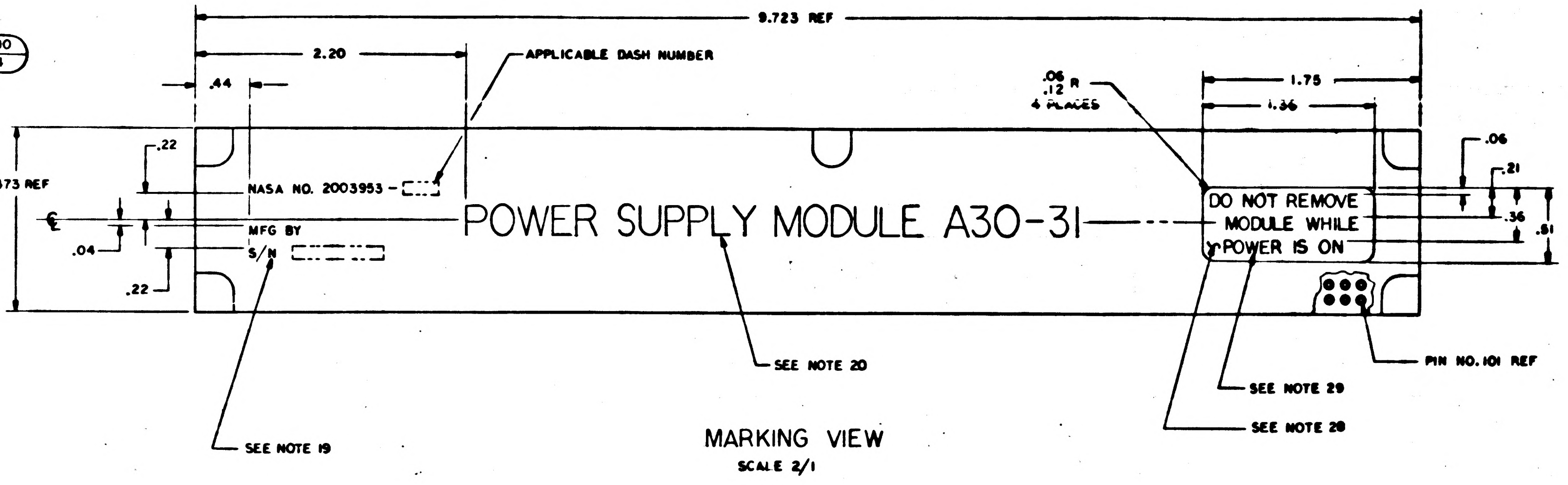
FROM C23
56 SEE NOTE 9
SEE NOTE 31 POTTING TO COVER BARREL OF DIODE
Q14 REF
L3 REF
L2 REF
CR10 REF
50 REF
51 REF
64
54
30
52
51
55
53 SEE NOTE 8
50
51
52
53 SEE NOTE 11
55
SEE NOTE 7 TYP ALL STUD MOUNTED COMPONENTS

SECTION A-A

SYM	DESCRIPTION	DATE	APP
A	REVISED PER TDRR 27309 DR CHK APPD		
B	REVISED PER TDRR 28253 DR CHK APPD		
C	REVISED PER TDRR 28623 DR CHK APPD	6-1-66	F.F.R.
D	REVISED PER TDRR 30173 DR CHK APPD		F.L.R.
E	REVISED PER TDRR 30174 DR R Steele CHK APPD	8-22-66	E.B.A.

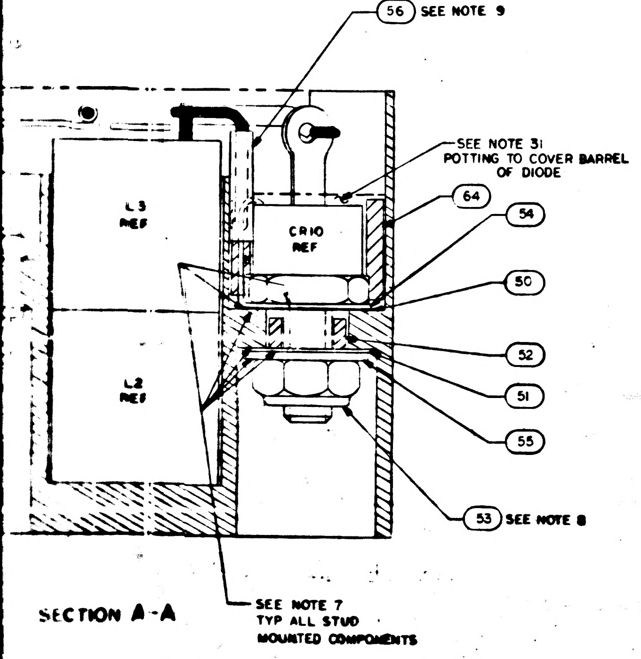


R7
3
R39
18
L3
30
36
59
62
59
62
62
CR10
34
A
36
FT17
FT184
(+)
(+)
(+)
60
63
C9
23
CR14
32



9.723 REF
2.20
APPLICABLE DASH NUMBER
.44
.06 R
.12
4 PLACES
1.75
1.36
.22
.06
.21
1.473 REF
.36
.81
.04
.22
NASA NO. 2003953 -
MFG BY
S/N
POWER SUPPLY MODULE A30-31
DO NOT REMOVE
MODULE WHILE
POWER IS ON
SEE NOTE 20
PIN NO. 101 REF
SEE NOTE 29
SEE NOTE 28
SEE NOTE 19

MARKING VIEW
SCALE 2/1



56 SEE NOTE 9
SEE NOTE 31
POTTING TO COVER BARREL OF DIODE
64
54
50
52
51
55
53 SEE NOTE 8
L3 REF
CR10 REF
L2 REF
SEE NOTE 7
TYP ALL STUD MOUNTED COMPONENTS

SECTION A-A

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	2005916	SCHEMATIC	REF
1	2004928	SLEEVE, THERMAL	64
AR	1006757-13	WIRE, ELEC	63
AR	1006757-23	WIRE, ELEC	62
3	2004039	TERMINAL, THREADED	61
AR	1006776-22	INSULATION, SLEEVING	60
AR	1006776-20	INSULATION, SLEEVING	59
AR	1006776-18	INSULATION, SLEEVING	58
AR	QQ-W-343, TYPE S, 18	WIRE, ELEC	57
AR	1006776-30	INSULATION, SLEEVING	56
4	1008071-2	WASHER, FLAT	55
2	2008013-5	TERMINAL, LUG	54
4	MS21083B3	NUT, HEX, SELF-LOCKING	53
4	1008025-5	BUSHING, INSULATOR	52
4	1008024-1	WASHER, INSULATOR	51
4	1008024-2	WASHER, INSULATOR	50
1	MS21083B5	NUT, HEX, SELF-LOCKING	49
1	1008071-7	WASHER, FLAT	48
1	2008020-3	BUSHING, INSULATOR	47
1	1008024-5	WASHER, INSULATOR	46
1	1008024-6	WASHER, INSULATOR	45
5	2004984-003	WASHER, FLAT	44
14	1006708	TERMINAL, STUD	43
1	1004722-2	SCREW, CAPTIVE	42
4	MS16633-4015	RING, RETAINING, EXTERNAL "E"	41
4	2004984-001	WASHER, FLAT	40
4	1004579-1	SCREW, JACKING	39
1	1006304-003	RELAY	38
~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~
AR	1006757-21	WIRE, ELEC	36
1	2004897	SELECTION LIST	35
2	1006329	DIODE	34
1	2004112-001	DIODE	33
3	2004103-001	DIODE	32
1	1006328	INDUCTOR	31
3	1006327	INDUCTOR	30
3	2004004-002	TRANSISTOR, POTTED	29
2	1006363-001	TRANSISTOR	28
4	2004004-001	TRANSISTOR, POTTED	27
1	1006317-001	TRANSISTOR	26
2	1006755-126	CAPACITOR	25
1	1006755-79		24
9	1006755-134		23
6	1006755-89	CAPACITOR	22
~~[illegible]~~	~~[illegible]~~	~~RESISTOR~~	~~21~~
1	1006750-49	RESISTOR	20
2	1006330-001		19
1	1010604-50		18
1	1010389-23		17
1	1010389-113		16
1	1010389-51		15
1	1006760-32		14
1	1006750-43		13
1	1006750-39		12
3	1006750-15		11
1	1006750-1		10
1	SEE NOTE 26		9
1	SEE NOTE 26	RESISTOR	8
1	2004892	INSULATOR D	7
1	2004890-002	INSULATOR C	6
1	2004890-001	INSULATOR C	5
1	2004889	INSULATOR B	4
1	2004893	INSULATOR A	3
1	2003029-021	CONTROL CIRCUIT SUB ASSY	2
1	2003057-021	HEADER HOUSING ASSY	1

011 LIST OF MATERIALS

2003200	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL

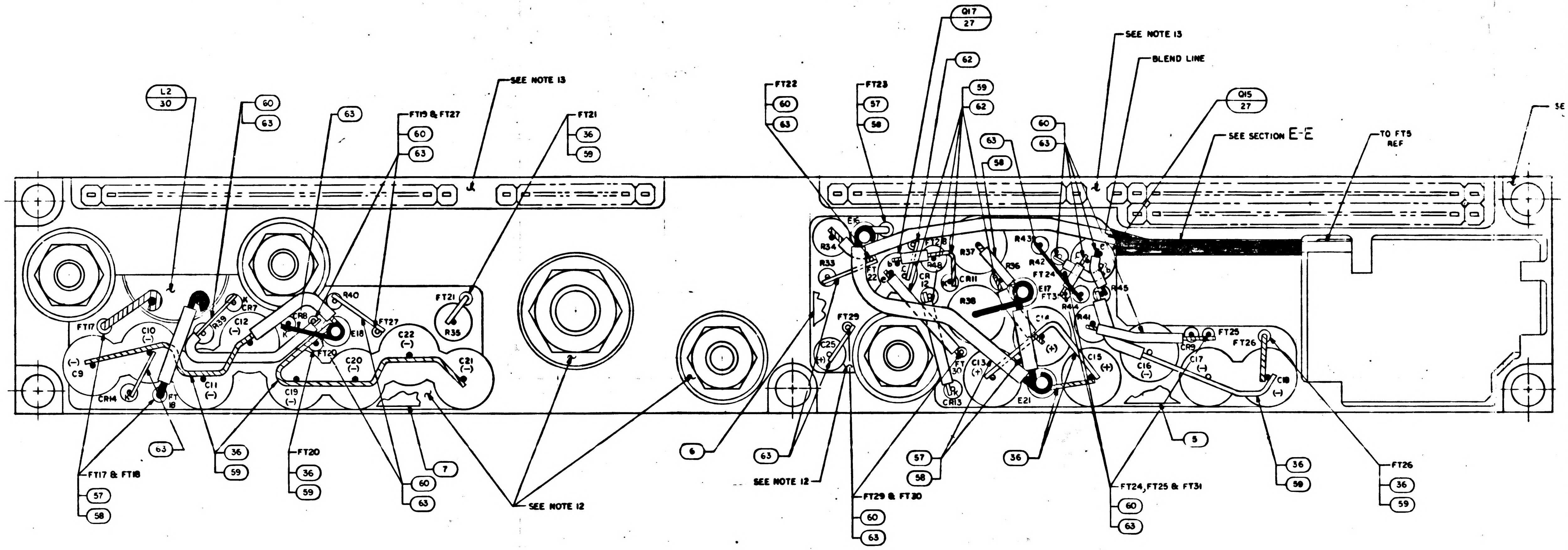
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

POWER SUPPLY MODULE
A30 - 31
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003953
SCALE 4/1
WT
SHEET 1 OF 1

2003953 E

F 4 / 14


L2
30
60
63
63
FT19 & FT27
60
63
SEE NOTE 13
FT21
36
59
FT17
C10
(−)
(−)
C9
CR14
K
FT
18
R39
C12
(−)
K
CR7
CR8
K
R40
E18
FT27
FT20
C11
(−)
C19
(−)
C20
(−)
C22
(−)
C21
(−)
FT21
R35
63
36
59
FT17 & FT18
57
58
FT20
36
59
7
60
63
SEE NOTE 12
6
Q17
27
62
59
62
FT22
60
63
FT23
57
58
63
58
60
63
SEE NOTE 13
BLEND LINE
Q15
27
SEE SECTION E-E
TO FT5
REF
E16
R34
R33
FT
22
FT28
R48
CR
12
CR11
R37
R36
R43
R42
FT24
E17
FT31
R38
R44
R41
R45
FT29
C25
(+)
FT
30
CR13
C13
(+)
C14
(+)
E21
C15
(+)
C16
(−)
CR9
FT25
C17
(−)
FT26
C18
(−)
63
SEE NOTE 12
FT29 & FT30
60
63
57
58
36
5
FT24, FT25 & FT31
60
63
36
59
FT26
36
59

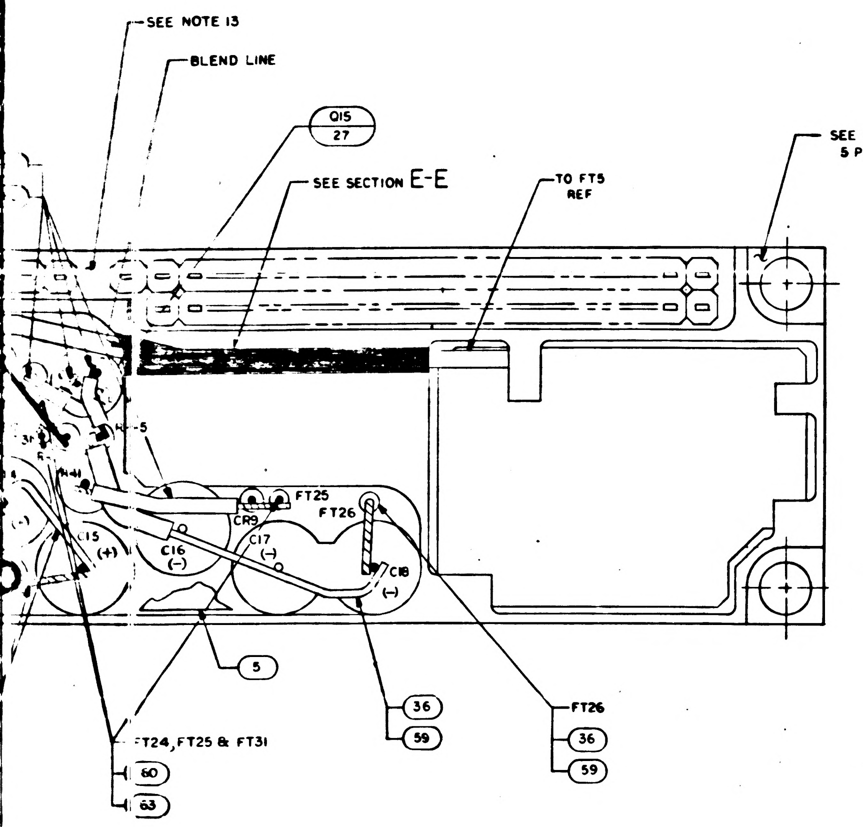
NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-1000
2. WELD PER ND1002005
3. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
4. SOLDER PER ND1002071 USING SOLDER COMP SN60 FORM WIRE SOLID PER ND1002075 EXCEPT AS SHOWN
5. K DENOTES CATHODE SIDE OF DIODE
6. AR DENOTES AS REQUIRED
7. APPLY SILICONE GREASE, 1006879, TO INDICATED AREAS OF CR6, CR10 Q12, Q14 AND Q18
8. MOUNTING TORQUE FOR CR6 AND CR10 TO BE 25/30 INCH POUNDS
9. FIND NO.56 TO COVER SOLDER JOINT OF FIND NO.36 AND FIND NO.54
10. MOUNTING TORQUE FOR Q12 TO BE 15/30 INCH POUNDS
11. MOUNTING TORQUE FOR Q14 AND Q18 TO BE 13/15 INCH POUNDS
12. ENCAPSULATE PER ND1002002. REMOVE FLASHING
13. INDICATED AREAS TO BE FREE OF ENCAPSULATION
14. STAKE FIND NO.10 THRU 19,22,23,27,29 THRU 33 & 38 PER ND1002009 METHOD C OR D
15. FT DENOTES FEED THRU
16. + DENOTES POSITIVE SIDE OF CAPACITOR
17. SEAL INSULATORS, CONTACTS AND FIND NO.61 TO HEADER PER ND1002004, TYPE III
18. E DENOTES STAND-OFF
19. MARK .10/.08 HIGH WHITE CHARACTERS PER ND 1002019 AND ND1002122 TYPE II, CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271-1
20. MARK .26/.24 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-1
21. BLACK DOT & CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
22. BLACK DOT & SOLID BLACK WIRING INDICATES SPECIAL LEVEL WIRING
23. WHITE DOT & CLEAR WIRING INDICATES LOWER LEVEL WIRING
24. MOUNTING TORQUE FOR FIND NO.61 TO BE 15/20 INCH OUNCES
25. ENCAPSULATE FIND NO. 2 IN FIND NO. 1 TO DIM. SHOWN PER ND1002009, METHOD F
26. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST. R1 AND R2 TO BE SELECTED FROM APPROPRIATE CHART
27. STAKE WIRE IN PLACE PER ND1002004, TYPE VI
28. BACKGROUND TO BE RED USING MARKING INK 1006271-9
29. MARK .10/.08 HIGH WHITE PER ND1002019 & ND1002122 TYPE II, CLASS 2, USING INK 1006271-1. CENTRALIZE AS SHOWN
30. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL REQUIREMENTS OF PS 2003953
31. ENCAPSULATE FIND NO34 TO FIND NO.1 PER ND1002009, METHOD F
32. SEAL BOTTOM OF FIND NO.2 PER ND1002009 METHOD C OR D PRIOR TO ENCAPSULATION PER NOTE 25
33. BOND FIND NO.43 TO FIND NO.1 PER ND1002004 TYPE VI

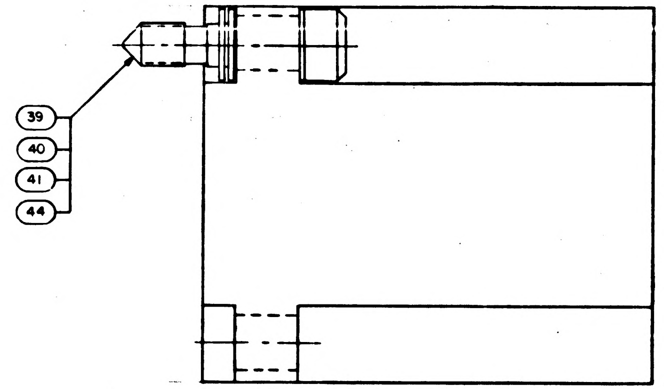
R1 AND R2

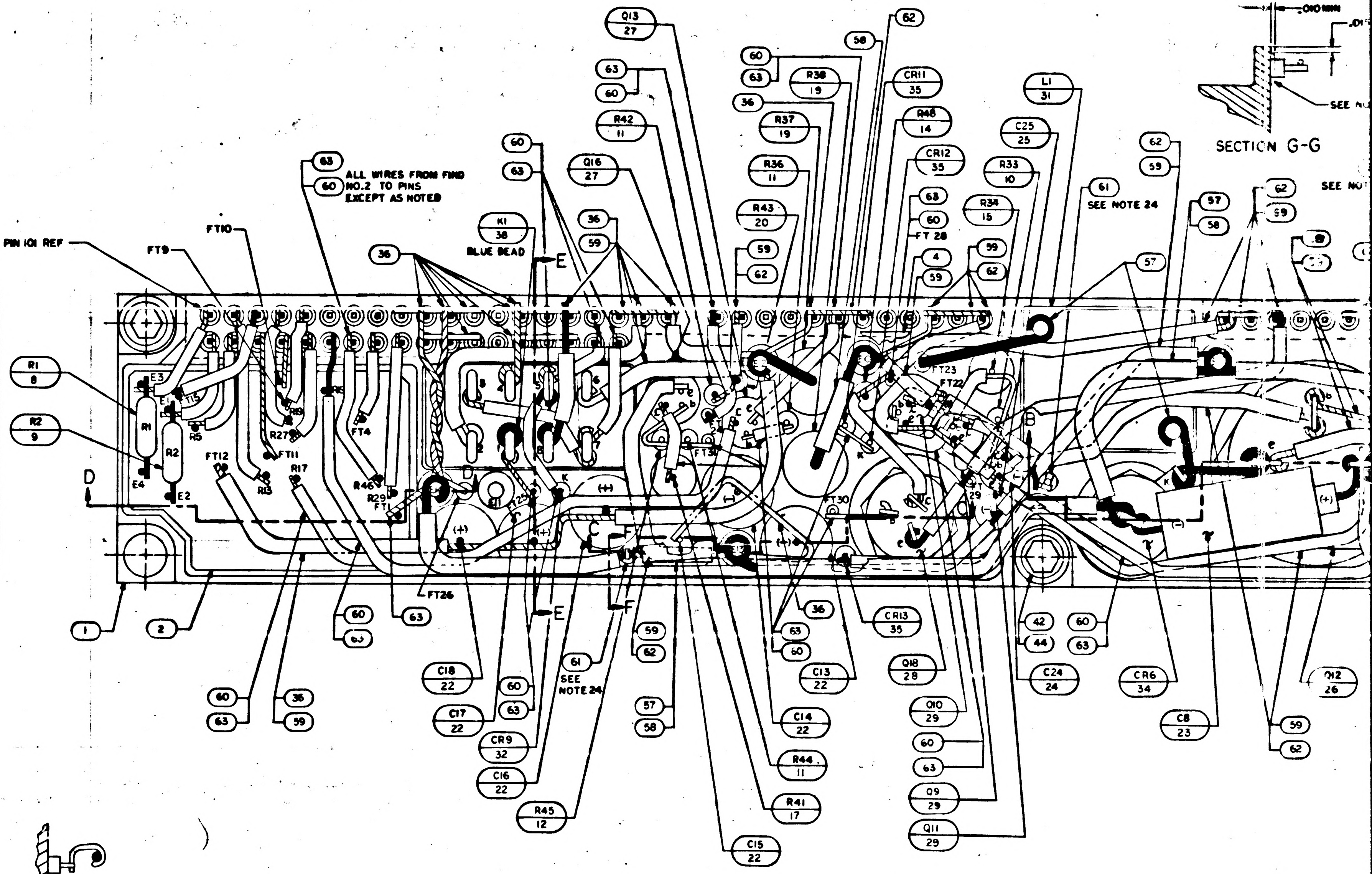
PART NO.	VALUE
1006750-1	51
-2	56
-3	62
-4	68
-5	75
-6	82
-7	91
-8	100
-9	110
-10	120
-11	130
-12	150
-13	160
-14	180
-15	200
-16	220
-17	240
-18	270
-19	300
-20	330
-21	360
-22	390
-23	430
-24	470
1006750-25	510

F 1/4

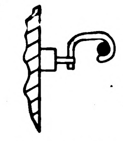


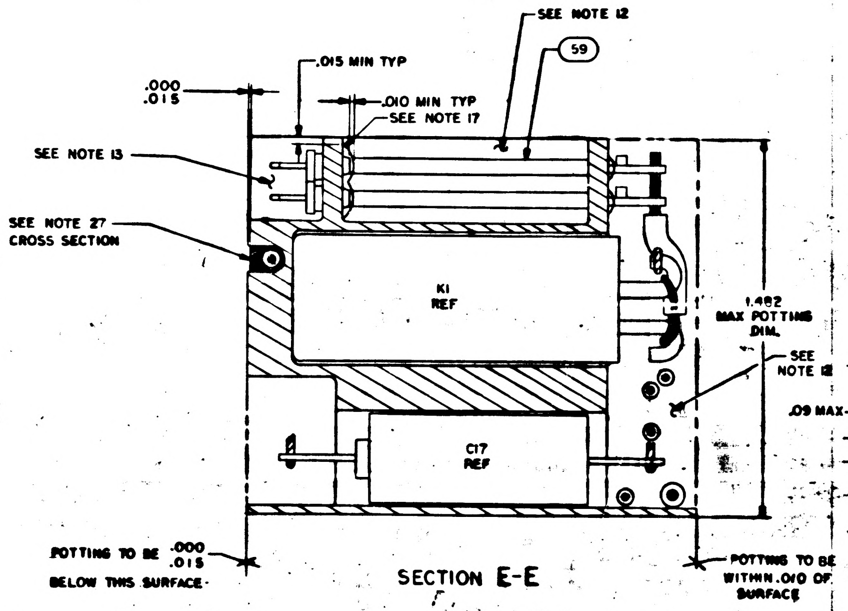
SEE NOTE 13
BLEND LINE
Q15 27
SEE SECTION E-E
TO FT5 REF
SEE NOTE 13 5 PLACES
CR9
FT25
FT26
C16 (–)
C17 (–)
C18 (–)
L15
(+)
5
36 59
FT26 36 59
FT24, FT25 & FT31 60 63





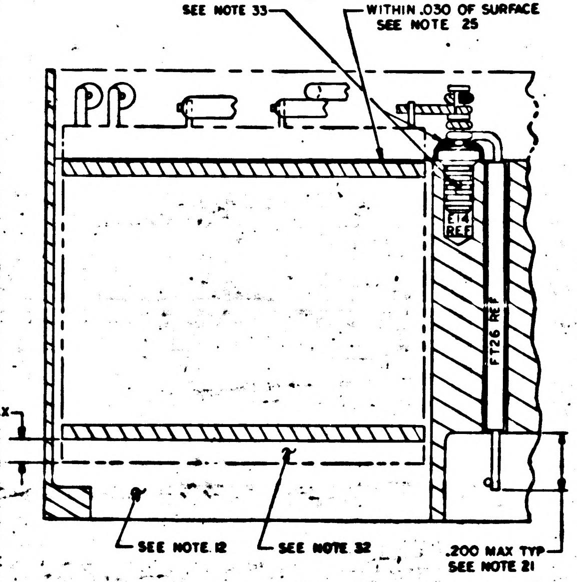
Q13 27
62
58
60 63
R38 19
CR11 35
63 60
36
R37 19
R48 14
L1 31
R42 11
C25 25
60 63
Q16 27
CR12 35
R33 10
62 59
SECTION G-G
SEE NOTE
63 60
ALL WIRES FROM FIND NO.2 TO PINS EXCEPT AS NOTED
R36 11
63 60
R34 15
FT 28
61 SEE NOTE 24
57 58
62 59
FT10
K1 38 BLUE BEAD
36 59
R43 20
59 62
4 59
59 62
PIN 101 REF
FT9
36
E
57
R1 8
R2 9
E3
E1
E2
E4
R5
R27
R13
FT11
FT12
FT4
R17
R46
R29
FT23
FT22
FT30
FT31
FT26
D
B
1
2
60 63
63
C18 22
C17 22
60 63
36 59
60 63
CR9 32
C16 22
R45 12
61 SEE NOTE 24
59 62
57 58
E
F
63 60
36
CR13 35
C13 22
Q18 28
C14 22
R44 11
R41 17
C15 22
Q10 29
60 63
Q9 29
Q11 29
42 44
60 63
C24 24
CR6 34
C8 23
Q12 26
59 62


SECTION F-F



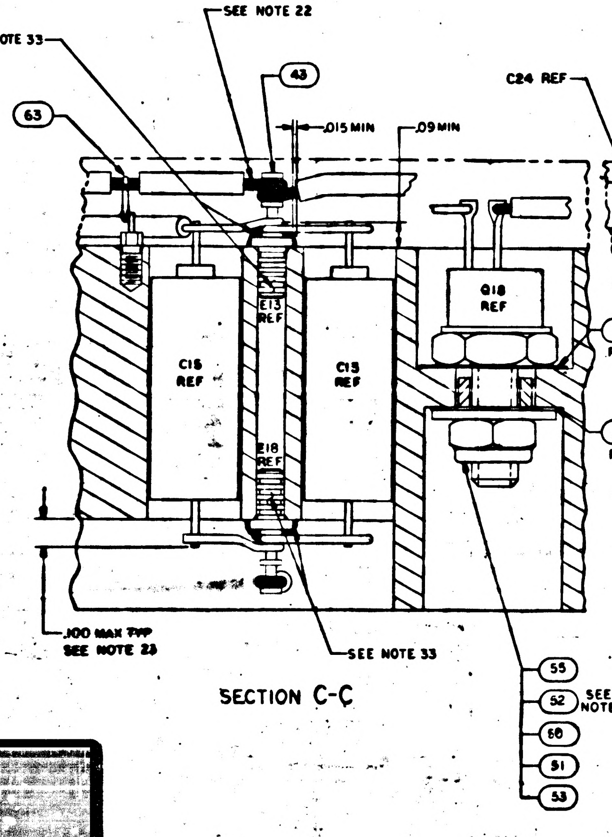
SEE NOTE 12
59
.015 MIN TYP
.000 .015
.010 MIN TYP
SEE NOTE 17
SEE NOTE 13
SEE NOTE 27 CROSS SECTION
K1 REF
1.482 MAX POTTING DIM.
SEE NOTE 12
.09 MAX
C17 REF
POTTING TO BE .000 .015 BELOW THIS SURFACE
POTTING TO BE WITHIN .010 OF SURFACE

SECTION E-E



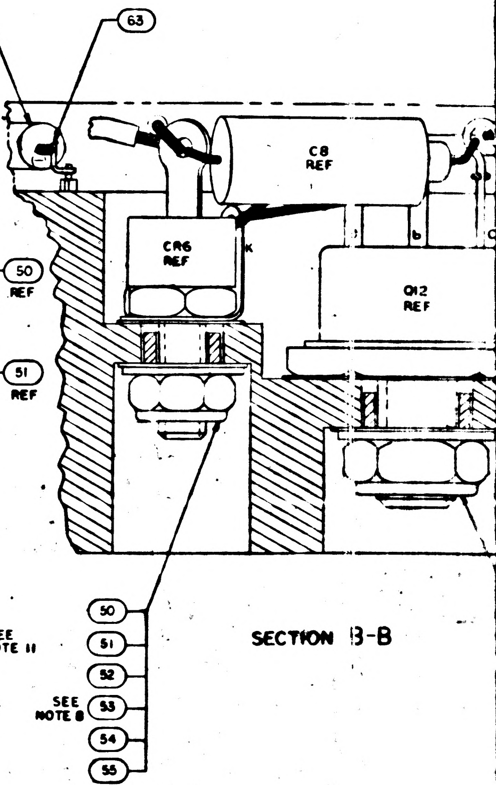
SEE NOTE 33
WITHIN .030 OF SURFACE SEE NOTE 25
E14 REF
FT26 REF
SEE NOTE 12
SEE NOTE 32
.200 MAX TYP SEE NOTE 21

SECTION D-D



SEE NOTE 22
SEE NOTE 33
43
63
.015 MIN
.09 MIN
E13 REF
C15 REF
C13 REF
Q18 REF
50 REF
51 REF
E18 REF
.100 MAX TYP SEE NOTE 23
SEE NOTE 33
55
52 SEE NOTE 11
60
51
53

SECTION C-C

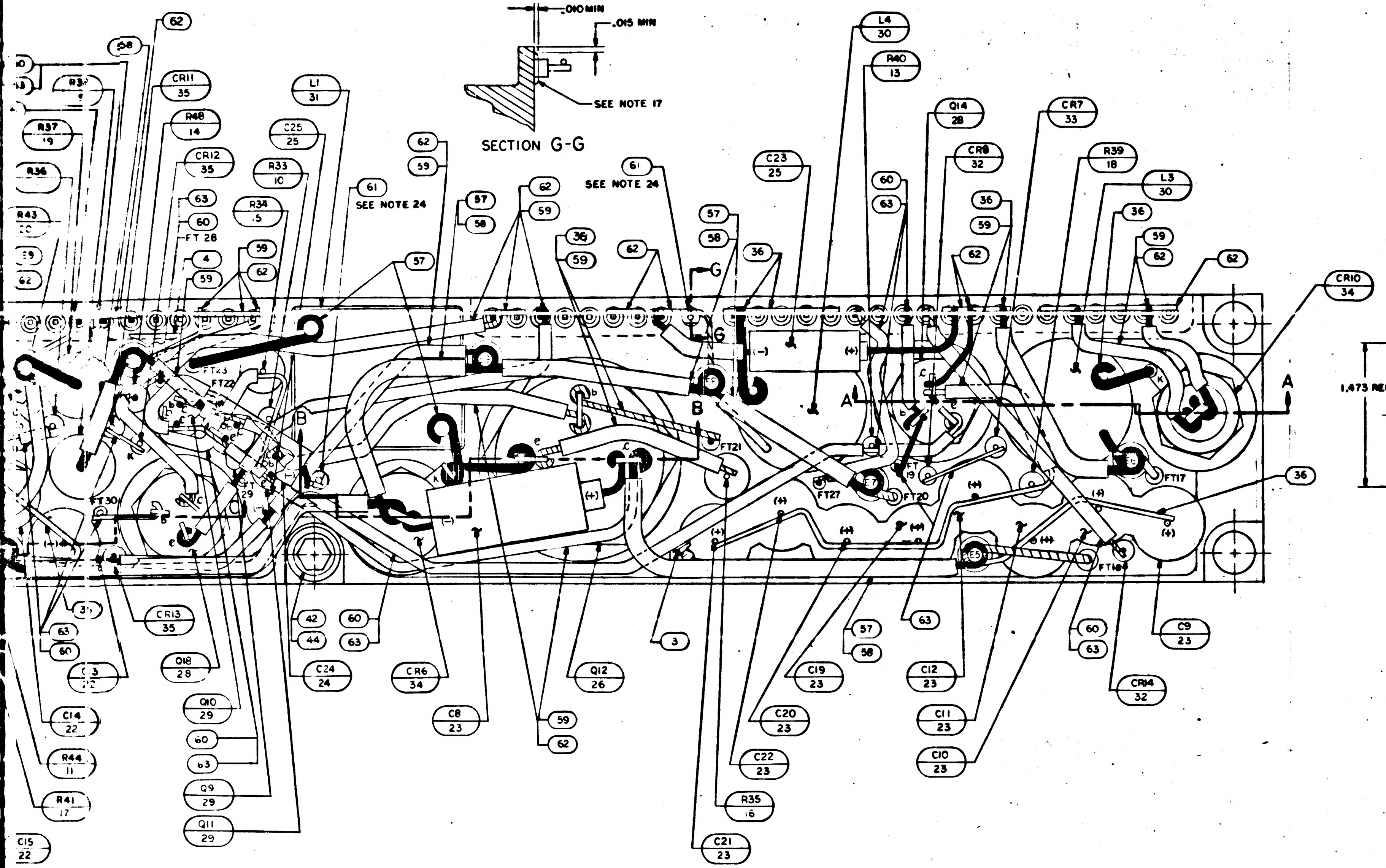


C24 REF
63
C8 REF
CR6 REF
Q12 REF
50
51
52
SEE NOTE 8 53
54
55

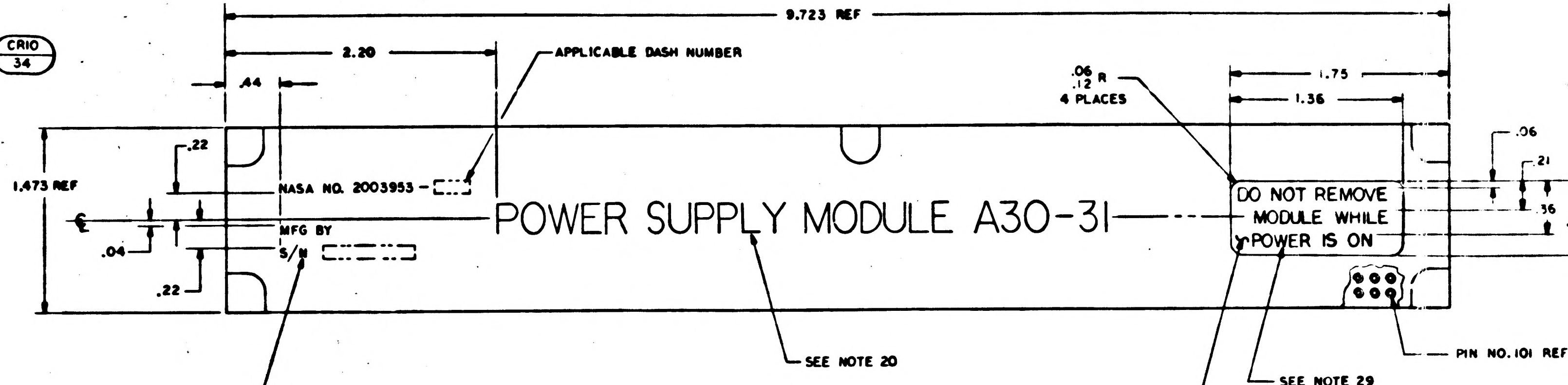
SECTION B-B

F2/4

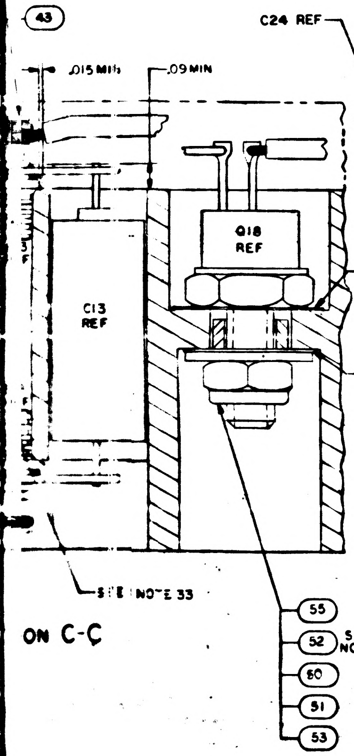
2003953 F


.010 MIN
.015 MIN
SEE NOTE 17
SECTION G-G
SEE NOTE 24
SEE NOTE 24
CR11 35
R48 14
CR12 35
R33 10
R34 .5
L1 31
C25 25
R37 19
R43
FT 28
L4 30
R40 13
Q14 28
CR7 33
CR8 32
R39 18
L3 30
C23 25
CR10 34
G
B
A
FT30
FT21
FT27
FT20
FT17
FT19
CR13 35
Q18 28
Q10 29
Q9 29
Q11 29
C14 22
R44 11
R41 17
C15 22
C24 24
CR6 34
C8 23
Q12 26
R35 16
C21 23
C22 23
C20 23
C19 23
C12 23
C11 23
C10 23
C9 23
CR14 32
42
44
57
58
59
60
62
63
36
3
(+)
(-)
K

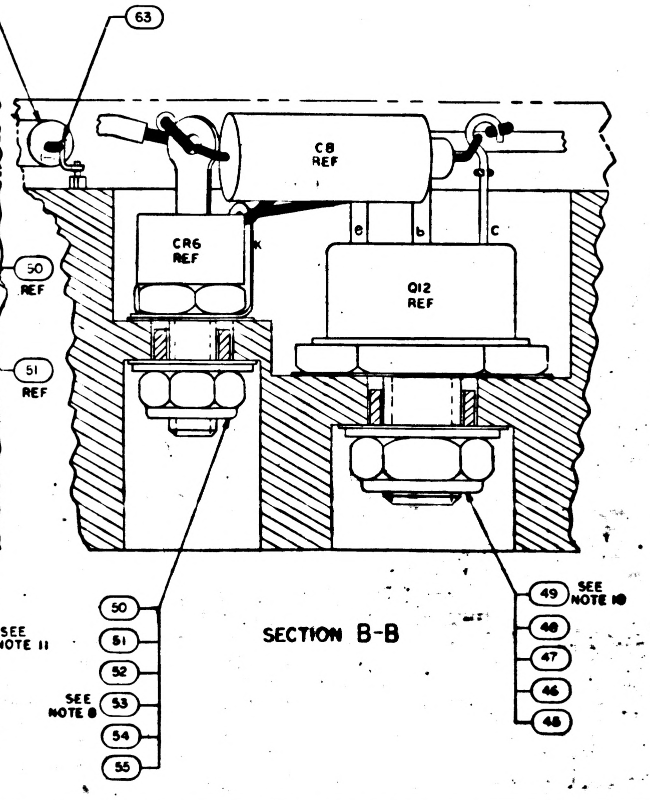
SECTION G-G


9.723 REF
2.20
APPLICABLE DASH NUMBER
.44
.06 R
.12
4 PLACES
1.75
1.36
.06
.21
.36
.22
1.473 REF
.04
.22
NASA NO. 2003953 -
MFG BY
S/N
POWER SUPPLY MODULE A30-31
DO NOT REMOVE MODULE WHILE POWER IS ON
SEE NOTE 20
SEE NOTE 19
SEE NOTE 29
SEE NOTE 28
PIN NO. 101 REF

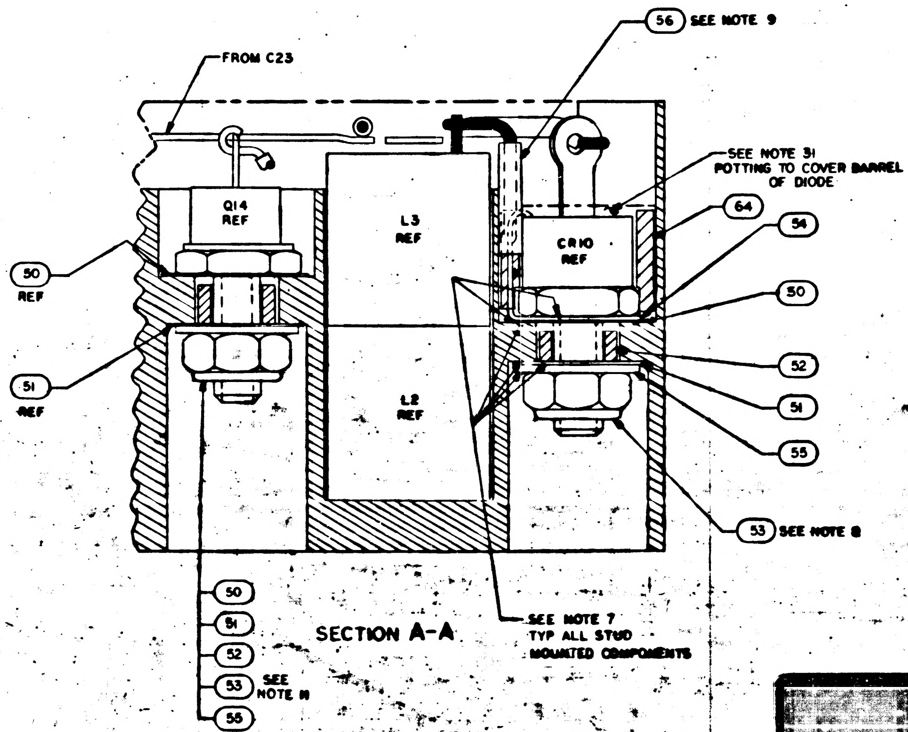
MARKING VIEW
SCALE 2/1


43
.015 MIN
.09 MIN
C13 REF
Q18 REF
50 REF
51 REF
SEE NOTE 33
55
52 SEE NOTE 11
50
51
53

ON C-C


C24 REF
63
C8 REF
CR6 REF
Q12 REF
K
e
b
c
50
51
52
SEE NOTE 8
53
54
55
49 SEE NOTE 10
48
47
46
45

SECTION B-B


FROM C23
56 SEE NOTE 9
SEE NOTE 31 POTTING TO COVER BARREL OF DIODE
Q14 REF
L3 REF
L2 REF
CR10 REF
64
54
50
52
51
55
53 SEE NOTE 8
50 REF
51 REF
50
51
52
53 SEE NOTE 11
55
SEE NOTE 7 TYP ALL STUD MOUNTED COMPONENTS

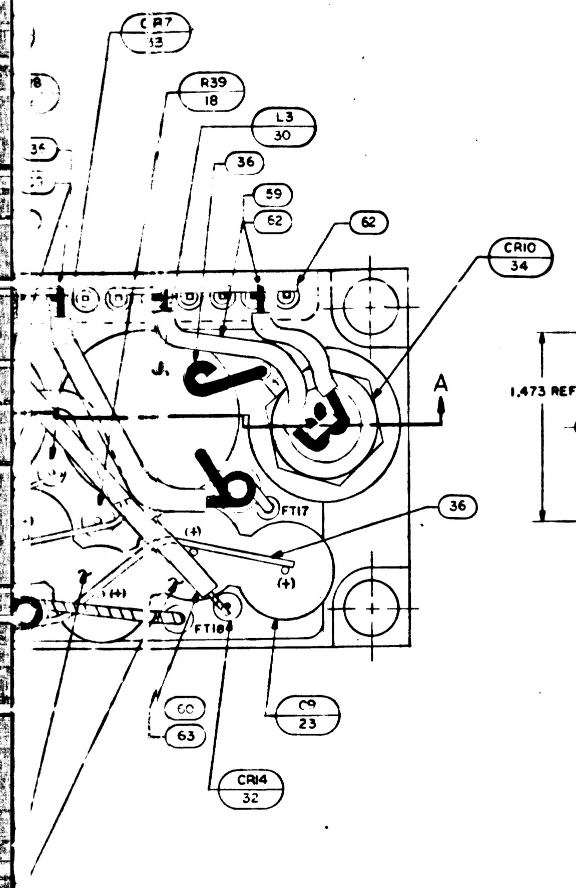
SECTION A-A

F3/4

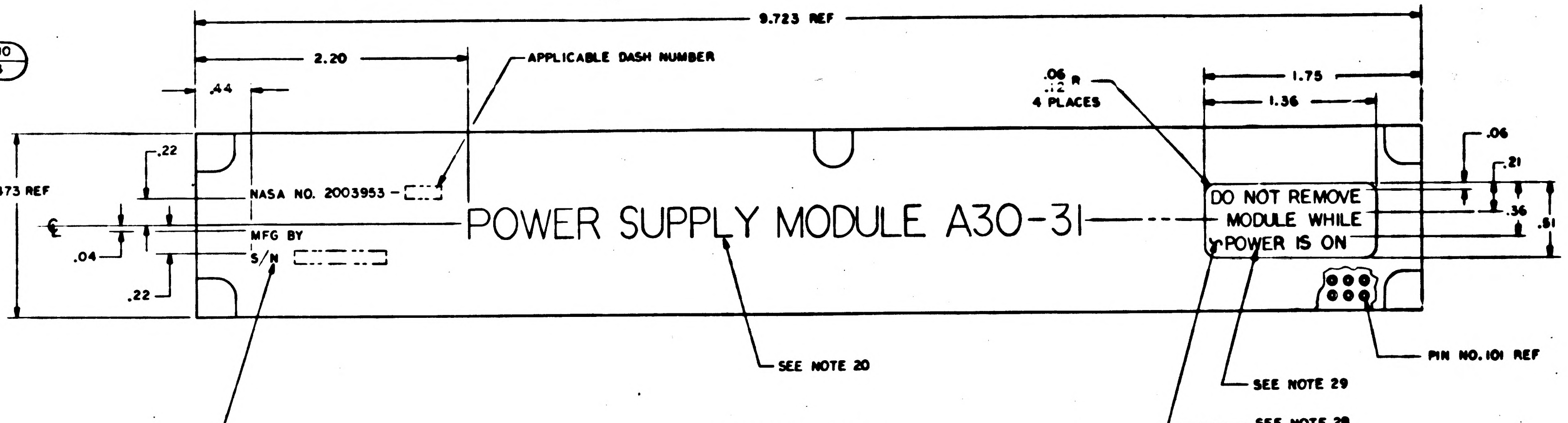
F 2003953

REVISIONS 26197

SYM	DESCRIPTION		
A	REVISED PER TDRR 27309 DR S. Tupilin CHK A.W.S. APPD	5 late	
B	REVISED PER TDRR 28253 DR S. Tupilin CHK APPD		
C	REVISED PER TDRR 28623 DR A Rudell CHK J.S. APPD	-1-66	
D	REVISED PER TDRR 30173 DR J Roberts CHK A. APPD		FLR
E	REVISED PER TDRR 30174 DR R Steele CHK APPD	8-22-66	EBA.
F	REVISED PER TDRR 30414 DR CHK A APPD	9-8-66	

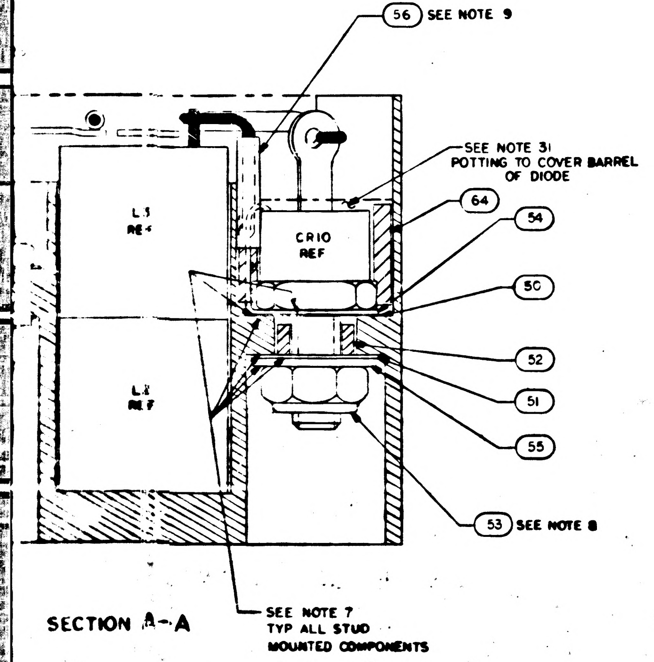


CR7
13
R39
18
L3
30
36
59
62
62
CR10
34
A
J.
FT117
36
(+)
(+)
(+)
FT118
60
63
C9
23
CR14
32



9.723 REF
2.20
.44
APPLICABLE DASH NUMBER
.06 R
.12
4 PLACES
1.75
1.36
.06
.21
.36
.61
1.473 REF
.22
.04
.22
NASA NO. 2003953 -
MFG BY
S/N
POWER SUPPLY MODULE A30-31
DO NOT REMOVE
MODULE WHILE
POWER IS ON
SEE NOTE 20
SEE NOTE 29
SEE NOTE 28
PIN NO. 101 REF
SEE NOTE 19

MARKING VIEW
SCALE 2/1



56 SEE NOTE 9
SEE NOTE 31
POTTING TO COVER BARREL
OF DIODE
L3
REF
CR10
REF
64
54
50
52
51
55
L2
REF
53 SEE NOTE 8
SEE NOTE 7
TYP ALL STUD
MOUNTED COMPONENTS

SECTION A-A

╳	2005916	SCHEMATIC	REF
1	2004928	SLEEVE, THERMAL	64
AR	1006757-13	WIRE, ELEC	63
AR	1006757-23	WIRE, ELEC	62
3	2004039	TERMINAL, THREADED	61
AR	1006776-22	INSULATION, SLEEVING	60
AR	1006776-20	INSULATION, SLEEVING	59
AR	1006776-18	INSULATION, SLEEVING	58
AR	QQ-W-343, TYPE S, 18	WIRE, ELEC	57
AR	1006776-30	INSULATION, SLEEVING	56
4	1008071-2	WASHER, FLAT	55
2	2008013-5	TERMINAL, LUG	54
4	MS21083B3	NUT, HEX, SELF-LOCKING	53
4	1008025-5	BUSHING, INSULATOR	52
4	1008024-1	WASHER, INSULATOR	51
4	1008024-2	WASHER, INSULATOR	50
1	MS21083B5	NUT, HEX, SELF-LOCKING	49
1	1008071-7	WASHER, FLAT	48
1	2008020-3	BUSHING, INSULATOR	47
1	1008024-5	WASHER, INSULATOR	46
1	1008024-6	WASHER, INSULATOR	45
5	2004984-003	WASHER, FLAT	44
14	1006708	TERMINAL, STUD	43
1	1004722-2	SCREW, CAPTIVE	42
4	MS16633-4015	RING, RETAINING, EXTERNAL 'E'	41
4	2004984-001	WASHER, FLAT	40
4	1004579-1	SCREW, JACKING	39
1	1006304-003	RELAY	38
~~AR~~	[illegible]	[illegible]	[illegible]
AR	1006757-21	WIRE, ELEC	36
1	2004897	SELECTION LIST	35
2	1006329	DIODE	34
1	2004112-001	DIODE	33
3	2004103-001	DIODE	32
1	1006328	INDUCTOR	31
3	1006327	INDUCTOR	30
3	2004004-002	TRANSISTOR, POTTED	29
2	1006363-001	TRANSISTOR	28
4	2004004-001	TRANSISTOR, POTTED	27
1	1006317-001	TRANSISTOR	26
2	1006755-126	CAPACITOR	25
1	1006755-79		24
9	1006755-134		23
6	1006755-89	CAPACITOR	22
~~1~~	[illegible]	~~RESISTOR~~	[illegible]
1	1006750-49	RESISTOR	20
2	1006330-001		19
1	1010604-50		18
1	1010389-23		17
1	1010389-113		16
1	1010389-51		15
1	1006760-32		14
1	1006750-43		13
1	1006750-39		12
3	1006750-15		11
1	1006750-1		10
1	SEE NOTE 26		9
1	SEE NOTE 26	RESISTOR	8
1	2004892	INSULATOR D	7
1	2004890-002	INSULATOR C	6
1	2004890-001	INSULATOR C	5
1	2004889	INSULATOR B	4
1	2004893	INSULATOR A	3
1	2003029-021	CONTROL CIRCUIT SUB ASSY	2
1	2008057-021	HEADER HOUSING ASSY	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

011 LIST OF MATERIALS

2003200	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
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MIT
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DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL A. C. METZGER
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

POWER SUPPLY MODULE
A30 - 31
ASSEMBLY

CODE IDENT NO. 80230 SIZE J NASA DRAWING NO. 2003953
SCALE 4/1 WT SHEET 1 OF 1

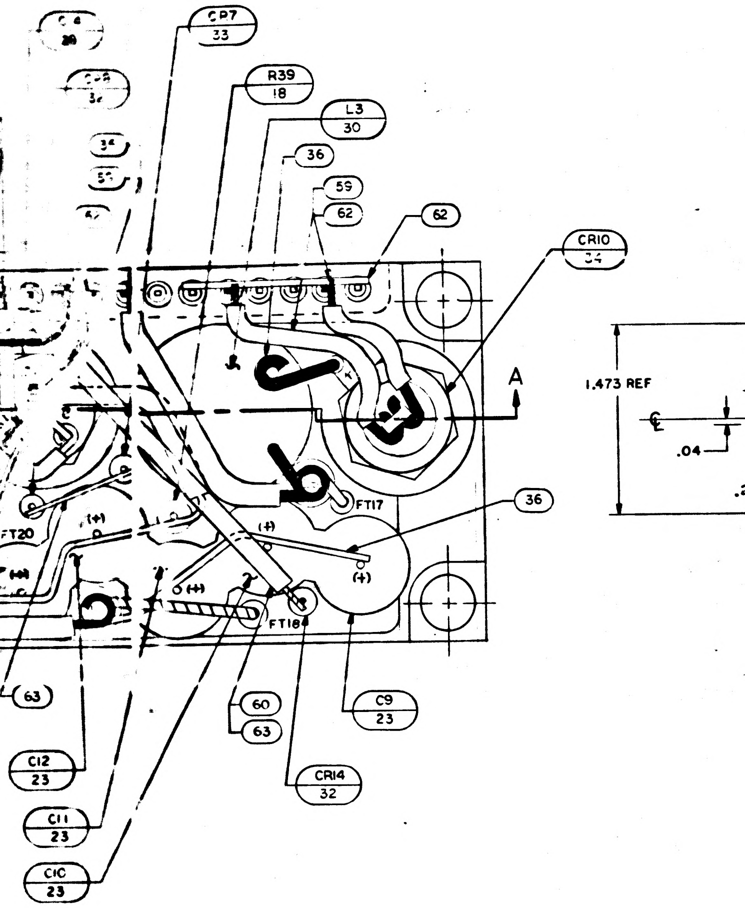
D C B A

4H

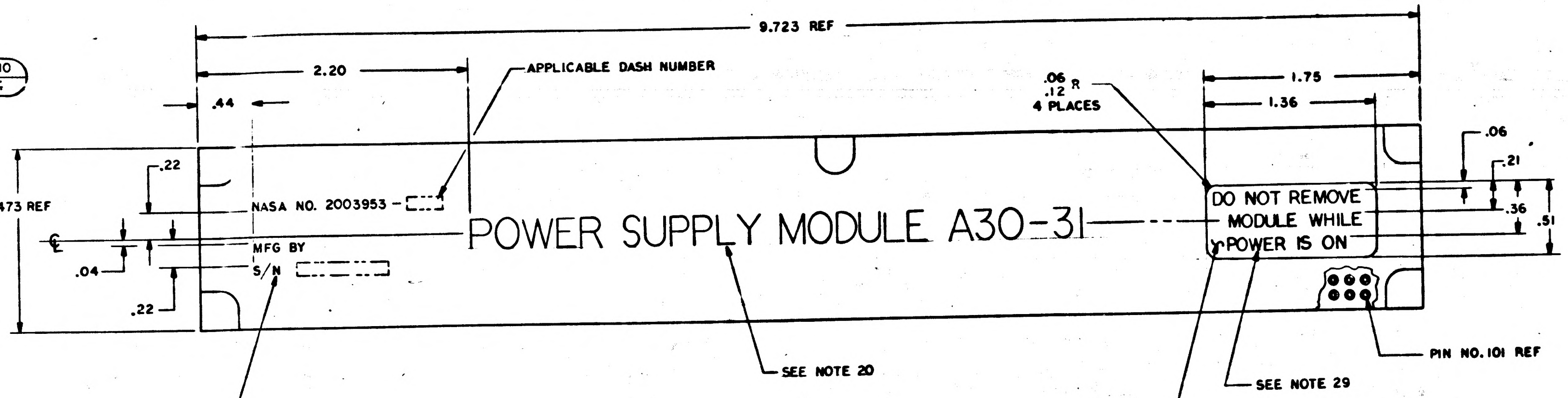
MASTER

2003953 F

2003953 REVISIONS 26197

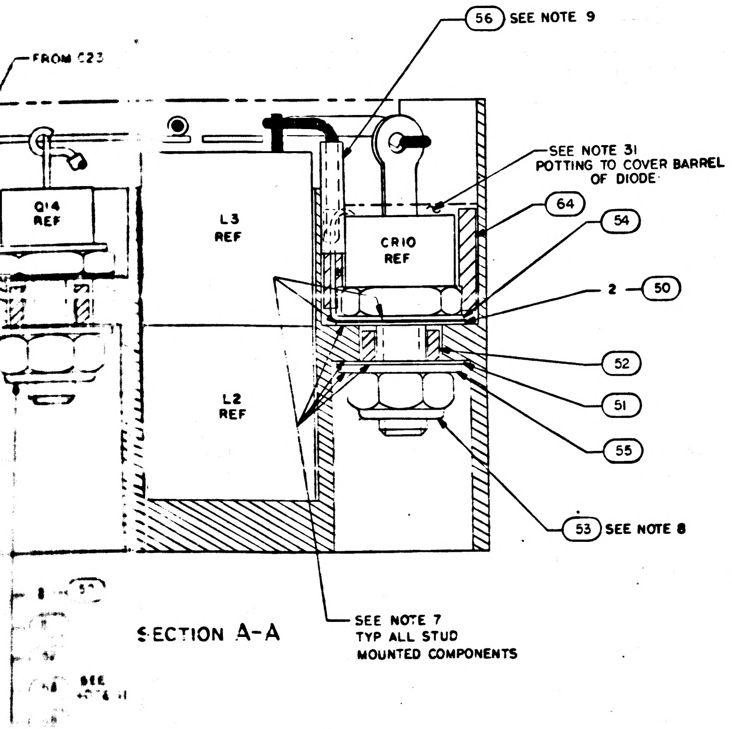


CR7
33
R39
18
L3
30
36
59
62
62
CR10
34
A
36
FT17
FT18
FT20
63
C12
23
C11
23
C1C
23
60
63
C9
23
CR14
32



9.723 REF
2.20
.44
APPLICABLE DASH NUMBER
.06 R
.12
4 PLACES
1.75
1.36
.06
.21
.36
.51
1.473 REF
.22
.04
.22
℄
NASA NO. 2003953 –
MFG BY
S/N
POWER SUPPLY MODULE A30-31
DO NOT REMOVE
MODULE WHILE
POWER IS ON
SEE NOTE 20
SEE NOTE 19
SEE NOTE 29
SEE NOTE 28
PIN NO. 101 REF

MARKING VIEW
SCALE 2/1



56
SEE NOTE 9
FROM C23
SEE NOTE 31
POTTING TO COVER BARREL
OF DIODE
64
54
2 – 50
52
51
55
53
SEE NOTE 8
Q14
REF
L3
REF
CR10
REF
L2
REF
SEE NOTE 7
TYP ALL STUD
MOUNTED COMPONENTS

SECTION A-A

☒	2005916	SCHEMATIC	REF
1	2004928	SLEEVE, THERMAL	64
AR	1006757-13	WIRE, ELEC	63
AR	1006757-23	WIRE, ELEC	62
3	2004039	TERMINAL, THREADED	61
AR	1006776-22	INSULATION, SLEEVING	60
AR	1006776-20	INSULATION, SLEEVING	59
AR	1006776-18	INSULATION, SLEEVING	58
AR	QQ-W-343, TYPE S, 18	WIRE, ELEC	57
AR	1006776-30	INSULATION, SLEEVING	56
4	1008071-2	WASHER, FLAT	55
2	2008013-5	TERMINAL, LUG	54
4	MS21083B3	NUT, HEX, SELF-LOCKING	53
4	1008025-5	BUSHING, INSULATOR	52
4	1008024-1	WASHER, INSULATOR	51
8	1008024-2	WASHER, INSULATOR	50
1	MS21083B5	NUT, HEX, SELF-LOCKING	49
1	1008071-7	WASHER, FLAT	48
1	2008020-3	BUSHING, INSULATOR	47
2	1008024-5	WASHER, INSULATOR	46
1	1008024-6	WASHER, INSULATOR	45
5	1004546-3	WASHER, FLAT	44
14	1006708	TERMINAL, STUD	43
1	1004722-2	SCREW, CAPTIVE	42
4	MS16633-4015	RING, RETAINING, EXTERNAL "E"	41
4	1004546-1	WASHER, FLAT	40
4	1004579-1	SCREW, JACKING	39
1	1006304-002	RELAY	38
AR	1006757-22	WIRE, ELEC	37
AR	1006757-21	WIRE, ELEC	36
1	2004897	SELECTION LIST	35
2	1006329	DIODE	34
1	2004112-001	DIODE	33
3	2004103-001	DIODE	32
1	1006328	INDUCTOR	31
3	1006327	INDUCTOR	30
3	2004004-002	TRANSISTOR, POTTED	29
2	1006363-001	TRANSISTOR	28
4	2004004-001	TRANSISTOR, POTTED	27
1	1006317-001	TRANSISTOR	26
2	1006755-126	CAPACITOR	25
1	1006755-79	↑	24
9	1006755-134	↓	23
6	1006755-89	CAPACITOR	22
1	1006750-56	RESISTOR	21
1	1006750-49	↑	20
2	1006330-001		19
1	1010604-50		18
1	1010389-23		17
1	1010389-113		16
1	1010389-5		15
1	1006760-32		14
1	1006750-43		13
1	1006750-39		12
3	1006750-15		11
1	1006750-1		10
1	SEE NOTE 26	↓	9
1	SEE NOTE 26	RESISTOR	8
1	2004892	INSULATOR D	7
1	2004890-002	INSULATOR C	6
1	2004890-001	INSULATOR C	5
1	2004889	INSULATOR B	4
1	2004893	INSULATOR A	3
1	2003029-021	CONTROL CIRCUIT SUB ASSY	2
1	2003057-021	HEADER HOUSING ASSY	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
011	LIST OF MATERIALS		

2003953

NEXT ASSY	USED ON
2003100	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
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APPROVAL
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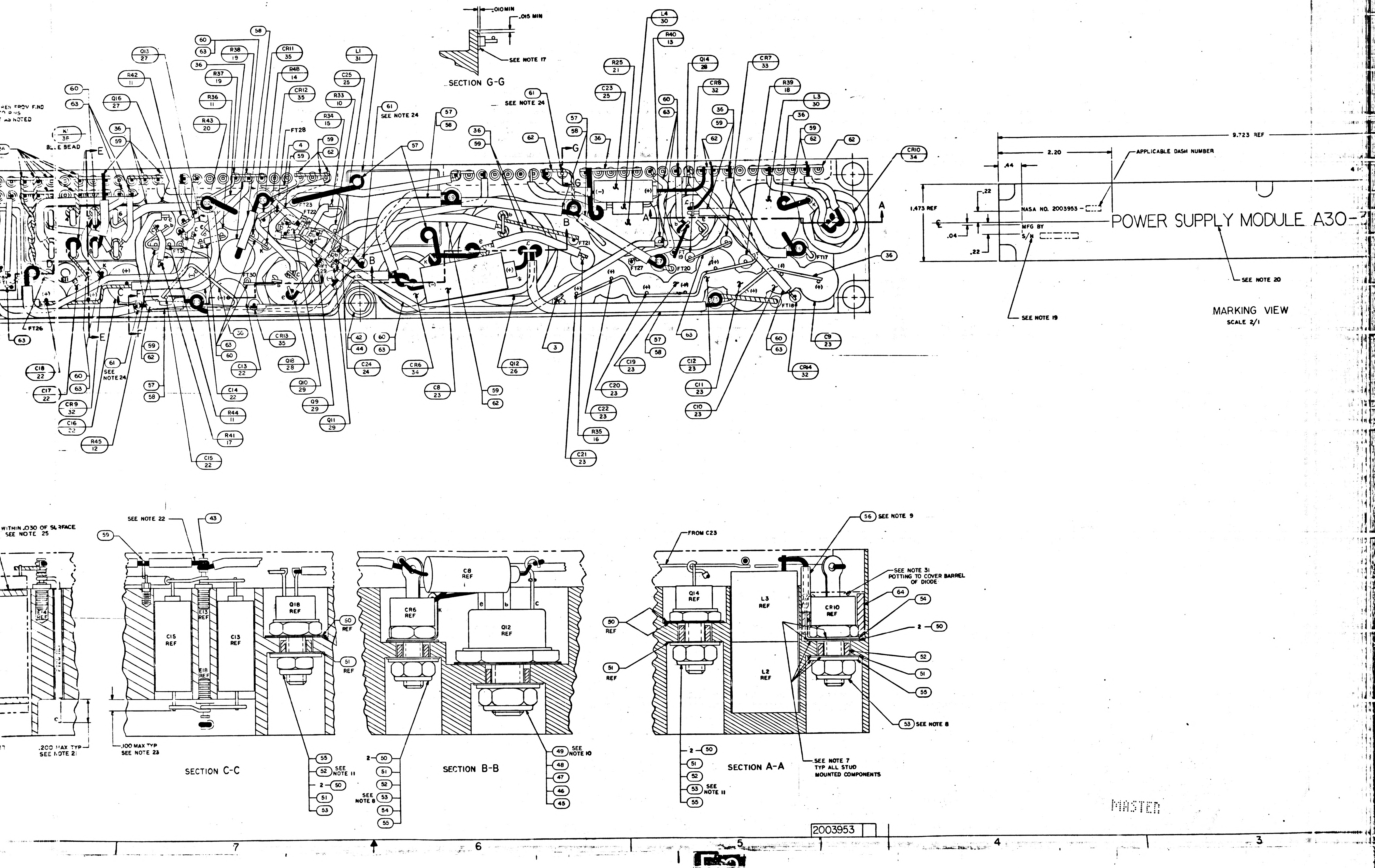
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

POWER SUPPLY MODULE
A30 – 31
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003953
SCALE 4/1
WT
SHEET 1 OF 1

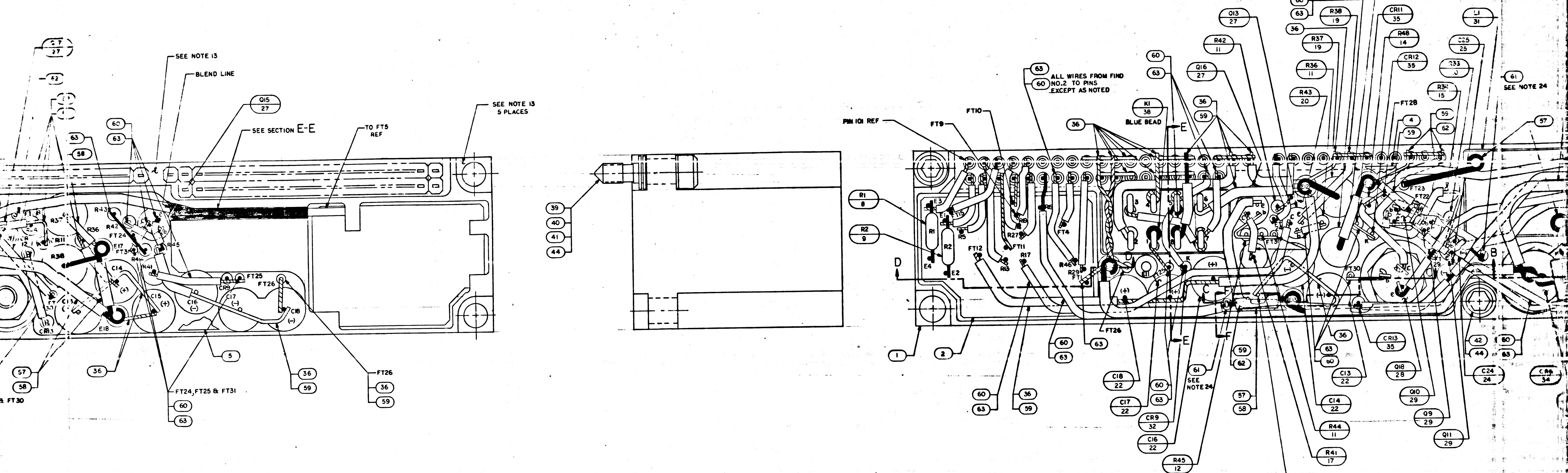
MASTER

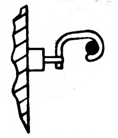
2003953


SECTION G-G
.010 MIN
.015 MIN
SEE NOTE 17
SEE NOTE 24
BLUE BEAD
FT26
FT28
FT23
FT22
FT31
FT30
FT21
FT27
FT19
FT20
FT17
FT18
A
B
C
E
F
G
SEE NOTE 24
9.723 REF
2.20
APPLICABLE DASH NUMBER
.44
.22
1.473 REF
NASA NO. 2003953 -
MFG BY
S/N
.04
.22
POWER SUPPLY MODULE A30-
SEE NOTE 20
SEE NOTE 19
MARKING VIEW
SCALE 2/1
WITHIN .030 OF SURFACE
SEE NOTE 25
SEE NOTE 22
E14 REF
E13 REF
E18 REF
C15 REF
C13 REF
Q18 REF
.200 MAX TYP
SEE NOTE 21
.100 MAX TYP
SEE NOTE 23
SECTION C-C
SEE NOTE 11
SEE NOTE 8
C8 REF
CR6 REF
Q12 REF
SECTION B-B
SEE NOTE 10
FROM C23
SEE NOTE 9
SEE NOTE 31
POTTING TO COVER BARREL OF DIODE
Q14 REF
L3 REF
L2 REF
CR10 REF
SEE NOTE 8
SEE NOTE 7
TYP ALL STUD MOUNTED COMPONENTS
SECTION A-A
SEE NOTE 11

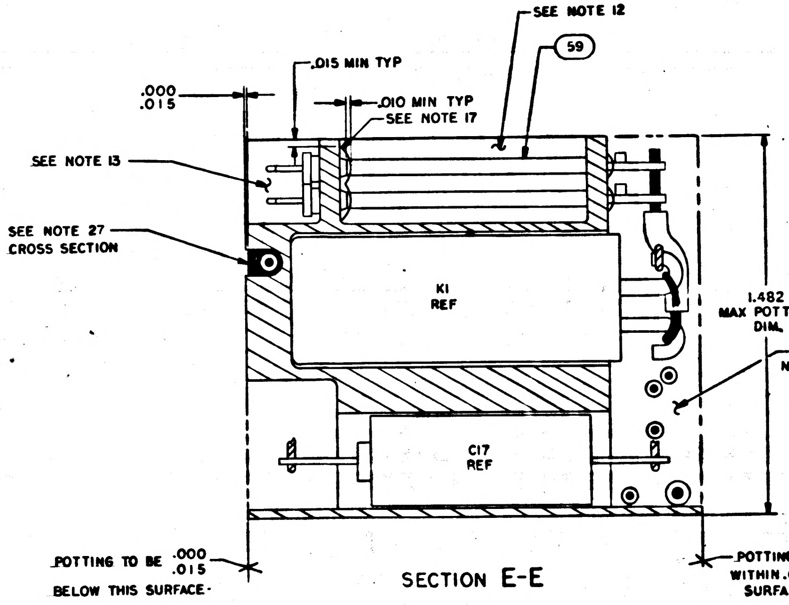
MASTER

2003953

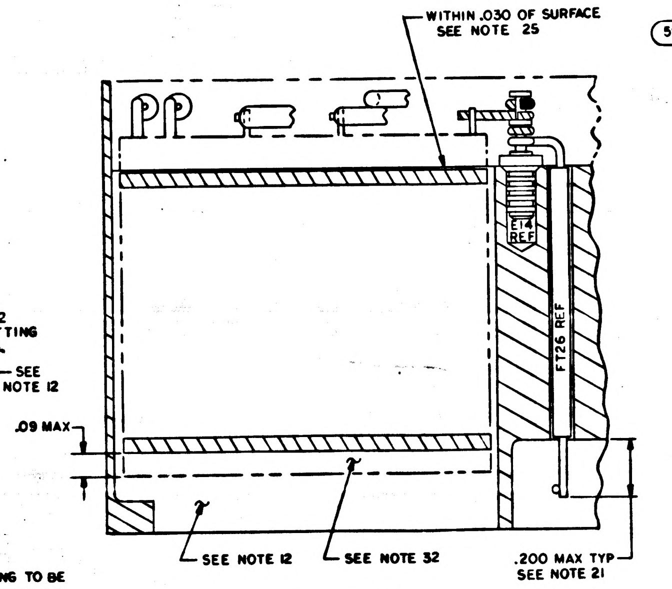

27
27
42
63
58
60
63
SEE NOTE 13
BLEND LINE
Q15
27
SEE SECTION E-E
TO FT5
REF
SEE NOTE 13
5 PLACES
R43
R42
R37
R36
FT24
E17
FT31
R44
R45
R41
CR11
R38
C14
(+)
C13
C15
(+)
C16
(−)
CR9
FT25
C17
(−)
FT26
C18
(−)
E18
CR13
FT30
5
57
58
36
FT24, FT25 & FT31
60
63
36
59
FT26
36
59
& FT30
39
40
41
44
PIN 101 REF
FT9
FT10
63
60
ALL WIRES FROM FIND NO.2 TO PINS EXCEPT AS NOTED
K1
38
BLUE BEAD
36
60
63
36
59
Q13
27
R42
11
Q16
27
60
63
36
R38
19
R37
19
R36
11
R43
20
58
CR11
35
R48
14
CR12
35
FT28
4
59
59
62
L1
31
C25
25
R33
R34
15
61
SEE NOTE 24
57
R1
8
R2
9
E3
E1
FT15
R5
R1
R2
E4
E2
D
FT12
R13
R19
R27
FT11
R17
FT4
R46
R29
FT1
FT26
E11
FT25
K
(+)
C
F
E
E12
FT31
FT23
FT22
FT30
E13
B
1
2
60
63
60
63
36
59
63
C18
22
C17
22
60
63
CR9
32
C16
22
R45
12
61
SEE NOTE 24
59
62
57
58
36
63
60
CR13
35
C13
22
Q18
28
C14
22
R44
11
R41
17
C15
22
Q10
29
Q9
29
Q11
29
42
44
60
63
C24
24
CR6
34



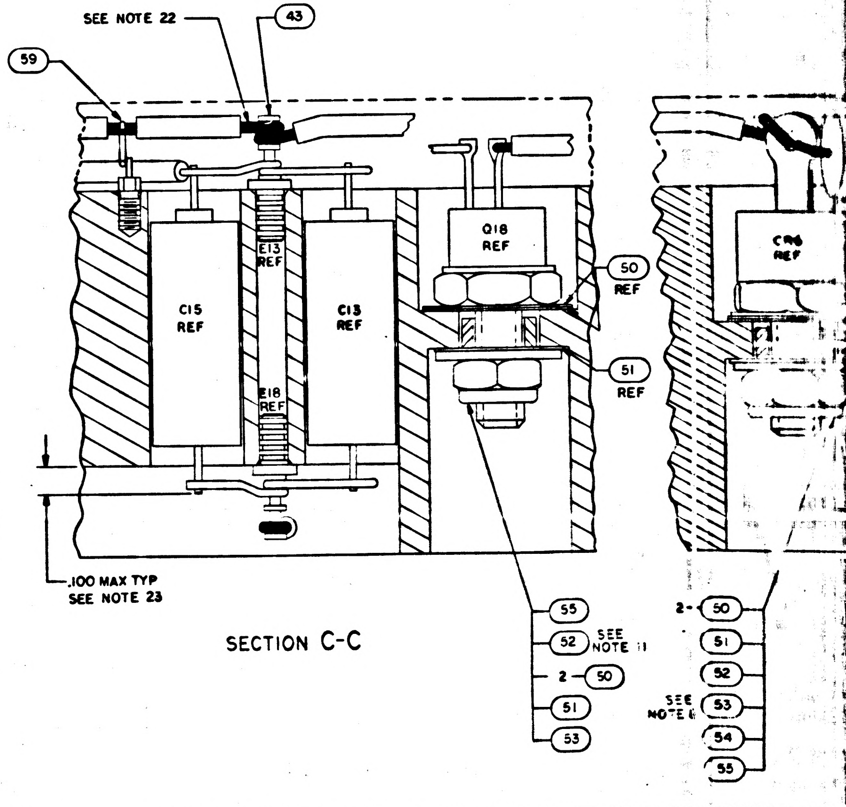
SECTION F-F


.000
.015
.015 MIN TYP
.010 MIN TYP
SEE NOTE 17
SEE NOTE 12
59
SEE NOTE 13
SEE NOTE 27
CROSS SECTION
K1
REF
C17
REF
1.482
MAX POTTING DIM.
SEE NOTE 12
POTTING TO BE .000 .015 BELOW THIS SURFACE
POTTING TO BE WITHIN .010 OF SURFACE

SECTION E-E

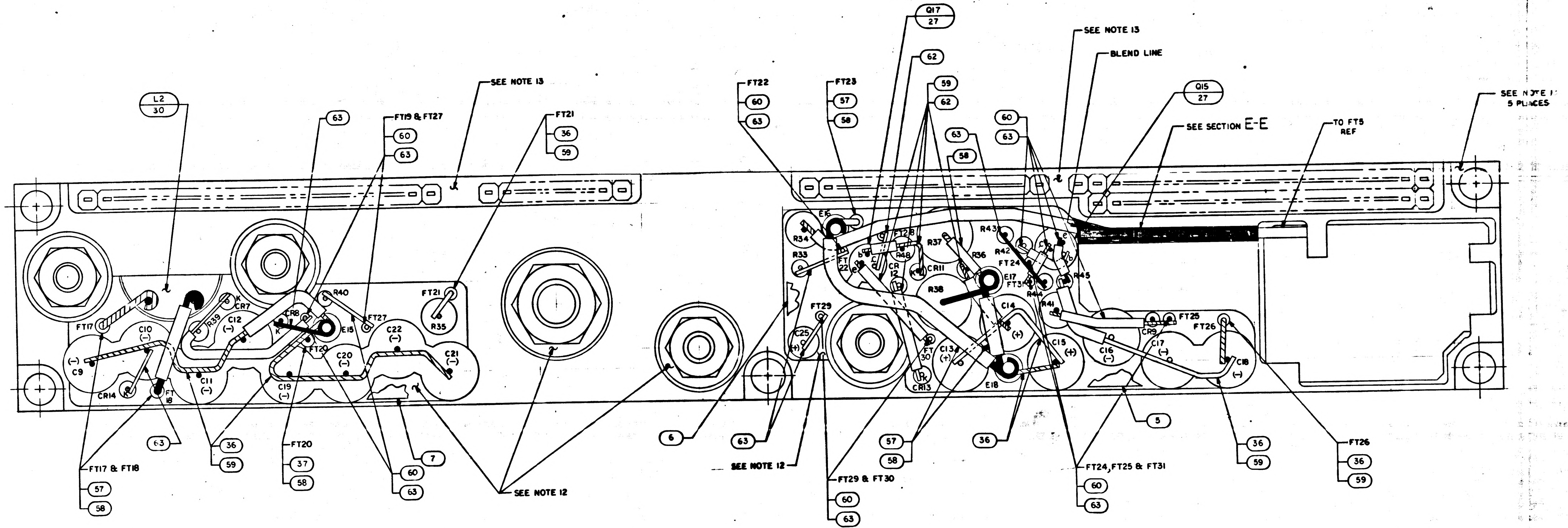

WITHIN .030 OF SURFACE
SEE NOTE 25
.09 MAX
E14
REF
FT26 REF
SEE NOTE 12
SEE NOTE 32
.200 MAX TYP
SEE NOTE 21

SECTION D-D


SEE NOTE 22
43
59
C15
REF
E13
REF
E18
REF
C13
REF
Q18
REF
50
REF
51
REF
CR6
REF
.100 MAX TYP
SEE NOTE 23
55
52
SEE NOTE 11
2 – 50
51
53
2 – 50
51
52
SEE NOTE 6
53
54
55

SECTION C-C

D


L2
30
63
FT19 & FT27
60
63
SEE NOTE 13
FT21
36
59
FT17
C10
(−)
(−)
C9
CR14
FT
18
R39
K
CR7
C12
(−)
C11
(−)
CR8
K
E15
R40
FT27
FT20
C20
(−)
C19
(−)
C22
(−)
C21
(−)
FT21
R35
63
36
59
FT20
37
58
60
63
7
FT17 & FT18
57
58
SEE NOTE 12
6
Q17
27
62
59
62
FT22
60
63
FT23
57
58
63
58
60
63
SEE NOTE 13
BLEND LINE
Q15
27
SEE SECTION E-E
TO FT5
REF
SEE NOTE 1
5 PLACES
E16
R34
R33
FT
22
b
c
e
FT28
R48
CR
12
CR11
R37
R36
R38
R43
R42
FT24
E17
FT31
R44
R45
R41
FT29
C25
(+)
FT
30
C13
(+)
CR13
E18
C14
(+)
C15
(+)
C16
(−)
CR9
FT25
FT26
C17
(−)
C18
(−)
39
40
41
44
63
SEE NOTE 12
FT29 & FT30
60
63
57
58
36
5
FT24, FT25 & FT31
60
63
36
59
FT26
36
59

C

SEE NOTE

SEE NOTE
CROSS SEC

B

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. WELD PER ND1002005
3. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
4. SOLDER PER ND1002071 USING SOLDER COMP SN60 FORM WIRE SOLID PER ND1002075 EXCEPT AS SHOWN
5. K DENOTES CATHODE SIDE OF DIODE
6. AR DENOTES AS REQUIRED
7. APPLY SILICONE GREASE, 1006879, TO INDICATED AREAS OF CR6, CR10 Q12, Q14 AND Q18
8. MOUNTING TORQUE FOR CR6 AND CR10 TO BE 25/30 INCH POUNDS
9. FIND NO.56 TO COVER SOLDER JOINT OF FIND NO.36 AND FIND NO.54
10. MOUNTING TORQUE FOR Q12 TO BE 15/30 INCH POUNDS
11. MOUNTING TORQUE FOR Q14 AND Q18 TO BE 13/15 INCH POUNDS
12. ENCAPSULATE PER ND1002002. REMOVE FLASHING
13. INDICATED AREAS TO BE FREE OF ENCAPSULATION
14. STAKE FIND NO.10 THRU 19,22,23,27,29 THRU 33 & 38 PER ND1002009 METHOD C OR D
15. FT DENOTES FEED THRU
16. + DENOTES POSITIVE SIDE OF CAPACITOR
17. SEAL INSULATORS, CONTACTS AND FIND NO.61 TO HEADER PER ND1002004, TYPE VI
18. E DENOTES STAND-OFF
19. MARK .10/.08 HIGH WHITE CHARACTERS PER ND 1002019 AND ND1002122 TYPE II, CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271-1
20. MARK .26/.24 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-1
21. BLACK DOT & CROSS HATCHED WIRING INDICATES UPPER LEVEL WIRING
22. BLACK DOT & SOLID BLACK WIRING INDICATES SPECIAL LEVEL WIRING
23. WHITE DOT & CLEAR WIRING INDICATES LOWER LEVEL WIRING
24. MOUNTING TORQUE FOR FIND NO.61 TO BE 15/20 INCH POUNDS
25. ENCAPSULATE FIND NO. 2 IN FIND NO. 1 TO DIM. SHOWN PER ND1002009, METHOD F
26. SELECT FIND NO. 8 & 9 PER APPLICABLE P.S. FROM APPROPRIATE CHART
27. STAKE WIRE IN PLACE PER ND1002004, TYPE VI
28. BACKGROUND TO BE RED USING MARKING INK 1006271-9
29. MARK .10/.08 HIGH WHITE PER ND1002019 & ND1002122 TYPE II, CLASS 2, USING INK 1006271-1. CENTRALIZE AS SHOWN
30. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL REQUIREMENTS OF P.S 2003953
31. ENCAPSULATE FIND NO34 TO FIND NO.1 PER ND1002009, METHOD F
32. SEAL BOTTOM OF FIND NO.2 PER ND1002009 METHOD C OR D PRIOR TO ENCAPSULATION PER NOTE 25

R1 AND R2	
PART NO.	VALUE
1006750-1	51
-2	56
-3	62
-4	68
-5	75
-6	82
-7	91
-8	100
-9	110
-10	120
-11	130
-12	150
-13	160
-14	180
-15	200
-16	220
-17	240
-18	270
-19	300
-20	330
-21	360
-22	390
-23	430
-24	470
1006750-25	510

POTTING
BELOW T

3.2 PRODUCT CONFIGURATION

3.2.1 Drawings. The configuration of the module shall be in accordance with APOLLO G&N Drawing 2003953 and all drawings and engineering data referenced thereon.

3.2.2 Weight. Maximum weight of the module shall be 1.40 pounds.

4. QUALITY ASSURANCE PROVISIONS

4.1 GENERAL. The contractor responsible for the manufacture of the module shall be responsible for the accomplishment of each test required herein. The cross reference index (Table 4-1) shows the relationship between the performance requirements in section 3 and verification of these requirements in section 4.

TABLE 4-1

Requirement	Verification	Requirement	Verification
3.1.1.1	4.1.2.2.1	3.1.2.8	4.2.2.2.4
3.1.1.2	4.2.2.1.1	3.1.2.9a	4.2.2.2.5
		3.1.2.9b	4.2.2.2.5
3.1.1.3	4.2.2.1.2	3.1.2.10a	4.2.2.2.6
3.1.1.4	4.2.2.1.3	3.1.2.10b	4.2.2.2.7
3.1.1.5	4.2.2.1.4	3.1.2.10c	4.2.2.2.8
3.1.2.1	4.2.2.2.1	3.1.2.5a	4.2.2.2.10
3.1.2.2	4.2.2.2.1	3.1.2.6a	4.2.2.2.10
3.1.2.2	4.2.2.2.2		
3.1.2.2.1	4.2.2.2.1	3.1.2.9a	4.2.2.2.11
3.1.2.3	4.2.2.2.1	3.1.2.9b	4.2.2.2.11
3.1.2.3	4.2.2.2.2		
3.1.2.3.1	4.2.2.2.1	3.1.2.10a	4.2.2.2.12
3.1.2.4	4.2.2.2.9	3.1.2.10b	4.2.2.2.13
3.1.2.5	4.2.2.2.9	3.1.2.10c	4.2.2.2.14
3.1.2.5.1	4.2.2.2.9	3.1.2.11	4.2.2.2.15
3.1.2.6	4.2.2.2.9	3.2.2	4.2.3
3.1.2.6.1	4.2.2.2.9	3.1.3	4.3.1
3.1.2.7	4.2.2.2.3	3.1.4	4.3.2

e. With the ACE Test conditions applied and by switching S_2 to ground and S_1 OFF as described in Figure 5, the 4 volt output shall be 3.65 ± 0.15 vdc and the 14 volt output shall be 12.8 ± 0.4 vdc.

3.1.2.11 DSKY Regulator Characterisitcs

Input Conditions	Load Conditions	Output Voltage	Ripple and Noise
V In pins 143 and 144 to pins 153, 154 and 155	HL pin 145 to pin 212	V Out pin 145	V out
18.0 ± 0.1 vdc	230 ± 10 ohms 38.3 ± 1 ohm	16.5 ± 0.6 vdc	less than 0.5V
22.0 ± 0.1 vdc	230 ± 10 ohms 38.3 ± 1 ohm	20.5 ± 0.6 vdc	less than 0.5V
27.0 ± 0.2 vdc	230 ± 10 ohms 38.3 ± 1 ohm	24.3 ± 0.8 vdc	less than 0.5V
36.0 ± 0.2 vdc	230 ± 10 ohms 38.3 ± 1 ohm	25.4 ± 0.8 vdc	less than 0.5V

Output voltage tests shall be performed with the use of the two loads specified individually.

Operation of the AGC Power Supply shall include at all times the operation of the DSKY Regulator with the same input voltage as applied to the AGC Power Supply. The DSKY Regulator should be loaded with 100 ± 10 ohms during this time. A resistance of 5000 ± 500 ohms shall be tied to the output of the DSKY Regulator under all conditions, all other loads should be parallel to this load.

3.1.3 Marginal Voltage and Temperature Extremes. The module shall perform as specified herein when subjected to combinations of extreme voltages and mounting plate temperatures specified in (a) and (b) below:

(a) Low Extreme: 17.9 ± 0.1 vdc and -10°C ± 4°C ± 4°C

(b) High Extreme: 36.2 ± 0.2 vdc and 70°C ± 2.8°C

3.1.4 Vibration. With power applied the module shall perform as specified herein when subjected to vibration limits specified below:

Frequency Range: 10 to 2000 to 10 cps
Frequency Sweep Rate: at a logarithmic rate of one minute per octave
Velocity: 3.14 ± 10% inches per second in the frequency range of 10 to 100 cps.
Acceleration: 5 g's ± 10% peak in the frequency range of 100 to 2000 cps.

4.2.2.1.1 Continuity Check. Apply 1.00 ± 0.05 amperes through continuity points (any two points within each group listed below) and measure to assure that the resistance between any two points is not more than 0.3 ohms as specified in 3.1.1.1. Anodizing may be penetrated to assure good electrical connection with the module case.

group a. The module case and terminal 150
group b. Terminals 109, 110, 111, 112, 150, 208, 210, 211, 212
group c. Terminals 114, 115, 116, 214, 215, 216
group d. Terminals 118, 119, 120, 126, 127, 128
group e. Terminals 131, 132, 133
group f. Terminals 153, 154, 155, 156, 157
group g. Terminals 162, 163, 164
group h. Terminals 166, 167, 168, 169, 170, 171
group i. Terminals 149, 148
group j. Terminals 143, 144

4.2.2.1.2 Resistance. Measure the resistance between the following terminals for the resistance as specified in 3.1.1.2.

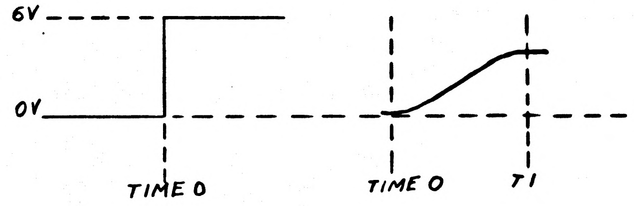
a.	102 and 119	130 ± 2.6 ohms (R14)
b.	103 and 202	10,000 ± 200 ohms (R47)

4.2.2.1.3 Input Diode Circuit Check.

a. With terminals 166 through 171 connected in parallel and terminals 162 through 164 connected in parallel apply 5.00 ± 0.15 amperes from a 4.0 ± 0.2 VDC source through a variable resistor through terminal 166 and take to ground through terminal 162. Measure the forward drop (which shall include the drop from L3) for a reading of not less than 0.4 VDC nor more than 1.2 VDC as specified in 3.1.1.3a.

b. Connect a voltage source of 4.0 ± 0.2 VDC and a series resistor of 4.0 ± 0.1 ohms to terminal 162. Measure the current through terminal 166 to ground for a reading of not more than 1 ma as specified in 3.1.1.3b.

4.2.2.1.4 Capacitance Test of C2 and Circuit Time Constant. Apply a step voltage to terminal 103 (6.0 ± 0.1 volts at time 0: see diagram below). Monitor the voltage at terminal 202 for an expontial increase starting from approximately zero (at time 0) to 0.40 ± 0.06 volts at T1 (T1 = 0.10 ± 0.02 sec: see diagram below) to assure that the capacitance between terminals 202 and 109 (0 VDC) is 100 ± 10 uf as specified in 3.1.1.4 and time constant of circuit is as specified.



4.2.2.2.11.1 Repeat test 4.2.2.2.11 part b with the sync pulse applied to terminal 205 (3.1.2.9b).

4.2.2.2.12 14V (A30) Voltage Control Test. Apply the conditions as specified in Figure 1 with a supply voltage of 28 ± 0.2 VDC. Apply the 14V conditions as specified in Figure 4 to terminal 204. Vary the 2.5K POT over its entire range while monitoring the 14 volt outputs (Figure 1) for a range of 9.0 ± 0.5 vdc to 17.0 ± 0.2 vdc. (3.1.2.10a).

4.2.2.2.13 14V (A31) ACE Test 1. Apply the conditions as specified in Figure 1 with a supply voltage of 28 ± 0.2 VDC. Apply the conditions as specified in Figure 5 to terminal 103 and switching S1 and holding S2 OFF while monitoring the 14 volt outputs (Figure 1) for a minimum range of 10.1 ± 0.2 VDC to 17.0 ± 0.2 VDC. (3.1.2.10b).

> NOTE: V Out vs ACE Voltage Data shall be recorded with ACE Voltage varied at increments of 2 volts to +10 volts and -10 volts, and 5 volts from 10 to 30 vdc and -10 to -30 vdc.

4.2.2.2.14 ACE Test Number 2. With the ACE test conditions applied and by switching S2 to ground and S1 OFF as described in Figure 5, the 14 volt output shall be 12.8 ± 0.4 vdc (3.1.2.10c).

4.2.2.2.15 DSKY Regulator Test. The DSKY Regulator shall comply with the specifications in paragraph 3.1.2.11.

4.2.3 Weight. Weigh the module to the nearest .01 pound. Verify that the weight does not exceed the maximum allowable weight specified in paragraph 3.2.2.

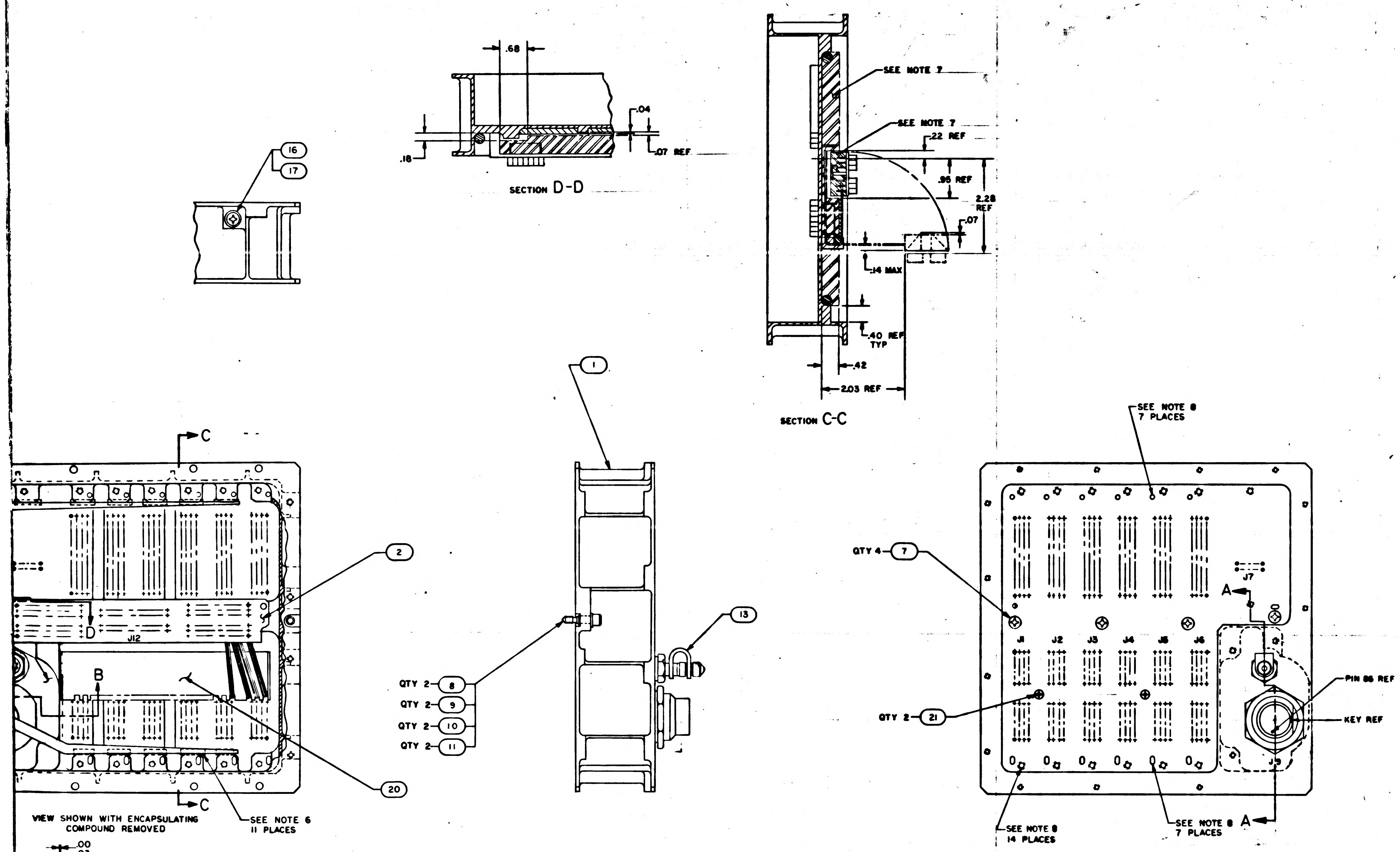
4.3 Workmanship. The following tests shall be performed under the conditions specified as a verification of good workmanship.

4.3.1 Marginal Voltage and Temperature Extremes. The module shall be exposed to its ambient temperature for a least 30 minutes prior to starting electrical tests in the temperature extremes described in paragraph 3.1.3. The module shall be tasted only in accordance with paragraphs 4.2.2.2.1 through 4.2.2.2.3; 4.2.2.2.9 through 4.2.2.2.10 and 4.2.2.2.15. The tests described in these paragraphs incorporate the voltage extremes described in paragraph 3.1.3. The following exceptions shall apply:

1. Regulation
    a. 4 volt regulation shall be 4.0 ± 0.2 vdc for tests with 22.0 + 0.1 and 33.0 ± 0.1 vdc input and with sync; and 4.0 ± 0.3 vdc for all other requirements.
    b. 14 volt regulation shall be 14.0 ± 0.5 vdc for all requirements.

2003954 | A

SYM	REVISIONS 20943 DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22542 DR S.A.Bennet CHK C.P. 8/7	9/30/65	



16
17
.68
.04
.18
.07 REF
SECTION D-D
SEE NOTE 7
SEE NOTE 7
.22 REF
.95 REF
2.28 REF
.07
.14 MAX
.40 REF TYP
.42
2.03 REF
SECTION C-C
C
C
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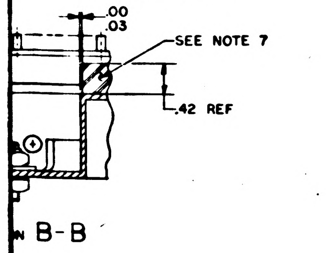
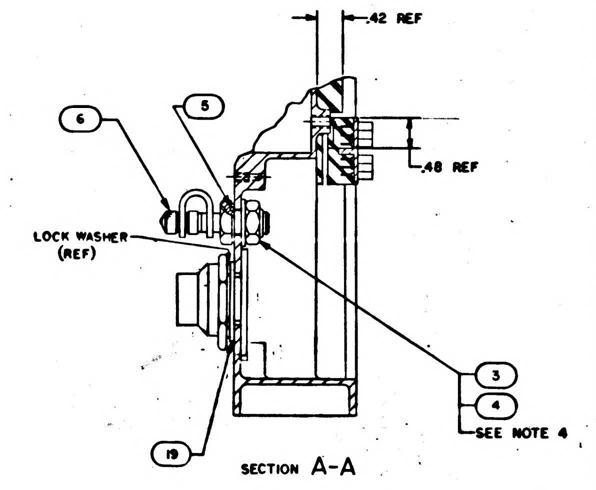
2
D
J12
B
QTY 2 8
QTY 2 9
QTY 2 10
QTY 2 11
13
20
VIEW SHOWN WITH ENCAPSULATING COMPOUND REMOVED
SEE NOTE 6 11 PLACES
SEE NOTE 8 7 PLACES
QTY 4 7
J7
A
J1
J2
J3
J4
J5
J6
QTY 2 21
PIN 85 REF
KEY REF
J9
SEE NOTE 8 14 PLACES
SEE NOTE 8 7 PLACES
A



.00
.03
SEE NOTE 7
.42 REF
4
B-B



.42 REF
.48 REF
6
5
LOCK WASHER (REF)
3
4
SEE NOTE 4
19
SECTION A-A

TH STANDARDS

9

BE 10 TO 11 FT-LBS

ND1002004 TYPE IV

ND1002236
FROM ENCAPSULATING COMPOUND
~~SHOWN USING FIND NO. 18~~
D02031
UNINSULATED WIRE, 1/2 TO 1 1/2
1.18 TO 1.00, AND STRIP FORCE

S AND ENCAPSULATING
A

1002071 USING SOLDER PER ND1002075
FIND NO. 12 TO BE 20 TO 25 FT-LBS

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	2005951	INTERCONNECTING DIAGRAM	REF
2	MS51959-12	SCREW, FLAT HD, CROSS RECESSED	21
1	2004927	COMB, WIRE	20
1	1004546-5	WASHER, FLAT	19
~~AR~~	~~1012807-003~~	~~TAPE, LACING~~	~~18~~
1	NAS1598D08N	WASHER, SEALING	17
1	MS35216-39	SCREW, PAN HD, CROSS RECESSED	16
AR	1010807-22	WIRE, INSULATED	15
AR	1010940-004	WIRE, INSULATED	14
1	2004931	RETAINER, VALVE CAP	13
1	2003980-011	WIRING HARNESS, BRANCHED	12
2	MS16633-4015	RING, RETAINING	11
2	1004546-3	WASHER, FLAT	10
2	1004546-1	WASHER, FLAT	9
2	1004579-2	SCREW, JACKING	8
4	MS51959-28	SCREW, FLAT HD, CROSS RECESSED	7
1	2004903	VALVE, PNEUMATIC TANK	6
1	1000159-14	PACKING, PREFORMED, O-RING	5
1	MS15795-314	WASHER, FLAT	4
1	MS20364D624A	NUT, HEX	3
1	2003916-011	CONNECTOR PLATE ASSY	2
1	2003967-011	IDM WIREWRAP PLATE ASSY	1
011	LIST OF MATERIALS		

2003954 | A

2003985	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.01 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO CONTRACT
DRAWN W. Brown DATE 1 July 65
CHECKED R. Edwards 12 July 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

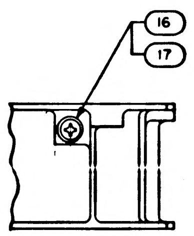
MAIN HOUSING ASSEMBLY
AGC DSKY

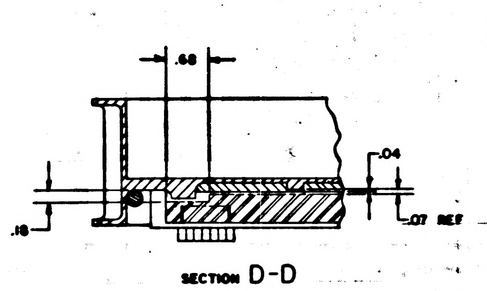
CODE IDENT NO 80230
SIZE J
NASA DRAWING NO. 2003954
SCALE 1/1
WT
SHEET 1 OF 3

2003954 | A

MASTER

F 2/2

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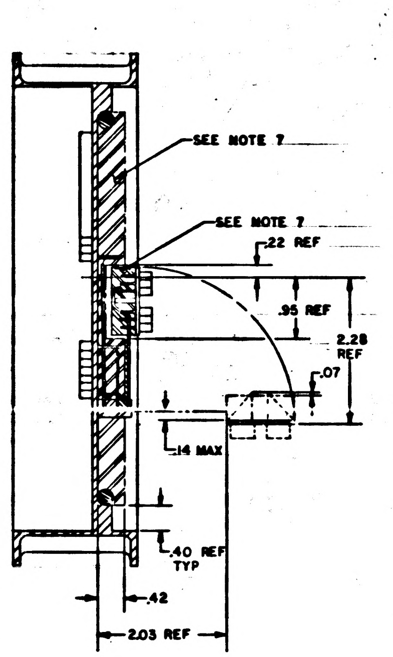
.04
.18
.07 REF

SECTION D-D


SEE NOTE 7
SEE NOTE 7
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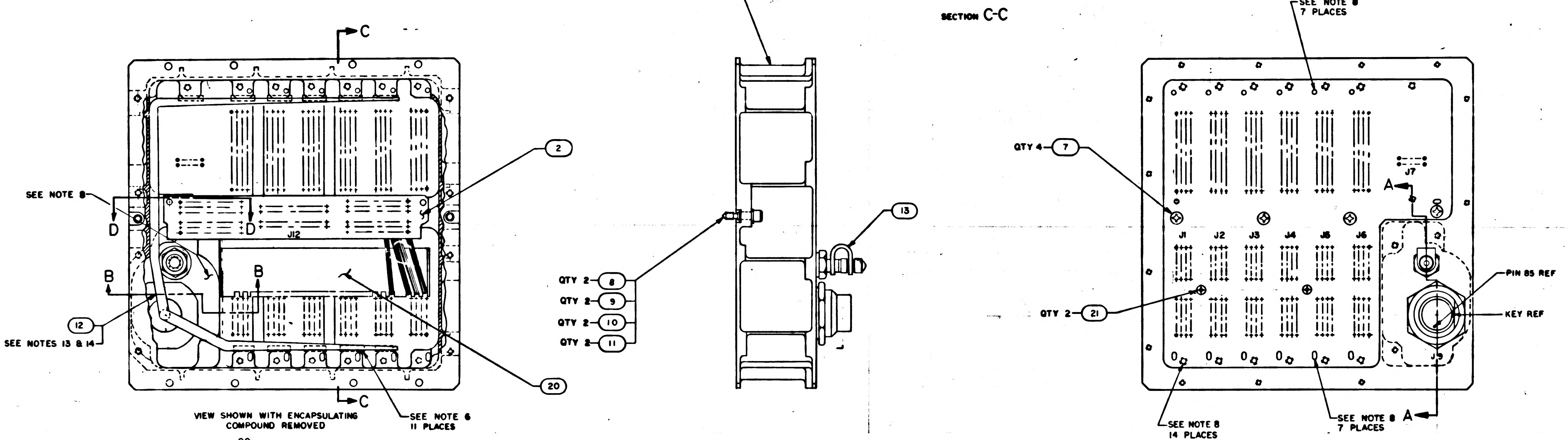
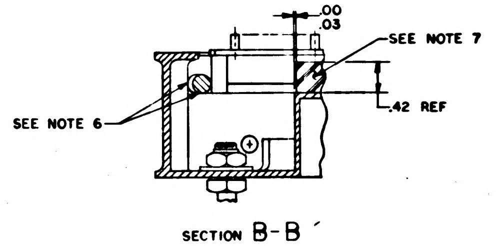
.95 REF
2.28 REF
.07
.14 MAX
.40 REF TYP
.42
2.03 REF

SECTION C-C


C
SEE NOTE 8
D
D
J12
B
B
12
SEE NOTES 13 & 14
2
20
C
SEE NOTE 6
11 PLACES
1
QTY 2 8
QTY 2 9
QTY 2 10
QTY 2 11
13
SEE NOTE 8
7 PLACES
QTY 4 7
A
J7
J1
J2
J3
J4
J5
J6
QTY 2 21
PIN 85 REF
KEY REF
J9
SEE NOTE 8
14 PLACES
SEE NOTE 8
7 PLACES
A

VIEW SHOWN WITH ENCAPSULATING COMPOUND REMOVED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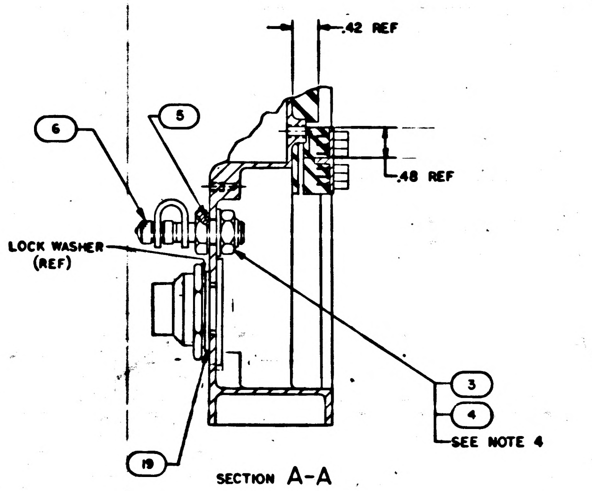
.03
SEE NOTE 7
SEE NOTE 6
.42 REF

SECTION B-B


.42 REF
5
6
.48 REF
LOCK WASHER (REF)
3
4
SEE NOTE 4
19

SECTION A-A

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. IDENTIFY WITH PART NO. PER ND1002019
~~3. DRESS USING FIND NO.18~~
4. MOUNTING TORQUE FOR FIND NO. 3 TO BE 10 TO 11 FT-LBS
5 AR DENOTES AS REQUIRED
6. BOND FIND NO. 12 TO FIND NO. 1 PER ND1002004 TYPE IV IN AREAS INDICATED
7. ENCAPSULATE INDICATED AREAS PER ND1002236
8. INDICATED AREA AND HOLES TO BE FREE FROM ENCAPSULATING COMPOUND
~~9. LACE FIND NO. 12 TO FIND NO. 1 WHERE SHOWN USING FIND NO. 18~~
10. WIRE USING LEAD ELECTRICAL & PER ND1002031 EXCEPT FIND NO.15 TO HAVE 5 TO 6 TURNS OF UNINSULATED WIRE, 1/2 TO 1 1/2 TURNS UNINSULATED WIRE, STRIP LENGTH OF 1.18 TO 1.00, AND STRIP FORCE OF 5 LB MIN.
11. INDICATED AREAS TO BE FREE OF WIRES AND ENCAPSULATING COMPOUND TO THE LEVEL OF SURFACE A
12. WELD PER ND1002005
13. SOLDER LEADS OF FIND NO. 12 PER ND1002071 USING SOLDER PER ND1002075
14. MOUNTING TORQUE FOR CONNECTOR OF FIND NO. 12 TO BE 20 TO 25 FT-LBS

☒	200595
2	MS51959
1	200492
1	100454
~~AR~~	~~1012807~~
1	NAS1598
1	MS35216
AR	1010807-
AR	1010940-
1	200493
1	2003980
2	MS1663
2	100454
2	100454
2	100457
4	MS5195
1	200490
1	100015
1	MS1579
1	MS2036
1	200391
1	200396
QTY REQD	ID
011	

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ±.01 ANGLES ±	INSTRUMENT
		DO NOT SCALE THIS DRAWING	DRAWN W. C CHECKED APPROVAL APPROVAL
		MATERIAL	
2003985		HEAT TREATMENT	NASA APPROVAL
NEXT ASSY	USED ON	FINAL FINISH	MIT APPROVAL
APPLICATION			

2003954 A F1/2

SHEET 1

2003954 A

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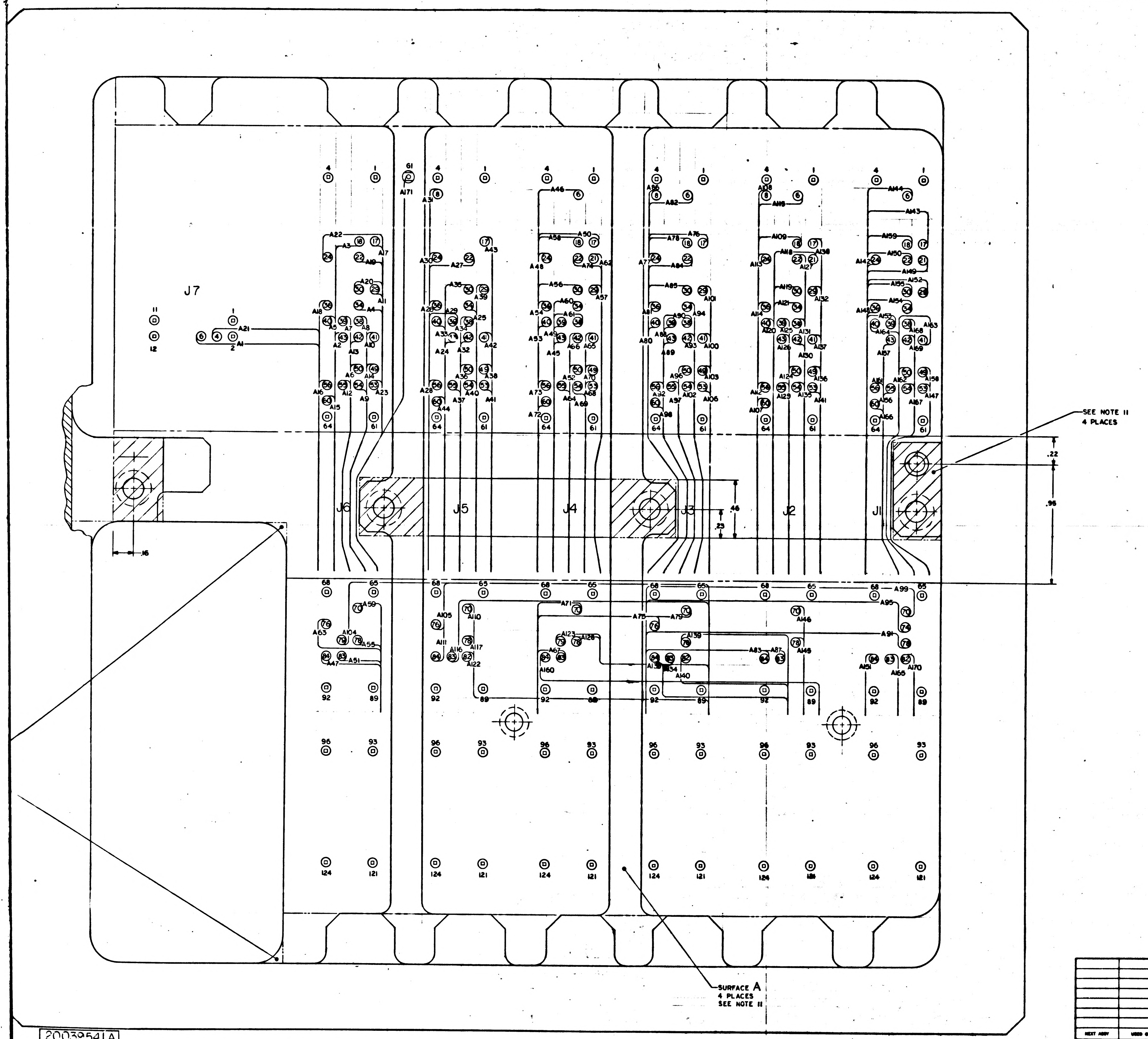


Ⓐ THIS SHT REPLACES SHT 2 REV— WITH CHANGES

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

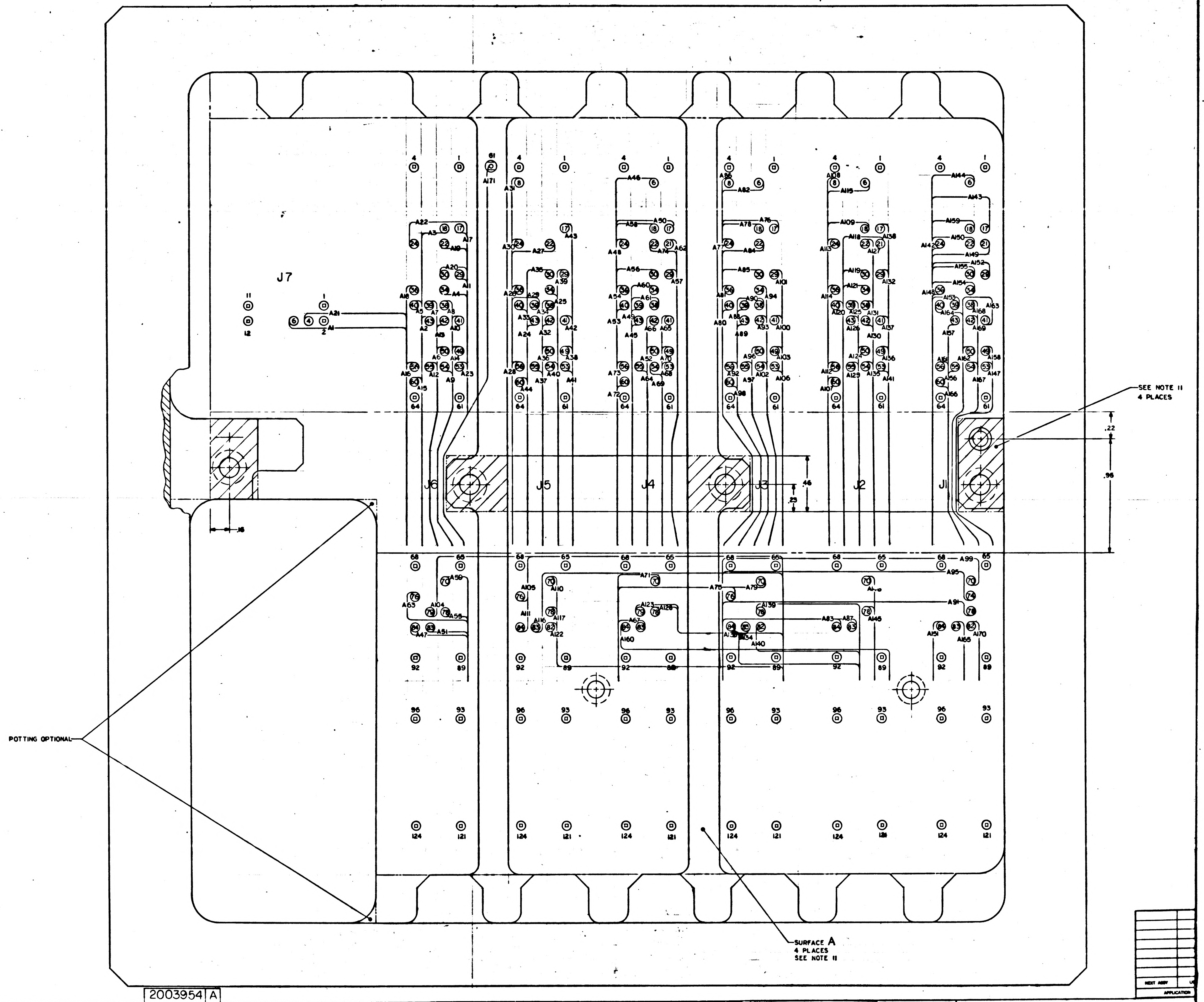
MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN A. Vocca DATE 8 SEP 65
CHECKED R. Edmonds
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL WKuff 21 Sep 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MAIN HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003954
SCALE NONE
WT
SHEET 2 OF 3

2003954 A


6
5
4
3
2
D
C
B
A
J7
J6
J5
J4
J3
J2
J1
POTTING OPTIONAL
SEE NOTE 11
4 PLACES
SURFACE A
4 PLACES
SEE NOTE 11
.22
.96
.46
.23
.16
NEXT ASSY
APPLICATION

2003954 A

2003954-A

SHEET 2

2003954 A

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22542 DR D.O. Clement CHK		

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A1	SEE NOTE 10	J12-166	14	YEL	30	AR	J7-6	SEE NOTE 10
A2		-167	14	YEL	30		J6-43	
A3		-160	15	WHT	26		-18	
A4		-159	14	YEL	30		-34	
A5		-154					-40	
A6		-153					-50	
A7		-148	14	YEL	30		-39	
A8		-147	15	WHT	26		-38	
A9		-142	14	YEL	30		-54	
A10		-141					-41	
A11		-136					-29	
A12		-135					-55	
A13		-187					-42	
A14		-210	14	YEL	30		-49	
A15		-182	15	WHT	26		-60	
A16		-204	14	YEL	30		-56	
A17		-192					-17	
A18		-176					-36	
A19		-175					-22	
A20		-174					J6-30	
A21		-170					J7-4	
A22		-169					J6-24	
A23		-168					J6-53	
A24		-164					J5-43	
A25		-163					-34	
A26		-162					-36	
A27		-161					-22	
A28		-158					-56	
A29		-157					-39	
A30		-156	14	YEL	30		-24	
A31		-155	15	WHT	26		-8	
A32		-152	14	YEL	30		-42	
A33		-151	14	YEL	30		-40	
A34		-150	15	WHT	26		-38	
A35		-149	14	YEL	30		-30	
A36		-146					-50	
A37		-145					-55	
A38		-144					-49	
A39		-143					-29	
A40		-140					-54	
A41		-139					-53	
A42		-138					-41	
A43		-137	14	YEL	30		-17	
A44		-134	15	WHT	26		J5-60	
A45		-133	14	YEL	30		J4-43	
A46		-132					J4-6	
A47		-131					J6-84	
A48		-130					J4-24	
A49		-129					J4-39	
A50		-128					J4-17	
A51		-127					J6-83	
A52		-126					J4-50	
A53		-125					J4-40	
A54		-124					J4-36	
A55		-123					J6-78	
A56		-122					J4-30	
A57		-121					J4-29	
A58		-120					J4-18	
A59		-119					J6-70	
A60		-118					J4-34	
A61		-117					J4-38	
A62		-116					J4-21	
A63		-115					J6-76	
A64		-114					J4-55	
A65		-113					-41	
A66		-112					-42	
A67		-111					-83	
A68		-110					-53	
A69		-109					-54	
A70		-108					-49	
A71		-107					-70	
A72		J12-106	14	YEL	30	AR	J4-60	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A73	SEE NOTE 10	J12-105	14	YEL	30	AR	J4-56	SEE NOTE 10
A74		-104					J4-22	
A75		-103					J3-76	
A76		-102					-17	
A77		-101	14	YEL	30		-24	
A78		-100	15	WHT	26		-18	
A79		-99	14	YEL	30		-70	
A80		-98	14	YEL	30		-40	
A81		-97	14	YEL	30		-36	
A82		-96	15	WHT	26		J3-6	
A83		-95	14	YEL	30		J2-84	
A84		-94	14	YEL	30		J3-22	
A85		-93	14	YEL	30		J3-30	
A86		-92	15	WHT	26		J3-8	
A87		-91	14	YEL	30		J2-83	
A88		-90	14	YEL	30		J3-39	
A89		-89	14	YEL	30		J3-43	
A90		-88	15	WHT	26		J3-38	
A91		-87	14	YEL	30		J1-78	
A92		-86					J3-56	
A93		-85					J3-42	
A94		-84					J3-34	
A95		-83					J1-74	
A96		-82					J3-50	
A97		-81	14	YEL	30		J3-55	
A98		-80	15	WHT	26		J3-60	
A99		-79	14	YEL	30		J1-70	
A100		-78					J3-41	
A101		-77					J3-29	
A102		-76					J3-54	
A103		-75					J3-49	
A104		-74					J6-79	
A105		-73					J5-76	
A106		-72					J3-53	
A107		-71	14	YEL	30		J2-60	
A108		-70	15	WHT	26		J2-8	
A109		-69	14	YEL	30		J2-18	
A110		-68					J5-70	
A111		-67					J5-84	
A112		-66					J2-56	
A113		-65					J2-24	
A114		-64	14	YEL	30		J2-36	
A115		-63	15	WHT	26		J2-6	
A116		-62	14	YEL	30		J5-83	
A117		-61					J5-78	
A118		-60					J2-21	
A119		-59					J2-30	
A120		-58					J2-40	
A121		-57					J2-34	
A122		-56					J5-82	
A123		-55					J4-79	
A124		-54					J2-50	
A125		-53					J2-39	
A126		-52					J2-43	
A127		-51					J2-22	
A128		-50					J4-78	
A129		-48					J2-55	
A130		-47					J2-42	
A131		-46					J2-38	
A132		-45					J2-29	
A133		-44					J3-84	
A134		-43					J3-83	
A135		-42					J2-54	
A136		-41					J2-49	
A137		-40					J2-41	
A138		-39					J2-17	
A139		-38					J3-78	
A140		-37					J3-82	
A141		-36					J2-53	
A142		-35					J1-24	
A143		-34	14	YEL	30		J1-17	
A144		J12-33	15	WHT	26	AR	J1-6	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A145	SEE NOTE 10	J12-32	14	YEL	30	AR	J2-78	SEE NOTE 10
A146		-31					J2-70	
A147		-30					J1-53	
A148		-29					-36	
A149		-28					-21	
A150		-27					-22	
A151		-25					-84	
A152		-24					-29	
A153		-23					-39	
A154		-22					-34	
A155		-21					-30	
A156		-18					-55	
A157		-17					-43	
A158		-16					-49	
A159		-15					J1-18	
A160		-13					J4-84	
A161		-12					J1-56	
A162		-11					-50	
A163		-10					-41	
A164		-9					-40	
A165		-7					-83	
A166		-6					-60	
A167		-5					-54	
A168		-4					-38	
A169		-3					-42	
A170		J12-1	14	YEL	30		J1-82	
A171		J12-183	15	WHT	26	AR	G1	SEE NOTE 12

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO CONTRACT
DRAWN D.O. Clement DATE 30 JUN 65
CHECKED R. Edwards 1 July 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MAIN HOUSING ASSEMBLY
AGC DSKY

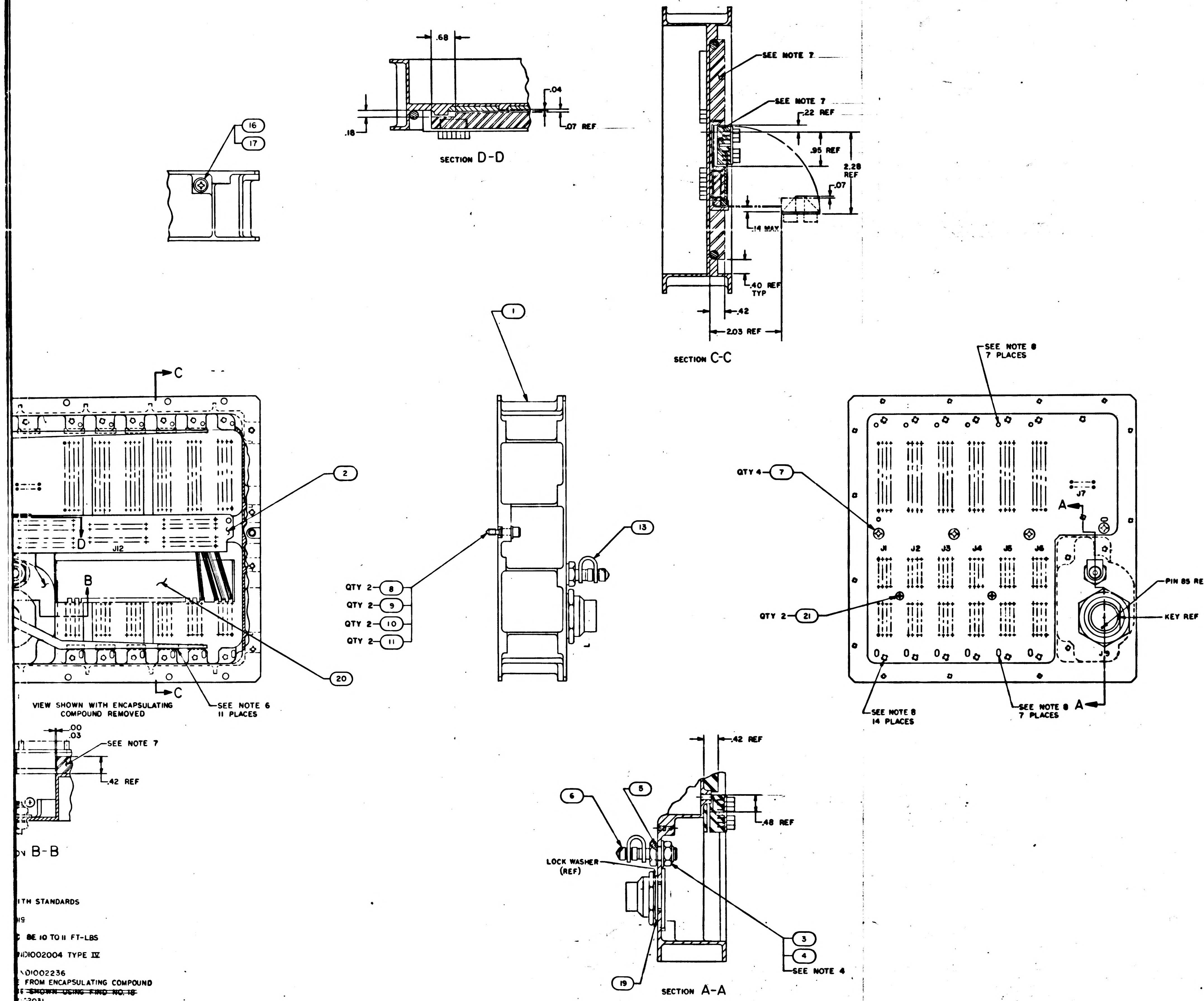
CODE IDENT NO 80230 SIZE J NASA DRAWING NO 2003954
SCALE NONE WT SHEET 3 OF 3

2003954 A

2003954 A

	REVISIONS		
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22542 DR D.A. Clement CHK	9/30/65	
B	REVISED PER TDRR 23632 DR CHK		

2003954 B



SECTION D-D
.68
.04
.18
.07 REF
16
17
SEE NOTE 7
SEE NOTE 7
.22 REF
.95 REF
2.28 REF
.07
.14 MAX
.40 REF TYP
.42
2.03 REF
SECTION C-C
1
C
C
2
D
J12
B
20
VIEW SHOWN WITH ENCAPSULATING COMPOUND REMOVED
SEE NOTE 6 11 PLACES
QTY 2 8
QTY 2 9
QTY 2 10
QTY 2 11
13
SEE NOTE 8 7 PLACES
QTY 4 7
QTY 2 21
J1
J2
J3
J4
J5
J6
J7
A
A
PIN 85 REF
KEY REF
SEE NOTE 8 14 PLACES
SEE NOTE 8 7 PLACES
.00
.03
SEE NOTE 7
.42 REF
.42 REF
.48 REF
6
5
LOCK WASHER (REF)
3
4
SEE NOTE 4
19
SECTION A-A

ON B-B

ITH STANDARDS

19

BE 10 TO 11 FT-LBS

ND1002004 TYPE IV

ND1002236

FROM ENCAPSULATING COMPOUND

~~E SHOWN USING FIND NO. 18~~

2031

UNINSULATED WIRE, 1/2 TO 1 1/2

.18 TO 1.00, AND STRIP FORCE

AND ENCAPSULATING

002071 USING SOLDER PER ND1002075

FIND NO. 12 TO BE 20 TO 25 FT-LBS

2003954 B

☒	2005951	INTERCONNECTING DIAGRAM	REF
2	MS51959-12	SCREW, FLAT HD, CROSS RECESSED	21
1	2004927	COMB, WIRE	20
1	1004546-5	WASHER, FLAT	19
~~AR~~	~~1012507-003~~	~~TAPE, LACING~~	~~18~~
1	NAS1598D08N	WASHER, SEALING	17
1	MS35216-39	SCREW, PAN HD, CROSS RECESSED	16
AR	1010807-22	WIRE, INSULATED	15
AR	1006732-1	WIRE, INSULATED	14
1	2004931	RETAINER, VALVE CAP	13
1	2003980-011	WIRING HARNESS, BRANCHED	12
2	MS16633-4015	RING, RETAINING	11
2	1004546-3	WASHER, FLAT	10
2	1004546-1	WASHER, FLAT	9
2	1004579-2	SCREW, JACKING	8
4	MS51959-28	SCREW, FLAT HD, CROSS RECESSED	7
1	2004903	VALVE, PNEUMATIC TANK	6
1	1000159-14	PACKING, PREFORMED, O-RING	5
1	MS15795-314	WASHER, FLAT	4
1	MS20364D624A	NUT, HEX	3
1	2003916-011	CONNECTOR PLATE ASSY	2
1	2003967-011	IDM WIREWRAP PLATE ASSY	1
QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
011	LIST OF MATERIALS		

2003954 B

2003985	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
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FRACTIONS ± DECIMALS ±.01 ANGLES ±
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HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO CONTRACT
DRAWN W. Brown DATE July 65
CHECKED R Edwards 12 July 65
APPROVAL
APPROVAL Eldon C. Hall 7 July 65
NASA APPROVAL
MIT APPROVAL

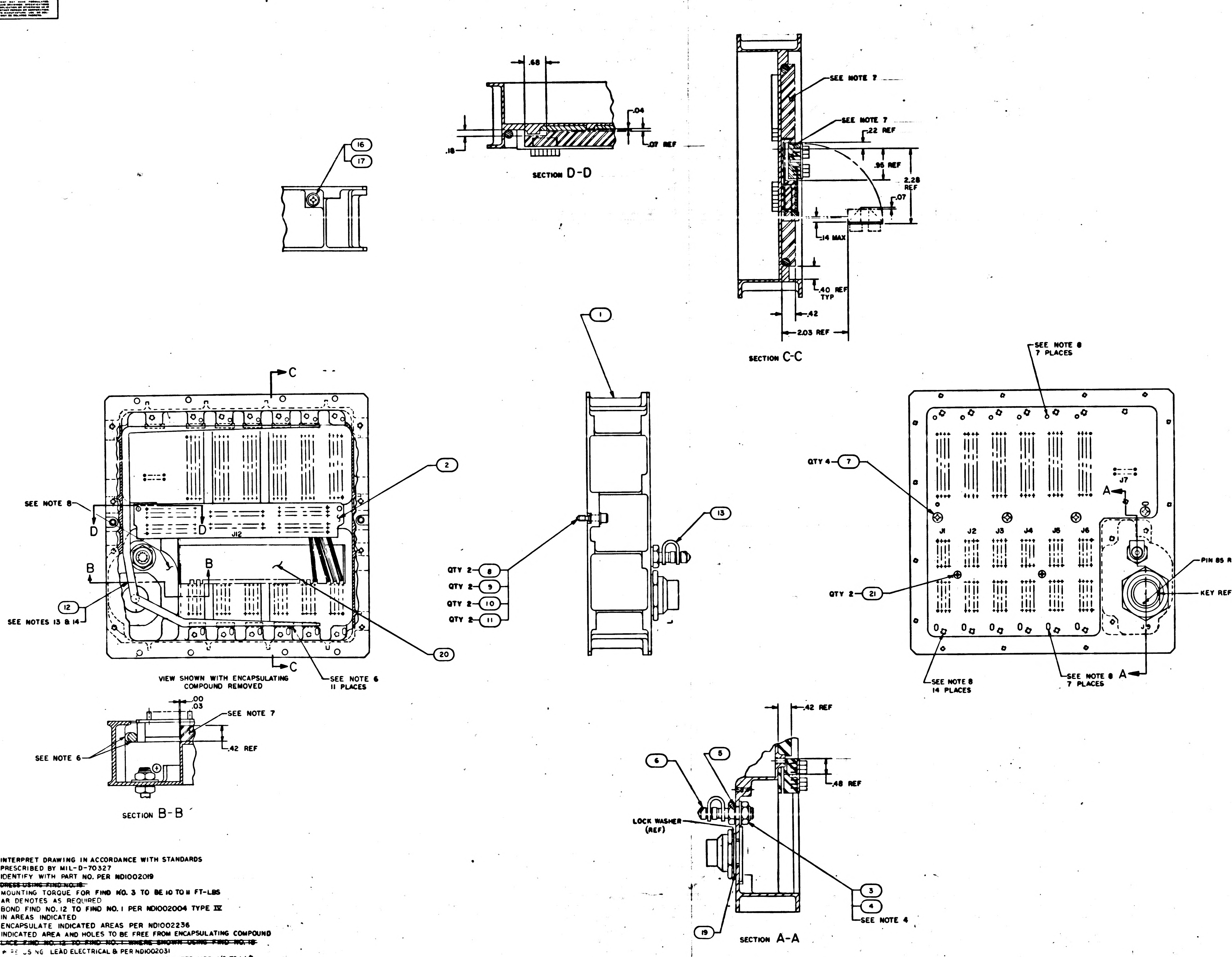
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MAIN HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003954
SCALE 1/1
WT
SHEET 1 OF 3

MASTER

1 F2/2


5
4
3
2
D
C
B
A
03954 B
16
17
.68
.04
.16
.07 REF
SECTION D-D
SEE NOTE 7
SEE NOTE 7
.22 REF
.95 REF
2.28 REF
.07
.14 MAX
.40 REF TYP
.42
2.03 REF
SECTION C-C
1
C
C
2
SEE NOTE 8
D
D
J12
B
B
12
SEE NOTES 13 & 14
20
VIEW SHOWN WITH ENCAPSULATING COMPOUND REMOVED
SEE NOTE 6 11 PLACES
QTY 2 8
QTY 2 9
QTY 2 10
QTY 2 11
13
SEE NOTE 8 7 PLACES
QTY 4 7
J7
A
J1
J2
J3
J4
J5
J6
PIN 85 REF
KEY REF
QTY 2 21
J9
SEE NOTE 8 14 PLACES
SEE NOTE 8 7 PLACES
A
.00
.03
SEE NOTE 7
SEE NOTE 6
.42 REF
SECTION B-B
.42 REF
6
5
.48 REF
LOCK WASHER (REF)
3
4
SEE NOTE 4
19
SECTION A-A

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. IDENTIFY WITH PART NO. PER ND1002019
~~3. DRESS USING FIND NO.18~~
4. MOUNTING TORQUE FOR FIND NO. 3 TO BE 10 TO 11 FT-LBS
5 AR DENOTES AS REQUIRED
6. BOND FIND NO. 12 TO FIND NO. 1 PER ND1002004 TYPE IV IN AREAS INDICATED
7. ENCAPSULATE INDICATED AREAS PER ND1002236
8. INDICATED AREA AND HOLES TO BE FREE FROM ENCAPSULATING COMPOUND
~~9. LACE FIND NO. 12 TO FIND NO. 1 WHERE SHOWN USING FIND NO. 18~~
10. [illegible] USING LEAD ELECTRICAL & PER ND1002031 EXCEPT FIND NO.15 TO HAVE 5 TO 6 TURNS OF UNINSULATED WIRE, 1/2 TO 1 1/2 TURNS UNINSULATED WIRE, STRIP LENGTH OF 1.18 TO 1.00, AND STRIP FORCE OF 5 LB MIN.
11. INDICATED AREAS TO BE FREE OF WIRES AND ENCAPSULATING COMPOUND TO THE LEVEL OF SURFACE A
12. WELD PER ND1002005
13. SOLDER LEADS OF FIND NO. 12 PER ND1002071 USING SOLDER PER ND1002075
14. MOUNTING TORQUE FOR CONNECTOR OF FIND NO. 12 TO BE 20 TO 25 FT-LBS

☒	200595	INTERCO
2	MS5195	SCREW, F
1	200492	COMB, W
1	100454	WASHER,
~~AR~~	~~1012507~~	~~TAPE, LA~~
1	NAS159	WASHER,
1	MS3521	SCREW, PA
AR	1010807	WIRE, INS
AR	100673	WIRE, INS
1	200493	RETAINE
1	200398	WIRING H
2	MS1663	RING, RET
2	100454	WASHER.
2	100454	WASHER.
2	100457	SCREW,
4	MS5195	SCREW,
1	200490	VALVE,
1	100015	PACKING
1	MS1579	WASHER
1	MS203	NUT, HEX
1	200391	CONNEC
1	20039	IOM WIRE
QTY REQD		
011		OF MATER

2003985	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.01 ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

HEAT TREATMENT

FINAL FINISH

INSTRUMENT

DRAWN W. B
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANN

IN H

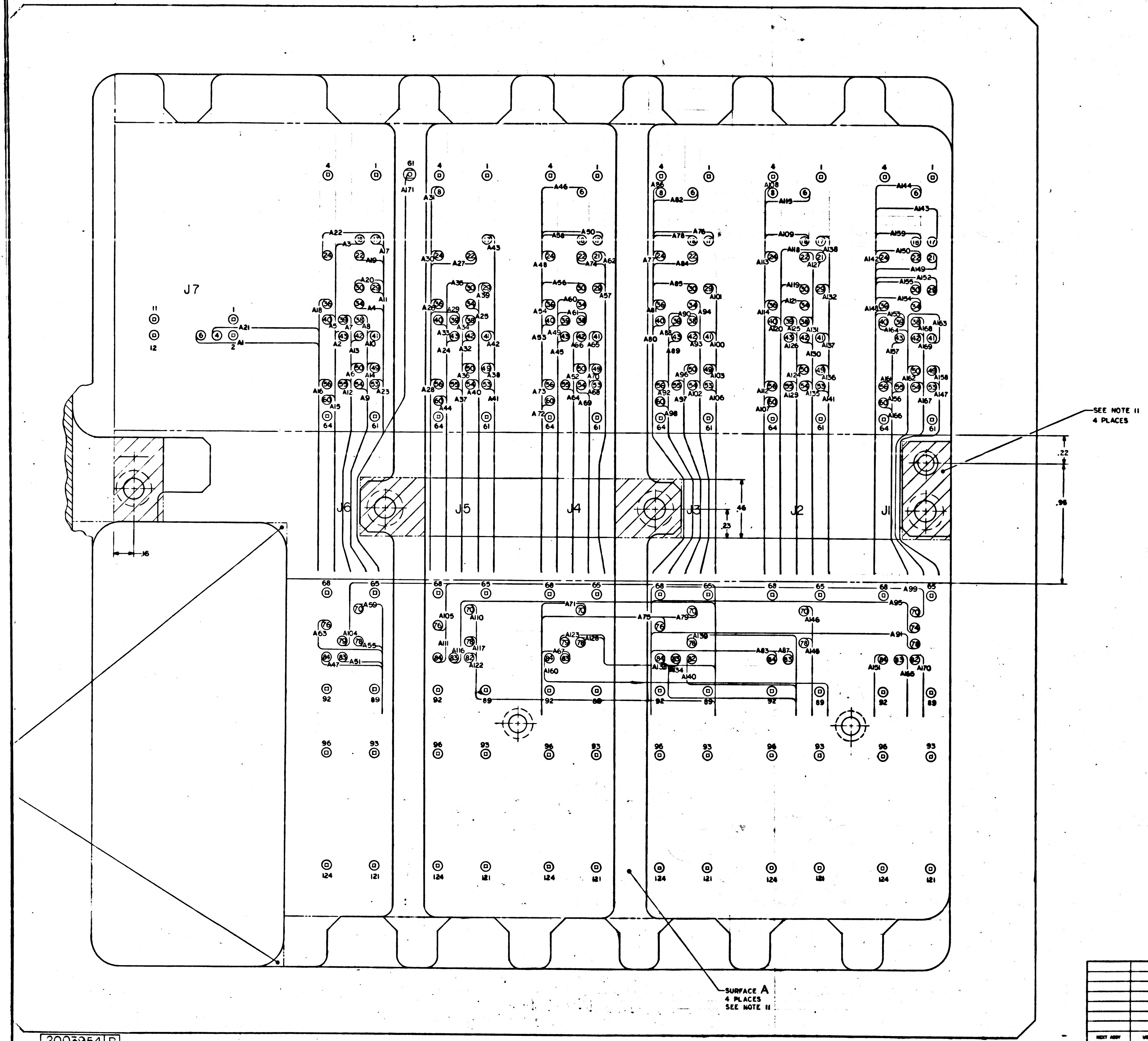
30 J
1/1

2003954 B F1/2

SHEET 1

2003954 B

SYM	DESCRIPTION	DATE	APPROVAL
A	THIS SHT REPLACES SHT 2 REV— WITH CHANGES PER TDRR 22542	9/24/65	WJK
B	REVISED PER TDRR 23632 DR B Yapia CHK	11/10/65	



Ⓐ THIS SHT REPLACES SHT 2
REV— WITH CHANGES

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN A. Vogel DATE 8 SEP 65
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL W Kupfer 21 Sep 65

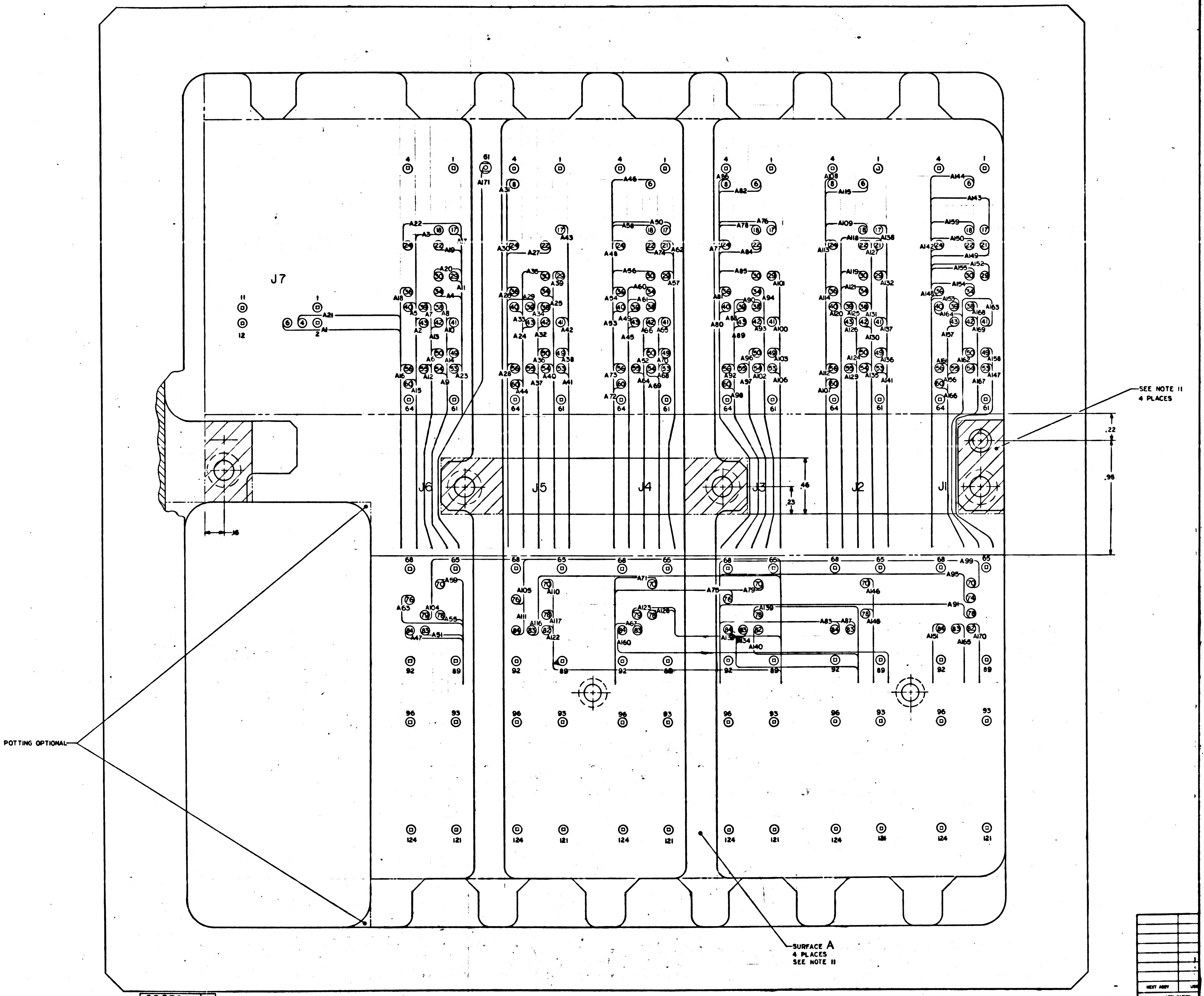
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MAIN HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230 SIZE J NASA DRAWING NO. 2003954
SCALE NONE WT SHEET 2 OF 3

2003954 B

F 2/2


J7
J6
J5
J4
J3
J2
J1
.22
.96
.46
.23
.16

SEE NOTE 11
4 PLACES

POTTING OPTIONAL

SURFACE A
4 PLACES
SEE NOTE 11

2003954 B

2003954 B F1/2

SHEET 2

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22542 DR CHK		
B	REVISED PER TDRR 23632 DR CHK		

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A1		J12-166	14	YEL	30	AR	J7-6	
A2		-167	14	YEL	30		J6-43	
A3		-160	15	WHT	26		-18	
A4		-159	14	YEL	30		-34	
A5		-154					-40	
A6		-153					-50	
A7		-148	14	YEL	30		-39	
A8		-147	15	WHT	26		-38	
A9		-142	14	YEL	30		-54	
A10		-141					-41	
A11		-136					-29	
A12		-135					-55	
A13		-187					-42	
A14		-210	14	YEL	30		-49	
A15		-182	15	WHT	26		-60	
A16		-204	14	YEL	30		-56	
A17		-192					-17	
A18		-176					-36	
A19		-175					-22	
A20		-174					J6-30	
A21		-170					J7-4	
A22		-169					J6-24	
A23		-168					J6-53	
A24		-164					J5-43	
A25		-163					-34	
A26		-162					-36	
A27		-161					-22	
A28		-158					-56	
A29		-157					-39	
A30		-156	14	YEL	30		-24	
A31		-155	15	WHT	26		-8	
A32		-152	14	YEL	30		-42	
A33		-151	14	YEL	30		-40	
A34		-150	15	WHT	26		-38	
A35		-149	14	YEL	30		-30	
A36	SEE NOTE 10	-146					-50	SEE NOTE 10
A37		-145					-55	
A38		-144					-49	
A39		-143					-29	
A40		-140					-54	
A41		-139					-53	
A42		-138					-41	
A43		-137	14	YEL	30		-17	
A44		-134	15	WHT	26		J5-60	
A45		-133	14	YEL	30		J4-43	
A46		-132					J4-6	
A47		-131					J6-84	
A48		-130					J4-24	
A49		-129					J4-39	
A50		-128					J4-17	
A51		127					J6-83	
A52		-126					J4-50	
A53		-125					J4-40	
A54		-124					J4-36	
A55		-123					J6-78	
A56		-122					J4-30	
A57		-121					J4-29	
A58		-120					J4-18	
A59		-119					J6-70	
A60		-118					J4-34	
A61		-117					J4-38	
A62		-116					J4-21	
A63		-115					J6-76	
A64		-114					J4-55	
A65		-113					-41	
A66		-112					-42	
A67		-111					-83	
A68		-110					-53	
A69		-109					-54	
A70		-108					-49	
A71		-107					-70	
A72		J12-106	14	YEL	30	AR	J4-60	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A73		J12-105	14	YEL	30	AR	J4-56	
A74		-104					J4-22	
A75		-103					J3-76	
A76		-102					-17	
A77		-101	14	YEL	30		-24	
A78		-100	15	WHT	26		-18	
A79		-99	14	YEL	30		-70	
A80		-98	14	YEL	30		-40	
A81		-97	14	YEL	30		-36	
A82		-96	15	WHT	26		J3-6	
A83		-95	14	YEL	30		J2-84	
A84		-94	14	YEL	30		J3-22	
A85		-93	14	YEL	30		J3-30	
A86		-92	15	WHT	26		J3-8	
A87		-91	14	YEL	30		J2-83	
A88		-90	14	YEL	30		J3-39	
A89		-89	14	YEL	30		J3-43	
A90		-88	15	WHT	26		J3-38	
A91		-87	14	YEL	30		J1-78	
A92		-86					J3-56	
A93		-85					J3-42	
A94		-84					J3-34	
A95		-83					J1-74	
A96		-82					J3-50	
A97		-81	14	YEL	30		J3-55	
A98		-80	15	WHT	26		J3-60	
A99		-79	14	YEL	30		J1-70	
A100		-78					J3-41	
A101		-77					J3-29	
A102		-76					J3-54	
A103		-75					J3-49	
A104		-74					J6-79	
A105		-73					J5-76	
A106		-72					J3-53	
A107		-71	14	YEL	30		J2-60	
A108	SEE NOTE 10	-70	15	WHT	26		J2-8	SEE NOTE 10
A109		-69	14	YEL	30		J2-18	
A110		-68					J5-70	
A111		-67					J5-84	
A112		-66					J2-56	
A113		-65					J2-24	
A114		-64	14	YEL	30		J2-36	
A115		-63	15	WHT	26		J2-6	
A116		-62	14	YEL	30		J5-83	
A117		-61					J5-78	
A118		-60					J2-21	
A119		-59					J2-30	
A120		-58					J2-40	
A121		-57					J2-34	
A122		-56					J5-82	
A123		-55					J4-79	
A124		-54					J2-50	
A125		-53					J2-39	
A126		-52					J2-43	
A127		-51					J2-22	
A128		-50					J4-78	
A129		-48					J2-55	
A130		-47					J2-42	
A131		-46					J2-38	
A132		-45					J2-29	
A133		-44					J3-84	
A134		-43					J3-83	
A135		-42					J2-54	
A136		-41					J2-49	
A137		-40					J2-41	
A138		-39					J2-17	
A139		-38					J3-78	
A140		-37					J3-82	
A141		-36					J2-53	
A142		-35					J1-24	
A143		-34	14	YEL	30		J1-17	
A144		J12-33	15	WHT	26	AR	J1-6	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A145		J12-32	14	YEL	30	AR	J2-78	
A146		-31					J2-70	
A147		-30					J1-53	
A148		-29					-36	
A149		-28					-21	
A150		-27					-22	
A151		-25					-84	
A152		-24					-29	
A153		-23					-39	
A154		-22					-34	
A155		-21					-30	
A156	SEE NOTE 10	-18					-55	SEE NOTE 10
A157		-17					-43	
A158		-16					-49	
A159		-15					J1-18	
A160		-13					J4-84	
A161		-12					J1-56	
A162		-11					-50	
A163		-10					-41	
A164		-9					-40	
A165		-7					-83	
A166		-6					-60	
A167		-5					-54	
A168		-4					-38	
A169		-3					-42	
A170		J12-1	14	YEL	30		J1-82	
A171		J12-183	15	WHT	26	AR	G1	SEE NOTE 12

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

NEXT ASSY | USED ON
APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
CONTRACT
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

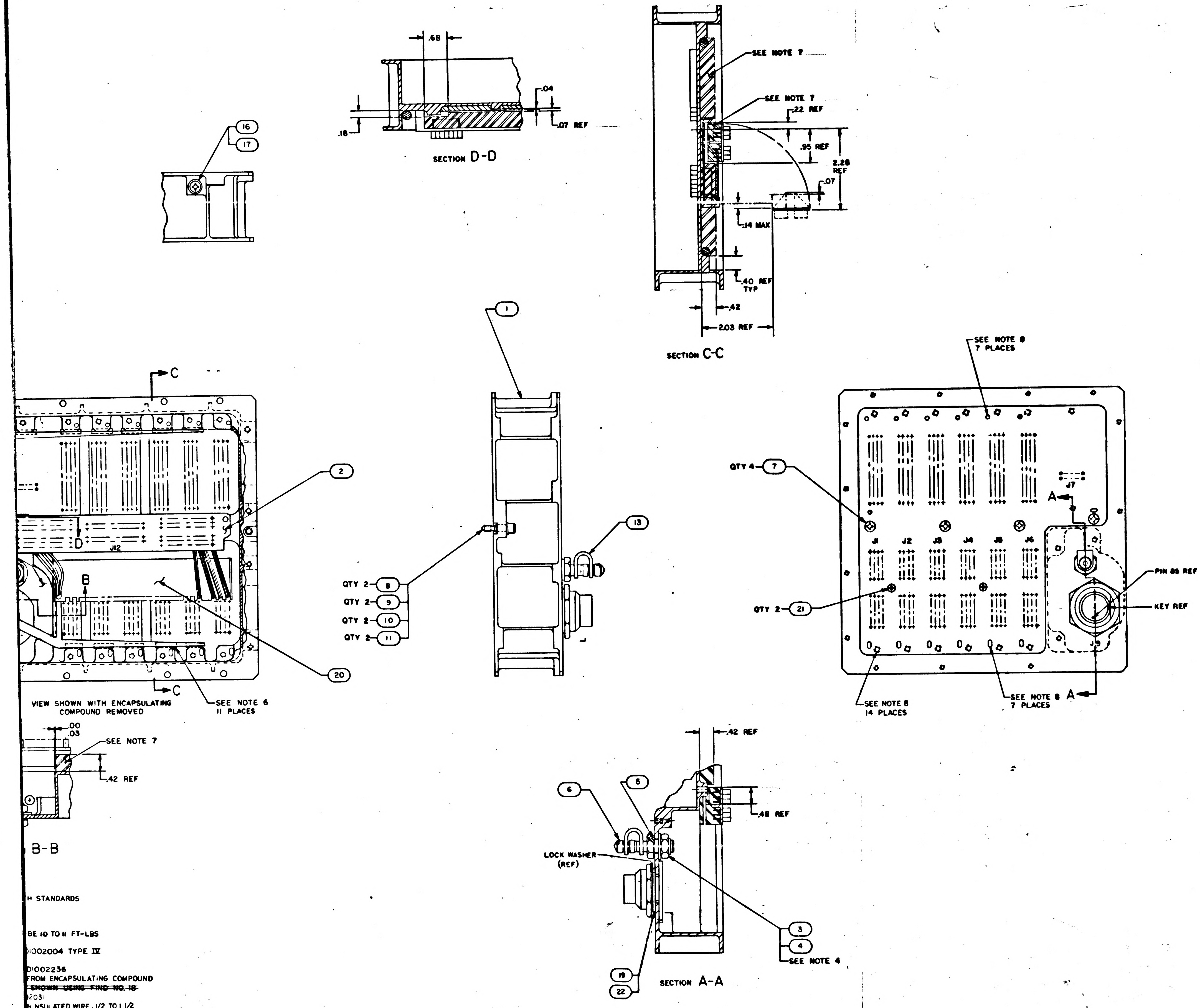
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MAIN HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230 | SIZE J | NASA DRAWING NO. 2003954
SCALE NONE | WT | SHEET 3 OF 3

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22542 DR D.A. Clement CHK CAP	9/30/65	
B	REVISED PER TDRR 23632 DR CHK CAP	11/65	
C	REVISED PER TDRR 23954 DR CHK	11/65	

2003954 C



4
3
2
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D
C
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A
SECTION D-D
.68
.04
.07 REF
.18
16
17
SEE NOTE 7
SEE NOTE 7
.22 REF
.95 REF
2.28 REF
.07
.14 MAX
.40 REF TYP
.42
2.03 REF
SECTION C-C
C
C
1
2
D
J12
B
20
VIEW SHOWN WITH ENCAPSULATING COMPOUND REMOVED
SEE NOTE 6 11 PLACES
QTY 2 8
QTY 2 9
QTY 2 10
QTY 2 11
13
SEE NOTE 8 7 PLACES
QTY 4 7
QTY 2 21
J1
J2
J3
J4
J5
J6
J7
A
A
PIN 85 REF
KEY REF
SEE NOTE 8 14 PLACES
SEE NOTE 8 7 PLACES
.00
.03
SEE NOTE 7
.42 REF
B-B
.42 REF
6
5
.48 REF
LOCK WASHER (REF)
3
4
SEE NOTE 4
19
22
SECTION A-A

H STANDARDS

BE 10 TO 11 FT-LBS

D1002004 TYPE IV

D1002236
FROM ENCAPSULATING COMPOUND
~~SHOWN USING FIND NO. 18~~
2031
N. NSULATED WIRE, 1/2 TO 1 1/2
18 TO 1.00, AND STRIP FORCE

AND ENCAPSULATING
A

002071 USING SOLDER PER ND1002075
FIND NO. 12 TO BE 20 TO 25 FT-LBS

	2005951	INTERCONNECTING DIAGRAM	REF
1	1010635-004	WASHER, LOCK	22
2	MS51959-13	SCREW, FLAT HD, CROSS RECESSED	21
1	2004927	COMB, WIRE	20
1	1004546-6	WASHER, FLAT	19
~~AR~~	~~1012807-003~~	~~TAPE, LACING~~	~~18~~
1	NAS1598D08N	WASHER, SEALING	17
1	MS35216-39	SCREW, PAN HD, CROSS RECESSED	16
AR	1010807-22	WIRE, INSULATED	15
AR	1006732-1	WIRE, INSULATED	14
1	2004931	RETAINER, VALVE CAP	13
1	2003980-011	WIRING HARNESS, BRANCHED	12
2	MS16633-4015	RING, RETAINING	11
2	1004546-3	WASHER, FLAT	10
2	1004546-1	WASHER, FLAT	9
2	1004579-2	SCREW, JACKING	8
4	MS51959-28	SCREW, FLAT HD, CROSS RECESSED	7
1	2004903	VALVE, PNEUMATIC TANK	6
1	1000159-14	PACKING, PREFORMED, O-RING	5
1	MS15795-314	WASHER, FLAT	4
1	MS20364D624A	NUT, HEX	3
1	2003916-011	CONNECTOR PLATE ASSY	2
1	2003967-011	IDM WIREWRAP PLATE ASSY	1
QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
011	LIST OF MATERIALS		

2003954 C

2003985	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.01 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO CONTRACT
DRAWN W. Brown DATE July 65
CHECKED R Edmund 12 July 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

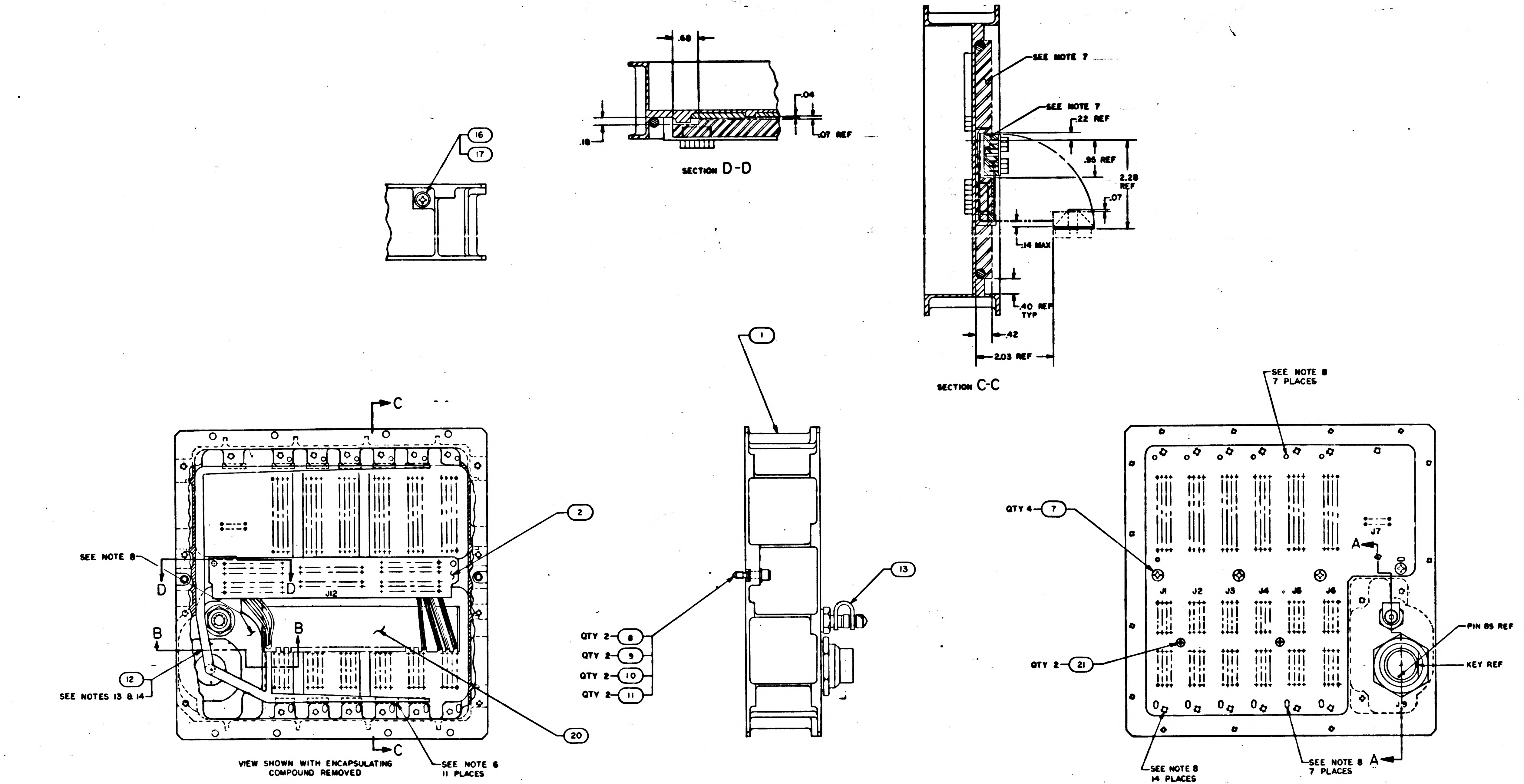
MAIN HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO. 2003954
SCALE 1/1
WT
SHEET 1 OF 3

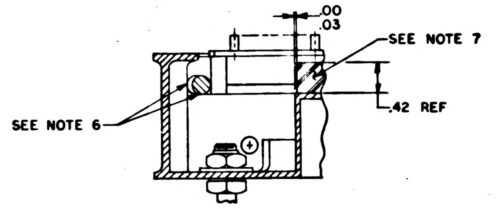
2003954 C

MASTER

F2/2

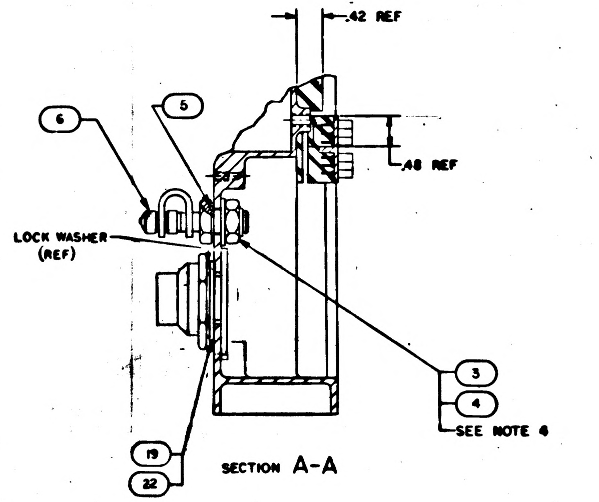


.68
.04
.18
.07 REF
SECTION D-D
16
17
SEE NOTE 7
SEE NOTE 7
.22 REF
.96 REF
2.28 REF
.07
.14 MAX
.40 REF TYP
.42
2.03 REF
SECTION C-C
1
C
C
2
SEE NOTE 8
D
D
J12
B
B
12
SEE NOTES 13 & 14
20
VIEW SHOWN WITH ENCAPSULATING COMPOUND REMOVED
SEE NOTE 6 11 PLACES
QTY 2 8
QTY 2 9
QTY 2 10
QTY 2 11
13
SEE NOTE 8 7 PLACES
QTY 4 7
J7
A
J1
J2
J3
J4
J5
J6
PIN 85 REF
KEY REF
QTY 2 21
SEE NOTE 8 14 PLACES
SEE NOTE 8 7 PLACES
A



.00
.03
SEE NOTE 7
.42 REF
SEE NOTE 6

SECTION B-B



.42 REF
6
5
.48 REF
LOCK WASHER (REF)
3
4
SEE NOTE 4
19
22

SECTION A-A

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. IDENTIFY WITH PART NO. PER ND1002019
~~3. DRESS USING FIND NO. 18~~
4. MOUNTING TORQUE FOR FIND NO. 3 TO BE 10 TO 11 FT-LBS
5. AR DENOTES AS REQUIRED
6. BOND FIND NO. 12 TO FIND NO. 1 PER ND1002004 TYPE IV IN AREAS INDICATED
7. ENCAPSULATE INDICATED AREAS PER ND1002236
8. INDICATED AREA AND HOLES TO BE FREE FROM ENCAPSULATING COMPOUND
~~9. LACE FIND NO. 12 TO FIND NO. 1 WHERE SHOWN USING FIND NO. 18~~
10. WIRE USING LEAD ELECTRICAL & PER ND1002031 EXCEPT FIND NO.15 TO HAVE 5 TO 6 TURNS OF UNINSULATED WIRE, 1/2 TO 1 1/2 TURNS UNINSULATED WIRE, STRIP LENGTH OF 1.18 TO 1.00, AND STRIP FORCE OF 5 LB MIN.
11. INDICATED AREAS TO BE FREE OF WIRES AND ENCAPSULATING COMPOUND TO THE LEVEL OF SURFACE A
12. WELD PER ND1002005
13. SOLDER LEADS OF FIND NO. 12 PER ND1002071 USING SOLDER PER ND1002075
14. MOUNTING TORQUE FOR CONNECTOR OF FIND NO. 12 TO BE 20 TO 25 FT-LBS

☒	2005951
1	1010635-
2	MS51959-
1	2004927
1	1004546
~~AR~~	~~1012507~~
1	NAS1598D
1	MS35216-
AR	1010807-2
AR	1006732
1	2004931
1	2003980-
2	MS16633
2	1004546
2	1004546
2	1004579
4	MS51959-
1	2004903
1	1000159-
1	MS15795-
1	MS20364
1	2003916
1	2003967
QTY REQD	IDEN
011	

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~~PE, LAC~~
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CREW, JA
CREW, FL
ALVE, PN
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ASHER,
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ONNECT
M WIRE

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NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.01 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
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CAMBRIDGE

DRAWN W. Ba
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

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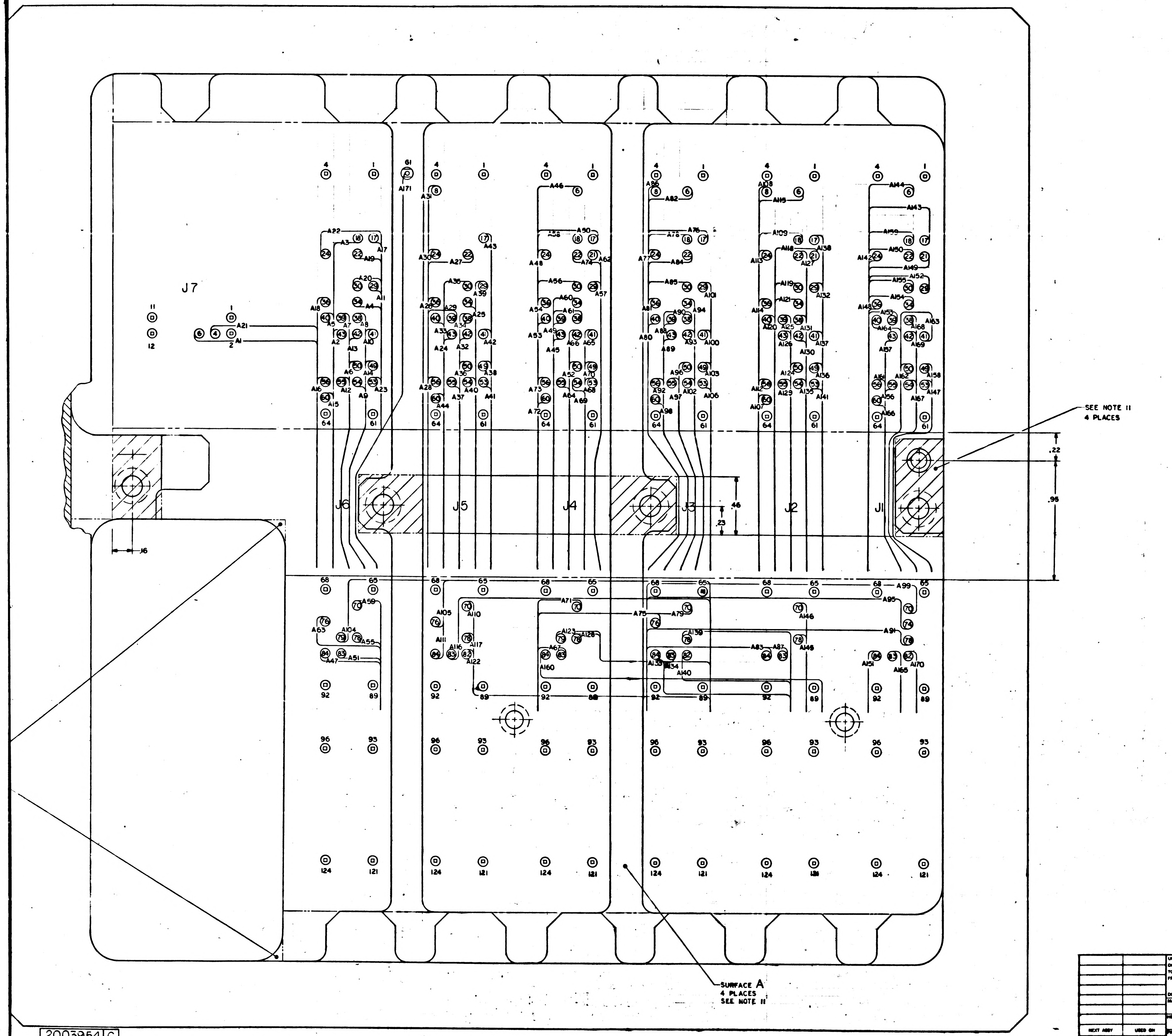
2003954 C F1/2

SHEET 1

SYM	DESCRIPTION	DATE	APPROVAL
A	THIS SHT REPLACES SHT 2 REV— WITH CHANGES PER TDRR 22542	9/24/65	WJK
B	REVISED PER TDRR 23632 DR CHK		
C	REVISED PER TDRR 23954 DR CHK		


J7
J6
J5
J4
J3
J2
J1
SEE NOTE 11
4 PLACES
SURFACE A
4 PLACES
SEE NOTE 11
.22
.95
.46
.23
.16
4
1
61
64
65
68
89
92
93
96
121
124

Ⓐ THIS SHT REPLACES SHT 2
REV— WITH CHANGES

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
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MATERIAL
HEAT TREATMENT
FINAL FINISH

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INSTRUMENTATION LAB
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DRAWN DATE
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APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL WKrafe 21 Sept

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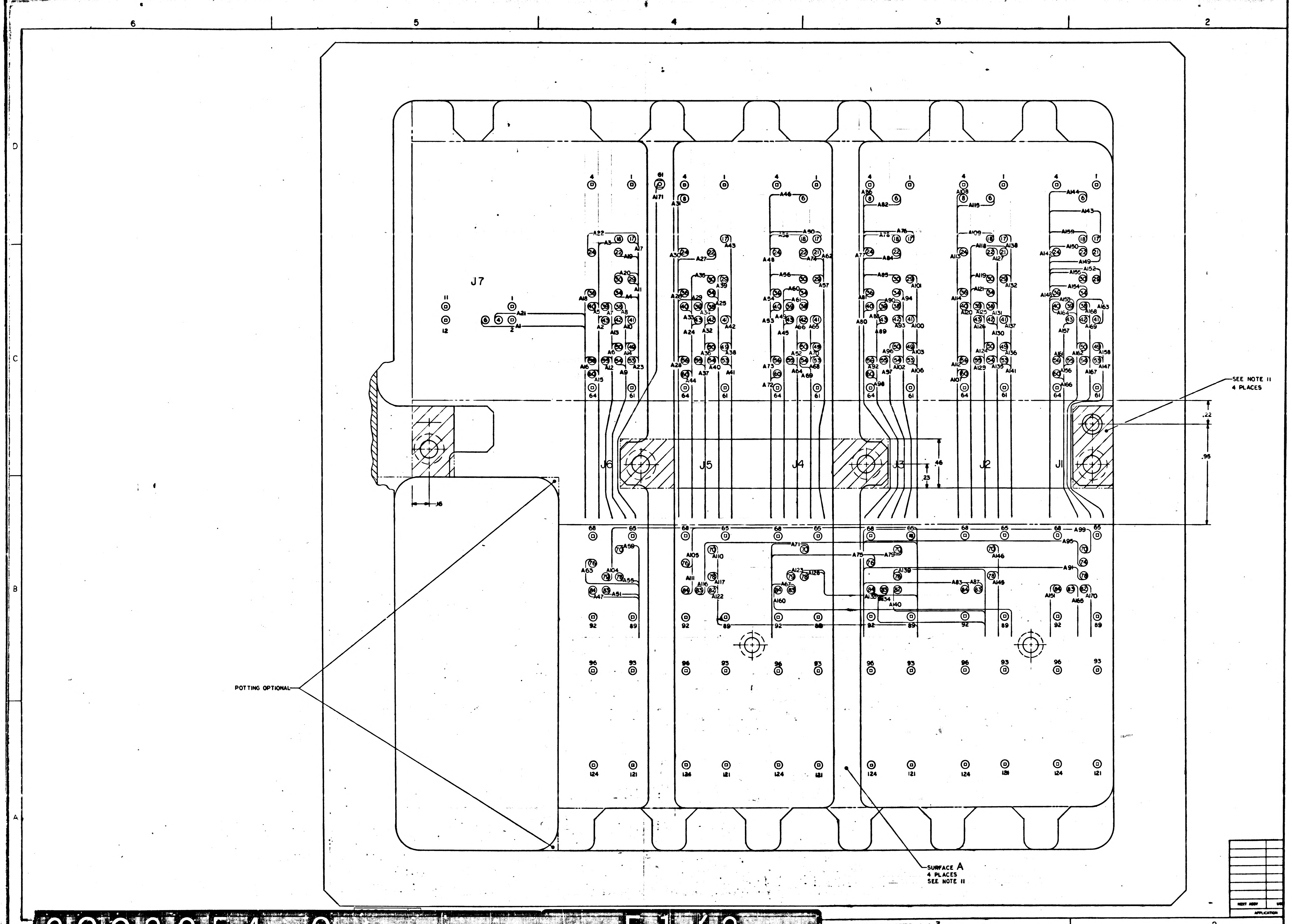
HOUSTON, TEXAS

MAIN HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003954
SCALE NONE
WT
SHEET 2 OF 3


6
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D
C
B
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J7
J6
J5
J4
J3
J2
J1
SEE NOTE 11
4 PLACES
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POTTING OPTIONAL
SURFACE A
4 PLACES
SEE NOTE 11
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REV

2003954 C F1/2

SHEET 2

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22542 DR D.O. Clement CHK		
B	REVISED PER TDRR 23632 DR CHK 671		
C	REVISED PER TDRR 23954 DR J.P. CHK		

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A1		J12-166	14	YEL	30	AR	J7-6	
A2		↑ -167	14	YEL	30	↑	J6-43	
A3		-160	15	WHT	26		↑ -18	
A4		-159	14	YEL	30		-34	
A5		-154	↑	↑	↑		-40	
A6		-153	↓	↓	↓		-50	
A7		-148	14	YEL	30		-39	
A8		-147	15	WHT	26		[illegible]	
A9		-142	14	YEL	30		-54	
A10		-141	↑	↑	↑		-41	
A11		-136					-29	
A12		-135					-55	
A13		-187	↓	↓	↓		-42	
A14		-210	14	YEL	30		-49	
A15		-182	15	WHT	26		-60	
A16		-204	14	YEL	30		-56	
A17		-192	↑	↑	↑		-17	
A18		-176					-36	
A19		-175					↓ -22	
A20		-174					J6-30	
A21		-170					J7-4	
A22		-169					J6-24	
A23		-168					J6-53	
A24		-164					J5-43	
A25		-163					↑ -34	
A26		-162					-36	
A27		-161					-22	
A28		-158					-56	
A29		-157	↓	↓	↓		-39	
A30		-156	14	YEL	30		-24	
A31		-155	15	WHT	26		-8	
A32		-152	14	YEL	30		-42	
A33		-151	14	YEL	30		-40	
A34		-150	15	WHT	26		-39	
A35		-149	14	YEL	30		-30	
A36	SEE NOTE 10	-146	↑	↑	↑		-50	SEE NOTE 10
A37		-145					-55	
A38		-144					-49	
A39		-143					-29	
A40		-140					-54	
A41		-139					-53	
A42		-138	↓	↓	↓		-41	
A43		-137	14	YEL	30		↓ -17	
A44		-134	15	WHT	26		J5-60	
A45		-133	14	YEL	30		J4-43	
A46		-132	↑	↑	↑		J4-6	
A47		-131					J6-84	
A48		-130					J4-24	
A49		-129					J4-39	
A50		-128					J4-17	
A51		-127					J6-83	
A52		-126					J4-50	
A53		-125					J4-40	
A54		-124					J4-36	
A55		-123					J6-78	
A56		-122					J4-30	
A57		-121					J4-29	
A58		-120					J4-18	
A59		-119					J6-70	
A60		-118					J4-34	
A61		-117					J4-38	
A62		-116					J4-21	
A63		-115					J6-76	
A64		-114					J4-55	
A65		-113					↑ -41	
A66		-112					-42	
A67		-111					-83	
A68		-110					-53	
A69		-109					-54	
A70		-108					-49	
A71		↓ -107	↓	↓	↓	↓	↓ -70	
A72		J12-106	14	YEL	30	AR	J4-60	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A73		J12-105	14	YEL	30	AR	J4-56	
A74		↑ -104	↑	↑	↑	↑	J4-22	
A75		-103					J3-76	
A76		-102	↓	↓	↓		↑ -17	
A77		-101	14	YEL	30		-24	
A78		-100	15	WHT	26		-18	
A79		-99	14	YEL	30		-70	
A80		-98	14	YEL	30		-40	
A81		-97	14	YEL	30		↓ -36	
A82		-96	15	WHT	26		J3-6	
A83		-95	14	YEL	30		J2-84	
A84		-94	14	YEL	30		J3-22	
A85		-93	14	YEL	30		J3-30	
A86		-92	15	WHT	26		J3-8	
A87		-91	14	YEL	30		J2-83	
A88		-90	14	YEL	30		J3-39	
A89		-89	14	YEL	30		J3-43	
A90		-88	15	WHT	26		J3-38	
A91		-87	14	YEL	30		J1-78	
A92		-86	↑	↑	↑		J3-56	
A93		-85					J3-42	
A94		-84					J3-34	
A95		-83					J1-74	
A96		-82	↓	↓	↓		J3-50	
A97		-81	14	YEL	30		J3-55	
A98		-80	15	WHT	26		J3-60	
A99		-79	14	YEL	30		J1-70	
A100		-78	↑	↑	↑		J3-41	
A101		-77					J3-29	
A102		-76					J3-54	
A103		-75					J3-49	
A104		-74					J6-79	
A105		-73					J5-76	
A106		-72	↓	↓	↓		J3-53	
A107		-71	14	YEL	30		J2-60	
A108	SEE NOTE 10	-70	15	WHT	26		J2-8	SEE NOTE 10
A109		-69	14	YEL	30		J2-18	
A110		-68	↑	↑	↑		J5-70	
A111		-67					J5-84	
A112		-66					J2-56	
A113		-65	↓	↓	↓		J2-24	
A114		-64	14	YEL	30		J2-36	
A115		-63	15	WHT	26		J2-6	
A116		-62	14	YEL	30		J5-83	
A117		-61	↑	↑	↑		J5-78	
A118		-60					J2-21	
A119		-59					J2-30	
A120		-58					J2-40	
A121		-57					J2-34	
A122		-56					J5-82	
A123		-55					J4-79	
A124		-54					J2-50	
A125		-53					J2-39	
A126		-52					J2-43	
A127		-51					J2-22	
A128		-50					J4-78	
A129		-48					J2-55	
A130		-47					J2-42	
A131		-46					J2-38	
A132		-45					J2-29	
A133		-44					J3-84	
A134		-43					J3-83	
A135		-42					J2-54	
A136		-41					J2-49	
A137		-40					J2-41	
A138		-39					J2-17	
A139		-38					J3-78	
A140		-37					J3-82	
A141		-36					J2-53	
A142		-35	↓	↓	↓		J1-24	
A143		↓ -34	14	YEL	30	↓	J1-17	
A144		J12-33	15	WHT	26	AR	J1-6	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A145		J12-32	14	YEL	30	AR	J2-78	
A146		↑ -31	↑	↑	↑	↑	J2-70	
A147		-30					J1-53	
A148		-29					↑ -36	
A149		-28					-21	
A150		-27					-22	
A151		-25					-84	
A152		-24					-29	
A153		-23					-39	
A154		-22					-34	
A155		-21					-30	
A156	SEE NOTE 10	-18					-55	SEE NOTE 10
A157		-17					-43	
A158		-16					↓ -49	
A159		-15					J1-18	
A160		-13					J4-84	
A161		-12					J1-56	
A162		-11					↑ -50	
A163		-10					-41	
A164		-9					-40	
A165		-7					-83	
A166		-6					-60	
A167		-5					-54	
A168		-4					-38	
A169		↓ -3	↓	↓	↓		↓ -42	
A170		J12-1	14	YEL	30	↓	J1-82	
A171		J12-183	15	WHT	26	AR	G1	SEE NOTE 12

QTY REQD	PART OR IDENTIFYING NO.
NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN D.O. Clement DATE
CHECKED R. Edwards 13 July 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

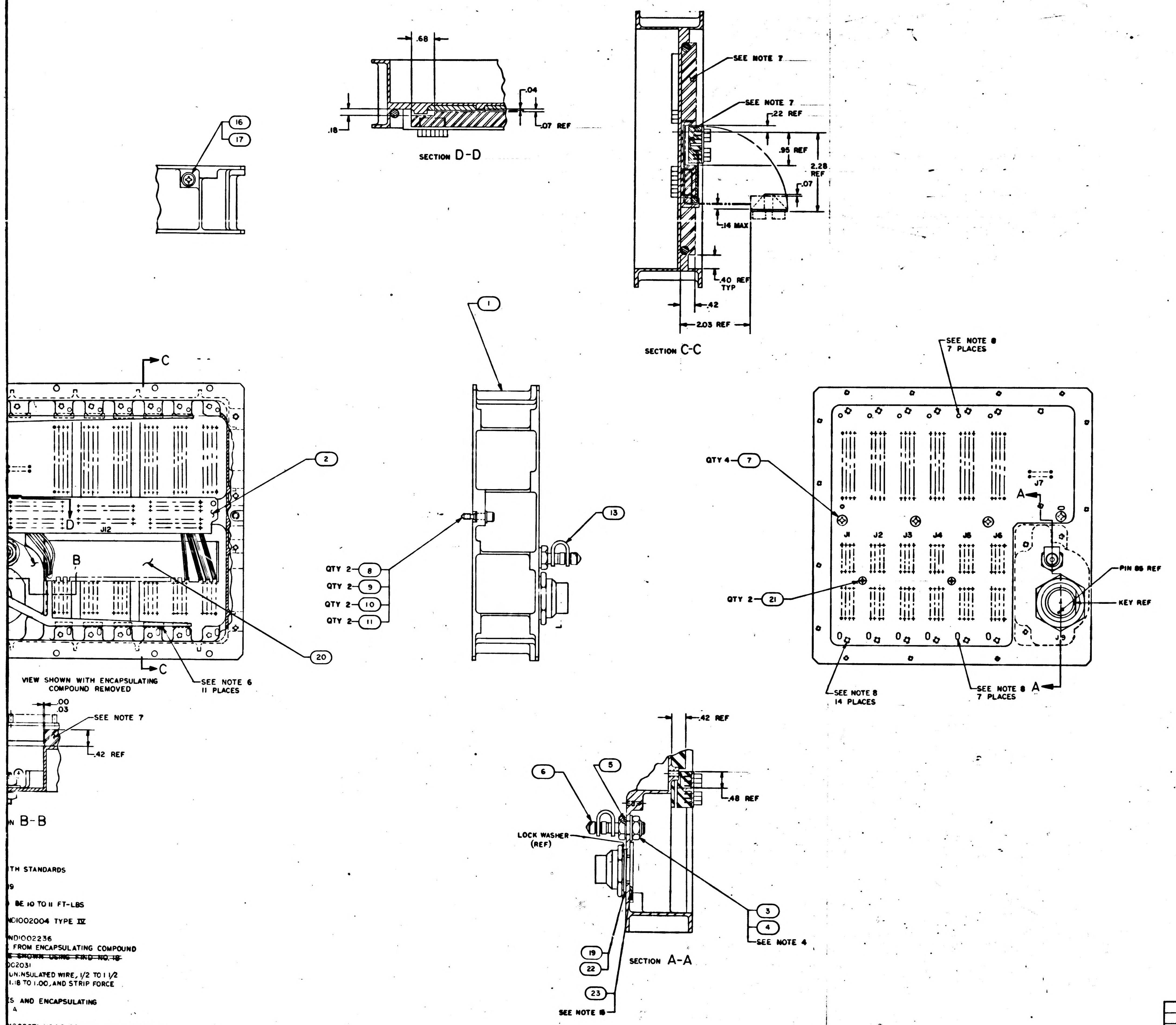
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MAIN HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	J	2003954
SCALE NONE	WT	SHEET 3 OF 3

2003954 D

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22542 DR D.A. Clement CHK CAP BM	9/30/65	
B	REVISED PER TDRR 23632 DR CHK CAP BM	11/65	
C	REVISED PER TDRR 23954 DR E.P. CHK	11/65	
D	REVISED PER TDRR 24234 DR CHK BM	2/65	



SECTION D-D
.68
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SEE NOTE 7
SEE NOTE 7
.22 REF
.95 REF
2.28 REF
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.14 MAX
.40 REF TYP
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2.03 REF
SECTION C-C
C
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VIEW SHOWN WITH ENCAPSULATING COMPOUND REMOVED
SEE NOTE 6 11 PLACES
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QTY 2 8
QTY 2 9
QTY 2 10
QTY 2 11
SEE NOTE 8 7 PLACES
QTY 4 7
QTY 2 21
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J1 J2 J3 J4 J5 J6
PIN 85 REF
KEY REF
SEE NOTE 8 14 PLACES
SEE NOTE 8 7 PLACES
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SEE NOTE 7
.42 REF
N B-B
.42 REF
.48 REF
6
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LOCK WASHER (REF)
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SEE NOTE 15
SECTION A-A
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NOTE 6

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BE 10 TO 11 FT-LBS

ND1002004 TYPE IV

ND1002236
FROM ENCAPSULATING COMPOUND
~~E SHOWN USING FIND NO. 18~~
002031
UNINSULATED WIRE, 1/2 TO 1 1/2
1.18 TO 1.00, AND STRIP FORCE

ES AND ENCAPSULATING
A

1002071 USING SOLDER PER ND1002075
FIND NO. 12 TO BE 20 TO 25 FT-LBS
REPLACE WITH FIND NO. 23

2003954 D

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	2005951	INTERCONNECTING DIAGRAM	REF
1	1000159-10	PACKING, PREFORMED "O" RING	23
1	1010635-004	WASHER, LOCK	22
2	MS51959-13	SCREW, FLAT HD, CROSS RECESSED	21
1	2004927	COMB, WIRE	20
1	1004546-6	WASHER, FLAT	19
~~AR~~	~~1012507-003~~	~~TAPE, LACING~~	~~18~~
1	NAS1598D08N	WASHER, SEALING	17
1	MS35216-39	SCREW, PAN HD, CROSS RECESSED	16
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AR	1006732-1	WIRE, INSULATED	14
1	2004931	RETAINER, VALVE CAP	13
1	2003980-011	WIRING HARNESS, BRANCHED	12
2	MS16633-4015	RING, RETAINING	11
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2	1004546-1	WASHER, FLAT	9
2	1004579-2	SCREW, JACKING	8
4	MS51959-28	SCREW, FLAT HD, CROSS RECESSED	7
1	2004903	VALVE, PNEUMATIC TANK	6
1	1000159-14	PACKING, PREFORMED, O-RING	5
1	MS15795-314	WASHER, FLAT	4
1	MS20364D624A	NUT, HEX	3
1	2003916-011	CONNECTOR PLATE ASSY	2
1	2003967-011	IDM WIREWRAP PLATE ASSY	1
011	LIST OF MATERIALS		

2003954 D

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DIMENSIONS ARE IN INCHES
TOLERANCES ON
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HEAT TREATMENT
FINAL FINISH

NEXT ASSY	USED ON
2003985	
APPLICATION	

MIT
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CAMBRIDGE MASS
DWG NO CONTRACT
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CHECKED R. Edwards 12 July 65
APPROVAL
APPROVAL Eldon C Hall 17 July 65
NASA APPROVAL
MIT APPROVAL

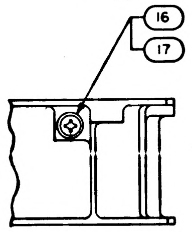
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

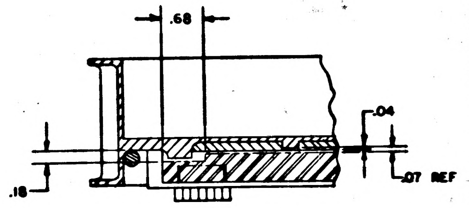
MAIN HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO. 2003954
SCALE 1/1
WT
SHEET 1 OF 3

MASTER

F2/2

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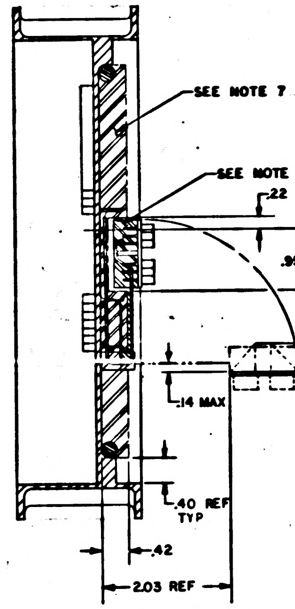
SECTION D-D


SEE NOTE 7
SEE NOTE 7
.22 REF
.95 REF
2.28 REF
.07
.14 MAX
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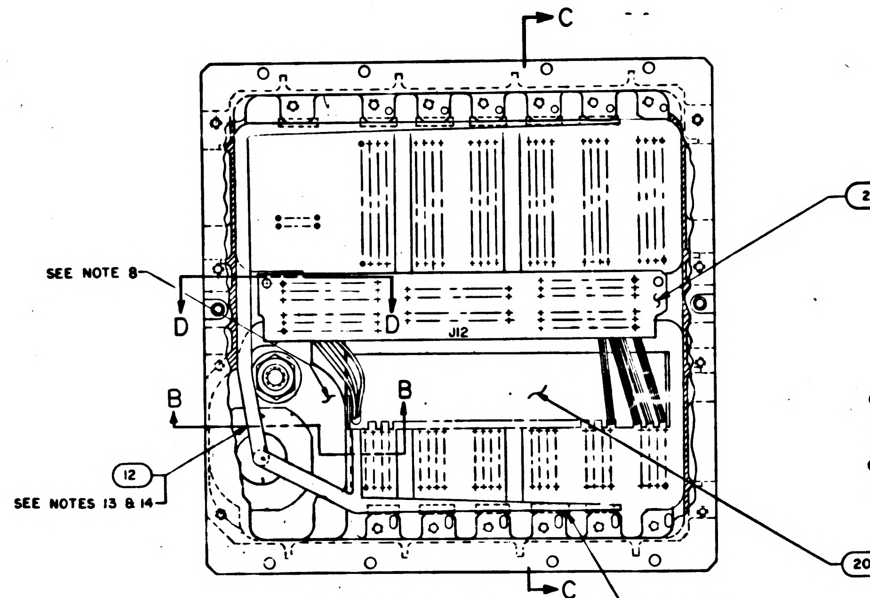
.42
2.03 REF

SECTION C-C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SEE NOTE 8
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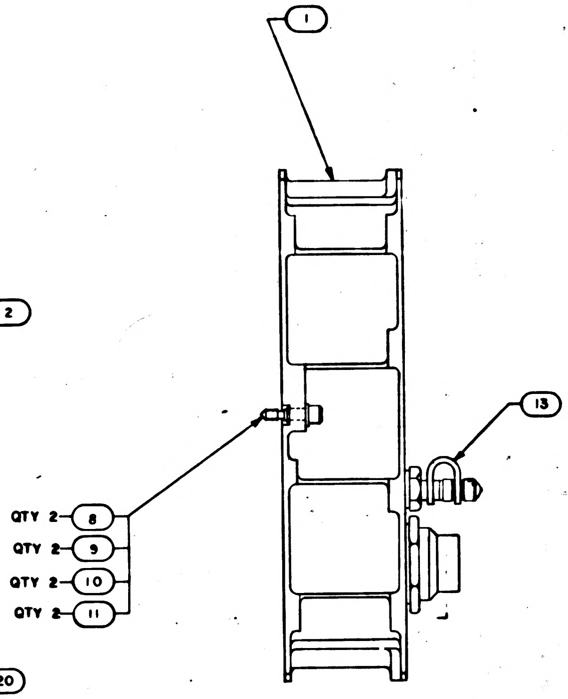
J12
B
B
12
SEE NOTES 13 & 14
20
SEE NOTE 6
11 PLACES

VIEW SHOWN WITH ENCAPSULATING COMPOUND REMOVED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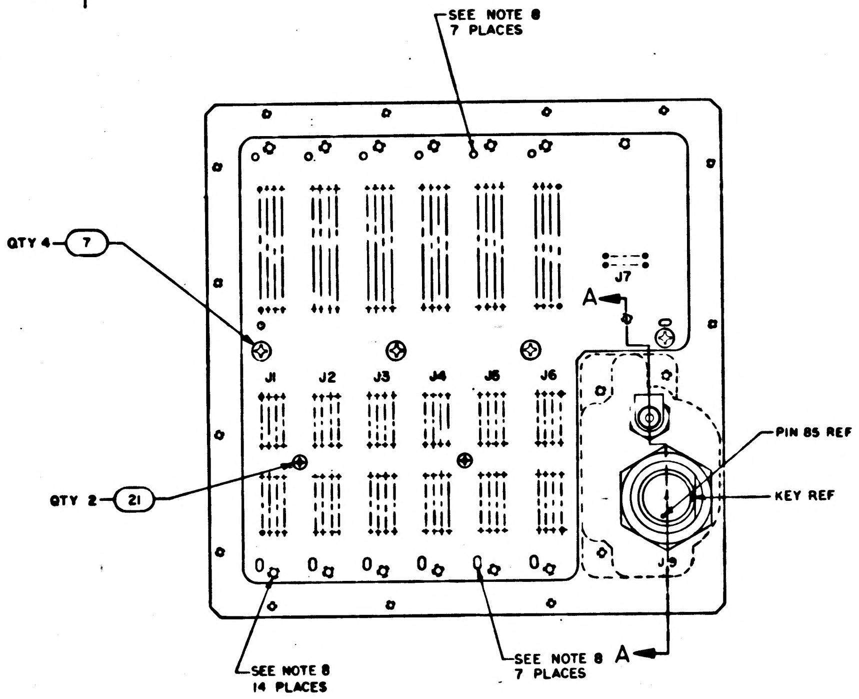
QTY 2 11


SEE NOTE 8
7 PLACES
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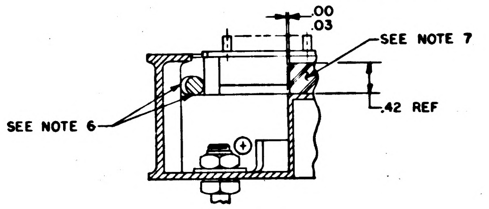
A
J7
J1
J2
J3
J4
J5
J6
QTY 2 21
PIN 85 REF
KEY REF
SEE NOTE 8
14 PLACES
SEE NOTE 8
7 PLACES
A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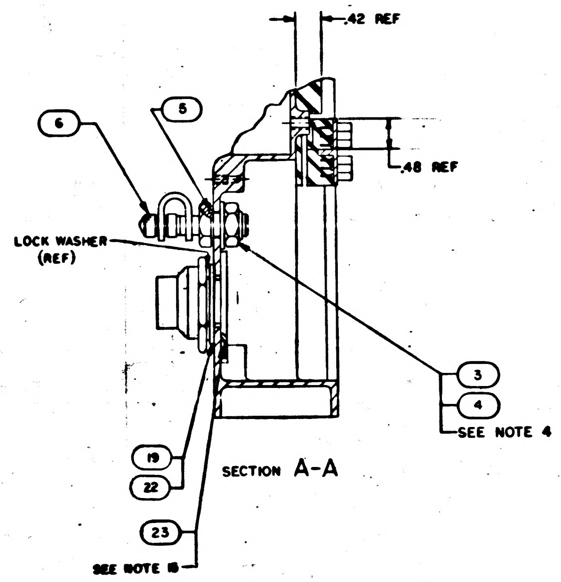
SEE NOTE 7
.42 REF
SEE NOTE 6

SECTION B-B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6
5
.48 REF
LOCK WASHER (REF)
3
4
SEE NOTE 4
19
22
23
SEE NOTE 15

SECTION A-A

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. IDENTIFY WITH PART NO. PER ND1002019
~~3. DRESS USING FIND NO. 18~~
4. MOUNTING TORQUE FOR FIND NO. 3 TO BE 10 TO 11 FT-LBS
5. AR DENOTES AS REQUIRED
6. BOND FIND NO. 12 TO FIND NO. 1 PER ND1002004 TYPE IV IN AREAS INDICATED
7. ENCAPSULATE INDICATED AREAS PER ND1002236
8. INDICATED AREA AND HOLES TO BE FREE FROM ENCAPSULATING COMPOUND
~~9. LACE FIND NO. 12 TO FIND NO. 1 WHERE SHOWN USING FIND NO. 18~~
10. [illegible] LEAD ELECTRICAL & PER ND1002031 EXCEPT FIND NO.15 TO HAVE 5 TO 6 TURNS OF UNINSULATED WIRE, 1/2 TO 1 1/2 TURNS UNINSULATED WIRE, STRIP LENGTH OF 1.18 TO 1.00, AND STRIP FORCE OF 5 LB MIN.
11. INDICATED AREAS TO BE FREE OF WIRES AND ENCAPSULATING COMPOUND TO THE LEVEL OF SURFACE A
12. WELD PER ND1002005
13. SOLDER LEADS OF FIND NO. 12 PER ND1002071 USING SOLDER PER ND1002075
14. MOUNTING TORQUE FOR CONNECTOR OF FIND NO. 12 TO BE 20 TO 25 FT-LBS
15. DISCARD VENDOR SUPPLIED 'O' RING AND REPLACE WITH FIND NO. 23

╳	200595	NTERC
1	100015	ACKI
1	1010635	VASHE
2	MS5195	CREW,
1	200492	OMB,
1	100454	VASHE
~~AR~~	~~101250~~	~~APE,~~
1	NAS153	VASHE
1	MS3521	CREW
AR	1010807-	IRE, I
AR	100673	IRE, I
1	200493	ETAIN
1	200398	IRING
2	MS1663	ING, F
2	100454	ASHE
2	100454	ASHE
2	100457	CREW
4	MS5195	CREW
1	200490	ALVE
1	100015	CKIN
1	MS1579	SHE
1	MS2036	T, H
1	200391	ONNE
1	200396	[illegible]
QTY REQD		
011		

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ±.01 ANGLES ± DO NOT SCALE THIS DRAWING	INSTRUMENTA CAMBRIDGE DWG NO
		MATERIAL	DRAWN W. C CHECKED APPROVAL APPROVAL
2003985		HEAT TREATMENT	NASA APPROVAL
NEXT ASSY	USED ON	FINAL FINISH	MIT APPROVAL
APPLICATION			

MASTER

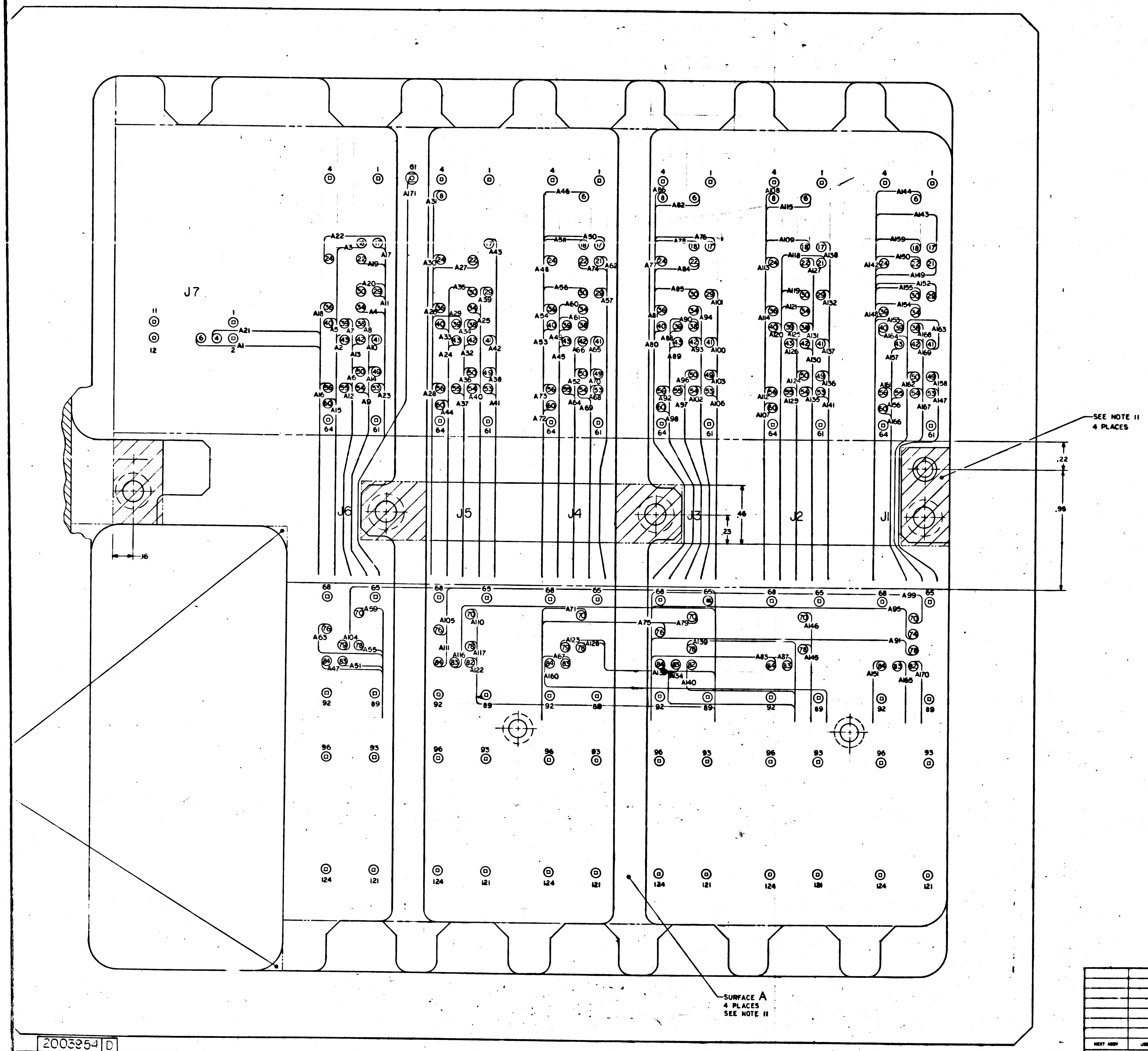
2003954 D

SHEET 1

2003954 D F1/2

2003954 D

SYM	DESCRIPTION	DATE	APPROVAL
A	THIS SHT REPLACES SHT 2 REV— WITH CHANGES PER TDRR 22542	9/2[illegible]/65	WJK
B	REVISED PER TDRR 23632 DR [illegible] CHK [illegible]	[illegible]	[illegible]
C	REVISED PER TDRR 23954 DR [illegible] CHK [illegible]	[illegible]	[illegible]
D	REVISED PER TDRR 24234 DR [illegible] CHK [illegible]	12/[illegible]/65	[illegible]


J7
J6
J5
J4
J3
J2
J1
SEE NOTE 11
4 PLACES
.22
.95
.46
.23
.16
SURFACE A
4 PLACES
SEE NOTE 11
A1
A21
A171
68
65
92
89
96
93
124
121
64
61
4
1
11
12

Ⓐ THIS SHT REPLACES SHT 2
REV— WITH CHANGES

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

NEXT ASSY | USED ON
APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN A. Voss DATE 8 Sept
CHECKED [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL WKrafft 21 Sept

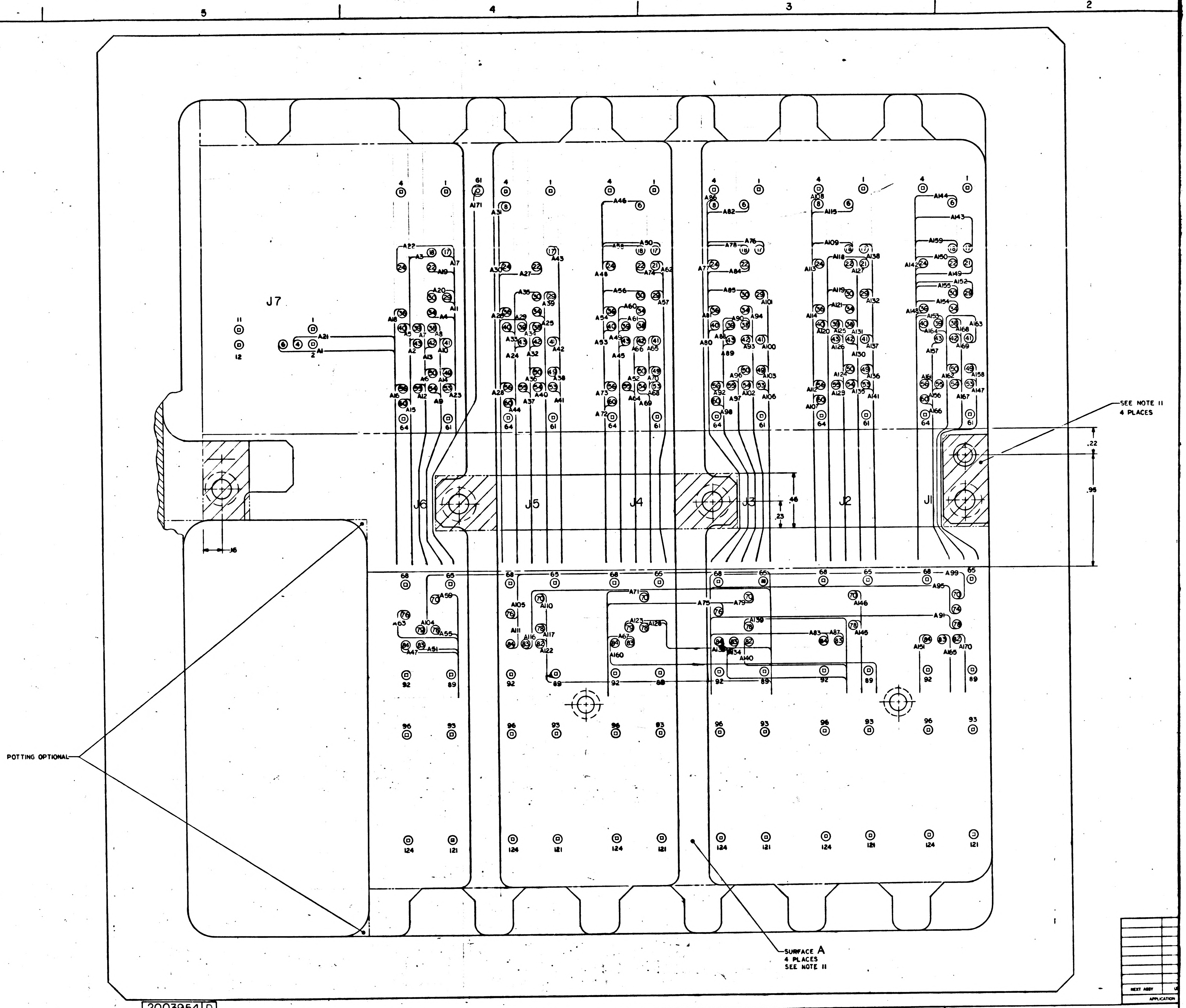
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MAIN HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230 SIZE J NASA DRAWING NO. 2003954
SCALE NONE WT SHEET 2 OF 3

2003954 D

F 2/2



6
5
4
3
2
J7
J6
J5
J4
J3
J2
J1
SEE NOTE 11
4 PLACES
.22
.95
.46
.23
.16
POTTING OPTIONAL
SURFACE A
4 PLACES
SEE NOTE 11
NEXT ASSY
APPLICATION

2003954 D

2003954-D F1/42

SHEET 2

2003954 D

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22542 DR D.A. Clement CHK		
B	REVISED PER TDRR 23632 DR CHK		
C	REVISED PER TDRR 23954 DR E.P. CHK Hogan		
D	REVISED PER TDRR 24234 DR CHK L. Hogan	12/1/65	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A1		J12-166	14	YEL	30	AR	J7-6	
A2		↑ -167	14	YEL	30	↑	J6-43	
A3		-160	15	WHT	26		↑ -18	
A4		-159	14	YEL	30		-34	
A5		-154	↑	↑	↑		-40	
A6		-153	↓	↓	↓		-50	
A7		-148	14	YEL	30		-39	
A8		-147	15	WHT	26		-38	
A9		-142	14	YEL	30		-54	
A10		-141	↑	↑	↑		-41	
A11		-136					-29	
A12		-135					-55	
A13		-187	↓	↓	↓		-42	
A14		-210	14	YEL	30		-49	
A15		-182	15	WHT	26		-60	
A16		-204	14	YEL	30		-56	
A17		-192	↑	↑	↑		-17	
A18		-176					-36	
A19		-175					↓ -22	
A20		-174					J6-30	
A21		-170					J7-4	
A22		-169					J6-24	
A23		-168					J6-53	
A24		-164					J5-43	
A25		-163					↑ -34	
A26		-162					-36	
A27		-161					-22	
A28		-158					-56	
A29		-157	↓	↓	↓		-39	
A30		-156	14	YEL	30		-24	
A31		-155	15	WHT	26		-8	
A32		-152	14	YEL	30		-42	
A33		-151	14	YEL	30		-40	
A34		-150	15	WHT	26		-38	
A35		-149	14	YEL	30		-30	
A36	SEE NOTE 10	-146	↑	↑	↑		-50	SEE NOTE 10
A37		-145					-55	
A38		-144					-49	
A39		-143					-29	
A40		-140					-54	
A41		-139					-53	
A42		-138	↓	↓	↓		-41	
A43		-137	14	YEL	30		↓ -17	
A44		-134	15	WHT	26		J5-60	
A45		-133	14	YEL	30		J4-43	
A46		-132	↑	↑	↑		J4-6	
A47		-131					J6-84	
A48		-130					J4-24	
A49		-129					J4-39	
A50		-128					J4-17	
A51		-127					J6-83	
A52		-126					J4-50	
A53		-125					J4-40	
A54		-124					J4-36	
A55		-123					J6-78	
A56		-122					J4-30	
A57		-121					J4-29	
A58		-120					J4-18	
A59		-119					J6-70	
A60		-118					J4-34	
A61		-117					J4-38	
A62		-116					J4-21	
A63		-115					J6-76	
A64		-114					J4-55	
A65		-113					↑ -41	
A66		-112					-42	
A67		-111					-83	
A68		-110					-53	
A69		-109					-54	
A70		-108					-49	
A71		↓ -107	↓	↓	↓	↓	↓ -70	
A72		J12-106	14	YEL	30	AR	J4-60	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A73		J12-105	14	YEL	30	AR	J4-56	
A74		↑ -104	↑	↑	↑	↑	J4-22	
A75		-103					J3-76	
A76		-102	↓	↓	↓		↑ -17	
A77		-101	14	YEL	30		-24	
A78		-100	15	WHT	26		-18	
A79		-99	14	YEL	30		-70	
A80		-98	14	YEL	30		-40	
A81		-97	14	YEL	30		↓ -36	
A82		-96	15	WHT	26		J3-6	
A83		-95	14	YEL	30		J2-84	
A84		-94	14	YEL	30		J3-22	
A85		-93	14	YEL	30		J3-30	
A86		-92	15	WHT	26		J3-8	
A87		-91	14	YEL	30		J2-83	
A88		-90	14	YEL	30		J3-39	
A89		-89	14	YEL	30		J3-43	
A90		-88	15	WHT	26		J3-38	
A91		-87	14	YEL	30		J1-78	
A92		-86	↑	↑	↑		J3-56	
A93		-85					J3-42	
A94		-84					J3-34	
A95		-83					J1-74	
A96		-82	↓	↓	↓		J3-50	
A97		-81	14	YEL	30		J3-55	
A98		-80	15	WHT	26		J3-60	
A99		-79	14	YEL	30		J1-70	
A100		-78	↑	↑	↑		J3-41	
A101		-77					J3-29	
A102		-76					J3-54	
A103		-75					J3-49	
A104		-74					J6-79	
A105		-73					J5-76	
A106		-72	↓	↓	↓		J3-53	
A107		-71	14	YEL	30		J2-60	
A108	SEE NOTE 10	-70	15	WHT	26		J2-8	SEE NOTE 10
A109		-69	14	YEL	30		J2-18	
A110		-68	↑	↑	↑		J5-70	
A111		-67					J5-84	
A112		-66					J2-56	
A113		-65	↓	↓	↓		J2-24	
A114		-64	14	YEL	30		J2-36	
A115		-63	15	WHT	26		J2-6	
A116		-62	14	YEL	30		J5-83	
A117		-61	↑	↑	↑		J5-78	
A118		-60					J2-21	
A119		-59					J2-30	
A120		-58					J2-40	
A121		-57					J2-34	
A122		-56					J5-82	
A123		-55					J4-79	
A124		-54					J2-50	
A125		-53					J2-39	
A126		-52					J2-43	
A127		-51					J2-22	
A128		-50					J4-78	
A129		-48					J2-55	
A130		-47					J2-42	
A131		-46					J2-38	
A132		-45					J2-29	
A133		-44					J3-84	
A134		-43					J3-83	
A135		-42					J2-54	
A136		-41					J2-49	
A137		-40					J2-41	
A138		-39					J2-17	
A139		-38					J3-78	
A140		-37					J3-82	
A141		-36					J2-53	
A142		-35	↓	↓	↓		J1-24	
A143		↓ -34	14	YEL	30	↓	J1-17	
A144		J12-33	15	WHT	26	AR	J1-6	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A145		J12-32	14	YEL	30	AR	J2-78	
A146		↑ -31	↑	↑	↑	↑	J2-70	
A147		-30					J1-53	
A148		-29					↑ -36	
A149		-28					-21	
A150		-27					-22	
A151		-25					-84	
A152		-24					-29	
A153		-23					-39	
A154		-22					-34	
A155		-21					-30	
A156	SEE NOTE 10	-18					-55	SEE NOTE 10
A157		-17					-43	
A158		-16					↓ -49	
A159		-15					J1-18	
A160		-13					J4-84	
A161		-12					J1-56	
A162		-11					↑ -50	
A163		-10					-41	
A164		-9					-40	
A165		-7					-83	
A166		-6					-60	
A167		-5					-54	
A168		-4					-38	
A169		↓ -3	↓	↓	↓		↓ -42	
A170		J12-1	14	YEL	30	↓	J1-82	
A171		J12-183	15	WHT.	26	AR	G1	SEE NOTE 12

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN D.A. Clement DATE
CHECKED R. Edward
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

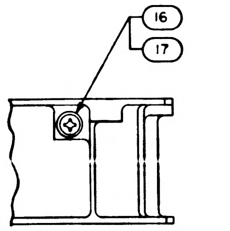
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

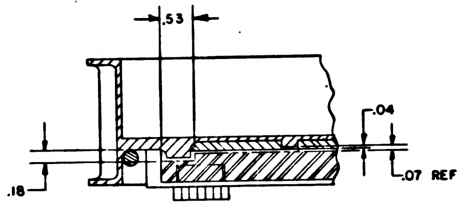
MAIN HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230 | SIZE J | NASA DRAWING NO. 2003954
SCALE NONE | WT | SHEET 3 OF 3

2003954 D

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22542 DR D.A. Clement CHK CAP BM	9/30/65	
B	REVISED PER TDRR 23632 DR CHK CAP BM	11/4/65	
C	REVISED PER TDRR 23954 DR CHK	11/16/65	
D	REVISED PER TDRR 24234 DR CHK BM	12/1/65	
E	REVISED PER TDRR 24665 DR R.A. CHK CAP	12/20/65	

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.18
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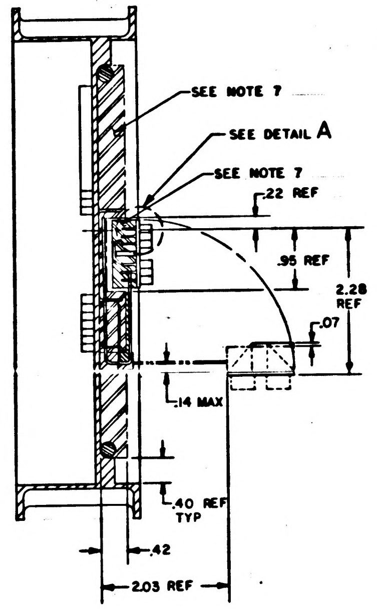
SECTION D-D


SEE NOTE 7
SEE DETAIL A
SEE NOTE 7
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2.28 REF
.07
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.40 REF TYP
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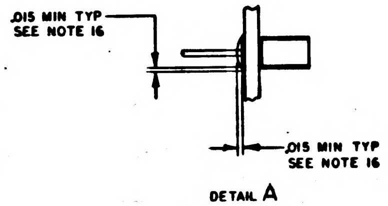
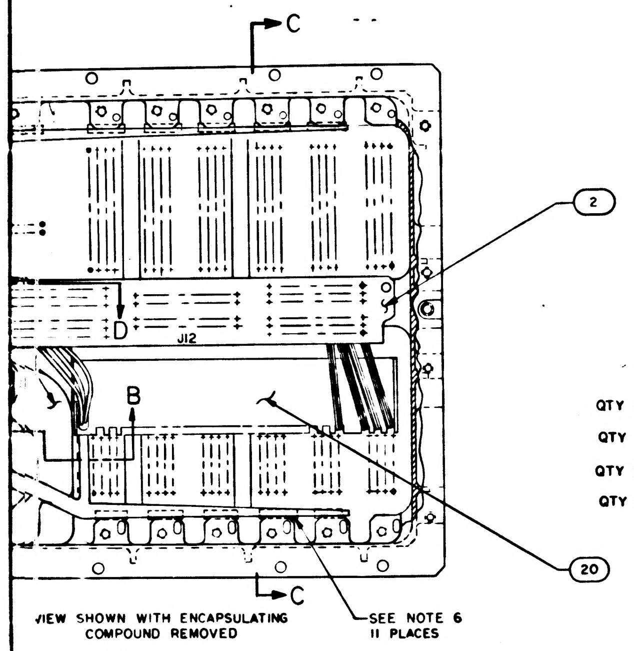
2.03 REF

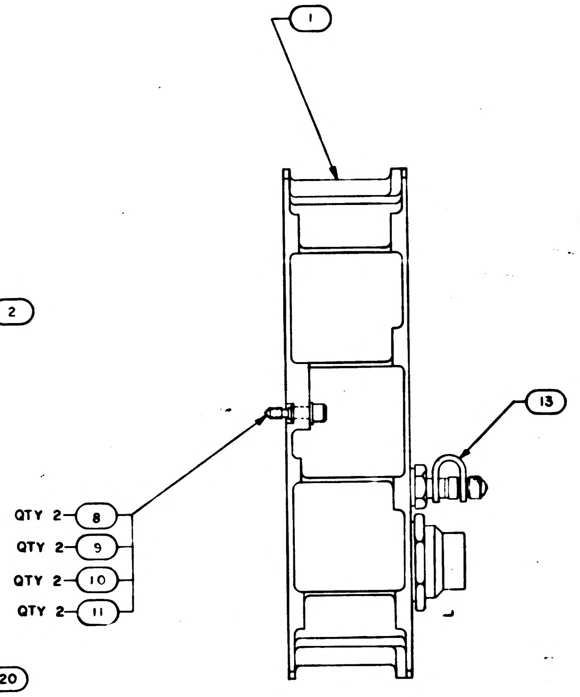
SECTION C-C


.015 MIN TYP SEE NOTE 16
.015 MIN TYP SEE NOTE 16

DETAIL A
UNPOTTED
SCALE 4/1


C
2
D
J12
B
20
C
SEE NOTE 6 11 PLACES

VIEW SHOWN WITH ENCAPSULATING COMPOUND REMOVED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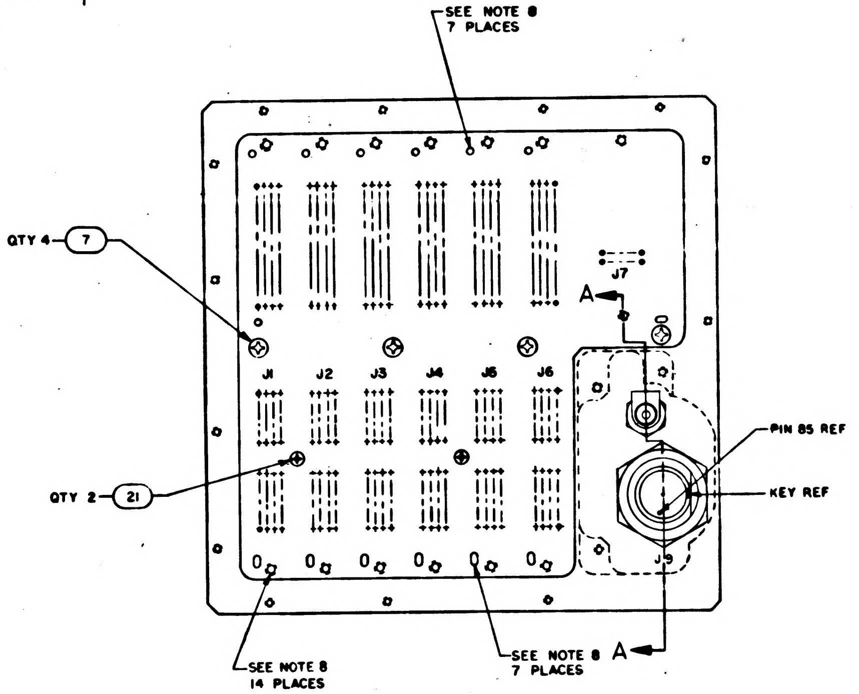
QTY 2 9
QTY 2 10
QTY 2 11


SEE NOTE 8 7 PLACES
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J7
A
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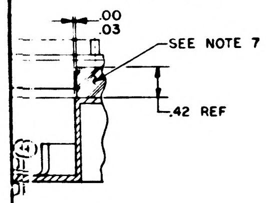
J2
J3
J4
J5
J6
PIN 85 REF
KEY REF
QTY 2 21
J9
SEE NOTE 8 14 PLACES
SEE NOTE 8 7 PLACES
A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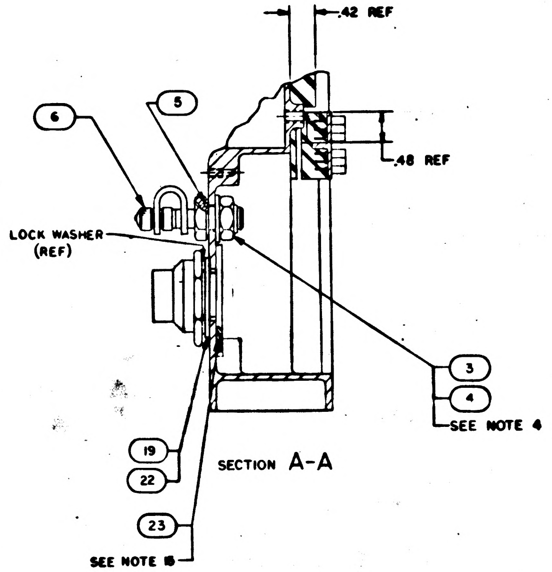
.03
SEE NOTE 7
.42 REF

B-B


.42 REF
.48 REF
6
5
LOCK WASHER (REF)
3
4
SEE NOTE 4
19
22
23
SEE NOTE 15

SECTION A-A

STANDARDS

E 10 TO 11 FT-LBS

002004 TYPE IV

1002236
ROM ENCAPSULATING COMPOUND
~~SHOWN USING FIND NO. 18~~
2031
INSULATED WIRE, 1/2 TO 1 1/2
B TO 1.00, AND STRIP FORCE

AND ENCAPSULATING

02071 USING SOLDER PER ND1002075
FIND NO. 12 TO BE 20 TO 25 FT-LBS
PLACE WITH FIND NO. 23
1002004 TYPE VI

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	2005951	INTERCONNECTING DIAGRAM	REF
1	1000159-10	PACKING, PREFORMED "O" RING	23
1	1010635-004	WASHER, LOCK	22
2	MS51959-13	SCREW, FLAT HD, CROSS RECESSED	21
1	2004927	COMB, WIRE	20
1	1004546-6	WASHER, FLAT	19
~~AR~~	~~1012807-003~~	~~TAPE, LACING~~	~~18~~
1	NAS1598D08N	WASHER, SEALING	17
1	MS35216-39	SCREW, PAN HD, CROSS RECESSED	16
AR	1010807-22	WIRE, INSULATED	15
AR	1006732-1	WIRE, INSULATED	14
1	2004931	RETAINER, VALVE CAP	13
1	2003980-011	WIRING HARNESS. BRANCHED	12
2	MS16633-4015	RING, RETAINING	11
2	1004546-3	WASHER, FLAT	10
2	1004546-1	WASHER, FLAT	9
2	1004579-2	SCREW, JACKING	8
4	MS51959-28	SCREW, FLAT HD, CROSS RECESSED	7
1	2004903	VALVE, PNEUMATIC TANK	6
1	1000159-14	PACKING, PREFORMED, O-RING	5
1	MS15795-314	WASHER, FLAT	4
1	MS20364D624A	NUT, HEX	3
1	2003916-011	CONNECTOR PLATE ASSY	2
1	2003967-011	IDM WIREWRAP PLATE ASSY	1
011	LIST OF MATERIALS		

2003954 E

NEXT ASSY	USED ON
2003985	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.01 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO CONTRACT
DRAWN W. Brown DATE July 65
CHECKED R. Edwards 12 July 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

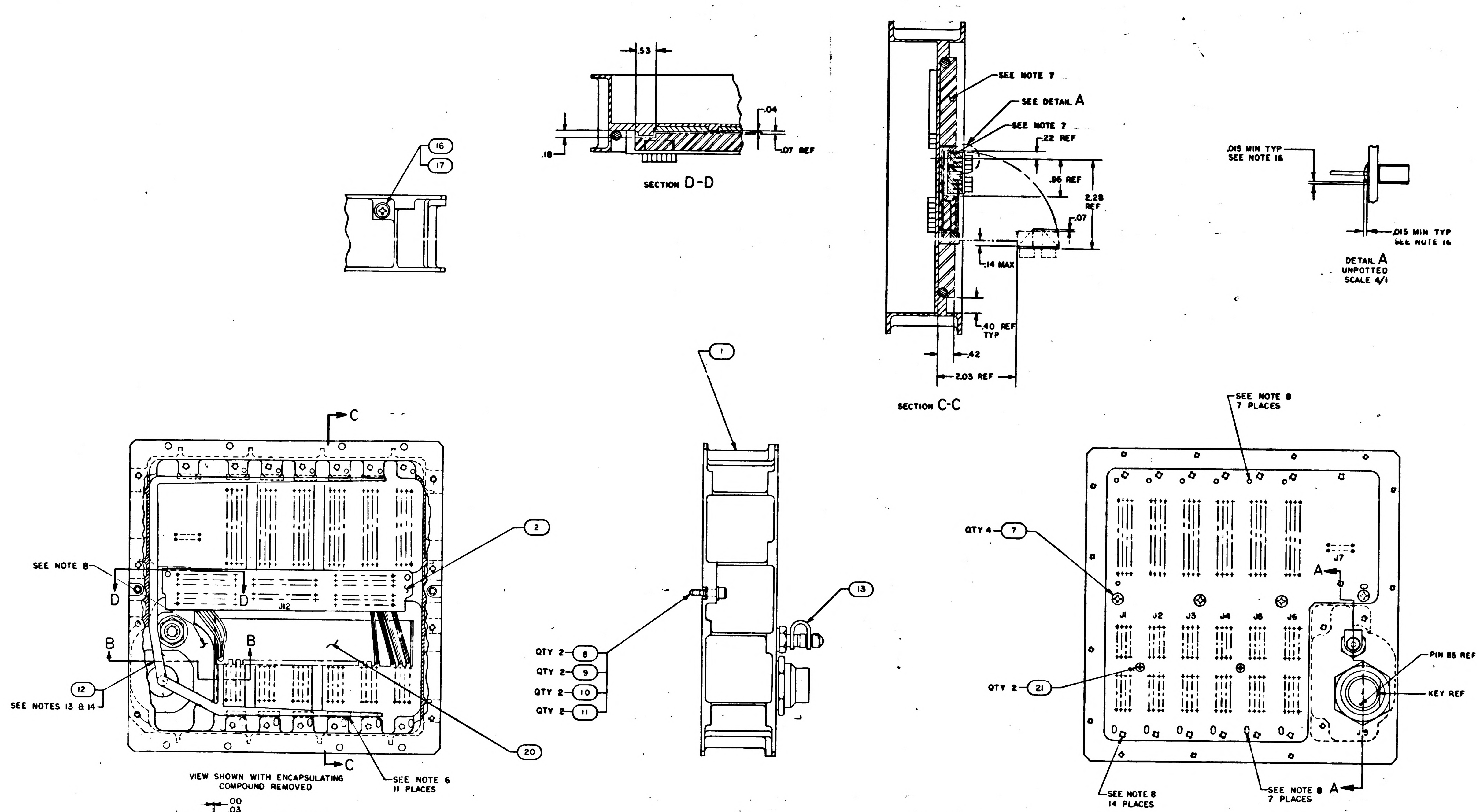
MAIN HOUSING ASSEMBLY
AGC DSKY

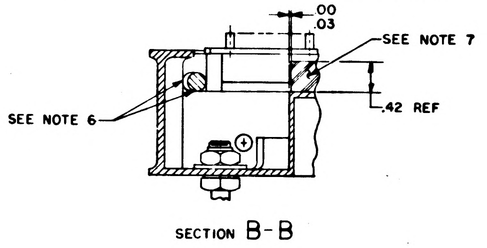
CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003954
SCALE 1/1
WT
SHEET 1 OF 3

MASTER

E 2/42

NOTICE – [illegible]


5
4
3
2
D
C
B
3954 E
16
17
.53
.04
.18
.07 REF
SECTION D-D
SEE NOTE 7
SEE DETAIL A
SEE NOTE 7
.22 REF
.96 REF
2.28 REF
.07
.14 MAX
.40 REF TYP
.42
2.03 REF
SECTION C-C
.015 MIN TYP SEE NOTE 16
.015 MIN TYP SEE NOTE 16
DETAIL A UNPOTTED SCALE 4/1
C
C
SEE NOTE 8
D
D
J12
B
B
2
12
SEE NOTES 13 & 14
20
VIEW SHOWN WITH ENCAPSULATING COMPOUND REMOVED
SEE NOTE 6 11 PLACES
1
13
QTY 2 8
QTY 2 9
QTY 2 10
QTY 2 11
SEE NOTE 8 7 PLACES
QTY 4 7
J7
A
J1
J2
J3
J4
J5
J6
QTY 2 21
PIN 85 REF
KEY REF
J9
SEE NOTE 8 14 PLACES
SEE NOTE 8 7 PLACES
A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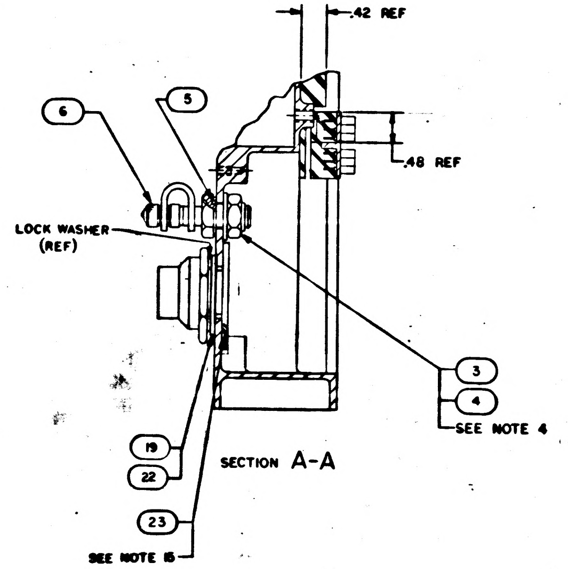
SEE NOTE 7
.42 REF
SEE NOTE 6
4

SECTION B-B


.42 REF
6
5
.48 REF
LOCK WASHER (REF)
3
4
SEE NOTE 4
19
22
23
SEE NOTE 15

SECTION A-A

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. IDENTIFY WITH PART NO. PER ND1002019
~~3. DRESS USING FIND NO.18~~
4. MOUNTING TORQUE FOR FIND NO. 3 TO BE 10 TO 11 FT-LBS
5. AR DENOTES AS REQUIRED
6. BOND FIND NO. 12 TO FIND NO. 1 PER ND1002004 TYPE IV IN AREAS INDICATED
7. ENCAPSULATE INDICATED AREAS PER ND1002236
8. INDICATED AREA AND HOLES TO BE FREE FROM ENCAPSULATING COMPOUND
~~9. LACE FIND NO. 12 TO FIND NO. 1 WHERE SHOWN USING FIND NO. 18~~
10. WIRE USING LEAD ELECTRICAL & PER ND1002031 EXCEPT FIND NO.15 TO HAVE 5 TO 6 TURNS OF UNINSULATED WIRE, 1/2 TO 1 1/2 TURNS UNINSULATED WIRE, STRIP LENGTH OF 1.18 TO 1.00, AND STRIP FORCE OF 5 LB MIN.
11. INDICATED AREAS TO BE FREE OF WIRES AND ENCAPSULATING COMPOUND TO THE LEVEL OF SURFACE A
12. WELD PER ND1002005
13. SOLDER LEADS OF FIND NO. 12 PER ND1002071 USING SOLDER PER ND1002075
14. MOUNTING TORQUE FOR CONNECTOR OF FIND NO. 12 TO BE 20 TO 25 FT-LBS
15. DISCARD VENDOR SUPPLIED "O" RING AND REPLACE WITH FIND NO. 23
16. SEAL INSULATORS ON FIND NO. 2 PER ND1002004 TYPE VI

☒	200595	INTERCO
1	100015	PACKING
1	1010635	WASHER,
2	MS5195	SCREW, F
1	200492	COMB, W
1	100454	WASHER,
~~AR~~	~~101250~~	~~TAPE, L~~
1	NAS159	WASHER,
1	MS3521	SCREW,
AR	1010807	WIRE, INS
AR	100673	WIRE, INS
1	20049	RETAINE
1	200398	WIRING
2	MS166	RING, R
2	100454	WASHER
2	100454	WASHER
2	100457	SCREW,
4	MS5195	SCREW,
1	200490	VALVE,
1	100015	PACKING,
1	MS1579	WASHER
1	MS203	NUT, HE
1	20039	CONNEC
1	20039	DM WIRE
QTY REQD		
011		

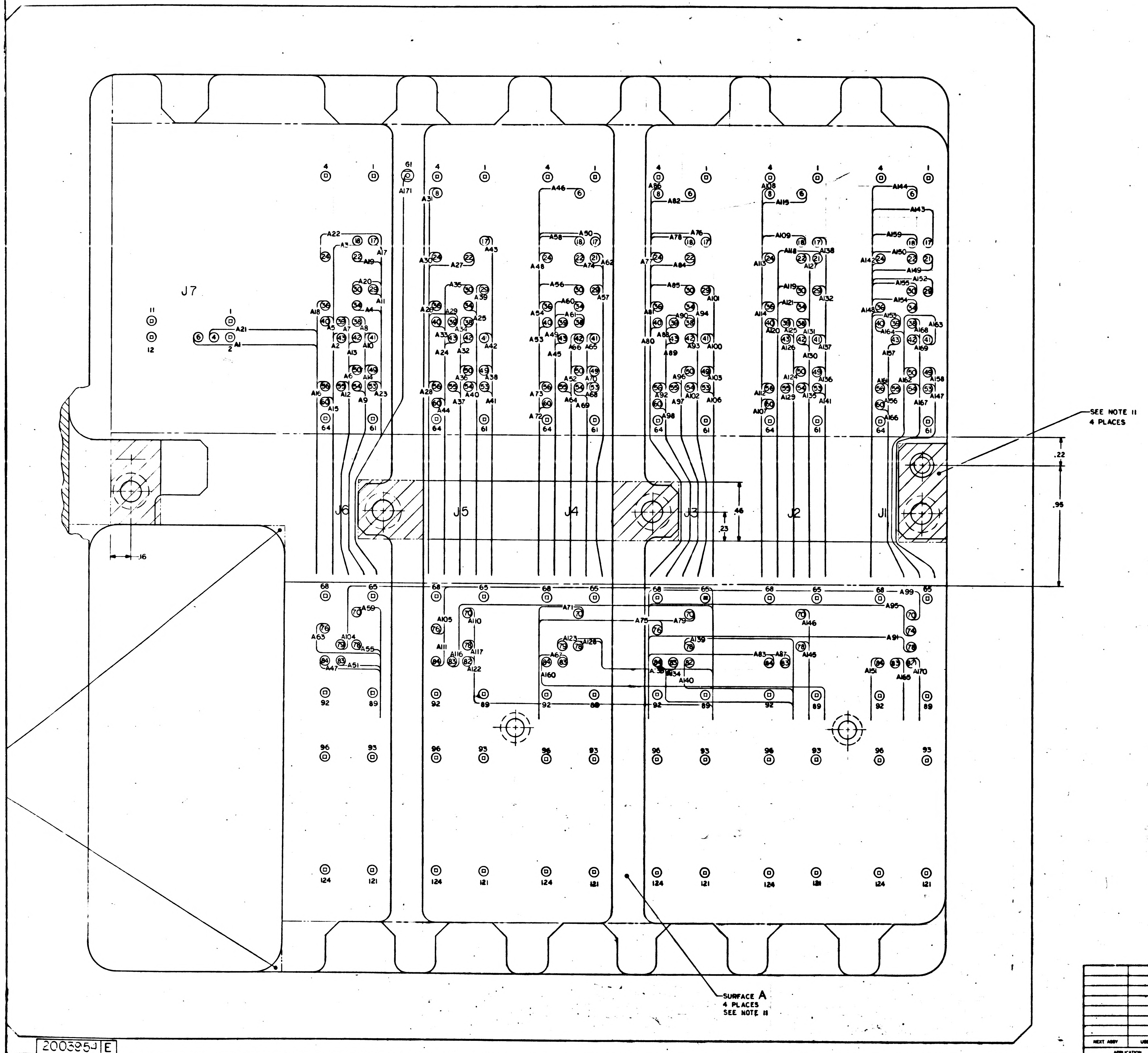
		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ±.01 ANGLES ± DO NOT SCALE THIS DRAWING	INSTRUMENT	IN
		MATERIAL	DRAWN W. B CHECKED APPROVAL APPROVAL	30 J
2003985		HEAT TREATMENT	NASA APPROVAL	
NEXT ASSY	USED ON	FINAL FINISH	MIT APPROVAL	
APPLICATION				

MASTER

2003954 E

2003954 E

SYM	DESCRIPTION	DATE	APPROVAL
A	THIS SHT REPLACES SHT 2 REV— WITH CHANGES PER TDRR 22542	9/24/65	WJK
B	REVISED PER TDRR 23632 DR B J Papia CHK	10/20/65	
C	REVISED PER TDRR 23954 DR CHK	11/16/65	
D	REVISED PER TDRR 24234 DR CHK	12/2/65	
E	REVISED PER TDRR 24665 DR CHK	12/20/65	



Ⓐ THIS SHT REPLACES SHT 2
REV— WITH CHANGES

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

NEXT ASSY | USED ON
APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN DATE 8 SEP 65
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL W Kupfer 21 Sep 65

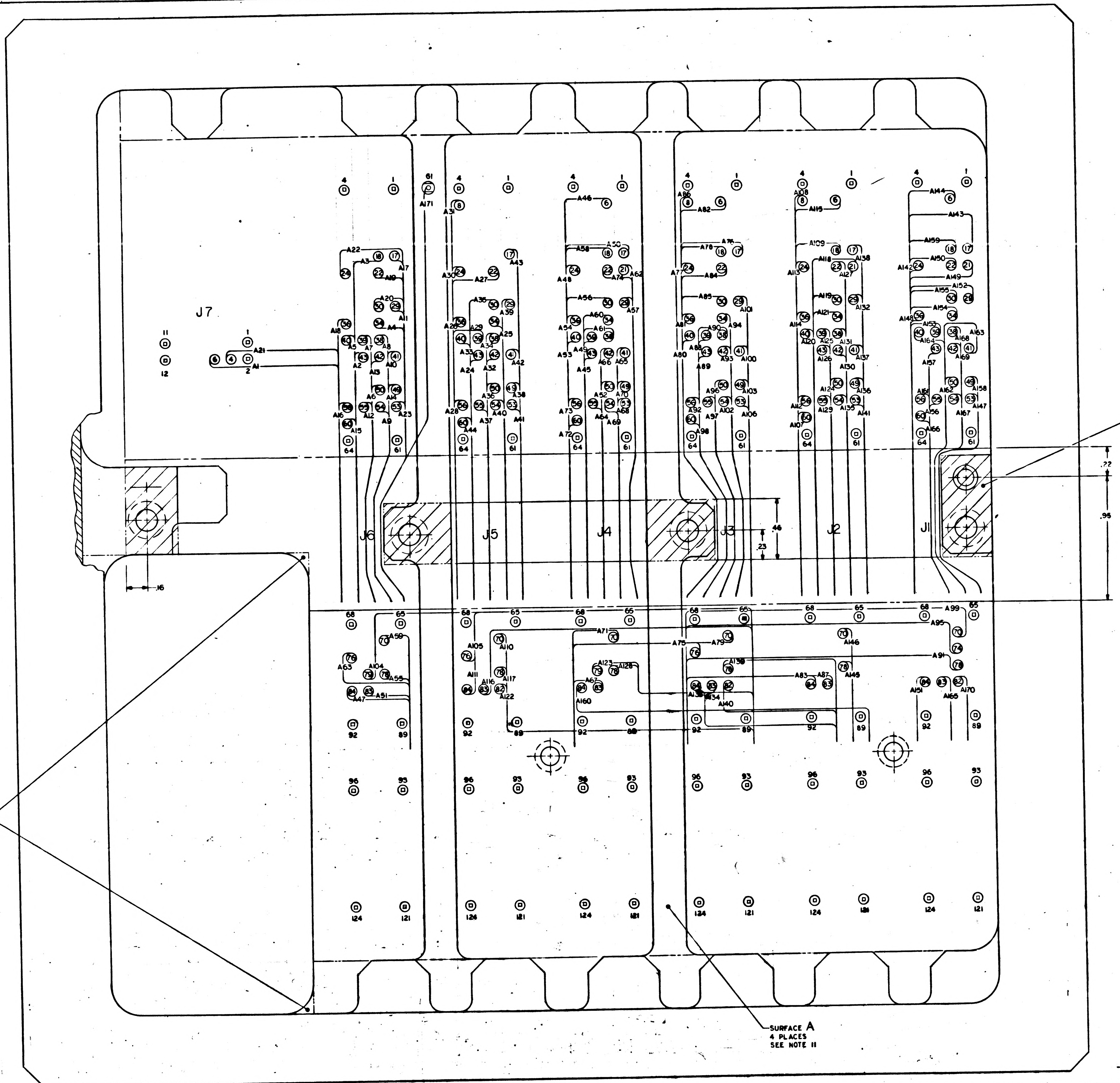
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MAIN HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO. 2003954
SCALE NONE
WT
SHEET 2 OF 3

2003954 E

F 2/2


J7
J6
J5
J4
J3
J2
J1
A1
A21
11
12
1
2
4
61
64
65
68
89
92
93
95
96
121
124
.16
.22
.95
.46
.23

POTTING OPTIONAL

SEE NOTE 11
4 PLACES

SURFACE A
4 PLACES
SEE NOTE 11

NEXT ASSY

APPLICATION

SHEET 2

2003954 E

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22542 DR D.O. Clement CHK C.A.P. B.M.	9/30/64	
B	REVISED PER TDRR 23632 DR CHK C.A.P. B.M.	9/64	
C	REVISED PER TDRR 23954 DR J.P. CHK Logan	11/64	
D	REVISED PER TDRR 24234 DR CHK Logan B.M.	12/2/65	
E	REVISED PER TDRR 24665 DR R.P. CHK C.A.P. B.M.	12/20/65	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A1	SEE NOTE 10	J12-166	14	YEL	30	AR	J7-6	SEE NOTE 10
A2		↑ -167	14	YEL	30	↑	J6-43	
A3		-160	15	WHT	26		↑ -18	
A4		-159	14	YEL	30		-34	
A5		-154	↑	↑	↑		-40	
A6		-153	↓	↓	↓		-50	
A7		-148	14	YEL	30		-39	
A8		-147	15	WHT	26		-38	
A9		-142	14	YEL	30		-54	
A10		-141	↑	↑	↑		-41	
A11		-136					-29	
A12		-135					-55	
A13		-187	↓	↓	↓		-42	
A14		-210	14	YEL	30		-49	
A15		-182	15	WHT	26		-60	
A16		-204	14	YEL	30		-56	
A17		-192	↑	↑	↑		-17	
A18		-176					-36	
A19		-175					↓ -22	
A20		-174					J6-30	
A21		-170					J7-4	
A22		-169					J6-24	
A23		-168					J6-53	
A24		-164					J5-43	
A25		-163					↑ -34	
A26		-162					-36	
A27		-161					-22	
A28		-158					-56	
A29		-157	↓	↓	↓		-39	
A30		-156	14	YEL	30		-24	
A31		-155	15	WHT	26		-8	
A32		-152	14	YEL	30		-42	
A33		-151	14	YEL	30		-40	
A34		-150	15	WHT	26		-38	
A35		-149	14	YEL	30		-30	
A36		-146	↑	↑	↑		-50	
A37		-145					-55	
A38		-144					-49	
A39		-143					-29	
A40		-140					-54	
A41		-139					-53	
A42		-138	↓	↓	↓		-41	
A43		-137	14	YEL	30		↓ -17	
A44		-134	15	WHT	26		J5-60	
A45		-133	14	YEL	30		J4-43	
A46		-132	↑	↑	↑		J4-6	
A47		-131					J6-84	
A48		-130					J4-24	
A49		-129					J4-39	
A50		-128					J4-17	
A51		-127					J6-83	
A52		-126					J4-50	
A53		-125					J4-40	
A54		-124					J4-36	
A55		-123					J6-78	
A56		-122					J4-30	
A57		-121					J4-29	
A58		-120					J4-18	
A59		-119					J6-70	
A60		-118					J4-34	
A61		-117					J4-38	
A62		-116					J4-21	
A63		-115					J6-76	
A64		-114					J4-55	
A65		-113					↑ -41	
A66		-112					-42	
A67		-111					-83	
A68		-110					-53	
A69		-109					-54	
A70		-108					-49	
A71		↓ -107	↓	↓	↓	↓	↓ -70	
A72		J12-106	14	YEL	30	AR	J4-60	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A73	SEE NOTE 10	J12-105	14	YEL	30	AR	J4-56	SEE NOTE 10
A74		↑ -104	↑	↑	↑	↑	J4-22	
A75		-103					J3-76	
A76		-102	↓	↓	↓		↑ -17	
A77		-101	14	YEL	30		-24	
A78		-100	15	WHT	26		-18	
A79		-99	14	YEL	30		-70	
A80		-98	14	YEL	30		-40	
A81		-97	14	YEL	30		↓ -36	
A82		-96	15	WHT	26		J3-6	
A83		-95	14	YEL	30		J2-84	
A84		-94	14	YEL	30		J3-22	
A85		-93	14	YEL	30		J3-30	
A86		-92	15	WHT	26		J3-8	
A87		-91	14	YEL	30		J2-83	
A88		-90	14	YEL	30		J3-39	
A89		-89	14	YEL	30		J3-43	
A90		-88	15	WHT	26		J3-38	
A91		-87	14	YEL	30		J1-78	
A92		-86	↑	↑	↑		J3-56	
A93		-85					J3-42	
A94		-84					J3-34	
A95		-83					J1-74	
A96		-82	↓	↓	↓		J3-50	
A97		-81	14	YEL	30		J3-55	
A98		-80	15	WHT	26		J3-60	
A99		-79	14	YEL	30		J1-70	
A100		-78	↑	↑	↑		J3-41	
A101		-77					J3-29	
A102		-76					J3-54	
A103		-75					J3-49	
A104		-74					J6-79	
A105		-73					J5-76	
A106		-72	↓	↓	↓		J3-53	
A107		-71	14	YEL	30		J2-60	
A108		-70	15	WHT	26		J2-8	
A109		-69	14	YEL	30		J2-18	
A110		-68	↑	↑	↑		J5-70	
A111		-67					J5-84	
A112		-66					J2-56	
A113		-65	↓	↓	↓		J2-24	
A114		-64	14	YEL	30		J2-36	
A115		-63	15	WHT	26		J2-6	
A116		-62	14	YEL	30		J5-83	
A117		-61	↑	↑	↑		J5-78	
A118		-60					J2-21	
A119		-59					J2-30	
A120		-58					J2-40	
A121		-57					J2-34	
A122		-56					J5-82	
A123		-55					J4-79	
A124		-54					J2-50	
A125		-53					J2-39	
A126		-52					J2-43	
A127		-51					J2-22	
A128		-50					J4-78	
A129		-48					J2-55	
A130		-47					J2-42	
A131		-46					J2-38	
A132		-45					J2-29	
A133		-44					J3-84	
A134		-43					J3-83	
A135		-42					J2-54	
A136		-41					J2-49	
A137		-40					J2-41	
A138		-39					J2-17	
A139		-38					J3-78	
A140		-37					J3-82	
A141		-36					J2-53	
A142		-35	↓	↓	↓		J1-24	
A143		↓ -34	14	YEL	30	↓	J1-17	
A144		J12-33	15	WHT	26	AR	J1-6	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A145	SEE NOTE 10	J12-32	14	YEL	30	AR	J2-78	SEE NOTE 10
A146		↑ -31	↑	↑	↑	↑	J2-70	
A147		-30					J1-53	
A148		-29					↑ -36	
A149		-28					-21	
A150		-27					-22	
A151		-25					-84	
A152		-24					-29	
A153		-23					-39	
A154		-22					-34	
A155		-21					-30	
A156		-18					-55	
A157		-17					-43	
A158		-16					↓ -49	
A159		-15					J1-18	
A160		-13					J4-84	
A161		-12					J1-56	
A162		-11					↑ -50	
A163		-10					-41	
A164		-9					-40	
A165		-7					-83	
A166		-6					-60	
A167		-5					-54	
A168		-4					-38	
A169		↓ -3	↓	↓	↓		↓ -42	
A170		J12-1	14	YEL	30	↓	J1-82	
A171		J12-183	15	WHT	26	AR	G1	SEE NOTE 12

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN D.O. Clement DATE 30 JAN 64
CHECKED R. Edwards 12 July 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL 10/1/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MAIN HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230 SIZE J NASA DRAWING NO. 2003954
SCALE NONE WT SHEET 3 OF 3

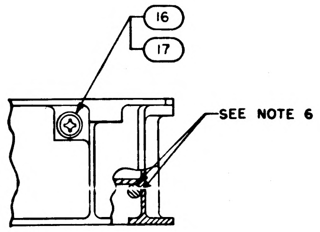
MASTER

2003954

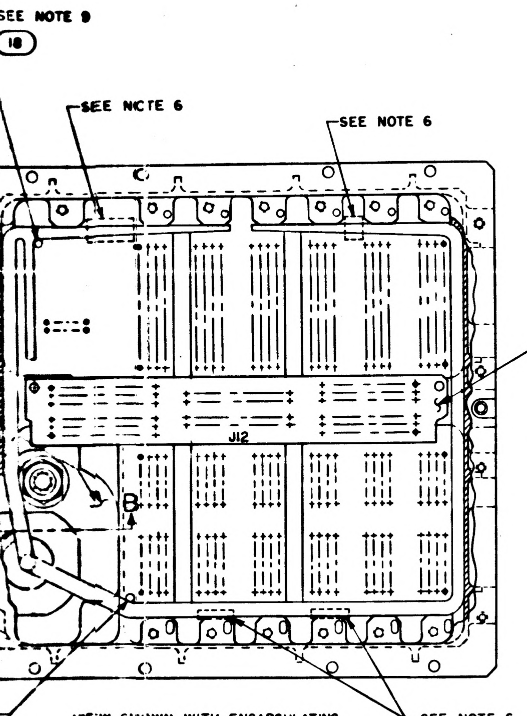
2003954 E

2003954

REVISIONS 20943			
SYM	DESCRIPTION	DATE	APPROVAL

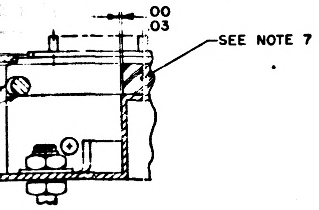


16
17
SEE NOTE 6



SEE NOTE 9
18
SEE NOTE 6
SEE NOTE 6
J12
B
SEE NOTE 6

VIEW SHOWN WITH ENCAPSULATING COMPOUND REMOVED



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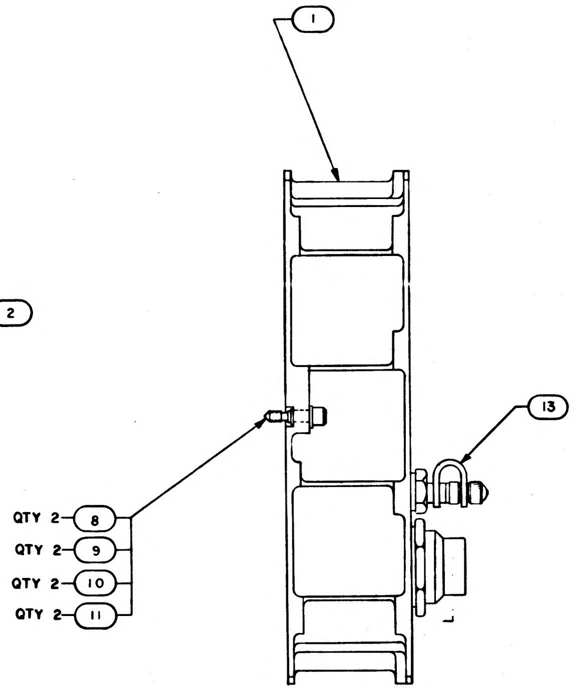
.03
SEE NOTE 7

SECTION B-B



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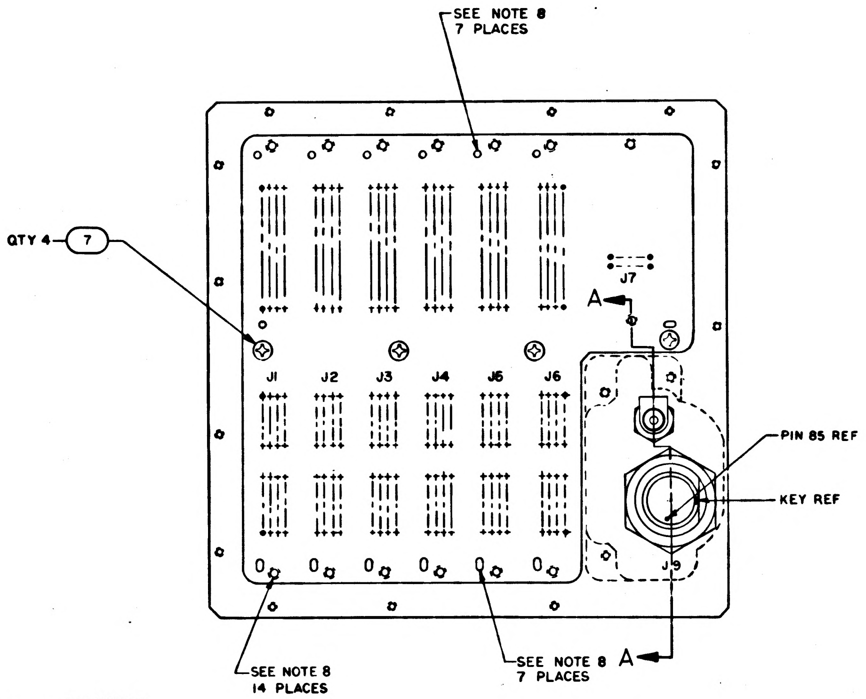
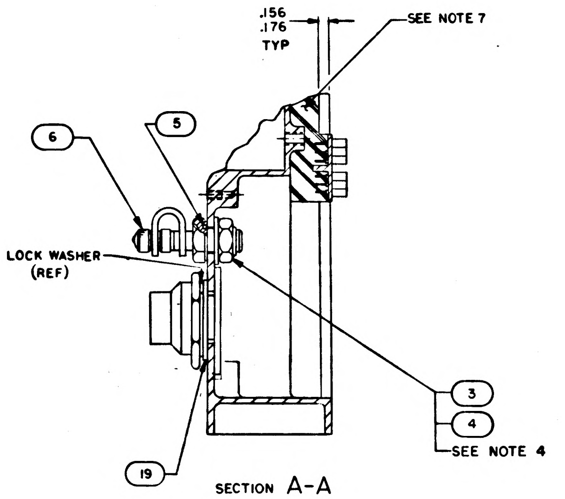
QTY 2 8
QTY 2 9
QTY 2 10
QTY 2 11
13



SEE NOTE 8
7 PLACES
QTY 4 7
J7
A
J1
J2
J3
J4
J5
J6
PIN 85 REF
KEY REF
J9
SEE NOTE 8
14 PLACES
SEE NOTE 8
7 PLACES
A



.156
.176
TYP
SEE NOTE 7
6
5
LOCK WASHER (REF)
3
4
SEE NOTE 4
19

SECTION A-A

NCE WITH STANDARDS

) REVISION IPER ND1002019

O. 3 TO BE 10 TO 11 FT-LBS

PER ND1002004 TYPE IV

PER ND1002236

FREE FROM ENCAPSULATING COMPOUND

WHERE SHOWN USING FIND NO. 18

ND1002031 EXCEPT FIND NO.15 AND

OF UNINSULATED WIRE, 1/2 TO 1 1/2

OF 1.48 TO 1.00 AND STRIP FORCE

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	2005951	INTERCONNECTING DIAGRAM	REF
1	1004546-5	WASHER, FLAT	19
AR	1012507-003	TAPE, LACING	18
1	NAS1598D08N	WASHER, SEALING	17
1	MS35216-39	SCREW, PAN HD, CROSS RECESSED	16
AR	1010807-22	WIRE, INSULATED	15
AR	1010940-004	WIRE, INSULATED	14
1	2004931	RETAINER, VALVE CAP	13
1	2003980-011	WIRING HARNESS, BRANCHED	12
2	MS16633-4015	RING, RETAINING	11
2	1004546-3	WASHER, FLAT	10
2	1004546-1	WASHER, FLAT	9
2	1004579-2	SCREW, JACKING	8
4	MS35200-25	SCREW, FLAT HD, CROSS RECESSED	7
1	1006345	VALVE, PNEUMATIC TANK	6
1	1000159-14	PACKING, PREFORMED, O-RING	5
1	MS15795-314	WASHER, FLAT	4
1	MS20364D624A	NUT, HEX	3
1	2003916-011	CONNECTOR PLATE ASSY	2
1	2003967-011	IDM WIREWRAP PLATE ASSY	1
011	LIST OF MATERIALS		

2003954

2H

2003985	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT

DRAWN W. Brown DATE 1 July 65
CHECKED R Edwards 12 July 65
APPROVAL [illegible] 4 [illegible] 65
APPROVAL Eldon C Hall 17 July 65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MAIN HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO 2003954
SCALE 1/1
WT
SHEET 1 OF 3

2003954

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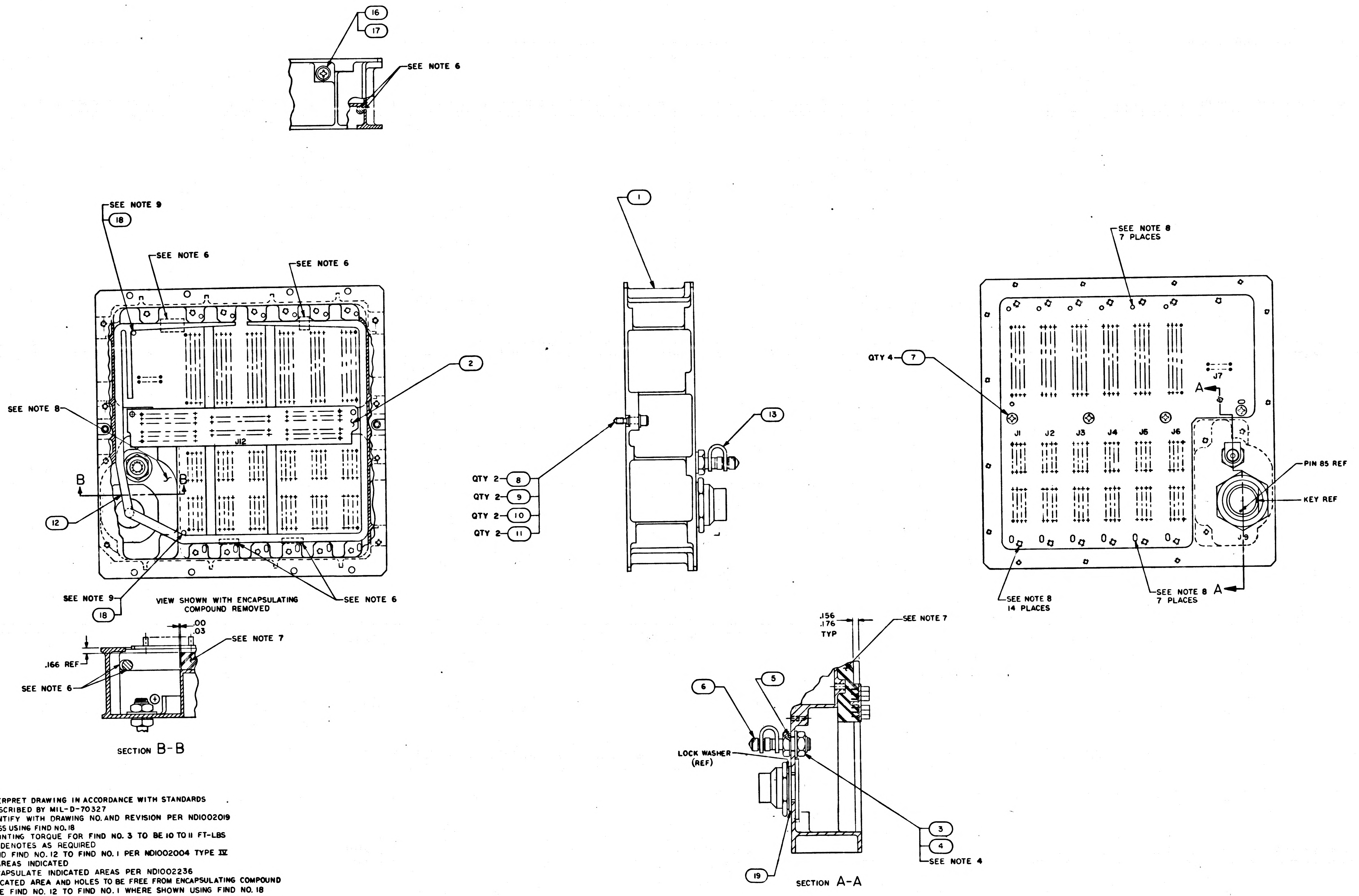
16
17
SEE NOTE 6
SEE NOTE 9
18
SEE NOTE 6
SEE NOTE 6
2
SEE NOTE 8
J12
B
B
12
SEE NOTE 9
18
VIEW SHOWN WITH ENCAPSULATING COMPOUND REMOVED
SEE NOTE 6
1
QTY 2 8
QTY 2 9
QTY 2 10
QTY 2 11
13
SEE NOTE 8
7 PLACES
QTY 4 7
J7
A
J1
J2
J3
J4
J5
J6
PIN 85 REF
KEY REF
J9
SEE NOTE 8
14 PLACES
SEE NOTE 8
7 PLACES
A
.00
.03
SEE NOTE 7
.166 REF
SEE NOTE 6
SECTION B-B
.156
.176
TYP
SEE NOTE 7
6
5
LOCK WASHER (REF)
3
4
SEE NOTE 4
19
SECTION A-A

2H

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
3 DRESS USING FIND NO. 18
4. MOUNTING TORQUE FOR FIND NO. 3 TO BE 10 TO 11 FT-LBS
5 AR DENOTES AS REQUIRED
6. BOND FIND NO. 12 TO FIND NO. 1 PER ND1002004 TYPE IV IN AREAS INDICATED
7. ENCAPSULATE INDICATED AREAS PER ND1002236
8. INDICATED AREA AND HOLES TO BE FREE FROM ENCAPSULATING COMPOUND
9. LACE FIND NO. 12 TO FIND NO. 1 WHERE SHOWN USING FIND NO. 18
10. WIRE USING LEAD ELECTRICAL & PER ND1002031 EXCEPT FIND NO. 15 AND LEADS OF FIND NO. 12 TO HAVE 5 TO 6 TURNS OF UNINSULATED WIRE, 1/2 TO 1 1/2 TURNS UNINSULATED WIRE, STRIP LENGTH OF 1.18 TO 1.00, AND STRIP FORCE OF 5 LB MIN.

☒	2005951
1	1004546-5
AR	1012507-003
1	NAS1598D08N
1	MS35216-39
AR	1010807-22
AR	1010940-004
1	2004931
1	2003980-011
2	MS16633-401
2	1004546-3
2	1004546-1
2	1004579-2
4	MS35200-25
1	1006345
1	1000159-14
1	MS15795-314
1	MS20364D
1	2003916-01
1	2003967-011
QTY REQD	PART OR IDENTIFYING NO.
011	

2003985	
NEXT ASSY	USED ON
APPLICATION	

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DIMENSIONS ARE IN INCHES
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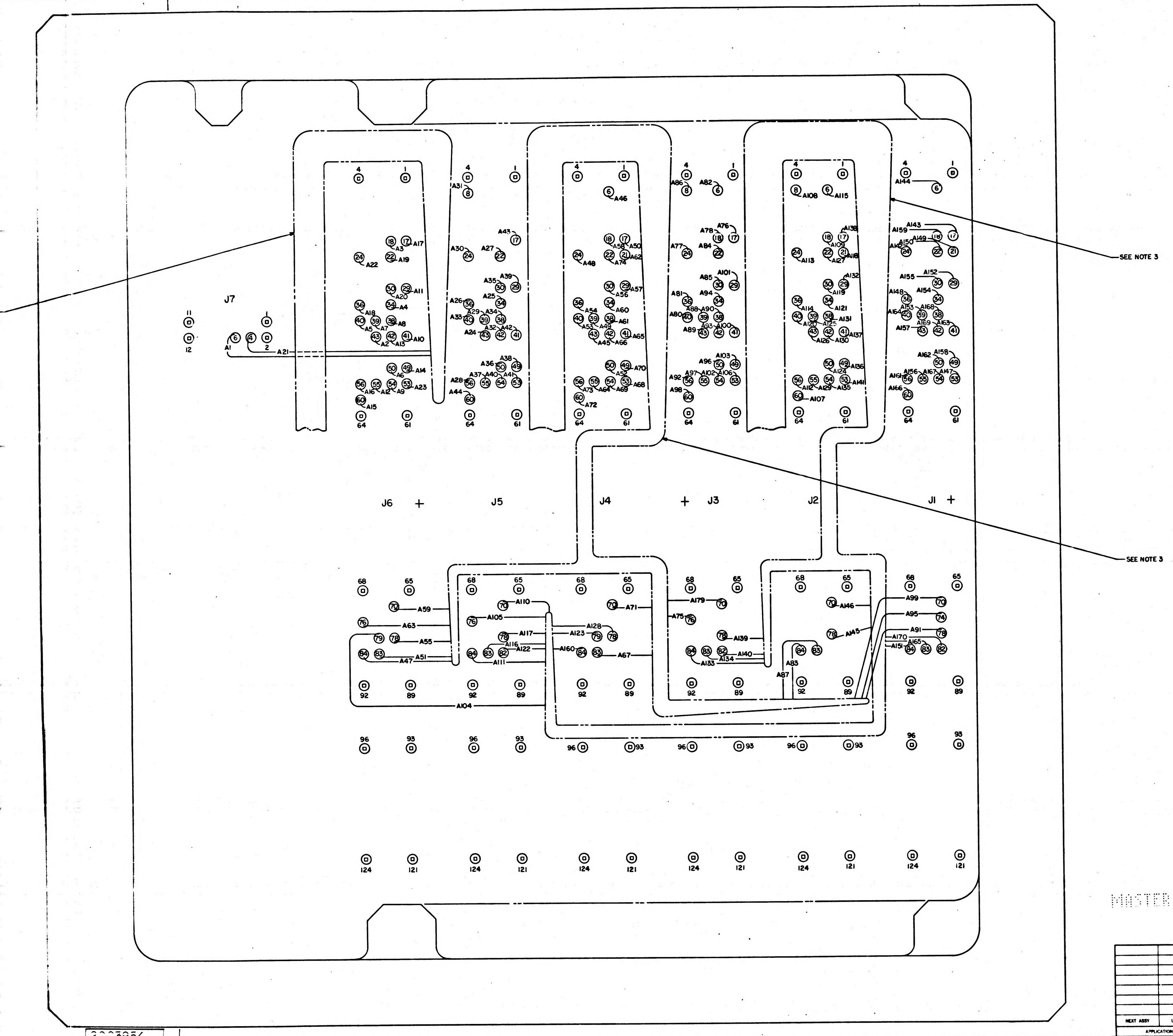
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION
CAMBRIDGE MASS
DRAWN W. Cam
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

2003954

SYM	DESCRIPTION	DATE	APPROVAL

REVISIONS



MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
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FRACTIONS ± DECIMALS ± ANGLES ±
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FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN L. Dusenbury DATE 9 July 65
CHECKED R. Edwards 12 July 65
APPROVAL
APPROVAL 10 July 65
NASA APPROVAL
MIT APPROVAL 20 July 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MAIN HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO 2003954
SCALE NONE
WT
SHEET 2 OF 3

2003954

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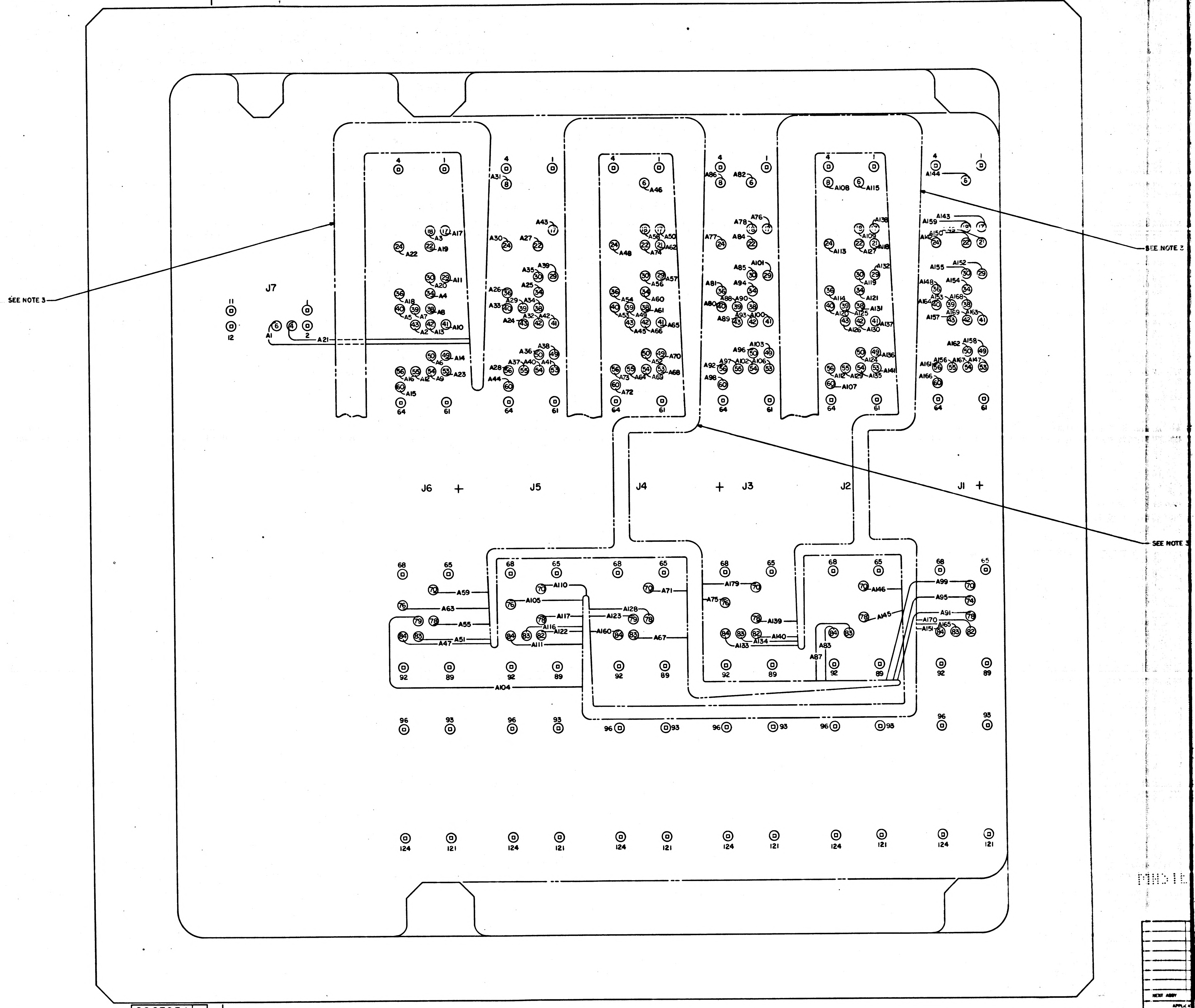
SEE NOTE 3
SEE NOTE 2
SEE NOTE 3
J7
J6
J5
J4
J3
J2
J1
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A46
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A86
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A115
A144
A104
A110
A145
A146

MND 1E

NEXT ASSY

APPLIC

2003954

2003954

REVISIONS 20943

SYM	DESCRIPTION	DATE	APPROVAL

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A1	SEE NOTE 3	J2-166	14	YEL	30	AR	J7-6	SEE NOTE 3
A2		↑ -167	14	YEL	30	↑	J6-43	
A3		-160	15	WHT	26		↑ -18	
A4		-159	14	YEL	30		-34	
A5		-154	↑	↑	↑		-40	
A6		-153	↓	↓	↓		-50	
A7		-148	14	YEL	30		-39	
A8		-147	15	WHT	26		-39	
A9		-42	14	YEL	30		-54	
A10		-141	↑	↑	↑		-41	
A11		-136					-29	
A12		-135					-55	
A13		-187	↓	↓	↓		-42	
A14		-210	14	YEL	30		-49	
A15		-182	15	WHT	26		-60	
A16		-204	14	YEL	30		-56	
A17		-192	↑	↑	↑		-17	
A18		-176					-36	
A19		-175					↓ -22	
A20		-174					J6-30	
A21		-170					J7-4	
A22		-169					J6-24	
A23		-168					J6-53	
A24		-164					J5-43	
A25		-163					↑ -34	
A26		-162					-36	
A27		-161					-22	
A28		-158					-56	
A29		-157	↓	↓	↓		-39	
A30		-156	14	YEL	30		-24	
A31		-155	15	WHT	26		-8	
A32		-152	14	YEL	30		-42	
A33		-151	14	YEL	30		-40	
A34		-150	15	WHT	26		-38	
A35		-149	14	YEL	30		-30	
A36		-146	↑	↑	↑		-50	
A37		-145					-55	
A38		-144					-49	
A39		-143					-29	
A40		-140					-54	
A41		-139					-53	
A42		-138	↓	↓	↓		-41	
A43		-137	14	YEL	30		↓ -17	
A44		-134	15	WHT	26		J5-60	
A45		-133	14	YEL	30		J4-43	
A46		-132	↑	↑	↑		J4-6	
A47		-131					J6-84	
A48		-130					J4-24	
A49		-129					J4-39	
A50		-128					J4-17	
A51		-127					J6-83	
A52		-126					J4-50	
A53		-125					J4-40	
A54		-124					J4-36	
A55		-123					J6-78	
A56		-122					J4-30	
A57		-121					J4-29	
A58		-120					J4-18	
A59		-119					J6-70	
A60		-118					J4-34	
A61		-117					J4-38	
A62		-116					J4-21	
A63		-115					J6-76	
A64		-114					J4-55	
A65		-113					↑ -41	
A66		-112					-42	
A67		-111					-83	
A68		-110					-53	
A69		-109					-54	
A70		-108					-49	
A71		↓ -107	↓	↓	↓	↓	↓ -70	
A72		J12-106	14	YEL	30	AR	J4-60	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A73	SEE NOTE 3	J12-105	14	YEL	30	AR	J4-56	SEE NOTE 3
A74		↑ -104	↑	↑	↑	↑	J4-22	
A75		-103					J3-76	
A76		-102	↓	↓	↓		↑ -17	
A77		-101	14	YEL	30		-24	
A78		-100	15	WHT	26		-18	
A79		-99	14	YEL	30		-70	
A80		-98	14	YEL	30		-40	
A81		-97	14	YEL	30		↓ -36	
A82		-96	15	WHT	26		J3-6	
A83		-95	14	YEL	30		J2-84	
A84		-94	14	YEL	30		J3-22	
A85		-93	14	YEL	30		J3-30	
A86		-92	15	WHT	26		J3-8	
A87		-91	14	YEL	30		J2-83	
A88		-90	14	YEL	30		J3-39	
A89		-89	14	YEL	30		J3-43	
A90		-88	15	WHT	26		J3-38	
A91		-87	14	YEL	30		J1-78	
A92		-86	↑	↑	↑		J3-56	
A93		-85					J3-42	
A94		-84					J3-34	
A95		-83					J1-74	
A96		-82	↓	↓	↓		J3-50	
A97		-81	14	YEL	30		J3-55	
A98		-80	15	WHT	26		J3-60	
A99		-79	14	YEL	30		J1-70	
A100		-78	↑	↑	↑		J3-41	
A101		-77					J3-29	
A102		-76					J3-54	
A103		-75					J3-49	
A104		-74					J6-79	
A105		-73					J5-76	
A106		-72	↓	↓	↓		J3-53	
A107		-71	14	YEL	30		J2-60	
A108		-70	15	WHT	26		J2-8	
A109		-69	14	YEL	30		J2-18	
A110		-68	↑	↑	↑		J5-70	
A111		-67					J5-84	
A112		-66					J2-56	
A113		-65	↓	↓	↓		J2-24	
A114		-64	14	YEL	30		J2-36	
A115		-63	15	WHT	26		J2-6	
A116		-62	14	YEL	30		J5-83	
A117		-61	↑	↑	↑		J5-78	
A118		-60					J2-21	
A119		-59					J2-30	
A120		-58					J2-40	
A121		-57					J2-34	
A122		-56					J5-82	
A123		-55					J4-79	
A124		-54					J2-50	
A125		-53					J2-39	
A126		-52					J2-43	
A127		-51					J2-22	
A128		-50					J4-78	
A129		-48					J2-55	
A130		-47					J2-42	
A131		-46					J2-38	
A132		-45					J2-29	
A133		-44					J3-84	
A134		-43					J3-83	
A135		-42					J2-54	
A136		-41					J2-49	
A137		-40					J2-41	
A138		-39					J2-17	
A139		-38					J3-78	
A140		-37					J3-82	
A141		-36					J2-53	
A142		-35	↓	↓	↓		J1-24	
A143		↓ -34	14	YEL	30	↓	J1-17	
A144		J12-33	15	WHT	26	AR	J1-6	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A145	SEE NOTE 3	J12-32	14	YEL	30	AR	J2-78	SEE NOTE 3
A146		↑ -31	↑	↑	↑	↑	J2-70	
A147		-30					J1-53	
A148		-29					↑ -36	
A149		-28					-21	
A150		-27					-22	
A151		-25					-84	
A152		-24					-29	
A153		-23					-39	
A154		-22					-34	
A155		-21					-30	
A156		-18					-55	
A157		-17					-43	
A158		-16					↓ -49	
A159		-15					J1-18	
A160		-13					J4-84	
A161		-12					J1-56	
A162		-11					↑ -50	
A163		-10					-41	
A164		-9					-40	
A165		-7					-83	
A166		-6					-60	
A167		-5					-54	
A168		-4					-38	
A169		↓ -3	↓	↓	↓	↓	↓ -42	
A170		J12-1	14	YEL	30	AR	J1-82	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

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MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO
CONTRACT

DRAWN D.A. Clement DATE 30 JUN 65
CHECKED R. Edward 12 July 65
APPROVAL
APPROVAL Eldon C. Hall
NASA APPROVAL
MIT APPROVAL W Kupfer 10 July 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MAIN HOUSING ASSEMBLY
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CODE IDENT NO 80230
SIZE J
NASA DRAWING NO 2003954
SCALE NONE
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SHEET 3 OF 3

2003954

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2003954

REVISIONS 2043		
SYM	DESCRIPTION	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A1	SEE NOTE 3	J12-166	14	YEL	30	AR	J7-6	SEE NOTE 3
A2		↑ -167	14	YEL	30	↑	J6-43	
A3		-160	15	WHT	26		↑ -18	
A4		-159	14	YEL	30		-34	
A5		-154	↑	↑	↑		-40	
A6		-153	↓	↓	↓		-50	
A7		-148	14	YEL	30		-39	
A8		-147	15	WHT	26		-38	
A9		-142	14	YEL	30		-54	
A10		-141	↑	↑	↑		-41	
A11		-136					-29	
A12		-135					-55	
A13		-187	↓	↓	↓		-42	
A14		-210	14	YEL	30		-49	
A15		-182	15	WHT	26		-60	
A16		-204	14	YEL	30		-56	
A17		-192	↑	↑	↑		-17	
A18		-176					-36	
A19		-175					↓ -22	
A20		-174					J6-30	
A21		-170					J7-4	
A22		-169					J6-24	
A23		-168					J6-53	
A24		-164					J5-43	
A25		-163					↑ -34	
A26		-162					-36	
A27		-161					-22	
A28		-158					-56	
A29		-157	↓	↓	↓		-39	
A30		-156	14	YEL	30		-24	
A31		-155	15	WHT	26		-8	
A32		-152	14	YEL	30		-42	
A33		-151	14	YEL	30		-40	
A34		-150	15	WHT	26		-38	
A35		-149	14	YEL	30		-30	
A36		-146	↑	↑	↑		-50	
A37		-145					-55	
A38		-144					-49	
A39		-143					-29	
A40		-140					-54	
A41		-139					-53	
A42		-138	↓	↓	↓		-41	
A43		-137	14	YEL	30		↓ -17	
A44		-134	15	WHT	26		J5-60	
A45		-133	14	YEL	30		J4-43	
A46		-132	↑	↑	↑		J4-6	
A47		-131					J6-84	
A48		-130					J4-24	
A49		-129					J4-39	
A50		-128					J4-17	
A51		-127					J6-83	
A52		-126					J4-50	
A53		-125					J4-40	
A54		-124					J4-36	
A55		-123					J6-78	
A56		-122					J4-30	
A57		-121					J4-29	
A58		-120					J4-18	
A59		-119					J6-70	
A60		-118					J4-34	
A61		-117					J4-38	
A62		-116					J4-21	
A63		-115					J6-76	
A64		-114					J4-55	
A65		-113					↑ -41	
A66		-112					-42	
A67		-111					-83	
A68		-110					-53	
A69		-109					-54	
A70		-108					-49	
A71		↓ -107	↓	↓	↓	↓	↓ -70	
A72		J12-106	14	YEL	30	AR	J4-60	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A73	SEE NOTE 3	J12-105	14	YEL	30	AR	J4-56	SEE NOTE 3
A74		↑ -104	↑	↑	↑	↑	J4-22	
A75		-103					J3-76	
A76		-102	↓	↓	↓		↑ -17	
A77		-101	14	YEL	30		-24	
A78		-100	15	WHT	26		-18	
A79		-99	14	YEL	30		-70	
A80		-98	14	YEL	30		-40	
A81		-97	14	YEL	30		↓ -36	
A82		-96	15	WHT	26		J3-6	
A83		-95	14	YEL	30		J2-84	
A84		-94	14	YEL	30		J3-22	
A85		-93	14	YEL	30		J3-30	
A86		-92	15	WHT	26		J3-8	
A87		-91	14	YEL	30		J2-83	
A88		-90	14	YEL	30		J3-39	
A89		-89	14	YEL	30		J3-43	
A90		-88	15	WHT	26		J3-38	
A91		-87	14	YEL	30		J1-78	
A92		-86	↑	↑	↑		J3-56	
A93		-85					J3-42	
A94		-84					J3-34	
A95		-83					J1-74	
A96		-82	↓	↓	↓		J3-50	
A97		-81	14	YEL	30		J3-55	
A98		-80	15	WHT	26		J3-60	
A99		-79	14	YEL	30		J1-70	
A100		-78	↑	↑	↑		J3-41	
A101		-77					J3-29	
A102		-76					J3-54	
A103		-75					J3-49	
A104		-74					J6-79	
A105		-73					J5-76	
A106		-72	↓	↓	↓		J3-53	
A107		-71	14	YEL	30		J2-60	
A108		-70	15	WHT	26		J2-8	
A109		-69	14	YEL	30		J2-18	
A110		-68	↑	↑	↑		J5-70	
A111		-67					J5-84	
A112		-66					J2-56	
A113		-65	↓	↓	↓		J2-24	
A114		-64	14	YEL	30		J2-36	
A115		-63	15	WHT	26		J2-6	
A116		-62	14	YEL	30		J5-83	
A117		-61	↑	↑	↑		J5-78	
A118		-60					J2-21	
A119		-59					J2-30	
A120		-58					J2-40	
A121		-57					J2-34	
A122		-56					J5-82	
A123		-55					J4-79	
A124		-54					J2-50	
A125		-53					J2-39	
A126		-52					J2-43	
A127		-51					J2-22	
A128		-50					J4-78	
A129		-48					J2-55	
A130		-47					J2-42	
A131		-46					J2-38	
A132		-45					J2-29	
A133		-44					J3-84	
A134		-43					J3-83	
A135		-42					J2-54	
A136		-41					J2-49	
A137		-40					J2-41	
A138		-39					J2-17	
A139		-38					J3-78	
A140		-37					J3-82	
A141		-36					J2-53	
A142		-35	↓	↓	↓		J1-24	
A143		↓ -34	14	YEL	30	↓	J1-17	
A144		J12-33	15	WHT	26	AR	J1-6	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A145	SEE NOTE 3	J12-32	14	YEL	30	AR	J2-78	SEE NOTE 3
A146		↑ -31	↑	↑	↑	↑	J2-70	
A147		-30					J1-53	
A148		-29					↑ -36	
A149		-28					-21	
A150		-27					-22	
A151		-25					-84	
A152		-24					-29	
A153		-23					-39	
A154		-22					-34	
A155		-21					-30	
A156		-18					-55	
A157		-17					-43	
A158		-16					↓ -49	
A159		-15					J1-18	
A160		-13					J4-84	
A161		-12					J1-56	
A162		-11					↑ -50	
A163		-10					-41	
A164		-9					-40	
A165		-7					-83	
A166		-6					-60	
A167		-5					-54	
A168		-4					-38	
A169		↓ -3	↓	↓	↓	↓	↓ -42	
A170		J12-1	14	YEL	30	AR	J1-82	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
Cambridge Mass

DRAWN DATE 30 ... 65
CHECKED ... July 65
APPROVAL
APPROVAL
NASA APPROVAL ... 7/..65
MIT APPROVAL W. Keifer 10 July 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MAIN HOUSING ASSEM

AGC D

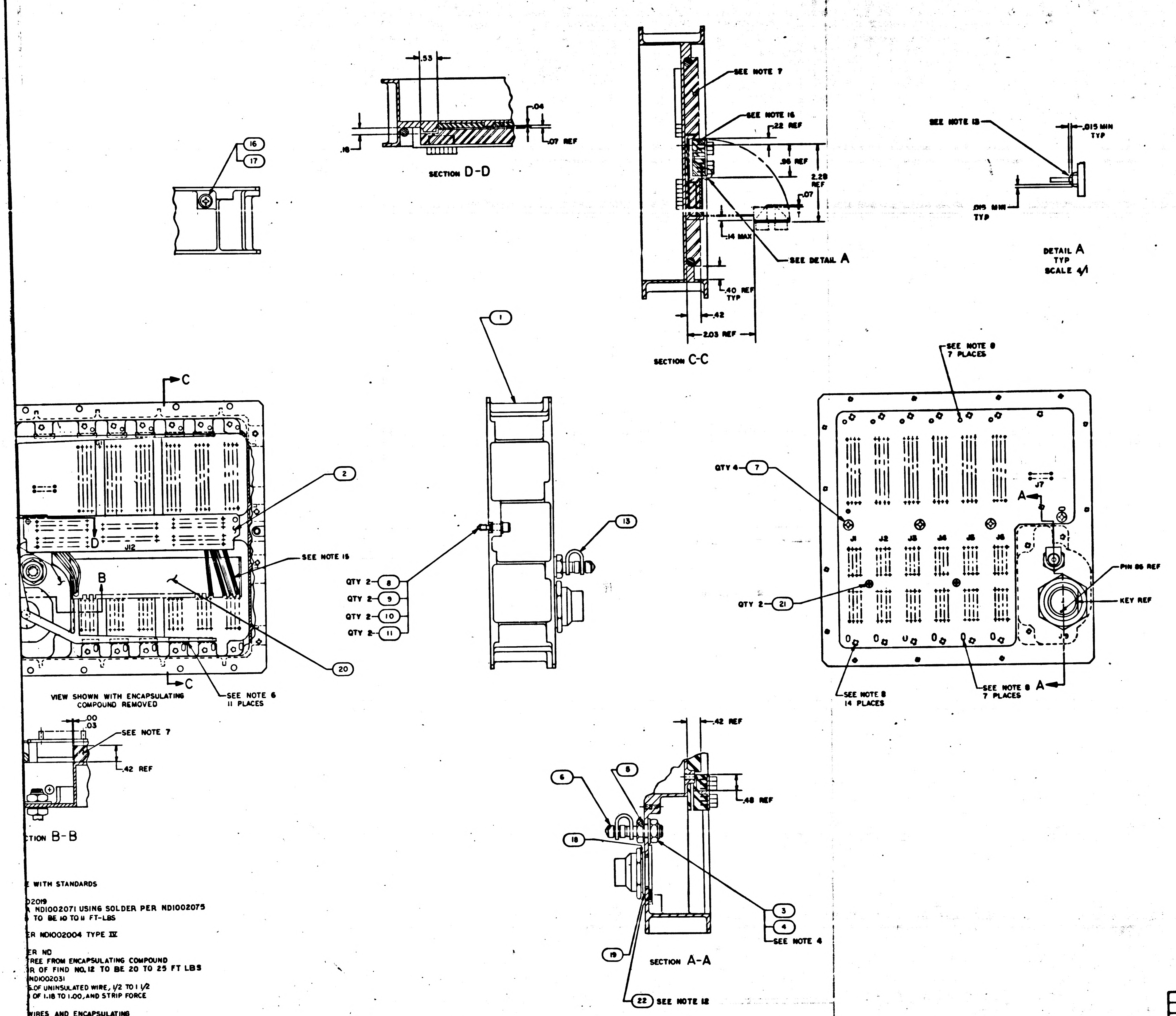
CODE IDENT NO.	SIZE	NASA DRAWING NO
80230	J	2
SCALE NONE	WT	SHEET

2003954

SYM	ZONE	REVISIONS DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 27552				

26201

2003955 A



.53
.04
.16
.07 REF
SECTION D-D
16
17
SEE NOTE 7
SEE NOTE 16
.22 REF
.96 REF
2.28 REF
.07
.14 MAX
SEE DETAIL A
.40 REF TYP
.42
2.03 REF
SECTION C-C
SEE NOTE 13
.015 MIN TYP
.015 MIN TYP
DETAIL A TYP SCALE 4/1
C
C
D
B
J12
2
SEE NOTE 15
20
VIEW SHOWN WITH ENCAPSULATING COMPOUND REMOVED
SEE NOTE 6 11 PLACES
1
13
QTY 2 8
QTY 2 9
QTY 2 10
QTY 2 11
SEE NOTE 8 7 PLACES
QTY 4 7
J7
A
J1
J2
J3
J4
J5
J6
PIN 86 REF
KEY REF
QTY 2 21
SEE NOTE 8 14 PLACES
SEE NOTE 8 7 PLACES
A
.00
.03
SEE NOTE 7
.42 REF
SECTION B-B
.42 REF
6
5
.48 REF
18
3
4
SEE NOTE 4
19
SECTION A-A
22 SEE NOTE 12

E WITH STANDARDS

D2019
R ND1002071 USING SOLDER PER ND1002075
TO BE 10 TO 11 FT-LBS

ER ND1002004 TYPE IV

ER ND
FREE FROM ENCAPSULATING COMPOUND
R OF FIND NO. 12 TO BE 20 TO 25 FT LBS
ND1002031
S OF UNINSULATED WIRE, 1/2 TO 1 1/2
OF 1.18 TO 1.00, AND STRIP FORCE

WIRES AND ENCAPSULATING
ACE A

NG AND REPLACE WITH FIND NO. 22
PER ND1002004 TYPE VI

NO. 14 & 15 TO FIND NO. 20 PER ND1002004 TYPE IV

2003955 A

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	2005953		INTERCONNECTING DIAGRAM	REF
1	1000159-10		PACKING, PREFORMED O RING	22
2	MS51959-13		SCREW, FLAT HD, CROSS-RECESSED	21
1	2004927		COMB, WIRE	20
1	1004546-6		WASHER, FLAT	19
1	1010635-004		WASHER, LOCK	18
1	NAS1598D08N		WASHER, SEALING	17
1	MS51957-42		SCREW, PAN HD, CROSS RECESSED	16
AR	1010807-22		WIRE INSULATED	15
AR	1006376-003	SEE NOTE 14	WIRE, INSULATED	14
1	2004931		RETAINER, VALVE CAP	13
1	2003980-011		WIRING HARNESS, BRANCHED	12
2	MS16633-4015		RING, RETAINING	11
2	1004546-3		WASHER, FLAT	10
2	1004546-1		WASHER, FLAT	9
2	1004579-2		SCREW, JACKING	8
4	MS51959-28		SCREW, FLAT HD, CROSS RECESSED	7
1	2004903		VALVE PNEUMATIC TANK	6
1	1000159-14		PACKING PREFORMED, O-RING	5
1	MS15795-814		WASHER, FLAT	4
1	MS20364D624A		NUT, HEX	3
1	2003951-011		CONNECTOR PLATE ASSY	2
1	2003947-011		IDM WIREWRAP PLATE ASSY	1

011 LIST OF MATERIALS

2003955

NEXT ASSY	USED ON
2003950	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ±.01 ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

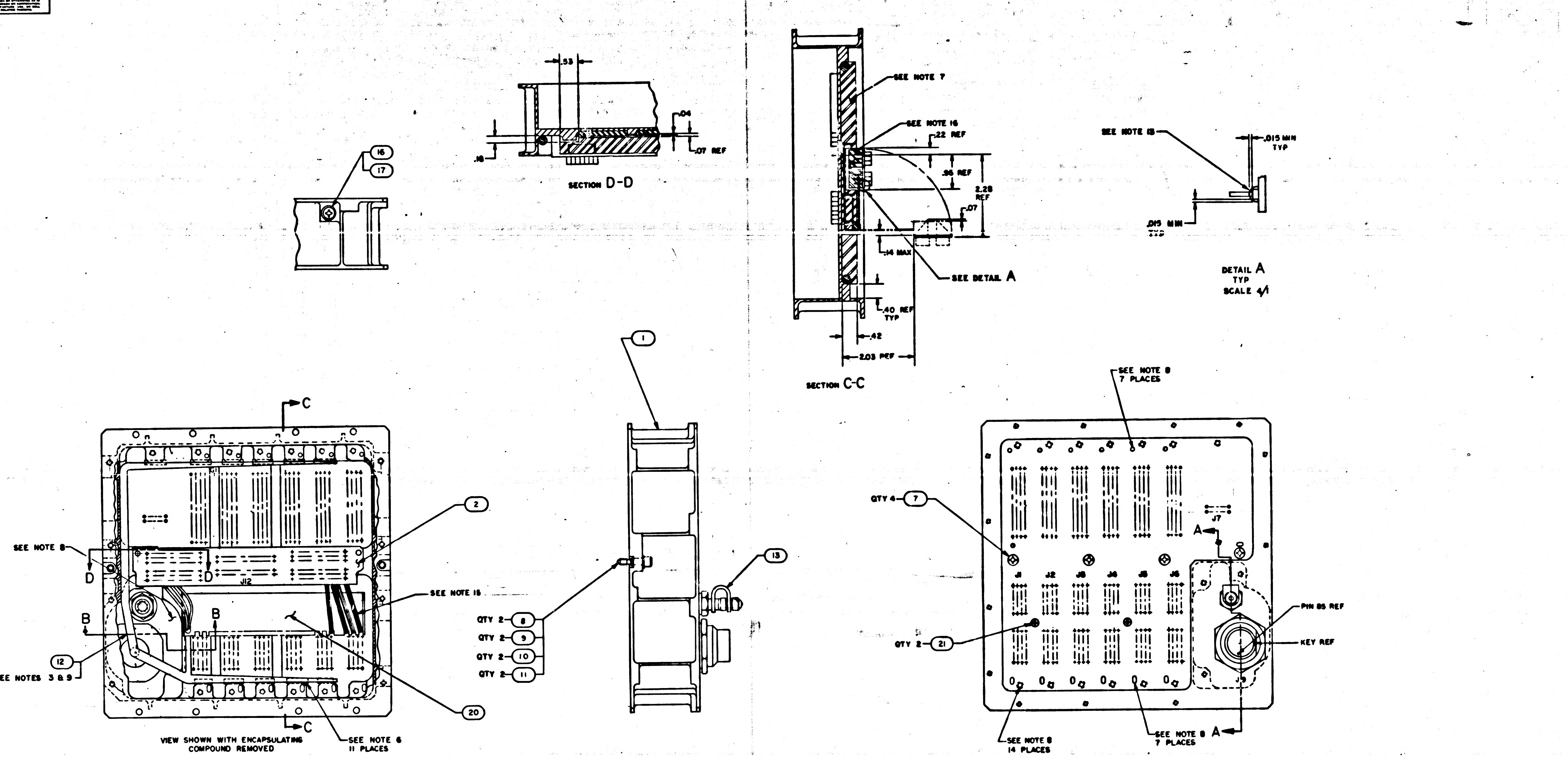
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

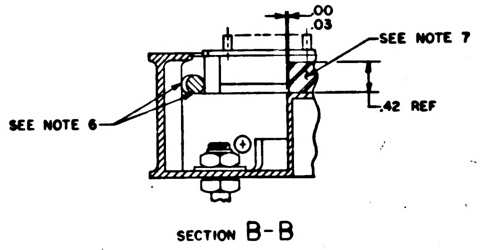
DRAWN A.J. Green
CHECKED J.L. Jankoff 3 FEB 64
APPROVED 3 Feb 64
APPROVED Eldon C. Hall
APPROVED MIT
A. C. METZGER
APPROVED MSC
DATE

MAIN HOUSING ASSEMBLY
AGC DSKY

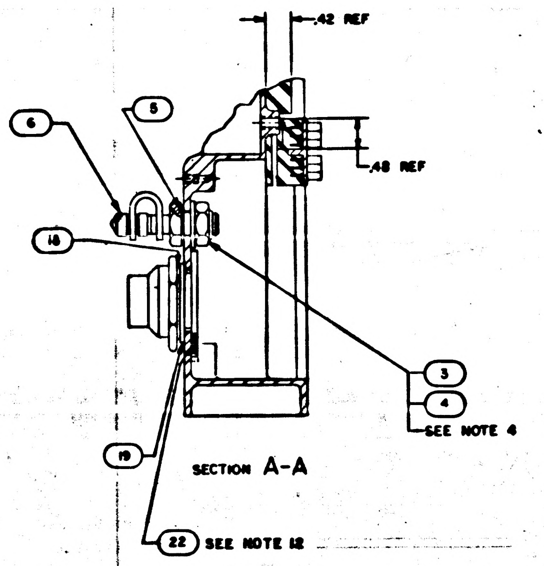
CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003955
SCALE 1/1
SHEET 1 OF 3

F 2/2


.53
.04
.07 REF
.16
SECTION D-D
16
17
SEE NOTE 7
SEE NOTE 16
.22 REF
.96 REF
2.28 REF
.07
.14 MAX
SEE DETAIL A
.40 REF TYP
.42
2.03 REF
SECTION C-C
SEE NOTE 13
.015 MIN TYP
.015 MIN TYP
DETAIL A
TYP
SCALE 4/1
1
C
SEE NOTE 8
D
D
J12
B
B
12
SEE NOTES 3 & 9
2
SEE NOTE 15
20
C
VIEW SHOWN WITH ENCAPSULATING COMPOUND REMOVED
SEE NOTE 6
11 PLACES
QTY 2 8
QTY 2 9
QTY 2 10
QTY 2 11
13
SEE NOTE 8
7 PLACES
QTY 4 7
A
J7
J1
J2
J3
J4
J5
J6
PIN 85 REF
KEY REF
QTY 2 21
SEE NOTE 8
14 PLACES
SEE NOTE 8
7 PLACES
A


.00
.03
SEE NOTE 7
SEE NOTE 6
.42 REF

SECTION B-B


.42 REF
6
5
.48 REF
18
3
4
SEE NOTE 4
19
22
SEE NOTE 12

SECTION A-A

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. IDENTIFY WITH PART NO. PER ND1002019
3. SOLDER LEADS OF FIND NO. 12 PER ND1002071 USING SOLDER PER ND1002075
4. MOUNTING TORQUE FOR FIND NO. 3 TO BE 10 TO 11 FT-LBS
5. AR DENOTES AS REQUIRED
6. BOND FIND NO. 12 TO FIND. NO. 1 PER ND1002004 TYPE IV IN AREAS INDICATED
7. ENCAPSULATE INDICATED AREAS PER ND
8. INDICATED AREA AND HOLES TO BE FREE FROM ENCAPSULATING COMPOUND
9. MOUNTING TORQUE FOR CONNECTOR OF FIND NO. 12 TO BE 20 TO 25 FT LBS
10. WIRE USING LEAD ELECTRICAL & PER ND1002031 EXCEPT FIND NO.15 TO HAVE 5 TO 6 TURNS OF UNINSULATED WIRE, 1/2 TO 1 1/2 TURNS UNINSULATED WIRE, STRIP LENGTH OF 1.18 TO 1.00, AND STRIP FORCE OF 5 LB MIN.
11. INDICATED AREAS TO BE FREE OF WIRES AND ENCAPSULATING COMPOUND TO THE LEVEL OF SURFACE A
12. DISCARD VENDOR SUPPLIED O RING AND REPLACE WITH FIND NO. 22
13. SEAL INSULATORS ON FIND NO. 2 PER ND1002004 TYPE VI
~~14. COLOR OF FIND NO. 14 TO BE OPTIONAL~~
15. BOND WIRES OF FIND NO. 12 & FIND NO. 14 & 15 TO FIND NO. 20 PER ND1002004 TYPE IV
16. ENCAPSULATE PER ND1002236
17. WELD PER ND1002005

QTY REQD	PART O IDENTIFYI
☒	2005953
1	1000159-
2	MS51959-
1	2004927
1	1004546-6
1	1010635-
1	NAS1598D
1	MS51957-
AR	1010807-2
AR	1006
1	2004931
1	2003980-
2	MS16633-
2	1004546-3
2	1004546-1
2	1004579-
4	MS51959-2
1	2004903
1	1000159-1
1	MS15795-
1	MS20364D
1	2003951-
1	2003947-
011	

2003950	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.01 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATI
CAMBRIDGE

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
A. C. METZ
APPROVED NSC

2003955 A

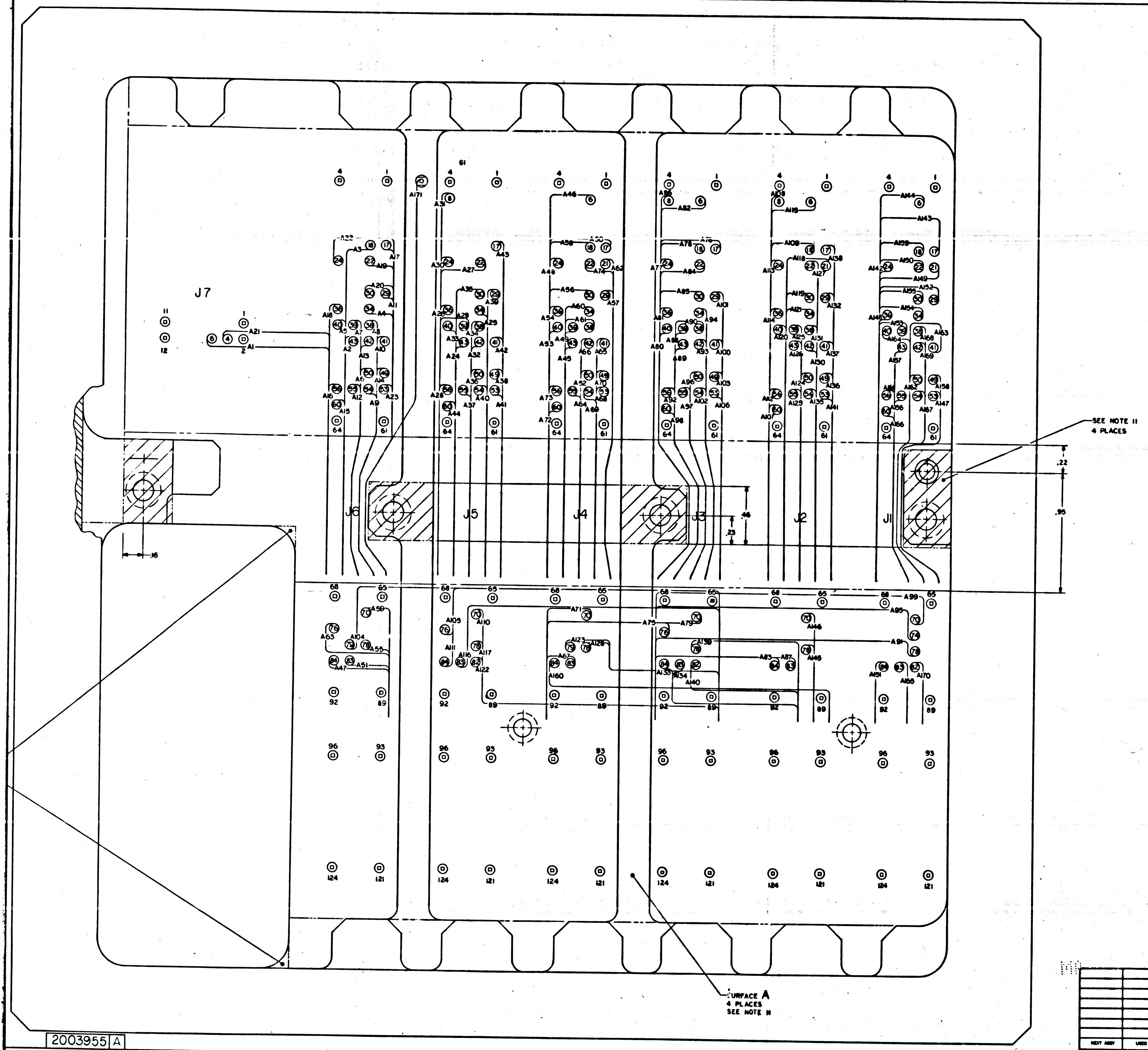
2003955 A F1/2

SHEET 1

2003955 A

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 27552				

REVISIONS 26215



J7
J6
J5
J4
J3
J2
J1
SEE NOTE 11
4 PLACES
SURFACE A
4 PLACES
SEE NOTE 11
.22
.95
.46
.23
.16

2003955 A

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

NEXT ASSY | USED ON
APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN 6 DEC 65
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

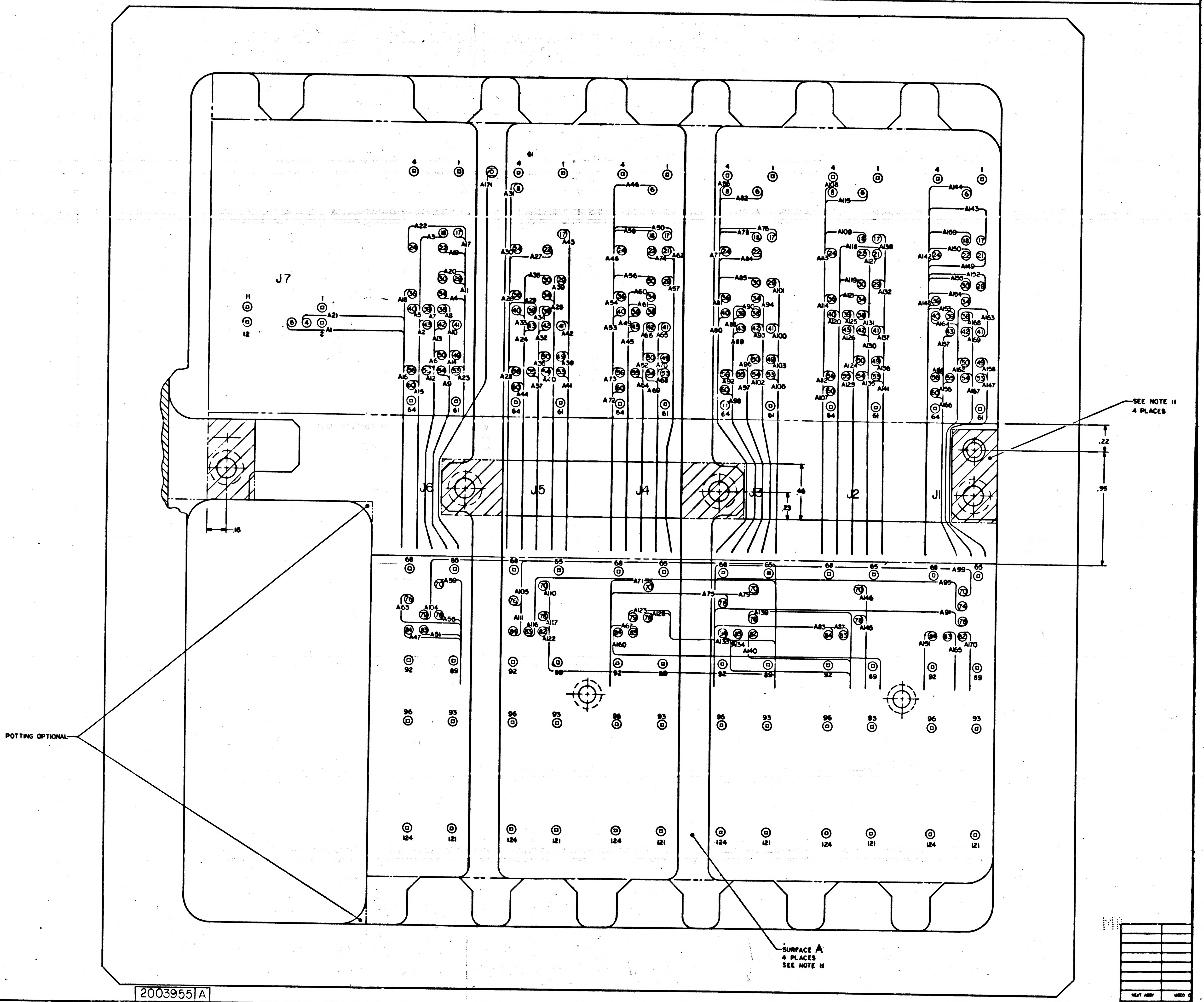
MAIN HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230 | SIZE J | DRAWING NO. 2003955

SCALE NONE | SHEET 2 OF 3

2003955 A

E 2/12


J7
J6
J5
J4
J3
J2
J1
1
2
11
12
4
61
64
65
68
89
92
93
96
121
124
SEE NOTE 11
4 PLACES
.22
.95
.46
.23
.16
POTTING OPTIONAL
SURFACE A
4 PLACES
SEE NOTE 11

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REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 27552				

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A1		J12-166	14	BLUE	30	AR	J7-6	
A2		↑ -167	14		30	↑	J6-43	
A3		-160	15	WHT	26		↑ -18	
A4		-159	14	BLUE	30		-34	
A5		-154	↑	↑	↑		-40	
A6		-153	↓	↓	↓		-50	
A7		-148	14	BLUE	30		-39	
A8		-147	15	WHT	26		-38	
A9		-142	14	BLUE	30		-54	
A10		-141	↑	↑	↑		-41	
A11		-136					-29	
A12		-135					-55	
A13		-187	↓	↓	↓		-42	
A14		-210	14	BLUE	30		-49	
A15		-182	15	WHT	26		-60	
A16		-204	14	BLUE	30		-56	
A17		-192	↑	↑	↑		-17	
A18		-176					-36	
A19		-175					↓ -22	
A20		-174					J6-30	
A21		-170					J7-4	
A22		-169					J6-24	
A23		-168					J6-53	
A24		-164					J5-43	
A25		-163					↑ -34	
A26		-162					-36	
A27		-161					-22	
A28		-158					-56	
A29		-157	↓	↓	↓		-39	
A30		-156	14	BLUE	30		-24	
A31		-155	15	WHT	26		-8	
A32		-152	14	BLUE	30		-42	
A33		-151	14		30		-40	
A34		-150	15	WHT	26		-38	
A35		-149	14	BLUE	30		-30	
A36	SEE NOTE 10	-146	↑	↑	↑		-50	SEE NOTE 10
A37		-145					-55	
A38		-144					-49	
A39		-143					-29	
A40		-140					-54	
A41		-139					-53	
A42		-138	↓	↓	↓		-41	
A43		-137	14	BLUE	30		↓ -17	
A44		-134	15	WHT	26		J5-60	
A45		-133	14	BLUE	30		J4-43	
A46		-132	↑	↑	↑		J4-6	
A47		-131					J6-84	
A48		-130					J4-24	
A49		-129					J4-39	
A50		-128					J4-17	
A51		-127					J6-83	
A52		-126					J4-50	
A53		-125					J4-40	
A54		-124					J4-36	
A55		-123					J6-78	
A56		-122					J4-30	
A57		-121					J4-29	
A58		-120					J4-18	
A59		-119					J6-70	
A60		-118					J4-34	
A61		-117					J4-38	
A62		-116					J4-21	
A63		-115					J6-76	
A64		-114					J4-55	
A65		-113					↑ -41	
A66		-112					-42	
A67		-111					-83	
A68		-110					-53	
A69		-109					-54	
A70		-108					-49	
A71		↓ -107	↓	↓	↓	↓	↓ -70	
A72		J12-106	14	BLUE	30	AR	J4-60	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A73		J12-105	14	BLUE	30	AR	J4-56	
A74		↑ -104	↑	↑	↑	↑	J4-22	
A75		-103					J3-76	
A76		-102	↓	↓	↓		↑ -17	
A77		-101	14	BLUE	30		-24	
A78		-100	15	WHT	26		-18	
A79		-99	14		30		-70	
A80		-98	14	BLUE	30		-40	
A81		-97	14		30		↓ -36	
A82		-96	15	WHT	26		J3-6	
A83		-95	14		30		J2-84	
A84		-94	14	BLUE	30		J3-22	
A85		-93	14		30		J3-30	
A86		-92	15	WHT	26		J3-8	
A87		-91	14		30		J2-83	
A88		-90	14	BLUE	30		J3-39	
A89		-89	14		30		J3-43	
A90		-88	15	WHT	26		J3-38	
A91		-87	14	BLUE	30		J1-78	
A92		-86	↑	↑	↑		J3-56	
A93		-85					J3-42	
A94		-84					J3-34	
A95		-83					J1-74	
A96		-82	↓	↓	↓		J3-50	
A97		-81	14	BLUE	30		J3-55	
A98		-80	15	WHT	26		J3-60	
A99		-79	14	BLUE	30		J1-70	
A100		-78	↑	↑	↑		J3-41	
A101		-77					J3-29	
A102		-76					J3-54	
A103		-75					J3-49	
A104		-74					J6-79	
A105		-73					J5-76	
A106		-72	↓	↓	↓		J3-53	
A107		-71	14	BLUE	30		J2-60	
A108	SEE NOTE 10	-70	15	WHT	26		J2-8	SEE NOTE 10
A109		-69	14	BLUE	30		J2-18	
A110		-68	↑	↑	↑		J5-70	
A111		-67					J5-84	
A112		-66					J2-56	
A113		-65	↓	↓	↓		J2-24	
A114		-64	14	BLUE	30		J2-36	
A115		-63	15	WHT	26		J2-6	
A116		-62	14	BLUE	30		J5-83	
A117		-61	↑	↑	↑		J5-78	
A118		-60					J2-21	
A119		-59					J2-30	
A120		-58					J2-40	
A121		-57					J2-34	
A122		-56					J5-82	
A123		-55					J4-79	
A124		-54					J2-50	
A125		-53					J2-39	
A126		-52					J2-43	
A127		-51					J2-22	
A128		-50					J4-78	
A129		-48					J2-55	
A130		-47					J2-42	
A131		-46					J2-38	
A132		-45					J2-29	
A133		-44					J3-84	
A134		-43					J3-83	
A135		-42					J2-54	
A136		-41					J2-49	
A137		-40					J2-41	
A138		-39					J2-17	
A139		-38					J3-78	
A140		-37					J3-82	
A141		-36					J2-53	
A142		-35	↓	↓	↓		J1-24	
A143		↓ -34	14	BLUE	30	↓	J1-17	
A144		J12-33	15	WHT	26	AR	J1-6	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A145		J12-32	14	BLUE	30	AR	J2-78	
A146		↑ -31	↑	↑	↑	↑	J2-70	
A147		-30					J1-53	
A148		-29					↑ -36	
A149		-28					-21	
A150		-27					-22	
A151		-25					-24	
A152		-24					-29	
A153		-23					-39	
A154		-22					-34	
A155		-21					-30	
A156	SEE NOTE 10	-18					-55	SEE NOTE 10
A157		-17					-43	
A158		-16					↓ -49	
A159		-15					J1-18	
A160		-13					J4-84	
A161		-12					J1-56	
A162		-11					↑ -50	
A163		-10					-41	
A164		-9					-40	
A165		-7					-83	
A166		-6					-60	
A167		-5					-54	
A168		-4					-38	
A169		↓ -3	↓	↓	↓		↓ -42	
A170		J12-1	14	BLUE	30	↓	J1-82	
A171		J12-183	15	WHT	26	AR	G1	SEE NOTE 17

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

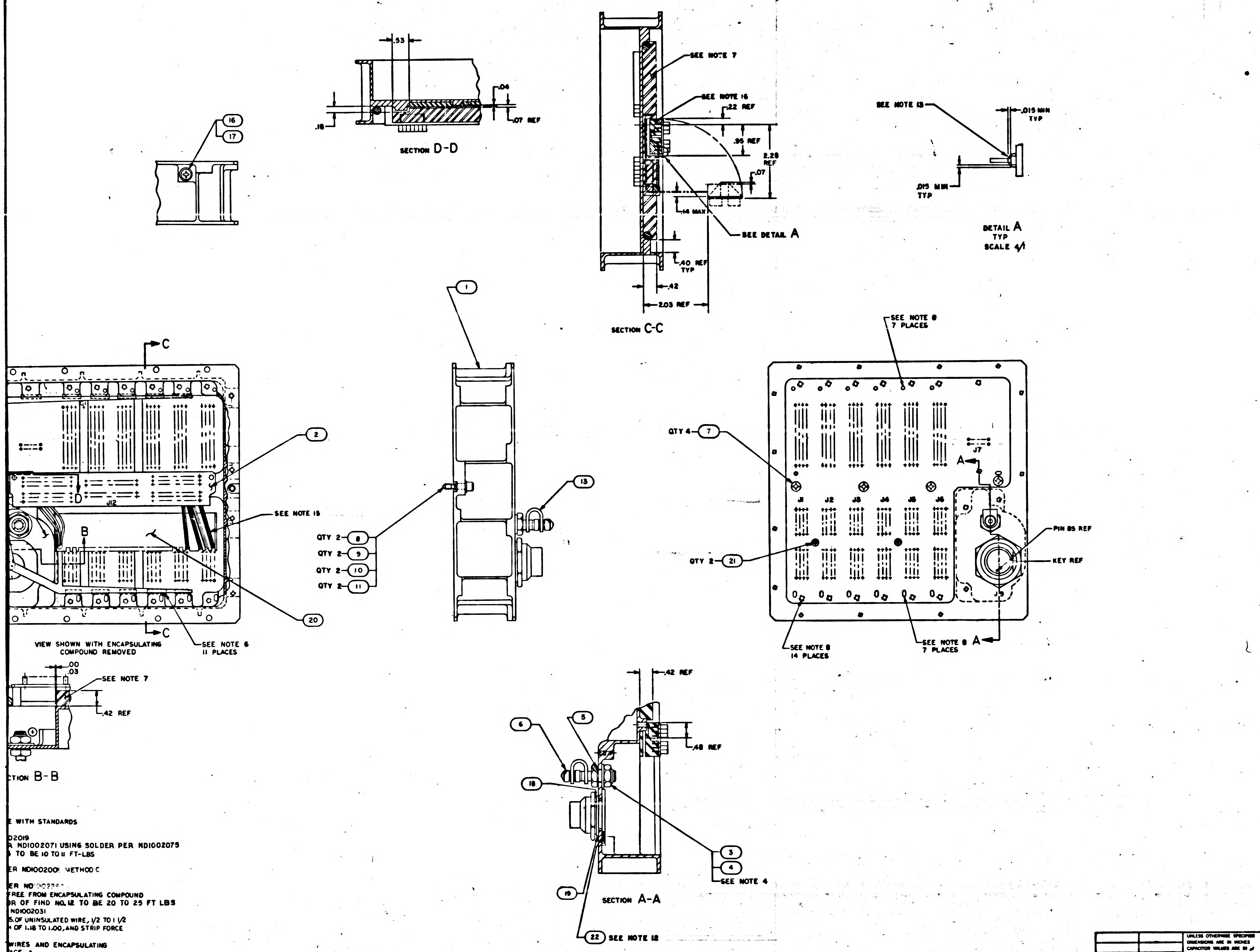
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MAIN HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003955
SCALE NONE
SHEET 3 OF 3

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 27352				
B		REVISED PER TDRR 27913				

REVISIONS 26201



SECTION D-D
.53
.04
.18
.07 REF
16
17
SEE NOTE 7
SEE NOTE 16
.22 REF
.95 REF
2.28 REF
.07
.14 MAX
SEE DETAIL A
.40 REF TYP
.42
2.03 REF
SECTION C-C
SEE NOTE 13
.015 MIN TYP
.015 MIN TYP
DETAIL A TYP SCALE 4/1
C
J12
D
B
2
SEE NOTE 15
20
VIEW SHOWN WITH ENCAPSULATING COMPOUND REMOVED
SEE NOTE 6 11 PLACES
1
13
QTY 2 8
QTY 2 9
QTY 2 10
QTY 2 11
SEE NOTE 8 7 PLACES
QTY 4 7
J7
A
J1
J2
J3
J4
J5
J6
J8
PIN 85 REF
KEY REF
QTY 2 21
SEE NOTE 8 14 PLACES
SEE NOTE 8 7 PLACES
.00
.03
SEE NOTE 7
.42 REF
SECTION B-B
.42 REF
.48 REF
6
5
18
3
4
SEE NOTE 4
19
22 SEE NOTE 12
SECTION A-A

E WITH STANDARDS

02019
R ND1002071 USING SOLDER PER ND1002075
TO BE 10 TO 11 FT-LBS

ER ND100200 METHOD C

ER ND[illegible]
FREE FROM ENCAPSULATING COMPOUND
OR OF FIND NO. 12 TO BE 20 TO 25 FT LBS
ND1002031
S. OF UNINSULATED WIRE, 1/2 TO 1 1/2
OF 1.18 TO 1.00, AND STRIP FORCE

WIRES AND ENCAPSULATING
ACE A

NG AND REPLACE WITH FIND NO. 22
PER ND1002004 TYPE VI

NO. 14 & 15 TO FIND NO. 20 PER ND1002009 METHOD C

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	2005953		INTERCONNECTING DIAGRAM	REF
1	1000159-10		PACKING, PREFORMED O RING	22
2	MS51959-13		SCREW, FLAT HD, CROSS-RECESSED	21
1	2004927		COMB, WIRE	20
1	1004546-6		WASHER, FLAT	19
1	1010635-004		WASHER, LOCK	18
1	NAS1598D08N		WASHER, SEALING	17
1	MS51957-42		SCREW, PAN HD, CROSS RECESSED	16
AR	1010807-22		WIRE INSULATED	15
AR	1006376-003	SEE NOTE 14	WIRE, INSULATED	14
1	2004931		RETAINER, VALVE CAP	13
1	2003980-011		WIRING HARNESS, BRANCHED	12
2	MS16633-4015		RING, RETAINING	11
2	1004546-3		WASHER, FLAT	10
2	1004546-1		WASHER, FLAT	9
2	1004579-2		SCREW, JACKING	8
4	MS51959-28		SCREW, FLAT HD, CROSS RECESSED	7
1	2004903		VALVE, PNEUMATIC TANK	6
1	1000159-14		PACKING PREFORMED, O-RING	5
1	MS15795-814		WASHER, FLAT	4
1	MS20364D624A		NUT, HEX	3
1	2003951-011		CONNECTOR PLATE ASSY	2
1	2003947-011		IDM WIREWRAP PLATE ASSY	1

011 LIST OF MATERIALS

2003930	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ±.01 ±
DO NOT SCALE THIS DRAWING

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN A. J. Green
CHECKED J. C. Jarkut
APPROVED
APPROVED Eldon C. Hall
APPROVED MIT
APPROVED MSC A. G. Metzger
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MAIN HOUSING ASSEMBLY
AGC DSKY

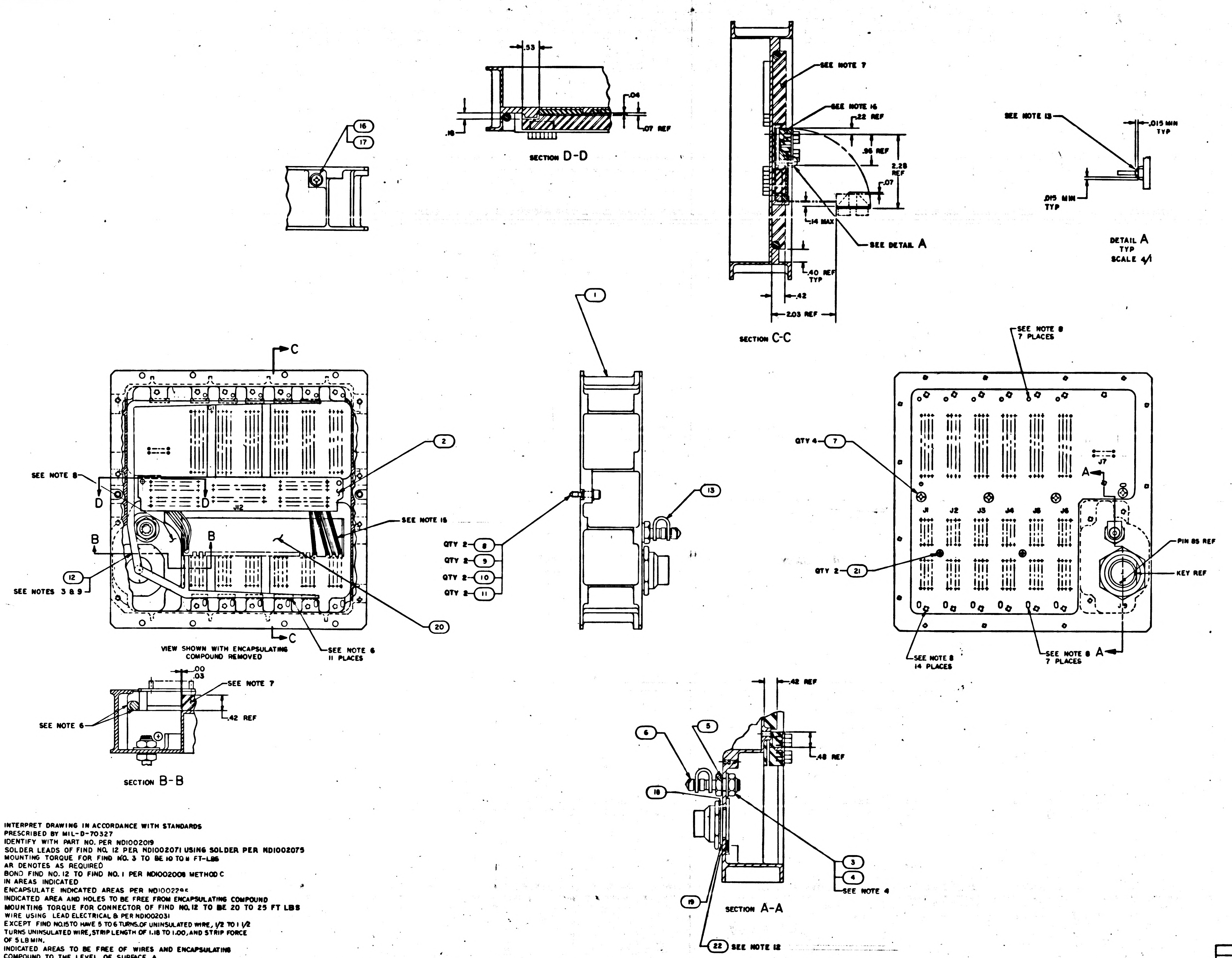
CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003955
SCALE 1/1
SHEET 1 OF 3

2003955 G

MASTER

F 2/2

2003955 B



5
4
3
2
D
C
B
A
16
17
.53
.04
.16
.07 REF
SECTION D-D
SEE NOTE 7
SEE NOTE 16
.22 REF
.96 REF
2.28 REF
.07
.14 MAX
SEE DETAIL A
.40 REF TYP
.42
2.03 REF
SECTION C-C
SEE NOTE 13
.015 MIN TYP
.015 MIN TYP
DETAIL A
TYP
SCALE 4/1
C
SEE NOTE 8
D
D
J12
B
B
12
SEE NOTES 3 & 9
SEE NOTE 15
2
20
C
VIEW SHOWN WITH ENCAPSULATING COMPOUND REMOVED
SEE NOTE 6
11 PLACES
1
QTY 2 8
QTY 2 9
QTY 2 10
QTY 2 11
13
SEE NOTE 8
7 PLACES
QTY 4 7
A
J7
J1
J2
J3
J4
J5
J6
QTY 2 21
PIN 85 REF
KEY REF
SEE NOTE 8
14 PLACES
SEE NOTE 8
7 PLACES
A
.00
.03
SEE NOTE 7
.42 REF
SEE NOTE 6
SECTION B-B
.42 REF
6
5
.48 REF
18
3
4
SEE NOTE 4
19
SECTION A-A
22
SEE NOTE 12

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. IDENTIFY WITH PART NO. PER ND1002019
3. SOLDER LEADS OF FIND NO. 12 PER ND1002071 USING SOLDER PER ND1002075
4. MOUNTING TORQUE FOR FIND NO. 3 TO BE 10 TO 11 FT-LBS
5. AR DENOTES AS REQUIRED
6. BOND FIND NO. 12 TO FIND NO. 1 PER ND1002008 METHOD C IN AREAS INDICATED
7. ENCAPSULATE INDICATED AREAS PER ND1002295
8. INDICATED AREA AND HOLES TO BE FREE FROM ENCAPSULATING COMPOUND
9. MOUNTING TORQUE FOR CONNECTOR OF FIND NO. 12 TO BE 20 TO 25 FT LBS
10. WIRE USING LEAD ELECTRICAL & PER ND1002031
EXCEPT FIND NO.15 TO HAVE 5 TO 6 TURNS OF UNINSULATED WIRE, 1/2 TO 1 1/2 TURNS UNINSULATED WIRE, STRIP LENGTH OF 1.18 TO 1.00, AND STRIP FORCE OF 5 LB MIN.
11. INDICATED AREAS TO BE FREE OF WIRES AND ENCAPSULATING COMPOUND TO THE LEVEL OF SURFACE A
12. DISCARD VENDOR SUPPLIED O RING AND REPLACE WITH FIND NO. 22
13. SEAL INSULATORS ON FIND NO. 2 PER ND1002004 TYPE VI
~~14. COLOR OF FIND NO. 14 TO BE OPTIONAL~~
15. BOND WIRES OF FIND NO. 12 & FIND NO. 14 & 15 TO FIND NO. 20 PER ND1002009 METHOD C
16. ENCAPSULATE PER ND1002236
17. WELD PER ND1002005

QTY REQD	PART OR IDENTIFYING N
☒	2005953
1	1000159-10
2	MS51959-13
1	2004927
1	1004546-6
1	1010635-004
1	NAS1598D08N
1	MS51957-42
AR	1010807-22
AR	100637[illegible]
1	2004931
1	2003980-01
2	MS16633-40
2	1004546-3
2	1004546-1
2	1004579-2
4	MS51959-28
1	2004903
1	1000159-14
1	MS15795-614
1	MS20364D62
1	2003951-01
1	2003947-01
011	

NEXT ASSY	USED ON
2003950	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
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FRACTIONS DECIMALS ANGLES
± ±.01 ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED Eldon C Hall

APPROVED MIT
A. C. METZGER
APPROVED NBC

2003955 B

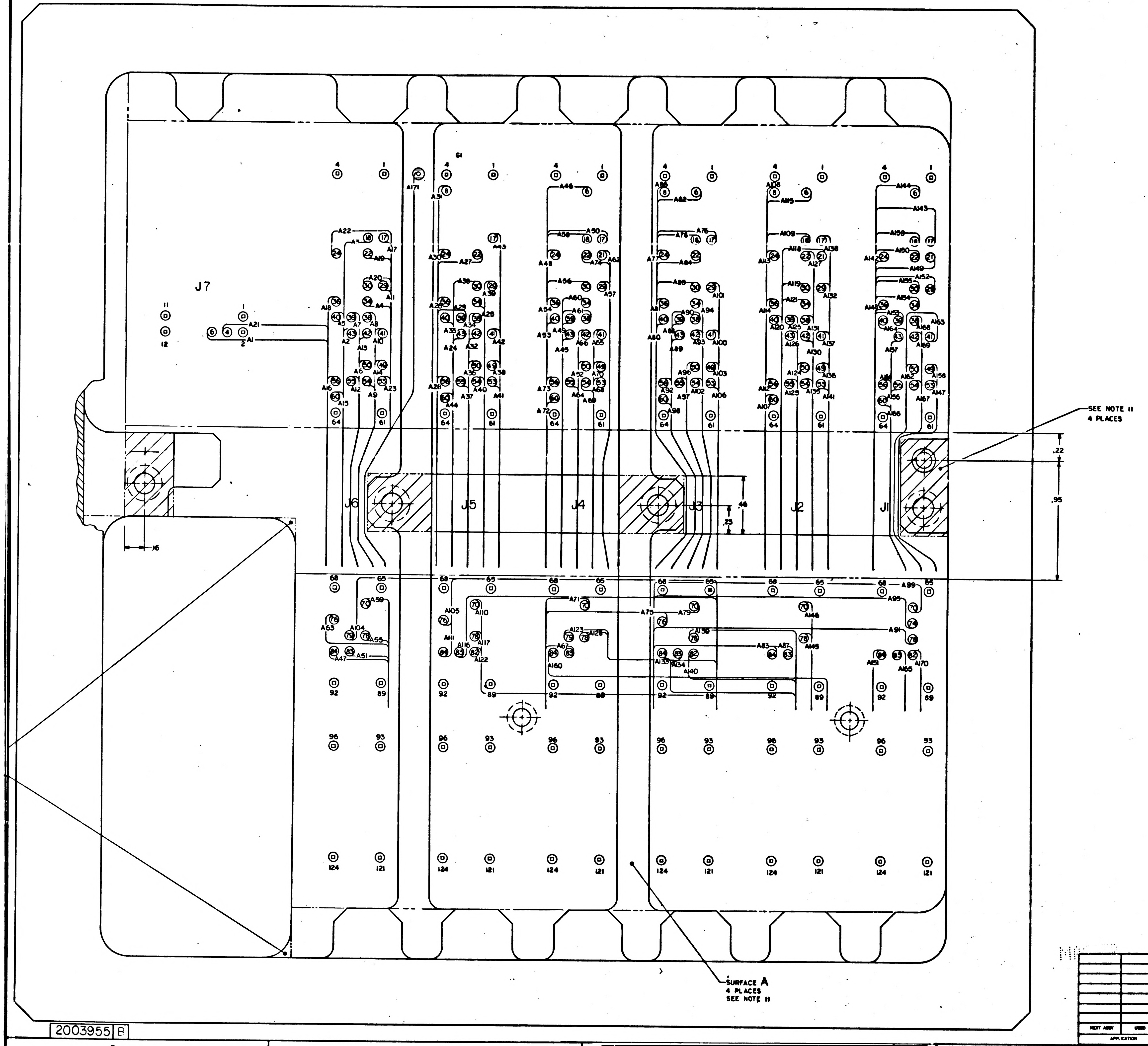
2003955 B F1/2

SHEET 1

2003955 | B

REVISIONS 26235

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 27552				
B		REVISED PER TDRR 27913			5/4/66	



J7
J6
J5
J4
J3
J2
J1
SEE NOTE 11
4 PLACES
.22
.95
.46
.23
.16
SURFACE A
4 PLACES
SEE NOTE 11
A1
A21
A171
1
2
4
11
12
61
64
65
68
89
92
93
96
121
124

2003955 | B

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
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TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

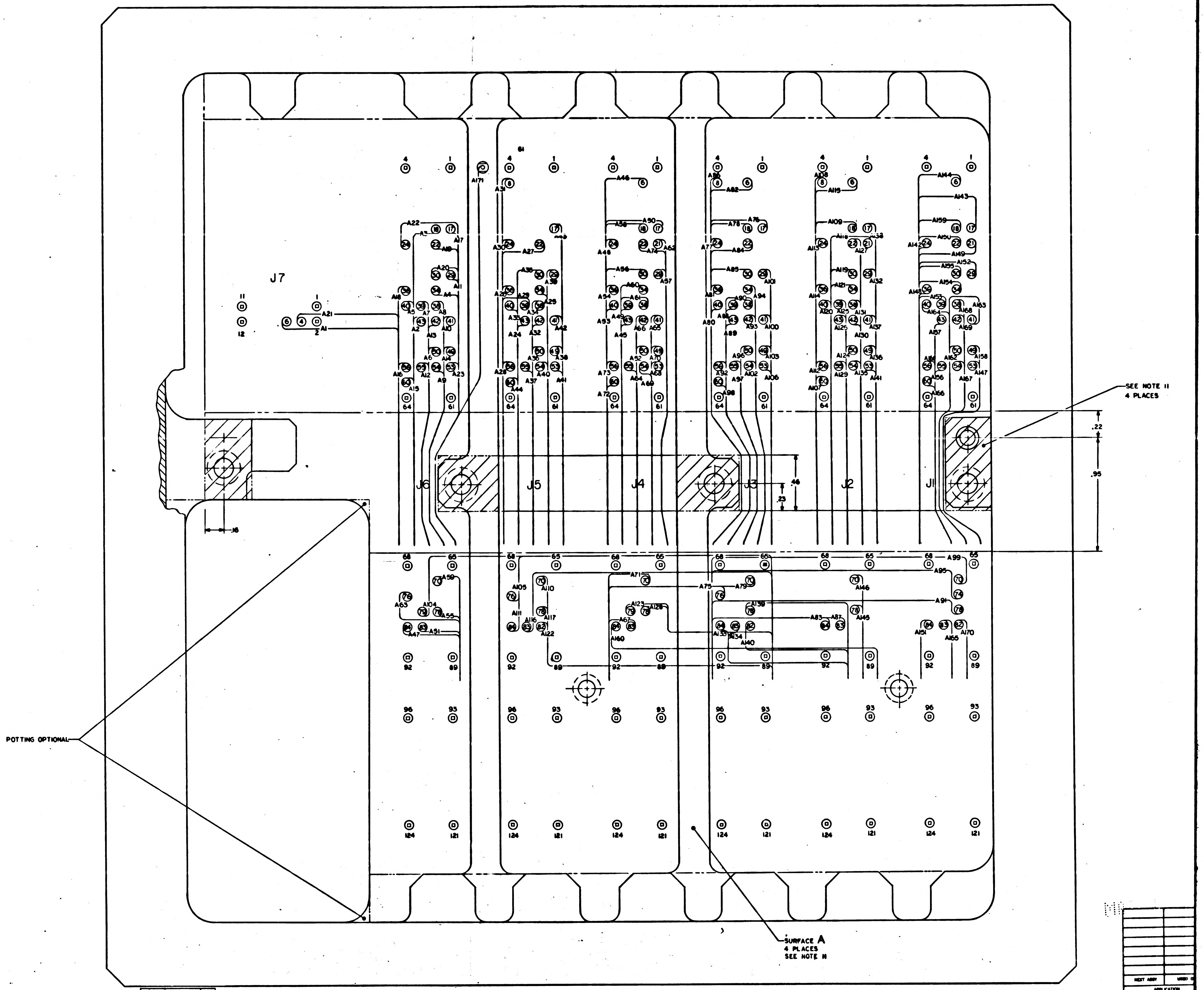
DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
A. C. METZGER
APPROVED MSC
DATE

MAIN HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003955
SCALE NONE
SHEET 2 OF 3

2003955 | B

F 2/2


J7
J6
J5
J4
J3
J2
J1
SEE NOTE 11
4 PLACES
.22
.95
.46
.23
.16
POTTING OPTIONAL
SURFACE A
4 PLACES
SEE NOTE 11

2003955 B

2003955 B F1/2

SHEET 2

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 27552				
B		REVISED PER TDRR 27913				

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A1	SEE NOTE 10	J12-166	14	BLUE	30	AR	J7-6	SEE NOTE 10
A2		-167	14		30		J6-43	
A3		-160	15	WHT	26		-18	
A4		-159	14	BLUE	30		-34	
A5		-154					-40	
A6		-153					-50	
A7		-148	14	BLUE	30		-39	
A8		-147	15	WHT	26		-38	
A9		-142	14	BLUE	30		-54	
A10		-141					-41	
A11		-136					-29	
A12		-135					-55	
A13		-187					-42	
A14		-210	14	BLUE	30		-49	
A15		-182	15	WHT	26		-60	
A16		-204	14	BLUE	30		-56	
A17		-192					-17	
A18		-176					-36	
A19		-175					-22	
A20		-174					J6-30	
A21		-170					J7-4	
A22		-169					J6-24	
A23		-168					J6-53	
A24		-164					J5-43	
A25		-163					-34	
A26		-162					-36	
A27		-161					-22	
A28		-158					-56	
A29		-157					-39	
A30		-156	14	BLUE	30		-24	
A31		-155	15	WHT	26		-8	
A32		-152	14	BLUE	30		-42	
A33		-151	14		30		-40	
A34		-150	15	WHT	26		-38	
A35		-149	14	BLUE	30		-30	
A36		-146					-50	
A37		-145					-55	
A38		-144					-49	
A39		-143					-29	
A40		-140					-54	
A41		-139					-53	
A42		-138					-41	
A43		-137	14	BLUE	30		-17	
A44		-134	15	WHT	26		J5-60	
A45		-133	14	BLUE	30		J4-43	
A46		-132					J4-6	
A47		-131					J6-84	
A48		-130					J4-24	
A49		-129					J4-39	
A50		-128					J4-17	
A51		-127					J6-83	
A52		-126					J4-50	
A53		-125					J4-40	
A54		-124					J4-36	
A55		-123					J6-78	
A56		-122					J4-30	
A57		-121					J4-29	
A58		-120					J4-18	
A59		-119					J6-70	
A60		-118					J4-34	
A61		-117					J4-38	
A62		-116					J4-21	
A63		-115					J6-76	
A64		-114					J4-55	
A65		-113					-41	
A66		-112					-42	
A67		-111					-83	
A68		-110					-53	
A69		-109					-54	
A70		-108					-49	
A71		-107					-70	
A72		J12-106	14	BLUE	30	AR	J4-60	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A73	SEE NOTE 10	J12-105	14	BLUE	30	AR	J4-56	SEE NOTE 10
A74		-104					J4-22	
A75		-103					J3-76	
A76		-102					-17	
A77		-101	14	BLUE	30		-24	
A78		-100	15	WHT	26		-18	
A79		-99	14	BLUE	30		-70	
A80		-98	14		30		-40	
A81		-97	14		30		-36	
A82		-96	15	WHT	26		J3-6	
A83		-95	14	BLUE	30		J2-84	
A84		-94	14		30		J3-22	
A85		-93	14		30		J3-30	
A86		-92	15	WHT	26		J3-8	
A87		-91	14	BLUE	30		J2-83	
A88		-90	14		30		J3-39	
A89		-89	14		30		J3-43	
A90		-88	15	WHT	26		J3-38	
A91		-87	14	BLUE	30		J1-78	
A92		-86					J3-56	
A93		-85					J3-42	
A94		-84					J3-34	
A95		-83					J1-74	
A96		-82					J3-50	
A97		-81	14	BLUE	30		J3-55	
A98		-80	15	WHT	26		J3-60	
A99		-79	14	BLUE	30		J1-70	
A100		-78					J3-41	
A101		-77					J3-29	
A102		-76					J3-54	
A103		-75					J3-49	
A104		-74					J6-79	
A105		-73					J3-76	
A106		-72					J3-53	
A107		-71	14	BLUE	30		J2-60	
A108		-70	15	WHT	26		J2-8	
A109		-69	14	BLUE	30		J2-18	
A110		-68					J5-70	
A111		-67					J5-84	
A112		-66					J2-56	
A113		-65					J2-24	
A114		-64	14	BLUE	30		J2-36	
A115		-63	15	WHT	26		J2-6	
A116		-62	14	BLUE	30		J5-83	
A117		-61					J5-78	
A118		-60					J2-21	
A119		-59					J2-30	
A120		-58					J2-40	
A121		-57					J2-34	
A122		-56					J5-82	
A123		-55					J4-79	
A124		-54					J2-50	
A125		-53					J2-39	
A126		-52					J2-43	
A127		-51					J2-22	
A128		-50					J4-78	
A129		-48					J2-55	
A130		-47					J2-42	
A131		-46					J2-38	
A132		-45					J2-29	
A133		-44					J3-84	
A134		-43					J3-83	
A135		-42					J2-54	
A136		-41					J2-49	
A137		-40					J2-41	
A138		-39					J2-17	
A139		-38					J3-78	
A140		-37					J3-82	
A141		-36					J2-53	
A142		-35					J1-24	
A143		-34	14	BLUE	30		J1-17	
A144		J12-33	15	WHT	26	AR	J1-6	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A145	SEE NOTE 10	J12-32	14	BLUE	30	AR	J2-78	SEE NOTE 10
A146		-31					J2-70	
A147		-30					J1-53	
A148		-29					-36	
A149		-28					-21	
A150		-27					-22	
A151		-25					-84	
A152		-24					-29	
A153		-23					-39	
A154		-22					-34	
A155		-21					-30	
A156		-18					-55	
A157		-17					-43	
A158		-16					-49	
A159		-15					J1-18	
A160		-13					J4-84	
A161		-12					J1-56	
A162		-11					-50	
A163		-10					-41	
A164		-9					-40	
A165		-7					-83	
A166		-6					-60	
A167		-5					-54	
A168		-4					-38	
A169		-3					-42	
A170		J12-1	14	BLUE	30		J1-82	
A171		J12-183	15	WHT	26	AR	G1	SEE NOTE 17

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO

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APPLICATION	

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CAPACITOR VALUES ARE IN μf
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DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN 6 DEC 65
CHECKED
APPROVED 3 FEB 66
APPROVED
APPROVED MIT
A. L. METZGER
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

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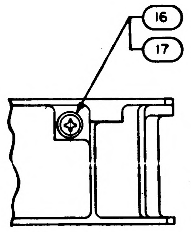
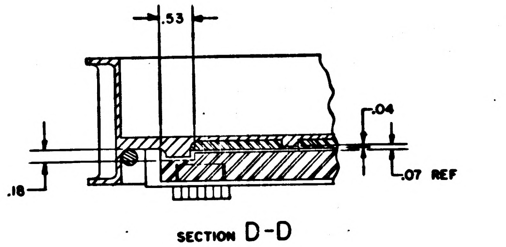
AGC DSKY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003955
SCALE NONE
SHEET 3 OF 3

REVISIONS 2003...

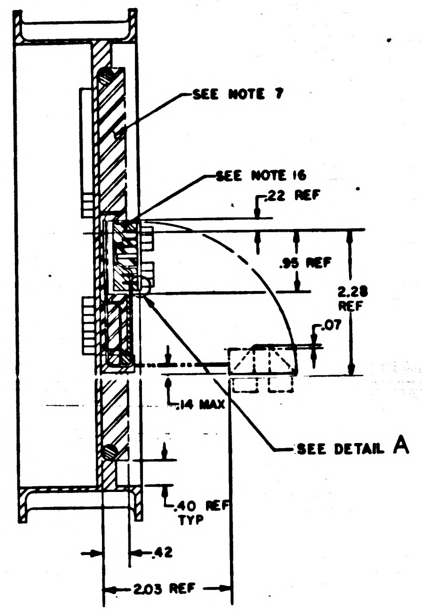
SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED





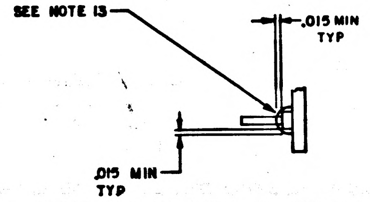
.53
.04
.18
.07 REF

SECTION D-D



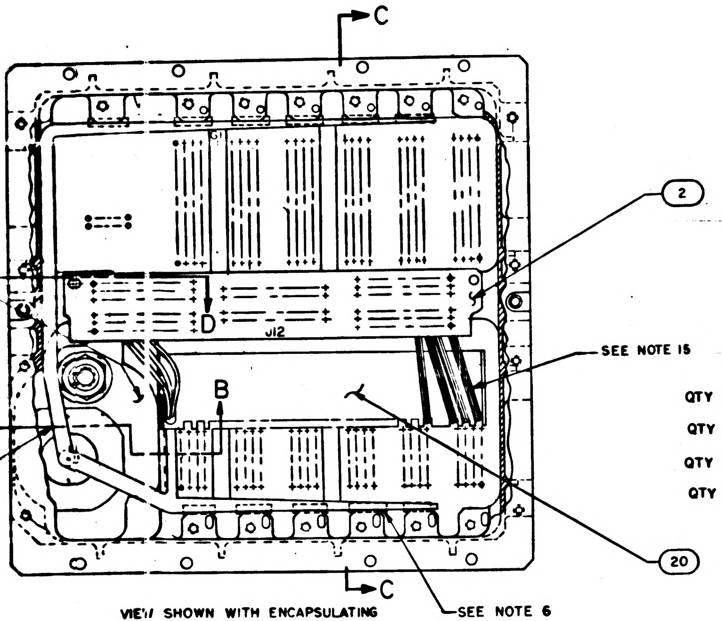
SEE NOTE 7
SEE NOTE 16
.22 REF
.95 REF
2.28 REF
.07
.14 MAX
SEE DETAIL A
.40 REF TYP
.42
2.03 REF

SECTION C-C



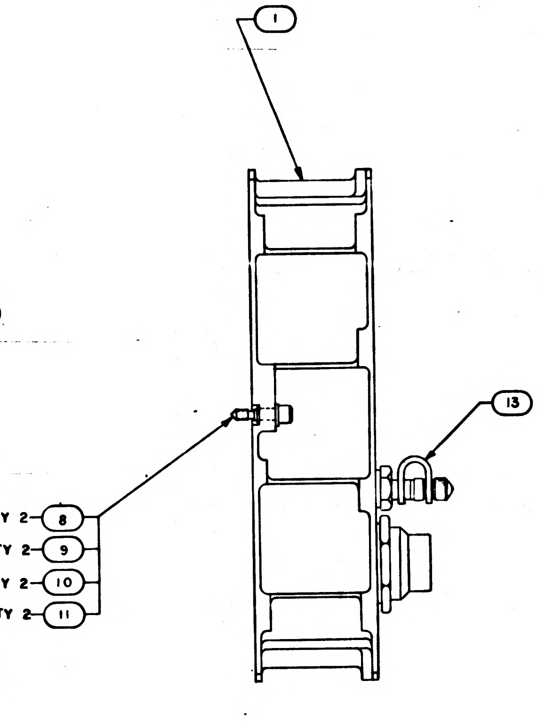
SEE NOTE 13
.015 MIN TYP
.015 MIN TYP

DETAIL A
TYP
SCALE 4/1

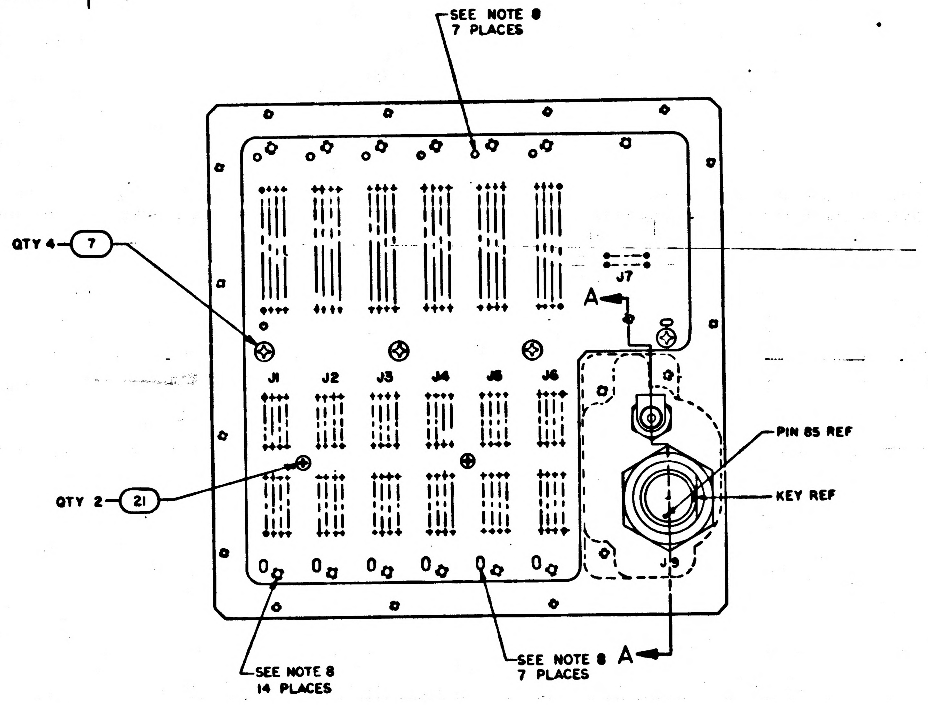


C
D
J12
B
2
SEE NOTE 15
20
C
SEE NOTE 6
11 PLACES

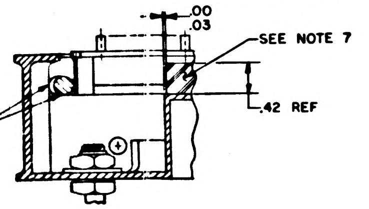
VIEW SHOWN WITH ENCAPSULATING COMPOUND REMOVED



1
13
QTY 2 8
QTY 2 9
QTY 2 10
QTY 2 11

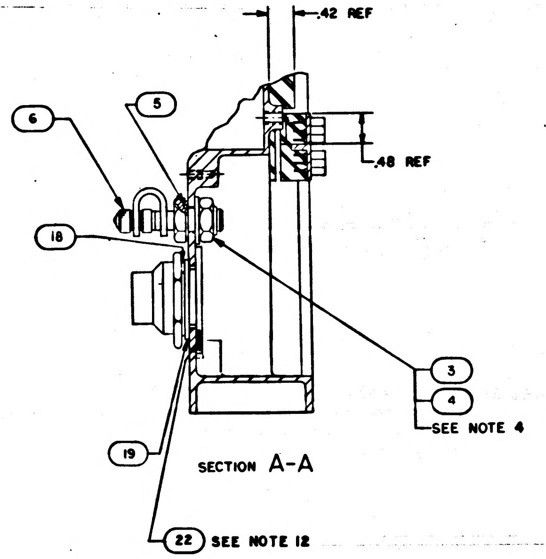


SEE NOTE 8
7 PLACES
QTY 4 7
J7
A
J1
J2
J3
J4
J5
J6
PIN 85 REF
KEY REF
QTY 2 21
J9
SEE NOTE 8
14 PLACES
SEE NOTE 8
7 PLACES
A



.00
.03
SEE NOTE 7
.42 REF

SECTION B-B



.42 REF
.48 REF
6
5
18
3
4
SEE NOTE 4
19
22 SEE NOTE 12

SECTION A-A

CORDANCE WITH STANDARDS
527
PER ND1002019
12 PER ND1002071 USING SOLDER PER ND1002075
IND NO. 3 TO BE 10 TO 11 FT-LBS

NO. 1 PER ND1002004 TYPE IV

AREAS PER ND
TO BE FREE FROM ENCAPSULATING COMPOUND
CONNECTOR OF FIND NO. 12 TO BE 20 TO 25 FT LBS
AL 6 PER ND100203
TO 6 TURNS OF UNINSULATED WIRE, 1/2 TO 1 1/2
IP LENGTH OF 1.18 TO 1.00, AND STRIP FORCE

OF WIRES AND ENCAPSULATING
OF SURFACE A

RING AND REPLACE WITH FIND NO. 22
NO. 2 PER ND1002004 TYPE VI
TIONAL
FIND NO. 14 & 15 TO FIND NO. 20 PER ND1002004 TYPE IV

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	2005953		INTERCONNECTING DIAGRAM	REF
1	1000159-10		PACKING, PREFORMED O RING	22
2	MS51959-13		SCREW, FLAT HD, CROSS-RECESSED	21
1	2004927		COMB, WIRE	20
1	1004546-6		WASHER, FLAT	19
1	1010635-004		WASHER, LOCK	18
1	NAS1598D08N		WASHER, SEALING	17
1	MS51957-42		SCREW, PAN HD, CROSS RECESSED	16
AR	1010807-22		WIRE INSULATED	15
AR	1006732	SEE NOTE 14	WIRE, INSULATED	14
1	2004931		RETAINER, VALVE CAP	13
1	2003980-011		WIRING HARNESS, BRANCHED	12
2	MS16633-4015		RING, RETAINING	11
2	1004546-3		WASHER, FLAT	10
2	1004546-1		WASHER, FLAT	9
2	1004579-2		SCREW, JACKING	8
4	MS51959-28		SCREW, FLAT HD, CROSS RECESSED	7
1	2004903		VALVE, PNEUMATIC TANK	6
1	1000159-14		PACKING, PREFORMED, O-RING	5
1	MS15795-814		WASHER, FLAT	4
1	MS20364D624A		NUT, HEX	3
1	2003951-011		CONNECTOR PLATE ASSY	2
1	2003947-011		IDM WIREWRAP PLATE ASSY	1
011	LIST OF MATERIALS			

2003955 1

2H

2003950	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.01 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN A.J. Greene G DSC GE
CHECKED J. C. Gaulert 3 FEB 64
APPROVED 3 Feb 64
APPROVED Eldon C. Hall
APPROVED MIT
APPROVED MSC A. C. METZGER
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MAIN HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003955
SCALE 1/1
SHEET 1 OF 3

MASTER

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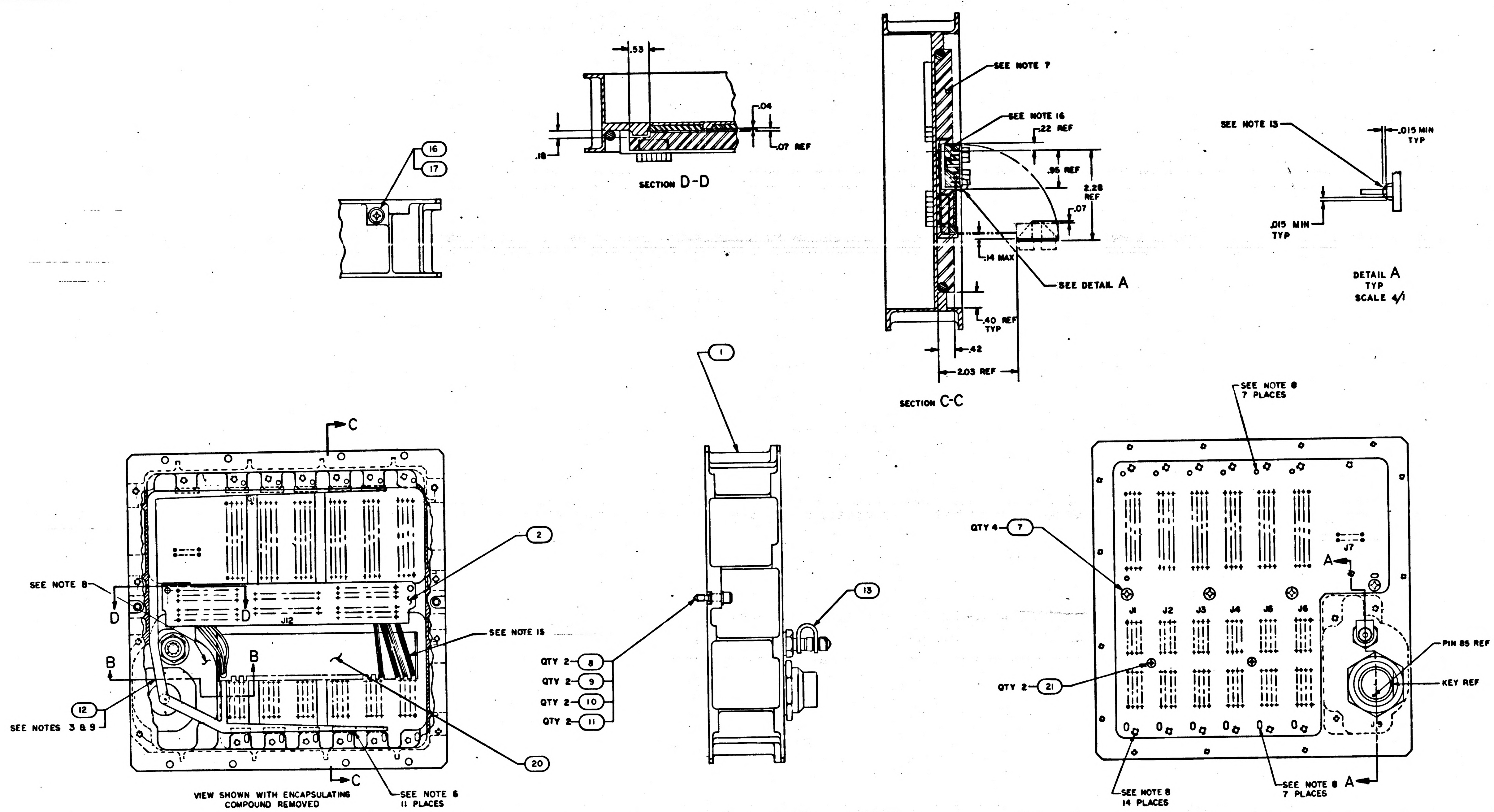
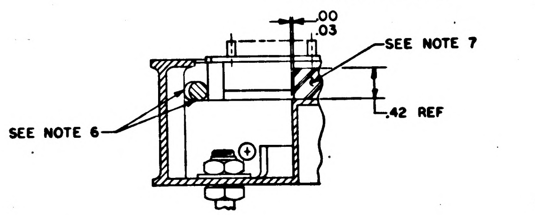
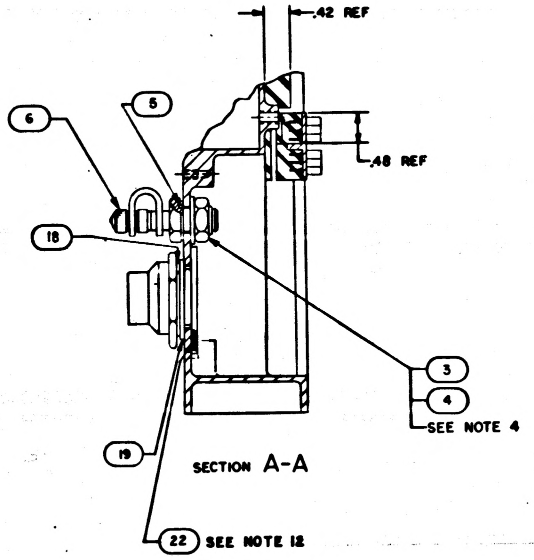
2003955 —


.53
.04
.18
.07 REF
SECTION D-D
16
17
SEE NOTE 7
SEE NOTE 16
.22 REF
.95 REF
2.28 REF
.07
.14 MAX
SEE DETAIL A
.40 REF TYP
.42
2.03 REF
SECTION C-C
SEE NOTE 13
.015 MIN TYP
.015 MIN TYP
DETAIL A
TYP
SCALE 4/1
C
C
SEE NOTE 8
D
D
J12
B
B
SEE NOTE 15
12
SEE NOTES 3 & 9
2
20
SEE NOTE 6
11 PLACES
VIEW SHOWN WITH ENCAPSULATING COMPOUND REMOVED
1
13
QTY 2 8
QTY 2 9
QTY 2 10
QTY 2 11
SEE NOTE 8
7 PLACES
QTY 4 7
J7
A
J1
J2
J3
J4
J5
J6
QTY 2 21
PIN 85 REF
KEY REF
SEE NOTE 8
14 PLACES
SEE NOTE 8
7 PLACES
A


.00
.03
SEE NOTE 7
.42 REF
SEE NOTE 6

SECTION B-B


.42 REF
.48 REF
6
5
18
3
4
SEE NOTE 4
19
22
SEE NOTE 12

SECTION A-A

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. IDENTIFY WITH PART NO. PER ND1002019
3. SOLDER LEADS OF FIND NO. 12 PER ND1002071 USING SOLDER PER ND1002075
4. MOUNTING TORQUE FOR FIND NO. 3 TO BE 10 TO 11 FT-LBS
5. AR DENOTES AS REQUIRED
6. BOND FIND NO. 12 TO FIND NO. 1 PER ND1002004 TYPE IV IN AREAS INDICATED
7. ENCAPSULATE INDICATED AREAS PER ND
8. INDICATED AREA AND HOLES TO BE FREE FROM ENCAPSULATING COMPOUND
9. MOUNTING TORQUE FOR CONNECTOR OF FIND NO. 12 TO BE 20 TO 25 FT LBS
10. WIRE USING LEAD ELECTRICAL & PER ND1002031 EXCEPT FIND NO.15 TO HAVE 5 TO 6 TURNS OF UNINSULATED WIRE, 1/2 TO 1 1/2 TURNS UNINSULATED WIRE, STRIP LENGTH OF 1.18 TO 1.00, AND STRIP FORCE OF 5 LB MIN.
11. INDICATED AREAS TO BE FREE OF WIRES AND ENCAPSULATING COMPOUND TO THE LEVEL OF SURFACE A
12. DISCARD VENDOR SUPPLIED O RING AND REPLACE WITH FIND NO. 22
13. SEAL INSULATORS ON FIND NO. 2 PER ND1002004 TYPE VI
14. COLOR OF FIND NO. 14 TO BE OPTIONAL
15. BOND WIRES OF FIND NO. 12 & FIND NO. 14 & 15 TO FIND NO. 20 PER ND1002004 TYPE IV
16. ENCAPSULATE PER ND1002236

☒	200395[illegible]
1	1000190-[illegible]
2	MS51958-[illegible]
1	2004927
1	1004544-[illegible]
1	1010653-[illegible]
1	NAS1[illegible]
1	MS51957-[illegible]
AR	1010807-[illegible]
AR	1006738
1	2004931
1	2003980-011
2	MS16633-[illegible]
2	1004546-1
2	1004546
2	2004578-[illegible]
4	MS51958-[illegible]
1	2004903
1	1000190-[illegible]
1	MS15795-[illegible]
1	MS20364[illegible]
1	2003951-011
1	2003947-[illegible]
QTY REQ	[illegible]
011	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ±.01 ±
DO NOT SCALE THIS DRAWING

MATERIAL

2003950	
NEXT ASSY	USED ON
APPLICATION	

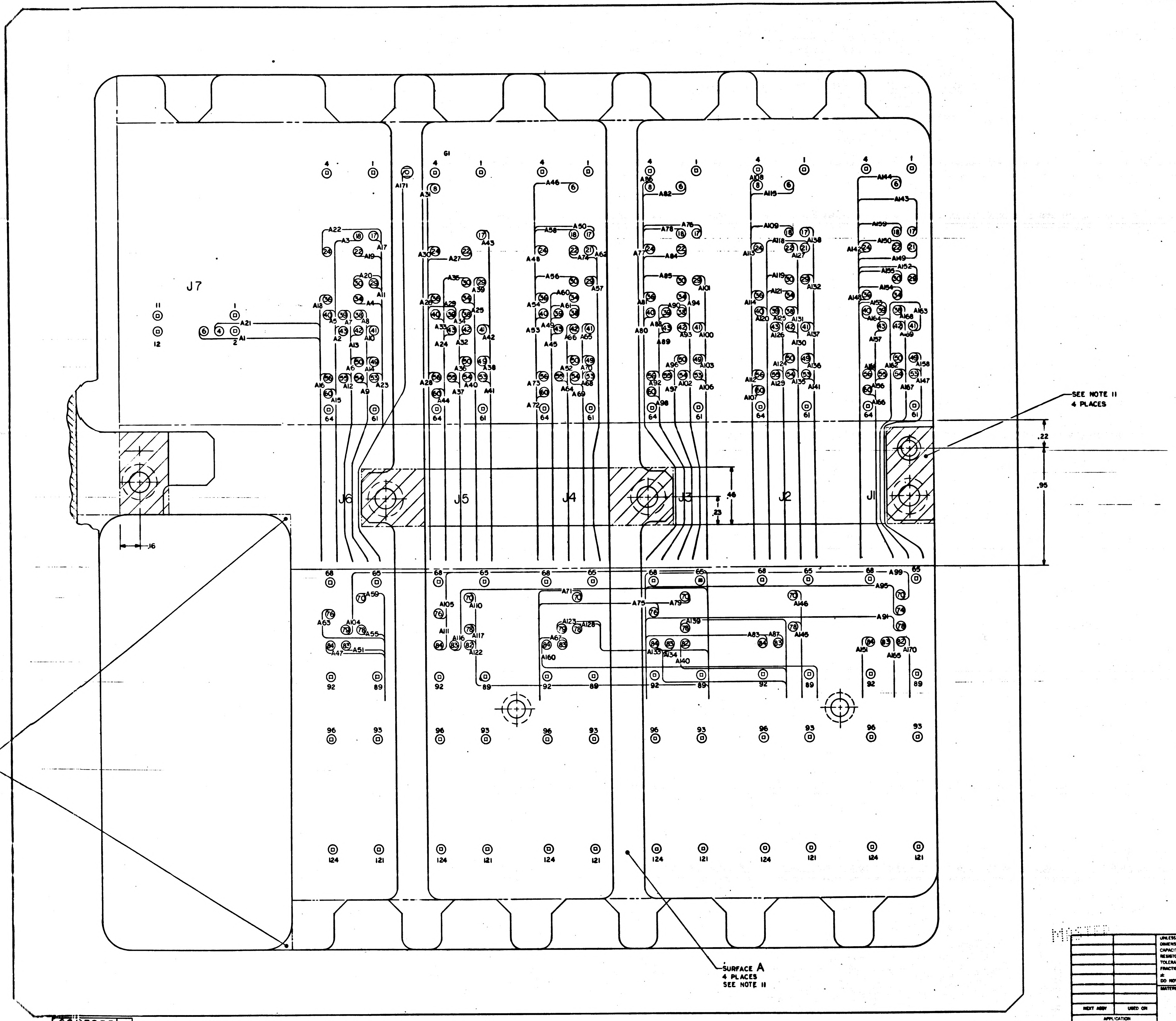
MASTER

2003955 —

2003955 —

SYM	ZONE	REVISIONS DESCRIPTION	DR	CHK	DATE	APPROVED

20255


J7
J6
J5
J4
J3
J2
J1
SEE NOTE 11
4 PLACES
.22
.95
.46
.23
.16
SURFACE A
4 PLACES
SEE NOTE 11

2H

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

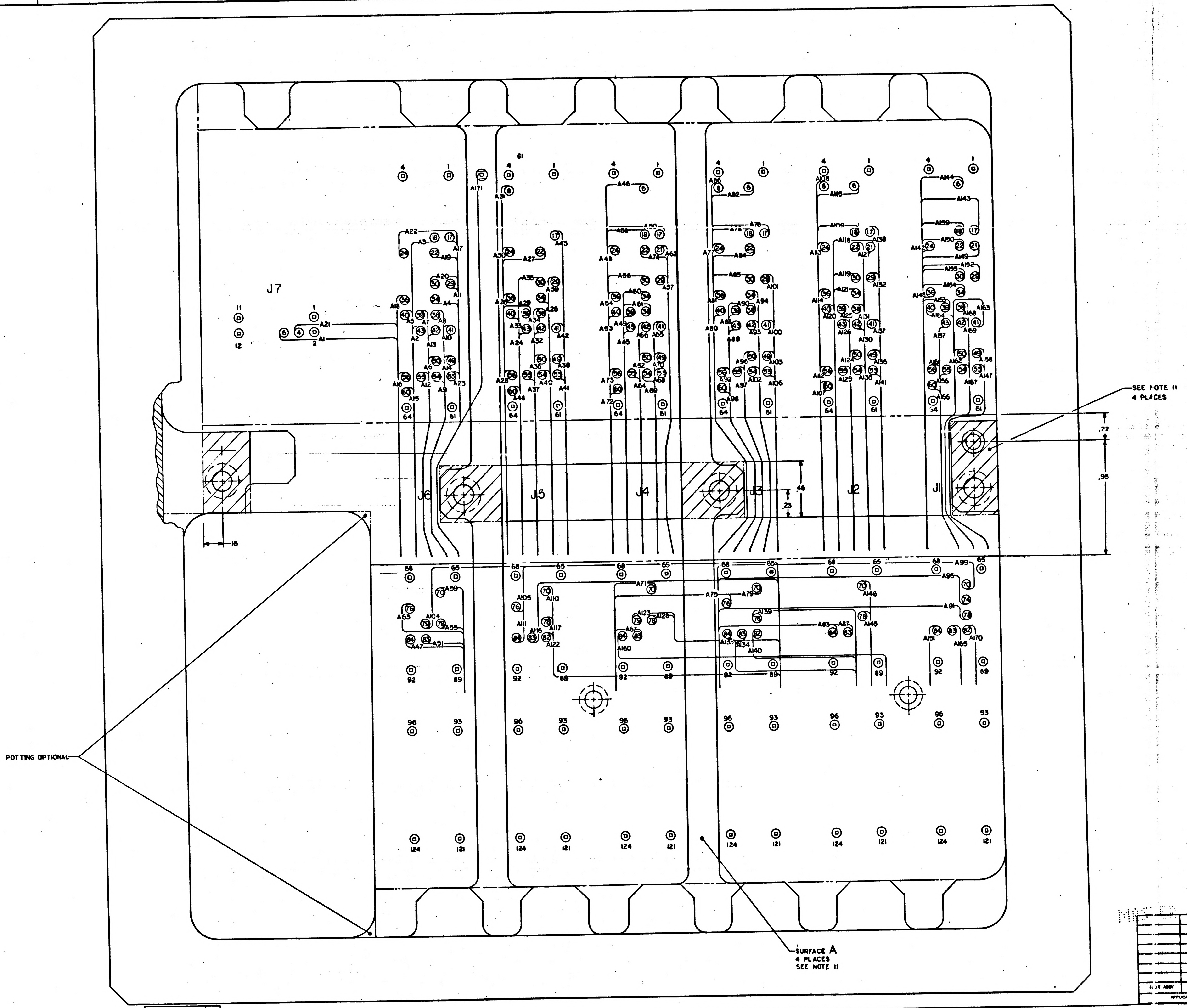
DRAWN 6 DEC 65
CHECKED 3 FEB
APPROVED 3 Feb
APPROVED Eldon C Hall
APPROVED MIT A. C. METZGER
APPROVED MSC
DATE

MAIN HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003955
SCALE NONE
SHEET 2 OF 3

2003955 1

2003955 —


J7
J6
J5
J4
J3
J2
J1
.22
.95
.46
.23
.16
POTTING OPTIONAL
SEE NOTE 11
4 PLACES
SURFACE A
4 PLACES
SEE NOTE 11
A171
A1
A21
A22
A99
A95
A91
A170
4
1
17
18
21
22
24
29
30
36
38
40
41
42
43
49
50
53
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61
64
65
68
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74
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121
124

2003955 —

MASTER

NEXT ASSY USED ON

APPLICATION

2003955 —

REVISIONS 26205						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A1	SEE NOTE 10	J12-166	14	SEE NOTE 14	30	AR	J7-6	SEE NOTE 10
A2		-167	14		30		J6-43	
A3		-160	15	WHT	26		-18	
A4		-159	14	SEE NOTE 14	30		-34	
A5		-154					-40	
A6		-153					-50	
A7		-148	14		30		-39	
A8		-147	15	WHT	26		-38	
A9		-142	14	SEE NOTE 14	30		-54	
A10		-141					-41	
A11		-136					-29	
A12		-135					-55	
A13		-187					-42	
A14		-210	14		30		-49	
A15		-182	15	WHT	26		-60	
A16		-204	14	SEE NOTE 14	30		-56	
A17		-192					-17	
A18		-176					-36	
A19		-175					-22	
A20		-174					J6-30	
A21		-170					J7-4	
A22		-169					J6-24	
A23		-168					J6-53	
A24		-164					J5-43	
A25		-163					-34	
A26		-162					-36	
A27		-161					-22	
A28		-158		SEE NOTE 14			-56	
A29		-157					-39	
A30		-156	14		30		-24	
A31		-155	15	WHT	26		-8	
A32		-152	14	SEE NOTE 14	30		-42	
A33		-151	14		30		-40	
A34		-150	15	WHT	26		-38	
A35		-149	14	SEE NOTE 14	30		-30	
A36		-146					-50	
A37		-145					-55	
A38		-144					-49	
A39		-143					-29	
A40		-140					-54	
A41		-139					-53	
A42		-138					-41	
A43		-137	14		30		-17	
A44		-134	15	WHT	26		J5-60	
A45		-133	14	SEE NOTE 14	30		J4-43	
A46		-132					J4-6	
A47		-131					J6-84	
A48		-130					J4-24	
A49		-129					J4-39	
A50		-128					J4-17	
A51		-127					J6-83	
A52		-126					J4-50	
A53		-125					J4-40	
A54		-124					J4-36	
A55		-123					J6-78	
A56		-122					J4-30	
A57		-121					J4-29	
A58		-120					J4-18	
A59		-119					J6-70	
A60		-118					J4-34	
A61		-117					J4-38	
A62		-116					J4-21	
A63		-115					J6-76	
A64		-114					J4-55	
A65		-113					-41	
A66		-112					-42	
A67		-111					-83	
A68		-110					-53	
A69		-109					-54	
A70		-108		SEE NOTE 14			-49	
A71		-107					-70	
A72		J12-106	14		30	AR	J4-60	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A73	SEE NOTE 10	J12-105	14	SEE NOTE 14	30	AR	J4-56	SEE NOTE 10
A74		-104					J4-22	
A75		-103					J3-76	
A76		-102					-17	
A77		-101	14		30		-24	
A78		-100	15	WHT	26		-18	
A79		-99	14	SEE NOTE 14	30		-70	
A80		-98	14		30		-40	
A81		-97	14		30		-36	
A82		-96	15	WHT	26		J3-6	
A83		-95	14	SEE NOTE 14	30		J2-84	
A84		-94	14		30		J3-22	
A85		-93	14		30		J3-30	
A86		-92	15	WHT	26		J3-8	
A87		-91	14	SEE NOTE 14	30		J2-83	
A88		-90	14		30		J3-39	
A89		-89	14		30		J3-43	
A90		-88	15	WHT	26		J3-38	
A91		-87	14	SEE NOTE 14	30		J1-78	
A92		-86					J3-56	
A93		-85					J3-42	
A94		-84					J3-34	
A95		-83					J1-74	
A96		-82					J3-50	
A97		-81	14		30		J3-55	
A98		-80	15	WHT	26		J3-60	
A99		-79	14	SEE NOTE 14	30		J1-70	
A100		-78					J3-41	
A101		-77					J3-29	
A102		-76					J3-54	
A103		-75					J3-49	
A104		-74					J6-79	
A105		-73					J5-76	
A106		-72					J3-53	
A107		-71	14		30		J2-60	
A108		-70	15	WHT	26		J2-8	
A109		-69	14	SEE NOTE 14	30		J2-18	
A110		-68					J5-70	
A111		-67					J5-84	
A112		-66					J2-56	
A113		-65					J2-24	
A114		-64	14		30		J2-36	
A115		-63	15	WHT	26		J2-6	
A116		-62	14	SEE NOTE 14	30		J5-83	
A117		-61					J5-78	
A118		-60					J2-21	
A119		-59					J2-30	
A120		-58					J2-40	
A121		-57					J2-34	
A122		-56					J5-82	
A123		-55					J4-79	
A124		-54					J2-50	
A125		-53					J2-39	
A126		-52					J2-43	
A127		-51					J2-22	
A128		-50					J4-78	
A129		-48					J2-55	
A130		-47					J2-42	
A131		-46					J2-38	
A132		-45					J2-29	
A133		-44					J3-84	
A134		-43					J3-83	
A135		-42					J2-54	
A136		-41					J2-49	
A137		-40					J2-41	
A138		-39					J2-17	
A139		-38					J3-78	
A140		-37					J3-82	
A141		-36					J2-53	
A142		-35		SEE NOTE 14			J1-24	
A143		-34	14		30		J1-17	
A144		J12-33	15	WHT	26	AR	J1-6	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A145	SEE NOTE 10	J12-32	14	SEE NOTE 14	30	AR	J2-78	SEE NOTE 10
A146		-31					J2-70	
A147		-30					J1-53	
A148		-29					-36	
A149		-28					-21	
A150		-27					-22	
A151		-25					-84	
A152		-24					-29	
A153		-23					-39	
A154		-22					-34	
A155		-21					-30	
A156		-18					-55	
A157		-17					-43	
A158		-16					-49	
A159		-15					J1-18	
A160		-13					J4-84	
A161		-12					J1-56	
A162		-11					-50	
A163		-10					-41	
A164		-9					-40	
A165		-7					-83	
A166		-6					-60	
A167		-5					-54	
A168		-4					-38	
A169		-3		SEE NOTE 14			-42	
A170		J12-1	14		30		J1-82	
A171		J12-183	15	WHT	26	AR	G1	

2H

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN		6 DEC 65
CHECKED		3 FEB 6
APPROVED		3 FEB 6
APPROVED	Eldon C Hall	
APPROVED MIT		
APPROVED MSC	A. C. Metzger	DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MAIN HOUSING ASSEMBLY
AGC DSKY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2003955

SCALE NONE
SHEET 3 OF 3

MASTER

2003955 —

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

SYM	ZONE	DESCRIPTION

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A1		J12-166	14	SEE NOTE 14	30	AR	J7-6	
A2		-167	14		30		J6-43	
A3		-160	15	WHT	26		-18	
A4		-159	14	SEE NOTE 14	30		-34	
A5		-154					-40	
A6		-153					-50	
A7		-148	14		30		-39	
A8		-147	15	WHT	26		-38	
A9		-142	14	SEE NOTE 14	30		-54	
A10		-141					-41	
A11		-136					-29	
A12		-135					-55	
A13		-187					-42	
A14		-210	14		30		-49	
A15		-182	15	WHT	26		-60	
A16		-204	14	SEE NOTE 14	30		-56	
A17		-192					-17	
A18		-176					-36	
A19		-175					-22	
A20		-174					J6-30	
A21		-170					J7-4	
A22		-169					J6-24	
A23		-168					J6-53	
A24		-164					J5-43	
A25		-163					-34	
A26		-162					-36	
A27		-161					-22	
A28		-158					-56	
A29		-157		SEE NOTE 14			-39	
A30		-156	14		30		-24	
A31		-155	15	WHT	26		-8	
A32		-152	14	SEE NOTE 14	30		-42	
A33		-151	14		30		-40	
A34		-150	15	WHT	26		-38	
A35		-149	14		30		-30	
A36	SEE NOTE 10	-146					-50	SEE NOTE 10
A37		-145					-55	
A38		-144		SEE NOTE 14			-49	
A39		-143					-29	
A40		-140					-54	
A41		-139					-53	
A42		-138					-41	
A43		-137	14		30		-17	
A44		-134	15	WHT	26		J5-60	
A45		-133	14	SEE NOTE 14	30		J4-43	
A46		-132					J4-6	
A47		-131					J6-84	
A48		-130					J4-24	
A49		-129					J4-39	
A50		-128					J4-17	
A51		-127					J6-83	
A52		-126					J4-50	
A53		-125					J4-40	
A54		-124					J4-36	
A55		-123					J6-78	
A56		-122					J4-30	
A57		-121					J4-29	
A58		-120					J4-18	
A59		-119					J6-70	
A60		-118					J4-34	
A61		-117					J4-38	
A62		-116					J4-21	
A63		-115					J6-76	
A64		-114					J4-55	
A65		-113					-41	
A66		-112					-42	
A67		-111					-83	
A68		-110					-53	
A69		-109					-54	
A70		-108					-49	
A71		-107		SEE NOTE 14			-70	
A72		J12-106	14		30	AR	J4-60	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A73		J12-105	14	SEE NOTE 14	30	AR	J4-56	
A74		-104					J4-22	
A75		-103					J3-76	
A76		-102					-17	
A77		-101	14		30		-24	
A78		-100	15	WHT	26		-18	
A79		-99	14	SEE NOTE 14	30		-70	
A80		-98	14		30		-40	
A81		-97	14		30		-36	
A82		-96	15	WHT	26		J3-6	
A83		-95	14	SEE NOTE 14	30		J2-84	
A84		-94	14		30		J3-22	
A85		-93	14		30		J3-30	
A86		-92	15	WHT	26		J3-8	
A87		-91	14	SEE NOTE 14	30		J2-83	
A88		-90	14		30		J3-39	
A89		-89	14		30		J3-43	
A90		-88	15	WHT	26		J3-38	
A91		-87	14		30		J1-78	
A92		-86					J3-56	
A93		-85		SEE NOTE 14			J3-42	
A94		-84					J3-34	
A95		-83					J1-74	
A96		-82					J3-50	
A97		-81	14		30		J3-55	
A98		-80	15	WHT	26		J3-60	
A99		-79	14		30		J1-70	
A100		-78					J3-41	
A101		-77					J3-29	
A102		-76		SEE NOTE 14			J3-54	
A103		-75					J3-49	
A104		-74					J6-79	
A105		-73					J5-76	
A106		-72					J3-53	
A107		-71	14		30		J2-60	
A108	SEE NOTE 10	-70	15	WHT	26		J2-8	SEE NOTE 10
A109		-69	14		30		J2-18	
A110		-68		SEE NOTE 14			J5-70	
A111		-67					J5-84	
A.12		-66					J2-56	
A113		-65					J2-24	
A114		-64	14		30		J2-36	
A115		-63	15	WHT	26		J2-6	
A116		-62	14	SEE NOTE 14	30		J5-83	
A117		-61					J5-78	
A118		-60					J2-21	
A119		-59					J2-30	
A120		-58					J2-40	
A121		-57					J2-34	
A122		-56					J5-82	
A123		-55					J4-79	
A124		-54					J2-50	
A125		-53					J2-39	
A126		-52					J2-43	
A127		-51					J2-22	
A128		-50					J4-78	
A129		-48					J2-55	
A130		-47					J2-42	
A131		-46					J2-38	
A132		-45					J2-29	
A133		-44					J3-84	
A134		-43					J3-83	
A135		-42					J2-54	
A136		-41					J2-49	
A137		-40					J2-41	
A138		-39					J2-17	
A139		-38					J3-78	
A140		-37					J3-82	
A141		-36					J2-53	
A142		-35		SEE NOTE 14			J1-24	
A143		-34	14		30		J1-17	
A144		J12-33	15	WHT	26	AR	J1-6	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
A145		J12-32	14	SEE NOTE 14	30	AR	J2-78	
A146		-31					J2-70	
A147		-30					J1-53	
A148		-29					-36	
A149		-28					-21	
A150		-27					-22	
A151		-25					-84	
A152		-24					-29	
A153		-23					-39	
A154		-22					-34	
A155		-21					-30	
A156	SEE NOTE 10	-18					-55	SEE NOTE 10
A157		-17					-43	
A158		-16					-49	
A159		-15					J1-18	
A160		-13					J4-84	
A161		-12					J1-56	
A162		-11					-50	
A163		-10					-41	
A164		-9					-40	
A165		-7					-83	
A166		-6					-60	
A167		-5					-54	
A168		-4					-38	
A169		-3		SEE NOTE 14			-42	
A170		J12-1	14		30		J1-82	
A171		J12-183	15	WHT	26	AR	G1	

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN 6 DEC 65
CHECKED
APPROVED 3 FEB 6
APPROVED
APPROVED MIT
A. C. METZGER
APPROVED MSC
DATE

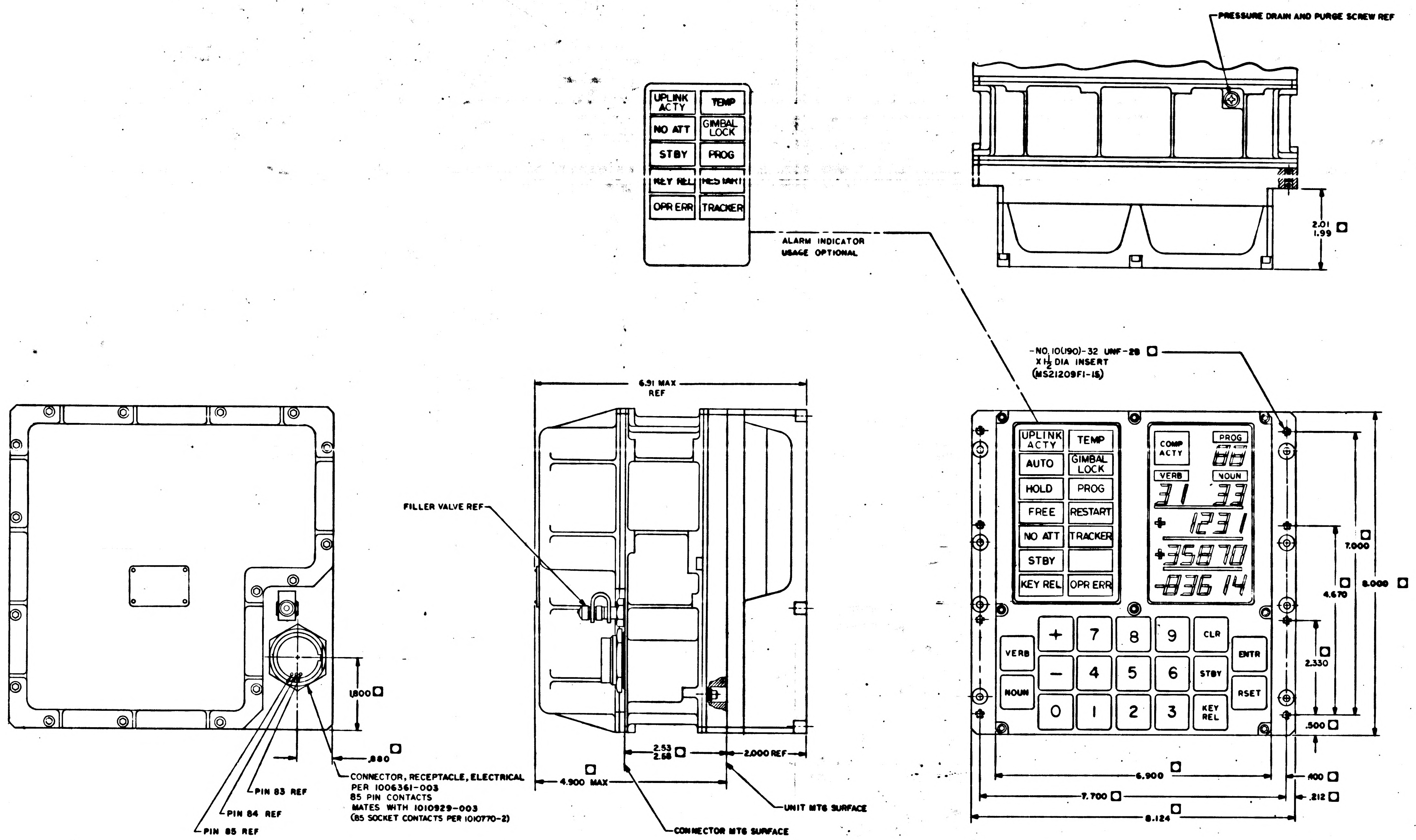
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MAIN HOUSING ASSEMBL
AGC DSKY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003955
SCALE NONE

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 26204 DR S.P. Lufkin CHK AKE APPD		J.

REVISIONS 20943


PRESSURE DRAIN AND PURGE SCREW REF
2.01
1.99
UPLINK ACTY
TEMP
NO ATT
GIMBAL LOCK
STBY
PROG
KEY REL
RESTART
OPR ERR
TRACKER
ALARM INDICATOR USAGE OPTIONAL
-NO. 10(.190)-32 UNF-2B X 1½ DIA INSERT (MS21209F1-15)
AUTO
HOLD
FREE
COMP ACTY
PROG
VERB
NOUN
CLR
ENTR
RSET
KEY REL
7.000
4.670
8.000
2.330
.500
6.900
.400
7.700
.212
8.124
6.91 MAX REF
FILLER VALVE REF
2.53
2.58
2.000 REF
4.900 MAX
UNIT MTG SURFACE
CONNECTOR MTG SURFACE
1.800
.880
CONNECTOR, RECEPTACLE, ELECTRICAL PER 1006361-003 85 PIN CONTACTS MATES WITH 1010929-003 (85 SOCKET CONTACTS PER 1010770-2)
PIN 83 REF
PIN 84 REF
PIN 85 REF

NOTES
1. ☐ DIMENSIONS CONTROLLED BY ICD MH01-01305-116
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
3. WEIGHT Later
4. ◕ INDICATES CENTER OF GRAVITY Locate Later

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
±.005
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
Cambridge Mass
DRAWN R.D. DATE
CHECKED R. Edwards
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

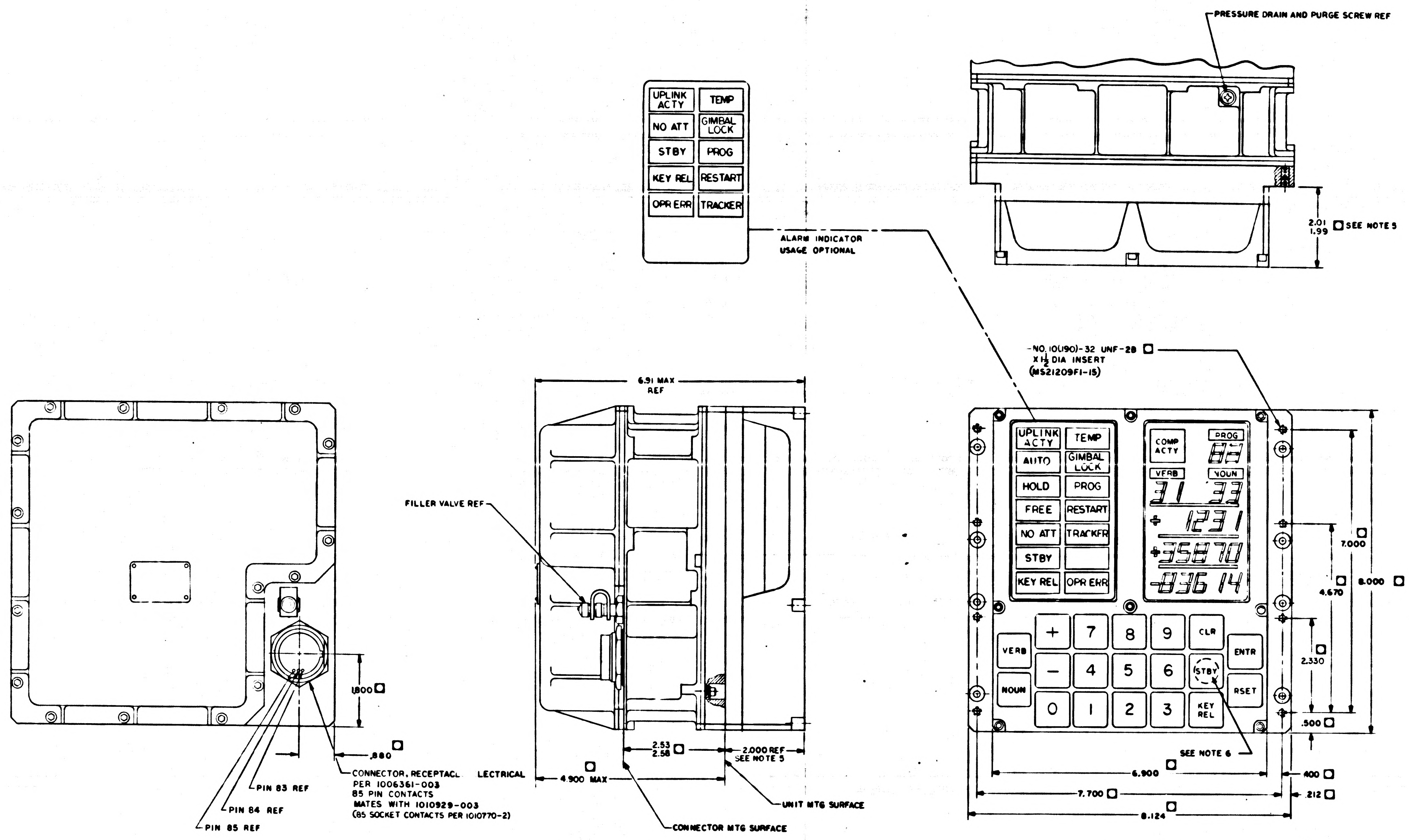
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC DSKY
OUTLINE DRAWING

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003956
SCALE 1/1
WT
SHEET 1 OF 1

2003956 A

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 26c04 DR CHK APPD		
B	REVISED PER TDRR 350c6 DR Gordan CHK		


PRESSURE DRAIN AND PURGE SCREW REF
2.01
1.99
☐ SEE NOTE 5
UPLINK ACTY
TEMP
NO ATT
GIMBAL LOCK
STBY
PROG
KEY REL
RESTART
OPR ERR
TRACKER
ALARM INDICATOR
USAGE OPTIONAL
-NO. 10(190)-32 UNF-28 ☐
X 1/2 DIA INSERT
(MS21209F1-15)
6.91 MAX
REF
FILLER VALVE REF
AUTO
HOLD
FREE
COMP ACTY
VERB
NOUN
CLR
ENTR
RSET
KEY REL
STBY
7.000 ☐
8.000 ☐
4.670 ☐
2.330 ☐
.500 ☐
SEE NOTE 6
6.900
.400 ☐
.212 ☐
7.700 ☐
8.124 ☐
1.800 ☐
.880 ☐
PIN 83 REF
PIN 84 REF
PIN 85 REF
CONNECTOR, RECEPTACL LECTRICAL
PER 1006361-003
85 PIN CONTACTS
MATES WITH 1010929-003
(85 SOCKET CONTACTS PER 1010770-2)
4.900 MAX ☐
2.53
2.58 ☐
2.000 REF
SEE NOTE 5
UNIT MTG SURFACE
CONNECTOR MTG SURFACE

NOTES
1. ☐ DIMENSIONS CONTROLLED BY ICD MH01-01305-116
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
3. WEIGHT later
4. ◕ INDICATES CENTER OF GRAVITY [illegible] later
5. THE 2.01/1.99 DIMENSION APPLIES TO ALL CONFIGURATION UNIVERSAL DSKYS WITH THE EXCEPTION OF THE 2003985-061, 2003950-031, 2003994-021 & SUBSEQUENT CONFIGURATIONS IN WHICH THE SURFACE OF THE I/L & COVER ASSY 2003899-011 SHALL PROTRUDE BEYOND THE MAXIMUM SHOWN UP TO A MAXIMUM OF .09
6. THE 2003985-061, 2003950-031, 2003994-021 & SUBSEQUENT CONFIGURATIONS SHALL REFLECT "PRO" IN KEY POSITION INDICATED.

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
±.005
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M.I.T.
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

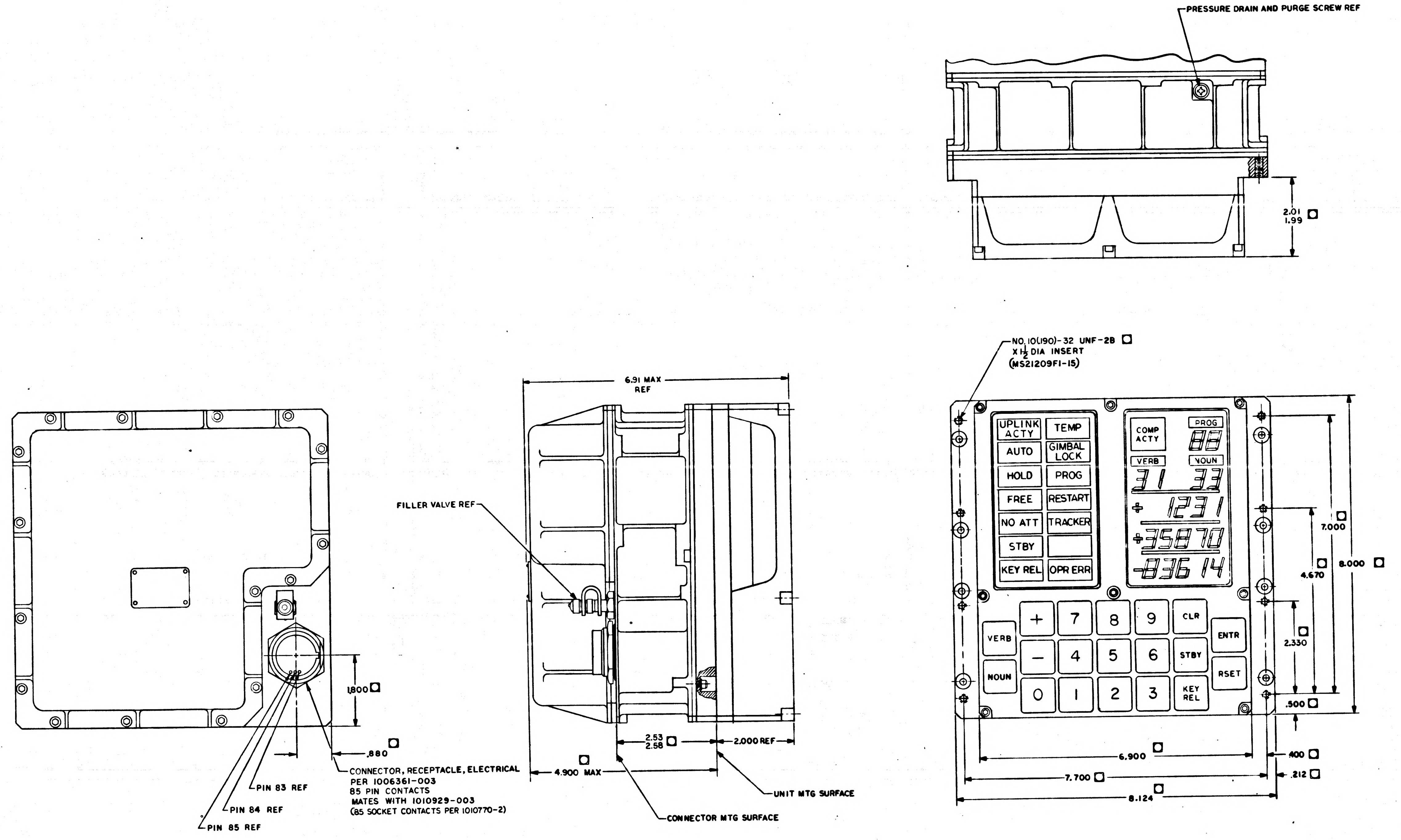
AGC DSKY
OUTLINE DRAWING

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO 2003956
SCALE 1/1
WT
SHEET OF 1

2003956

SYM	DESCRIPTION	DATE	APPROVAL

REVISIONS 20943


PRESSURE DRAIN AND PURGE SCREW REF
2.01
1.99 ☐
NO. 10(.190)-32 UNF-2B ☐
X 1/2 DIA INSERT
(MS21209F1-15)
6.91 MAX
REF
FILLER VALVE REF
1.800 ☐
.880 ☐
CONNECTOR, RECEPTACLE, ELECTRICAL
PER 1006361-003
85 PIN CONTACTS
MATES WITH 1010929-003
(85 SOCKET CONTACTS PER 1010770-2)
PIN 83 REF
PIN 84 REF
PIN 85 REF
4.900 MAX ☐
2.53
2.58 ☐
2.000 REF
UNIT MTG SURFACE
CONNECTOR MTG SURFACE
UPLINK ACTY
TEMP
AUTO
GIMBAL LOCK
HOLD
PROG
FREE
RESTART
NO ATT
TRACKER
STBY
KEY REL
OPR ERR
COMP ACTY
PROG
88
VERB
NOUN
31 33
+ 1231
+35870
-83614
+
7
8
9
CLR
VERB
ENTR
–
4
5
6
STBY
NOUN
RSET
0
1
2
3
KEY REL
7.000 ☐
4.670 ☐
8.000 ☐
2.330 ☐
.500 ☐
6.900 ☐
7.700 ☐
8.124 ☐
.400 ☐
.212 ☐

NOTES

1. ☐ DIMENSIONS CONTROLLED BY ICD MH01-01305-116
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
3. WEIGHT *Later*
4. ◐ INDICATES CENTER OF GRAVITY *Locate later*

MASTER

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
±.005
DO NOT SCALE THIS DRAWING

MATERIAL

HEAT TREATMENT

FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN DATE
CHECKED
APPROVAL
APPROVAL Eldon C. Hall 17 July 65
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC DSKY
OUTLINE DRAWING

CODE IDENT NO	SIZE	NASA DRAWING NO
80230		2003956

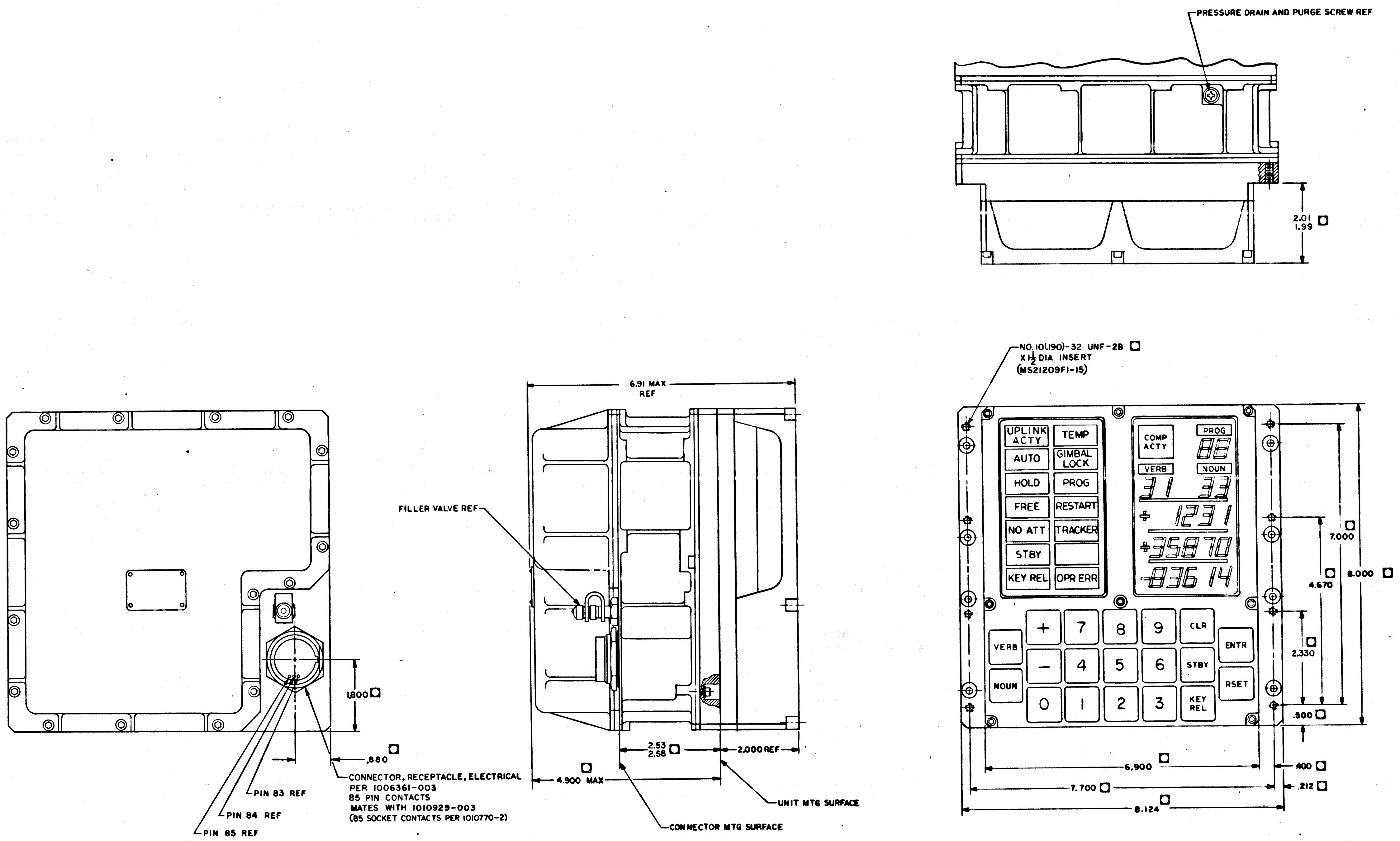
SCALE 1/1 WT SHEET 1 OF 1

2003956

F-2

2003956

SYM	DESCRIPTION	DATE


PRESSURE DRAIN AND PURGE SCREW REF
2.01
1.99
NO. 10(.190)-32 UNF-2B
X 1½ DIA INSERT
(MS21209F1-15)
6.91 MAX
REF
FILLER VALVE REF
1.800
.880
PIN 83 REF
PIN 84 REF
PIN 85 REF
CONNECTOR, RECEPTACLE, ELECTRICAL
PER 1006361-003
85 PIN CONTACTS
MATES WITH 1010929-003
(85 SOCKET CONTACTS PER 1010770-2)
4.900 MAX
2.53
2.58
2.000 REF
UNIT MTG SURFACE
CONNECTOR MTG SURFACE
UPLINK ACTY
TEMP
AUTO
GIMBAL LOCK
HOLD
PROG
FREE
RESTART
NO ATT
TRACKER
STBY
KEY REL
OPR ERR
COMP ACTY
PROG
VERB
NOUN
31 33
+12311
+35870
-83614
VERB
NOUN
+
–
7 8 9
4 5 6
0 1 2 3
CLR
STBY
KEY REL
ENTR
RSET
7.000
8.000
4.670
2.330
.500
6.900
7.700
8.124
.400
.212

NOTES
1. ☐ DIMENSIONS CONTROLLED BY ICD MH01-01305-116
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
3. WEIGHT Later
4. ● INDICATES CENTER OF GRAVITY Locate Later

2H

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
±.005
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN R.D. Zurbel DATE
CHECKED L. Edwards 17 July 65
APPROVAL
APPROVAL 17 July 65
NASA APPROVAL
MIT APPROVAL 20 July 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC DSKY
OUTLINE DRAWING

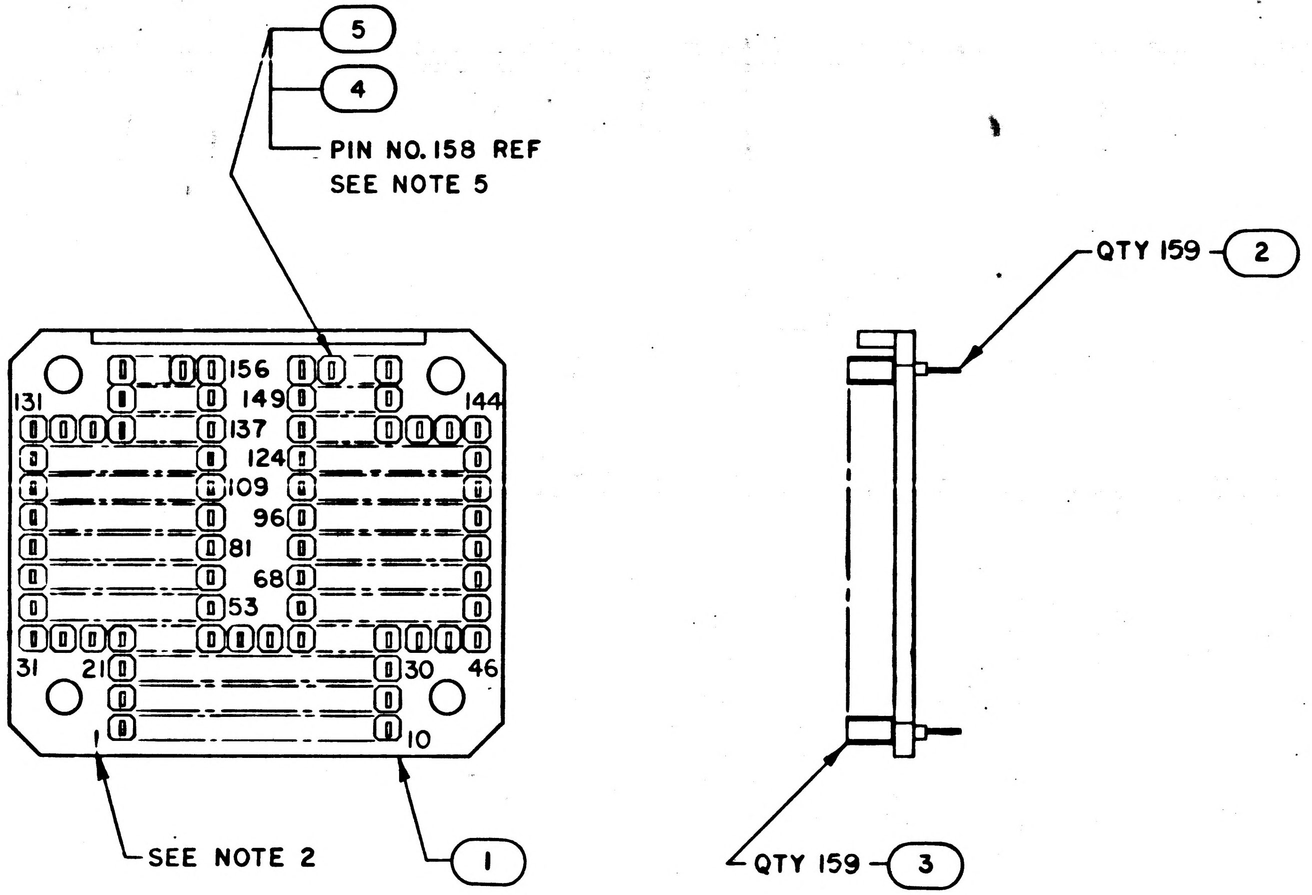
CODE IDENT NO 80230
SIZE
NASA DRAWING NO 2003956
SCALE 1/1
WT

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2003957 A

REVISIONS 26205

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 27739	BPJ		4/12/66	



QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1008819-003		SLEEVE, GROUNDING	5
1	1008818-004		CONTACT, WRAPOST-FEMALE. GRD	4
159	1006774		INSULATOR, WRAPOST-FEMALE	3
159	1006781-1		CONTACT, WRAPOST-FEMALE	2
1	2004920		PLATE, CONNECTOR	1

011 LIST OF MATERIALS

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK NEAR & FARSIDE APPROXIMATELY WHERE SHOWN .06/.08 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 USING INK 1006271-11
3. IDENTIFY WITH PART NO. PER ND1002019
4. ASSEMBLE FIND NO. 2, 3, 4 & 5 TO FIND NO. 1 PER ND1002136
5. INSTALL FIND NO. 4 AND 5 IN PIN POSITION NO. 158

NEXT ASSY	USED ON
2003959	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN 29 Nov 65
CHECKED 3 FEB 66
APPROVED 3 FEB 66
APPROVED 11 Feb 66
APPROVED MIT A. C. METZGER 11 Feb 66
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CONNECTOR PLATE ASSY
INDICATOR DIGITAL
AGC DSKY

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2003957
SCALE 2/1
SHEET 1 OF 1

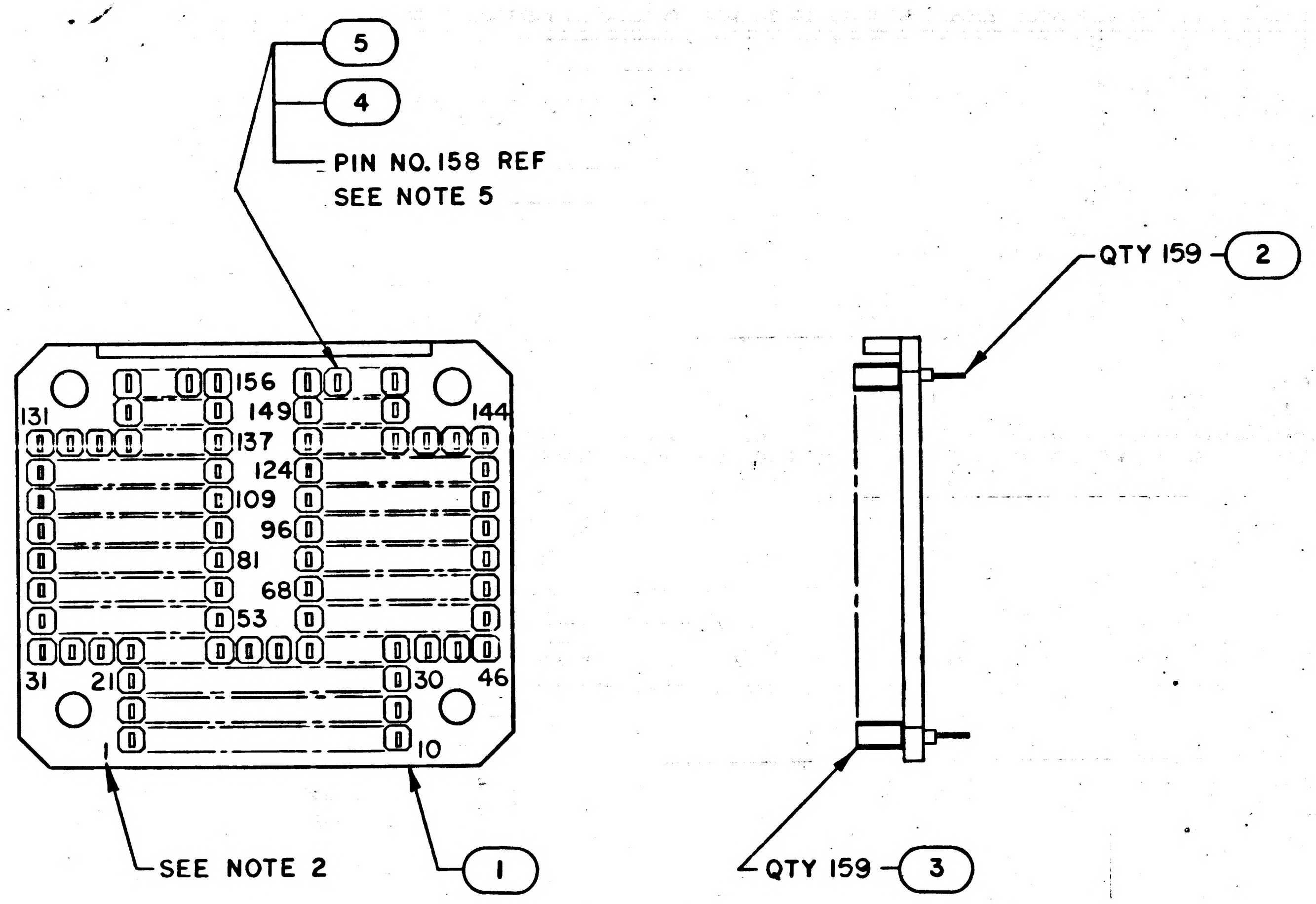
MODERN BLUE PRINT CO. D-19550

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2003957 -

REVISIONS 26205

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1008819		SLEEVE, GROUNDING	5
1	1008818-004		CONTACT, WRAPOST-FEMALE GRD	4
159	1006774		INSULATOR, WRAPOST-FEMALE	3
159	1006781-1		CONTACT, WRAPOST-FEMALE	2
1	2004920		PLATE, CONNECTOR	1

011 LIST OF MATERIALS

MASTER

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK NEAR & FARSIDE APPROXIMATELY WHERE SHOWN .06/.08 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 USING INK 1006271-11
3. IDENTIFY WITH PART NO. PER ND1002019
4. ASSEMBLE FIND NO. 2,3,4 & 5 TO FIND NO. 1 PER ND1002136
5. INSTALL FIND NO. 4 AND 5 IN PIN POSITION NO. 158

NEXT ASSY	USED ON
2003959	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN R. D. 29 Nov 65
CHECKED J. C. 3 FEB 66
APPROVED 3 FEB 66
APPROVED Ellen C Hall 11 Feb 66
APPROVED MIT A. C. METZGER 11 Feb 66
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CONNECTOR PLATE ASSY
INDICATOR DIGITAL
AGC DSKY

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2003957
SCALE 2/1
SHEET 1 OF 1

MODERN BLUE PRINT CO. D-19550

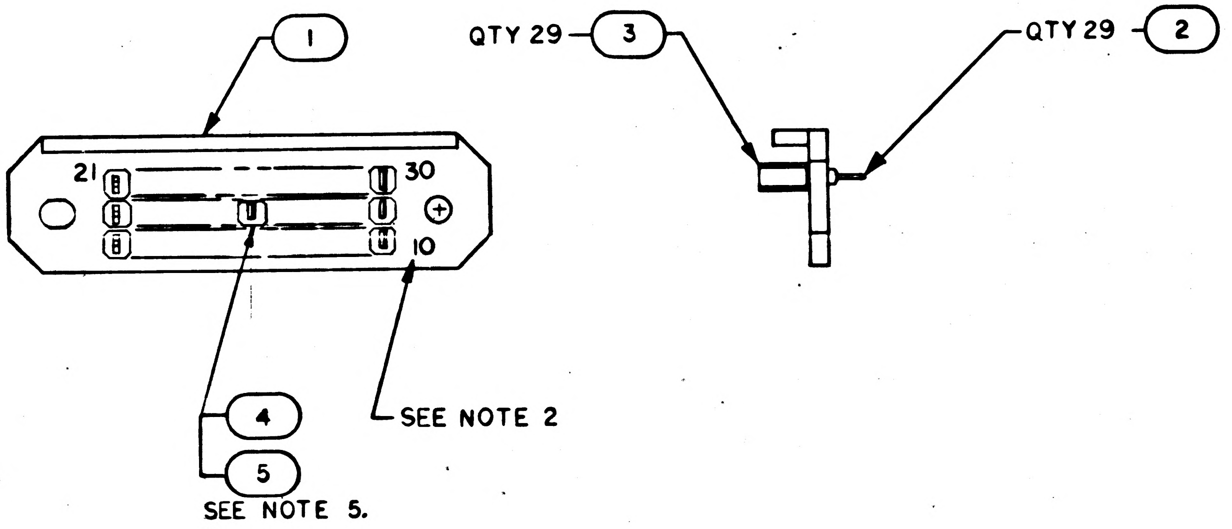
2003957

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2003958 A

REVISIONS 26205

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 27739	SPJ	A.R.B.	4/12/66	



NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK NEAR & FARSIDE APPROXIMATELY WHERE SHOWN .06/.08 HIGH BLACK CHARACTERS PER ND1002019 & ND1002122 TYPE II, CLASS 2, USING INK 1006271-11
3. IDENTIFY WITH PART NO. PER ND1002019
4. ASSEMBLE FIND NO. 2, 3, 4, AND 5 TO FIND NO. 1 PER ND1002136
5. INSTALL FIND NO. 4 AND 5 IN PIN POSITION NO. 15.

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1008819-003		SLEEVE, GROUNDING	5
1	1008818-004		CONTACT, WRAPOST-FEMALE GRD	4
29	1006774		INSULATOR, WRAPOST-FEMALE	3
29	1006781-1		CONTACT, WRAPOST-FEMALE	2
1	2004921		PLATE, CONNECTOR	1
011	LIST OF MATERIALS			

NEXT ASSY	USED ON
2003959	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN 23 Nov 65
CHECKED CC 3 FEB 66
APPROVED 3 FEB 66
APPROVED 11 Feb 66
APPROVED MIT 11 Feb 66
APPROVED MSC A. C. METZGER
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CONNECTOR PLATE ASSY
INDICATOR ALARM
AGC DSKY

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2003958
SCALE 2/1
SHEET 1 OF 1

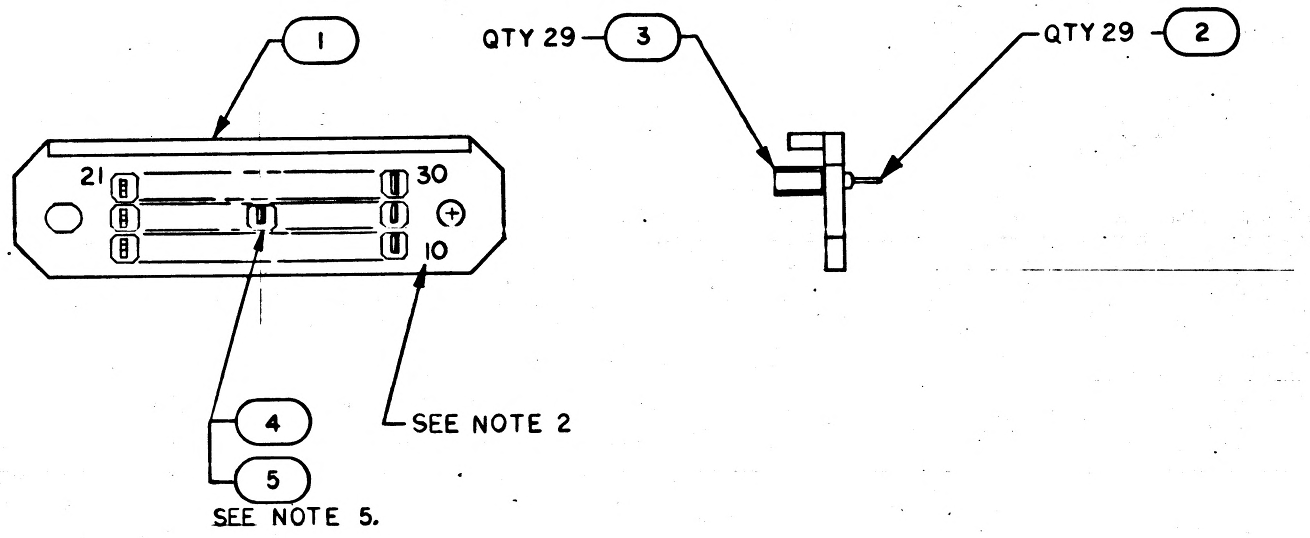
MODERN BLUE PRINT CO. D-19550

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2003958 | —

REVISIONS 26205

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



MASTER

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK NEAR & FARSIDE APPROXIMATELY WHERE SHOWN .06/.08 HIGH BLACK CHARACTERS PER ND1002019 & ND1002122 TYPE II, CLASS 2, USING INK 1006271-11
3. IDENTIFY WITH PART NO. PER ND1002019
4. ASSEMBLE FIND NO. 2, 3, 4, AND 5 TO FIND NO. 1 PER ND1002136
5. INSTALL FIND NO. 4 AND 5 IN PIN POSITION NO. 15.

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1008819		SLEEVE, GROUNDING	5
1	1008818-004		CONTACT, WRAPOST-FEMALE GRD	4
29	1006774		INSULATOR, WRAPOST-FEMALE	3
29	1006781-1		CONTACT, WRAPOST-FEMALE	2
1	2004921		PLATE, CONNECTOR	1

011 LIST OF MATERIALS

2003959	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

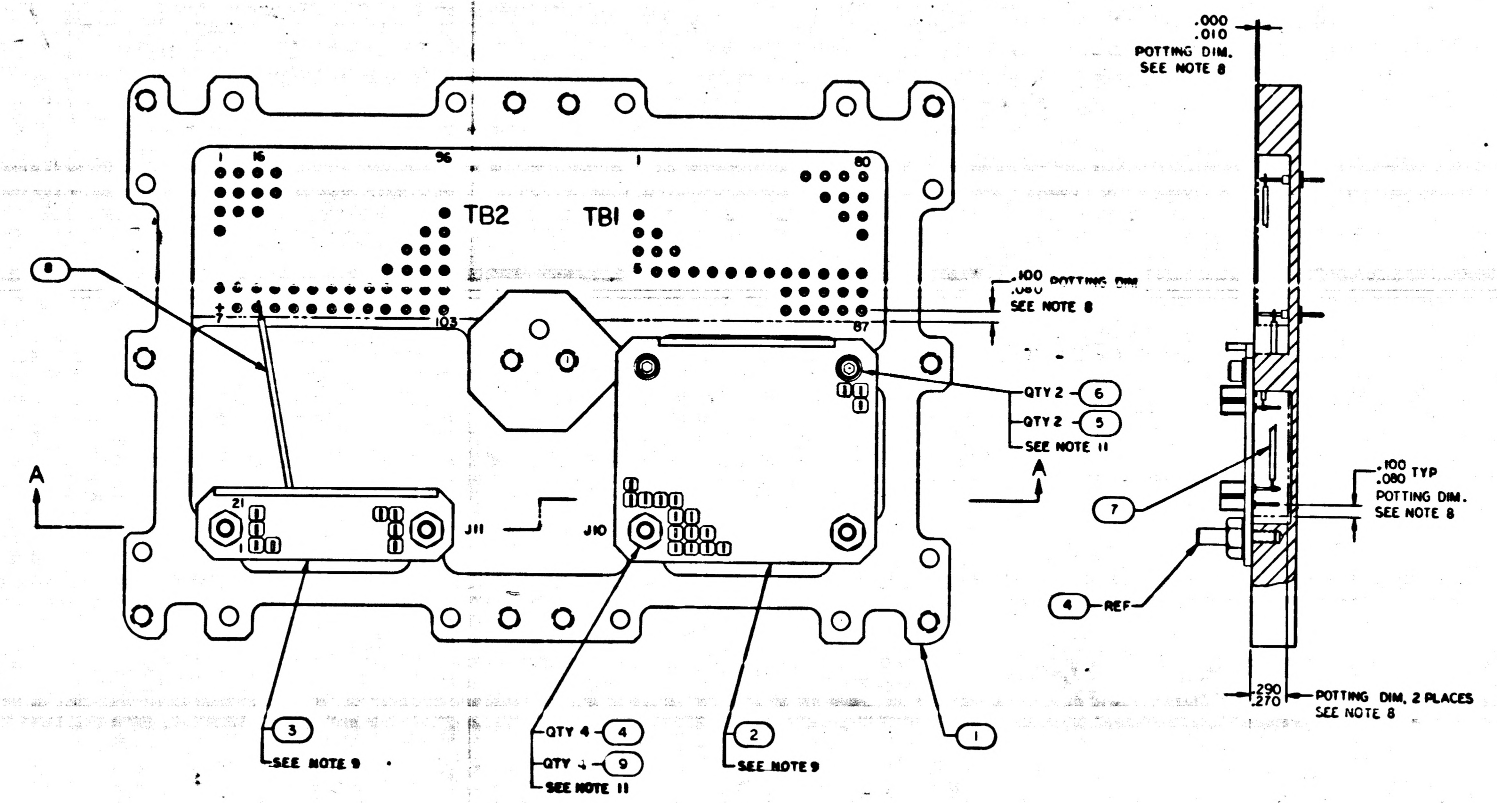
DRAWN		23 Nov 65
CHECKED	J.C.	3FEB66
APPROVED		3FEB66
APPROVED		11 Feb 66
APPROVED MIT		11 Feb 66
APPROVED MSC	A. C. METZGER	
		DATE

CONNECTOR PLATE ASSY
INDICATOR ALARM
AGC DSKY

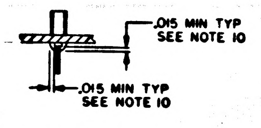
CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2003958
SCALE 2/1		SHEET 1 OF 1

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 27552 DR D. Mozuchi CHK P.E.S.	4/1/66	J.M.

2003959 A

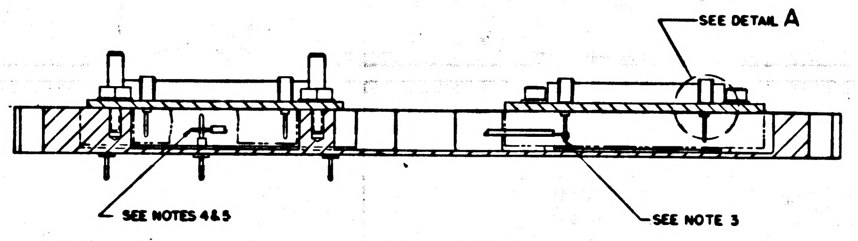


.000
.010
POTTING DIM.
SEE NOTE 8
1
16
96
1
80
TB2
TB1
7
103
87
21
J11
J10
8
A
A
.100
.080 POTTING DIM
SEE NOTE 8
QTY 2 - 6
QTY 2 - 5
SEE NOTE 11
7
.100
.080 TYP
POTTING DIM.
SEE NOTE 8
4 REF
.290
.270 POTTING DIM, 2 PLACES
SEE NOTE 8
3
SEE NOTE 9
QTY 4 - 4
QTY 4 - 9
SEE NOTE 11
2
SEE NOTE 9
1



.015 MIN TYP
SEE NOTE 10
.015 MIN TYP
SEE NOTE 10

DETAIL A



SEE DETAIL A
SEE NOTES 4&5
SEE NOTE 3

SECTION A-A

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. WIRE WRAP PER WIRING LEGEND AND PER ND1002031 EXCEPT FIND 8 TO HAVE 5 MIN TO 7 MAX TURNS OF UNINSULATED WIRE, 1/2 TO 1 1/2 TURNS OF INSULATED WIRE, STRIP LENGTH OF 1.18 TO 1.00 AND A STRIP FORCE OF 5 LB MIN
4. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
5. WELD PER ND1002005
6. DRESS AND TRIM, AND BOND PER ND 1002004 TYPE IX
7. IDENTIFY WITH PART NO. PER ND1002019
8. ENCAPSULATE PER ND1002236
9. DRESS WIRES WITHIN THE POTTING AREA UNDER FIND NO.2 AND FIND NO.3 USING FIND NO. 10
10. SEAL INSULATORS OF FIND NO.2 AND 3 PER ND1002004 TYPE VI
11. MOUNTING TORQUE OF FIND NO.4 AND FIND NO.6 TO BE 35-45 INCH POUNDS

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1012507-001	TAPE, LACING AND TYPING	10
4	NAS620C-6L	WASHER, FLAT	9
AR	1010807-22	WIRE, ELECTRICAL INSULATED	8
AR	1006376-003	WIRE, ELECTRICAL INSULATED	7
2	MS16995-10	SCREW, SOCKET HEAD	6
2	NAS620C-4L	WASHER, FLAT	5
4	[illegible]	PIN, ALIGNMENT	4
1	2003958-011	CONNECTOR, PLATE ASSEMBLY	3
1	2003957-011	CONNECTOR, PLATE ASSEMBLY	2
1	2004919-011	PLATE, ADAPTER	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003949	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J.R. Leonard DATE
CHECKED J.C. Juskel 3 FEB 66
APPROVAL R.L. Oppenheim 8 Feb 66
APPROVAL Eldon C. Hall 11 Feb 66
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ADAPTER PLATE ASSY
AGC DSKY

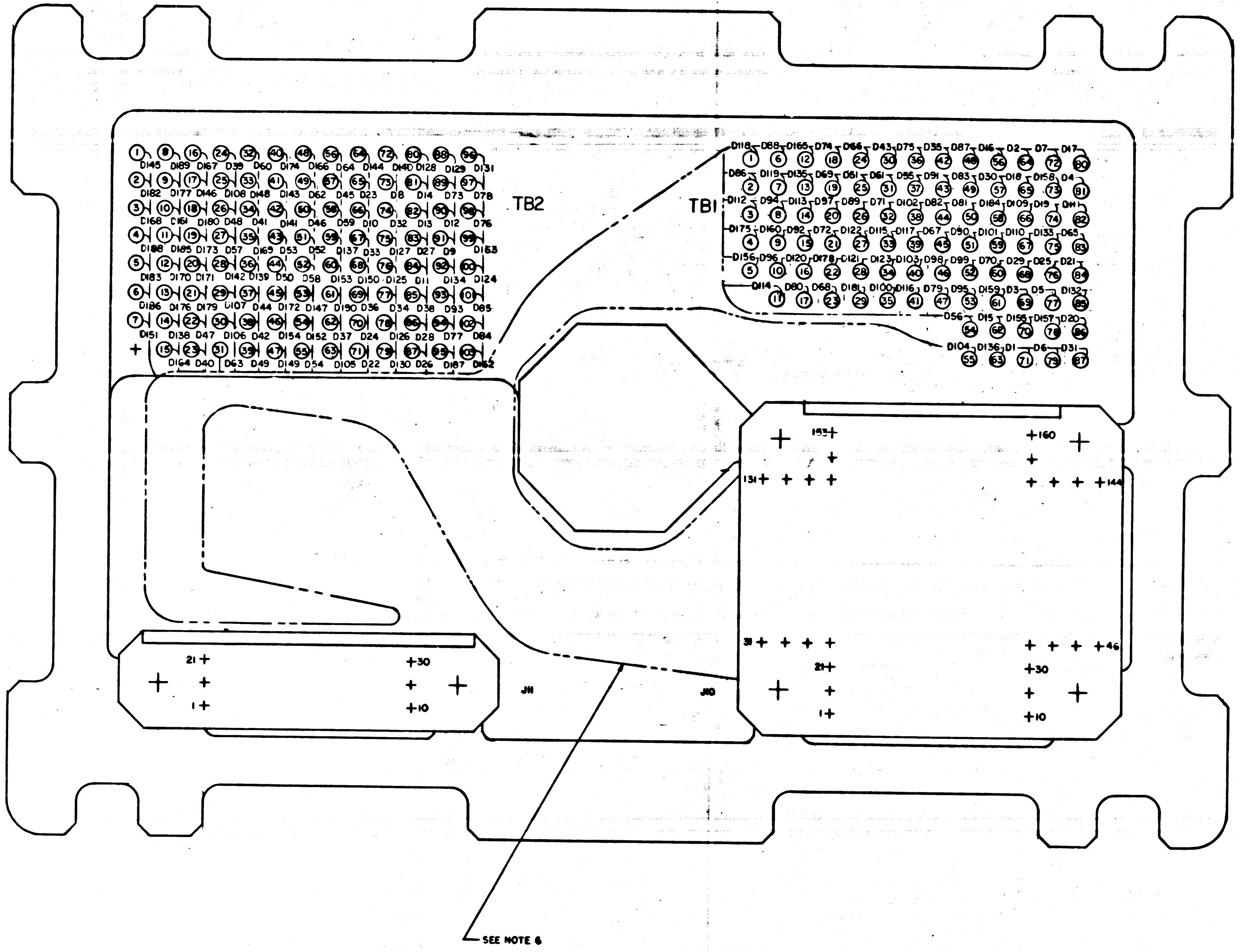
CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO 2003959
SCALE 2/1
WT
SHEET 1 OF 3

2003959 A

2003959 A

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 27552	DW		4/21/66	

REVISIONS 26205



MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN 2 DEC 65
CHECKED 3 FEB 66
APPROVED 3 FEB 66
APPROVED 4 FEB 66
APPROVED MIT
D. G. HOAG
APPROVED MSC
DATE

ADAPTER PLATE ASSY
AGC DSKY

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2003959
SCALE NONE
SHEET 2 OF 3

2003959 A

NOTICE – [illegible]

2003959 A

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 27552 DR D Maynarde CHK		

REVISIONS 26235

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
D1		J10-1	7	BLUE	30	AR	TB1-71	
D2		-2					-64	
D3		-3					-69	
D4		-4					-81	
D5		-5					-77	
D6		-6					-79	
D7		-7					TB1-72	
D8		-8					TB2-73	
D9		-9					-91	
D10		-10					-66	
D11		-11					-84	
D12		-12					-90	
D13		-13					-82	
D14		-14					TB2-81	
D15		-15					TB1-62	
D16		-16					-56	
D17		-17					-80	
D18		-18					-65	
D19		-19					-74	
D20		-20					-86	
D21		-21					TB1-84	
D22		-22					TB2-71	
D23		-23					TB2-65	
D24		-24					TB2-70	
D25		-25					TB1-76	
D26		-26					TB2-87	
D27		-27					TB2-83	
D28		-28					TB2-86	
D29		-29					TB1-68	
D30	SEE NOTE 3	-30					TB1-57	SEE NOTE 5
D31		-37					TB1-87	
D32		-38					TB2-74	
D33		-39					TB2-67	
D34		-40					TB2-77	
D35		-41					TB1-42	
D36		-42					TB2-69	
D37		-43					-62	
D38		-44					-85	
D39		-45					-24	
D40		-46					-23	
D41		-53					-34	
D42		-54					TB2-38	
D43		-55					TB1-30	
D44		-56					TB2-37	
D45		-57					-57	
D46		-58					-50	
D47		-59					-22	
D48		-60					-26	
D49		-67					-39	
D50		-68					TB2-44	
D51		-69					TB1-25	
D52		-70					TB2-51	
D53		-71					TB2-43	
D54		-72					TB2-55	
D55		-73					TB1-37	
D56		-74					TB1-54	
D57		-81					TB2-27	
D58		-82					-52	
D59		-83					-58	
D60		-84					TB2-32	
D61		-85					TB1-31	
D62		-86					TB2-49	
D63		-87					TB2-31	
D64		-88					TB2-56	
D65		-95					TB1-83	
D66		-96					-24	
D67		-97					-45	
D68		-98					-23	
D69		-99					-19	
D70		-100					-60	
D71		-101					-32	
D72		J10-102	7	BLUE	30	AR	TB1-21	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
D73		J10-109	7	BLUE	30	AR	TB2-89	
D74		-110					TB1-18	
D75		-111					TB1-36	
D76		-112					TB2-98	
D77		-113					TB2-94	
D78		-114					TB2-97	
D79		-115					TB1-47	
D80		-116					-17	
D81		-123					-30	
D82		-124					-44	
D83		-125					TB1-49	
D84		-126					TB2-102	
D85		-127					TB2-101	
D86		-128					TB1-2	
D87		-129					-48	
D88		-130					-6	
D89		-137					-26	
D90		-138					-91	
D91		-139					-43	
D92		-140					TB1-15	
D93		-141					TB2-93	
D94		-142					TB1-8	
D95		-143					-53	
D96		-144					-10	
D97		-146					-20	
D98		-147					-46	
D99		-148					-52	
D100		-149					-35	
D101		-150					-59	
D102	SEE NOTE 3	-151					-38	SEE NOTE 5
D103		-152					-40	
D104		-153					TB1-55	
D105		-154					TB2-63	
D106		-155					-30	
D107		-156					-29	
D108		-157					TB2-25	
D109		-158					TB1-66	
D110		-159					TB1-67	
D111		-160					TB1-82	
D112		-145					TB1-3	
D113		-131					-14	
D114		-132					-11	
D115		-133					-33	
D116		-134					-41	
D117		-135					-39	
D118		-136					-1	
D119		-117					-7	
D120		-118					-16	
D121		-119					-28	
D122		-120					-27	
D123		-121					TB1-34	
D124		-122					TB2-100	
D125		-103					-76	
D126		-104					-78	
D127		-105					-75	
D128		-106					-80	
D129		-107					-88	
D130		-108					-79	
D131		-89					TB2-96	
D132		-90					TB1-85	
D133		-91					TB1-75	
D134		-92					TB2-92	
D135		-93					TB1-13	
D136		-94					TB1-63	
D137		-75					TB2-59	
D138		-76					-14	
D139		-77					-36	
D140		-78					-72	
D141		-79					-42	
D142		-80					-28	
D143		-61					-41	
D144		J10-62	7	BLUE	30	AR	TB2-64	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
D145		J10-63	7	BLUE	30	AR	TB2-1	
D146		-64					-17	
D147		-65					-53	
D148		-66					-33	
D149		-47					-47	
D150		-48					-68	
D151	SEE NOTE 3	-49					-7	SEE NOTE 5
D152		-50					-54	
D153		-51					-60	
D154		-52					TB2-46	
D155		-31					TB1-70	
D156		-32					-5	
D157		-33					-78	
D158		-34					-73	
D159		-35					-61	
D160		J10-36	7	BLUE	30		TB1-9	
D161		J11-21	8	WHT	26		TB2-10	
D162		-11					-103	
D163		-1					-99	
D164		-22					TB2-15	
D165		-12					TB1-12	
D166		-2					TB2-48	
D167		-23					-16	
D168		-15					-3	
D169		-3					-35	
D170		-24					-12	
D171		-4					-20	
D172		-13					-45	
D173		-25					-19	
D174	SEE NOTE 3	-6					TB2-40	SEE NOTE 5
D175		-5					TB1-4	
D176		-26					TB2-13	
D177		-16					TB2-9	
D178		-14					TB1-22	
D179		-27					TB2-21	
D180		-17					TB2-18	
D181		-7					TB1-29	
D182		-28					TB2-2	
D183		-18					TB2-5	
D184		-8					TB1-58	
D185		-29					TB2-11	
D186		-19					-6	
D187		-9					-95	
D188		-30					-4	
D189		-20					-8	
D190		J11-10	8	WHT	26	AR	TB2-61	

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT INSTRUMENTATION LAB
CAMBRIDGE MASS.
DRAWN J.P. Lavoie DATE 29 JAN 66
CHECKED J.C. Jaschik 3 FEB 66
APPROVAL R.L. Oppedisano 3 FEB 66
APPROVAL Eldon C Hall 11 Feb 66
NASA APPROVAL E.C. METZGER
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

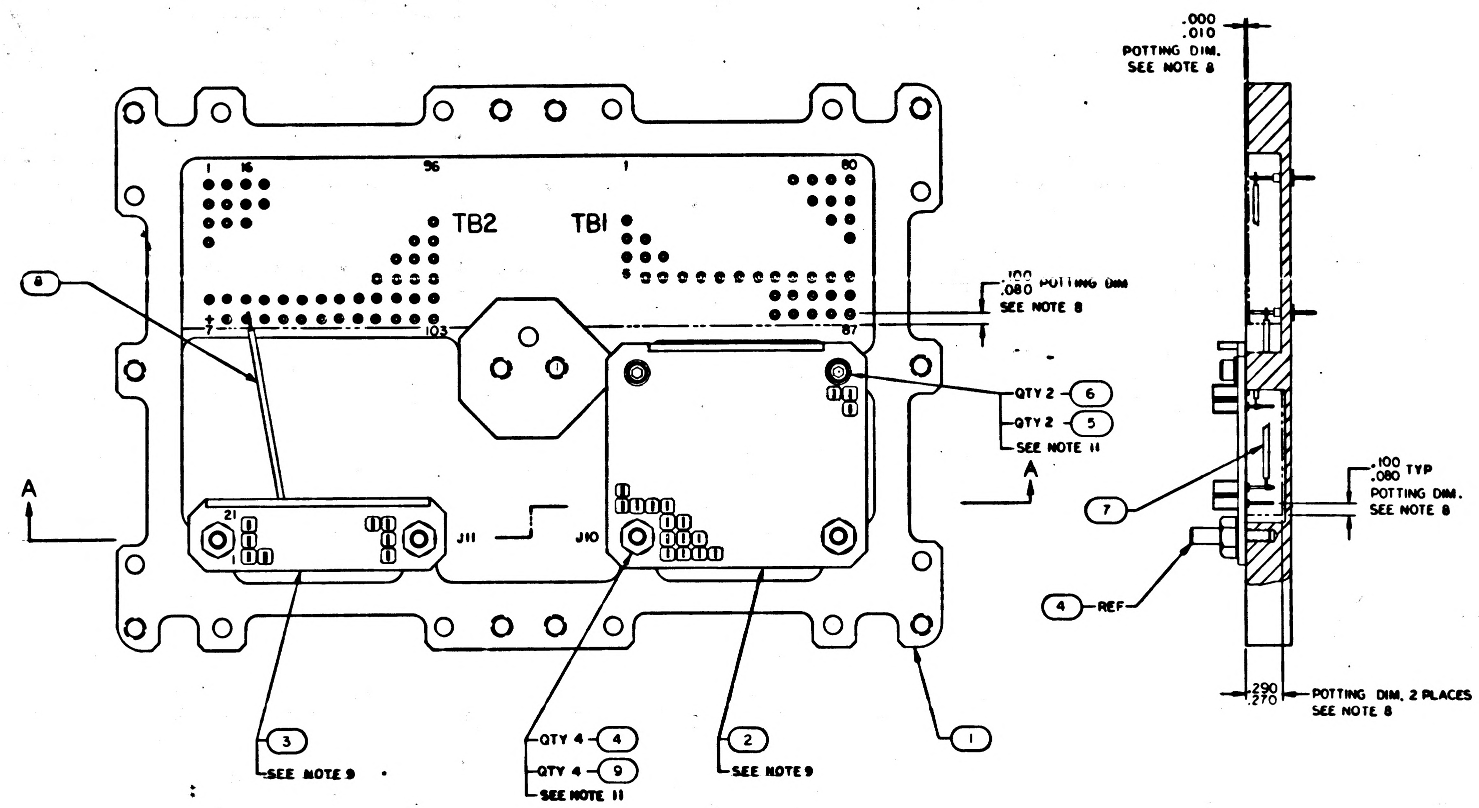
ADAPTER PLATE ASSY
AGC DSKY

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO. 2003959
SCALE NONE
WT
SHEET 3 OF 3

2003959 A

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 27552 DR D. Maguchi CHK	4/1/66	
B	REVISED PER TDRR 27913 DR CHK	5/4/66	

2003959 B



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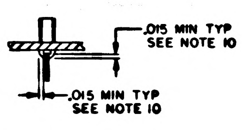
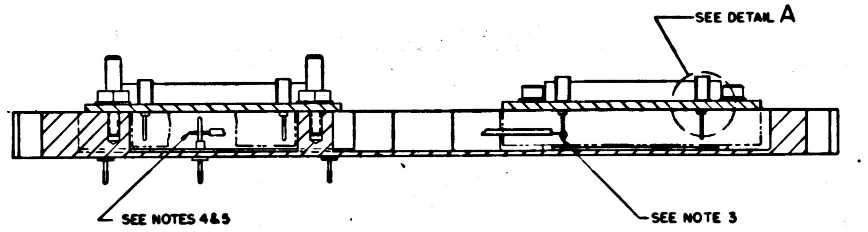
.010
POTTING DIM.
SEE NOTE 8
1
16
96
1
80
TB2
TB1
7
103
87
.100
.080 POTTING DIM
SEE NOTE 8
QTY 2 - 6
QTY 2 - 5
SEE NOTE 11
A
A
21
1
J11
J10
8
7
.100
.080 TYP
POTTING DIM.
SEE NOTE 8
4 - REF
.290
.270 POTTING DIM. 2 PLACES
SEE NOTE 8
3
SEE NOTE 9
QTY 4 - 4
QTY 4 - 9
SEE NOTE 11
2
SEE NOTE 9
1



.015 MIN TYP
SEE NOTE 10
.015 MIN TYP
SEE NOTE 10

DETAIL A



SEE DETAIL A
SEE NOTES 4&5
SEE NOTE 3

SECTION A-A

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. WIRE WRAP PER WIRING LEGEND AND PER ND1002031 EXCEPT FIND 8 TO HAVE 5 MIN TO 7 MAX TURNS OF UNINSULATED WIRE, 1/2 TO 1 1/2 TURNS OF INSULATED WIRE, STRIP LENGTH OF 1.18 TO 1.00 AND A STRIP FORCE OF 5 LB MIN
4. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
5. WELD PER ND1002005
6. DRESS AND TRIM, AND BOND PER ND 1002009 METHOD C
7. IDENTIFY WITH PART NO. PER ND1002019
8. ENCAPSULATE PER ND1002236
9. DRESS WIRES WITHIN THE POTTING AREA UNDER FIND NO.2 AND FIND NO.3 USING FIND NO. 10
10. SEAL INSULATORS OF FIND NO. 2 AND 3 PER ND1002004 TYPE VI
11. MOUNTING TORQUE OF FIND NO.4 AND FIND NO.6 TO BE 35-45 INCH POUNDS

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1012507-001	TAPE, LACING AND TYPING	10
4	NAS620C-6L	WASHER, FLAT	9
AR	1010807-22	WIRE, ELECTRICAL INSULATED	8
AR	1006376-003	WIRE, ELECTRICAL INSULATED	7
2	MS16995-10	SCREW, SOCKET HEAD	6
2	NAS620C-4L	WASHER, FLAT	5
4	2004938	PIN, ALIGNMENT	4
1	2003958-011	CONNECTOR, PLATE ASSEMBLY	3
1	2003957-011	CONNECTOR, PLATE ASSEMBLY	2
1	2004919-011	PLATE, ADAPTER	1
011	LIST OF MATERIALS		

2003949	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN J. P. Leonard DATE
CHECKED J. C. 3 FEB 66
APPROVAL 3 FEB 66
APPROVAL 4 Feb 66
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

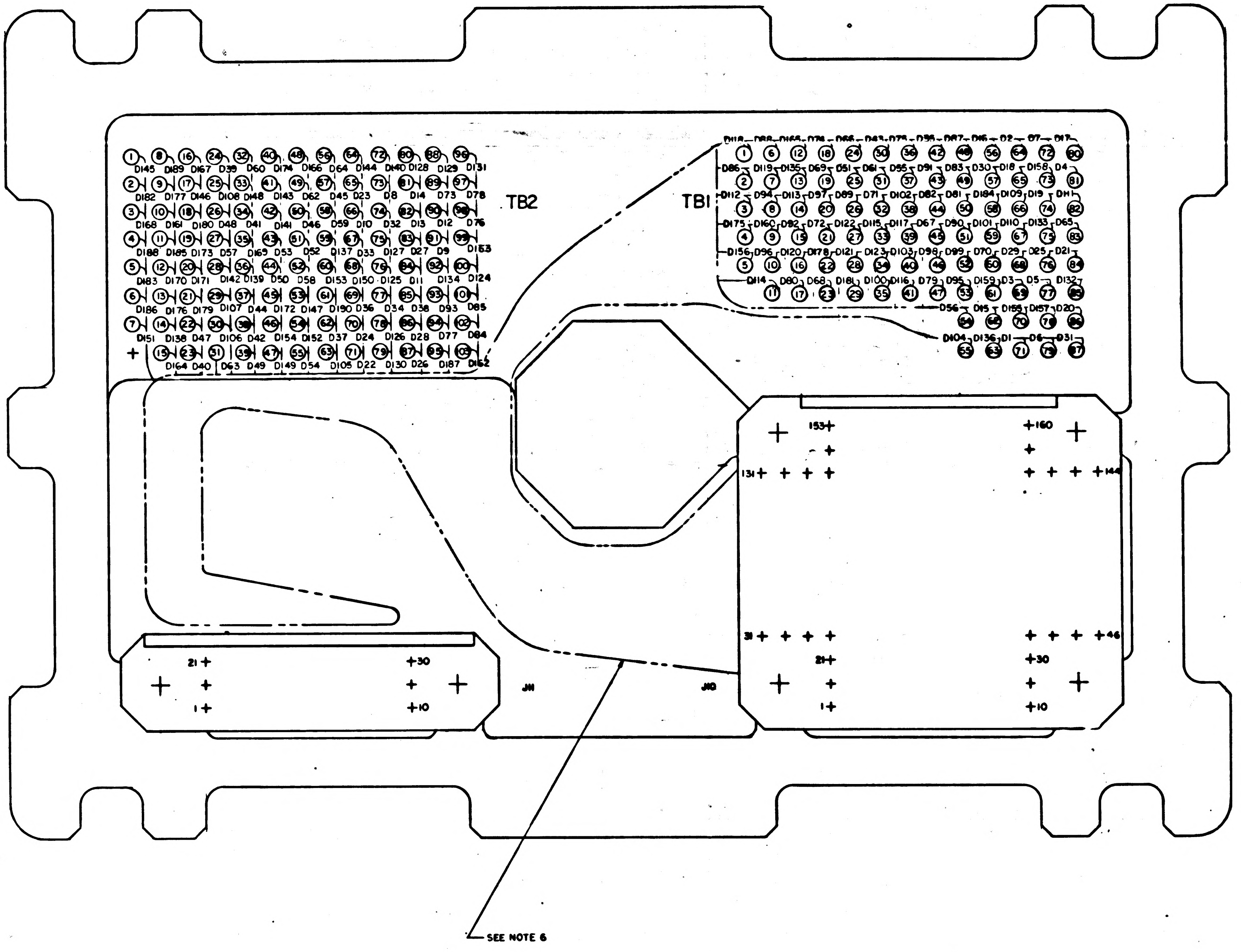
ADAPTER PLATE ASSY
AGC DSKY

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 2003959
SCALE 2/1
WT
SHEET 1 OF 3

2003959 B

2003959 B

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		REVISIONS 26205				
A		REVISED PER TDRR 27552			4/2/6	
B		REVISED PER TDRR 27913			5/4/6	



QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN J. L. Leonard 2 FEB 66
CHECKED J. C. Joubert 3 FEB 66
APPROVED 3 FEB 66
APPROVED Eldon C. Hall 4 FEB 66
APPROVED MIT
APPROVED MSC

ADAPTER PLATE ASSY

AGC DSKY

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2003959
SCALE NONE
SHEET 2 OF 3

2003959 B

MASTER

B 2003959

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 27552 DR D Magnolia CHK	4/4/66	
B	REVISD PER TDRR 27913 DR J McConnell CHK A.L.	5/4/66	

REVISIONS 26293

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
D1	SEE NOTE 3	J10-1	7	BLUE	30	AR	TB1-71	SEE NOTE 5
D2		-2					-64	
D3		-3					-69	
D4		-4					-81	
D5		-5					-77	
D6		-6					-79	
D7		-7					TB1-72	
D8		-8					TB2-73	
D9		-9					-91	
D10		-10					-66	
D11		-11					-84	
D12		-12					-90	
D13		-13					-82	
D14		-14					TB2-81	
D15		-15					TB1-62	
D16		-16					-56	
D17		-17					-80	
D18		-18					-65	
D19		-19					-74	
D20		-20					-86	
D21		-21					TB1-84	
D22		-22					TB2-71	
D23		-23					TB2-65	
D24		-24					TB2-70	
D25		-25					TB1-76	
D26		-26					TB2-87	
D27		-27					TB2-83	
D28		-28					TB2-86	
D29		-29					TB1-68	
D30		-30					TB1-57	
D31		-37					TB1-87	
D32		-38					TB2-74	
D33		-39					TB2-67	
D34		-40					TB2-77	
D35		-41					TB1-42	
D36		-42					TB2-69	
D37		-43					-62	
D38		-44					-85	
D39		-45					-24	
D40		-46					-23	
D41		-53					-34	
D42		-54					TB2-38	
D43		-55					TB1-30	
D44		-56					TB2-37	
D45		-57					-57	
D46		-58					-50	
D47		-59					-22	
D48		-60					-26	
D49		-67					-39	
D50		-68					TB2-44	
D51		-69					TB1-25	
D52		-70					TB2-51	
D53		-71					TB2-43	
D54		-72					TB2-55	
D55		-73					TB1-37	
D56		-74					TB1-54	
D57		-81					TB2-27	
D58		-82					-52	
D59		-83					-58	
D60		-84					TB2-32	
D61		-85					TB1-31	
D62		-86					TB2-49	
D63		-87					TB2-31	
D64		-88					TB2-56	
D65		-95					TB1-83	
D66		-96					-24	
D67		-97					-45	
D68		-98					-23	
D69		-99					-19	
D70		-100					-60	
D71		-101					-32	
D72		J10-102	7	BLUE	30	AR	TB1-21	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
D73	SEE NOTE 3	J10-109	7	BLUE	30	AR	TB2-89	SEE NOTE 5
D74		-110					TB1-18	
D75		-111					TB1-36	
D76		-112					TB2-98	
D77		-113					TB2-94	
D78		-114					TB2-97	
D79		-115					TB1-47	
D80		-116					-17	
D81		-123					-50	
D82		-124					-44	
D83		-125					TB1-49	
D84		-126					TB2-102	
D85		-127					TB2-101	
D86		-128					TB1-2	
D87		-129					-48	
D88		-130					-6	
D89		-137					-26	
D90		-138					-91	
D91		-139					-43	
D92		-140					TB1-15	
D93		-141					TB2-93	
D94		-142					TB1-8	
D95		-143					-53	
D96		-144					-10	
D97		-146					-20	
D98		-147					-46	
D99		-148					-52	
D100		-149					-35	
D101		-150					-59	
D102		-151					-38	
D103		-152					-40	
D104		-153					TB1-55	
D105		-154					TB2-63	
D106		-155					-30	
D107		-156					-29	
D108		-157					TB2-25	
D109		-158					TB1-66	
D110		-159					TB1-67	
D111		-160					TB1-82	
D112		-145					TB1-3	
D113		-131					-14	
D114		-132					-11	
D115		-133					-33	
D116		-134					-41	
D117		-135					-39	
D118		-136					-1	
D119		-117					-7	
D120		-118					-16	
D121		-119					-28	
D122		-120					-27	
D123		-121					TB1-34	
D124		-122					TB2-100	
D125		-103					-76	
D126		-104					-78	
D127		-105					-75	
D128		-106					-80	
D129		-107					-88	
D130		-108					-79	
D131		-89					TB2-96	
D132		-90					TB1-85	
D133		-91					TB1-75	
D134		-92					TB2-92	
D135		-93					TB1-13	
D136		-94					TB1-63	
D137		-75					TB2-59	
D138		-76					-14	
D139		-77					-36	
D140		-78					-72	
D141		-79					-42	
D142		-80					-28	
D143		-61					-41	
D144		J10-62	7	BLUE	30	AR	TB2-64	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
D145	SEE NOTE 3	J10-63	7	BLUE	30	AR	TB2-1	SEE NOTE 5
D146		-64					-17	
D147		-65					-53	
D148		-66					-33	
D149		-47					-47	
D150		-48					-68	
D151		-49					-7	
D152		-50					-54	
D153		-51					-60	
D154		-52					TB2-46	
D155		-31					TB1-70	
D156		-32					-5	
D157		-33					-78	
D158		-34					-73	
D159		-35					-61	
D160		J10-36	7	BLUE	30		TB1-9	
D161	SEE NOTE 3	J11-21	8	WHT	26		TB2-10	SEE NOTE 5
D162		-11					-103	
D163		-1					-99	
D164		-22					TB2-15	
D165		-12					TB1-12	
D166		-2					TB2-48	
D167		-23					-16	
D168		-15					-3	
D169		-3					-35	
D170		-24					-12	
D171		-4					-20	
D172		-13					-45	
D173		-25					-19	
D174		-6					TB2-40	
D175		-5					TB1-4	
D176		-26					TB2-13	
D177		-16					TB2-9	
D178		-14					TB1-22	
D179		-27					TB2-21	
D180		-17					TB2-18	
D181		-7					TB1-29	
D182		-28					TB2-2	
D183		-18					TB2-5	
D184		-8					TB1-58	
D185		-29					TB2-11	
D186		-19					-6	
D187		-9					-95	
D188		-30					-4	
D189		-20					-8	
D190		J11-10	8	WHT	26	AR	TB2-61	

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN J.L. Leonard DATE
CHECKED J.C. 3 FEB 66
APPROVAL 3 FEB 66
APPROVAL Eldon C. Hall
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ADAPTER PLATE ASSY
AGC DSKY

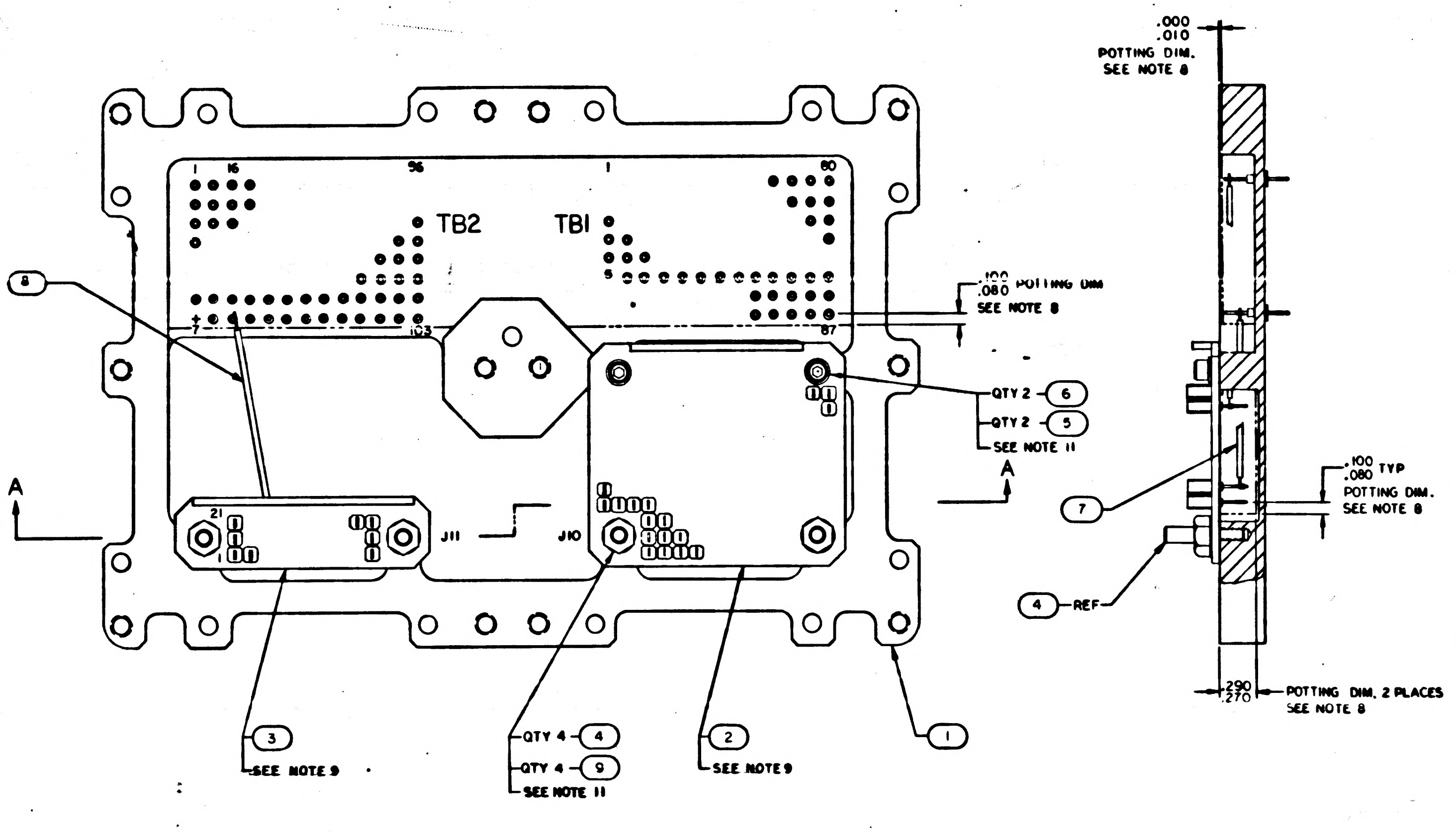
CODE IDENT NO 80230 | SIZE E | NASA DRAWING NO. 2003959
SCALE NONE | WT | SHEET 3 OF 3

2003959 B

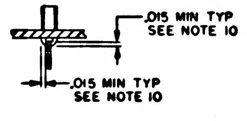
[illegible]

2003959 C

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 27552 DR D. Mayeuchi CHK	4/4/66	
B	REVISED PER TDRR 27913 DR. J.F. McDonald CHK	5/4/66	
C	REVISED PER TDRR 28178 DR S.P. Tarpalan CHK	5/13/66	

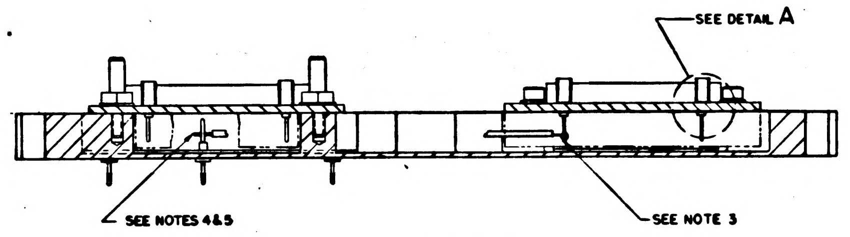


.000
.010
POTTING DIM.
SEE NOTE 8
16
96
1
80
TB2
TB1
7
103
87
8
.100
.080 POTTING DIM
SEE NOTE 8
QTY 2 6
QTY 2 5
SEE NOTE 11
A
A
21
1
J11
J10
7
.100 TYP
.080
POTTING DIM.
SEE NOTE 8
4 REF
.290
.270 POTTING DIM. 2 PLACES
SEE NOTE 8
3
SEE NOTE 9
QTY 4 4
QTY 4 9
SEE NOTE 11
2
SEE NOTE 9
1



.015 MIN TYP
SEE NOTE 10
.015 MIN TYP
SEE NOTE 10

DETAIL A



SEE DETAIL A
SEE NOTES 4&5
SEE NOTE 3

SECTION A-A

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. WIRE WRAP PER WIRING LEGEND AND PER ND1002031 EXCEPT FIND 8 TO HAVE 5 MIN TO 7 MAX TURNS OF UNINSULATED WIRE, 1/2 TO 1 1/2 TURNS OF INSULATED WIRE, STRIP LENGTH OF 1.18 TO 1.00 AND A STRIP FORCE OF 5 LB MIN
4. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
5. WELD PER ND1002005
6. DRESS AND TRIM, AND BOND PER ND 1002009 METHOD C
7. IDENTIFY WITH PART NO. PER ND1002019
8. ENCAPSULATE PER ND1002236
9. DRESS WIRES WITHIN THE POTTING AREA UNDER FIND NO. 2 AND FIND NO. 3 USING FIND NO. 10
10. SEAL INSULATORS OF FIND NO. 2 AND 3 PER ND1002004 TYPE VI
11. MOUNTING TORQUE OF FIND NO. 4 AND FIND NO. 6 TO BE 3.5-4.5 INCH POUNDS

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1012507-001	TAPE, LACING AND TYPING	10
4	NAS620C-6L	WASHER, FLAT	9
AR	1010807-22	WIRE, ELECTRICAL INSULATED	8
AR	1006376-003	WIRE, ELECTRICAL INSULATED	7
2	MS16995-10	SCREW, SOCKET HEAD	6
2	NAS620C-4L	WASHER, FLAT	5
4	2004938	PIN, ALIGNMENT	4
1	2003958-011	CONNECTOR, PLATE ASSEMBLY	3
1	2003957-011	CONNECTOR, PLATE ASSEMBLY	2
1	2004919-021	PLATE, ADAPTER	1
011	LIST OF MATERIALS		

2003949	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN J.P. Leonard
CHECKED 3 FEB 66
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

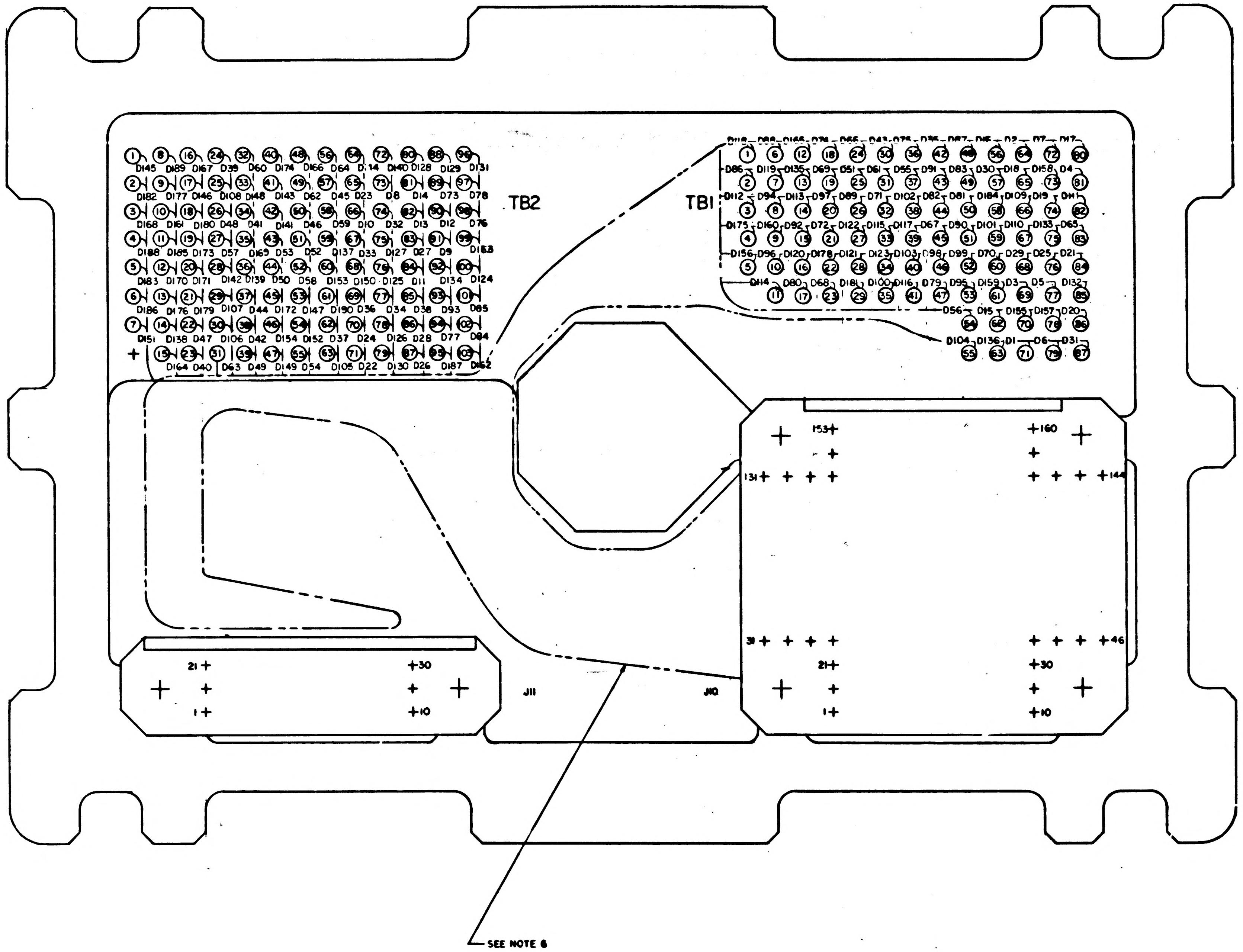
ADAPTER PLATE ASSY
AGC DSKY

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 2003959
SCALE 2/1
WT
SHEET 1 OF 3

2003959 C

REVISIONS 26205

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 27552	CM		4/21/66	
B		REVISED PER TDRR 27913			5/4/66	
C		REVISED PER TDRR 28178	JPT	JCJ		



TB2
D145 D189 D167 D39 D60 D174 D166 D64 D114 D140 D128 D129 D131
D182 D177 D146 D108 D148 D143 D62 D45 D23 D8 D14 D73 D78
D168 D161 D180 D48 D41 D141 D46 D59 D10 D32 D13 D12 D76
D188 D185 D173 D57 D169 D53 D52 D137 D33 D127 D27 D9 D163
D183 D170 D171 D142 D139 D50 D58 D153 D150 D125 D11 D134 D124
D186 D176 D179 D107 D44 D172 D147 D190 D36 D34 D38 D93 D85
D151 D138 D47 D106 D42 D154 D152 D37 D24 D126 D28 D77 D84
D164 D40 D63 D49 D149 D54 D105 D22 D130 D26 D187 D162
TB1
D86 D119 D135 D69 D51 D61 D55 D91 D83 D30 D18 D158 D4
D112 D94 D113 D97 D89 D71 D102 D82 D81 D184 D109 D19 D111
D175 D160 D92 D72 D122 D115 D117 D67 D90 D101 D110 D133 D65
D156 D96 D120 D178 D121 D123 D103 D98 D99 D70 D29 D25 D21
D114 D80 D68 D181 D100 D116 D79 D95 D159 D3 D5 D132
D56 D15 D155 D157 D20
D104 D136 D1 D6 D31
153
160
131
144
31
46
21
30
1
10
J11
J10
SEE NOTE 6

2003959 C

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

NEXT ASSY | USED ON
APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN 2 FEB 66
CHECKED 3 FEB 66
APPROVED 3 FEB 66
APPROVED Elden C Hall
APPROVED MIT D. G. HOAG
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ADAPTER PLATE ASSY
AGC DSKY

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2003959
SCALE NONE
SHEET 2 OF 3

2003959 C

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 27552 DR D Mayeski CHK	4/4/66	
B	REVISD PER TDRR 27913 DR J F McGrath CHK A.L.	5/4/66	
C	REVISED PER TDRR 28178 DR S P Tarkkila CHK JV	5/6/66	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
D1	SEE NOTE 3	J10-1	7	BLUE	30	AR	TB1-71	SEE NOTE 5
D2		-2					-64	
D3		-3					-69	
D4		-4					-81	
D5		-5					-77	
D6		-6					-79	
D7		-7					TB1-72	
D8		-8					TB2-73	
D9		-9					-91	
D10		-10					-66	
D11		-11					-84	
D12		-12					-90	
D13		-13					-82	
D14		-14					TB2-81	
D15		-15					TB1-62	
D16		-16					-56	
D17		-17					-80	
D18		-18					-65	
D19		-19					-74	
D20		-20					-36	
D21		-21					TB1-94	
D22		-22					TB2-71	
D23		-23					TB2-65	
D24		-24					TB2-70	
D25		-25					TB1-76	
D26		-26					TB2-87	
D27		-27					TB2-83	
D28		-28					TB2-86	
D29		-29					TB1-68	
D30		-30					TB1-57	
D31		-37					TB1-87	
D32		-38					TB2-74	
D33		-39					TB2-67	
D34		-40					TB2-77	
D35		-41					TB1-42	
D36		-42					TB2-69	
D37		-43					-62	
D38		-44					-85	
D39		-45					-24	
D40		-46					-23	
D41		-53					-34	
D42		-54					TB2-38	
D43		-55					TB1-30	
D44		-56					TB2-37	
D45		-57					-57	
D46		-58					-50	
D47		-59					-22	
D48		-60					-26	
D49		-67					-39	
D50		-68					TB2-44	
D51		-69					TB1-25	
D52		-70					TB2-51	
D53		-71					TB2-43	
D54		-72					TB2-55	
D55		-73					TB1-37	
D56		-74					TB1-54	
D57		-81					TB2-27	
D58		-82					-52	
D59		-83					-58	
D60		-84					TB2-32	
D61		-85					TB1-31	
D62		-86					TB2-49	
D63		-87					TB2-31	
D64		-88					TB2-56	
D65		-95					TB1-83	
D66		-96					-24	
D67		-97					-45	
D68		-98					-23	
D69		-99					-19	
D70		-100					-60	
D71		-101					-32	
D72		J10-102	7	BLUE	30	AR	TB1-21	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
D73	SEE NOTE 3	J10-109	7	BLUE	30	AR	TB2-89	SEE NOTE 5
D74		-110					TB1-18	
D75		-111					TB1-36	
D76		-112					TB2-98	
D77		-113					TB2-94	
D78		-114					TB2-97	
D79		-115					TB1-47	
D80		-116					-17	
D81		-123					-50	
D82		-124					-44	
D83		-125					TB1-49	
D84		-126					TB2-102	
D85		-127					TB2-101	
D86		-128					TB1-2	
D87		-129					-48	
D88		-130					-6	
D89		-137					-26	
D90		-138					-91	
D91		-139					-43	
D92		-140					TB1-15	
D93		-141					TB2-93	
D94		-142					TB1-8	
D95		-143					-53	
D96		-144					-10	
D97		-146					-20	
D98		-147					-46	
D99		-148					-52	
D100		-149					-35	
D101		-150					-59	
D102		-151					-38	
D103		-152					-40	
D104		-153					TB1-55	
D105		-154					TB2-63	
D106		-155					-30	
D107		-156					-29	
D108		-157					TB2-25	
D109		-158					TB1-66	
D110		-159					TB1-67	
D111		-160					TB1-82	
D112		-145					TB1-3	
D113		-131					-14	
D114		-132					-11	
D115		-133					-33	
D116		-134					-41	
D117		-135					-39	
D118		-136					-1	
D119		-117					-7	
D120		-118					-16	
D121		-119					-28	
D122		-120					-27	
D123		-121					TB1-34	
D124		-122					TB2-100	
D125		-103					-76	
D126		-104					-78	
D127		-105					-75	
D128		-106					-80	
D129		-107					-88	
D130		-108					-79	
D131		-89					TB2-96	
D132		-90					TB1-85	
D133		-91					TB1-75	
D134		-92					TB2-92	
D135		-93					TB1-13	
D136		-94					TB1-63	
D137		-75					TB2-59	
D138		-76					-14	
D139		-77					-36	
D140		-78					-72	
D141		-79					-42	
D142		-80					-28	
D143		-61					-41	
D144		J10-62	7	BLUE	30	AR	TB2-64	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
D145	SEE NOTE 3	J10-63	7	BLUE	30	AR	TB2-1	SEE NOTE 5
D146		-64					-17	
D147		-65					-53	
D148		-66					-33	
D149		-47					-47	
D150		-48					-68	
D151		-49					-7	
D152		-50					-54	
D153		-51					-50	
D154		-52					TB2-46	
D155		-31					TB1-70	
D156		-32					-5	
D157		-33					-78	
D158		-34					-73	
D159		-35					-61	
D160		J10-36	7	BLUE	30		TB1-9	
D161	SEE NOTE 3	J11-21	8	WHT	26		TB2-10	SEE NOTE 5
D162		-11					-103	
D163		-1					-99	
D164		-22					TB2-15	
D165		-12					TB1-12	
D166		-2					TB2-48	
D167		-23					-16	
D168		-15					-3	
D169		-3					-35	
D170		-24					-12	
D171		-4					-20	
D172		-13					-45	
D173		-25					-19	
D174		-6					TB2-40	
D175		-5					TB1-4	
D176		-26					TB2-13	
D177		-16					TB2-9	
D178		-14					TB1-22	
D179		-27					TB2-21	
D180		-17					TB2-18	
D181		-7					TB1-29	
D182		-28					TB2-21	
D183		-18					TB2-5	
D184		-8					TB1-58	
D185		-29					TB2-11	
D186		-19					-6	
D187		-9					-95	
D188		-30					-4	
D189		-20					-8	
D190		J11-10	8	WHT	26	AR	TB2-61	

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

NEXT ASSY | USED ON
APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN J.L. Lampe DATE
CHECKED J.C. Dunkel 3 FEB 66
APPROVAL R.E. Oppenheim 3 FEB 66
APPROVAL Edwin C. Hall 11 Feb 66
NASA APPROVAL G.D. METZGER
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

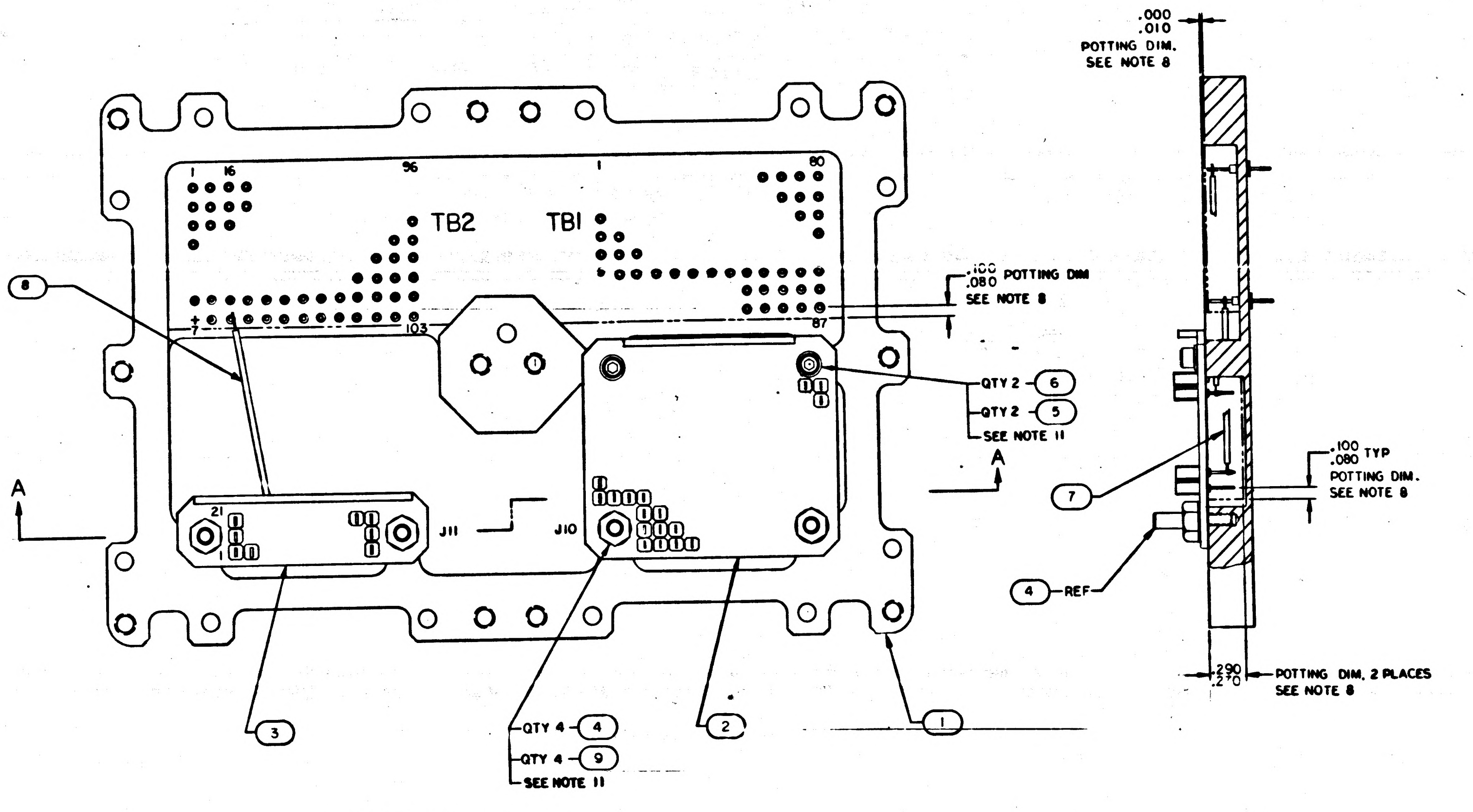
ADAPTER PLATE ASSY
AGC DSKY

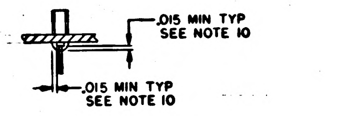
CODE IDENT NO 80230 | SIZE E | NASA DRAWING NO. 2003959
SCALE NONE | WT | SHEET 3 OF 3

2003959 C

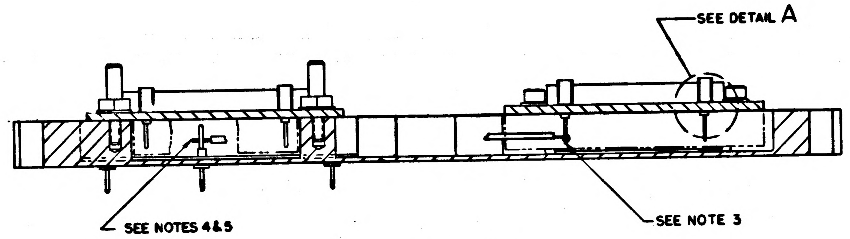
REVISIONS

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


.000
.010
POTTING DIM.
SEE NOTE 8
8
1
16
56
1
80
TB2
TB1
.100
.080 POTTING DIM
SEE NOTE 8
7
103
87
QTY 2 - 6
QTY 2 - 5
SEE NOTE 11
A
A
21
J11
J10
.100
.080 TYP
POTTING DIM.
SEE NOTE 8
7
4 - REF
.290
.270 POTTING DIM, 2 PLACES
SEE NOTE 8
3
QTY 4 - 4
QTY 4 - 9
SEE NOTE 11
2
1


.015 MIN TYP
SEE NOTE 10
.015 MIN TYP
SEE NOTE 10

DETAIL A


SEE DETAIL A
SEE NOTES 4&5
SEE NOTE 3

SECTION A-A

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. WIRE WRAP PER WIRING LEGEND AND PER ND1002031 EXCEPT FIND 8 10 HAVE 5 MIN TO 7 MAX TURNS OF UNINSULATED WIRE, 1/2 TO 1 1/2 TURNS OF INSULATED WIRE, STRIP LENGTH OF 1.18 TO 1.00 AND A STRIP FORCE OF 5 LB MIN
4. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
5. WELD PER ND1002005
6. DRESS AND TRIM, AND BOND PER ND 1002004 TYPE IV
7. IDENTIFY WITH PART NO. PER ND1002019
8. ENCAPSULATE PER ND1002236
9. COLOR OF FIND NO. 7 TO BE OPTIONAL
10. SEAL INSULATORS OF FIND 2 AND 3 PER ND1002004 TYPE VI
11. MOUNTING TORQUE OF FIND 4 AND FIND 6 TO BE 3.5-4.5 INCH POUNDS

SEE NOTE 9

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
4	NAS620C-6L	WASHER, FLAT	9
AR	1010807-22	WIRE, ELECTRICAL INSULATED	8
AR	1006732	WIRE, ELECTRICAL INSULATED	7
2	MS16995-10	SCREW, SOCKET HEAD	6
2	NAS620C-4L	WASHER, FLAT	5
4	2004938	PIN, ALIGNMENT	4
1	2003958-011	CONNECTOR, PLATE ASSEMBLY	3
1	2003957-011	CONNECTOR, PLATE ASSEMBLY	2
1	2004919-011	PLATE, ADAPTER	1
011	LIST OF MATERIALS		

2003949	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN J.P. Leonard DATE
CHECKED 3 FEB 66
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ADAPTER PLATE ASSY
AGC DSKY

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 2003959
SCALE 2/1
WT
SHEET 1 OF 3

MASTER

2003959 -

REVISIONS 26205

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

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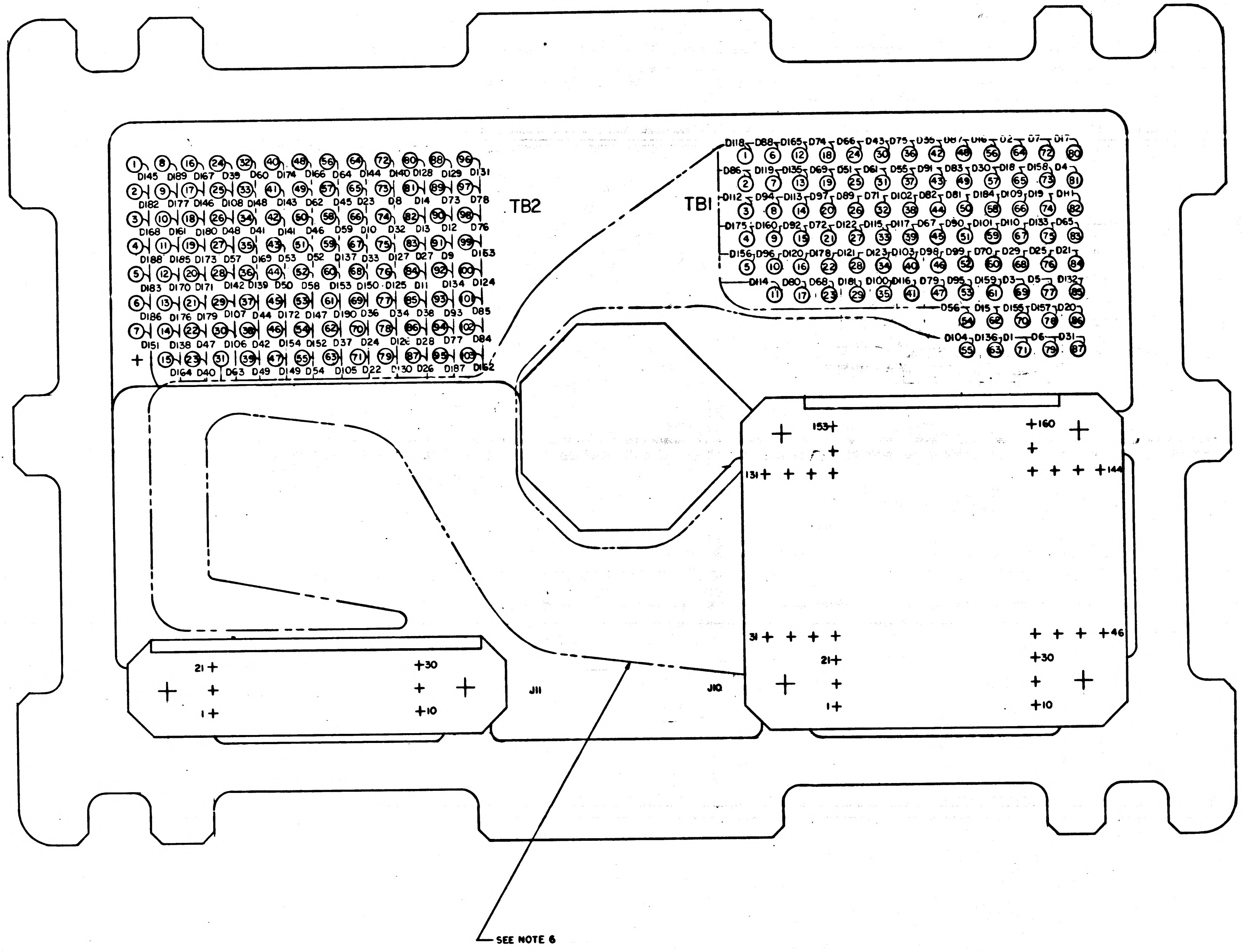

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN J. L. Leonard 2 DEC 65
CHECKED 3 FEB 66
APPROVED FEB 66
APPROVED Ellen C Hall
APPROVED MIT
R. G. METZGER
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ADAPTER PLATE ASSY

AGC DSKY

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2003959
SCALE NONE
SHEET 2 OF 3

2003959

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-	2003959

REVISIONS 26295			
SYM	DESCRIPTION	DATE	APPROVAL

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
D1		J10-1	7	SEE NOTE 9	30	AR	TB1-71	
D2		-2					-64	
D3		-3					-69	
D4		-4					-81	
D5		-5					-77	
D6		-6					-79	
D7		-7					TB1-72	
D8		-8					TB2-73	
D9		-9					-91	
D10		-10					-66	
D11		-11					-84	
D12		-12					-90	
D13		-13					-82	
D14		-14					TB2-81	
D15		-15					TB1-62	
D16		-16					-56	
D17		-17					-80	
D18		-18					-65	
D19		-19					-74	
D20		-20					-86	
D21		-21					TB1-84	
D22		-22					TB2-71	
D23		-23					TB2-65	
D24		-24					TB2-70	
D25		-25					TB1-76	
D26		-26					TB2-87	
D27		-27					TB2-83	
D28		-28					TB2-86	
D29		-29					TB1-68	
D30	SEE NOTE 3	-30					TB1-57	SEE NOTE 5
D31		-37					TB1-87	
D32		-38					TB2-74	
D33		-39					TB2-67	
D34		-40					TB2-77	
D35		-41					TB1-42	
D36		-42					TB2-69	
D37		-43					-62	
D38		-44					-85	
D39		-45					-24	
D40		-46					-23	
D41		-53					-34	
D42		-54					TB2-38	
D43		-55					TB1-30	
D44		-56					TB2-37	
D45		-57					-57	
D46		-58					-50	
D47		-59					-22	
D48		-60					-26	
D49		-67					-39	
D50		-68					TB2-44	
D51		-69					TB1-25	
D52		-70					TB2-51	
D53		-71					TB2-43	
D54		-72					TB2-55	
D55		-73					TB1-37	
D56		-74					TB1-54	
D57		-81					TB2-27	
D58		-82					-52	
D59		-83					-58	
D60		-84					TB2-32	
D61		-85					TB1-31	
D62		-86					TB2-49	
D63		-87					TB2-31	
D64		-88					TB2-56	
D65		-95					TB1-83	
D66		-96					-24	
D67		-97					-45	
D68		-98					-23	
D69		-99					-19	
D70		-100					-60	
D71		-101					-32	
D72		J10-102	7	SEE NOTE 9	30	AR	TB1-21	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
D73		J10-109	7	SEE NOTE 9	30	AR	TB2-89	
D74		-110					TB1-18	
D75		-111					TB1-36	
D76		-112					TB2-98	
D77		-113					TB2-94	
D78		-114					TB2-97	
D79		-115					TB1-47	
D80		-116					-17	
D81		-123					-50	
D82		-124					-44	
D83		-125					TB1-49	
D84		-126					TB2-102	
D85		-127					TB2-101	
D86		-128					TB1-2	
D87		-129					-48	
D88		-130					-6	
D89		-137					-26	
D90		-138					-91	
D91		-139					-43	
D92		-140					TB1-15	
D93		-141					TB2-93	
D94		-142					TB1-8	
D95		-143					-53	
D96		-144					-10	
D97		-146					-20	
D98		-147					-46	
D99		-148					-52	
D100		-149					-35	
D101		-150					-59	
D102	SEE NOTE 3	-151					-38	SEE NOTE 5
D103		-152					-40	
D104		-153					TB1-55	
D105		-154					TB2-63	
D106		-155					-30	
D107		-156					-29	
D108		-157					TB2-25	
D109		-158					TB1-66	
D110		-159					TB1-67	
D111		-160					TB1-82	
D112		-145					TB1-3	
D113		-131					-14	
D114		-132					-11	
D115		-133					-33	
D116		-134					-41	
D117		-135					-39	
D118		-136					-1	
D119		-117					-7	
D120		-118					-16	
D121		-119					-28	
D122		-120					-27	
D123		-121					TB1-34	
D124		-122					TB2-100	
D125		-103					-76	
D126		-104					-78	
D127		-105					-75	
D128		-106					-80	
D129		-107					-88	
D130		-108					-79	
D131		-89					TB2-96	
D132		-90					TB1-85	
D133		-91					TB1-75	
D134		-92					TB2-92	
D135		-93					TB1-13	
D136		-94					TB1-63	
D137		-75					TB2-59	
D138		-76					-14	
D139		-77					-36	
D140		-78					-72	
D141		-79					-42	
D142		-80					-28	
D143		-61					-41	
D144		J10-62	7	SEE NOTE 9	30	AR	TB2-64	

LEAD ELECTRICAL

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
D145		J10-63	7	SEE NOTE 9	30	AR	TB2-1	
D146		-64					-17	
D147		-65					-53	
D148		-66					-33	
D149		-47					-47	
D150		-48					-68	
D151	SEE NOTE 3	-49					-7	SEE NOTE 5
D152		-50					-54	
D153		-51					-60	
D154		-52					TB2-46	
D155		-31					TB1-70	
D156		-32					-5	
D157		-33					-78	
D158		-34					-73	
D159		-35					-61	
D160		J10-36	7	SEE NOTE 9	30		TB1-9	
D161		J11-21	8	WHT	26		TB2-10	
D162		-11					-103	
D163		-1					-99	
D164		-22					TB2-15	
D165		-12					TB1-12	
D166		-2					TB2-48	
D167		-23					-16	
D168		-15					-3	
D169		-3					-35	
D170		-24					-12	
D171		-4					-20	
D172		-13					-45	
D173		-25					-19	
D174	SEE NOTE 3	-6					TB2-40	SEE NOTE 5
D175		-5					TB1-4	
D176		-26					TB2-13	
D177		-16					TB2-9	
D178		-14					TB1-22	
D179		-27					TB2-21	
D180		-17					TB2-18	
D181		-7					TB1-29	
D182		-28					TB2-2	
D183		-18					TB2-5	
D184		-8					TB1-58	
D185		-29					TB2-11	
D186		-19					-6	
D187		-9					-95	
D188		-30					-4	
D189		-20					-8	
D190		J11-10	8	WHT	26	AR	TB2-61	

2003959

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN J.P. Leonard DATE
CHECKED J.C. 3 FEB 66
APPROVAL 3 FEB 66
APPROVAL Eldon C Hall 11 FEB 66
NASA APPROVAL E.C. METCALF
MIT APPROVAL

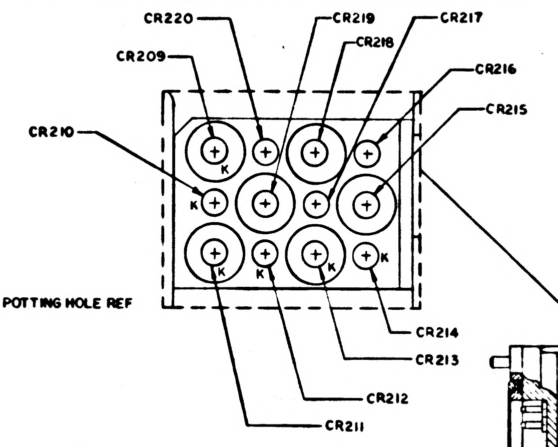
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ADAPTER PLATE ASSY
AGC DSKY

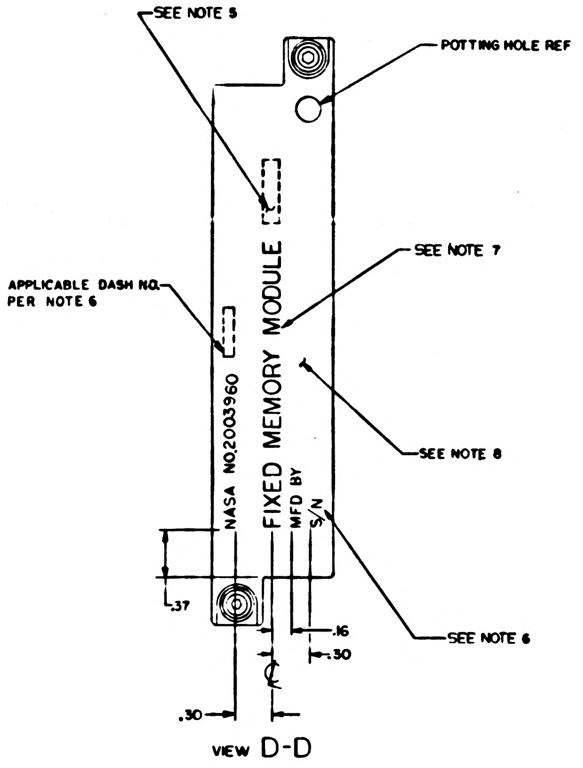
CODE IDENT NO 80230 SIZE E NASA DRAWING NO. 2003959
SCALE NONE SHEET 3 OF 3

[illegible]

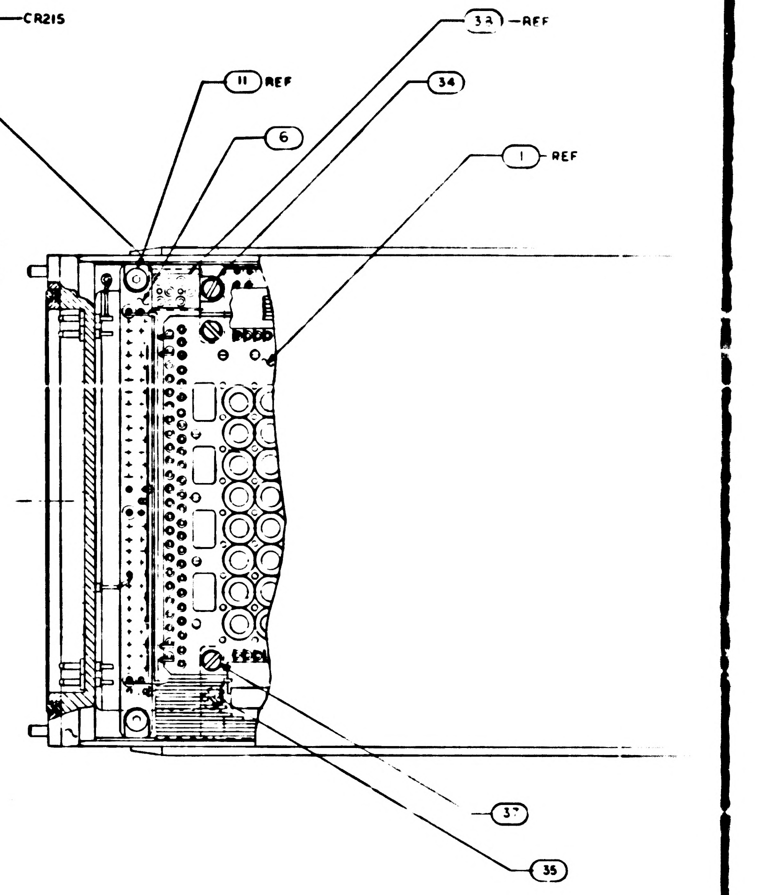
PART NO.	MODULE NO.	FIND NO. 1	FIND NO. 2	MODULE DECK NO.	NEXT ASSEMBLY NO.
03960-0	B1	2003060-091	2003061-091	0208	2021105
003960-02	B2	2003060-111	2003061-111	0209	2021105



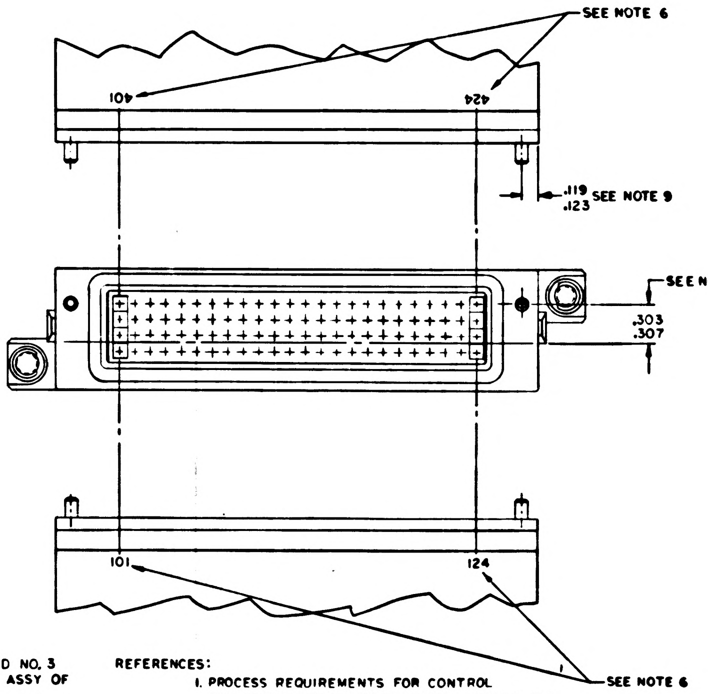
CR220
CR219
CR217
CR218
CR209
CR216
CR215
CR210
K
CR214
CR213
CR212
CR211



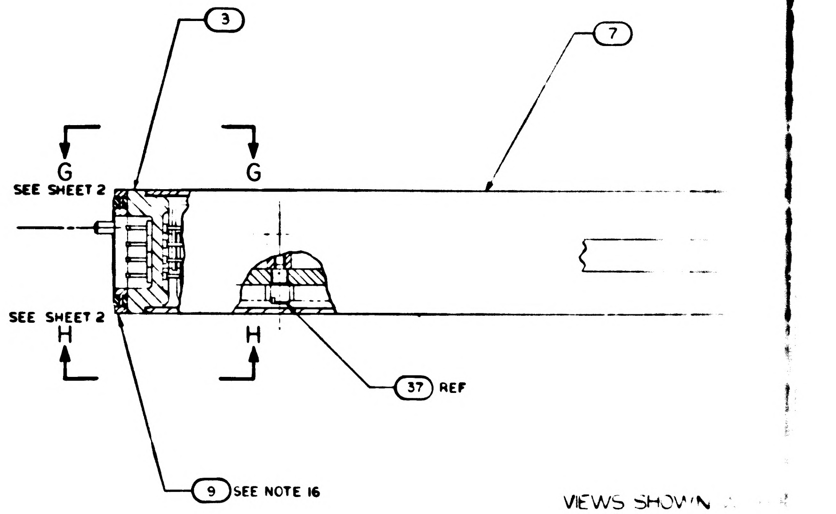
SEE NOTE 5
POTTING HOLE REF
SEE NOTE 7
APPLICABLE DASH NO. PER NOTE 6
NASA NO.2003960
FIXED MEMORY MODULE
MFD BY
S/N
SEE NOTE 8
SEE NOTE 6
.37
.16
.30
.30
VIEW D-D



33 REF
11 REF
34
6
1 REF
37
35



SEE NOTE 6
101
124
.119
.123
SEE NOTE 9
SEE NOTE 9
.303
.307
101
124
SEE NOTE 6



3
7
G
G
SEE SHEET 2
SEE SHEET 2
H
H
37 REF
9 SEE NOTE 16

VIEWS SHOWN
PARTIAL

NOTES:

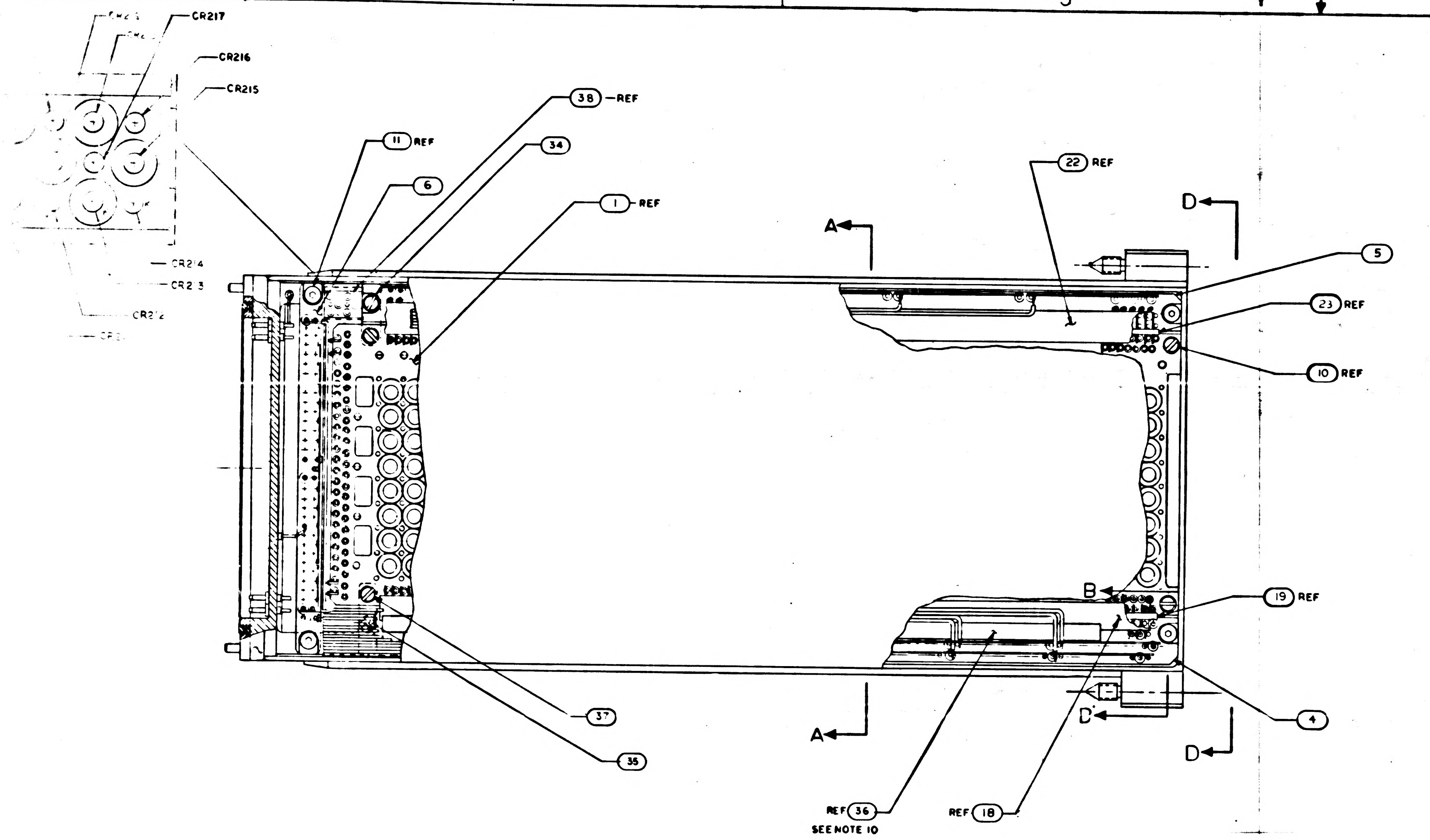
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
3. ENCAPSULATE MODULE PER ND1002226 METHOD II
4. WELD PER ND1002005
5. MARK APPROPRIATE MODULE NO. AS SHOWN IN CHART
6. MARK .08/.06 HIGH PER ND1002019 AND ND1002122, TYPE II CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
7. MARK .14/.10 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 USING INK 1006271-1
8. PAINT INDICATED SURFACES OF FIND NO.7 PER ND1002279 WITH SCD NO.1008809-1 DARK GREY EPOXY RESIN ENAMEL, FINAL COAT PER ND1002277 USING 10012543-003
9. ASSEMBLE FIND NO.7 AND FIND NO.3 TO DIMENSIONS SHOWN
10. REMOVE LINER FROM NEARSIDE OF FIND NO.36 AND ASSEMBLE 3 PLACES AS SHOWN. FIND NO.36 MUST INSULATE FLAT CABLES FROM TRIMMED COMPONENT LEADS. TRIM AS REQUIRED
11. WHITE DOT AND SINGLE SOLID LEAD DENOTES FIRST LEVEL WIRING UNLESS OTHERWISE SPECIFIED
12. BLACK DOT AND SINGLE SOLID LEAD DENOTES SECOND LEVEL WIRING
13. BLACK DOT AND CROSS HATCHED LEAD DENOTES THIRD LEVEL WIRING
14. ALL LEADS FROM FIND NO.1 AND FIND NO.2 TO FIND NO.3 TO BE THIRD LEVEL WIRING
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003960
16. FIND NO.9 TO BE SHIPPED UNASSEMBLED AND IDENTIFIED PER ND 1002019
17. SEAL PINS AND INSULATORS TO FIND NO. 3 PER ND1002004 TYPE VI BEFORE ASSY OF FIND NO. 6
18. BOND FIND NO. 38 TO FIND NO. 3 PER ND1002004 TYPE VI AFTER ASSY OF FIND NO. 6

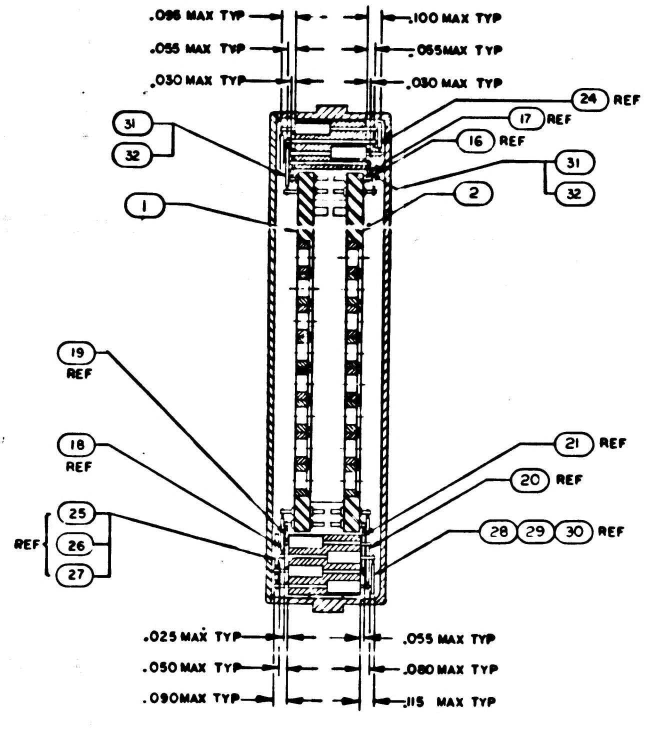
REFERENCES:

1. PROCESS REQUIREMENTS FOR CONTROL AND INSPECTION OF ROPE MEMORY ASSEMBLIES ND1002285
2. FIXED MEMORY FIXTURE DWG. NO. AP22500

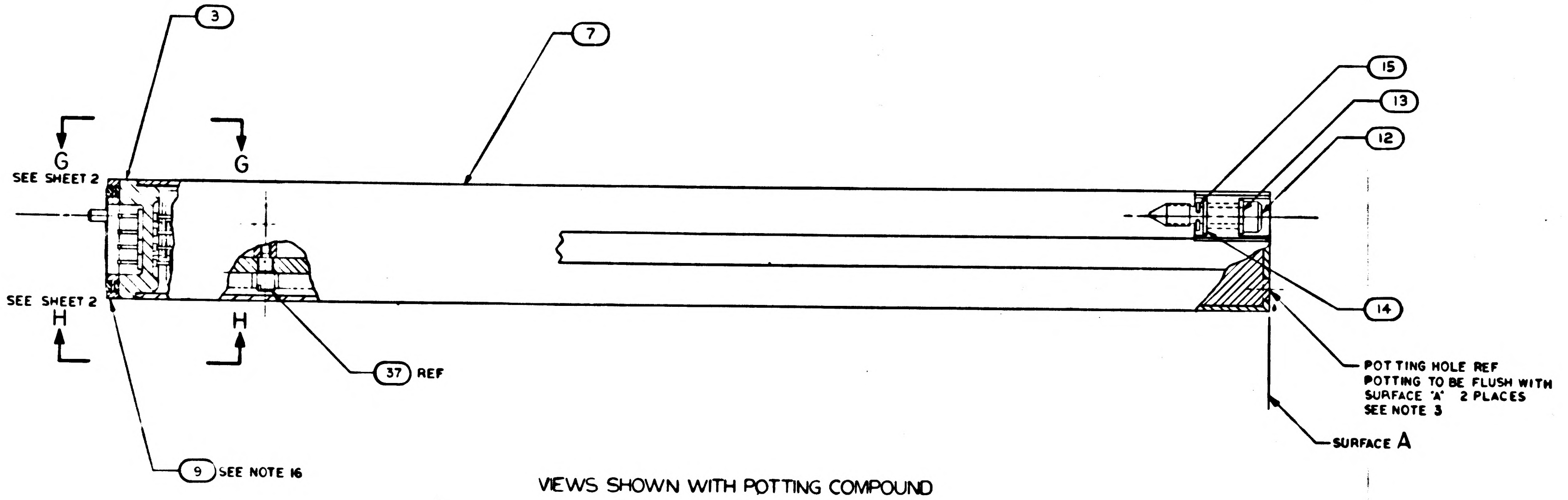
2003960	A

SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL RELEASE TDRR 32989	FEB 67	

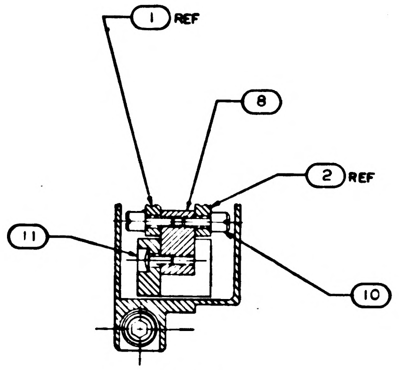

CR217
CR216
CR215
CR214
CR213
CR212
38 REF
11 REF
6
34
1 REF
22 REF
A
D
5
23 REF
10 REF
B
19 REF
37
35
4
D'
A
D
REF 36
SEE NOTE 10
REF 18


.098 MAX TYP
.055 MAX TYP
.030 MAX TYP
.100 MAX TYP
.055MAX TYP
.030 MAX TYP
24 REF
17 REF
16 REF
31
32
1
2
31
32
19 REF
18 REF
REF
25
26
27
21 REF
20 REF
28 29 30 REF
.025 MAX TYP
.050 MAX TYP
.090 MAX TYP
.055 MAX TYP
.080 MAX TYP
.115 MAX TYP

SECTION A-A


3
7
15
13
12
14
G
G
SEE SHEET 2
SEE SHEET 2
H
H
37 REF
9 SEE NOTE 16
POTTING HOLE REF
POTTING TO BE FLUSH WITH SURFACE 'A' 2 PLACES
SEE NOTE 3
SURFACE A

VIEWS SHOWN WITH POTTING COMPOUND PARTIALLY REMOVED


1 REF
8
2 REF
11
10

SECTION B-B

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	2005941	SCHEMATIC	REF
1	2004676	FLAT CABLE	40
1	2004675	FLAT CABLE	39
1	2003986-011	COMPONENT BLOCK DIODE ASSY	38
4	2004150 — 003	SCREW, SHOULDERED	37
AR	1006806 — 26	INSULATION TAPE, ELECTRICAL	36
1	2004150 — 001	SCREW, SHOULDERED	35
1	2004150 — 002	SCREW, SHOULDERED	34
1	2004129	FLAT CABLE INTERCONNECTION	33
AR	1006776-25	SLEEVING	32
AR	1006757-12	WIRE, ELECRICAL	31
1	2004125	FLAT CABLE	30
1	2004122	FLAT CABLE	29
1	2004124	FLAT CABLE	28
1	2004123	FLAT CABLE	27
1	2004121	FLAT CABLE	26
1	2004120	FLAT CABLE	25
2	2004677	FLAT CABLE	24
1	2003051 — 013	MATRIX ASSY	23
1	2003051 — 014	MATRIX ASSY	22
8	2003051 — 016	MATRIX ASSY	21
8	2003051 — 015	MATRIX ASSY	20
1	2003051 — 017	MATRIX ASSY	19
1	2003051 — 018	MATRIX ASSY	18
1	2003051 — 011	MATRIX ASSY	17
1	2003051 — 012	MATRIX ASSY	16
2	MS16633-4015	"E" RING	15
2	1004546-3	WASHER	14
2	1004546-1	WASHER	13
2	1004579-1	SCREW, JACKING	12
4	1000093-1	SCREW, BUTTONHEAD	11
4	2004151	SCREW, STANDOFF	10
1	1006339	GASKET PLATE	9
2	2004071	STANDOFF	8
1	2004100	HOUSING	7
1	2003877-011	RESISTOR-DIODE BLOCK ASSY	6
1	2003878-011	COMPONENT BLOCK RESISTOR ASSY	5
1	2003876-011	COMPONENT BLOCK DIODE ASSY	4
1	2003973	CONNECTOR PLATE ASSY	3
1	2003061-SEE CHART	SENSE WIRING ASSY SIDE B	2
1	2003060-SEE CHART	SENSE WIRING ASSY SIDE A	1

LIST OF MATERIALS

SEE NOTE 16

FOR APPLICABLE PART NO. SEE CHART

SEE CHART	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN P. Moy DATE 26 Aug 66
CHECKED 26 Aug 66
APPROVAL 1 Dec 66
APPROVAL Eldon C. Hall 16 Jan 67
NASA APPROVAL
APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003960
SCALE 2/1
WT
SHEET 1 OF 3

3960 A

F2/32

WIRE LIST

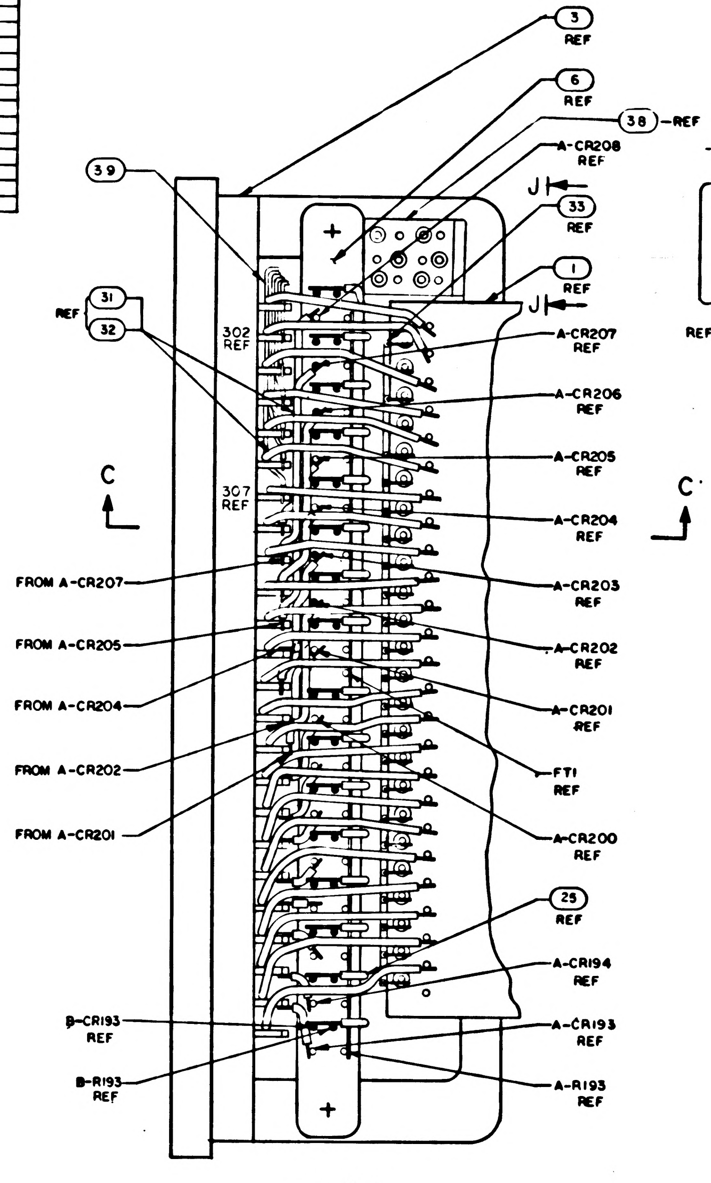
PIN NO.	COMPONENT OR TERM. NO.	PIN NO.	COMPONENT OR TERM. NO.
101	A-E1-213	301	GROUND
102	A-E1-212	302	CR209
103	A-E1-211	303	CR210
104	A-E0-211	304	CR211
105	A-E1-210	305	CR212
106	A-E1-209	306	CR213
107	A-E1-208	307	CR214
108	A-E1-207	308	A-CR208
109	A-E1-206	309	A-CR207
110	A-E1-205	310	A-CR206
111	A-E1-204	311	A-CR205
112	A-E1-203	312	A-CR204
113	A-E1-202	313	A-CR203
114	A-E1-201	314	A-CR202
115	A-E1-200	315	A-CR201
116	A-E1-199	316	A-CR200
117	A-E1-198	317	A-CR199
118	A-E1-197	318	A-CR198
119	A-E1-196	319	A-CR197
120	A-E1-195	320	A-CR196
121	A-E0-194	321	A-CR195
122	A-E -194	322	A-CR194
123	A-E0-193	323	A-CR193
124	A-E1-193	324	SPARE
201	B-R208	401	B-E1-213
202	CR215	402	B-E1-212
203	CR216	403	B-E1-211
204	CR217	404	B-E0-211
205	CR218	405	B-E1-210
206	CR219	406	B-E1-209
207	CR220	407	B-E1-208
208	B-CR208	408	B-E1-207
209	B-CR207	409	B-E1-206
210	B-CR206	410	B-E1-205
211	B-CR205	411	B-E1-204
212	B-CR204	412	B-E1-203
213	B-CR203	413	B-E1-202
214	B-CR202	414	B-E1-201
215	B-CR201	415	B-E1-200
216	B-CR200	416	B-E1-199
217	B-CR199	417	B-E1-198
218	B-CR198	418	B-E1-197
219	B-CR197	419	B-E1-196
220	B-CR196	420	B-E1-195
221	B-CR195	421	B-E0-194
222	B-CR194	422	B-E1-194
223	B-CR193	423	B-E0-193
224	SPARE	424	B-E1-193

WIRE LIST

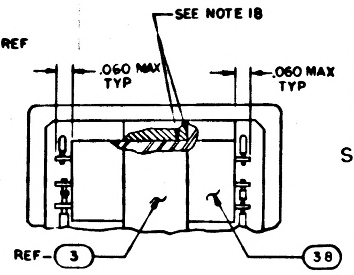
TERMINAL NO.	TERMINAL NO.
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
A-E0-195	B-E0-195
A-E0-196	B-E0-196
A-E0-197	B-E0-197
A-E0-198	B-E0-198
A-E0-199	B-E0-199
A-E0-200	B-E0-200
A-E0-201	B-E0-201
A-E0-202	B-E0-202
A-E0-203	B-E0-203
A-E0-204	B-E0-204
A-E0-205	B-E0-205
A-E0-206	B-E0-206
A-E0-207	B-E0-207
A-E0-208	B-E0-208
A-E0-209	B-E0-209
A-E0-210	B-E0-210
SPARE	SPARE
SPARE	SPARE
A-E0-212	B-E0-212
A-E0-213	B-E0-213

WIRE LIST

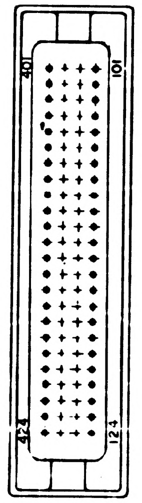
COMPONENT NO.	COMPONENT NO.
CR215	R176
CR216	R144
CR217	R112
CR218	R80
CR219	R48
CR220	R16
CR209	R32
CR210	R64
CR211	R96
CR212	R128
CR213	R160
CR214	R192


3 REF
6 REF
38 -REF
A-CR208 REF
J
33 REF
1 REF
J
39
REF 31 32
302 REF
307 REF
A-CR207 REF
A-CR206 REF
A-CR205 REF
A-CR204 REF
A-CR203 REF
A-CR202 REF
A-CR201 REF
FTI REF
A-CR200 REF
25 REF
A-CR194 REF
A-CR193 REF
A-R193 REF
C
C
FROM A-CR207
FROM A-CR205
FROM A-CR204
FROM A-CR202
FROM A-CR201
B-CR193 REF
B-R193 REF
+
+

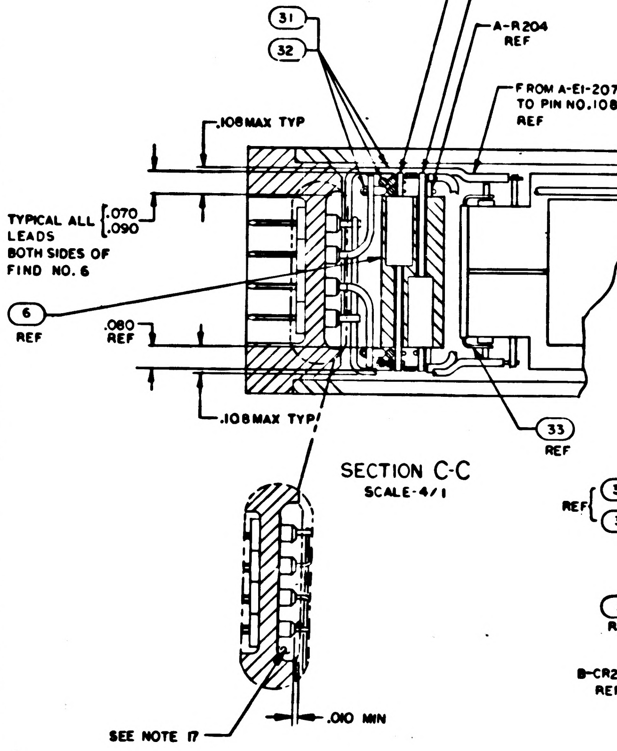
VIEW G-G
SCALE:4/1
SHOWN WITH POTTING AND FIND NO.7
REMOVED. SEE NOTES 11,12,13 AND 14


SEE NOTE 18
.060 MAX TYP
.060 MAX TYP
REF- 3
38

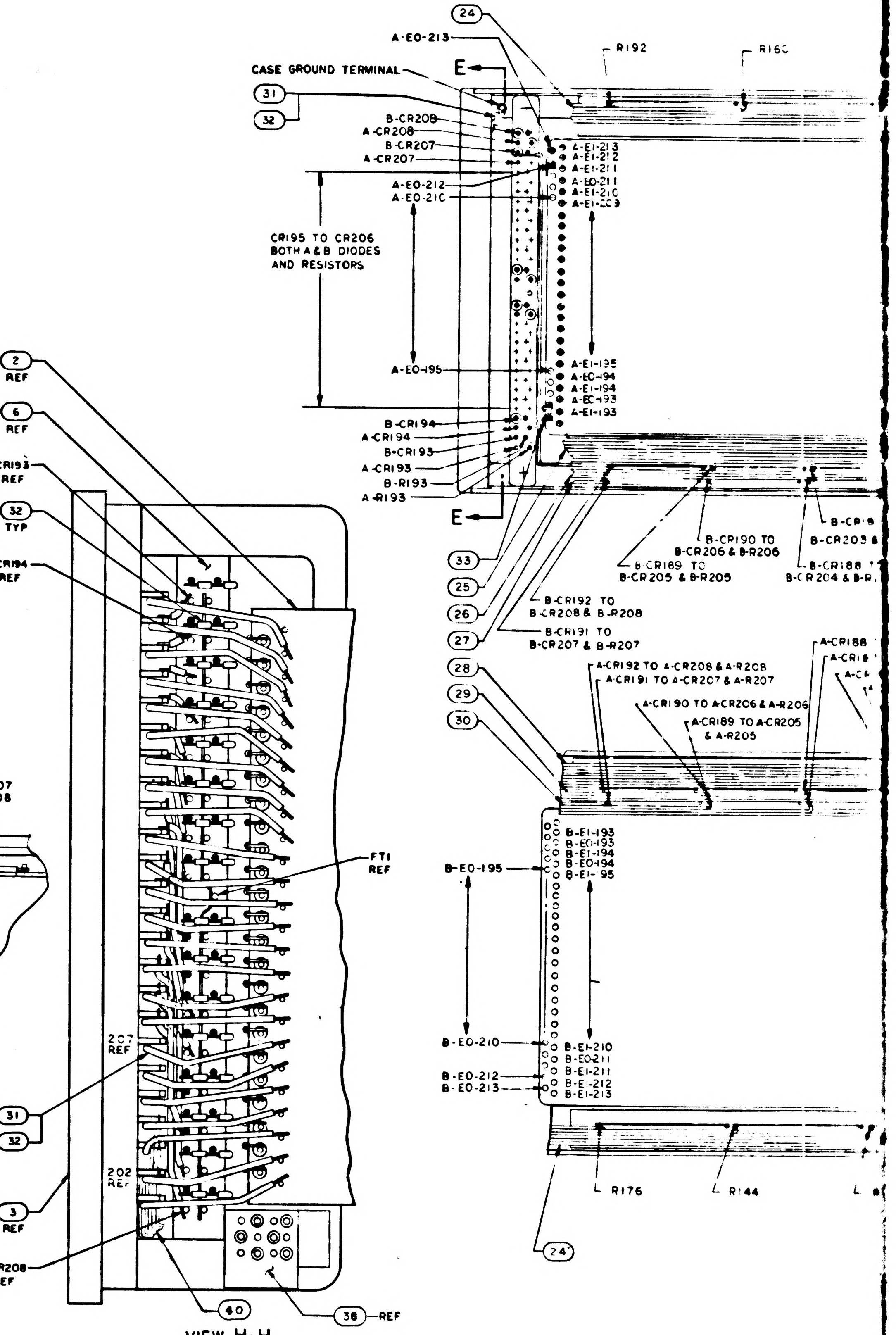
VIEW J-J


401
101
424
124

SECTION E-E

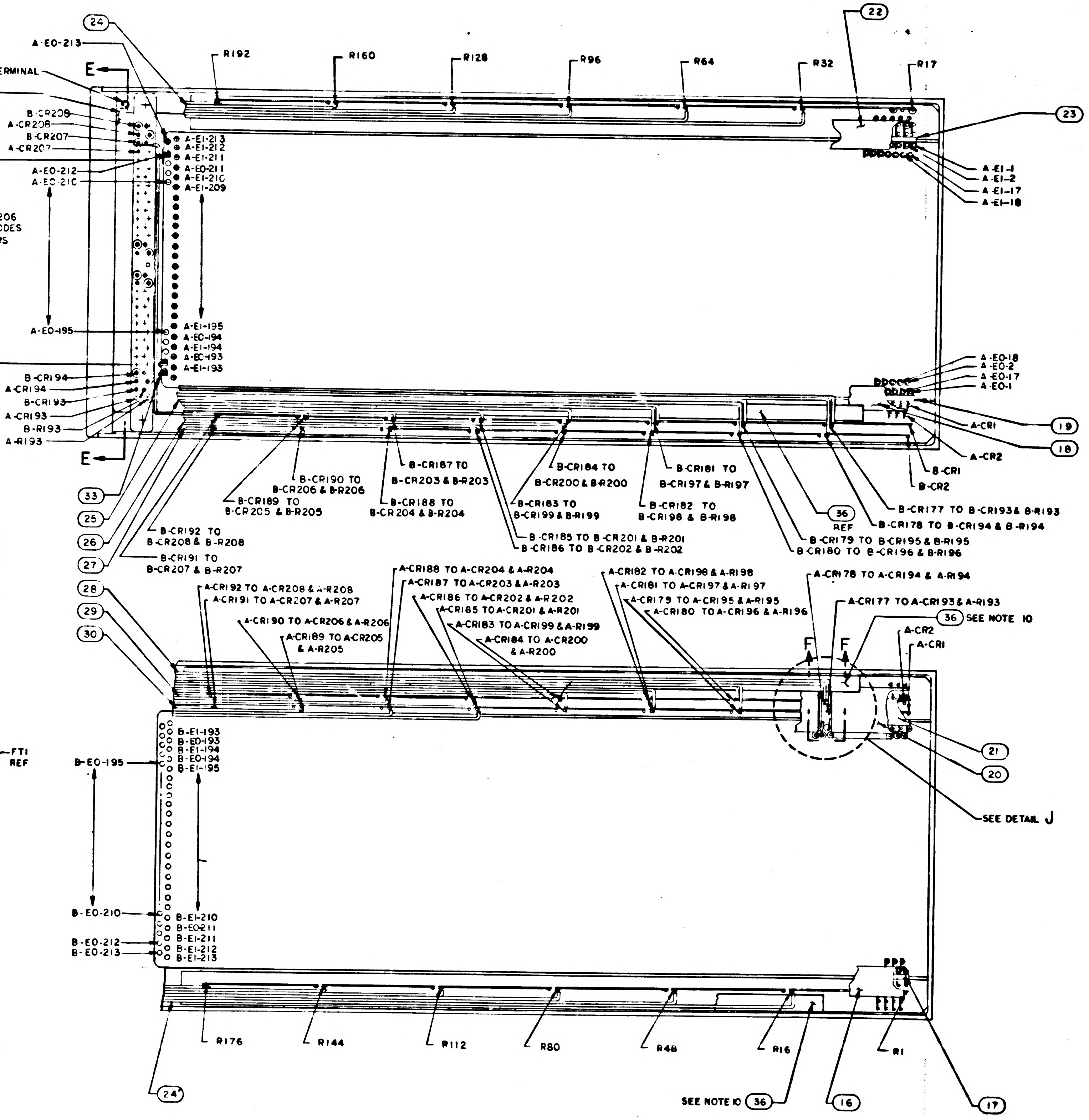

31
32
B-CR203 REF
B-R203 REF
A-R204 REF
FROM A-E1-207 TO PIN NO.108 REF
.108 MAX TYP
TYPICAL ALL LEADS BOTH SIDES OF FIND NO. 6
.070
.090
6 REF
.080 REF
.108 MAX TYP
33 REF
SEE NOTE 17
.010 MIN

SECTION C-C
SCALE-4/1

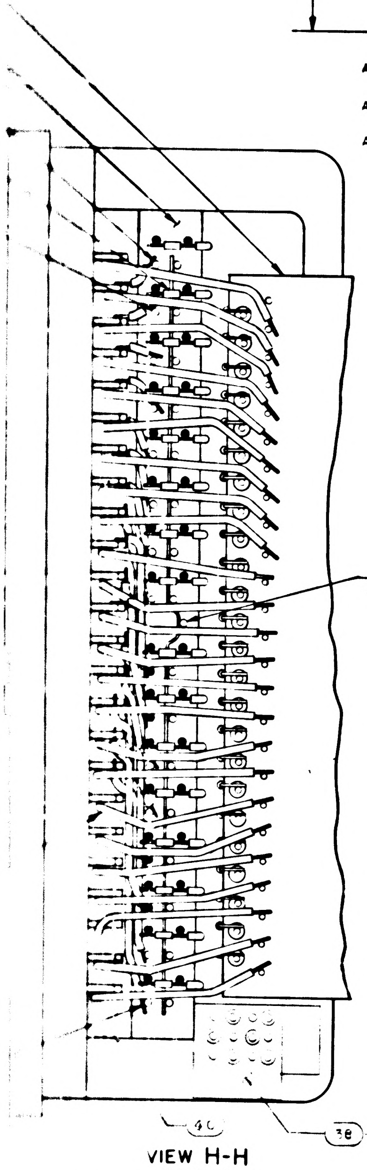

2 REF
6 REF
B-CR193 REF
32 TYP
B-CR194 REF
FTI REF
207 REF
REF 31 32
202 REF
3 REF
B-CR208 REF
40
38 -REF
24
A-E0-213
R192
R160
CASE GROUND TERMINAL
E
31
32
B-CR208
A-CR208
B-CR207
A-CR207
A-E1-213
A-E1-212
A-E1-211
A-E0-211
A-E1-210
A-E1-209
A-E0-212
A-E0-210
CR195 TO CR206 BOTH A&B DIODES AND RESISTORS
A-E0-195
A-E1-195
A-E0-194
A-E1-194
A-E0-193
A-E1-193
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
E
33
25
26
27
28
29
30
B-CR190 TO B-CR206 & B-R206
B-CR189 TO B-CR205 & B-R205
B-CR188 TO B-CR204 & B-R
B-CR203 &
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205 & A-R205
A-CR188
B-E0-195
B-E1-193
B-E0-193
B-E1-194
B-E0-194
B-E1-195
B-E0-210
B-E1-210
B-E0-211
B-E1-211
B-E0-212
B-E0-213
B-E1-212
B-E1-213
R176
R144
24

VIEW H-H
SCALE 4/1
SHOWN WITH POTTING AND FIND NO.7
REMOVED. SEE NOTES 11,12,13 AND 14

REVISIONS						
SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
A		INITIAL RELEASE TDRR 32989				

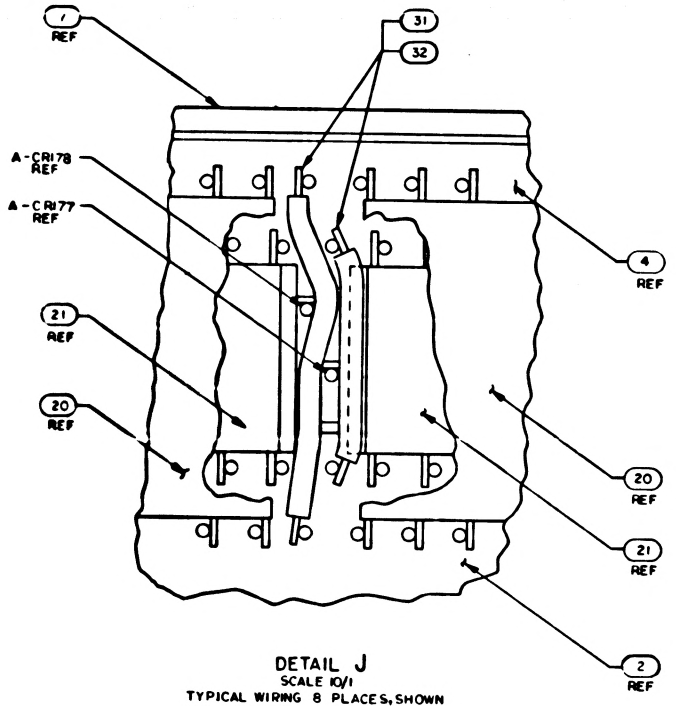


A-E0-213
CASE GROUND TERMINAL
E
31
32
B-CR208
A-CR208
B-CR207
A-CR207
A-E0-212
A-E0-210
CR195 TO CR206 BOTH A & B DIODES AND RESISTORS
A-E0-195
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
24
22
23
R192
R160
R128
R96
R64
R32
R17
A-E1-213
A-E1-212
A-E1-211
A-E0-211
A-E1-210
A-E1-209
A-E1-195
A-E0-194
A-E1-194
A-E0-193
A-E1-193
A-E1-1
A-E1-2
A-E1-17
A-E1-18
A-E0-18
A-E0-2
A-E0-17
A-E0-1
A-CR1
A-CR2
19
18
B-CR1
B-CR2
B-CR190 TO B-CR206 & B-R206
B-CR189 TO B-CR205 & B-R205
B-CR187 TO B-CR203 & B-R203
B-CR188 TO B-CR204 & B-R204
B-CR184 TO B-CR200 & B-R200
B-CR183 TO B-CR199 & B-R199
B-CR181 TO B-CR197 & B-R197
B-CR182 TO B-CR198 & B-R198
B-CR185 TO B-CR201 & B-R201
B-CR186 TO B-CR202 & B-R202
36 REF
B-CR177 TO B-CR193 & B-R193
B-CR178 TO B-CR194 & B-R194
B-CR179 TO B-CR195 & B-R195
B-CR180 TO B-CR196 & B-R196
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
33
25
26
27
28
29
30
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205 & A-R205
A-CR188 TO A-CR204 & A-R204
A-CR187 TO A-CR203 & A-R203
A-CR186 TO A-CR202 & A-R202
A-CR185 TO A-CR201 & A-R201
A-CR183 TO A-CR199 & A-R199
A-CR184 TO A-CR200 & A-R200
A-CR182 TO A-CR198 & A-R198
A-CR181 TO A-CR197 & A-R197
A-CR179 TO A-CR195 & A-R195
A-CR180 TO A-CR196 & A-R196
A-CR178 TO A-CR194 & A-R194
A-CR177 TO A-CR193 & A-R193
36 SEE NOTE 10
A-CR2
A-CR1
F
F
21
20
SEE DETAIL J
B-E0-195
B-E1-193
B-E0-193
B-E1-194
B-E0-194
B-E1-195
B-E0-210
B-E1-210
B-E0-211
B-E1-211
B-E0-212
B-E0-213
B-E1-212
B-E1-213
R176
R144
R112
R80
R48
R16
R1
24
SEE NOTE 10 36
16
17



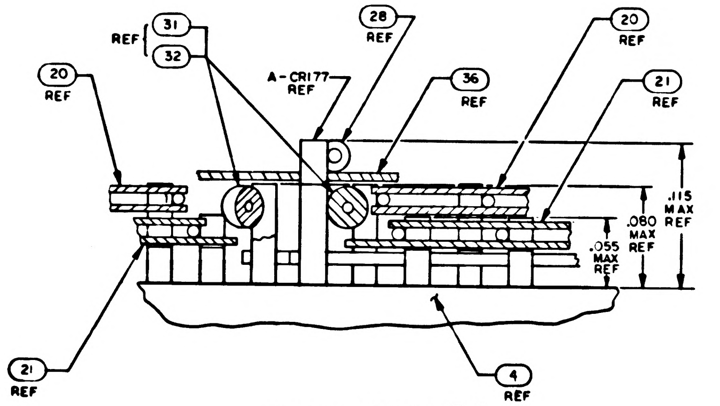
FT1 REF
40
38 REF

VIEW H-H
SCALE 4/1
SHOWN WITH POTTING AND FIND NO. 7 REMOVED. SEE NOTES 11,12,13 AND 14



1 REF
31
32
A-CR178 REF
A-CR177 REF
21 REF
20 REF
4 REF
20 REF
21 REF
2 REF

DETAIL J
SCALE 10/1
TYPICAL WIRING 8 PLACES, SHOWN WITH FIND NOS 28 AND 36 REMOVED



REF
31
32
20 REF
A-CR177 REF
28 REF
36 REF
20 REF
21 REF
.115 MAX
.080 MAX REF
.055 MAX REF
21 REF
4 REF

PARTIAL SECTION F-F
SCALE: 20/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	D. Moray	20 Aug 66
CHECKED	C. A. Rutter	26 Aug 66
APPROVED		
APPROVED	Van C. Hall	
APPROVED		
APPROVED MSC		DATE

FIXED MEMORY MODULE ASSEMBLY

CODE IDENT NO	SIZE	DRAWING NO.
80230	J	2003960
SCALE 2/1		SHEET 2 OF 3

2003960 A

[illegible]

D

C

B

A

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		INITIAL RELEASE TDRR 31989				

WIRE LIST

TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.
A-E0-1	A-CR1	A-E0-97	A-CR97	B-E0-1	B-CR1	B-E0-97	B-CR97	A-E1-1	R1	A-E1-49	R49	A-E1-97	R97	A-E1-145	R145
A-E0-2	A-CR2	A-E0-98	A-CR98	B-E0-2	B-CR2	B-E0-98	B-CR98	B-E1-1		B-E1-49		B-E1-97		B-E1-145	
A-E0-3	A-CR3	A-E0-99	A-CR99	B-E0-3	B-CR3	B-E0-99	B-CR99	A-E1-2	R2	A-E1-50	R50	A-E1-98	R98	A-E1-146	R146
A-E0-4	A-CR4	A-E0-100	A-CR100	B-E0-4	B-CR4	B-E0-100	B-CR100	B-E1-2		B-E1-50		B-E1-98		B-E1-146	
A-E0-5	A-CR5	A-E0-101	A-CR101	B-E0-5	B-CR5	B-E0-101	B-CR101	A-E1-3	R3	A-E1-51	R51	A-E1-99	R99	A-E1-147	R147
A-E0-6	A-CR6	A-E0-102	A-CR102	B-E0-6	B-CR6	B-E0-102	B-CR102	B-E1-3		B-E1-51		B-E1-99		B-E1-147	
A-E0-7	A-CR7	A-E0-103	A-CR103	B-E0-7	B-CR7	B-E0-103	B-CR103	A-E1-4	R4	A-E1-52	R52	A-E1-100	R100	A-E1-148	R148
A-E0-8	A-CR8	A-E0-104	A-CR104	B-E0-8	B-CR8	B-E0-104	B-CR104	B-E1-4		B-E1-52		B-E1-100		B-E1-148	
A-E0-9	A-CR9	A-E0-105	A-CR105	B-E0-9	B-CR9	B-E0-105	B-CR105	A-E1-5	R5	A-E1-53	R53	A-E1-101	R101	A-E1-149	R149
A-E0-10	A-CR10	A-E0-106	A-CR106	B-E0-10	B-CR10	B-E0-106	B-CR106	B-E1-5		B-E1-53		B-E1-101		B-E1-149	
A-E0-11	A-CR11	A-E0-107	A-CR107	B-E0-11	B-CR11	B-E0-107	B-CR107	A-E1-6	R6	A-E1-54	R54	A-E1-102	R102	A-E1-150	R150
A-E0-12	A-CR12	A-E0-108	A-CR108	B-E0-12	B-CR12	B-E0-108	B-CR108	B-E1-6		B-E1-54		B-E1-102		B-E1-150	
A-E0-13	A-CR13	A-E0-109	A-CR109	B-E0-13	B-CR13	B-E0-109	B-CR109	A-E1-7	R7	A-E1-55	R55	A-E1-103	R103	A-E1-151	R151
A-E0-14	A-CR14	A-E0-110	A-CR110	B-E0-14	B-CR14	B-E0-110	B-CR110	B-E1-7		B-E1-55		B-E1-103		B-E1-151	
A-E0-15	A-CR15	A-E0-111	A-CR111	B-E0-15	B-CR15	B-E0-111	B-CR111	A-E1-8	R8	A-E1-56	R56	A-E1-104	R104	A-E1-152	R152
A-E0-16	A-CR16	A-E0-112	A-CR112	B-E0-16	B-CR16	B-E0-112	B-CR112	B-E1-8		B-E1-56		B-E1-104		B-E1-152	
A-E0-17	A-CR17	A-E0-113	A-CR113	B-E0-17	B-CR17	B-E0-113	B-CR113	A-E1-9	R9	A-E1-57	R57	A-E1-105	R105	A-E1-153	R153
A-E0-18	A-CR18	A-E0-114	A-CR114	B-E0-18	B-CR18	B-E0-114	B-CR114	B-E1-9		B-E1-57		B-E1-105		B-E1-153	
A-E0-19	A-CR19	A-E0-115	A-CR115	B-E0-19	B-CR19	B-E0-115	B-CR115	A-E1-10	R10	A-E1-58	R58	A-E1-106	R106	A-E1-154	R154
A-E0-20	A-CR20	A-E0-116	A-CR116	B-E0-20	B-CR20	B-E0-116	B-CR116	B-E1-10		B-E1-58		B-E1-106		B-E1-154	
A-E0-21	A-CR21	A-E0-117	A-CR117	B-E0-21	B-CR21	B-E0-117	B-CR117	A-E1-11	R11	A-E1-59	R59	A-E1-107	R107	A-E1-155	R155
A-E0-22	A-CR22	A-E0-118	A-CR118	B-E0-22	B-CR22	B-E0-118	B-CR118	B-E1-11		B-E1-59		B-E1-107		B-E1-155	
A-E0-23	A-CR23	A-E0-119	A-CR119	B-E0-23	B-CR23	B-E0-119	B-CR119	A-E1-12	R12	A-E1-60	R60	A-E1-108	R108	A-E1-156	R156
A-E0-24	A-CR24	A-E0-120	A-CR120	B-E0-24	B-CR24	B-E0-120	B-CR120	B-E1-12		B-E1-60		B-E1-108		B-E1-156	
A-E0-25	A-CR25	A-E0-121	A-CR121	B-E0-25	B-CR25	B-E0-121	B-CR121	A-E1-13	R13	A-E1-61	R61	A-E1-109	R109	A-E1-157	R157
A-E0-26	A-CR26	A-E0-122	A-CR122	B-E0-26	B-CR26	B-E0-122	B-CR122	B-E1-13		B-E1-61		B-E1-109		B-E1-157	
A-E0-27	A-CR27	A-E0-123	A-CR123	B-E0-27	B-CR27	B-E0-123	B-CR123	A-E1-14	R14	A-E1-62	R62	A-E1-110	R110	A-E1-158	R158
A-E0-28	A-CR28	A-E0-124	A-CR124	B-E0-28	B-CR28	B-E0-124	B-CR124	B-E1-14		B-E1-62		B-E1-110		B-E1-158	
A-E0-29	A-CR29	A-E0-125	A-CR125	B-E0-29	B-CR29	B-E0-125	B-CR125	A-E1-15	R15	A-E1-63	R63	A-E1-111	R111	A-E1-159	R159
A-E0-30	A-CR30	A-E0-126	A-CR126	B-E0-30	B-CR30	B-E0-126	B-CR126	B-E1-15		B-E1-63		B-E1-111		B-E1-159	
A-E0-31	A-CR31	A-E0-127	A-CR127	B-E0-31	B-CR31	B-E0-127	B-CR127	A-E1-16	R16	A-E1-64	R64	A-E1-112	R112	A-E1-160	R160
A-E0-32	A-CR32	A-E0-128	A-CR128	B-E0-32	B-CR32	B-E0-128	B-CR128	B-E1-16		B-E1-64		B-E1-112		B-E1-160	
A-E0-33	A-CR33	A-E0-129	A-CR129	B-E0-33	B-CR33	B-E0-129	B-CR129	A-E1-17	R17	A-E1-65	R65	A-E1-113	R113	A-E1-161	R161
A-E0-34	A-CR34	A-E0-130	A-CR130	B-E0-34	B-CR34	B-E0-130	B-CR130	B-E1-17		B-E1-65		B-E1-113		B-E1-161	
A-E0-35	A-CR35	A-E0-131	A-CR131	B-E0-35	B-CR35	B-E0-131	B-CR131	A-E1-18	R18	A-E1-66	R66	A-E1-114	R114	A-E1-162	R162
A-E0-36	A-CR36	A-E0-132	A-CR132	B-E0-36	B-CR36	B-E0-132	B-CR132	B-E1-18		B-E1-66		B-E1-114		B-E1-162	
A-E0-37	A-CR37	A-E0-133	A-CR133	B-E0-37	B-CR37	B-E0-133	B-CR133	A-E1-19	R19	A-E1-67	R67	A-E1-115	R115	A-E1-163	R163
A-E0-38	A-CR38	A-E0-134	A-CR134	B-E0-38	B-CR38	B-E0-134	B-CR134	B-E1-19		B-E1-67		B-E1-115		B-E1-163	
A-E0-39	A-CR39	A-E0-135	A-CR135	B-E0-39	B-CR39	B-E0-135	B-CR135	A-E1-20	R20	A-E1-68	R68	A-E1-116	R116	A-E1-164	R164
A-E0-40	A-CR40	A-E0-136	A-CR136	B-E0-40	B-CR40	B-E0-136	B-CR136	B-E1-20		B-E1-68		B-E1-116		B-E1-164	
A-E0-41	A-CR41	A-E0-137	A-CR137	B-E0-41	B-CR41	B-E0-137	B-CR137	A-E1-21	R21	A-E1-69	R69	A-E1-117	R117	A-E1-165	R165
A-E0-42	A-CR42	A-E0-138	A-CR138	B-E0-42	B-CR42	B-E0-138	B-CR138	B-E1-21		B-E1-69		B-E1-117		B-E1-165	
A-E0-43	A-CR43	A-E0-139	A-CR139	B-E0-43	B-CR43	B-E0-139	B-CR139	A-E1-22	R22	A-E1-70	R70	A-E1-118	R118	A-E1-166	R166
A-E0-44	A-CR44	A-E0-140	A-CR140	B-E0-44	B-CR44	B-E0-140	B-CR140	B-E1-22		B-E1-70		B-E1-118		B-E1-166	
A-E0-45	A-CR45	A-E0-141	A-CR141	B-E0-45	B-CR45	B-E0-141	B-CR141	A-E1-23	R23	A-E1-71	R71	A-E1-119	R119	A-E1-167	R167
A-E0-46	A-CR46	A-E0-142	A-CR142	B-E0-46	B-CR46	B-E0-142	B-CR142	B-E1-23		B-E1-71		B-E1-119		B-E1-167	
A-E0-47	A-CR47	A-E0-143	A-CR143	B-E0-47	B-CR47	B-E0-143	B-CR143	A-E1-24	R24	A-E1-72	R72	A-E1-120	R120	A-E1-168	R168
A-E0-48	A-CR48	A-E0-144	A-CR144	B-E0-48	B-CR48	B-E0-144	B-CR144	B-E1-24		B-E1-72		B-E1-120		B-E1-168	
A-E0-49	A-CR49	A-E0-145	A-CR145	B-E0-49	B-CR49	B-E0-145	B-CR145	A-E1-25	R25	A-E1-73	R73	A-E1-121	R121	A-E1-169	R169
A-E0-50	A-CR50	A-E0-146	A-CR146	B-E0-50	B-CR50	B-E0-146	B-CR146	B-E1-25		B-E1-73		B-E1-121		B-E1-169	
A-E0-51	A-CR51	A-E0-147	A-CR147	B-E0-51	B-CR51	B-E0-147	B-CR147	A-E1-26	R26	A-E1-74	R74	A-E1-122	R122	A-E1-170	R170
A-E0-52	A-CR52	A-E0-148	A-CR148	B-E0-52	B-CR52	B-E0-148	B-CR148	B-E1-26		B-E1-74		B-E1-122		B-E1-170	
A-E0-53	A-CR53	A-E0-149	A-CR149	B-E0-53	B-CR53	B-E0-149	B-CR149	A-E1-27	R27	A-E1-75	R75	A-E1-123	R123	A-E1-171	R171
A-E0-54	A-CR54	A-E0-150	A-CR150	B-E0-54	B-CR54	B-E0-150	B-CR150	B-E1-27		B-E1-75		B-E1-123		B-E1-171	
A-E0-55	A-CR55	A-E0-151	A-CR151	B-E0-55	B-CR55	B-E0-151	B-CR151	A-E1-28	R28	A-E1-76	R76	A-E1-124	R124	A-E1-172	R172
A-E0-56	A-CR56	A-E0-152	A-CR152	B-E0-56	B-CR56	B-E0-152	B-CR152	B-E1-28		B-E1-76		B-E1-124		B-E1-172	
A-E0-57	A-CR57	A-E0-153	A-CR153	B-E0-57	B-CR57	B-E0-153	B-CR153	A-E1-29	R29	A-E1-77	R77	A-E1-125	R125	A-E1-173	R173
A-E0-58	A-CR58	A-E0-154	A-CR154	B-E0-58	B-CR58	B-E0-154	B-CR154	B-E1-29		B-E1-77		B-E1-125		B-E1-173	
A-E0-59	A-CR59	A-E0-155	A-CR155	B-E0-59	B-CR59	B-E0-155	B-CR155	A-E1-30	R30	A-E1-78	R78	A-E1-126	R126	A-E1-174	R174
A-E0-60	A-CR60	A-E0-156	A-CR156	B-E0-60	B-CR60	B-E0-156	B-CR156	B-E1-30		B-E1-78		B-E1-126		B-E1-174	
A-E0-61	A-CR61	A-E0-157	A-CR157	B-E0-61	B-CR61	B-E0-157	B-CR157	A-E1-31	R31	A-E1-79	R79	A-E1-127	R127	A-E1-175	R175
A-E0-62	A-CR62	A-E0-158	A-CR158	B-E0-62	B-CR62	B-E0-158	B-CR158	B-E1-31		B-E1-79		B-E1-127		B-E1-175	
A-E0-63	A-CR63	A-E0-159	A-CR159	B-E0-63	B-CR63	B-E0-159	B-CR159	A-E1-32	R32	A-E1-80	R80	A-E1-128	R128	A-E1-176	R176
A-E0-64	A-CR64	A-E0-160	A-CR160	B-E0-64	B-CR64	B-E0-160	B-CR160	B-E1-32		B-E1-80		B-E1-128		B-E1-176	
A-E0-65	A-CR65	A-E0-161	A-CR161	B-E0-65	B-CR65	B-E0-161	B-CR161	A-E1-33	R33	A-E1-81	R81	A-E1-129	R129	A-E1-177	R177
A-E0-66	A-CR66	A-E0-162	A-CR162	B-E0-66	B-CR66	B-E0-162	B-CR162	B-E1-33		B-E1-81		B-E1-129		B-E1-177	
A-E0-67	A-CR67	A-E0-163	A-CR163	B-E0-67	B-CR67	B-E0-163	B-CR163	A-E1-34	R34	A-E1-82	R82	A-E1-130	R130	A-E1-178	R178
A-E0-68	A-CR68	A-E0-164	A-CR164	B-E0-68	B-CR68	B-E0-164	B-CR164	B-E1-34		B-E1-82		B-E1-130		B-E1-178	
A-E0-69	A-CR69	A-E0-165	A-CR165	B-E0-69	B-CR69	B-E0-165	B-CR165	A-E1-35	R35	A-E1-83	R83	A-E1-131	R131	A-E1-179	R179
A-E0-70	A-CR70	A-E0-166	A-CR166	B-E0-70	B-CR70	B-E0-166	B-CR166	B-E1-35		B-E1-83		B-E1-131		B-E1-179	
A-E0-71	A-CR71	A-E0-167	A-CR167	B-E0-71	B-CR71	B-E0-167	B-CR167	A-E1-36	R36	A-E1-84	R84	A-E1-132	R132	A-E1-180	R180
A-E0-72	A-CR72	A-E0-168	A-CR168	B-E0-72	B-CR72	B-E0-168	B-CR168	B-E1-36		B-E1-84		B-E1-132		B-E1-180	
A-E0-73	A-CR73	A-E0-169	A-CR169	B-E0-73	B-CR73	B-E0-169	B-CR169	A-E1-37	R37	A-E1-85	R85	A-E1-133	R133	A-E1-181	R181
A-E0-74	A-CR74	A-E0-170	A-CR170	B-E0-74	B-CR74	B-E0-170	B-CR170	B-E1-37		B-E1-85		B-E1-133		B-E1-181	
A-E0-75	A-CR75	A-E0-171	A-CR171	B-E0-75	B-CR75	B-E0-171	B-CR171	A-E1-38	R38	A-E1-86	R86	A-E1-134	R134	A-E1-182	R182
A-E0-76	A-CR76	A-E0-172	A-CR172	B-E0-76	B-CR76	B-E0-172	B-CR172	B-E1-38		B-E1-86		B-E1-134		B-E1-182	
A-E0-77	A-CR77	A-E0-173	A-CR173	B-E0-77	B-CR77	B-E0-173	B-CR173	A-E1-39	R39	A-E1-87	R87	A-E1-135	R135	A-E1-183	R183
A-E0-78	A-CR78	A-E0-174	A-CR174	B-E0-78	B-CR78	B-E0-174	B-CR174	B-E1-39		B-E1-87		B-E1-135		B-E1-183	
A-E0-79	A-CR79	A-E0-175	A-CR175	B-E0-79	B-CR79	B-E0-175	B-CR175	A-E1-40	R40	A-E1-88	R88	A-E1-136	R136	A-E1-184	R184
A-E0-80	A-CR80	A-E0-176	A-CR176	B-E0-80	B-CR80	B-E0-176	B-CR176	B-E1-40		B-E1-88		B-E1-136		B-E1-184	
A-E0-81	A-CR81	A-E0-177	A-CR177	B-E0-81	B-CR81	B-E0-177	B-CR177	A-E1-41	R41	A-E1-89	R89	A-E1-137	R137	A-E1-185	R185
A-E0-82	A-CR82	A-E0-178	A-CR178	B-E0-82	B-CR82	B-E0-178	B-CR178	B-E1-41		B-E1-89		B-E1-137		B-E1-185	
A-E0-83	A-CR83	A-E0-179	A-CR179	B-E0-83	B-CR83	B-E0-179	B-CR179	A-E1-42	R42	A-E1-90	R90	A-E1-138	R138	A-E1-186	R186
A-E0-84	A-CR84	A-E0-180	A-CR180	B-E0-84	B-CR84	B-E0-180	B-CR180	B-E1-42		B-E1-90		B-E1-138		B-E1-186	
A-E0-85	A-CR85	A-E0-181	A-CR181	B-E0-85	B-CR85	B-E0-181	B-CR181	A-E1-43	R43	A-E1-91	R91	A-E1-139	R139	A-E1-187	R187
A-E0-86	A-CR86	A-E0-182	A-CR182	B-E0-86	B-CR86	B-E0-182	B-CR182	B-E1-43		B-E1-91		B-E1-139		B-E1-187	
A-E0-87	A-CR87	A-E0-183	A-CR183	B-E0-87	B-CR87	B-E0-183	B-CR183	A-E1-44	R44	A-E1-92	R92	A-E1-140	R140	A-E1-188	R188
A-E0-88	A-CR88	A-E0-184	A-CR184	B-E0-88	B-CR88	B-E0-184	B-CR184	B-E1-44		B-E1-92		B-E1-140		B-E1-188	
A-E0-89	A-CR89	A-E0-185	A-CR185	B-E0-89	B-CR89	B-E0-185	B-CR185	A-E1-45	R45	A-E1-93	R93	A-E1-141	R141	A-E1-189	R189
A-E0-90	A-CR90	A-E0-186	A-CR186	B-E0-90	B-CR90	B-E0-186	B-CR186	B-E1-45		B-E1-93		B-E1-141		B-E1-189	
A-E0-91	A-CR91	A-E0-187	A-CR187	B-E0-91	B-CR91	B-E0-187	B-CR187	A-E1-46	R46	A-E1-94	R94	A-E1-142	R142	A-E1-190	R190
A-E0-92	A-CR92	A-E0-188	A-CR188	B-E0-92	B-CR92	B-E0-188	B-CR188	B-E1-46		B-E1-94		B-E1-142		B-E1-190	
A-E0-93	A-CR93	A-E0-189	A-CR189	B-E0-93	B-CR93	B-E0-189	B-CR189	A-E1-47	R47	A-E1-95	R95	A-E1-143	R143	A-E1-191	R191
A-E0-94	A-CR94	A-E0-190	A-CR190	B-E0-94	B-CR94	B-E0-190	B-CR190	B-E1-47		B-E1-95		B-E1-143		B-E1-191	
A-E0-95	A-CR95	A-E0-191	A-CR191	B-E0-95	B-CR95	B-E0-191	B-CR191	A-E1-48	R48	A-E1-96	R96	A-E1-144	R144	A-E1-192	R192
A-E0-96	A-CR96	A-E0-192	A-CR192	B-E0-96	B-CR96	B-E0-192	B-CR192	B-E1-48		B-E1-96		B-E1-144		B-E1-192	

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN
CHECKED
APPROVED
APPROVED

FIXED MEMORY MODULE ASSEMBLY

NEXT ASSY	USED ON
APPLICATION	

CODE IDENT NO 80230
SIZE J
DRAWING NO 2003960
SCALE NONE
SHEET 3 OF 3

2003960 A

F2/2

3.1.11 (Continued)

Velocity	3.14 inches per second ± 10% in the frequency range of 10 to 100 cps.
Acceleration	5 g's ± 10% peak in the frequency range of 100 to 2000 cps.
Planes	Each of the three mutually perpendicular axes.

3.2 PRODUCT CONFIGURATION

3.2.1 Drawings. The configuration of the assembly shall be in accordance with APOLLO G&N Drawing 2003960 and all drawings and engineering data referenced thereon.

3.2.2 Weight. Maximum allowable weight of the assembly shall be 2.04 pounds.

4. QUALITY ASSURANCE PROVISIONS

4.1 GENERAL. The contractor responsible for the manufacture of the assembly shall be responsible for the accomplishment of each test required herein. See Table IV, Product Performance and Configuration Requirement/Quality Verification Cross Reference Index.

TABLE IV

Requirements	Verification
3.1.1	4.2.2
3.1.2	4.2.3
3.1.3	4.2.4
3.1.4	4.2.5
3.1.5.1	4.2.6.1
3.1.5.2	4.2.6.2
3.1.5.3	4.2.6.3
3.1.7	4.2.7
3.1.8	4.2.8
3.1.9.1	4.2.9.1
3.1.9.2	4.2.9.2
3.1.9.3	4.2.9.3
3.1.9.4	4.2.9.4
3.1.10.1	4.3.1.1
3.1.10.2	4.3.1.2
3.1.11	4.3.2
3.2.1	4.2.1
3.2.2	4.2.10

APOLLO G&N Specification
PS 2003960 Rev -
Original Issue Date: 2-16-67
Release Authority: TDRR 32990
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

FIXED MEMORY MODULE B1-B6 ASSEMBLY

DRAWING NO. 2003960

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA

This specification consists of pages 1 to 21inclusive.

APPROVALS	NASA/MSC	E C Hall 1/17/67 W Stameris 10 Jan 67 MIT/IL	W. Flaherty 12-21-66 D.W. Smelker 12-21-66 RAY

4.2.9.2 Verify that zero noise value (V_0 max) is as specified in paragraph 3.1.9.2.

4.2.9.3 Verify that an all zero output is obtained when Logic STAGAT is zero. (V_0 max = NMT 5 mv 1.1 to 2.3 usec after RESET).

4.2.9.4 Verify that an all zero output is obtained when Module Select current is removed. (V_0 max = NMT 5 mv 1.1 to 2.3 usec after RESET (FR)).

4.2.10 Weight. Weigh the module to the nearest 0.01 pound. Verify that the weight does not exceed the maximum allowable weight specified in paragraph 3.2.2.

4.3 WORKMANSHIP. The following tests shall be performed under the conditions specified as a verification of good workmanship.

4.3.1 Temperature Extremes.

4.3.1.1 With the ambient temperature as specified in paragraph 3.1.10.1, repeat tests of paragraphs 4.2.8 and 4.2.9. Verify that the module performs as specified in paragraphs 3.1.8 and 3.1.9.

4.3.1.2 With the ambient temperature as specified in paragraph 3.1.10.2, repeat tests of paragraphs 4.2.8 and 4.2.9. Verify that the module performs as specified in paragraphs 3.1.8 and 3.1.9.

4.3.2 Vibration. Subject the module to the vibration limits specified in paragraph 3.1.11, and verify that the module meets the continuity requirements of paragraph 3.1.11.

5. PREPARATION FOR DELIVERY

5.1 GENERAL. Preparation for delivery shall be in accordance with Specification ND 1002214.

6. NOTES. None.

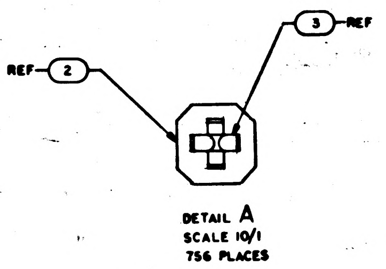
2003967 A

REV	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TORR 22314 DR A.A.Clermont CHK CAP		

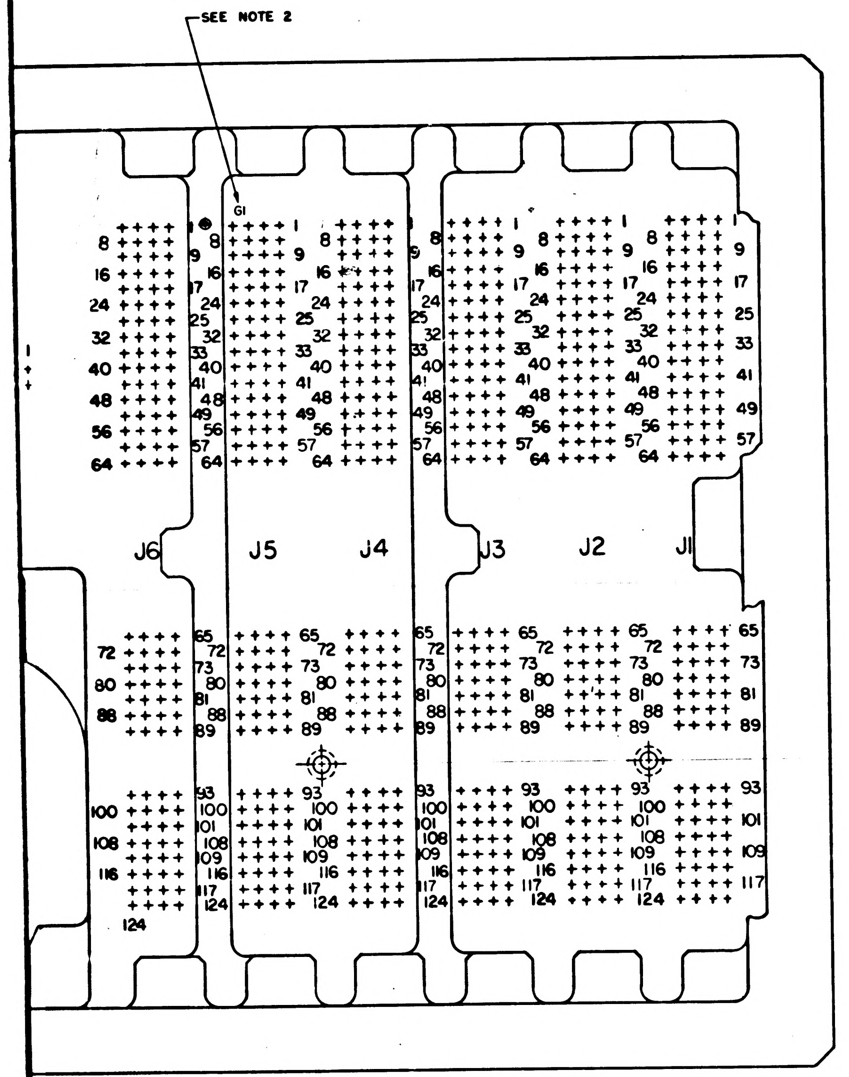
REVISIONS 20943

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
G1		* J1-3	6	WHT	26	AR	J2-3	
G2		* J3-3					J3-9	
G3		* J5-10					J6-9	
G4		* J2-10					J3-10	
G5		* J3-64	6	WHT	26	AR	J5-9	

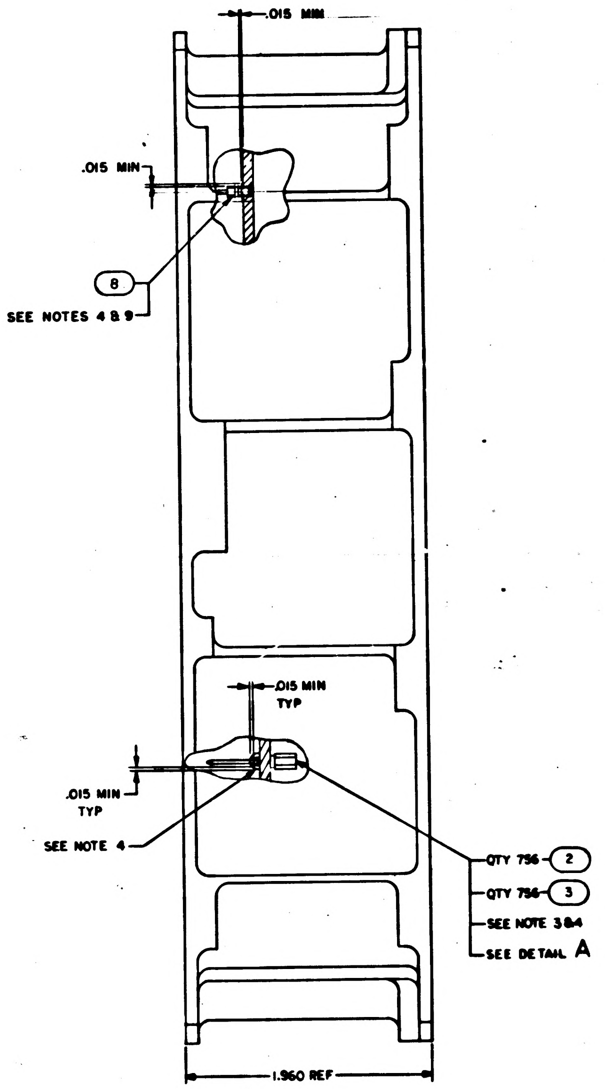
* DENOTES WIREWRAP MUST BE FIRST LEVEL



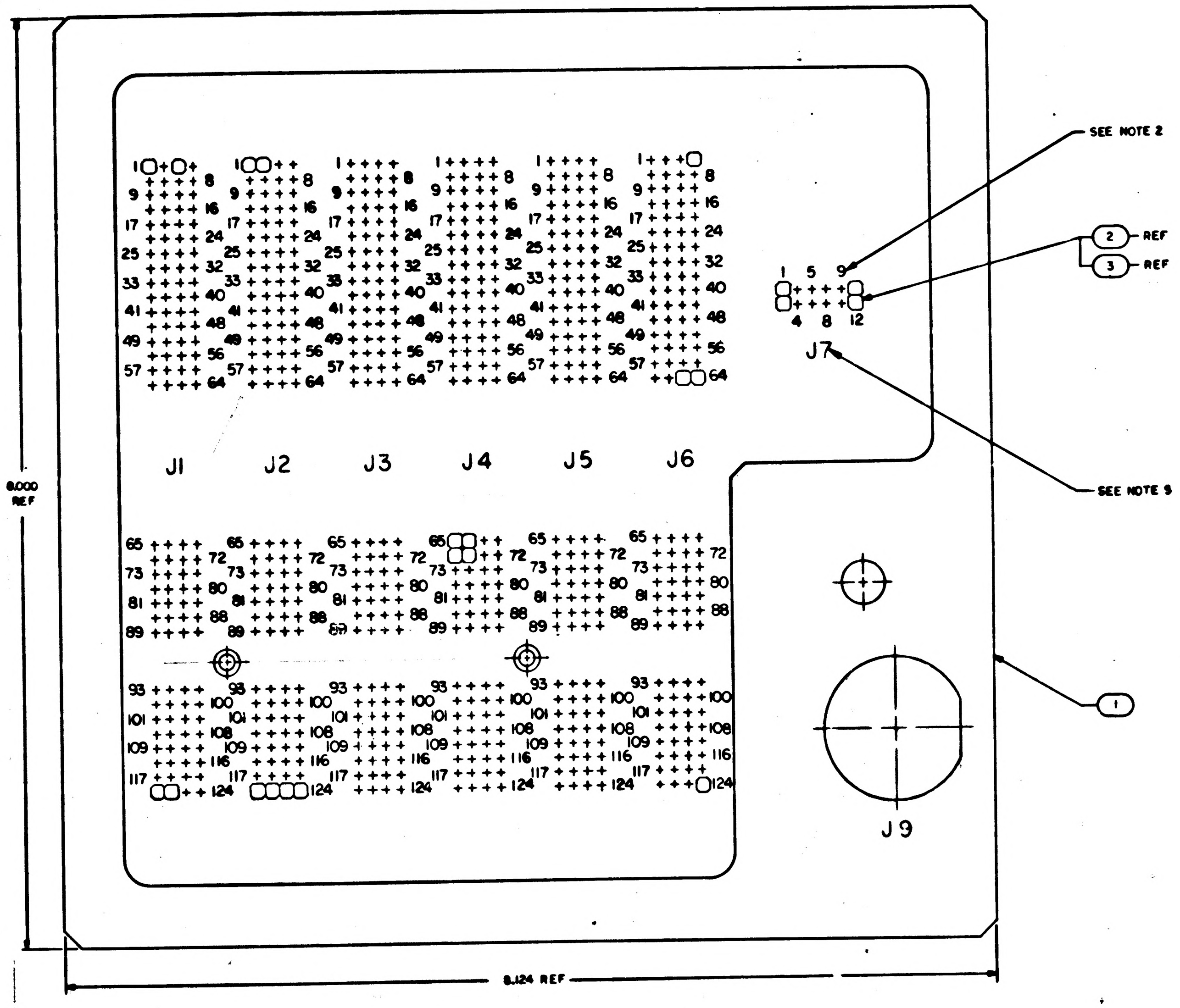
REF 2
3 REF
DETAIL A
SCALE 10/1
756 PLACES



SEE NOTE 2
G1
J6
J5
J4
J3
J2
J1



.015 MIN
.015 MIN
8
SEE NOTES 4 & 9
.015 MIN TYP
.015 MIN TYP
SEE NOTE 4
QTY 756 2
QTY 756 3
SEE NOTE 3 & 4
SEE DETAIL A
1.960 REF



SEE NOTE 2
2 REF
3 REF
J7
SEE NOTE 5
8.000 REF
J1
J2
J3
J4
J5
J6
1
J9
8.124 REF

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	2005951	INTERCONNECTING DIAGRAM	REF
☒	2005906	WIREWRAP CARD DECK	REF
1	2004039	TERMINAL, THREADED	8
~~2~~	~~2004961~~	~~HARNESS~~	~~7~~
AR	1010807-22	WIRE, ELEC	6
~~14~~	~~1006781-2~~	~~CONTACT, WRAPOST-FEMALE, MINIATURE~~	~~5~~
AR	1010940-003	WIRE, ELEC	4
756	1006781-4	CONTACT, WRAPOST-FEMALE, MINIATURE	3
756	1006774	INSULATOR, WRAPOST-FEMALE, MINIATURE	2
1	2004974-011	PLATE, IDM	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003954	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN W. Brown DATE July 65
CHECKED R. Edwards
APPROVAL
APPROVAL Eldon C. Hall
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

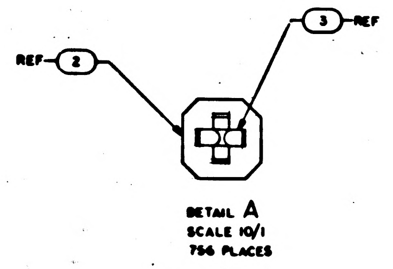
WIREWRAP IDM PLATE ASSY
MAIN HOUSING
AGC DSKY

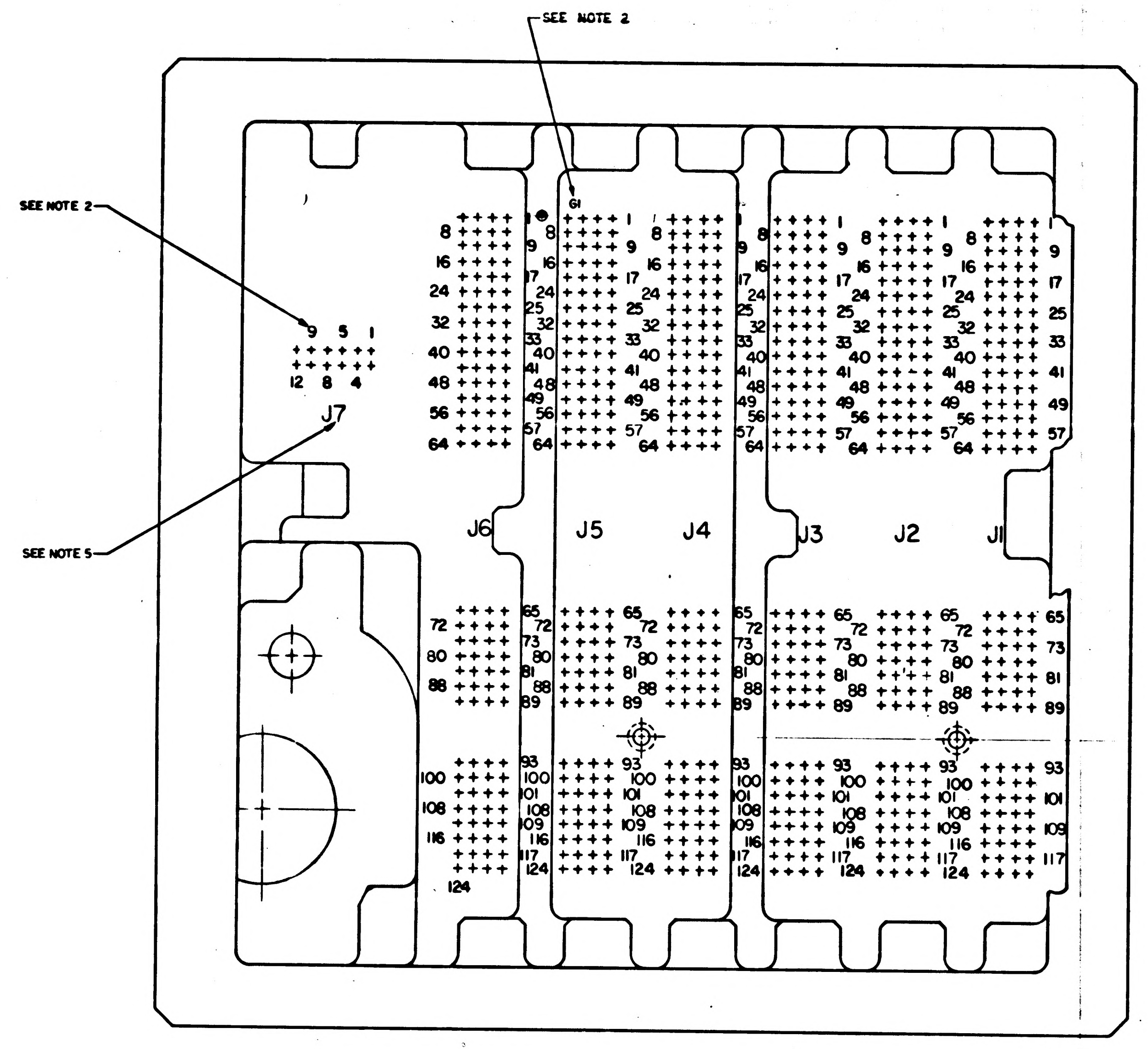
CODE IDENT NO 80230
SIZE J
NASA DRAWING NO. 2003967
SCALE 2/1
WT
SHEET 1 OF 1

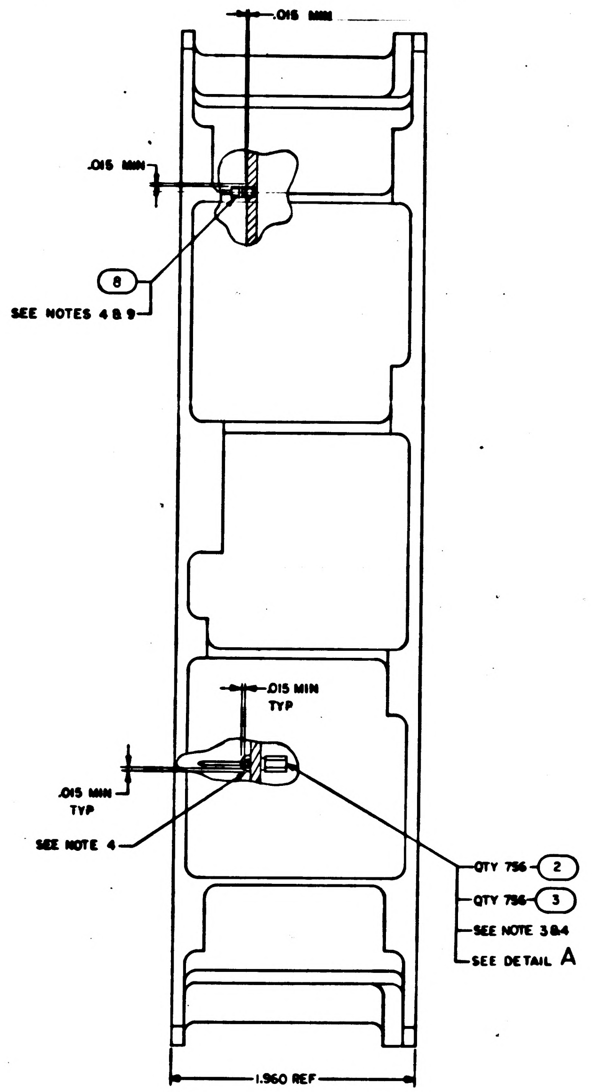
2003967 A

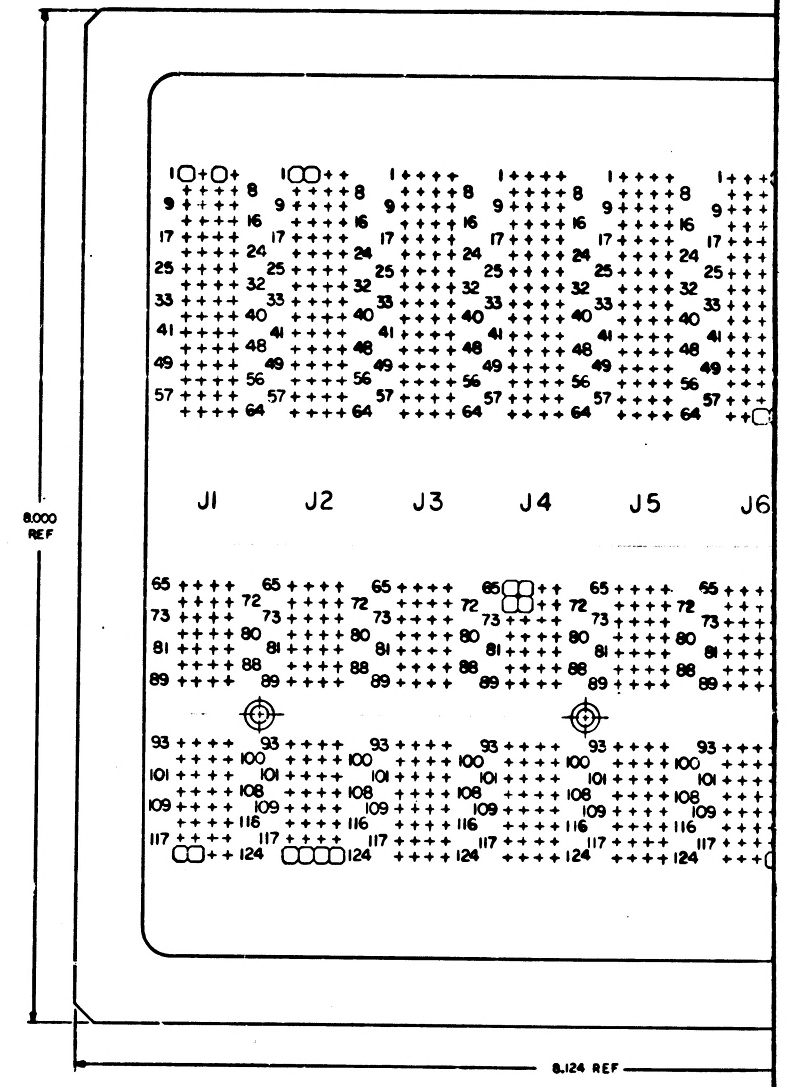
COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
61		✱ J1-3	6	WHT	26	AR	J2-3	
62		✱ J3-3	↓	↓	↓	↓	J3-9	
63		✱ J5-10	↓	↓	↓	↓	J6-9	
64		✱ J2-10	↓	↓	↓	↓	J3-10	
65		✱ J3-64	6	WHT	26	AR	J5-9	

✱ DENOTES WIREWRAP MUST BE FIRST LEVEL


REF 2
3 REF
DETAIL A
SCALE 10/1
756 PLACES


SEE NOTE 2
SEE NOTE 2
SEE NOTE 5
J7
J6
J5
J4
J3
J2
J1
61


.015 MIN
.015 MIN
8
SEE NOTES 4 & 9
.015 MIN TYP
.015 MIN TYP
SEE NOTE 4
QTY 756 2
QTY 756 3
SEE NOTE 3 & 4
SEE DETAIL A
1.960 REF


8.000 REF
J1
J2
J3
J4
J5
J6
8.124 REF

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK .070/.050 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2, USING INK 1006271-11. CENTRALIZE AS SHOWN
3. ASSEMBLE FIND NO.2 AND FIND NO. 3 TO FIND NO. 1 PER ND1002136
4. SEAL FIND NO.2, FIND NO. 3 AND FIND NO. 8 TO FIND NO. 1 PER ND1002004, TYPE VI
5. MARK .130/.110 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2, USING INK 1006271-11. CENTRALIZE AS SHOWN
6. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002018
7. AR DENOTES AS REQUIRED
8. WIREWRAP USING CHART AND WIREWRAP CARD DECK 2005906 AND PER ND1002081 EXCEPT FIND NO. 6 TO HAVE 5 MIN TO 6 MAX TURNS OF UNINSULATED WIRE, 1/2 TO 1 1/2 TURNS OF INSULATED WIRE, STRIP LENGTH OF 1.187 TO 1.000, STRIP FORCE OF 5 LB MIN.
~~9. INSTALL FIND NO. [illegible] IN PIN POSITIONS [illegible] J3-10, J3-64, J5-9, J5-10, J6-9, J7-2 AND J7-3~~
10. MOUNTING TORQUE FOR FIND NO. 8 TO BE 15-20 INCH OUNCES

2003954	
NEXT ASSY	USED ON
APPLICATION	

2003967 A

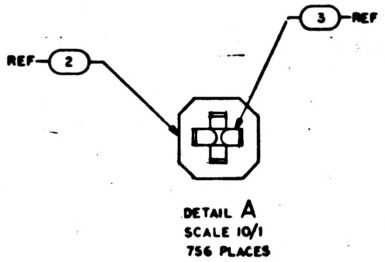
2003967 A F1/2

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
G1		* J1-3	6	WHT	26	AR	J2-3	
G2		* J3-3	↕	↕	↕	↕	J3-9	
G3		* J5-10	↕	↕	↕	↕	J6-9	
G4		* J2-10	↕	↕	↕	↕	J3-10	
G5		* J3-64	6	WHT	26	AR	J5-9	

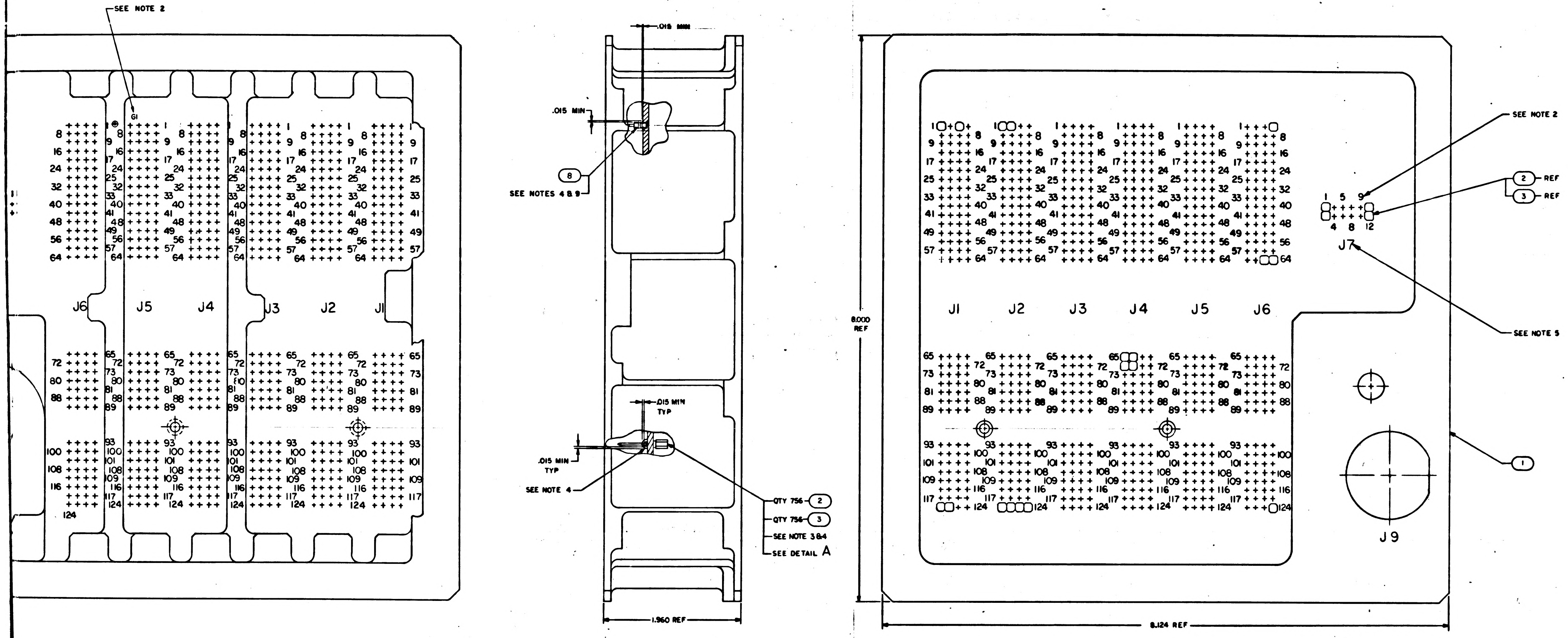
* DENOTES WIREWRAP MUST BE FIRST LEVEL

2003967 B

REVISIONS 18443			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22314 DR D.A. Clermont CHK CAP	[illegible]	[illegible]
B	REVISED PER TDRR 23632 DR B. Fagin CHK CAP	11/10/65	[illegible]



DETAIL A
SCALE 10/1
756 PLACES


SEE NOTE 2
G1
J6
J5
J4
J3
J2
J1
.015 MIN
SEE NOTES 4 & 9
8
.015 MIN TYP
SEE NOTE 4
QTY 756 2
QTY 756 3
SEE NOTE 3 & 4
SEE DETAIL A
1.960 REF
8.000 REF
8.124 REF
SEE NOTE 2
2 REF
3 REF
J7
SEE NOTE 5
1
J9

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2005951	INTERCONNECTING DIAGRAM	REF
☒	2005906	WIREWRAP CARD DECK	REF
1	2004039	TERMINAL, THREADED	8
~~2~~	~~[illegible]~~	~~PIN HARNESS~~	~~7~~
AR	1010801-22	WIRE, ELEC	6
~~14~~	~~1006781-2~~	~~CONTACT, WRAPOST-FEMALE, MINIATURE~~	~~5~~
AR	1006732—3	WIRE, ELEC	4
756	1006781-4	CONTACT, WRAPOST-FEMALE, MINIATURE	3
756	1006774	INSULATOR, WRAPOST-FEMALE, MINIATURE	2
1	2004974-011	PLATE, IDM	1
011	LIST OF MATERIALS		

2003954	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN W. Brown DATE 1 July 65
CHECKED R. Edwards 1 July 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIREWRAP IDM PLATE ASSY
MAIN HOUSING
AGC DSKY

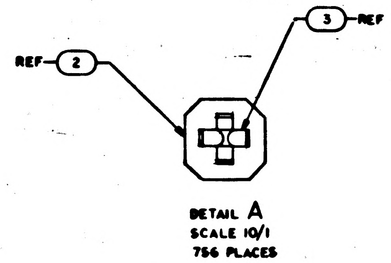
CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003967
SCALE 2/1
WT
SHEET 1 OF 1

2003967 B

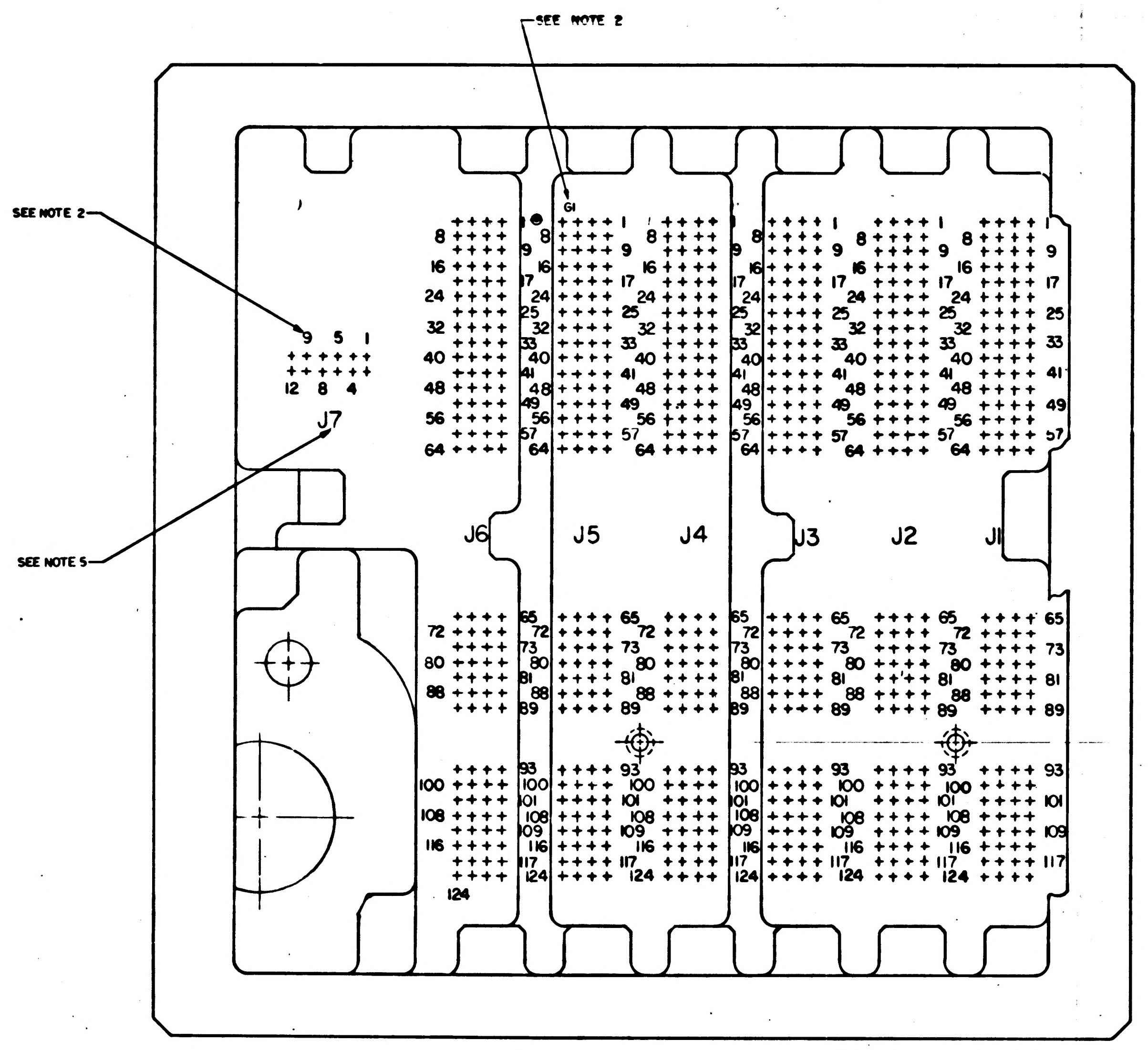
F 2 / 2

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
61		* J1-3	6	WHT	26	AR	J2-3	
62		* J3-3					J3-9	
63		* J5-10					J6-9	
64		* J2-10					J3-10	
65		* J3-64	6	WHT	26	AR	J5-9	

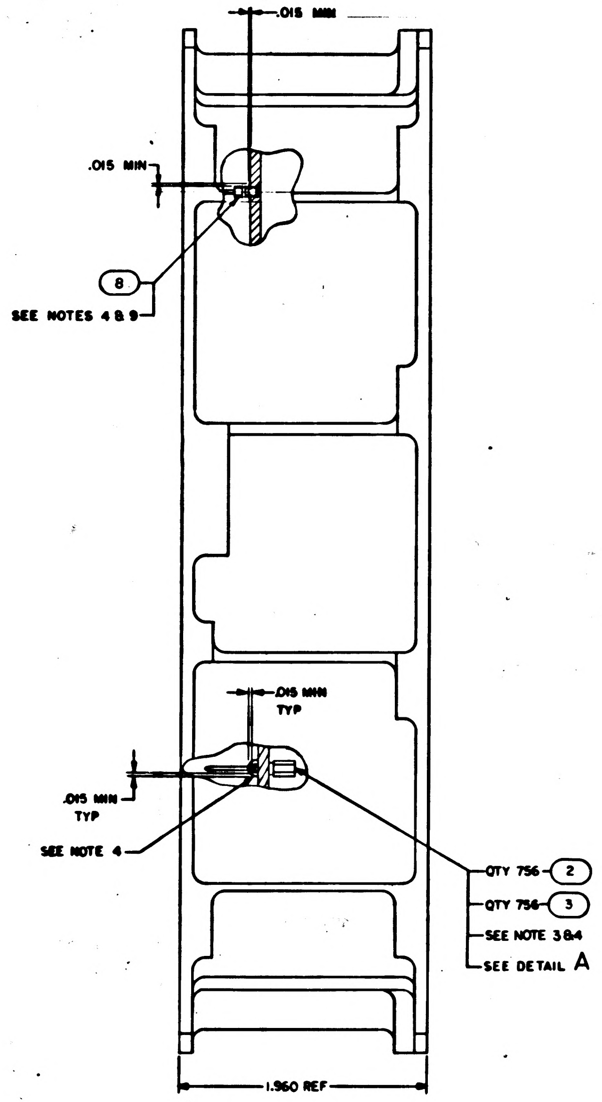
* DENOTES WIREWRAP MUST BE FIRST LEVEL



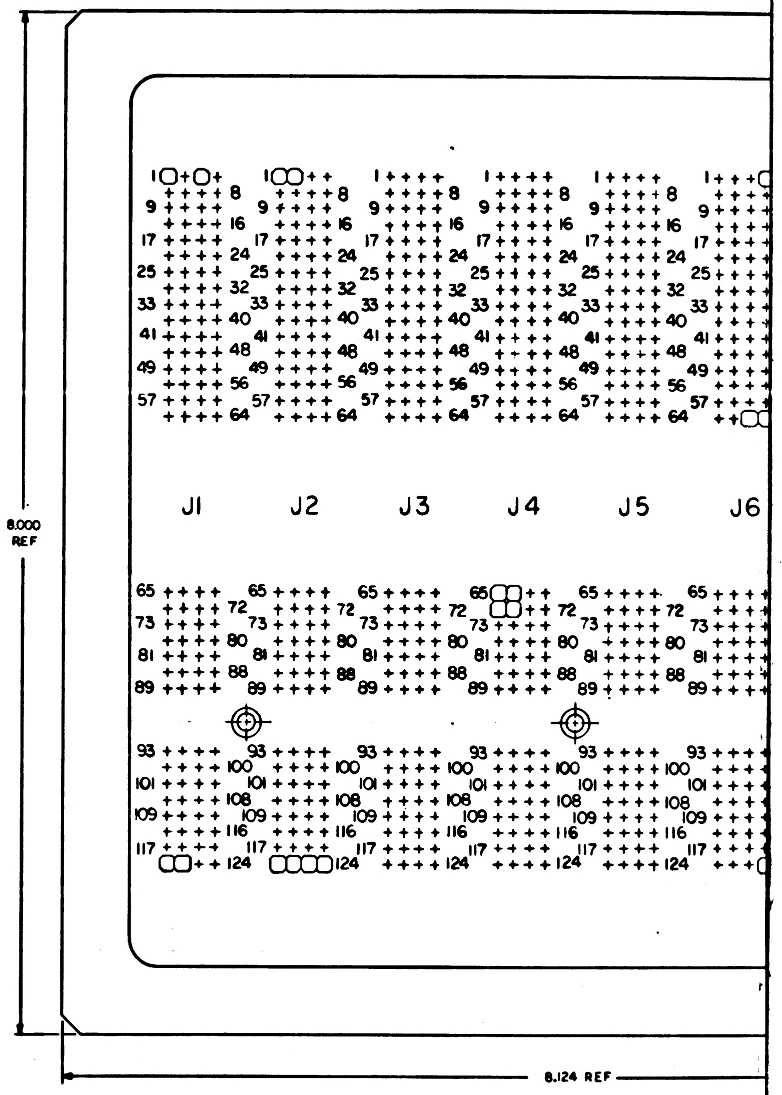
DETAIL A
SCALE 10/1
756 PLACES



SEE NOTE 2
SEE NOTE 2
SEE NOTE 5
61
9 5 1
12 8 4
J7
J6
J5
J4
J3
J2
J1



.015 MIN
.015 MIN
(8)
SEE NOTES 4 & 9
.015 MIN TYP
.015 MIN TYP
SEE NOTE 4
QTY 756 (2)
QTY 756 (3)
SEE NOTE 3&4
SEE DETAIL A
1.960 REF



8.000 REF
J1
J2
J3
J4
J5
J6
8.124 REF

NOTES

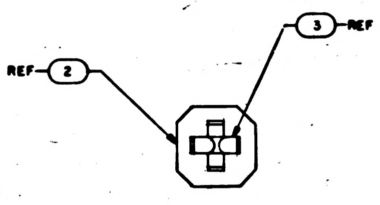
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK .070/.050 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2, USING INK 1006271-11. CENTRALIZE AS SHOWN
3. ASSEMBLE FIND NO.2 AND FIND NO. 3 TO FIND NO. 1 PER ND1002136
4. SEAL FIND NO.2, FIND NO. 3 AND FIND NO. 8 TO FIND NO. 1 PER ND1002004, TYPE III
5. MARK .130/.110 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2, USING INK 1006271-11. CENTRALIZE AS SHOWN
6. IDENTIFY WITH PART NO. PER ND1002019
7. AR DENOTES AS REQUIRED
8. WIREWRAP USING CHART AND WIREWRAP CARD DECK 2005906 AND PER ND1002091 EXCEPT FIND NO. 6 TO HAVE 5 MIN TO 6 MAX TURNS OF UNINSULATED WIRE, 1/2 TO 1 1/2 TURNS OF INSULATED WIRE, STRIP LENGTH OF 1.187 TO 1.000, STRIP FORCE OF 5 LB MIN.
9. ~~INSTALL FIND NO. 3 IN PIN POSITIONS J1-3, J2-[illegible], J2-[illegible], J2-10, J3-[illegible], J3-[illegible], J3-[illegible], J3-10, J3-64, J5-9, J5-10, J6-9, J7-2 AND J7-9~~
10. MOUNTING TORQUE FOR FIND NO. 8 TO BE 15-20 INCH OUNCES

2003954	
NEXT ASSY	USED ON
APPLICATION	

2003967 B

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
61		* J1-3	6	WHT	26	AR	J2-3	
62		* J3-3	↕	↕	↕	↕	J3-9	
63		* J5-10					J6-9	
64		* J2-10	↕	↕	↕	↕	J3-10	
65		* J3-64	6	WHT	26	AR	J5-9	

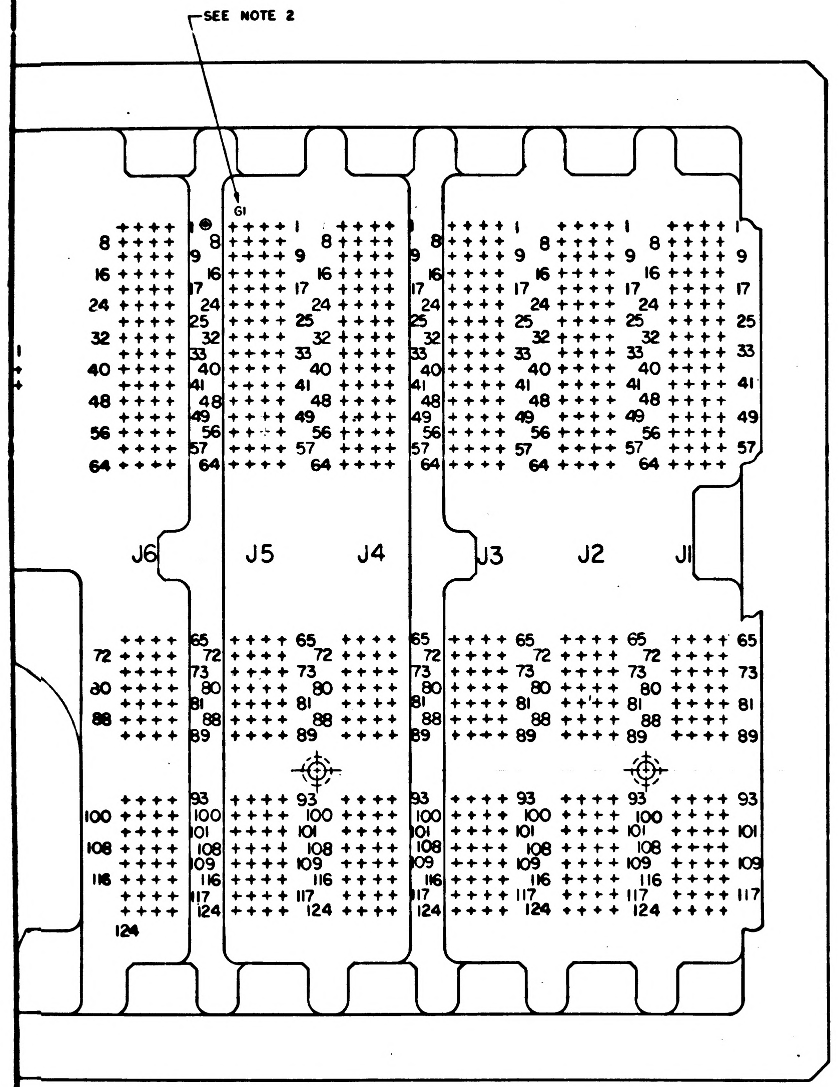
* DENOTES WIREWRAP MUST BE FIRST LEVEL



DETAIL A
SCALE 10/1
756 PLACES

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22314 DR D.A. Clement CHK CAP		
B	REVISED PER TDRR 23632 DR E Napia CHK CAP	11/10/65	
C	REVISED PER TDRR 24468 DR A.J. Brown CHK	12/13/65	

REVISIONS 20443


SEE NOTE 2
G1
J6
J5
J4
J3
J2
J1
8
16
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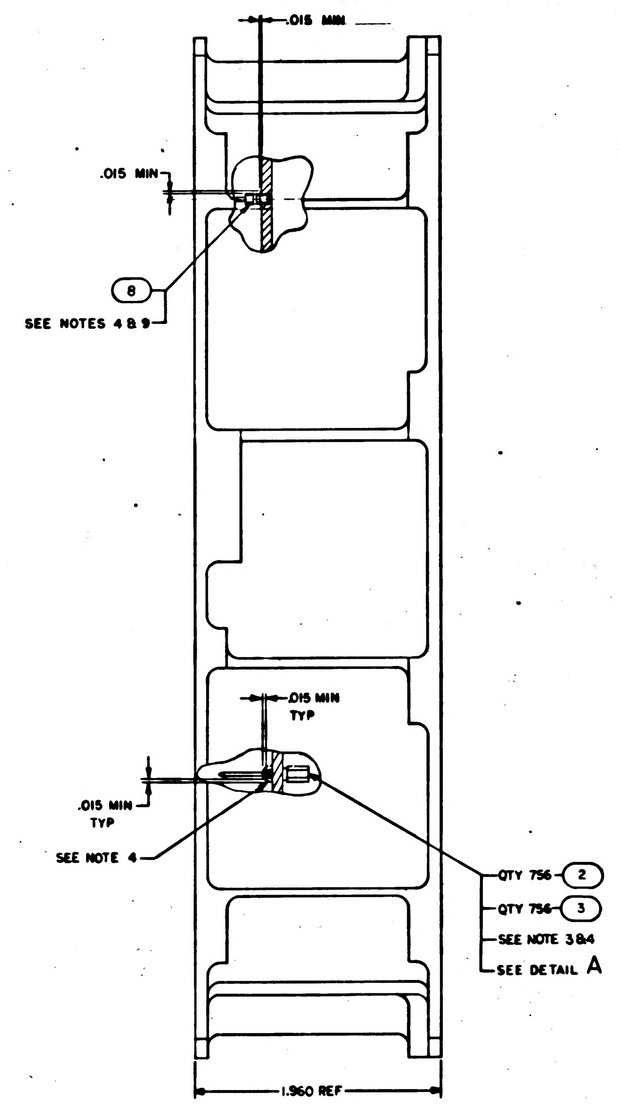
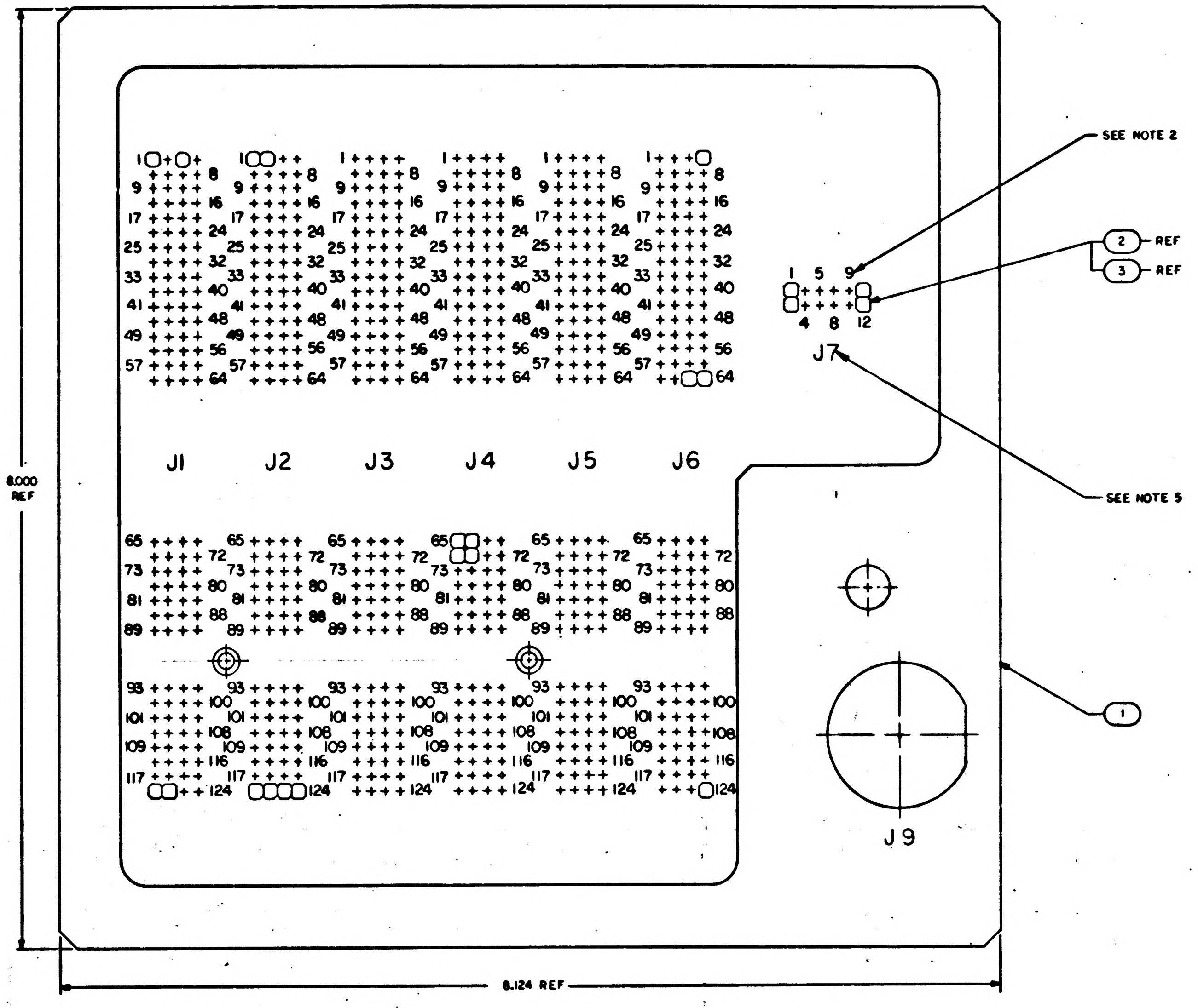

.015 MIN
.015 MIN
8
SEE NOTES 4 & 9
.015 MIN TYP
.015 MIN TYP
SEE NOTE 4
QTY 756 2
QTY 756 3
SEE NOTE 3&4
SEE DETAIL A
1.960 REF


SEE NOTE 2
2 REF
3 REF
1 5 9
4 8 12
J7
SEE NOTE 5
J1
J2
J3
J4
J5
J6
J9
1
8.000 REF
8.124 REF

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	2005951	INTERCONNECTING DIAGRAM	REF
☒	2005906	WIREWRAP CARD DECK	REF
1	2004039	TERMINAL, THREADED	8
~~2~~	~~2004961~~	~~PIN HARNESS~~	~~7~~
AR	1010807-22	WIRE, ELEC	6
~~14~~	~~1006781-2~~	~~CONTACT, WRAPOST-FEMALE, MINIATURE~~	~~5~~
AR	1006732—1	WIRE, ELEC	4
756	1006781-4	CONTACT, WRAPOST-FEMALE, MINIATURE	3
756	1006774	INSULATOR, WRAPOST-FEMALE, MINIATURE	2
1	2004974-011	PLATE, IDM	1

011 LIST OF MATERIALS

2003967 C

NEXT ASSY	USED ON
2003954	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO. CONTRACT
DRAWN W. Brown DATE 1 July 65
CHECKED R. Edwards 12 July 65
APPROVAL
APPROVAL Eldon C. Hall 16 July 65
NASA APPROVAL
MIT APPROVAL 20 Jul 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIREWRAP IDM PLATE ASSY
MAIN HOUSING
AGC DSKY

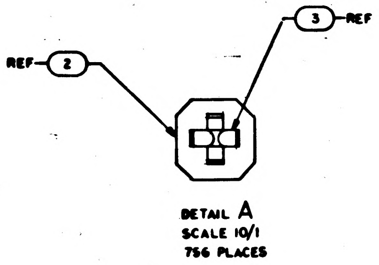
CODE IDENT NO 80230 SIZE J NASA DRAWING NO. 2003967
SCALE 2/1 WT SHEET 1 OF 1

2003967 B

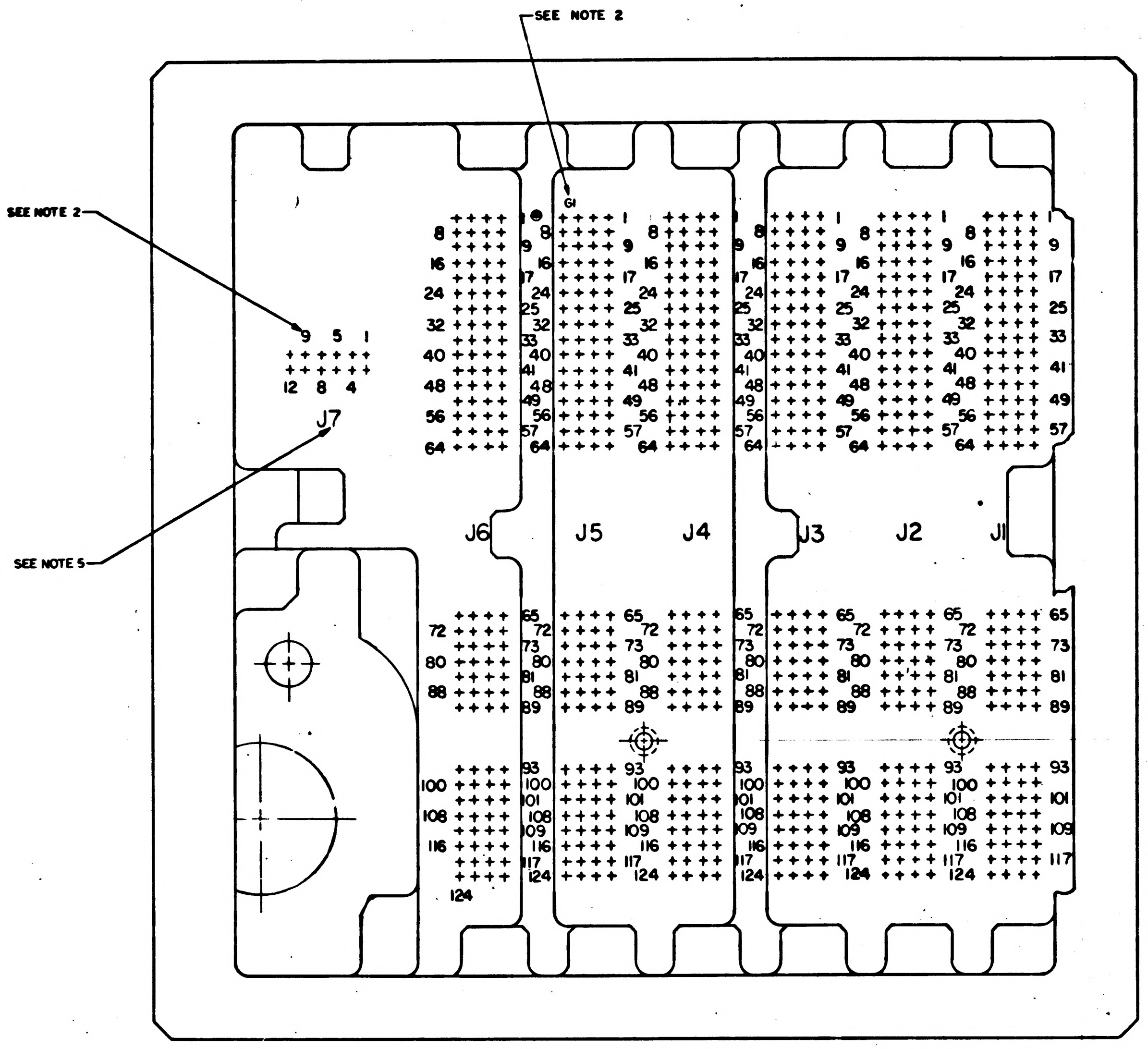
F2/2

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
61		* J1-3	6	WHT	26	AR	J2-3	
62		* J3-3					J3-9	
63		* J5-10					J6-9	
64		* J2-10					J3-10	
65		* J3-64	6	WHT	26	AR	J5-9	

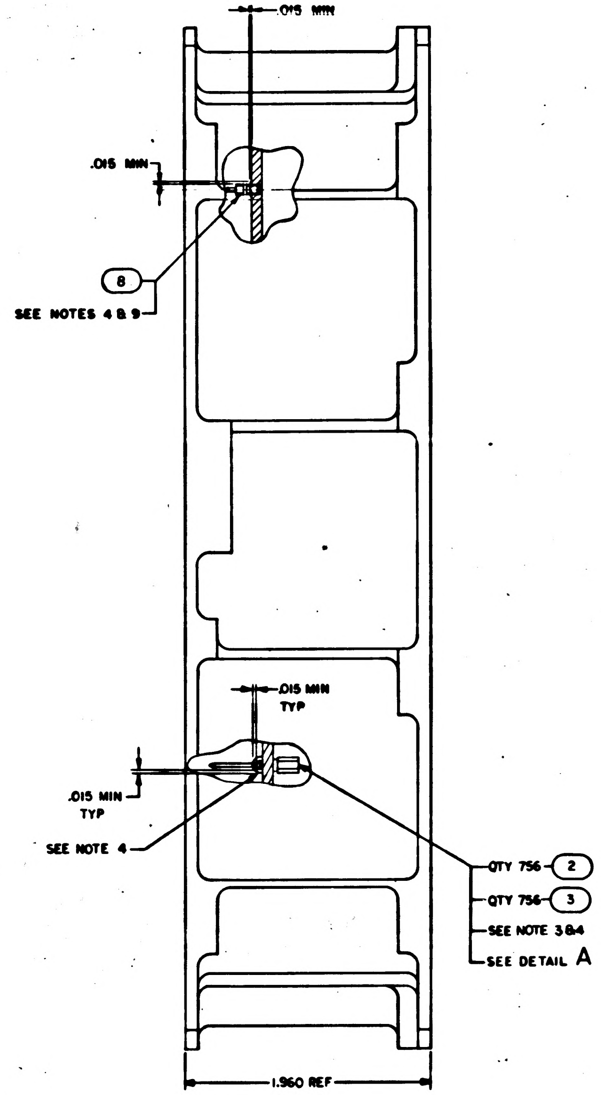
* DENOTES WIREWRAP MUST BE FIRST LEVEL



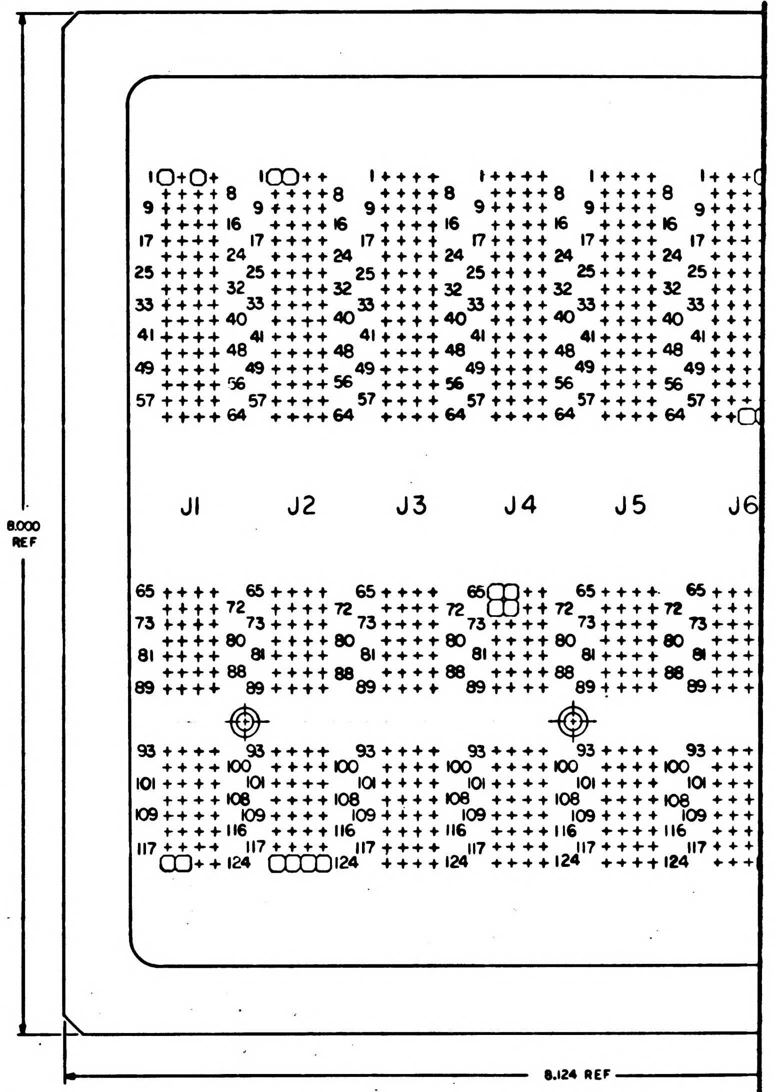
DETAIL A
SCALE 10/1
756 PLACES



SEE NOTE 2
SEE NOTE 2
G1
9 5 1
12 8 4
J7
SEE NOTE 5
J6
J5
J4
J3
J2
J1



.015 MIN
.015 MIN
8
SEE NOTES 4 & 9
.015 MIN TYP
.015 MIN TYP
SEE NOTE 4
QTY 756 2
QTY 756 3
SEE NOTE 3&4
SEE DETAIL A
1.960 REF



8.000 REF
J1
J2
J3
J4
J5
J6
8.124 REF

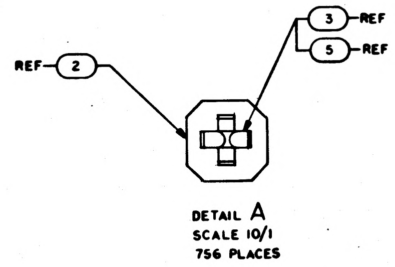
NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK .070/.050 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2, USING INK 1006271-11. CENTRALIZE AS SHOWN
3. ASSEMBLE FIND NO. 2 AND FIND NO. 3 TO FIND NO. 1 PER ND1002136
4. SEAL FIND NO. 2, FIND NO. 3 AND FIND NO. 8 TO FIND NO. 1 PER ND1002004, TYPE VI
5. MARK .130/.110 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2, USING INK 1006271-11. CENTRALIZE AS SHOWN
6. IDENTIFY WITH PART NO. PER ND1002019
7. AR DENOTES AS REQUIRED
8. WIREWRAP USING CHART AND WIREWRAP CARD DECK 2005906 AND PER ND1002031 EXCEPT FIND NO. 6 TO HAVE 5 MIN TO 6 MAX TURNS OF UNINSULATED WIRE, 1/2 TO 1 1/2 TURNS OF INSULATED WIRE, STRIP LENGTH OF 1.187 TO 1.000, STRIP FORCE OF 5 LB MIN.
9. ~~INSTALL FIND NO. 3 IN PIN POSITIONS J1-3, J2-1, J2-3, J2-10, J2-11, J3-3, J3-9, J3-10, J3-64, J5-9, J5-10, J6-9, J7-2 AND J7-9~~
10. MOUNTING TORQUE FOR FIND NO. 8 TO BE 15-20 INCH OUNCES

2003954	
NEXT ASSY	US
	APPLICATION

COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
61		* J1-3	6	WHT	26	AR	J2-3	
62		J2-3					J3-3	
63		J3-3					J3-9	
64		J3-9					J5-10	
65		J5-10					J6-9	
66		J6-9					J6-64	
67		* J2-10					J3-10	
68		J3-10					J3-64	
69		J3-64					J5-9	
610		J5-9	6	WHT	26	AR	J5-64	

* DENOTES WIREWRAP MUST BE FIRST LEVEL

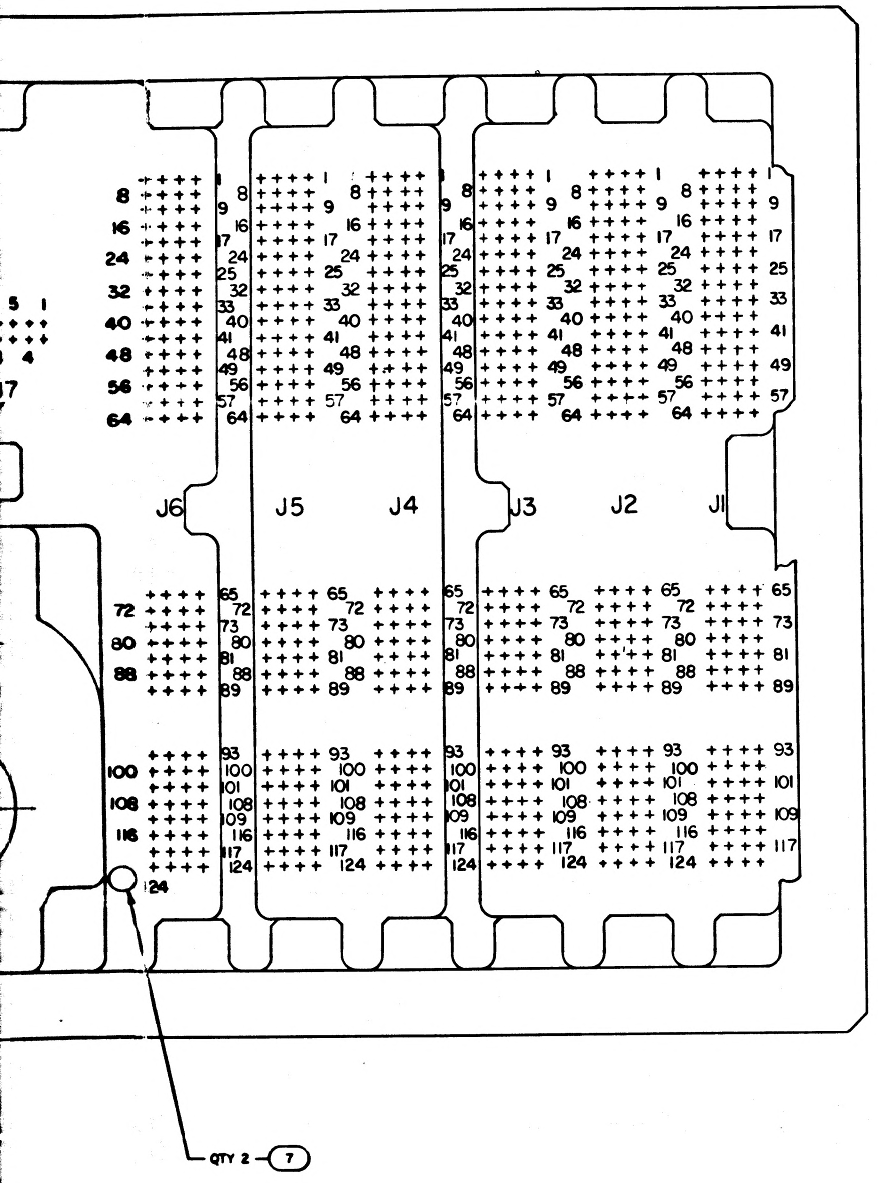


REF 2
3 REF
5 REF

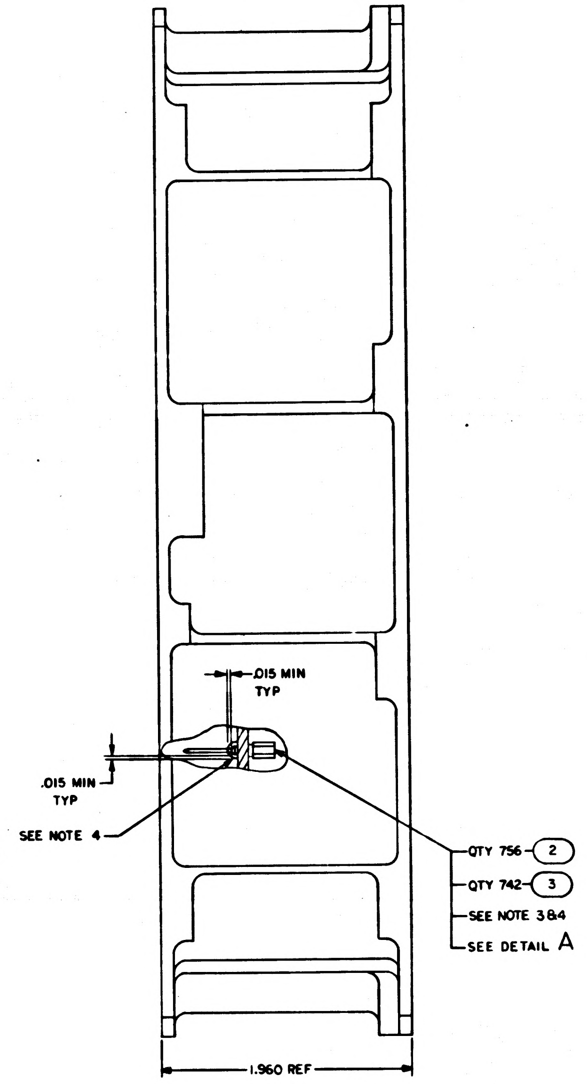
DETAIL A
SCALE 10/1
756 PLACES

REVISIONS 20943			
SYM	DESCRIPTION	DATE	APPROVAL

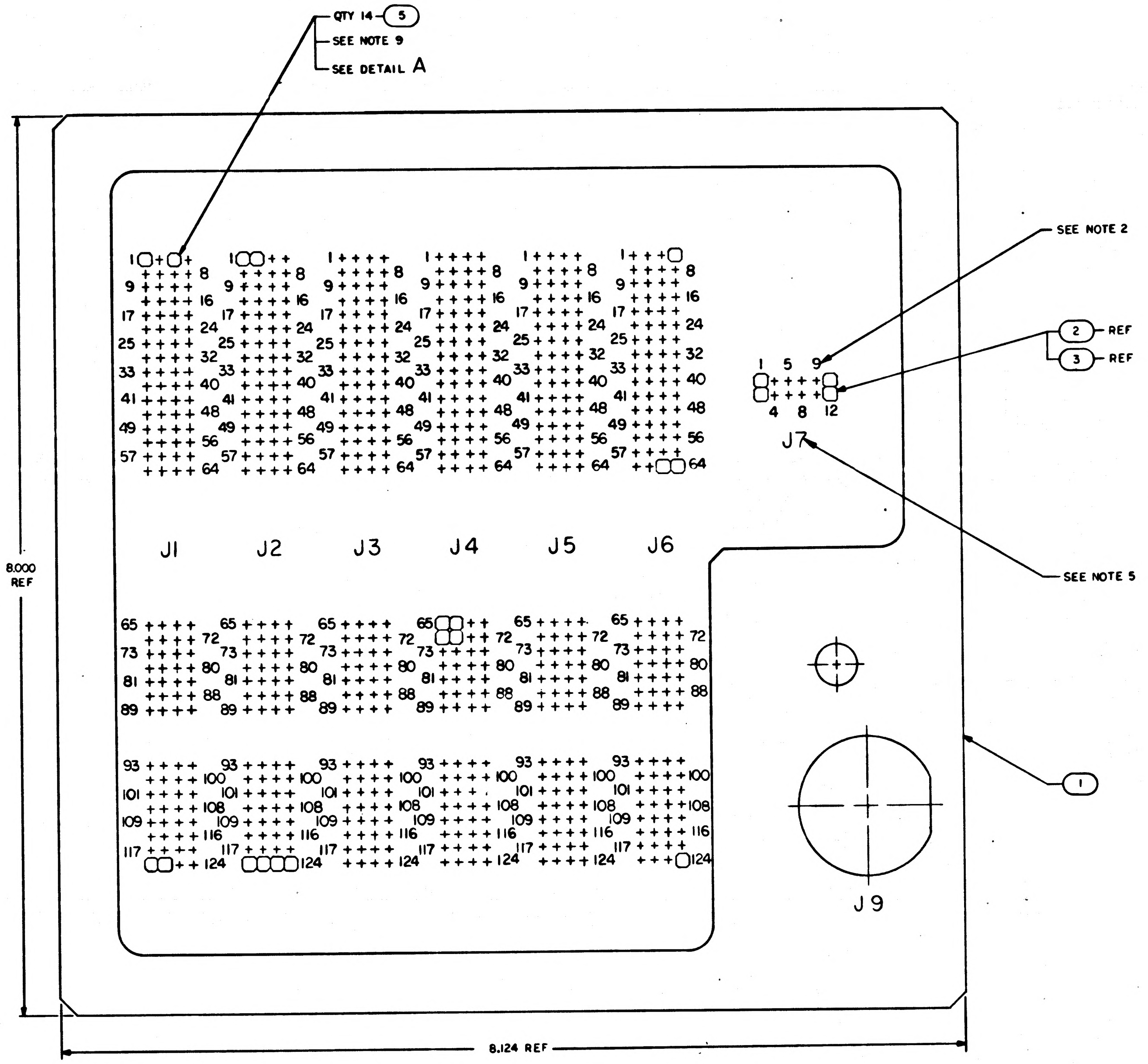
2003967



J6
J5
J4
J3
J2
J1
8
16
24
32
40
48
56
64
72
80
88
100
108
116
124
QTY 2 7



.015 MIN TYP
.015 MIN TYP
SEE NOTE 4
QTY 756 2
QTY 742 3
SEE NOTE 3&4
SEE DETAIL A
1.960 REF



QTY 14 5
SEE NOTE 9
SEE DETAIL A
SEE NOTE 2
2 REF
3 REF
SEE NOTE 5
1
1 5 9
4 8 12
J7
J1
J2
J3
J4
J5
J6
J9
8.000 REF
8.124 REF
1
8
9
16
17
24
25
32
33
40
41
48
49
56
57
64
65
72
73
80
81
88
89
93
100
101
108
109
116
117
124

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	2005951	INTERCONNECTING DIAGRAM	REF
☒	2005906	WIREWRAP CARD DECK	REF
2	2004961	PIN HARNESS	7
AR	1010807-22	WIRE, ELEC	6
14	1006781-2	CONTACT, WRAPOST-FEMALE, MINATURE	5
AR	1010940-003	WIRE, ELEC	4
742	1006781-4	CONTACT, WRAPOST-FEMALE, MINIATURE	3
756	1006774	INSULATOR, WRAPOST-FEMALE, MINIATURE	2
1	2004974-011	PLATE, IDM	1
011	LIST OF MATERIALS		

2003954	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN W. Brown DATE 1 July 65
CHECKED R. Edwards 12 July 65
APPROVAL
APPROVAL Eldon C. Hall 16 July 65
NASA APPROVAL
MIT APPROVAL W. Kupfer 20 Jul 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIREWRAP IDM PLATE ASSY
MAIN HOUSING
AGC DSKY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO 2003967
SCALE 2/1
WT
SHEET 1 OF 1

2003967

2H

MASTER

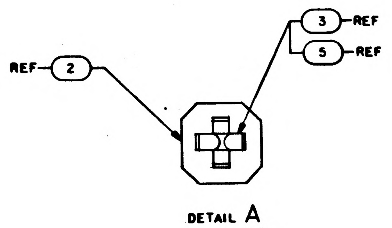
2003967

E2

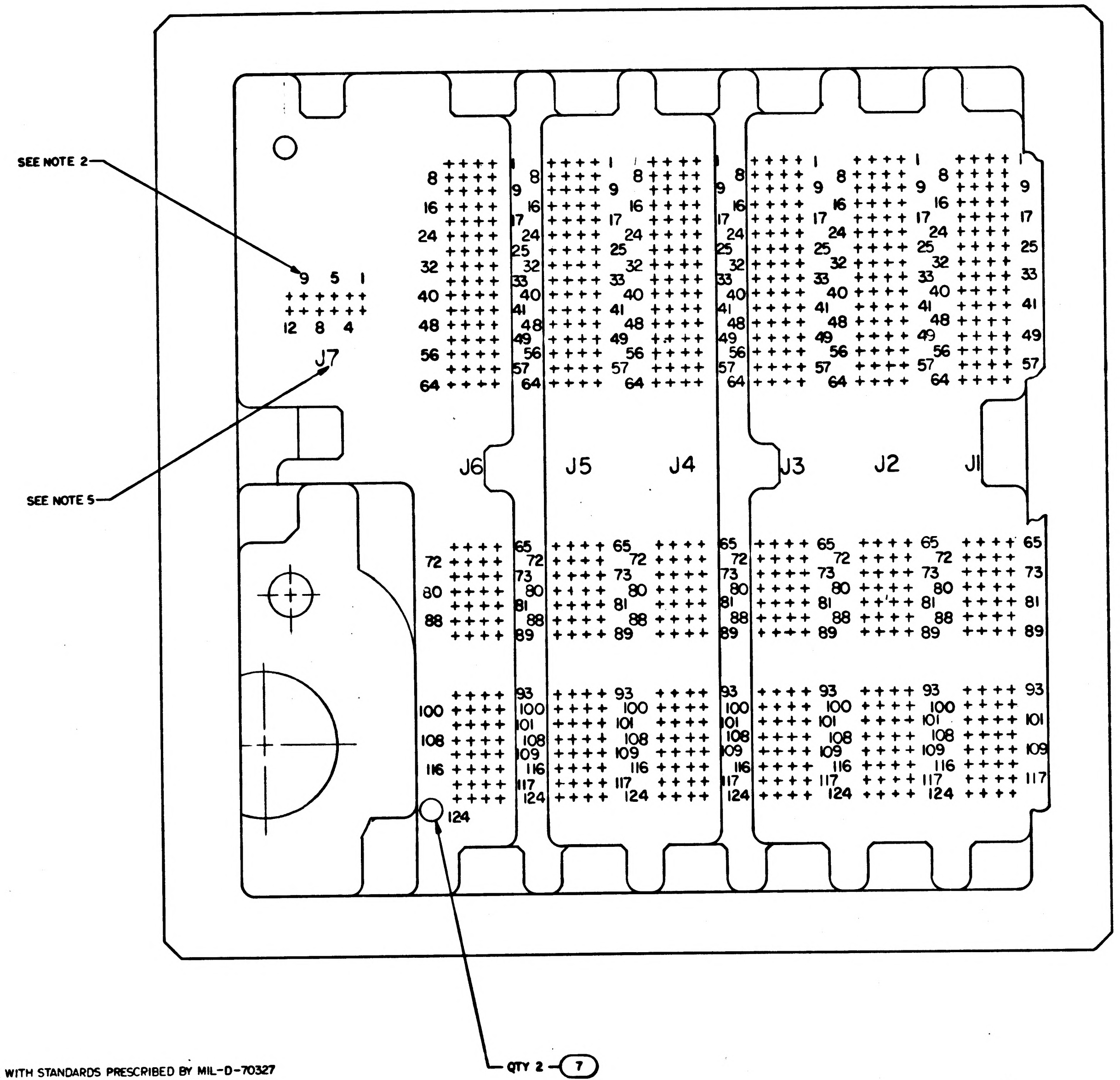
[illegible]

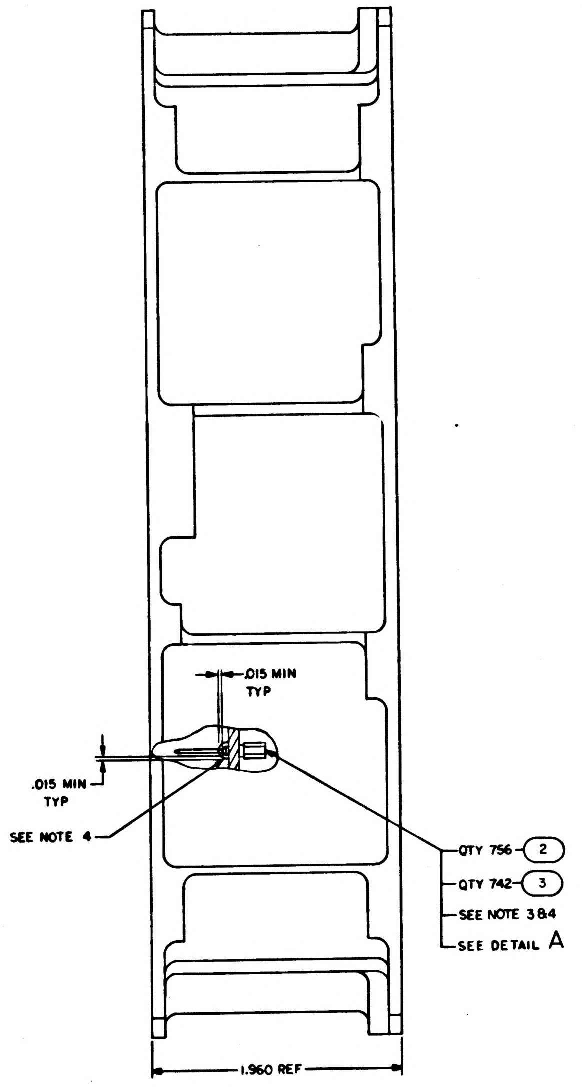
COND IDENT	REMARKS	FROM	FIND NO.	COLOR	SIZE AWG	LENGTH	TO	REMARKS
G1		✱ J1-3	6	WHT	26	AR	J2-3	
G2		J2-3	↑	↑	↑	↑	J3-3	
G3		J3-3					J3-9	
G4		J3-9					J5-10	
G5		J5-10					J6-9	
G6		J6-9					J6-64	
G7		✱ J2-10					J3-10	
G8		J3-10					J3-64	
G9		J3-64	↓	↓	↓	↓	J5-9	
G10		J5-9	6	WHT	26	AR	J5-64	

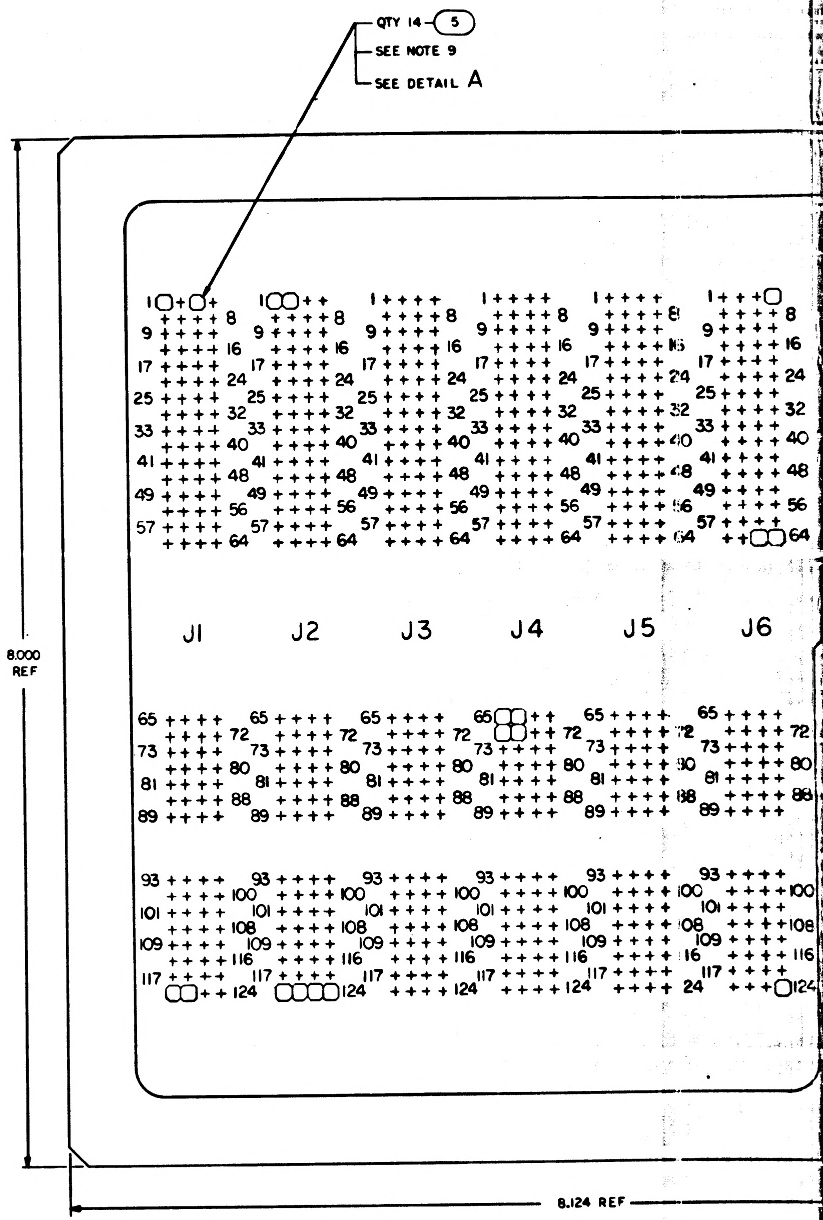
✱ DENOTES WIREWRAP MUST BE FIRST LEVEL


REF 2
3 REF
5 REF

DETAIL A
SCALE 10/1
756 PLACES


SEE NOTE 2
9 5 1
12 8 4
J7
SEE NOTE 5
J6
J5
J4
J3
J2
J1
QTY 2 7


.015 MIN TYP
.015 MIN TYP
SEE NOTE 4
QTY 756 2
QTY 742 3
SEE NOTE 3&4
SEE DETAIL A
1.960 REF


QTY 14 5
SEE NOTE 9
SEE DETAIL A
8.000 REF
J1
J2
J3
J4
J5
J6
8.124 REF

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK .070/.050 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2, USING INK 1006271-11. CENTRALIZE AS SHOWN
3. ASSEMBLE FIND NO.2, FIND NO.3 AND FIND NO.5 TO FIND NO.1 PER ND1002136
4. SEAL FIND NO.2, FIND NO.3 AND FIND NO.5 TO FIND NO.1 PER ND1002004, TYPE VI
5. MARK .130/.110 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2, USING INK 1006271-11. CENTRALIZE AS SHOWN
6. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
7. AR DENOTES AS REQUIRED
8. WIREWRAP USING CHART AND WIREWRAP CARD DECK 2005906 AND PER ND1002031 EXCEPT FIND NO. 6 TO HAVE 5 MIN TO 6 MAX TURNS OF UNINSULATED WIRE, 1/2 TO 1 1/2 TURNS OF INSULATED WIRE, STRIP LENGTH OF 1.187 TO 1.000, STRIP FORCE OF 5 LB MIN.
9. INSTALL FIND NO. 5 IN PIN POSITIONS J1-3, J2-1, J2-3, J2-10, J2-11, J3-3, J3-9, J3-10, J3-64, J5-9, J5-10, J6-9, J7-2 AND J7-9

2H

MASTER

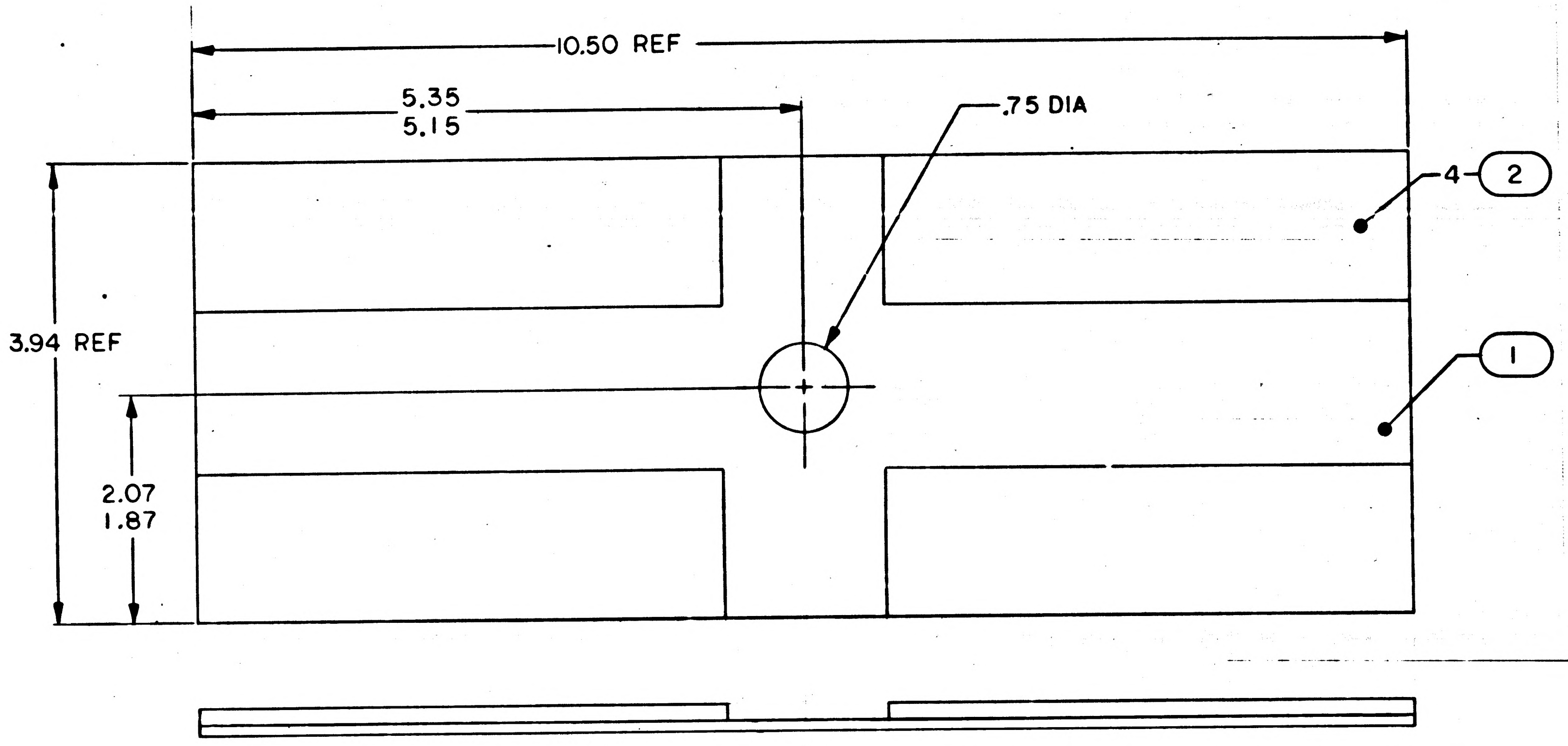
2003954	
NEXT ASSY	USED ON
APPLICATION	

2003967

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 26200

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. BOND FIND NO. 2 TO FIND NO. 1 PER ND1002151

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
4	2004899-002		PAD, VIBRATION	2
1	2004899-003		PAD, VIBRATION	1

-011 LIST OF MATERIALS

MASTER

NEXT ASSY	USED ON
2003200	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN E. Wtring 9FEB66
CHECKED 10 FEB 66
APPROVED 10 FEB 66
APPROVED Ellen C Hall 11 FEB 66
APPROVED MIT 11 FEB 66
APPROVED MSC A. C. METZGER
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

VIBRATION PAD ASSY
AGC

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2003970
SCALE 1/1
SHEET 1 OF 1

2003970

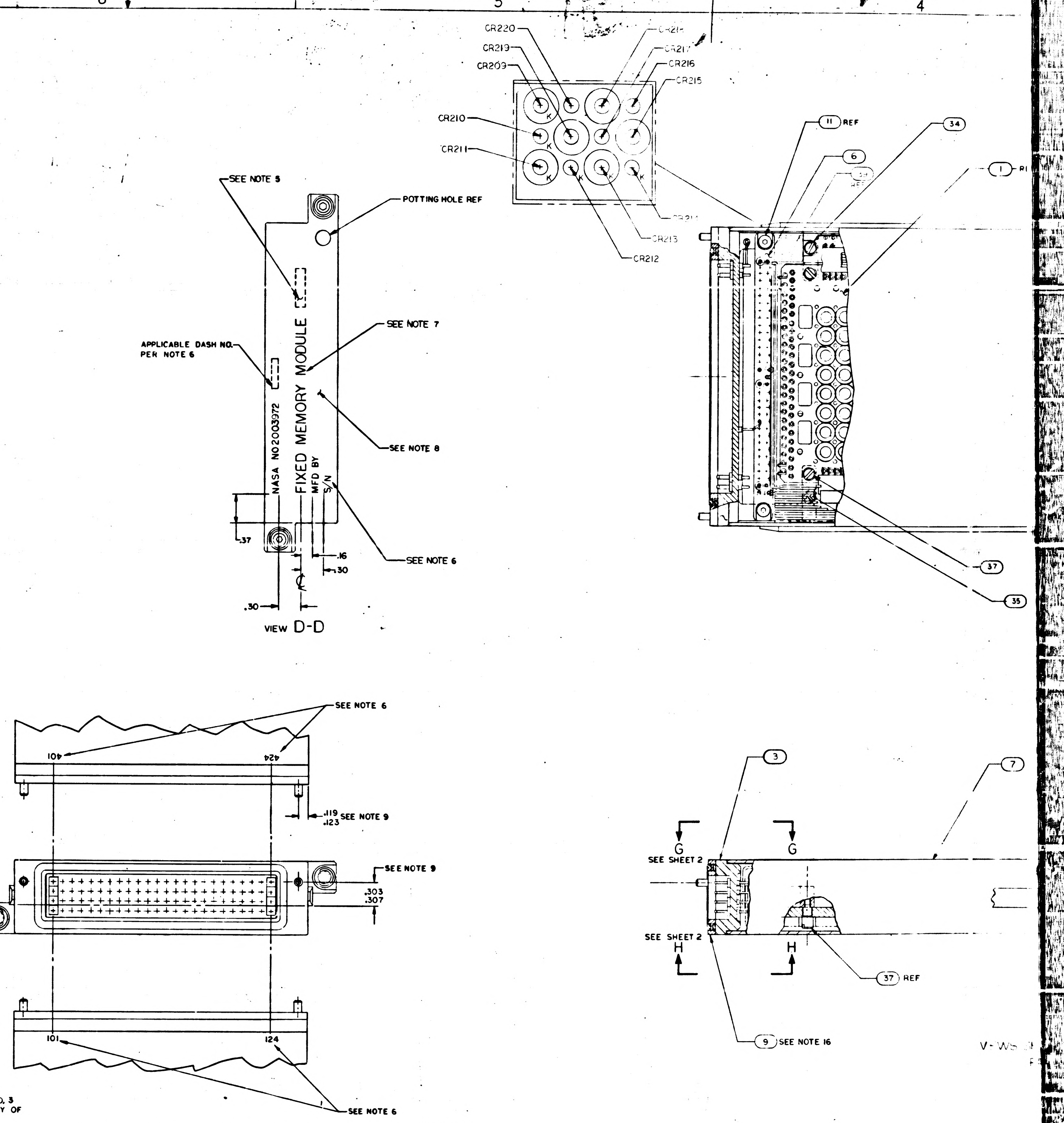
MODERN BLUE PRINT CO. D-19550

SH1 OF 2
2003972

PART NO.	MODULE NO.	FIND NO. 1	FIND NO. 2	MODULE DECK NO.	NEXT ASSEMBLY NO. (REF)	PROCUREMENT SPECIFICATION SEE NOTE 15
2003972-011	B1	2003060-061	2003061-061	0205	2021101	PS2003972
2003972-021	B2	2003060-071	2003061-071	0206	2021101	
2003972-031	B3	2003060-081	2003061-081	0207	2021101	
2003972-041	B1	2003060-121	2003061-121	0210	2021104	
2003972-051	B2	2003060-131	2003061-131	0211	2021104	
2003972-061	B3	2003060-141	2003061-141	0212	2021104	
2003972-071	B2	2003060-151	2003061-151	0213	2021104	
2003972-081	B3	2003060-161	2003061-161	0214	2021104	
2003972-091	B2	2003060-171	2003061-171	0215	2021101	
2003972-111	B3	2003060-181	2003061-181	0216	2021101	PS2003972
2003972-121	B1	2003060-091	2003061-091	0208	2021105-031	PS2003960
2003972-131	B2	2003060-111	2003061-111	0209	2021105-031	PS2003960
2003972-141	B1	2003060-191	2003061-191	0217	2021106-011	PS2003972
2003972-151	B2	2003060-211	2003061-211	0218	2021106-011	
2003972-161	B3	2003060-221	2003061-221	0219	2021106-011	
2003972-171	B4	2003060-231	2003061-231	0220	2021106-011	
2003972-181	B5	2003060-241	2003061-241	0221	2021106-011	
2003972-191	B6	2003060-251	2003061-251	0222	2021106-011	
2003972-211	B3	2003060-261	2003061-261	0223	2021104-041	PS2003972
2003972-221	B1	2003060-271	2003061-271	0224	2021105-041	PS2003960
2003972-231	B1	2003060-281	2003061-281	0225	2021106-021	PS2003972
2003972-241	B3	2003060-291	2003061-291	0226	2021106-021	
2003972-251	B5	2003060-311	2003061-311	0227	2021106-021	
2003972-261	B1	2003060-321	2003061-321	0230	2021107-011	
2003972-271	B2	2003060-331	2003061-331	0229	2021107-011	
2003972-281	B2	2003060-341	2003061-341	0231	2021106-031	
2003972-291	B1	2003060-351	2003061-351	0238	2021107-021	PS2003972
2003972-311	B1	2003060-361	2003061-361	0239	2021108-021	PS2016016
-321	B2	2003060-371	2003061-371	0240	2021108-021	PS2016016
-331	B3	2003060-381	2003061-381	0241	2021108-021	PS2016016
-341	B4	2003060-391	2003061-391	0242	2021108-021	PS2016016
351	B5	2003060-411	2003061-411	0243	2021108-021	PS2016016
2003972-361	B6	2003060-421	2003061-421	0244	2021108-021	PS2016016
2003972-371	B1	2003060-431	2003061-431	0245	2021110-011	PS2016016
2003972-381	B2	2003060-441	2003061-441	0246	2021110-011	
2003972-391	B3	2003060-451	2003061-451	0247	2021110-011	
2003972-411	B4	2003060-461	2003061-461	0248	2021110-011	
2003972-421	B5	2003060-471	2003061-471	0249	2021110-011	
2003972-431	B6	2003060-481	2003061-481	0250	2021110-011	PS2016016
[illegible]	B	[illegible]	2003061-491	0251	2021110-021	PS2016016
2003972-[illegible]	B2	2003060-511	2003061-511	0252	2021110-021	
[illegible]	B3	2003060-521	2003061-521	0253	2021110-021	
[illegible]	B4	2003060-531	2003061-531	0254	2021110-021	
[illegible]	B5	2003060-541	2003061-541	0255	2021110-021	
2003972-4[illegible]	B6	2003060-[illegible]	200306[illegible]-[illegible]	0256	2021110-021	PS2016016
-511	B1	-561	-561	0257	2021111-021&031	PS2016036
-521	B2	-571	-571	0258	-021&031	
-531	B3	-581	-581	0259	-021&031	
-541	B4	-591	-591	0260	2021111-021&031	
-551	B5	-611	-611	0261	2021111-021	
2003972-561	B6	2003060-621	2003061-621	0262	2021111-021&031	PS2016036
2003972-571	B5	2003060-631	2003061-631	0263	2021111-031	PS2016036
2003972-581	B1	2003060-641	2003061-641	0264	2021110-031	PS2016036
-591	B2	-651	-651	0265	2021110-031	
-611	B3	-661	-661	0266	2021110-031	
-621	B4	-671	-671	0267	2021110-031	
-631	B5	-681	-681	0268	2021110-031	
2003972-641	B6	2003060-691	2003061-691	0269	2021110-031	PS2016036
2003972-651	B1	2003060-711	2003061-711	0270	2021111-041	PS2016036
-661	B2	-721	-721	0271	-041	
-671	B3	-731	-731	0272	-041	
-681	B4	-741	-741	0273	-041	
-691	B5	-751	-751	0274	-041	
2003972-711	B6	2003060-761	2003061-761	0275	2021111-041	PS2016036
2003972-721	B1	2003060-771	2003061-771	0276	2021112-011	PS2016036
-731	B2	-781	-781	0277	-011	
-741	B3	-791	-791	0278	-011	
-751	B4	-811	-811	0279	-011	
-761	B5	-821	-821	0280	-011	
2003972-771	B6	2003060-831	2003061-831	0281	2021112-011	PS2016036
2003972-781	B1	2003060-841	2003061-841	0282	2021113-011	PS2016036
-791	B2	-851	-851	0283	-011	
-811	B3	-861	-861	0284	-011	
-821	B4	-871	-871	0285	-011	
-831	B5	-881	-881	0286	-011	
2003972-841	B6	2003060-891	2003061-891	0287	2021113-011	PS2016036
2003972-851	B3	2003060-911	2003061-911	0288	2021113-021	PS2016036
2003972-861	B1	2003060-921	2003061-921	0289	2021113-031	PS2016036
-871	B2	-931	-931	0290	-031	
-881	B3	-941	-941	0291	-031	
-891	B4	-951	-951	0292	-031	
-911	B5	-961	-961	0293	-031	
2003972-921	B6	2003060-971	2003061-971	0294	2021113-031	PS2016036
2003972-931	B2	2003060-981	2003061-981	0295	2021112-031	PS2016036
2003972-941	B2	2003060-991	2003061-991	0296	2021113-041	PS2016036
[illegible]	B1	-1011	-1011	0297	2021112-021	
-96	B2	-1021	-1021	0298		
-97	B3	-1031	-1031	0299		
-98	B4	-1041	-1041	0300		
-991	B5	-1051	-1051	0301		
[illegible]	B6	2003060-1061	2003061-1061	0302	2021112-021	PS2016036

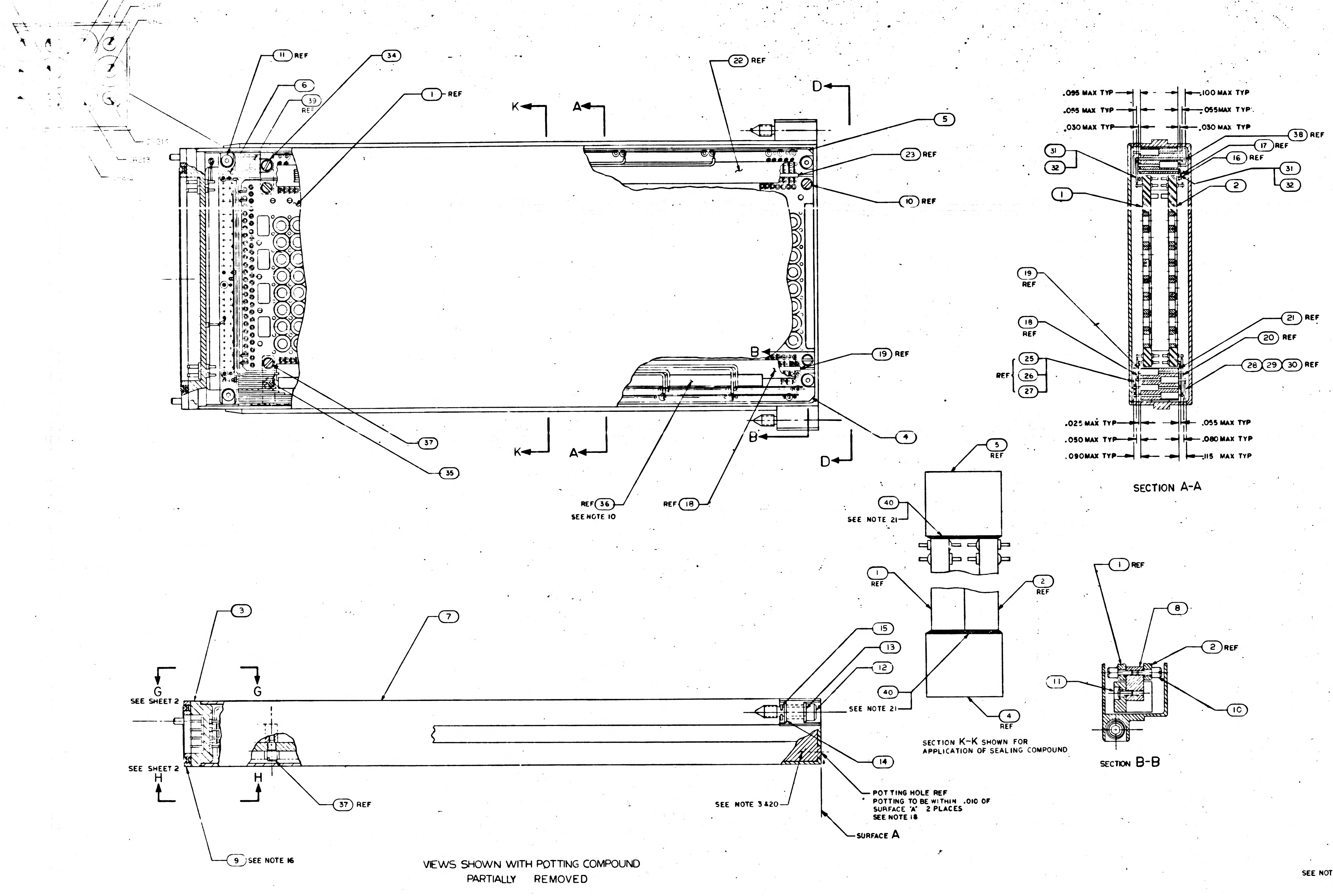
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
3. ENCAPSULATE MODULE PER ND1002226 METHOD II
4. WELD PER ND1002005
5. MARK APPROPRIATE MODULE NO. AS SHOWN IN CHART
6. MARK .08/.06 HIGH PER ND1002019 AND ND1002122, TYPE II CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
7. MARK .14/.10 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 USING INK 1006271-1
8. PAINT INDICATED SURFACES OF FIND NO 7. PER ND1002279 WITH SCD NO.1008809-1 DARK GREY EPOXY RESIN ENAMEL, FINAL COAT PER ND1002277 USING 1012543-003
9. ASSEMBLE FIND NO.7 AND FIND NO.3 TO DIMENSIONS SHOWN
10. REMOVE LINER FROM NEARSIDE OF FIND NO.36 AND ASSEMBLE 3 PLACES AS SHOWN. FIND NO.36 MUST INSULATE FLAT CABLES FROM TRIMMED COMPONENT LEADS, TRIM AS REQUIRED
11. WHITE DOT AND SINGLE SOLID LEAD DENOTES FIRST LEVEL WIRING UNLESS OTHERWISE SPECIFIED
12. BLACK DOT AND SINGLE SOLID LEAD DENOTES SECOND LEVEL WIRING
13. BLACK DOT AND CROSS HATCHED LEAD DENOTES THIRD LEVEL WIRING
14. ALL LEADS FROM FIND NO.1 AND FIND NO.2 TO FIND NO.3 TO BE THIRD LEVEL WIRING
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PROCUREMENT SPECIFICATION AS LISTED IN CHART.
16. FIND NO.9 TO BE SHIPPED UNASSEMBLED AND IDENTIFIED PER ND 1002019
17. SEAL PINS AND INSULATORS TO FIND NO. 3 PER ND1002004 TYPE VI BEFORE ASSY OF FIND NO. 6
18. FILL AS SHOWN PER ND1002235 METHOD A
19. BOND FIND NO.39 TO FIND NO.3 PER ND1002004 TYPE VI AFTER ASSY OF FIND NO.6
20. PRIOR TO ENCAPSULATION PER NOTE 3, COAT OVER ALL TERMINALS OF FIND NO'S 1,2,&3 AND OVER ALL WIRES, SLEEVING AND COMPONENT LEADS OF FIND NO'S 4,5,6,16,17,18,19,20,21,22,23,24, 25,26,27,28,29,30,31,32,33,38 &39 WITH A .03 MAXIMUM THICKNESS OF SILICONE RUBBER PER ND1002009, METHOD A. MASK ALL OUTSIDE SURFACES OF FIND NO.3 AND ALL OTHER SURFACES OF THIS ASSEMBLY COMING IN CLOSE CONTACT WITH FIND NO.7
21. FILL INTERFACE BETWEEN FIND NO. 4 AND SIDE SURFACES OF FIND NO'S 1 AND 2, AND INTERFACE BETWEEN FIND NO.5 AND SIDE SURFACES OF FIND NO'S 1 AND 2 USING FIND NO. 4C. ROOM TEMP CURE FOR 24 HOURS MIN.



REFERENCES:

1. PROCESS REQUIREMENTS FOR CONTROL AND INSPECTION OF ROPE MEMORY ASSEMBLIES ND1002285
2. FIXED MEMORY FIXTURE DWG. NO. AP22500


11 REF
34
6
39 REF
1 REF
22 REF
D
K
A
5
23 REF
10 REF
19 REF
4
B
37
35
REF 36
SEE NOTE 10
REF 18
.095 MAX TYP
.055 MAX TYP
.030 MAX TYP
.100 MAX TYP
.055 MAX TYP
.030 MAX TYP
38 REF
17 REF
16 REF
31
32
1
2
19 REF
18 REF
21 REF
20 REF
25
26
27
REF
28 29 30 REF
.025 MAX TYP
.050 MAX TYP
.090 MAX TYP
.055 MAX TYP
.080 MAX TYP
.115 MAX TYP
SECTION A-A
5 REF
40
SEE NOTE 21
1 REF
2 REF
4 REF
SECTION K-K SHOWN FOR APPLICATION OF SEALING COMPOUND
1 REF
8
2 REF
11
10
SECTION B-B
3
7
G
SEE SHEET 2
SEE SHEET 2
H
15
13
12
SEE NOTE 21
14
37 REF
SEE NOTE 3 & 20
POTTING HOLE REF
POTTING TO BE WITHIN .010 OF SURFACE "A" 2 PLACES
SEE NOTE 18
SURFACE A
9 SEE NOTE 16
VIEWS SHOWN WITH POTTING COMPOUND PARTIALLY REMOVED

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL RELEASE TDRR 37991		
B	REVISED PER TDRR 33480 DR CHK		78R
C	REVISED PER TDRR 33[illegible]4 DR CHK	5/15/67	78R
D	REVISED PER TDRR 33606 DR CHK	5/19/67	78R
E	REVISED PER TDRR 34130 DR CHK		78R
F	REVISED PER TDRR 34489 DR CHK	10-18-67	78R
G	REVISED PER TDRR [illegible] DR CHK		78R
H	REVISED PER TDRR 35549 DR CHK		78R
J	REVISED PER TDRR 35849 DR CHK		78R
K	REVISED PER TDRR 35970 DR CHK		78R
L	REVISED PER TDRR 36217 DR CHK		78R
M	REVISED PER TDRR [illegible] DR CHK		78R
N	REVISED PER TDRR 36686 DR CHK		78R
P	REVISED PER TDRR [illegible] DR CHK		78R
R	REVISED PER TDRR 36858 DR CHK		78R
S	REVISED PER TDRR 36916 DR CHK		78R
T	REVISED PER TDRR 36970 DR CHK		78R
U	REVISED PER TDRR 37059 DR CHK		78R
V	REVISED PER TDRR 37145 DR CHK	3/1/69	78R
W	REVISED PER TDRR 37387 DR CHK	3/15/69	78R
Y	REVISED PER TDRR 37427 DR CHK	4/1/69	78R
Z	REVISED PER TDRR 37454 DR CHK	16 APR 69	78R
AA	REVISED PER TDRR [illegible] DR CHK	6 MAY 69	78R

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006341	ADHESIVE SEALANT, SILICONE RUBBER	40
1	2003986-021	COMPONENT BLOCK DIODE ASSY	39
☒	2005935	SCHEMATIC	REF
1	2004684	FLAT CABLE	38
4	2004150 — 003	SCREW, SHOULDERED	37
AR	1006806 — 26	INSULATION TAPE, ELECTRICAL	36
1	2004150 — 001	SCREW, SHOULDERED	35
1	2004150 — 002	SCREW, SHOULDERED	34
1	2004129	FLAT CABLE INTERCONNECTION	33
AR	1006776-25	SLEEVING	32
AR	1006757-12	WIRE, ELECRICAL	31
1	2004125	FLAT CABLE	30
1	2004122	FLAT CABLE	29
1	2004124	FLAT CABLE	28
1	2004123	FLAT CABLE	27
1	2004121	FLAT CABLE	26
1	2004120	FLAT CABLE	25
1	2004[illegible]	FLAT CABLE	24
1	2003051 — 013	MATRIX ASSY	23
1	2003051 — 014	MATRIX ASSY	22
8	2003051 — 016	MATRIX ASSY	21
8	2003051 — 015	MATRIX ASSY	20
1	2003051 — 017	MATRIX ASSY	19
1	2003051 — 018	MATRIX ASSY	18
1	2003051 — 011	MATRIX ASSY	17
1	2003051 — 012	MATRIX ASSY	16
2	MS16633-4015	"E" RING	15
2	1004546-3	WASHER	14
2	1004546-1	WASHER	13
2	1004579-1	SCREW, JACKING	12
4	1000093-1	SCREW, BUTTONHEAD	11
4	2004151	SCREW, STANDOFF	10
1	1006339	GASKET PLATE	9
2	2004071	STANDOFF	8
1	2004100	HOUSING	7
1	2003048-021	RESISTOR-DIODE BLOCK ASSY	6
1	2003052-021	COMPONENT BLOCK RESISTOR ASSY	5
1	2003045-021	COMPONENT BLOCK DIODE ASSY	4
1	2003973-011	CONNECTOR PLATE ASSY	3
1	2003061-SEE CHART	SENSE WIRING ASSY SIDE B	2
1	2003060-SEE CHART	SENSE WIRING ASSY SIDE A	1

LIST OF MATERIALS

SEE NOTE 16

FOR APPLICABLE PART NO. SEE CHART

SEE CHART	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN DATE 6 AUG
CHECKED 12 AUG
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003972
SCALE 2/1
WT
SHEET 1 OF 3

2003972 AA

CONTROL
MORY ASSEMBLIES
DWG NO AP22500

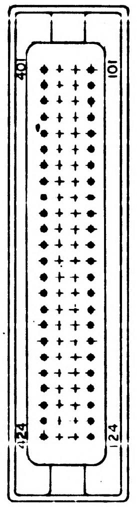
AA

SH1/3 2003972AAF2/2

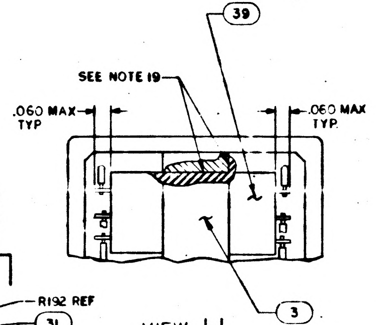
WIRE LIST			
PIN NO.	COMPONENT OR TERM. NO.	PIN NO.	COMPONENT OR TERM. NO.
101	A-E1-213	301	GROUND
102	A-E1-212	302	CR209
103	A-E1-211	303	CR210
104	A-E0-211	304	CR211
105	A-E1-210	305	CR212
106	A-E1-209	306	CR213
107	A-E1-208	307	CR214
108	A-E1-207	308	A-CR208
109	A-E1-206	309	A-CR207
110	A-E1-205	310	A-CR206
111	A-E1-204	311	A-CR205
112	A-E1-203	312	A-CR204
113	A-E1-202	313	A-CR203
114	A-E1-201	314	A-CR202
115	A-E1-200	315	A-CR201
116	A-E1-199	316	A-CR200
117	A-E1-198	317	A-CR199
118	A-E1-197	318	A-CR198
119	A-E1-196	319	A-CR197
120	A-E1-195	320	A-CR196
121	A-E0-194	321	A-CR195
122	A-E1-194	322	A-CR194
123	A-E0-193	323	A-CR193
124	A-E1-193	324	SPARE
201	B-R208	401	B-E1-213
202	CR215	402	B-E1-212
203	CR216	403	B-E1-211
204	CR217	404	B-E0-211
205	CR218	405	B-E1-210
206	CR219	406	B-E1-209
207	CR220	407	B-E1-208
208	B-CR208	408	B-E1-207
209	B-CR207	409	B-E1-206
210	B-CR206	410	B-E1-205
211	B-CR205	411	B-E1-204
212	B-CR204	412	B-E1-203
213	B-CR203	413	B-E1-202
214	B-CR202	414	B-E1-201
215	B-CR201	415	B-E1-200
216	B-CR200	416	B-E1-199
217	B-CR199	417	B-E1-198
218	B-CR198	418	B-E1-197
219	B-CR197	419	B-E1-196
220	B-CR196	420	B-E1-195
221	B-CR195	421	B-E0-194
222	B-CR194	422	B-E1-194
223	B-CR193	423	B-E0-193
224	SPARE	424	B-E1-193

WIRE LIST	
TERMINAL NO.	TERMINAL NO.
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
A-E0-195	B-E0-195
A-E0-196	B-E0-196
A-E0-197	B-E0-197
A-E0-198	B-E0-198
A-E0-199	B-E0-199
A-E0-200	B-E0-200
A-E0-201	B-E0-201
A-E0-202	B-E0-202
A-E0-203	B-E0-203
A-E0-204	B-E0-204
A-E0-205	B-E0-205
A-E0-206	B-E0-206
A-E0-207	B-E0-207
A-E0-208	B-E0-208
A-E0-209	B-E0-209
A-E0-210	B-E0-210
SPARE	SPARE
SPARE	SPARE
A-E0-212	B-E0-212
A-E0-213	B-E0-213

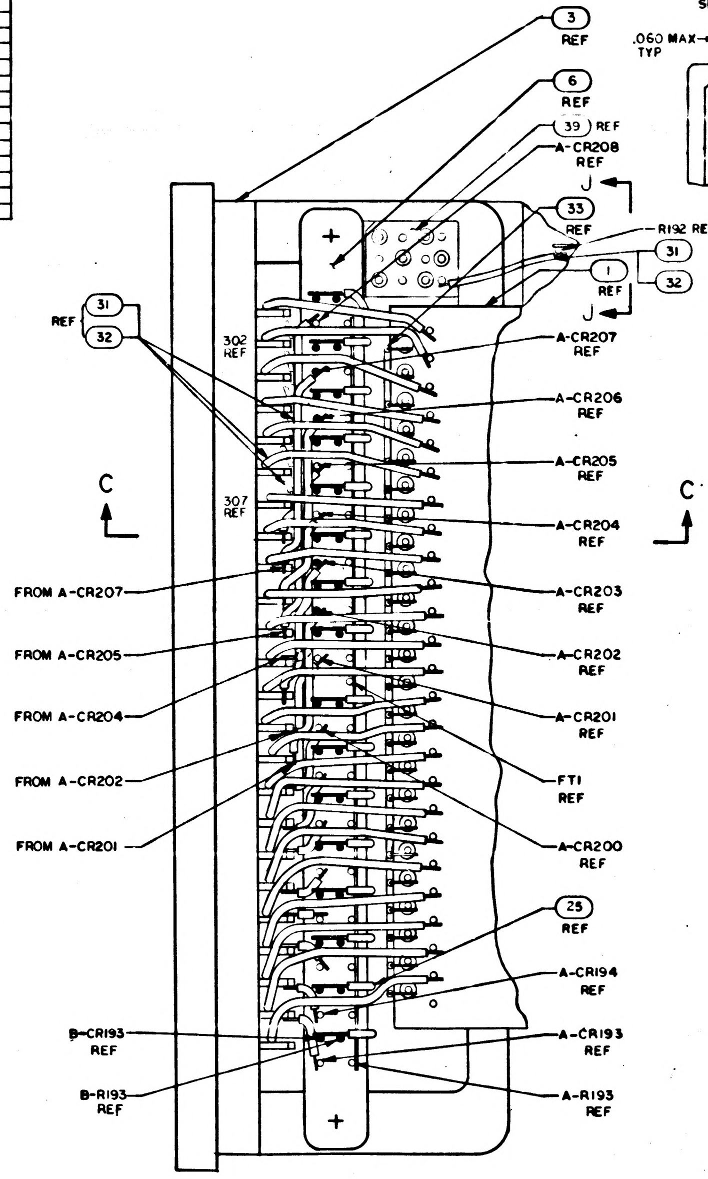
WIRE LIST	
COMPONENT NO.	COMPONENT NO.
CR215	R176
CR216	R144
CR217	R112
CR218	R80
CR219	R48
CR220	R16
CR209	R32
CR210	R64
CR211	R96
CR212	R128
CR213	R160
CR214	R192


401
101
124
24

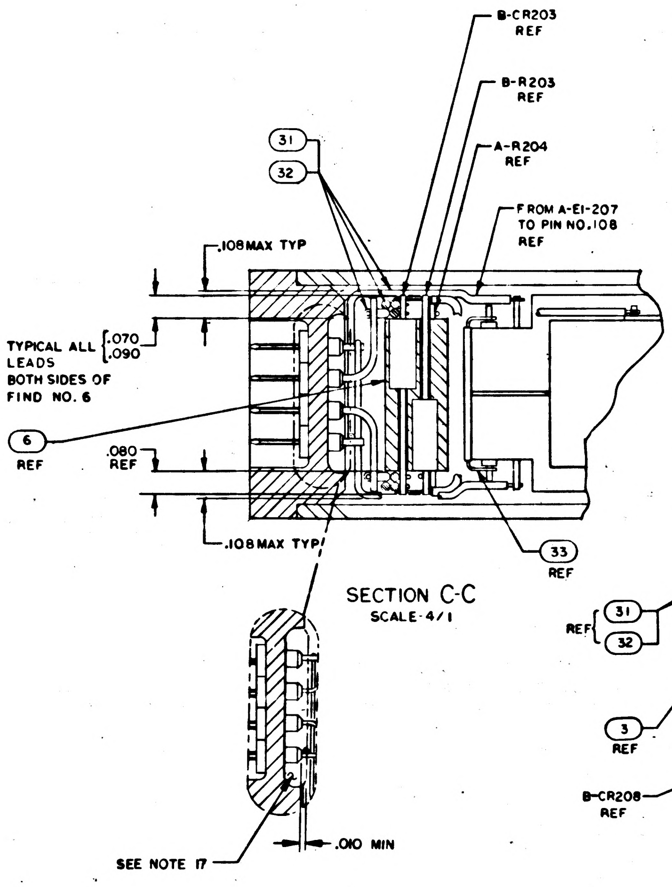
SECTION E-E


39
SEE NOTE 19
.060 MAX TYP
.060 MAX TYP
3
REF

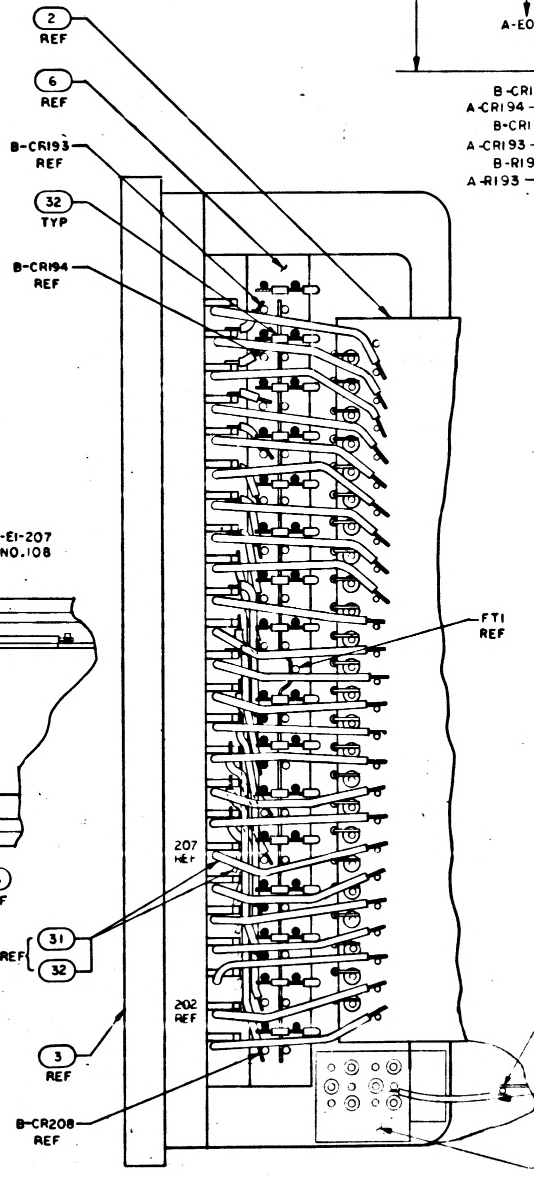
VIEW J-J


3
REF
6
REF
39 REF
A-CR208
REF
J
33
REF
R192 REF
31
32
1
REF
J
REF
31
32
302
REF
A-CR207
REF
A-CR206
REF
A-CR205
REF
C
C
307
REF
A-CR204
REF
FROM A-CR207
A-CR203
REF
FROM A-CR205
A-CR202
REF
FROM A-CR204
A-CR201
REF
FROM A-CR202
FT1
REF
FROM A-CR201
A-CR200
REF
25
REF
A-CR194
REF
B-CR193
REF
A-CR193
REF
B-R193
REF
A-R193
REF

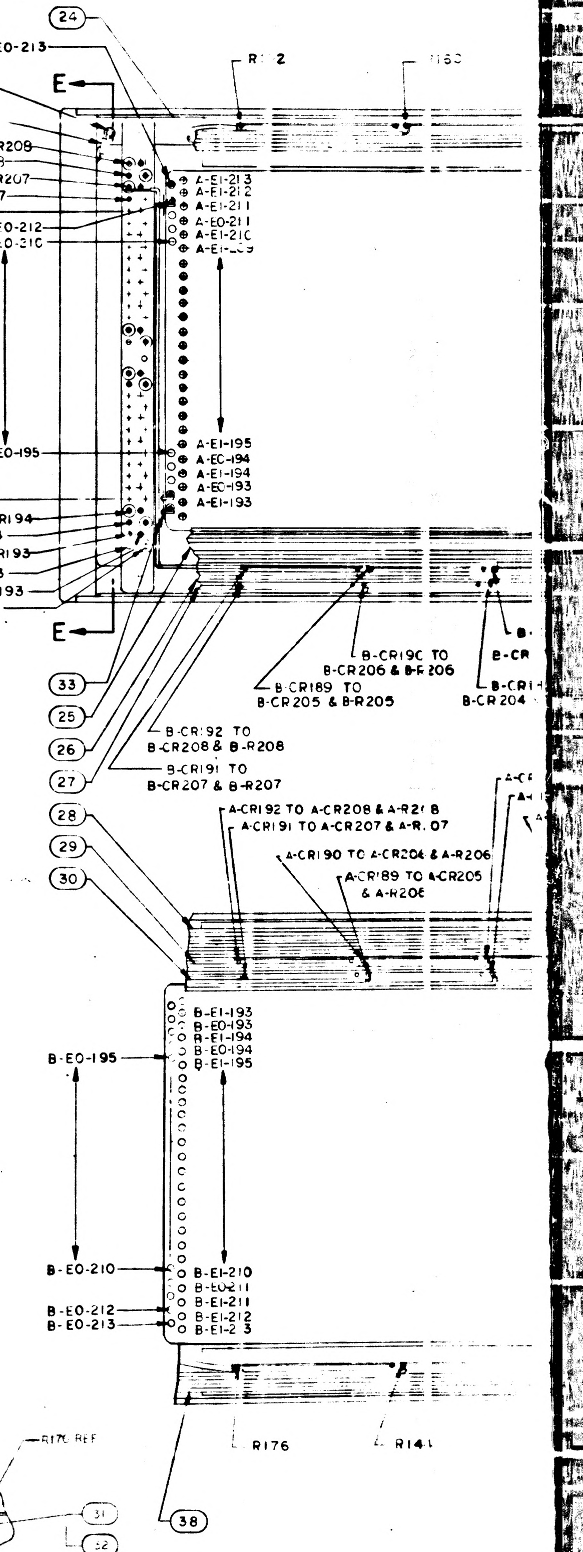
VIEW G-G
SCALE: 4/1
SHOWN WITH POTTING AND FIND NO. 7
REMOVED. SEE NOTES 11, 12, 13 AND 14


B-CR203
REF
B-R203
REF
A-R204
REF
31
32
FROM A-E1-207
TO PIN NO. 108
REF
.108 MAX TYP
TYPICAL ALL LEADS BOTH SIDES OF FIND NO. 6
.070
.090
6
REF
.080
REF
.108 MAX TYP
33
REF
SEE NOTE 17
.010 MIN

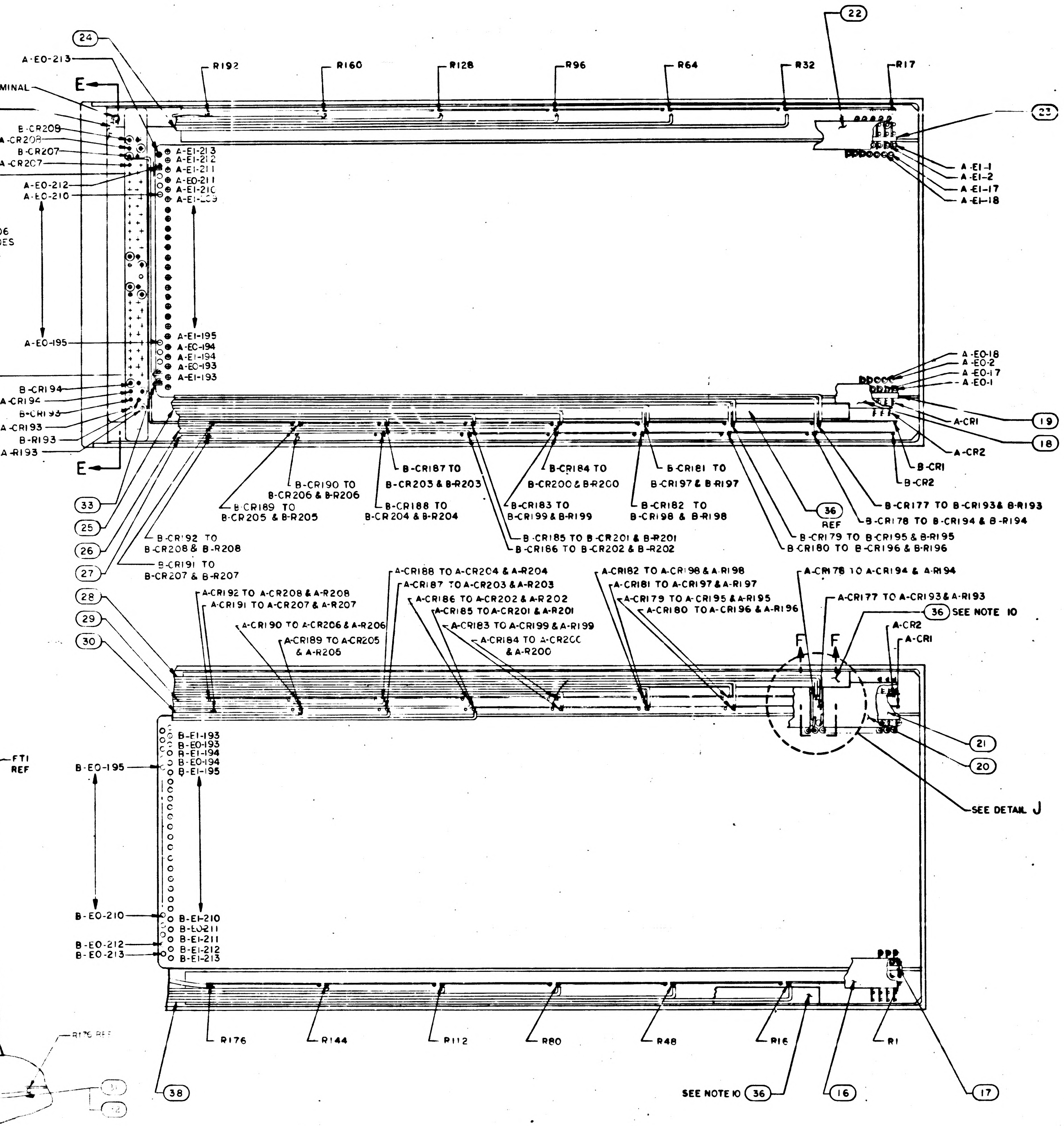
SECTION C-C
SCALE-4/1


2
REF
6
REF
B-CR193
REF
32
TYP
B-CR194
REF
FT1
REF
207
REF
31
32
REF
202
REF
3
REF
B-CR208
REF
R176 REF
31
32
33 REF

VIEW H-H
SCALE: 4/1
SHOWN WITH POTTING AND FIND NO. 7
REMOVED. SEE NOTES 11, 12, 13 AND 14


24
A-E0-213
CASE GROUND TERMINAL
31
32
E
R192
R160
B-CR208
A-CR208
B-CR207
A-CR207
A-E1-213
A-E1-212
A-E1-211
A-E0-211
A-E1-210
A-E1-209
A-E0-212
A-E0-210
CR195 TO CR206
BOTH A & B DIODES
AND RESISTORS
A-E0-195
A-E1-195
A-E0-194
A-E1-194
A-E0-193
A-E1-193
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
E
B-CR190 TO
B-CR206 & B-R206
B-CR189 TO
B-CR205 & B-R205
B-CR204
33
25
26
27
B-CR192 TO
B-CR208 & B-R208
B-CR191 TO
B-CR207 & B-R207
28
29
30
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205
& A-R206
B-E1-193
B-E0-193
B-E1-194
B-E0-194
B-E1-195
B-E0-195
B-E0-210
B-E1-210
B-E0-211
B-E1-211
B-E1-212
B-E1-213
B-E0-212
B-E0-213
R176
R144
38

SYM	ZONE	REVISIONS DESCRIPTION	DR	CHK	DATE	APPROVED
A		INITIAL RELEASE TDRR 329				
B		REVISED PER TDRR 33460				
C		REVISED PER TDRR 33544				
D		REVISED PER TDRR 33606				
E		REVISED PER TDRR 34140				
F		REVISED PER TDRR 3448				
G		REVISED PER TDRR 3499				
H		REVISED PER TDRR 3533				
J		REVISED PER TDRR				
K		REVISED PER TDRR 3587				
L		REVISED PER TDRR 362				
M		REVISED PER TDRR				
N		REVISED PER TDRR 36 8				
P		REVISED PER TDRR				
R		REVISED PER TDRR				
S		REVISED PER TDRR				
T		REVISED PER TDRR				
U		REVISED PER TDRR				
V		REVISED PER TDRR				
W		REVISED PER TDRR				
Y		REVISED PER TDRR				
Z		REVISED PER TDRR 54				
AA		REVISED PER TDRR 37535				



A-E0-213
R192
R160
R128
R96
R64
R32
R17
22
24
CASE GROUND TERMINAL
E
31
32
B-CR208
A-CR208
B-CR207
A-CR207
A-E0-212
A-E0-210
A-EI-213
A-EI-212
A-EI-211
A-E0-211
A-EI-210
A-EI-209
CR195 TO CR206 BOTH A&B DIODES AND RESISTORS
A-E0-195
A-EI-195
A-E0-194
A-EI-194
A-E0-193
A-EI-193
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
23
A-EI-1
A-EI-2
A-EI-17
A-EI-18
A-E0-18
A-E0-2
A-E0-17
A-E0-1
A-CR1
A-CR2
B-CR1
B-CR2
19
18
B-CR190 TO B-CR206 & B-R206
B-CR187 TO B-CR203 & B-R203
B-CR184 TO B-CR200 & B-R200
B-CR181 TO B-CR197 & B-R197
B-CR189 TO B-CR205 & B-R205
B-CR188 TO B-CR204 & B-R204
B-CR183 TO B-CR199 & B-R199
B-CR182 TO B-CR198 & B-R198
B-CR185 TO B-CR201 & B-R201
B-CR186 TO B-CR202 & B-R202
B-CR177 TO B-CR193 & B-R193
B-CR178 TO B-CR194 & B-R194
B-CR179 TO B-CR195 & B-R195
B-CR180 TO B-CR196 & B-R196
36 REF
33
25
26
27
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
28
29
30
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205 & A-R205
A-CR188 TO A-CR204 & A-R204
A-CR187 TO A-CR203 & A-R203
A-CR186 TO A-CR202 & A-R202
A-CR185 TO A-CR201 & A-R201
A-CR183 TO A-CR199 & A-R199
A-CR184 TO A-CR200 & A-R200
A-CR182 TO A-CR198 & A-R198
A-CR181 TO A-CR197 & A-R197
A-CR179 TO A-CR195 & A-R195
A-CR180 TO A-CR196 & A-R196
A-CR178 TO A-CR194 & A-R194
A-CR177 TO A-CR193 & A-R193
36 SEE NOTE 10
A-CR2
A-CR1
F
F
21
20
SEE DETAIL J
B-E0-195
B-EI-193
B-E0-193
B-EI-194
B-E0-194
B-EI-195
B-E0-210
B-EI-210
B-E0-211
B-EI-211
B-E0-212
B-EI-212
B-E0-213
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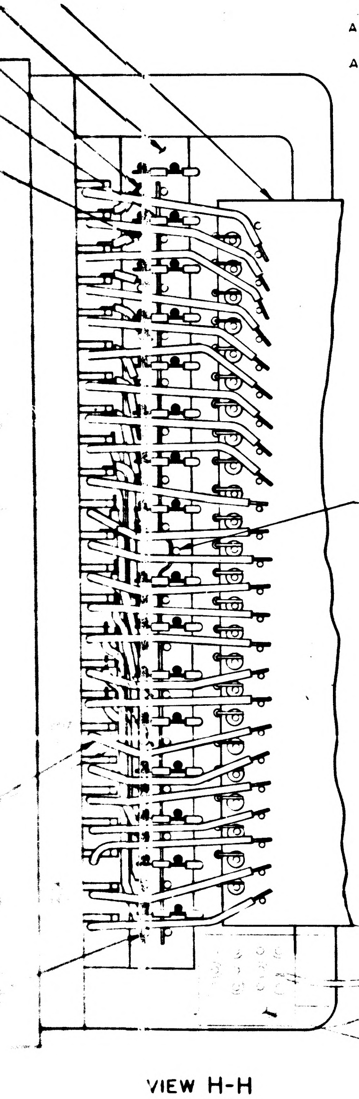
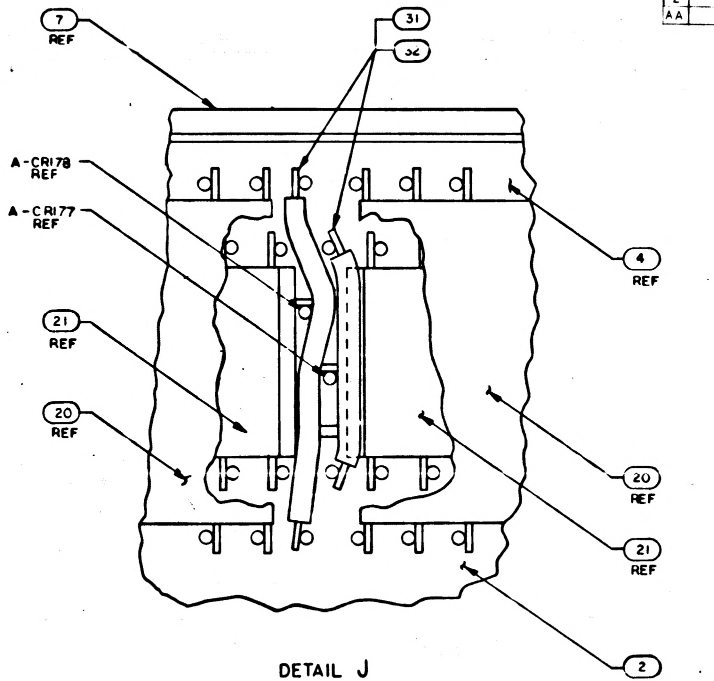
R176
R144
R112
R80
R48
R16
R1
38
SEE NOTE 10
36
16
17



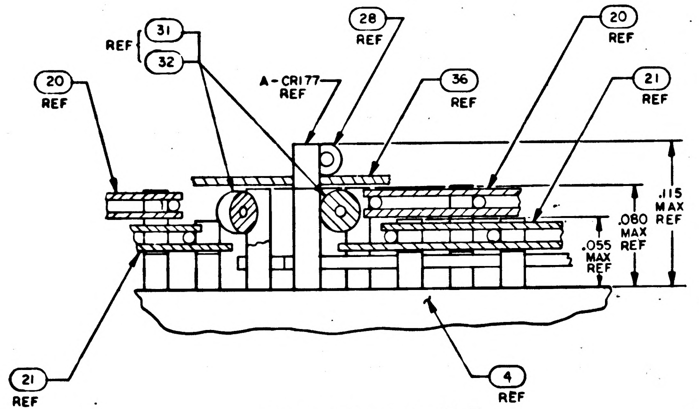
FTI REF
R176 REF
31
32
33 REF

VIEW H-H
SCALE 4/1
SHOWN WITH POTTING AND FIND NO. 7 REMOVED. SEE NOTES 11,12,13 AND 14



7 REF
31
32
A-CR178 REF
A-CR177 REF
21 REF
20 REF
4 REF
20 REF
21 REF
2 REF

DETAIL J
SCALE 10/1
TYPICAL WIRING 8 PLACES, SHOWN WITH FIND NOS 28 AND 36 REMOVED



REF 31
32
28 REF
20 REF
A-CR177 REF
36 REF
20 REF
21 REF
.115 MAX
.080 MAX REF
.055 MAX REF
21 REF
4 REF

PARTIAL SECTION F-F
SCALE: 20/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE ASSEMBLY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003
SCALE 2/1
SHEET 2 OF 3

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NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

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SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL RELEASE TDRR 32991				
B		REVISED PER TDRR 33410				
C		REVISED PER TDRR [illegible]				
D		REVISED PER TDRR [illegible]				
E		REVISED PER TDRR [illegible]				
F		REVISED PER TDRR [illegible]				
G		REVISED PER TDRR [illegible]				
H		REVISED PER TDRR [illegible]				
J		REVISED PER TDRR [illegible]				
K		REVISED PER TDRR [illegible]				
L		REVISED PER TDRR [illegible]				
M		REVISED PER TDRR [illegible]				
N		REVISED PER TDRR 36686				
P		REVISED PER TDRR [illegible]				
R		REVISED PER TDRR [illegible]				
S		REVISED PER TDRR [illegible]				
T		REVISED PER TDRR [illegible]				
U		REVISED PER TDRR [illegible]				
V		REVISED PER TDRR [illegible]				
W		REVISED PER TDRR 37387				
Y		REVISED PER TDRR 37427				
Z		REVISED PER TDRR [illegible]				
AA		REVISED PER TDRR 37535				

WIRE LIST

TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.
A-EO-1	A-CR1	A-EO-97	A-CR97	B-EO-1	B-CR1	B-EO-97	B-CR97	A-EI-1	R1	A-EI-49	R49	A-EI-97	R97	A-EI-145	R145
A-EO-2	A-CR2	A-EO-98	A-CR98	B-EO-2	B-CR2	B-EO-98	B-CR98	B-EI-1		B-EI-49		B-EI-97		B-EI-145	
A-EO-3	A-CR3	A-EO-99	A-CR99	B-EO-3	B-CR3	B-EO-99	B-CR99	A-EI-2	R2	A-EI-50	R50	A-EI-98	R98	A-EI-146	R146
A-EO-4	A-CR4	A-EO-100	A-CR100	B-EO-4	B-CR4	B-EO-100	B-CR100	B-EI-2		B-EI-50		B-EI-98		B-EI-146	
A-EO-5	A-CR5	A-EO-101	A-CR101	B-EO-5	B-CR5	B-EO-101	B-CR101	A-EI-3	R3	A-EI-51	R51	A-EI-99	R99	A-EI-147	R147
A-EO-6	A-CR6	A-EO-102	A-CR102	B-EO-6	B-CR6	B-EO-102	B-CR102	B-EI-3		B-EI-51		B-EI-99		B-EI-147	
A-EO-7	A-CR7	A-EO-103	A-CR103	B-EO-7	B-CR7	B-EO-103	B-CR103	A-EI-4	R4	A-EI-52	R52	A-EI-100	R100	A-EI-148	R148
A-EO-8	A-CR8	A-EO-104	A-CR104	B-EO-8	B-CR8	B-EO-104	B-CR104	B-EI-4		B-EI-52		B-EI-100		B-EI-148	
A-EO-9	A-CR9	A-EO-105	A-CR105	B-EO-9	B-CR9	B-EO-105	B-CR105	A-EI-5	R5	A-EI-53	R53	A-EI-101	R101	A-EI-149	R149
A-EO-10	A-CR10	A-EO-106	A-CR106	B-EO-10	B-CR10	B-EO-106	B-CR106	B-EI-5		B-EI-53		B-EI-101		B-EI-149	
A-EO-11	A-CR11	A-EO-107	A-CR107	B-EO-11	B-CR11	B-EO-107	B-CR107	A-EI-6	R6	A-EI-54	R54	A-EI-102	R102	A-EI-150	R150
A-EO-12	A-CR12	A-EO-108	A-CR108	B-EO-12	B-CR12	B-EO-108	B-CR108	B-EI-6		B-EI-54		B-EI-102		B-EI-150	
A-EO-13	A-CR13	A-EO-109	A-CR109	B-EO-13	B-CR13	B-EO-109	B-CR109	A-EI-7	R7	A-EI-55	R55	A-EI-103	R103	A-EI-151	R151
A-EO-14	A-CR14	A-EO-110	A-CR110	B-EO-14	B-CR14	B-EO-110	B-CR110	B-EI-7		B-EI-55		B-EI-103		B-EI-151	
A-EO-15	A-CR15	A-EO-111	A-CR111	B-EO-15	B-CR15	B-EO-111	B-CR111	A-EI-8	R8	A-EI-56	R56	A-EI-104	R104	A-EI-152	R152
A-EO-16	A-CR16	A-EO-112	A-CR112	B-EO-16	B-CR16	B-EO-112	B-CR112	B-EI-8		B-EI-56		B-EI-104		B-EI-152	
A-EO-17	A-CR17	A-EO-113	A-CR113	B-EO-17	B-CR17	B-EO-113	B-CR113	A-EI-9	R9	A-EI-57	R57	A-EI-105	R105	A-EI-153	R153
A-EO-18	A-CR18	A-EO-114	A-CR114	B-EO-18	B-CR18	B-EO-114	B-CR114	B-EI-9		B-EI-57		B-EI-105		B-EI-153	
A-EO-19	A-CR19	A-EO-115	A-CR115	B-EO-19	B-CR19	B-EO-115	B-CR115	A-EI-10	R10	A-EI-58	R58	A-EI-106	R106	A-EI-154	R154
A-EO-20	A-CR20	A-EO-116	A-CR116	B-EO-20	B-CR20	B-EO-116	B-CR116	B-EI-10		B-EI-58		B-EI-106		B-EI-154	
A-EO-21	A-CR21	A-EO-117	A-CR117	B-EO-21	B-CR21	B-EO-117	B-CR117	A-EI-11	R11	A-EI-59	R59	A-EI-107	R107	A-EI-155	R155
A-EO-22	A-CR22	A-EO-118	A-CR118	B-EO-22	B-CR22	B-EO-118	B-CR118	B-EI-11		B-EI-59		B-EI-107		B-EI-155	
A-EO-23	A-CR23	A-EO-119	A-CR119	B-EO-23	B-CR23	B-EO-119	B-CR119	A-EI-12	R12	A-EI-60	R60	A-EI-108	R108	A-EI-156	R156
A-EO-24	A-CR24	A-EO-120	A-CR120	B-EO-24	B-CR24	B-EO-120	B-CR120	B-EI-12		B-EI-60		B-EI-108		B-EI-156	
A-EO-25	A-CR25	A-EO-121	A-CR121	B-EO-25	B-CR25	B-EO-121	B-CR121	A-EI-13	R13	A-EI-61	R61	A-EI-109	R109	A-EI-157	R157
A-EO-26	A-CR26	A-EO-122	A-CR122	B-EO-26	B-CR26	B-EO-122	B-CR122	B-EI-13		B-EI-61		B-EI-109		B-EI-157	
A-EO-27	A-CR27	A-EO-123	A-CR123	B-EO-27	B-CR27	B-EO-123	B-CR123	A-EI-14	R14	A-EI-62	R62	A-EI-110	R110	A-EI-158	R158
A-EO-28	A-CR28	A-EO-124	A-CR124	B-EO-28	B-CR28	B-EO-124	B-CR124	B-EI-14		B-EI-62		B-EI-110		B-EI-158	
A-EO-29	A-CR29	A-EO-125	A-CR125	B-EO-29	B-CR29	B-EO-125	B-CR125	A-EI-15	R15	A-EI-63	R63	A-EI-111	R111	A-EI-159	R159
A-EO-30	A-CR30	A-EO-126	A-CR126	B-EO-30	B-CR30	B-EO-126	B-CR126	B-EI-15		B-EI-63		B-EI-111		B-EI-159	
A-EO-31	A-CR31	A-EO-127	A-CR127	B-EO-31	B-CR31	B-EO-127	B-CR127	A-EI-16	R16	A-EI-64	R64	A-EI-112	R112	A-EI-160	R160
A-EO-32	A-CR32	A-EO-128	A-CR128	B-EO-32	B-CR32	B-EO-128	B-CR128	B-EI-16		B-EI-64		B-EI-112		B-EI-160	
A-EO-33	A-CR33	A-EO-129	A-CR129	B-EO-33	B-CR33	B-EO-129	B-CR129	A-EI-17	R17	A-EI-65	R65	A-EI-113	R113	A-EI-161	R161
A-EO-34	A-CR34	A-EO-130	A-CR130	B-EO-34	B-CR34	B-EO-130	B-CR130	B-EI-17		B-EI-65		B-EI-113		B-EI-161	
A-EO-35	A-CR35	A-EO-131	A-CR131	B-EO-35	B-CR35	B-EO-131	B-CR131	A-EI-18	R18	A-EI-66	R66	A-EI-114	R114	A-EI-162	R162
A-EO-36	A-CR36	A-EO-132	A-CR132	B-EO-36	B-CR36	B-EO-132	B-CR132	B-EI-18		B-EI-66		B-EI-114		B-EI-162	
A-EO-37	A-CR37	A-EO-133	A-CR133	B-EO-37	B-CR37	B-EO-133	B-CR133	A-EI-19	R19	A-EI-67	R67	A-EI-115	R115	A-EI-163	R163
A-EO-38	A-CR38	A-EO-134	A-CR134	B-EO-38	B-CR38	B-EO-134	B-CR134	B-EI-19		B-EI-67		B-EI-115		B-EI-163	
A-EO-39	A-CR39	A-EO-135	A-CR135	B-EO-39	B-CR39	B-EO-135	B-CR135	A-EI-20	R20	A-EI-68	R68	A-EI-116	R116	A-EI-164	R164
A-EO-40	A-CR40	A-EO-136	A-CR136	B-EO-40	B-CR40	B-EO-136	B-CR136	B-EI-20		B-EI-68		B-EI-116		B-EI-164	
A-EO-41	A-CR41	A-EO-137	A-CR137	B-EO-41	B-CR41	B-EO-137	B-CR137	A-EI-21	R21	A-EI-69	R69	A-EI-117	R117	A-EI-165	R165
A-EO-42	A-CR42	A-EO-138	A-CR138	B-EO-42	B-CR42	B-EO-138	B-CR138	B-EI-21		B-EI-69		B-EI-117		B-EI-165	
A-EO-43	A-CR43	A-EO-139	A-CR139	B-EO-43	B-CR43	B-EO-139	B-CR139	A-EI-22	R22	A-EI-70	R70	A-EI-118	R118	A-EI-166	R166
A-EO-44	A-CR44	A-EO-140	A-CR140	B-EO-44	B-CR44	B-EO-140	B-CR140	B-EI-22		B-EI-70		B-EI-118		B-EI-166	
A-EO-45	A-CR45	A-EO-141	A-CR141	B-EO-45	B-CR45	B-EO-141	B-CR141	A-EI-23	R23	A-EI-71	R71	A-EI-119	R119	A-EI-167	R167
A-EO-46	A-CR46	A-EO-142	A-CR142	B-EO-46	B-CR46	B-EO-142	B-CR142	B-EI-23		B-EI-71		B-EI-119		B-EI-167	
A-EO-47	A-CR47	A-EO-143	A-CR143	B-EO-47	B-CR47	B-EO-143	B-CR143	A-EI-24	R24	A-EI-72	R72	A-EI-120	R120	A-EI-168	R168
A-EO-48	A-CR48	A-EO-144	A-CR144	B-EO-48	B-CR48	B-EO-144	B-CR144	B-EI-24		B-EI-72		B-EI-120		B-EI-168	
A-EO-49	A-CR49	A-EO-145	A-CR145	B-EO-49	B-CR49	B-EO-145	B-CR145	A-EI-25	R25	A-EI-73	R73	A-EI-121	R121	A-EI-169	R169
A-EO-50	A-CR50	A-EO-146	A-CR146	B-EO-50	B-CR50	B-EO-146	B-CR146	B-EI-25		B-EI-73		B-EI-121		B-EI-169	
A-EO-51	A-CR51	A-EO-147	A-CR147	B-EO-51	B-CR51	B-EO-147	B-CR147	A-EI-26	R26	A-EI-74	R74	A-EI-122	R122	A-EI-170	R170
A-EO-52	A-CR52	A-EO-148	A-CR148	B-EO-52	B-CR52	B-EO-148	B-CR148	B-EI-26		B-EI-74		B-EI-122		B-EI-170	
A-EO-53	A-CR53	A-EO-149	A-CR149	B-EO-53	B-CR53	B-EO-149	B-CR149	A-EI-27	R27	A-EI-75	R75	A-EI-123	R123	A-EI-171	R171
A-EO-54	A-CR54	A-EO-150	A-CR150	B-EO-54	B-CR54	B-EO-150	B-CR150	B-EI-27		B-EI-75		B-EI-123		B-EI-171	
A-EO-55	A-CR55	A-EO-151	A-CR151	B-EO-55	B-CR55	B-EO-151	B-CR151	A-EI-28	R28	A-EI-76	R76	A-EI-124	R124	A-EI-172	R172
A-EO-56	A-CR56	A-EO-152	A-CR152	B-EO-56	B-CR56	B-EO-152	B-CR152	B-EI-28		B-EI-76		B-EI-124		B-EI-172	
A-EO-57	A-CR57	A-EO-153	A-CR153	B-EO-57	B-CR57	B-EO-153	B-CR153	A-EI-29	R29	A-EI-77	R77	A-EI-125	R125	A-EI-173	R173
A-EO-58	A-CR58	A-EO-154	A-CR154	B-EO-58	B-CR58	B-EO-154	B-CR154	B-EI-29		B-EI-77		B-EI-125		B-EI-173	
A-EO-59	A-CR59	A-EO-155	A-CR155	B-EO-59	B-CR59	B-EO-155	B-CR155	A-EI-30	R30	A-EI-78	R78	A-EI-126	R126	A-EI-174	R174
A-EO-60	A-CR60	A-EO-156	A-CR156	B-EO-60	B-CR60	B-EO-156	B-CR156	B-EI-30		B-EI-78		B-EI-126		B-EI-174	
A-EO-61	A-CR61	A-EO-157	A-CR157	B-EO-61	B-CR61	B-EO-157	B-CR157	A-EI-31	R31	A-EI-79	R79	A-EI-127	R127	A-EI-175	R175
A-EO-62	A-CR62	A-EO-158	A-CR158	B-EO-62	B-CR62	B-EO-158	B-CR158	B-EI-31		B-EI-79		B-EI-127		B-EI-175	
A-EO-63	A-CR63	A-EO-159	A-CR159	B-EO-63	B-CR63	B-EO-159	B-CR159	A-EI-32	R32	A-EI-80	R80	A-EI-128	R128	A-EI-176	R176
A-EO-64	A-CR64	A-EO-160	A-CR160	B-EO-64	B-CR64	B-EO-160	B-CR160	B-EI-32		B-EI-80		B-EI-128		B-EI-176	
A-EO-65	A-CR65	A-EO-161	A-CR161	B-EO-65	B-CR65	B-EO-161	B-CR161	A-EI-33	R33	A-EI-81	R81	A-EI-129	R129	A-EI-177	R177
A-EO-66	A-CR66	A-EO-162	A-CR162	B-EO-66	B-CR66	B-EO-162	B-CR162	B-EI-33		B-EI-81		B-EI-129		B-EI-177	
A-EO-67	A-CR67	A-EO-163	A-CR163	B-EO-67	B-CR67	B-EO-163	B-CR163	A-EI-34	R34	A-EI-82	R82	A-EI-130	R130	A-EI-178	R178
A-EO-68	A-CR68	A-EO-164	A-CR164	B-EO-68	B-CR68	B-EO-164	B-CR164	B-EI-34		B-EI-82		B-EI-130		B-EI-178	
A-EO-69	A-CR69	A-EO-165	A-CR165	B-EO-69	B-CR69	B-EO-165	B-CR165	A-EI-35	R35	A-EI-83	R83	A-EI-131	R131	A-EI-179	R179
A-EO-70	A-CR70	A-EO-166	A-CR166	B-EO-70	B-CR70	B-EO-166	B-CR166	B-EI-35		B-EI-83		B-EI-131		B-EI-179	
A-EO-71	A-CR71	A-EO-167	A-CR167	B-EO-71	B-CR71	B-EO-167	B-CR167	A-EI-36	R36	A-EI-84	R84	A-EI-132	R132	A-EI-180	R180
A-EO-72	A-CR72	A-EO-168	A-CR168	B-EO-72	B-CR72	B-EO-168	B-CR168	B-EI-36		B-EI-84		B-EI-132		B-EI-180	
A-EO-73	A-CR73	A-EO-169	A-CR169	B-EO-73	B-CR73	B-EO-169	B-CR169	A-EI-37	R37	A-EI-85	R85	A-EI-133	R133	A-EI-181	R181
A-EO-74	A-CR74	A-EO-170	A-CR170	B-EO-74	B-CR74	B-EO-170	B-CR170	B-EI-37		B-EI-85		B-EI-133		B-EI-181	
A-EO-75	A-CR75	A-EO-171	A-CR171	B-EO-75	B-CR75	B-EO-171	B-CR171	A-EI-38	R38	A-EI-86	R86	A-EI-134	R134	A-EI-182	R182
A-EO-76	A-CR76	A-EO-172	A-CR172	B-EO-76	B-CR76	B-EO-172	B-CR172	B-EI-38		B-EI-86		B-EI-134		B-EI-182	
A-EO-77	A-CR77	A-EO-173	A-CR173	B-EO-77	B-CR77	B-EO-173	B-CR173	A-EI-39	R39	A-EI-87	R87	A-EI-135	R135	A-EI-183	R183
A-EO-78	A-CR78	A-EO-174	A-CR174	B-EO-78	B-CR78	B-EO-174	B-CR174	B-EI-39		B-EI-87		B-EI-135		B-EI-183	
A-EO-79	A-CR79	A-EO-175	A-CR175	B-EO-79	B-CR79	B-EO-175	B-CR175	A-EI-40	R40	A-EI-88	R88	A-EI-136	R136	A-EI-184	R184
A-EO-80	A-CR80	A-EO-176	A-CR176	B-EO-80	B-CR80	B-EO-176	B-CR176	B-EI-40		B-EI-88		B-EI-136		B-EI-184	
A-EO-81	A-CR81	A-EO-177	A-CR177	B-EO-81	B-CR81	B-EO-177	B-CR177	A-EI-41	R41	A-EI-89	R89	A-EI-137	R137	A-EI-185	R185
A-EO-82	A-CR82	A-EO-178	A-CR178	B-EO-82	B-CR82	B-EO-178	B-CR178	B-EI-41		B-EI-89		B-EI-137		B-EI-185	
A-EO-83	A-CR83	A-EO-179	A-CR179	B-EO-83	B-CR83	B-EO-179	B-CR179	A-EI-42	R42	A-EI-90	R90	A-EI-138	R138	A-EI-186	R186
A-EO-84	A-CR84	A-EO-180	A-CR180	B-EO-84	B-CR84	B-EO-180	B-CR180	B-EI-42		B-EI-90		B-EI-138		B-EI-186	
A-EO-85	A-CR85	A-EO-181	A-CR181	B-EO-85	B-CR85	B-EO-181	B-CR181	A-EI-43	R43	A-EI-91	R91	A-EI-139	R139	A-EI-187	R187
A-EO-86	A-CR86	A-EO-182	A-CR182	B-EO-86	B-CR86	B-EO-182	B-CR182	B-EI-43		B-EI-91		B-EI-139		B-EI-187	
A-EO-87	A-CR87	A-EO-183	A-CR183	B-EO-87	B-CR87	B-EO-183	B-CR183	A-EI-44	R44	A-EI-92	R92	A-EI-140	R140	A-EI-188	R188
A-EO-88	A-CR88	A-EO-184	A-CR184	B-EO-88	B-CR88	B-EO-184	B-CR184	B-EI-44		B-EI-92		B-EI-140		B-EI-188	
A-EO-89	A-CR89	A-EO-185	A-CR185	B-EO-89	B-CR89	B-EO-185	B-CR185	A-EI-45	R45	A-EI-93	R93	A-EI-141	R141	A-EI-189	R189
A-EO-90	A-CR90	A-EO-186	A-CR186	B-EO-90	B-CR90	B-EO-186	B-CR186	B-EI-45		B-EI-93		B-EI-141		B-EI-189	
A-EO-91	A-CR91	A-EO-187	A-CR187	B-EO-91	B-CR91	B-EO-187	B-CR187	A-EI-46	R46	A-EI-94	R94	A-EI-142	R142	A-EI-190	R190
A-EO-92	A-CR92	A-EO-188	A-CR188	B-EO-92	B-CR92	B-EO-188	B-CR188	B-EI-46		B-EI-94		B-EI-142		B-EI-190	
A-EO-93	A-CR93	A-EO-189	A-CR189	B-EO-93	B-CR93	B-EO-189	B-CR189	A-EI-47	R47	A-EI-95	R95	A-EI-143	R143	A-EI-191	R191
A-EO-94	A-CR94	A-EO-190	A-CR190	B-EO-94	B-CR94	B-EO-190	B-CR190	B-EI-47		B-EI-95		B-EI-143		B-EI-191	
A-EO-95	A-CR95	A-EO-191	A-CR191	B-EO-95	B-CR95	B-EO-191	B-CR191	A-EI-48	R48	A-EI-96	R96	A-EI-144	R144	A-EI-192	R192
A-EO-96	A-CR96	A-EO-192	A-CR192	B-EO-96	B-CR96	B-EO-192	B-CR192	B-EI-48		B-EI-96		B-EI-144		B-EI-192	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

NEXT ASSY | USED ON
APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED
APPROVED MSC
DATE

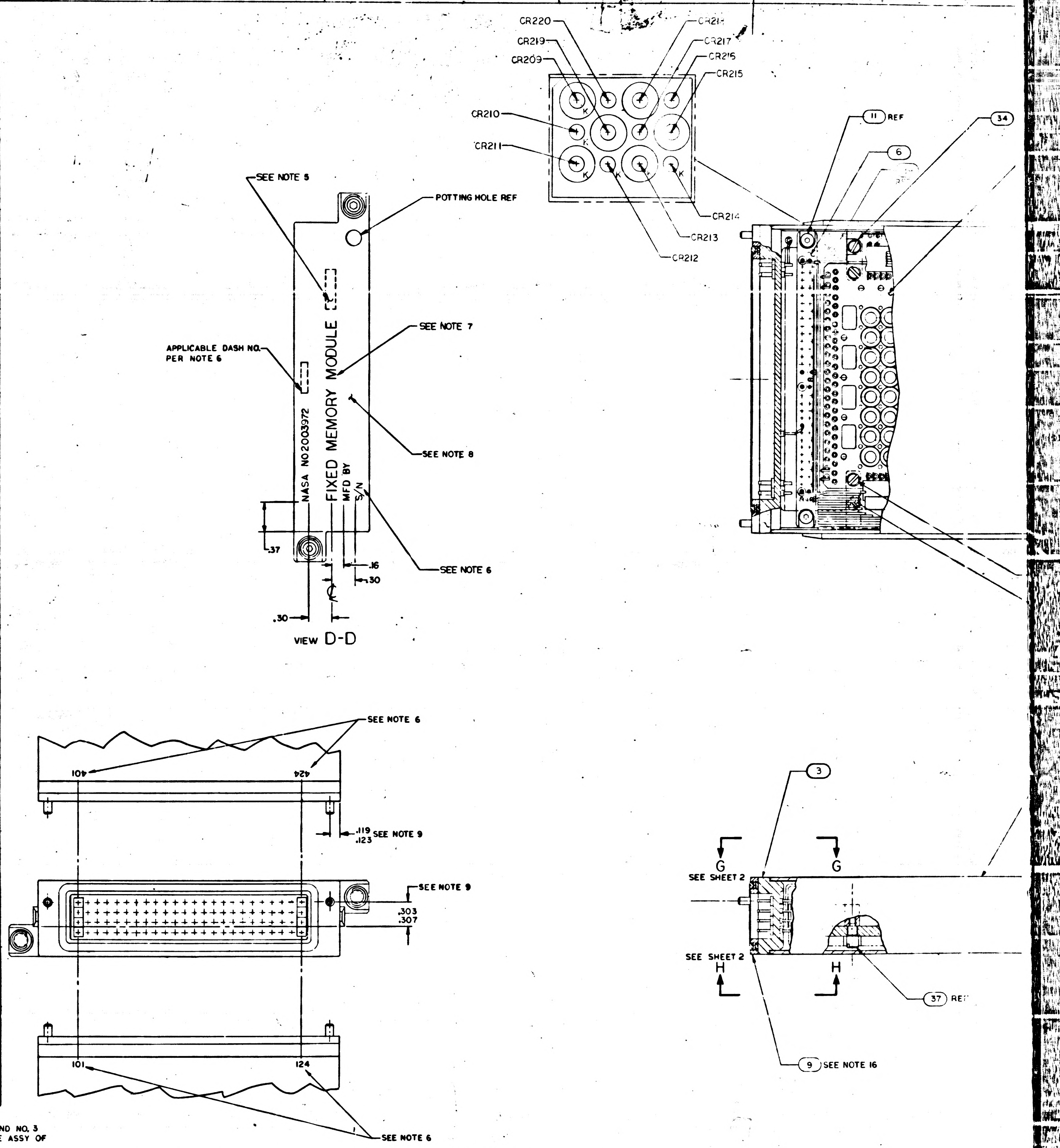
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE
ASSEMBLY

CODE IDENT NO 80230
SIZE J
DRAWING NO. 2003972
SCALE NONE
SHEET 3 OF 3

SH 3/3 2003972 AAF 2/2

PART NO.	MODULE NO.	FIND NO. 1	FIND NO. 2	MODULE DECK NO.	NEXT ASSEMBLY NO. (REF)	PROCUREMENT SPECIFICATION SEE NOTE 15
2003972-011	B1	2003060-061	2003061-061	0205	2021101	PS2003972
2003972-021	B2	2003060-071	2003061-071	0206	2021101	
2003972-031	B3	2003060-081	2003061-081	0207	2021101	
2003972-041	B1	2003060-121	2003061-121	0210	2021104	
2003972-051	B2	2003060-131	2003061-131	0211	2021104	
2003972-061	B3	2003060-141	2003061-141	0212	2021104	
2003972-071	B2	2003060-151	2003061-151	0213	2021104	
2003972-081	B3	2003060-161	2003061-161	0214	2021104	
2003972-091	B2	2003060-171	2003061-171	0215	2021101	
2003972-111	B3	2003060-181	2003061-181	0216	2021101	PS2003972
2003972-121	B1	2003060-091	2003061-091	0208	2021105-031	PS2003960
2003972-131	B2	2003060-111	2003061-111	0209	2021105-031	PS2003960
2003972-141	B1	2003060-191	2003061-191	0217	2021106-011	PS2003972
2003972-151	B2	2003060-211	2003061-211	0218	2021106-011	
2003972-161	B3	2003060-221	2003061-221	0219	2021106-011	
2003972-171	B4	2003060-231	2003061-231	0220	2021106-011	
2003972-181	B5	2003060-241	2003061-241	0221	2021106-011	
2003972-191	B6	2003060-251	2003061-251	0222	2021106-011	
2003972-211	B3	2003060-261	2003061-261	0223	2021104-041	PS2003972
2003972-221	B1	2003060-271	2003061-271	0224	2021105-041	PS2003960
2003972-231	B1	2003060-281	2003061-281	0225	2021106-021	PS2003972
2003972-241	B3	2003060-291	2003061-291	0226	2021106-021	
2003972-251	B5	2003060-311	2003061-311	0227	2021106-021	
2003972-261	B1	2003060-321	2003061-321	0230	2021107-011	
2003972-271	B2	2003060-331	2003061-331	0229	2021107-011	
2003972-281	B2	2003060-341	2003061-341	0231	2021106-031	
2003972-291	B1	2003060-351	2003061-351	0238	2021107-021	PS2003972
2003972-311	B1	2003060-361	2003061-361	0239	2021108-021	PS2016016
-321	B2	2003060-371	2003061-371	0240	2021108-021	PS2016016
-331	B3	2003060-381	2003061-381	0241	2021108-021	PS2016016
-341	B4	2003060-391	2003061-391	0242	2021108-021	PS2016016
-351	B5	2003060-411	2003061-411	0243	2021108-021	PS2016016
2003972-361	B6	2003060-421	2003061-421	0244	2021108-021	PS2016016
2003972-371	B1	2003060-431	2003061-431	0245	2021110-011	PS2016016
2003972-381	B2	2003060-441	2003061-441	0246	2021110-011	
2003972-391	B3	2003060-451	2003061-451	0247	2021110-011	
2003972-411	B4	2003060-461	2003061-461	0248	2021110-011	
2003972-421	B5	2003060-471	2003061-471	0249	2021110-011	
2003972-431	B6	2003060-481	2003061-481	0250	2021110-011	PS2016016
2003972-441	B1	2003060-491	2003061-491	0251	2021110-021	PS2016016
2003972-451	B2	2003060-511	2003061-511	0252	2021110-021	
2003972-461	B3	2003060-521	2003061-521	0253	2021110-021	
2003972-471	B4	2003060-531	2003061-531	0254	2021110-021	
2003972-481	B5	2003060-541	2003061-541	0255	2021110-021	
2003972-491	B6	2003060-551	2003061-551	0256	2021110-021	PS2016016
-511	B1	-561	-561	0257	2021111-021&031	PS2016036
-521	B2	-571	-571	0258	-021&031	
-531	B3	-581	-581	0259	-021&031	
-541	B4	-591	-591	0260	2021111-021&031	
-551	B5	-611	-611	0261	2021111-021	
2003972-561	B6	2003060-621	2003061-621	0262	2021111-021&031	PS2016036
2003972-571	B5	2003060-631	2003061-631	0263	2021111-031	PS2016036
2003972-581	B1	2003060-641	2003061-641	0264	2021110-031	PS2016036
-591	B2	-651	-651	0265	2021110-031	
-611	B3	-661	-661	0266	2021110-031	
-621	B4	-671	-671	0267	2021110-031	
-631	B5	-681	-681	0268	2021110-031	
2003972-641	B6	2003060-691	2003061-691	0269	2021110-031	PS2016036
2003972-651	B1	2003060-711	2003061-711	0270	2021111-041	PS2016036
-661	B2	-721	-721	0271	-041	
-671	B3	-731	-731	0272	-041	
-681	B4	-741	-741	0273	-041	
-691	B5	-751	-751	0274	-041	
2003972-711	B6	2003060-761	2003061-761	0275	2021111-041	PS2016036
2003972-721	B1	2003060-771	2003061-771	0276	2021112-011	PS2016036
-731	B2	-781	-781	0277	-011	
-741	B3	-791	-791	0278	-011	
-751	B4	-811	-811	0279	-011	
-761	B5	-821	-821	0280	-011	
2003972-771	B6	2003060-831	2003061-831	0281	2021112-011	PS2016036
2003972-781	B1	2003060-841	2003061-841	0282	2021113-011	PS2016036
-791	B2	-851	-851	0283	-011	
-811	B3	-861	-861	0284	-011	
-821	B4	-871	-871	0285	-011	
-831	B5	-881	-881	0286	-011	
2003972-841	B6	2003060-891	2003061-891	0287	2021113-011	PS2016036
2003972-851	B3	2003060-911	2003061-911	0288	2021113-021	PS2016036
2003972-861	B1	2003060-921	2003061-921	0289	2021113-031	PS2016036
-871	B2	-931	-931	0290	-031	
-881	B3	-941	-941	0291	-031	
-891	B4	-951	-951	0292	-031	
-911	B5	-961	-961	0293	-031	
2003972-921	B6	2003060-971	2003061-971	0294	2021113-031	PS2016036
2003972-931	B2	2003060-981	2003061-981	0295	2021112-031	PS2016036
2003972-941	B2	2003060-991	2003061-991	0296	2021113-041	PS2016036
-951	B1	-1011	-1011	0297	2021112-021	
-961	B2	-1021	-1021	0298		
-971	B3	-1031	-1031	0299		
-981	B4	-1041	-1041	0300		
-991	B5	-1051	-1051	0301		
2003972-1011	B6	2003060-1061	2003061-1061	0302	2021112-021	PS2016036
2003972-1021	B1	2003060-1071	2003061-1071	0303	2021112-041	PS2016036
2003972-1031	B2	2003060-1081	2003061-1081	0304	2021113-051	PS2016036



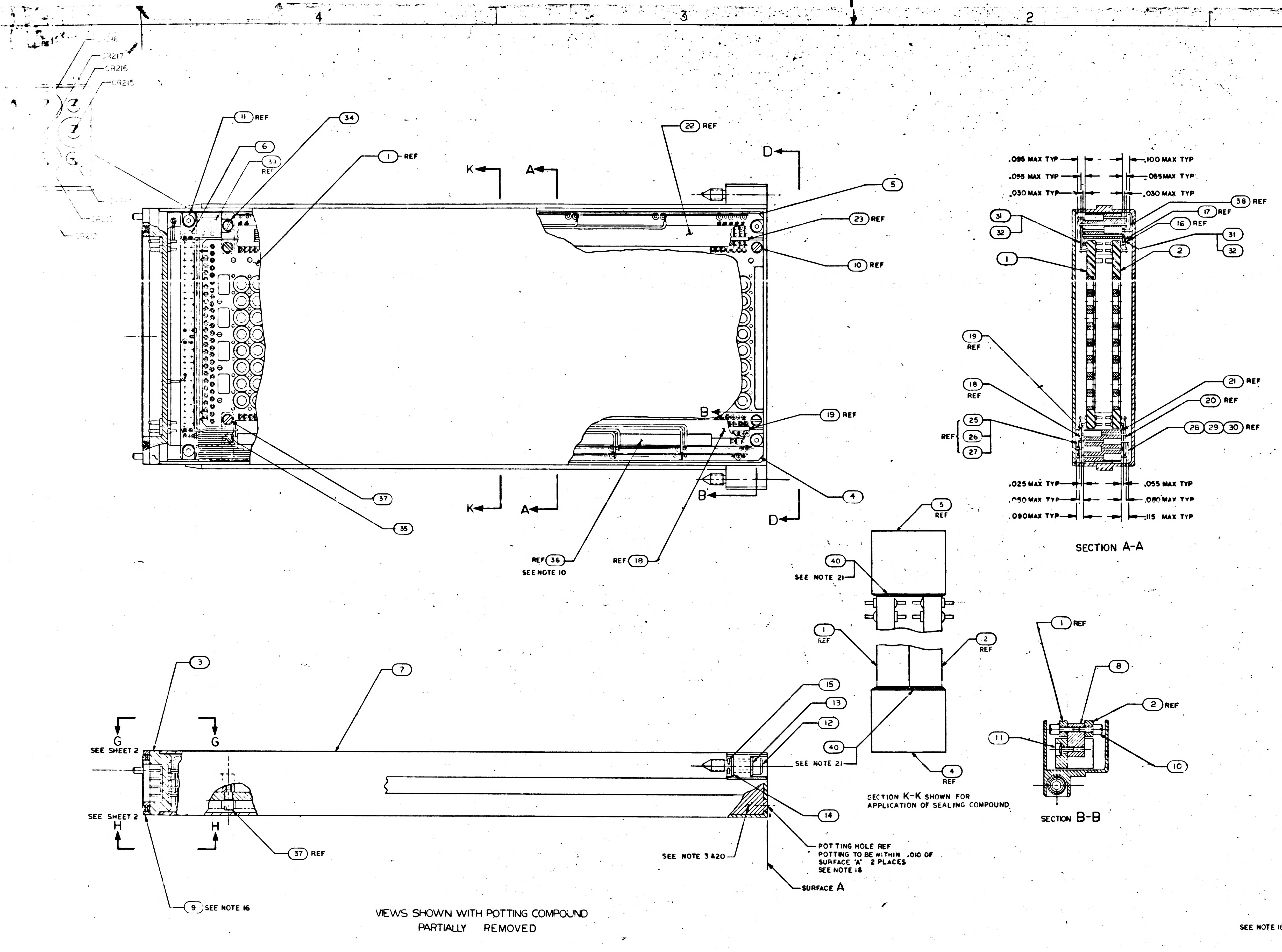
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
3. ENCAPSULATE MODULE PER ND1002226 METHOD II
4. WELD PER ND1002005
5. MARK APPROPRIATE MODULE NO. AS SHOWN IN CHART
6. MARK .08/.06 HIGH PER ND1002019 AND ND1002122, TYPE II CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
7. MARK .14/.10 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 USING INK 1006271-1
8. PAINT INDICATED SURFACES OF FIND NO 7. PER ND1002279 WITH SCD NO.1008809-1 DARK GREY EPOXY RESIN ENAMEL, FINAL COAT PER ND1002277 USING 1012543-003
9. ASSEMBLE FIND NO.7 AND FIND NO.3 TO DIMENSIONS SHOWN
10. REMOVE LINER FROM NEARSIDE OF FIND NO.36 AND ASSEMBLE 3 PLACES AS SHOWN. FIND NO.36 MUST INSULATE FLAT CABLES FROM TRIMMED COMPONENT LEADS. TRIM AS REQUIRED
11. WHITE DOT AND SINGLE SOLID LEAD DENOTES FIRST LEVEL WIRING UNLESS OTHERWISE SPECIFIED
12. BLACK DOT AND SINGLE SOLID LEAD DENOTES SECOND LEVEL WIRING
13. BLACK DOT AND CROSS HATCHED LEAD DENOTES THIRD LEVEL WIRING
14. ALL LEADS FROM FIND NO.1 AND FIND NO.2 TO FIND NO.3 TO BE THIRD LEVEL WIRING
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PROCUREMENT SPECIFICATION AS LISTED IN CHART.
16. FIND NO.9 TO BE SHIPPED UNASSEMBLED AND IDENTIFIED PER ND 1002019
17. SEAL PINS AND INSULATORS TO FIND NO. 3 PER ND1002004 TYPE VI BEFORE ASSY OF FIND NO. 6
18. FILL AS SHOWN PER ND1002235 METHOD A
19. BOND FIND NO.39 TO FIND NO.3 PER ND1002004 TYPE VI AFTER ASSY OF FIND NO.6
20. PRIOR TO ENCAPSULATION PER NOTE 3, COAT OVER ALL TERMINALS OF FIND NO.'S 1,2,&3 AND OVER ALL WIRES, SLEEVING AND COMPONENT LEADS OF FIND NO.S 4,5,6,16,17,18,19,20,21,22,23,24, 25,26,27,28,29,30,31,32,33,38 &39 WITH A .03 MAXIMUM THICKNESS OF SILICONE RUBBER PER ND1002009, METHOD A. MASK ALL OUTSIDE SURFACES OF FIND NO.3 AND ALL OTHER SURFACES OF THIS ASSEMBLY COMING IN CLOSE CONTACT WITH FIND NO.7
21. FILL INTERFACE BETWEEN FIND NO. 4 AND SIDE SURFACES OF FIND NO.'S 1 AND 2, AND INTERFACE BETWEEN FIND NO.5 AND SIDE SURFACES OF FIND NO.'S 1 AND 2 USING FIND NO. 40. ROOM TEMP CURE FOR 24 HOURS MIN.

REFERENCES:

1. PROCESS REQUIREMENTS FOR CONTROL AND INSPECTION OF ROPE MEMORY ASSEMBLIES ND1002285
2. FIXED MEMORY FIXTURE DWG. NO. AP22500

2003972 AB


4
3
2
CR217
CR216
CR215
11 REF
34
6
39 REF
1 REF
22 REF
K
A
D
5
23 REF
10 REF
19 REF
B
B
4
37
35
REF 36
SEE NOTE 10
REF 18
K
A
D
.095 MAX TYP
.055 MAX TYP
.030 MAX TYP
.100 MAX TYP
.055MAX TYP
.030 MAX TYP
38 REF
17 REF
16 REF
31
32
1
2
31
32
19 REF
18 REF
21 REF
20 REF
REF 25 26 27
28 29 30 REF
.025 MAX TYP
.050 MAX TYP
.090MAX TYP
.055 MAX TYP
.080 MAX TYP
.115 MAX TYP
SECTION A-A
5 REF
40
SEE NOTE 21
1 REF
2 REF
40
SEE NOTE 21
4 REF
SECTION K-K SHOWN FOR APPLICATION OF SEALING COMPOUND
1 REF
8
2 REF
11
10
SECTION B-B
3
7
G
SEE SHEET 2
G
SEE SHEET 2
H
H
15
13
12
14
37 REF
SEE NOTE 3&20
POTTING HOLE REF
POTTING TO BE WITHIN .010 OF SURFACE 'A' 2 PLACES
SEE NOTE 18
SURFACE A
9 SEE NOTE 16
VIEWS SHOWN WITH POTTING COMPOUND PARTIALLY REMOVED
4
AF
MORY ASSEMBLIES
E NO 4R23500

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL RELEASE TDRR 32991		
B	REVISED PER TDRR 33460 DR CHK		JJR
C	REVISED PER TDRR 33[illegible]4 DR CHK	3/15/67	JJR
D	REVISED PER TDRR 33606 DR CHK	5/1967	JJR
E	REVISED PER TDRR 34140 DR CHK		JJR
F	REVISED PER TDRR 34489 DR CHK	10-16-67	JJR
G	REVISED PER TDRR 3[illegible] DR CHK		JJR
H	REVISED PER TDRR 35339 DR CHK		JJR
J	REVISED PER TDRR 35649 DR CHK		JJR
K	REVISED PER TDRR 35870 DR CHK		JJR
L	REVISED PER TDRR 35217 DR CHK	5/29/68	JJR
M	REVISED PER TDRR 3[illegible] DR CHK		
N	REVISED PER TDRR 36686 DR CHK		JJR
P	REVISED PER TDRR 3[illegible] DR CHK		JJR
R	REVISED PER TDRR 36858 DR CHK		JJR
S	REVISED PER TDRR 36916 DR CHK		JJR
T	REVISED PER TDRR 36970 DR CHK		JJR
U	REVISED PER TDRR 37008 DR CHK		JJR
V	REVISED PER TDRR 37148 DR CHK	3/11/69	JJR
W	REVISED PER TDRR 37387 DR CHK	3/15/69	JJR
Y	REVISED PER TDRR 37427 DR CHK	4/8/69	JJR
Z	REVISED PER TDRR 37454 DR CHK	16 APR 69	JJR
AA	REVISED PER TDRR 37535 DR CHK	6 MAY 69	JJR
AB	REVISED PER TDRR 37582 DR CHK	2 JUN 69	JJR

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006341	ADHESIVE SEALANT, SILICONE RUBBER	40
1	2003986-021	COMPONENT BLOCK DIODE ASSY	39
╳	2005935	SCHEMATIC	REF
1	2004684	FLAT CABLE	38
4	2004150 — 003	SCREW, SHOULDERED	37
AR	1006806 — 26	INSULATION TAPE, ELECTRICAL	36
1	2004150 — 001	SCREW, SHOULDERED	35
1	2004150 — 002	SCREW, SHOULDERED	34
1	2004129	FLAT CABLE INTERCONNECTION	33
AR	1006776-25	SLEEVING	32
AR	1006757-12	WIRE, ELECRICAL	31
1	2004125	FLAT CABLE	30
1	2004122	FLAT CABLE	29
1	2004124	FLAT CABLE	28
1	2004123	FLAT CABLE	27
1	2004121	FLAT CABLE	26
1	2004120	FLAT CABLE	25
1	2004[illegible]35	FLAT CABLE	24
1	2003051 — 013	MATRIX ASSY	23
1	2003051 — 014	MATRIX ASSY	22
8	2003051 — 016	MATRIX ASSY	21
8	2003051 — 015	MATRIX ASSY	20
1	2003051 — 017	MATRIX ASSY	19
1	2003051 — 018	MATRIX ASSY	18
1	2003051 — 011	MATRIX ASSY	17
1	2003051 — 012	MATRIX ASSY	16
2	MS16633-4015	"E" RING	15
2	1004546-3	WASHER	14
2	1004546-1	WASHER	13
2	1004579-1	SCREW, JACKING	12
4	1000093-1	SCREW, BUTTONHEAD	11
4	2004151	SCREW, STANDOFF	10
1	1006339	GASKET PLATE	9
2	2004071	STANDOFF	8
1	2004100	HOUSING	7
1	2003048-021	RESISTOR-DIODE BLOCK ASSY	6
1	2003052-021	COMPONENT BLOCK RESISTOR ASSY	5
1	2003045-021	COMPONENT BLOCK DIODE ASSY	4
1	2003973-011	CONNECTOR PLATE ASSY	3
1	2003061-SEE CHART	SENSE WIRING ASSY SIDE B	2
1	2003060-SEE CHART	SENSE WIRING ASSY SIDE A	1

SEE NOTE 16

LIST OF MATERIALS

FOR APPLICABLE PART NO. SEE CHART

NEXT ASSY	USED ON
SEE CHART	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN DATE 8 AUG
CHECKED 12 AUG
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003972
SCALE 2/1
WT
SHEET 1 OF 3

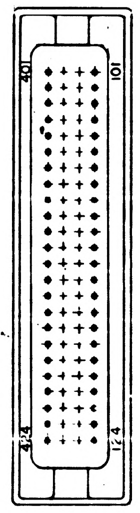
2003972 AE

SH1/3 2003972ABF2/2

WIRE LIST			
PIN NO.	COMPONENT OR TERM. NO.	PIN NO.	COMPONENT OR TERM. NO.
101	A-E1-213	301	GROUND
102	A-E1-212	302	CR209
103	A-E1-211	303	CR210
104	A-E0-211	304	CR211
105	A-E1-210	305	CR212
106	A-E1-209	306	CR213
107	A-E1-208	307	CR214
108	A-E1-207	308	A-CR208
109	A-E1-206	309	A-CR207
110	A-E1-205	310	A-CR206
111	A-E1-204	311	A-CR205
112	A-E1-203	312	A-CR204
113	A-E1-202	313	A-CR203
114	A-E1-201	314	A-CR202
115	A-E1-200	315	A-CR201
116	A-E1-199	316	A-CR200
117	A-E1-198	317	A-CR199
118	A-E1-197	318	A-CR198
119	A-E1-196	319	A-CR197
120	A-E1-195	320	A-CR196
121	A-E0-194	321	A-CR195
122	A-E1-194	322	A-CR194
123	A-E0-193	323	A-CR193
124	A-E1-193	324	SPARE
201	B-R208	401	B-E1-213
202	CR215	402	B-E1-212
203	CR216	403	B-E1-211
204	CR217	404	B-E0-211
205	CR218	405	B-E1-210
206	CR219	406	B-E1-209
207	CR220	407	B-E1-208
208	B-CR208	408	B-E1-207
209	B-CR207	409	B-E1-206
210	B-CR206	410	B-E1-205
211	B-CR205	411	B-E1-204
212	B-CR204	412	B-E1-203
213	B-CR203	413	B-E1-202
214	B-CR202	414	B-E1-201
215	B-CR201	415	B-E1-200
216	B-CR200	416	B-E1-199
217	B-CR199	417	B-E1-198
218	B-CR198	418	B-E1-197
219	B-CR197	419	B-E1-196
220	B-CR196	420	B-E1-195
221	B-CR195	421	B-E0-194
222	B-CR194	422	B-E1-194
223	B-CR193	423	B-E0-193
224	SPARE	424	B-E1-193

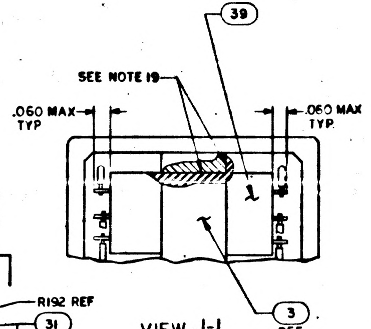
WIRE LIST	
TERMINAL NO.	TERMINAL NO.
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
A-E0-195	B-E0-195
A-E0-196	B-E0-196
A-E0-197	B-E0-197
A-E0-198	B-E0-198
A-E0-199	B-E0-199
A-E0-200	B-E0-200
A-E0-201	B-E0-201
A-E0-202	B-E0-202
A-E0-203	B-E0-203
A-E0-204	B-E0-204
A-E0-205	B-E0-205
A-E0-206	B-E0-206
A-E0-207	B-E0-207
A-E0-208	B-E0-208
A-E0-209	B-E0-209
A-E0-210	B-E0-210
SPARE	SPARE
SPARE	SPARE
A-E0-212	B-E0-212
A-E0-213	B-E0-213

WIRE LIST	
COMPONENT NO.	COMPONENT NO.
CR215	R176
CR216	R144
CR217	R112
CR218	R80
CR219	R48
CR220	R16
CR209	R32
CR210	R64
CR211	R96
CR212	R128
CR213	R160
CR214	R192



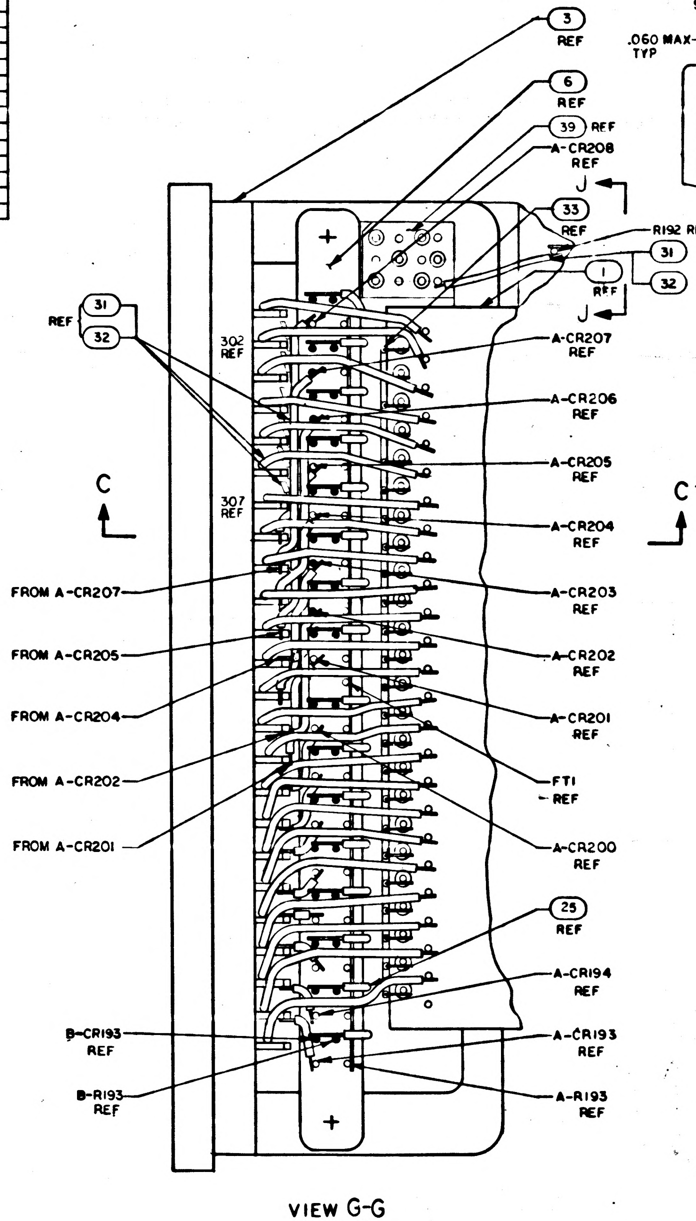
401
101
424
124

SECTION E-E



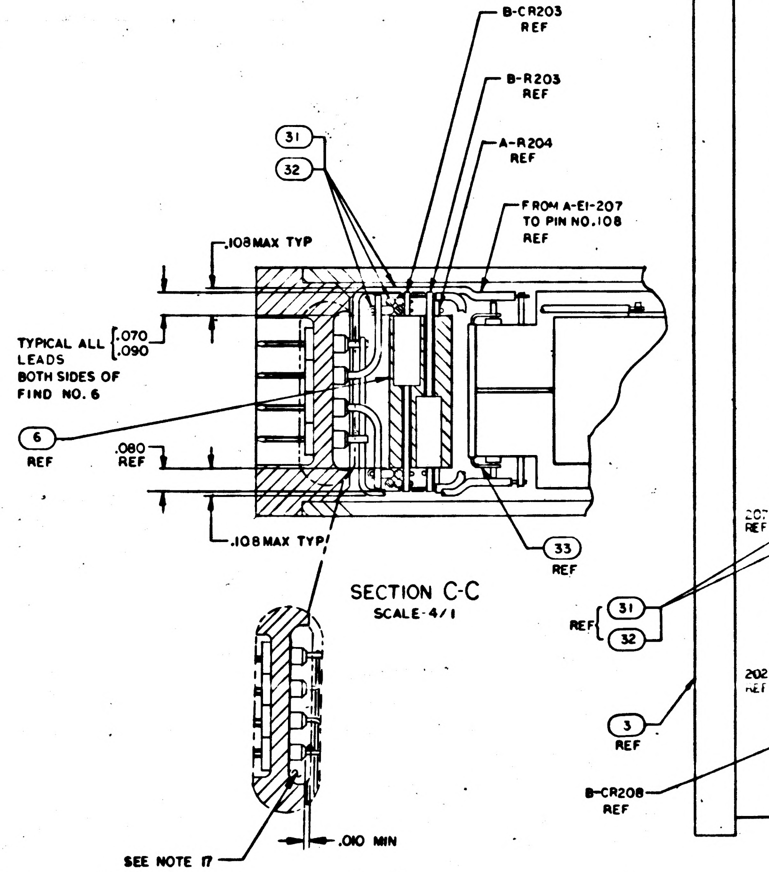
39
SEE NOTE 19
.060 MAX TYP
.060 MAX TYP
3 REF

VIEW J-J



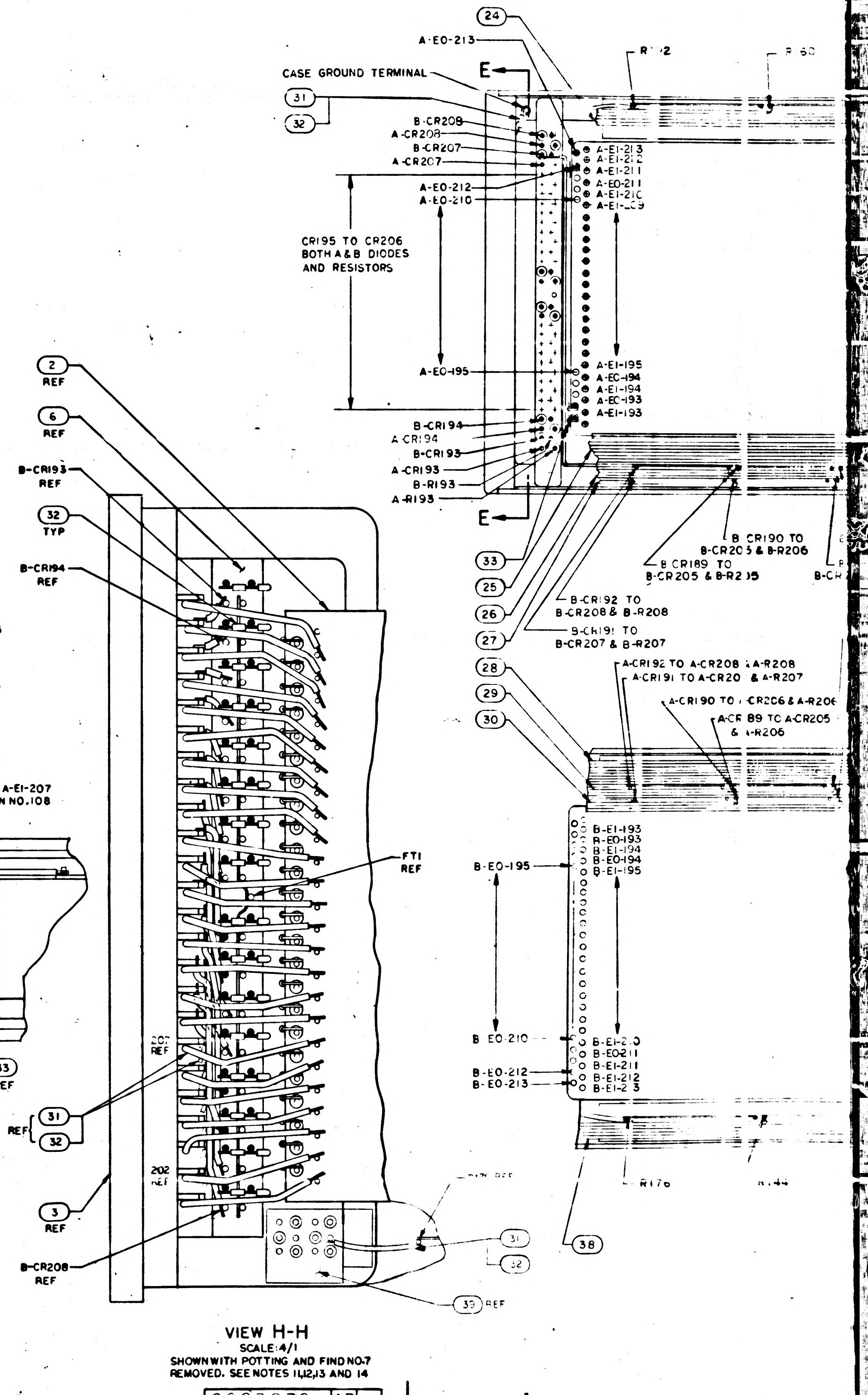
3 REF
6 REF
39 REF
A-CR208 REF
J
33 REF
R192 REF
1 REF
31
32
J
REF 31 32
302 REF
307 REF
A-CR207 REF
A-CR206 REF
A-CR205 REF
A-CR204 REF
C
C
FROM A-CR207
FROM A-CR205
FROM A-CR204
FROM A-CR202
FROM A-CR201
A-CR203 REF
A-CR202 REF
A-CR201 REF
FT1 REF
A-CR200 REF
25 REF
A-CR194 REF
B-CR193 REF
A-CR193 REF
B-R193 REF
A-R193 REF
+
+

VIEW G-G
SCALE: 4/1
SHOWN WITH POTTING AND FIND NO.7
REMOVED. SEE NOTES 11,12,13 AND 14



B-CR203 REF
B-R203 REF
A-R204 REF
31
32
FROM A-E1-207 TO PIN NO.108 REF
.108 MAX TYP
TYPICAL ALL LEADS BOTH SIDES OF FIND NO. 6
.070
.090
6 REF
.080 REF
.108 MAX TYP
33 REF
SEE NOTE 17
.010 MIN

SECTION C-C
SCALE: 4/1

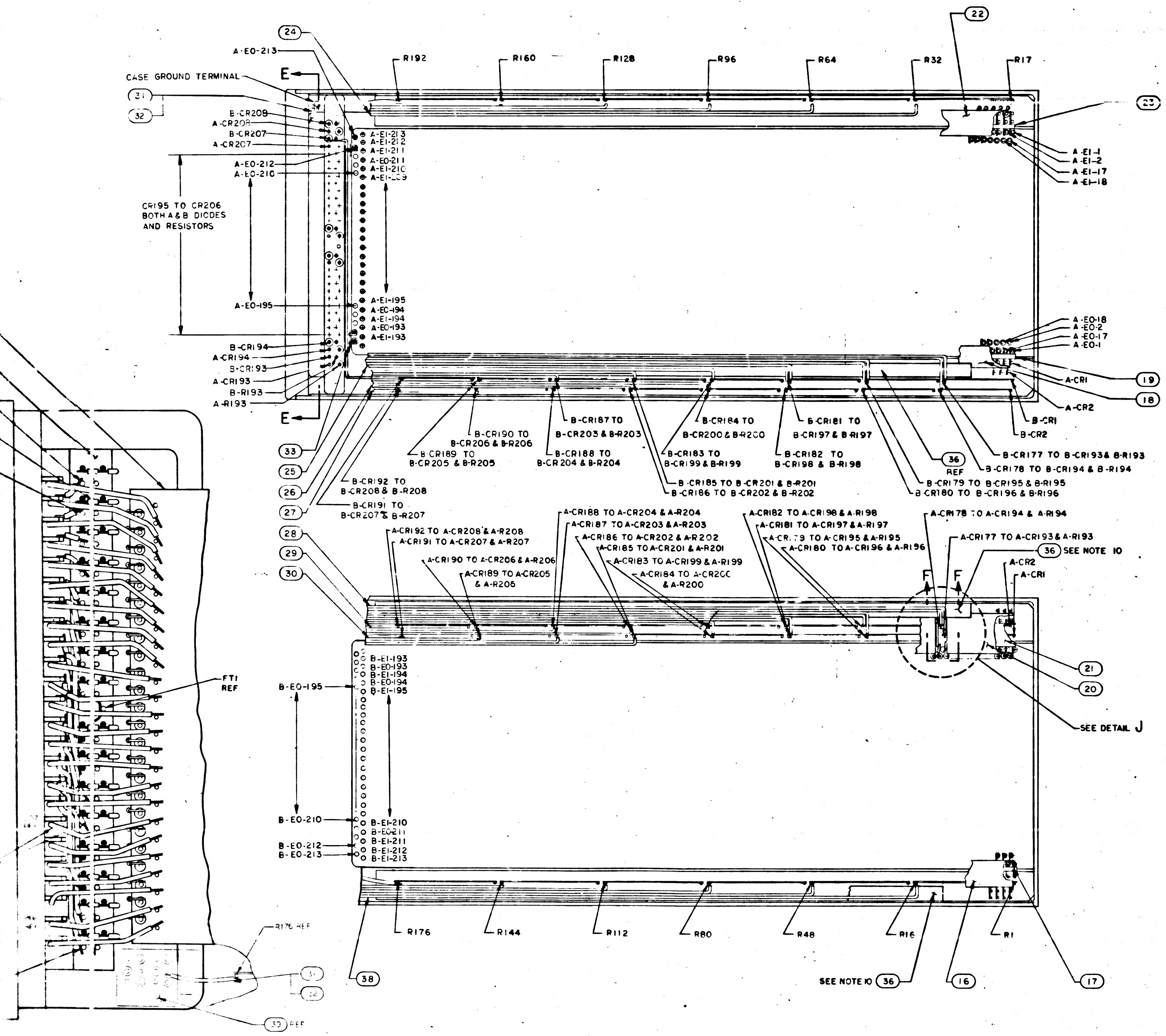


24
A-E0-213
R192
R160
CASE GROUND TERMINAL
E
31
32
B-CR208
A-CR208
B-CR207
A-CR207
A-E1-213
A-E1-212
A-E1-211
A-E0-211
A-E1-210
A-E1-209
A-E0-212
A-E0-210
CR195 TO CR206 BOTH A & B DIODES AND RESISTORS
A-E0-195
A-E1-195
A-E0-194
A-E1-194
A-E0-193
A-E1-193
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
E
2 REF
6 REF
B-CR193 REF
32 TYP
B-CR194 REF
33
25
26
27
28
29
30
B CR190 TO B-CR205 & B-R206
B CR189 TO B-CR205 & B-R205
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205 & A-R206
FT1 REF
B-E0-195
B-E1-193
B-E0-193
B-E1-194
B-E0-194
B-E1-195
B-E0-210
B-E1-210
B-E0-211
B-E1-211
B-E0-212
B-E1-212
B-E0-213
B-E1-213
201 REF
REF 31 32
202 REF
3 REF
B-CR208 REF
31
32
33 REF
38
R176
R144

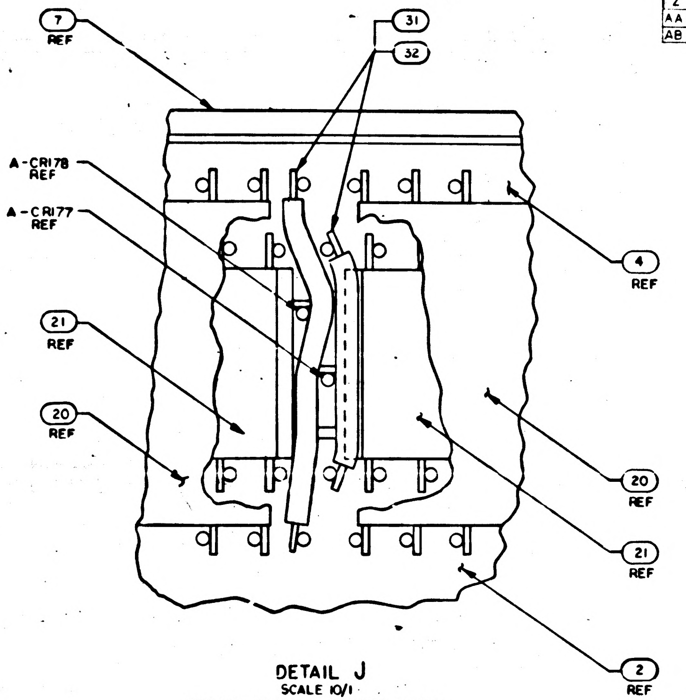
VIEW H-H
SCALE: 4/1
SHOWN WITH POTTING AND FIND NO.7
REMOVED. SEE NOTES 11,12,13 AND 14

2C03972 AB

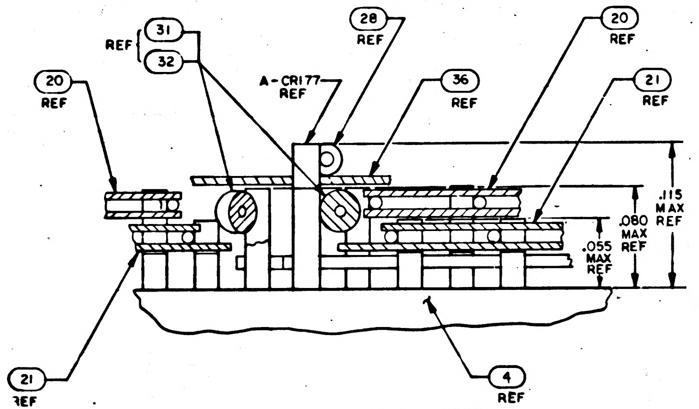
REVISIONS						
SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
A		INITIAL RELEASE TDRR 3299				
B		REVISED PER TDRR 33460				
C		REVISED PER TDRR 33544				
D		REVISED PER TDRR 33606				
E		REVISED PER TDRR 34140				
F		REVISED PER TDRR 34483				
G		REVISED PER TDRR 349[illegible]				
H		REVISED PER TDRR 35339				
J		REVISED PER TDRR [illegible]				
K		REVISED PER TDRR 35[illegible]37				
L		REVISED PER TDRR 36217			3/29/6[illegible]	
M		REVISED PER TDRR [illegible]				
N		REVISED PER TDRR 36[illegible]86				
P		REVISED PER TDRR [illegible]				
R		REVISED PER TDRR [illegible]558				
S		REVISED PER TDRR [illegible]				
T		REVISED PER TDRR [illegible]270				
U		REVISED PER TDRR [illegible]				
V		REVISED PER TDRR [illegible]148				
W		REVISED PER TDRR 3739[illegible]				
Y		REVISED PER TDRR 37427				
Z		REVISED PER TDRR [illegible]454				
AA		REVISED PER TDRR 37535				
AB		REVISED PER TDRR 37582				


24
A-E0-213
CASE GROUND TERMINAL
E
31
32
B-CR208
A-CR208
B-CR207
A-CR207
A-E0-212
A-E0-210
CR195 TO CR206
BOTH A & B DIODES
AND RESISTORS
A-E0-195
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
E
R192
R160
R128
R96
R64
R32
R17
22
23
A-E1-213
A-E1-212
A-E1-211
A-E0-211
A-E1-210
A-E1-209
A-E1-195
A-E0-194
A-E1-194
A-E0-193
A-E1-193
A-E1-1
A-E1-2
A-E1-17
A-E1-18
A-E0-18
A-E0-2
A-E0-17
A-E0-1
A-CR1
A-CR2
19
18
B-CR1
B-CR2
33
25
26
27
B-CR190 TO B-CR206 & B-R206
B-CR189 TO B-CR205 & B-R205
B-CR187 TO B-CR203 & B-R203
B-CR188 TO B-CR204 & B-R204
B-CR184 TO B-CR200 & B-R200
B-CR183 TO B-CR199 & B-R199
B-CR181 TO B-CR197 & B-R197
B-CR182 TO B-CR198 & B-R198
36 REF
B-CR177 TO B-CR193 & B-R193
B-CR178 TO B-CR194 & B-R194
B-CR185 TO B-CR201 & B-R201
B-CR186 TO B-CR202 & B-R202
B-CR179 TO B-CR195 & B-R195
B-CR180 TO B-CR196 & B-R196
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
28
29
30
A-CR188 TO A-CR204 & A-R204
A-CR187 TO A-CR203 & A-R203
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR186 TO A-CR202 & A-R202
A-CR185 TO A-CR201 & A-R201
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205 & A-R205
A-CR183 TO A-CR199 & A-R199
A-CR184 TO A-CR200 & A-R200
A-CR182 TO A-CR198 & A-R198
A-CR181 TO A-CR197 & A-R197
A-CR179 TO A-CR195 & A-R195
A-CR180 TO A-CR196 & A-R196
A-CR178 TO A-CR194 & A-R194
A-CR177 TO A-CR193 & A-R193
36 SEE NOTE 10
A-CR2
A-CR1
F
F
21
20
SEE DETAIL J
B-E1-193
B-E0-193
B-E1-194
B-E0-194
B-E1-195
B-E0-195
B-E0-210
B-E0-212
B-E0-213
B-E1-210
B-E0-211
B-E1-211
B-E1-212
B-E1-213
R176
R144
R112
R80
R48
R16
R1
38
SEE NOTE 10 36
16
17
FT1 REF
R176 REF
31
32
33 REF

VIEW H-H
SCALE: 4/1
SHOWN WITH POTTING AND FIND NO. 7
REMOVED. SEE NOTES 11, 12, 13 AND 14


7 REF
31
32
A-CR178 REF
A-CR177 REF
4 REF
21 REF
20 REF
20 REF
21 REF
2 REF

DETAIL J
SCALE 10/1
TYPICAL WIRING 8 PLACES, SHOWN
WITH FIND NO'S 28 AND 36 REMOVED


REF
31
32
28 REF
20 REF
20 REF
A-CR177 REF
36 REF
21 REF
.115 MAX
.080 MAX REF
.055 MAX REF
21 REF
4 REF

PARTIAL SECTION F-F
SCALE: 20/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE
ASSEMBLY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2003972

SCALE 2/1
SHEET 2 OF 3

2003972 AB

SH 2/3 2003972ABF 2/2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

8 7 6 5 4

D

C

B

A

8 4

2003972 AB

4 3 2

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL RELEASE TDRR 32991				
B		REVISED PER TDRR 33460				
C		REVISED PER TDRR 33544				
D		REVISED PER TDRR 33606				
E		REVISED PER TDRR 34140				
F		REVISED PER TDRR 34489				
G		REVISED PER TDRR 34957				
H		REVISED PER TDRR 35359				
J		REVISED PER TDRR 35649				
K		REVISED PER TDRR 35870				
L		REVISED PER TDRR 36217				
M		REVISED PER TDRR 36531				
N		REVISED PER TDRR 36686				
P		REVISED PER TDRR 36810				
R		REVISED PER TDRR 36858				
S		REVISED PER TDRR 36916				
T		REVISED PER TDRR 36970				
U		REVISED PER TDRR 37005				
V		REVISED PER TDRR 37148				
W		REVISED PER TDRR 37387				
Y		REVISED PER TDRR 37427				
Z		REVISED PER TDRR 37464				
AA		REVISED PER TDRR 37535				
AB		REVISED PER TDRR 37582				

WIRE LIST

TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.
A-EO-1	A-CR1	A-EO-97	A-CR97	B-EO-1	B-CR1	B-EO-97	B-CR97	A-EI-1	R1	A-EI-49	R49	A-EI-97	R97	A-EI-145	R145
A-EO-2	A-CR2	A-EO-98	A-CR98	B-EO-2	B-CR2	B-EO-98	B-CR98	B-EI-1		B-EI-49		B-EI-97		B-EI-145	
A-EO-3	A-CR3	A-EO-99	A-CR99	B-EO-3	B-CR3	B-EO-99	B-CR99	A-EI-2	R2	A-EI-50	R50	A-EI-98	R98	A-EI-146	R146
A-EO-4	A-CR4	A-EO-100	A-CR100	B-EO-4	B-CR4	B-EO-100	B-CR100	B-EI-2		B-EI-50		B-EI-98		B-EI-146	
A-EO-5	A-CR5	A-EO-101	A-CR101	B-EO-5	B-CR5	B-EO-101	B-CR101	A-EI-3	R3	A-EI-51	R51	A-EI-99	R99	A-EI-147	R147
A-EO-6	A-CR6	A-EO-102	A-CR102	B-EO-6	B-CR6	B-EO-102	B-CR102	B-EI-3		B-EI-51		B-EI-99		B-EI-147	
A-EO-7	A-CR7	A-EO-103	A-CR103	B-EO-7	B-CR7	B-EO-103	B-CR103	A-EI-4	R4	A-EI-52	R52	A-EI-100	R100	A-EI-148	R148
A-EO-8	A-CR8	A-EO-104	A-CR104	B-EO-8	B-CR8	B-EO-104	B-CR104	B-EI-4		B-EI-52		B-EI-100		B-EI-148	
A-EO-9	A-CR9	A-EO-105	A-CR105	B-EO-9	B-CR9	B-EO-105	B-CR105	A-EI-5	R5	A-EI-53	R53	A-EI-101	R101	A-EI-149	R149
A-EO-10	A-CR10	A-EO-106	A-CR106	B-EO-10	B-CR10	B-EO-106	B-CR106	B-EI-5		B-EI-53		B-EI-101		B-EI-149	
A-EO-11	A-CR11	A-EO-107	A-CR107	B-EO-11	B-CR11	B-EO-107	B-CR107	A-EI-6	R6	A-EI-54	R54	A-EI-102	R102	A-EI-150	R150
A-EO-12	A-CR12	A-EO-108	A-CR108	B-EO-12	B-CR12	B-EO-108	B-CR108	B-EI-6		B-EI-54		B-EI-102		B-EI-150	
A-EO-13	A-CR13	A-EO-109	A-CR109	B-EO-13	B-CR13	B-EO-109	B-CR109	A-EI-7	R7	A-EI-55	R55	A-EI-103	R103	A-EI-151	R151
A-EO-14	A-CR14	A-EO-110	A-CR110	B-EO-14	B-CR14	B-EO-110	B-CR110	B-EI-7		B-EI-55		B-EI-103		B-EI-151	
A-EO-15	A-CR15	A-EO-111	A-CR111	B-EO-15	B-CR15	B-EO-111	B-CR111	A-EI-8	R8	A-EI-56	R56	A-EI-104	R104	A-EI-152	R152
A-EO-16	A-CR16	A-EO-112	A-CR112	B-EO-16	B-CR16	B-EO-112	B-CR112	B-EI-8		B-EI-56		B-EI-104		B-EI-152	
A-EO-17	A-CR17	A-EO-113	A-CR113	B-EO-17	B-CR17	B-EO-113	B-CR113	A-EI-9	R9	A-EI-57	R57	A-EI-105	R105	A-EI-153	R153
A-EO-18	A-CR18	A-EO-114	A-CR114	B-EO-18	B-CR18	B-EO-114	B-CR114	B-EI-9		B-EI-57		B-EI-105		B-EI-153	
A-EO-19	A-CR19	A-EO-115	A-CR115	B-EO-19	B-CR19	B-EO-115	B-CR115	A-EI-10	R10	A-EI-58	R58	A-EI-106	R106	A-EI-154	R154
A-EO-20	A-CR20	A-EO-116	A-CR116	B-EO-20	B-CR20	B-EO-116	B-CR116	B-EI-10		B-EI-58		B-EI-106		B-EI-154	
A-EO-21	A-CR21	A-EO-117	A-CR117	B-EO-21	B-CR21	B-EO-117	B-CR117	A-EI-11	R11	A-EI-59	R59	A-EI-107	R107	A-EI-155	R155
A-EO-22	A-CR22	A-EO-118	A-CR118	B-EO-22	B-CR22	B-EO-118	B-CR118	B-EI-11		B-EI-59		B-EI-107		B-EI-155	
A-EO-23	A-CR23	A-EO-119	A-CR119	B-EO-23	B-CR23	B-EO-119	B-CR119	A-EI-12	R12	A-EI-60	R60	A-EI-108	R108	A-EI-156	R156
A-EO-24	A-CR24	A-EO-120	A-CR120	B-EO-24	B-CR24	B-EO-120	B-CR120	B-EI-12		B-EI-60		B-EI-108		B-EI-156	
A-EO-25	A-CR25	A-EO-121	A-CR121	B-EO-25	B-CR25	B-EO-121	B-CR121	A-EI-13	R13	A-EI-61	R61	A-EI-109	R109	A-EI-157	R157
A-EO-26	A-CR26	A-EO-122	A-CR122	B-EO-26	B-CR26	B-EO-122	B-CR122	B-EI-13		B-EI-61		B-EI-109		B-EI-157	
A-EO-27	A-CR27	A-EO-123	A-CR123	B-EO-27	B-CR27	B-EO-123	B-CR123	A-EI-14	R14	A-EI-62	R62	A-EI-110	R110	A-EI-158	R158
A-EO-28	A-CR28	A-EO-124	A-CR124	B-EO-28	B-CR28	B-EO-124	B-CR124	B-EI-14		B-EI-62		B-EI-110		B-EI-158	
A-EO-29	A-CR29	A-EO-125	A-CR125	B-EO-29	B-CR29	B-EO-125	B-CR125	A-EI-15	R15	A-EI-63	R63	A-EI-111	R111	A-EI-159	R159
A-EO-30	A-CR30	A-EO-126	A-CR126	B-EO-30	B-CR30	B-EO-126	B-CR126	B-EI-15		B-EI-63		B-EI-111		B-EI-159	
A-EO-31	A-CR31	A-EO-127	A-CR127	B-EO-31	B-CR31	B-EO-127	B-CR127	A-EI-16	R16	A-EI-64	R64	A-EI-112	R112	A-EI-160	R160
A-EO-32	A-CR32	A-EO-128	A-CR128	B-EO-32	B-CR32	B-EO-128	B-CR128	B-EI-16		B-EI-64		B-EI-112		B-EI-160	
A-EO-33	A-CR33	A-EO-129	A-CR129	B-EO-33	B-CR33	B-EO-129	B-CR129	A-EI-17	R17	A-EI-65	R65	A-EI-113	R113	A-EI-161	R161
A-EO-34	A-CR34	A-EO-130	A-CR130	B-EO-34	B-CR34	B-EO-130	B-CR130	B-EI-17		B-EI-65		B-EI-113		B-EI-161	
A-EO-35	A-CR35	A-EO-131	A-CR131	B-EO-35	B-CR35	B-EO-131	B-CR131	A-EI-18	R18	A-EI-66	R66	A-EI-114	R114	A-EI-162	R162
A-EO-36	A-CR36	A-EO-132	A-CR132	B-EO-36	B-CR36	B-EO-132	B-CR132	B-EI-18		B-EI-66		B-EI-114		B-EI-162	
A-EO-37	A-CR37	A-EO-133	A-CR133	B-EO-37	B-CR37	B-EO-133	B-CR133	A-EI-19	R19	A-EI-67	R67	A-EI-115	R115	A-EI-163	R163
A-EO-38	A-CR38	A-EO-134	A-CR134	B-EO-38	B-CR38	B-EO-134	B-CR134	B-EI-19		B-EI-67		B-EI-115		B-EI-163	
A-EO-39	A-CR39	A-EO-135	A-CR135	B-EO-39	B-CR39	B-EO-135	B-CR135	A-EI-20	R20	A-EI-68	R68	A-EI-116	R116	A-EI-164	R164
A-EO-40	A-CR40	A-EO-136	A-CR136	B-EO-40	B-CR40	B-EO-136	B-CR136	B-EI-20		B-EI-68		B-EI-116		B-EI-164	
A-EO-41	A-CR41	A-EO-137	A-CR137	B-EO-41	B-CR41	B-EO-137	B-CR137	A-EI-21	R21	A-EI-69	R69	A-EI-117	R117	A-EI-165	R165
A-EO-42	A-CR42	A-EO-138	A-CR138	B-EO-42	B-CR42	B-EO-138	B-CR138	B-EI-21		B-EI-69		B-EI-117		B-EI-165	
A-EO-43	A-CR43	A-EO-139	A-CR139	B-EO-43	B-CR43	B-EO-139	B-CR139	A-EI-22	R22	A-EI-70	R70	A-EI-118	R118	A-EI-166	R166
A-EO-44	A-CR44	A-EO-140	A-CR140	B-EO-44	B-CR44	B-EO-140	B-CR140	B-EI-22		B-EI-70		B-EI-118		B-EI-166	
A-EO-45	A-CR45	A-EO-141	A-CR141	B-EO-45	B-CR45	B-EO-141	B-CR141	A-EI-23	R23	A-EI-71	R71	A-EI-119	R119	A-EI-167	R167
A-EO-46	A-CR46	A-EO-142	A-CR142	B-EO-46	B-CR46	B-EO-142	B-CR142	B-EI-23		B-EI-71		B-EI-119		B-EI-167	
A-EO-47	A-CR47	A-EO-143	A-CR143	B-EO-47	B-CR47	B-EO-143	B-CR143	A-EI-24	R24	A-EI-72	R72	A-EI-120	R120	A-EI-168	R168
A-EO-48	A-CR48	A-EO-144	A-CR144	B-EO-48	B-CR48	B-EO-144	B-CR144	B-EI-24		B-EI-72		B-EI-120		B-EI-168	
A-EO-49	A-CR49	A-EO-145	A-CR145	B-EO-49	B-CR49	B-EO-145	B-CR145	A-EI-25	R25	A-EI-73	R73	A-EI-121	R121	A-EI-169	R169
A-EO-50	A-CR50	A-EO-146	A-CR146	B-EO-50	B-CR50	B-EO-146	B-CR146	B-EI-25		B-EI-73		B-EI-121		B-EI-169	
A-EO-51	A-CR51	A-EO-147	A-CR147	B-EO-51	B-CR51	B-EO-147	B-CR147	A-EI-26	R26	A-EI-74	R74	A-EI-122	R122	A-EI-170	R170
A-EO-52	A-CR52	A-EO-148	A-CR148	B-EO-52	B-CR52	B-EO-148	B-CR148	B-EI-26		B-EI-74		B-EI-122		B-EI-170	
A-EO-53	A-CR53	A-EO-149	A-CR149	B-EO-53	B-CR53	B-EO-149	B-CR149	A-EI-27	R27	A-EI-75	R75	A-EI-123	R123	A-EI-171	R171
A-EO-54	A-CR54	A-EO-150	A-CR150	B-EO-54	B-CR54	B-EO-150	B-CR150	B-EI-27		B-EI-75		B-EI-123		B-EI-171	
A-EO-55	A-CR55	A-EO-151	A-CR151	B-EO-55	B-CR55	B-EO-151	B-CR151	A-EI-28	R28	A-EI-76	R76	A-EI-124	R124	A-EI-172	R172
A-EO-56	A-CR56	A-EO-152	A-CR152	B-EO-56	B-CR56	B-EO-152	B-CR152	B-EI-28		B-EI-76		B-EI-124		B-EI-172	
A-EO-57	A-CR57	A-EO-153	A-CR153	B-EO-57	B-CR57	B-EO-153	B-CR153	A-EI-29	R29	A-EI-77	R77	A-EI-125	R125	A-EI-173	R173
A-EO-58	A-CR58	A-EO-154	A-CR154	B-EO-58	B-CR58	B-EO-154	B-CR154	B-EI-29		B-EI-77		B-EI-125		B-EI-173	
A-EO-59	A-CR59	A-EO-155	A-CR155	B-EO-59	B-CR59	B-EO-155	B-CR155	A-EI-30	R30	A-EI-78	R78	A-EI-126	R126	A-EI-174	R174
A-EO-60	A-CR60	A-EO-156	A-CR156	B-EO-60	B-CR60	B-EO-156	B-CR156	B-EI-30		B-EI-78		B-EI-126		B-EI-174	
A-EO-61	A-CR61	A-EO-157	A-CR157	B-EO-61	B-CR61	B-EO-157	B-CR157	A-EI-31	R31	A-EI-79	R79	A-EI-127	R127	A-EI-175	R175
A-EO-62	A-CR62	A-EO-158	A-CR158	B-EO-62	B-CR62	B-EO-158	B-CR158	B-EI-31		B-EI-79		B-EI-127		B-EI-175	
A-EO-63	A-CR63	A-EO-159	A-CR159	B-EO-63	B-CR63	B-EO-159	B-CR159	A-EI-32	R32	A-EI-80	R80	A-EI-128	R128	A-EI-176	R176
A-EO-64	A-CR64	A-EO-160	A-CR160	B-EO-64	B-CR64	B-EO-160	B-CR160	B-EI-32		B-EI-80		B-EI-128		B-EI-176	
A-EO-65	A-CR65	A-EO-161	A-CR161	B-EO-65	B-CR65	B-EO-161	B-CR161	A-EI-33	R33	A-EI-81	R81	A-EI-129	R129	A-EI-177	R177
A-EO-66	A-CR66	A-EO-162	A-CR162	B-EO-66	B-CR66	B-EO-162	B-CR162	B-EI-33		B-EI-81		B-EI-129		B-EI-177	
A-EO-67	A-CR67	A-EO-163	A-CR163	B-EO-67	B-CR67	B-EO-163	B-CR163	A-EI-34	R34	A-EI-82	R82	A-EI-130	R130	A-EI-178	R178
A-EO-68	A-CR68	A-EO-164	A-CR164	B-EO-68	B-CR68	B-EO-164	B-CR164	B-EI-34		B-EI-82		B-EI-130		B-EI-178	
A-EO-69	A-CR69	A-EO-165	A-CR165	B-EO-69	B-CR69	B-EO-165	B-CR165	A-EI-35	R35	A-EI-83	R83	A-EI-131	R131	A-EI-179	R179
A-EO-70	A-CR70	A-EO-166	A-CR166	B-EO-70	B-CR70	B-EO-166	B-CR166	B-EI-35		B-EI-83		B-EI-131		B-EI-179	
A-EO-71	A-CR71	A-EO-167	A-CR167	B-EO-71	B-CR71	B-EO-167	B-CR167	A-EI-36	R36	A-EI-84	R84	A-EI-132	R132	A-EI-180	R180
A-EO-72	A-CR72	A-EO-168	A-CR168	B-EO-72	B-CR72	B-EO-168	B-CR168	B-EI-36		B-EI-84		B-EI-132		B-EI-180	
A-EO-73	A-CR73	A-EO-169	A-CR169	B-EO-73	B-CR73	B-EO-169	B-CR169	A-EI-37	R37	A-EI-85	R85	A-EI-133	R133	A-EI-181	R181
A-EO-74	A-CR74	A-EO-170	A-CR170	B-EO-74	B-CR74	B-EO-170	B-CR170	B-EI-37		B-EI-85		B-EI-133		B-EI-181	
A-EO-75	A-CR75	A-EO-171	A-CR171	B-EO-75	B-CR75	B-EO-171	B-CR171	A-EI-38	R38	A-EI-86	R86	A-EI-134	R134	A-EI-182	R182
A-EO-76	A-CR76	A-EO-172	A-CR172	B-EO-76	B-CR76	B-EO-172	B-CR172	B-EI-38		B-EI-86		B-EI-134		B-EI-182	
A-EO-77	A-CR77	A-EO-173	A-CR173	B-EO-77	B-CR77	B-EO-173	B-CR173	A-EI-39	R39	A-EI-87	R87	A-EI-135	R135	A-EI-183	R183
A-EO-78	A-CR78	A-EO-174	A-CR174	B-EO-78	B-CR78	B-EO-174	B-CR174	B-EI-39		B-EI-87		B-EI-135		B-EI-183	
A-EO-79	A-CR79	A-EO-175	A-CR175	B-EO-79	B-CR79	B-EO-175	B-CR175	A-EI-40	R40	A-EI-88	R88	A-EI-136	R136	A-EI-184	R184
A-EO-80	A-CR80	A-EO-176	A-CR176	B-EO-80	B-CR80	B-EO-176	B-CR176	B-EI-40		B-EI-88		B-EI-136		B-EI-184	
A-EO-81	A-CR81	A-EO-177	A-CR177	B-EO-81	B-CR81	B-EO-177	B-CR177	A-EI-41	R41	A-EI-89	R89	A-EI-137	R137	A-EI-185	R185
A-EO-82	A-CR82	A-EO-178	A-CR178	B-EO-82	B-CR82	B-EO-178	B-CR178	B-EI-41		B-EI-89		B-EI-137		B-EI-185	
A-EO-83	A-CR83	A-EO-179	A-CR179	B-EO-83	B-CR83	B-EO-179	B-CR179	A-EI-42	R42	A-EI-90	R90	A-EI-138	R138	A-EI-186	R186
A-EO-84	A-CR84	A-EO-180	A-CR180	B-EO-84	B-CR84	B-EO-180	B-CR180	B-EI-42		B-EI-90		B-EI-138		B-EI-186	
A-EO-85	A-CR85	A-EO-181	A-CR181	B-EO-85	B-CR85	B-EO-181	B-CR181	A-EI-43	R43	A-EI-91	R91	A-EI-139	R139	A-EI-187	R187
A-EO-86	A-CR86	A-EO-182	A-CR182	B-EO-86	B-CR86	B-EO-182	B-CR182	B-EI-43		B-EI-91		B-EI-139		B-EI-187	
A-EO-87	A-CR87	A-EO-183	A-CR183	B-EO-87	B-CR87	B-EO-183	B-CR183	A-EI-44	R44	A-EI-92	R92	A-EI-140	R140	A-EI-188	R188
A-EO-88	A-CR88	A-EO-184	A-CR184	B-EO-88	B-CR88	B-EO-184	B-CR184	B-EI-44		B-EI-92		B-EI-140		B-EI-188	
A-EO-89	A-CR89	A-EO-185	A-CR185	B-EO-89	B-CR89	B-EO-185	B-CR185	A-EI-45	R45	A-EI-93	R93	A-EI-141	R141	A-EI-189	R189
A-EO-90	A-CR90	A-EO-186	A-CR186	B-EO-90	B-CR90	B-EO-186	B-CR186	B-EI-45		B-EI-93		B-EI-141		B-EI-189	
A-EO-91	A-CR91	A-EO-187	A-CR187	B-EO-91	B-CR91	B-EO-187	B-CR187	A-EI-46	R46	A-EI-94	R94	A-EI-142	R142	A-EI-190	R190
A-EO-92	A-CR92	A-EO-188	A-CR188	B-EO-92	B-CR92	B-EO-188	B-CR188	B-EI-46		B-EI-94		B-EI-142		B-EI-190	
A-EO-93	A-CR93	A-EO-189	A-CR189	B-EO-93	B-CR93	B-EO-189	B-CR189	A-EI-47	R47	A-EI-95	R95	A-EI-143	R143	A-EI-191	R191
A-EO-94	A-CR94	A-EO-190	A-CR190	B-EO-94	B-CR94	B-EO-190	B-CR190	B-EI-47		B-EI-95		B-EI-143		B-EI-191	
A-EO-95	A-CR95	A-EO-191	A-CR191	B-EO-95	B-CR95	B-EO-191	B-CR191	A-EI-48	R48	A-EI-96	R96	A-EI-144	R144	A-EI-192	R192
A-EO-96	A-CR96	A-EO-192	A-CR192	B-EO-96	B-CR96	B-EO-192	B-CR192	B-EI-48		B-EI-96		B-EI-144		B-EI-192	

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QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
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DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE
ASSEMBLY

CODE IDENT NO	SIZE	DRAWING NO.
80230	J	2003972

SCALE NONE
SHEET 3 OF 3

4 1

SH3/3 2003972ABF2/21

NOTICE: WHEN GOVT. DRAWINGS, SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

PART NO.	MODULE NO.	FIND NO. 1	FIND NO. 2	MODULE DECK NO.	NEXT ASSEMBLY NO. (REF)	PROCUREMENT SPECIFICATION SEE NOTE 15
2003972-011	B1	2003060-061	2003061-061	0205	2021101	PS2003972
2003972-021	B2	2003060-071	2003061-071	0206	2021101	
2003972-031	B3	2003060-081	2003061-081	0207	2021101	
2003972-041	B1	2003060-121	2003061-121	0210	2021104	
2003972-051	B2	2003060-131	2003061-131	0211	2021104	
2003972-061	B3	2003060-141	2003061-141	0212	2021104	
2003972-071	B2	2003060-151	2003061-151	0213	2021104	
2003972-081	B3	2003060-161	2003061-161	0214	2021104	
2003972-091	B2	2003060-171	2003061-171	0215	2021101	
2003972-111	B3	2003060-181	2003061-181	0216	2021101	PS2003972
2003972-121	B1	2003060-091	2003061-091	0208	2021105-031	PS2003960
2003972-131	B2	2003060-111	2003061-111	0209	2021105-031	PS2003960
2003972-141	B1	2003060-191	2003061-191	0217	2021106-011	PS2003972
2003972-151	B2	2003060-211	2003061-211	0218	2021106-011	
2003972-161	B3	2003060-221	2003061-221	0219	2021106-011	
2003972-171	B4	2003060-231	2003061-231	0220	2021106-011	
2003972-181	B5	2003060-241	2003061-241	0221	2021106-011	
2003972-191	B6	2003060-251	2003061-251	0222	2021106-011	
2003972-211	B3	2003060-261	2003061-261	0223	2021104-041	PS2003972
2003972-221	B1	2003060-271	2003061-271	0224	2021105-041	PS2003960
2003972-231	B1	2003060-281	2003061-281	0225	2021106-021	PS2003972
2003972-241	B3	2003060-291	2003061-291	0226	2021106-021	
2003972-251	B5	2003060-311	2003061-311	0227	2021106-021	
2003972-261	B1	2003060-321	2003061-321	0230	2021107-011	
2003972-271	B2	2003060-331	2003061-331	0229	2021107-011	
2003972-281	B3	2003060-341	2003061-341	0231	2021106-031	
2003972-291	B1	2003060-351	2003061-351	0238	2021107-021	PS2003972
2003972-311	B1	2003060-361	2003061-361	0239	2021108-021	PS2016016
-321	B2	2003060-371	2003061-371	0240	2021108-021	PS2016016
-331	B3	2003060-381	2003061-381	0241	2021108-021	PS2016016
-341	B4	2003060-391	2003061-391	0242	2021108-021	PS2016016
-351	B5	2003060-411	2003061-411	0243	2021108-021	PS2016016
2003972-361	B6	2003060-421	2003061-421	0244	2021108-021	PS2016016
2003972-371	B1	2003060-431	2003061-431	0245	2021110-011	PS2016016
2003972-381	B2	2003060-441	2003061-441	0246	2021110-011	
2003972-391	B3	2003060-451	2003061-451	0247	2021110-011	
2003972-411	B4	2003060-461	2003061-461	0248	2021110-011	
2003972-421	B5	2003060-471	2003061-471	0249	2021110-011	
2003972-431	B6	2003060-491	2003061-481	0250	2021110-011	PS2016016
2003972-441	B1	2003060-[illegible]	2003061-491	0251	2021110-021	PS2016016
2003972-451	B2	2003060-511	2003061-511	0252	2021110-021	
2003972-461	B3	2003060-521	2003061-521	0253	2021110-021	
2003972-471	B4	2003060-531	2003061-531	0254	2021110-021	
2003972-481	B5	2003060-541	2003061-541	0255	2021110-021	
2003972-491	B6	2003060-551	2003061-551	0256	2021110-021	PS2016016
-511	B1	-561	-561	0257	2021111-021&031	PS2016036
-521	B2	-571	-571	0258	-021&031	
-531	B3	-581	-581	0259	-021&031	
-541	B4	-591	-591	0260	2021111-021&031	
-551	B5	-611	-611	0261	2021111-021	
2003972-561	B6	2003060-621	2003061-621	0262	2021111-021&031	PS2016036
2003972-571	B5	2003060-631	2003061-631	0263	2021111-031	PS2016036
2003972-581	B1	2003060-641	2003061-641	0264	2021110-031	PS2016036
-591	B2	-651	-651	0265	2021110-031	
-611	B3	-661	-661	0266	2021110-031	
-621	B4	-671	-671	0267	2021110-031	
-631	B5	-681	-681	0268	2021110-031	
2003972-641	B6	2003060-691	2003061-691	0269	2021110-031	PS2016036
2003972-651	B1	2003060-711	2003061-711	0270	2021111-041	PS2016036
-661	B2	-721	-721	0271	-041	
-671	B3	-731	-731	0272	-041	
-681	B4	-741	-741	0273	-041	
-691	B5	-751	-751	0274	-041	
2003972-711	B6	2003060-761	2003061-761	0275	2021111-041	PS2016036
2003972-721	B1	2003060-771	2003061-771	0276	2021112-011	PS2016036
-731	B2	-781	-781	0277	-011	
-741	B3	-791	-791	0278	-011	
-751	B4	-811	-811	0279	-011	
-761	B5	-821	-821	0280	-011	
2003972-771	B6	2003060-831	2003061-831	0281	2021112-011	PS2016036
2003972-781	B1	2003060-841	2003061-841	0282	2021113-011	PS2016036
-791	B2	-851	-851	0283	-011	
-811	B3	-861	-861	0284	-011	
-821	B4	-871	-871	0285	-011	
-831	B5	-881	-881	0286	-011	
2003972-841	B6	2003060-891	2003061-891	0287	2021113-011	PS2016036
2003972-851	B3	2003060-911	2003061-911	0288	2021113-021	PS2016036
2003972-861	B1	2003060-921	2003061-921	0289	2021113-031	PS2016036
-871	B2	-931	-931	0290	-031	
-881	B3	-941	-941	0291	-031	
-891	B4	-951	-951	0292	-031	
-911	B5	-961	-961	0293	-031	
2003972-921	B6	2003060-971	2003061-971	0294	2021113-031	PS2016036
2003972-931	B2	2003060-981	2003061-981	0295	2021112-031	PS2016036
2003972-941	B2	2003060-991	2003061-991	0296	2021113-041	PS2016036
-951	B1	-1011	-1011	0297	2021112-021	
-961	B2	-1021	-1021	0298		
-971	B3	-1031	-1031	0299		
-981	B4	-1041	-1041	0300		
-991	B5	-1051	-1051	0301		
2003972-1011	B6	2003060-1061	2003061-1061	0302	2021112-021	PS2016036
2003972-1021	B1	2003060-1071	2003061-1071	0303	2021112-041	PS2016036
2003972-1031	B2	2003060-1081	2003061-1081	0304	2021113-051	PS2016036

CONTINUED ON SHEET 3

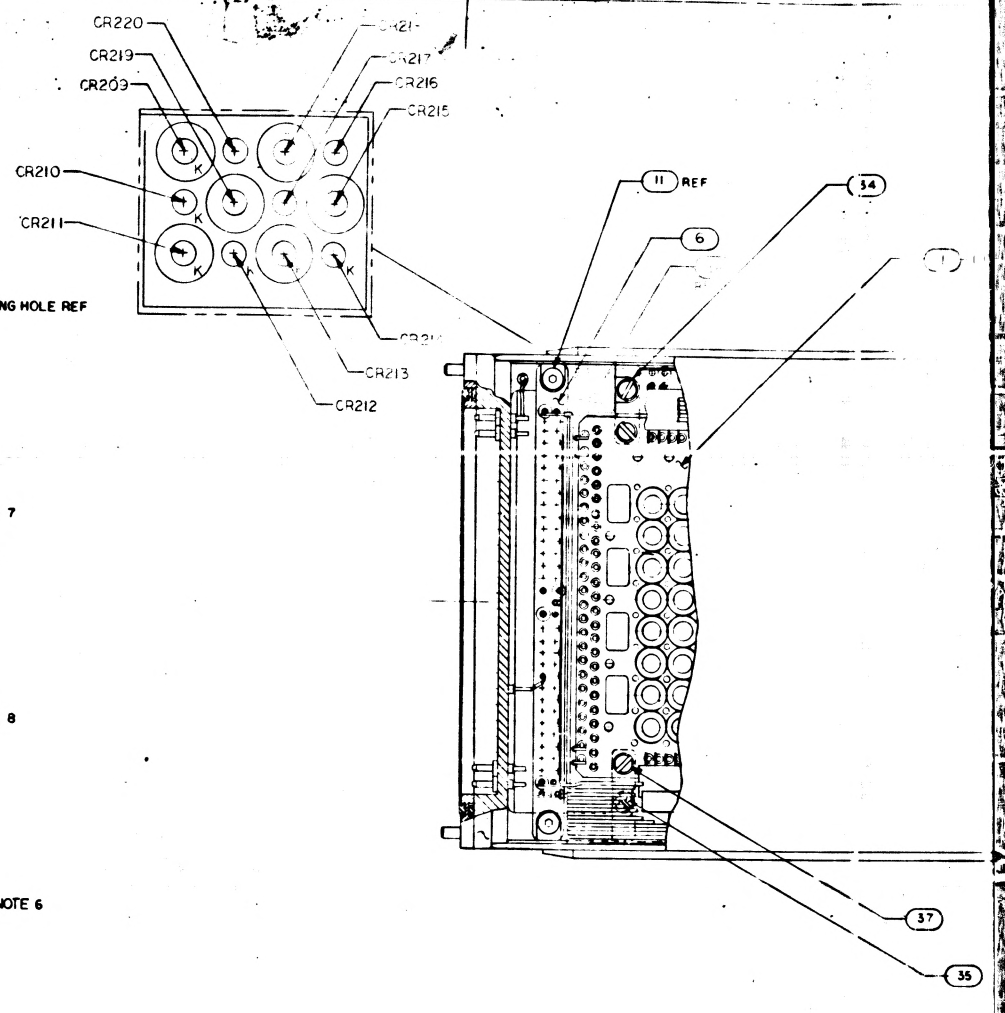
NOTES:

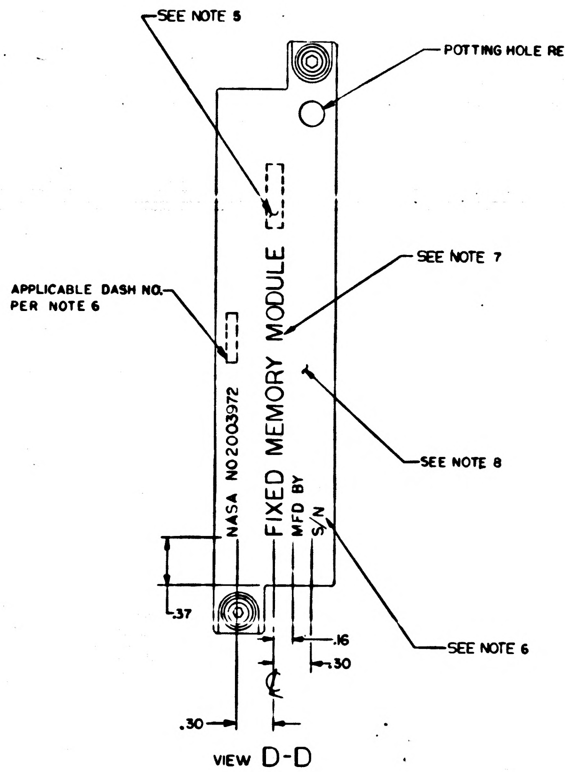
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
3. ENCAPSULATE MODULE PER ND1002226 METHOD II
4. WELD PER ND1002005
5. MARK APPROPRIATE MODULE NO. AS SHOWN IN CHART
6. MARK .08/.06 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
7. MARK .14/.10 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 USING INK 1006271-1
8. PAINT INDICATED SURFACES OF FIND NO 7. PER ND1002279 WITH SCD NO.1008809-1 DARK GREY EPOXY RESIN ENAMEL, FINAL COAT PER ND1002277 USING 1012543-003
9. ASSEMBLE FIND NO.7 AND FIND NO.3 TO DIMENSIONS SHOWN
10. REMOVE LINER FROM NEARSIDE OF FIND NO.36 AND ASSEMBLE 3 PLACES AS SHOWN. FIND NO.36 MUST INSULATE FLAT CABLES FROM TRIMMED COMPONENT LEADS. TRIM AS REQUIRED
11. WHITE DOT AND SINGLE SOLID LEAD DENOTES FIRST LEVEL WIRING UNLESS OTHERWISE SPECIFIED
12. BLACK DOT AND SINGLE SOLID LEAD DENOTES SECOND LEVEL WIRING
13. BLACK DOT AND CROSS HATCHED LEAD DENOTES THIRD LEVEL WIRING
14. ALL LEADS FROM FIND NO.1 AND FIND NO.2 TO FIND NO.3 TO BE THIRD LEVEL WIRING
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PROCUREMENT SPECIFICATION AS LISTED IN CHART.
16. FIND NO.9 TO BE SHIPPED UNASSEMBLED AND IDENTIFIED PER ND 1002019

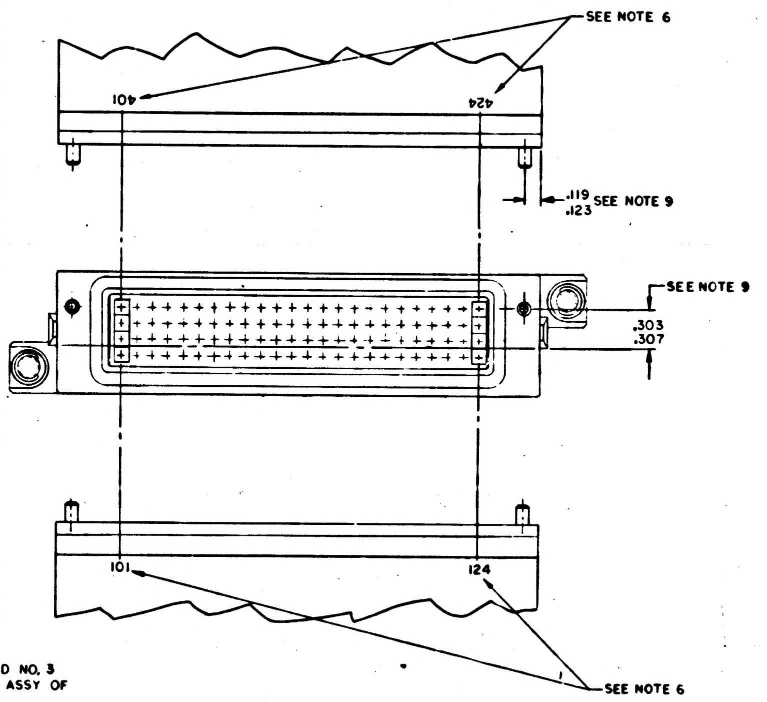
17. SEAL PINS AND INSULATORS TO FIND NO. 3 PER ND1002004 TYPE VI BEFORE ASSY OF FIND NO. 6
18. FILL AS SHOWN PER ND1002235 METHOD A
19. BOND FIND NO.39 TO FIND NO.3 PER ND1002004 TYPE VI AFTER ASSY OF FIND NO.6
20. PRIOR TO ENCAPSULATION PER NOTE 3, COAT OVER ALL TERMINALS OF FIND NO'S 1,2,&3 AND OVER ALL WIRES, SLEEVING AND COMPONENT LEADS OF FIND NO'S 4,5,6,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,38 &39 WITH A .03 MAXIMUM THICKNESS OF SILICONE RUBBER PER ND1002009, METHOD A. MASK ALL OUTSIDE SURFACES OF FIND NO.3 AND ALL OTHER SURFACES OF THIS ASSEMBLY COMING IN CLOSE CONTACT WITH FIND NO.7
21. FILL INTERFACE BETWEEN FIND NO.4 AND SIDE SURFACES OF FIND NO'S 1 AND 2, AND INTERFACE BETWEEN FIND NO.5 AND SIDE SURFACES OF FIND NO'S 1 AND 2 USING FIND NO.40. ROOM TEMP CURE FOR 24 HOURS MIN.

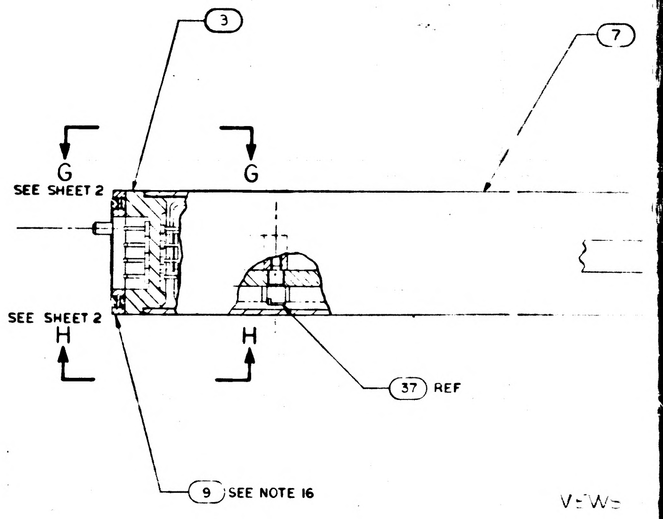
REFERENCES:

1. PROCESS REQUIREMENTS FOR CONTROL AND INSPECTION OF ROPE MEMORY ASSEMBLIES ND1002285
2. FIXED MEMORY FIXTURE DWG. NO. AP22500



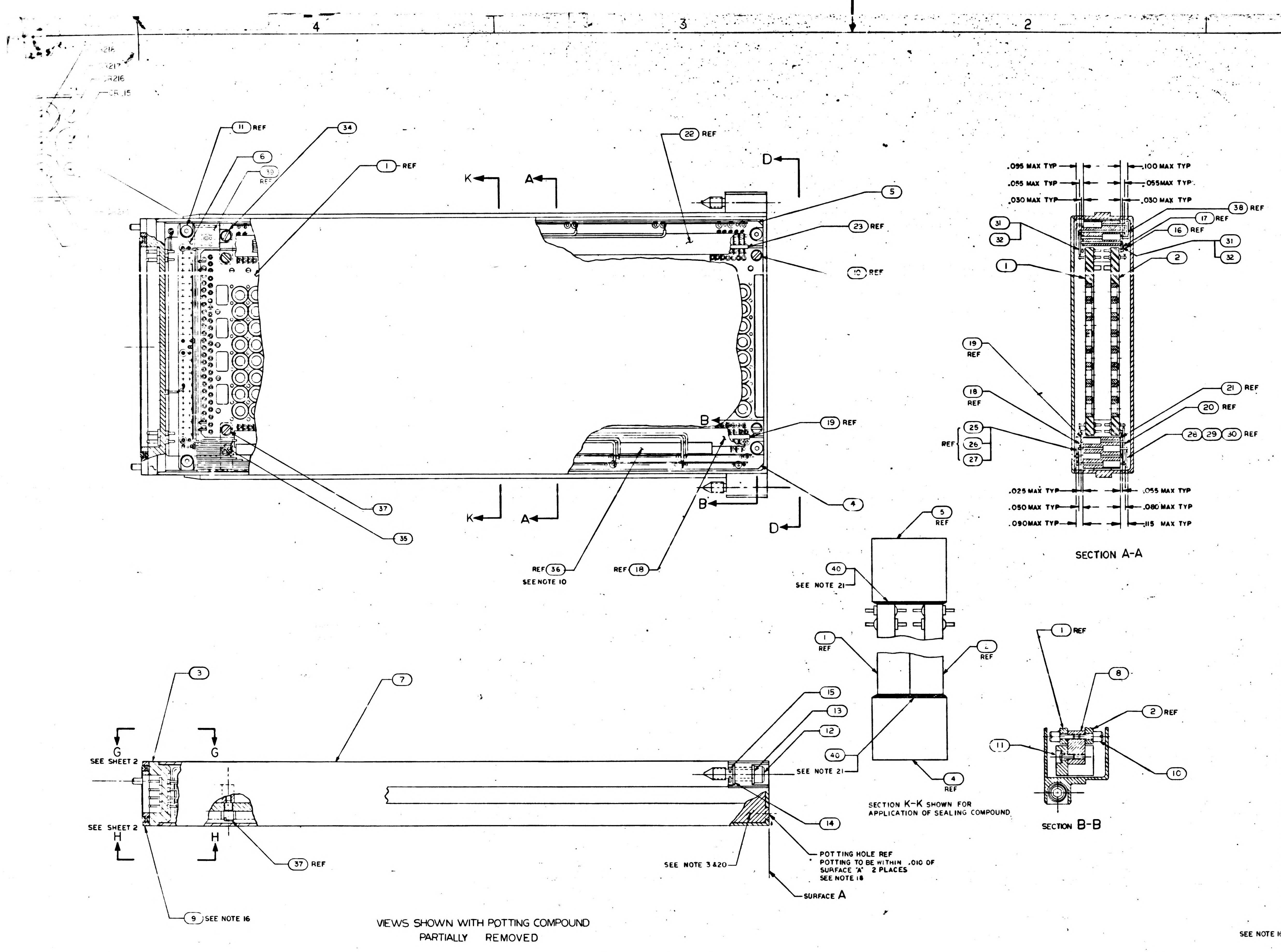






2003972 AC

SH1/3 2003972ACF1/2


4
3
2
11 REF
34
6
35 REF
1 REF
22 REF
K
A
D
5
23 REF
10 REF
B
19 REF
37
35
36 REF
SEE NOTE 10
18 REF
4
.095 MAX TYP
.055 MAX TYP
.030 MAX TYP
.100 MAX TYP
.055 MAX TYP
.030 MAX TYP
38 REF
17 REF
16 REF
31
32
2
19 REF
18 REF
21 REF
20 REF
25
26
27
28 29 30 REF
.025 MAX TYP
.050 MAX TYP
.090 MAX TYP
.055 MAX TYP
.080 MAX TYP
.115 MAX TYP
SECTION A-A
5 REF
40
SEE NOTE 21
1 REF
2 REF
40
4 REF
SECTION K-K SHOWN FOR APPLICATION OF SEALING COMPOUND
8
2 REF
11
10
SECTION B-B
3
7
15
13
12
SEE NOTE 21
G
SEE SHEET 2
H
14
37 REF
POTTING HOLE REF
POTTING TO BE WITHIN .010 OF SURFACE "A" 2 PLACES
SEE NOTE 18
SEE NOTE 3 & 20
SURFACE A
9 SEE NOTE 16
VIEWS SHOWN WITH POTTING COMPOUND PARTIALLY REMOVED
SEE NOTE 16

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL [illegible] TDRR 3299[illegible]	[illegible]	[illegible]
B	REVISED PER TDRR 33460 DR [illegible] CHK [illegible]	[illegible]	[illegible]
C	REVISED PER TDRR 3[illegible]4 DR [illegible] CHK [illegible]	[illegible]	[illegible]
D	REVISED PER TDRR 33606 DR [illegible] CHK [illegible]	5/1967	[illegible]
E	REVISED PER TDRR 34140 DR [illegible] CHK [illegible]	[illegible]	[illegible]
F	REVISED PER TDRR 34489 DR [illegible] CHK [illegible]	10-16-67	[illegible]
G	REVISED PER TDRR 3[illegible]	[illegible]	[illegible]
H	REVISED PER TDRR 3[illegible] DR [illegible] CHK	[illegible]	[illegible]
J	REVISED PER TDRR 35[illegible] DR [illegible] CHK [illegible]	[illegible]	[illegible]
K	REVISED PER TDRR 35570 DR [illegible] CHK [illegible]	4/10/[illegible]	[illegible]
L	REVISED PER TDRR 36217 DR W.O. Makaa CHK [illegible]	5/24/6[illegible]	[illegible]
M	REVISED PER TDRR 3[illegible] DR [illegible]	[illegible]	[illegible]
N	REVISED PER TDRR 36686 DR [illegible] CHK [illegible]	[illegible]	[illegible]
P	REVISED PER TDRR 36[illegible] DR [illegible] CHK [illegible]	[illegible]	[illegible]
R	REVISED PER TDRR 36858 DR [illegible] CHK [illegible]	[illegible]	[illegible]
S	REVISED PER TDRR 36916 DR [illegible] CHK [illegible]	[illegible]	[illegible]
T	REVISED PER TDRR 36970 DR [illegible] CHK [illegible]	[illegible]	[illegible]
U	REVISED PER TDRR 37008 DR [illegible] CHK [illegible]	[illegible]	[illegible]
V	REVISED PER TDRR 3714[illegible] DR [illegible] CHK [illegible]	3/11/69	[illegible]
W	REVISED PER TDRR 37387 DR [illegible] CHK [illegible]	3/15/69	[illegible]
Y	REVISED PER TDRR 37427 DR [illegible] CHK [illegible]	4/[illegible]/69	[illegible]
Z	REVISED PER TDRR 37454 DR [illegible] CHK [illegible]	[illegible] APR 69	[illegible]
AA	REVISED PER TDRR 37535 DR [illegible] CHK [illegible]	6 MAY 69	[illegible]
AB	REVISED PER TDRR 37582 DR [illegible] CHK [illegible]	[illegible] JUN 69	[illegible]
AC	REVISED PER TDRR 37616 DR [illegible] CHK [illegible]	8 AUG 69	[illegible]

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006341	ADHESIVE SEALANT, SILICONE RUBBER	40
1	2003986-021	COMPONENT BLOCK DIODE ASSY	39
☒	2005935	SCHEMATIC	REF
1	2004684	FLAT CABLE	38
4	2004150 — 003	SCREW, SHOULDERED	37
AR	1006806 — 26	INSULATION TAPE, ELECTRICAL	36
1	2004150 — 001	SCREW, SHOULDERED	35
1	2004150 — 002	SCREW, SHOULDERED	34
1	2004129	FLAT CABLE INTERCONNECTION	33
AR	1006776-25	SLEEVING	32
AR	1006757 12	WIRE, ELECRICAL	31
1	2004125	FLAT CABLE	30
1	2004122	FLAT CABLE	29
1	2004124	FLAT CABLE	28
1	2004123	FLAT CABLE	27
1	2004121	FLAT CABLE	26
1	2004120	FLAT CABLE	25
1	2004[illegible]	FLAT CABLE	24
1	2003051 — 013	MATRIX ASSY	23
1	2003051 — 014	MATRIX ASSY	22
8	2003051 — 016	MATRIX ASSY	21
8	2003051 — 015	MATRIX ASSY	20
1	2003051 — 017	MATRIX ASSY	19
1	2003051 — 018	MATRIX ASSY	18
1	2003051 — 011	MATRIX ASSY	17
1	2003051 — 012	MATRIX ASSY	16
2	MS16633-4015	"E" RING	15
2	1004546-3	WASHER	14
2	1004546-1	WASHER	13
2	1004579-1	SCREW, JACKING	12
4	1000093-1	SCREW, BUTTONHEAD	11
4	2004151	SCREW, STANDOFF	10
1	1006339	GASKET PLATE	9
2	2004071	STANDOFF	8
1	2004100	HOUSING	7
1	2003048-021	RESISTOR-DIODE BLOCK ASSY	6
1	2003052-021	COMPONENT BLOCK RESISTOR ASSY	5
1	2003045-021	COMPONENT BLOCK DIODE ASSY	4
1	2003973-011	CONNECTOR PLATE ASSY	3
1	2003061-SEE CHART	SENSE WIRING ASSY SIDE B	2
1	2003060-SEE CHART	SENSE WIRING ASSY SIDE A	1

LIST OF MATERIALS

FOR APPLICABLE PART NO. SEE CHART

SEE CHART		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± — DECIMALS ±.02 ANGLES ± 2° DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB Cambridge Mass	MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
NEXT ASSY	USED ON	MATERIAL	DRAWN A.T. [illegible] DATE 6 AUG [illegible] CHECKED [illegible] 12 AUG [illegible] APPROVAL [illegible] APPROVAL [illegible]	FIXED MEMORY MODULE ASSEMBLY	
APPLICATION		HEAT TREATMENT FINAL FINISH	NASA APPROVAL [illegible] MIT APPROVAL [illegible]	CODE IDENT NO. 80230 SCALE 2/1	SIZE J NASA DRAWING NO. 2003972 WT SHEET 1 OF 3

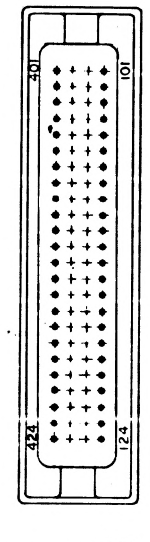
2003972AC

SIH 1/3 2003972ACF2/21

WIRE LIST			
PIN NO.	COMPONENT OR TERM. NO.	PIN NO.	COMPONENT OR TERM. NO.
101	A-E1-213	301	GROUND
102	A-E1-212	302	CR209
103	A-E1-211	303	CR210
104	A-E0-211	304	CR211
105	A-E1-210	305	CR212
106	A-E1-209	306	CR213
107	A-E1-208	307	CR214
108	A-E1-207	308	A-CR208
109	A-E1-206	309	A-CR207
110	A-E1-205	310	A-CR206
111	A-E1-204	311	A-CR205
112	A-E1-203	312	A-CR204
113	A-E1-202	313	A-CR203
114	A-E1-201	314	A-CR202
115	A-E1-200	315	A-CR201
116	A-E1-199	316	A-CR200
117	A-E1-198	317	A-CR199
118	A-E1-197	318	A-CR198
119	A-E1-196	319	A-CR197
120	A-E1-195	320	A-CR196
121	A-E0-194	321	A-CR195
122	A-E1-194	322	A-CR194
123	A-E0-193	323	A-CR193
124	A-E1-193	324	SPARE
201	B-R208	401	B-E1-213
202	CR215	402	B-E1-212
203	CR216	403	B-E1-211
204	CR217	404	B-E0-211
205	CR218	405	B-E1-210
206	CR 19	406	B-E1-209
207	CR220	407	B-E1-208
208	B-CR208	408	B-E1-207
209	B-CR207	409	B-E1-206
210	B-CR206	410	B-E1-205
211	B-CR205	411	B-E1-204
212	B-CR204	412	B-E1-203
213	B-CR203	413	B-E1-202
214	B-CR202	414	B-E1-201
215	B-CR201	415	B-E1-200
216	B-CR200	416	B-E1-199
217	B-CR199	417	B-E1-198
218	B-CR198	418	B-E1-197
219	B-CR197	419	B-E1-196
220	B-CR196	420	B-E1-195
221	B-CR195	421	B-E0-194
222	B-CR194	422	B-E1-194
223	B-CR193	423	B-E0-193
224	SPARE	424	B-E1-193

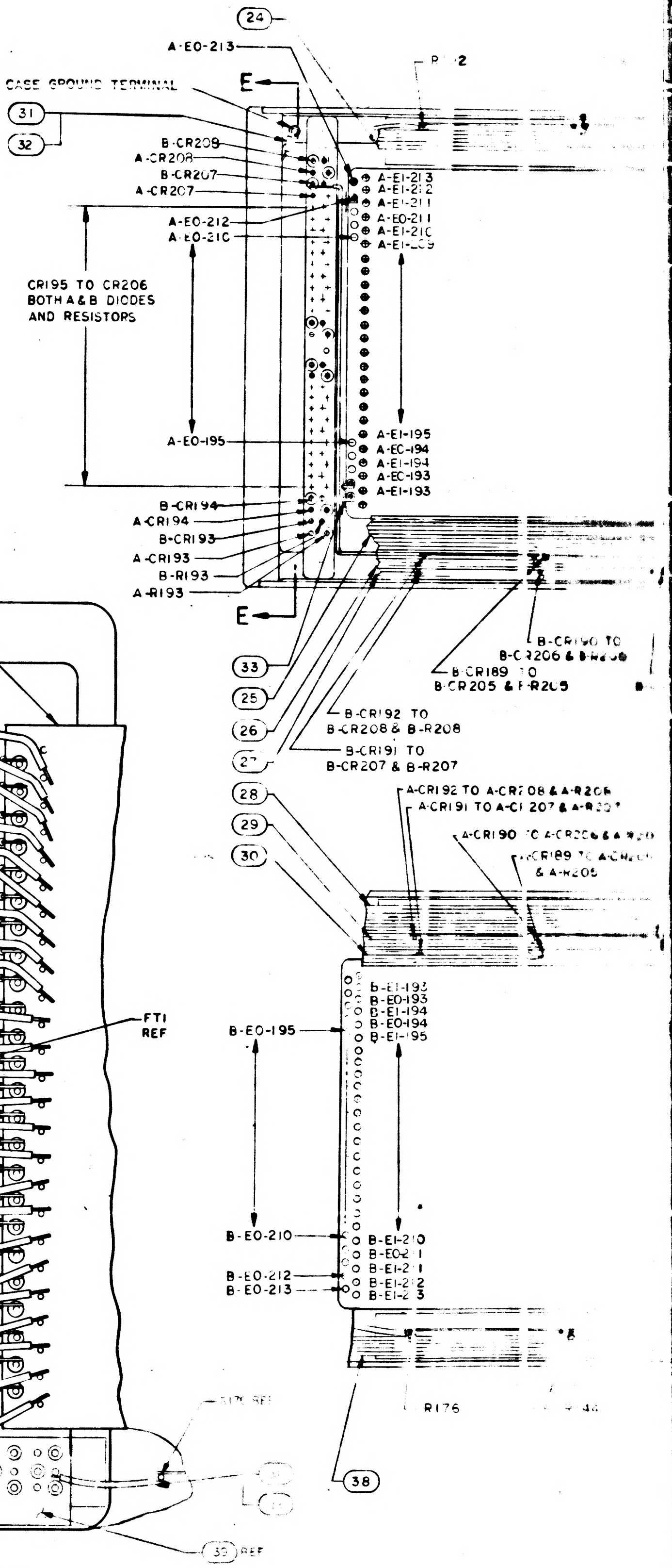
WIRE LIST	
TERMINAL NO.	TERMINAL NO.
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
A-E0-195	B-E0-195
A-E0-196	B-E0-196
A-E0-197	B-E0-197
A-E0-198	B-E0-198
A-E0-199	B-E0-199
A-E0-200	B-E0-200
A-E0-201	B-E0-201
A-E0-202	B-E0-202
A-E0-203	B-E0-203
A-E0-204	B-E0-204
A-E0-205	B-E0-205
A-E0-206	B-E0-206
A-E0-207	B-E0-207
A-E0-208	B-E0-208
A-E0-209	B-E0-209
A-E0-210	B-E0-210
SPARE	SPARE
SPARE	SPARE
A-E0-212	B-E0-212
A-E0-213	B-E0-213

WIRE LIST	
COMPONENT NO.	COMPONENT NO.
CR215	R176
CR216	R144
CR217	R112
CR218	R80
CR219	R48
CR220	R16
CR209	R32
CR210	R64
CR211	R96
CR212	R128
CR213	R160
CR214	R192



401
101
424
124

SECTION E-E



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A-E0-213
E
CASE GROUND TERMINAL
31
32
B-CR208
A-CR208
B-CR207
A-CR207
A-E1-213
A-E1-212
A-E1-211
A-E0-211
A-E1-210
A-E0-212
A-E0-210
CR195 TO CR206
BOTH A & B DIODES
AND RESISTORS
A-E0-195
A-E1-195
A-E0-194
A-E1-194
A-E0-193
A-E1-193
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
E
33
25
26
27
28
29
30
B-CR190 TO B-CR206 & B-R206
B-CR189 TO B-CR205 & B-R205
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205 & A-R205
B-E0-195
B-E1-195
B-E0-193
B-E1-194
B-E0-194
B-E1-195
B-E0-210
B-E1-210
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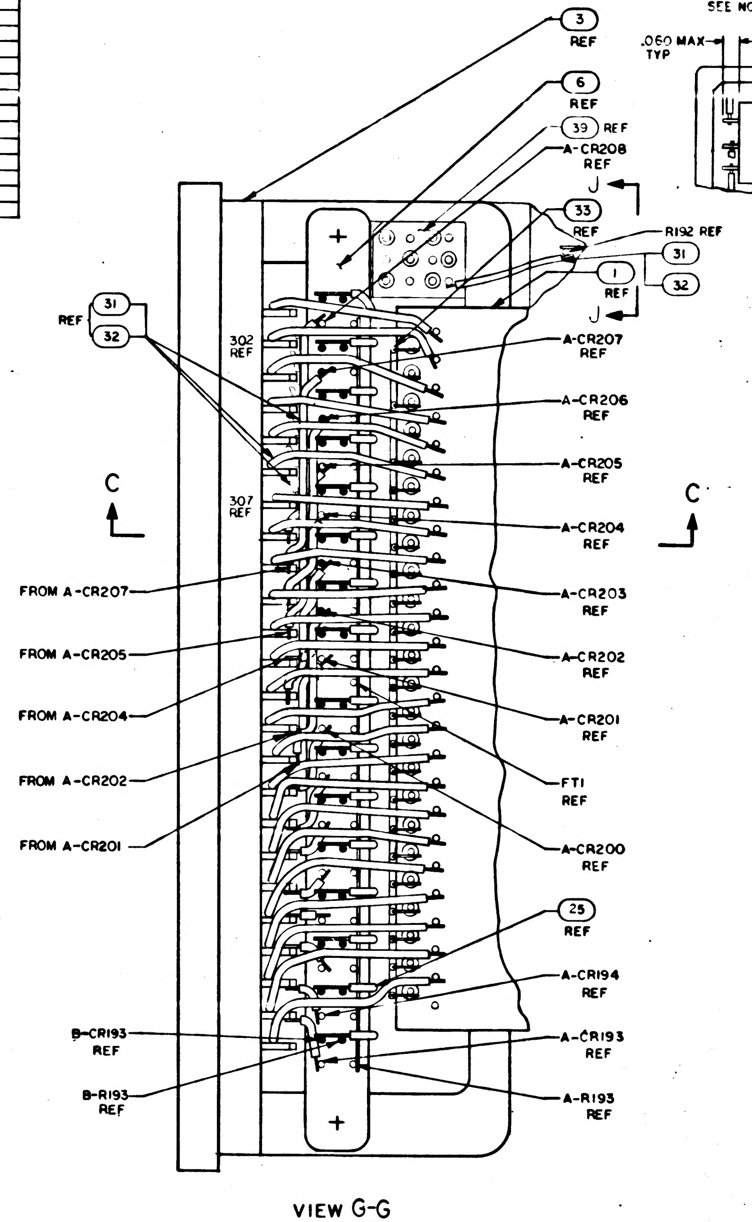
B-E1-213
R176
38
35 REF



3
REF
6
REF
39 REF
A-CR208
REF
J
33
REF
R192 REF
31
1
REF
32
J
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REF
302
REF
A-CR207
REF
A-CR206
REF
A-CR205
REF
307
REF
C
C
A-CR204
REF
A-CR203
REF
FROM A-CR207
FROM A-CR205
A-CR202
REF
FROM A-CR204
A-CR201
REF
FROM A-CR202
FT1
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FROM A-CR201
A-CR200
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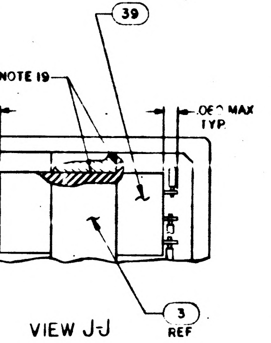
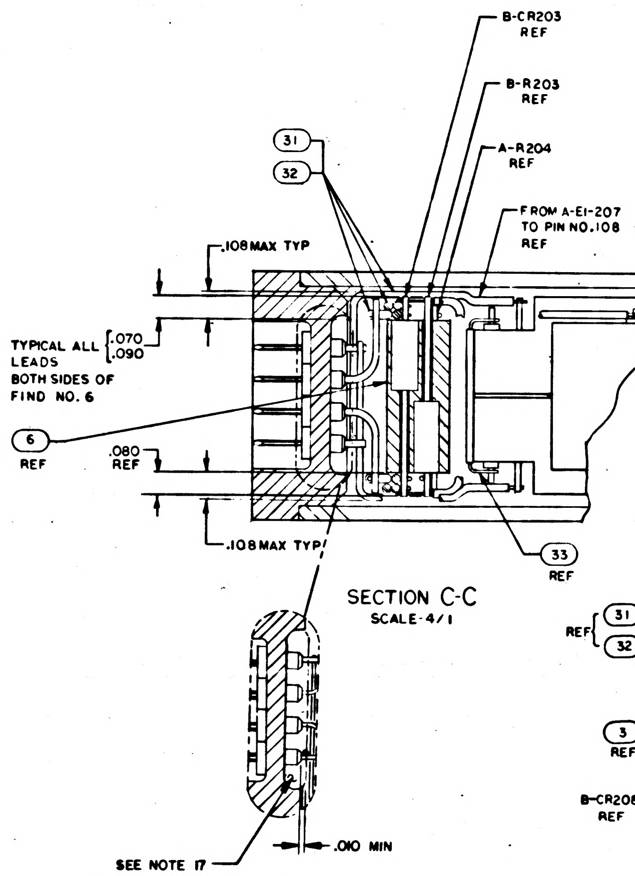
25
REF
A-CR194
REF
B-CR193
REF
A-CR193
REF
B-R193
REF
A-R193
REF
+
+

VIEW G-G
SCALE: 4/1
SHOWN WITH POTTING AND FIND NO. 7
REMOVED. SEE NOTES 11, 12, 13 AND 14



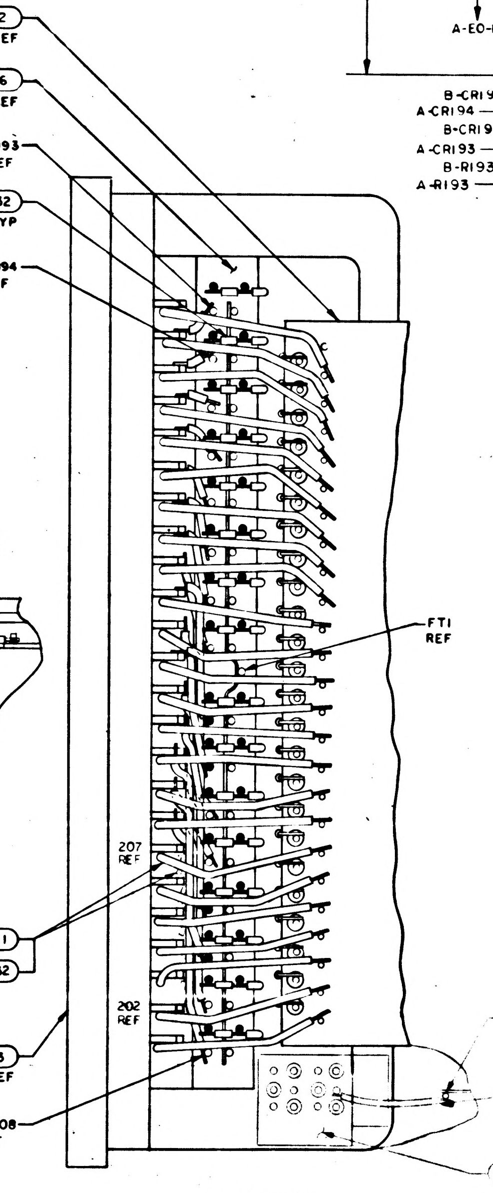
39
SEE NOTE 19
.060 MAX
TYP
.060 MAX
TYP
3
REF

VIEW J-J



B-CR203
REF
B-R203
REF
31
32
A-R204
REF
FROM A-E1-207
TO PIN NO. 108
REF
.108 MAX TYP
TYPICAL ALL LEADS BOTH SIDES OF FIND NO. 6
.070
.090
6
REF
.080
REF
.108 MAX TYP
33
REF
SEE NOTE 17
.010 MIN

SECTION C-C
SCALE: 4/1



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TYP
B-CR194
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FT1
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202
REF
3
REF
B-CR208
REF

VIEW H-H
SCALE: 4/1
SHOWN WITH POTTING AND FIND NO. 7
REMOVED. SEE NOTES 11, 12, 13 AND 14

2CC3972 AC

SH2/3 2003972ACF1/2

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
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D		REVISED PER TDRR 33[illegible]06	[illegible]	[illegible]	[illegible]	[illegible]
E		REVISED PER TDRR 34140	[illegible]			[illegible]
F		REVISED PER TDRR 3448[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
G		REVISED PER TDRR 349[illegible]7				[illegible]
H		REVISED PER TDRR 35339				
J		REVISED PER TDRR [illegible]	[illegible]			
K		REVISED PER TDRR 3[illegible]870	[illegible]	[illegible]	[illegible]	[illegible]
L		REVISED PER TDRR [illegible]217	[illegible]	[illegible]	[illegible]	[illegible]
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R		REVISED PER TDRR [illegible]	[illegible]		[illegible]	[illegible]
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T		REVISED PER TDRR				
U		REVISED PER TDRR [illegible]009	[illegible]		[illegible]	[illegible]
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Y		REVISED PER TDRR [illegible]2	[illegible]		[illegible]	[illegible]
Z		REVISED PER TDRR [illegible]4	[illegible]		[illegible]	[illegible]
AA		REVISED PER TDRR [illegible]			[illegible]	[illegible]
AB		REVISED PER TDRR 37[illegible]82	[illegible]	[illegible]	[illegible]	[illegible]
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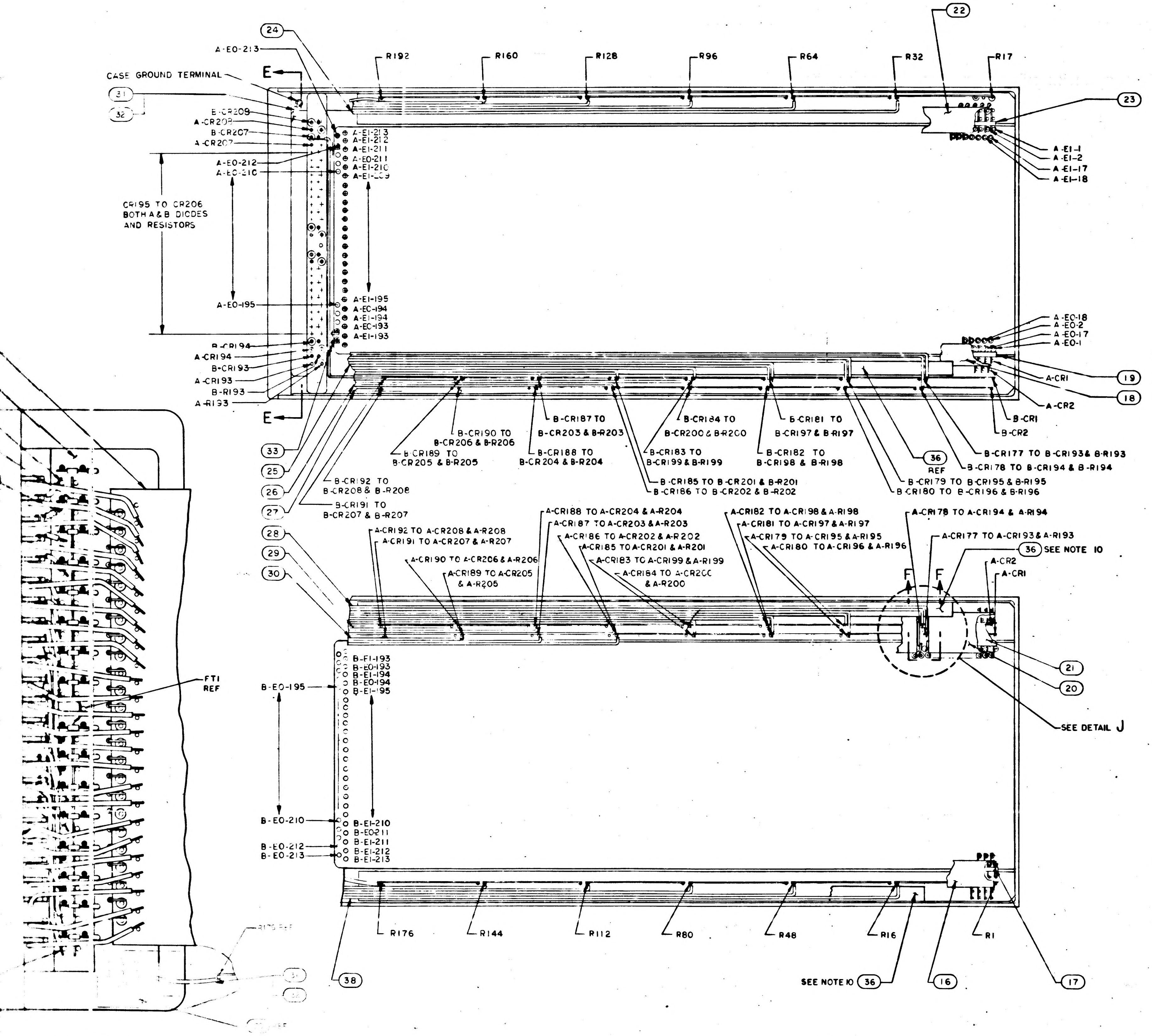
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A-EO-213
CASE GROUND TERMINAL
31
32
B-CR208
A-CR208
B-CR207
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A-EO-212
A-EO-210
CR195 TO CR206
BOTH A & B DIODES
AND RESISTORS
A-EO-195
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
A-EI-213
A-EI-212
A-EI-211
A-EO-211
A-EI-210
A-EI-209
A-EI-195
A-EO-194
A-EI-194
A-EO-193
A-EI-193
R192
R160
R128
R96
R64
R32
R17
22
23
A-EI-1
A-EI-2
A-EI-17
A-EI-18
A-EO-18
A-EO-2
A-EO-17
A-EO-1
19
A-CR1
18
A-CR2
B-CR1
B-CR2
33
25
26
27
B-CR190 TO
B-CR206 & B-R206
B-CR189 TO
B-CR205 & B-R205
B-CR187 TO
B-CR203 & B-R203
B-CR188 TO
B-CR204 & B-R204
B-CR184 TO
B-CR200 & B-R200
B-CR183 TO
B-CR199 & B-R199
B-CR185 TO B-CR201 & B-R201
B-CR186 TO B-CR202 & B-R202
B-CR181 TO
B-CR197 & B-R197
B-CR182 TO
B-CR198 & B-R198
36
REF
B-CR179 TO B-CR195 & B-R195
B-CR180 TO B-CR196 & B-R196
B-CR177 TO B-CR193 & B-R193
B-CR178 TO B-CR194 & B-R194
B-CR192 TO
B-CR208 & B-R208
B-CR191 TO
B-CR207 & B-R207
28
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A-CR192 TO A-CR208 & A-R208
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A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205
& A-R205
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A-CR184 TO A-CR200
& A-R200
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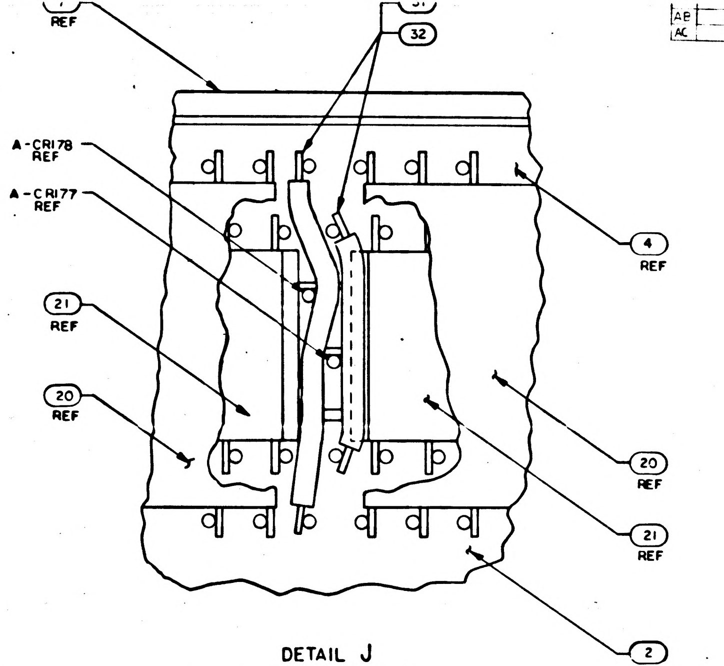
A-CR181 TO A-CR197 & A-R197
A-CR179 TO A-CR195 & A-R195
A-CR180 TO A-CR196 & A-R196
A-CR178 TO A-CR194 & A-R194
A-CR177 TO A-CR193 & A-R193
36 SEE NOTE 10
A-CR2
A-CR1
F
F
21
20
SEE DETAIL J
B-EI-193
B-EO-193
B-EI-194
B-EO-194
B-EI-195
B-EO-195
B-EO-210
B-EO-212
B-EO-213
B-EI-210
B-EO-211
B-EI-211
B-EI-212
B-EI-213
FT1
REF
R176
R144
R112
R80
R48
R16
R1
38
SEE NOTE 10
36
16
17

VIEW H-H
SCALE 4/1
SHOWN WITH POTTING AND FIND NO. 7
REMOVED. SEE NOTES 11, 12, 13 AND 14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4
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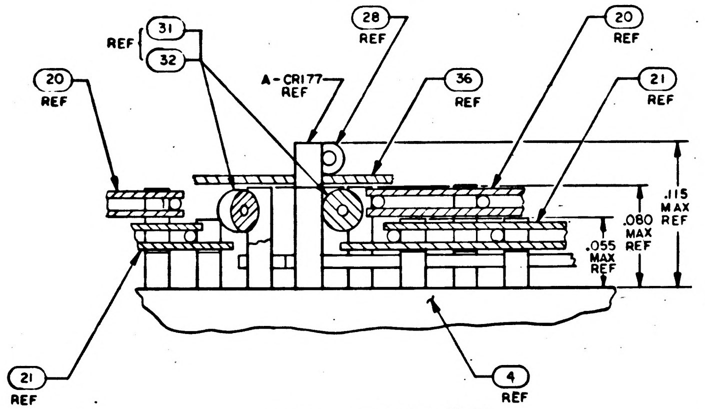
DETAIL J
SCALE 10/1
TYPICAL WIRING 8 PLACES, SHOWN
WITH FIND NOS. 28 AND 36 REMOVED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MAX
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MAX
REF
.055
MAX
REF
21
REF
4
REF

PARTIAL SECTION F-F
SCALE: 20/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003972
SCALE 2/1
SHEET 2 OF 3

2003972 AC

SH2/3 2003972ACE2/2

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

PART NO	MODULE NO	FIND NO 1	FIND NO 2	MODULE DECK NO	NEXT ASSEMBLY NO (REF)	PROCUREMENT SPECIFICATION SEE NOTE 15
2003972 — 1041	B1	2003060 — 1091	2003061 — 1091	0305	2021112 — 051	PS 2016036
2003972 — 1051	B2	2003060 — 1111	2003061 — 1111	0306	2021112 — 051	PS 2016036
2003972 — 1061	B5	2003060 — 1121	2003061 — 1121	0307	2021112 — 051	PS 2016036

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL RE[illegible] TDRR 32997				
B		REVISED PER TDRR 3340[illegible]				
C		REVISED PER TDRR [illegible]4				
D		REVISED PER TDRR 33606				
E		REVISED PER TDRR 34[illegible]0				
F		REVISED PER TDRR 34489				
G		REVISED PER TDRR [illegible]97				
H		REVISED PER TDRR 35339				
J		REVISED PER TDRR [illegible]49				
K		REVISED PER TDRR 3587[illegible]				
L		REVISED PER TDRR 36217				
M		[illegible] PER TDRR [illegible]				
N		REVISED PER TDRR 36686				
P		REVISED PER TDRR [illegible]				
R		REVISED PER TDRR [illegible]				
S		REVISED PER TDRR 36[illegible]				
T		REVISED PER TDRR [illegible]				
U		REVISED PER TDRR [illegible]				
V		REVISED PER TDRR 37[illegible]6				
W		REVISED PER TDRR 37387				
Y		REVISED PER TDRR 37427				
Z		REVISED PER TDRR 374[illegible]				
AA		REVISED PER TDRR 37535			5/14/69	
AB		REVISED PER TDRR 375[illegible]				
AC		REVISED PER TDRR 3751[illegible]			5/17/69	

WIRE LIST

TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.
A-EO-1	A-CR1	A-EO-97	A-CR97	B-EO-1	B-CR1	B-EO-97	B-CR97	A-EI-1	R1	A-EI-49	R49	A-EI-97	R97	A-EI-145	R145
A-EO-2	A-CR2	A-EO-98	A-CR98	B-EO-2	B-CR2	B-EO-98	B-CR98	B-EI-1		B-EI-49		B-EI-97		B-EI-145	
A-EO-3	A-CR3	A-EO-99	A-CR99	B-EO-3	B-CR3	B-EO-99	B-CR99	A-EI-2	R2	A-EI-50	R50	A-EI-98	R98	A-EI-146	R146
A-EO-4	A-CR4	A-EO-100	A-CR100	B-EO-4	B-CR4	B-EO-100	B-CR100	B-EI-2		B-EI-50		B-EI-98		B-EI-146	
A-EO-5	A-CR5	A-EO-101	A-CR101	B-EO-5	B-CR5	B-EO-101	B-CR101	A-EI-3	R3	A-EI-51	R51	A-EI-99	R99	A-EI-147	R147
A-EO-6	A-CR6	A-EO-102	A-CR102	B-EO-6	B-CR6	B-EO-102	B-CR102	B-EI-3		B-EI-51		B-EI-99		B-EI-147	
A-EO-7	A-CR7	A-EO-103	A-CR103	B-EO-7	B-CR7	B-EO-103	B-CR103	A-EI-4	R4	A-EI-52	R52	A-EI-100	R100	A-EI-148	R148
A-EO-8	A-CR8	A-EO-104	A-CR104	B-EO-8	B-CR8	B-EO-104	B-CR104	B-EI-4		B-EI-52		B-EI-100		B-EI-148	
A-EO-9	A-CR9	A-EO-105	A-CR105	B-EO-9	B-CR9	B-EO-105	B-CR105	A-EI-5	R5	A-EI-53	R53	A-EI-101	R101	A-EI-149	R149
A-EO-10	A-CR10	A-EO-106	A-CR106	B-EO-10	B-CR10	B-EO-106	B-CR106	B-EI-5		B-EI-53		B-EI-101		B-EI-149	
A-EO-11	A-CR11	A-EO-107	A-CR107	B-EO-11	B-CR11	B-EO-107	B-CR107	A-EI-6	R6	A-EI-54	R54	A-EI-102	R102	A-EI-150	R150
A-EO-12	A-CR12	A-EO-108	A-CR108	B-EO-12	B-CR12	B-EO-108	B-CR108	B-EI-6		B-EI-54		B-EI-102		B-EI-150	
A-EO-13	A-CR13	A-EO-109	A-CR109	B-EO-13	B-CR13	B-EO-109	B-CR109	A-EI-7	R7	A-EI-55	R55	A-EI-103	R103	A-EI-151	R151
A-EO-14	A-CR14	A-EO-110	A-CR110	B-EO-14	B-CR14	B-EO-110	B-CR110	B-EI-7		B-EI-55		B-EI-103		B-EI-151	
A-EO-15	A-CR15	A-EO-111	A-CR111	B-EO-15	B-CR15	B-EO-111	B-CR111	A-EI-8	R8	A-EI-56	R56	A-EI-104	R104	A-EI-152	R152
A-EO-16	A-CR16	A-EO-112	A-CR112	B-EO-16	B-CR16	B-EO-112	B-CR112	B-EI-8		B-EI-56		B-EI-104		B-EI-152	
A-EO-17	A-CR17	A-EO-113	A-CR113	B-EO-17	B-CR17	B-EO-113	B-CR113	A-EI-9	R9	A-EI-57	R57	A-EI-105	R105	A-EI-153	R153
A-EO-18	A-CR18	A-EO-114	A-CR114	B-EO-18	B-CR18	B-EO-114	B-CR114	B-EI-9		B-EI-57		B-EI-105		B-EI-153	
A-EO-19	A-CR19	A-EO-115	A-CR115	B-EO-19	B-CR19	B-EO-115	B-CR115	A-EI-10	R10	A-EI-58	R58	A-EI-106	R106	A-EI-154	R154
A-EO-20	A-CR20	A-EO-116	A-CR116	B-EO-20	B-CR20	B-EO-116	B-CR116	B-EI-10		B-EI-58		B-EI-106		B-EI-154	
A-EO-21	A-CR21	A-EO-117	A-CR117	B-EO-21	B-CR21	B-EO-117	B-CR117	A-EI-11	R11	A-EI-59	R59	A-EI-107	R107	A-EI-155	R155
A-EO-22	A-CR22	A-EO-118	A-CR118	B-EO-22	B-CR22	B-EO-118	B-CR118	B-EI-11		B-EI-59		B-EI-107		B-EI-155	
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A-EO-24	A-CR24	A-EO-120	A-CR120	B-EO-24	B-CR24	B-EO-120	B-CR120	B-EI-12		B-EI-60		B-EI-108		B-EI-156	
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A-EO-26	A-CR26	A-EO-122	A-CR122	B-EO-26	B-CR26	B-EO-122	B-CR122	B-EI-13		B-EI-61		B-EI-109		B-EI-157	
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A-EO-31	A-CR31	A-EO-127	A-CR127	B-EO-31	B-CR31	B-EO-127	B-CR127	A-EI-16	R16	A-EI-64	R64	A-EI-112	R112	A-EI-160	R160
A-EO-32	A-CR32	A-EO-128	A-CR128	B-EO-32	B-CR32	B-EO-128	B-CR128	B-EI-16		B-EI-64		B-EI-112		B-EI-160	
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A-EO-44	A-CR44	A-EO-140	A-CR140	B-EO-44	B-CR44	B-EO-140	B-CR140	B-EI-22		B-EI-70		B-EI-118		B-EI-166	
A-EO-45	A-CR45	A-EO-141	A-CR141	B-EO-45	B-CR45	B-EO-141	B-CR141	A-EI-23	R23	A-EI-71	R71	A-EI-119	R119	A-EI-167	R167
A-EO-46	A-CR46	A-EO-142	A-CR142	B-EO-46	B-CR46	B-EO-142	B-CR142	B-EI-23		B-EI-71		B-EI-119		B-EI-167	
A-EO-47	A-CR47	A-EO-143	A-CR143	B-EO-47	B-CR47	B-EO-143	B-CR143	A-EI-24	R24	A-EI-72	R72	A-EI-120	R120	A-EI-168	R168
A-EO-48	A-CR48	A-EO-144	A-CR144	B-EO-48	B-CR48	B-EO-144	B-CR144	B-EI-24		B-EI-72		B-EI-120		B-EI-168	
A-EO-49	A-CR49	A-EO-145	A-CR145	B-EO-49	B-CR49	B-EO-145	B-CR145	A-EI-25	R25	A-EI-73	R73	A-EI-121	R121	A-EI-169	R169
A-EO-50	A-CR50	A-EO-146	A-CR146	B-EO-50	B-CR50	B-EO-146	B-CR146	B-EI-25		B-EI-73		B-EI-121		B-EI-169	
A-EO-51	A-CR51	A-EO-147	A-CR147	B-EO-51	B-CR51	B-EO-147	B-CR147	A-EI-26	R26	A-EI-74	R74	A-EI-122	R122	A-EI-170	R170
A-EO-52	A-CR52	A-EO-148	A-CR148	B-EO-52	B-CR52	B-EO-148	B-CR148	B-EI-26		B-EI-74		B-EI-122		B-EI-170	
A-EO-53	A-CR53	A-EO-149	A-CR149	B-EO-53	B-CR53	B-EO-149	B-CR149	A-EI-27	R27	A-EI-75	R75	A-EI-123	R123	A-EI-171	R171
A-EO-54	A-CR54	A-EO-150	A-CR150	B-EO-54	B-CR54	B-EO-150	B-CR150	B-EI-27		B-EI-75		B-EI-123		B-EI-171	
A-EO-55	A-CR55	A-EO-151	A-CR151	B-EO-55	B-CR55	B-EO-151	B-CR151	A-EI-28	R28	A-EI-76	R76	A-EI-124	R124	A-EI-172	R172
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A-EO-57	A-CR57	A-EO-153	A-CR153	B-EO-57	B-CR57	B-EO-153	B-CR153	A-EI-29	R29	A-EI-77	R77	A-EI-125	R125	A-EI-173	R173
A-EO-58	A-CR58	A-EO-154	A-CR154	B-EO-58	B-CR58	B-EO-154	B-CR154	B-EI-29		B-EI-77		B-EI-125		B-EI-173	
A-EO-59	A-CR59	A-EO-155	A-CR155	B-EO-59	B-CR59	B-EO-155	B-CR155	A-EI-30	R30	A-EI-78	R78	A-EI-126	R126	A-EI-174	R174
A-EO-60	A-CR60	A-EO-156	A-CR156	B-EO-60	B-CR60	B-EO-156	B-CR156	B-EI-30		B-EI-78		B-EI-126		B-EI-174	
A-EO-61	A-CR61	A-EO-157	A-CR157	B-EO-61	B-CR61	B-EO-157	B-CR157	A-EI-31	R31	A-EI-79	R79	A-EI-127	R127	A-EI-175	R175
A-EO-62	A-CR62	A-EO-158	A-CR158	B-EO-62	B-CR62	B-EO-158	B-CR158	B-EI-31		B-EI-79		B-EI-127		B-EI-175	
A-EO-63	A-CR63	A-EO-159	A-CR159	B-EO-63	B-CR63	B-EO-159	B-CR159	A-EI-32	R32	A-EI-80	R80	A-EI-128	R128	A-EI-176	R176
A-EO-64	A-CR64	A-EO-160	A-CR160	B-EO-64	B-CR64	B-EO-160	B-CR160	B-EI-32		B-EI-80		B-EI-128		B-EI-176	
A-EO-65	A-CR65	A-EO-161	A-CR161	B-EO-65	B-CR65	B-EO-161	B-CR161	A-EI-33	R33	A-EI-81	R81	A-EI-129	R129	A-EI-177	R177
A-EO-66	A-CR66	A-EO-162	A-CR162	B-EO-66	B-CR66	B-EO-162	B-CR162	B-EI-33		B-EI-81		B-EI-129		B-EI-177	
A-EO-67	A-CR67	A-EO-163	A-CR163	B-EO-67	B-CR67	B-EO-163	B-CR163	A-EI-34	R34	A-EI-82	R82	A-EI-130	R130	A-EI-178	R178
A-EO-68	A-CR68	A-EO-164	A-CR164	B-EO-68	B-CR68	B-EO-164	B-CR164	B-EI-34		B-EI-82		B-EI-130		B-EI-178	
A-EO-69	A-CR69	A-EO-165	A-CR165	B-EO-69	B-CR69	B-EO-165	B-CR165	A-EI-35	R35	A-EI-83	R83	A-EI-131	R131	A-EI-179	R179
A-EO-70	A-CR70	A-EO-166	A-CR166	B-EO-70	B-CR70	B-EO-166	B-CR166	B-EI-35		B-EI-83		B-EI-131		B-EI-179	
A-EO-71	A-CR71	A-EO-167	A-CR167	B-EO-71	B-CR71	B-EO-167	B-CR167	A-EI-36	R36	A-EI-84	R84	A-EI-132	R132	A-EI-180	R180
A-EO-72	A-CR72	A-EO-168	A-CR168	B-EO-72	B-CR72	B-EO-168	B-CR168	B-EI-36		B-EI-84		B-EI-132		B-EI-180	
A-EO-73	A-CR73	A-EO-169	A-CR169	B-EO-73	B-CR73	B-EO-169	B-CR169	A-EI-37	R37	A-EI-85	R85	A-EI-133	R133	A-EI-181	R181
A-EO-74	A-CR74	A-EO-170	A-CR170	B-EO-74	B-CR74	B-EO-170	B-CR170	B-EI-37		B-EI-85		B-EI-133		B-EI-181	
A-EO-75	A-CR75	A-EO-171	A-CR171	B-EO-75	B-CR75	B-EO-171	B-CR171	A-EI-38	R38	A-EI-86	R86	A-EI-134	R134	A-EI-182	R182
A-EO-76	A-CR76	A-EO-172	A-CR172	B-EO-76	B-CR76	B-EO-172	B-CR172	B-EI-38		B-EI-86		B-EI-134		B-EI-182	
A-EO-77	A-CR77	A-EO-173	A-CR173	B-EO-77	B-CR77	B-EO-173	B-CR173	A-EI-39	R39	A-EI-87	R87	A-EI-135	R135	A-EI-183	R183
A-EO-78	A-CR78	A-EO-174	A-CR174	B-EO-78	B-CR78	B-EO-174	B-CR174	B-EI-39		B-EI-87		B-EI-135		B-EI-183	
A-EO-79	A-CR79	A-EO-175	A-CR175	B-EO-79	B-CR79	B-EO-175	B-CR175	A-EI-40	R40	A-EI-88	R88	A-EI-136	R136	A-EI-184	R184
A-EO-80	A-CR80	A-EO-176	A-CR176	B-EO-80	B-CR80	B-EO-176	B-CR176	B-EI-40		B-EI-88		B-EI-136		B-EI-184	
A-EO-81	A-CR81	A-EO-177	A-CR177	B-EO-81	B-CR81	B-EO-177	B-CR177	A-EI-41	R41	A-EI-89	R89	A-EI-137	R137	A-EI-185	R185
A-EO-82	A-CR82	A-EO-178	A-CR178	B-EO-82	B-CR82	B-EO-178	B-CR178	B-EI-41		B-EI-89		B-EI-137		B-EI-185	
A-EO-83	A-CR83	A-EO-179	A-CR179	B-EO-83	B-CR83	B-EO-179	B-CR179	A-EI-42	R42	A-EI-90	R90	A-EI-138	R138	A-EI-186	R186
A-EO-84	A-CR84	A-EO-180	A-CR180	B-EO-84	B-CR84	B-EO-180	B-CR180	B-EI-42		B-EI-90		B-EI-138		B-EI-186	
A-EO-85	A-CR85	A-EO-181	A-CR181	B-EO-85	B-CR85	B-EO-181	B-CR181	A-EI-43	R43	A-EI-91	R91	A-EI-139	R139	A-EI-187	R187
A-EO-86	A-CR86	A-EO-182	A-CR182	B-EO-86	B-CR86	B-EO-182	B-CR182	B-EI-43		B-EI-91		B-EI-139		B-EI-187	
A-EO-87	A-CR87	A-EO-183	A-CR183	B-EO-87	B-CR87	B-EO-183	B-CR183	A-EI-44	R44	A-EI-92	R92	A-EI-140	R140	A-EI-188	R188
A-EO-88	A-CR88	A-EO-184	A-CR184	B-EO-88	B-CR88	B-EO-184	B-CR184	B-EI-44		B-EI-92		B-EI-140		B-EI-188	
A-EO-89	A-CR89	A-EO-185	A-CR185	B-EO-89	B-CR89	B-EO-185	B-CR185	A-EI-45	R45	A-EI-93	R93	A-EI-141	R141	A-EI-189	R189
A-EO-90	A-CR90	A-EO-186	A-CR186	B-EO-90	B-CR90	B-EO-186	B-CR186	B-EI-45		B-EI-93		B-EI-141		B-EI-189	
A-EO-91	A-CR91	A-EO-187	A-CR187	B-EO-91	B-CR91	B-EO-187	B-CR187	A-EI-46	R46	A-EI-94	R94	A-EI-142	R142	A-EI-190	R190
A-EO-92	A-CR92	A-EO-188	A-CR188	B-EO-92	B-CR92	B-EO-188	B-CR188	B-EI-46		B-EI-94		B-EI-142		B-EI-190	
A-EO-93	A-CR93	A-EO-189	A-CR189	B-EO-93	B-CR93	B-EO-189	B-CR189	A-EI-47	R47	A-EI-95	R95	A-EI-143	R143	A-EI-191	R191
A-EO-94	A-CR94	A-EO-190	A-CR190	B-EO-94	B-CR94	B-EO-190	B-CR190	B-EI-47		B-EI-95		B-EI-143		B-EI-191	
A-EO-95	A-CR95	A-EO-191	A-CR191	B-EO-95	B-CR95	B-EO-191	B-CR191	A-EI-48	R48	A-EI-96	R96	A-EI-144	R144	A-EI-192	R192
A-EO-96	A-CR96	A-EO-192	A-CR192	B-EO-96	B-CR96	B-EO-192	B-CR192	B-EI-48		B-EI-96		B-EI-144		B-EI-192	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED
APPROVED MSC

DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE
ASSEMBLY

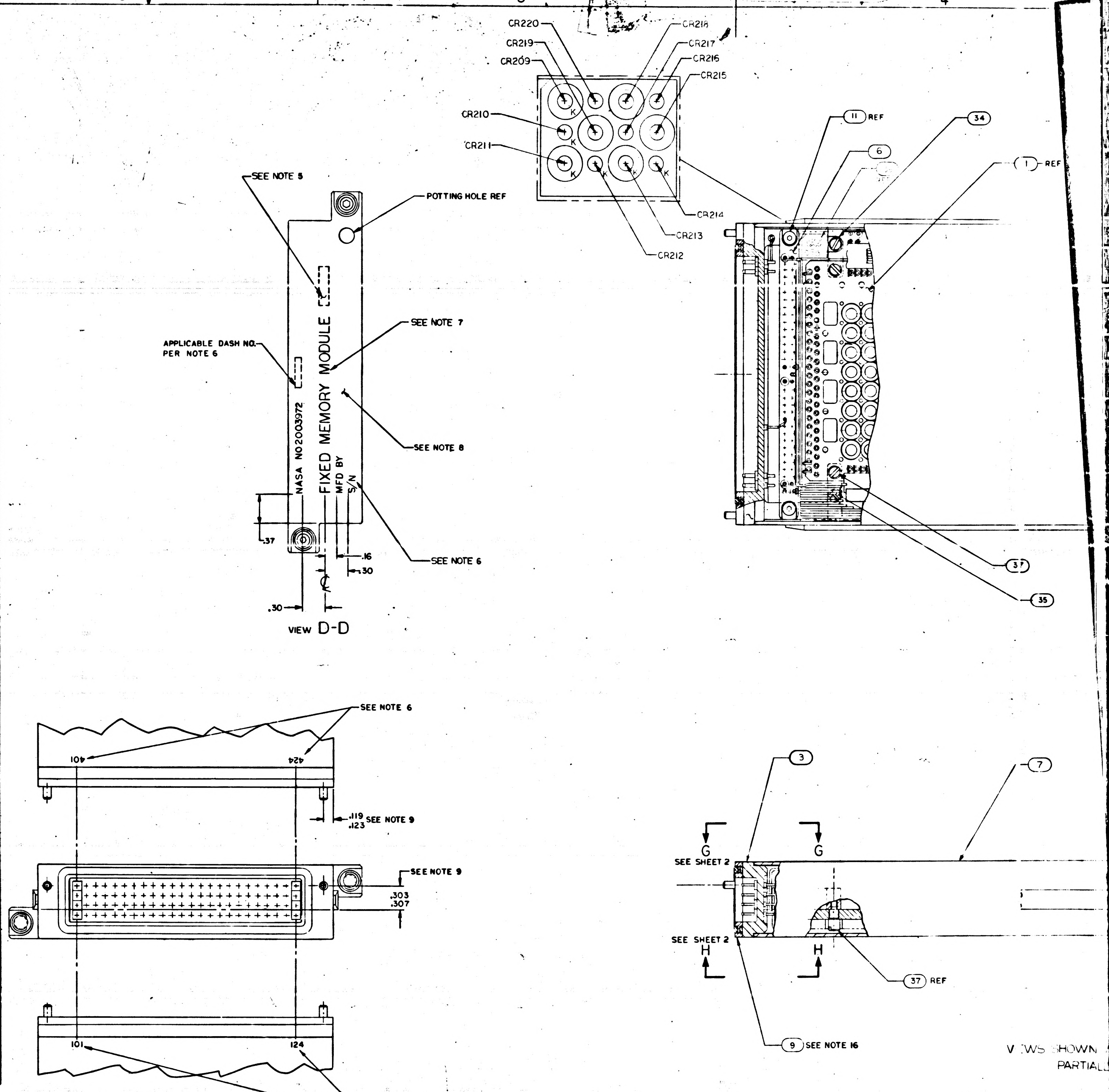
CODE IDENT NO. 80230 | SIZE J | DRAWING NO. 2003972

SCALE NONE | SHEET 3 OF 3

NOTICE — WHEN GOVT-OWNED DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

PART NO.	MODULE NO.	FIND NO. 1	FIND NO. 2	MODULE DECK NO.	NEXT ASSEMBLY NO. (REF)	PROCUREMENT SPECIFICATION SEE NOTE 15
2003972-011	B1	2003060-061	2003061-061	0205	2021101	PS2003972
2003972-021	B2	2003060-071	2003061-071	0206	2021101	
2003972-031	B3	2003060-081	2003061-081	0207	2021101	
2003972-041	B1	2003060-121	2003061-121	0210	2021104	
2003972-051	B2	2003060-131	2003061-131	0211	2021104	
2003972-061	B3	2003060-141	2003061-141	0212	2021104	
2003972-071	B2	2003060-151	2003061-151	0213	2021104	
2003972-081	B3	2003060-161	2003061-161	0214	2021104	
2003972-091	B2	2003060-171	2003061-171	0215	2021101	
2003972-111	B3	2003060-181	2003061-181	0216	2021101	PS2003972
2003972-121	B1	2003060-091	2003061-091	0208	2021105-031	PS2003960
2003972-131	B2	2003060-111	2003061-111	0209	2021105-031	PS2003960
2003972-141	B1	2003060-191	2003061-191	0217	2021106-011	PS2003972
2003972-151	B2	2003060-211	2003061-211	0218	2021106-011	
2003972-161	B3	2003060-221	2003061-221	0219	2021106-011	
2003972-171	B4	2003060-231	2003061-231	0220	2021106-011	
2003972-181	B5	2003060-241	2003061-241	0221	2021106-011	
2003972-191	B6	2003060-251	2003061-251	0222	2021106-011	
2003972-211	B3	2003060-261	2003061-261	0223	2021104-041	PS2003972
2003972-221	B1	2003060-271	2003061-271	0224	2021105-041	PS2003960
2003972-231	B1	2003060-281	2003061-281	0225	2021106-021	PS2003972
2003972-241	B3	2003060-291	2003061-291	0226	2021106-021	
2003972-251	B5	2003060-311	2003061-311	0227	2021106-021	
2003972-261	B1	2003060-321	2003061-321	0230	2021107-011	
2003972-271	B2	2003060-331	2003061-331	0229	2021107-011	
2003972-281	B3	2003060-341	2003061-341	0231	2021106-031	
2003972-291	B1	2003060-351	2003061-351	0238	2021107-021	PS2003972
2003972-311	B1	2003060-361	2003061-331	0239	2021108-021	PS2016016
-321	B2	2003060-371	2003061-371	0240	2021108-021	PS2016016
-331	B3	2003060-381	2003061-381	0241	2021108-021	PS2016016
-341	B4	2003060-391	2003061-351	0242	2021108-021	PS2016016
-351	B5	2003060-411	2003061-411	0243	2021108-021	PS2016016
2003972-361	B6	2003060-421	2003061-421	0244	2021108-021	PS2016016
2003972-371	B1	2003060-431	2003061-431	0245	2021110-011	PS2016016
2003972-381	B2	2003060-441	2003061-441	0246	2021110-011	
2003972-391	B3	2003060-451	2003061-451	0247	2021110-011	
2003972-411	B4	2003060-461	2003061-461	0248	2021110-011	
2003972-421	B5	2003060-471	2003061-471	0249	2021110-011	
2003972-431	B6	2003060-491	2003061-481	0250	2021110-011	PS2016016
2003972-441	B1	2003060-491	2003061-491	0251	2021110-021	PS2016016
2003972-451	B2	2003060-511	2003061-511	0252	2021110-021	
2003972-461	B3	2003060-521	2003061-521	0253	2021110-021	
2003972-471	B4	2003060-531	2003061-531	0254	2021110-021	
2003972-481	B5	2003060-541	2003061-541	0255	2021110-021	
2003972-491	B6	2003060-551	2003061-551	0256	2021110-021	PS2016016
-511	B1	-561	-561	0257	2021111-021&031	PS2016036
-521	B2	-571	-571	0258	-021&031	
-531	B3	-531	-531	0259	-021&031	
-541	B4	-591	-591	0260	2021111-021&031	
-551	B5	-611	-611	0261	2021111-021	
2003972-561	B6	2003060-621	2003061-621	0262	2021111-021&031	PS2016036
2003972-571	B5	2003060-631	2003061-631	0263	2021111-031	PS2016036
2003972-581	B1	2003060-641	2003061-641	0264	2021110-031	PS2016036
-591	B2	-651	-651	0265	2021110-031	
-611	B3	-661	-661	0266	2021110-031	
-621	B4	-671	-671	0267	2021110-031	
-631	B5	-691	-681	0268	2021110-031	
2003972-641	B6	2003060-691	2003061-691	0269	2021110-031	PS2016036
2003972-651	B1	2003060-711	2003061-711	0270	2021111-041	PS2016036
-661	B2	-721	-721	0271	-041	
-671	B3	-731	-731	0272	-041	
-681	B4	-741	-741	0273	-041	
-691	B5	-751	-751	0274	-041	
2003972-711	B6	2003060-761	2003061-761	0275	2021111-041	PS2016036
2003972-721	B1	2003060-771	2003061-771	0276	2021112-011	PS2016036
-731	B2	-781	-781	0277	-011	
-741	B3	-791	-791	0278	-011	
-751	B4	-811	-811	0279	-011	
-761	B5	-821	-821	0280	-011	
2003972-771	B6	2003060-831	2003061-831	0281	2021112-011	PS2016036
2003972-781	B1	2003060-841	2003061-841	0282	2021113-011	PS2016036
-791	B2	-851	-851	0283	-011	
-811	B3	-861	-861	0284	-011	
-821	B4	-871	-871	0285	-011	
-831	B5	-881	-881	0286	-011	
2003972-841	B6	2003060-891	2003061-891	0287	2021113-011	PS2016036
2003972-851	B3	2003060-911	2003061-911	0288	2021113-021	PS2016036
2003972-861	B1	2003060-921	2003061-921	0289	2021113-031	PS2016036
-871	B2	-931	-931	0290	-031	
-881	B3	-941	-941	0291	-031	
-891	B4	-951	-951	0292	-031	
-911	B5	-961	-961	0293	-031	
2003972-921	B6	2003060-971	2003061-971	0294	2021113-031	PS2016036
2003972-931	B2	2003060-981	2003061-981	0295	2021112-031	PS2016036
2003972-941	B2	2003060-991	2003061-991	0296	2021113-041	PS2016036
-951	B1	-1011	-1011	0297	2021112-021	
-961	B2	-1021	-1021	0298		
-971	B3	-1031	-1031	0299		
-981	B4	-1041	-1041	0300		
-991	B5	-1051	-1051	0301		
2003972-1011	B6	2003060-1061	2003061-1061	0302	2021112-021	PS2016036
2003972-1021	B1	2003060-1071	2003061-1071	0303	2021112-041	PS2016036
2003972-1031	B2	2003060-1081	2003061-1081	0304	2021113-051	PS2016036

CONTINUED ON SHEET 3

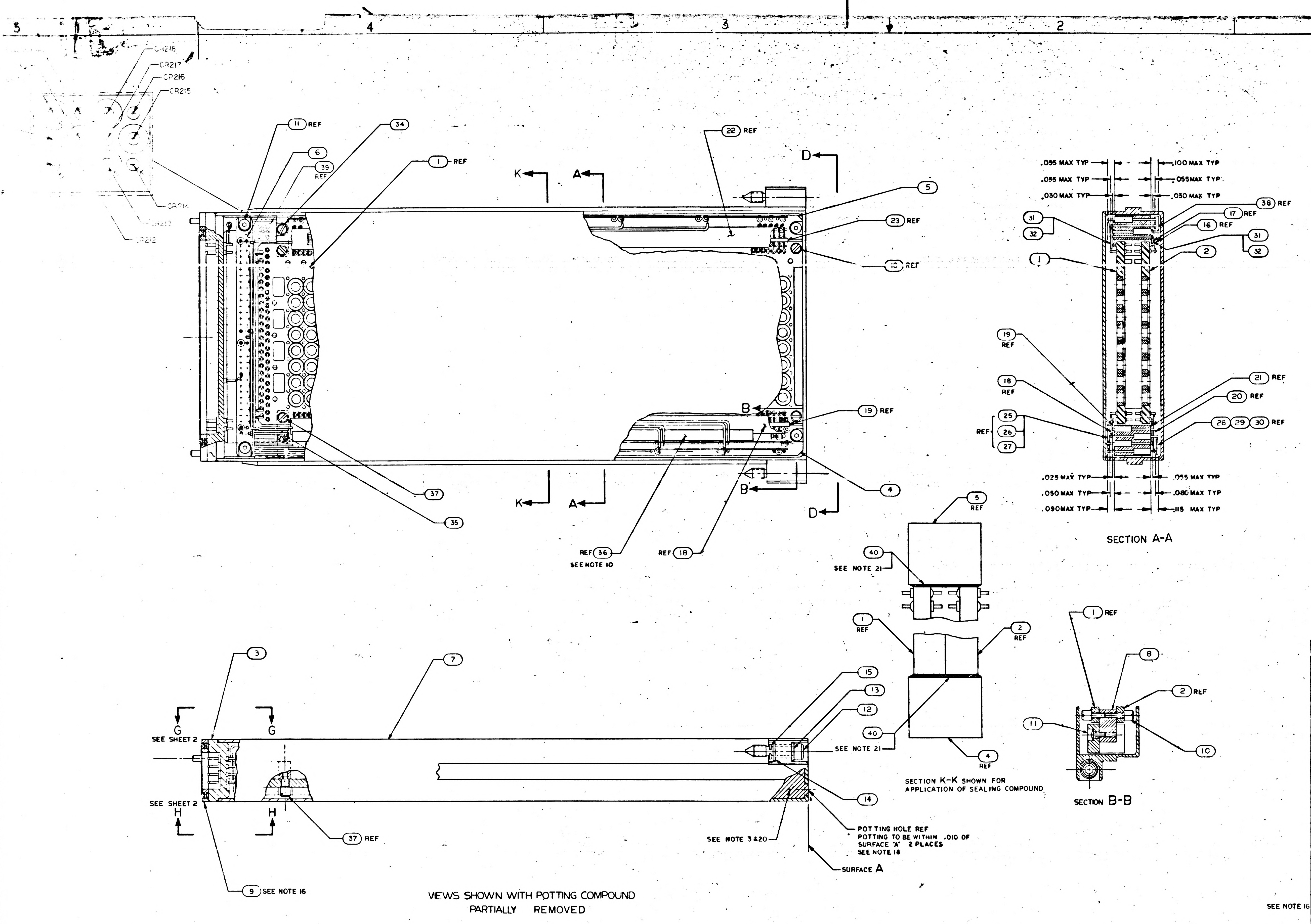


NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
3. ENCAPSULATE MODULE PER ND1002226 METHOD II
4. WELD PER ND1002005
5. MARK APPROPRIATE MODULE NO. AS SHOWN IN CHART
6. MARK .08/.06 HIGH PER ND1002019 AND ND1002122, TYPE II CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
7. MARK .14/.10 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 USING INK 1006271-1
8. PAINT INDICATED SURFACES OF FIND NO 7. PER ND1002279 WITH SCD NO. 1008809-1 DARK GREY EPOXY RESIN ENAMEL, FINAL COAT PER ND1002277 USING 1012543-003
9. ASSEMBLE FIND NO.7 AND FIND NO.3 TO DIMENSIONS SHOWN
10. REMOVE LINER FROM NEARSIDE OF FIND NO.36 AND ASSEMBLE 3 PLACES AS SHOWN. FIND NO.36 MUST INSULATE FLAT CABLES FROM TRIMMED COMPONENT LEADS, TRIM AS REQUIRED
11. WHITE DOT AND SINGLE SOLID LEAD DENOTES FIRST LEVEL WIRING UNLESS OTHERWISE SPECIFIED
12. BLACK DOT AND SINGLE SOLID LEAD DENOTES SECOND LEVEL WIRING
13. BLACK DOT AND CROSS HATCHED LEAD DENOTES THIRD LEVEL WIRING
14. ALL LEADS FROM FIND NO.1 AND FIND NO.2 TO FIND NO.3 TO BE THIRD LEVEL WIRING
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PROCUREMENT SPECIFICATION AS LISTED IN CHART.
16. FIND NO.9 TO BE SHIPPED UNASSEMBLED AND IDENTIFIED PER ND 1002019
17. SEAL PINS AND INSULATORS TO FIND NO. 3 PER ND1002004 TYPE VI BEFORE ASSY OF FIND NO. 6
18. FILL AS SHOWN PER ND1002235 METHOD A
19. BOND FIND NO.39 TO FIND NO.3 PER ND1002004 TYPE VI AFTER ASSY OF FIND NO.6
20. PRIOR TO ENCAPSULATION PER NOTE 3, COAT OVER ALL TERMINALS OF FIND NO.'S 1,2&3 AND OVER ALL WIRES, SLEEVING AND COMPONENT LEADS OF FIND NO.S 4,5,6,16,17,18,19,20,21,22,23,24, 25,26,27,28,29,30,31,32,33,38 &39 WITH A .03 MAXIMUM THICKNESS OF SILICONE RUBBER PER ND1002009, METHOD A. MASK ALL OUTSIDE SURFACES OF FIND NO.3 AND ALL OTHER SURFACES OF THIS ASSEMBLY COMING IN CLOSE CONTACT WITH FIND NO.7
21. FILL INTERFACE BETWEEN FIND NO. 4 AND SIDE SURFACES OF FIND NO.'S 1 AND 2, AND INTERFACE BETWEEN FIND NO.5 AND SIDE SURFACES OF FIND NO.'S 1 AND 2 USING FIND NO. 40. ROOM TEMP CURE FOR 24 HOURS MIN.

REFERENCES:

1. PROCESS REQUIREMENTS FOR CONTROL AND INSPECTION OF ROPE MEMORY ASSEMBLIES ND1002285
2. FIXED MEMORY FIXTURE DWG. NO. AP22500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K
A
D
5
23 REF
10 REF
19 REF
B
4
37
35
REF 36
SEE NOTE 10
REF 18
.095 MAX TYP
.055 MAX TYP
.030 MAX TYP
.100 MAX TYP
.055 MAX TYP
.030 MAX TYP
38 REF
17 REF
16 REF
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1
2
19 REF
18 REF
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REF
21 REF
20 REF
28 29 30 REF
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.090 MAX TYP
.055 MAX TYP
.080 MAX TYP
.115 MAX TYP
SECTION A-A
5 REF
40
SEE NOTE 21
1 REF
2 REF
40
4 REF
SECTION K-K SHOWN FOR APPLICATION OF SEALING COMPOUND
1 REF
8
2 REF
11
10
SECTION B-B
3
7
G
SEE SHEET 2
SEE SHEET 2
H
15
13
12
SEE NOTE 21
14
37 REF
9 SEE NOTE 16
SEE NOTE 3 & 20
POTTING HOLE REF
POTTING TO BE WITHIN .010 OF SURFACE "A" 2 PLACES
SEE NOTE 18
SURFACE A

VIEWS SHOWN WITH POTTING COMPOUND PARTIALLY REMOVED

[illegible] REQUIREMENTS FOR CONTROL
[illegible] OF [illegible] MORY ASSEMBLIES
[illegible] MEMORY FIXTURE DWG NO AP22500

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL RELEASE TDRR 3[illegible]	[illegible]	[illegible]
B	REVISED PER TDRR 334[illegible] DR [illegible] CHK [illegible]	[illegible]	[illegible]
C	REVISED PER TDRR 3[illegible]4 DR [illegible] CHK [illegible]	[illegible]	[illegible]
D	REVISED PER TDRR 33606 DR [illegible] CHK [illegible]	5/1967	[illegible]
E	REVISED PER TDRR 34140 DR [illegible] CHK [illegible]	[illegible]	[illegible]
F	REVISED PER TDRR 34489 DR [illegible] CHK [illegible]	[illegible]	[illegible]
G	REVISED PER TDRR 3[illegible] DR [illegible] CHK [illegible]	[illegible]	[illegible]
H	REVISED PER TDRR 3533[illegible] DR [illegible] CHK	[illegible]	[illegible]
J	REVISED PER TDRR 35[illegible] DR [illegible] CHK [illegible]	[illegible]	[illegible]
K	REVISED PER TDRR 3557[illegible] DR [illegible] CHK [illegible]	[illegible]	[illegible]
L	REVISED PER TDRR 36217 DR [illegible] CHK [illegible]	[illegible]	[illegible]
M	REVISED PER TDRR 3[illegible] DR [illegible] CHK [illegible]		[illegible]
N	REVISED PER TDRR 36686 DR [illegible] CHK [illegible]	[illegible]	[illegible]
P	REVISED PER TDRR 3[illegible] DR [illegible] CHK [illegible]	[illegible]	[illegible]
R	REVISED PER TDRR 36858 DR [illegible] CHK [illegible]	[illegible]	[illegible]
S	REVISED PER TDRR 3691[illegible] DR [illegible] CHK [illegible]	[illegible]	[illegible]
T	REVISED PER TDRR 36970 DR [illegible] CHK [illegible]	[illegible]	[illegible]
U	REVISED PER TDRR 3700[illegible] DR [illegible] CHK [illegible]	[illegible]	[illegible]
V	REVISED PER TDRR 3714[illegible] DR [illegible] CHK [illegible]	3/[illegible]/69	[illegible]
W	REVISED PER TDRR 37387 DR [illegible] CHK [illegible]	3/15/69	[illegible]
Y	REVISED PER TDRR 37427 DR [illegible] CHK [illegible]	4/[illegible]/69	[illegible]
Z	REVISED PER TDRR 37454 DR [illegible] CHK [illegible]	[illegible] APR 69	[illegible]
AA	REVISED PER TDRR 3753[illegible] DR [illegible] CHK [illegible]	6 MAY 69	[illegible]
AB	REVISED PER TDRR 37587 DR [illegible] CHK [illegible]	[illegible] JUN 69	[illegible]
AC	REVISED PER TDRR 37616 DR [illegible] CHK [illegible]	8 AUG 69	PBB
AD	REVISED PER TDRR 37664 DR [illegible] CHK [illegible]	8 SEP 69	PBB

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006341	ADHESIVE SEALANT, SILICONE RUBBER	40
1	2003986-021	COMPONENT BLOCK DIODE ASSY	39
☒	2005935	SCHEMATIC	REF
1	2004684	FLAT CABLE	38
4	2004150 — 003	SCREW, SHOULDERED	37
AR	1006806 — 26	INSULATION TAPE, ELECTRICAL	36
1	2004150 — 001	SCREW, SHOULDERED	35
1	2004150 — 002	SCREW, SHOULDERED	34
1	2004129	FLAT CABLE INTERCONNECTION	33
AR	1006776-25	SLEEVING	32
AR	1006757-12	WIRE, ELECRICAL	31
1	2004125	FLAT CABLE	30
1	2004122	FLAT CABLE	29
1	2004124	FLAT CABLE	28
1	2004123	FLAT CABLE	27
1	2004121	FLAT CABLE	26
1	2004120	FLAT CABLE	25
1	2004[illegible]	FLAT CABLE	24
1	2003051 — 013	MATRIX ASSY	23
1	2003051 — 014	MATRIX ASSY	22
8	2003051 — 016	MATRIX ASSY	21
8	2003051 — 015	MATRIX ASSY	20
1	2003051 — 017	MATRIX ASSY	19
1	2003051 — 018	MATRIX ASSY	18
1	2003051 — 011	MATRIX ASSY	17
1	2003051 — 012	MATRIX ASSY	16
2	MS16633-4015	"E" RING	15
2	1004546-3	WASHER	14
2	1004546-1	WASHER	13
2	1004579-1	SCREW, JACKING	12
4	1000093-1	SCREW, BUTTONHEAD	11
4	2004151	SCREW, STANDOFF	10
1	1006339	GASKET PLATE	9
2	2004071	STANDOFF	8
1	2004100	HOUSING	7
1	2003048-021	RESISTOR-DIODE BLOCK ASSY	6
1	2003052-021	COMPONENT BLOCK RESISTOR ASSY	5
1	2003045-021	COMPONENT BLOCK DIODE ASSY	4
1	2003973-011	CONNECTOR PLATE ASSY	3
1	2003061-SEE CHART	SENSE WIRING ASSY SIDE B	2
1	2003060-SEE CHART	SENSE WIRING ASSY SIDE A	1

LIST OF MATERIALS

SEE NOTE 16

FOR APPLICABLE PART NO. SEE CHART

SEE CHART		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± — DECIMALS ±.02 ANGLES ± 2°	MIT INSTRUMENTATION LAB CAMBRIDGE MASS
NEXT ASSY	USED ON	DO NOT SCALE THIS DRAWING	DRAWN [illegible] DATE 6 AUG 6[illegible]
APPLICATION		MATERIAL	CHECKED [illegible] 12 AUG 6[illegible]
		HEAT TREATMENT	APPROVAL [illegible]
		FINAL FINISH	APPROVAL [illegible]
			NASA APPROVAL [illegible]
			MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE ASSEMBLY

CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	J	2003972
SCALE 2/1	WT	SHEET 1 OF 3

2003972 AD

WIRE LIST

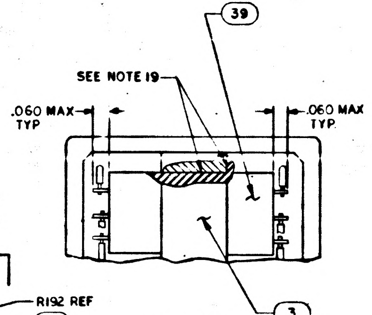
PIN NO.	COMPONENT OR TERM. NO.	PIN NO.	COMPONENT OR TERM. NO.
101	A-E1-213	301	GROUND
102	A-E1-212	302	CR209
103	A-E1-211	303	CR210
104	A-E0-211	3C4	CR211
105	A-E1-210	305	CR212
106	A-E1-209	306	CR213
107	A-E1-208	307	CR214
108	A-E1-207	308	A-CR208
109	A-E1-206	309	A-CR207
110	A-E1-205	310	A-CR206
111	A-E1-204	311	A-CR205
112	A-E1-203	312	A-CR204
113	A-E1-202	313	A-CR203
114	A-E1-201	314	A-CR202
115	A-E1-200	315	A-CR201
116	A-E1-199	316	A-CR200
117	A-E1-198	317	A-CR199
118	A-E1-197	318	A-CR198
119	A-E1-196	319	A-CR197
120	A-E1-195	320	A-CR196
121	A-E0-194	321	A-CR195
122	A-E1-194	322	A-CR194
123	A-E0-193	323	A-CR193
124	A-E1-193	324	SPARE
201	B-R208	401	B-E1-213
202	CR215	402	B-E1-212
203	CR216	403	B-E1-211
204	CR217	404	B-E0-211
205	CR218	405	B-E1-210
206	CR 19	406	B-E1-209
207	CR220	407	B-E1-208
208	B-CR208	408	B-E1-207
209	B-CR207	409	B-E1-206
210	B-CR206	410	B-E1-205
211	B-CR205	411	B-E1-204
212	B-CR204	412	B-E1-203
213	B-CR203	413	B-E1-202
214	B-CR202	414	B-E1-201
215	B-CR201	415	B-E1-200
216	B-CR200	416	B-E1-199
217	B-CR199	417	B-E1-198
218	B-CR198	418	B-E1-197
219	B-CR197	419	B-E1-196
220	B-CR196	420	B-E1-195
221	B CR195	421	B-E0-194
222	B-CR194	422	B-E1-194
223	B-CR193	423	B-E0-193
224	SPARE	424	B-E1-193

WIRE LIST

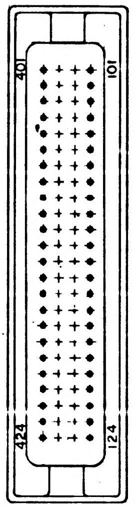
TERMINAL NO.	TERMINAL NO.
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
A-E0-195	B-E0-195
A-E0-196	B-E0-196
A-E0-197	B-E0-197
A-E0-198	B-E0-198
A-E0-199	B-E0-199
A-E0-200	B-E0-200
A-E0-201	B-E0-201
A-E0-202	B-E0-202
A-E0-203	B-E0-203
A-E0-204	B-E0-204
A-E0-205	B-E0-205
A-E0-206	B-E0-206
A-E0-207	B-E0-207
A-E0-208	B-E0-208
A-E0-209	B-E0-209
A-E0-210	B-E0-210
SPARE	SPARE
SPARE	SPARE
A-E0-212	B-E0-212
A-E0-213	B-E0-213

WIRE LIST

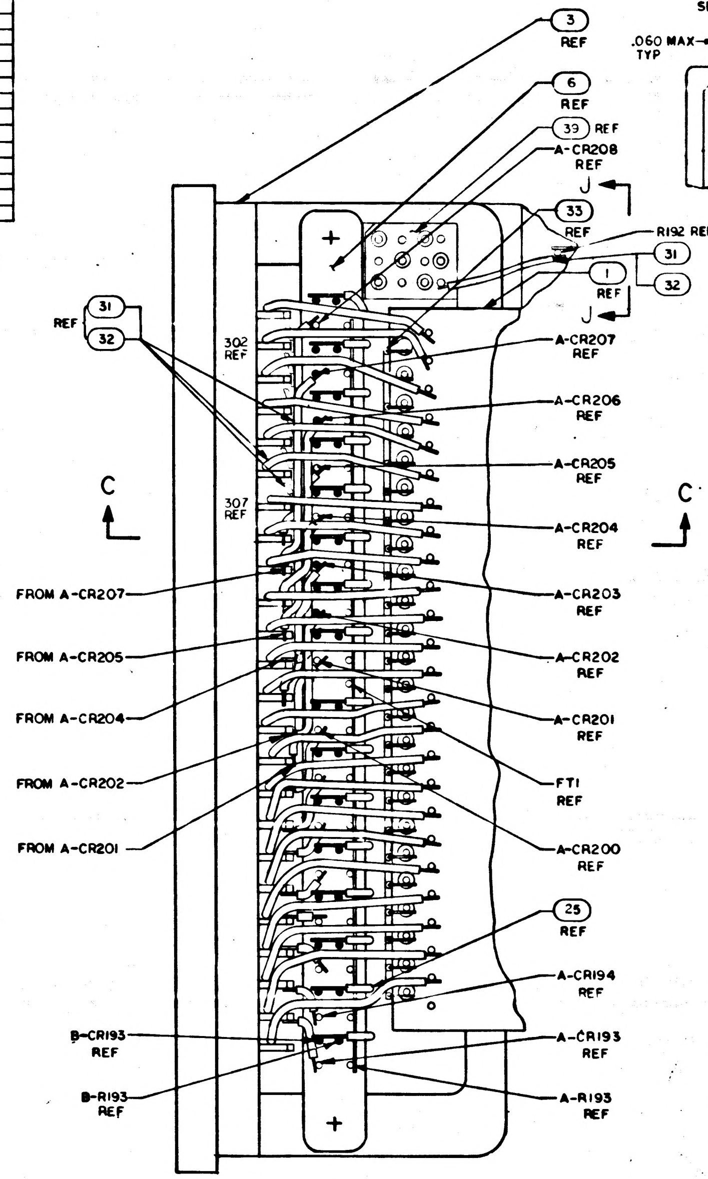
COMPONENT NO.	COMPONENT NO.
CR215	R176
CR216	R144
CR217	R112
CR218	R80
CR219	R48
CR220	R16
CR209	R32
CR210	R64
CR211	R96
CR212	R128
CR213	R160
CR214	R192


39
SEE NOTE 19
.060 MAX TYP
.060 MAX TYP
3 REF

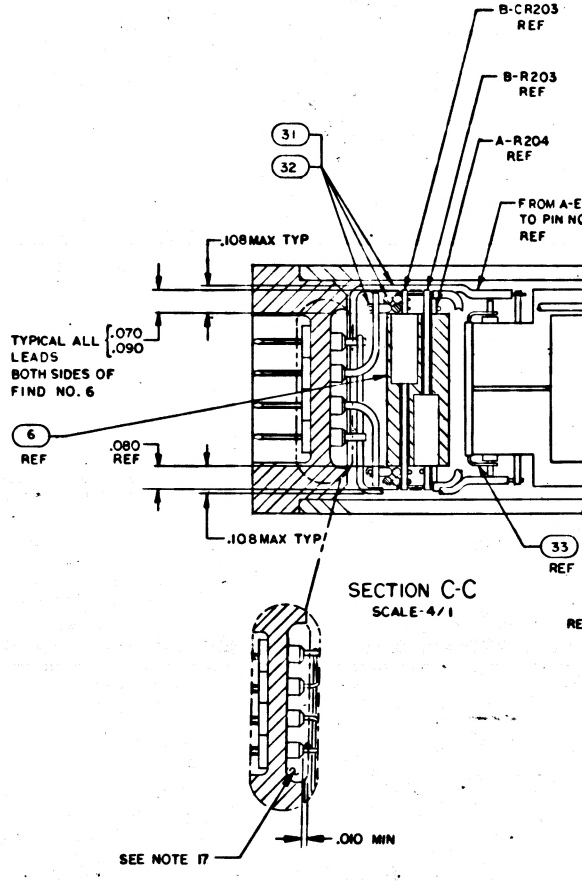
VIEW J-J


401
101
424
124

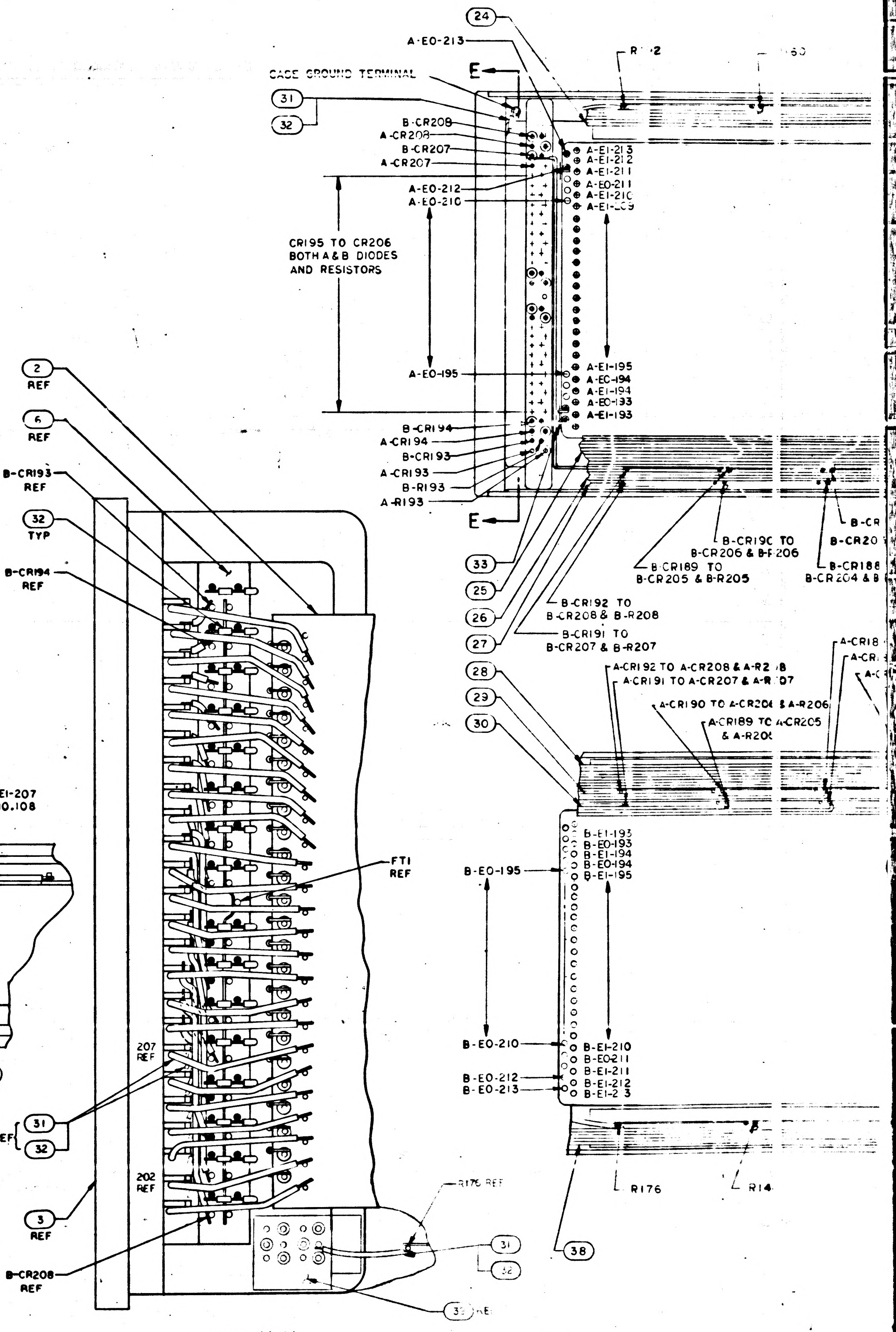
SECTION E-E


3 REF
6 REF
39 REF
A-CR208 REF
33 REF
R192 REF
31
32
1 REF
J
J
31
32
REF
302 REF
307 REF
A-CR207 REF
A-CR206 REF
A-CR205 REF
A-CR204 REF
A-CR203 REF
A-CR202 REF
A-CR201 REF
FT1 REF
A-CR200 REF
25 REF
A-CR194 REF
A-CR193 REF
A-R193 REF
C
C
FROM A-CR207
FROM A-CR205
FROM A-CR204
FROM A-CR202
FROM A-CR201
B-CR193 REF
B-R193 REF
+
+

VIEW G-G
SCALE: 4/1
SHOWN WITH POTTING AND FIND NO. 7
REMOVED. SEE NOTES 11,12,13 AND 14


31
32
B-CR203 REF
B-R203 REF
A-R204 REF
FROM A-E1-207 TO PIN NO. 108 REF
.108 MAX TYP
TYPICAL ALL LEADS BOTH SIDES OF FIND NO. 6
.070
.090
6 REF
.080 REF
.108 MAX TYP
33 REF
SEE NOTE 17
.010 MIN

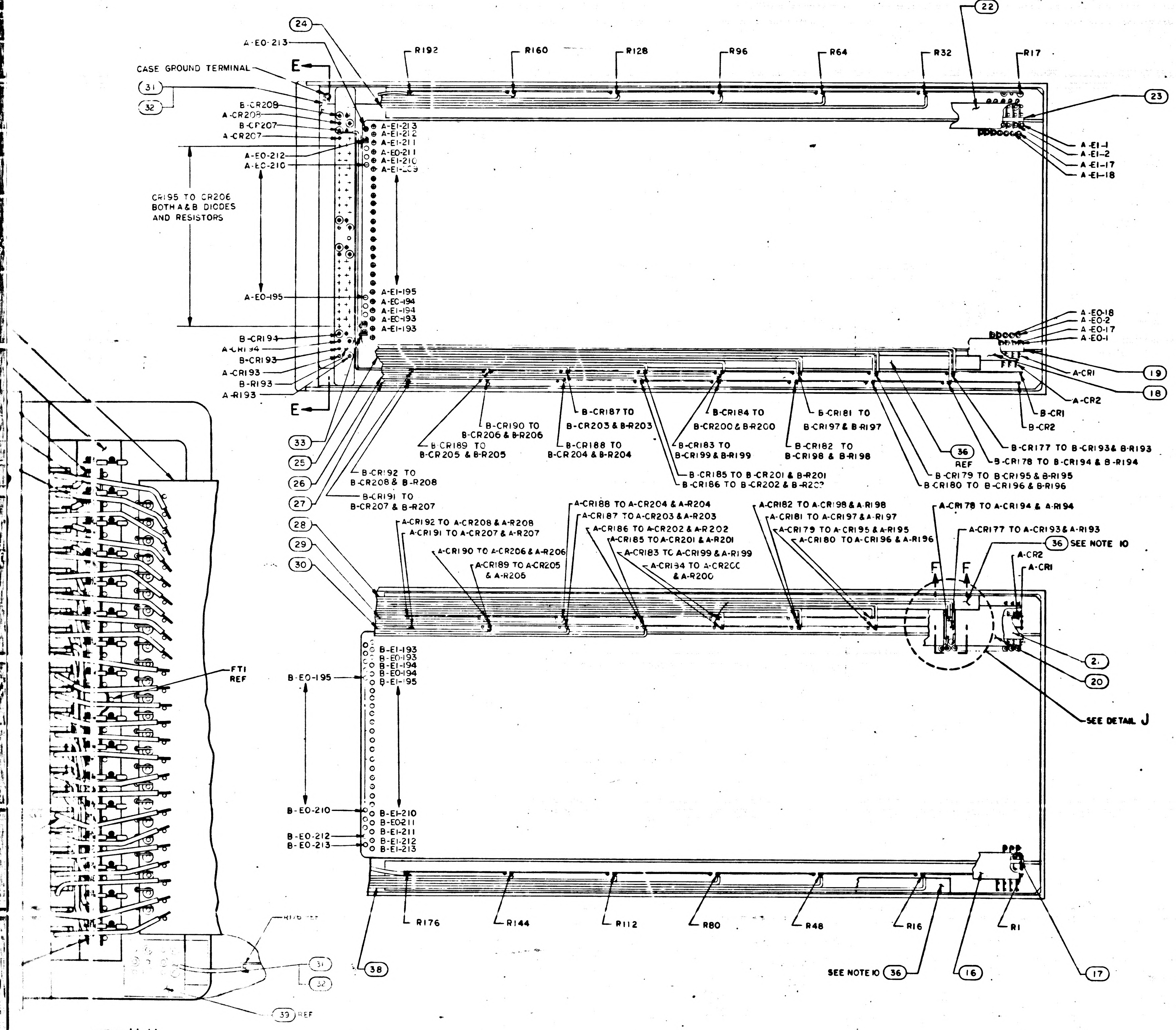
SECTION C-C
SCALE 4/1


24
A-E0-213
CASE GROUND TERMINAL
E
31
32
B-CR208
A-CR208
B-CR207
A-CR207
A-E1-213
A-E1-212
A-E1-211
A-E0-211
A-E1-210
A-E1-209
A-E0-212
A-E0-210
CR195 TO CR206 BOTH A & B DIODES AND RESISTORS
A-E0-195
A-E1-195
A-E0-194
A-E1-194
A-E0-193
A-E1-193
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
E
R 2
33
25
26
27
28
29
30
B-CR190 TO B-CR206 & B-R206
B-CR189 TO B-CR205 & B-R205
B-CR188 TO B-CR204 & B
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205 & A-R205
A-CR18
B-E0-195
B-E1-193
B-E0-193
B-E1-194
B-E0-194
B-E1-195
B-E0-210
B-E1-210
B-E0-211
B-E1-211
B-E1-212
B-E1-213
B-E0-212
B-E0-213
R176
R14
R176 REF
38
2 REF
6 REF
B-CR193 REF
32 TYP
B-CR194 REF
FT1 REF
207 REF
202 REF
31
32
REF
3 REF
B-CR208 REF
31
32
33

VIEW H-H
SCALE: 4/1
SHOWN WITH POTTING AND FIND NO. 7
REMOVED. SEE NOTES 11,12,13 AND 14

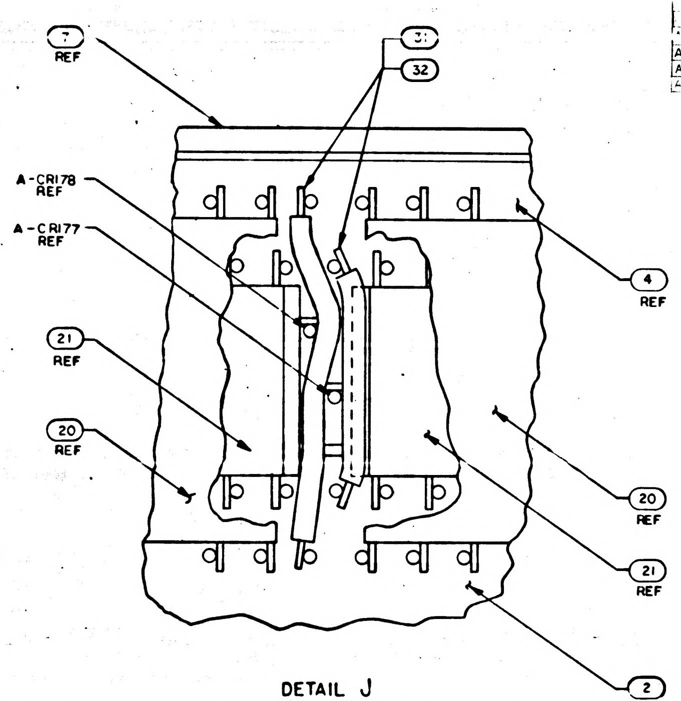
2003972. AD

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		INITIAL RELEASE TDRR 32993				
B		REVISED PER TDRR 33460				
C		REVISED PER TDRR 33544				
D		REVISED PER TDRR 33606				
E		REVISED PER TDRR 34140				
F		REVISED PER TDRR 344[illegible]				
G		REVISED PER TDRR 349[illegible]				
H		REVISED PER TDRR 353[illegible]				
J		REVISED PER TDRR 3[illegible]				
K		REVISED PER TDRR 358[illegible]				
L		REVISED PER TDRR 3621			5/29/[illegible]	
M		REVISED PER TDRR [illegible]				
N		REVISED PER TDRR 36 86				
P		REVISED PER TDRR [illegible]				
R		REVISED PER TDRR [illegible]59				
S		REVISED PER TDRR				
T		REVISED PER TDRR [illegible]				
U		REVISED PER TDRR [illegible]09				
V		REVISED PER TDRR [illegible]				
W		REVISED PER TDRR 37387				
Y		REVISED PER TDRR 37427				
Z		REVISED PER TDRR 37454				
AA		[illegible]				
AB		REVISED PER TDRR 37582				
AC		REVISED PER TDRR 37615			1/4/69	
AD		REVISED PER TDRR 37664			1/4/69	



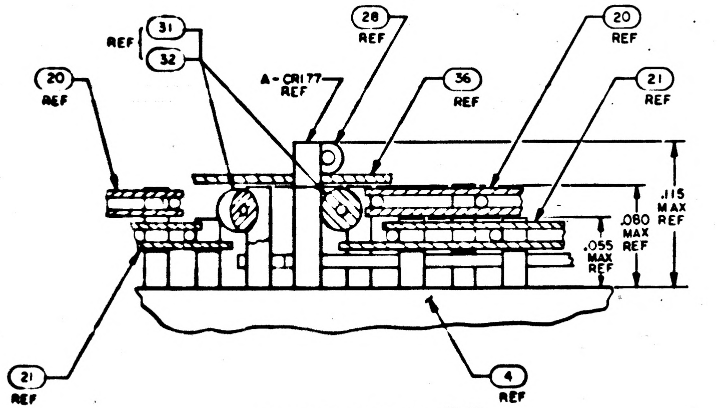
CASE GROUND TERMINAL
E
(31)
(32)
(24)
A-E0-213
R192
R160
R128
R96
R64
R32
R17
(22)
(23)
B-CR208
A-CR208
B-CR207
A-CR207
A-E1-213
A-E1-212
A-E1-211
A-E0-211
A-E1-210
A-E1-209
A-E0-212
A-E0-210
A-E1-1
A-E1-2
A-E1-17
A-E1-18
CR195 TO CR206
BOTH A & B DIODES
AND RESISTORS
A-E0-195
A-E1-195
A-E0-194
A-E1-194
A-E0-193
A-E1-193
A-E0-18
A-E0-2
A-E0-17
A-E0-1
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
(19)
(18)
A-CR1
A-CR2
B-CR1
B-CR2
E
(33)
(25)
(26)
(27)
B-CR190 TO B-CR206 & B-R206
B-CR189 TO B-CR205 & B-R205
B-CR187 TO B-CR203 & B-R203
B-CR188 TO B-CR204 & B-R204
B-CR184 TO B-CR200 & B-R200
B-CR183 TO B-CR199 & B-R199
B-CR185 TO B-CR201 & B-R201
B-CR186 TO B-CR202 & B-R202
B-CR181 TO B-CR197 & B-R197
B-CR182 TO B-CR198 & B-R198
(36) REF
B-CR177 TO B-CR193 & B-R193
B-CR178 TO B-CR194 & B-R194
B-CR179 TO B-CR195 & B-R195
B-CR180 TO B-CR196 & B-R196
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
(28)
(29)
(30)
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205 & A-R205
A-CR188 TO A-CR204 & A-R204
A-CR187 TO A-CR203 & A-R203
A-CR186 TO A-CR202 & A-R202
A-CR185 TO A-CR201 & A-R201
A-CR183 TO A-CR199 & A-R199
A-CR184 TO A-CR200 & A-R200
A-CR182 TO A-CR198 & A-R198
A-CR181 TO A-CR197 & A-R197
A-CR179 TO A-CR195 & A-R195
A-CR180 TO A-CR196 & A-R196
A-CR178 TO A-CR194 & A-R194
A-CR177 TO A-CR193 & A-R193
(36) SEE NOTE 10
F
F
A-CR2
A-CR1
(2)
(20)
SEE DETAIL J
B-E1-193
B-E0-193
B-E1-194
B-E0-194
B-E1-195
B-E0-195
B-E0-210
B-E1-210
B-E0211
B-E1-211
B-E0-212
B-E1-212
B-E0-213
B-E1-213
R176
R144
R112
R80
R48
R16
R1
(38)
SEE NOTE 10 (36)
(16)
(17)
FT1 REF
(31)
(32)
(39) REF

VIEW H-H
SCALE: 4/1
SHOWN WITH POTTING AND FIND NO. 7
REMOVED SEE NOTES 11, 12, 13 AND 14



(7) REF
(31)
(32)
A-CR178 REF
A-CR177 REF
(21) REF
(20) REF
(4) REF
(20) REF
(21) REF
(2) REF

DETAIL J
SCALE 10/1
TYPICAL WIRING 8 PLACES, SHOWN
WITH FIND NOS. 28 AND 36 REMOVED



REF
(31)
(32)
(20) REF
A-CR177 REF
(28) REF
(36) REF
(20) REF
(21) REF
.115 MAX REF
.080 MAX REF
.055 MAX REF
(21) REF
(4) REF

PARTIAL SECTION F-F
SCALE: 20/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003972
SCALE 2/1
SHEET 2 OF 3

2003972 AD

SH 2/3 2003972ADF2/2

[illegible]

PART NO	MODULE NO	FIND NO 1	FIND NO 2	MODULE DECK NO	NEXT ASSEMBLY NO. (REF)	PROCUREMENT SPECIFICATION SEE NOTE 15
2003972 — 1041	B1	2003060 — 1091	2003061 — 1091	0305	2021112 — 051	PS 2016036
2003972 — 1051	B2	2003060 — 1111	2003061 — 1111	0306	2021112 — 051	PS 2016036
2003972 — 1061	B5	2003060 — 1121	2003061 — 1121	0307	2021112 — 051	PS 2016036
2003972 — 1071	B1	2003060 — 1091	2003061 — 1131	0308	2021112 — 061	PS 2016036

D

C

B

A

2003972 AD

4 3 2

WIRE LIST

TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.
A-E0-1	A-CR1	A-E0-97	A-CR97	B-E0-1	B-CR1	B-E0-97	B-CR97	A-E1-1	R1	A-E1-49	R49	A-E1-97	R97	A-E1-145	R145
A-E0-2	A-CR2	A-E0-98	A-CR98	B-E0-2	B-CR2	B-E0-98	B-CR98	B-E1-1		B-E1-49		B-E1-97		B-E1-145	
A-E0-3	A-CR3	A-E0-99	A-CR99	B-E0-3	B-CR3	B-E0-99	B-CR99	A-E1-2	R2	A-E1-50	R50	A-E1-98	R98	A-E1-146	R146
A-E0-4	A-CR4	A-E0-100	A-CR100	B-E0-4	B-CR4	B-E0-100	B-CR100	B-E1-2		B-E1-50		B-E1-98		B-E1-146	
A-E0-5	A-CR5	A-E0-101	A-CR101	B-E0-5	B-CR5	B-E0-101	B-CR101	A-E1-3	R3	A-E1-51	R51	A-E1-99	R99	A-E1-147	R147
A-E0-6	A-CR6	A-E0-102	A-CR102	B-E0-6	B-CR6	B-E0-102	B-CR102	B-E1-3		B-E1-51		B-E1-99		B-E1-147	
A-E0-7	A-CR7	A-E0-103	A-CR103	B-E0-7	B-CR7	B-E0-103	B-CR103	A-E1-4	R4	A-E1-52	R52	A-E1-100	R100	A-E1-148	R148
A-E0-8	A-CR8	A-E0-104	A-CR104	B-E0-8	B-CR8	B-E0-104	B-CR104	B-E1-4		B-E1-52		B-E1-100		B-E1-148	
A-E0-9	A-CR9	A-E0-105	A-CR105	B-E0-9	B-CR9	B-E0-105	B-CR105	A-E1-5	R5	A-E1-53	R53	A-E1-101	R101	A-E1-149	R149
A-E0-10	A-CR10	A-E0-106	A-CR106	B-E0-10	B-CR10	B-E0-106	B-CR106	B-E1-5		B-E1-53		B-E1-101		B-E1-149	
A-E0-11	A-CR11	A-E0-107	A-CR107	B-E0-11	B-CR11	B-E0-107	B-CR107	A-E1-6	R6	A-E1-54	R54	A-E1-102	R102	A-E1-150	R150
A-E0-12	A-CR12	A-E0-108	A-CR108	B-E0-12	B-CR12	B-E0-108	B-CR108	B-E1-6		B-E1-54		B-E1-102		B-E1-150	
A-E0-13	A-CR13	A-E0-109	A-CR109	B-E0-13	B-CR13	B-E0-109	B-CR109	A-E1-7	R7	A-E1-55	R55	A-E1-103	R103	A-E1-151	R151
A-E0-14	A-CR14	A-E0-110	A-CR110	B-E0-14	B-CR14	B-E0-110	B-CR110	B-E1-7		B-E1-55		B-E1-103		B-E1-151	
A-E0-15	A-CR15	A-E0-111	A-CR111	B-E0-15	B-CR15	B-E0-111	B-CR111	A-E1-8	R8	A-E1-56	R56	A-E1-104	R104	A-E1-152	R152
A-E0-16	A-CR16	A-E0-112	A-CR112	B-E0-16	B-CR16	B-E0-112	B-CR112	B-E1-8		B-E1-56		B-E1-104		B-E1-152	
A-E0-17	A-CR17	A-E0-113	A-CR113	B-E0-17	B-CR17	B-E0-113	B-CR113	A-E1-9	R9	A-E1-57	R57	A-E1-105	R105	A-E1-153	R153
A-E0-18	A-CR18	A-E0-114	A-CR114	B-E0-18	B-CR18	B-E0-114	B-CR114	B-E1-9		B-E1-57		B-E1-105		B-E1-153	
A-E0-19	A-CR19	A-E0-115	A-CR115	B-E0-19	B-CR19	B-E0-115	B-CR115	A-E1-10	R10	A-E1-58	R58	A-E1-106	R106	A-E1-154	R154
A-E0-20	A-CR20	A-E0-116	A-CR116	B-E0-20	B-CR20	B-E0-116	B-CR116	B-E1-10		B-E1-58		B-E1-106		B-E1-154	
A-E0-21	A-CR21	A-E0-117	A-CR117	B-E0-21	B-CR21	B-E0-117	B-CR117	A-E1-11	R11	A-E1-59	R59	A-E1-107	R107	A-E1-155	R155
A-E0-22	A-CR22	A-E0-118	A-CR118	B-E0-22	B-CR22	B-E0-118	B-CR118	B-E1-11		B-E1-59		B-E1-107		B-E1-155	
A-E0-23	A-CR23	A-E0-119	A-CR119	B-E0-23	B-CR23	B-E0-119	B-CR119	A-E1-12	R12	A-E1-60	R60	A-E1-108	R108	A-E1-156	R156
A-E0-24	A-CR24	A-E0-120	A-CR120	B-E0-24	B-CR24	B-E0-120	B-CR120	B-E1-12		B-E1-60		B-E1-108		B-E1-156	
A-E0-25	A-CR25	A-E0-121	A-CR121	B-E0-25	B-CR25	B-E0-121	B-CR121	A-E1-13	R13	A-E1-61	R61	A-E1-109	R109	A-E1-157	R157
A-E0-26	A-CR26	A-E0-122	A-CR122	B-E0-26	B-CR26	B-E0-122	B-CR122	B-E1-13		B-E1-61		B-E1-109		B-E1-157	
A-E0-27	A-CR27	A-E0-123	A-CR123	B-E0-27	B-CR27	B-E0-123	B-CR123	A-E1-14	R14	A-E1-62	R62	A-E1-110	R110	A-E1-158	R158
A-E0-28	A-CR28	A-E0-124	A-CR124	B-E0-28	B-CR28	B-E0-124	B-CR124	B-E1-14		B-E1-62		B-E1-110		B-E1-158	
A-E0-29	A-CR29	A-E0-125	A-CR125	B-E0-29	B-CR29	B-E0-125	B-CR125	A-E1-15	R15	A-E1-63	R63	A-E1-111	R111	A-E1-159	R159
A-E0-30	A-CR30	A-E0-126	A-CR126	B-E0-30	B-CR30	B-E0-126	B-CR126	B-E1-15		B-E1-63		B-E1-111		B-E1-159	
A-E0-31	A-CR31	A-E0-127	A-CR127	B-E0-31	B-CR31	B-E0-127	B-CR127	A-E1-16	R16	A-E1-64	R64	A-E1-112	R112	A-E1-160	R160
A-E0-32	A-CR32	A-E0-128	A-CR128	B-E0-32	B-CR32	B-E0-128	B-CR128	B-E1-16		B-E1-64		B-E1-112		B-E1-160	
A-E0-33	A-CR33	A-E0-129	A-CR129	B-E0-33	B-CR33	B-E0-129	B-CR129	A-E1-17	R17	A-E1-65	R65	A-E1-113	R113	A-E1-161	R161
A-E0-34	A-CR34	A-E0-130	A-CR130	B-E0-34	B-CR34	B-E0-130	B-CR130	B-E1-17		B-E1-65		B-E1-113		B-E1-161	
A-E0-35	A-CR35	A-E0-131	A-CR131	B-E0-35	B-CR35	B-E0-131	B-CR131	A-E1-18	R18	A-E1-66	R66	A-E1-114	R114	A-E1-162	R162
A-E0-36	A-CR36	A-E0-132	A-CR132	B-E0-36	B-CR36	B-E0-132	B-CR132	B-E1-18		B-E1-66		B-E1-114		B-E1-162	
A-E0-37	A-CR37	A-E0-133	A-CR133	B-E0-37	B-CR37	B-E0-133	B-CR133	A-E1-19	R19	A-E1-67	R67	A-E1-115	R115	A-E1-163	R163
A-E0-38	A-CR38	A-E0-134	A-CR134	B-E0-38	B-CR38	B-E0-134	B-CR134	B-E1-19		B-E1-67		B-E1-115		B-E1-163	
A-E0-39	A-CR39	A-E0-135	A-CR135	B-E0-39	B-CR39	B-E0-135	B-CR135	A-E1-20	R20	A-E1-68	R68	A-E1-116	R116	A-E1-164	R164
A-E0-40	A-CR40	A-E0-136	A-CR136	B-E0-40	B-CR40	B-E0-136	B-CR136	B-E1-20		B-E1-68		B-E1-116		B-E1-164	
A-E0-41	A-CR41	A-E0-137	A-CR137	B-E0-41	B-CR41	B-E0-137	B-CR137	A-E1-21	R21	A-E1-69	R69	A-E1-117	R117	A-E1-165	R165
A-E0-42	A-CR42	A-E0-138	A-CR138	B-E0-42	B-CR42	B-E0-138	B-CR138	B-E1-21		B-E1-69		B-E1-117		B-E1-165	
A-E0-43	A-CR43	A-E0-139	A-CR139	B-E0-43	B-CR43	B-E0-139	B-CR139	A-E1-22	R22	A-E1-70	R70	A-E1-118	R118	A-E1-166	R166
A-E0-44	A-CR44	A-E0-140	A-CR140	B-E0-44	B-CR44	B-E0-140	B-CR140	B-E1-22		B-E1-70		B-E1-118		B-E1-166	
A-E0-45	A-CR45	A-E0-141	A-CR141	B-E0-45	B-CR45	B-E0-141	B-CR141	A-E1-23	R23	A-E1-71	R71	A-E1-119	R119	A-E1-167	R167
A-E0-46	A-CR46	A-E0-142	A-CR142	B-E0-46	B-CR46	B-E0-142	B-CR142	B-E1-23		B-E1-71		B-E1-119		B-E1-167	
A-E0-47	A-CR47	A-E0-143	A-CR143	B-E0-47	B-CR47	B-E0-143	B-CR143	A-E1-24	R24	A-E1-72	R72	A-E1-120	R120	A-E1-168	R168
A-E0-48	A-CR48	A-E0-144	A-CR144	B-E0-48	B-CR48	B-E0-144	B-CR144	B-E1-24		B-E1-72		B-E1-120		B-E1-168	
A-E0-49	A-CR49	A-E0-145	A-CR145	B-E0-49	B-CR49	B-E0-145	B-CR145	A-E1-25	R25	A-E1-73	R73	A-E1-121	R121	A-E1-169	R169
A-E0-50	A-CR50	A-E0-146	A-CR146	B-E0-50	B-CR50	B-E0-145	B-CR146	B-E1-25		B-E1-73		B-E1-121		B-E1-169	
A-E0-51	A-CR51	A-E0-147	A-CR147	B-E0-51	B-CR51	B-E0-147	B-CR147	A-E1-26	R26	A-E1-74	R74	A-E1-122	R122	A-E1-170	R170
A-E0-52	A-CR52	A-E0-148	A-CR148	B-E0-52	B-CR52	B-E0-148	B-CR148	B-E1-26		B-E1-74		B-E1-122		B-E1-170	
A-E0-53	A-CR53	A-E0-149	A-CR149	B-E0-53	B-CR53	B-E0-149	B-CR149	A-E1-27	R27	A-E1-75	R75	A-E1-123	R123	A-E1-171	R171
A-E0-54	A-CR54	A-E0-150	A-CR150	B-E0-54	B-CR54	B-E0-150	B-CR150	B-E1-27		B-E1-75		B-E1-123		B-E1-171	
A-E0-55	A-CR55	A-E0-151	A-CR151	B-E0-55	B-CR55	B-E0-151	B-CR151	A-E1-28	R28	A-E1-76	R76	A-E1-124	R124	A-E1-172	R172
A-E0-56	A-CR56	A-E0-152	A-CR152	B-E0-56	B-CR56	B-E0-152	B-CR152	B-E1-28		B-E1-76		B-E1-124		B-E1-172	
A-E0-57	A-CR57	A-E0-153	A-CR153	B-E0-57	B-CR57	B-E0-153	B-CR153	A-E1-29	R29	A-E1-77	R77	A-E1-125	R125	A-E1-173	R173
A-E0-58	A-CR58	A-E0-154	A-CR154	B-E0-58	B-CR58	B-E0-154	B-CR154	B-E1-29		B-E1-77		B-E1-125		B-E1-173	
A-E0-59	A-CR59	A-E0-155	A-CR155	B-E0-59	B-CR59	B-E0-155	B-CR155	A-E1-30	R30	A-E1-78	R78	A-E1-126	R126	A-E1-174	R174
A-E0-60	A-CR60	A-E0-156	A-CR156	B-E0-60	B-CR60	B-E0-156	B-CR156	B-E1-30		B-E1-78		B-E1-126		B-E1-174	
A-E0-61	A-CR61	A-E0-157	A-CR157	B-E0-61	B-CR61	B-E0-157	B-CR157	A-E1-31	R31	A-E1-79	R79	A-E1-127	R127	A-E1-175	R175
A-E0-62	A-CR62	A-E0-158	A-CR158	B-E0-62	B-CR62	B-E0-158	B-CR158	B-E1-31		B-E1-79		B-E1-127		B-E1-175	
A-E0-63	A-CR63	A-E0-159	A-CR159	B-E0-63	B-CR63	B-E0-159	B-CR159	A-E1-32	R32	A-E1-80	R80	A-E1-128	R128	A-E1-176	R176
A-E0-64	A-CR64	A-E0-160	A-CR160	B-E0-64	B-CR64	B-E0-160	B-CR160	B-E1-32		B-E1-80		B-E1-128		B-E1-176	
A-E0-65	A-CR65	A-E0-161	A-CR161	B-E0-65	B-CR65	B-E0-161	B-CR161	A-E1-33	R33	A-E1-81	R81	A-E1-129	R129	A-E1-177	R177
A-E0-66	A-CR66	A-E0-162	A-CR162	B-E0-66	B-CR66	B-E0-162	B-CR162	B-E1-33		B-E1-81		B-E1-129		B-E1-177	
A-E0-67	A-CR67	A-E0-163	A-CR163	B-E0-67	B-CR67	B-E0-163	B-CR163	A-E1-34	R34	A-E1-82	R82	A-E1-130	R130	A-E1-178	R178
A-E0-68	A-CR68	A-E0-164	A-CR164	B-E0-68	B-CR68	B-E0-164	B-CR164	B-E1-34		B-E1-82		B-E1-130		B-E1-178	
A-E0-69	A-CR69	A-E0-165	A-CR165	B-E0-69	B-CR69	B-E0-165	B-CR165	A-E1-35	R35	A-E1-83	R83	A-E1-131	R131	A-E1-179	R179
A-E0-70	A-CR70	A-E0-166	A-CR166	B-E0-70	B-CR70	B-E0-166	B-CR166	B-E1-35		B-E1-83		B-E1-131		B-E1-179	
A-E0-71	A-CR71	A-E0-167	A-CR167	B-E0-71	B-CR71	B-E0-167	B-CR167	A-E1-36	R36	A-E1-84	R84	A-E1-132	R132	A-E1-180	R180
A-E0-72	A-CR72	A-E0-168	A-CR168	B-E0-72	B-CR72	B-E0-168	B-CR168	B-E1-36		B-E1-84		B-E1-132		B-E1-180	
A-E0-73	A-CR73	A-E0-169	A-CR169	B-E0-73	B-CR73	B-E0-169	B-CR169	A-E1-37	R37	A-E1-85	R85	A-E1-133	R133	A-E1-181	R181
A-E0-74	A-CR74	A-E0-170	A-CR170	B-E0-74	B-CR74	B-E0-170	B-CR170	B-E1-37		B-E1-85		B-E1-133		B-E1-181	
A-E0-75	A-CR75	A-E0-171	A-CR171	B-E0-75	B-CR75	B-E0-171	B-CR171	A-E1-38	R38	A-E1-86	R86	A-E1-134	R134	A-E1-182	R182
A-E0-76	A-CR76	A-E0-172	A-CR172	B-E0-76	B-CR76	B-E0-172	B-CR172	B-E1-38		B-E1-86		B-E1-134		B-E1-182	
A-E0-77	A-CR77	A-E0-173	A-CR173	B-E0-77	B-CR77	B-E0-173	B-CR173	A-E1-39	R39	A-E1-87	R87	A-E1-135	R135	A-E1-183	R183
A-E0-78	A-CR78	A-E0-174	A-CR174	B-E0-78	B-CR78	B-E0-174	B-CR174	B-E1-39		B-E1-87		B-E1-135		B-E1-183	
A-E0-79	A-CR79	A-E0-175	A-CR175	B-E0-79	B-CR79	B-E0-175	B-CR175	A-E1-40	R40	A-E1-88	R88	A-E1-136	R136	A-E1-184	R184
A-E0-80	A-CR80	A-E0-176	A-CR176	B-E0-80	B-CR80	B-E0-176	B-CR176	B-E1-40		B-E1-88		B-E1-136		B-E1-184	
A-E0-81	A-CR81	A-E0-177	A-CR177	B-E0-81	B-CR81	B-E0-177	B-CR177	A-E1-41	R41	A-E1-89	R89	A-E1-137	R137	A-E1-185	R185
A-E0-82	A-CR82	A-E0-178	A-CR178	B-E0-82	B-CR82	B-E0-178	B-CR178	B-E1-41		B-E1-89		B-E1-137		B-E1-185	
A-E0-83	A-CR83	A-E0-179	A-CR179	B-E0-83	B-CR83	B-E0-179	B-CR179	A-E1-42	R42	A-E1-90	R90	A-E1-138	R138	A-E1-186	R186
A-E0-84	A-CR84	A-E0-180	A-CR180	B-E0-84	B-CR84	B-E0-180	B-CR180	B-E1-42		B-E1-90		B-E1-138		B-E1-186	
A-E0-85	A-CR85	A-E0-181	A-CR181	B-E0-85	B-CR85	B-E0-181	B-CR181	A-E1-43	R43	A-E1-91	R91	A-E1-139	R139	A-E1-187	R187
A-E0-86	A-CR86	A-E0-182	A-CR182	B-E0-86	B-CR86	B-E0-182	B-CR182	B-E1-43		B-E1-91		B-E1-139		B-E1-187	
A-E0-87	A-CR87	A-E0-183	A-CR183	B-E0-87	B-CR87	B-E0-183	B-CR183	A-E1-44	R44	A-E1-92	R92	A-E1-140	R140	A-E1-188	R188
A-E0-88	A-CR88	A-E0-184	A-CR184	B-E0-88	B-CR88	B-E0-184	B-CR184	B-E1-44		B-E1-92		B-E1-140		B-E1-188	
A-E0-89	A-CR89	A-E0-185	A-CR185	B-E0-89	B-CR89	B-E0-185	B-CR185	A-E1-45	R45	A-E1-93	R93	A-E1-141	R141	A-E1-189	R189
A-E0-90	A-CR90	A-E0-186	A-CR186	B-E0-90	B-CR90	B-E0-186	B-CR186	B-E1-45		B-E1-93		B-E1-141		B-E1-189	
A-E0-91	A-CR91	A-E0-187	A-CR187	B-E0-91	B-CR91	B-E0-187	B-CR187	A-E1-46	R46	A-E1-94	R94	A-E1-142	R142	A-E1-190	R190
A-E0-92	A-CR92	A-E0-188	A-CR188	B-E0-92	B-CR92	B-E0-188	B-CR188	B-E1-46		B-E1-94		B-E1-142		B-E1-190	
A-E0-93	A-CR93	A-E0-189	A-CR189	B-E0-93	B-CR93	B-E0-189	B-CR189	A-E1-47	R47	A-E1-95	R95	A-E1-143	R143	A-E1-191	R191
A-E0-94	A-CR94	A-E0-190	A-CR190	B-E0-94	B-CR94	B-E0-190	B-CR190	B-E1-47		B-E1-95		B-E1-143		B-E1-191	
A-E0-95	A-CR95	A-E0-191	A-CR191	B-E0-95	B-CR95	B-E0-191	B-CR191	A-E1-48	R48	A-E1-96	R96	A-E1-144	R144	A-E1-192	R192
A-E0-96	A-CR96	A-E0-192	A-CR192	B-E0-96	B-CR96	B-E0-192	B-CR192	B-E1-48		B-E1-96		B-E1-144		B-E1-192	

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL RE[illegible] TDRR 32991				
B		REVISED PER TDRR 334[illegible]0				
C		REVISED PER TDRR 33[illegible]4				
D		REVISED PER TDRR 33[illegible]6				
E		REVISED PER TDRR 34[illegible]0				
F		REVISED PER TDRR 34489				
G		REVISED PER TDRR 3[illegible]97				
H		REVISED PER TDRR [illegible]339				
J		REVISED PER TDRR [illegible]49				
K		REVISED PER TDRR 3[illegible]970				TFR
L		REVISED PER TDRR 3[illegible]217				
M		REVISED PER TDRR [illegible]				
N		REVISED PER TDRR 3[illegible]86				
P		REVISED PER TDRR [illegible]				
R		REVISED PER TDRR [illegible]				
S		REVISED PER TDRR 3[illegible]				
T		REVISED PER TDRR [illegible]				
U		REVISED PER TDRR 3[illegible]				
V		REVISED PER TDRR 37148				
W		REVISED PER TDRR 37387				
Y		REVISED PER TDRR 37427				
Z		REVISED PER TDRR 37454				
AA		REVISED PER TDRR 37535				
[illegible]		[illegible]				
AC		REVISED PER TDRR 37616			9/4/69	TBR
AD		REVISED PER TDRR 3[illegible]4			9/8/69	TBR

D

C

B

A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED NASA
APPROVED MSC
DATE

FIXED MEMORY MODULE
ASSEMBLY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2003972

SCALE NONE SHEET 3 OF 3

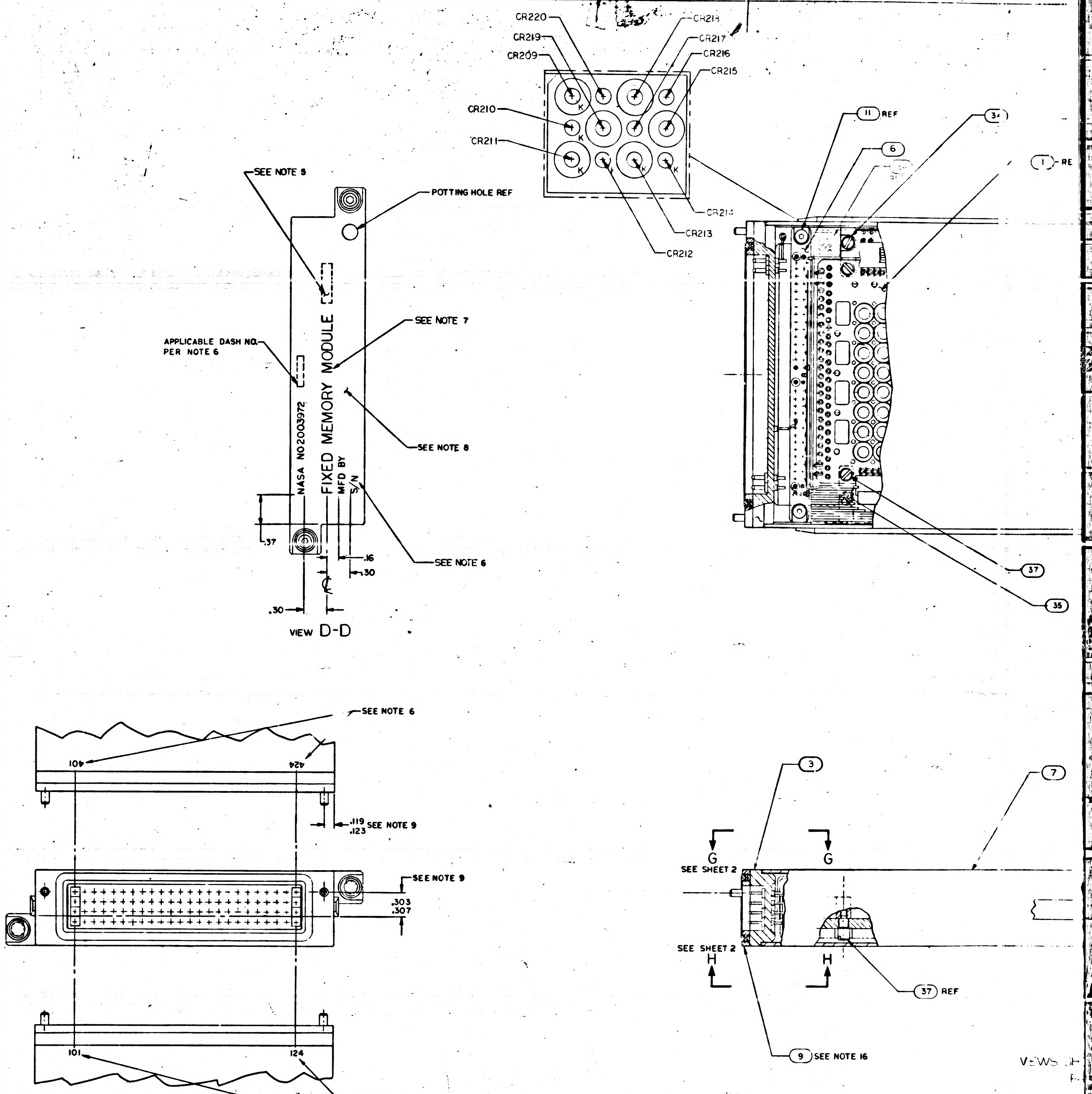
2003972 AD

4

SH 3/3 2003972 ADF 2/2

PART NO.	MODULE NO.	FIND NO. 1	FIND NO. 2	MODULE DECK NO.	NEXT ASSEMBLY NO. (REF)	PROCUREMENT SPECIFICATION SEE NOTE 15
2003972-011	B1	2003060-061	2003061-061	0205	2021101	PS2003972
2003972-021	B2	2003060-071	2003061-071	0206	2021101	
2003972-031	B3	2003060-081	2003061-081	0207	2021101	
2003972-041	B1	2003060-121	2003061-121	0210	2021104	
2003972-[illegible]	B2	2003060-131	2003061-131	0211	2021104	
2003972-061	B3	2003060-141	2003061-141	0212	2021104	
2003972-071	B2	2003060-151	2003061-151	0213	2021104	
2003972-081	B3	2003060-161	2003061-161	0214	2021104	
2003972-091	B2	2003060-171	2003061-171	0215	2021101	
2003972-111	B3	2003060-181	2003061-181	0216	2021101	PS2003972
2003972-121	B1	2003060-091	2003061-091	0208	2021105-031	PS2003960
2003972-131	B2	2003060-111	2003061-111	0209	2021105-031	PS2003960
2003972-141	B1	2003060-191	2003061-191	0217	2021106-011	PS2003972
2003972-151	B2	2003060-211	2003061-211	0218	2021106-011	
2003972-161	B3	2003060-221	2003061-221	0219	2021106-011	
2003972-171	B4	2003060-231	2003061-231	0220	2021106-011	
2003972-181	B5	2003060-241	2003061-241	0221	2021106-011	
2003972-191	B6	2003060-251	2003061-251	0222	2021106-011	
2003972-211	B3	2003060-261	2003061-261	0223	2021104-041	PS2003972
2003972-221	B1	2003060-271	2003061-271	0224	2021105-041	PS2003960
2003972-231	B1	2003060-281	2003061-281	0225	2021106-021	PS2003972
2003972-241	B3	2003060-291	2003061-291	0226	2021106-021	
2003972-251	B5	2003060-311	2003061-311	0227	2021106-021	
2003972-261	B1	2003060-321	2003061-321	0230	2021107-011	
2003972-271	B2	2003060-331	2003061-331	0229	2021107-011	
2003972-281	B2	2003060-341	2003061-341	0231	2021106-031	
2003972-291	B1	2003060-351	2003061-351	0238	2021107-021	PS2003972
2003972-311	B1	2003060-361	2003061-361	0239	2021108-021	PS2016016
-321	B2	2003060-371	2003061-371	0240	2021108-021	PS2016016
-331	B3	2003060-381	2003061-381	0241	2021108-021	PS2016016
-341	B4	2003060-391	2003061-391	0242	2021108-021	PS2016016
-351	B5	2003060-411	2003061-411	0243	2021108-021	PS2016016
2003972-361	B6	2003060-421	2003061-421	0244	2021108-021	PS2016016
2003972-371	B1	2003060-431	2003061-431	0245	2021110-011	PS2016016
2003972-381	B2	2003060-441	2003061-441	0246	2021110-011	
2003972-391	B3	2003060-451	2003061-451	0247	2021110-011	
2003972-411	B4	2003060-461	2003061-461	0248	2021110-011	
2003972-421	B5	2003060-471	2003061-471	0249	2021110-011	
2003972-431	B6	2003060-481	2003061-481	0250	2021110-011	PS2016016
2003972-441	B1	2003060-491	2003061-491	0251	2021110-021	PS2016016
2003972-451	B2	2003060-511	2003061-511	0252	2021110-021	
2003972-461	B3	2003060-521	2003061-521	0253	2021110-021	
2003972-471	B4	2003060-531	2003061-531	0254	2021110-021	
2003972-481	B5	2003060-541	2003061-541	0255	2021110-021	
2003972-491	B6	2003060-551	200306-551	0256	2021110-021	PS2016016
-511	B1	-561	-561	0257	2021111-021&031	PS2016036
-521	B2	-571	-571	0258	-021&031	
-531	B3	-581	-581	0259	-021&031	
-541	B4	-591	-591	0260	2021111-021&031	
-551	B5	-611	-611	0261	2021111-021	
2003972-561	B6	2003060-621	2003061-621	0262	2021111-021&031	PS2016036
2003972-571	B5	2003060-631	2003061-631	0263	2021111-031	PS2016036
2003972-581	B1	2003060-641	2003061-641	0264	2021110-031	PS2016036
-591	B2	-651	-651	0265	2021110-031	
-611	B3	-661	-661	0266	2021110-031	
-621	B4	-671	-671	0267	2021110-031	
-631	B5	-681	-681	0268	2021110-031	
2003972-641	B6	2003060-691	2003061-691	0269	2021110-031	PS2016036
2003972-651	B1	2003060-711	2003061-711	0270	2021111-041	PS2016036
-661	B2	-721	-721	0271	-041	
-671	B3	-731	-731	0272	-041	
-681	B4	-741	-741	0273	-041	
-691	B5	-751	-751	0274	-041	
2003972-711	B6	2003060-761	2003061-761	0275	2021111-041	PS2016036
2003972-721	B1	2003060-771	2003061-771	0276	2021112-011	PS2016036
-731	B2	-781	-781	0277	-011	
-741	B3	-791	-791	0278	-011	
-751	B4	-811	-811	0279	-011	
-761	B5	-821	-821	0280	-011	
2003972-771	B6	2003060-831	2003061-831	0281	2021112-011	PS2016036
2003972-781	B1	2003060-841	2003061-841	0282	2021113-011	PS2016036
-791	B2	-851	-851	0283	-011	
-811	B3	-861	-861	0284	-011	
-821	B4	-871	-871	0285	-011	
-831	B5	-881	-881	0286	-011	
2003972-841	B6	2003060-891	2003061-891	0287	2021113-011	PS2016036
2003972-851	B3	2003060-911	2003061-911	0288	2021113-021	PS2016036
2003972-861	B1	2003060-921	2003061-921	0289	2021113-031	PS2016036
-871	B2	-931	-931	0290	-031	
-881	B3	-941	-941	0291	-031	
-891	B4	-951	-951	0292	-031	
-911	B5	-961	-961	0293	-031	
2003972-921	B6	2003060-971	2003061-971	0294	2021113-031	PS2016036
2003972-931	B2	2003060-981	2003061-981	0295	2021112-031	PS2016036
2003972-941	B2	2003060-991	2003061-991	0296	2021113-041	PS2016036
-951	B1	-1011	-1011	0297	2021112-021	
-961	B2	-1021	-1021	0298		
-971	B3	-1031	-1031	0299		
-98	B4	-1041	-1041	0300		
-991	B5	-1051	-1051	0301		
2003972-1011	B6	2003060-1061	2003061-1061	0302	2021112-021	PS2016036
2003972-1021	B1	2003060-1071	2003061-1071	0303	2021112-041	PS2016036
2003972-1031	B2	2003060-1081	2003061-1081	0304	2021113-051	PS2016036

CONTINUED ON SHEET 3



NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
3. ENCAPSULATE MODULE PER ND1002226 METHOD II
4. WELD PER ND1002005
5. MARK APPROPRIATE MODULE NO. AS SHOWN IN CHART
6. MARK .08/.06 HIGH PER ND1002019 AND ND1002122, TYPE II CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
7. MARK .14/.10 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 USING INK 1006271-1
8. PAINT INDICATED SURFACES OF FIND NO 7. PER ND1002279 WITH SCD NO. 1008809-1 DARK GREY EPOXY RESIN ENAMEL, FINAL COAT PER ND1002277 USING 1012543-003
9. ASSEMBLE FIND NO.7 AND FIND NO.3 TO DIMENSIONS SHOWN
10. REMOVE LINER FROM NEARSIDE OF FIND NO.36 AND ASSEMBLE 3 PLACES AS SHOWN. FIND NO.36 MUST INSULATE FLAT CABLES FROM TRIMMED COMPONENT LEADS, TRIM AS REQUIRED
11. WHITE DOT AND SINGLE SOLID LEAD DENOTES FIRST LEVEL WIRING UNLESS OTHERWISE SPECIFIED
12. BLACK DOT AND SINGLE SOLID LEAD DENOTES SECOND LEVEL WIRING
13. BLACK DOT AND CROSS HATCHED LEAD DENOTES THIRD LEVEL WIRING
14. ALL LEADS FROM FIND NO.1 AND FIND NO.2 TO FIND NO.3 TO BE THIRD LEVEL WIRING
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PROCUREMENT SPECIFICATION AS LISTED IN CHART.
16. FIND NO.9 TO BE SHIPPED UNASSEMBLED AND IDENTIFIED PER ND 1002019
17. SEAL PINS AND INSULATORS TO FIND NO. 3 PER ND1002004 TYPE VI BEFORE ASSY OF FIND NO. 6
18. FILL AS SHOWN PER ND1002235 METHOD A
19. BOND FIND NO.39 TO FIND NO.3 PER ND1002004 TYPE VI AFTER ASSY OF FIND NO.6
20. PRIOR TO ENCAPSULATION PER NOTE 3, COAT OVER ALL TERMINALS OF FIND NO.'S 1,2&3 AND OVER ALL WIRES, SLEEVING AND COMPONENT LEADS OF FIND NO.S 4,5,6,16,17,18,19,20,21,22,23,24, 25,26,27,28,29,30,31,32,33,38 &39 WITH A .03 MAXIMUM THICKNESS OF SILICONE RUBBER PER ND1002009, METHOD A. MASK ALL OUTSIDE SURFACES OF FIND NO.3 AND ALL OTHER SURFACES OF THIS ASSEMBLY COMING IN CLOSE CONTACT WITH FIND NO.7
21. FILL INTERFACE BETWEEN FIND NO. 4 AND SIDE SURFACES OF FIND NO.'S 1 AND 2, AND INTERFACE BETWEEN FIND NO.5 AND SIDE SURFACES OF FIND NO.'S 1 AND 2 USING FIND NO. 40. ROOM TEMP CURE FOR 24 HOURS MIN.

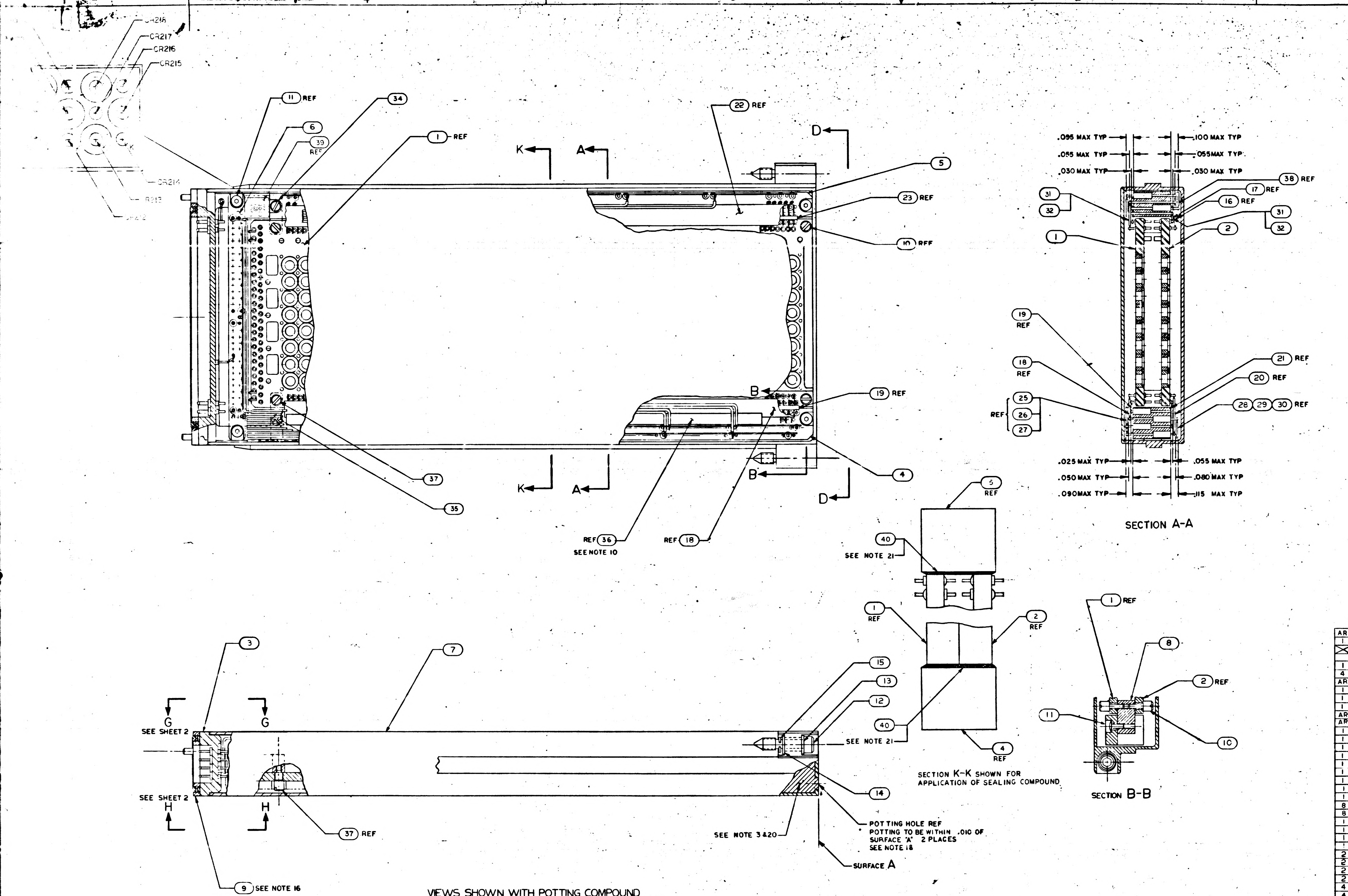
REFERENCES:

1. PROCESS REQUIREMENTS FOR CONTROL AND INSPECTION OF ROPE MEMORY ASSEMBLIES. ND1002285
2. FIXED MEMORY FIXTURE DWG. NO. AP22500

2003972 AE

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL RELEASE TDRR 32991	[illegible]	[illegible]
B	REVISED PER TDRR 33420 DR [illegible] CHK [illegible]	[illegible]	[illegible]
C.	REVISED PER TDRR 33[illegible]4 DR [illegible] CHK [illegible]	3/8/67	[illegible]
D	REVISED PER TDRR 33606 DR [illegible] CHK [illegible]	5/19/67	TJR
E	REVISED PER TDRR 34140 DR [illegible] CHK [illegible]	9-2-67	TJR
F	REVISED PER TDRR 34489 DR [illegible] CHK [illegible]	10-18-67	TJR
G	REVISED PER TDRR 3[illegible] DR [illegible] CHK [illegible]	11-20-67	TJR
H	REVISED PER TDRR 35339 DR S.B. CHK [illegible]	1-12-68	TJR
J	REVISED PER TDRR 35540 DR [illegible] CHK [illegible]	3-27-68	TJR
K	REVISED PER TDRR 35670 DR W.J. Makar CHK [illegible]	4/10/68	TJR
L	REVISED PER TDRR 36217 DR W.J. Makar CHK [illegible]	5/24/68	TJR.
M	REVISED PER TDRR 36[illegible] DR [illegible] CHK [illegible]		TJR
N	REVISED PER TDRR 36686 DR [illegible]	[illegible]	TJR
P	REVISED PER TDRR 36[illegible] DR Tom Smith CHK [illegible]	9/25/68	TJR
R	REVISED PER TDRR 36858 DR [illegible] CHK [illegible]	[illegible]	TJR
S	REVISED PER TDRR 36916 DR Tom Smith CHK [illegible]	[illegible]	TJR
T	REVISED PER TDRR 36970 DR [illegible] CHK [illegible]	[illegible]	TJR
U	REVISED PER TDRR 37008 DR [illegible] CHK [illegible]	[illegible]	TJR
V	REVISED PER TDRR 37148 DR [illegible] CHK [illegible]	3/11/69	TJR
W	REVISED PER TDRR 37387 DR [illegible] CHK [illegible]	4/15/69	TJR
Y	REVISED PER TDRR 37427 DR [illegible] CHK [illegible]	4/21/69	TJR
Z	REVISED PER TDRR 37454 DR [illegible] CHK [illegible]	11 APR 69	TJR
AA	REVISED PER TDRR 37535 DR [illegible] CHK [illegible]	6 MAY 69	TJR
AB	REVISED PER TDRR 37582 DR [illegible] CHK [illegible]	2 JUN 69	TJR
AC	REVISED PER TDRR 37616 DR [illegible] CHK [illegible]	8 AUG 69	PBB
AD	REVISED PER TDRR 37[illegible] DR Tom Smith CHK [illegible]	[illegible] 69	PBB
AE	REVISED PER TDRR 37743 DR [illegible] CHK [illegible]	10/3/69	PBB



CR218
CR217
CR216
CR215
CR214
CR213
CR212
11 REF
6
39 REF
34
1 REF
22 REF
K
A
D
5
23 REF
10 REF
19 REF
B
4
37
35
REF 36
SEE NOTE 10
REF 18
.095 MAX TYP
.055 MAX TYP
.030 MAX TYP
.100 MAX TYP
.055 MAX TYP
.030 MAX TYP
31
32
1
38 REF
17 REF
16 REF
2
19 REF
18 REF
21 REF
20 REF
REF 25 26 27
28 29 30 REF
.025 MAX TYP
.050 MAX TYP
.090 MAX TYP
.055 MAX TYP
.080 MAX TYP
.115 MAX TYP
SECTION A-A
5 REF
40
SEE NOTE 21
1 REF
2 REF
40
4 REF
SECTION K-K SHOWN FOR APPLICATION OF SEALING COMPOUND
1 REF
8
2 REF
11
10
SECTION B-B
3
7
G
SEE SHEET 2
G
15
13
12
SEE NOTE 21
SEE SHEET 2
H
H
14
37 REF
SEE NOTE 3 & 20
POTTING HOLE REF
POTTING TO BE WITHIN .010 OF SURFACE "A" 2 PLACES
SEE NOTE 18
SURFACE A
9 SEE NOTE 16

VIEWS SHOWN WITH POTTING COMPOUND PARTIALLY REMOVED

UIREMENTS FOR CONTROL
TION 4 R PE EMORY ASSEMBLIES
RY F RE DWG NO 4P22500

SEE NOTE 16

FOR APPLICABLE PART NO. SEE CHART

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006341	ADHESIVE SEALANT, SILICONE RUBBER	40
1	2003986-021	COMPONENT BLOCK DIODE ASSY	39
╳	2005935	SCHEMATIC	REF
1	2004684	FLAT CABLE	38
4	2004150 — 003	SCREW, SHOULDERED	37
AR	1006806 — 26	INSULATION TAPE, ELECTRICAL	36
1	2004150 — 001	SCREW, SHOULDERED	35
1	2004150 — 002	SCREW, SHOULDERED	34
1	2004129	FLAT CABLE INTERCONNECTION	33
AR	1006776-25	SLEEVING	32
AR	1006757 12	WIRE, ELECRICAL	31
1	2004125	FLAT CABLE	30
1	2004122	FLAT CABLE	29
1	2004124	FLAT CABLE	28
1	2004123	FLAT CABLE	27
1	2004121	FLAT CABLE	26
1	2004120	FLAT CABLE	25
1	2004[illegible]35	FLAT CABLE	24
1	2003051 — 013	MATRIX ASSY	23
1	2003051 — 014	MATRIX ASSY	22
8	2003051 — 016	MATRIX ASSY	21
8	2003051 — 015	MATRIX ASSY	20
1	2003051 — 017	MATRIX ASSY	19
1	2003051 — 018	MATRIX ASSY	18
1	2003051 — 011	MATRIX ASSY	17
1	2003051 — 012	MATRIX ASSY	16
2	MS16633-4015	"E" RING	15
2	1004546-3	WASHER	14
2	1004546-1	WASHER	13
2	1004579-1	SCREW, JACKING	12
4	1000093-1	SCREW, BUTTONHEAD	11
4	2004151	SCREW, STANDOFF	10
1	1006339	GASKET PLATE	9
2	2004071	STANDOFF	8
1	2004100	HOUSING	7
1	2003048-021	RESISTOR-DIODE BLOCK ASSY	6
1	2003052-021	COMPONENT BLOCK RESISTOR ASSY	5
1	2003045-021	COMPONENT BLOCK DIODE ASSY	4
1	2003973-011	CONNECTOR PLATE ASSY	3
1	2003061-SEE CHART	SENSE WIRING ASSY SIDE B	2
1	2003060-SEE CHART	SENSE WIRING ASSY SIDE A	1

LIST OF MATERIALS

B

A

NEXT ASSY	USED ON
SEE CHART	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT

DRAWN [illegible] DATE 6 AUG 6[illegible]
CHECKED [illegible] 12 AUG 6[illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
CCA
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003972
SCALE 2/1
WT
SHEET 1 OF 3

[illegible]

WIRE LIST

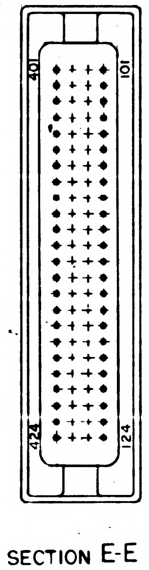
PIN NO.	COMPONENT OR TERM. NO.	PIN NO.	COMPONENT OR TERM. NO.
101	A-E1-213	301	GROUND
102	A-E1-212	302	CR209
103	A-E1-211	303	CR210
104	A-E0-211	304	CR211
105	A-E1-210	305	CR212
106	A-E1-209	306	CR213
107	A-E1-208	307	CR214
108	A-E1-207	308	A-CR208
109	A-E1-206	309	A-CR207
110	A-E1-205	310	A-CR206
111	A-E1-204	311	A-CR205
112	A-E1-203	312	A-CR204
113	A-E1-202	313	A-CR203
114	A-E1-201	314	A-CR202
115	A-E1-200	315	A-CR201
116	A-E1-199	316	A-CR200
117	A-E1-198	317	A-CR199
118	A-E1-197	318	A-CR198
119	A-E1-196	319	A-CR197
120	A-E1-195	320	A-CR196
121	A-E0-194	321	A-CR195
122	A-E1-194	322	A-CR194
123	A-E0-193	323	A-CR193
124	A-E1-193	324	SPARE
201	B-R208	401	B-E1-213
202	CR215	402	B-E1-212
203	CR216	403	B-E1-211
204	CR217	404	B-E0-211
205	CR218	405	B-E1-210
206	CR219	406	B-E1-209
207	CR220	407	B-E1-208
208	B-CR208	408	B-E1-207
209	B-CR207	409	B-E1-206
210	B-CR206	410	B-E1-205
211	B-CR205	411	B-E1-204
212	B-CR204	412	B-E1-203
213	B-CR203	413	B-E1-202
214	B-CR202	414	B-E1-201
215	B-CR201	415	B-E1-200
216	B-CR200	416	B-E1-199
217	B-CR199	417	B-E1-198
218	B-CR198	418	B-E1-197
219	B-CR197	419	B-E1-196
220	B-CR196	420	B-E1-195
221	B-CR195	421	B-E0-194
222	B-CR194	422	B-E1-194
223	B-CR193	423	B-E0-193
224	SPARE	424	B-E1-193

WIRE LIST

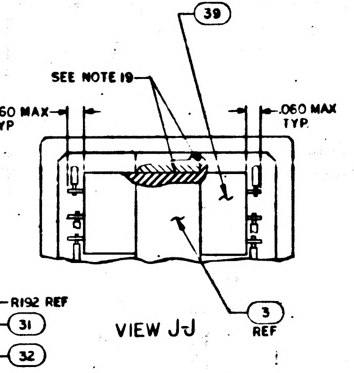
TERMINAL NO.	TERMINAL NO.
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
A-E0-195	B-E0-195
A-E0-196	B-E0-196
A-E0-197	B-E0-197
A-E0-198	B-E0-198
A-E0-199	B-E0-199
A-E0-200	B-E0-200
A-E0-201	B-E0-201
A-E0-202	B-E0-202
A-E0-203	B-E0-203
A-E0-204	B-E0-204
A-E0-205	B-E0-205
A-E0-206	B-E0-206
A-E0-207	B-E0-207
A-E0-208	B-E0-208
A-E0-209	B-E0-209
A-E0-210	B-E0-210
SPARE	SPARE
SPARE	SPARE
A-E0-212	B-E0-212
A-E0-213	B-E0-213

WIRE LIST

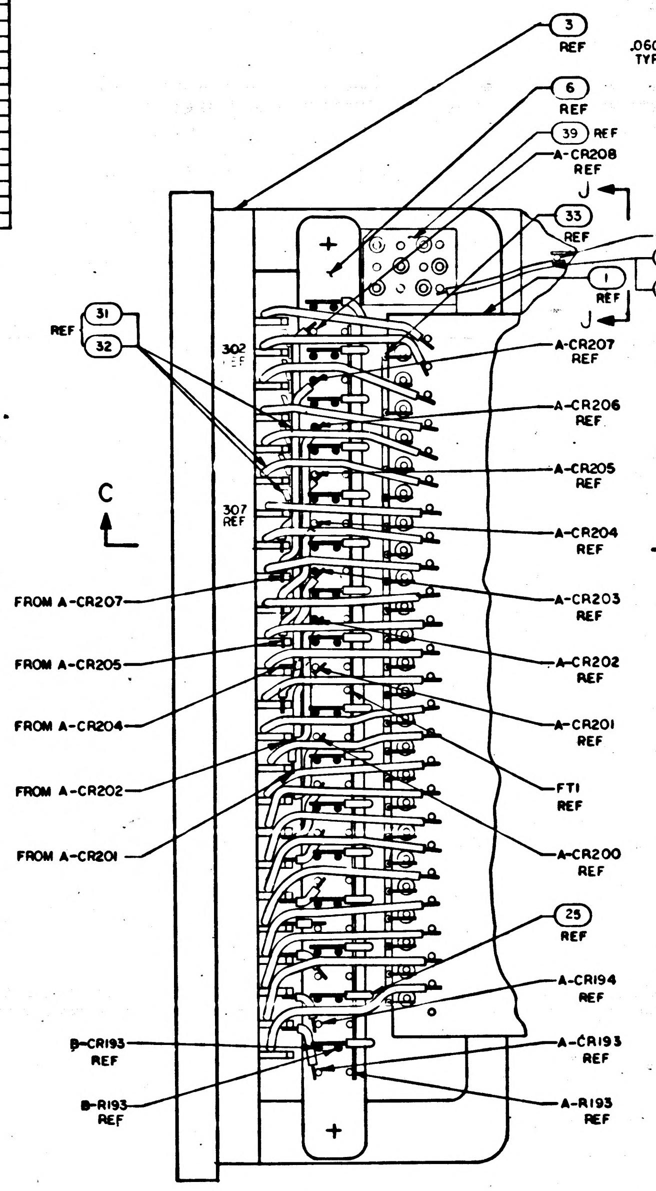
COMPONENT NO.	COMPONENT NO.
CR215	R176
CR216	R144
CR217	R112
CR218	R80
CR219	R48
CR220	R16
CR209	R32
CR210	R64
CR211	R96
CR212	R128
CR213	R160
CR214	R192


401
101
424
124

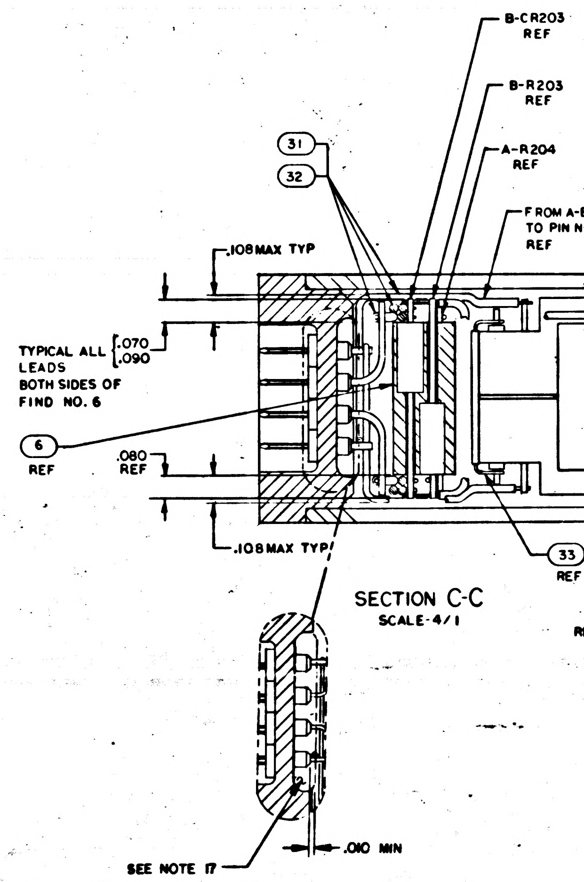
SECTION E-E


SEE NOTE 19
39
.060 MAX TYP
.060 MAX TYP
3 REF

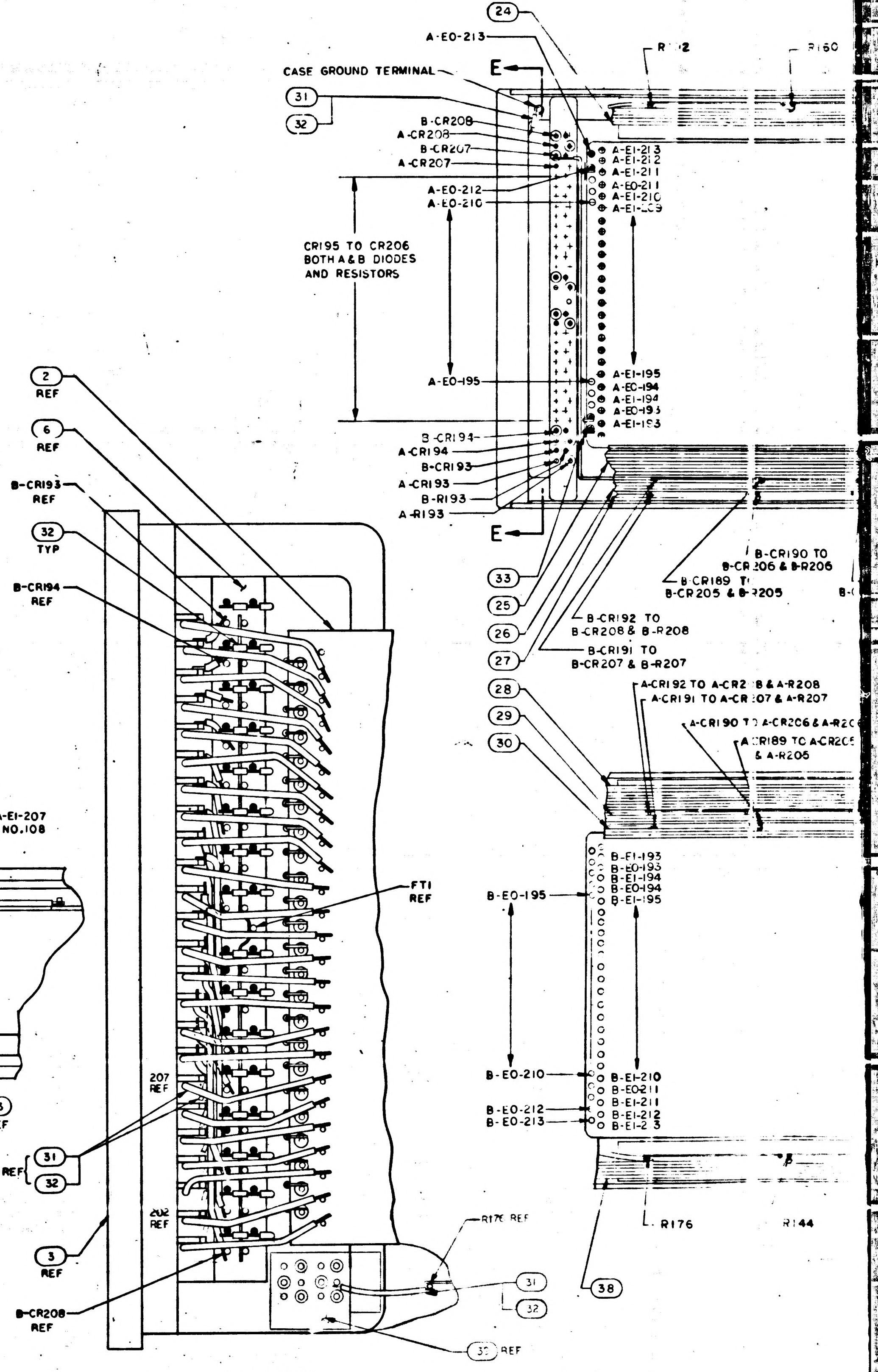
VIEW J-J


3 REF
6 REF
39 REF
A-CR208 REF
33 REF
J
R192 REF
31
32
1 REF
J
REF 31 32
302 REF
307 REF
C
C
A-CR207 REF
A-CR206 REF
A-CR205 REF
A-CR204 REF
A-CR203 REF
A-CR202 REF
A-CR201 REF
FTI REF
A-CR200 REF
25 REF
A-CR194 REF
A-CR193 REF
A-R193 REF
FROM A-CR207
FROM A-CR205
FROM A-CR204
FROM A-CR202
FROM A-CR201
B-CR193 REF
B-R193 REF
+
+

VIEW G-G
SCALE: 4/1
SHOWN WITH POTTING AND FIND NO. 7
REMOVED. SEE NOTES 11, 12, 13 AND 14


B-CR203 REF
B-R203 REF
A-R204 REF
31
32
FROM A-E1-207 TO PIN NO. 108 REF
.108 MAX TYP
TYPICAL ALL LEADS BOTH SIDES OF FIND NO. 6
.070
.090
6 REF
.080 REF
.108 MAX TYP
33 REF
SEE NOTE 17
.010 MIN

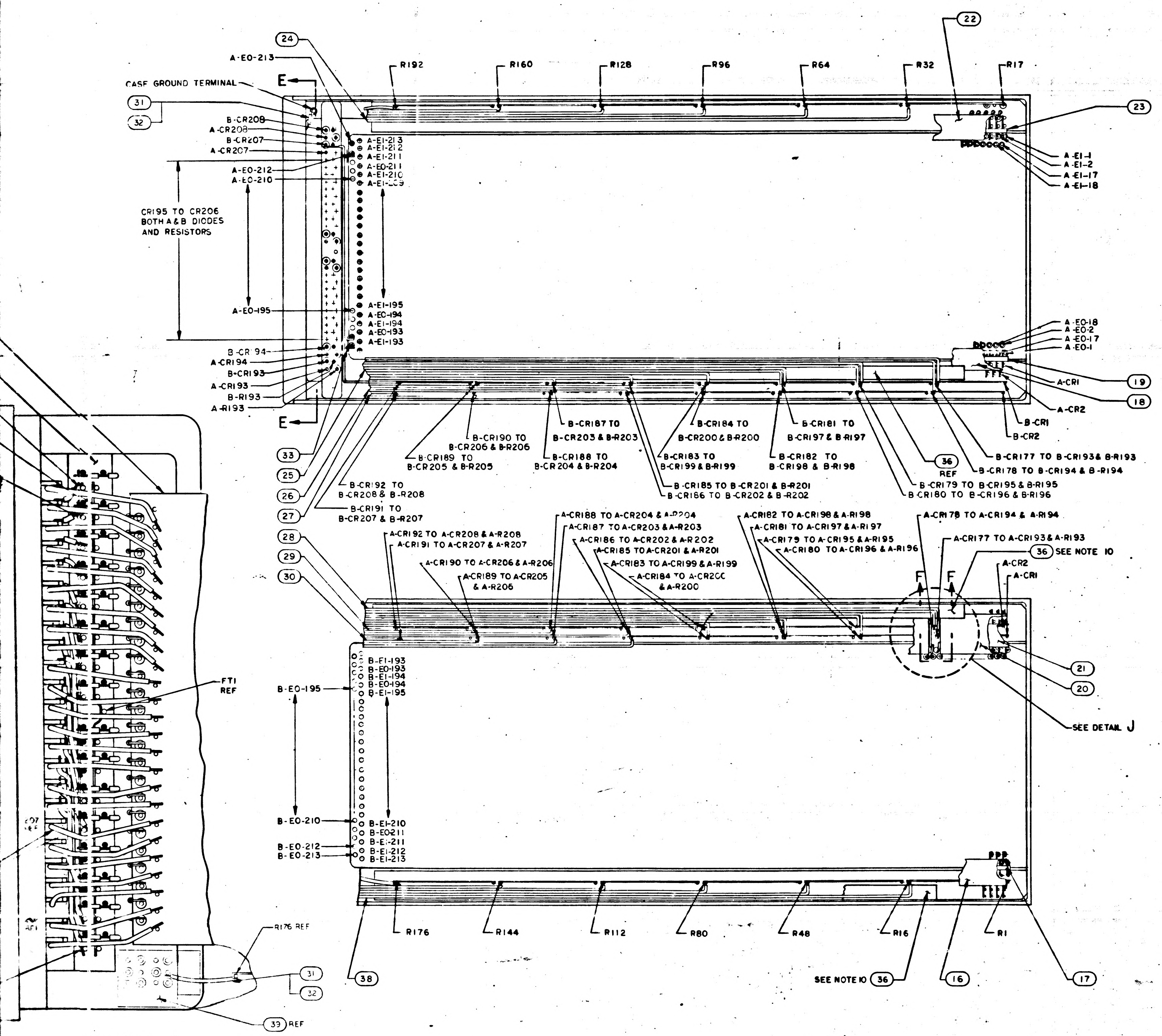
SECTION C-C
SCALE-4/1


2 REF
6 REF
B-CR193 REF
32 TYP
B-CR194 REF
207 REF
202 REF
31
32
REF
3 REF
B-CR208 REF
FTI REF
R176 REF
31
32
33 REF
24
A-E0-213
CASE GROUND TERMINAL
E
31
32
B-CR208
A-CR208
B-CR207
A-CR207
A-E0-212
A-E0-210
CR195 TO CR206 BOTH A & B DIODES AND RESISTORS
A-E0-195
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
E
R192
R160
A-E1-213
A-E1-212
A-E1-211
A-E0-211
A-E1-210
A-E1-209
A-E1-195
A-E0-194
A-E1-194
A-E0-193
A-E1-193
33
25
26
27
28
29
30
B-CR190 TO B-CR206 & B-R206
B-CR189 TO B-CR205 & B-R205
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205 & A-R205
B-E0-195
B-E1-193
B-E0-193
B-E1-194
B-E0-194
B-E1-195
B-E0-210
B-E0-212
B-E0-213
B-E1-210
B-E0-211
B-E1-211
B-E1-212
B-E1-213
R176
R144
38

VIEW H-H
SCALE: 4/1
SHOWN WITH POTTING AND FIND NO. 7
REMOVED. SEE NOTES 11, 12, 13 AND 14

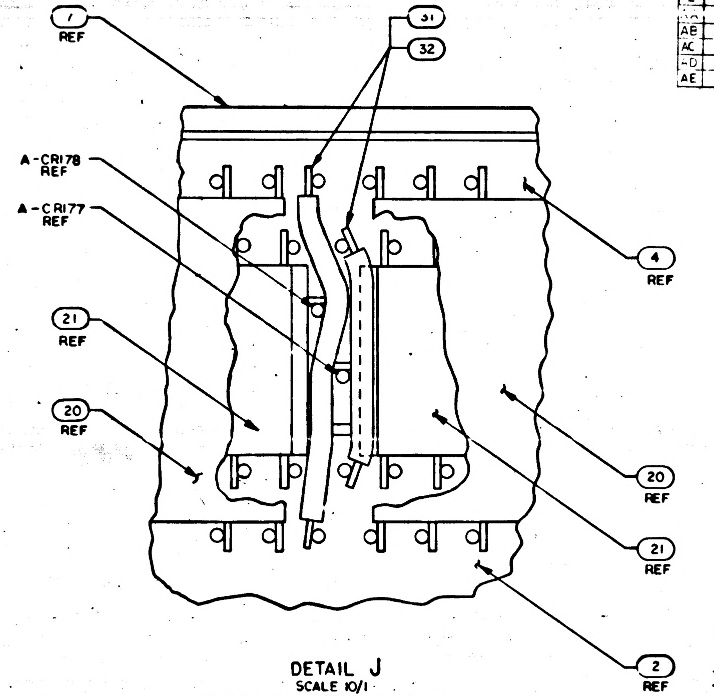
| 2003972 | AE |

SYM	ZONE	REVISIONS DESCRIPTION	DR	CHK	DATE	APPROVED
A		INITIAL RELEASE PRR 3299				
B		REVISED PER TDRR 33460				
C		REVISED PER TDRR 33544			5/67	
D		REVISED PER TDRR 33606				
E		REVISED PER TDRR 34140				
F		REVISED PER TDRR 34489				FBL
G		REVISED PER TDRR 34997				
H		REVISED PER TDRR 35339				
J		REVISED PER TDRR 35540				
K		REVISED PER TDRR 35870				
L		REVISED PER TDRR 36217			3/29/6	
M		REVISED PER TDRR [illegible]				
N		REVISED PER TDRR 36 86				
P		REVISED PER TDRR [illegible]				
R		REVISED PER TDRR 3 558			10/5/6	
S		REVISED PER TDRR				
T		REVISED PER TDRR 70				FEL
U		REVISED PER TDRR 37008				
V		REVISED PER TDRR 37149				
W		REVISED PER TDRR 37387				
Y		REVISED PER TDRR 37427				
Z		REVISED PER TDRR 37454				
AA		REVISED PER TDRR [illegible]				
AB		REVISED PER TDRR 37582				
AC		REVISED PER TDRR 37515			2/4/69	FBB
AD		REVISED PER TDRR 37 54			9/8/69	FBB
AE		REVISED PER TDRR 37743			10/3/69	FBB



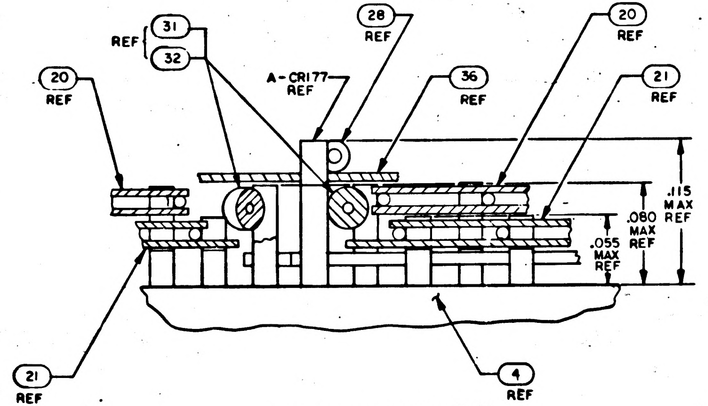
24
A-EO-213
CASE GROUND TERMINAL
E
31
32
B-CR208
A-CR208
B-CR207
A-CR207
A-EO-212
A-EO-210
CR195 TO CR206
BOTH A & B DIODES
AND RESISTORS
A-EO-195
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
A-EI-213
A-EI-212
A-EI-211
A-EO-211
A-EI-210
A-EI-209
A-EI-195
A-EO-194
A-EI-194
A-EO-193
A-EI-193
R192
R160
R128
R96
R64
R32
R17
22
23
A-EI-1
A-EI-2
A-EI-17
A-EI-18
A-EO-18
A-EO-2
A-EO-17
A-EO-1
A-CR1
A-CR2
19
18
B-CR1
B-CR2
33
25
26
27
B-CR190 TO B-CR206 & B-R206
B-CR189 TO B-CR205 & B-R205
B-CR187 TO B-CR203 & B-R203
B-CR188 TO B-CR204 & B-R204
B-CR184 TO B-CR200 & B-R200
B-CR183 TO B-CR199 & B-R199
B-CR185 TO B-CR201 & B-R201
B-CR186 TO B-CR202 & B-R202
B-CR181 TO B-CR197 & B-R197
B-CR182 TO B-CR198 & B-R198
36 REF
B-CR177 TO B-CR193 & B-R193
B-CR178 TO B-CR194 & B-R194
B-CR179 TO B-CR195 & B-R195
B-CR180 TO B-CR196 & B-R196
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
28
29
30
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205 & A-R205
A-CR188 TO A-CR204 & A-R204
A-CR187 TO A-CR203 & A-R203
A-CR186 TO A-CR202 & A-R202
A-CR185 TO A-CR201 & A-R201
A-CR183 TO A-CR199 & A-R199
A-CR184 TO A-CR200 & A-R200
A-CR182 TO A-CR198 & A-R198
A-CR181 TO A-CR197 & A-R197
A-CR179 TO A-CR195 & A-R195
A-CR180 TO A-CR196 & A-R196
A-CR178 TO A-CR194 & A-R194
A-CR177 TO A-CR193 & A-R193
36 SEE NOTE 10
A-CR2
A-CR1
F
F
21
20
SEE DETAIL J
B-EI-193
B-EO-193
B-EI-194
B-EO-194
B-EI-195
B-EO-195
B-EO-210
B-EO-212
B-EO-213
B-EI-210
B-EO-211
B-EI-211
B-EI-212
B-EI-213
R176
R144
R112
R80
R48
R16
R1
38
SEE NOTE 10 36
16
17
FT1 REF
R176 REF
31
32
39 REF

VIEW H-H
SCALE: 4/1
SHOWN WITH POTTING AND FIND NO. 7
REMOVED. SEE NOTES 11,12,13 AND 14



1 REF
31
32
A-CR178 REF
A-CR177 REF
21 REF
20 REF
4 REF
20 REF
21 REF
2 REF

DETAIL J
SCALE 10/1
TYPICAL WIRING 8 PLACES, SHOWN
WITH FIND NOS. 28 AND 36 REMOVED



REF 31
32
28 REF
A-CR177 REF
36 REF
20 REF
21 REF
20 REF
.115 MAX
.080 MAX REF
.055 MAX REF
21 REF
4 REF

PARTIAL SECTION F-F
SCALE: 20/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MPP
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE ASSEMBLY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2003972

SCALE 2/1 SHEET 2 OF 3

2003972 AE

SH 2/3 2003972 AEF 2/2

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

PART NO	MODULE NO	FIND NO 1	FIND NO 2	MODULE DECK NO	NEXT ASSEMBLY NO. (REF)	PROCUREMENT SPECIFICATION SEE NOTE 15
2003972 — 1041	B1	2003060 — 1091	2003061 — 1091	0305	2021112 — 051	PS 2016036
2003972 — 1051	B2	2003060 — 1111	2003061 — 1111	0306	2021112 — 051	PS 2016036
2003972 — 1061	B5	2003060 — 1121	2003061 — 1121	0307	2021112 — 051	PS 2016036
2003972 — 1071	B1	2003060 — 1091	2003061 — 1131	0308	2021112 — 061	PS 2016036
2 — 1081	B1	2003060 — 1131	2003061 — 1141	0309	2021113 — 061	PS2016036
— 1091	B2	— 1141	— 1151	0310		
— 1111	B3	— 1151	— 1161	0311		
— 1121	B4	— 1161	— 1171	0312		
— 13	B5	— 1171	— 1181	0313		
00 972 — 114	B6	2003060 — 1181	2003061 — 1191	0314	2021113 — 061	PS2016036

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL RELEASE TDRR 32991				
B		REVISED PER TDRR 33410				
C		REVISED PER TDRR 33544				
D		REVISED PER TDRR 33606				
E		REVISED PER TDRR 34140				
F		REVISED PER TDRR 34489				
G		REVISED PER TDRR 34597				
H		REVISED PER TDRR 35339				
J		REVISED PER TDRR 35649				
K		REVISED PER TDRR 35970				
L		REVISED PER TDRR 36217				
M		REVISED PER TDRR 36531				
N		REVISED PER TDRR 36686				
P		REVISED PER TDRR 36810				
R		REVISED PER TDRR 36858				
S		REVISED PER TDRR 36916				
T		[illegible]				
U		REVISED PER TDRR 37008				
V		REVISED PER TDRR 37148				
W		REVISED PER TDRR 37387				
Y		REVISED PER TDRR 37427				
Z		REVISED PER TDRR 37454				
AA		REVISED PER TDRR 37535				
AB		REVISED PER TDRR [illegible]				
AC		REVISED PER TDRR 37516			8/4/69	PBB
AD		REVISED PER TDRR [illegible]			9/9/69	PBB
AE		REVISED PER TDRR 37743			10/3/69	PBB

WIRE LIST

TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.
A-EO-1	A-CR1	A-EO-97	A-CR97	B-EO-1	B-CR1	B-EO-97	B-CR97	A-EI-1	R1	A-EI-49	R49	A-EI-97	R97	A-EI-145	R145
A-EO-2	A-CR2	A-EO-98	A-CR98	B-EO-2	B-CR2	B-EO-98	B-CR98	B-EI-1		B-EI-49		B-EI-97		B-EI-145	
A-EO-3	A-CR3	A-EO-99	A-CR99	B-EO-3	B-CR3	B-EO-99	B-CR99	A-EI-2	R2	A-EI-50	R50	A-EI-98	R98	A-EI-146	R146
A-EO-4	A-CR4	A-EO-100	A-CR100	B-EO-4	B-CR4	B-EO-100	B-CR100	B-EI-2		B-EI-50		B-EI-98		B-EI-146	
A-EO-5	A-CR5	A-EO-101	A-CR101	B-EO-5	B-CR5	B-EO-101	B-CR101	A-EI-3	R3	A-EI-51	R51	A-EI-99	R99	A-EI-147	R147
A-EO-6	A-CR6	A-EO-102	A-CR102	B-EO-6	B-CR6	B-EO-102	B-CR102	B-EI-3		B-EI-51		B-EI-99		B-EI-147	
A-EO-7	A-CR7	A-EO-103	A-CR103	B-EO-7	B-CR7	B-EO-103	B-CR103	A-EI-4	R4	A-EI-52	R52	A-EI-100	R100	A-EI-148	R148
A-EO-8	A-CR8	A-EO-104	A-CR104	B-EO-8	B-CR8	B-EO-104	B-CR104	B-EI-4		B-EI-52		B-EI-100		B-EI-148	
A-EO-9	A-CR9	A-EO-105	A-CR105	B-EO-9	B-CR9	B-EO-105	B-CR105	A-EI-5	R5	A-EI-53	R53	A-EI-101	R101	A-EI-149	R149
A-EO-10	A-CR10	A-EO-106	A-CR106	B-EO-10	B-CR10	B-EO-106	B-CR106	B-EI-5		B-EI-53		B-EI-101		B-EI-149	
A-EO-11	A-CR11	A-EO-107	A-CR107	B-EO-11	B-CR11	B-EO-107	B-CR107	A-EI-6	R6	A-EI-54	R54	A-EI-102	R102	A-EI-150	R150
A-EO-12	A-CR12	A-EO-108	A-CR108	B-EO-12	B-CR12	B-EO-108	B-CR108	B-EI-6		B-EI-54		B-EI-102		B-EI-150	
A-EO-13	A-CR13	A-EO-109	A-CR109	B-EO-13	B-CR13	B-EO-109	B-CR109	A-EI-7	R7	A-EI-55	R55	A-EI-103	R103	A-EI-151	R151
A-EO-14	A-CR14	A-EO-110	A-CR110	B-EO-14	B-CR14	B-EO-110	B-CR110	B-EI-7		B-EI-55		B-EI-103		B-EI-151	
A-EO-15	A-CR15	A-EO-111	A-CR111	B-EO-15	B-CR15	B-EO-111	B-CR111	A-EI-8	R8	A-EI-56	R56	A-EI-104	R104	A-EI-152	R152
A-EO-16	A-CR16	A-EO-112	A-CR112	B-EO-16	B-CR16	B-EO-112	B-CR112	B-EI-8		B-EI-56		B-EI-104		B-EI-152	
A-EO-17	A-CR17	A-EO-113	A-CR113	B-EO-17	B-CR17	B-EO-113	B-CR113	A-EI-9	R9	A-EI-57	R57	A-EI-105	R105	A-EI-153	R153
A-EO-18	A-CR18	A-EO-114	A-CR114	B-EO-18	B-CR18	B-EO-114	B-CR114	B-EI-9		B-EI-57		B-EI-105		B-EI-153	
A-EO-19	A-CR19	A-EO-115	A-CR115	B-EO-19	B-CR19	B-EO-115	B-CR115	A-EI-10	R10	A-EI-58	R58	A-EI-106	R106	A-EI-154	R154
A-EO-20	A-CR20	A-EO-116	A-CR116	B-EO-20	B-CR20	B-EO-116	B-CR116	B-EI-10		B-EI-58		B-EI-106		B-EI-154	
A-EO-21	A-CR21	A-EO-117	A-CR117	B-EO-21	B-CR21	B-EO-117	B-CR117	A-EI-11	R11	A-EI-59	R59	A-EI-107	R107	A-EI-155	R155
A-EO-22	A-CR22	A-EO-118	A-CR118	B-EO-22	B-CR22	B-EO-118	B-CR118	B-EI-11		B-EI-59		B-EI-107		B-EI-155	
A-EO-23	A-CR23	A-EO-119	A-CR119	B-EO-23	B-CR23	B-EO-119	B-CR119	A-EI-12	R12	A-EI-60	R60	A-EI-108	R108	A-EI-156	R156
A-EO-24	A-CR24	A-EO-120	A-CR120	B-EO-24	B-CR24	B-EO-120	B-CR120	B-EI-12		B-EI-60		B-EI-108		B-EI-156	
A-EO-25	A-CR25	A-EO-121	A-CR121	B-EO-25	B-CR25	B-EO-121	B-CR121	A-EI-13	R13	A-EI-61	R61	A-EI-109	R109	A-EI-157	R157
A-EO-26	A-CR26	A-EO-122	A-CR122	B-EO-26	B-CR26	B-EO-122	B-CR122	B-EI-13		B-EI-61		B-EI-109		B-EI-157	
A-EO-27	A-CR27	A-EO-123	A-CR123	B-EO-27	B-CR27	B-EO-123	B-CR123	A-EI-14	R14	A-EI-62	R62	A-EI-110	R110	A-EI-158	R158
A-EO-28	A-CR28	A-EO-124	A-CR124	B-EO-28	B-CR28	B-EO-124	B-CR124	B-EI-14		B-EI-62		B-EI-110		B-EI-158	
A-EO-29	A-CR29	A-EO-125	A-CR125	B-EO-29	B-CR29	B-EO-125	B-CR125	A-EI-15	R15	A-EI-63	R63	A-EI-111	R111	A-EI-159	R159
A-EO-30	A-CR30	A-EO-126	A-CR126	B-EO-30	B-CR30	B-EO-126	B-CR126	B-EI-15		B-EI-63		B-EI-111		B-EI-159	
A-EO-31	A-CR31	A-EO-127	A-CR127	B-EO-31	B-CR31	B-EO-127	B-CR127	A-EI-16	R16	A-EI-64	R64	A-EI-112	R112	A-EI-160	R160
A-EO-32	A-CR32	A-EO-128	A-CR128	B-EO-32	B-CR32	B-EO-128	B-CR128	B-EI-16		B-EI-64		B-EI-112		B-EI-160	
A-EO-33	A-CR33	A-EO-129	A-CR129	B-EO-33	B-CR33	B-EO-129	B-CR129	A-EI-17	R17	A-EI-65	R65	A-EI-113	R113	A-EI-161	R161
A-EO-34	A-CR34	A-EO-130	A-CR130	B-EO-34	B-CR34	B-EO-130	B-CR130	B-EI-17		B-EI-65		B-EI-113		B-EI-161	
A-EO-35	A-CR35	A-EO-131	A-CR131	B-EO-35	B-CR35	B-EO-131	B-CR131	A-EI-18	R18	A-EI-66	R66	A-EI-114	R114	A-EI-162	R162
A-EO-36	A-CR36	A-EO-132	A-CR132	B-EO-36	B-CR36	B-EO-132	B-CR132	B-EI-18		B-EI-66		B-EI-114		B-EI-162	
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A-EO-42	A-CR42	A-EO-138	A-CR138	B-EO-42	B-CR42	B-EO-138	B-CR138	B-EI-21		B-EI-69		B-EI-117		B-EI-165	
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A-EO-60	A-CR60	A-EO-156	A-CR156	B-EO-60	B-CR60	B-EO-156	B-CR156	B-EI-30		B-EI-78		B-EI-126		B-EI-174	
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A-EO-62	A-CR62	A-EO-158	A-CR158	B-EO-62	B-CR62	B-EO-158	B-CR158	B-EI-31		B-EI-79		B-EI-127		B-EI-175	
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A-EO-73	A-CR73	A-EO-169	A-CR169	B-EO-73	B-CR73	B-EO-169	B-CR169	A-EI-37	R37	A-EI-85	R85	A-EI-133	R133	A-EI-181	R181
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A-EO-76	A-CR76	A-EO-172	A-CR172	B-EO-76	B-CR76	B-EO-172	B-CR172	B-EI-38		B-EI-86		B-EI-134		B-EI-182	
A-EO-77	A-CR77	A-EO-173	A-CR173	B-EO-77	B-CR77	B-EO-173	B-CR173	A-EI-39	R39	A-EI-87	R87	A-EI-135	R135	A-EI-183	R183
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A-EO-80	A-CR80	A-EO-176	A-CR176	B-EO-80	B-CR80	B-EO-176	B-CR176	B-EI-40		B-EI-88		B-EI-136		B-EI-184	
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A-EO-86	A-CR86	A-EO-182	A-CR182	B-EO-86	B-CR86	B-EO-182	B-CR182	B-EI-43		B-EI-91		B-EI-139		B-EI-187	
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A-EO-88	A-CR88	A-EO-184	A-CR184	B-EO-88	B-CR88	B-EO-184	B-CR184	B-EI-44		B-EI-92		B-EI-140		B-EI-188	
A-EO-89	A-CR89	A-EO-185	A-CR185	B-EO-89	B-CR89	B-EO-185	B-CR185	A-EI-45	R45	A-EI-93	R93	A-EI-141	R141	A-EI-189	R189
A-EO-90	A-CR90	A-EO-186	A-CR186	B-EO-90	B-CR90	B-EO-186	B-CR186	B-EI-45		B-EI-93		B-EI-141		B-EI-189	
A-EO-91	A-CR91	A-EO-187	A-CR187	B-EO-91	B-CR91	B-EO-187	B-CR187	A-EI-46	R46	A-EI-94	R94	A-EI-142	R142	A-EI-190	R190
A-EO-92	A-CR92	A-EO-188	A-CR188	B-EO-92	B-CR92	B-EO-188	B-CR188	B-EI-46		B-EI-94		B-EI-142		B-EI-190	
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QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE ASSEMBLY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2003972

SCALE NONE SHEET 3 OF 3

2003972 AE

NOTICE — WHEN GOVT-USED DRAWINGS SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE USE OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

PART NO.	MODULE NO.	FIND NO. I	FIND NO. 2	MODULE DECK NO.	NEXT ASSEMBLY NO.
2003972-011	B1	2003060-061	2003061-061	0205	2021101
2003972-021	B2	2003060-071	2003061-071	0206	2021101
2003972-031	B3	2003060-081	2003061-081	0207	2021101
2003972-041	B1	2003060-121	2003061-121	0210	2021104
2003972-051	B2	2003060-131	2003061-131	0211	2021104
2003972-061	B3	2003060-141	2003061-141	0212	2021104
2003972-071	B2	2003060-151	2003061-151	0213	2021104
2003972-081	B3	2003060-161	2003061-161	0214	2021104
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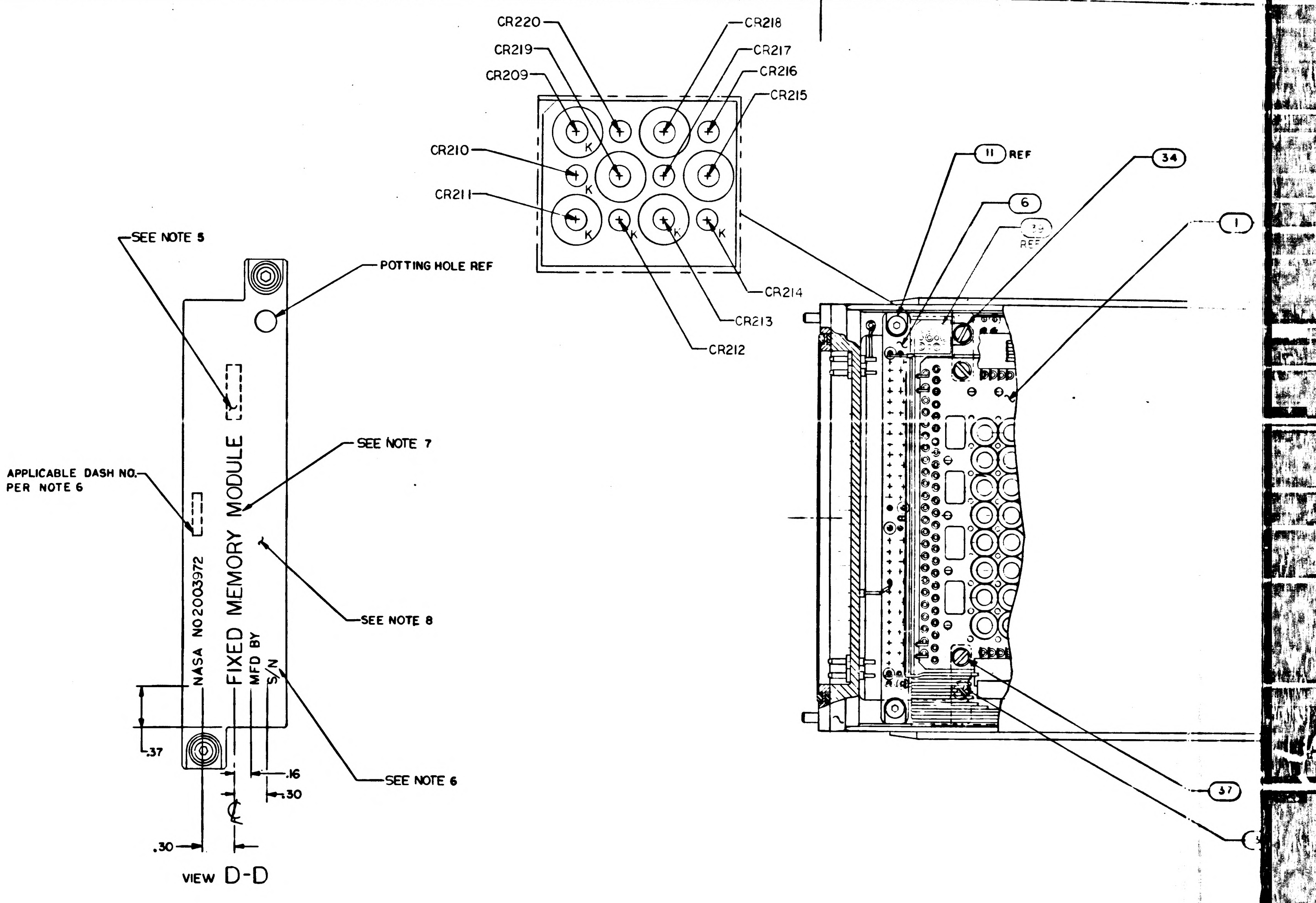
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SEE NOTE 5
POTTING HOLE REF
SEE NOTE 7
APPLICABLE DASH NO. PER NOTE 6
NASA NO 2003972
FIXED MEMORY MODULE
MFD BY
S/N
SEE NOTE 8
SEE NOTE 6
.37
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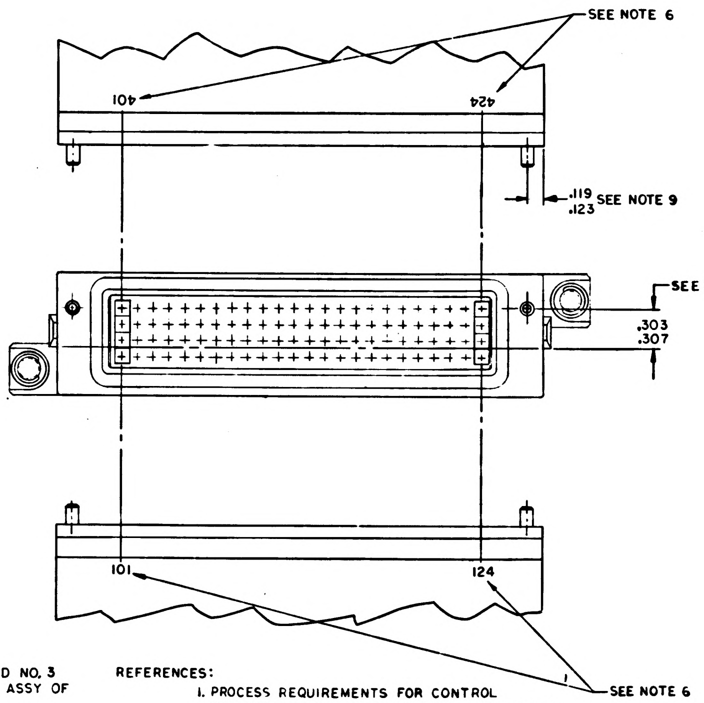
VIEW D-D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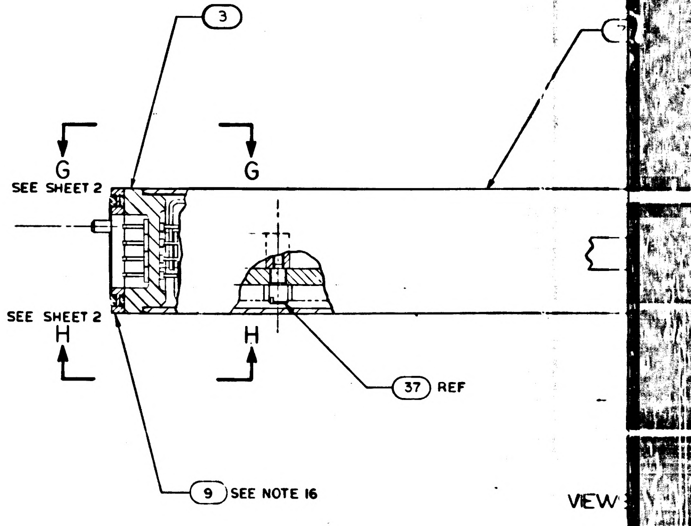
SEE NOTE 6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G
SEE SHEET 2
SEE SHEET 2
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37 REF
9 SEE NOTE 16
VIEW

NOTES:

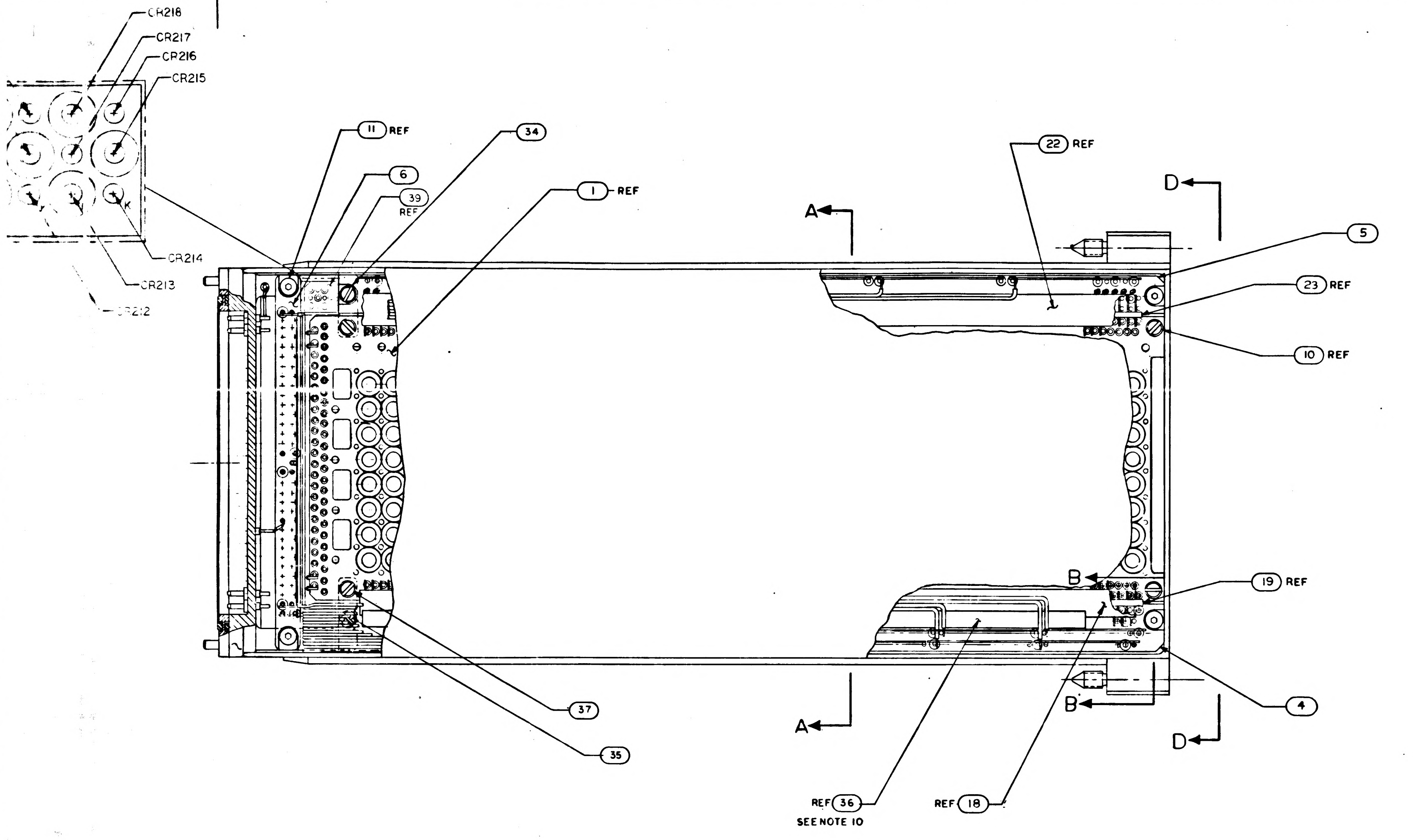
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
3. ENCAPSULATE MODULE PER ND1002226 METHOD II
4. WELD PER ND1002005
5. MARK APPROPRIATE MODULE NO. AS SHOWN IN CHART
6. MARK .08/.06 HIGH PER ND1002019 AND ND1002122, TYPE II CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
7. MARK .14/.10 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 USING INK 1006271-1
8. PAINT INDICATED SURFACES OF FIND NO 7. PER ND1002279 WITH SCD NO.1008809-1 DARK GREY EPOXY RESIN ENAMEL, FINAL COAT PER ND1002277 USING 1012543-003
9. ASSEMBLE FIND NO.7 AND FIND NO.3 TO DIMENSIONS SHOWN
10. REMOVE LINER FROM NEARSIDE OF FIND NO.36 AND ASSEMBLE 3 PLACES AS SHOWN. FIND NO.36 MUST INSULATE FLAT CABLES FROM TRIMMED COMPONENT LEADS, TRIM AS REQUIRED
11. WHITE DOT AND SINGLE SOLID LEAD DENOTES FIRST LEVEL WIRING UNLESS OTHERWISE SPECIFIED
12. BLACK DOT AND SINGLE SOLID LEAD DENOTES SECOND LEVEL WIRING
13. BLACK DOT AND CROSS HATCHED LEAD DENOTES THIRD LEVEL WIRING
14. ALL LEADS FROM FIND NO.1 AND FIND NO.2 TO FIND NO.3 TO BE THIRD LEVEL WIRING
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003972
16. FIND NO.9 TO BE SHIPPED UNASSEMBLED AND IDENTIFIED PER ND 1002019
17. SEAL PINS AND INSULATORS TO FIND NO. 3 PER ND1002004 TYPE VI BEFORE ASSY OF FIND NO. 6
18. FILL FLUSH PER ND1002255 METHOD A
19. BOND FIND NO.39 TO FIND NO.3 PER ND1002004 TYPE VI AFTER ASSY OF FIND NO.6

REFERENCES:

1. PROCESS REQUIREMENTS FOR CONTROL AND INSPECTION OF ROPE MEMORY ASSEMBLIES ND1002285
2. FIXED MEMORY FIXTURE DWG. NO.AP22500

SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL RELEASE TPRR 32991	16 Feb 67	

REVISIONS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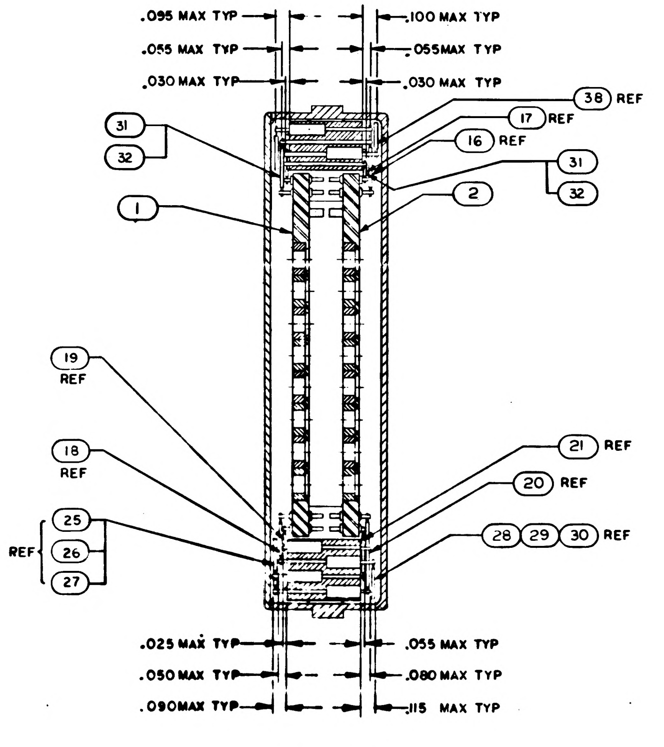
SEE NOTE 10
REF 18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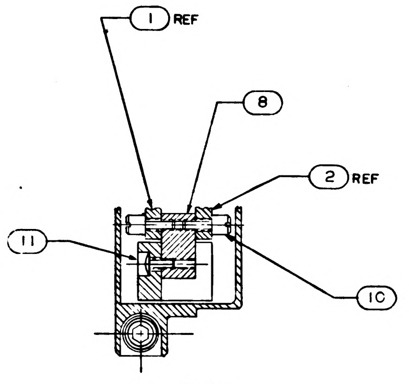
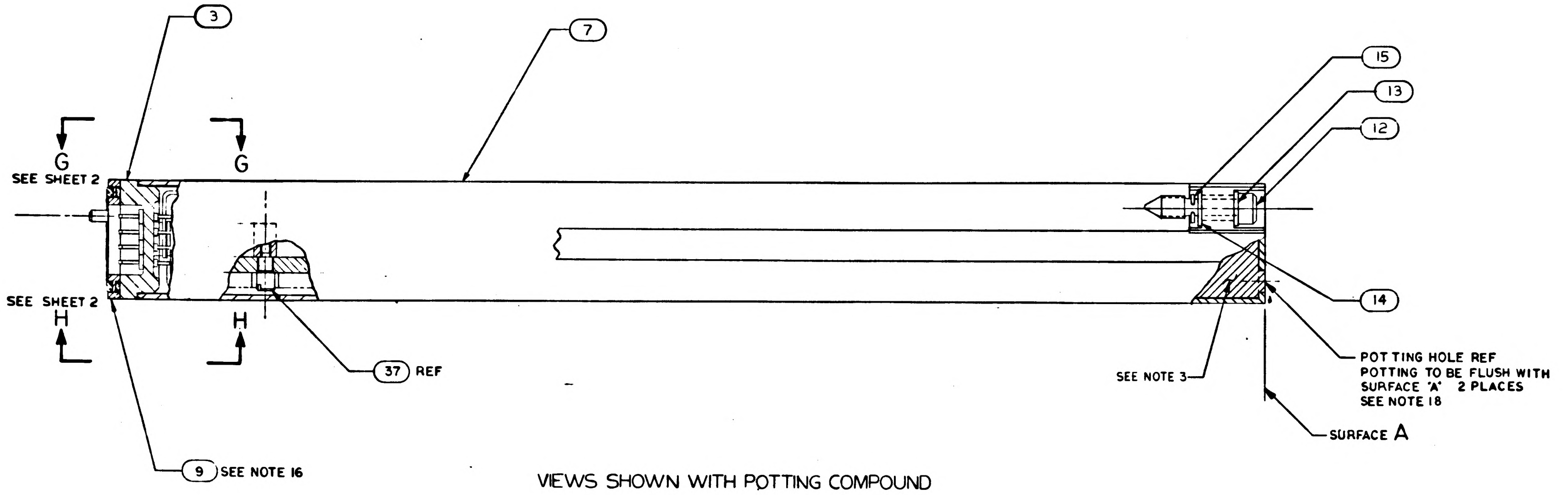
.115 MAX TYP

SECTION A-A


1 REF
8
2 REF
11
10

SECTION B-B


3
7
15
13
12
G
SEE SHEET 2
G
SEE SHEET 2
H
H
14
37 REF
9 SEE NOTE 16
SEE NOTE 3
POTTING HOLE REF
POTTING TO BE FLUSH WITH
SURFACE 'A' 2 PLACES
SEE NOTE 18
SURFACE A

VIEWS SHOWN WITH POTTING COMPOUND
PARTIALLY REMOVED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	2003986-021	COMPONENT BLOCK DIODE ASSY	39
☒	2005935	SCHEMATIC	REF
1	2004684	FLAT CABLE	38
4	2004150 — 003	SCREW, SHOULDERED	37
AR	1006806 — 26	INSULATION TAPE, ELECTRICAL	36
1	2004150 — 001	SCREW, SHOULDERED	35
1	2004150 — 002	SCREW, SHOULDERED	34
1	2004129	FLAT CABLE INTERCONNECTION	33
AR	1006776-25	SLEEVING	32
AR	1006757-12	WIRE, ELECRICAL	31
1	2004125	FLAT CABLE	30
1	2004122	FLAT CABLE	29
1	2004124	FLAT CABLE	28
1	2004123	FLAT CABLE	27
1	2004121	FLAT CABLE	26
1	2004120	FLAT CABLE	25
1	2004685	FLAT CABLE	24
1	2003051 — 013	MATRIX ASSY	23
1	2003051 — 014	MATRIX ASSY	22
8	2003051 — 016	MATRIX ASSY	21
8	2003051 — 015	MATRIX ASSY	20
1	2003051 — 017	MATRIX ASSY	19
1	2003051 — 018	MATRIX ASSY	18
1	2003051 — 011	MATRIX ASSY	17
1	2003051 — 012	MATRIX ASSY	16
2	MS16633-4015	"E" RING	15
2	1004546-3	WASHER	14
2	1004546-1	WASHER	13
2	1004579-1	SCREW, JACKING	12
4	1000093-1	SCREW, BUTTONHEAD	11
4	2004151	SCREW, STANDOFF	10
1	1006339	GASKET PLATE	9
2	2004071	STANDOFF	8
1	2004100	HOUSING	7
1	2003048-021	RESISTOR-DIODE BLOCK ASSY	6
1	2003052-021	COMPONENT BLOCK RESISTOR ASSY	5
1	2003045-021	COMPONENT BLOCK DIODE ASSY	4
1	2003973-011	CONNECTOR PLATE ASSY	3
1	2003061-SEE CHART	SENSE WIRING ASSY SIDE B	2
1	2003060-SEE CHART	SENSE WIRING ASSY SIDE A	1

SEE NOTE 16

LIST OF MATERIALS

FOR APPLICABLE PART
NO. SEE CHART

NEXT ASSY	USED ON
SEE CHART	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO
CONTRACT
DRAWN H. L. Davis DATE 8 AUG 66
CHECKED A. Kufer 12 AUG 66
APPROVAL 17 Oct 66
APPROVAL Eldon C Hall 28 Oct 66
NASA APPROVAL
CCA APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003972
SCALE 2/1
WT
SHEET 1 OF 3

[illegible]

WIRE LIST

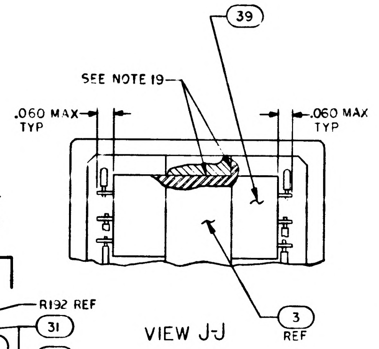
PIN NO.	COMPONENT OR TERM. NO.	PIN NO.	COMPONENT OR TERM. NO.
101	A-E1-213	301	GROUND
102	A-E1-212	302	CR209
103	A-E1-211	303	CR210
104	A-E0-211	304	CR211
105	A-E1-210	305	CR212
106	A-E1-209	306	CR213
107	A-E1-208	307	CR214
108	A-E1-207	308	A-CR208
109	A-E1-206	309	A-CR207
110	A-E1-205	310	A-CR206
111	A-E1-204	311	A-CR205
112	A-E1-203	312	A-CR204
113	A-E1-202	313	A-CR203
114	A-E1-201	314	A-CR202
115	A-E1-200	315	A-CR201
116	A-E1-199	316	A-CR200
117	A-E1-198	317	A-CR199
118	A-E1-197	318	A-CR198
119	A-E1-196	319	A-CR197
120	A-E1-195	320	A-CR196
121	A-E0-194	321	A-CR195
122	A-E1-194	322	A-CR194
123	A-E0-193	323	A-CR193
124	A-E1-193	324	SPARE
201	B-R208	401	B-E1-213
202	CR215	402	B-E1-212
203	CR216	403	B-E1-211
204	CR217	404	B-E0-211
205	CR218	405	B-E1-210
206	CR219	406	B-E1-209
207	CR220	407	B-E1-208
208	B-CR208	408	B-E1-207
209	B-CR207	409	B-E1-206
210	B-CR206	410	B-E1-205
211	B-CR205	411	B-E1-204
212	B-CR204	412	B-E1-203
213	B-CR203	413	B-E1-202
214	B-CR202	414	B-E1-201
215	B-CR201	415	B-E1-200
216	B-CR200	416	B-E1-199
217	B-CR199	417	B-E1-198
218	B-CR198	418	B-E1-197
219	B-CR197	419	B-E1-196
220	B-CR196	420	B-E1-195
221	B-CR195	421	B-E0-194
222	B-CR194	422	B-E1-194
223	B-CR193	423	B-E0-193
224	SPARE	424	B-E1-193

WIRE LIST

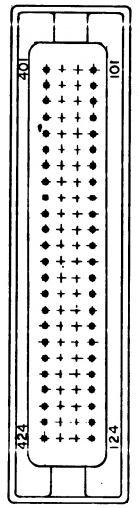
TERMINAL NO.	TERMINAL NO.
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
A-E0-195	B-E0-195
A-E0-196	B-E0-196
A-E0-197	B-E0-197
A-E0-198	B-E0-198
A-E0-199	B-E0-199
A-E0-200	B-E0-200
A-E0-201	B-E0-201
A-E0-202	B-E0-202
A-E0-203	B-E0-203
A-E0-204	B-E0-204
A-E0-205	B-E0-205
A-E0-206	B-E0-206
A-E0-207	B-E0-207
A-E0-208	B-E0-208
A-E0-209	B-E0-209
A-E0-210	B-E0-210
SPARE	SPARE
SPARE	SPARE
A-E0-212	B-E0-212
A-E0-213	B-E0-213

WIRE LIST

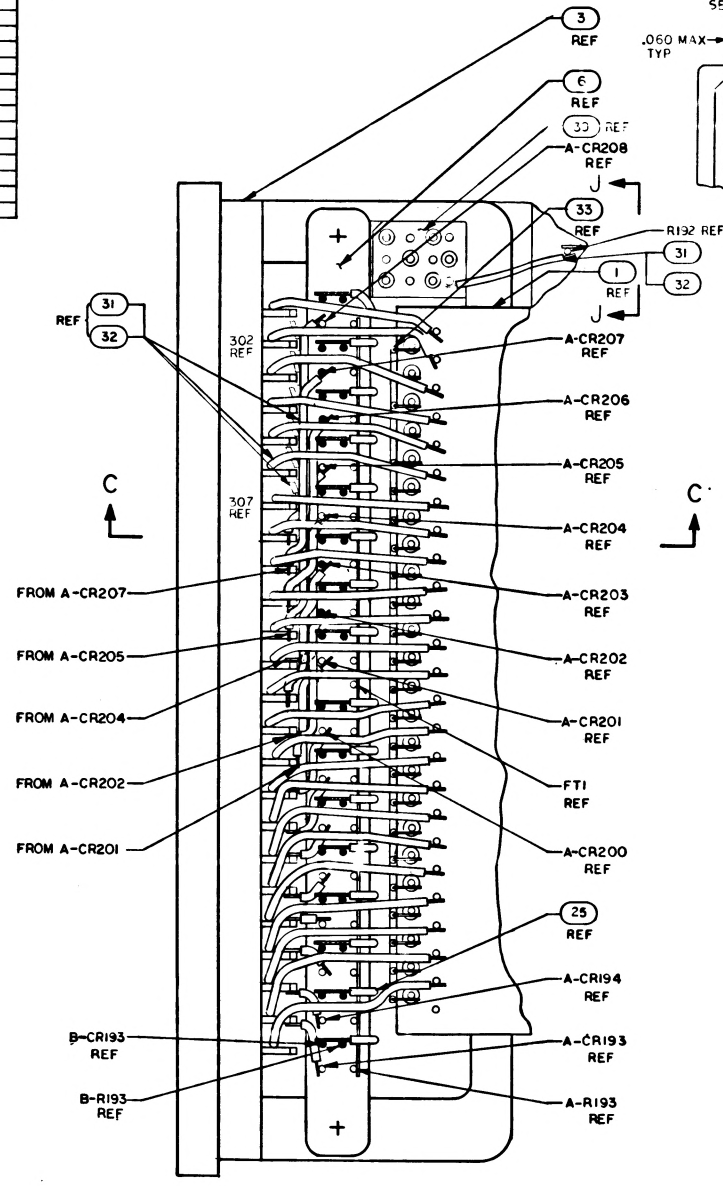
COMPONENT NO.	COMPONENT NO.
CR215	R176
CR216	R144
CR217	R112
CR218	R80
CR219	R48
CR220	R16
CR209	R32
CR210	R64
CR211	R96
CR212	R128
CR213	R160
CR214	R192


39
SEE NOTE 19
.060 MAX TYP
.060 MAX TYP
3 REF

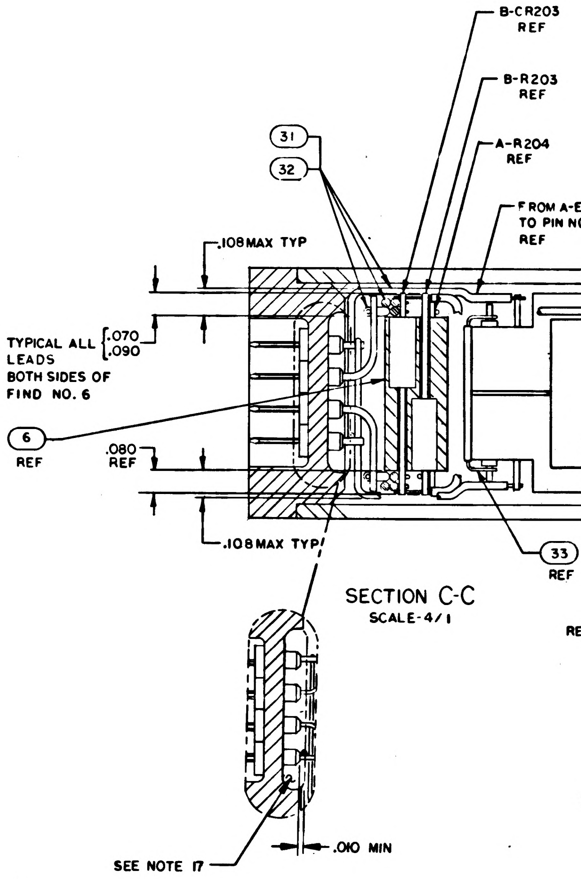
VIEW J-J


401
101
424
124

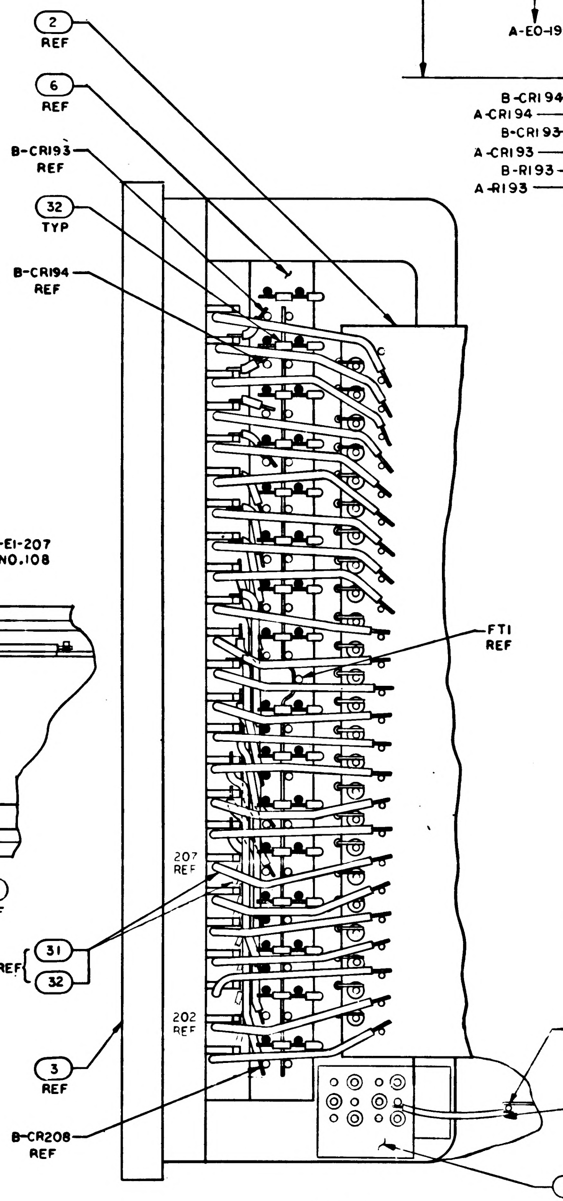
SECTION E-E


3 REF
6 REF
33 REF
A-CR208 REF
33 REF
R132 REF
31
32
1 REF
J
J
REF 31 32
302 REF
307 REF
C
C
A-CR207 REF
A-CR206 REF
A-CR205 REF
A-CR204 REF
FROM A-CR207
A-CR203 REF
FROM A-CR205
A-CR202 REF
FROM A-CR204
A-CR201 REF
FROM A-CR202
FT1 REF
FROM A-CR201
A-CR200 REF
25 REF
A-CR194 REF
B-CR193 REF
A-CR193 REF
B-R193 REF
A-R193 REF
+
+

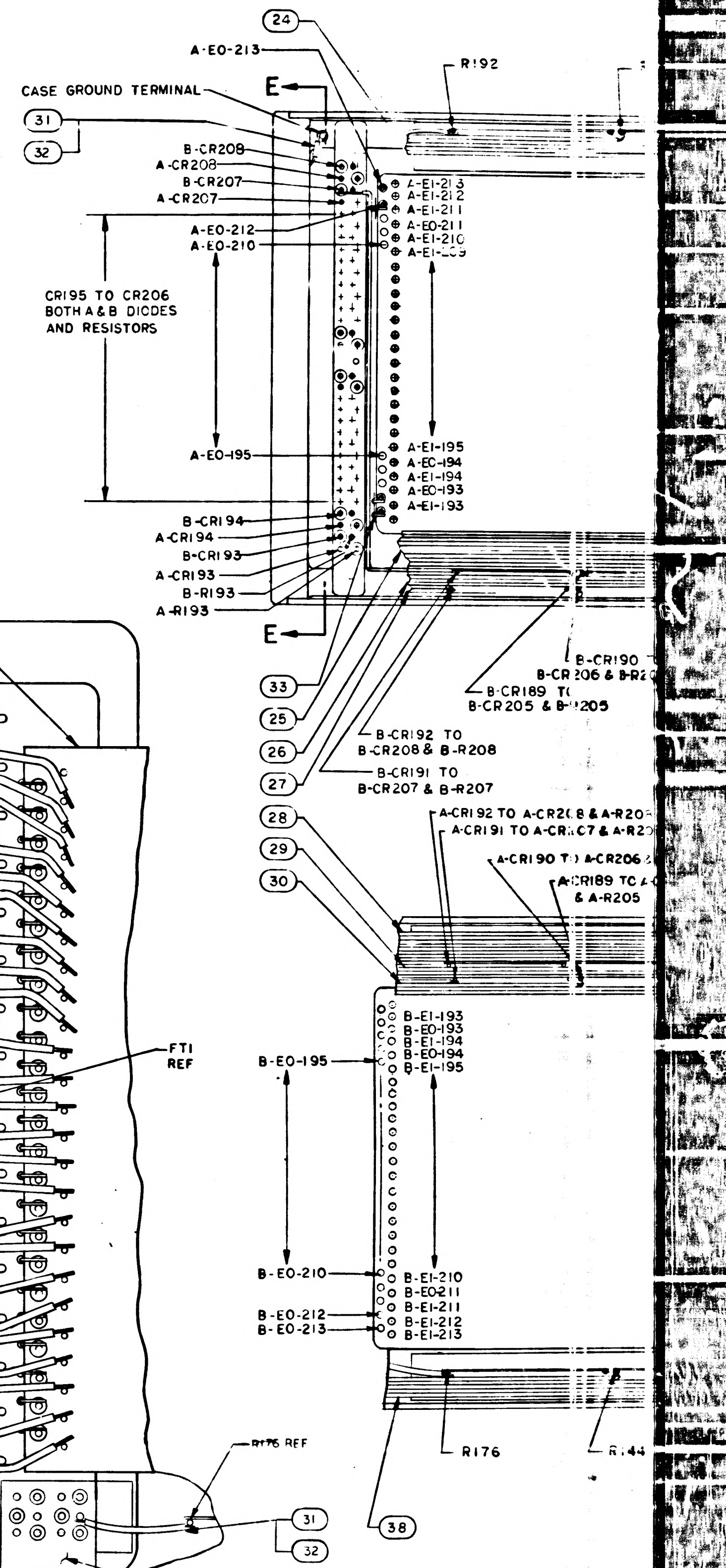
VIEW G-G
SCALE: 4/1
SHOWN WITH POTTING AND FIND NO. 7
REMOVED. SEE NOTES 11, 12, 13 AND 14


31
32
B-CR203 REF
B-R203 REF
A-R204 REF
FROM A-E1-207 TO PIN NO. 108 REF
.108 MAX TYP
TYPICAL ALL LEADS BOTH SIDES OF FIND NO. 6
.070
.090
6 REF
.080 REF
.108 MAX TYP
33 REF
SEE NOTE 17
.010 MIN

SECTION C-C
SCALE - 4/1


2 REF
6 REF
B-CR193 REF
32 TYP
B-CR194 REF
FT1 REF
207 REF
REF 31 32
202 REF
3 REF
B-CR208 REF
R176 REF
31
32
39 REF

VIEW H-H
SCALE: 4/1
SHOWN WITH POTTING AND FIND NO. 7
REMOVED. SEE NOTES 11, 12, 13 AND 14

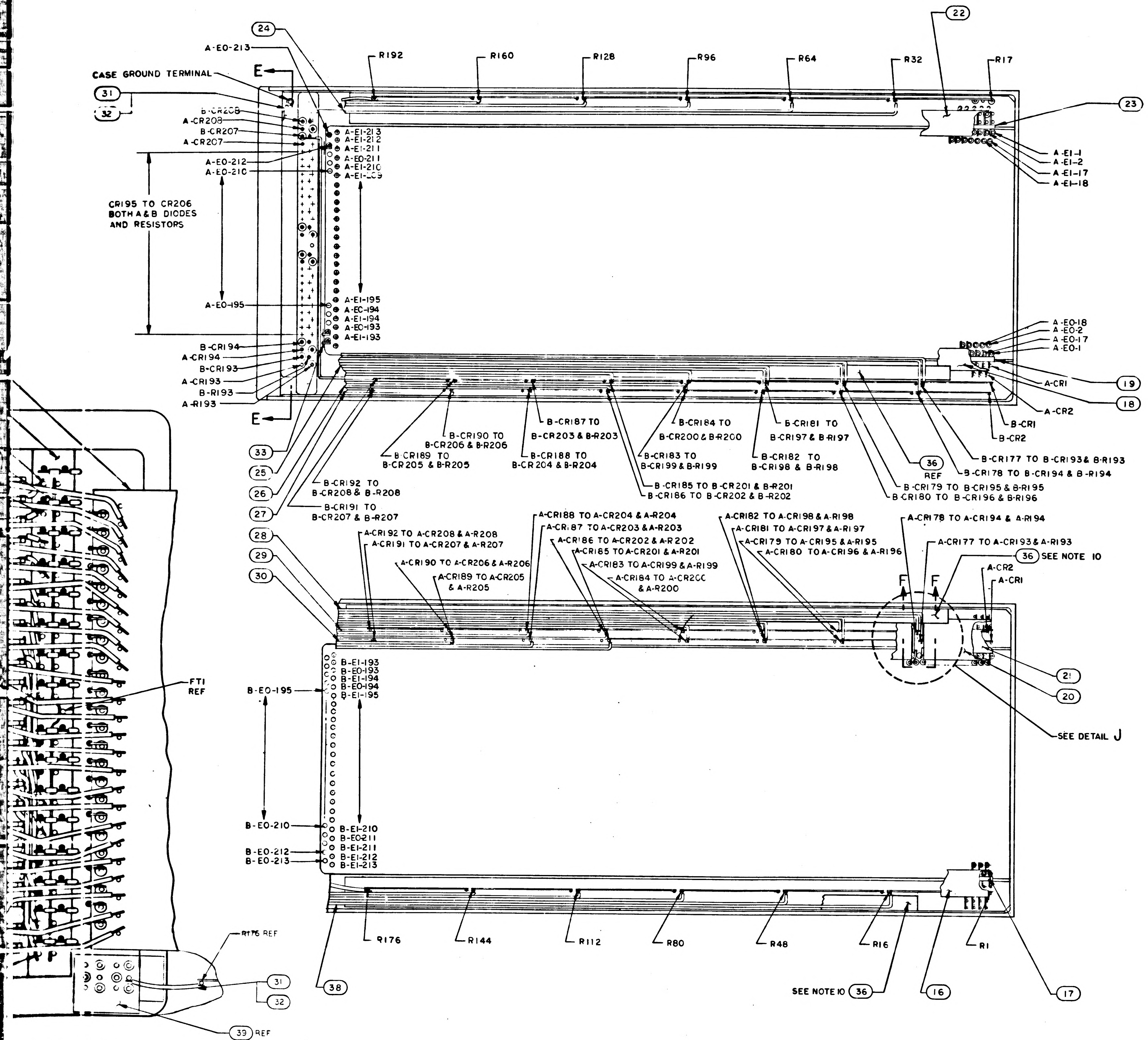

24
A-E0-213
R192
CASE GROUND TERMINAL
E
31
32
B-CR208
A-CR208
B-CR207
A-CR207
A-E1-213
A-E1-212
A-E1-211
A-E0-211
A-E1-210
A-E1-209
A-E0-212
A-E0-210
CR195 TO CR206 BOTH A & B DIODES AND RESISTORS
A-E0-195
A-E1-195
A-E0-194
A-E1-194
A-E0-193
A-E1-193
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
E
33
25
26
27
B-CR190
B-CR206 & B-R2
B-CR189 T
B-CR205 & B-R205
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
28
29
30
A-CR192 TO A-CR208 & A-R20
A-CR191 TO A-CR207 & A-R2
A-CR190 TO A-CR206
A-CR189 TO A
& A-R205
B-E1-193
B-E0-193
B-E1-194
B-E0-194
B-E1-195
B-E0-195
B-E0-210
B-E1-210
B-E0-211
B-E1-211
B-E0-212
B-E0-213
B-E1-212
B-E1-213
R176
R144
38

2003972 | A

1/2003972

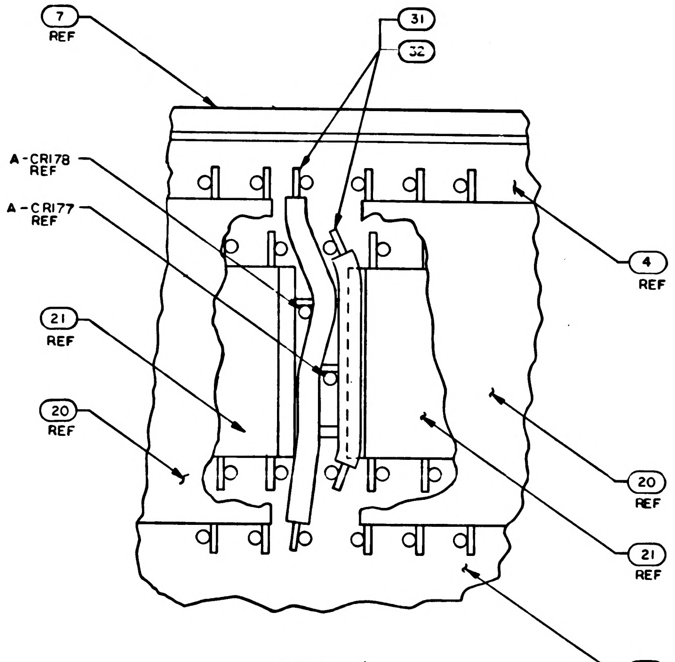
REVISIONS

SYM	ZONE	DESCRIPTION	DR.	CHK	DATE	APPROVED
A		INITIAL RELEASE TDRR 32991			16 Feb	



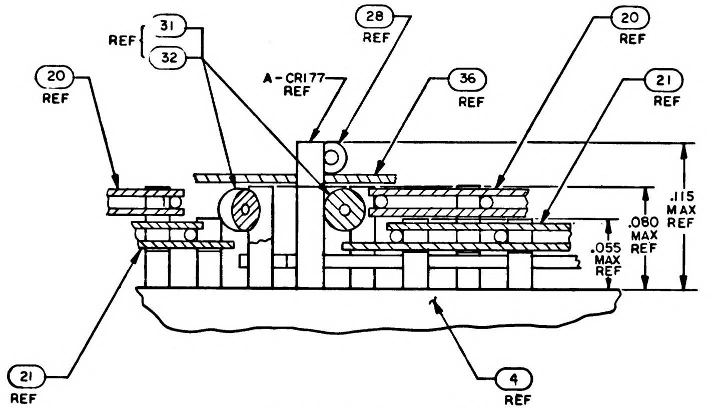
24
A-E0-213
CASE GROUND TERMINAL
E
31
32
B-CR208
A-CR208
B-CR207
A-CR207
A-E0-212
A-E0-210
CR195 TO CR206 BOTH A & B DIODES AND RESISTORS
A-E0-195
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
E
A-E1-213
A-E1-212
A-E1-211
A-E0-211
A-E1-210
A-E1-209
A-E1-195
A-E0-194
A-E1-194
A-E0-193
A-E1-193
R192
R160
R128
R96
R64
R32
R17
22
23
A-E1-1
A-E1-2
A-E1-17
A-E1-18
A-E0-18
A-E0-2
A-E0-17
A-E0-1
A-CR1
19
18
A-CR2
B-CR1
B-CR2
33
25
26
27
B-CR190 TO B-CR206 & B-R206
B-CR189 TO B-CR205 & B-R205
B-CR187 TO B-CR203 & B-R203
B-CR188 TO B-CR204 & B-R204
B-CR184 TO B-CR200 & B-R200
B-CR183 TO B-CR199 & B-R199
B-CR181 TO B-CR197 & B-R197
B-CR182 TO B-CR198 & B-R198
36 REF
B-CR177 TO B-CR193 & B-R193
B-CR178 TO B-CR194 & B-R194
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
B-CR185 TO B-CR201 & B-R201
B-CR186 TO B-CR202 & B-R202
B-CR179 TO B-CR195 & B-R195
B-CR180 TO B-CR196 & B-R196
28
29
30
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205 & A-R205
A-CR188 TO A-CR204 & A-R204
A-CR187 TO A-CR203 & A-R203
A-CR186 TO A-CR202 & A-R202
A-CR185 TO A-CR201 & A-R201
A-CR183 TO A-CR199 & A-R199
A-CR184 TO A-CR200 & A-R200
A-CR182 TO A-CR198 & A-R198
A-CR181 TO A-CR197 & A-R197
A-CR179 TO A-CR195 & A-R195
A-CR180 TO A-CR196 & A-R196
A-CR178 TO A-CR194 & A-R194
A-CR177 TO A-CR193 & A-R193
36 SEE NOTE 10
A-CR2
A-CR1
F
F
21
20
SEE DETAIL J
B-E1-193
B-E0-193
B-E1-194
B-E0-194
B-E1-195
B-E0-195
B-E0-210
B-E0-212
B-E0-213
B-E1-210
B-E0-211
B-E1-211
B-E1-212
B-E1-213
R176
R144
R112
R80
R48
R16
R1
38
SEE NOTE 10 36
16
17
FT1 REF
R176 REF
31
32
39 REF

VIEW H-H
SCALE 4/1
WITH POTTING AND FIND NO.7
SEE NOTES 11,12,13 AND 14



7 REF
31
32
4 REF
A-CR178 REF
A-CR177 REF
21 REF
20 REF
20 REF
21 REF
2 REF

DETAIL J
SCALE 10/1
TYPICAL WIRING 8 PLACES, SHOWN WITH FIND NO'S 28 AND 36 REMOVED



REF
31
32
28 REF
20 REF
20 REF
A-CR177 REF
36 REF
21 REF
.115 MAX
.080 MAX REF
.055 MAX REF
21 REF
4 REF

PARTIAL SECTION F-F
SCALE: 20/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN H. L. Davis
CHECKED
APPROVED
APPROVED Eldon C. Hall
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003972
SCALE 2/1
SHEET 2 OF 3

2003972 A

2/2003972

8 7 6 5

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

D

C

B

A

2003972 A

8 7 6 5

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		INITIAL RELEASE TDRR 32991			16 FEB 67	

WIRE LIST

TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.
A-E0-1	A-CR1	A-E0-97	A-CR97	B-E0-1	B-CR1	B-E0-97	B-CR97	A-E1-1	R1	A-E1-49	R49	A-E1-97	R97	A-E1-145	R145
A-E0-2	A-CR2	A-E0-98	A-CR98	B-E0-2	B-CR2	B-E0-98	B-CR98	B-E1-1		B-E1-49		B-E1-97		B-E1-145	
A-E0-3	A-CR3	A-E0-99	A-CR99	B-E0-3	B-CR3	B-E0-99	B-CR99	A-E1-2	R2	A-E1-50	R50	A-E1-98	R98	A-E1-146	R146
A-E0-4	A-CR4	A-E0-100	A-CR100	B-E0-4	B-CR4	B-E0-100	B-CR100	B-E1-2		B-E1-50		B-E1-98		B-E1-146	
A-E0-5	A-CR5	A-E0-101	A-CR101	B-E0-5	B-CR5	B-E0-101	B-CR101	A-E1-3	R3	A-E1-51	R51	A-E1-99	R99	A-E1-147	R147
A-E0-6	A-CR6	A-E0-102	A-CR102	B-E0-6	B-CR6	B-E0-102	B-CR102	B-E1-3		B-E1-51		B-E1-99		B-E1-147	
A-E0-7	A-CR7	A-E0-103	A-CR103	B-E0-7	B-CR7	B-E0-103	B-CR103	A-E1-4	R4	A-E1-52	R52	A-E1-100	R100	A-E1-148	R148
A-E0-8	A-CR8	A-E0-104	A-CR104	B-E0-8	B-CR8	B-E0-104	B-CR104	B-E1-4		B-E1-52		B-E1-100		B-E1-148	
A-E0-9	A-CR9	A-E0-105	A-CR105	B-E0-9	B-CR9	B-E0-105	B-CR105	A-E1-5	R5	A-E1-53	R53	A-E1-101	R101	A-E1-149	R149
A-E0-10	A-CR10	A-E0-106	A-CR106	B-E0-10	B-CR10	B-E0-106	B-CR106	B-E1-5		B-E1-53		B-E1-101		B-E1-149	
A-E0-11	A-CR11	A-E0-107	A-CR107	B-E0-11	B-CR11	B-E0-107	B-CR107	A-E1-6	R6	A-E1-54	R54	A-E1-102	R102	A-E1-150	R150
A-E0-12	A-CR12	A-E0-108	A-CR108	B-E0-12	B-CR12	B-E0-108	B-CR108	B-E1-6		B-E1-54		B-E1-102		B-E1-150	
A-E0-13	A-CR13	A-E0-109	A-CR109	B-E0-13	B-CR13	B-E0-109	B-CR109	A-E1-7	R7	A-E1-55	R55	A-E1-103	R103	A-E1-151	R151
A-E0-14	A-CR14	A-E0-110	A-CR110	B-E0-14	B-CR14	B-E0-110	B-CR110	B-E1-7		B-E1-55		B-E1-103		B-E1-151	
A-E0-15	A-CR15	A-E0-111	A-CR111	B-E0-15	B-CR15	B-E0-111	B-CR111	A-E1-8	R8	A-E1-56	R56	A-E1-104	R104	A-E1-152	R152
A-E0-16	A-CR16	A-E0-112	A-CR112	B-E0-16	B-CR16	B-E0-112	B-CR112	B-E1-8		B-E1-56		B-E1-104		B-E1-152	
A-E0-17	A-CR17	A-E0-113	A-CR113	B-E0-17	B-CR17	B-E0-113	B-CR113	A-E1-9	R9	A-E1-57	R57	A-E1-105	R105	A-E1-153	R153
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A-E0-22	A-CR22	A-E0-118	A-CR118	B-E0-22	B-CR22	B-E0-118	B-CR118	B-E1-11		B-E1-59		B-E1-107		B-E1-155	
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A-E0-77	A-CR77	A-E0-173	A-CR173	B-E0-77	B-CR77	B-E0-173	B-CR173	A-E1-39	R39	A-E1-87	R87	A-E1-135	R135	A-E1-183	R183
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A-E0-88	A-CR88	A-E0-184	A-CR184	B-E0-88	B-CR88	B-E0-184	B-CR184	B-E1-44		B-E1-92		B-E1-140		B-E1-188	
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QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN	H. L. Davis	8 AUG 66
CHECKED	A. Kupfer	12 AUG 66
APPROVED		
APPROVED	Eldon C. Hall	24 Oct 66
APPROVED CCB		
APPROVED MSC	A. Cohen	
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE ASSEMBLY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2003972
SCALE NONE		SHEET 3 OF 3

2003972 A

2/2003972

APOLLO G&N Specification
PS 2003972 Rev A
Original Issue Date: 2-16-67
Release Authority: TDRR 32994
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

FIXED MEMORY MODULE B1 -B6 ASSEMBLY

DRAWING NO. 2003972

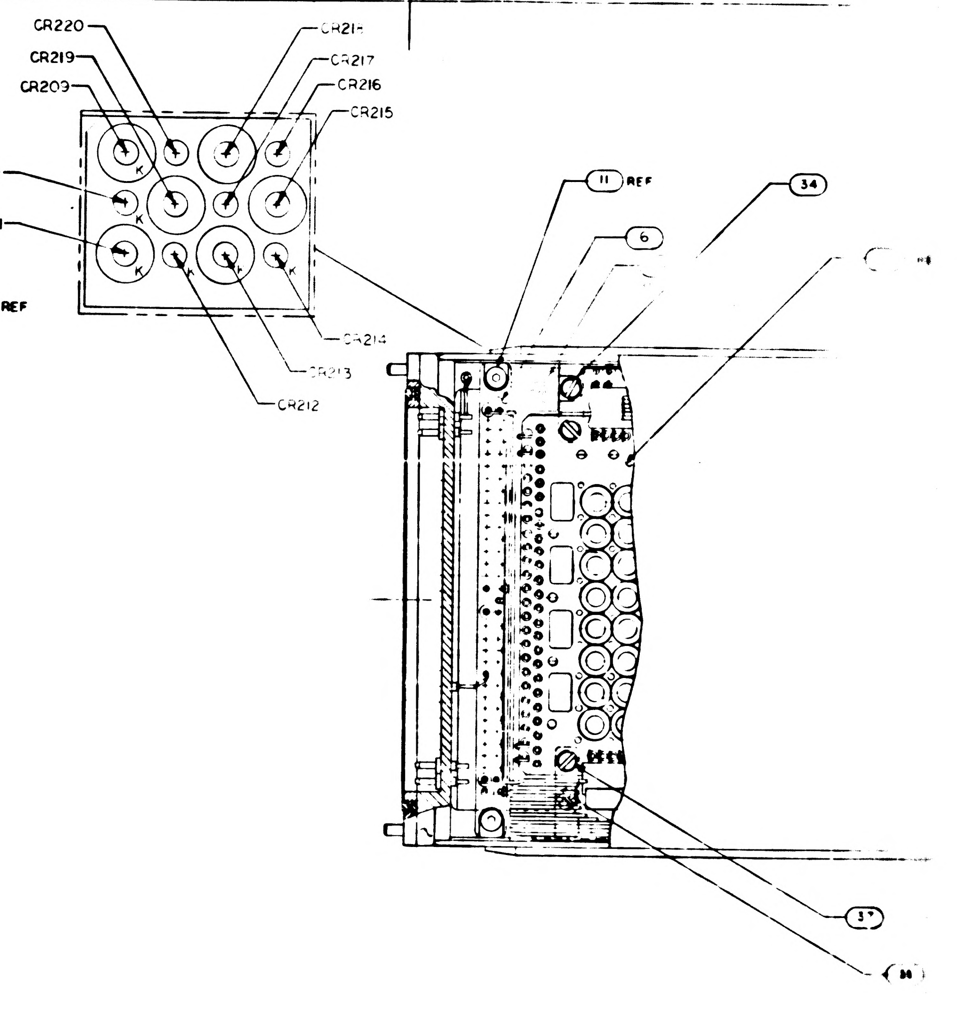
Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
4/13/67	A	33609	1, 8, 16	WMS FL	WMS FM

This specification consists of pages 1 to 21 inclusive.

APPROVALS	NASA/MSC	MIT/IL	RAY
		E C Hall 11/8/64 W E Stameris 8 Dec 66	W J Flaherty 11-7-66 D.W. Lindher 11/7/66 BC Dutch 11/4/66

PART NO.	MODULE NO.	FIND NO. 1	FIND NO. 2	MODULE DECK NO.	NEXT ASSEMBLY NO.
2003972-011	B1	2003060-061	2003061-061	0205	2021101
2003972-021	B2	2003060-071	2003061-071	0206	2021101
2003972-031	B3	2003060-081	2003061-081	0207	2021101
2003972-041	B1	2003060-121	2003061-121	0210	2021104
2003972-051	B2	2003060-131	2003061-131	0211	2021104
2003972-061	B3	2003060-141	2003061-141	0212	2021104
2003972-071	B2	2003060-151	2003061-151	0213	2021104
2003972-081	B3	2003060-161	2003061-161	0214	2021104
2003972-091	B2	2003060-171	2003061-171	0215	2021101
2003972-111	B3	2003060-181	2003061-181	0216	2021101
2003972-121	B1	2003060-091	2003061-091	0208	2021105
2003972-131	B2	2003060-111	2003061-111	0209	2021105
2003972-141	B	2003060-191	2003061-191	0217	2021106-011
2003972-151	B2	2003060-211	2003061-211	0218	2021106-011
2003972-161	B3	2003060-221	2003061-221	0219	2021106-011
2003972-171	B4	2003060-231	2003061-231	0220	2021106-011
2003972-181	B5	2003060-241	2003061-241	0221	2021106-011
2003972-191	B6	2003060-251	2003061-251	0222	2021106-011
2003972-211	B3	2003060-261	2003061-261	0223	2021104-041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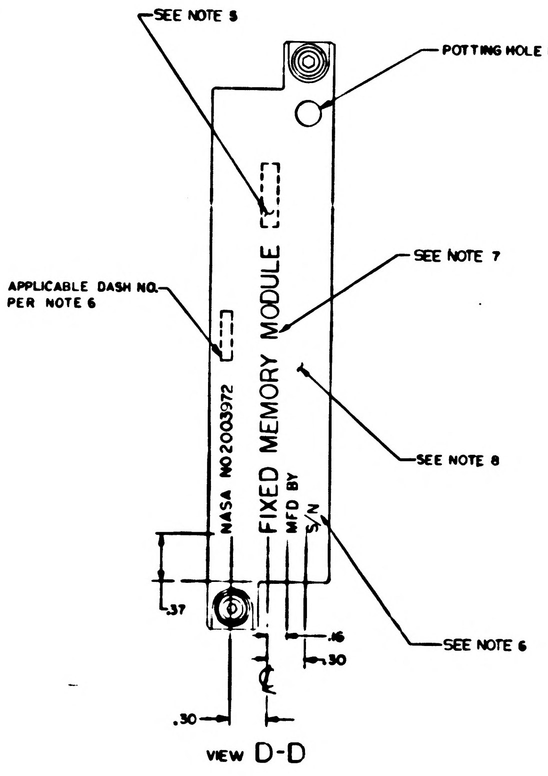
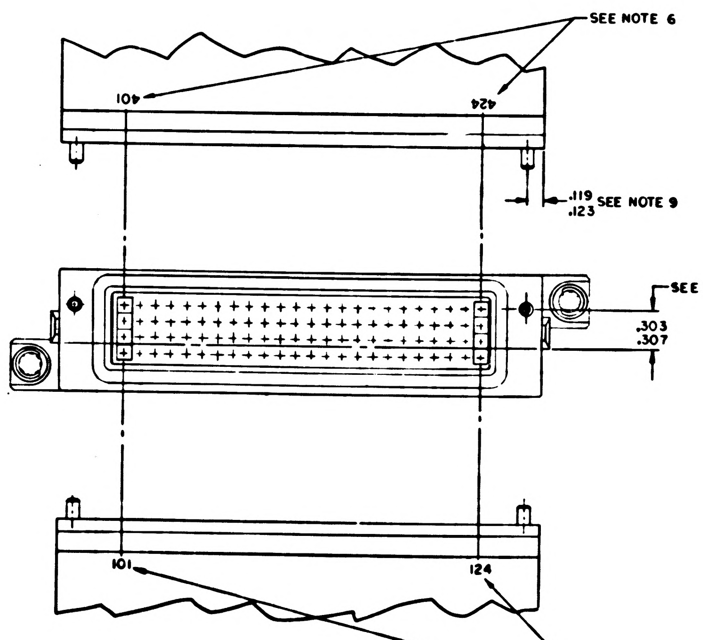
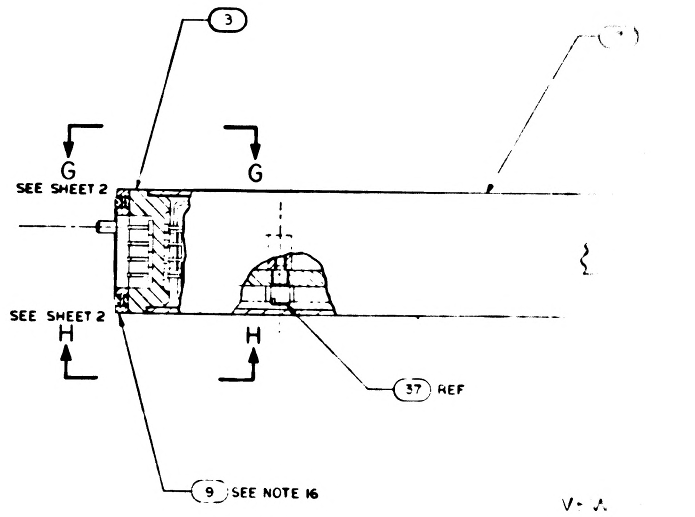
11 REF
34
6
37
14


SEE NOTE 5
POTTING HOLE REF
SEE NOTE 7
APPLICABLE DASH NO. PER NOTE 6
SEE NOTE 8
NASA NO 2003972
FIXED MEMORY MODULE
MFD BY
S/N
SEE NOTE 6
.37
.16
.30
.30
℄

VIEW D-D


SEE NOTE 6
101
124
.119
.123
SEE NOTE 9
SEE NOTE 9
.303
.307
101
124
SEE NOTE 6


3
G
G
SEE SHEET 2
SEE SHEET 2
H
H
37 REF
9
SEE NOTE 16
V-A

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
3. ENCAPSULATE MODULE PER ND1002226 METHOD II
4. WELD PER ND1002005
5. MARK APPROPRIATE MODULE NO. AS SHOWN IN CHART
6. MARK .08/.06 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
7. MARK .14/.10 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 USING INK 1006271-1
8. PAINT INDICATED SURFACES OF FIND NO 7. PER ND1002279 WITH SCD NO.1008809-1 DARK GREY EPOXY RESIN ENAMEL, FINAL COAT PER ND1002277 USING 1012543-003
9. ASSEMBLE FIND NO.7 AND FIND NO.3 TO DIMENSIONS SHOWN
10. REMOVE LINER FROM NEARSIDE OF FIND NO.36 AND ASSEMBLE 3 PLACES AS SHOWN. FIND NO.36 MUST INSULATE FLAT CABLES FROM TRIMMED COMPONENT LEADS . TRIM AS REQUIRED
11. WHITE DOT AND SINGLE SOLID LEAD DENOTES FIRST LEVEL WIRING UNLESS OTHERWISE SPECIFIED
12. BLACK DOT AND SINGLE SOLID LEAD DENOTES SECOND LEVEL WIRING
13. BLACK DOT AND CROSS HATCHED LEAD DENOTES THIRD LEVEL WIRING
14. ALL LEADS FROM FIND NO.1 AND FIND NO.2 TO FIND NO.3 TO BE THIRD LEVEL WIRING
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003972. FOR-121 & -131 CONFIGURATIONS USE PS 2003960
16. FIND NO.9 TO BE SHIPPED UNASSEMBLED AND IDENTIFIED PER ND 1002019
17. SEAL PINS AND INSULATORS TO FIND NO. 3 PER ND1002004 TYPE VI BEFORE ASSY OF FIND NO. 6
18. FILL AS SHOWN PER ND1002255 METHOD A
19. BOND FIND NO.39 TO FIND NO.3 PER ND1002004 TYPE VI AFTER ASSY OF FIND NO.6

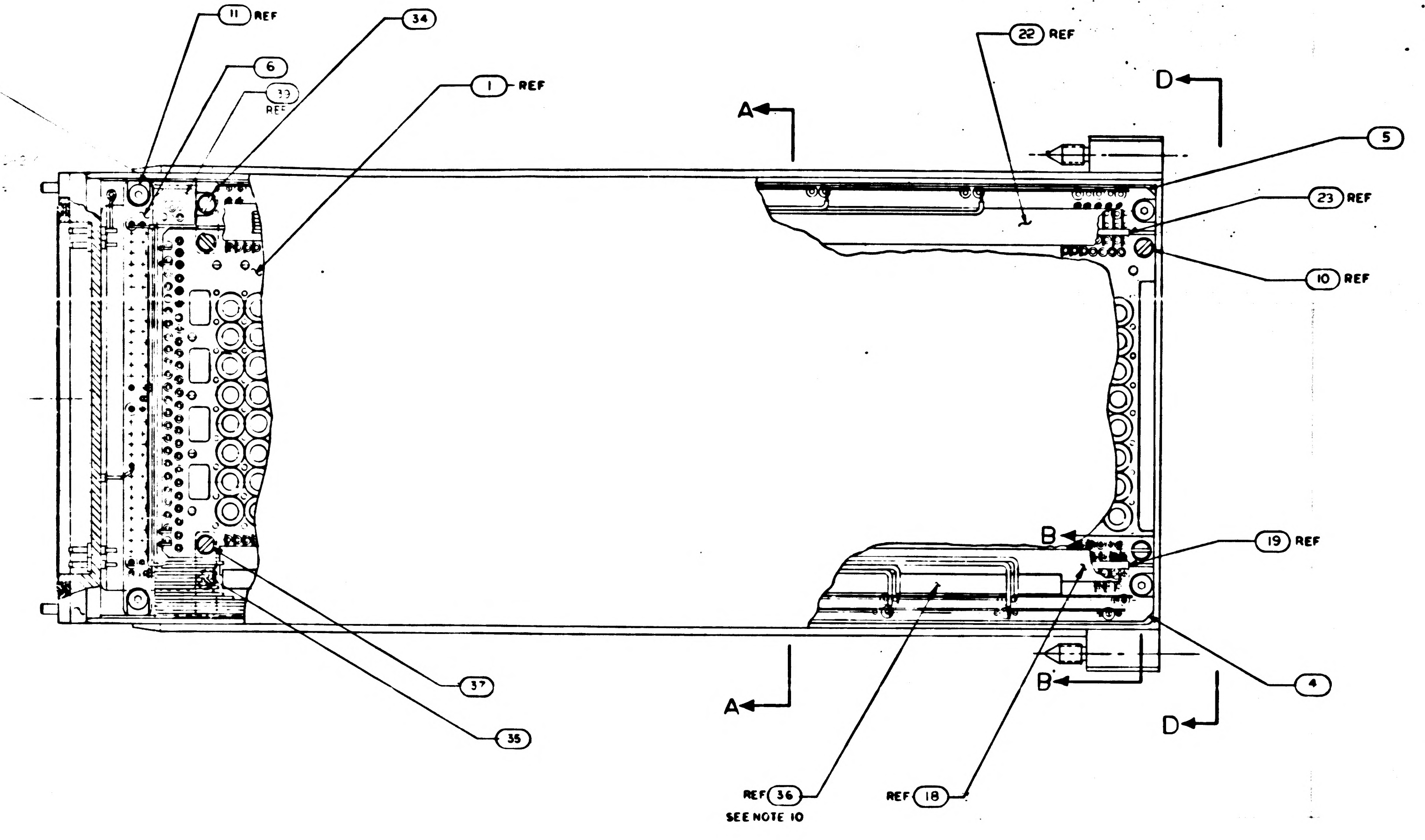
REFERENCES:

1. PROCESS REQUIREMENTS FOR CONTROL AND INSPECTION OF ROPE MEMORY ASSEMBLIES ND1002285
2. FIXED MEMORY FIXTURE DWG. NO. AP22500

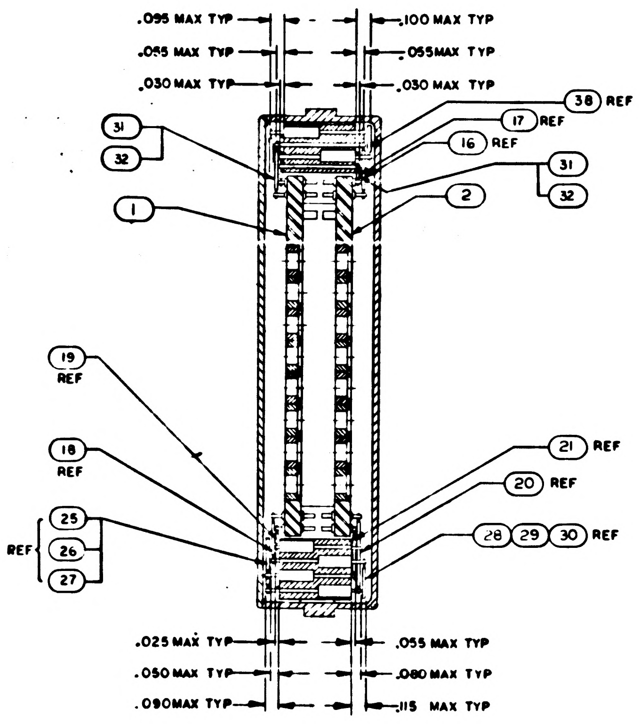
2003972 B

SH 1/3 F 1/2

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL RELEASE TDRR 31991	[illegible]	[illegible]
B	REVISED PER TDRR 33460 DR [illegible] CHK [illegible]	[illegible]	[illegible]

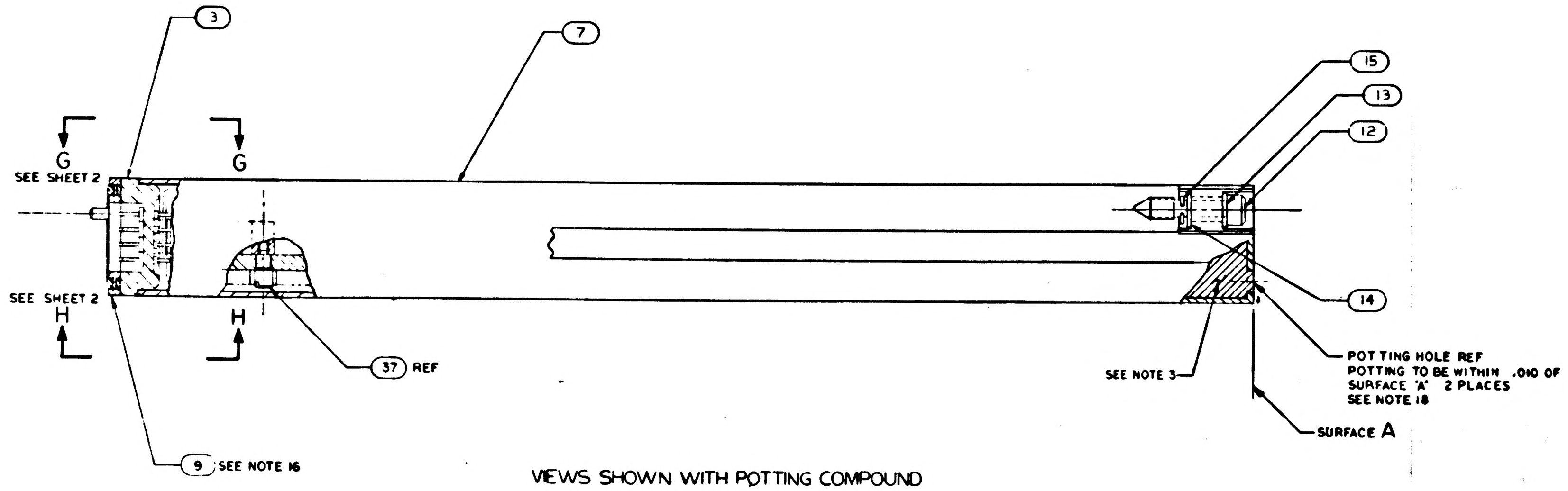


11 REF
34
6
33 REF
1 REF
22 REF
D
A
5
23 REF
10 REF
B
19 REF
B
A
D
37
35
4
REF 36
SEE NOTE 10
REF 18



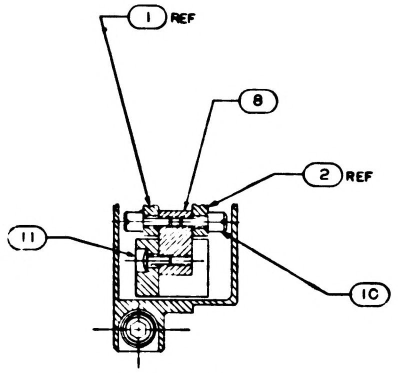
.095 MAX TYP
.065 MAX TYP
.030 MAX TYP
.100 MAX TYP
.055 MAX TYP
.030 MAX TYP
38 REF
17 REF
16 REF
31
32
31
32
1
2
19 REF
18 REF
21 REF
20 REF
25
26
27
REF
28 29 30 REF
.025 MAX TYP
.050 MAX TYP
.090 MAX TYP
.055 MAX TYP
.080 MAX TYP
.115 MAX TYP

SECTION A-A



3
7
G
SEE SHEET 2
G
SEE SHEET 2
H
H
15
13
12
14
37 REF
SEE NOTE 3
POTTING HOLE REF
POTTING TO BE WITHIN .010 OF SURFACE 'A' 2 PLACES
SEE NOTE 18
SURFACE A
9 SEE NOTE 16

VIEWS SHOWN WITH POTTING COMPOUND PARTIALLY REMOVED



1 REF
8
2 REF
11
10

SECTION B-B

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
1	2003986-021	COMPONENT BLOCK DIODE ASSY	[illegible]
☒	2005935	SCHEMATIC	REF
1	2004684	FLAT CABLE	38
4	2004150 — 003	SCREW, SHOULDERED	37
AR	1006806 — 26	INSULATION TAPE, ELECTRICAL	36
1	2004150 — 001	SCREW, SHOULDERED	35
1	2004150 — 002	SCREW, SHOULDERED	34
1	2004129	FLAT CABLE INTERCONNECTION	33
AR	1006776-25	SLEEVING	32
AR	1006757-12	WIRE, ELECRICAL	31
1	2004125	FLAT CABLE	30
1	2004122	FLAT CABLE	29
1	2004124	FLAT CABLE	28
1	2004123	FLAT CABLE	27
1	2004121	FLAT CABLE	26
1	2004120	FLAT CABLE	25
1	2004685	FLAT CABLE	24
1	2003051 — 013	MATRIX ASSY	23
1	2003051 — 014	MATRIX ASSY	22
8	2003051 — 016	MATRIX ASSY	21
8	2003051 — 015	MATRIX ASSY	20
1	2003051 — 017	MATRIX ASSY	19
1	2003051 — 018	MATRIX ASSY	18
1	2003051 — 011	MATRIX ASSY	17
1	2003051 — 012	MATRIX ASSY	16
2	MS16633 4015	E RING	15
2	1004546-3	WASHER	14
2	1004546-1	WASHER	13
2	1004579-1	SCREW, JACKING	12
4	1000C93-1	SCREW, BUTTONHEAD	11
4	2004151	SCREW, STANDOFF	10
1	1006339	GASKET PLATE	9
2	2004071	STANDOFF	8
1	2004100	HOUSING	7
1	2003048-021	RESISTOR-DIODE BLOCK ASSY	6
1	2003052-021	COMPONENT BLOCK RESISTOR ASSY	5
1	2003045-021	COMPONENT BLOCK DIODE ASSY	4
1	2003973-011	CONNECTOR PLATE ASSY	3
1	2003061-SEE CHART	SENSE WIRING ASSY SIDE B	2
1	2003060-SEE CHART	SENSE WIRING ASSY SIDE A	1

LIST OF MATERIALS

SEE NOTE 16

FOR APPLICABLE PART NO. SEE CHART

SEE CHART	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN [illegible] DATE [illegible]
CHECKED [illegible]
APPROVAL [illegible] 1964
APPROVAL [illegible]
NASA APPROVAL [illegible]
CCD APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE ASSEMBLY

CODE IDENT NO 80230 SIZE J NASA DRAWING NO 2003972
SCALE 2/1 WT SHEET 1 OF 3

2003972 B

E 2/42

WIRE LIST

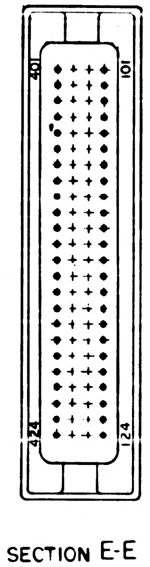
PIN NO.	COMPONENT OR TERM. NO.	PIN NO.	COMPONENT OR TERM. NO.
101	A-E1-213	301	GROUND
102	A-E1-212	302	CR209
103	A-E1-211	303	CR210
104	A-E0-211	304	CR211
105	A-E1-210	305	CR212
106	A-E1-209	306	CR213
107	A-E1-208	307	CR214
108	A-E1-207	308	A-CR208
109	A-E1-206	309	A-CR207
110	A-E1-205	310	A-CR206
111	A-E1-204	311	A-CR205
112	A-E1-203	312	A-CR204
113	A-E1-202	313	A-CR203
114	A-E1-201	314	A-CR202
115	A-E1-200	315	A-CR201
116	A-E1-199	316	A-CR200
117	A-E1-198	317	A-CR199
118	A-E1-197	318	A-CR198
119	A-E1-196	319	A-CR197
120	A-E1-195	320	A-CR196
121	A-E0-194	321	A-CR195
122	A-E1-194	322	A-CR194
123	A-E0-193	323	A-CR193
124	A-E1-193	324	SPARE
201	B-R208	401	B-E1-213
202	CR215	402	B-E1-212
203	CR216	403	B-E1-211
204	CR217	404	B-E0-211
205	CR218	405	B-E1-210
206	CR219	406	B-E1-209
207	[illegible]	407	B-E1-208
208	B-CR208	408	B-E1-207
209	B-CR207	409	B-E1-206
210	B-CR206	410	B-E1-205
211	B-CR205	411	B-E1-204
212	B-CR204	412	B-E1-203
213	B-CR203	413	B-E1-202
214	B-CR202	414	B-E1-201
215	B-CR201	415	B-E1-200
216	B-CR200	416	B-E1-199
217	B-CR199	417	B-E1-198
218	B-CR198	418	B-E1-197
219	B-CR197	419	B-E1-196
220	B-CR196	420	B-E1-195
221	B-CR195	421	B-E0-194
222	B-CR194	422	B-E1-194
223	B-CR193	423	B-E0-193
224	SPARE	424	B-E1-193

WIRE LIST

TERMINAL NO.	TERMINAL NO.
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
A-E0-195	B-E0-195
A-E0-196	B-E0-196
A-E0-197	B-E0-197
A-E0-198	B-E0-198
A-E0-199	B-E0-199
A-E0-200	B-E0-200
A-E0-201	B-E0-201
A-E0-202	B-E0-202
A-E0-203	B-E0-203
A-E0-204	B-E0-204
A-E0-205	B-E0-205
A-E0-206	B-E0-206
A-E0-207	B-E0-207
A-E0-208	B-E0-208
A-E0-209	B-E0-209
A-E0-210	B-E0-210
SPARE	SPARE
SPARE	SPARE
A-E0-212	B-E0-212
A-E0-213	B-E0-213

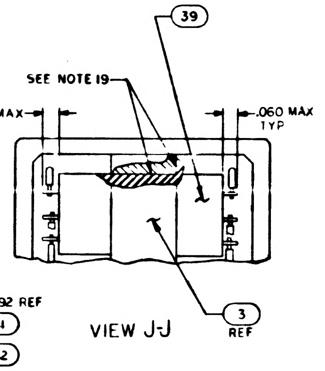
WIRE LIST

COMPONENT NO.	COMPONENT NO.
CR215	R176
CR216	R144
CR217	R112
CR218	R80
CR219	R48
CR220	R16
CR209	R32
CR210	R64
CR211	R96
CR212	R128
CR213	R160
CR214	R192



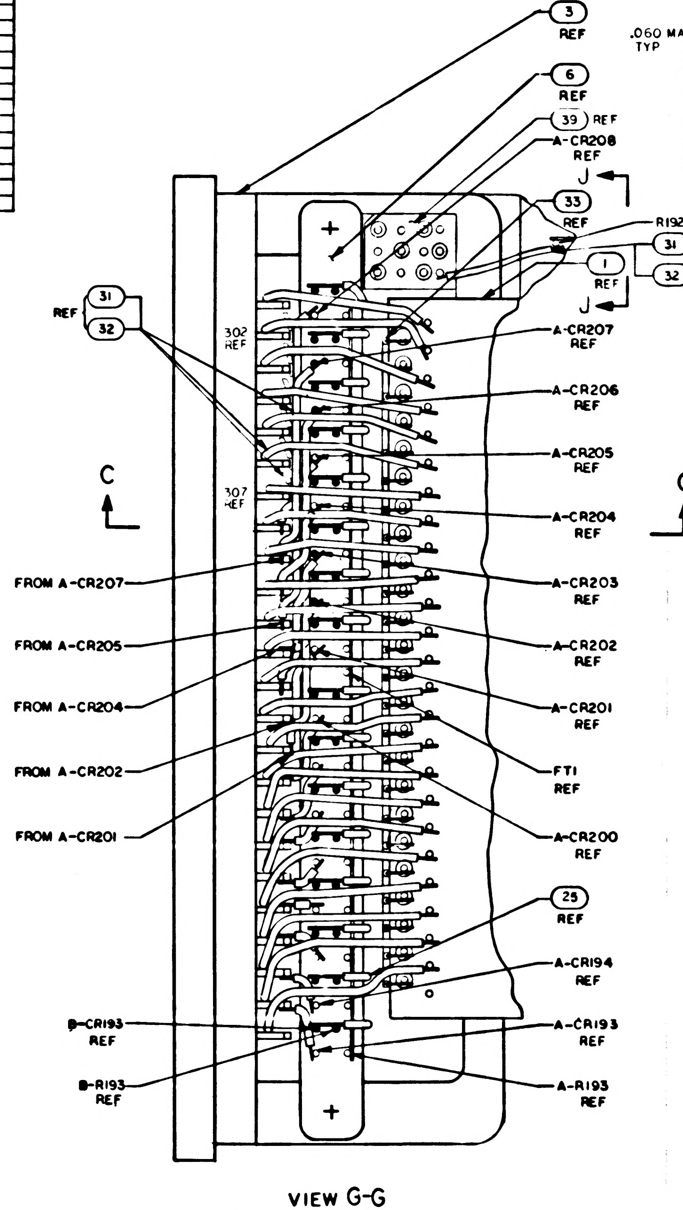
401
101
424
124

SECTION E-E



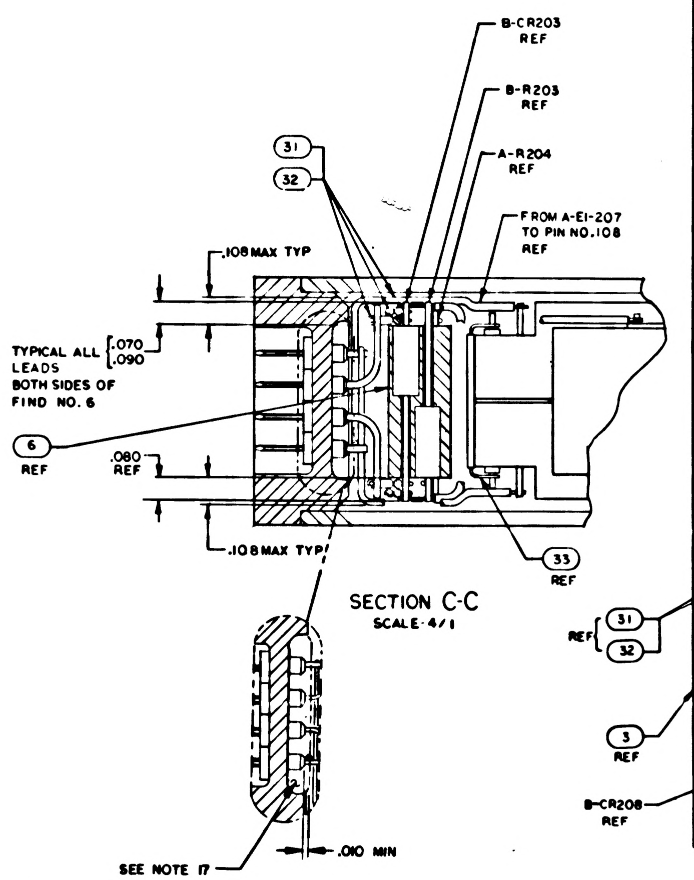
39
SEE NOTE 19
.060 MAX TYP
.060 MAX TYP
3 REF

VIEW J-J



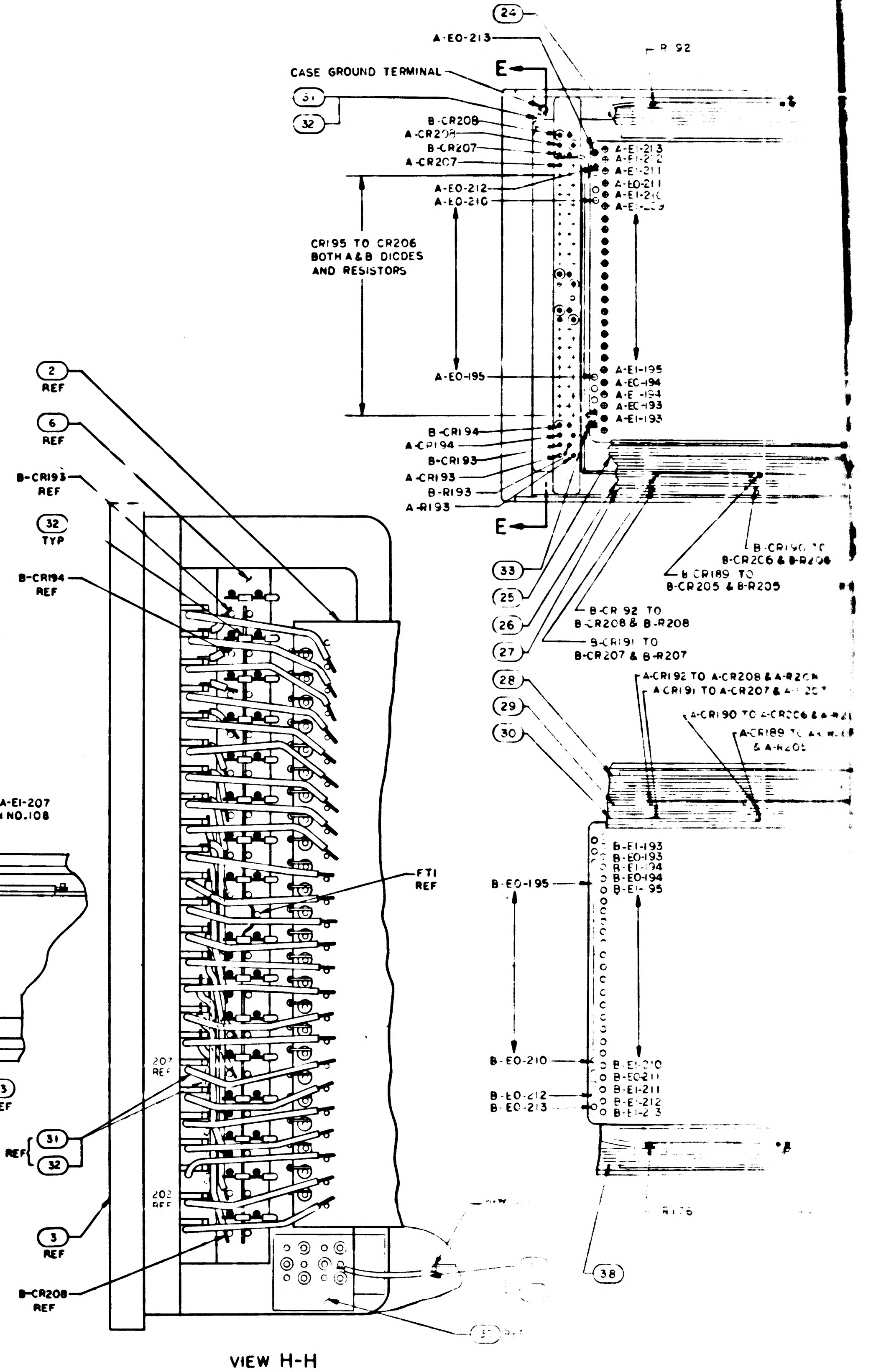
3 REF
6 REF
39 REF
A-CR208 REF
J
33 REF
R192 REF
31
32
1 REF
J
REF 31 32
302 REF
307 REF
A-CR207 REF
A-CR206 REF
A-CR205 REF
C
C
A-CR204 REF
FROM A-CR207
A-CR203 REF
FROM A-CR205
A-CR202 REF
FROM A-CR204
A-CR201 REF
FROM A-CR202
FT1 REF
FROM A-CR201
A-CR200 REF
25 REF
A-CR194 REF
B-CR193 REF
A-CR193 REF
B-R193 REF
A-R193 REF

VIEW G-G
SCALE 4/1
SHOWN WITH POTTING AND FIND NO.7
REMOVED. SEE NOTES 11,12,13 AND 14



B-CR203 REF
B-R203 REF
A-R204 REF
FROM A-E1-207 TO PIN NO.108 REF
31
32
.108 MAX TYP
TYPICAL ALL LEADS BOTH SIDES OF FIND NO. 6
.070
.090
6 REF
.080 REF
.108 MAX TYP
33 REF
SEE NOTE 17
.010 MIN

SECTION C-C
SCALE 4/1



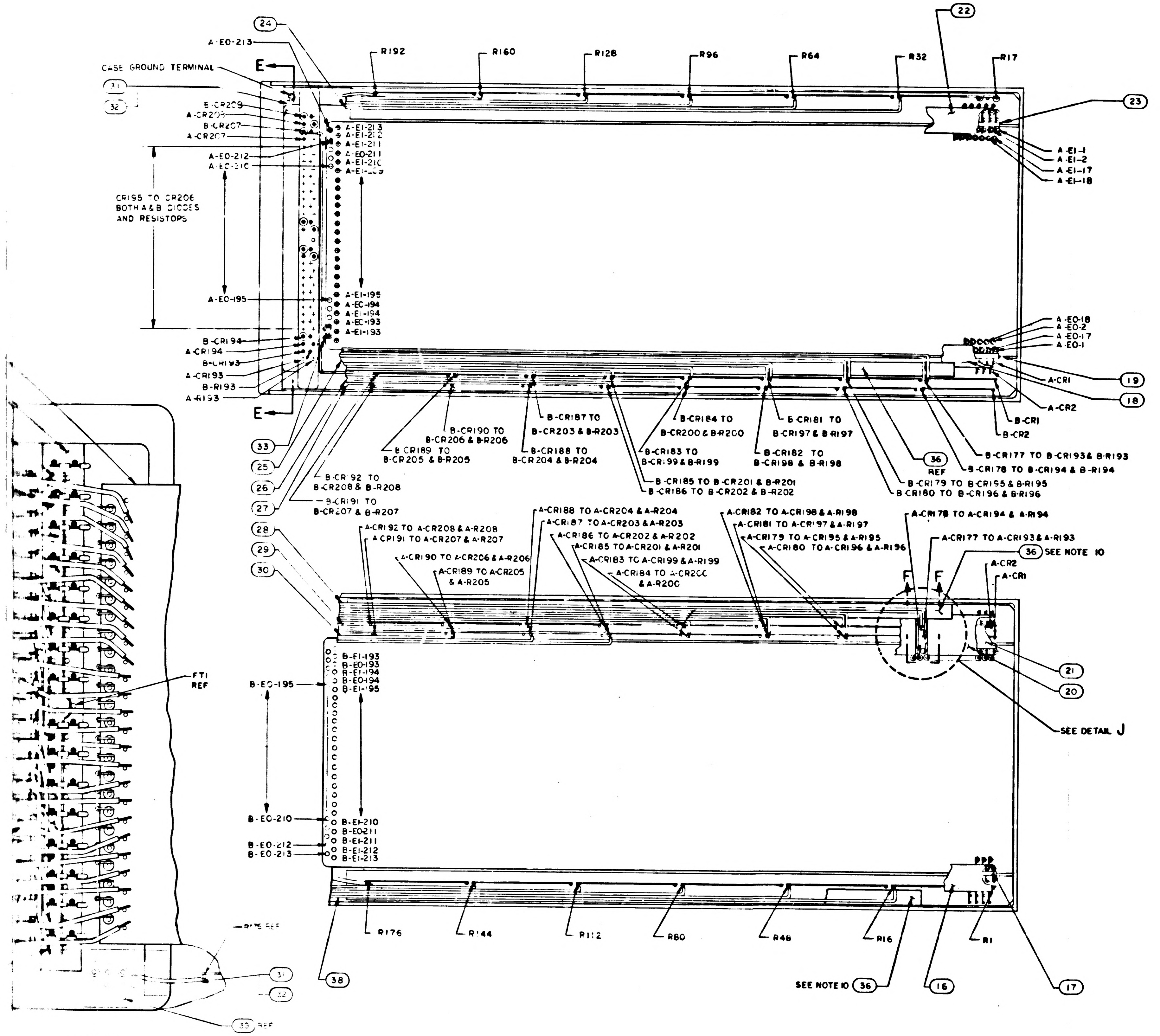
24
A-E0-213
R 92
CASE GROUND TERMINAL
E
31
32
B-CR208
A-CR208
B-CR207
A-CR207
A-E1-213
A-E1-212
A-E1-211
A-E0-211
A-E1-210
A-E0-212
A-E0-210
CR195 TO CR206 BOTH A & B DIODES AND RESISTORS
A-E0-195
A-E1-195
A-E0-194
A-E1-194
A-E0-193
A-E1-193
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
E
2 REF
6 REF
B-CR193 REF
32 TYP
B-CR194 REF
33
25
26
27
B-CR190 TO B-CR206 & B-R206
B-CR189 TO B-CR205 & B-R205
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
28
29
30
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205 & A-R205
FT1 REF
B-E0-195
B-E1-193
B-E0-193
B-E1-194
B-E0-194
B-E1-195
207 REF
B-E0-210
B-E1-210
B-E0-211
B-E1-211
B-E0-212
B-E0-213
B-E1-212
B-E1-213
REF 31 32
203 REF
3 REF
B-CR208 REF
R176
38

VIEW H-H
SCALE 4/1
SHOWN WITH POTTING AND FIND NO.7
REMOVED. SEE NOTES 11,12,13 AND 14

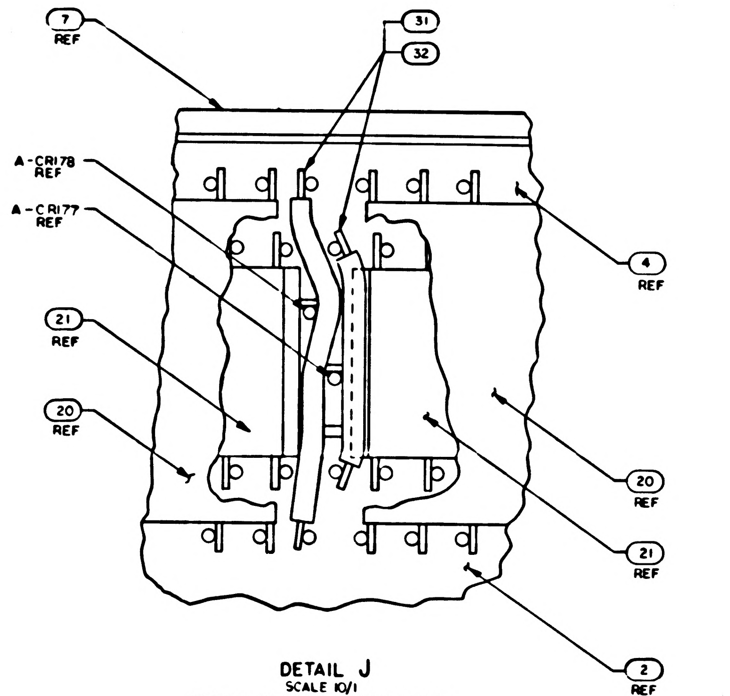
2003972 B

SH2/3 F1/2

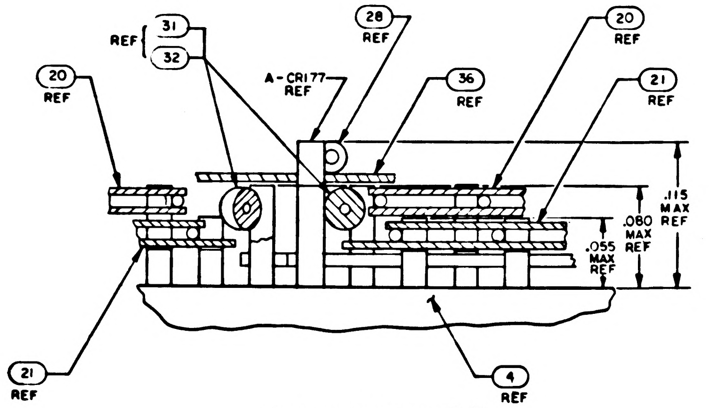
REVISIONS						
SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
A		INITIAL RELEASE				
B		REVISED PEP TDRR 3460				


A-EO-213
(24)
CASE GROUND TERMINAL
E
(31)
(32)
B-CR209
A-CR208
B-CR207
A-CR207
A-EO-212
A-EC-210
CR195 TO CR206
BOTH A & B DIODES
AND RESISTORS
A-EO-195
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
A-EI-213
A-EI-212
A-EI-211
A-EO-211
A-EI-210
A-EI-209
A-EI-195
A-EO-194
A-EI-194
A-EO-193
A-EI-193
R192
R160
R128
R96
R64
R32
R17
(22)
(23)
A-EI-1
A-EI-2
A-EI-17
A-EI-18
A-EO-18
A-EO-2
A-EO-17
A-EO-1
A-CR1
(19)
(18)
A-CR2
B-CR1
B-CR2
(33)
(25)
(26)
(27)
B-CR190 TO B-CR206 & B-R206
B-CR189 TO B-CR205 & B-R205
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
B-CR187 TO B-CR203 & B-R203
B-CR188 TO B-CR204 & B-R204
B-CR184 TO B-CR200 & B-R200
B-CR183 TO B-CR199 & B-R199
B-CR185 TO B-CR201 & B-R201
B-CR186 TO B-CR202 & B-R202
B-CR181 TO B-CR197 & B-R197
B-CR182 TO B-CR198 & B-R198
(36) REF
B-CR177 TO B-CR193 & B-R193
B-CR178 TO B-CR194 & B-R194
B-CR179 TO B-CR195 & B-R195
B-CR180 TO B-CR196 & B-R196
(28)
(29)
(30)
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205 & A-R205
A-CR188 TO A-CR204 & A-R204
A-CR187 TO A-CR203 & A-R203
A-CR186 TO A-CR202 & A-R202
A-CR185 TO A-CR201 & A-R201
A-CR183 TO A-CR199 & A-R199
A-CR184 TO A-CR200 & A-R200
A-CR182 TO A-CR198 & A-R198
A-CR181 TO A-CR197 & A-R197
A-CR179 TO A-CR195 & A-R195
A-CR180 TO A-CR196 & A-R196
A-CR178 TO A-CR194 & A-R194
A-CR177 TO A-CR193 & A-R193
(36) SEE NOTE 10
A-CR2
A-CR1
F
F
(21)
(20)
SEE DETAIL J
FT1 REF
B-EO-195
B-EI-193
B-EO-193
B-EI-194
B-EO-194
B-EI-195
B-EO-210
B-EI-210
B-EO211
B-EI-211
B-EO-212
B-EO-213
B-EI-212
B-EI-213
R176
R144
R112
R80
R48
R16
R1
(38)
SEE NOTE 10 (36)
(16)
(17)
R175 REF
(31)
(32)
(33) REF

VIEW H-H
SCALE 4/1
[illegible] WITH POTTING AND FIND NO.7
[illegible] SEE NOTES 11,12,13 AND 14


(7) REF
(31)
(32)
A-CR178 REF
A-CR177 REF
(21) REF
(20) REF
(4) REF
(20) REF
(21) REF
(2) REF

DETAIL J
SCALE 10/1
TYPICAL WIRING 8 PLACES, SHOWN
WITH FIND NO.'S 28 AND 36 REMOVED


REF
(31)
(32)
(20) REF
A-CR177 REF
(28) REF
(36) REF
(20) REF
(21) REF
.115 MAX REF
.080 MAX REF
.055 MAX REF
(21) REF
(4) REF

PARTIAL SECTION F-F
SCALE: 20/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MSC
APPROVED NASA DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE
ASSEMBLY

CODE IDENT NO 80230
SIZE J
DRAWING NO. 2003972
SCALE 2/1
SHEET 2 OF 3

F 2/2

[illegible]

2003972	B	

SH3/13

F1/2

4 3 2

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL RELEASE TDRR 32991				
B		REVISED PER TDRR 33410				

D

WIRE LIST

TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.
A-EO-1	A-CR1	A-EO-97	A-CR97	B-EO-1	B-CR1	B-EO-97	B-CR97	A-EI-1	R1	A-EI-49	R49	A-EI-97	R97	A-EI-145	R145
A-EO-2	A-CR2	A-EO-98	A-CR98	B-EO-2	B-CR2	B-EO-98	B-CR98	B-EI-1		B-EI-49		B-EI-97		B-EI-145	
A-EO-3	A-CR3	A-EO-99	A-CR99	B-EO-3	B-CR3	B-EO-99	B-CR99	A-EI-2	R2	A-EI-50	R50	A-EI-98	R98	A-EI-146	R146
A-EO-4	A-CR4	A-EO-100	A-CR100	B-EO-4	B-CR4	B-EO-100	B-CR100	B-EI-2		B-EI-50		B-EI-98		B-EI-146	
A-EO-5	A-CR5	A-EO-101	A-CR101	B-EO-5	B-CR5	B-EO-101	B-CR101	A-EI-3	R3	A-EI-51	R51	A-EI-99	R99	A-EI-147	R147
A-EO-6	A-CR6	A-EO-102	A-CR102	B-EO-6	B-CR6	B-EO-102	B-CR102	B-EI-3		B-EI-51		B-EI-99		B-EI-147	
A-EO-7	A-CR7	A-EO-103	A-CR103	B-EO-7	B-CR7	B-EO-103	B-CR103	A-EI-4	R4	A-EI-52	R52	A-EI-100	R100	A-EI-148	R148
A-EO-8	A-CR8	A-EO-104	A-CR104	B-EO-8	B-CR8	B-EO-104	B-CR104	B-EI-4		B-EI-52		B-EI-100		B-EI-148	
A-EO-9	A-CR9	A-EO-105	A-CR105	B-EO-9	B-CR9	B-EO-105	B-CR105	A-EI-5	R5	A-EI-53	R53	A-EI-101	R101	A-EI-149	R149
A-EO-10	A-CR10	A-EO-106	A-CR106	B-EO-10	B-CR10	B-EO-106	B-CR106	B-EI-5		B-EI-53		B-EI-101		B-EI-149	
A-EO-11	A-CR11	A-EO-107	A-CR107	B-EO-11	B-CR11	B-EO-107	B-CR107	A-EI-6	R6	A-EI-54	R54	A-EI-102	R102	A-EI-150	R150
A-EO-12	A-CR12	A-EO-108	A-CR108	B-EO-12	B-CR12	B-EO-108	B-CR108	B-EI-6		B-EI-54		B-EI-102		B-EI-150	
A-EO-13	A-CR13	A-EO-109	A-CR109	B-EO-13	B-CR13	B-EO-109	B-CR109	A-EI-7	R7	A-EI-55	R55	A-EI-103	R103	A-EI-151	R151
A-EO-14	A-CR14	A-EO-110	A-CR110	B-EO-14	B-CR14	B-EO-110	B-CR110	B-EI-7		B-EI-55		B-EI-103		B-EI-151	
A-EO-15	A-CR15	A-EO-111	A-CR111	B-EO-15	B-CR15	B-EO-111	B-CR111	A-EI-8	R8	A-EI-56	R56	A-EI-104	R104	A-EI-152	R152
A-EO-16	A-CR16	A-EO-112	A-CR112	B-EO-16	B-CR16	B-EO-112	B-CR112	B-EI-8		B-EI-56		B-EI-104		B-EI-152	
A-EO-17	A-CR17	A-EO-113	A-CR113	B-EO-17	B-CR17	B-EO-113	B-CR113	A-EI-9	R9	A-EI-57	R57	A-EI-105	R105	A-EI-153	R153
A-EO-18	A-CR18	A-EO-114	A-CR114	B-EO-18	B-CR18	B-EO-114	B-CR114	B-EI-9		B-EI-57		B-EI-105		B-EI-153	
A-EO-19	A-CR19	A-EO-115	A-CR115	B-EO-19	B-CR19	B-EO-115	B-CR115	A-EI-10	R10	A-EI-58	R58	A-EI-106	R106	A-EI-154	R154
A-EO-20	A-CR20	A-EO-116	A-CR116	B-EO-20	B-CR20	B-EO-116	B-CR116	B-EI-10		B-EI-58		B-EI-106		B-EI-154	
A-EO-21	A-CR21	A-EO-117	A-CR117	B-EO-21	B-CR21	B-EO-117	B-CR117	A-EI-11	R11	A-EI-59	R59	A-EI-107	R107	A-EI-155	R155
A-EO-22	A-CR22	A-EO-118	A-CR118	B-EO-22	B-CR22	B-EO-118	B-CR118	B-EI-11		B-EI-59		B-EI-107		B-EI-155	
A-EO-23	A-CR23	A-EO-119	A-CR119	B-EO-23	B-CR23	B-EO-119	B-CR119	A-EI-12	R12	A-EI-60	R60	A-EI-108	R108	A-EI-156	R156
A-EO-24	A-CR24	A-EO-120	A-CR120	B-EO-24	B-CR24	B-EO-120	B-CR120	B-EI-12		B-EI-60		B-EI-108		B-EI-156	
A-EO-25	A-CR25	A-EO-121	A-CR121	B-EO-25	B-CR25	B-EO-121	B-CR121	A-EI-13	R13	A-EI-61	R61	A-EI-109	R109	A-EI-157	R157
A-EO-26	A-CR26	A-EO-122	A-CR122	B-EO-26	B-CR26	B-EO-122	B-CR122	B-EI-13		B-EI-61		B-EI-109		B-EI-157	
A-EO-27	A-CR27	A-EO-123	A-CR123	B-EO-27	B-CR27	B-EO-123	B-CR123	A-EI-14	R14	A-EI-62	R62	A-EI-110	R110	A-EI-158	R158
A-EO-28	A-CR28	A-EO-124	A-CR124	B-EO-28	B-CR28	B-EO-124	B-CR124	B-EI-14		B-EI-62		B-EI-110		B-EI-158	
A-EO-29	A-CR29	A-EO-125	A-CR125	B-EO-29	B-CR29	B-EO-125	B-CR125	A-EI-15	R15	A-EI-63	R63	A-EI-111	R111	A-EI-159	R159
A-EO-30	A-CR30	A-EO-126	A-CR126	B-EO-30	B-CR30	B-EO-126	B-CR126	B-EI-15		B-EI-63		B-EI-111		B-EI-159	
A-EO-31	A-CR31	A-EO-127	A-CR127	B-EO-31	B-CR31	B-EO-127	B-CR127	A-EI-16	R16	A-EI-64	R64	A-EI-112	R112	A-EI-160	R160
A-EO-32	A-CR32	A-EO-128	A-CR128	B-EO-32	B-CR32	B-EO-128	B-CR128	B-EI-16		B-EI-64		B-EI-112		B-EI-160	
A-EO-33	A-CR33	A-EO-129	A-CR129	B-EO-33	B-CR33	B-EO-129	B-CR129	A-EI-17	R17	A-EI-65	R65	A-EI-113	R113	A-EI-161	R161
A-EO-34	A-CR34	A-EO-130	A-CR130	B-EO-34	B-CR34	B-EO-130	B-CR130	B-EI-17		B-EI-65		B-EI-113		B-EI-161	
A-EO-35	A-CR35	A-EO-131	A-CR131	B-EO-35	B-CR35	B-EO-131	B-CR131	A-EI-18	R18	A-EI-66	R66	A-EI-114	R114	A-EI-162	R162
A-EO-36	A-CR36	A-EO-132	A-CR132	B-EO-36	B-CR36	B-EO-132	B-CR132	B-EI-18		B-EI-66		B-EI-114		B-EI-162	
A-EO-37	A-CR37	A-EO-133	A-CR133	B-EO-37	B-CR37	B-EO-133	B-CR133	A-EI-19	R19	A-EI-67	R67	A-EI-115	R115	A-EI-163	R163
A-EO-38	A-CR38	A-EO-134	A-CR134	B-EO-38	B-CR38	B-EO-134	B-CR134	B-EI-19		B-EI-67		B-EI-115		B-EI-163	
A-EO-39	A-CR39	A-EO-135	A-CR135	B-EO-39	B-CR39	B-EO-135	B-CR135	A-EI-20	R20	A-EI-68	R68	A-EI-116	R116	A-EI-164	R164
A-EO-40	A-CR40	A-EO-136	A-CR136	B-EO-40	B-CR40	B-EO-136	B-CR136	B-EI-20		B-EI-68		B-EI-116		B-EI-164	
A-EO-41	A-CR41	A-EO-137	A-CR137	B-EO-41	B-CR41	B-EO-137	B-CR137	A-EI-21	R21	A-EI-69	R69	A-EI-117	R117	A-EI-165	R165
A-EO-42	A-CR42	A-EO-138	A-CR138	B-EO-42	B-CR42	B-EO-138	B-CR138	B-EI-21		B-EI-69		B-EI-117		B-EI-165	
A-EO-43	A-CR43	A-EO-139	A-CR139	B-EO-43	B-CR43	B-EO-139	B-CR139	A-EI-22	R22	A-EI-70	R70	A-EI-118	R118	A-EI-166	R166
A-EO-44	A-CR44	A-EO-140	A-CR140	B-EO-44	B-CR44	B-EO-140	B-CR140	B-EI-22		B-EI-70		B-EI-118		B-EI-166	
A-EO-45	A-CR45	A-EO-141	A-CR141	B-EO-45	B-CR45	B-EO-141	B-CR141	A-EI-23	R23	A-EI-71	R71	A-EI-119	R119	A-EI-167	R167
A-EO-46	A-CR46	A-EO-142	A-CR142	B-EO-46	B-CR46	B-EO-142	B-CR142	B-EI-23		B-EI-71		B-EI-119		B-EI-167	
A-EO-47	A-CR47	A-EO-143	A-CR143	B-EO-47	B-CR47	B-EO-143	B-CR143	A-EI-24	R24	A-EI-72	R72	A-EI-120	R120	A-EI-168	R168
A-EO-48	A-CR48	A-EO-144	A-CR144	B-EO-48	B-CR48	B-EO-144	B-CR144	B-EI-24		B-EI-72		B-EI-120		B-EI-168	
A-EO-49	A-CR49	A-EO-145	A-CR145	B-EO-49	B-CR49	B-EO-145	B-CR145	A-EI-25	R25	A-EI-73	R73	A-EI-121	R121	A-EI-169	R169
A-EO-50	A-CR50	A-EO-146	A-CR146	B-EO-50	B-CR50	B-EO-146	B-CR146	B-EI-25		B-EI-73		B-EI-121		B-EI-169	
A-EO-51	A-CR51	A-EO-147	A-CR147	B-EO-51	B-CR51	B-EO-147	B-CR147	A-EI-26	R26	A-EI-74	R74	A-EI-122	R122	A-EI-170	R170
A-EO-52	A-CR52	A-EO-148	A-CR148	B-EO-52	B-CR52	B-EO-148	B-CR148	B-EI-26		B-EI-74		B-EI-122		B-EI-170	
A-EO-53	A-CR53	A-EO-149	A-CR149	B-EO-53	B-CR53	B-EO-149	B-CR149	A-EI-27	R27	A-EI-75	R75	A-EI-123	R123	A-EI-171	R171
A-EO-54	A-CR54	A-EO-150	A-CR150	B-EO-54	B-CR54	B-EO-150	B-CR150	B-EI-27		B-EI-75		B-EI-123		B-EI-171	
A-EO-55	A-CR55	A-EO-151	A-CR151	B-EO-55	B-CR55	B-EO-151	B-CR151	A-EI-28	R28	A-EI-76	R76	A-EI-124	R124	A-EI-172	R172
A-EO-56	A-CR56	A-EO-152	A-CR152	B-EO-56	B-CR56	B-EO-152	B-CR152	B-EI-28		B-EI-76		B-EI-124		B-EI-172	
A-EO-57	A-CR57	A-EO-153	A-CR153	B-EO-57	B-CR57	B-EO-153	B-CR153	A-EI-29	R29	A-EI-77	R77	A-EI-125	R125	A-EI-173	R173
A-EO-58	A-CR58	A-EO-154	A-CR154	B-EO-58	B-CR58	B-EO-154	B-CR154	B-EI-29		B-EI-77		B-EI-125		B-EI-173	
A-EO-59	A-CR59	A-EO-155	A-CR155	B-EO-59	B-CR59	B-EO-155	B-CR155	A-EI-30	R30	A-EI-78	R78	A-EI-126	R126	A-EI-174	R174
A-EO-60	A-CR60	A-EO-156	A-CR156	B-EO-60	B-CR60	B-EO-156	B-CR156	B-EI-30		B-EI-78		B-EI-126		B-EI-174	
A-EO-61	A-CR61	A-EO-157	A-CR157	B-EO-61	B-CR61	B-EO-157	B-CR157	A-EI-31	R31	A-EI-79	R79	A-EI-127	R127	A-EI-175	R175
A-EO-62	A-CR62	A-EO-158	A-CR158	B-EO-62	B-CR62	B-EO-158	B-CR158	B-EI-31		B-EI-79		B-EI-127		B-EI-175	
A-EO-63	A-CR63	A-EO-159	A-CR159	B-EO-63	B-CR63	B-EO-159	B-CR159	A-EI-32	R32	A-EI-80	R80	A-EI-128	R128	A-EI-176	R176
A-EO-64	A-CR64	A-EO-160	A-CR160	B-EO-64	B-CR64	B-EO-160	B-CR160	B-EI-32		B-EI-80		B-EI-128		B-EI-176	
A-EO-65	A-CR65	A-EO-161	A-CR161	B-EO-65	B-CR65	B-EO-161	B-CR161	A-EI-33	R33	A-EI-81	R81	A-EI-129	R129	A-EI-177	R177
A-EO-66	A-CR66	A-EO-162	A-CR162	B-EO-66	B-CR66	B-EO-162	B-CR162	B-EI-33		B-EI-81		B-EI-129		B-EI-177	
A-EO-67	A-CR67	A-EO-163	A-CR163	B-EO-67	B-CR67	B-EO-163	B-CR163	A-EI-34	R34	A-EI-82	R82	A-EI-130	R130	A-EI-178	R178
A-EO-68	A-CR68	A-EO-164	A-CR164	B-EO-68	B-CR68	B-EO-164	B-CR164	B-EI-34		B-EI-82		B-EI-130		B-EI-178	
A-EO-69	A-CR69	A-EO-165	A-CR165	B-EO-69	B-CR69	B-EO-165	B-CR165	A-EI-35	R35	A-EI-83	R83	A-EI-131	R131	A-EI-179	R179
A-EO-70	A-CR70	A-EO-166	A-CR166	B-EO-70	B-CR70	B-EO-166	B-CR166	B-EI-35		B-EI-83		B-EI-131		B-EI-179	
A-EO-71	A-CR71	A-EO-167	A-CR167	B-EO-71	B-CR71	B-EO-167	B-CR167	A-EI-36	R36	A-EI-84	R84	A-EI-132	R132	A-EI-180	R180
A-EO-72	A-CR72	A-EO-168	A-CR168	B-EO-72	B-CR72	B-EO-168	B-CR168	B-EI-36		B-EI-84		B-EI-132		B-EI-180	
A-EO-73	A-CR73	A-EO-169	A-CR169	B-EO-73	B-CR73	B-EO-169	B-CR169	A-EI-37	R37	A-EI-85	R85	A-EI-133	R133	A-EI-181	R181
A-EO-74	A-CR74	A-EO-170	A-CR170	B-EO-74	B-CR74	B-EO-170	B-CR170	B-EI-37		B-EI-85		B-EI-133		B-EI-181	
A-EO-75	A-CR75	A-EO-171	A-CR171	B-EO-75	B-CR75	B-EO-171	B-CR171	A-EI-38	R38	A-EI-86	R86	A-EI-134	R134	A-EI-182	R182
A-EO-76	A-CR76	A-EO-172	A-CR172	B-EO-76	B-CR76	B-EO-172	B-CR172	B-EI-38		B-EI-86		B-EI-134		B-EI-182	
A-EO-77	A-CR77	A-EO-173	A-CR173	B-EO-77	B-CR77	B-EO-173	B-CR173	A-EI-39	R39	A-EI-87	R87	A-EI-135	R135	A-EI-183	R183
A-EO-78	A-CR78	A-EO-174	A-CR174	B-EO-78	B-CR78	B-EO-174	B-CR174	B-EI-39		B-EI-87		B-EI-135		B-EI-183	
A-EO-79	A-CR79	A-EO-175	A-CR175	B-EO-79	B-CR79	B-EO-175	B-CR175	A-EI-40	R40	A-EI-88	R88	A-EI-136	R136	A-EI-184	R184
A-EO-80	A-CR80	A-EO-176	A-CR176	B-EO-80	B-CR80	B-EO-176	B-CR176	B-EI-40		B-EI-88		B-EI-136		B-EI-184	
A-EO-81	A-CR81	A-EO-177	A-CR177	B-EO-81	B-CR81	B-EO-177	B-CR177	A-EI-41	R41	A-EI-89	R89	A-EI-137	R137	A-EI-185	R185
A-EO-82	A-CR82	A-EO-178	A-CR178	B-EO-82	B-CR82	B-EO-178	B-CR178	B-EI-41		B-EI-89		B-EI-137		B-EI-185	
A-EO-83	A-CR83	A-EO-179	A-CR179	B-EO-83	B-CR83	B-EO-179	B-CR179	A-EI-42	R42	A-EI-90	R90	A-EI-138	R138	A-EI-186	R186
A-EO-84	A-CR84	A-EO-180	A-CR180	B-EO-84	B-CR84	B-EO-180	B-CR180	B-EI-42		B-EI-90		B-EI-138		B-EI-186	
A-EO-85	A-CR85	A-EO-181	A-CR181	B-EO-85	B-CR85	B-EO-181	B-CR181	A-EI-43	R43	A-EI-91	R91	A-EI-139	R139	A-EI-187	R187
A-EO-86	A-CR86	A-EO-182	A-CR182	B-EO-86	B-CR86	B-EO-182	B-CR182	B-EI-43		B-EI-91		B-EI-139		B-EI-187	
A-EO-87	A-CR87	A-EO-183	A-CR183	B-EO-87	B-CR87	B-EO-183	B-CR183	A-EI-44	R44	A-EI-92	R92	A-EI-140	R140	A-EI-188	R188
A-EO-88	A-CR88	A-EO-184	A-CR184	B-EO-88	B-CR88	B-EO-184	B-CR184	B-EI-44		B-EI-92		B-EI-140		B-EI-188	
A-EO-89	A-CR89	A-EO-185	A-CR185	B-EO-89	B-CR89	B-EO-185	B-CR185	A-EI-45	R45	A-EI-93	R93	A-EI-141	R141	A-EI-189	R189
A-EO-90	A-CR90	A-EO-186	A-CR186	B-EO-90	B-CR90	B-EO-186	B-CR186	B-EI-45		B-EI-93		B-EI-141		B-EI-189	
A-EO-91	A-CR91	A-EO-187	A-CR187	B-EO-91	B-CR91	B-EO-187	B-CR187	A-EI-46	R46	A-EI-94	R94	A-EI-142	R142	A-EI-190	R190
A-EO-92	A-CR92	A-EO-188	A-CR188	B-EO-92	B-CR92	B-EO-188	B-CR188	B-EI-46		B-EI-94		B-EI-142		B-EI-190	
A-EO-93	A-CR93	A-EO-189	A-CR189	B-EO-93	B-CR93	B-EO-189	B-CR189	A-EI-47	R47	A-EI-95	R95	A-EI-143	R143	A-EI-191	R191
A-EO-94	A-CR94	A-EO-190	A-CR190	B-EO-94	B-CR94	B-EO-190	B-CR190	B-EI-47		B-EI-95		B-EI-143		B-EI-191	
A-EO-95	A-CR95	A-EO-191	A-CR191	B-EO-95	B-CR95	B-EO-191	B-CR191	A-EI-48	R48	A-EI-96	R96	A-EI-144	R144	A-EI-192	R192
A-EO-96	A-CR96	A-EO-192	A-CR192	B-EO-96	B-CR96	B-EO-192	B-CR192	B-EI-48		B-EI-96		B-EI-144		B-EI-192	

C

B

A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED C. Hall
APPROVED
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

FIXED MEMORY MODULE ASSEMBLY

CODE IDENT NO 80230
SIZE J
DRAWING NO 2003972
SCALE NONE
SHEET 3 OF 3

2003972

4 3 2

E2/2

APOLLO G&N Specification
PS 2003972 Rev B
Original Issue Date: 2-16-67
Release Authority: TDRR 32994
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

FIXED MEMORY MODULE B1 -B6 ASSEMBLY

DRAWING NO. 2003972

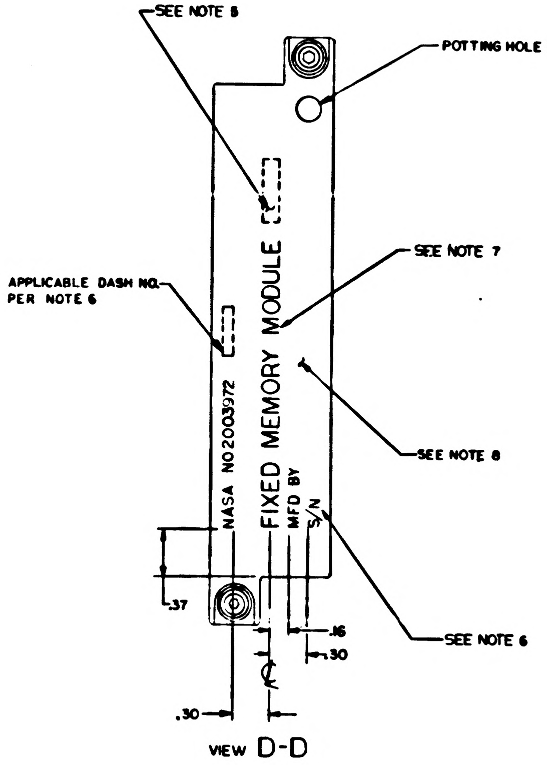
Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
4/13/67	A	33609	1, 8, 16		
12-21-67	B	35260	1, 7		

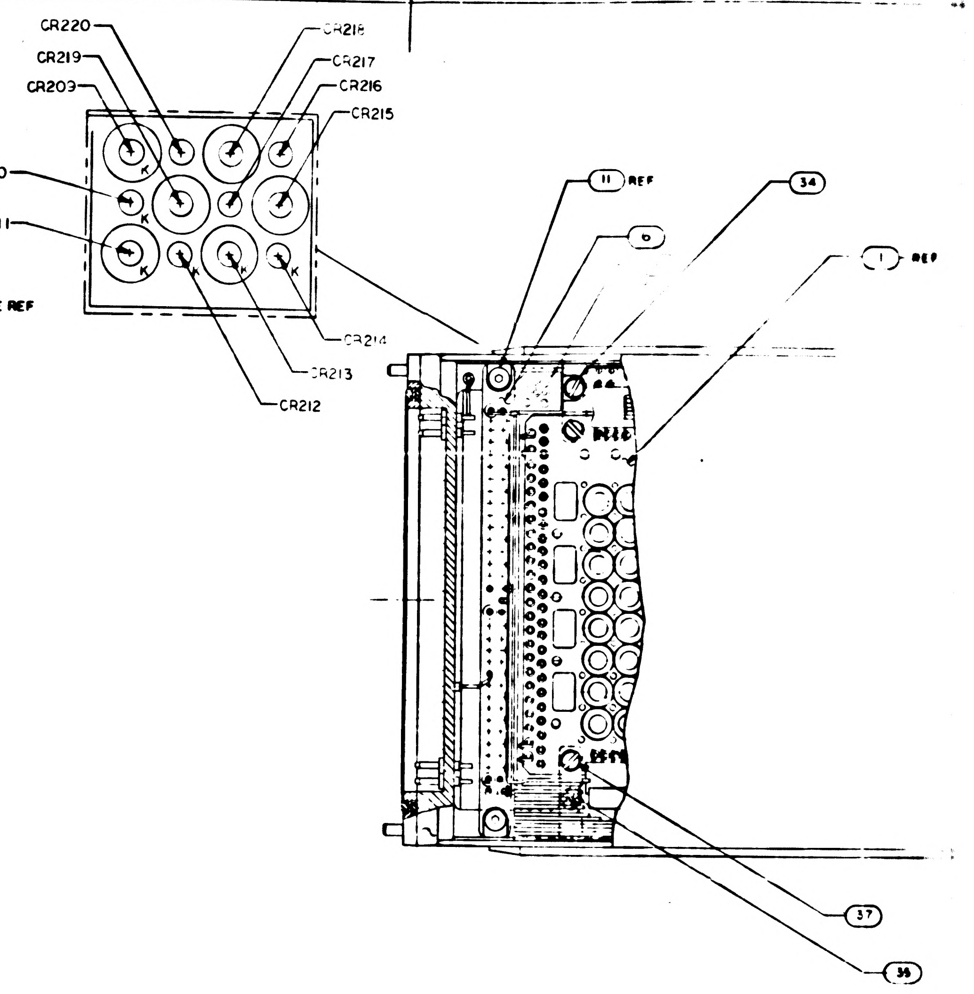
This specification consists of pages 1 to 21 inclusive.

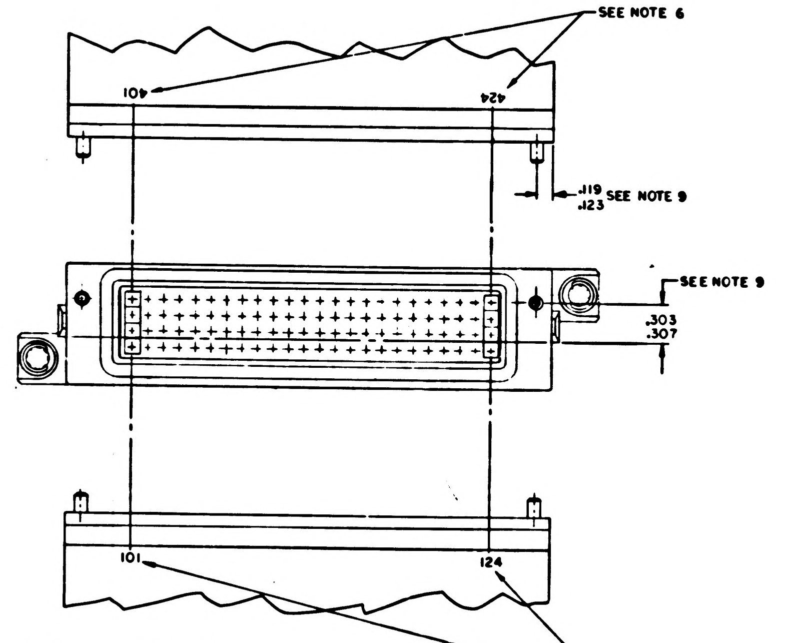
APPROVALS	NASA/MSC	E C Hall 11/8/66 W G Lameris 8 Dec 66 MIT/IL	D.W. Sinclair 11/7/66 11-7-66 BC 11/7/66 RAY

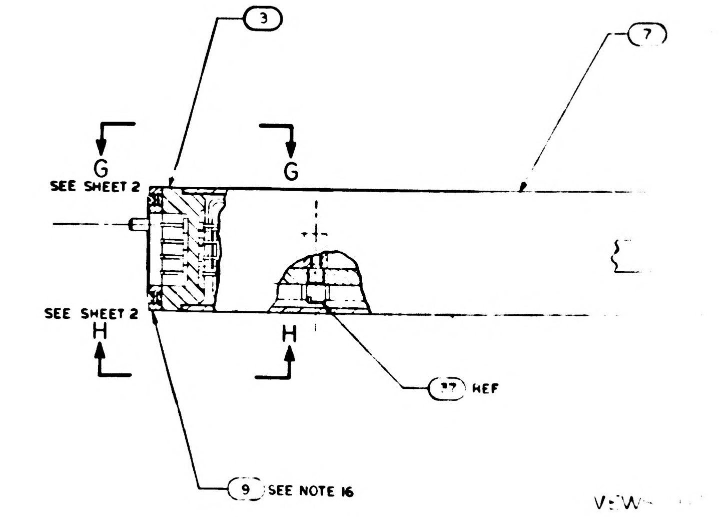
PART NO.	MODULE NO.	FIND NO. 1	FIND NO. 2	MODULE DECK NO.	NEXT ASSEMBLY NO. (REF)
2003972-011	B1	2003060-061	2003061-061	0205	2021101
2003972-021	B2	2003060-071	2003061-071	0206	2021101
2003972-031	B3	2003060-081	2003061-081	0207	2021101
2003972-041	B[illegible]	2003060-121	2003061-121	0210	2021104
2003972-051	B2	2003060-131	2003061-131	0211	2021104
2003972-061	B3	2003060-141	2003061-141	0212	2021104
2003972-071	B[illegible]	2003060-151	2003061-151	0213	2021104
2003972-081	B[illegible]	2003060-161	2003061-161	0214	2021104
2003972-091	B2	2003060-171	2003061-171	0215	2021101
2003972-111	B3	2003060-181	2003061-181	0216	2021101
2003972-121	B1	2003060-091	2003061-091	0208	2021105-031
2003972-131	B2	2003060-111	2003061-111	0209	2021105-031
2003972-141	B	2003060-191	2003061-191	0217	2021106-011
2003972-151	B2	2003060-211	2003061-211	0218	2021106-011
2003972-161	B3	2003060-221	2003061-221	0219	2021106-011
2003972-171	B4	2003060-231	2003061-231	0220	2021106-011
2003972-181	B5	2003060-241	2003061-241	0221	2021106-011
2003972-191	B6	2003060-251	2003061-251	0222	2021106-011
2003972-211	B3	2003060-261	2003061-261	0223	2021104-041
2003972-22[illegible]	[illegible]	2003060-271	2003061-271	0224	2021105-041
2003972-231	B1	2003060-281	2003061-281	0225	2021106-021
2003972-241	B3	2003060-291	2003061-291	0226	2021106-021
2003972-251	B5	2003060-311	2003061-311	0227	2021106-021



VIEW D-D







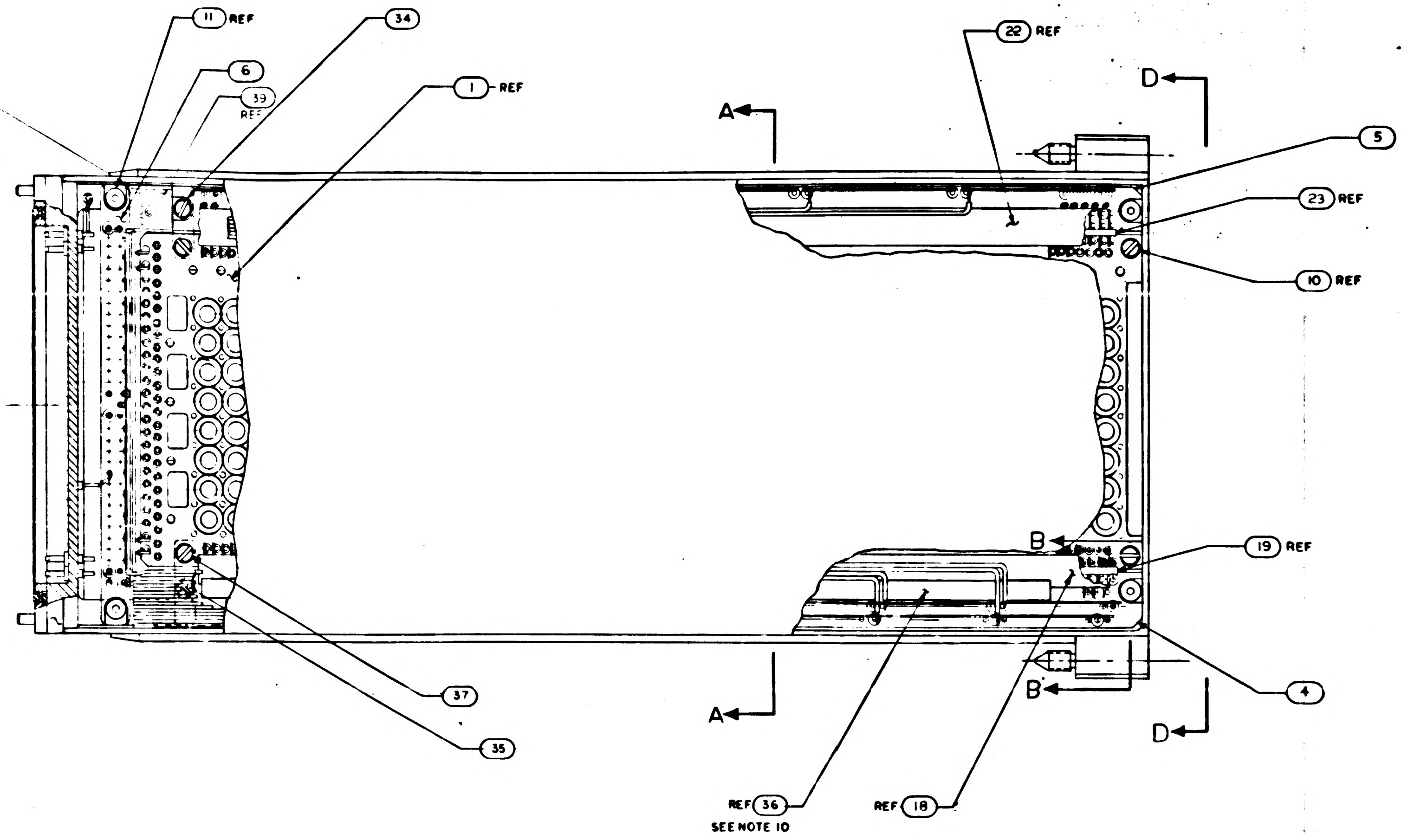
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
3. ENCAPSULATE MODULE PER ND1002226 METHOD II
4. WELD PER ND1002005
5. MARK APPROPRIATE MODULE NO. AS SHOWN IN CHART
6. MARK .08/.06 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
7. MARK .14/.10 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 USING INK 1006271-1
8. PAINT INDICATED SURFACES OF FIND NO 7. PER ND1002279 WITH SCD NO.1008809-1 DARK GREY EPOXY RESIN ENAMEL, FINAL COAT PER ND1002277 USING 1012543-003
9. ASSEMBLE FIND NO.7 AND FIND NO.3 TO DIMENSIONS SHOWN
10. REMOVE LINER FROM NEARSIDE OF FIND NO.36 AND ASSEMBLE 3 PLACES AS SHOWN. FIND NO.36 MUST INSULATE FLAT CABLES FROM TRIMMED COMPONENT LEADS. TRIM AS REQUIRED
11. WHITE DOT AND SINGLE SOLID LEAD DENOTES FIRST LEVEL WIRING UNLESS OTHERWISE SPECIFIED
12. BLACK DOT AND SINGLE SOLID LEAD DENOTES SECOND LEVEL WIRING
13. BLACK DOT AND CROSS HATCHED LEAD DENOTES THIRD LEVEL WIRING
14. ALL LEADS FROM FIND NO.1 AND FIND NO.2 TO FIND NO.3 TO BE THIRD LEVEL WIRING
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003972. FOR-121 & -131 CONFIGURATIONS USE PS 2003960
16. FIND NO.9 TO BE SHIPPED UNASSEMBLED AND IDENTIFIED PER ND 1002019
17. SEAL PINS AND INSULATORS TO FIND NO. 3 PER ND1002004 TYPE VI BEFORE ASSY OF FIND NO. 6
18. FILL AS SHOWN PER ND1002235 METHOD A
19. BOND FIND NO.39 TO FIND NO.3 PER ND1002004 TYPE VI AFTER ASSY OF FIND NO.6
20. PRIOR TO ENCAPSULATION PER NOTE 3, COAT OVER ALL TERMINALS OF FIND NO.'S 1,2 & 3 AND OVER ALL WIRES, SLEEVING AND COMPONENT LEADS OF FIND NO.'S 4,5,6,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,38 & 39 WITH A .03 MAXIMUM THICKNESS OF SILICONE RUBBER PER ND1002009, METHOD A. MASK ALL OUTSIDE SURFACES OF FIND NO.3 AND ALL OTHER SURFACES OF THIS ASSEMBLY COMING IN CLOSE CONTACT WITH FIND NO.7

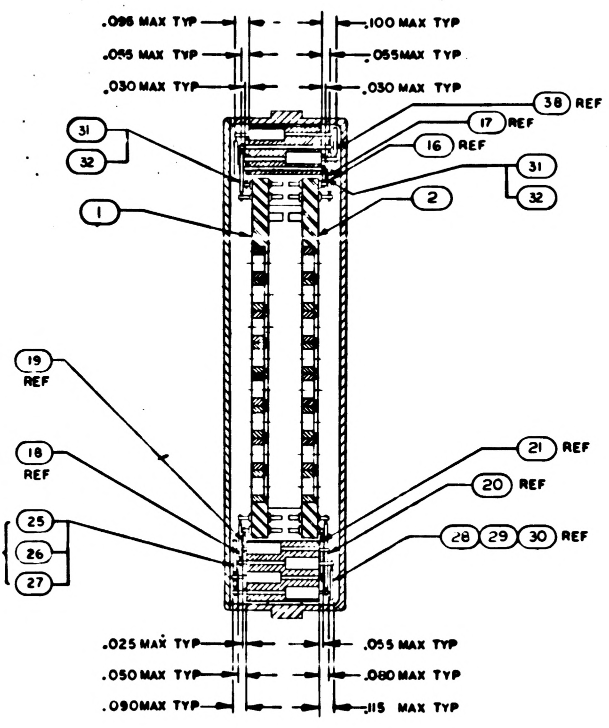
REFERENCES:

1. PROCESS REQUIREMENTS FOR CONTROL AND INSPECTION OF ROPE MEMORY ASSEMBLIES ND1002285
2. FIXED MEMORY FIXTURE DWG. NO. AP22500

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL RELEASE TDRR 32991	[illegible]	[illegible]
B	REVISED PER TDRR 33460 DR [illegible] CHK [illegible]	[illegible]	TAK
C	REVISED PER TDRR 33543 DR R. H. Jam CHK [illegible]	5/5/67	TAK
D	REVISED PER TDRR 33606 DR [illegible] CHK [illegible]	5/[illegible]	TAK

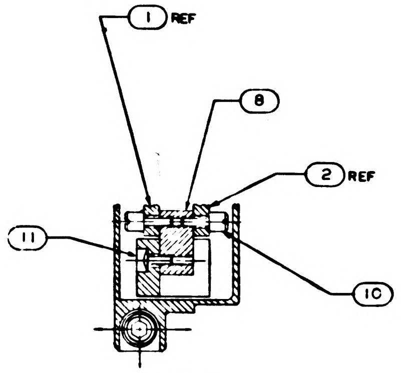


11 REF
6
39 REF
34
1 REF
22 REF
5
23 REF
10 REF
19 REF
4
37
35
REF 36 SEE NOTE 10
REF 18
A
A
B
B'
D
D



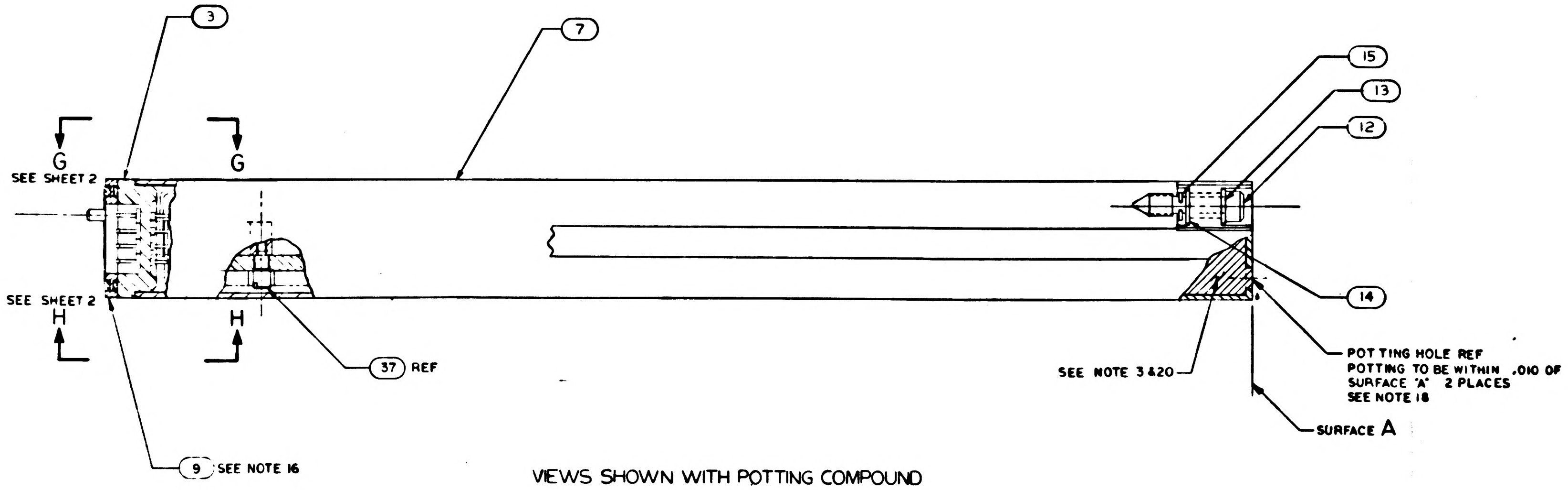
.096 MAX TYP
.100 MAX TYP
.055 MAX TYP
.055 MAX TYP
.030 MAX TYP
.030 MAX TYP
38 REF
17 REF
16 REF
31
32
1
2
31
32
19 REF
18 REF
21 REF
20 REF
REF 25 26 27
28 29 30 REF
.025 MAX TYP
.055 MAX TYP
.050 MAX TYP
.080 MAX TYP
.090 MAX TYP
.115 MAX TYP

SECTION A-A



1 REF
8
2 REF
11
10

SECTION B-B



3
7
15
13
12
14
G
G
SEE SHEET 2
H
H
SEE SHEET 2
37 REF
9 SEE NOTE 16
SEE NOTE 3420
POTTING HOLE REF
POTTING TO BE WITHIN .010 OF SURFACE "A" 2 PLACES
SEE NOTE 18
SURFACE A

VIEWS SHOWN WITH POTTING COMPOUND
PARTIALLY REMOVED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
1	2003986-021	COMPONENT BLOCK DIODE ASSY	39
☒	2005935	SCHEMATIC	REF
1	2004684	FLAT CABLE	38
4	2004150 — 003	SCREW, SHOULDERED	37
AR	1006806 — 26	INSULATION TAPE, ELECTRICAL	36
1	2004150 — 001	SCREW, SHOULDERED	35
1	2004150 — 002	SCREW, SHOULDERED	34
1	2004129	FLAT CABLE INTERCONNECTION	33
AR	1006776-25	SLEEVING	32
AR	1006757-12	WIRE, ELECRICAL	31
1	2004125	FLAT CABLE	30
1	2004122	FLAT CABLE	29
1	2004124	FLAT CABLE	28
1	2004123	FLAT CABLE	27
1	2004121	FLAT CABLE	26
1	2004120	FLAT CABLE	25
1	2004185	FLAT CABLE	24
1	2003051 — 013	MATRIX ASSY	23
1	2003051 — 014	MATRIX ASSY	22
8	2003051 — 016	MATRIX ASSY	21
8	2003051 — 015	MATRIX ASSY	20
1	2003051 — 017	MATRIX ASSY	19
1	2003051 — 018	MATRIX ASSY	18
1	2003051 — 011	MATRIX ASSY	17
1	2003051 — 012	MATRIX ASSY	16
2	MS16633-4015	E RING	15
2	1004546-3	WASHER	14
2	1004546-1	WASHER	13
2	1004579-1	SCREW, JACKING	12
4	1000093-1	SCREW, BUTTONHEAD	11
4	2004151	SCREW, STANDOFF	10
1	1006339	GASKET PLATE	9
2	2004071	STANDOFF	8
1	2004100	HOUSING	7
1	2003048-021	RESISTOR-DIODE BLOCK ASSY	6
1	2003052-021	COMPONENT BLOCK RESISTOR ASSY	5
1	2003045-021	COMPONENT BLOCK DIODE ASSY	4
1	2003973-011	CONNECTOR PLATE ASSY	3
1	2003061-SEE CHART	SENSE WIRING ASSY SIDE B	2
1	2003060-SEE CHART	SENSE WIRING ASSY SIDE A	1

LIST OF MATERIALS

SEE NOTE 16

FOR APPLICABLE PART
NO. SEE CHART

SEE CHART	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO CONTRACT
DRAWN [illegible] DATE 8 AUG 66
CHECKED [illegible] 12 AUG 66
APPROVAL [illegible] 19 [illegible] 66
APPROVAL [illegible]
NASA APPROVAL
CCB APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE ASSEMBLY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO 2003972
SCALE 2/1
WT
SHEET 1 OF 3

F 2 / 2

WIRE LIST

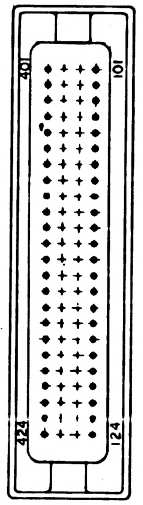
PIN NO.	COMPONENT OR TERM. NO.	PIN NO.	COMPONENT OR TERM. NO.
101	A-EI-213	301	GROUND
102	A-EI-212	302	CR209
103	A-EI-211	303	CR210
104	A-EO-211	304	CR211
105	A-EI-210	305	CR212
106	A-EI-209	306	CR213
107	A-EI-208	307	CR214
108	A-EI-207	308	A-CR208
109	A-EI-206	309	A-CR207
110	A-EI-205	310	A-CR206
111	A-EI-204	311	A-CR205
112	A-EI-203	312	A-CR204
113	A-EI-202	313	A-CR203
114	A-EI-201	314	A-CR202
115	A-EI-200	315	A-CR201
116	A-EI-199	316	A-CR200
117	A-EI-198	317	A-CR199
118	A-EI-197	318	A-CR198
119	A-EI-196	319	A-CR197
120	A-EI-195	320	A-CR196
121	A-EO-194	321	A-CR195
122	A-E -194	322	A-CR194
123	A-EO-193	323	A-CR193
124	A-EI-193	324	SPARE
201	B-R208	401	B-EI-213
202	CR215	402	B-EI-212
203	CR216	403	B-EI-211
204	CR217	404	B-EO-211
205	CR218	405	B-EI-210
206	CR219	406	B-EI-209
207	[illegible]	407	B-EI-208
208	B-CR208	408	B-EI-207
209	B-CR207	409	B-EI-206
210	B-CR206	410	B-EI-205
211	B-CR205	411	B-EI-204
212	B-CR204	412	B-EI-203
213	B-CR203	413	B-EI-202
214	B-CR202	414	B-EI-201
215	B-CR201	415	B-EI-200
216	B-CR200	416	B-EI-199
217	B-CR199	417	B-EI-198
218	B-CR198	418	B-EI-197
219	B-CR197	419	B-EI-196
220	B-CR196	420	B-EI-195
221	B-CR195	421	B-EO-194
222	B-CR194	422	B-EI-194
223	B-CR193	423	B-EO-193
224	SPARE	424	B-EI-193

WIRE LIST

TERMINAL NO.	TERMINAL NO.
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
A-EO-195	B-EO-195
A-EO-196	B-EO-196
A-EO-197	B-EO-197
A-EO-198	B-EO-198
A-EO-199	B-EO-199
A-EO-200	B-EO-200
A-EO-201	B-EO-201
A-EO-202	B-EO-202
A-EO-203	B-EO-203
A-EO-204	B-EO-204
A-EO-205	B-EO-205
A-EO-206	B-EO-206
A-EO-207	B-EO-207
A-EO-208	B-EO-208
A-EO-209	B-EO-209
A-EO-210	B-EO-210
SPARE	SPARE
SPARE	SPARE
A-EO-212	B-EO-212
A-EO-213	B-EO-213

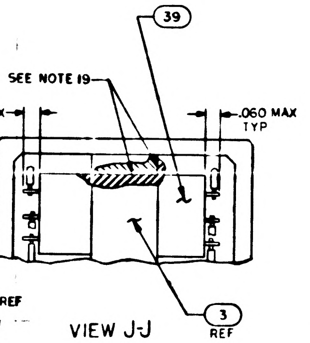
WIRE LIST

COMPONENT NO.	COMPONENT NO.
CR215	R176
CR216	R144
CR217	R112
CR218	R80
CR219	R48
CR220	R16
CR209	R32
CR210	R64
CR211	R96
CR212	R128
CR213	R160
CR214	R192



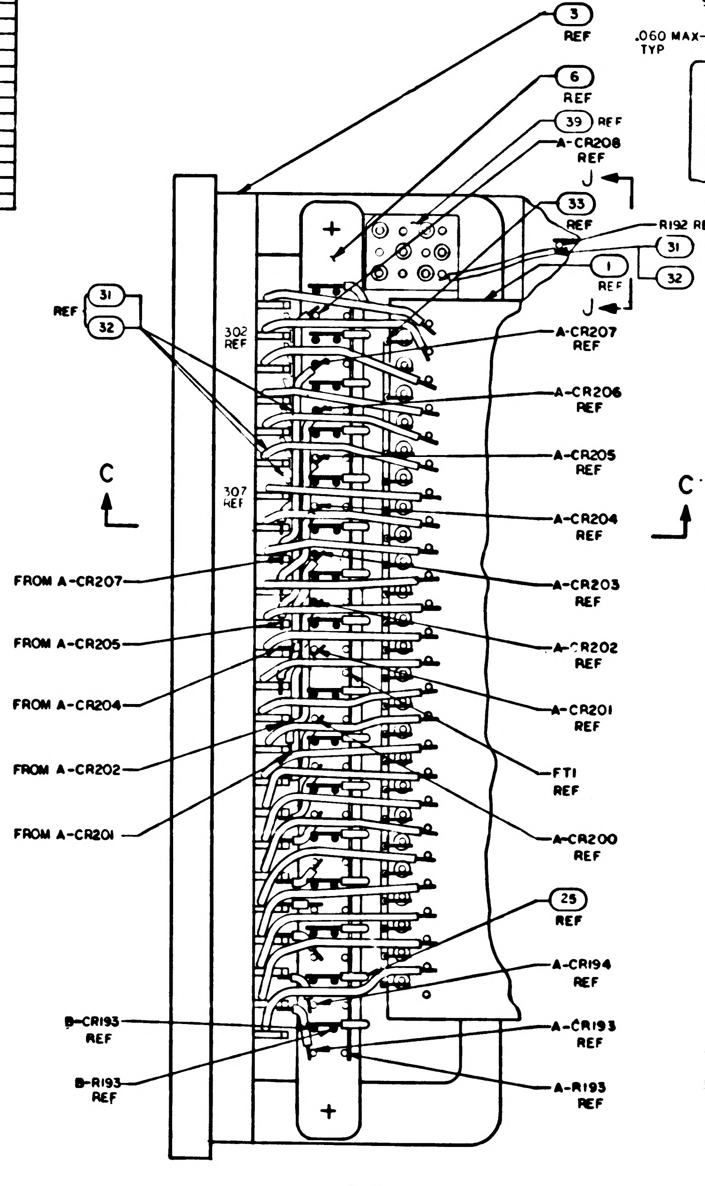
401
101
424
124

SECTION E-E



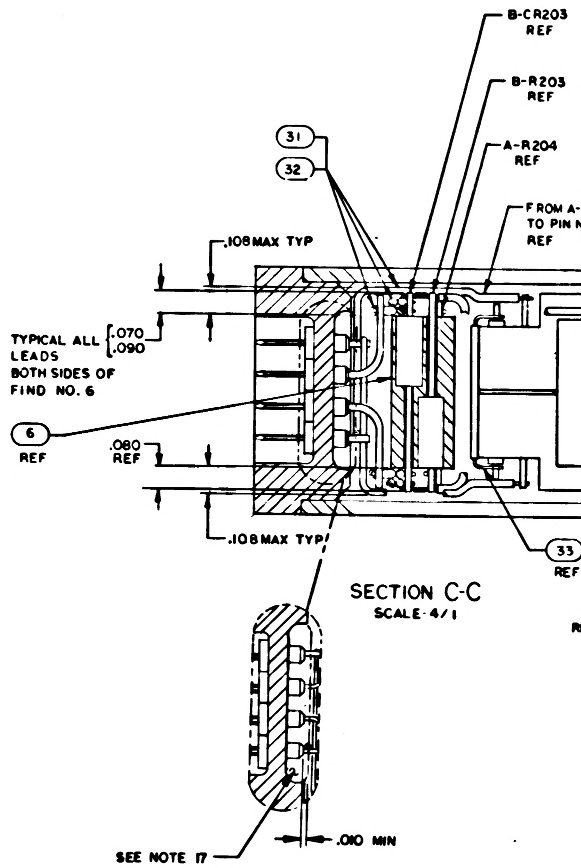
39
SEE NOTE 19
.060 MAX TYP
.060 MAX TYP
J
3 REF

VIEW J-J



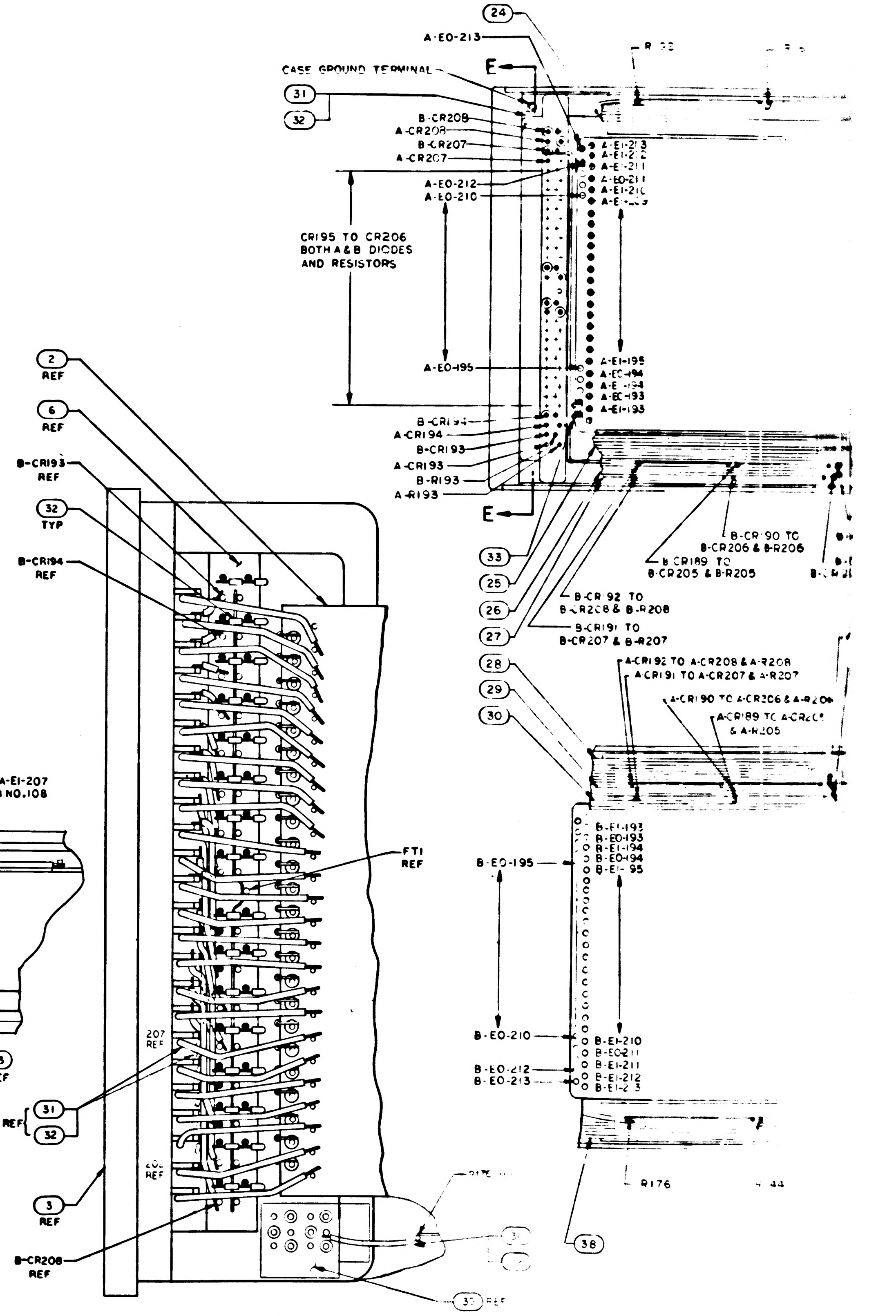
3 REF
6 REF
39 REF
A-CR208 REF
33 REF
R192 REF
31
32
1 REF
J
J
REF
31
32
302 REF
307 REF
C
C
A-CR207 REF
A-CR206 REF
A-CR205 REF
A-CR204 REF
A-CR203 REF
A-CR202 REF
A-CR201 REF
FTI REF
A-CR200 REF
25 REF
A-CR194 REF
A-CR193 REF
A-R193 REF
FROM A-CR207
FROM A-CR205
FROM A-CR204
FROM A-CR202
FROM A-CR201
B-CR193 REF
B-R193 REF
+
+

VIEW G-G
SCALE 4/1
SHOWN WITH POTTING AND FIND NO. 7
REMOVED. SEE NOTES 11,12,13 AND 14



B-CR203 REF
B-R203 REF
A-R204 REF
FROM A-EI-207 TO PIN NO. 108 REF
31
32
.108 MAX TYP
TYPICAL ALL LEADS BOTH SIDES OF FIND NO. 6
.070
.090
6 REF
.080 REF
.108 MAX TYP
33 REF
SEE NOTE 17
.010 MIN

SECTION C-C
SCALE 4/1



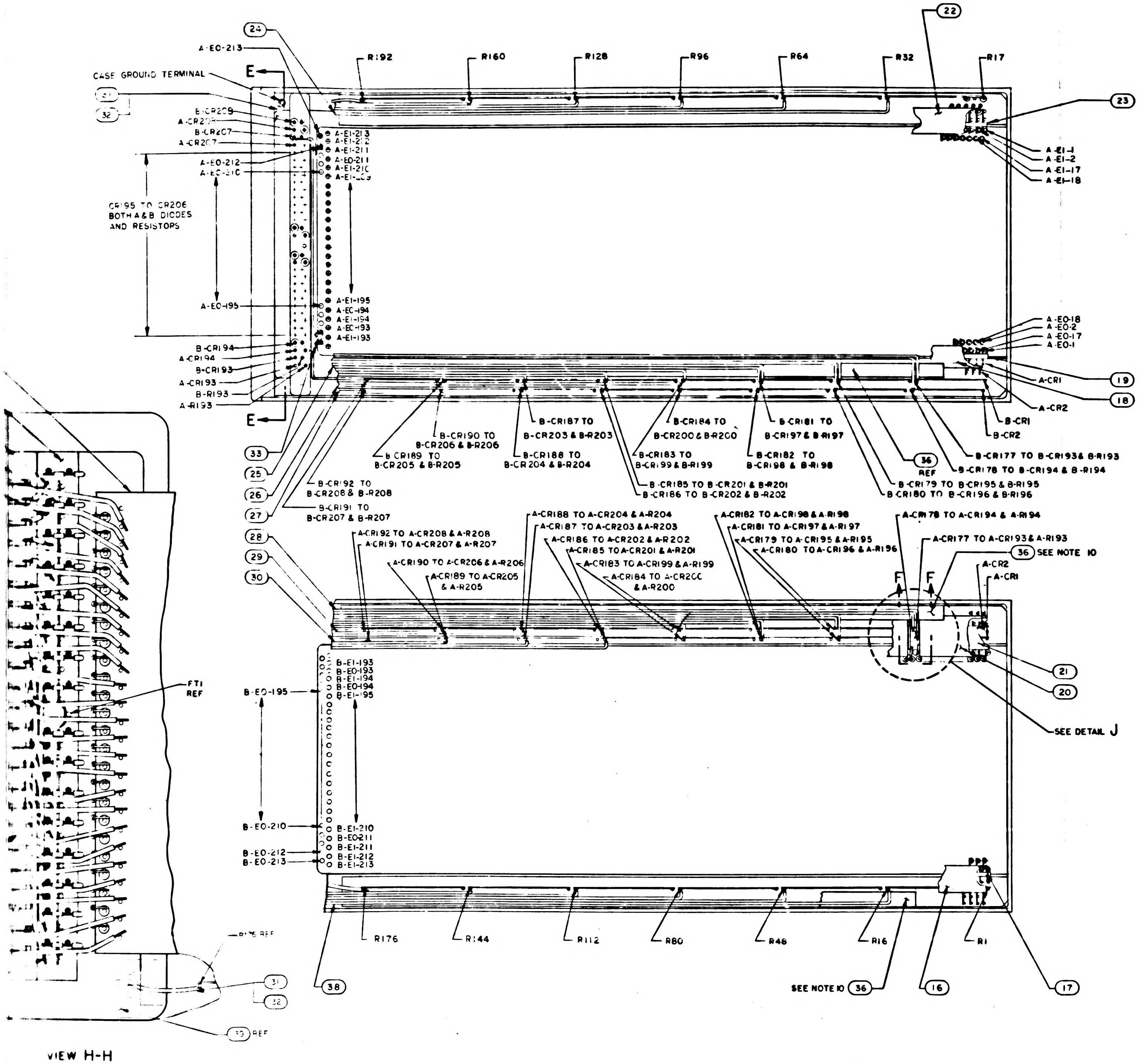
2 REF
6 REF
B-CR193 REF
32 TYP
B-CR194 REF
FTI REF
207 REF
REF
31
32
3 REF
B-CR208 REF
33 REF
24
A-EO-213
CASE GROUND TERMINAL
E
E
31
32
B-CR208
A-CR208
B-CR207
A-CR207
A-EO-212
A-EO-210
A-EI-213
A-EI-212
A-EI-211
A-EO-211
A-EI-210
CR195 TO CR206 BOTH A & B DIODES AND RESISTORS
A-EO-195
A-EI-195
A-EO-194
A-EI-194
A-EO-193
A-EI-193
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
B-CR190 TO B-CR206 & B-R206
B-CR189 TO B-CR205 & B-R205
33
25
26
27
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
28
29
30
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205 & A-R205
B-EO-195
B-EI-193
B-EO-193
B-EI-194
B-EO-194
B-EI-195
B-EO-210
B-EI-210
B-EO-211
B-EI-211
B-EO-212
B-EO-213
B-EI-212
B-EI-213
R176
38

VIEW H-H
SCALE 4/1
SHOWN WITH POTTING AND FIND NO. 7
REMOVED. SEE NOTES 11,12,13 AND 14

2003972 D

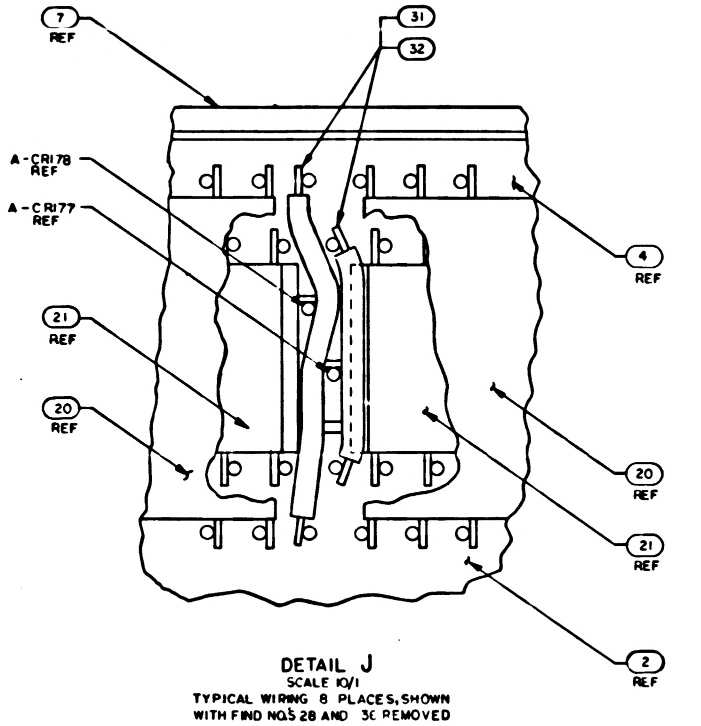
F1/2 SH2/3

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		INITIAL RELEASE TDRR 3[illegible]				
B		REVISED PER TDRR 33-60				
C		REVISED PER TDRR 33-43				
D		REVISED PER TDRR 33-06				



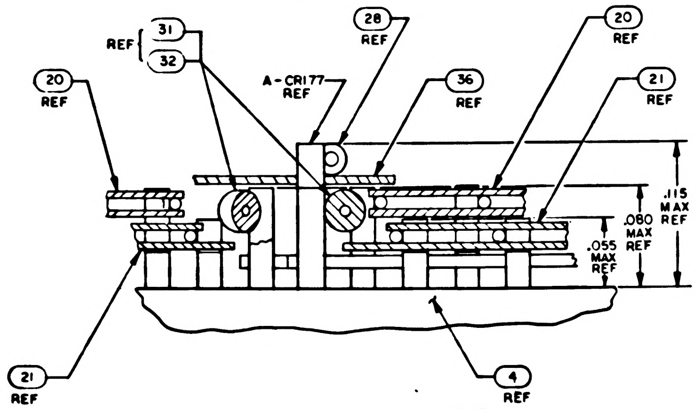
24
A-E0-213
CASE GROUND TERMINAL
E
31
32
B-CR209
A-CR208
B-CR207
A-CR207
A-E0-212
A-E0-210
A-E1-213
A-E1-212
A-E1-211
A-E0-211
A-E1-210
A-E1-209
CR195 TO CR206
BOTH A & B DIODES
AND RESISTORS
A-E0-195
A-E1-195
A-E0-194
A-E1-194
A-E0-193
A-E1-193
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
R192
R160
R128
R96
R64
R32
R17
22
23
A-E1-1
A-E1-2
A-E1-17
A-E1-18
A-E0-18
A-E0-2
A-E0-17
A-E0-1
A-CR1
A-CR2
19
18
B-CR1
B-CR2
33
25
26
27
B-CR190 TO B-CR206 & B-R206
B-CR189 TO B-CR205 & B-R205
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
B-CR187 TO B-CR203 & B-R203
B-CR188 TO B-CR204 & B-R204
B-CR184 TO B-CR200 & B-R200
B-CR183 TO B-CR199 & B-R199
B-CR185 TO B-CR201 & B-R201
B-CR186 TO B-CR202 & B-R202
B-CR181 TO B-CR197 & B-R197
B-CR182 TO B-CR198 & B-R198
36 REF
B-CR177 TO B-CR193 & B-R193
B-CR178 TO B-CR194 & B-R194
B-CR179 TO B-CR195 & B-R195
B-CR180 TO B-CR196 & B-R196
28
29
30
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205 & A-R205
A-CR188 TO A-CR204 & A-R204
A-CR187 TO A-CR203 & A-R203
A-CR186 TO A-CR202 & A-R202
A-CR185 TO A-CR201 & A-R201
A-CR183 TO A-CR199 & A-R199
A-CR184 TO A-CR200 & A-R200
A-CR182 TO A-CR198 & A-R198
A-CR181 TO A-CR197 & A-R197
A-CR179 TO A-CR195 & A-R195
A-CR180 TO A-CR196 & A-R196
A-CR178 TO A-CR194 & A-R194
A-CR177 TO A-CR193 & A-R193
36 SEE NOTE 10
A-CR2
A-CR1
F
F
21
20
SEE DETAIL J
B-E1-193
B-E0-193
B-E1-194
B-E0-194
B-E1-195
B-E0-195
B-E0-210
B-E1-210
B-E0211
B-E1-211
B-E0-212
B-E1-212
B-E0-213
B-E1-213
FT1 REF
R176 REF
R176
R144
R112
R80
R48
R16
R1
38
SEE NOTE 10
36
16
17
33 REF

VIEW H-H
SCALE 4/1
SHOWN WITH POTTING AND FIND NO.7
REMOVED SEE NOTES 11,12,13 AND 14



7 REF
31
32
A-CR178 REF
A-CR177 REF
21 REF
20 REF
4 REF
20 REF
21 REF
2 REF

DETAIL J
SCALE 10/1
TYPICAL WIRING 8 PLACES, SHOWN
WITH FIND NO'S 28 AND 36 REMOVED



REF
31
32
20 REF
A-CR177 REF
28 REF
36 REF
20 REF
21 REF
.115 MAX
.080 REF
.055 MAX REF
21 REF
4 REF

PARTIAL SECTION F-F
SCALE: 20/1

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE
ASSEMBLY

CODE IDENT NO	SIZE	DRAWING NO.
80230	J	200[illegible]72

SCALE 2/1 SHEET 2 OF 3

8 7 6 5

[illegible]

D

C

B

A

8 5

REVISIONS					
SYM	ZONE	DESCRIPTION	DR	CHK	DATE
A		INITIAL RELEASE TDRR 32991			16 ... 67
B		REVISED PER TDRR 33460			4/17/67
C		REVISED PER TDRR 33543			5/8/67
D		REVISED PER TDRR 33606			5/19/67

WIRE LIST

TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.
A-E0-1	A-CR1	A-E0-97	A-CR97	B-E0-1	B-CR1	B-E0-97	B-CR97	A-E1-1	R1	A-E1-49	R49	A-E1-97	R97	A-E1-145	R145
A-E0-2	A-CR2	A-E0-98	A-CR98	B-E0-2	B-CR2	B-E0-98	B-CR98	B-E1-1		B-E1-49		B-E1-97		B-E1-145	
A-E0-3	A-CR3	A-E0-99	A-CR99	B-E0-3	B-CR3	B-E0-99	B-CR99	A-E1-2	R2	A-E1-50	R50	A-E1-98	R98	A-E1-146	R146
A-E0-4	A-CR4	A-E0-100	A-CR100	B-E0-4	B-CR4	B-E0-100	B-CR100	B-E1-2		B-E1-50		B-E1-98		B-E1-146	
A-E0-5	A-CR5	A-E0-101	A-CR101	B-E0-5	B-CR5	B-E0-101	B-CR101	A-E1-3	R3	A-E1-51	R51	A-E1-99	R99	A-E1-147	R147
A-E0-6	A-CR6	A-E0-102	A-CR102	B-E0-6	B-CR6	B-E0-102	B-CR102	B-E1-3		B-E1-51		B-E1-99		B-E1-147	
A-E0-7	A-CR7	A-E0-103	A-CR103	B-E0-7	B-CR7	B-E0-103	B-CR103	A-E1-4	R4	A-E1-52	R52	A-E1-100	R100	A-E1-148	R148
A-E0-8	A-CR8	A-E0-104	A-CR104	B-E0-8	B-CR8	B-E0-104	B-CR104	B-E1-4		B-E1-52		B-E1-100		B-E1-148	
A-E0-9	A-CR9	A-E0-105	A-CR105	B-E0-9	B-CR9	B-E0-105	B-CR105	A-E1-5	R5	A-E1-53	R53	A-E1-101	R101	A-E1-149	R149
A-E0-10	A-CR10	A-E0-106	A-CR106	B-E0-10	B-CR10	B-E0-106	B-CR106	B-E1-5		B-E1-53		B-E1-101		B-E1-149	
A-E0-11	A-CR11	A-E0-107	A-CR107	B-E0-11	B-CR11	B-E0-107	B-CR107	A-E1-6	R6	A-E1-54	R54	A-E1-102	R102	A-E1-150	R150
A-E0-12	A-CR12	A-E0-108	A-CR108	B-E0-12	B-CR12	B-E0-108	B-CR108	B-E1-6		B-E1-54		B-E1-102		B-E1-150	
A-E0-13	A-CR13	A-E0-109	A-CR109	B-E0-13	B-CR13	B-E0-109	B-CR109	A-E1-7	R7	A-E1-55	R55	A-E1-103	R103	A-E1-151	R151
A-E0-14	A-CR14	A-E0-110	A-CR110	B-E0-14	B-CR14	B-E0-110	B-CR110	B-E1-7		B-E1-55		B-E1-103		B-E1-151	
A-E0-15	A-CR15	A-E0-111	A-CR111	B-E0-15	B-CR15	B-E0-111	B-CR111	A-E1-8	R8	A-E1-56	R56	A-E1-104	R104	A-E1-152	R152
A-E0-16	A-CR16	A-E0-112	A-CR112	B-E0-16	B-CR16	B-E0-112	B-CR112	B-E1-8		B-E1-56		B-E1-104		B-E1-152	
A-E0-17	A-CR17	A-E0-113	A-CR113	B-E0-17	B-CR17	B-E0-113	B-CR113	A-E1-9	R9	A-E1-57	R57	A-E1-105	R105	A-E1-153	R153
A-E0-18	A-CR18	A-E0-114	A-CR114	B-E0-18	B-CR18	B-E0-114	B-CR114	B-E1-9		B-E1-57		B-E1-105		B-E1-153	
A-E0-19	A-CR19	A-E0-115	A-CR115	B-E0-19	B-CR19	B-E0-115	B-CR115	A-E1-10	R10	A-E1-58	R58	A-E1-106	R106	A-E1-154	R154
A-E0-20	A-CR20	A-E0-116	A-CR116	B-E0-20	B-CR20	B-E0-116	B-CR116	B-E1-10		B-E1-58		B-E1-106		B-E1-154	
A-E0-21	A-CR21	A-E0-117	A-CR117	B-E0-21	B-CR21	B-E0-117	B-CR117	A-E1-11	R11	A-E1-59	R59	A-E1-107	R107	A-E1-155	R155
A-E0-22	A-CR22	A-E0-118	A-CR118	B-E0-22	B-CR22	B-E0-118	B-CR118	B-E1-11		B-E1-59		B-E1-107		B-E1-155	
A-E0-23	A-CR23	A-E0-119	A-CR119	B-E0-23	B-CR23	B-E0-119	B-CR119	A-E1-12	R12	A-E1-60	R60	A-E1-108	R108	A-E1-156	R156
A-E0-24	A-CR24	A-E0-120	A-CR120	B-E0-24	B-CR24	B-E0-120	B-CR120	B-E1-12		B-E1-60		B-E1-108		B-E1-156	
A-E0-25	A-CR25	A-E0-121	A-CR121	B-E0-25	B-CR25	B-E0-121	B-CR121	A-E1-13	R13	A-E1-61	R61	A-E1-109	R109	A-E1-157	R157
A-E0-26	A-CR26	A-E0-122	A-CR122	B-E0-26	B-CR26	B-E0-122	B-CR122	B-E1-13		B-E1-61		B-E1-109		B-E1-157	
A-E0-27	A-CR27	A-E0-123	A-CR123	B-E0-27	B-CR27	B-E0-123	B-CR123	A-E1-14	R14	A-E1-62	R62	A-E1-110	R110	A-E1-158	R158
A-E0-28	A-CR28	A-E0-124	A-CR124	B-E0-28	B-CR28	B-E0-124	B-CR124	B-E1-14		B-E1-62		B-E1-110		B-E1-158	
A-E0-29	A-CR29	A-E0-125	A-CR125	B-E0-29	B-CR29	B-E0-125	B-CR125	A-E1-15	R15	A-E1-63	R63	A-E1-111	R111	A-E1-159	R159
A-E0-30	A-CR30	A-E0-126	A-CR126	B-E0-30	B-CR30	B-E0-126	B-CR126	B-E1-15		B-E1-63		B-E1-111		B-E1-159	
A-E0-31	A-CR31	A-E0-127	A-CR127	B-E0-31	B-CR31	B-E0-127	B-CR127	A-E1-16	R16	A-E1-64	R64	A-E1-112	R112	A-E1-160	R160
A-E0-32	A-CR32	A-E0-128	A-CR128	B-E0-32	B-CR32	B-E0-128	B-CR128	B-E1-16		B-E1-64		B-E1-112		B-E1-160	
A-E0-33	A-CR33	A-E0-129	A-CR129	B-E0-33	B-CR33	B-E0-129	B-CR129	A-E1-17	R17	A-E1-65	R65	A-E1-113	R113	A-E1-161	R161
A-E0-34	A-CR34	A-E0-130	A-CR130	B-E0-34	B-CR34	B-E0-130	B-CR130	B-E1-17		B-E1-65		B-E1-113		B-E1-161	
A-E0-35	A-CR35	A-E0-131	A-CR131	B-E0-35	B-CR35	B-E0-131	B-CR131	A-E1-18	R18	A-E1-66	R66	A-E1-114	R114	A-E1-162	R162
A-E0-36	A-CR36	A-E0-132	A-CR132	B-E0-36	B-CR36	B-E0-132	B-CR132	B-E1-18		B-E1-66		B-E1-114		B-E1-162	
A-E0-37	A-CR37	A-E0-133	A-CR133	B-E0-37	B-CR37	B-E0-133	B-CR133	A-E1-19	R19	A-E1-67	R67	A-E1-115	R115	A-E1-163	R163
A-E0-38	A-CR38	A-E0-134	A-CR134	B-E0-38	B-CR38	B-E0-134	B-CR134	B-E1-19		B-E1-67		B-E1-115		B-E1-163	
A-E0-39	A-CR39	A-E0-135	A-CR135	B-E0-39	B-CR39	B-E0-135	B-CR135	A-E1-20	R20	A-E1-68	R68	A-E1-116	R116	A-E1-164	R164
A-E0-40	A-CR40	A-E0-136	A-CR136	B-E0-40	B-CR40	B-E0-136	B-CR136	B-E1-20		B-E1-68		B-E1-116		B-E1-164	
A-E0-41	A-CR41	A-E0-137	A-CR137	B-E0-41	B-CR41	B-E0-137	B-CR137	A-E1-21	R21	A-E1-69	R69	A-E1-117	R117	A-E1-165	R165
A-E0-42	A-CR42	A-E0-138	A-CR138	B-E0-42	B-CR42	B-E0-138	B-CR138	B-E1-21		B-E1-69		B-E1-117		B-E1-165	
A-E0-43	A-CR43	A-E0-139	A-CR139	B-E0-43	B-CR43	B-E0-139	B-CR139	A-E1-22	R22	A-E1-70	R70	A-E1-118	R118	A-E1-166	R166
A-E0-44	A-CR44	A-E0-140	A-CR140	B-E0-44	B-CR44	B-E0-140	B-CR140	B-E1-22		B-E1-70		B-E1-118		B-E1-166	
A-E0-45	A-CR45	A-E0-141	A-CR141	B-E0-45	B-CR45	B-E0-141	B-CR141	A-E1-23	R23	A-E1-71	R71	A-E1-119	R119	A-E1-167	R167
A-E0-46	A-CR46	A-E0-142	A-CR142	B-E0-46	B-CR46	B-E0-142	B-CR142	B-E1-23		B-E1-71		B-E1-119		B-E1-167	
A-E0-47	A-CR47	A-E0-143	A-CR143	B-E0-47	B-CR47	B-E0-143	B-CR143	A-E1-24	R24	A-E1-72	R72	A-E1-120	R120	A-E1-168	R168
A-E0-48	A-CR48	A-E0-144	A-CR144	B-E0-48	B-CR48	B-E0-144	B-CR144	B-E1-24		B-E1-72		B-E1-120		B-E1-168	
A-E0-49	A-CR49	A-E0-145	A-CR145	B-E0-49	B-CR49	B-E0-145	B-CR145	A-E1-25	R25	A-E1-73	R73	A-E1-121	R121	A-E1-169	R169
A-E0-50	A-CR50	A-E0-146	A-CR146	B-E0-50	B-CR50	B-E0-146	B-CR146	B-E1-25		B-E1-73		B-E1-121		B-E1-169	
A-E0-51	A-CR51	A-E0-147	A-CR147	B-E0-51	B-CR51	B-E0-147	B-CR147	A-E1-26	R26	A-E1-74	R74	A-E1-122	R122	A-E1-170	R170
A-E0-52	A-CR52	A-E0-148	A-CR148	B-E0-52	B-CR52	B-E0-148	B-CR148	B-E1-26		B-E1-74		B-E1-122		B-E1-170	
A-E0-53	A-CR53	A-E0-149	A-CR149	B-E0-53	B-CR53	B-E0-149	B-CR149	A-E1-27	R27	A-E1-75	R75	A-E1-123	R123	A-E1-171	R171
A-E0-54	A-CR54	A-E0-150	A-CR150	B-E0-54	B-CR54	B-E0-150	B-CR150	B-E1-27		B-E1-75		B-E1-123		B-E1-171	
A-E0-55	A-CR55	A-E0-151	A-CR151	B-E0-55	B-CR55	B-E0-151	B-CR151	A-E1-28	R28	A-E1-76	R76	A-E1-124	R124	A-E1-172	R172
A-E0-56	A-CR56	A-E0-152	A-CR152	B-E0-56	B-CR56	B-E0-152	B-CR152	B-E1-28		B-E1-76		B-E1-124		B-E1-172	
A-E0-57	A-CR57	A-E0-153	A-CR153	B-E0-57	B-CR57	B-E0-153	B-CR153	A-E1-29	R29	A-E1-77	R77	A-E1-125	R125	A-E1-173	R173
A-E0-58	A-CR58	A-E0-154	A-CR154	B-E0-58	B-CR58	B-E0-154	B-CR154	B-E1-29		B-E1-77		B-E1-125		B-E1-173	
A-E0-59	A-CR59	A-E0-155	A-CR155	B-E0-59	B-CR59	B-E0-155	B-CR155	A-E1-30	R30	A-E1-78	R78	A-E1-126	R126	A-E1-174	R174
A-E0-60	A-CR60	A-E0-156	A-CR156	B-E0-60	B-CR60	B-E0-156	B-CR156	B-E1-30		B-E1-78		B-E1-126		B-E1-174	
A-E0-61	A-CR61	A-E0-157	A-CR157	B-E0-61	B-CR61	B-E0-157	B-CR157	A-E1-31	R31	A-E1-79	R79	A-E1-127	R127	A-E1-175	R175
A-E0-62	A-CR62	A-E0-158	A-CR158	B-E0-62	B-CR62	B-E0-158	B-CR158	B-E1-31		B-E1-79		B-E1-127		B-E1-175	
A-E0-63	A-CR63	A-E0-159	A-CR159	B-E0-63	B-CR63	B-E0-159	B-CR159	A-E1-32	R32	A-E1-80	R80	A-E1-128	R128	A-E1-176	R176
A-E0-64	A-CR64	A-E0-160	A-CR160	B-E0-64	B-CR64	B-E0-160	B-CR160	B-E1-32		B-E1-80		B-E1-128		B-E1-176	
A-E0-65	A-CR65	A-E0-161	A-CR161	B-E0-65	B-CR65	B-E0-161	B-CR161	A-E1-33	R33	A-E1-81	R81	A-E1-129	R129	A-E1-177	R177
A-E0-66	A-CR66	A-E0-162	A-CR162	B-E0-66	B-CR66	B-E0-162	B-CR162	B-E1-33		B-E1-81		B-E1-129		B-E1-177	
A-E0-67	A-CR67	A-E0-163	A-CR163	B-E0-67	B-CR67	B-E0-163	B-CR163	A-E1-34	R34	A-E1-82	R82	A-E1-130	R130	A-E1-178	R178
A-E0-68	A-CR68	A-E0-164	A-CR164	B-E0-68	B-CR68	B-E0-164	B-CR164	B-E1-34		B-E1-82		B-E1-130		B-E1-178	
A-E0-69	A-CR69	A-E0-165	A-CR165	B-E0-69	B-CR69	B-E0-165	B-CR165	A-E1-35	R35	A-E1-83	R83	A-E1-131	R131	A-E1-179	R179
A-E0-70	A-CR70	A-E0-166	A-CR166	B-E0-70	B-CR70	B-E0-166	B-CR166	B-E1-35		B-E1-83		B-E1-131		B-E1-179	
A-E0-71	A-CR71	A-E0-167	A-CR167	B-E0-71	B-CR71	B-E0-167	B-CR167	A-E1-36	R36	A-E1-84	R84	A-E1-132	R132	A-E1-180	R180
A-E0-72	A-CR72	A-E0-168	A-CR168	B-E0-72	B-CR72	B-E0-168	B-CR168	B-E1-36		B-E1-84		B-E1-132		B-E1-180	
A-E0-73	A-CR73	A-E0-169	A-CR169	B-E0-73	B-CR73	B-E0-169	B-CR169	A-E1-37	R37	A-E1-85	R85	A-E1-133	R133	A-E1-181	R181
A-E0-74	A-CR74	A-E0-170	A-CR170	B-E0-74	B-CR74	B-E0-170	B-CR170	B-E1-37		B-E1-85		B-E1-133		B-E1-181	
A-E0-75	A-CR75	A-E0-171	A-CR171	B-E0-75	B-CR75	B-E0-171	B-CR171	A-E1-38	R38	A-E1-86	R86	A-E1-134	R134	A-E1-182	R182
A-E0-76	A-CR76	A-E0-172	A-CR172	B-E0-76	B-CR76	B-E0-172	B-CR172	B-E1-38		B-E1-86		B-E1-134		B-E1-182	
A-E0-77	A-CR77	A-E0-173	A-CR173	B-E0-77	B-CR77	B-E0-173	B-CR173	A-E1-39	R39	A-E1-87	R87	A-E1-135	R135	A-E1-183	R183
A-E0-78	A-CR78	A-E0-174	A-CR174	B-E0-78	B-CR78	B-E0-174	B-CR174	B-E1-39		B-E1-87		B-E1-135		B-E1-183	
A-E0-79	A-CR79	A-E0-175	A-CR175	B-E0-79	B-CR79	B-E0-175	B-CR175	A-E1-40	R40	A-E1-88	R88	A-E1-136	R136	A-E1-184	R184
A-E0-80	A-CR80	A-E0-176	A-CR176	B-E0-80	B-CR80	B-E0-176	B-CR176	B-E1-40		B-E1-88		B-E1-136		B-E1-184	
A-E0-81	A-CR81	A-E0-177	A-CR177	B-E0-81	B-CR81	B-E0-177	B-CR177	A-E1-41	R41	A-E1-89	R89	A-E1-137	R137	A-E1-185	R185
A-E0-82	A-CR82	A-E0-178	A-CR178	B-E0-82	B-CR82	B-E0-178	B-CR178	B-E1-41		B-E1-89		B-E1-137		B-E1-185	
A-E0-83	A-CR83	A-E0-179	A-CR179	B-E0-83	B-CR83	B-E0-179	B-CR179	A-E1-42	R42	A-E1-90	R90	A-E1-138	R138	A-E1-186	R186
A-E0-84	A-CR84	A-E0-180	A-CR180	B-E0-84	B-CR84	B-E0-180	B-CR180	B-E1-42		B-E1-90		B-E1-138		B-E1-186	
A-E0-85	A-CR85	A-E0-181	A-CR181	B-E0-85	B-CR85	B-E0-181	B-CR181	A-E1-43	R43	A-E1-91	R91	A-E1-139	R139	A-E1-187	R187
A-E0-86	A-CR86	A-E0-182	A-CR182	B-E0-86	B-CR86	B-E0-182	B-CR182	B-E1-43		B-E1-91		B-E1-139		B-E1-187	
A-E0-87	A-CR87	A-E0-183	A-CR183	B-E0-87	B-CR87	B-E0-183	B-CR183	A-E1-44	R44	A-E1-92	R92	A-E1-140	R140	A-E1-188	R188
A-E0-88	A-CR88	A-E0-184	A-CR184	B-E0-88	B-CR88	B-E0-184	B-CR184	B-E1-44		B-E1-92		B-E1-140		B-E1-188	
A-E0-89	A-CR89	A-E0-185	A-CR185	B-E0-89	B-CR89	B-E0-185	B-CR185	A-E1-45	R45	A-E1-93	R93	A-E1-141	R141	A-E1-189	R189
A-E0-90	A-CR90	A-E0-186	A-CR186	B-E0-90	B-CR90	B-E0-186	B-CR186	B-E1-45		B-E1-93		B-E1-141		B-E1-189	
A-E0-91	A-CR91	A-E0-187	A-CR187	B-E0-91	B-CR91	B-E0-187	B-CR187	A-E1-46	R46	A-E1-94	R94	A-E1-142	R142	A-E1-190	R190
A-E0-92	A-CR92	A-E0-188	A-CR188	B-E0-92	B-CR92	B-E0-188	B-CR188	B-E1-46		B-E1-94		B-E1-142		B-E1-190	
A-E0-93	A-CR93	A-E0-189	A-CR189	B-E0-93	B-CR93	B-E0-189	B-CR189	A-E1-47	R47	A-E1-95	R95	A-E1-143	R143	A-E1-191	R191
A-E0-94	A-CR94	A-E0-190	A-CR190	B-E0-94	B-CR94	B-E0-190	B-CR190	B-E1-47		B-E1-95		B-E1-143		B-E1-191	
A-E0-95	A-CR95	A-E0-191	A-CR191	B-E0-95	B-CR95	B-E0-191	B-CR191	A-E1-48	R48	A-E1-96	R96	A-E1-144	R144	A-E1-192	R192
A-E0-96	A-CR96	A-E0-192	A-CR192	B-E0-96	B-CR96	B-E0-192	B-CR192	B-E1-48		B-E1-96		B-E1-144		B-E1-192	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

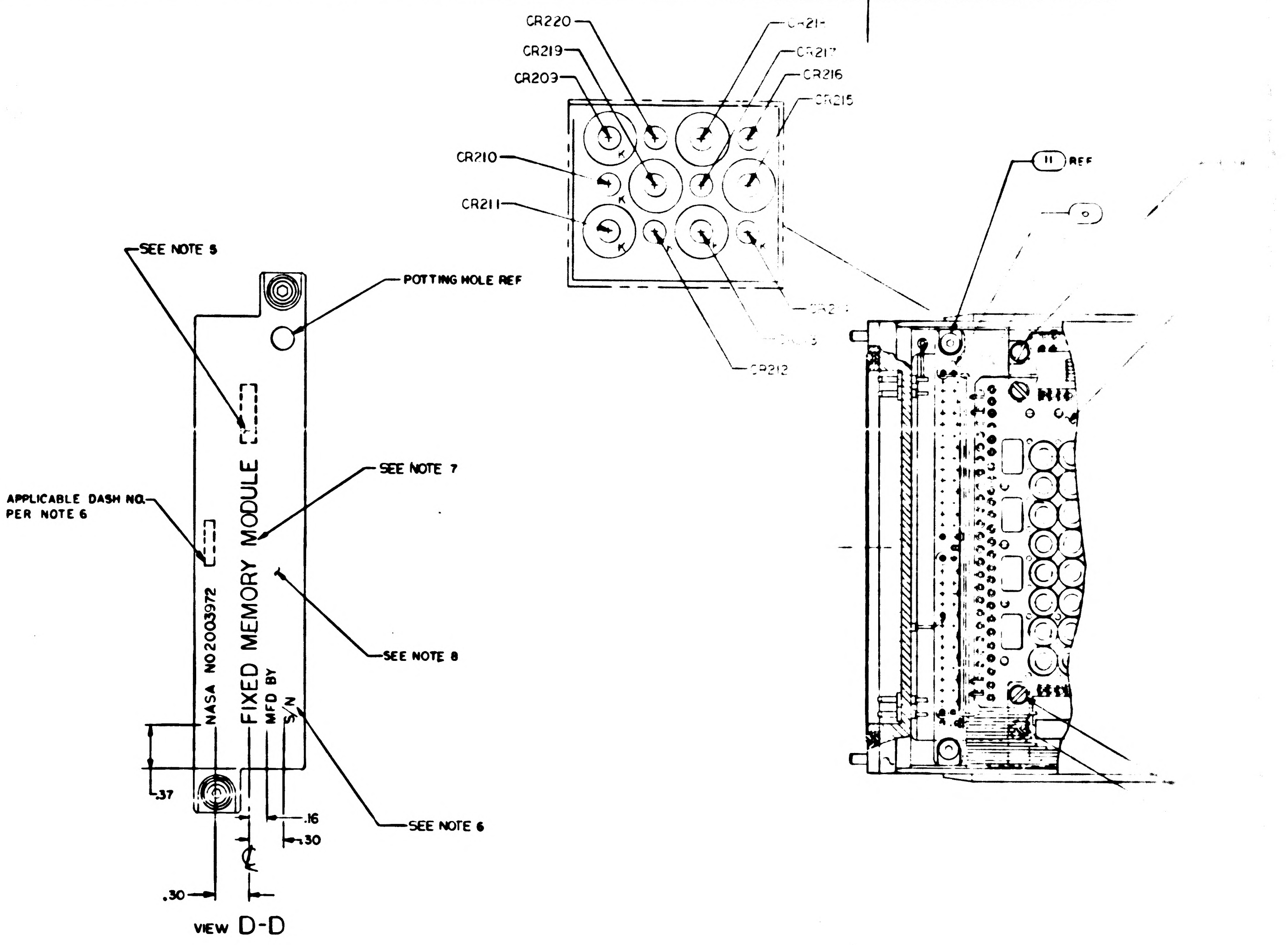
DRAWN
CHECKED
APPROVED
APPROVED
APPROVED
MSC

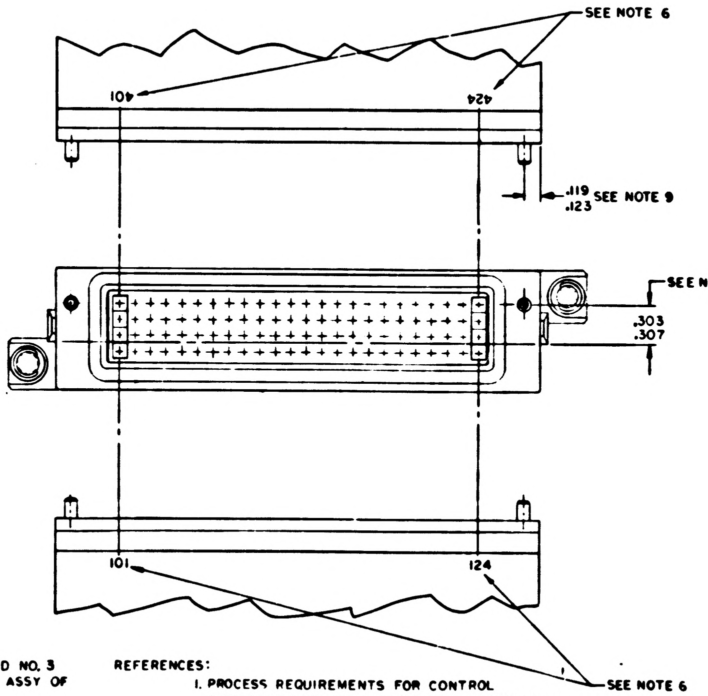
FIXED MEMORY MODULE ASSEMBLY

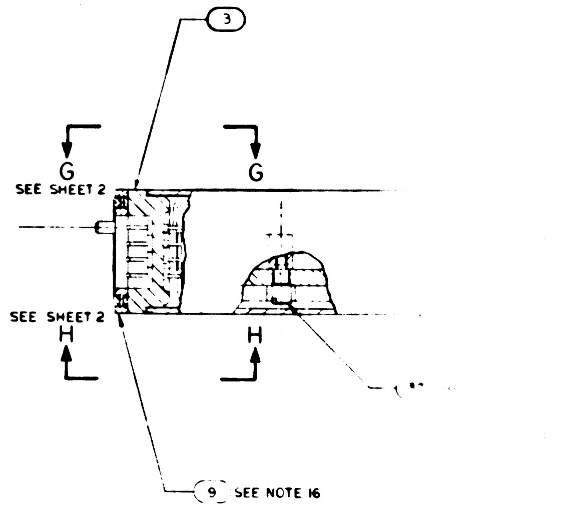
CODE IDENT NO 80230
SIZE J
DRAWING NO 2003972
SCALE NONE
DATE
SHEET 3 OF 3

F2/2

PART NO.	MODULE NO.	FIND NO. 1	FIND NO. 2	MODULE DECK NO.	NEXT ASSEMBLY NO. (REF)
2003972-011	B1	2003060-061	2003061-061	0205	2021101
2003972-021	B2	2003060-071	2003061-071	0206	2021101
2003972-031	B3	2003060-081	2003061-081	0207	2021101
2003972-041	B1	2003060-121	2003061-121	0210	2021104
2003972-051	B2	2003060-131	2003061-131	0211	2021104
2003972-061	B3	2003060-141	2003061-141	0212	2021104
2003972-071	B2	2003060-151	2003061-151	0213	2021104
2003972-081	B3	2003060-161	2003061-161	0214	2021104
2003972-091	B2	2003060-171	2003061-171	0215	2021101
2003972-111	B3	2003060-181	2003061-181	0216	2021101
2003972-121	B1	2003060-091	2003061-091	0208	2021105-031
2003972-131	B2	2003060-111	2003061-111	0209	2021105-031
2003972-141	B1	2003060-191	2003061-191	0217	2021106-011
2003972-151	B2	2003060-211	2003061-211	0218	2021106-011
2003972-161	B3	2003060-221	2003061-221	0219	2021106-011
2003972-171	B4	2003060-231	2003061-231	0220	2021106-011
2003972-181	B5	2003060-241	2003061-241	0221	2021106-011
2003972-191	B6	2003060-251	2003061-251	0222	2021106-011
2003972-211	B3	2003060-261	2003061-261	0223	2021104-041
2003972-221	[illegible]	2003060-271	2003061-271	0224	2021105-041
2003972-231	B1	2003060-281	2003061-281	0225	2021106-021
2003972-241	B3	2003060-291	2003061-291	0226	2021106-021
2003972-251	B5	2003060-311	2003061-311	0227	2021106-021
2003972-261	B1	2003060-321	2003061-321	0228	2021107-011
2003972-271	B2	2003060-331	2003061-331	0229	2021107-011







NOTES:

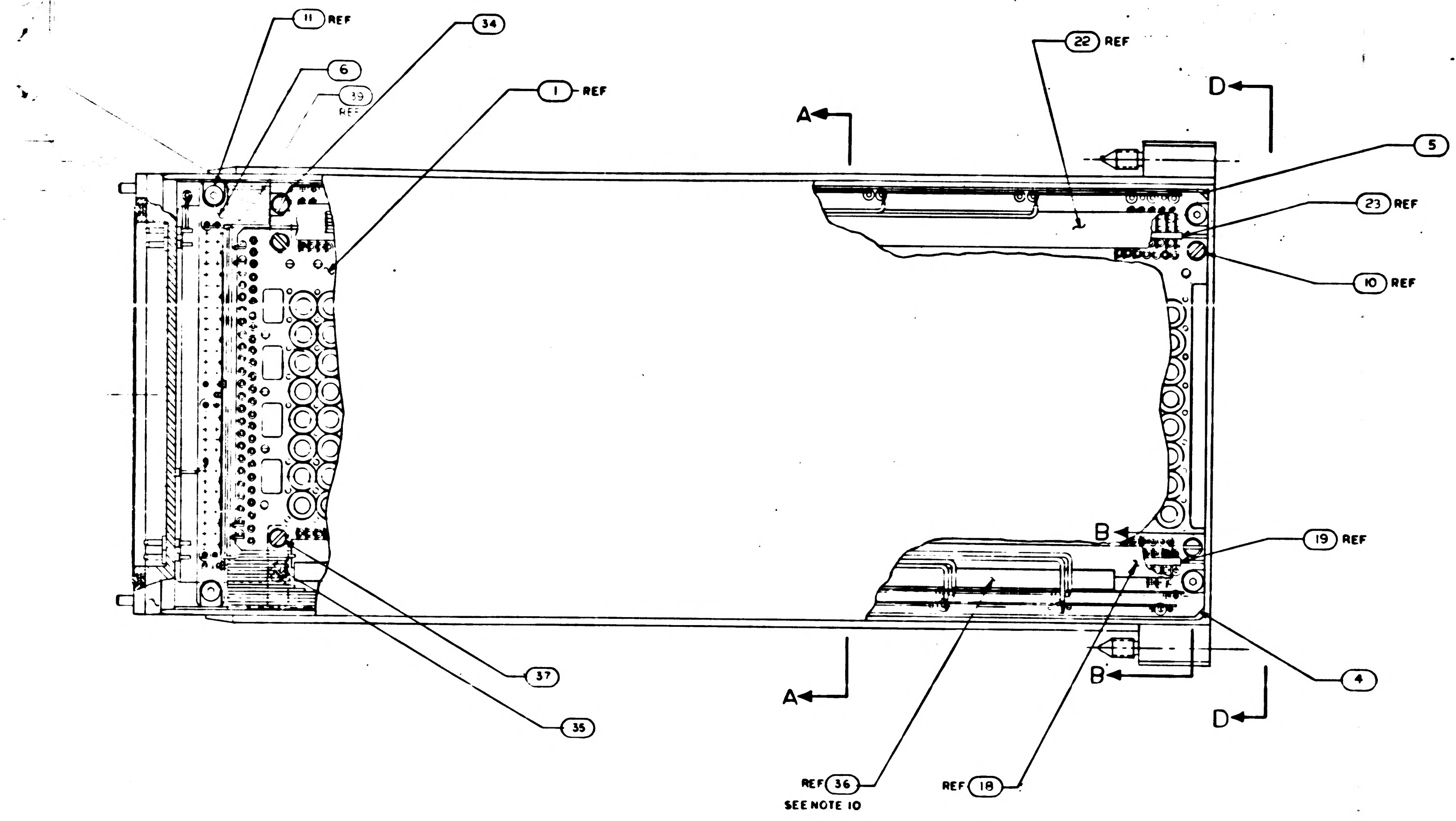
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
3. ENCAPSULATE MODULE PER ND1002226 METHOD II
4. WELD PER ND1002005
5. MARK APPROPRIATE MODULE NO. AS SHOWN IN CHART
6. MARK .08/.06 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
7. MARK .14/.10 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 USING INK 1006271-1
8. PAINT INDICATED SURFACES OF FIND NO 7. PER ND1002279 WITH SCD NO. 1008809-1 DARK GREY EPOXY RESIN ENAMEL, FINAL COAT PER ND1002277 USING 1012543-003
9. ASSEMBLE FIND NO.7 AND FIND NO.3 TO DIMENSIONS SHOWN
10. REMOVE LINER FROM NEARSIDE OF FIND NO.36 AND ASSEMBLE 3 PLACES AS SHOWN. FIND NO.36 MUST INSULATE FLAT CABLES FROM TRIMMED COMPONENT LEADS. TRIM AS REQUIRED
11. WHITE DOT AND SINGLE SOLID LEAD DENOTES FIRST LEVEL WIRING UNLESS OTHERWISE SPECIFIED
12. BLACK DOT AND SINGLE SOLID LEAD DENOTES SECOND LEVEL WIRING
13. BLACK DOT AND CROSS HATCHED LEAD DENOTES THIRD LEVEL WIRING
14. ALL LEADS FROM FIND NO.1 AND FIND NO.2 TO FIND NO.3 TO BE THIRD LEVEL WIRING
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003972. FOR-121 & -131 CONFIGURATIONS USE PS 2003960
16. FIND NO.9 TO BE SHIPPED UNASSEMBLED AND IDENTIFIED PER ND 1002019
17. SEAL PINS AND INSULATORS TO FIND NO. 3 PER ND1002004 TYPE VI BEFORE ASSY OF FIND NO. 6
18. FILL AS SHOWN PER ND1002235 METHOD A
19. BOND FIND NO.39 TO FIND NO.3 PER ND1002004 TYPE VI AFTER ASSY OF FIND NO.6
20. PRIOR TO ENCAPSULATION PER NOTE 3, COAT OVER ALL TERMINALS OF FIND NO'S 1,2 & 3 AND OVER ALL WIRES, SLEEVING AND COMPONENT LEADS OF FIND NO'S 4,5,6,16,17,18,19,20,21,22,23,24, 25,26,27,28,29,30,31,32,33,38 & 39 WITH A .03 MAXIMUM THICKNESS OF SILICONE RUBBER PER ND1002009, METHOD A. MASK ALL OUTSIDE SURFACES OF FIND NO.3 AND ALL OTHER SURFACES OF THIS ASSEMBLY COMING IN CLOSE CONTACT WITH FIND NO.7

REFERENCES:

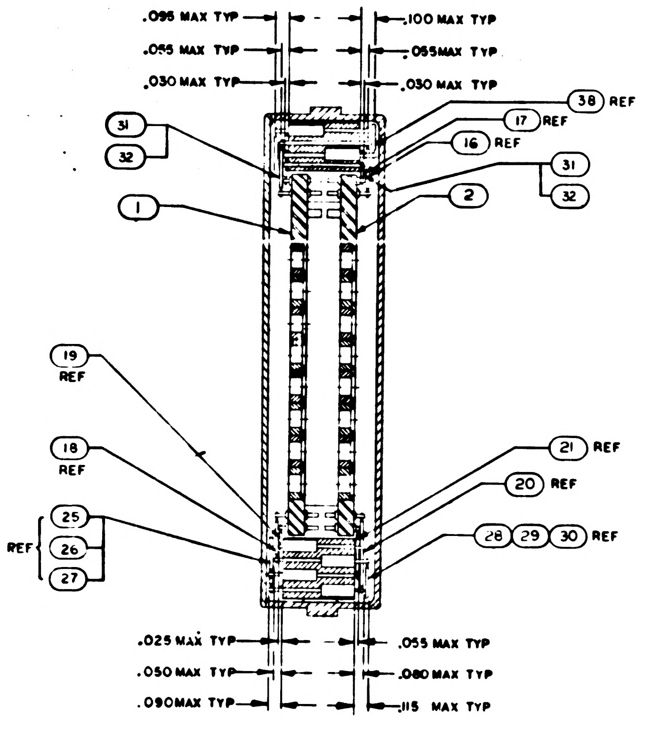
1. PROCESS REQUIREMENTS FOR CONTROL AND INSPECTION OF ROPE MEMORY ASSEMBLIES ND1002285
2. FIXED MEMORY FIXTURE DWG. NO. AP22500

2003972 E

SYM	DESCRIPTION	DATE	APPROVAL
	INITIAL RELEASE TDRR 32491	[illegible]	[illegible]
B	REVISED PER TDRR 3[illegible]4[illegible]C DR [illegible] CHK [illegible]	[illegible]	[illegible]
C	REVISED PER TDRR [illegible]4 DR [illegible] CHK [illegible]	[illegible]	[illegible]
D	REVISED PER TDRR 33606 DR [illegible] CHK [illegible]	[illegible]	[illegible]
E	REVISED PER TDRR 34,40 DR [illegible] CHK [illegible]	[illegible]	[illegible]

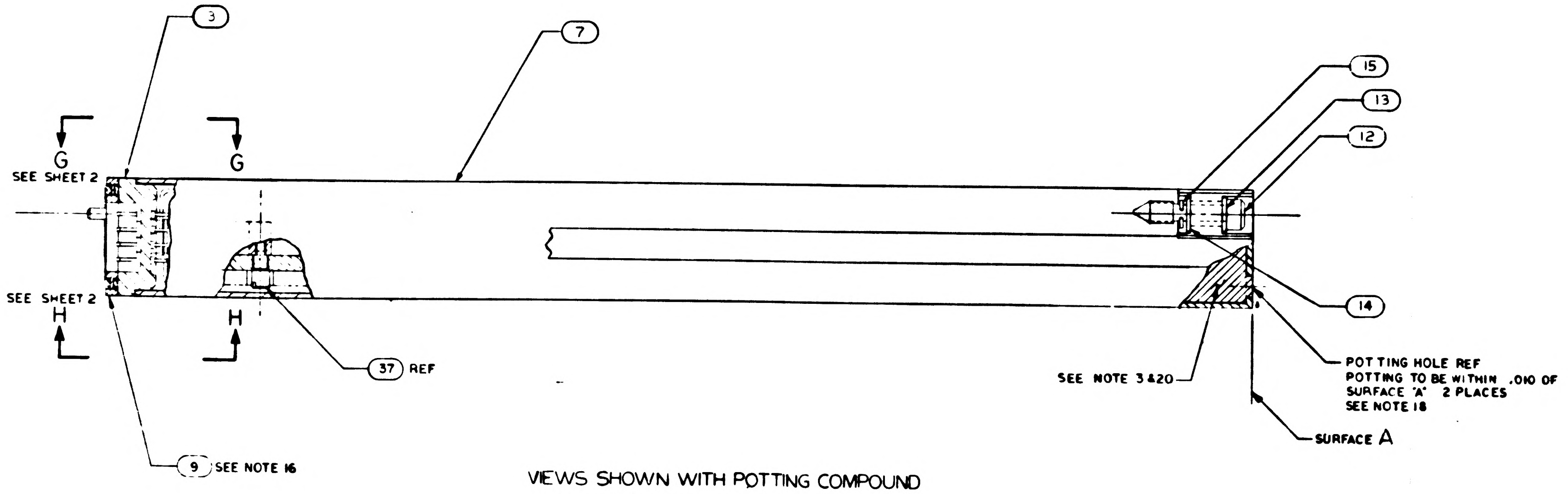


11 REF
6
39 REF
34
1 REF
22 REF
A
D
5
23 REF
10 REF
B
19 REF
37
35
4
A
B
D
REF 36
SEE NOTE 10
REF 18



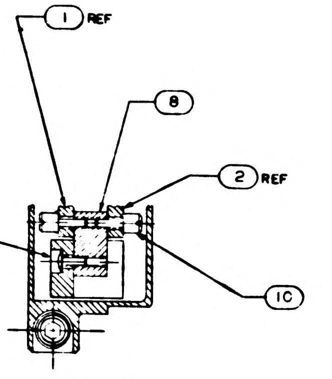
.095 MAX TYP
.055 MAX TYP
.030 MAX TYP
.100 MAX TYP
.055 MAX TYP
.030 MAX TYP
38 REF
17 REF
16 REF
31
32
1
2
31
32
19 REF
18 REF
21 REF
20 REF
REF 25 26 27
28 29 30 REF
.025 MAX TYP
.050 MAX TYP
.090 MAX TYP
.055 MAX TYP
.080 MAX TYP
.115 MAX TYP

SECTION A-A



3
7
G
SEE SHEET 2
G
SEE SHEET 2
H
H
15
13
12
14
37 REF
9 SEE NOTE 16
SEE NOTE 3 & 20
POTTING HOLE REF
POTTING TO BE WITHIN .010 OF SURFACE "A" 2 PLACES
SEE NOTE 18
SURFACE A

VIEWS SHOWN WITH POTTING COMPOUND PARTIALLY REMOVED



1 REF
8
2 REF
11
10

SECTION B-B

SEE NOTE 16

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
1	2003986-021	COMPONENT BLOCK DIODE ASSY	[illegible]
☒	2005935	SCHEMATIC	REF
1	2004684	FLAT CABLE	38
4	2004150 - 003	SCREW, SHOULDERED	37
AR	1006806 - 26	INSULATION TAPE, ELECTRICAL	36
1	2004150 - 001	SCREW, SHOULDERED	35
1	2004150 - 002	SCREW, SHOULDERED	34
1	2004129	FLAT CABLE INTERCONNECTION	33
AR	1006776-25	SLEEVING	32
AR	1006757-12	WIRE, ELECRICAL	31
1	2004125	FLAT CABLE	30
1	2004122	FLAT CABLE	29
1	2004124	FLAT CABLE	28
1	2004123	FLAT CABLE	27
1	2004121	FLAT CABLE	26
1	2004120	FLAT CABLE	25
1	2004185	FLAT CABLE	24
1	2003051 - 013	MATRIX ASSY	23
1	2003051 - 014	MATRIX ASSY	22
8	2003051 - 016	MATRIX ASSY	21
8	2003051 - 015	MATRIX ASSY	20
1	2003051 - 017	MATRIX ASSY	19
1	2003051 - 018	MATRIX ASSY	18
1	2003051 - 011	MATRIX ASSY	17
1	2003051 - 012	MATRIX ASSY	16
2	MS16633-4015	E RING	15
2	1004546-3	WASHER	14
2	1004546-1	WASHER	13
2	1004579-1	SCREW, JACKING	12
4	1000093-1	SCREW, BUTTONHEAD	11
4	2004151	SCREW, STANDOFF	10
1	1006339	GASKET PLATE	9
2	2004071	STANDOFF	8
1	2004100	HOUSING	7
1	2003048-021	RESISTOR-DIODE BLOCK ASSY	6
1	2003052-021	COMPONENT BLOCK RESISTOR ASSY	5
1	2003045-021	COMPONENT BLOCK DIODE ASSY	4
1	2003973-011	CONNECTOR PLATE ASSY	3
1	2003061-SEE CHART	SENSE WIRING ASSY SIDE B	2
1	2003060-SEE CHART	SENSE WIRING ASSY SIDE A	1

LIST OF MATERIALS

FOR APPLICABLE PART NO. SEE CHART

NEXT ASSY	USED ON
SEE CHART	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN [illegible] DATE [illegible]
CHECKED [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE ASSEMBLY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO 2003972
SCALE 2/1
WT
SHEET 1 OF 3

F2/2

2003972 E

WIRE LIST

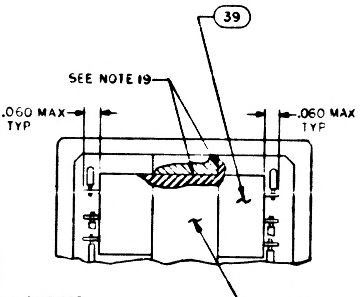
PIN NO.	COMPONENT OR TERM. NO.	PIN NO.	COMPONENT OR TERM. NO.
101	A-E1-213	301	GROUND
102	A-E1-212	302	CR209
103	A-E1-211	303	CR210
104	A-E0-211	304	CR211
105	A-E1-210	305	CR212
106	A-E1-209	306	CR213
107	A-E1-208	307	CR214
108	A-E1-207	308	A-CR208
109	A-E1-206	309	A-CR207
110	A-E1-205	310	A-CR206
111	A-E1-204	311	A-CR205
112	A-E1-203	312	A-CR204
113	A-E1-202	313	A-CR203
114	A-E1-201	314	A-CR202
115	A-E1-200	315	A-CR201
116	A-E1-199	316	A-CR200
117	A-E1-198	317	A-CR199
118	A-E1-197	318	A-CR198
119	A-E1-196	319	A-CR197
120	A-E1-195	320	A-CR196
121	A-E0-194	321	A-CR195
122	A-E1-194	322	A-CR194
123	A-E0-193	323	A-CR193
124	A-E1-193	324	SPARE
201	B-R208	401	B-E1-213
202	CR215	402	B-E1-212
203	CR216	403	B-E1-211
204	CR217	404	B-E0-211
205	CR218	405	B-E1-210
206	CR219	406	B-E1-209
207	[illegible]	407	B-E1-208
208	B-CR208	408	B-E1-207
209	B-CR207	409	B-E1-206
210	B-CR206	410	B-E1-205
211	B-CR205	411	B-E1-204
212	B-CR204	412	B-E1-203
213	B-CR203	413	B-E1-202
214	B-CR202	414	B-E1-201
215	B-CR201	415	B-E1-200
216	B-CR200	416	B-E1-199
217	B-CR199	417	B-E1-198
218	B-CR198	418	B-E1-197
219	B-CR197	419	B-E1-196
220	B-CR196	420	B-E1-195
221	B-CR195	421	B-E0-194
222	B-CR194	422	B-E1-194
223	B-CR193	423	B-E0-193
224	SPARE	424	B-E1-193

WIRE LIST

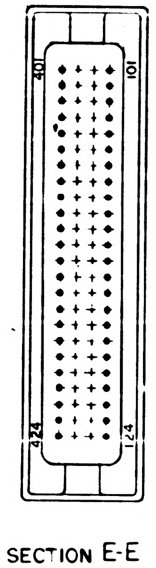
TERMINAL NO.	TERMINAL NO.
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
A-E0-195	B-E0-195
A-E0-196	B-E0-196
A-E0-197	B-E0-197
A-E0-198	B-E0-198
A-E0-199	B-E0-199
A-E0-200	B-E0-200
A-E0-201	B-E0-201
A-E0-202	B-E0-202
A-E0-203	B-E0-203
A-E0-204	B-E0-204
A-E0-205	B-E0-205
A-E0-206	B-E0-206
A-E0-207	B-E0-207
A-E0-208	B-E0-208
A-E0-209	B-E0-209
A-E0-210	B-E0-210
SPARE	SPARE
SPARE	SPARE
A-E0-212	B-E0-212
A-E0-213	B-E0-213

WIRE LIST

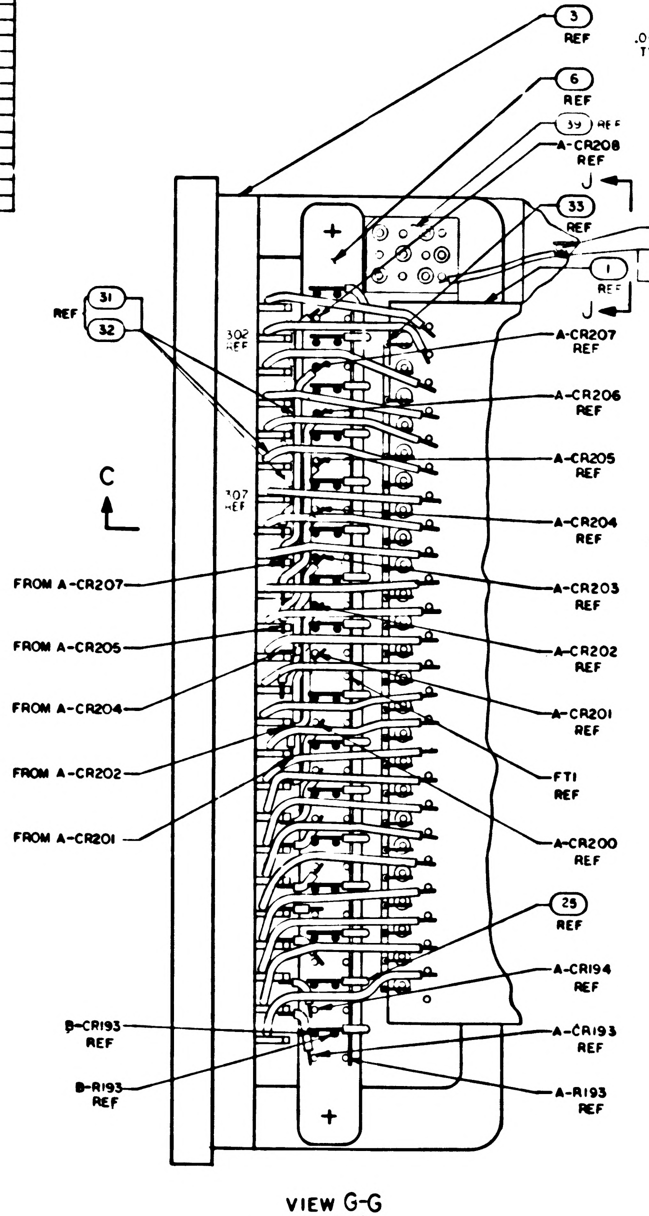
COMPONENT NO.	COMPONENT NO.
CR215	R176
CR216	R144
CR217	R112
CR218	R80
CR219	R48
CR220	R16
CR209	R32
CR210	R64
CR211	R96
CR212	R128
CR213	R160
CR214	R192


39
SEE NOTE 19
.060 MAX TYP
.060 MAX TYP
3 REF

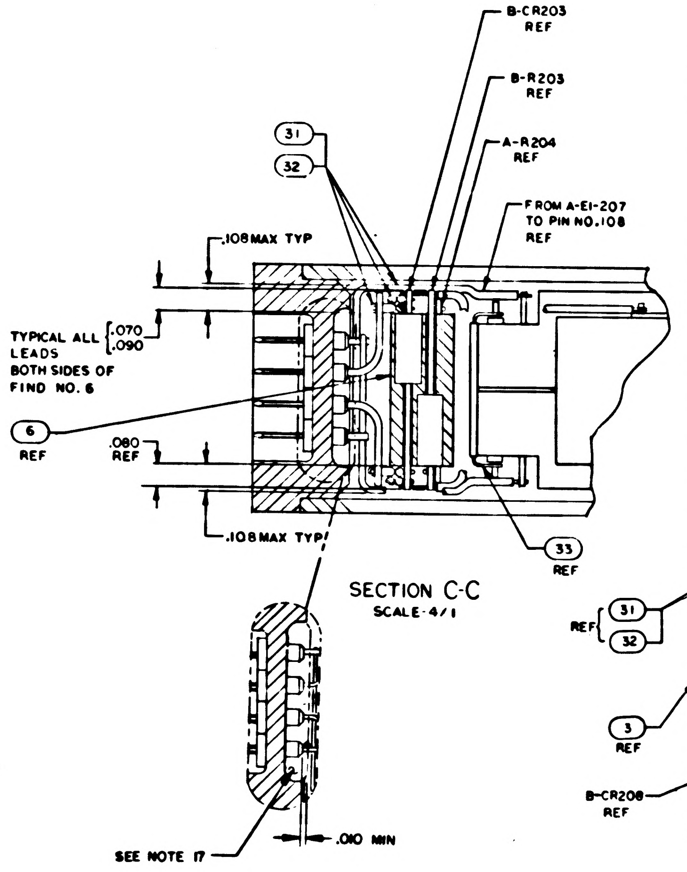
VIEW J-J


401
101
424
124

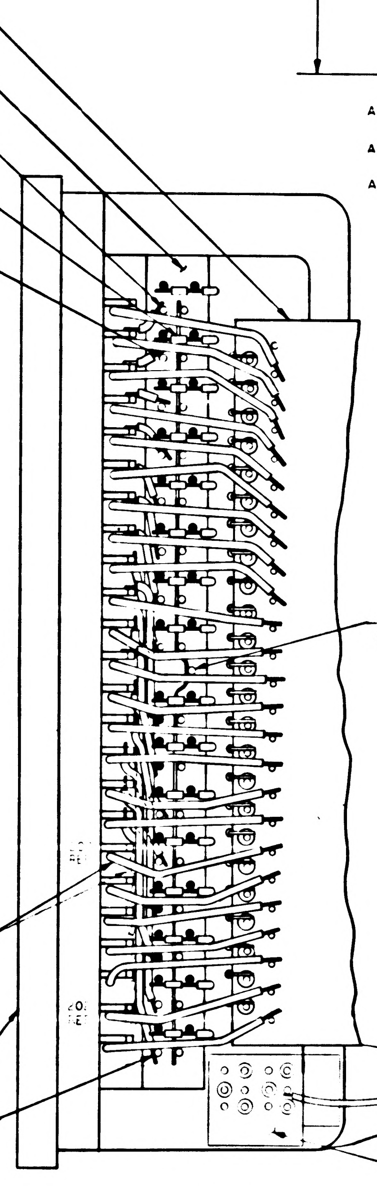
SECTION E-E


3 REF
6 REF
39 REF
A-CR208 REF
J
33 REF
R192 REF
31
1 REF
32
J
REF 31 32
302 REF
A-CR207 REF
A-CR206 REF
A-CR205 REF
C
307 REF
C
A-CR204 REF
FROM A-CR207
A-CR203 REF
FROM A-CR205
A-CR202 REF
FROM A-CR204
A-CR201 REF
FROM A-CR202
FT1 REF
FROM A-CR201
A-CR200 REF
25 REF
A-CR194 REF
B-CR193 REF
A-CR193 REF
B-R193 REF
A-R193 REF

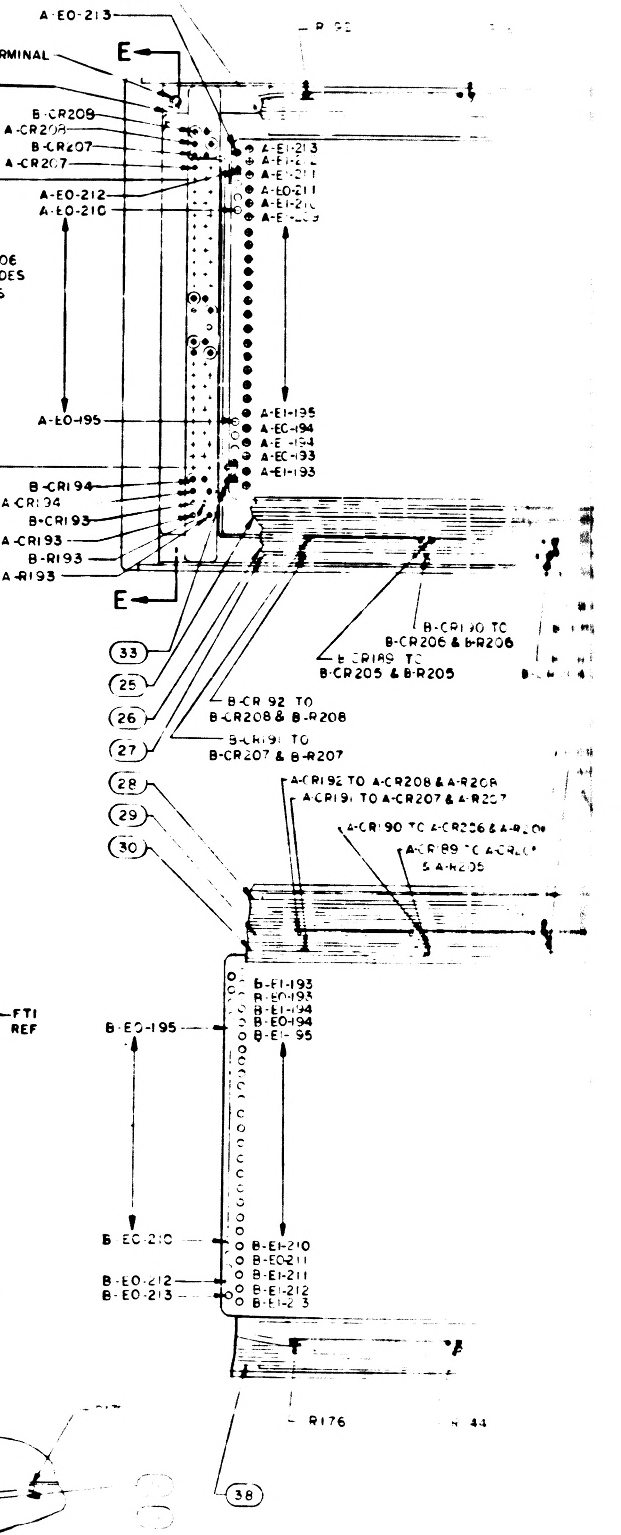
VIEW G-G
SCALE 4/1
SHOWN WITH POTTING AND FIND NO.7
REMOVED. SEE NOTES 11,12,13 AND 14


B-CR203 REF
B-R203 REF
31
32
A-R204 REF
FROM A-E1-207 TO PIN NO.108 REF
.108 MAX TYP
TYPICAL ALL LEADS BOTH SIDES OF FIND NO. 6
.070
.090
6 REF
.080 REF
.108 MAX TYP
33 REF
SEE NOTE 17
.010 MIN

SECTION C-C
SCALE 4/1


2 REF
6 REF
B-CR193 REF
32 TYP
B-CR194 REF
FT1 REF
REF 31 32
3 REF
B-CR208 REF

VIEW H-H
SCALE 4/1
SHOWN WITH POTTING AND FIND NO.7
REMOVED. SEE NOTES 11,12,13 AND 14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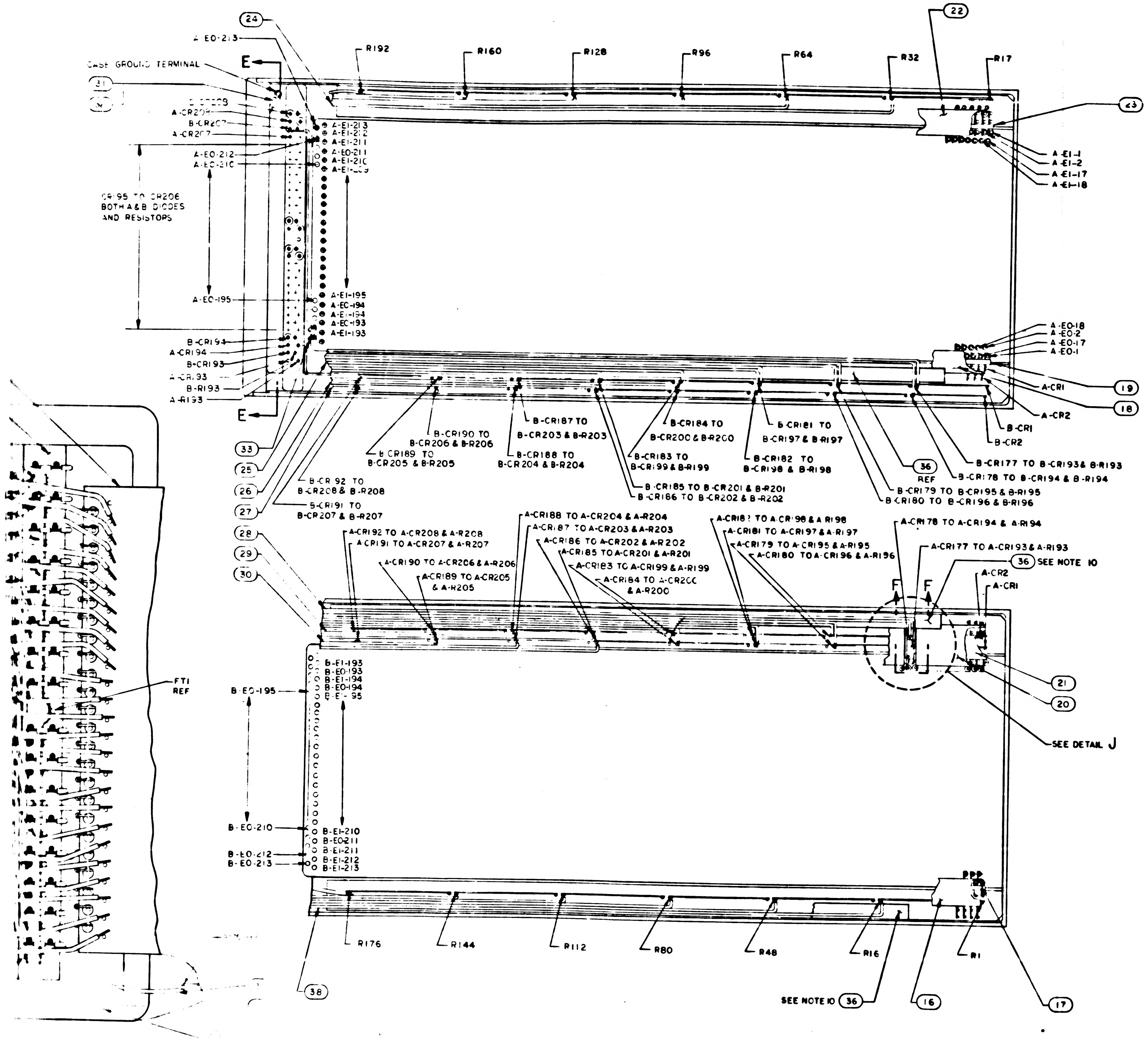
A-E0-213
CASE GROUND TERMINAL
E
31
32
B-CR208
A-CR208
B-CR207
A-CR207
A-E1-213
A-E1-212
A-E1-211
A-E0-211
A-E1-210
A-E1-209
A-E0-212
A-E0-210
CR195 TO CR206 BOTH A & B DIODES AND RESISTORS
A-E0-195
A-E1-195
A-E0-194
A-E1-194
A-E0-193
A-E1-193
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
E
33
25
26
27
B-CR190 TO B-CR206 & B-R206
B-CR189 TO B-CR205 & B-R205
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
28
29
30
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205 & A-R205
B-E0-195
B-E1-193
B-E0-193
B-E1-194
B-E0-194
B-E1-195
B-E0-210
B-E1-210
B-E0-211
B-E1-211
B-E0-212
B-E0-213
B-E1-212
B-E1-213
R176
R144
38

2003972 E

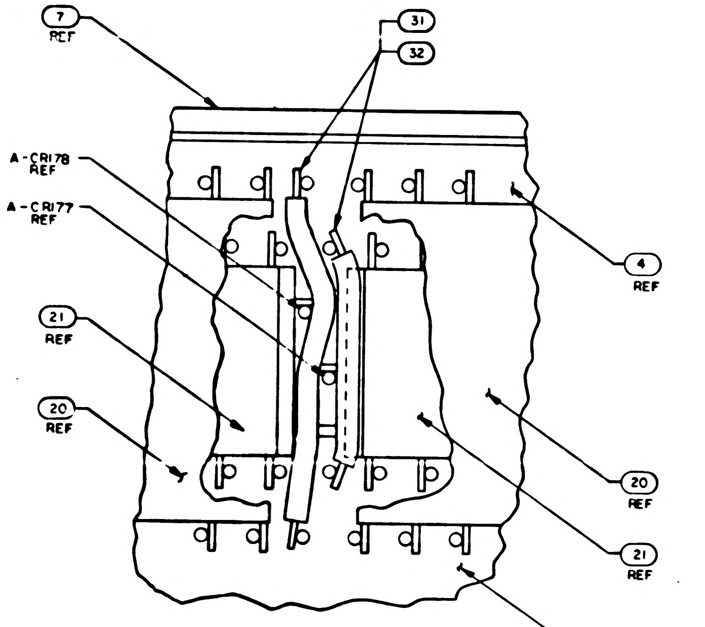
SH2/3 2003972 E F1/2

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		INITIAL RELEASE TDRR 32991				
B		REVISED PER TDRR 33460				
C		REVISED PER TDRR 33544				
D		REVISED PER TDRR 33606				
E		REVISED PER TDRR 34140				



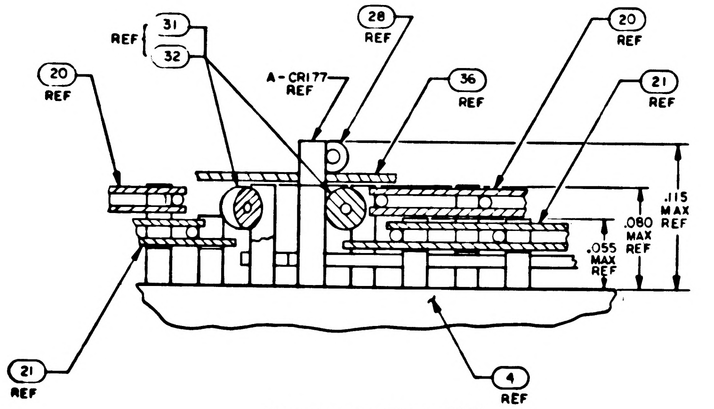
24
A-E0-213
CASE GROUND TERMINAL
31
32
E
R192
R160
R128
R96
R64
R32
R17
22
23
B-CR208
A-CR208
B-CR207
A-CR207
A-E1-213
A-E1-212
A-E1-211
A-E0-211
A-E1-210
A-E1-209
A-E0-212
A-E0-210
A-E1-1
A-E1-2
A-E1-17
A-E1-18
CR195 TO CR206
BOTH A&B DIODES
AND RESISTORS
A-E0-195
A-E1-195
A-E0-194
A-E1-194
A-E0-193
A-E1-193
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
A-E0-18
A-E0-2
A-E0-17
A-E0-1
A-CR1
A-CR2
19
18
B-CR1
B-CR2
33
25
26
27
B-CR190 TO
B-CR206 & B-R206
B-CR189 TO
B-CR205 & B-R205
B-CR187 TO
B-CR203 & B-R203
B-CR188 TO
B-CR204 & B-R204
B-CR184 TO
B-CR200 & B-R200
B-CR183 TO
B-CR199 & B-R199
B-CR185 TO B-CR201 & B-R201
B-CR186 TO B-CR202 & B-R202
B-CR181 TO
B-CR197 & B-R197
B-CR182 TO
B-CR198 & B-R198
36
REF
B-CR177 TO B-CR193 & B-R193
B-CR178 TO B-CR194 & B-R194
B-CR179 TO B-CR195 & B-R195
B-CR180 TO B-CR196 & B-R196
B-CR192 TO
B-CR208 & B-R208
B-CR191 TO
B-CR207 & B-R207
28
29
30
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205
& A-R205
A-CR188 TO A-CR204 & A-R204
A-CR187 TO A-CR203 & A-R203
A-CR186 TO A-CR202 & A-R202
A-CR185 TO A-CR201 & A-R201
A-CR183 TO A-CR199 & A-R199
A-CR184 TO A-CR200
& A-R200
A-CR182 TO A-CR198 & A-R198
A-CR181 TO A-CR197 & A-R197
A-CR179 TO A-CR195 & A-R195
A-CR180 TO A-CR196 & A-R196
A-CR178 TO A-CR194 & A-R194
A-CR177 TO A-CR193 & A-R193
36 SEE NOTE 10
F
F
A-CR2
A-CR1
21
20
SEE DETAIL J
B-E1-193
B-E0-193
B-E1-194
B-E0-194
B-E1-195
B-E0-195
B-E0-210
B-E1-210
B-E0-211
B-E1-211
B-E0-212
B-E1-212
B-E0-213
B-E1-213
R176
R144
R112
R80
R48
R16
R1
38
SEE NOTE 10
36
16
17
FT1
REF

VIEW H-H
SCALE 4/1
WITH POTTING AND FIND NO.7
NOTES 11,12,13 AND 14



7
REF
31
32
A-CR178
REF
A-CR177
REF
4
REF
21
REF
20
REF
20
REF
21
REF
2
REF

DETAIL J
SCALE 10/1
TYPICAL WIRING 8 PLACES, SHOWN
WITH FIND NOS.28 AND 36 REMOVED



REF
31
32
20
REF
A-CR177
REF
28
REF
36
REF
20
REF
21
REF
.115
MAX
.080
MAX
REF
.055
MAX
REF
21
REF
4
REF

PARTIAL SECTION F-F
SCALE: 20/1

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MSR
APPROVED MSC
DATE

FIXED MEMORY MODULE ASSEMBLY

CODE IDENT NO 80230
SIZE J
DRAWING NO 2003972
SCALE 2/1
SHEET 2 OF 3

F2/2

2003972 E

[illegible]

8 7 6 5

D C B A

2003972 E

SH3/3 2003972 E F1/2

4 3 2

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL RELEASE TDRR 32901				
B		REVISED PER TDRR 334[illegible]				
C		REVISED PER TDRR 33[illegible]4				
D		REVISED PER TDRR 33606				
E		REVISED PER TDRR 34[illegible]4C				

D

WIRE LIST

TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.
A-E0-1	A-CR1	A-E0-97	A-CR97	B-E0-1	B-CR1	B-E0-97	B-CR97	A-E1-1	R1	A-E1-49	R49	A-E1-97	R97	A-E1-145	R145
A-E0-2	A-CR2	A-E0-98	A-CR98	B-E0-2	B-CR2	B-E0-98	B-CR98	B-E1-1		B-E1-49		B-E1-97		B-E1-145	
A-E0-3	A-CR3	A-E0-99	A-CR99	B-E0-3	B-CR3	B-E0-99	B-CR99	A-E1-2	R2	A-E1-50	R50	A-E1-98	R98	A-E1-146	R146
A-E0-4	A-CR4	A-E0-100	A-CR100	B-E0-4	B-CR4	B-E0-100	B-CR100	B-E1-2		B-E1-50		B-E1-98		B-E1-146	
A-E0-5	A-CR5	A-E0-101	A-CR101	B-E0-5	B-CR5	B-E0-101	B-CR101	A-E1-3	R3	A-E1-51	R51	A-E1-99	R99	A-E1-147	R147
A-E0-6	A-CR6	A-E0-102	A-CR102	B-E0-6	B-CR6	B-E0-102	B-CR102	B-E1-3		B-E1-51		B-E1-99		B-E1-147	
A-E0-7	A-CR7	A-E0-103	A-CR103	B-E0-7	B-CR7	B-E0-103	B-CR103	A-E1-4	R4	A-E1-52	R52	A-E1-100	R100	A-E1-148	R148
A-E0-8	A-CR8	A-E0-104	A-CR104	B-E0-8	B-CR8	B-E0-104	B-CR104	B-E1-4		B-E1-52		B-E1-100		B-E1-148	
A-E0-9	A-CR9	A-E0-105	A-CR105	B-E0-9	B-CR9	B-E0-105	B-CR105	A-E1-5	R5	A-E1-53	R53	A-E1-101	R101	A-E1-149	R149
A-E0-10	A-CR10	A-E0-106	A-CR106	B-E0-10	B-CR10	B-E0-106	B-CR106	B-E1-5		B-E1-53		B-E1-101		B-E1-149	
A-E0-11	A-CR11	A-E0-107	A-CR107	B-E0-11	B-CR11	B-E0-107	B-CR107	A-E1-6	R6	A-E1-54	R54	A-E1-102	R102	A-E1-150	R150
A-E0-12	A-CR12	A-E0-108	A-CR108	B-E0-12	B-CR12	B-E0-108	B-CR108	B-E1-6		B-E1-54		B-E1-102		B-E1-150	
A-E0-13	A-CR13	A-E0-109	A-CR109	B-E0-13	B-CR13	B-E0-109	B-CR109	A-E1-7	R7	A-E1-55	R55	A-E1-103	R103	A-E1-151	R151
A-E0-14	A-CR14	A-E0-110	A-CR110	B-E0-14	B-CR14	B-E0-110	B-CR110	B-E1-7		B-E1-55		B-E1-103		B-E1-151	
A-E0-15	A-CR15	A-E0-111	A-CR111	B-E0-15	B-CR15	B-E0-111	B-CR111	A-E1-8	R8	A-E1-56	R56	A-E1-104	R104	A-E1-152	R152
A-E0-16	A-CR16	A-E0-112	A-CR112	B-E0-16	B-CR16	B-E0-112	B-CR112	B-E1-8		B-E1-56		B-E1-104		B-E1-152	
A-E0-17	A-CR17	A-E0-113	A-CR113	B-E0-17	B-CR17	B-E0-113	B-CR113	A-E1-9	R9	A-E1-57	R57	A-E1-105	R105	A-E1-153	R153
A-E0-18	A-CR18	A-E0-114	A-CR114	B-E0-18	B-CR18	B-E0-114	B-CR114	B-E1-9		B-E1-57		B-E1-105		B-E1-153	
A-E0-19	A-CR19	A-E0-115	A-CR115	B-E0-19	B-CR19	B-E0-115	B-CR115	A-E1-10	R10	A-E1-58	R58	A-E1-106	R106	A-E1-154	R154
A-E0-20	A-CR20	A-E0-116	A-CR116	B-E0-20	B-CR20	B-E0-116	B-CR116	B-E1-10		B-E1-58		B-E1-106		B-E1-154	
A-E0-21	A-CR21	A-E0-117	A-CR117	B-E0-21	B-CR21	B-E0-117	B-CR117	A-E1-11	R11	A-E1-59	R59	A-E1-107	R107	A-E1-155	R155
A-E0-22	A-CR22	A-E0-118	A-CR118	B-E0-22	B-CR22	B-E0-118	B-CR118	B-E1-11		B-E1-59		B-E1-107		B-E1-155	
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A-E0-24	A-CR24	A-E0-120	A-CR120	B-E0-24	B-CR24	B-E0-120	B-CR120	B-E1-12		B-E1-60		B-E1-108		B-E1-156	
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A-E0-26	A-CR26	A-E0-122	A-CR122	B-E0-26	B-CR26	B-E0-122	B-CR122	B-E1-13		B-E1-61		B-E1-109		B-E1-157	
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A-E0-28	A-CR28	A-E0-124	A-CR124	B-E0-28	B-CR28	B-E0-124	B-CR124	B-E1-14		B-E1-62		B-E1-110		B-E1-158	
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A-E0-30	A-CR30	A-E0-126	A-CR126	B-E0-30	B-CR30	B-E0-126	B-CR126	B-E1-15		B-E1-63		B-E1-111		B-E1-159	
A-E0-31	A-CR31	A-E0-127	A-CR127	B-E0-31	B-CR31	B-E0-127	B-CR127	A-E1-16	R16	A-E1-64	R64	A-E1-112	R112	A-E1-160	R160
A-E0-32	A-CR32	A-E0-128	A-CR128	B-E0-32	B-CR32	B-E0-128	B-CR128	B-E1-16		B-E1-64		B-E1-112		B-E1-160	
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A-E0-34	A-CR34	A-E0-130	A-CR130	B-E0-34	B-CR34	B-E0-130	B-CR130	B-E1-17		B-E1-65		B-E1-113		B-E1-161	
A-E0-35	A-CR35	A-E0-131	A-CR131	B-E0-35	B-CR35	B-E0-131	B-CR131	A-E1-18	R18	A-E1-66	R66	A-E1-114	R114	A-E1-162	R162
A-E0-36	A-CR36	A-E0-132	A-CR132	B-E0-36	B-CR36	B-E0-132	B-CR132	B-E1-18		B-E1-66		B-E1-114		B-E1-162	
A-E0-37	A-CR37	A-E0-133	A-CR133	B-E0-37	B-CR37	B-E0-133	B-CR133	A-E1-19	R19	A-E1-67	R67	A-E1-115	R115	A-E1-163	R163
A-E0-38	A-CR38	A-E0-134	A-CR134	B-E0-38	B-CR38	B-E0-134	B-CR134	B-E1-19		B-E1-67		B-E1-115		B-E1-163	
A-E0-39	A-CR39	A-E0-135	A-CR135	B-E0-39	B-CR39	B-E0-135	B-CR135	A-E1-20	R20	A-E1-68	R68	A-E1-116	R116	A-E1-164	R164
A-E0-40	A-CR40	A-E0-136	A-CR136	B-E0-40	B-CR40	B-E0-136	B-CR136	B-E1-20		B-E1-68		B-E1-116		B-E1-164	
A-E0-41	A-CR41	A-E0-137	A-CR137	B-E0-41	B-CR41	B-E0-137	B-CR137	A-E1-21	R21	A-E1-69	R69	A-E1-117	R117	A-E1-165	R165
A-E0-42	A-CR42	A-E0-138	A-CR138	B-E0-42	B-CR42	B-E0-138	B-CR138	B-E1-21		B-E1-69		B-E1-117		B-E1-165	
A-E0-43	A-CR43	A-E0-139	A-CR139	B-E0-43	B-CR43	B-E0-139	B-CR139	A-E1-22	R22	A-E1-70	R70	A-E1-118	R118	A-E1-166	R166
A-E0-44	A-CR44	A-E0-140	A-CR140	B-E0-44	B-CR44	B-E0-140	B-CR140	B-E1-22		B-E1-70		B-E1-118		B-E1-166	
A-E0-45	A-CR45	A-E0-141	A-CR141	B-E0-45	B-CR45	B-E0-141	B-CR141	A-E1-23	R23	A-E1-71	R71	A-E1-119	R119	A-E1-167	R167
A-E0-46	A-CR46	A-E0-142	A-CR142	B-E0-46	B-CR46	B-E0-142	B-CR142	B-E1-23		B-E1-71		B-E1-119		B-E1-167	
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A-E0-48	A-CR48	A-E0-144	A-CR144	B-E0-48	B-CR48	B-E0-144	B-CR144	B-E1-24		B-E1-72		B-E1-120		B-E1-168	
A-E0-49	A-CR49	A-E0-145	A-CR145	B-E0-49	B-CR49	B-E0-145	B-CR145	A-E1-25	R25	A-E1-73	R73	A-E1-121	R121	A-E1-169	R169
A-E0-50	A-CR50	A-E0-146	A-CR146	B-E0-50	B-CR50	B-E0-146	B-CR146	B-E1-25		B-E1-73		B-E1-121		B-E1-169	
A-E0-51	A-CR51	A-E0-147	A-CR147	B-E0-51	B-CR51	B-E0-147	B-CR147	A-E1-26	R26	A-E1-74	R74	A-E1-122	R122	A-E1-170	R170
A-E0-52	A-CR52	A-E0-148	A-CR148	B-E0-52	B-CR52	B-E0-148	B-CR148	B-E1-26		B-E1-74		B-E1-122		B-E1-170	
A-E0-53	A-CR53	A-E0-149	A-CR149	B-E0-53	B-CR53	B-E0-149	B-CR149	A-E1-27	R27	A-E1-75	R75	A-E1-123	R123	A-E1-171	R171
A-E0-54	A-CR54	A-E0-150	A-CR150	B-E0-54	B-CR54	B-E0-150	B-CR150	B-E1-27		B-E1-75		B-E1-123		B-E1-171	
A-E0-55	A-CR55	A-E0-151	A-CR151	B-E0-55	B-CR55	B-E0-151	B-CR151	A-E1-28	R28	A-E1-76	R76	A-E1-124	R124	A-E1-172	R172
A-E0-56	A-CR56	A-E0-152	A-CR152	B-E0-56	B-CR56	B-E0-152	B-CR152	B-E1-28		B-E1-76		B-E1-124		B-E1-172	
A-E0-57	A-CR57	A-E0-153	A-CR153	B-E0-57	B-CR57	B-E0-153	B-CR153	A-E1-29	R29	A-E1-77	R77	A-E1-125	R125	A-E1-173	R173
A-E0-58	A-CR58	A-E0-154	A-CR154	B-E0-58	B-CR58	B-E0-154	B-CR154	B-E1-29		B-E1-77		B-E1-125		B-E1-173	
A-E0-59	A-CR59	A-E0-155	A-CR155	B-E0-59	B-CR59	B-E0-155	B-CR155	A-E1-30	R30	A-E1-78	R78	A-E1-126	R126	A-E1-174	R174
A-E0-60	A-CR60	A-E0-156	A-CR156	B-E0-60	B-CR60	B-E0-156	B-CR156	B-E1-30		B-E1-78		B-E1-126		B-E1-174	
A-E0-61	A-CR61	A-E0-157	A-CR157	B-E0-61	B-CR61	B-E0-157	B-CR157	A-E1-31	R31	A-E1-79	R79	A-E1-127	R127	A-E1-175	R175
A-E0-62	A-CR62	A-E0-158	A-CR158	B-E0-62	B-CR62	B-E0-158	B-CR158	B-E1-31		B-E1-79		B-E1-127		B-E1-175	
A-E0-63	A-CR63	A-E0-159	A-CR159	B-E0-63	B-CR63	B-E0-159	B-CR159	A-E1-32	R32	A-E1-80	R80	A-E1-128	R128	A-E1-176	R176
A-E0-64	A-CR64	A-E0-160	A-CR160	B-E0-64	B-CR64	B-E0-160	B-CR160	B-E1-32		B-E1-80		B-E1-128		B-E1-176	
A-E0-65	A-CR65	A-E0-161	A-CR161	B-E0-65	B-CR65	B-E0-161	B-CR161	A-E1-33	R33	A-E1-81	R81	A-E1-129	R129	A-E1-177	R177
A-E0-66	A-CR66	A-E0-162	A-CR162	B-E0-66	B-CR66	B-E0-162	B-CR162	B-E1-33		B-E1-81		B-E1-129		B-E1-177	
A-E0-67	A-CR67	A-E0-163	A-CR163	B-E0-67	B-CR67	B-E0-163	B-CR163	A-E1-34	R34	A-E1-82	R82	A-E1-130	R130	A-E1-178	R178
A-E0-68	A-CR68	A-E0-164	A-CR164	B-E0-68	B-CR68	B-E0-164	B-CR164	B-E1-34		B-E1-82		B-E1-130		B-E1-178	
A-E0-69	A-CR69	A-E0-165	A-CR165	B-E0-69	B-CR69	B-E0-165	B-CR165	A-E1-35	R35	A-E1-83	R83	A-E1-131	R131	A-E1-179	R179
A-E0-70	A-CR70	A-E0-166	A-CR166	B-E0-70	B-CR70	B-E0-166	B-CR166	B-E1-35		B-E1-83		B-E1-131		B-E1-179	
A-E0-71	A-CR71	A-E0-167	A-CR167	B-E0-71	B-CR71	B-E0-167	B-CR167	A-E1-36	R36	A-E1-84	R84	A-E1-132	R132	A-E1-180	R180
A-E0-72	A-CR72	A-E0-168	A-CR168	B-E0-72	B-CR72	B-E0-168	B-CR168	B-E1-36		B-E1-84		B-E1-132		B-E1-180	
A-E0-73	A-CR73	A-E0-169	A-CR169	B-E0-73	B-CR73	B-E0-169	B-CR169	A-E1-37	R37	A-E1-85	R85	A-E1-133	R133	A-E1-181	R181
A-E0-74	A-CR74	A-E0-170	A-CR170	B-E0-74	B-CR74	B-E0-170	B-CR170	B-E1-37		B-E1-85		B-E1-133		B-E1-181	
A-E0-75	A-CR75	A-E0-171	A-CR171	B-E0-75	B-CR75	B-E0-171	B-CR171	A-E1-38	R38	A-E1-86	R86	A-E1-134	R134	A-E1-182	R182
A-E0-76	A-CR76	A-E0-172	A-CR172	B-E0-76	B-CR76	B-E0-172	B-CR172	B-E1-38		B-E1-86		B-E1-134		B-E1-182	
A-E0-77	A-CR77	A-E0-173	A-CR173	B-E0-77	B-CR77	B-E0-173	B-CR173	A-E1-39	R39	A-E1-87	R87	A-E1-135	R135	A-E1-183	R183
A-E0-78	A-CR78	A-E0-174	A-CR174	B-E0-78	B-CR78	B-E0-174	B-CR174	B-E1-39		B-E1-87		B-E1-135		B-E1-183	
A-E0-79	A-CR79	A-E0-175	A-CR175	B-E0-79	B-CR79	B-E0-175	B-CR175	A-E1-40	R40	A-E1-88	R88	A-E1-136	R136	A-E1-184	R184
A-E0-80	A-CR80	A-E0-176	A-CR176	B-E0-80	B-CR80	B-E0-176	B-CR176	B-E1-40		B-E1-88		B-E1-136		B-E1-184	
A-E0-81	A-CR81	A-E0-177	A-CR177	B-E0-81	B-CR81	B-E0-177	B-CR177	A-E1-41	R41	A-E1-89	R89	A-E1-137	R137	A-E1-185	R185
A-E0-82	A-CR82	A-E0-178	A-CR178	B-E0-82	B-CR82	B-E0-178	B-CR178	B-E1-41		B-E1-89		B-E1-137		B-E1-185	
A-E0-83	A-CR83	A-E0-179	A-CR179	B-E0-83	B-CR83	B-E0-179	B-CR179	A-E1-42	R42	A-E1-90	R90	A-E1-138	R138	A-E1-186	R186
A-E0-84	A-CR84	A-E0-180	A-CR180	B-E0-84	B-CR84	B-E0-180	B-CR180	B-E1-42		B-E1-90		B-E1-138		B-E1-186	
A-E0-85	A-CR85	A-E0-181	A-CR181	B-E0-85	B-CR85	B-E0-181	B-CR181	A-E1-43	R43	A-E1-91	R91	A-E1-139	R139	A-E1-187	R187
A-E0-86	A-CR86	A-E0-182	A-CR182	B-E0-86	B-CR86	B-E0-182	B-CR182	B-E1-43		B-E1-91		B-E1-139		B-E1-187	
A-E0-87	A-CR87	A-E0-183	A-CR183	B-E0-87	B-CR87	B-E0-183	B-CR183	A-E1-44	R44	A-E1-92	R92	A-E1-140	R140	A-E1-188	R188
A-E0-88	A-CR88	A-E0-184	A-CR184	B-E0-88	B-CR88	B-E0-184	B-CR184	B-E1-44		B-E1-92		B-E1-140		B-E1-188	
A-E0-89	A-CR89	A-E0-185	A-CR185	B-E0-89	B-CR89	B-E0-185	B-CR185	A-E1-45	R45	A-E1-93	R93	A-E1-141	R141	A-E1-189	R189
A-E0-90	A-CR90	A-E0-186	A-CR186	B-E0-90	B-CR90	B-E0-186	B-CR186	B-E1-45		B-E1-93		B-E1-141		B-E1-189	
A-E0-91	A-CR91	A-E0-187	A-CR187	B-E0-91	B-CR91	B-E0-187	B-CR187	A-E1-46	R46	A-E1-94	R94	A-E1-142	R142	A-E1-190	R190
A-E0-92	A-CR92	A-E0-188	A-CR188	B-E0-92	B-CR92	B-E0-188	B-CR188	B-E1-46		B-E1-94		B-E1-142		B-E1-190	
A-E0-93	A-CR93	A-E0-189	A-CR189	B-E0-93	B-CR93	B-E0-189	B-CR189	A-E1-47	R47	A-E1-95	R95	A-E1-143	R143	A-E1-191	R191
A-E0-94	A-CR94	A-E0-190	A-CR190	B-E0-94	B-CR94	B-E0-190	B-CR190	B-E1-47		B-E1-95		B-E1-143		B-E1-191	
A-E0-95	A-CR95	A-E0-191	A-CR191	B-E0-95	B-CR95	B-E0-191	B-CR191	A-E1-48	R48	A-E1-96	R96	A-E1-144	R144	A-E1-192	R192
A-E0-96	A-CR96	A-E0-192	A-CR192	B-E0-96	B-CR96	B-E0-192	B-CR192	B-E1-48		B-E1-96		B-E1-144		B-E1-192	

C

B

A

E 2003972

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

NEXT ASSY | USED ON
APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED
APPROVED MSC
DATE

FIXED MEMORY MODULE ASSEMBLY

CODE IDENT NO 80230
SIZE J
DRAWING NO 2003972
SCALE NONE
SHEET 3 OF 3

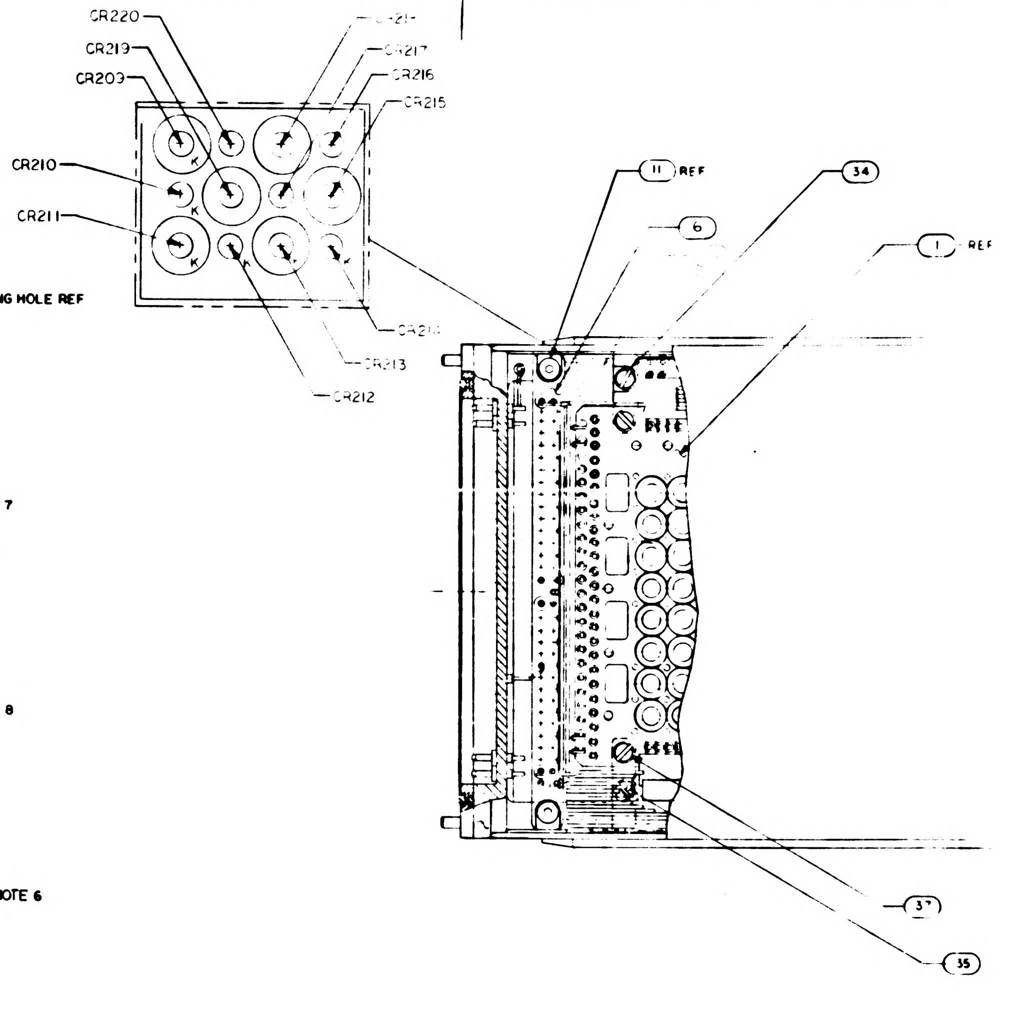
E

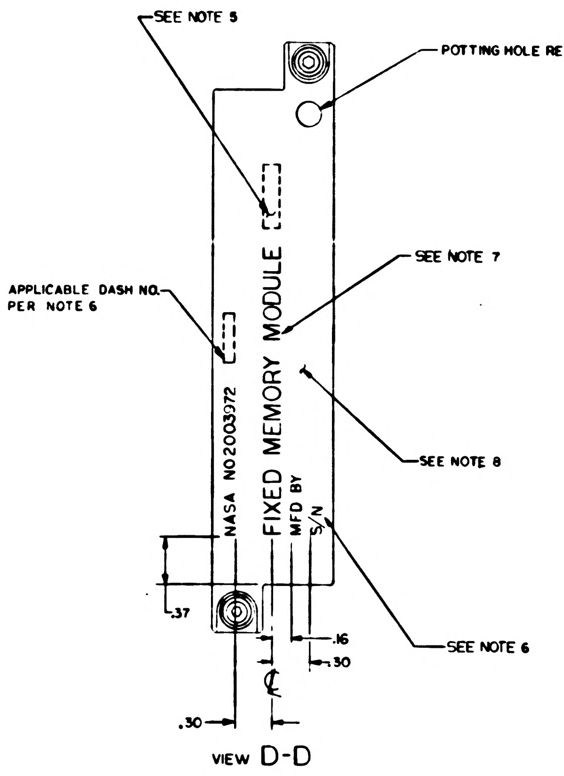
4

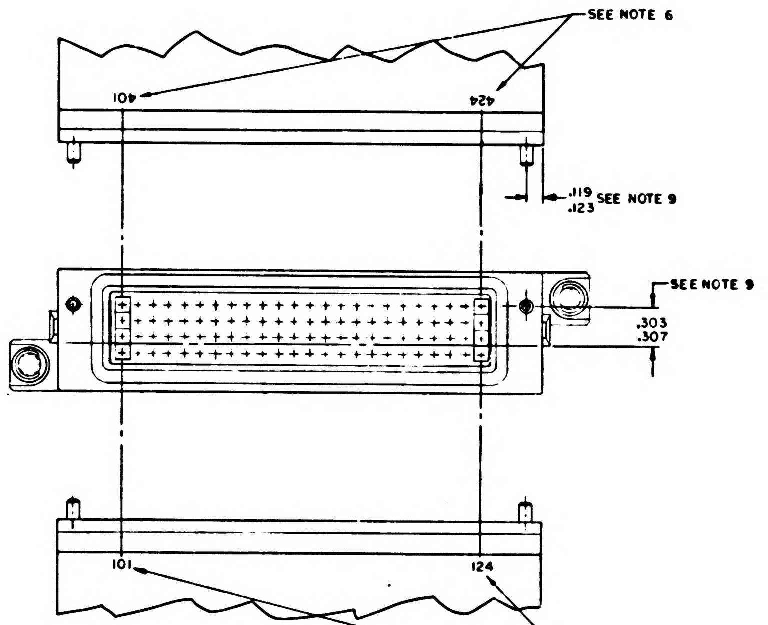
F2/2

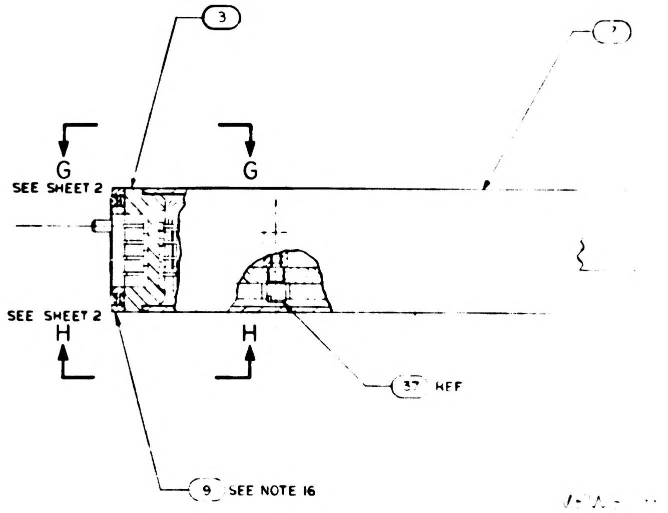
2003972 E

PART NO.	MODULE NO.	FIND NO. 1	FIND NO. 2	MODULE DECK NO.	NEXT ASSEMBLY NO. (REF)
2003[illegible]72-011	B1	2003060-061	2003061-061	0205	2021101
2003 72-021	B2	2003060-071	2003061-071	0206	2021101
2003[illegible]72-031	B3	2003060-081	2003061-081	0207	2021101
2003 72-041	B1	2003060-121	2003061-121	0210	2021104
2003[illegible]	B2	2003060-131	2003061-131	0211	2021104
2003[illegible]	B3	2003060-141	2003061-141	0212	2021104
2003[illegible]-07	B2	2003060-151	2003061-151	0213	2021104
2003[illegible]	B3	2003060-161	2003061-161	0214	2021104
2003972 09	[illegible]	[illegible]	2003061-[illegible]	0215	2021101
2003972 111	[illegible]	200[illegible]-101	[illegible]	0216	2021101
2003972-121	B1	2003060-091	2003061-091	0208	2021105-031
2003972 13	B2	2003060-111	2003061-111	0209	2021105-031
2003972 141	B	2003060-191	2003061-191	0217	2021106-011
2003972 151	B2	2003060-211	2003061-211	0218	2021106-011
2003972 161	B3	2003060-221	2003061-221	0219	2021106-011
2003972 171	B4	2003060 231	2003061 231	0220	2021106-011
2003972 181	B5	2003060 241	2003061 241	0221	2021106 011
2003972 191	B6	2003060 251	2003061 251	0222	2021106 011
2003972 2[illegible]	B3	2003060 261	2003061 261	0223	2021104 041
[illegible]	-	[illegible]-271	[illegible]-271	0224	2021105-041
[illegible]	B1	2003060-2[illegible]1	2003061-251	0225	2021106-021
2003972-241	B3	2003060-291	2003061-291	0226	2021106-021
2003972 251	B5	2003060-311	2003061-311	0227	2021106-021
2003972 26	B	2003060-321	2003061-321	0230	2021107-011
2003972-271	B2	2003060-33	2003061-331	0229	2021107-011









NOTES:

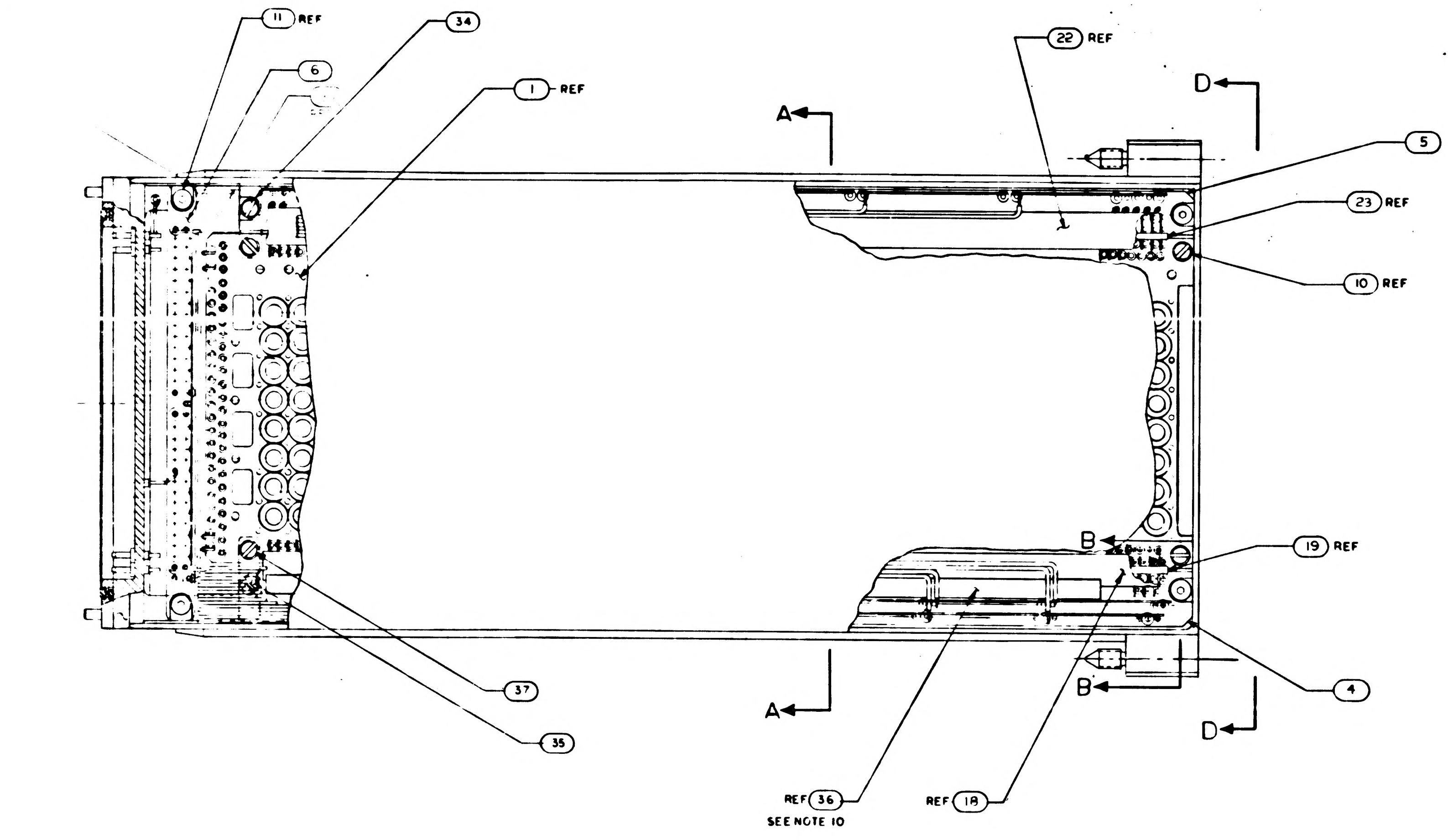
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
3. ENCAPSULATE MODULE PER ND1002226 METHOD II
4. WELD PER ND1002005
5. MARK APPROPRIATE MODULE NO. AS SHOWN IN CHART
6. MARK .08/.06 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
7. MARK .14/.10 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 USING INK 1006271-1
8. PAINT INDICATED SURFACES OF FIND NO 7. PER ND1002279 WITH SCD NO.1008809-1 DARK GREY EPOXY RESIN ENAMEL, FINAL COAT PER ND1002277 USING 1012543-003
9. ASSEMBLE FIND NO.7 AND FIND NO.3 TO DIMENSIONS SHOWN
10. REMOVE LINER FROM NEARSIDE OF FIND NO.36 AND ASSEMBLE 3 PLACES AS SHOWN. FIND NO.36 MUST INSULATE FLAT CABLES FROM TRIMMED COMPONENT LEADS • TRIM AS REQUIRED
11. WHITE DOT AND SINGLE SOLID LEAD DENOTES FIRST LEVEL WIRING UNLESS OTHERWISE SPECIFIED
12. BLACK DOT AND SINGLE SOLID LEAD DENOTES SECOND LEVEL WIRING
13. BLACK DOT AND CROSS HATCHED LEAD DENOTES THIRD LEVEL WIRING
14. ALL LEADS FROM FIND NO.1 AND FIND NO.2 TO FIND NO.3 TO BE THIRD LEVEL WIRING
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003972. FOR-121 & -131 CONFIGURATIONS USE PS 2003960
16. FIND NO.9 TO BE SHIPPED UNASSEMBLED AND IDENTIFIED PER ND 1002019

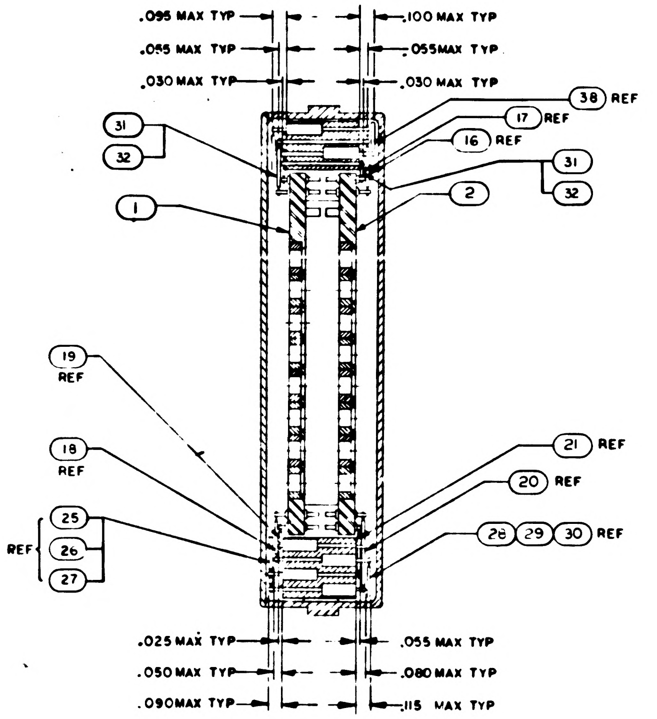
17. SEAL PINS AND INSULATORS TO FIND NO. 3 PER ND1002004 TYPE VI BEFORE ASSY OF FIND NO. 6
18. FILL AS SHOWN PER ND1002235 METHOD A
19. BOND FIND NO.39 TO FIND NO.3 PER ND1002004 TYPE VI AFTER ASSY OF FIND NO.6
20. PRIOR TO ENCAPSULATION PER NOTE 3, COAT OVER ALL TERMINALS OF FIND NO.'S 1,2,&3 AND OVER ALL WIRES, SLEEVING AND COMPONENT LEADS OF FIND NO.S 4,5,6,16,17,18,19,20,21,22,23,24, 25,26,27,28,29,30,31,32,33,38 & 39 WITH A .03 MAXIMUM THICKNESS OF SILICONE RUBBER PER ND1002009, METHOD A. MASK ALL OUTSIDE SURFACES OF FIND NO.3 AND ALL OTHER SURFACES OF THIS ASSEMBLY COMING IN CLOSE CONTACT WITH FIND NO.7

REFERENCES:

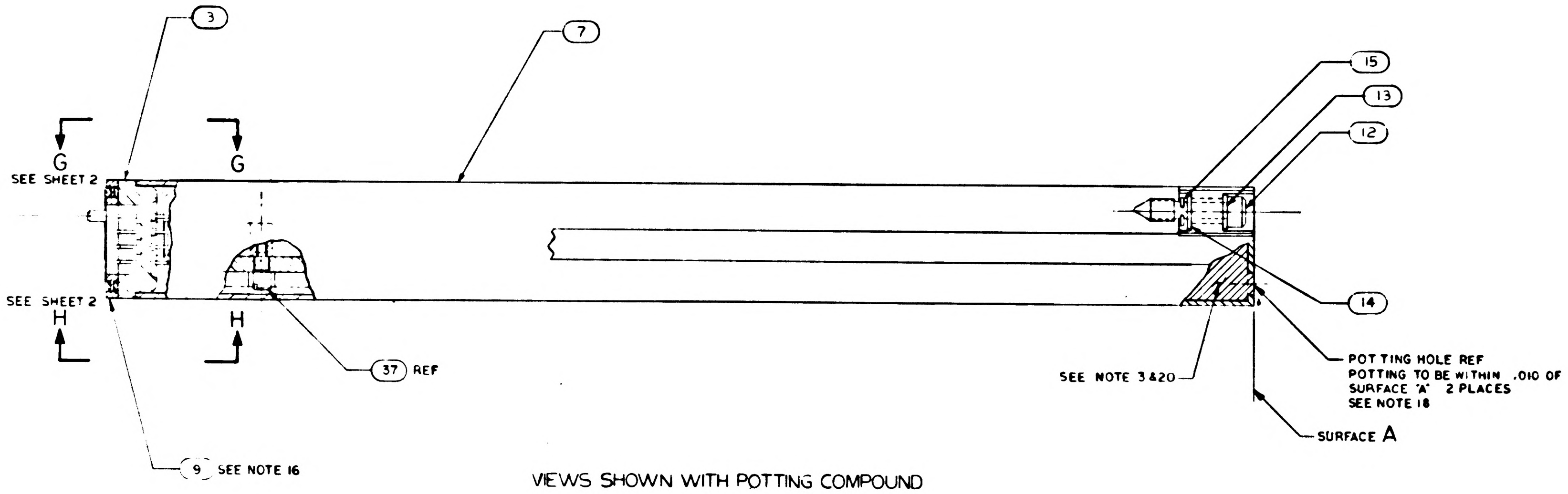
1. PROCESS REQUIREMENTS FOR CONTROL AND INSPECTION OF ROPE MEMORY ASSEMBLIES ND1002285
2. FIXED MEMORY FIXTURE DWG. NO.AP22500

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	[illegible] TDRR 3299	[illegible]	[illegible]
B	REVISED PER TDRR [illegible] DR [illegible] CHK [illegible]	[illegible]	[illegible]
C	REVISED PER [illegible] DR [illegible] CHK [illegible]	[illegible]	[illegible]
D	REVISED PER TDRR [illegible] DR [illegible] CHK [illegible]	5/1967	[illegible]
E	REVISED PER [illegible] DR [illegible]	[illegible]	[illegible]
F	REVISED PER [illegible] 34[illegible] DR [illegible]	[illegible]	[illegible]

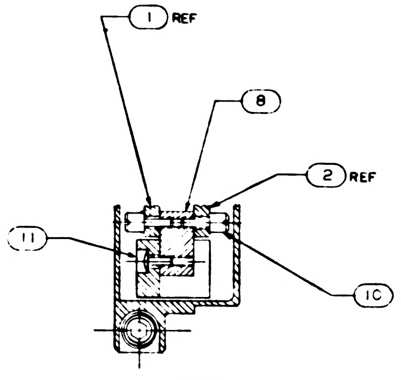

11 REF
34
6
1 REF
22 REF
A
D
5
23 REF
10 REF
B
19 REF
4
37
35
REF 36
SEE NOTE 10
REF 18
A
B
D


.095 MAX TYP
.065 MAX TYP
.030 MAX TYP
.100 MAX TYP
.055MAX TYP
.030 MAX TYP
38 REF
17 REF
16 REF
31
32
1
31
32
2
19 REF
18 REF
21 REF
20 REF
REF 25 26 27
28 29 30 REF
.025 MAX TYP
.050 MAX TYP
.090MAX TYP
.055 MAX TYP
.080 MAX TYP
.115 MAX TYP

SECTION A-A


3
G
SEE SHEET 2
G
7
15
13
12
14
SEE SHEET 2
H
H
37 REF
SEE NOTE 3&20
POTTING HOLE REF
POTTING TO BE WITHIN .010 OF SURFACE 'A' 2 PLACES
SEE NOTE 18
SURFACE A
9 SEE NOTE 16

VIEWS SHOWN WITH POTTING COMPOUND PARTIALLY REMOVED


1 REF
8
2 REF
11
10

SECTION B-B

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
1	2003[illegible]-021	COMPONENT BLOCK DIODE [illegible]	[illegible]
╳	2005935	SCHEMATIC	REF
1	2004[illegible]84	FLAT CABLE	38
4	2004150 – 003	SCREW, SHOULDERED	37
AR	1006806 – 26	INSULATION TAPE, ELECTRICAL	36
1	2004150 – 001	SCREW, SHOULDERED	35
1	2004150 – 002	SCREW, SHOULDERED	34
1	2004129	FLAT CABLE INTERCONNECTION	33
AR	1006776-25	SLEEVING	32
AR	1006757 12	WIRE, ELECTRICAL	31
1	2004125	FLAT CABLE	30
1	2004122	FLAT CABLE	29
1	2004124	FLAT CABLE	28
1	2004123	FLAT CABLE	27
1	2004121	FLAT CABLE	26
1	2004120	FLAT CABLE	25
1	2004[illegible]	FLAT CABLE	24
	2003051 – 013	MATRIX ASSY	23
1	2003051 – 014	MATRIX ASSY	22
8	2003051 – 016	MATRIX ASSY	21
8	2003051 – 015	MATRIX ASSY	20
1	2003051 – 017	MATRIX ASSY	19
1	2003051 – 018	MATRIX ASSY	18
1	2003051 – 011	MATRIX ASSY	17
1	2003051 – 012	MATRIX ASSY	16
2	MS16633-4015	E RING	15
2	1004546 – 3	WASHER	[illegible]
2	1004546 – 1	WASHER	[illegible]
2	1004579 – 1	SCREW, JACKING	[illegible]
4	1000093 – 1	SCREW, BUTTONHEAD	11
4	2004151	SCREW, STANDOFF	10
1	1006339	GASKET PLATE	9
2	2004071	STANDOFF	8
1	2004100	HOUSING	7
1	2003048-021	RESISTOR-DIODE BLOCK ASSY	6
1	2003052-021	COMPONENT BLOCK RESISTOR ASSY	5
1	2003045-021	COMPONENT BLOCK DIODE ASSY	4
1	2003[illegible]-011	CONNECTOR PLATE ASSY	3
1	2003061-SEE CHART	SENSE WIRING ASSY SIDE B	2
1	2003060-SEE CHART	SENSE WIRING ASSY SIDE [illegible]	1

LIST OF MATERIALS

SEE NOTE 16

FOR APPLICABLE PART NO. SEE CHART

NEXT ASSY	USED ON	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± — DECIMALS ±.02 ANGLES ± 2° DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB CAMBRIDGE MASS	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
SEE CHART		MATERIAL	DRAWN [illegible] DATE [illegible] CHECKED [illegible] APPROVAL [illegible] APPROVAL [illegible]	FIXED MEMORY MODULE ASSEMBLY
APPLICATION		HEAT TREATMENT FINAL FINISH	NASA APPROVAL [illegible] APPROVAL [illegible]	CODE IDENT NO 80230 · SIZE J · NASA DRAWING NO 2003972 SCALE 2/1 · WT · SHEET 1 OF 3

F2/2

2003972-3F

WIRE LIST

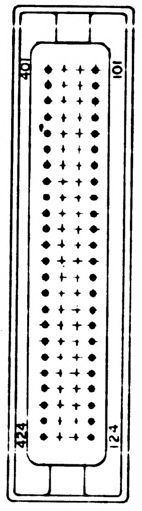
PIN NO.	COMPONENT OR TERM. NO.	PIN NO.	COMPONENT OR TERM. NO.
101	A-EI-213	301	GROUND
102	A-EI-212	302	[illegible]
103	A-EI-211	303	[illegible]
104	A-EO-211	304	CR211
105	A-EI-210	305	[illegible]
106	A-EI-209	306	CR213
107	A-EI-208	307	[illegible]
108	A-EI-207	308	A-CR208
109	A-EI-206	309	A-CR207
110	A-EI-205	310	A-CR206
111	A-EI-204	311	A-CR205
112	A-EI-203	312	A-CR204
113	A-EI-202	313	A-CR203
114	A-EI-201	314	A-CR202
115	A-EI-200	315	A-CR201
116	A-EI-199	316	A-CR200
117	A-EI-198	317	A-CR199
118	A-EI-197	318	A-CR198
119	A-EI-196	319	A-CR197
120	A-EI-195	320	A-CR196
121	A-EO-194	321	A-CR195
122	A-EI-194	322	A-CR194
123	A-EO-193	323	A-CR193
124	A-EI-193	324	SPARE
201	B-R208	401	B-EI-213
202	[illegible]	402	B-EI-212
203	[illegible]	403	B-EI-211
204	[illegible]	404	B-EO-211
205	[illegible]	405	B-EI-210
206	[illegible]	406	B-EI-209
207		407	B-EI-208
208	B-CR208	408	B-EI-207
209	B-CR207	409	B-EI-206
210	B-CR206	410	B-EI-205
211	B-CR205	411	B-EI-204
212	B-CR204	412	B-EI-203
213	B-CR203	413	B-EI-202
214	B-CR202	414	B-EI-201
215	B-CR201	415	B-EI-200
216	B-CR200	416	B-EI-199
217	B-CR199	417	B-EI-198
218	B-CR198	418	B-EI-197
219	B-CR197	419	B-EI-196
220	B-CR196	420	B-EI-195
221	B-CR195	421	B-EO-194
222	B-CR194	422	B-EI-194
223	B-CR193	423	B-EO-193
224	SPARE	424	B-EI-193

WIRE LIST

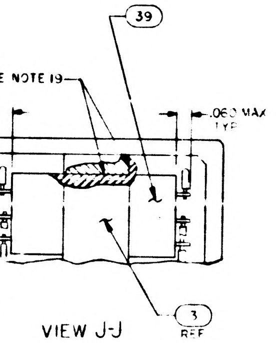
TERMINAL NO.	TERMINAL NO.
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
A-EO-195	B-EO-195
A-EO-196	B-EO-196
A-EO-197	B-EO-197
A-EO-198	B-EO-198
A-EO-199	B-EO-199
A-EO-200	B-EO-200
A-EO-201	B-EO-201
A-EO-202	B-EO-202
A-EO-203	B-EO-203
A-EO-204	B-EO-204
A-EO-205	B-EO-205
A-EO-206	B-EO-206
A-EO-207	B-EO-207
A-EO-208	B-EO-208
A-EO-209	B-EO-209
A-EO-210	B-EO-210
SPARE	SPARE
SPARE	SPARE
A-EO-212	B-EO-212
A-EO-213	B-EO-213

WIRE LIST

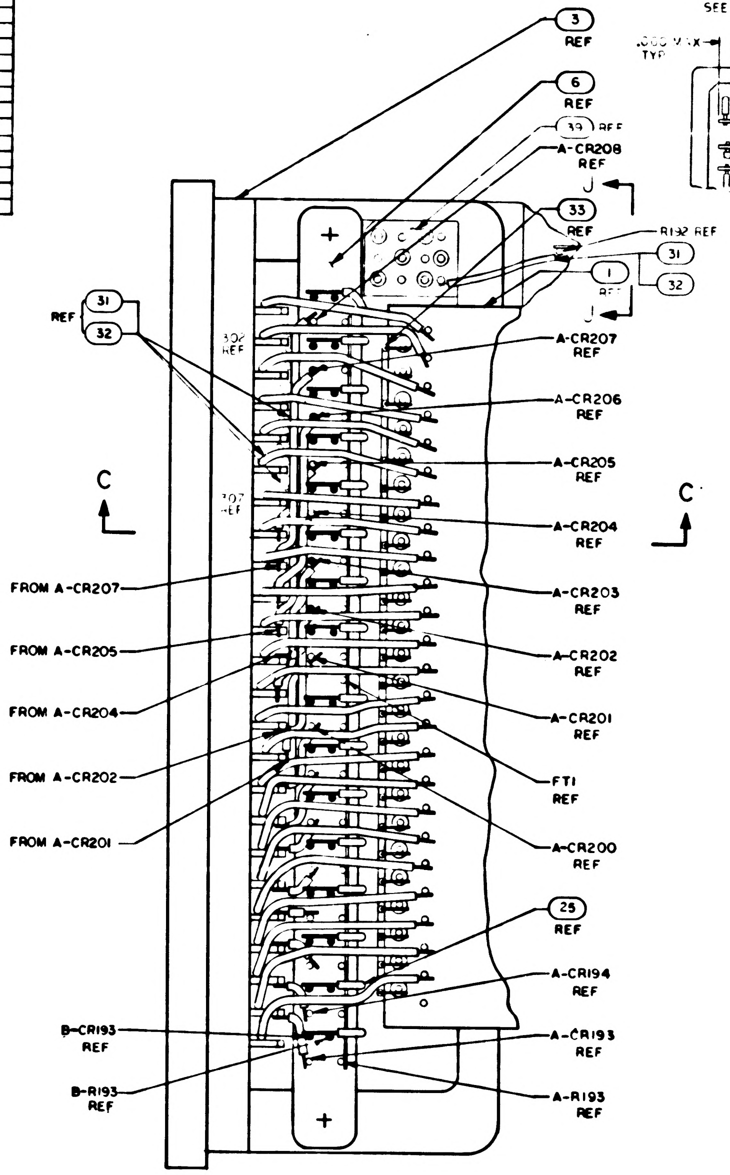
COMPONENT NO.	COMPONENT NO.
CR215	R176
CR216	R144
CR217	R112
CR218	[illegible]
CR219	R48
CR220	[illegible]
CR209	R32
CR210	R64
CR211	[illegible]
CR212	[illegible]
CR213	R160
CR214	[illegible]


401
101
424
124

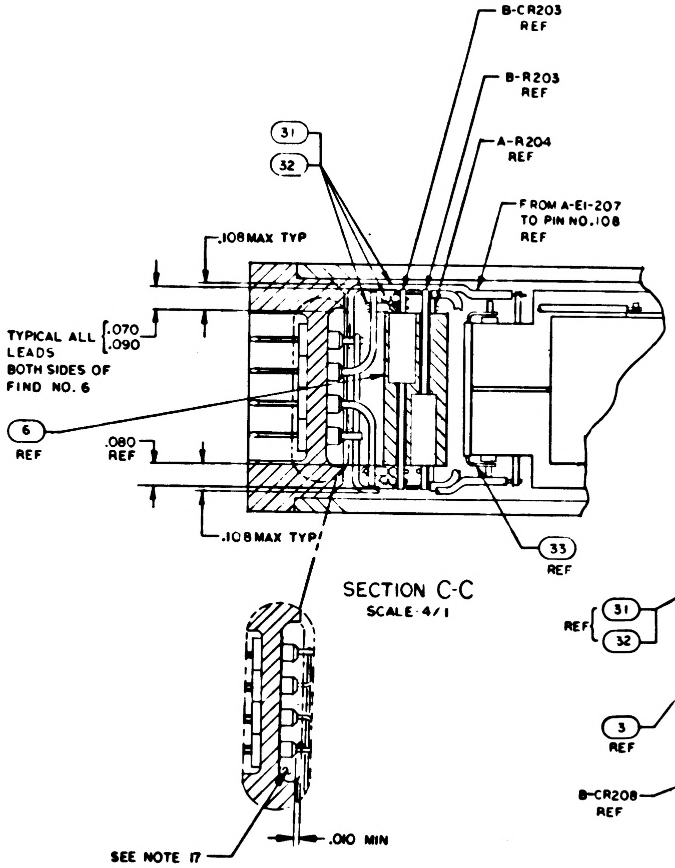
SECTION E-E


39
SEE NOTE 19
.060 MAX TYP
.060 MAX TYP
3 REF

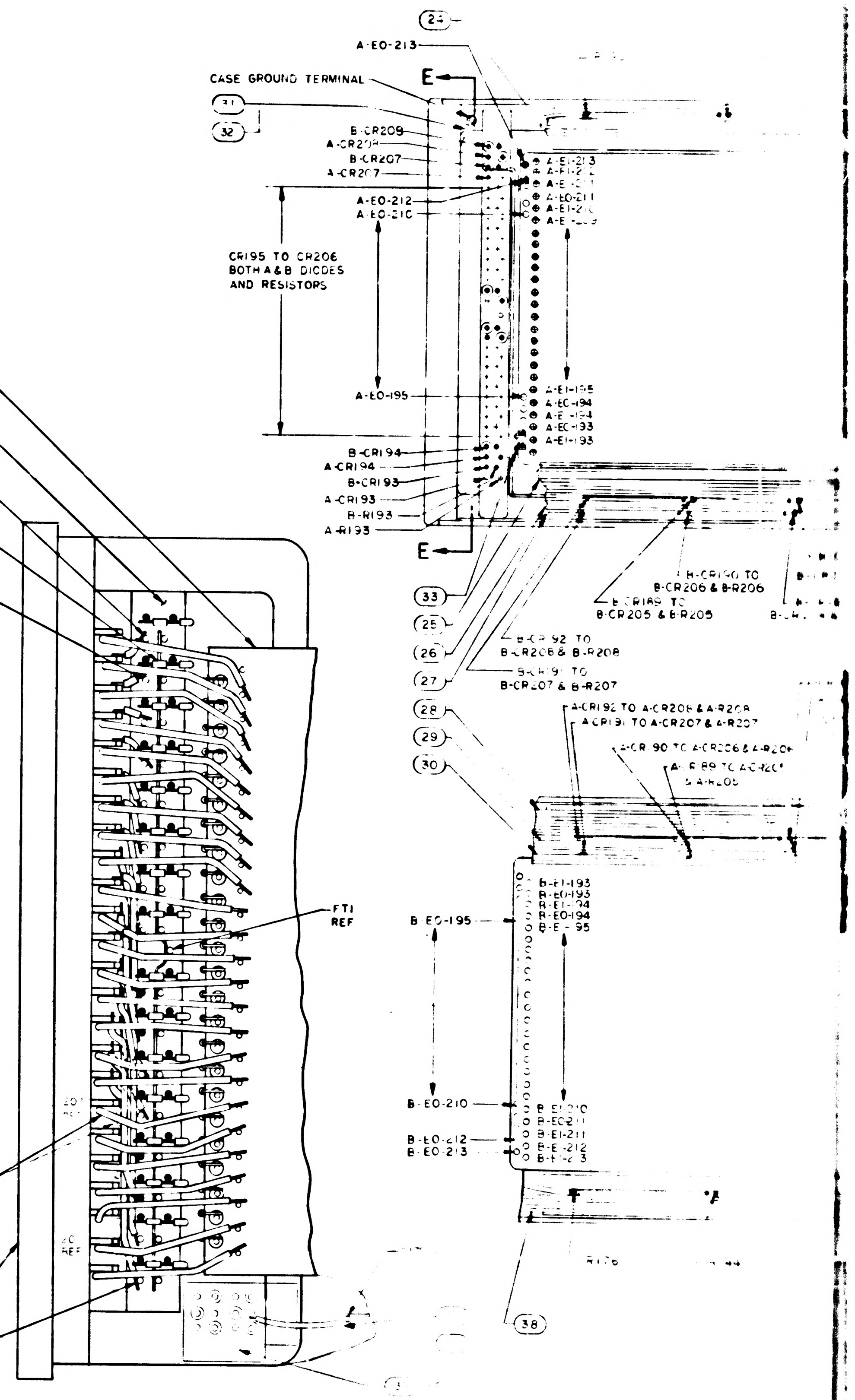
VIEW J-J


3 REF
6 REF
39 REF
A-CR208 REF
J
33 REF
R192 REF
31
1 REF
32
J
REF 31 32
302 REF
A-CR207 REF
A-CR206 REF
A-CR205 REF
C
307 REF
C
A-CR204 REF
FROM A-CR207
A-CR203 REF
FROM A-CR205
A-CR202 REF
FROM A-CR204
A-CR201 REF
FROM A-CR202
FTI REF
FROM A-CR201
A-CR200 REF
25 REF
A-CR194 REF
B-CR193 REF
A-CR193 REF
B-R193 REF
A-R193 REF

VIEW G-G
SCALE 4/1
SHOWN WITH POTTING AND FIND NO. 7 REMOVED. SEE NOTES 11,12,13 AND 14

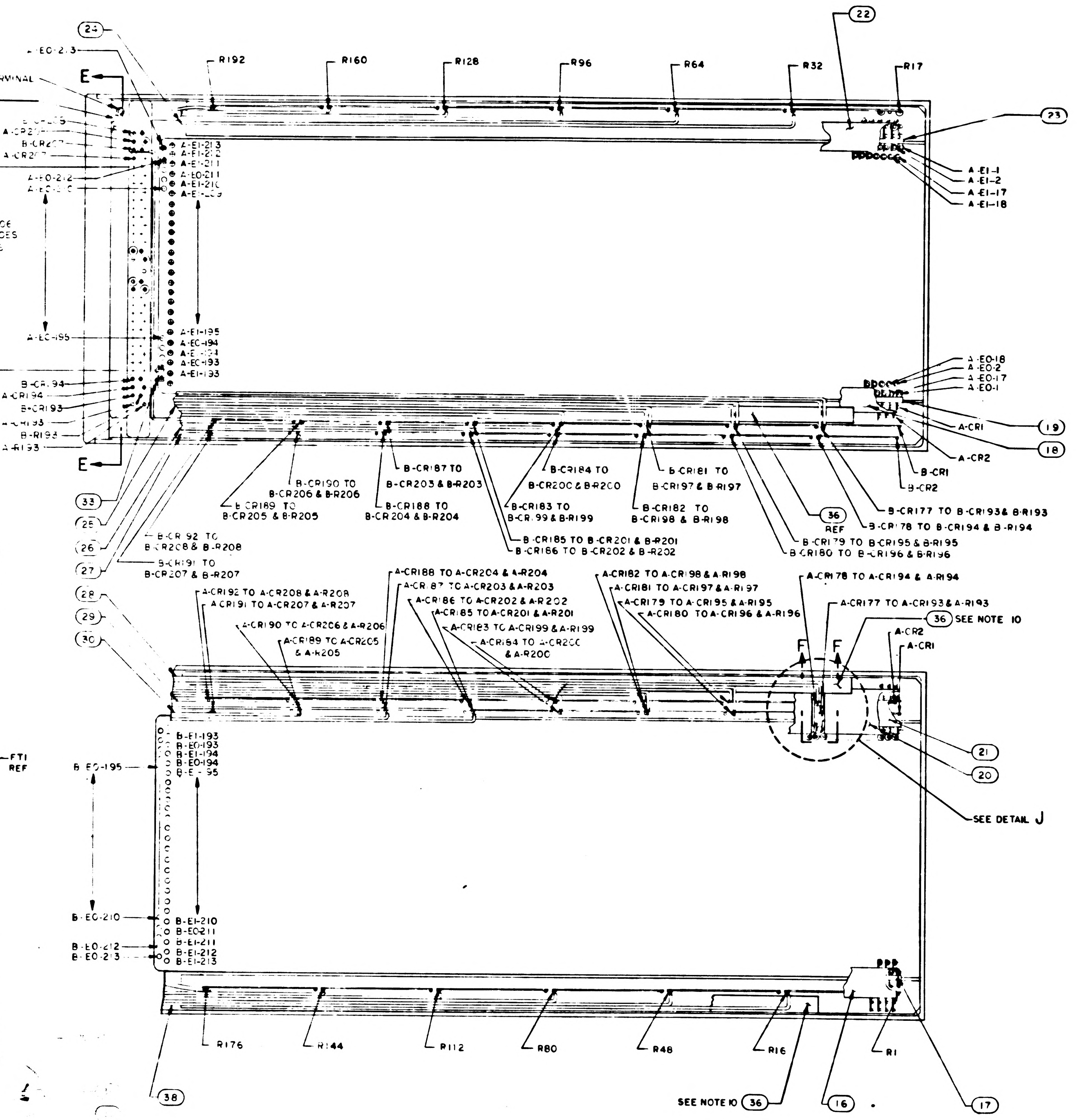

B-CR203 REF
B-R203 REF
31
32
A-R204 REF
FROM A-EI-207 TO PIN NO.108 REF
.108 MAX TYP
TYPICAL ALL LEADS BOTH SIDES OF FIND NO. 6
.070
.090
6 REF
.080 REF
.108 MAX TYP
33 REF
SEE NOTE 17
.010 MIN

SECTION C-C
SCALE 4/1

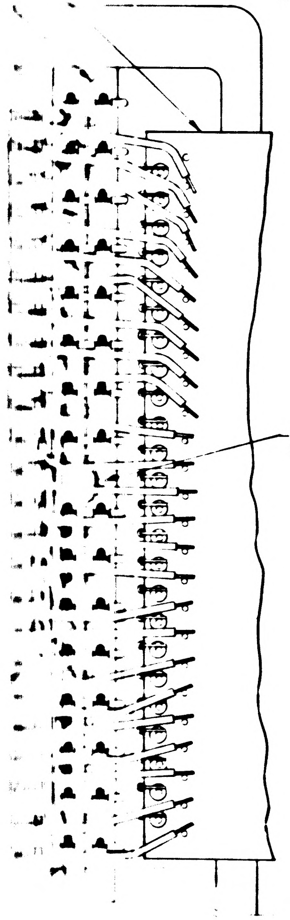

2 REF
6 REF
B-CR193 REF
32 TYP
B-CR194 REF
24
A-EO-213
CASE GROUND TERMINAL
E
31
32
B-CR208
A-CR208
B-CR207
A-CR207
A-EI-213
A-EO-212
A-EO-210
A-EO-211
CR195 TO CR206 BOTH A & B DIODES AND RESISTORS
A-EO-195
A-EI-195
A-EO-194
A-EO-193
A-EI-193
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
E
B-CR190 TO B-CR206 & B-R206
B-CR189 TO B-CR205 & B-R205
33
25
26
27
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
28
29
30
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205 & A-R205
FTI REF
B-EO-195
B-EI-193
B-EO-193
B-EI-194
B-EO-194
B-EI-195
B-EO-210
B-EI-210
B-EO-211
B-EI-211
B-EO-212
B-EO-213
B-EI-212
B-EI-213
R176
38
REF 31 32
3 REF
B-CR208 REF

VIEW H-H
SCALE 4/1
SHOWN WITH POTTING AND FIND NO. 7 REMOVED. SEE NOTES 11,12,13 AND 14

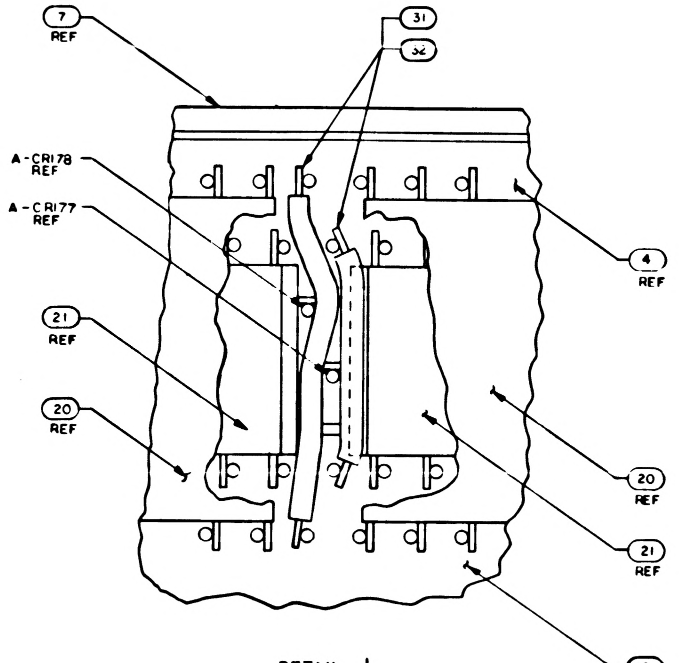
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL [illegible]				
B		REVISED PER TDRR 3346[illegible]				
C		REVISED PER TDRR [illegible]44				
D		REVISED PER TDRR 33606				
E		REVISED PER TDRR 34[illegible]				
F		REVISED PER TDRR [illegible]				



24
A-EO-213
CASE GROUND TERMINAL
E
B-CR206
A-CR206
B-CR207
A-CR207
A-EO-212
A-EO-210
CR195 TO CR206
BOTH A & B DIODES
AND RESISTORS
A-EO-195
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
A-EI-213
A-EI-212
A-EI-211
A-EO-211
A-EI-210
A-EI-209
A-EI-195
A-EO-194
A-EI-194
A-EO-193
A-EI-193
R192
R160
R128
R96
R64
R32
R17
22
23
A-EI-1
A-EI-2
A-EI-17
A-EI-18
A-EO-18
A-EO-2
A-EO-17
A-EO-1
A-CR1
A-CR2
19
18
B-CR1
B-CR2
33
25
26
27
B-CR190 TO B-CR206 & B-R206
B-CR189 TO B-CR205 & B-R205
B-CR187 TO B-CR203 & B-R203
B-CR188 TO B-CR204 & B-R204
B-CR184 TO B-CR200 & B-R200
B-CR183 TO B-CR199 & B-R199
B-CR185 TO B-CR201 & B-R201
B-CR186 TO B-CR202 & B-R202
B-CR181 TO B-CR197 & B-R197
B-CR182 TO B-CR198 & B-R198
36 REF
B-CR177 TO B-CR193 & B-R193
B-CR178 TO B-CR194 & B-R194
B-CR179 TO B-CR195 & B-R195
B-CR180 TO B-CR196 & B-R196
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
28
29
30
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205 & A-R205
A-CR188 TO A-CR204 & A-R204
A-CR187 TO A-CR203 & A-R203
A-CR186 TO A-CR202 & A-R202
A-CR185 TO A-CR201 & A-R201
A-CR183 TO A-CR199 & A-R199
A-CR184 TO A-CR200 & A-R200
A-CR182 TO A-CR198 & A-R198
A-CR181 TO A-CR197 & A-R197
A-CR179 TO A-CR195 & A-R195
A-CR180 TO A-CR196 & A-R196
A-CR178 TO A-CR194 & A-R194
A-CR177 TO A-CR193 & A-R193
36 SEE NOTE 10
A-CR2
A-CR1
F
F
21
20
SEE DETAIL J
B-EI-193
B-EO-193
B-EI-194
B-EO-194
B-EI-195
B-EO-195
B-EO-210
B-EO-212
B-EO-213
B-EI-210
B-EO-211
B-EI-211
B-EI-212
B-EI-213
R176
R144
R112
R80
R48
R16
R1
38
SEE NOTE 10 36
16
17

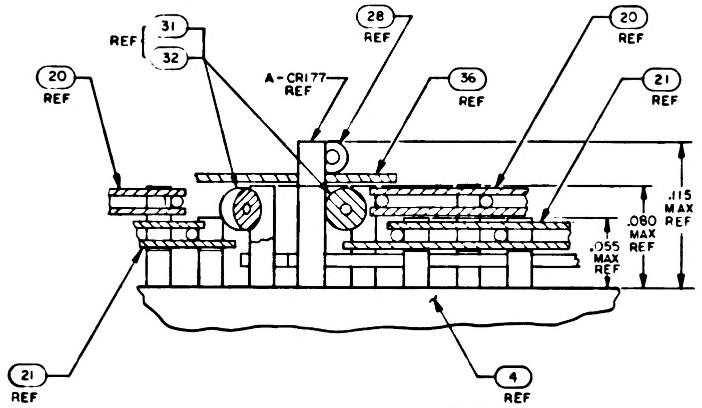


W H-H
A F 4/1
TING AND FIND NO.7
TES 11,12,13 AND 14



7 REF
31
32
A-CR178 REF
A-CR177 REF
21 REF
20 REF
4 REF
20 REF
21 REF
2 REF

DETAIL J
SCALE 10/1
TYPICAL WIRING 8 PLACES, SHOWN
WITH FIND NO.S 28 AND 36 REMOVED



REF 31 32
20 REF
A-CR177 REF
28 REF
36 REF
20 REF
21 REF
.115 MAX REF
.080 MAX REF
.055 MAX REF
21 REF
4 REF

PARTIAL SECTION F-F
SCALE: 20/1

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE
ASSEMBLY

CODE IDENT NO 80230
SIZE J
DRAWING NO. 2003972
SCALE 2/1
SHEET

F2/2

2003972 F

[illegible]

8 7 6 5

D

C

B

A

2003972 F

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL RE[illegible] TDRR 3299[illegible]				
B		REVISED PER TDRR 334[illegible]0				
C		REVISED PER TDRR 33[illegible]4				
D		REVISED PER TDRR 33[illegible]06				
E		REVISED PER TDRR 34[illegible]40				
F		REVISED PER TDRR 34489				

WIRE LIST

TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.
A-EO-1	A-CR1	A-EO-97	A-CR97	B-EO-1	B-CR1	B-EO-97	B-CR97	A-EI-1	R1	A-EI-49	R49	A-EI-97	R97	A-EI-145	R145
A-EO-2	A-CR2	A-EO-98	A-CR98	B-EO-2	B-CR2	B-EO-98	B-CR98	B-EI-1		B-EI-49		B-EI-97		B-EI-145	
A-EO-3	A-CR3	A-EO-99	A-CR99	B-EO-3	B-CR3	B-EO-99	B-CR99	A-EI-2	R2	A-EI-50	R50	A-EI-98	R98	A-EI-146	R146
A-EO-4	A-CR4	A-EO-100	A-CR100	B-EO-4	B-CR4	B-EO-100	B-CR100	B-EI-2		B-EI-50		B-EI-98		B-EI-146	
A-EO-5	A-CR5	A-EO-101	A-CR101	B-EO-5	B-CR5	B-EO-101	B-CR101	A-EI-3	R3	A-EI-51	R51	A-EI-99	R99	A-EI-147	R147
A-EO-6	A-CR6	A-EO-102	A-CR102	B-EO-6	B-CR6	B-EO-102	B-CR102	B-EI-3		B-EI-51		B-EI-99		B-EI-147	
A-EO-7	A-CR7	A-EO-103	A-CR103	B-EO-7	B-CR7	B-EO-103	B-CR103	A-EI-4	R4	A-EI-52	R52	A-EI-100	R100	A-EI-148	R148
A-EO-8	A-CR8	A-EO-104	A-CR104	B-EO-8	B-CR8	B-EO-104	B-CR104	B-EI-4		B-EI-52		B-EI-100		B-EI-148	
A-EO-9	A-CR9	A-EO-105	A-CR105	B-EO-9	B-CR9	B-EO-105	B-CR105	A-EI-5	R5	A-EI-53	R53	A-EI-101	R101	A-EI-149	R149
A-EO-10	A-CR10	A-EO-106	A-CR106	B-EO-10	B-CR10	B-EO-106	B-CR106	B-EI-5		B-EI-53		B-EI-101		B-EI-149	
A-EO-11	A-CR11	A-EO-107	A-CR107	B-EO-11	B-CR11	B-EO-107	B-CR107	A-EI-6	R6	A-EI-54	R54	A-EI-102	R102	A-EI-150	R150
A-EO-12	A-CR12	A-EO-108	A-CR108	B-EO-12	B-CR12	B-EO-108	B-CR108	B-EI-6		B-EI-54		B-EI-102		B-EI-150	
A-EO-13	A-CR13	A-EO-109	A-CR109	B-EO-13	B-CR13	B-EO-109	B-CR109	A-EI-7	R7	A-EI-55	R55	A-EI-103	R103	A-EI-151	R151
A-EO-14	A-CR14	A-EO-110	A-CR110	B-EO-14	B-CR14	B-EO-110	B-CR110	B-EI-7		B-EI-55		B-EI-103		B-EI-151	
A-EO-15	A-CR15	A-EO-111	A-CR111	B-EO-15	B-CR15	B-EO-111	B-CR111	A-EI-8	R8	A-EI-56	R56	A-EI-104	R104	A-EI-152	R152
A-EO-16	A-CR16	A-EO-112	A-CR112	B-EO-16	B-CR16	B-EO-112	B-CR112	B-EI-8		B-EI-56		B-EI-104		B-EI-152	
A-EO-17	A-CR17	A-EO-113	A-CR113	B-EO-17	B-CR17	B-EO-113	B-CR113	A-EI-9	R9	A-EI-57	R57	A-EI-105	R105	A-EI-153	R153
A-EO-18	A-CR18	A-EO-114	A-CR114	B-EO-18	B-CR18	B-EO-114	B-CR114	B-EI-9		B-EI-57		B-EI-105		B-EI-153	
A-EO-19	A-CR19	A-EO-115	A-CR115	B-EO-19	B-CR19	B-EO-115	B-CR115	A-EI-10	R10	A-EI-58	R58	A-EI-106	R106	A-EI-154	R154
A-EO-20	A-CR20	A-EO-116	A-CR116	B-EO-20	B-CR20	B-EO-116	B-CR116	B-EI-10		B-EI-58		B-EI-106		B-EI-154	
A-EO-21	A-CR21	A-EO-117	A-CR117	B-EO-21	B-CR21	B-EO-117	B-CR117	A-EI-11	R11	A-EI-59	R59	A-EI-107	R107	A-EI-155	R155
A-EO-22	A-CR22	A-EO-118	A-CR118	B-EO-22	B-CR22	B-EO-118	B-CR118	B-EI-11		B-EI-59		B-EI-107		B-EI-155	
A-EO-23	A-CR23	A-EO-119	A-CR119	B-EO-23	B-CR23	B-EO-119	B-CR119	A-EI-12	R12	A-EI-60	R60	A-EI-108	R108	A-EI-156	R156
A-EO-24	A-CR24	A-EO-120	A-CR120	B-EO-24	B-CR24	B-EO-120	B-CR120	B-EI-12		B-EI-60		B-EI-108		B-EI-156	
A-EO-25	A-CR25	A-EO-121	A-CR121	B-EO-25	B-CR25	B-EO-121	B-CR121	A-EI-13	R13	A-EI-61	R61	A-EI-109	R109	A-EI-157	R157
A-EO-26	A-CR26	A-EO-122	A-CR122	B-EO-26	B-CR26	B-EO-122	B-CR122	B-EI-13		B-EI-61		B-EI-109		B-EI-157	
A-EO-27	A-CR27	A-EO-123	A-CR123	B-EO-27	B-CR27	B-EO-123	B-CR123	A-EI-14	R14	A-EI-62	R62	A-EI-110	R110	A-EI-158	R158
A-EO-28	A-CR28	A-EO-124	A-CR124	B-EO-28	B-CR28	B-EO-124	B-CR124	B-EI-14		B-EI-62		B-EI-110		B-EI-158	
A-EO-29	A-CR29	A-EO-125	A-CR125	B-EO-29	B-CR29	B-EO-125	B-CR125	A-EI-15	R15	A-EI-63	R63	A-EI-111	R111	A-EI-159	R159
A-EO-30	A-CR30	A-EO-126	A-CR126	B-EO-30	B-CR30	B-EO-126	B-CR126	B-EI-15		B-EI-63		B-EI-111		B-EI-159	
A-EO-31	A-CR31	A-EO-127	A-CR127	B-EO-31	B-CR31	B-EO-127	B-CR127	A-EI-16	R16	A-EI-64	R64	A-EI-112	R112	A-EI-160	R160
A-EO-32	A-CR32	A-EO-128	A-CR128	B-EO-32	B-CR32	B-EO-128	B-CR128	B-EI-16		B-EI-64		B-EI-112		B-EI-160	
A-EO-33	A-CR33	A-EO-129	A-CR129	B-EO-33	B-CR33	B-EO-129	B-CR129	A-EI-17	R17	A-EI-65	R65	A-EI-113	R113	A-EI-161	R161
A-EO-34	A-CR34	A-EO-130	A-CR130	B-EO-34	B-CR34	B-EO-130	B-CR130	B-EI-17		B-EI-65		B-EI-113		B-EI-161	
A-EO-35	A-CR35	A-EO-131	A-CR131	B-EO-35	B-CR35	B-EO-131	B-CR131	A-EI-18	R18	A-EI-66	R66	A-EI-114	R114	A-EI-162	R162
A-EO-36	A-CR36	A-EO-132	A-CR132	B-EO-36	B-CR36	B-EO-132	B-CR132	B-EI-18		B-EI-66		B-EI-114		B-EI-162	
A-EO-37	A-CR37	A-EO-133	A-CR133	B-EO-37	B-CR37	B-EO-133	B-CR133	A-EI-19	R19	A-EI-67	R67	A-EI-115	R115	A-EI-163	R163
A-EO-38	A-CR38	A-EO-134	A-CR134	B-EO-38	B-CR38	B-EO-134	B-CR134	B-EI-19		B-EI-67		B-EI-115		B-EI-163	
A-EO-39	A-CR39	A-EO-135	A-CR135	B-EO-39	B-CR39	B-EO-135	B-CR135	A-EI-20	R20	A-EI-68	R68	A-EI-116	R116	A-EI-164	R164
A-EO-40	A-CR40	A-EO-136	A-CR136	B-EO-40	B-CR40	B-EO-136	B-CR136	B-EI-20		B-EI-68		B-EI-116		B-EI-164	
A-EO-41	A-CR41	A-EO-137	A-CR137	B-EO-41	B-CR41	B-EO-137	B-CR137	A-EI-21	R21	A-EI-69	R69	A-EI-117	R117	A-EI-165	R165
A-EO-42	A-CR42	A-EO-138	A-CR138	B-EO-42	B-CR42	B-EO-138	B-CR138	B-EI-21		B-EI-69		B-EI-117		B-EI-165	
A-EO-43	A-CR43	A-EO-139	A-CR139	B-EO-43	B-CR43	B-EO-139	B-CR139	A-EI-22	R22	A-EI-70	R70	A-EI-118	R118	A-EI-166	R166
A-EO-44	A-CR44	A-EO-140	A-CR140	B-EO-44	B-CR44	B-EO-140	B-CR140	B-EI-22		B-EI-70		B-EI-118		B-EI-166	
A-EO-45	A-CR45	A-EO-141	A-CR141	B-EO-45	B-CR45	B-EO-141	B-CR141	A-EI-23	R23	A-EI-71	R71	A-EI-119	R119	A-EI-167	R167
A-EO-46	A-CR46	A-EO-142	A-CR142	B-EO-46	B-CR46	B-EO-142	B-CR142	B-EI-23		B-EI-71		B-EI-119		B-EI-167	
A-EO-47	A-CR47	A-EO-143	A-CR143	B-EO-47	B-CR47	B-EO-143	B-CR143	A-EI-24	R24	A-EI-72	R72	A-EI-120	R120	A-EI-168	R168
A-EO-48	A-CR48	A-EO-144	A-CR144	B-EO-48	B-CR48	B-EO-144	B-CR144	B-EI-24		B-EI-72		B-EI-120		B-EI-168	
A-EO-49	A-CR49	A-EO-145	A-CR145	B-EO-49	B-CR49	B-EO-145	B-CR145	A-EI-25	R25	A-EI-73	R73	A-EI-121	R121	A-EI-169	R169
A-EO-50	A-CR50	A-EO-146	A-CR146	B-EO-50	B-CR50	B-EO-146	B-CR146	B-EI-25		B-EI-73		B-EI-121		B-EI-169	
A-EO-51	A-CR51	A-EO-147	A-CR147	B-EO-51	B-CR51	B-EO-147	B-CR147	A-EI-26	R26	A-EI-74	R74	A-EI-122	R122	A-EI-170	R170
A-EO-52	A-CR52	A-EO-148	A-CR148	B-EO-52	B-CR52	B-EO-148	B-CR148	B-EI-26		B-EI-74		B-EI-122		B-EI-170	
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A-EO-56	A-CR56	A-EO-152	A-CR152	B-EO-56	B-CR56	B-EO-152	B-CR152	B-EI-28		B-EI-76		B-EI-124		B-EI-172	
A-EO-57	A-CR57	A-EO-153	A-CR153	B-EO-57	B-CR57	B-EO-153	B-CR153	A-EI-29	R29	A-EI-77	R77	A-EI-125	R125	A-EI-173	R173
A-EO-58	A-CR58	A-EO-154	A-CR154	B-EO-58	B-CR58	B-EO-154	B-CR154	B-EI-29		B-EI-77		B-EI-125		B-EI-173	
A-EO-59	A-CR59	A-EO-155	A-CR155	B-EO-59	B-CR59	B-EO-155	B-CR155	A-EI-30	R30	A-EI-78	R78	A-EI-126	R126	A-EI-174	R174
A-EO-60	A-CR60	A-EO-156	A-CR156	B-EO-60	B-CR60	B-EO-156	B-CR156	B-EI-30		B-EI-78		B-EI-126		B-EI-174	
A-EO-61	A-CR61	A-EO-157	A-CR157	B-EO-61	B-CR61	B-EO-157	B-CR157	A-EI-31	R31	A-EI-79	R79	A-EI-127	R127	A-EI-175	R175
A-EO-62	A-CR62	A-EO-158	A-CR158	B-EO-62	B-CR62	B-EO-158	B-CR158	B-EI-31		B-EI-79		B-EI-127		B-EI-175	
A-EO-63	A-CR63	A-EO-159	A-CR159	B-EO-63	B-CR63	B-EO-159	B-CR159	A-EI-32	R32	A-EI-80	R80	A-EI-128	R128	A-EI-176	R176
A-EO-64	A-CR64	A-EO-160	A-CR160	B-EO-64	B-CR64	B-EO-160	B-CR160	B-EI-32		B-EI-80		B-EI-128		B-EI-176	
A-EO-65	A-CR65	A-EO-161	A-CR161	B-EO-65	B-CR65	B-EO-161	B-CR161	A-EI-33	R33	A-EI-81	R81	A-EI-129	R129	A-EI-177	R177
A-EO-66	A-CR66	A-EO-162	A-CR162	B-EO-66	B-CR66	B-EO-162	B-CR162	B-EI-33		B-EI-81		B-EI-129		B-EI-177	
A-EO-67	A-CR67	A-EO-163	A-CR163	B-EO-67	B-CR67	B-EO-163	B-CR163	A-EI-34	R34	A-EI-82	R82	A-EI-130	R130	A-EI-178	R178
A-EO-68	A-CR68	A-EO-164	A-CR164	B-EO-68	B-CR68	B-EO-164	B-CR164	B-EI-34		B-EI-82		B-EI-130		B-EI-178	
A-EO-69	A-CR69	A-EO-165	A-CR165	B-EO-69	B-CR69	B-EO-165	B-CR165	A-EI-35	R35	A-EI-83	R83	A-EI-131	R131	A-EI-179	R179
A-EO-70	A-CR70	A-EO-166	A-CR166	B-EO-70	B-CR70	B-EO-166	B-CR166	B-EI-35		B-EI-83		B-EI-131		B-EI-179	
A-EO-71	A-CR71	A-EO-167	A-CR167	B-EO-71	B-CR71	B-EO-167	B-CR167	A-EI-36	R36	A-EI-84	R84	A-EI-132	R132	A-EI-180	R180
A-EO-72	A-CR72	A-EO-168	A-CR168	B-EO-72	B-CR72	B-EO-168	B-CR168	B-EI-36		B-EI-84		B-EI-132		B-EI-180	
A-EO-73	A-CR73	A-EO-169	A-CR169	B-EO-73	B-CR73	B-EO-169	B-CR169	A-EI-37	R37	A-EI-85	R85	A-EI-133	R133	A-EI-181	R181
A-EO-74	A-CR74	A-EO-170	A-CR170	B-EO-74	B-CR74	B-EO-170	B-CR170	B-EI-37		B-EI-85		B-EI-133		B-EI-181	
A-EO-75	A-CR75	A-EO-171	A-CR171	B-EO-75	B-CR75	B-EO-171	B-CR171	A-EI-38	R38	A-EI-86	R86	A-EI-134	R134	A-EI-182	R182
A-EO-76	A-CR76	A-EO-172	A-CR172	B-EO-76	B-CR76	B-EO-172	B-CR172	B-EI-38		B-EI-86		B-EI-134		B-EI-182	
A-EO-77	A-CR77	A-EO-173	A-CR173	B-EO-77	B-CR77	B-EO-173	B-CR173	A-EI-39	R39	A-EI-87	R87	A-EI-135	R135	A-EI-183	R183
A-EO-78	A-CR78	A-EO-174	A-CR174	B-EO-78	B-CR78	B-EO-174	B-CR174	B-EI-39		B-EI-87		B-EI-135		B-EI-183	
A-EO-79	A-CR79	A-EO-175	A-CR175	B-EO-79	B-CR79	B-EO-175	B-CR175	A-EI-40	R40	A-EI-88	R88	A-EI-136	R136	A-EI-184	R184
A-EO-80	A-CR80	A-EO-176	A-CR176	B-EO-80	B-CR80	B-EO-176	B-CR176	B-EI-40		B-EI-88		B-EI-136		B-EI-184	
A-EO-81	A-CR81	A-EO-177	A-CR177	B-EO-81	B-CR81	B-EO-177	B-CR177	A-EI-41	R41	A-EI-89	R89	A-EI-137	R137	A-EI-185	R185
A-EO-82	A-CR82	A-EO-178	A-CR178	B-EO-82	B-CR82	B-EO-178	B-CR178	B-EI-41		B-EI-89		B-EI-137		B-EI-185	
A-EO-83	A-CR83	A-EO-179	A-CR179	B-EO-83	B-CR83	B-EO-179	B-CR179	A-EI-42	R42	A-EI-90	R90	A-EI-138	R138	A-EI-186	R186
A-EO-84	A-CR84	A-EO-180	A-CR180	B-EO-84	B-CR84	B-EO-180	B-CR180	B-EI-42		B-EI-90		B-EI-138		B-EI-186	
A-EO-85	A-CR85	A-EO-181	A-CR181	B-EO-85	B-CR85	B-EO-181	B-CR181	A-EI-43	R43	A-EI-91	R91	A-EI-139	R139	A-EI-187	R187
A-EO-86	A-CR86	A-EO-182	A-CR182	B-EO-86	B-CR86	B-EO-182	B-CR182	B-EI-43		B-EI-91		B-EI-139		B-EI-187	
A-EO-87	A-CR87	A-EO-183	A-CR183	B-EO-87	B-CR87	B-EO-183	B-CR183	A-EI-44	R44	A-EI-92	R92	A-EI-140	R140	A-EI-188	R188
A-EO-88	A-CR88	A-EO-184	A-CR184	B-EO-88	B-CR88	B-EO-184	B-CR184	B-EI-44		B-EI-92		B-EI-140		B-EI-188	
A-EO-89	A-CR89	A-EO-185	A-CR185	B-EO-89	B-CR89	B-EO-185	B-CR185	A-EI-45	R45	A-EI-93	R93	A-EI-141	R141	A-EI-189	R189
A-EO-90	A-CR90	A-EO-186	A-CR186	B-EO-90	B-CR90	B-EO-186	B-CR185	B-EI-45		B-EI-93		B-EI-141		B-EI-189	
A-EO-91	A-CR91	A-EO-187	A-CR187	B-EO-91	B-CR91	B-EO-187	B-CR187	A-EI-46	R46	A-EI-94	R94	A-EI-142	R142	A-EI-190	R190
A-EO-92	A-CR92	A-EO-188	A-CR188	B-EO-92	B-CR92	B-EO-188	B-CR188	B-EI-46		B-EI-94		B-EI-142		B-EI-190	
A-EO-93	A-CR93	A-EO-189	A-CR189	B-EO-93	B-CR93	B-EO-189	B-CR189	A-EI-47	R47	A-EI-95	R95	A-EI-143	R143	A-EI-191	R191
A-EO-94	A-CR94	A-EO-190	A-CR190	B-EO-94	B-CR94	B-EO-190	B-CR190	B-EI-47		B-EI-95		B-EI-143		B-EI-191	
A-EO-95	A-CR95	A-EO-191	A-CR191	B-EO-95	B-CR95	B-EO-191	B-CR191	A-EI-48	R48	A-EI-96	R96	A-EI-144	R144	A-EI-192	R192
A-EO-96	A-CR96	A-EO-192	A-CR192	B-EO-96	B-CR96	B-EO-192	B-CR192	B-EI-48		B-EI-96		B-EI-144		B-EI-192	

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

FIXED MEMORY MODULE
ASSEMBLY

CODE IDENT NO	SIZE	DRAWING NO
80230	J	2003972
SCALE NONE		SHEET 3 OF 3

F2/2

2003972 F

PART NO.	MODULE NO.	FIND NO. 1	FIND NO. 2	MODULE DECK NO.	NEXT ASSEMBLY NO. (REF)
2003972-011	B1	2003060-061	2003061-061	0205	2021101
2003972-021	B2	2003060-071	2003061-071	0206	2021101
2003972-031	B3	2003060-081	2003061-081	0207	2021101
2003972-041	B1	2003060-121	2003061-121	0210	2021104
2003972-051	B2	2003060-131	2003061-131	0211	2021104
2003972-061	B3	2003060-141	2003061-141	0212	2021104
2003972-071	B2	2003060-151	2003061-151	0213	2021104
2003972-081	B3	2003060-161	2003061-161	0214	2021104
2003972-091	B2	2003060-171	2003061-171	0215	2021101
2003972-111	B3	2003060-181	2003061-181	0216	2021101
2003972-121	B1	2003060-091	2003061-091	0208	2021105-031
2003972-131	B2	2003060-111	2003061-111	0209	2021105-031
2003972-141	B1	2003060-191	2003061-191	0217	2021106-011
2003972-151	B2	2003060-211	2003061-211	0218	2021106-011
2003972-161	B3	2003060-221	2003061-221	0219	2021106-011
2003972-171	B4	2003060-231	2003061-231	0220	2021106-011
2003972-181	B5	2003060-241	2003061-241	0221	2021106-011
2003972-191	B6	2003060-251	2003061-251	0222	2021106-011
2003972-211	B3	2003060-261	2003061-261	0223	2021104-041
2003972-221	B	2003060-271	2003061-271	0224	2021105-041
2003972-231	B1	2003060-281	2003061-281	0225	2021106-021
2003972-241	B3	2003060-291	2003061-291	0226	2021106-021
2003972-251	B5	2003060-311	2003061-311	0227	2021106-021
2003972-261	B1	2003060-321	2003061-321	0230	2021107-011
2003972-271	B2	2003060-331	2003061-331	0229	2021107-011
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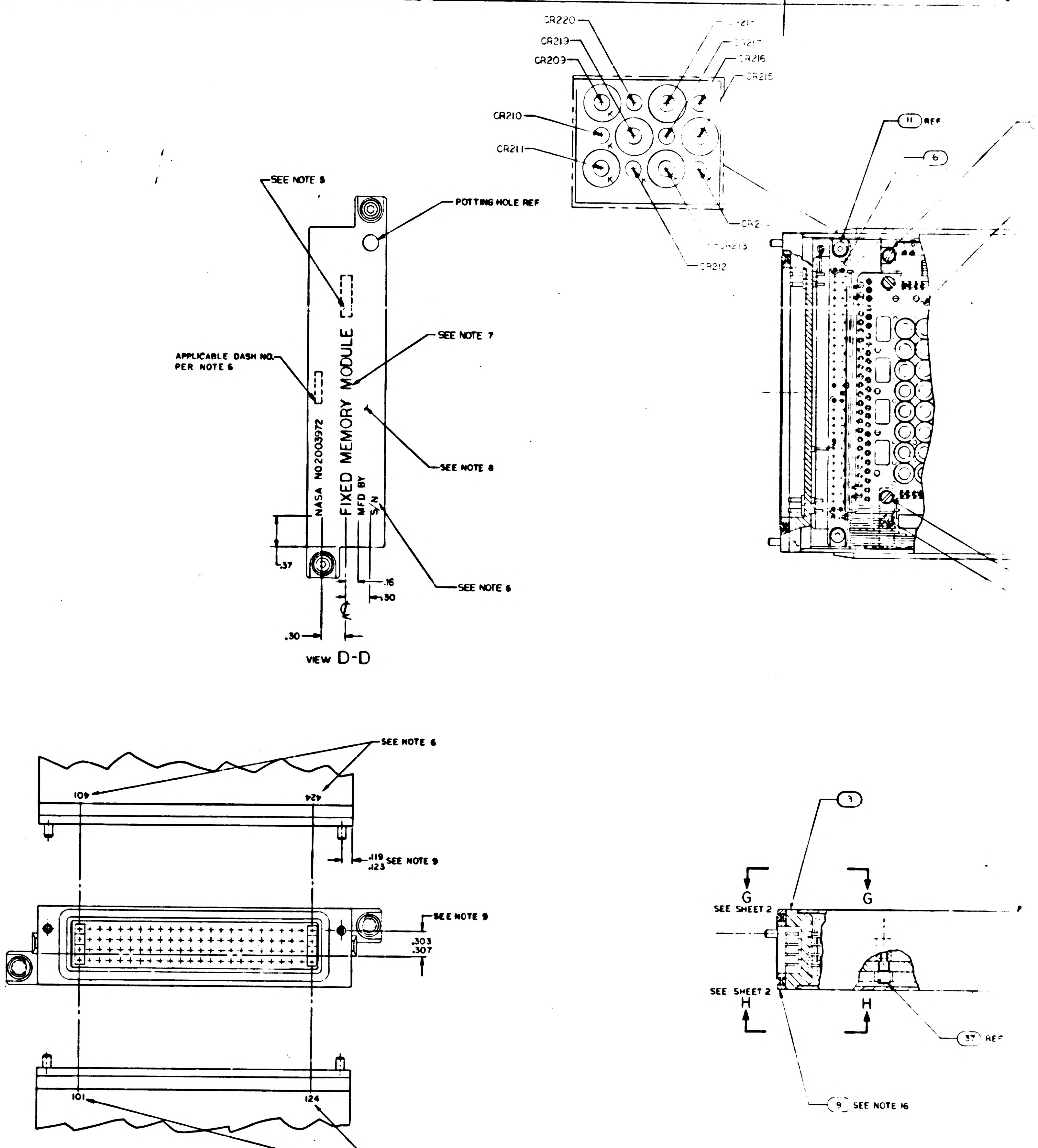


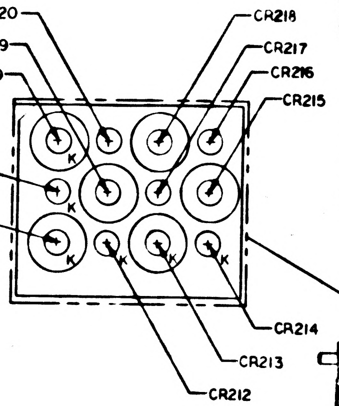
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
3. ENCAPSULATE MODULE PER ND1002226 METHOD II
4. WELD PER ND1002005
5. MARK APPROPRIATE MODULE NO. AS SHOWN IN CHART
6. MARK .08/.06 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
7. MARK .14/.10 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 USING INK 1006271-1
8. PAINT INDICATED SURFACES OF FIND NO 7. PER ND1002279 WITH SCD NO.1008809-1 DARK GREY EPOXY RESIN ENAMEL, FINAL COAT PER ND1002277 USING 1012543-003
9. ASSEMBLE FIND NO.7 AND FIND NO.3 TO DIMENSIONS SHOWN
10. REMOVE LINER FROM NEARSIDE OF FIND NO.36 AND ASSEMBLE 3 PLACES AS SHOWN. FIND NO.36 MUST INSULATE FLAT CABLES FROM TRIMMED COMPONENT LEADS. TRIM AS REQUIRED
11. WHITE DOT AND SINGLE SOLID LEAD DENOTES FIRST LEVEL WIRING UNLESS OTHERWISE SPECIFIED
12. BLACK DOT AND SINGLE SOLID LEAD DENOTES SECOND LEVEL WIRING
13. BLACK DOT AND CROSS HATCHED LEAD DENOTES THIRD LEVEL WIRING
14. ALL LEADS FROM FIND NO.1 AND FIND NO.2 TO FIND NO.3 TO BE THIRD LEVEL WIRING
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003972. FOR-121 131 & 221 CONFIGURATIONS USE PS 2003960
16. FIND NO.9 TO BE SHIPPED UNASSEMBLED AND IDENTIFIED PER ND 1002019
17. SEAL PINS AND INSULATORS TO FIND NO. 3 PER ND1002004 TYPE VI BEFORE ASSY OF FIND NO. 6
18. FILL AS SHOWN PER ND1002235 METHOD A
19. BOND FIND NO.39 TO FIND NO.3 PER ND1002004 TYPE VI AFTER ASSY OF FIND NO.6
20. PRIOR TO ENCAPSULATION PER NOTE 3, COAT OVER ALL TERMINALS OF FIND NO'S 1,2 & 3 AND OVER ALL WIRES, SLEEVING AND COMPONENT LEADS OF FIND NO'S 4,5,6,16,17,18,19,20,21,22,23,24, 25,26,27,28,29,30,31,32,33,38 & 39 WITH A .03 MAXIMUM THICKNESS OF SILICONE RUBBER PER ND1002009, METHOD A. MASK ALL OUTSIDE SURFACES OF FIND NO.3 AND ALL OTHER SURFACES OF THIS ASSEMBLY COMING IN CLOSE CONTACT WITH FIND NO.7

REFERENCES:

1. PROCESS REQUIREMENTS FOR CONTROL AND INSPECTION OF ROPE MEMORY ASSEMBLIES ND1002285
2. FIXED MEMORY FIXTURE DWG. NO. AP22500

2003972 G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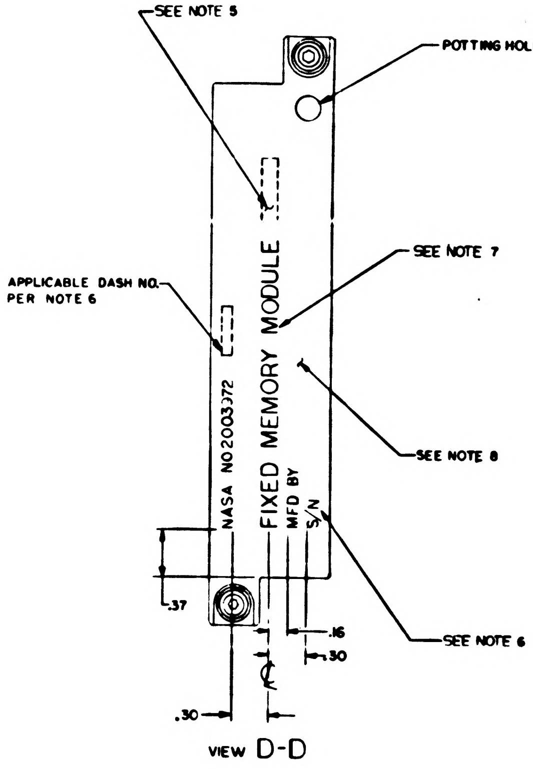
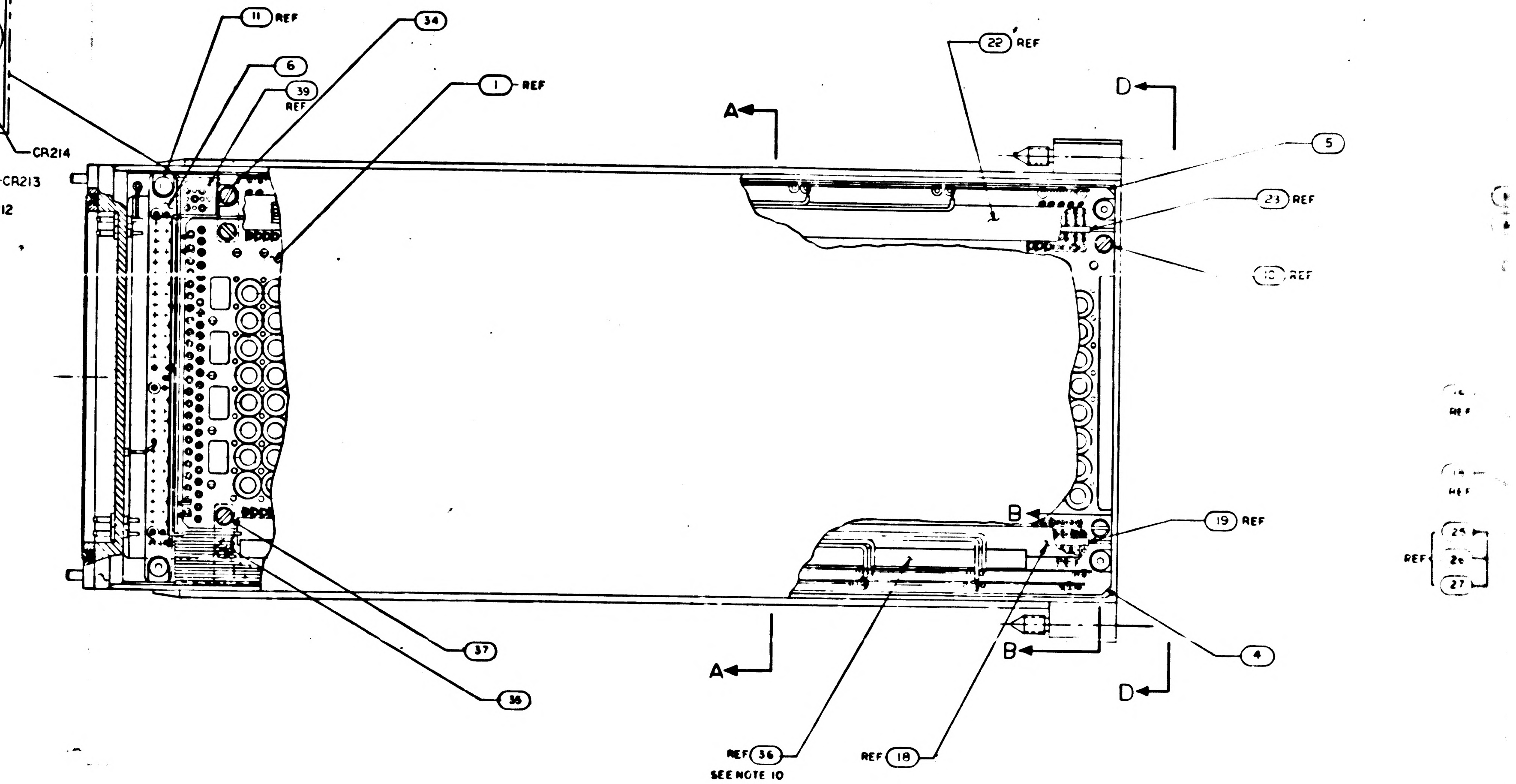

SEE NOTE 5
POTTING HOLE REF
SEE NOTE 7
APPLICABLE DASH NO. PER NOTE 6
FIXED MEMORY MODULE
NASA NO 2003972
MFD BY
S/N
SEE NOTE 8
SEE NOTE 6
.37
.16
.30
.30
VIEW D-D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6
39 REF
34
1 REF
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D
5
23 REF
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19 REF
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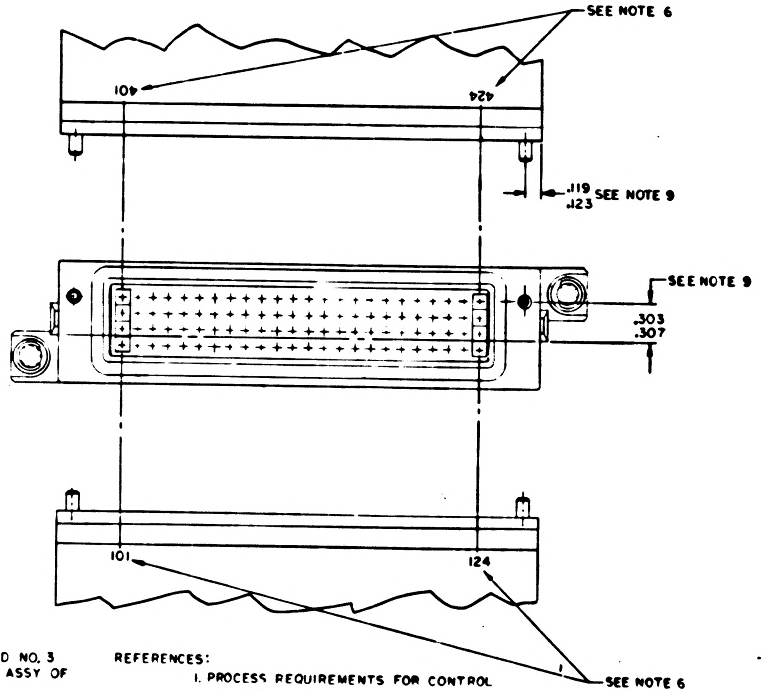
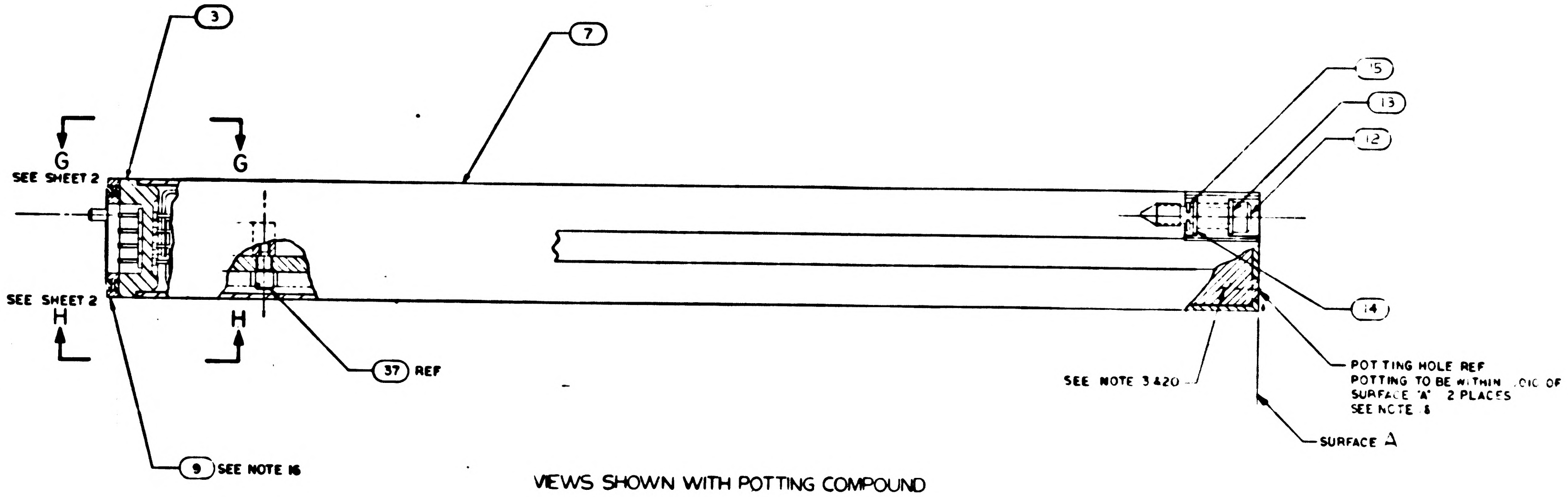
4
REF 25 26 27
37
38
REF 36 SEE NOTE 10
REF 18


SEE NOTE 6
101
124
.119 .123 SEE NOTE 9
SEE NOTE 9
.303 .307
101
124
SEE NOTE 6


3
7
G
SEE SHEET 2
G
SEE SHEET 2
H
H
37 REF
9 SEE NOTE 16
15
13
12
14
SEE NOTE 3420
POTTING HOLE REF POTTING TO BE WITHIN .010 OF SURFACE 'A' 2 PLACES SEE NOTE 8
SURFACE A

VIEWS SHOWN WITH POTTING COMPOUND
PARTIALLY REMOVED

17 SEAL PINS AND INSULATORS TO FIND NO. 3 PER ND1002004 TYPE VI BEFORE ASSY OF FIND NO. 6

18 FILL AS SHOWN PER ND1002235 METHOD A

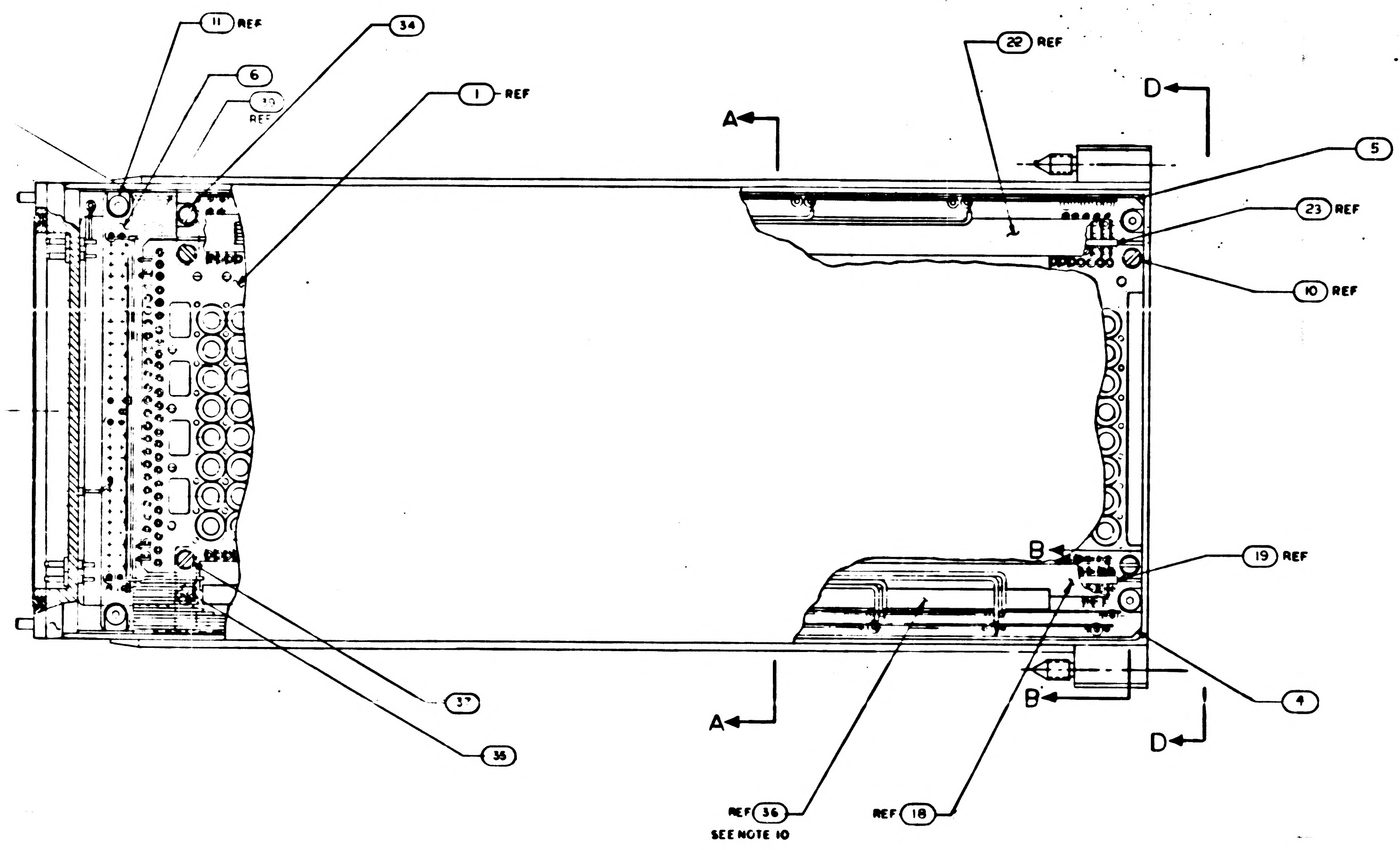
19 BOND FIND NO. 39 TO FIND NO. 3 PER ND1002004 TYPE VI AFTER ASSY OF FIND NO 6

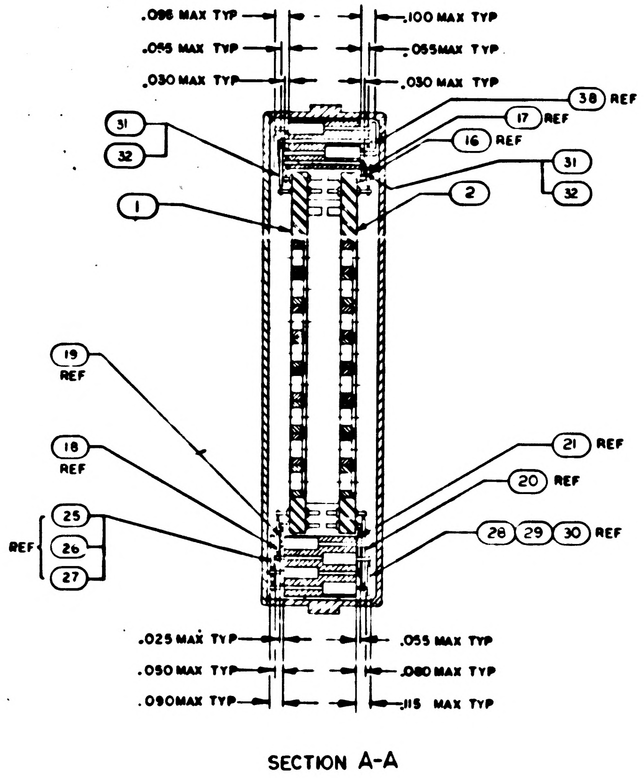
20 PRIOR TO ENCAPSULATION PER NOTE 3, COAT OVER ALL TERMINALS OF FIND NO'S 1,2,&3 AND OVER ALL WIRES, SLEEVING AND COMPONENT LEADS OF FIND NO'S 4,5,6,16,17,18,19,20,21,22,23,24, 25,26,27,28,29,30,31,32,33,38 & 39 WITH A .03 MAXIMUM THICKNESS OF SILICONE RUBBER PER ND1002009, METHOD A. MASK ALL OUTSIDE SURFACES OF FIND NO.3 AND ALL OTHER SURFACES OF THIS ASSEMBLY COMING IN CLOSE CONTACT WITH FIND NO.7

REFERENCES:

1. PROCESS REQUIREMENTS FOR CONTROL AND INSPECTION OF ROPE MEMORY ASSEMBLIES ND1002285
2. FIXED MEMORY FIXTURE DWG. NO. AP22500

72 FOR-121 13 & 22 CONFIGURATIONS USE PS 2003960


11 REF
34
6
13 REF
1 REF
22 REF
D
A
5
23 REF
10 REF
B
19 REF
4
B
37
35
A
D
REF 36
SEE NOTE 10
REF 18


.095 MAX TYP
.055 MAX TYP
.030 MAX TYP
.100 MAX TYP
.055 MAX TYP
.030 MAX TYP
38 REF
17 REF
16 REF
31
32
1
2
31
32
19 REF
18 REF
21 REF
20 REF
25
26
27
REF
28 29 30 REF
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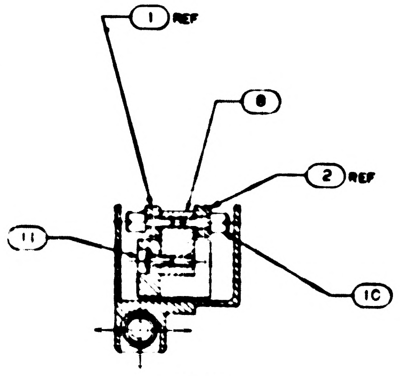
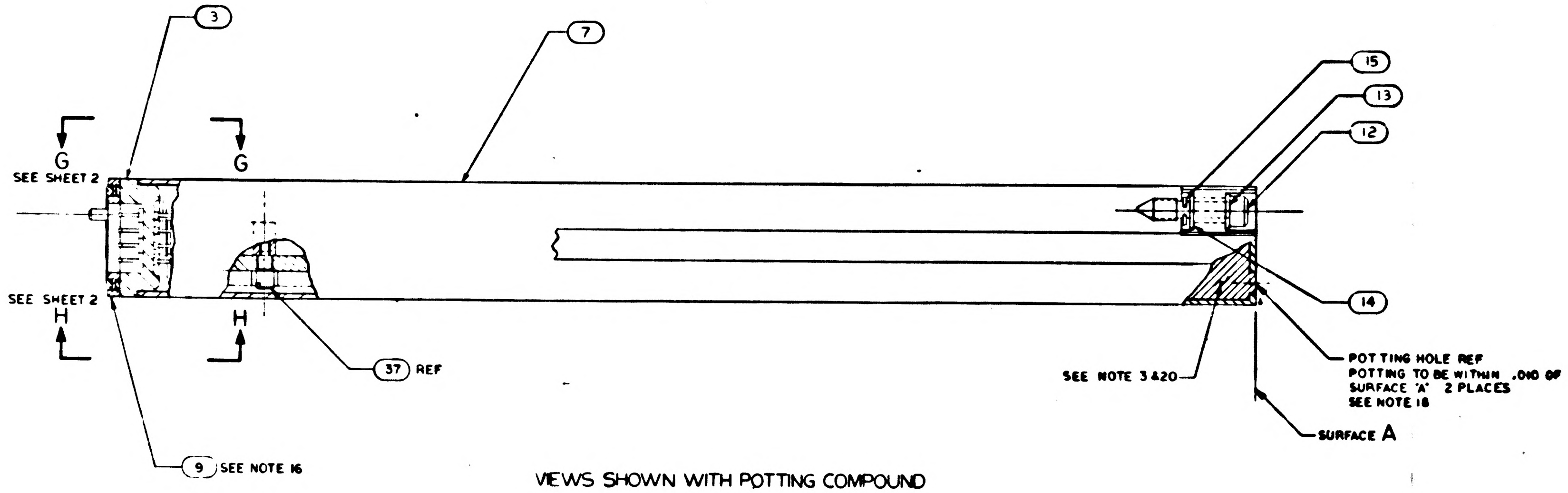
.050 MAX TYP
.090 MAX TYP
.055 MAX TYP
.080 MAX TYP
.115 MAX TYP

SECTION A-A


1 REF
8
2 REF
11
10

SECTION B-B


3
7
15
13
12
G
G
SEE SHEET 2
SEE SHEET 2
H
H
14
37 REF
SEE NOTE 3 & 20
POTTING HOLE REF
POTTING TO BE WITHIN .010 OF SURFACE 'A' 2 PLACES
SEE NOTE 18
SURFACE A
9 SEE NOTE 16

VIEWS SHOWN WITH POTTING COMPOUND
PARTIALLY REMOVED

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL RELEASE TDRR 32991	[illegible]	[illegible]
B	REVISED PER TDRR 33430 DR [illegible] CHK [illegible]	[illegible]	[illegible]
C	REVISED PER TDRR [illegible]4 DR [illegible] CHK [illegible]	5/4/67	T.J.L.
D	REVISED PER TDRR 33605 DR [illegible] CHK [illegible]	5/4/67	TJR
E	REVISED PER TDRR 34,40 DR [illegible] CHK [illegible]	[illegible]	TJR
F	REVISED PER TDRR 34469 DR [illegible] CHK [illegible]	[illegible]	TJR
G	REVISED PER TDRR [illegible] DR [illegible] CHK [illegible]	[illegible]	TJR

LIST OF MATERIALS

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
1	2003986-021	COMPONENT BLOCK DIODE ASSY	39
╳	2005935	SCHEMATIC	REF
1	2004684	FLAT CABLE	38
4	2004150 — 003	SCREW, SHOULDERED	37
AR	1006806 — 26	INSULATION TAPE, ELECTRICAL	36
1	2004150 — 001	SCREW, SHOULDERED	35
1	2004150 — 002	SCREW, SHOULDERED	34
1	2004129	FLAT CABLE INTERCONNECTION	33
AR	1006776-25	SLEEVING	32
AR	1006757-12	WIRE, ELECRICAL	31
1	2004125	FLAT CABLE	30
1	2004122	FLAT CABLE	29
1	2004124	FLAT CABLE	28
1	2004123	FLAT CABLE	27
1	2004121	FLAT CABLE	26
1	2004120	FLAT CABLE	25
1	2004[illegible]	FLAT CABLE	24
	2003051 — 013	MATRIX ASSY	23
1	2003051 — 014	MATRIX ASSY	22
8	2003051 — 016	MATRIX ASSY	21
8	2003051 — 015	MATRIX ASSY	20
1	2003051 — 017	MATRIX ASSY	19
1	2003051 — 018	MATRIX ASSY	18
1	2003051 — 011	MATRIX ASSY	17
1	2003051 — 012	MATRIX ASSY	16
2	MS16633-4015	E RING	15
2	1004546-3	WASHER	14
2	1004546-1	WASHER	13
2	1004579-1	SCREW, JACKING	12
4	1000093-1	SCREW, BUTTONHEAD	11
4	2004151	SCREW, STANDOFF	10
1	1006339	GASKET PLATE	9
2	2004071	STANDOFF	8
1	2004100	HOUSING	7
1	2003048-021	RESISTOR-DIODE BLOCK ASSY	6
1	2003052-021	COMPONENT BLOCK RESISTOR ASSY	5
1	2003045-021	COMPONENT BLOCK DIODE ASSY	4
1	2003973-011	CONNECTOR PLATE ASSY	3
1	2003061-SEE CHART	SENSE WIRING ASSY SIDE B	2
1	2003060-SEE CHART	SENSE WIRING ASSY SIDE A	1

SEE NOTE 16

FOR APPLICABLE PART NO. SEE CHART

SEE CHART	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE
ASSEMBLY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO 2003972
SCALE 2/1
WT
SHEET 1 OF 3

2003972 GF3/43 SH1/43

WIRE LIST

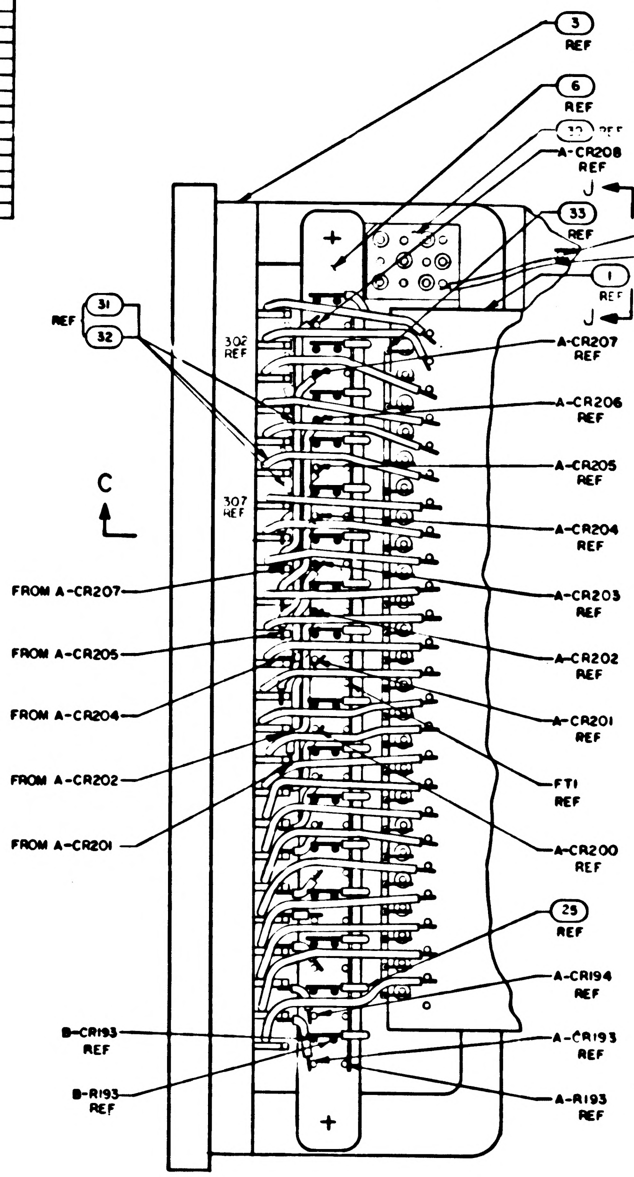
PIN NO.	COMPONENT OR TERM. NO.	PIN NO.	COMPONENT OR TERM. NO.
101	A-E1-213	301	GROUND
102	A-E1-212	302	CR209
103	A-E1-211	303	CR210
104	A-E0-211	304	CR211
105	A-E1-210	305	CR212
106	A-E1-209	306	CR213
107	A-E1-208	307	CR214
108	A-E1-207	308	A-CR208
109	A-E1-206	309	A-CR207
110	A-E1-205	310	A-CR206
111	A-E1-204	311	A-CR205
112	A-E1-203	312	A-CR204
113	A-E1-202	313	A-CR203
114	A-E1-201	314	A-CR202
115	A-E1-200	315	A-CR201
116	A-E1-199	316	A-CR200
117	A-E1-198	317	A-CR199
118	A-E1-197	318	A-CR198
119	A-E1-196	319	A-CR197
120	A-E1-195	320	A-CR196
121	A-E0-194	321	A-CR195
122	A-E1-194	322	A-CR194
123	A-E0-193	323	A-CR193
124	A-E1-193	324	SPARE
201	B-R208	401	B-E1-213
202	CR215	402	B-E1-212
203	CR216	403	B-E1-211
204	CR217	404	B-E0-211
205	CR218	405	B-E1-210
206	CR219	406	B-E1-209
207	CR220	407	B-E1-208
208	B-CR208	408	B-E1-207
209	B CR207	409	B-E1-206
210	B-CR206	410	B-E1-205
211	B-CR205	411	B-E1-204
212	B-CR204	412	B-E1-203
213	B-CR203	413	B-E1-202
214	B-CR202	414	B-E1-201
215	B-CR201	415	B-E1-200
216	B-CR200	416	B-E1-199
217	B-CR199	417	B-E1-198
218	B-CR198	418	B-E1-197
219	B-CR197	419	B-E1-196
220	B-CR196	420	B-E1-195
221	B-CR195	421	B-E0-194
222	B-CR194	422	B-E1-194
223	B-CR193	423	B-E0-193
224	SPARE	424	B-E1-193

WIRE LIST

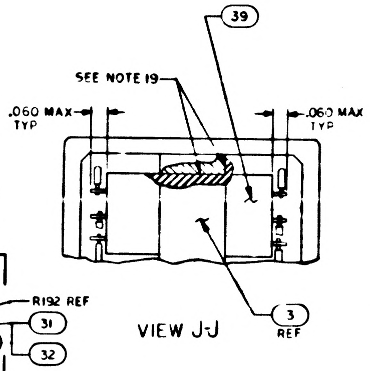
TERMINAL NO.	TERMINAL NO.
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
A-E0-195	B-E0-195
A-E0-196	B-E0-196
A-E0-197	B-E0-197
A-E0-198	B-E0-198
A-E0-199	B-E0-199
A-E0-200	B-E0-200
A-E0-201	B-E0-201
A-E0-202	B-E0-202
A-E0-203	B-E0-203
A-E0-204	B-E0-204
A-E0-205	B-E0-205
A-E0-206	B-E0-206
A-E0-207	B-E0-207
A-E0-208	B-E0-208
A-E0-209	B-E0-209
A-E0-210	B-E0-210
SPARE	SPARE
SPARE	SPARE
A-E0-212	B-E0-212
A-E0-213	B-E0-213

WIRE LIST

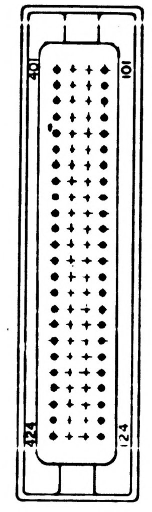
COMPONENT NO.	COMPONENT NO.
CR215	R176
CR216	R144
CR217	R112
CR218	R80
CR219	R48
CR220	R16
CR209	R32
CR210	R64
CR211	R96
CR212	R128
CR213	R160
CR214	R192


3
REF
6
REF
32 REF
A-CR208
REF
J
33
REF
1
REF
J
31
32
REF
302
REF
307
REF
C
A-CR207
REF
A-CR206
REF
A-CR205
REF
A-CR204
REF
A-CR203
REF
A-CR202
REF
A-CR201
REF
FT1
REF
A-CR200
REF
29
REF
A-CR194
REF
A-CR193
REF
A-R193
REF
FROM A-CR207
FROM A-CR205
FROM A-CR204
FROM A-CR202
FROM A-CR201
B-CR193
REF
B-R193
REF
+
+

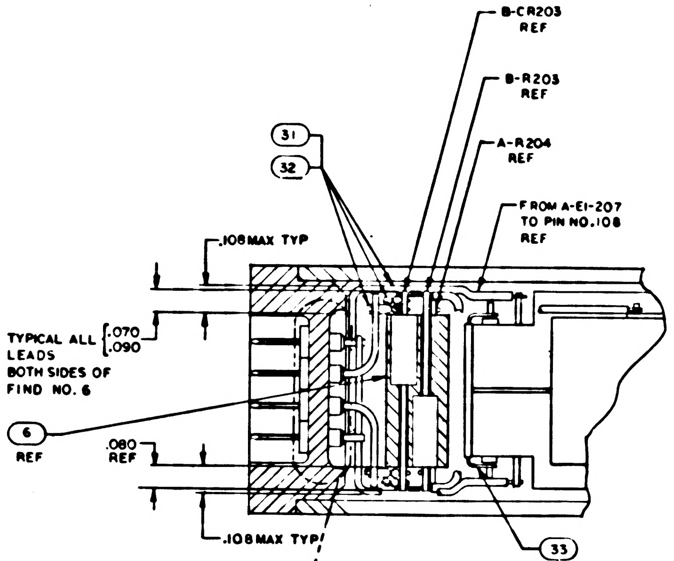
VIEW G-G
SCALE 4/1
SHOWN WITH POTTING AND FIND NO.7 REMOVED. SEE NOTES 11,12,13 AND 14


39
SEE NOTE 19
.060 MAX
TYP
.060 MAX
TYP
3
REF

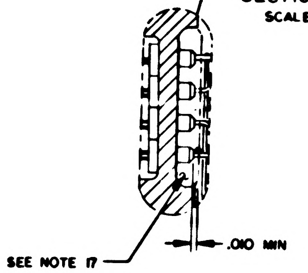
VIEW J-J

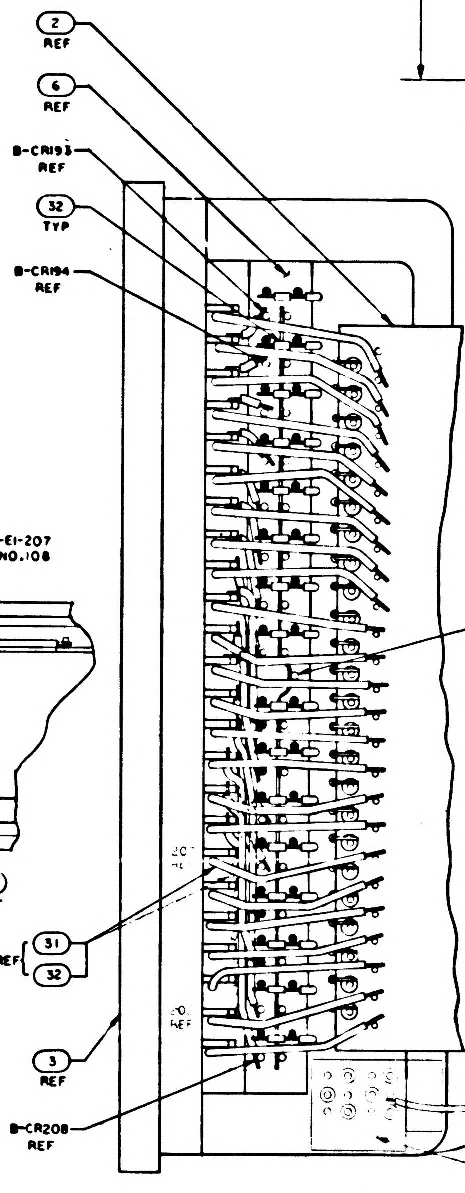

401
101
424
124

SECTION E-E

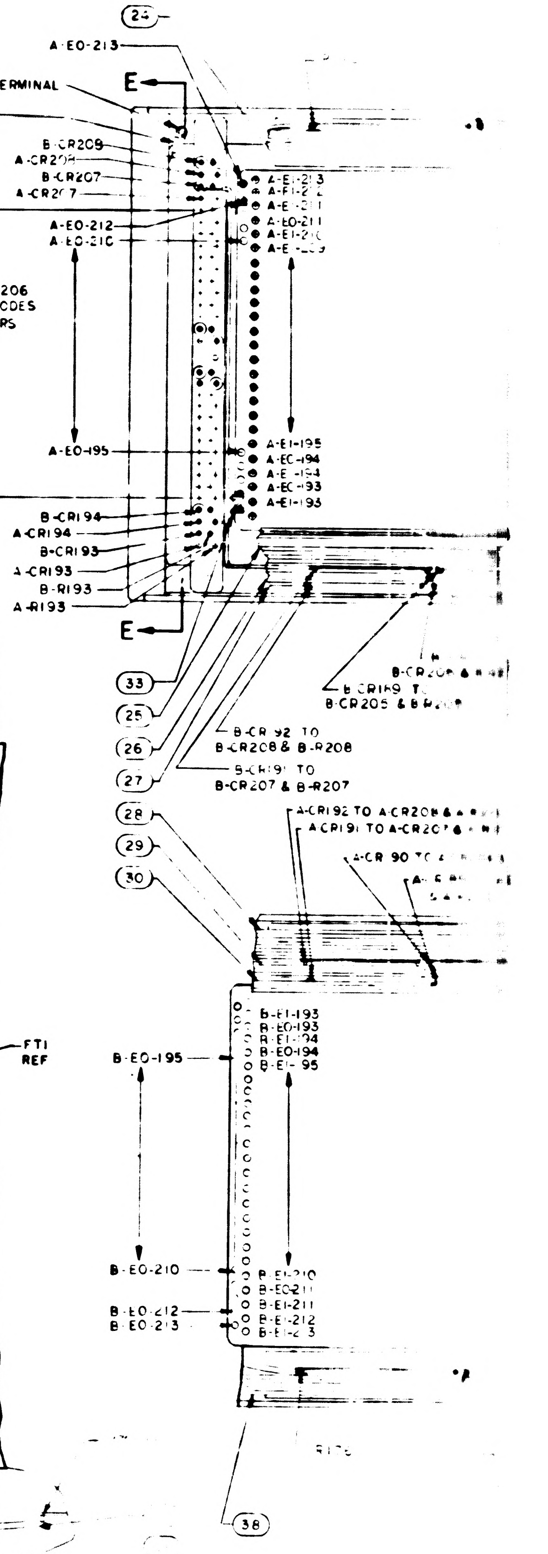

B-CR203
REF
B-R203
REF
A-R204
REF
FROM A-E1-207
TO PIN NO.108
REF
31
32
.108 MAX TYP
TYPICAL ALL LEADS BOTH SIDES OF FIND NO. 6
.070
.090
6
REF
.080
REF
.108 MAX TYP
33
REF

SECTION C-C
SCALE 4/1

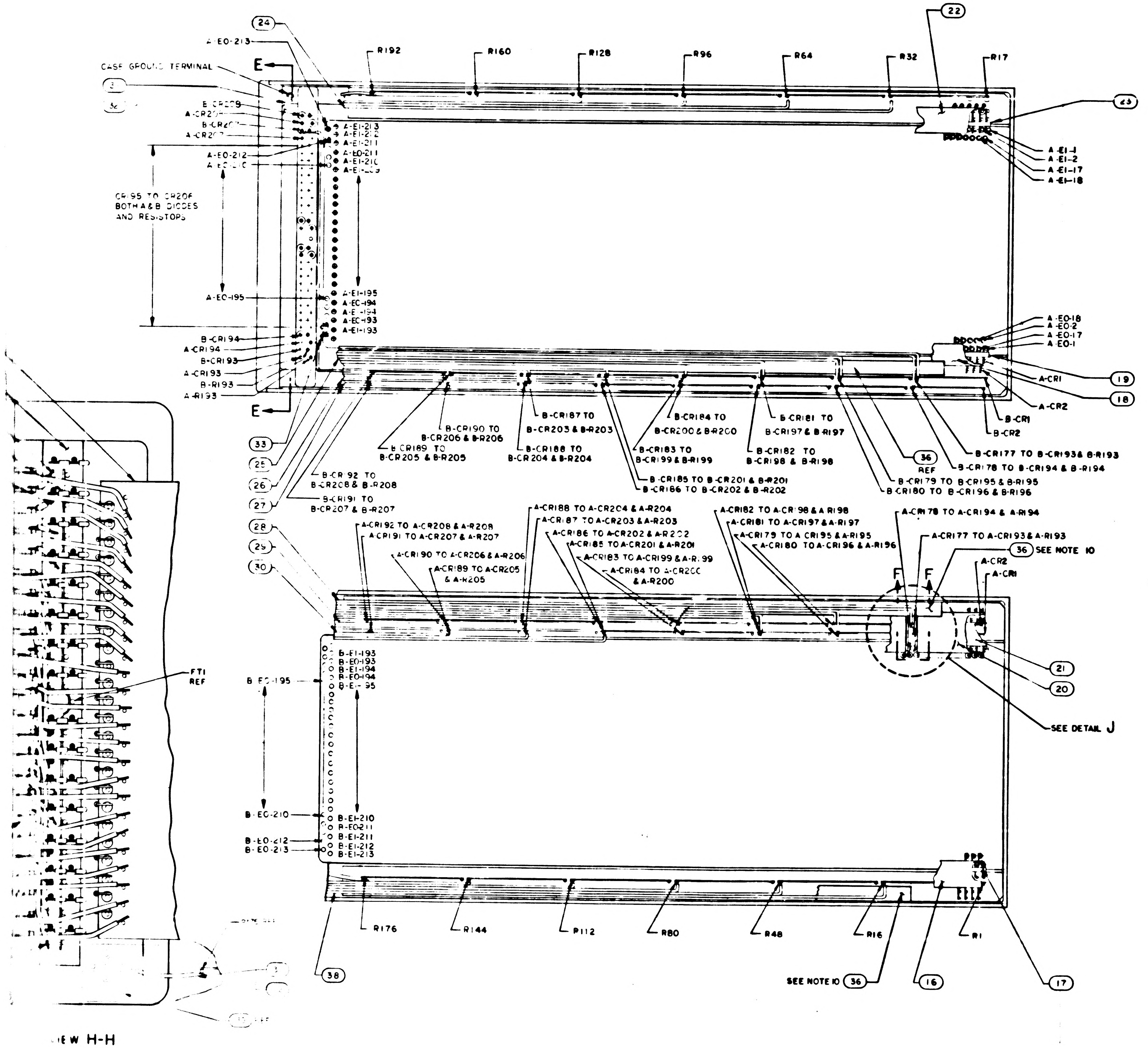

SEE NOTE 17
.010 MIN


2
REF
6
REF
B-CR193
REF
32
TYP
B-CR194
REF
FT1
REF
31
32
REF
3
REF
B-CR208
REF

VIEW H-H
SCALE 4/1
SHOWN WITH POTTING AND FIND NO.7 REMOVED. SEE NOTES 11,12,13 AND 14


24
A-E0-213
CASE GROUND TERMINAL
E
31
32
B-CR208
A-CR208
B-CR207
A-CR207
A-E0-212
A-E0-210
CR195 TO CR206
BOTH A&B DIODES
AND RESISTORS
A-E0-195
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
E
A-E1-213
A-E1-212
A-E1-211
A-E0-211
A-E1-210
A-E1-209
A-E1-195
A-E0-194
A-E1-194
A-E0-193
A-E1-193
33
25
26
27
28
29
30
B-CR192 TO
B-CR208 & B-R208
B-CR191 TO
B-CR207 & B-R207
A-CR192 TO A-CR208
A-CR191 TO A-CR207
B-E0-195
B-E1-193
B-E0-193
B-E1-194
B-E0-194
B-E1-195
B-E0-210
B-E1-210
B-E0-211
B-E1-211
B-E0-212
B-E0-213
B-E1-212
B-E1-213
38

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		INITIAL RELEASE [illegible]				
B		REVISED PER TDRR 33450				
C		REVISED PER TDRR 33444				
D		REVISED PER TDRR 33606				
E		REVISED PER TDRR 34440				
F		REVISED PER TDRR 34489				
G		REVISED PER TDRR 34997				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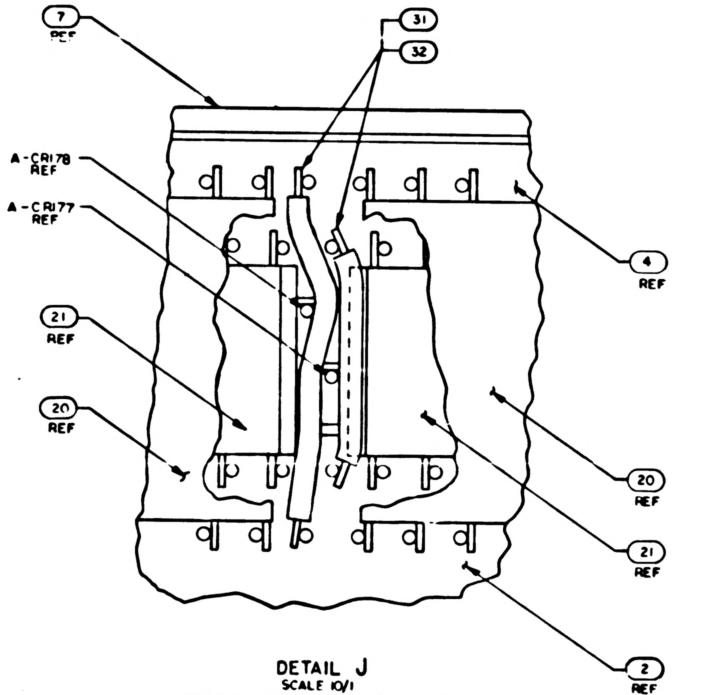
A-EO-213
CASE GROUND TERMINAL
E
31
32
B-CR208
A-CR208
B-CR207
A-CR207
A-EO-212
A-EO-210
CR195 TO CR206
BOTH A & B DIODES
AND RESISTORS
A-EO-195
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
R192
R160
R128
R96
R64
R32
R17
22
23
A-EI-213
A-EI-212
A-EI-211
A-EO-211
A-EI-210
A-EI-209
A-EI-195
A-EO-194
A-EI-194
A-EO-193
A-EI-193
A-EI-1
A-EI-2
A-EI-17
A-EI-18
A-EO-18
A-EO-2
A-EO-17
A-EO-1
A-CR1
A-CR2
19
18
B-CR1
B-CR2
33
25
26
27
B-CR190 TO
B-CR206 & B-R206
B-CR189 TO
B-CR205 & B-R205
B-CR192 TO
B-CR208 & B-R208
B-CR191 TO
B-CR207 & B-R207
B-CR187 TO
B-CR203 & B-R203
B-CR188 TO
B-CR204 & B-R204
B-CR184 TO
B-CR200 & B-R200
B-CR183 TO
B-CR199 & B-R199
B-CR185 TO B-CR201 & B-R201
B-CR186 TO B-CR202 & B-R202
B-CR181 TO
B-CR197 & B-R197
B-CR182 TO
B-CR198 & B-R198
36
REF
B-CR177 TO B-CR193 & B-R193
B-CR178 TO B-CR194 & B-R194
B-CR179 TO B-CR195 & B-R195
B-CR180 TO B-CR196 & B-R196
28
29
30
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205
& A-R205
A-CR188 TO A-CR204 & A-R204
A-CR187 TO A-CR203 & A-R203
A-CR186 TO A-CR202 & A-R202
A-CR185 TO A-CR201 & A-R201
A-CR183 TO A-CR199 & A-R199
A-CR184 TO A-CR200
& A-R200
A-CR182 TO A-CR198 & A-R198
A-CR181 TO A-CR197 & A-R197
A-CR179 TO A-CR195 & A-R195
A-CR180 TO A-CR196 & A-R196
A-CR178 TO A-CR194 & A-R194
A-CR177 TO A-CR193 & A-R193
36 SEE NOTE 10
F
F
A-CR2
A-CR1
21
20
SEE DETAIL J
B-EI-193
B-EO-193
B-EI-194
B-EO-194
B-EI-195
B-EO-195
B-EO-210
B-EI-210
B-EO-211
B-EI-211
B-EI-212
B-EI-213
B-EO-212
B-EO-213
R176
R144
R112
R80
R48
R16
R1
38
SEE NOTE 10
36
16
17
FT1
REF

VIEW H-H
SCALE 4/1
SHOWN WITH POTTING AND FIND NO.7
REMOVED SEE NOTES 11,12,13 AND 14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REF
A-CR177
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4
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21
REF
20
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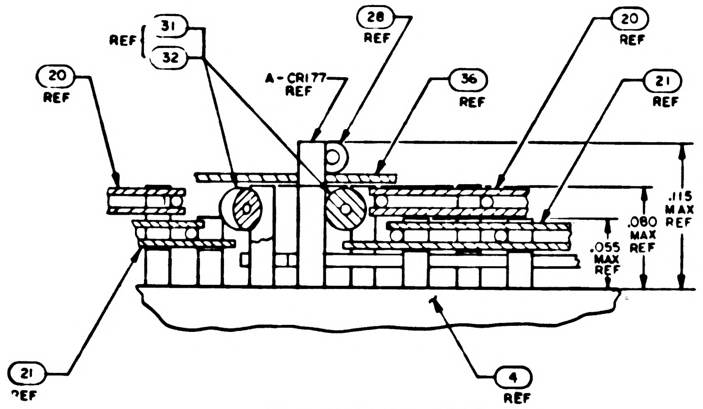
2
REF

DETAIL J
SCALE 10/1
TYPICAL WIRING 8 PLACES, SHOWN
WITH FIND NOS. 28 AND 36 REMOVED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REF
A-CR177
REF
36
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21
REF
.115
MAX
.080 REF
MAX
.055 REF
MAX
REF
21
REF
4
REF

PARTIAL SECTION F-F
SCALE: 20/1

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
LIST OF MATERIALS			

NEXT ASSY	USED ON	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES CAPACITOR VALUES ARE IN µf RESISTOR VALUES ARE IN OHMS TOLERANCES ON FRACTIONS ± DECIMALS ±.005 ANGLES ± 2° DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB CAMBRIDGE MASS	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
APPLICATION		MATERIAL	DRAWN CHECKED APPROVED APPROVED	FIXED MEMORY MODULE ASSEMBLY
			APPROVED NASA APPROVED MSC DATE	CODE IDENT NO 80230 SIZE J DRAWING NO 2003972 SCALE 2/1 SHEET 2 OF 3

2003972 G

2003972 GF2/2 SH2/3

2003972 G

2003972 G F1/2 SH3/3

4 3 2

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL RE... TDRR 32991				
B		REVISED PER TDRR 334[illegible]0				
C		REVISED PER TDRR 33[illegible]4				
D		REVISED PER TDRR 33606				
E		REVISED PER TDRR 34 40				
F		REVISED PER TDRR 34489				
G		REVISED PER TDRR 33967				

D

WIRE LIST

TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.
A-EO-1	A-CR1	A-EO-97	A-CR97	B-EO-1	B-CR1	B-EO-97	B-CR97	A-EI-1	R1	A-EI-49	R49	A-EI-97	R97	A-EI-145	R145
A-EO-2	A-CR2	A-EO-98	A-CR98	B-EO-2	B-CR2	B-EO-98	B-CR98	B-EI-1		B-EI-49		B-EI-97		B-EI-145	
A-EO-3	A-CR3	A-EO-99	A-CR99	B-EO-3	B-CR3	B-EO-99	B-CR99	A-EI-2	R2	A-EI-50	R50	A-EI-98	R98	A-EI-146	R146
A-EO-4	A-CR4	A-EO-100	A-CR100	B-EO-4	B-CR4	B-EO-100	B-CR100	B-EI-2		B-EI-50		B-EI-98		B-EI-146	
A-EO-5	A-CR5	A-EO-101	A-CR101	B-EO-5	B-CR5	B-EO-101	B-CR101	A-EI-3	R3	A-EI-51	R51	A-EI-99	R99	A-EI-147	R147
A-EO-6	A-CR6	A-EO-102	A-CR102	B-EO-6	B-CR6	B-EO-102	B-CR102	B-EI-3		B-EI-51		B-EI-99		B-EI-147	
A-EO-7	A-CR7	A-EO-103	A-CR103	B-EO-7	B-CR7	B-EO-103	B-CR103	A-EI-4	R4	A-EI-52	R52	A-EI-100	R100	A-EI-148	R148
A-EO-8	A-CR8	A-EO-104	A-CR104	B-EO-8	B-CR8	B-EO-104	B-CR104	B-EI-4		B-EI-52		B-EI-100		B-EI-148	
A-EO-9	A-CR9	A-EO-105	A-CR105	B-EO-9	B-CR9	B-EO-105	B-CR105	A-EI-5	R5	A-EI-53	R53	A-EI-101	R101	A-EI-149	R149
A-EO-10	A-CR10	A-EO-106	A-CR106	B-EO-10	B-CR10	B-EO-106	B-CR106	B-EI-5		B-EI-53		B-EI-101		B-EI-149	
A-EO-11	A-CR11	A-EO-107	A-CR107	B-EO-11	B-CR11	B-EO-107	B-CR107	A-EI-6	R6	A-EI-54	R54	A-EI-102	R102	A-EI-150	R150
A-EO-12	A-CR12	A-EO-108	A-CR108	B-EO-12	B-CR12	B-EO-108	B-CR108	B-EI-6		B-EI-54		B-EI-102		B-EI-150	
A-EO-13	A-CR13	A-EO-109	A-CR109	B-EO-13	B-CR13	B-EO-109	B-CR109	A-EI-7	R7	A-EI-55	R55	A-EI-103	R103	A-EI-151	R151
A-EO-14	A-CR14	A-EO-110	A-CR110	B-EO-14	B-CR14	B-EO-110	B-CR110	B-EI-7		B-EI-55		B-EI-103		B-EI-151	
A-EO-15	A-CR15	A-EO-111	A-CR111	B-EO-15	B-CR15	B-EO-111	B-CR111	A-EI-8	R8	A-EI-56	R56	A-EI-104	R104	A-EI-152	R152
A-EO-16	A-CR16	A-EO-112	A-CR112	B-EO-16	B-CR16	B-EO-112	B-CR112	B-EI-8		B-EI-56		B-EI-104		B-EI-152	
A-EO-17	A-CR17	A-EO-113	A-CR113	B-EO-17	B-CR17	B-EO-113	B-CR113	A-EI-9	R9	A-EI-57	R57	A-EI-105	R105	A-EI-153	R153
A-EO-18	A-CR18	A-EO-114	A-CR114	B-EO-18	B-CR18	B-EO-114	B-CR114	B-EI-9		B-EI-57		B-EI-105		B-EI-153	
A-EO-19	A-CR19	A-EO-115	A-CR115	B-EO-19	B-CR19	B-EO-115	B-CR115	A-EI-10	R10	A-EI-58	R58	A-EI-106	R106	A-EI-154	R154
A-EO-20	A-CR20	A-EO-116	A-CR116	B-EO-20	B-CR20	B-EO-116	B-CR116	B-EI-10		B-EI-58		B-EI-106		B-EI-154	
A-EO-21	A-CR21	A-EO-117	A-CR117	B-EO-21	B-CR21	B-EO-117	B-CR117	A-EI-11	R11	A-EI-59	R59	A-EI-107	R107	A-EI-155	R155
A-EO-22	A-CR22	A-EO-118	A-CR118	B-EO-22	B-CR22	B-EO-118	B-CR118	B-EI-11		B-EI-59		B-EI-107		B-EI-155	
A-EO-23	A-CR23	A-EO-119	A-CR119	B-EO-23	B-CR23	B-EO-119	B-CR119	A-EI-12	R12	A-EI-60	R60	A-EI-108	R108	A-EI-156	R156
A-EO-24	A-CR24	A-EO-120	A-CR120	B-EO-24	B-CR24	B-EO-120	B-CR120	B-EI-12		B-EI-60		B-EI-108		B-EI-156	
A-EO-25	A-CR25	A-EO-121	A-CR121	B-EO-25	B-CR25	B-EO-121	B-CR121	A-EI-13	R13	A-EI-61	R61	A-EI-109	R109	A-EI-157	R157
A-EO-26	A-CR26	A-EO-122	A-CR122	B-EO-26	B-CR26	B-EO-122	B-CR122	B-EI-13		B-EI-61		B-EI-109		B-EI-157	
A-EO-27	A-CR27	A-EO-123	A-CR123	B-EO-27	B-CR27	B-EO-123	B-CR123	A-EI-14	R14	A-EI-62	R62	A-EI-110	R110	A-EI-158	R158
A-EO-28	A-CR28	A-EO-124	A-CR124	B-EO-28	B-CR28	B-EO-124	B-CR124	B-EI-14		B-EI-62		B-EI-110		B-EI-158	
A-EO-29	A-CR29	A-EO-125	A-CR125	B-EO-29	B-CR29	B-EO-125	B-CR125	A-EI-15	R15	A-EI-63	R63	A-EI-111	R111	A-EI-159	R159
A-EO-30	A-CR30	A-EO-126	A-CR126	B-EO-30	B-CR30	B-EO-126	B-CR126	B-EI-15		B-EI-63		B-EI-111		B-EI-159	
A-EO-31	A-CR31	A-EO-127	A-CR127	B-EO-31	B-CR31	B-EO-127	B-CR127	A-EI-16	R16	A-EI-64	R64	A-EI-112	R112	A-EI-160	R160
A-EO-32	A-CR32	A-EO-128	A-CR128	B-EO-32	B-CR32	B-EO-128	B-CR128	B-EI-16		B-EI-64		B-EI-112		B-EI-160	
A-EO-33	A-CR33	A-EO-129	A-CR129	B-EO-33	B-CR33	B-EO-129	B-CR129	A-EI-17	R17	A-EI-65	R65	A-EI-113	R113	A-EI-161	R161
A-EO-34	A-CR34	A-EO-130	A-CR130	B-EO-34	B-CR34	B-EO-130	B-CR130	B-EI-17		B-EI-65		B-EI-113		B-EI-161	
A-EO-35	A-CR35	A-EO-131	A-CR131	B-EO-35	B-CR35	B-EO-131	B-CR131	A-EI-18	R18	A-EI-66	R66	A-EI-114	R114	A-EI-162	R162
A-EO-36	A-CR36	A-EO-132	A-CR132	B-EO-36	B-CR36	B-EO-132	B-CR132	B-EI-18		B-EI-66		B-EI-114		B-EI-162	
A-EO-37	A-CR37	A-EO-133	A-CR133	B-EO-37	B-CR37	B-EO-133	B-CR133	A-EI-19	R19	A-EI-67	R67	A-EI-115	R115	A-EI-163	R163
A-EO-38	A-CR38	A-EO-134	A-CR134	B-EO-38	B-CR38	B-EO-134	B-CR134	B-EI-19		B-EI-67		B-EI-115		B-EI-163	
A-EO-39	A-CR39	A-EO-135	A-CR135	B-EO-39	B-CR39	B-EO-135	B-CR135	A-EI-20	R20	A-EI-68	R68	A-EI-116	R116	A-EI-164	R164
A-EO-40	A-CR40	A-EO-136	A-CR136	B-EO-40	B-CR40	B-EO-136	B-CR136	B-EI-20		B-EI-68		B-EI-116		B-EI-164	
A-EO-41	A-CR41	A-EO-137	A-CR137	B-EO-41	B-CR41	B-EO-137	B-CR137	A-EI-21	R21	A-EI-69	R69	A-EI-117	R117	A-EI-165	R165
A-EO-42	A-CR42	A-EO-138	A-CR138	B-EO-42	B-CR42	B-EO-138	B-CR138	B-EI-21		B-EI-69		B-EI-117		B-EI-165	
A-EO-43	A-CR43	A-EO-139	A-CR139	B-EO-43	B-CR43	B-EO-139	B-CR139	A-EI-22	R22	A-EI-70	R70	A-EI-118	R118	A-EI-166	R166
A-EO-44	A-CR44	A-EO-140	A-CR140	B-EO-44	B-CR44	B-EO-140	B-CR140	B-EI-22		B-EI-70		B-EI-118		B-EI-166	
A-EO-45	A-CR45	A-EO-141	A-CR141	B-EO-45	B-CR45	B-EO-141	B-CR141	A-EI-23	R23	A-EI-71	R71	A-EI-119	R119	A-EI-167	R167
A-EO-46	A-CR46	A-EO-142	A-CR142	B-EO-46	B-CR46	B-EO-142	B-CR142	B-EI-23		B-EI-71		B-EI-119		B-EI-167	
A-EO-47	A-CR47	A-EO-143	A-CR143	B-EO-47	B-CR47	B-EO-143	B-CR143	A-EI-24	R24	A-EI-72	R72	A-EI-120	R120	A-EI-168	R168
A-EO-48	A-CR48	A-EO-144	A-CR144	B-EO-48	B-CR48	B-EO-144	B-CR144	B-EI-24		B-EI-72		B-EI-120		B-EI-168	
A-EO-49	A-CR49	A-EO-145	A-CR145	B-EO-49	B-CR49	B-EO-145	B-CR145	A-EI-25	R25	A-EI-73	R73	A-EI-121	R121	A-EI-169	R169
A-EO-50	A-CR50	A-EO-146	A-CR146	B-EO-50	B-CR50	B-EO-146	B-CR146	B-EI-25		B-EI-73		B-EI-121		B-EI-169	
A-EO-51	A-CR51	A-EO-147	A-CR147	B-EO-51	B-CR51	B-EO-147	B-CR147	A-EI-26	R26	A-EI-74	R74	A-EI-122	R122	A-EI-170	R170
A-EO-52	A-CR52	A-EO-148	A-CR148	B-EO-52	B-CR52	B-EO-148	B-CR148	B-EI-26		B-EI-74		B-EI-122		B-EI-170	
A-EO-53	A-CR53	A-EO-149	A-CR149	B-EO-53	B-CR53	B-EO-149	B-CR149	A-EI-27	R27	A-EI-75	R75	A-EI-123	R123	A-EI-171	R171
A-EO-54	A-CR54	A-EO-150	A-CR150	B-EO-54	B-CR54	B-EO-150	B-CR150	B-EI-27		B-EI-75		B-EI-123		B-EI-171	
A-EO-55	A-CR55	A-EO-151	A-CR151	B-EO-55	B-CR55	B-EO-151	B-CR151	A-EI-28	R28	A-EI-76	R76	A-EI-124	R124	A-EI-172	R172
A-EO-56	A-CR56	A-EO-152	A-CR152	B-EO-56	B-CR56	B-EO-152	B-CR152	B-EI-28		B-EI-76		B-EI-124		B-EI-172	
A-EO-57	A-CR57	A-EO-153	A-CR153	B-EO-57	B-CR57	B-EO-153	B-CR153	A-EI-29	R29	A-EI-77	R77	A-EI-125	R125	A-EI-173	R173
A-EO-58	A-CR58	A-EO-154	A-CR154	B-EO-58	B-CR58	B-EO-154	B-CR154	B-EI-29		B-EI-77		B-EI-125		B-EI-173	
A-EO-59	A-CR59	A-EO-155	A-CR155	B-EO-59	B-CR59	B-EO-155	B-CR155	A-EI-30	R30	A-EI-78	R78	A-EI-126	R126	A-EI-174	R174
A-EO-60	A-CR60	A-EO-156	A-CR156	B-EO-60	B-CR60	B-EO-156	B-CR156	B-EI-30		B-EI-78		B-EI-126		B-EI-174	
A-EO-61	A-CR61	A-EO-157	A-CR157	B-EO-61	B-CR61	B-EO-157	B-CR157	A-EI-31	R31	A-EI-79	R79	A-EI-127	R127	A-EI-175	R175
A-EO-62	A-CR62	A-EO-158	A-CR158	B-EO-62	B-CR62	B-EO-158	B-CR158	B-EI-31		B-EI-79		B-EI-127		B-EI-175	
A-EO-63	A-CR63	A-EO-159	A-CR159	B-EO-63	B-CR63	B-EO-159	B-CR159	A-EI-32	R32	A-EI-80	R80	A-EI-128	R128	A-EI-176	R176
A-EO-64	A-CR64	A-EO-160	A-CR160	B-EO-64	B-CR64	B-EO-160	B-CR160	B-EI-32		B-EI-80		B-EI-128		B-EI-176	
A-EO-65	A-CR65	A-EO-161	A-CR161	B-EO-65	B-CR65	B-EO-161	B-CR161	A-EI-33	R33	A-EI-81	R81	A-EI-129	R129	A-EI-177	R177
A-EO-66	A-CR66	A-EO-162	A-CR162	B-EO-66	B-CR66	B-EO-162	B-CR162	B-EI-33		B-EI-81		B-EI-129		B-EI-177	
A-EO-67	A-CR67	A-EO-163	A-CR163	B-EO-67	B-CR67	B-EO-163	B-CR163	A-EI-34	R34	A-EI-82	R82	A-EI-130	R130	A-EI-178	R178
A-EO-68	A-CR68	A-EO-164	A-CR164	B-EO-68	B-CR68	B-EO-164	B-CR164	B-EI-34		B-EI-82		B-EI-130		B-EI-178	
A-EO-69	A-CR69	A-EO-165	A-CR165	B-EO-69	B-CR69	B-EO-165	B-CR165	A-EI-35	R35	A-EI-83	R83	A-EI-131	R131	A-EI-179	R179
A-EO-70	A-CR70	A-EO-166	A-CR166	B-EO-70	B-CR70	B-EO-166	B-CR166	B-EI-35		B-EI-83		B-EI-131		B-EI-179	
A-EO-71	A-CR71	A-EO-167	A-CR167	B-EO-71	B-CR71	B-EO-167	B-CR167	A-EI-36	R36	A-EI-84	R84	A-EI-132	R132	A-EI-180	R180
A-EO-72	A-CR72	A-EO-168	A-CR168	B-EO-72	B-CR72	B-EO-168	B-CR168	B-EI-36		B-EI-84		B-EI-132		B-EI-180	
A-EO-73	A-CR73	A-EO-169	A-CR169	B-EO-73	B-CR73	B-EO-169	B-CR169	A-EI-37	R37	A-EI-85	R85	A-EI-133	R133	A-EI-181	R181
A-EO-74	A-CR74	A-EO-170	A-CR170	B-EO-74	B-CR74	B-EO-170	B-CR170	B-EI-37		B-EI-85		B-EI-133		B-EI-181	
A-EO-75	A-CR75	A-EO-171	A-CR171	B-EO-75	B-CR75	B-EO-171	B-CR171	A-EI-38	R38	A-EI-86	R86	A-EI-134	R134	A-EI-182	R182
A-EO-76	A-CR76	A-EO-172	A-CR172	B-EO-76	B-CR76	B-EO-172	B-CR172	B-EI-38		B-EI-86		B-EI-134		B-EI-182	
A-EO-77	A-CR77	A-EO-173	A-CR173	B-EO-77	B-CR77	B-EO-173	B-CR173	A-EI-39	R39	A-EI-87	R87	A-EI-135	R135	A-EI-183	R183
A-EO-78	A-CR78	A-EO-174	A-CR174	B-EO-78	B-CR78	B-EO-174	B-CR174	B-EI-39		B-EI-87		B-EI-135		B-EI-183	
A-EO-79	A-CR79	A-EO-175	A-CR175	B-EO-79	B-CR79	B-EO-175	B-CR175	A-EI-40	R40	A-EI-88	R88	A-EI-136	R136	A-EI-184	R184
A-EO-80	A-CR80	A-EO-176	A-CR176	B-EO-80	B-CR80	B-EO-176	B-CR176	B-EI-40		B-EI-88		B-EI-136		B-EI-184	
A-EO-81	A-CR81	A-EO-177	A-CR177	B-EO-81	B-CR81	B-EO-177	B-CR177	A-EI-41	R41	A-EI-89	R89	A-EI-137	R137	A-EI-185	R185
A-EO-82	A-CR82	A-EO-178	A-CR178	B-EO-82	B-CR82	B-EO-178	B-CR178	B-EI-41		B-EI-89		B-EI-137		B-EI-185	
A-EO-83	A-CR83	A-EO-179	A-CR179	B-EO-83	B-CR83	B-EO-179	B-CR179	A-EI-42	R42	A-EI-90	R90	A-EI-138	R138	A-EI-186	R186
A-EO-84	A-CR84	A-EO-180	A-CR180	B-EO-84	B-CR84	B-EO-180	B-CR180	B-EI-42		B-EI-90		B-EI-138		B-EI-186	
A-EO-85	A-CR85	A-EO-181	A-CR181	B-EO-85	B-CR85	B-EO-181	B-CR181	A-EI-43	R43	A-EI-91	R91	A-EI-139	R139	A-EI-187	R187
A-EO-86	A-CR86	A-EO-182	A-CR182	B-EO-86	B-CR86	B-EO-182	B-CR182	B-EI-43		B-EI-91		B-EI-139		B-EI-187	
A-EO-87	A-CR87	A-EO-183	A-CR183	B-EO-87	B-CR87	B-EO-183	B-CR183	A-EI-44	R44	A-EI-92	R92	A-EI-140	R140	A-EI-188	R188
A-EO-88	A-CR88	A-EO-184	A-CR184	B-EO-88	B-CR88	B-EO-184	B-CR184	B-EI-44		B-EI-92		B-EI-140		B-EI-188	
A-EO-89	A-CR89	A-EO-185	A-CR185	B-EO-89	B-CR89	B-EO-185	B-CR185	A-EI-45	R45	A-EI-93	R93	A-EI-141	R141	A-EI-189	R189
A-EO-90	A-CR90	A-EO-186	A-CR186	B-EO-90	B-CR90	B-EO-186	B-CR186	B-EI-45		B-EI-93		B-EI-141		B-EI-189	
A-EO-91	A-CR91	A-EO-187	A-CR187	B-EO-91	B-CR91	B-EO-187	B-CR187	A-EI-46	R46	A-EI-94	R94	A-EI-142	R142	A-EI-190	R190
A-EO-92	A-CR92	A-EO-188	A-CR188	B-EO-92	B-CR92	B-EO-188	B-CR188	B-EI-46		B-EI-94		B-EI-142		B-EI-190	
A-EO-93	A-CR93	A-EO-189	A-CR189	B-EO-93	B-CR93	B-EO-189	B-CR189	A-EI-47	R47	A-EI-95	R95	A-EI-143	R143	A-EI-191	R191
A-EO-94	A-CR94	A-EO-190	A-CR190	B-EO-94	B-CR94	B-EO-190	B-CR190	B-EI-47		B-EI-95		B-EI-143		B-EI-191	
A-EO-95	A-CR95	A-EO-191	A-CR191	B-EO-95	B-CR95	B-EO-191	B-CR191	A-EI-48	R48	A-EI-96	R96	A-EI-144	R144	A-EI-192	R192
A-EO-96	A-CR96	A-EO-192	A-CR192	B-EO-96	B-CR96	B-EO-192	B-CR192	B-EI-48		B-EI-96		B-EI-144		B-EI-192	

C

B

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A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED
APPROVED
MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

FIXED MEMORY MODULE
ASSEMBLY

CODE IDENT NO	SIZE	DRAWING NO
80230	J	2003972

SCALE NONE SHEET 3 OF 3

G

2003972 GF2/2 SH3/3

PART NO.	MODULE NO.	FIND NO. 1	FIND NO. 2	MODULE DECK NO.	NEXT ASSEMBLY NO. (REF)
2003972-011	B1	2003060-061	2003061-061	0205	2021101
2003972-021	B2	2003060-071	2003061-071	0206	2021101
2003972-031	B3	2003060-081	2003061-081	0207	2021101
2003972-041	B1	2003060-121	2003061-121	0210	2021104
2003972-051	B2	2003060-131	2003061-131	0211	2021104
2003972-061	B3	2003060-141	2003061-141	0212	2021104
2003972-071	B2	2003060-151	2003061-151	0213	2021104
2003972-081	B3	2003060-161	2003061-161	0214	2021104
2003972 091	B2	2003060-171	2003061-171	0215	2021101
2003972 111	B3	2003060-181	2003061-181	0216	2021101
2003972-121	B1	2003060-091	2003061-091	0208	2021105-031
2003972 131	B2	2003060-111	2003061-111	0209	2021105-031
2003972 141	B	2003060-191	2003061-191	0217	2021106-011
2003972 151	B2	2003060-211	2003061-211	0218	2021106-011
2003972 161	B3	2003060-221	2003061-221	0219	2021106-011
2003972 171	B4	2003060-231	2003061-231	0220	2021106-011
2003972 181	B5	2003060-241	2003061-241	0221	2021106-011
2003972-191	B6	2003060-251	2003061-251	0222	2021106-011
2003972-211	B3	2003060-261	2003061-261	0223	2021104-041
[illegible]-221	[illegible]	2003060-271	2003061-271	0224	2021105-041
2003972-231	B1	2003060-281	2003061-281	0225	2021106-021
2003972-241	B3	2003060-291	2003061-291	0226	2021106-021
2003972 251	B5	2003060-311	2003061-311	0227	2021106-021
2003972 261	E1	2003060-321	2003061-321	0230	2021107-011
2003972-271	B2	2003060-331	2003061-331	0229	2021107-011
[illegible]	B3	2003060-341	2003061-341	023	2021106-031
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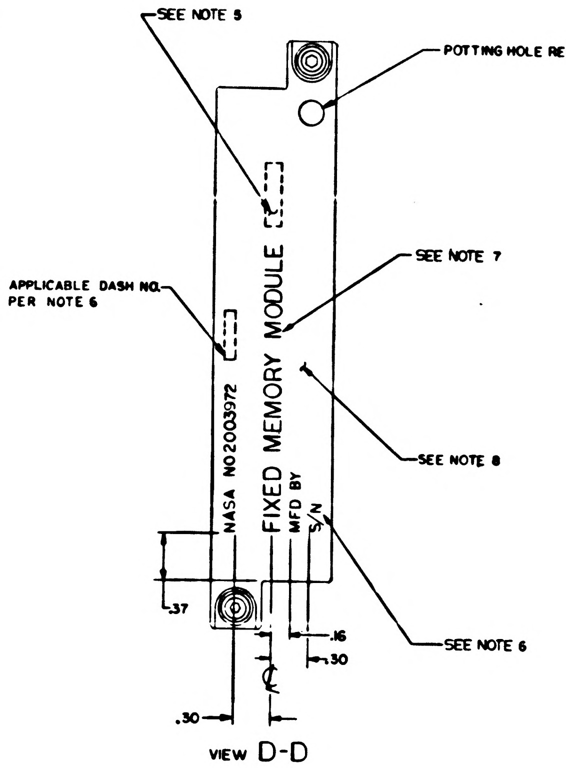
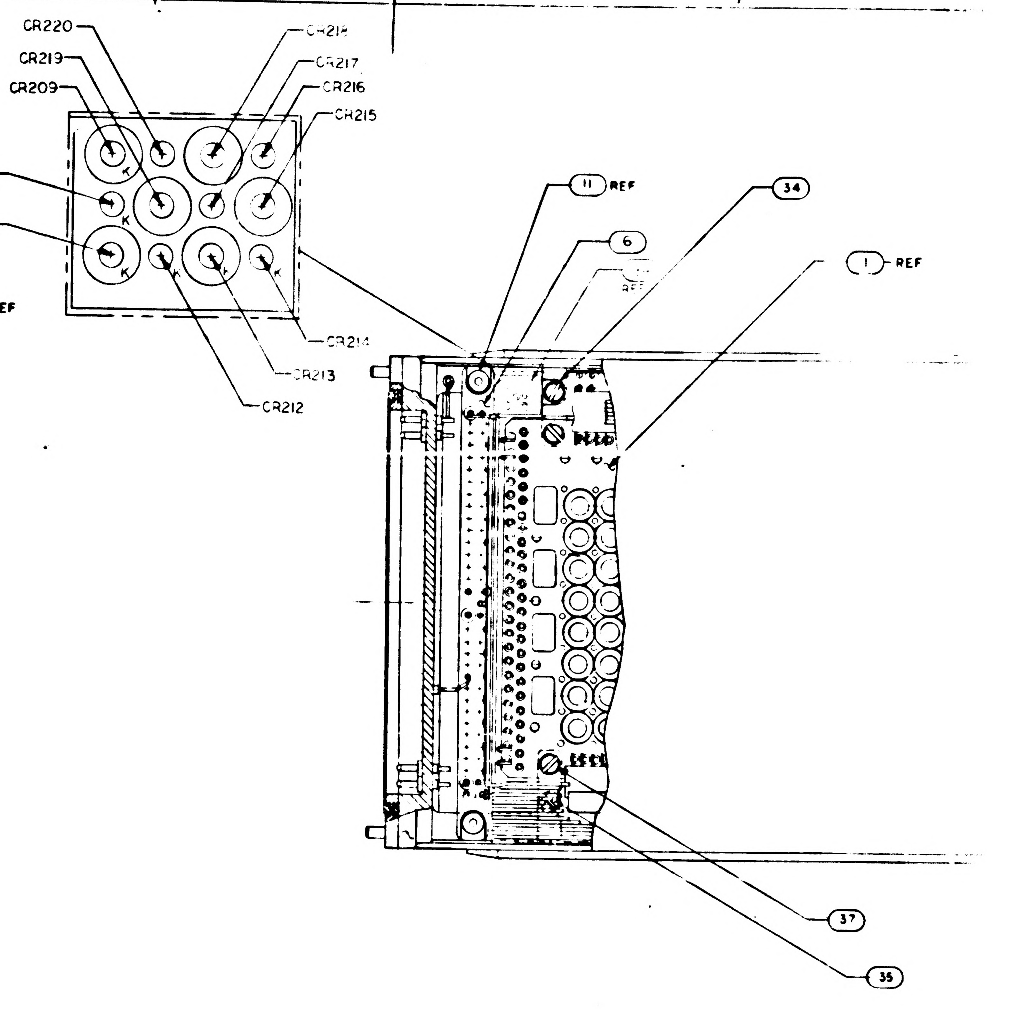
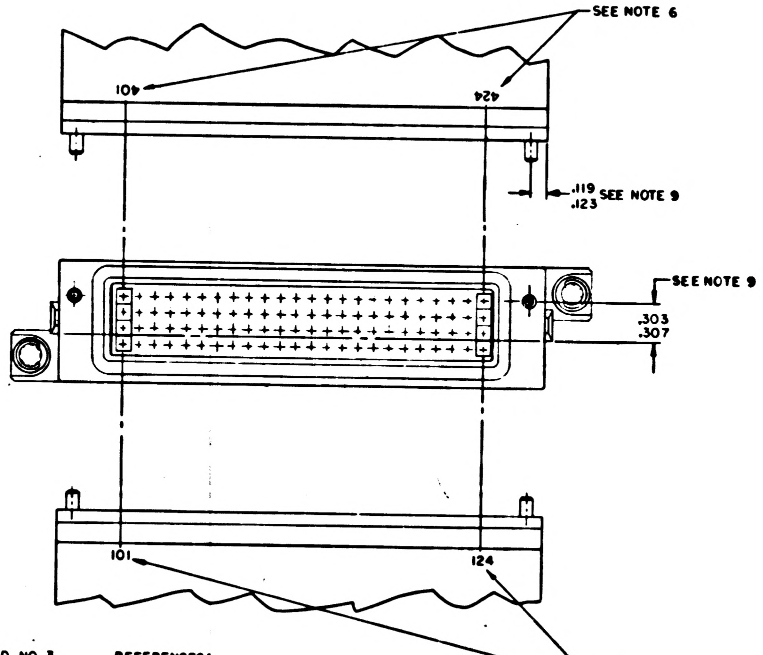
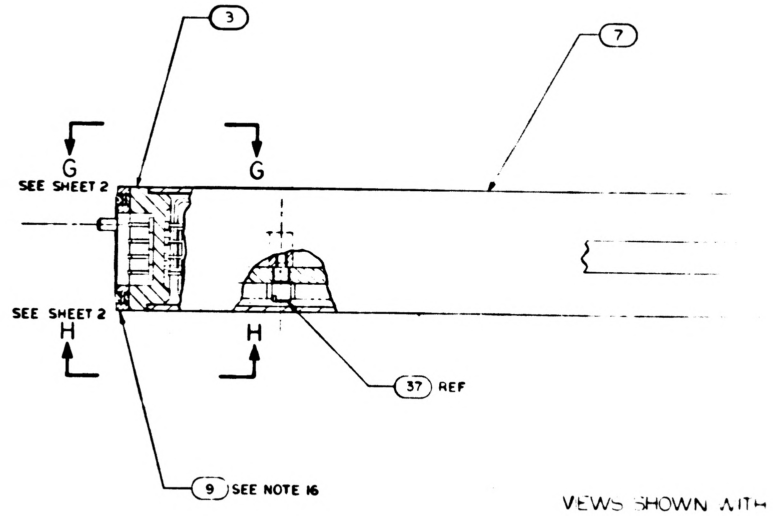








VIEWS SHOWN WITH
PARTIALLY

NOTES:

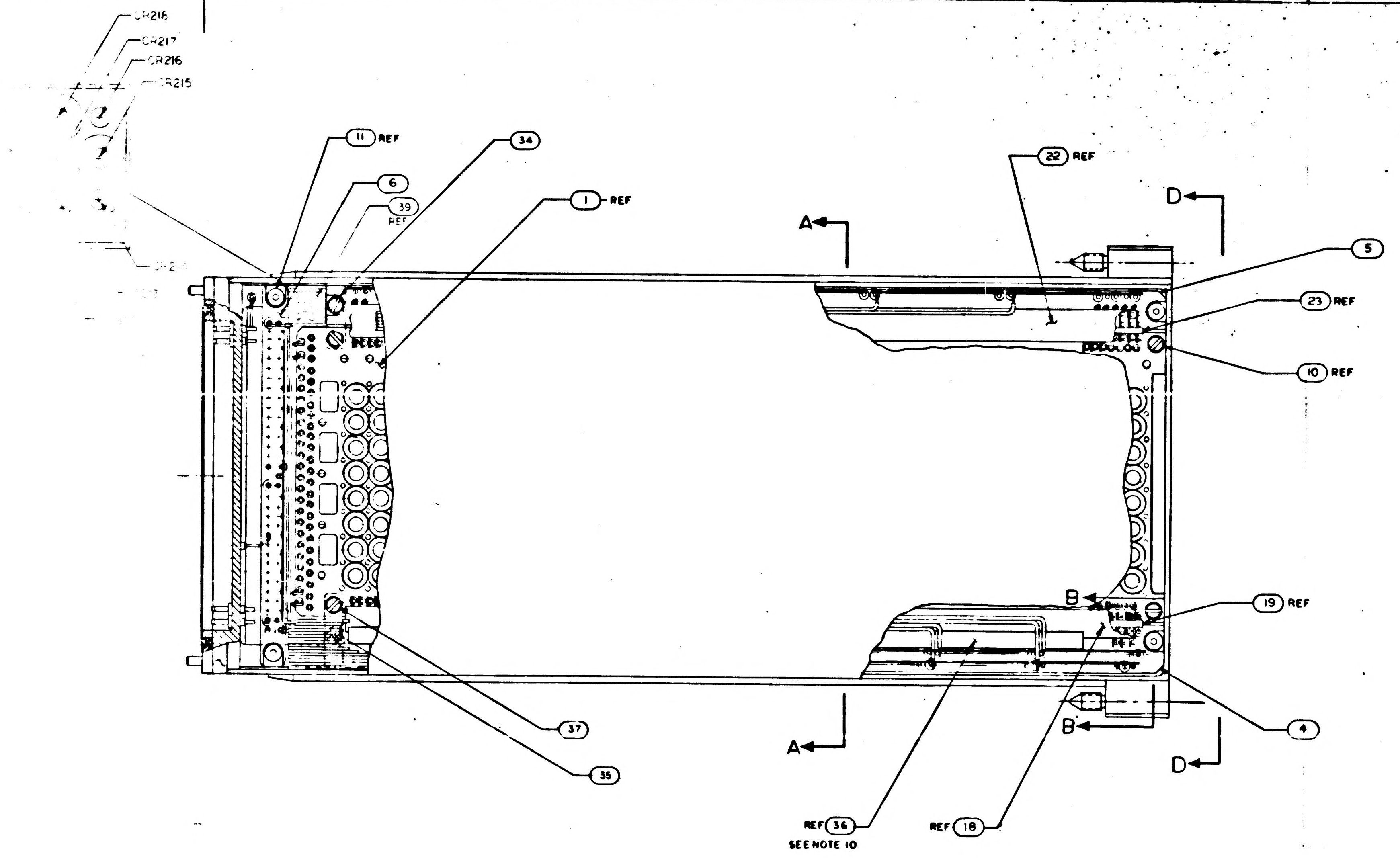
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
3. ENCAPSULATE MODULE PER ND1002226 METHOD II
4. WELD PER ND1002005
5. MARK APPROPRIATE MODULE NO. AS SHOWN IN CHART
6. MARK .08/.06 HIGH PER ND1002019 AND ND1002122, TYPE II CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
7. MARK .14/.10 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 USING INK 1006271-1
8. PAINT INDICATED SURFACES OF FIND NO 7. PER ND1002279 WITH SCD NO.1008809-1 DARK GREY EPOXY RESIN ENAMEL, FINAL COAT PER ND1002277 USING 1012543-003
9. ASSEMBLE FIND NO.7 AND FIND NO.3 TO DIMENSIONS SHOWN
10. REMOVE LINER FROM NEARSIDE OF FIND NO. 36 AND ASSEMBLE 3 PLACES AS SHOWN. FIND NO. 36 MUST INSULATE FLAT CABLES FROM TRIMMED COMPONENT LEADS. TRIM AS REQUIRED
11. WHITE DOT AND SINGLE SOLID LEAD DENOTES FIRST LEVEL WIRING UNLESS OTHERWISE SPECIFIED
12. BLACK DOT AND SINGLE SOLID LEAD DENOTES SECOND LEVEL WIRING
13. BLACK DOT AND CROSS HATCHED LEAD DENOTES THIRD LEVEL WIRING
14. ALL LEADS FROM FIND NO.1 AND FIND NO.2 TO FIND NO.3 TO BE THIRD LEVEL WIRING
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003972. FOR-121 131 & 221 CONFIGURATIONS USE PS 2003960
16. FIND NO.9 TO BE SHIPPED UNASSEMBLED AND IDENTIFIED PER ND 1002019
17. SEAL PINS AND INSULATORS TO FIND NO. 3 PER ND1002004 TYPE VI BEFORE ASSY OF FIND NO. 6
18. FILL AS SHOWN PER ND1002235 METHOD A
19. BOND FIND NO.39 TO FIND NO.3 PER ND1002004 TYPE VI AFTER ASSY OF FIND NO.6
20. PRIOR TO ENCAPSULATION PER NOTE 3, COAT OVER ALL TERMINALS OF FIND NO'S 1,2&3 AND OVER ALL WIRES, SLEEVING AND COMPONENT LEADS OF FIND NO'S 4,5,6,16,17,18,19,20,21,22,23,24, 25,26,27,28,29,30,31,32,33,38 & 39 WITH A .03 MAXIMUM THICKNESS OF SILICONE RUBBER PER ND1002009, METHOD A. MASK ALL OUTSIDE SURFACES OF FIND NO.3 AND ALL OTHER SURFACES OF THIS ASSEMBLY COMING IN CLOSE CONTACT WITH FIND NO.7

REFERENCES:

1. PROCESS REQUIREMENTS FOR CONTROL AND INSPECTION OF ROPE MEMORY ASSEMBLIES ND1002285
2. FIXED MEMORY FIXTURE DWG. NO. AP22500

2003972 H

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL RELEASE TDRR 32991	[illegible]	[illegible]
B	REVISED PER TDRR 33460 DR [illegible] CHK [illegible]	[illegible]	[illegible]
C	REVISED PER TDRR 3[illegible]4 DR [illegible] CHK [illegible]	5/8/[illegible]	[illegible]
D	REVISED PER TDRR 33605 DR [illegible] CHK [illegible]	5/[illegible]	[illegible]
E	REVISED PER TDRR 34[illegible]40 DR [illegible] CHK [illegible]	[illegible]	[illegible]
F	REVISED PER TDRR 34489 DR [illegible] CHK [illegible]	[illegible]	[illegible]
G	REVISED PER TDRR 3[illegible] DR [illegible] CHK [illegible]	[illegible]	[illegible]
H	REVISED PER TDRR 353[illegible] DR [illegible] CHK [illegible]	[illegible]	[illegible]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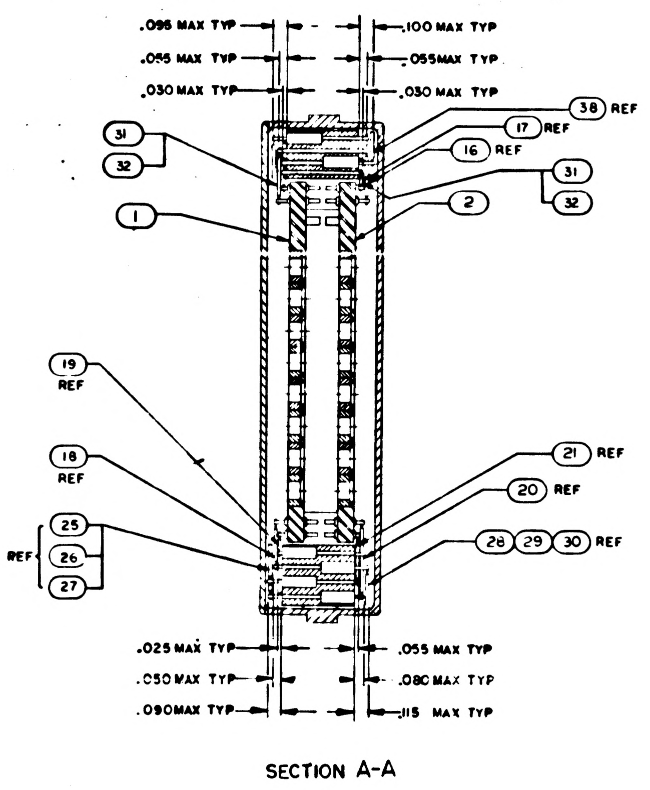
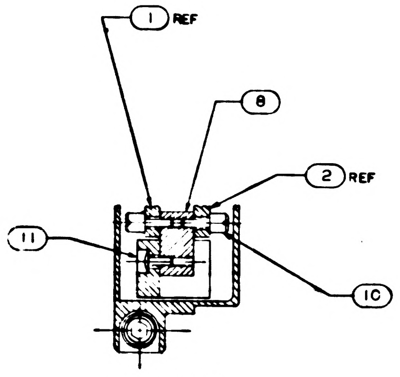
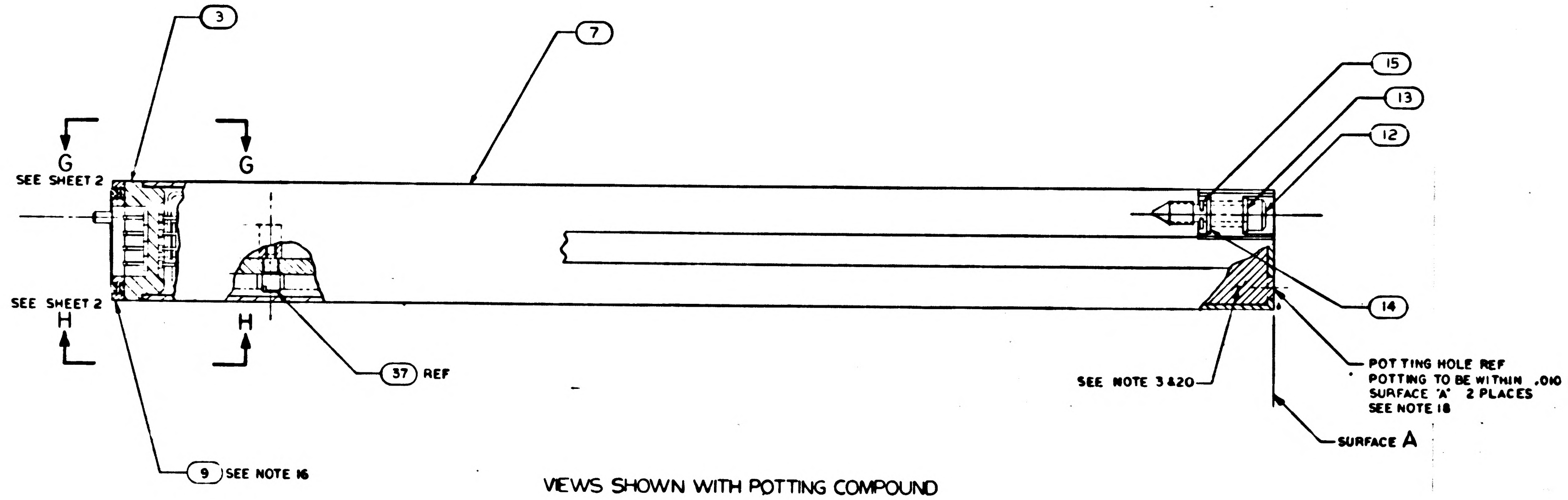
CR217
CR216
CR215
11 REF
6
39 REF
34
1 REF
22 REF
A
D
5
23 REF
10 REF
B
19 REF
4
A
B
D
37
35
REF 36
SEE NOTE 10
REF 18


.095 MAX TYP
.055 MAX TYP
.030 MAX TYP
.100 MAX TYP
.055 MAX TYP
.030 MAX TYP
38 REF
17 REF
16 REF
31
32
31
32
1
2
19 REF
18 REF
21 REF
20 REF
25
26
27
REF
28
29
30
REF
.025 MAX TYP
.050 MAX TYP
.090 MAX TYP
.055 MAX TYP
.080 MAX TYP
.115 MAX TYP

SECTION A-A


1 REF
8
2 REF
11
10

SECTION B-B


3
7
15
13
12
14
G
SEE SHEET 2
G
SEE SHEET 2
H
H
37 REF
9 SEE NOTE 16
SEE NOTE 3 & 20
POTTING HOLE REF
POTTING TO BE WITHIN .010 OF SURFACE 'A' 2 PLACES
SEE NOTE 18
SURFACE A

VIEWS SHOWN WITH POTTING COMPOUND
PARTIALLY REMOVED

SEE NOTE 16

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
1	2003986-021	COMPONENT BLOCK DIODE ASSY	[illegible]
☒	2005935	SCHEMATIC	REF
1	2004684	FLAT CABLE	38
4	2004150 — 003	SCREW, SHOULDERED	37
AR	1006806 — 26	INSULATION TAPE, ELECTRICAL	36
1	2004150 — 001	SCREW, SHOULDERED	35
1	2004150 — 002	SCREW, SHOULDERED	34
1	2004129	FLAT CABLE INTERCONNECTION	33
AR	1006776-25	SLEEVING	32
AR	1006757 12	WIRE, ELECRICAL	31
1	2004125	FLAT CABLE	30
1	2004122	FLAT CABLE	29
1	2004124	FLAT CABLE	28
1	2004123	FLAT CABLE	27
1	2004121	FLAT CABLE	26
1	2004120	FLAT CABLE	25
1	2004[illegible]85	FLAT CABLE	24
1	2003051 — 013	MATRIX ASSY	23
1	2003051 — 014	MATRIX ASSY	22
8	2003051 — 016	MATRIX ASSY	21
8	2003051 — 015	MATRIX ASSY	20
1	2003051 — 017	MATRIX ASSY	19
1	2003051 — 018	MATRIX ASSY	18
1	2003051 — 011	MATRIX ASSY	17
1	2003051 — 012	MATRIX ASSY	16
2	MS16633-4015	E RING	15
2	1004546-3	WASHER	14
2	1004546-1	WASHER	13
2	1004579-1	SCREW, JACKING	12
4	1000093-1	SCREW, BUTTONHEAD	11
4	2004151	SCREW, STANDOFF	10
1	1006339	GASKET PLATE	9
2	2004071	STANDOFF	8
1	2004100	HOUSING	7
1	2003048-021	RESISTOR-DIODE BLOCK ASSY	6
1	2003052-021	COMPONENT BLOCK RESISTOR ASSY	5
1	2003045-021	COMPONENT BLOCK DIODE ASSY	4
1	2003973 -011	CONNECTOR PLATE ASSY	3
1	2003061-SEE CHART	SENSE WIRING ASSY SIDE B	2
1	2003060-SEE CHART	SENSE WIRING ASSY SIDE A	1

LIST OF MATERIALS

FOR APPLICABLE PART
NO. SEE CHART

SEE CHART	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 12 [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
CCO APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE
ASSEMBLY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO 2003972
SCALE 2/1
WT
SHEET 1 OF 3

2972 H

SH1/3 2003972 HF2/2

WIRE LIST

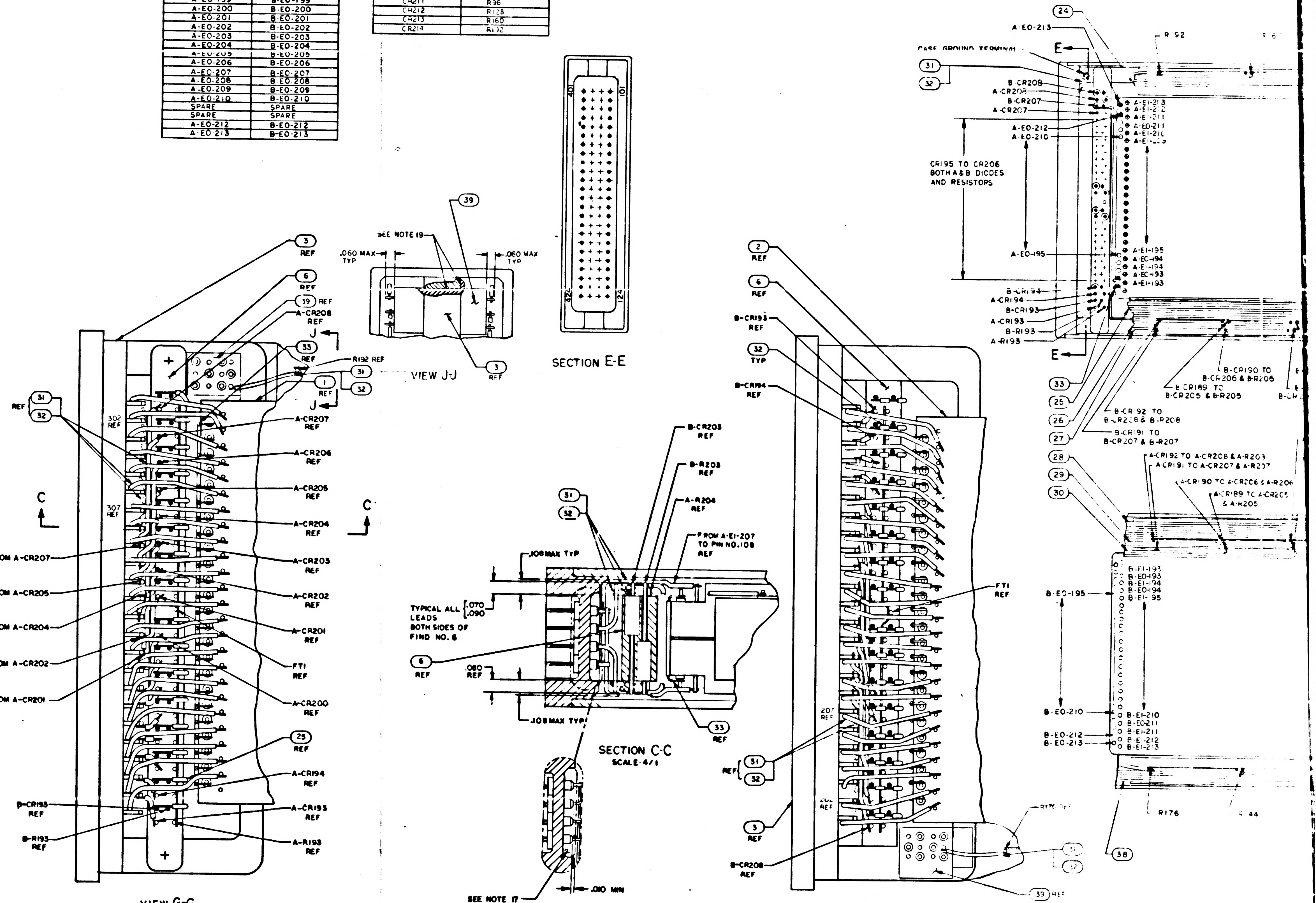
PIN NO.	COMPONENT OR TERM. NO.	PIN NO.	COMPONENT OR TERM. NO.
101	A-EI-213	301	GROUND
102	A-EI-212	302	CR209
103	A-EI-211	303	CR210
104	A-EO-211	304	CR211
105	A-EI-210	305	CR212
106	A-EI-209	306	CR213
107	A-EI-208	307	CR214
108	A-EI-207	308	A-CR208
109	A-EI-206	309	A-CR207
110	A-EI-205	310	A-CR206
111	A-EI-204	311	A-CR205
112	A-EI-203	312	A-CR204
113	A-EI-202	313	A-CR203
114	A-EI-201	314	A-CR202
115	A-EI-200	315	A-CR201
116	A-EI-199	316	A-CR200
117	A-EI-198	317	A-CR199
118	A-EI-197	318	A-CR198
119	A-EI-196	319	A-CR197
120	A-EI-195	320	A-CR196
121	A-EO-194	321	A-CR195
122	A-EI-194	322	A-CR194
123	A-EO-193	323	A-CR193
124	A-EI-193	324	SPARE
201	B-R208	401	B-EI-213
202	CR215	402	B-EI-212
203	CR216	403	B-EI-211
204	CR217	404	B-EO-211
205	CR218	405	B-EI-210
206	CR219	406	B-EI-209
207	CR220	407	B-EI-208
208	B-CR208	408	B-EI-207
209	B-CR207	409	B-EI-206
210	B-CR206	410	B-EI-205
211	B-CR205	411	B-EI-204
212	B-CR204	412	B-EI-203
213	B-CR203	413	B-EI-202
214	B-CR202	414	B-EI-201
215	B-CR201	415	B-EI-200
216	B-CR200	416	B-EI-199
217	B-CR199	417	B-EI-198
218	B-CR198	418	B-EI-197
219	B-CR197	419	B-EI-196
220	B-CR196	420	B-EI-195
221	B-CR195	421	B-EO-194
222	B-CR194	422	B-EI-194
223	B-CR193	423	B-EO-193
224	SPARE	424	B-EI-193

WIRE LIST

TERMINAL NO.	TERMINAL NO.
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
A-EO-195	B-EO-195
A-EO-196	B-EO-196
A-EO-197	B-EO-197
A-EO-198	B-EO-198
A-EO-199	B-EO-199
A-EO-200	B-EO-200
A-EO-201	B-EO-201
A-EO-202	B-EO-202
A-EO-203	B-EO-203
A-EO-204	B-EO-204
A-EO-205	B-EO-205
A-EO-206	B-EO-206
A-EO-207	B-EO-207
A-EO-208	B-EO-208
A-EO-209	B-EO-209
A-EO-210	B-EO-210
SPARE	SPARE
SPARE	SPARE
A-EO-212	B-EO-212
A-EO-213	B-EO-213

WIRE LIST

COMPONENT NO.	COMPONENT NO.
CR215	R176
CR216	R144
CR217	R112
CR218	R80
CR219	R48
CR220	R16
CR209	R32
CR210	R64
CR211	R96
CR212	R128
CR213	R160
CR214	R192


3 REF
6 REF
39 REF
A-CR208 REF
33
J
R192 REF
31
32
1 REF
REF 31 32
302 REF
307 REF
A-CR207 REF
A-CR206 REF
A-CR205 REF
A-CR204 REF
A-CR203 REF
A-CR202 REF
A-CR201 REF
FT1 REF
A-CR200 REF
25 REF
A-CR194 REF
A-CR193 REF
A-R193 REF
FROM A-CR207
FROM A-CR205
FROM A-CR204
FROM A-CR202
FROM A-CR201
B-CR193 REF
B-R193 REF
C
39
SEE NOTE 19
.060 MAX TYP
.060 MAX TYP
3 REF
401
101
424
124
B-CR203 REF
B-R203 REF
A-R204 REF
FROM A-EI-207 TO PIN NO.108 REF
.108 MAX TYP
TYPICAL ALL LEADS BOTH SIDES OF FIND NO. 6
.070
.090
6 REF
.080 REF
.108 MAX TYP
33 REF
SEE NOTE 17
.010 MIN
2 REF
6 REF
B-CR193 REF
32 TYP
B-CR194 REF
FT1 REF
207 REF
202 REF
3 REF
B-CR208 REF
39 REF
24
A-EO-213
R192
CASE GROUND TERMINAL
E
B-CR208
A-CR208
B-CR207
A-CR207
A-EO-212
A-EO-210
A-EI-213
A-EI-212
A-EI-211
A-EO-211
A-EI-210
A-EI-209
CR195 TO CR206 BOTH A & B DIODES AND RESISTORS
A-EO-195
A-EI-195
A-EO-194
A-EI-194
A-EO-193
A-EI-193
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
B-CR190 TO B-CR206 & B-R206
B-CR189 TO B-CR205 & B-R205
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205 & A-R205
33
25
26
27
28
29
30
B-EO-195
B-EI-193
B-EO-193
B-EI-194
B-EO-194
B-EI-195
B-EO-210
B-EI-210
B-EO-211
B-EI-211
B-EO-212
B-EO-213
B-EI-212
B-EI-213
R176
R144
38

VIEW G-G
SCALE 4/1
SHOWN WITH POTTING AND FIND NO.7
REMOVED. SEE NOTES 11,12,13 AND 14

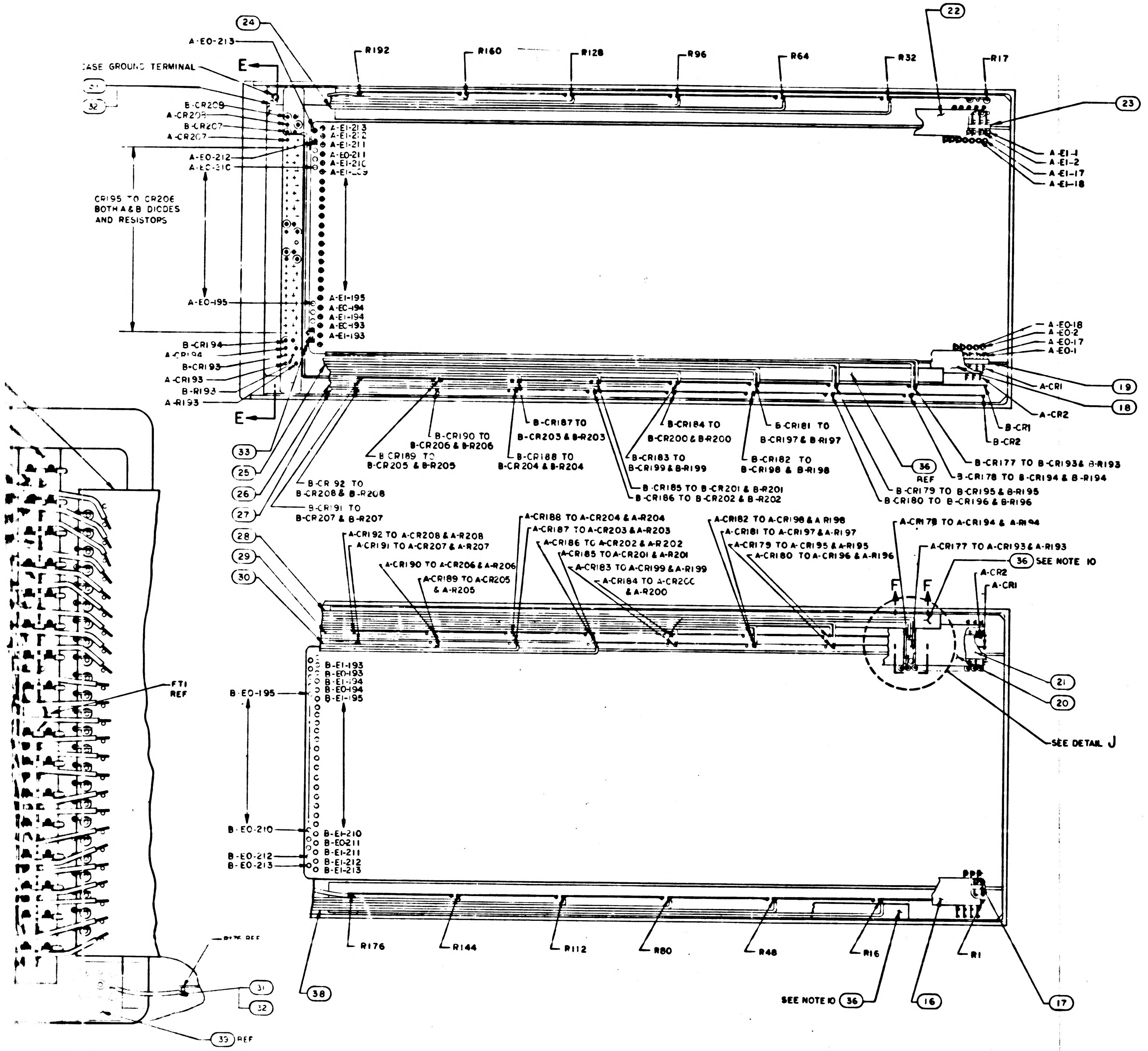
VIEW J-J

SECTION E-E

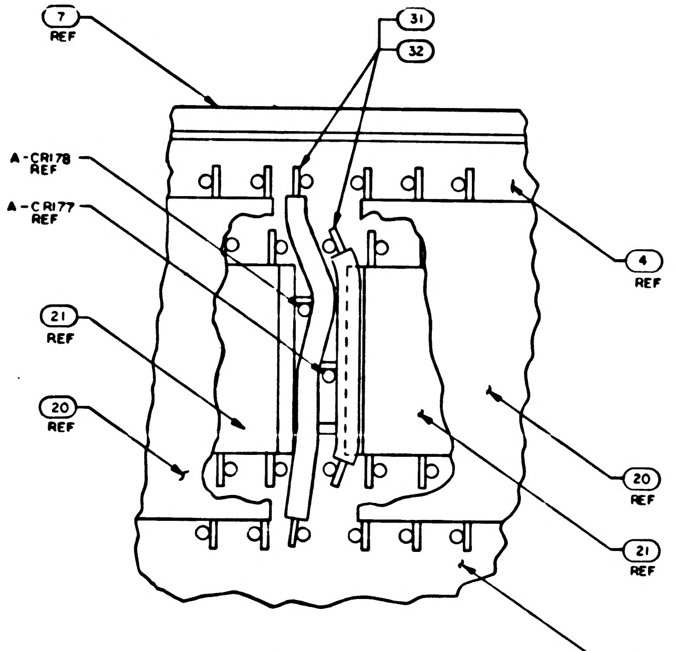
SECTION C-C
SCALE 4/1

VIEW H-H
SCALE 4/1
SHOWN WITH POTTING AND FIND NO.7
REMOVED. SEE NOTES 11,12,13 AND 14

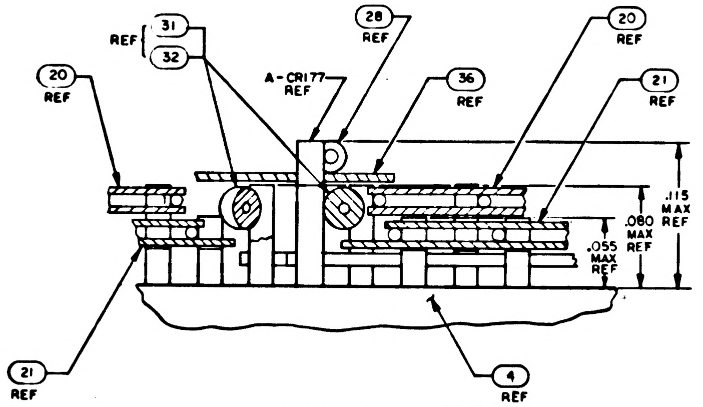
REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		INITIAL RELEASE DRR 2293				
B		REVISED PER TDRR 33460				
C		REVISED PER TDRR 33544				
D		REVISED PER TDRR 33606				
E		REVISED PER TDRR 34140				
F		REVISED PER TDRR 34449				
G		REVISED PER TDRR 34997				
H		REVISED PER TDRR 35339				


A-E0-213
24
22
CASE GROUND TERMINAL
31
32
E
R192
R160
R128
R96
R64
R32
R17
23
B-CR209
A-CR208
B-CR207
A-CR207
A-E0-212
A-E0-210
A-EI-213
A-EI-212
A-EI-211
A-E0-211
A-EI-210
A-EI-209
A-EI-1
A-EI-2
A-EI-17
A-EI-18
CR195 TO CR206
BOTH A & B DIODES
AND RESISTORS
A-E0-195
A-EI-195
A-E0-194
A-EI-194
A-E0-193
A-EI-193
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
A-E0-18
A-E0-2
A-E0-17
A-E0-1
A-CR1
19
18
A-CR2
B-CR1
B-CR2
E
33
25
26
27
B-CR190 TO B-CR206 & B-R206
B-CR189 TO B-CR205 & B-R205
B-CR187 TO B-CR203 & B-R203
B-CR188 TO B-CR204 & B-R204
B-CR184 TO B-CR200 & B-R200
B-CR183 TO B-CR199 & B-R199
B-CR181 TO B-CR197 & B-R197
B-CR182 TO B-CR198 & B-R198
36 REF
B-CR177 TO B-CR193 & B-R193
B-CR178 TO B-CR194 & B-R194
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
B-CR185 TO B-CR201 & B-R201
B-CR186 TO B-CR202 & B-R202
B-CR179 TO B-CR195 & B-R195
B-CR180 TO B-CR196 & B-R196
28
29
30
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205 & A-R205
A-CR188 TO A-CR204 & A-R204
A-CR187 TO A-CR203 & A-R203
A-CR186 TO A-CR202 & A-R202
A-CR185 TO A-CR201 & A-R201
A-CR183 TO A-CR199 & A-R199
A-CR184 TO A-CR200 & A-R200
A-CR182 TO A-CR198 & A-R198
A-CR181 TO A-CR197 & A-R197
A-CR179 TO A-CR195 & A-R195
A-CR180 TO A-CR196 & A-R196
A-CR178 TO A-CR194 & A-R194
A-CR177 TO A-CR193 & A-R193
36 SEE NOTE 10
A-CR2
A-CR1
F
F
FT1 REF
B-E0-195
B-EI-193
B-E0-193
B-EI-194
B-E0-194
B-EI-195
21
20
SEE DETAIL J
B-E0-210
B-EI-210
B-E0-211
B-EI-211
B-E0-212
B-E0-213
B-EI-212
B-EI-213
R176
R144
R112
R80
R48
R16
R1
38
SEE NOTE 10
36
16
17
31
32
33 REF

W H-H
SCALE 4/
WITH ... AND FIND NO.7
NOTES 12,13 AND 14


7 REF
31
32
A-CR178 REF
A-CR177 REF
4 REF
21 REF
20 REF
20 REF
21 REF
2 REF

DETAIL J
SCALE 10/1
TYPICAL WIRING 8 PLACES, SHOWN
WITH FIND NOS. 28 AND 36 REMOVED


REF
31
32
28 REF
20 REF
20 REF
A-CR177 REF
36 REF
21 REF
.115 MAX REF
.080 MAX REF
.055 MAX REF
21 REF
4 REF

PARTIAL SECTION F-F
SCALE: 20/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE ASSEMBLY

CODE IDENT NO	SIZE	DRAWING NO.
80230	J	2003972
SCALE 2/1		SHEET 2 OF 3

2003972 HF2/2 SH2/3

[illegible]

8 7 6 5

D

C

B

A

8 5

4 3 2

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL RE[illegible] TDRR 32991				
B		REVISED PER TDRR 334[illegible]0				
C		REVISED PER TDRR 33[illegible]4				
D		REVISED PER TDRR 33606				
E		REVISED PER TDRR 34[illegible]40				
F		REVISED PER TDRR 34489				
G		REVISED PER TDRR 3[illegible]597				
H		REVISED PER TDRR 35339				

WIRE LIST

TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.
A-E0-1	A-CR1	A-E0-97	A-CR97	B-E0-1	B-CR1	B-E0-97	B-CR97	A-E1-1	R1	A-E1-49	R49	A-E1-97	R97	A-E1-145	R145
A-E0-2	A-CR2	A-E0-98	A-CR98	B-E0-2	B-CR2	B-E0-98	B-CR98	B-E1-1		B-E1-49		B-E1-97		B-E1-145	
A-E0-3	A-CR3	A-E0-99	A-CR99	B-E0-3	B-CR3	B-E0-99	B-CR99	A-E1-2	R2	A-E1-50	R50	A-E1-98	R98	A-E1-146	R146
A-E0-4	A-CR4	A-E0-100	A-CR100	B-E0-4	B-CR4	B-E0-100	B-CR100	B-E1-2		B-E1-50		B-E1-98		B-E1-146	
A-E0-5	A-CR5	A-E0-101	A-CR101	B-E0-5	B-CR5	B-E0-101	B-CR101	A-E1-3	R3	A-E1-51	R51	A-E1-99	R99	A-E1-147	R147
A-E0-6	A-CR6	A-E0-102	A-CR102	B-E0-6	B-CR6	B-E0-102	B-CR102	B-E1-3		B-E1-51		B-E1-99		B-E1-147	
A-E0-7	A-CR7	A-E0-103	A-CR103	B-E0-7	B-CR7	B-E0-103	B-CR103	A-E1-4	R4	A-E1-52	R52	A-E1-100	R100	A-E1-148	R148
A-E0-8	A-CR8	A-E0-104	A-CR104	B-E0-8	B-CR8	B-E0-104	B-CR104	B-E1-4		B-E1-52		B-E1-100		B-E1-148	
A-E0-9	A-CR9	A-E0-105	A-CR105	B-E0-9	B-CR9	B-E0-105	B-CR105	A-E1-5	R5	A-E1-53	R53	A-E1-101	R101	A-E1-149	R149
A-E0-10	A-CR10	A-E0-106	A-CR106	B-E0-10	B-CR10	B-E0-106	B-CR106	B-E1-5		B-E1-53		B-E1-101		B-E1-149	
A-E0-11	A-CR11	A-E0-107	A-CR107	B-E0-11	B-CR11	B-E0-107	B-CR107	A-E1-6	R6	A-E1-54	R54	A-E1-102	R102	A-E1-150	R150
A-E0-12	A-CR12	A-E0-108	A-CR108	B-E0-12	B-CR12	B-E0-108	B-CR108	B-E1-6		B-E1-54		B-E1-102		B-E1-150	
A-E0-13	A-CR13	A-E0-109	A-CR109	B-E0-13	B-CR13	B-E0-109	B-CR109	A-E1-7	R7	A-E1-55	R55	A-E1-103	R103	A-E1-151	R151
A-E0-14	A-CR14	A-E0-110	A-CR110	B-E0-14	B-CR14	B-E0-110	B-CR110	B-E1-7		B-E1-55		B-E1-103		B-E1-151	
A-E0-15	A-CR15	A-E0-111	A-CR111	B-E0-15	B-CR15	B-E0-111	B-CR111	A-E1-8	R8	A-E1-56	R56	A-E1-104	R104	A-E1-152	R152
A-E0-16	A-CR16	A-E0-112	A-CR112	B-E0-16	B-CR16	B-E0-112	B-CR112	B-E1-8		B-E1-56		B-E1-104		B-E1-152	
A-E0-17	A-CR17	A-E0-113	A-CR113	B-E0-17	B-CR17	B-E0-113	B-CR113	A-E1-9	R9	A-E1-57	R57	A-E1-105	R105	A-E1-153	R153
A-E0-18	A-CR18	A-E0-114	A-CR114	B-E0-18	B-CR18	B-E0-114	B-CR114	B-E1-9		B-E1-57		B-E1-105		B-E1-153	
A-E0-19	A-CR19	A-E0-115	A-CR115	B-E0-19	B-CR19	B-E0-115	B-CR115	A-E1-10	R10	A-E1-58	R58	A-E1-106	R106	A-E1-154	R154
A-E0-20	A-CR20	A-E0-116	A-CR116	B-E0-20	B-CR20	B-E0-116	B-CR116	B-E1-10		B-E1-58		B-E1-106		B-E1-154	
A-E0-21	A-CR21	A-E0-117	A-CR117	B-E0-21	B-CR21	B-E0-117	B-CR117	A-E1-11	R11	A-E1-59	R59	A-E1-107	R107	A-E1-155	R155
A-E0-22	A-CR22	A-E0-118	A-CR118	B-E0-22	B-CR22	B-E0-118	B-CR118	B-E1-11		B-E1-59		B-E1-107		B-E1-155	
A-E0-23	A-CR23	A-E0-119	A-CR119	B-E0-23	B-CR23	B-E0-119	B-CR119	A-E1-12	R12	A-E1-60	R60	A-E1-108	R108	A-E1-156	R156
A-E0-24	A-CR24	A-E0-120	A-CR120	B-E0-24	B-CR24	B-E0-120	B-CR120	B-E1-12		B-E1-60		B-E1-108		B-E1-156	
A-E0-25	A-CR25	A-E0-121	A-CR121	B-E0-25	B-CR25	B-E0-121	B-CR121	A-E1-13	R13	A-E1-61	R61	A-E1-109	R109	A-E1-157	R157
A-E0-26	A-CR26	A-E0-122	A-CR122	B-E0-26	B-CR26	B-E0-122	B-CR122	B-E1-13		B-E1-61		B-E1-109		B-E1-157	
A-E0-27	A-CR27	A-E0-123	A-CR123	B-E0-27	B-CR27	B-E0-123	B-CR123	A-E1-14	R14	A-E1-62	R62	A-E1-110	R110	A-E1-158	R158
A-E0-28	A-CR28	A-E0-124	A-CR124	B-E0-28	B-CR28	B-E0-124	B-CR124	B-E1-14		B-E1-62		B-E1-110		B-E1-158	
A-E0-29	A-CR29	A-E0-125	A-CR125	B-E0-29	B-CR29	B-E0-125	B-CR125	A-E1-15	R15	A-E1-63	R63	A-E1-111	R111	A-E1-159	R159
A-E0-30	A-CR30	A-E0-126	A-CR126	B-E0-30	B-CR30	B-E0-126	B-CR126	B-E1-15		B-E1-63		B-E1-111		B-E1-159	
A-E0-31	A-CR31	A-E0-127	A-CR127	B-E0-31	B-CR31	B-E0-127	B-CR127	A-E1-16	R16	A-E1-64	R64	A-E1-112	R112	A-E1-160	R160
A-E0-32	A-CR32	A-E0-128	A-CR128	B-E0-32	B-CR32	B-E0-128	B-CR128	B-E1-16		B-E1-64		B-E1-112		B-E1-160	
A-E0-33	A-CR33	A-E0-129	A-CR129	B-E0-33	B-CR33	B-E0-129	B-CR129	A-E1-17	R17	A-E1-65	R65	A-E1-113	R113	A-E1-161	R161
A-E0-34	A-CR34	A-E0-130	A-CR130	B-E0-34	B-CR34	B-E0-130	B-CR130	B-E1-17		B-E1-65		B-E1-113		B-E1-161	
A-E0-35	A-CR35	A-E0-131	A-CR131	B-E0-35	B-CR35	B-E0-131	B-CR131	A-E1-18	R18	A-E1-66	R66	A-E1-114	R114	A-E1-162	R162
A-E0-36	A-CR36	A-E0-132	A-CR132	B-E0-36	B-CR36	B-E0-132	B-CR132	B-E1-18		B-E1-66		B-E1-114		B-E1-162	
A-E0-37	A-CR37	A-E0-133	A-CR133	B-E0-37	B-CR37	B-E0-133	B-CR133	A-E1-19	R19	A-E1-67	R67	A-E1-115	R115	A-E1-163	R163
A-E0-38	A-CR38	A-E0-134	A-CR134	B-E0-38	B-CR38	B-E0-134	B-CR134	B-E1-19		B-E1-67		B-E1-115		B-E1-163	
A-E0-39	A-CR39	A-E0-135	A-CR135	B-E0-39	B-CR39	B-E0-135	B-CR135	A-E1-20	R20	A-E1-68	R68	A-E1-116	R116	A-E1-164	R164
A-E0-40	A-CR40	A-E0-136	A-CR136	B-E0-40	B-CR40	B-E0-136	B-CR136	B-E1-20		B-E1-68		B-E1-116		B-E1-164	
A-E0-41	A-CR41	A-E0-137	A-CR137	B-E0-41	B-CR41	B-E0-137	B-CR137	A-E1-21	R21	A-E1-69	R69	A-E1-117	R117	A-E1-165	R165
A-E0-42	A-CR42	A-E0-138	A-CR138	B-E0-42	B-CR42	B-E0-138	B-CR138	B-E1-21		B-E1-69		B-E1-117		B-E1-165	
A-E0-43	A-CR43	A-E0-139	A-CR139	B-E0-43	B-CR43	B-E0-139	B-CR139	A-E1-22	R22	A-E1-70	R70	A-E1-118	R118	A-E1-166	R166
A-E0-44	A-CR44	A-E0-140	A-CR140	B-E0-44	B-CR44	B-E0-140	B-CR140	B-E1-22		B-E1-70		B-E1-118		B-E1-166	
A-E0-45	A-CR45	A-E0-141	A-CR141	B-E0-45	B-CR45	B-E0-141	B-CR141	A-E1-23	R23	A-E1-71	R71	A-E1-119	R119	A-E1-167	R167
A-E0-46	A-CR46	A-E0-142	A-CR142	B-E0-46	B-CR46	B-E0-142	B-CR142	B-E1-23		B-E1-71		B-E1-119		B-E1-167	
A-E0-47	A-CR47	A-E0-143	A-CR143	B-E0-47	B-CR47	B-E0-143	B-CR143	A-E1-24	R24	A-E1-72	R72	A-E1-120	R120	A-E1-168	R168
A-E0-48	A-CR48	A-E0-144	A-CR144	B-E0-48	B-CR48	B-E0-144	B-CR144	B-E1-24		B-E1-72		B-E1-120		B-E1-168	
A-E0-49	A-CR49	A-E0-145	A-CR145	B-E0-49	B-CR49	B-E0-145	B-CR145	A-E1-25	R25	A-E1-73	R73	A-E1-121	R121	A-E1-169	R169
A-E0-50	A-CR50	A-E0-146	A-CR146	B-E0-50	B-CR50	B-E0-146	B-CR146	B-E1-25		B-E1-73		B-E1-121		B-E1-169	
A-E0-51	A-CR51	A-E0-147	A-CR147	B-E0-51	B-CR51	B-E0-147	B-CR147	A-E1-26	R26	A-E1-74	R74	A-E1-122	R122	A-E1-170	R170
A-E0-52	A-CR52	A-E0-148	A-CR148	B-E0-52	B-CR52	B-E0-148	B-CR148	B-E1-26		B-E1-74		B-E1-122		B-E1-170	
A-E0-53	A-CR53	A-E0-149	A-CR149	B-E0-53	B-CR53	B-E0-149	B-CR149	A-E1-27	R27	A-E1-75	R75	A-E1-123	R123	A-E1-171	R171
A-E0-54	A-CR54	A-E0-150	A-CR150	B-E0-54	B-CR54	B-E0-150	B-CR150	B-E1-27		B-E1-75		B-E1-123		B-E1-171	
A-E0-55	A-CR55	A-E0-151	A-CR151	B-E0-55	B-CR55	B-E0-151	B-CR151	A-E1-28	R28	A-E1-76	R76	A-E1-124	R124	A-E1-172	R172
A-E0-56	A-CR56	A-E0-152	A-CR152	B-E0-56	B-CR56	B-E0-152	B-CR152	B-E1-28		B-E1-76		B-E1-124		B-E1-172	
A-E0-57	A-CR57	A-E0-153	A-CR153	B-E0-57	B-CR57	B-E0-153	B-CR153	A-E1-29	R29	A-E1-77	R77	A-E1-125	R125	A-E1-173	R173
A-E0-58	A-CR58	A-E0-154	A-CR154	B-E0-58	B-CR58	B-E0-154	B-CR154	B-E1-29		B-E1-77		B-E1-125		B-E1-173	
A-E0-59	A-CR59	A-E0-155	A-CR155	B-E0-59	B-CR59	B-E0-155	B-CR155	A-E1-30	R30	A-E1-78	R78	A-E1-126	R126	A-E1-174	R174
A-E0-60	A-CR60	A-E0-156	A-CR156	B-E0-60	B-CR60	B-E0-156	B-CR156	B-E1-30		B-E1-78		B-E1-126		B-E1-174	
A-E0-61	A-CR61	A-E0-157	A-CR157	B-E0-61	B-CR61	B-E0-157	B-CR157	A-E1-31	R31	A-E1-79	R79	A-E1-127	R127	A-E1-175	R175
A-E0-62	A-CR62	A-E0-158	A-CR158	B-E0-62	B-CR62	B-E0-158	B-CR158	B-E1-31		B-E1-79		B-E1-127		B-E1-175	
A-E0-63	A-CR63	A-E0-159	A-CR159	B-E0-63	B-CR63	B-E0-159	B-CR159	A-E1-32	R32	A-E1-80	R80	A-E1-128	R128	A-E1-176	R176
A-E0-64	A-CR64	A-E0-160	A-CR160	B-E0-64	B-CR64	B-E0-160	B-CR160	B-E1-32		B-E1-80		B-E1-128		B-E1-176	
A-E0-65	A-CR65	A-E0-161	A-CR161	B-E0-65	B-CR65	B-E0-161	B-CR161	A-E1-33	R33	A-E1-81	R81	A-E1-129	R129	A-E1-177	R177
A-E0-66	A-CR66	A-E0-162	A-CR162	B-E0-66	B-CR66	B-E0-162	B-CR162	B-E1-33		B-E1-81		B-E1-129		B-E1-177	
A-E0-67	A-CR67	A-E0-163	A-CR163	B-E0-67	B-CR67	B-E0-163	B-CR163	A-E1-34	R34	A-E1-82	R82	A-E1-130	R130	A-E1-178	R178
A-E0-68	A-CR68	A-E0-164	A-CR164	B-E0-68	B-CR68	B-E0-164	B-CR164	B-E1-34		B-E1-82		B-E1-130		B-E1-178	
A-E0-69	A-CR69	A-E0-165	A-CR165	B-E0-69	B-CR69	B-E0-165	B-CR165	A-E1-35	R35	A-E1-83	R83	A-E1-131	R131	A-E1-179	R179
A-E0-70	A-CR70	A-E0-166	A-CR166	B-E0-70	B-CR70	B-E0-166	B-CR166	B-E1-35		B-E1-83		B-E1-131		B-E1-179	
A-E0-71	A-CR71	A-E0-167	A-CR167	B-E0-71	B-CR71	B-E0-167	B-CR167	A-E1-36	R36	A-E1-84	R84	A-E1-132	R132	A-E1-180	R180
A-E0-72	A-CR72	A-E0-168	A-CR168	B-E0-72	B-CR72	B-E0-168	B-CR168	B-E1-36		B-E1-84		B-E1-132		B-E1-180	
A-E0-73	A-CR73	A-E0-169	A-CR169	B-E0-73	B-CR73	B-E0-169	B-CR169	A-E1-37	R37	A-E1-85	R85	A-E1-133	R133	A-E1-181	R181
A-E0-74	A-CR74	A-E0-170	A-CR170	B-E0-74	B-CR74	B-E0-170	B-CR170	B-E1-37		B-E1-85		B-E1-133		B-E1-181	
A-E0-75	A-CR75	A-E0-171	A-CR171	B-E0-75	B-CR75	B-E0-171	B-CR171	A-E1-38	R38	A-E1-86	R86	A-E1-134	R134	A-E1-182	R182
A-E0-76	A-CR76	A-E0-172	A-CR172	B-E0-76	B-CR76	B-E0-172	B-CR172	B-E1-38		B-E1-86		B-E1-134		B-E1-182	
A-E0-77	A-CR77	A-E0-173	A-CR173	B-E0-77	B-CR77	B-E0-173	B-CR173	A-E1-39	R39	A-E1-87	R87	A-E1-135	R135	A-E1-183	R183
A-E0-78	A-CR78	A-E0-174	A-CR174	B-E0-78	B-CR78	B-E0-174	B-CR174	B-E1-39		B-E1-87		B-E1-135		B-E1-183	
A-E0-79	A-CR79	A-E0-175	A-CR175	B-E0-79	B-CR79	B-E0-175	B-CR175	A-E1-40	R40	A-E1-88	R88	A-E1-136	R136	A-E1-184	R184
A-E0-80	A-CR80	A-E0-176	A-CR176	B-E0-80	B-CR80	B-E0-176	B-CR176	B-E1-40		B-E1-88		B-E1-136		B-E1-184	
A-E0-81	A-CR81	A-E0-177	A-CR177	B-E0-81	B-CR81	B-E0-177	B-CR177	A-E1-41	R41	A-E1-89	R89	A-E1-137	R137	A-E1-185	R185
A-E0-82	A-CR82	A-E0-178	A-CR178	B-E0-82	B-CR82	B-E0-178	B-CR178	B-E1-41		B-E1-89		B-E1-137		B-E1-185	
A-E0-83	A-CR83	A-E0-179	A-CR179	B-E0-83	B-CR83	B-E0-179	B-CR179	A-E1-42	R42	A-E1-90	R90	A-E1-138	R138	A-E1-186	R186
A-E0-84	A-CR84	A-E0-180	A-CR180	B-E0-84	B-CR84	B-E0-180	B-CR180	B-E1-42		B-E1-90		B-E1-138		B-E1-186	
A-E0-85	A-CR85	A-E0-181	A-CR181	B-E0-85	B-CR85	B-E0-181	B-CR181	A-E1-43	R43	A-E1-91	R91	A-E1-139	R139	A-E1-187	R187
A-E0-86	A-CR86	A-E0-182	A-CR182	B-E0-86	B-CR86	B-E0-182	B-CR182	B-E1-43		B-E1-91		B-E1-139		B-E1-187	
A-E0-87	A-CR87	A-E0-183	A-CR183	B-E0-87	B-CR87	B-E0-183	B-CR183	A-E1-44	R44	A-E1-92	R92	A-E1-140	R140	A-E1-188	R188
A-E0-88	A-CR88	A-E0-184	A-CR184	B-E0-88	B-CR88	B-E0-184	B-CR184	B-E1-44		B-E1-92		B-E1-140		B-E1-188	
A-E0-89	A-CR89	A-E0-185	A-CR185	B-E0-89	B-CR89	B-E0-185	B-CR185	A-E1-45	R45	A-E1-93	R93	A-E1-141	R141	A-E1-189	R189
A-E0-90	A-CR90	A-E0-186	A-CR186	B-E0-90	B-CR90	B-E0-186	B-CR186	B-E1-45		B-E1-93		B-E1-141		B-E1-189	
A-E0-91	A-CR91	A-E0-187	A-CR187	B-E0-91	B-CR91	B-E0-187	B-CR187	A-E1-46	R46	A-E1-94	R94	A-E1-142	R142	A-E1-190	R190
A-E0-92	A-CR92	A-E0-188	A-CR188	B-E0-92	B-CR92	B-E0-188	B-CR188	B-E1-46		B-E1-94		B-E1-142		B-E1-190	
A-E0-93	A-CR93	A-E0-189	A-CR189	B-E0-93	B-CR93	B-E0-189	B-CR189	A-E1-47	R47	A-E1-95	R95	A-E1-143	R143	A-E1-191	R191
A-E0-94	A-CR94	A-E0-190	A-CR190	B-E0-94	B-CR94	B-E0-190	B-CR190	B-E1-47		B-E1-95		B-E1-143		B-E1-191	
A-E0-95	A-CR95	A-E0-191	A-CR191	B-E0-95	B-CR95	B-E0-191	B-CR191	A-E1-48	R48	A-E1-96	R96	A-E1-144	R144	A-E1-192	R192
A-E0-96	A-CR96	A-E0-192	A-CR192	B-E0-96	B-CR96	B-E0-192	B-CR192	B-E1-48		B-E1-96		B-E1-144		B-E1-192	

D

C

B

H

2003972

A

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED
NASA
APPROVED
MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

FIXED MEMORY MODULE
ASSEMBLY

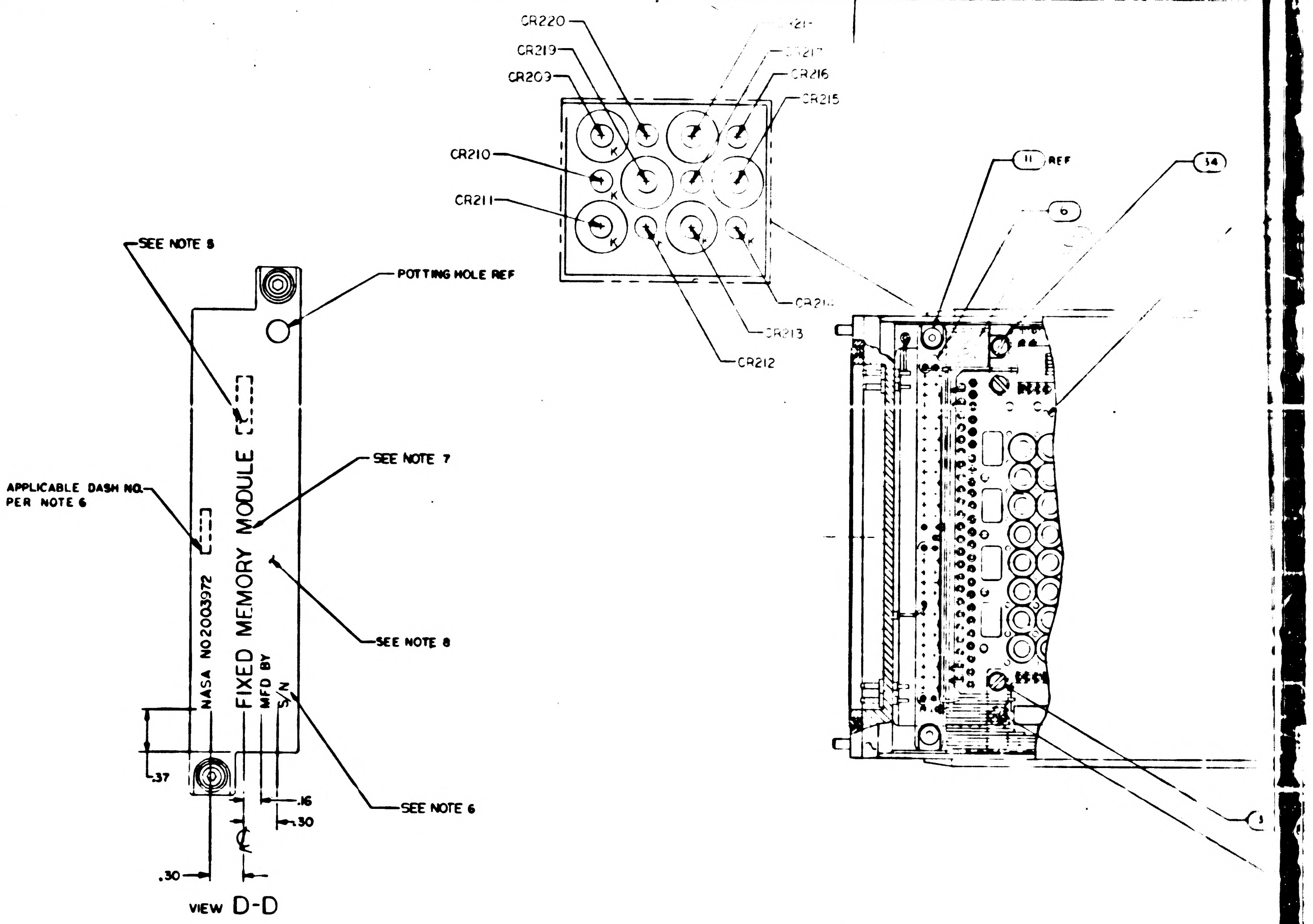
CODE IDENT NO 80230
SIZE J
DRAWING NO 2003972
SCALE NONE
SHEET 3 OF 3

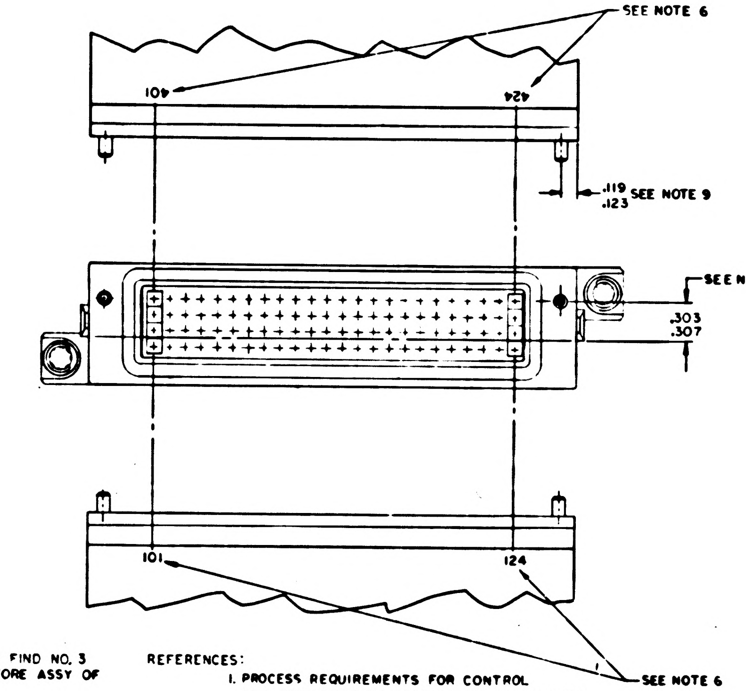
H

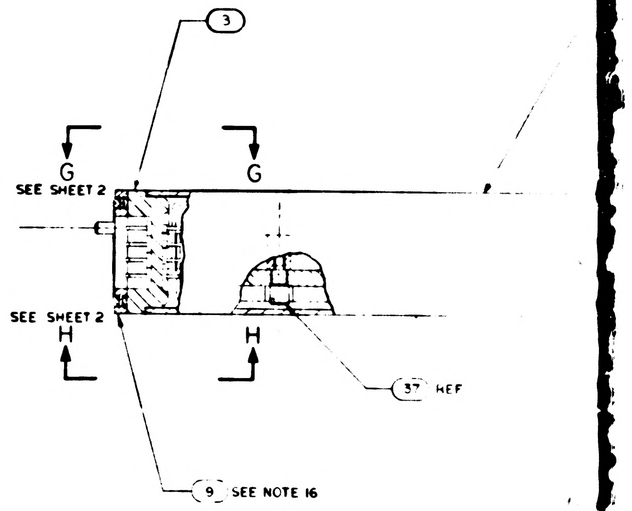
4

2003972 HF2/2 SH3/3

PART NO.	MODULE NO.	FIND NO. 1	FIND NO. 2	MODULE DECK NO.	NEXT ASSEMBLY NO. (REF)
2003972-011	B1	2003060-061	2003061-061	0205	2021101
2003972-021	B2	2003060-071	2003061-071	0206	2021101
2003972-031	B3	2003060-081	2003061-081	0207	2021101
2003972-041	B1	2003060-121	2003061-121	0210	2021104
2003972-051	B2	2003060-131	2003061-131	0211	2021104
2003972-061	B3	2003060-141	2003061-141	0212	2021104
2003972-071	B2	2003060-151	2003061-151	0213	2021104
2003972-081	B3	2003060-161	2003061-161	0214	2021104
2003972-091	B2	2003060-171	2003061-171	0215	2021101
2003972-111	B3	2003060-181	2003061-181	0216	2021101
2003972-121	B1	2003060-091	2003061-091	0208	2021105-031
2003972-131	B2	2003060-111	2003061-111	0209	2021105-031
2003972-141	B	2003060-191	2003061-191	0217	2021106-011
2003972-151	B2	2003060-211	2003061-211	0218	2021106-011
2003972-161	B3	2003060-221	2003061-221	0219	2021106-011
2003972-171	B4	2003060-231	2003061-231	0220	2021106-011
2003972-181	B5	2003060-241	2003061-241	0221	2021106-011
2003972-191	B6	2003060-251	2003061-251	0222	2021106-011
2003972-211	B3	2003060-261	2003061-261	0223	2021104-041
2003972-221	B	2003060-271	2003061-271	0224	2021105-041
2003972-231	B1	2003060-281	2003061-281	0225	2021106-021
2003972-241	B3	2003060-291	2003061-291	0226	2021106-021
2003972-251	B5	2003060-311	2003061-311	0227	2021106-021
2003972-261	B1	2003060-321	2003061-321	0230	2021107-011
2003972-271	B2	2003060-331	2003061-331	0229	2021107-011
2003972-281	B3	2003060-341	2003061-341	0231	2021106-051
2003972-291	B1	2003060-351	2003061-351	0238	2021107-021
2003972-311	B1	2003060-361	2003061-361	0239	2021108-021
-321	B2	2003060-371	2003061-371	0240	2021108-021
-331	B3	2003060-381	2003061-381	0241	2021108-021
-341	B4	2003060-391	2003061-391	0242	2021108-021
351	B5	2003060-411	2003061-411	0243	2021108-021
2003972-361	B6	2003060-421	2003061-421	0244	2021108-021







NOTES:

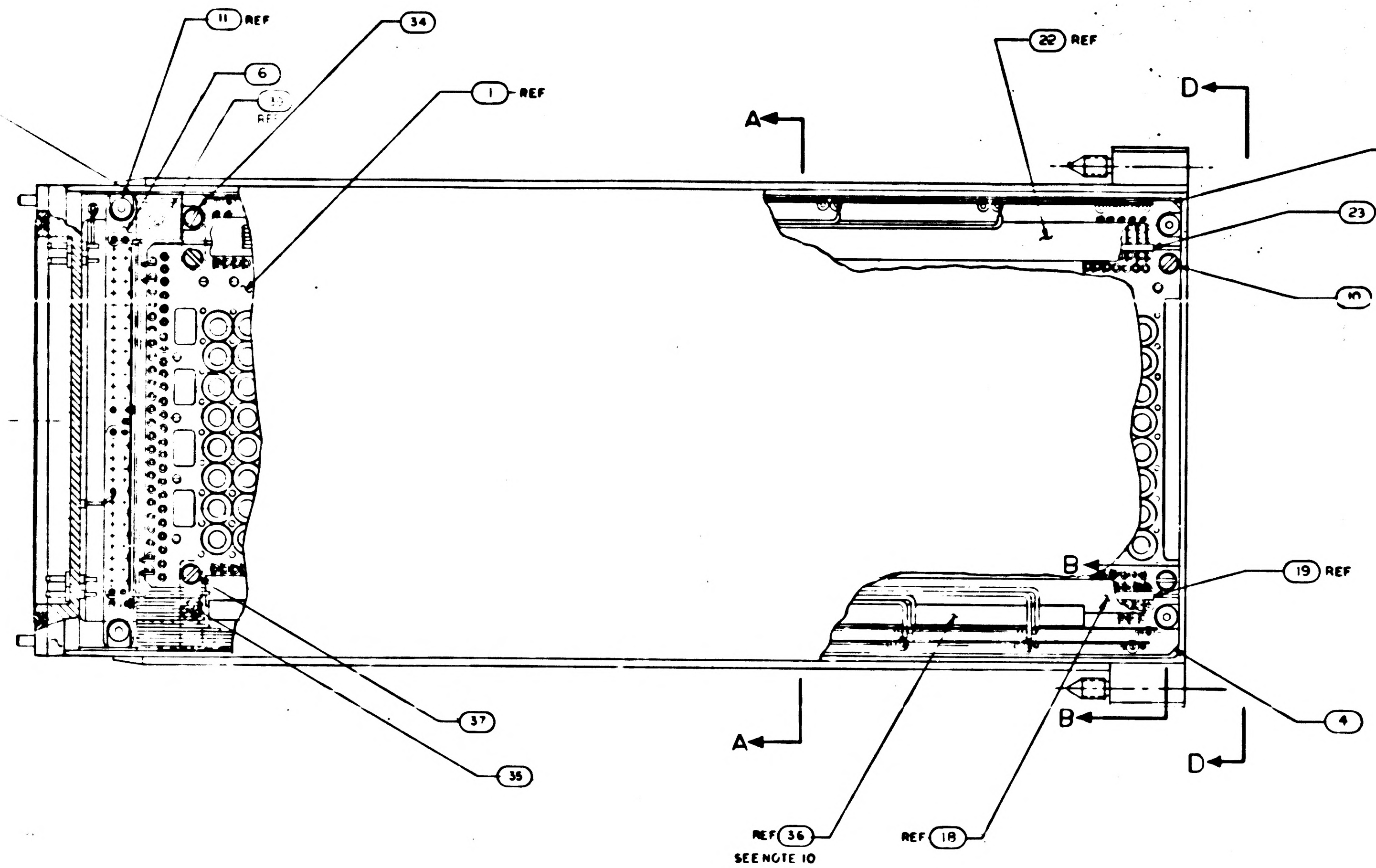
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
3. ENCAPSULATE MODULE PER ND1002226 METHOD II
4. WELD PER ND1002005
5. MARK APPROPRIATE MODULE NO. AS SHOWN IN CHART
6. MARK .08/.06 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
7. MARK .14/.10 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 USING INK 1006271-1
8. PAINT INDICATED SURFACES OF FIND NO 7. PER ND1002279 WITH SCD NO. 1008809-1 DARK GREY EPOXY RESIN ENAMEL, FINAL COAT PER ND1002277 USING 1012543-003
9. ASSEMBLE FIND NO.7 AND FIND NO.3 TO DIMENSIONS SHOWN
10. REMOVE LINER FROM NEARSIDE OF FIND NO.36 AND ASSEMBLE 3 PLACES AS SHOWN. FIND NO.36 MUST INSULATE FLAT CABLES FROM TRIMMED COMPONENT LEADS. TRIM AS REQUIRED
11. WHITE DOT AND SINGLE SOLID LEAD DENOTES FIRST LEVEL WIRING UNLESS OTHERWISE SPECIFIED
12. BLACK DOT AND SINGLE SOLID LEAD DENOTES SECOND LEVEL WIRING
13. BLACK DOT AND CROSS HATCHED LEAD DENOTES THIRD LEVEL WIRING
14. ALL LEADS FROM FIND NO.1 AND FIND NO.2 TO FIND NO.3 TO BE THIRD LEVEL WIRING
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003972. FOR-121 131 & 221 CONFIGURATIONS USE PS 2003960
16. FIND NO.9 TO BE SHIPPED UNASSEMBLED AND IDENTIFIED PER ND 1002019
17. SEAL PINS AND INSULATORS TO FIND NO. 3 PER ND1002004 TYPE VI BEFORE ASSY OF FIND NO. 6
18. FILL AS SHOWN PER ND1002235 METHOD A
19. BOND FIND NO.39 TO FIND NO.3 PER ND1002004 TYPE VI AFTER ASSY OF FIND NO.6
20. PRIOR TO ENCAPSULATION PER NOTE 3, COAT OVER ALL TERMINALS OF FIND NO'S 1,2&3 AND OVER ALL WIRES, SLEEVING AND COMPONENT LEADS OF FIND NO'S 4,5,6,16,17,18,19,20,21,22,23,24, 25,26,27,28,29,30,31,32,33,38 & 39 WITH A .03 MAXIMUM THICKNESS OF SILICONE RUBBER PER ND1002009, METHOD A. MASK ALL OUTSIDE SURFACES OF FIND NO.3 AND ALL OTHER SURFACES OF THIS ASSEMBLY COMING IN CLOSE CONTACT WITH FIND NO.7

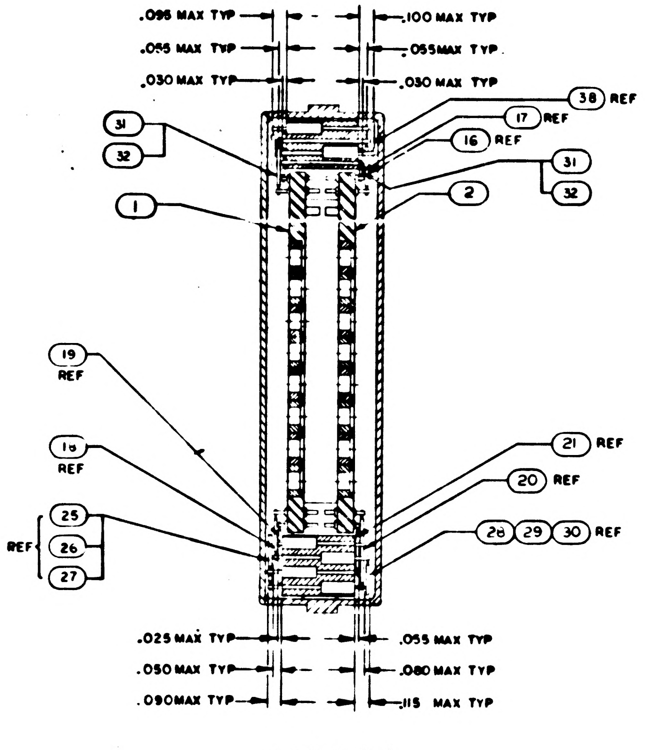
REFERENCES:

1. PROCESS REQUIREMENTS FOR CONTROL AND INSPECTION OF ROPE MEMORY ASSEMBLIES ND1002285
2. FIXED MEMORY FIXTURE DWG. NO. AP22500

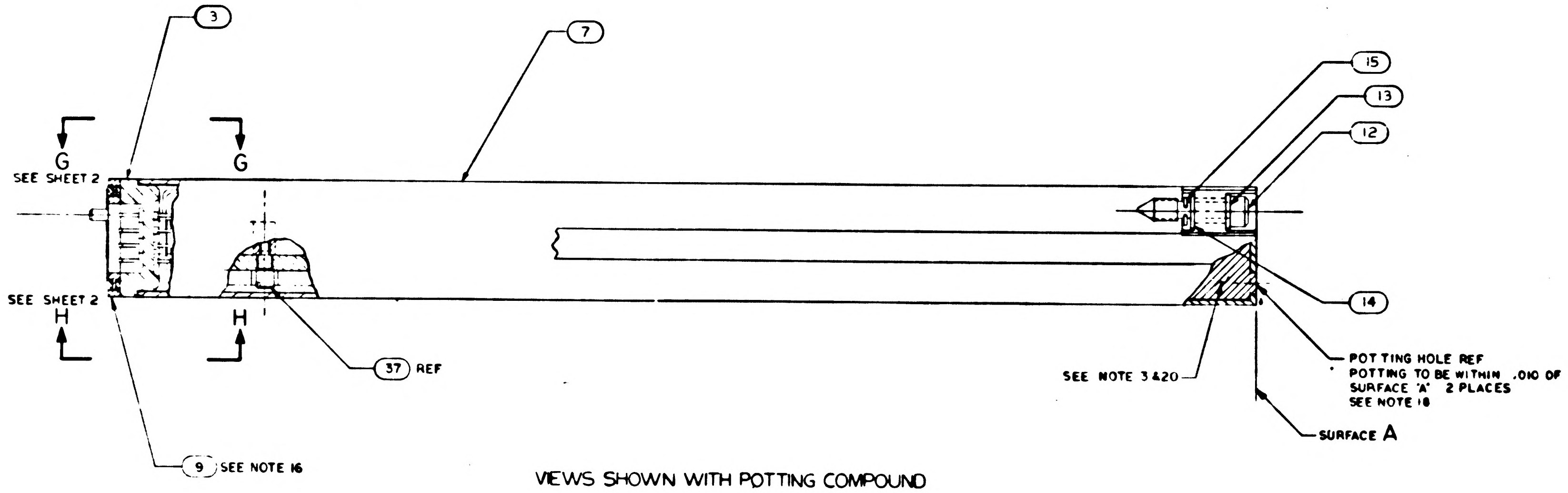
2003972 J

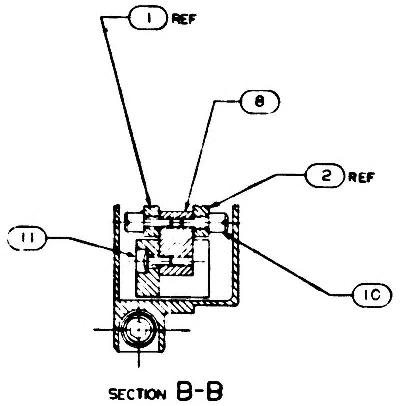
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL RELEASE TDRR 31991		
B	REVISED PER TDRR 3[illegible] DR [illegible] CHK [illegible]		
C	REVISED PER TDRR [illegible]4 DR [illegible] CHK [illegible]		
D	REVISED PER TDRR 33606 DR [illegible] CHK [illegible]	5/1967	
E	REVISED PER TDRR 34140 DR [illegible] CHK [illegible]		
F	REVISED PER TDRR 34489 DR [illegible] CHK [illegible]		
G	REVISED PER TDRR [illegible] DR [illegible] CHK [illegible]		
H	REVISED PER TDRR 35339 DR [illegible] CHK [illegible]		
J	REVISED PER TDRR 35549 DR [illegible] CHK [illegible]		


11 REF
34
6
1 REF
22 REF
A
D
5
23 REF
10 REF
19 REF
B
4
37
35
REF 36
SEE NOTE 10
REF 18


.095 MAX TYP
.055 MAX TYP
.030 MAX TYP
.100 MAX TYP
.055 MAX TYP
.030 MAX TYP
38 REF
17 REF
16 REF
31
32
1
2
31
32
19 REF
16 REF
21 REF
20 REF
REF 25 26 27
28 29 30 REF
.025 MAX TYP
.050 MAX TYP
.090 MAX TYP
.055 MAX TYP
.080 MAX TYP
.115 MAX TYP

SECTION A-A


3
7
15
13
12
G
G
SEE SHEET 2
SEE SHEET 2
H
H
14
37 REF
SEE NOTE 3420
POTTING HOLE REF
POTTING TO BE WITHIN .010 OF SURFACE 'A' 2 PLACES
SEE NOTE 18
SURFACE A
9 SEE NOTE 16


1 REF
8
2 REF
11
10

SECTION B-B

VIEWS SHOWN WITH POTTING COMPOUND
PARTIALLY REMOVED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	2003986-021	COMPONENT BLOCK DIODE ASSY	39
☒	2005935	SCHEMATIC	REF
1	2004684	FLAT CABLE	38
4	2004150 — 003	SCREW, SHOULDERED	37
AR	1006806 — 26	INSULATION TAPE, ELECTRICAL	36
1	2004150 — 001	SCREW, SHOULDERED	35
1	2004150 — 002	SCREW, SHOULDERED	34
1	2004129	FLAT CABLE INTERCONNECTION	33
AR	1006776-25	SLEEVING	32
AR	10067[illegible]-12	WIRE, ELECTRICAL	31
1	2004125	FLAT CABLE	30
1	2004122	FLAT CABLE	29
1	2004124	FLAT CABLE	28
1	2004123	FLAT CABLE	27
1	2004121	FLAT CABLE	26
1	2004120	FLAT CABLE	25
1	2004[illegible]	FLAT CABLE	24
1	2003051 — 013	MATRIX ASSY	23
1	2003051 — 014	MATRIX ASSY	22
8	2003051 — 016	MATRIX ASSY	21
8	2003051 — 015	MATRIX ASSY	20
1	2003051 — 017	MATRIX ASSY	19
1	2003051 — 018	MATRIX ASSY	18
1	2003051 — 011	MATRIX ASSY	17
1	2003051 — 012	MATRIX ASSY	16
2	MS16633-4015	E RING	15
2	1004546-3	WASHER	14
2	1004546-1	WASHER	13
2	1004579-1	SCREW, JACKING	12
4	1000093-1	SCREW, BUTTONHEAD	11
4	2004151	SCREW, STANDOFF	10
1	1006339	GASKET PLATE	9
2	2004071	STANDOFF	8
1	2004100	HOUSING	7
1	2003048-021	RESISTOR-DIODE BLOCK ASSY	6
1	2003052-021	COMPONENT BLOCK RESISTOR ASSY	5
1	2003045-021	COMPONENT BLOCK DIODE ASSY	4
1	2003973-011	CONNECTOR PLATE ASSY	3
1	2003061-SEE CHART	SENSE WIRING ASSY SIDE B	2
1	2003060-SEE CHART	SENSE WIRING ASSY SIDE A	1

LIST OF MATERIALS

SEE NOTE 16

FOR APPLICABLE PART
NO. SEE CHART

SEE CHART	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE
ASSEMBLY

CODE IDENT NO	SIZE	NASA DRAWING NO
80230	J	2003972
SCALE 2/1	WT	SHEET 1 OF 3

SH1/3

2003972 JF2/2

WIRE LIST

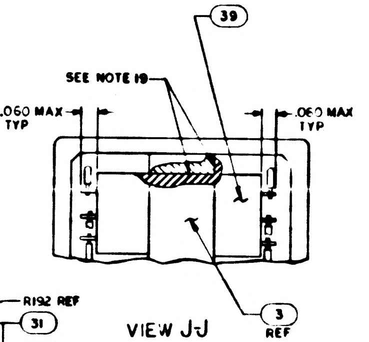
PIN NO.	COMPONENT OR TERM. NO.	PIN NO.	COMPONENT OR TERM. NO.
101	A-E1-213	301	GROUND
102	A-E1 212	302	CR209
103	A-E1-211	303	CR210
104	A-E0-211	304	CR211
105	A-E1-210	305	CR212
106	A-E1-209	306	CR213
107	A-E1-208	307	CR214
108	A-E1-207	308	A-CR208
109	A-E1 206	309	A-CR207
110	A-E1-205	310	A CR206
111	A-E1-204	311	A-CR205
112	A-E1-203	312	A-CR204
113	A-E1-202	313	A-CR203
114	A-E1-201	314	A-CR202
115	A-E1-200	315	A-CR201
116	A-E1-199	316	A-CR200
117	A-E1-198	317	A-CR199
118	A-E1-197	318	A-CR198
119	A-E1-196	319	A-CR197
120	A-E1-195	320	A-CR196
121	A-E0-194	321	A-CR195
122	A-E -194	322	A-CR194
123	A-E0-193	323	A-CR193
124	A-E1-193	324	SPARE
201	B-R208	401	B-E1-213
202	CR215	402	B-E1-212
203	CR216	403	B-E1-211
204	CR217	404	B-E0-211
205	CR218	405	B-E1-210
206	CR 19	406	B-E1-209
207	CR220	407	B-E1-208
208	B-CR208	408	B-E1-207
209	B CR207	409	B E1-206
210	B-CR206	410	B E1-205
211	B-CR205	411	B E1-204
212	B-CR204	412	B-E1-203
213	B-CR203	413	B-E1-202
214	B-CR202	414	B-E1-201
215	B-CR201	415	B-E1-200
216	B-CR200	416	B-E1-199
217	B-CR199	417	B-E1-198
218	B-CR198	418	B E1-197
219	B-CR197	419	B-E1-196
220	B-CR196	420	B-E1-195
221	B-CR195	421	B-E0-194
222	B CR194	422	B-E1-194
223	B-CR193	423	B-E0-193
224	SPARE	424	B-E1-193

WIRE LIST

TERMINAL NO.	TERMINAL NO.
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
A-E0-195	B-E0-195
A-E0-196	B-E0-196
A-E0-197	B-E0-197
A-E0-198	B-E0-198
A-E0-199	B E0-199
A-E0-200	B-E0-200
A-E0-201	B-E0-201
A-E0-202	B-E0-202
A-E0-203	B-E0-203
A-E0-204	B-E0-204
A-E0-205	B-E0-205
A-E0-206	B-E0-206
A-E0-207	B-E0-207
A-E0-208	B-E0 208
A-E0-209	B-E0-209
A-E0-210	B-E0-210
SPARE	SPARE
SPARE	SPARE
A-E0-212	B-E0-212
A-E0-213	B-E0-213

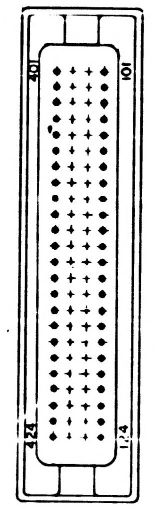
WIRE LIST

COMPONENT NO.	COMPONENT NO.
CR215	R176
CR216	R144
CR217	R112
CR218	R80
CR219	R48
CR220	R16
CR209	R32
CR210	R64
CR211	R96
CR212	R128
CR213	R160
CR214	R192



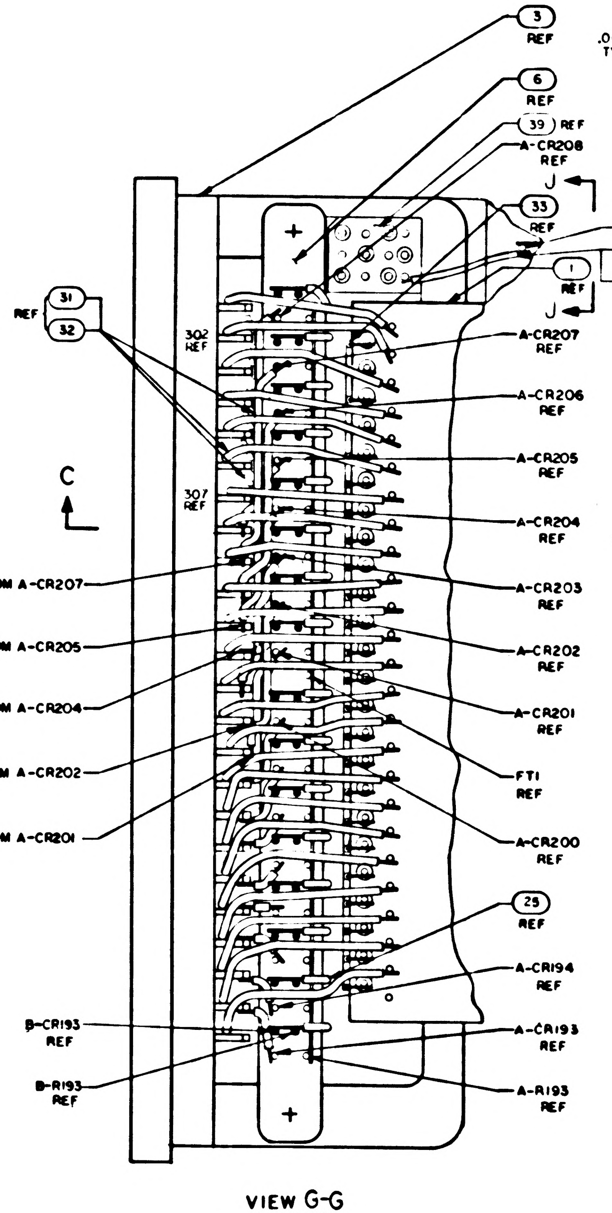
39
SEE NOTE 19
.060 MAX TYP
.060 MAX TYP
3 REF

VIEW J-J



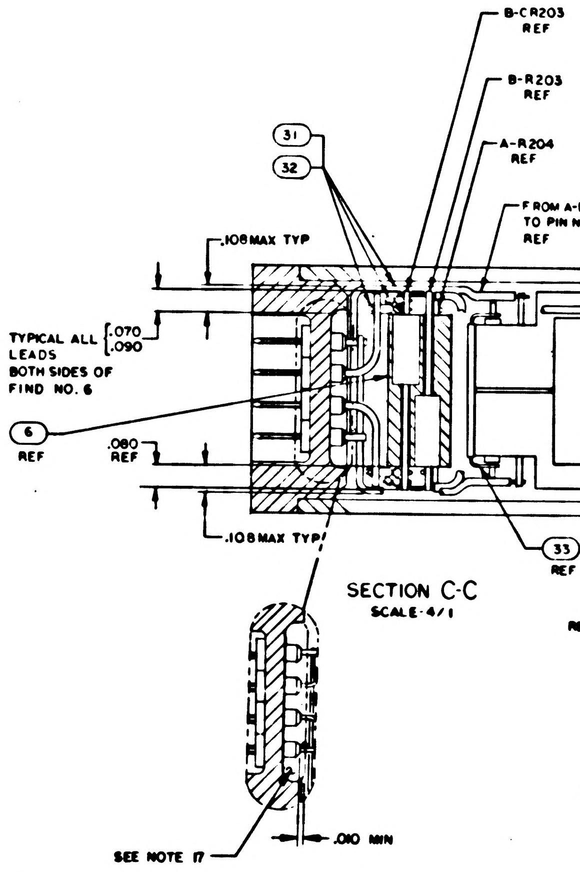
401
101
424
124

SECTION E-E



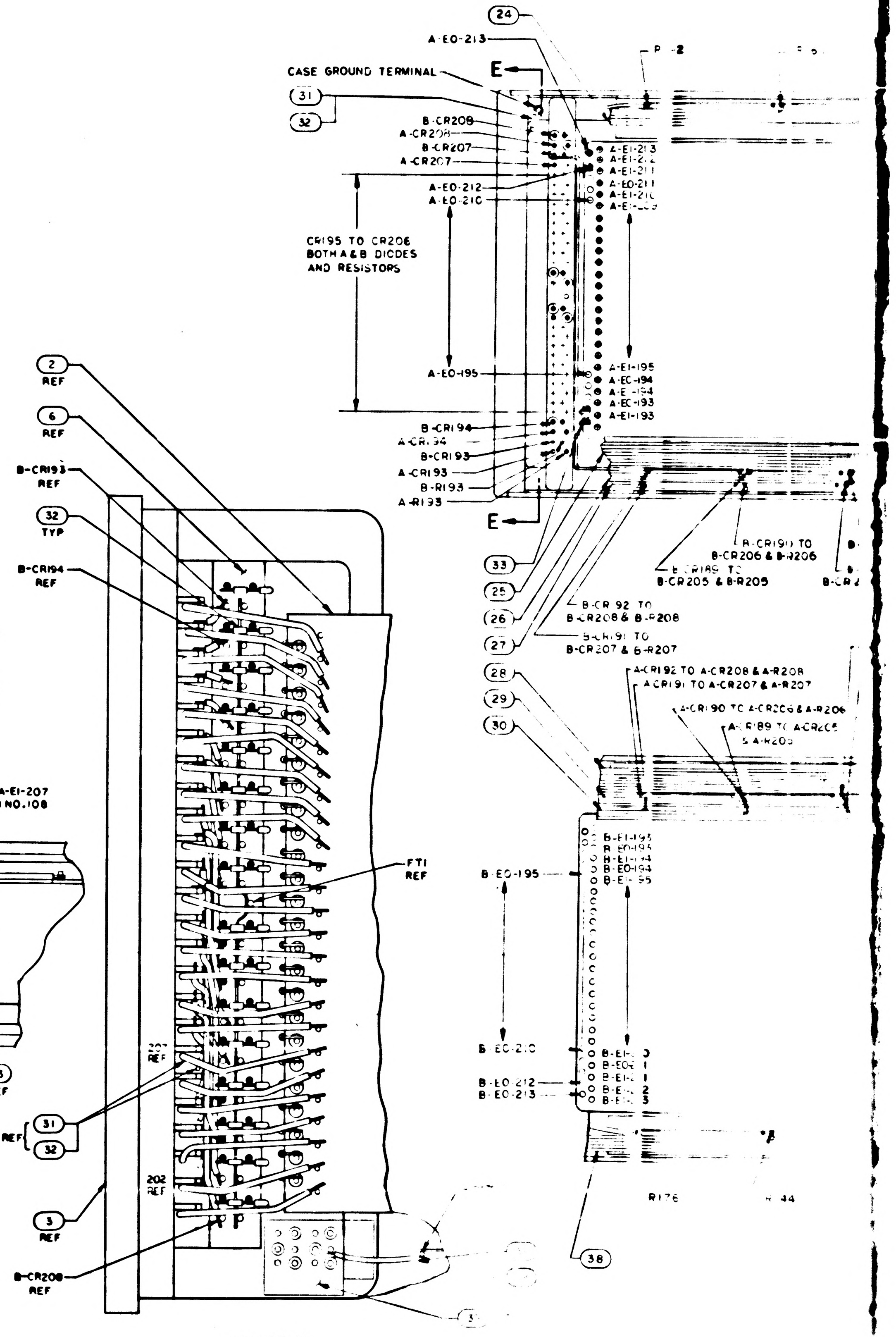
3 REF
6 REF
39 REF
A-CR208 REF
J
33 REF
R192 REF
31
32
1 REF
J
REF 31 32
302 REF
307 REF
A-CR207 REF
A-CR206 REF
A-CR205 REF
C
C
A-CR204 REF
FROM A-CR207
A-CR203 REF
FROM A-CR205
A-CR202 REF
FROM A-CR204
A-CR201 REF
FROM A-CR202
FT1 REF
FROM A-CR201
A-CR200 REF
25 REF
A-CR194 REF
B-CR193 REF
A-CR193 REF
B-R193 REF
A-R193 REF
+
+

VIEW G-G
SCALE 4/1
SHOWN WITH POTTING AND FIND NO.7
REMOVED. SEE NOTES 11,12,13 AND 14



B-CR203 REF
B-R203 REF
31
32
A-R204 REF
FROM A-E1-207 TO PIN NO.108 REF
.108 MAX TYP
TYPICAL ALL LEADS BOTH SIDES OF FIND NO. 6
.070
.090
6 REF
.080 REF
.108 MAX TYP
33 REF
SEE NOTE 17
.010 MIN

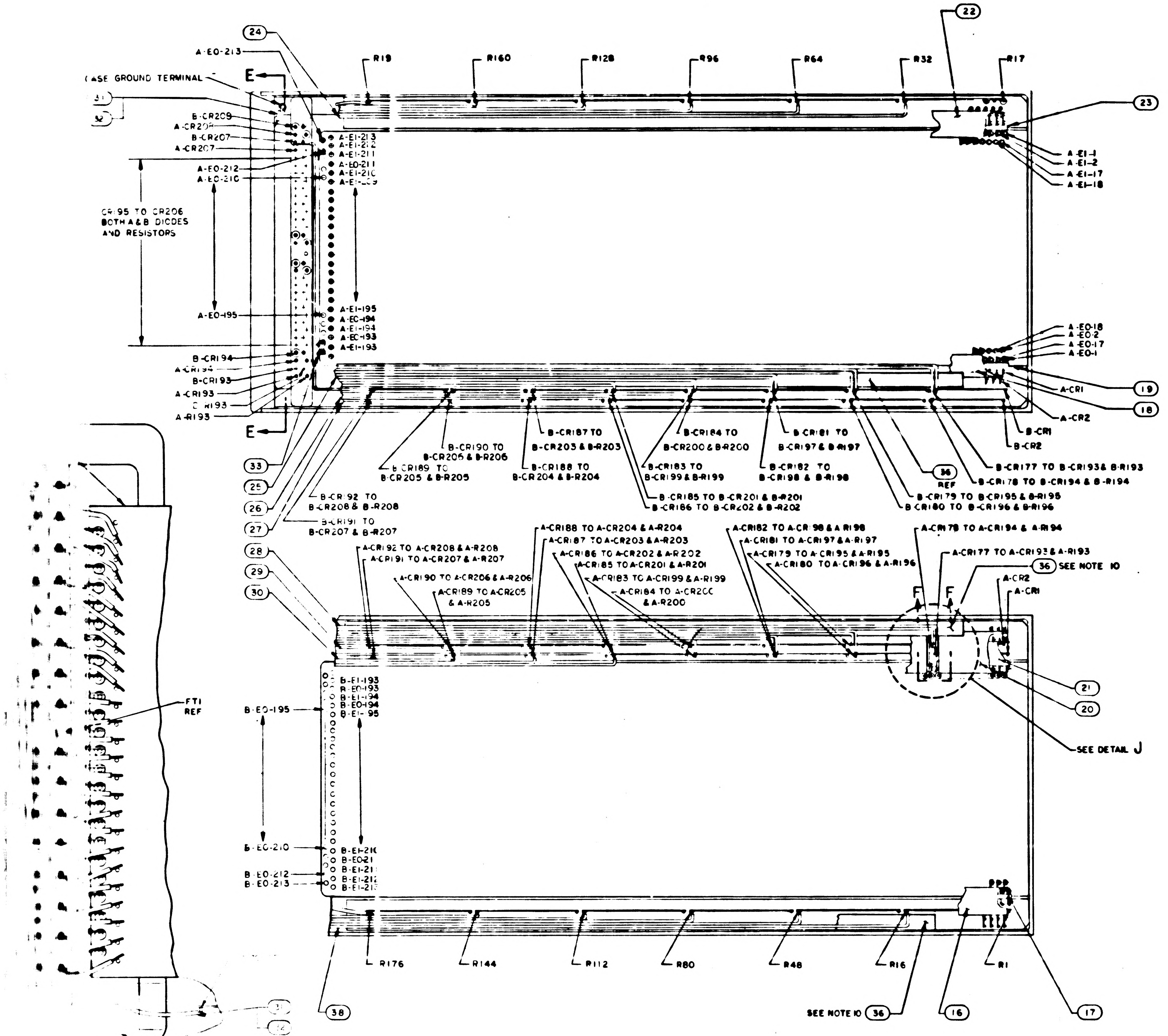
SECTION C-C
SCALE 4/1



2 REF
6 REF
B-CR193 REF
32 TYP
B-CR194 REF
FT1 REF
202 REF
202 REF
REF 31 32
3 REF
B-CR208 REF
24
A-E0-213
CASE GROUND TERMINAL
E
31
32
B-CR208
A-CR208
B-CR207
A-CR207
A-E1-213
A-E1-212
A-E1-211
A-E0-211
A-E1-210
A-E1-209
A-E0-212
A-E0-210
CR195 TO CR206
BOTH A & B DIODES
AND RESISTORS
A-E0-195
A-E1-195
A-E0-194
A-E1-194
A-E0-193
A-E1-193
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
E
33
25
26
27
28
29
30
B-CR190 TO B-CR206 & B-R206
B-CR189 TO B-CR205 & B-R205
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205 & A-R205
B-E1-193
B-E0-193
B-E1-194
B-E0-194
B-E1-195
B-E0-195
B-E0-210
B-E0-212
B-E0-213
R176
R144
38
3

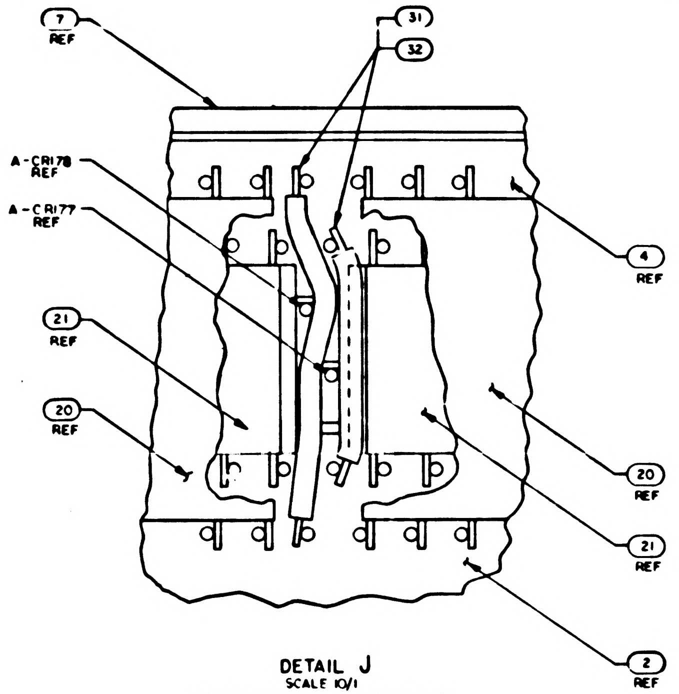
VIEW H-H
SCALE 4/1
SHOWN WITH POTTING AND FIND NO.7
REMOVED. SEE NOTES 11,12,13 AND 14

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
REVISIONS						
A		[illegible] DRR 32997				
B		REVISED PER TDRR 33460				
C		REVISED PER TDRR 33544				
D		REVISED PER TDRR 33606				
E		REVISED PER TDRR 34140				
F		REVISED PER TDRR 34489				FSL
G		REVISED PER TDRR 34997				
H		REVISED PER TDRR 35315				
J		REVISED PER TDRR 35540				



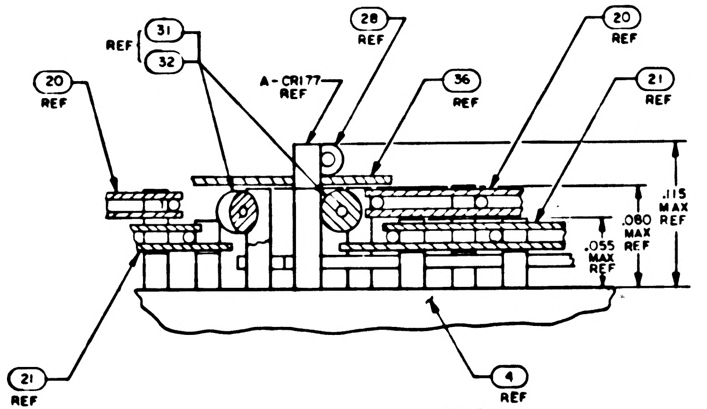
4
3
2
22
24
A-EO-213
CASE GROUND TERMINAL
31
32
E
R19
R160
R128
R96
R64
R32
R17
23
B-CR209
A-CR208
B-CR207
A-CR207
A-EI-213
A-EI-212
A-EI-211
A-EO-211
A-EI-210
A-EI-209
A-EI-1
A-EI-2
A-EI-17
A-EI-18
A-EO-212
A-EO-210
CR195 TO CR206
BOTH A & B DIODES
AND RESISTORS
A-EO-195
A-EI-195
A-EO-194
A-EI-194
A-EO-193
A-EI-193
A-EO-18
A-EO-2
A-EO-17
A-EO-1
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
A-CR1
19
18
A-CR2
B-CR1
B-CR2
B-CR190 TO B-CR206 & B-R206
B-CR189 TO B-CR205 & B-R205
B-CR187 TO B-CR203 & B-R203
B-CR188 TO B-CR204 & B-R204
B-CR184 TO B-CR200 & B-R200
B-CR183 TO B-CR199 & B-R199
B-CR185 TO B-CR201 & B-R201
B-CR186 TO B-CR202 & B-R202
B-CR181 TO B-CR197 & B-R197
B-CR182 TO B-CR198 & B-R198
36 REF
B-CR177 TO B-CR193 & B-R193
B-CR178 TO B-CR194 & B-R194
B-CR179 TO B-CR195 & B-R195
B-CR180 TO B-CR196 & B-R196
33
25
26
27
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
28
29
30
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205 & A-R205
A-CR188 TO A-CR204 & A-R204
A-CR187 TO A-CR203 & A-R203
A-CR186 TO A-CR202 & A-R202
A-CR185 TO A-CR201 & A-R201
A-CR183 TO A-CR199 & A-R199
A-CR184 TO A-CR200 & A-R200
A-CR182 TO A-CR198 & A-R198
A-CR181 TO A-CR197 & A-R197
A-CR179 TO A-CR195 & A-R195
A-CR180 TO A-CR196 & A-R196
A-CR178 TO A-CR194 & A-R194
A-CR177 TO A-CR193 & A-R193
36 SEE NOTE 10
A-CR2
A-CR1
F
F
21
20
SEE DETAIL J
FT1 REF
B-EO-195
B-EI-193
B-EO-193
B-EI-194
B-EO-194
B-EI-195
B-EO-210
B-EI-210
B-EO-211
B-EI-211
B-EI-212
B-EI-213
B-EO-212
B-EO-213
R176
R144
R112
R80
R48
R16
R1
38
SEE NOTE 10
36
16
17
31
32
REF

VIEW H-H
SCALE 4/1
[illegible] WIRING AND FIND NO.7
[illegible] NOS 11,12,13 AND 14



7 REF
31
32
A-CR178 REF
A-CR177 REF
21 REF
20 REF
4 REF
20 REF
21 REF
2 REF

DETAIL J
SCALE 10/1
TYPICAL WIRING 8 PLACES, SHOWN
WITH FIND NOS 28 AND 36 REMOVED



REF
31
32
28 REF
20 REF
20 REF
A-CR177 REF
36 REF
21 REF
.115 MAX
.080 MAX REF
.055 MAX REF
21 REF
4 REF

PARTIAL SECTION F-F
SCALE: 20/1

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MSC
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE ASSEMBLY

CODE IDENT NO	SIZE	DRAWING NO
80230	J	2003972

SCALE 2/1
SHEET 2 OF 3

4
3
2
D
C
B
A

SH2/3 2003972 JF2/2

SH3/3

4 3 2

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL RELEASE TDRR 32997				
B		REVISED PER TDRR 334[illegible]				
C		REVISED PER TDRR 33[illegible]4				
D		REVISED PER TDRR 33606				
E		REVISED PER TDRR 34[illegible]40				
F		REVISED PER TDRR 34489				
G		REVISED PER TDRR 3[illegible]967				
H		REVISED PER TDRR 35339				
J		REVISED PER TDRR 35640				

D

WIRE LIST

TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.
A-E0-1	A-CR1	A-E0-97	A-CR97	B-E0-1	B-CR1	B-E0-97	B-CR97	A-E1-1	R1	A-E1-49	R49	A-E1-97	R97	A-E1-145	R145
A-E0-2	A-CR2	A-E0-98	A-CR98	B-E0-2	B-CR2	B-E0-98	B-CR98	B-E1-1		B-E1-49		B-E1-97		B-E1-145	
A-E0-3	A-CR3	A-E0-99	A-CR99	B-E0-3	B-CR3	B-E0-99	B-CR99	A-E1-2	R2	A-E1-50	R50	A-E1-98	R98	A-E1-146	R146
A-E0-4	A-CR4	A-E0-100	A-CR100	B-E0-4	B-CR4	B-E0-100	B-CR100	B-E1-2		B-E1-50		B-E1-98		B-E1-146	
A-E0-5	A-CR5	A-E0-101	A-CR101	B-E0-5	B-CR5	B-E0-101	B-CR101	A-E1-3	R3	A-E1-51	R51	A-E1-99	R99	A-E1-147	R147
A-E0-6	A-CR6	A-E0-102	A-CR102	B-E0-6	B-CR6	B-E0-102	B-CR102	B-E1-3		B-E1-51		B-E1-99		B-E1-147	
A-E0-7	A-CR7	A-E0-103	A-CR103	B-E0-7	B-CR7	B-E0-103	B-CR103	A-E1-4	R4	A-E1-52	R52	A-E1-100	R100	A-E1-148	R148
A-E0-8	A-CR8	A-E0-104	A-CR104	B-E0-8	B-CR8	B-E0-104	B-CR104	B-E1-4		B-E1-52		B-E1-100		B-E1-148	
A-E0-9	A-CR9	A-E0-105	A-CR105	B-E0-9	B-CR9	B-E0-105	B-CR105	A-E1-5	R5	A-E1-53	R53	A-E1-101	R101	A-E1-149	R149
A-E0-10	A-CR10	A-E0-106	A-CR106	B-E0-10	B-CR10	B-E0-106	B-CR106	B-E1-5		B-E1-53		B-E1-101		B-E1-149	
A-E0-11	A-CR11	A-E0-107	A-CR107	B-E0-11	B-CR11	B-E0-107	B-CR107	A-E1-6	R6	A-E1-54	R54	A-E1-102	R102	A-E1-150	R150
A-E0-12	A-CR12	A-E0-108	A-CR108	B-E0-12	B-CR12	B-E0-108	B-CR108	B-E1-6		B-E1-54		B-E1-102		B-E1-150	
A-E0-13	A-CR13	A-E0-109	A-CR109	B-E0-13	B-CR13	B-E0-109	B-CR109	A-E1-7	R7	A-E1-55	R55	A-E1-103	R103	A-E1-151	R151
A-E0-14	A-CR14	A-E0-110	A-CR110	B-E0-14	B-CR14	B-E0-110	B-CR110	B-E1-7		B-E1-55		B-E1-103		B-E1-151	
A-E0-15	A-CR15	A-E0-111	A-CR111	B-E0-15	B-CR15	B-E0-111	B-CR111	A-E1-8	R8	A-E1-56	R56	A-E1-104	R104	A-E1-152	R152
A-E0-16	A-CR16	A-E0-112	A-CR112	B-E0-16	B-CR16	B-E0-112	B-CR112	B-E1-8		B-E1-56		B-E1-104		B-E1-152	
A-E0-17	A-CR17	A-E0-113	A-CR113	B-E0-17	B-CR17	B-E0-113	B-CR113	A-E1-9	R9	A-E1-57	R57	A-E1-105	R105	A-E1-153	R153
A-E0-18	A-CR18	A-E0-114	A-CR114	B-E0-18	B-CR18	B-E0-114	B-CR114	B-E1-9		B-E1-57		B-E1-105		B-E1-153	
A-E0-19	A-CR19	A-E0-115	A-CR115	B-E0-19	B-CR19	B-E0-115	B-CR115	A-E1-10	R10	A-E1-58	R58	A-E1-106	R106	A-E1-154	R154
A-E0-20	A-CR20	A-E0-116	A-CR116	B-E0-20	B-CR20	B-E0-116	B-CR116	B-E1-10		B-E1-58		B-E1-106		B-E1-154	
A-E0-21	A-CR21	A-E0-117	A-CR117	B-E0-21	B-CR21	B-E0-117	B-CR117	A-E1-11	R11	A-E1-59	R59	A-E1-107	R107	A-E1-155	R155
A-E0-22	A-CR22	A-E0-118	A-CR118	B-E0-22	B-CR22	B-E0-118	B-CR118	B-E1-11		B-E1-59		B-E1-107		B-E1-155	
A-E0-23	A-CR23	A-E0-119	A-CR119	B-E0-23	B-CR23	B-E0-119	B-CR119	A-E1-12	R12	A-E1-60	R60	A-E1-108	R108	A-E1-156	R156
A-E0-24	A-CR24	A-E0-120	A-CR120	B-E0-24	B-CR24	B-E0-120	B-CR120	B-E1-12		B-E1-60		B-E1-108		B-E1-156	
A-E0-25	A-CR25	A-E0-121	A-CR121	B-E0-25	B-CR25	B-E0-121	B-CR121	A-E1-13	R13	A-E1-61	R61	A-E1-109	R109	A-E1-157	R157
A-E0-26	A-CR26	A-E0-122	A-CR122	B-E0-26	B-CR26	B-E0-122	B-CR122	B-E1-13		B-E1-61		B-E1-109		B-E1-157	
A-E0-27	A-CR27	A-E0-123	A-CR123	B-E0-27	B-CR27	B-E0-123	B-CR123	A-E1-14	R14	A-E1-62	R62	A-E1-110	R110	A-E1-158	R158
A-E0-28	A-CR28	A-E0-124	A-CR124	B-E0-28	B-CR28	B-E0-124	B-CR124	B-E1-14		B-E1-62		B-E1-110		B-E1-158	
A-E0-29	A-CR29	A-E0-125	A-CR125	B-E0-29	B-CR29	B-E0-125	B-CR125	A-E1-15	R15	A-E1-63	R63	A-E1-111	R111	A-E1-159	R159
A-E0-30	A-CR30	A-E0-126	A-CR126	B-E0-30	B-CR30	B-E0-126	B-CR126	B-E1-15		B-E1-63		B-E1-111		B-E1-159	
A-E0-31	A-CR31	A-E0-127	A-CR127	B-E0-31	B-CR31	B-E0-127	B-CR127	A-E1-16	R16	A-E1-64	R64	A-E1-112	R112	A-E1-160	R160
A-E0-32	A-CR32	A-E0-128	A-CR128	B-E0-32	B-CR32	B-E0-128	B-CR128	B-E1-16		B-E1-64		B-E1-112		B-E1-160	
A-E0-33	A-CR33	A-E0-129	A-CR129	B-E0-33	B-CR33	B-E0-129	B-CR129	A-E1-17	R17	A-E1-65	R65	A-E1-113	R113	A-E1-161	R161
A-E0-34	A-CR34	A-E0-130	A-CR130	B-E0-34	B-CR34	B-E0-130	B-CR130	B-E1-17		B-E1-65		B-E1-113		B-E1-161	
A-E0-35	A-CR35	A-E0-131	A-CR131	B-E0-35	B-CR35	B-E0-131	B-CR131	A-E1-18	R18	A-E1-66	R66	A-E1-114	R114	A-E1-162	R162
A-E0-36	A-CR36	A-E0-132	A-CR132	B-E0-36	B-CR36	B-E0-132	B-CR132	B-E1-18		B-E1-66		B-E1-114		B-E1-162	
A-E0-37	A-CR37	A-E0-133	A-CR133	B-E0-37	B-CR37	B-E0-133	B-CR133	A-E1-19	R19	A-E1-67	R67	A-E1-115	R115	A-E1-163	R163
A-E0-38	A-CR38	A-E0-134	A-CR134	B-E0-38	B-CR38	B-E0-134	B-CR134	B-E1-19		B-E1-67		B-E1-115		B-E1-163	
A-E0-39	A-CR39	A-E0-135	A-CR135	B-E0-39	B-CR39	B-E0-135	B-CR135	A-E1-20	R20	A-E1-68	R68	A-E1-116	R116	A-E1-164	R164
A-E0-40	A-CR40	A-E0-136	A-CR136	B-E0-40	B-CR40	B-E0-136	B-CR136	B-E1-20		B-E1-68		B-E1-116		B-E1-164	
A-E0-41	A-CR41	A-E0-137	A-CR137	B-E0-41	B-CR41	B-E0-137	B-CR137	A-E1-21	R21	A-E1-69	R69	A-E1-117	R117	A-E1-165	R165
A-E0-42	A-CR42	A-E0-138	A-CR138	B-E0-42	B-CR42	B-E0-138	B-CR138	B-E1-21		B-E1-69		B-E1-117		B-E1-165	
A-E0-43	A-CR43	A-E0-139	A-CR139	B-E0-43	B-CR43	B-E0-139	B-CR139	A-E1-22	R22	A-E1-70	R70	A-E1-118	R118	A-E1-166	R166
A-E0-44	A-CR44	A-E0-140	A-CR140	B-E0-44	B-CR44	B-E0-140	B-CR140	B-E1-22		B-E1-70		B-E1-118		B-E1-166	
A-E0-45	A-CR45	A-E0-141	A-CR141	B-E0-45	B-CR45	B-E0-141	B-CR141	A-E1-23	R23	A-E1-71	R71	A-E1-119	R119	A-E1-167	R167
A-E0-46	A-CR46	A-E0-142	A-CR142	B-E0-46	B-CR46	B-E0-142	B-CR142	B-E1-23		B-E1-71		B-E1-119		B-E1-167	
A-E0-47	A-CR47	A-E0-143	A-CR143	B-E0-47	B-CR47	B-E0-143	B-CR143	A-E1-24	R24	A-E1-72	R72	A-E1-120	R120	A-E1-168	R168
A-E0-48	A-CR48	A-E0-144	A-CR144	B-E0-48	B-CR48	B-E0-144	B-CR144	B-E1-24		B-E1-72		B-E1-120		B-E1-168	
A-E0-49	A-CR49	A-E0-145	A-CR145	B-E0-49	B-CR49	B-E0-145	B-CR145	A-E1-25	R25	A-E1-73	R73	A-E1-121	R121	A-E1-169	R169
A-E0-50	A-CR50	A-E0-146	A-CR146	B-E0-50	B-CR50	B-E0-146	B-CR146	B-E1-25		B-E1-73		B-E1-121		B-E1-169	
A-E0-51	A-CR51	A-E0-147	A-CR147	B-E0-51	B-CR51	B-E0-147	B-CR147	A-E1-26	R26	A-E1-74	R74	A-E1-122	R122	A-E1-170	R170
A-E0-52	A-CR52	A-E0-148	A-CR148	B-E0-52	B-CR52	B-E0-148	B-CR148	B-E1-26		B-E1-74		B-E1-122		B-E1-170	
A-E0-53	A-CR53	A-E0-149	A-CR149	B-E0-53	B-CR53	B-E0-149	B-CR149	A-E1-27	R27	A-E1-75	R75	A-E1-123	R123	A-E1-171	R171
A-E0-54	A-CR54	A-E0-150	A-CR150	B-E0-54	B-CR54	B-E0-150	B-CR150	B-E1-27		B-E1-75		B-E1-123		B-E1-171	
A-E0-55	A-CR55	A-E0-151	A-CR151	B-E0-55	B-CR55	B-E0-151	B-CR151	A-E1-28	R28	A-E1-76	R76	A-E1-124	R124	A-E1-172	R172
A-E0-56	A-CR56	A-E0-152	A-CR152	B-E0-56	B-CR56	B-E0-152	B-CR152	B-E1-28		B-E1-76		B-E1-124		B-E1-172	
A-E0-57	A-CR57	A-E0-153	A-CR153	B-E0-57	B-CR57	B-E0-153	B-CR153	A-E1-29	R29	A-E1-77	R77	A-E1-125	R125	A-E1-173	R173
A-E0-58	A-CR58	A-E0-154	A-CR154	B-E0-58	B-CR58	B-E0-154	B-CR154	B-E1-29		B-E1-77		B-E1-125		B-E1-173	
A-E0-59	A-CR59	A-E0-155	A-CR155	B-E0-59	B-CR59	B-E0-155	B-CR155	A-E1-30	R30	A-E1-78	R78	A-E1-126	R126	A-E1-174	R174
A-E0-60	A-CR60	A-E0-156	A-CR156	B-E0-60	B-CR60	B-E0-156	B-CR156	B-E1-30		B-E1-78		B-E1-126		B-E1-174	
A-E0-61	A-CR61	A-E0-157	A-CR157	B-E0-61	B-CR61	B-E0-157	B-CR157	A-E1-31	R31	A-E1-79	R79	A-E1-127	R127	A-E1-175	R175
A-E0-62	A-CR62	A-E0-158	A-CR158	B-E0-62	B-CR62	B-E0-158	B-CR158	B-E1-31		B-E1-79		B-E1-127		B-E1-175	
A-E0-63	A-CR63	A-E0-159	A-CR159	B-E0-63	B-CR63	B-E0-159	B-CR159	A-E1-32	R32	A-E1-80	R80	A-E1-128	R128	A-E1-176	R176
A-E0-64	A-CR64	A-E0-160	A-CR160	B-E0-64	B-CR64	B-E0-160	B-CR160	B-E1-32		B-E1-80		B-E1-128		B-E1-176	
A-E0-65	A-CR65	A-E0-161	A-CR161	B-E0-65	B-CR65	B-E0-161	B-CR161	A-E1-33	R33	A-E1-81	R81	A-E1-129	R129	A-E1-177	R177
A-E0-66	A-CR66	A-E0-162	A-CR162	B-E0-66	B-CR66	B-E0-162	B-CR162	B-E1-33		B-E1-81		B-E1-129		B-E1-177	
A-E0-67	A-CR67	A-E0-163	A-CR163	B-E0-67	B-CR67	B-E0-163	B-CR163	A-E1-34	R34	A-E1-82	R82	A-E1-130	R130	A-E1-178	R178
A-E0-68	A-CR68	A-E0-164	A-CR164	B-E0-68	B-CR68	B-E0-164	B-CR164	B-E1-34		B-E1-82		B-E1-130		B-E1-178	
A-E0-69	A-CR69	A-E0-165	A-CR165	B-E0-69	B-CR69	B-E0-165	B-CR165	A-E1-35	R35	A-E1-83	R83	A-E1-131	R131	A-E1-179	R179
A-E0-70	A-CR70	A-E0-166	A-CR166	B-E0-70	B-CR70	B-E0-166	B-CR166	B-E1-35		B-E1-83		B-E1-131		B-E1-179	
A-E0-71	A-CR71	A-E0-167	A-CR167	B-E0-71	B-CR71	B-E0-167	B-CR167	A-E1-36	R36	A-E1-84	R84	A-E1-132	R132	A-E1-180	R180
A-E0-72	A-CR72	A-E0-168	A-CR168	B-E0-72	B-CR72	B-E0-168	B-CR168	B-E1-36		B-E1-84		B-E1-132		B-E1-180	
A-E0-73	A-CR73	A-E0-169	A-CR169	B-E0-73	B-CR73	B-E0-169	B-CR169	A-E1-37	R37	A-E1-85	R85	A-E1-133	R133	A-E1-181	R181
A-E0-74	A-CR74	A-E0-170	A-CR170	B-E0-74	B-CR74	B-E0-170	B-CR170	B-E1-37		B-E1-85		B-E1-133		B-E1-181	
A-E0-75	A-CR75	A-E0-171	A-CR171	B-E0-75	B-CR75	B-E0-171	B-CR171	A-E1-38	R38	A-E1-86	R86	A-E1-134	R134	A-E1-182	R182
A-E0-76	A-CR76	A-E0-172	A-CR172	B-E0-76	B-CR76	B-E0-172	B-CR172	B-E1-38		B-E1-86		B-E1-134		B-E1-182	
A-E0-77	A-CR77	A-E0-173	A-CR173	B-E0-77	B-CR77	B-E0-173	B-CR173	A-E1-39	R39	A-E1-87	R87	A-E1-135	R135	A-E1-183	R183
A-E0-78	A-CR78	A-E0-174	A-CR174	B-E0-78	B-CR78	B-E0-174	B-CR174	B-E1-39		B-E1-87		B-E1-135		B-E1-183	
A-E0-79	A-CR79	A-E0-175	A-CR175	B-E0-79	B-CR79	B-E0-175	B-CR175	A-E1-40	R40	A-E1-88	R88	A-E1-136	R136	A-E1-184	R184
A-E0-80	A-CR80	A-E0-176	A-CR176	B-E0-80	B-CR80	B-E0-176	B-CR176	B-E1-40		B-E1-88		B-E1-136		B-E1-184	
A-E0-81	A-CR81	A-E0-177	A-CR177	B-E0-81	B-CR81	B-E0-177	B-CR177	A-E1-41	R41	A-E1-89	R89	A-E1-137	R137	A-E1-185	R185
A-E0-82	A-CR82	A-E0-178	A-CR178	B-E0-82	B-CR82	B-E0-178	B-CR178	B-E1-41		B-E1-89		B-E1-137		B-E1-185	
A-E0-83	A-CR83	A-E0-179	A-CR179	B-E0-83	B-CR83	B-E0-179	B-CR179	A-E1-42	R42	A-E1-90	R90	A-E1-138	R138	A-E1-186	R186
A-E0-84	A-CR84	A-E0-180	A-CR180	B-E0-84	B-CR84	B-E0-180	B-CR180	B-E1-42		B-E1-90		B-E1-138		B-E1-186	
A-E0-85	A-CR85	A-E0-181	A-CR181	B-E0-85	B-CR85	B-E0-181	B-CR181	A-E1-43	R43	A-E1-91	R91	A-E1-139	R139	A-E1-187	R187
A-E0-86	A-CR86	A-E0-182	A-CR182	B-E0-86	B-CR86	B-E0-182	B-CR182	B-E1-43		B-E1-91		B-E1-139		B-E1-187	
A-E0-87	A-CR87	A-E0-183	A-CR183	B-E0-87	B-CR87	B-E0-183	B-CR183	A-E1-44	R44	A-E1-92	R92	A-E1-140	R140	A-E1-188	R188
A-E0-88	A-CR88	A-E0-184	A-CR184	B-E0-88	B-CR88	B-E0-184	B-CR184	B-E1-44		B-E1-92		B-E1-140		B-E1-188	
A-E0-89	A-CR89	A-E0-185	A-CR185	B-E0-89	B-CR89	B-E0-185	B-CR185	A-E1-45	R45	A-E1-93	R93	A-E1-141	R141	A-E1-189	R189
A-E0-90	A-CR90	A-E0-186	A-CR186	B-E0-90	B-CR90	B-E0-186	B-CR186	B-E1-45		B-E1-93		B-E1-141		B-E1-189	
A-E0-91	A-CR91	A-E0-187	A-CR187	B-E0-91	B-CR91	B-E0-187	B-CR187	A-E1-46	R46	A-E1-94	R94	A-E1-142	R142	A-E1-190	R190
A-E0-92	A-CR92	A-E0-188	A-CR188	B-E0-92	B-CR92	B-E0-188	B-CR188	B-E1-46		B-E1-94		B-E1-142		B-E1-190	
A-E0-93	A-CR93	A-E0-189	A-CR189	B-E0-93	B-CR93	B-E0-189	B-CR189	A-E1-47	R47	A-E1-95	R95	A-E1-143	R143	A-E1-191	R191
A-E0-94	A-CR94	A-E0-190	A-CR190	B-E0-94	B-CR94	B-E0-190	B-CR190	B-E1-47		B-E1-95		B-E1-143		B-E1-191	
A-E0-95	A-CR95	A-E0-191	A-CR191	B-E0-95	B-CR95	B-E0-191	B-CR191	A-E1-48	R48	A-E1-96	R96	A-E1-144	R144	A-E1-192	R192
A-E0-96	A-CR96	A-E0-192	A-CR192	B-E0-96	B-CR96	B-E0-192	B-CR192	B-E1-48		B-E1-96		B-E1-144		B-E1-192	

C

B

J

A

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED
APPROVED
MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

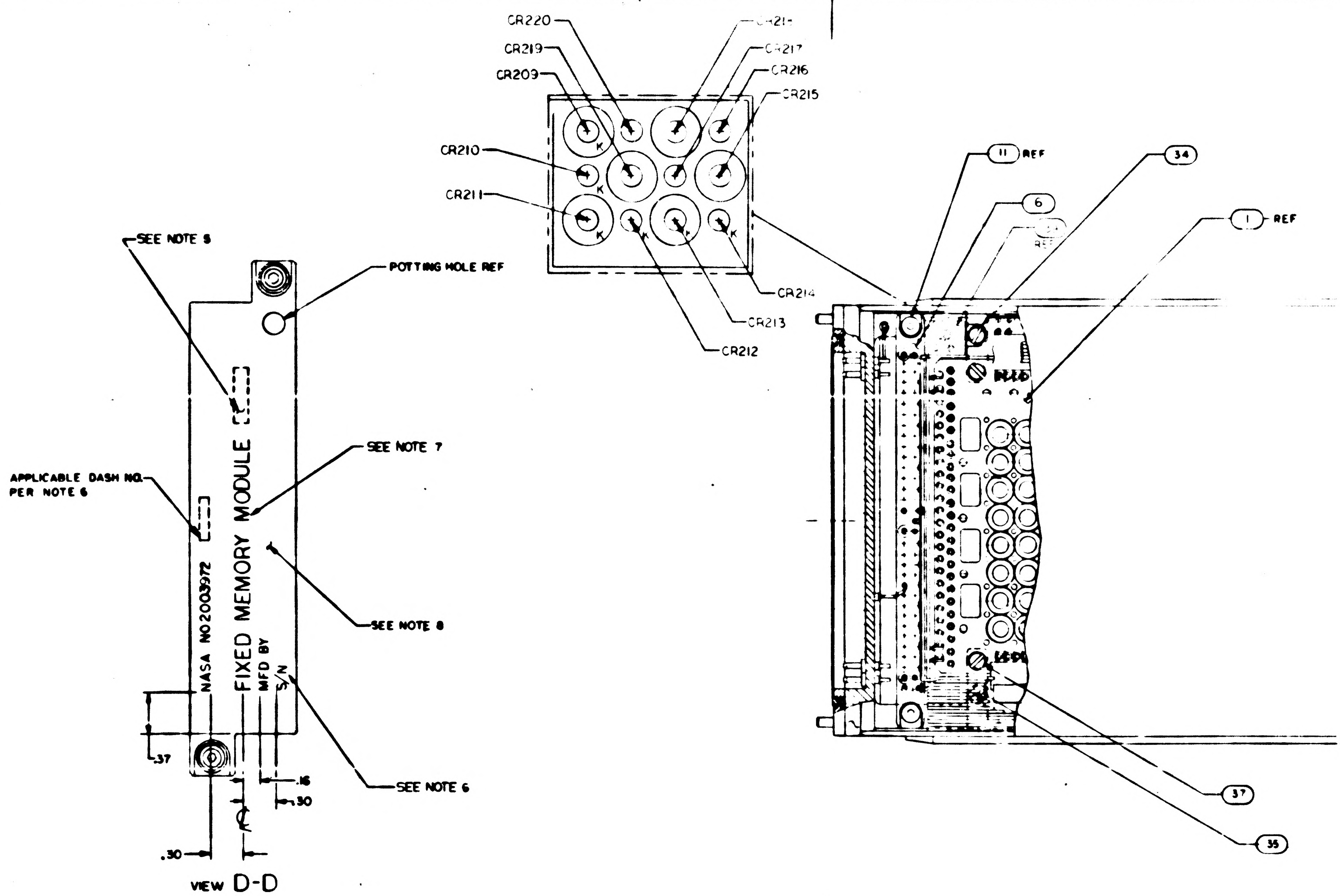
FIXED MEMORY MODULE
ASSEMBLY

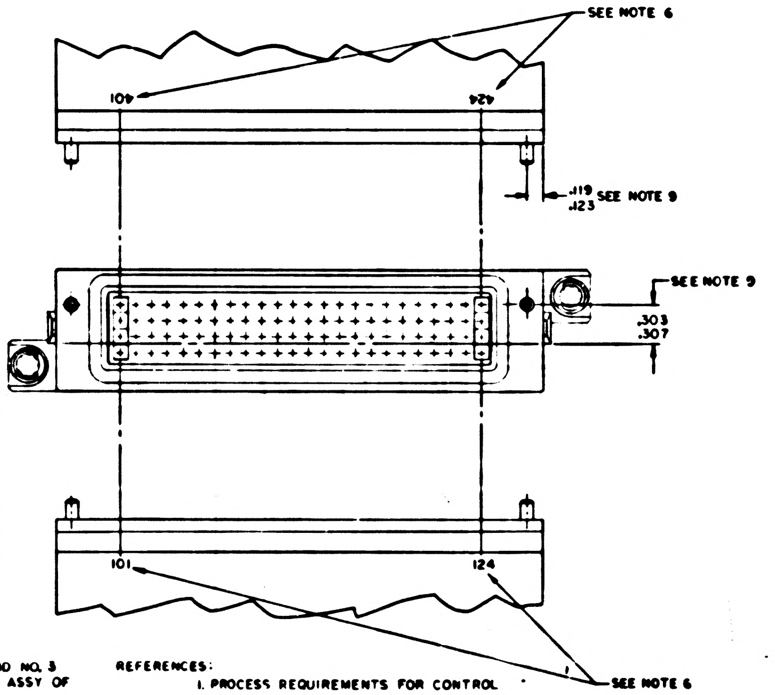
CODE IDENT NO 80230
SIZE J
DRAWING NO 2003972
SCALE NONE
SHEET 3 OF 3

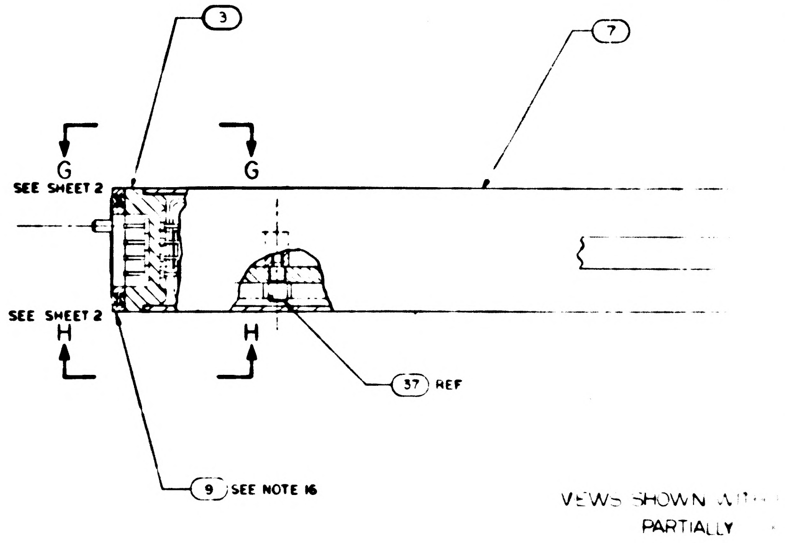
4

SH3/3
2003972 JF2/2

PART NO.	MODULE NO.	FIND NO. 1	FIND NO. 2	MODULE DECK NO.	NEXT ASSEMBLY NO. (REF)	PROCUREMENT SPECIFICATION SEE NOTE 15
2003972-011	B1	2003060-061	2003061-061	0205	2021101	PS2003972
2003972-021	B2	2003060-071	2003061-071	0206	2021101	
2003972-031	B3	2003060-081	2003061-081	0207	2021101	
2003972-041	B1	2003060-121	2003061-121	0210	2021104	
2003972-051	B2	2003060-131	2003061-131	0211	2021104	
2003972-061	B3	2003060-141	2003061-141	0212	2021104	
2003972-071	B3	2003060-151	2003061-151	0213	2021104	
2003972-081	B3	2003060-161	2003061-161	0214	2021104	
2003972-091	B2	2003060-171	2003061-171	0215	2021101	
2003972-111	B3	2003060-181	2003061-181	[illegible]	[illegible]	PS2003972
2003972-121	B1	2003060-091	2003061-091	0208	2021105-031	PS2003960
2003972-131	B2	2003060-111	2003061-111	0209	2021105-031	PS2003960
2003972-141	B3	2003060-191	2003061-191	0217	2021106-011	PS2003972
2003972-151	B2	2003060-211	2003061-211	0218	2021106-011	
2003972-161	B3	2003060-221	2003061-221	0219	2021106-011	
2003972-171	B4	2003060-231	2003061-231	0220	2021106-011	
2003972-181	B5	2003060-241	2003061-241	0221	2021106-011	
2003972-191	B6	2003060-251	2003061-251	0222	2021106-011	
2003972-211	B3	2003060-261	2003061-261	0223	2021104-041	PS2003972
2003972-221	B6	2003060-271	2003061-271	0224	2021105-041	PS2003960
2003972-231	B1	2003060-281	2003061-281	0225	2021106-021	PS2003972
2003972-241	B3	2003060-291	2003061-291	0226	2021106-021	
2003972-251	B5	2003060-311	2003061-311	0227	2021106-021	
2003972-261	B1	2003060-321	2003061-321	0230	2021107-011	
2003972-271	B2	2003060-331	2003061-331	0229	2021107-011	
2003972-281	B3	2003060-341	2003061-341	0231	2021106-031	
2003972-291	B1	2003060-351	2003061-351	0238	2021107-021	PS2003972
2003972-311	B1	2003060-361	2003061-361	0239	2021108-021	PS2016016
-321	B2	2003060-371	2003061-371	0240	2021108-021	PS2016016
-331	B3	2003060-381	2003061-381	0241	2021108-021	PS2016016
-341	B4	2003060-391	2003061-391	024[illegible]	2021108-021	PS2016016
351	B5	2003060-411	2003061-411	0242	2021108-021	PS2016016
2003972-361	B6	2003060-421	2003061-421	0244	2021108-021	PS2016016







VIEWS SHOWN WITH
PARTIALLY

NOTES:

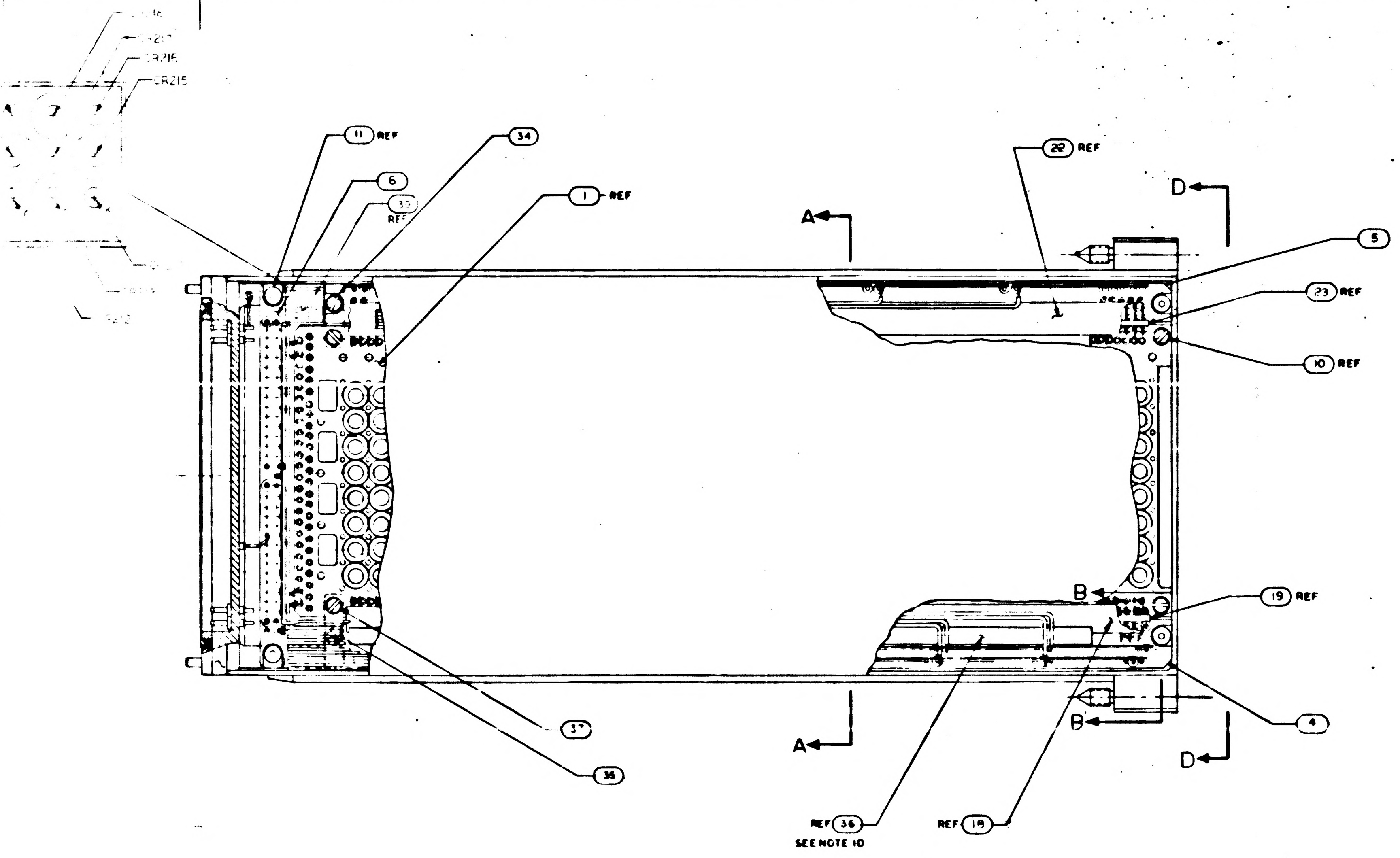
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
3. ENCAPSULATE MODULE PER ND1002226 METHOD II
4. WELD PER ND1002005
5. MARK APPROPRIATE MODULE NO. AS SHOWN IN CHART
6. MARK .08/.06 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
7. MARK .14/.10 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 USING INK 1006271-1
8. PAINT INDICATED SURFACES OF FIND NO 7. PER ND1002279 WITH SCD NO. 1008809-1 DARK GREY EPOXY RESIN ENAMEL, FINAL COAT PER ND1002277 USING 1012543-003
9. ASSEMBLE FIND NO.7 AND FIND NO.3 TO DIMENSIONS SHOWN
10. REMOVE LINER FROM NEARSIDE OF FIND NO.36 AND ASSEMBLE 3 PLACES AS SHOWN. FIND NO.36 MUST INSULATE FLAT CABLES FROM TRIMMED COMPONENT LEADS, TRIM AS REQUIRED
11. WHITE DOT AND SINGLE SOLID LEAD DENOTES FIRST LEVEL WIRING UNLESS OTHERWISE SPECIFIED
12. BLACK DOT AND SINGLE SOLID LEAD DENOTES SECOND LEVEL WIRING
13. BLACK DOT AND CROSS HATCHED LEAD DENOTES THIRD LEVEL WIRING
14. ALL LEADS FROM FIND NO.1 AND FIND NO.2 TO FIND NO.3 TO BE THIRD LEVEL WIRING
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PROCUREMENT SPECIFICATION AS LISTED IN CHART.
16. FIND NO.9 TO BE SHIPPED UNASSEMBLED AND IDENTIFIED PER ND 1002019
17. SEAL PINS AND INSULATORS TO FIND NO. 3 PER ND1002004 TYPE III BEFORE ASSY OF FIND NO. 6
18. FILL AS SHOWN PER ND1002235 METHOD A
19. BOND FIND NO.38 TO FIND NO.3 PER ND1002004 TYPE VI AFTER ASSY OF FIND NO.6
20. PRIOR TO ENCAPSULATION PER NOTE 3, COAT OVER ALL TERMINALS OF FIND NO'S 1,2,&3 AND OVER ALL WIRES, SLEEVING AND COMPONENT LEADS OF FIND NO'S 4,5,6,16,17,18,19,20,21,22,23,24, 25,26,27,28,29,30,31,32,33,38 &39 WITH A .03 MAXIMUM THICKNESS OF SILICONE RUBBER PER ND1002009, METHOD A. MASK ALL OUTSIDE SURFACES OF FIND NO.3 AND ALL OTHER SURFACES OF THIS ASSEMBLY COMING IN CLOSE CONTACT WITH FIND NO.7

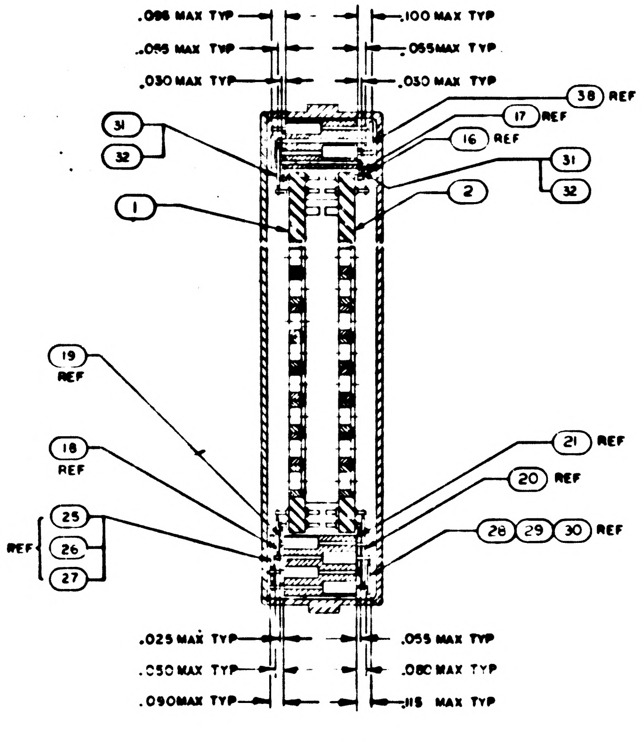
REFERENCES:

1. PROCESS REQUIREMENTS FOR CONTROL AND INSPECTION OF ROPE MEMORY ASSEMBLIES ND1002285
2. FIXED MEMORY FIXTURE DWG. NO. AP22500

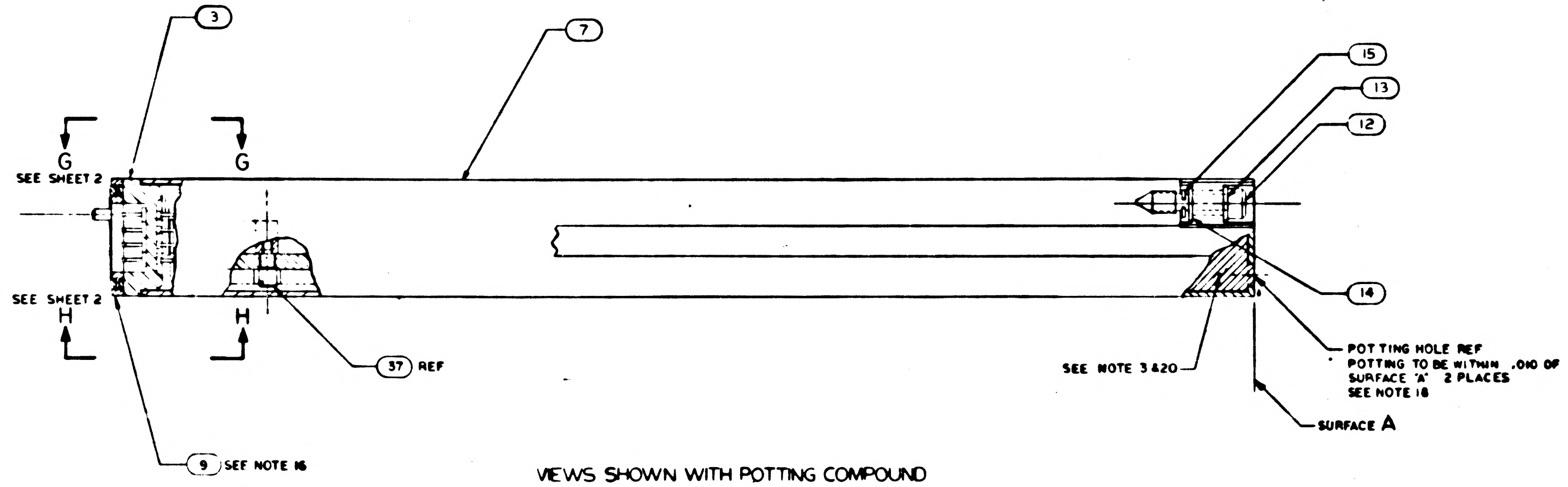
2003972 K

SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL [illegible] TDRR 3199	[illegible]	[illegible]
B	REVISED PER TDRR 3[illegible]4[illegible] DR [illegible] CHK [illegible]	[illegible]	[illegible]
C	REVISED PER TDRR [illegible]4 DR [illegible] CHK [illegible]	[illegible]	[illegible]
D	REVISED PER TDRR 33605 DR [illegible] CHK [illegible]	[illegible]	[illegible]
E	REVISED PER TDRR 34[illegible]4[illegible] DR [illegible] CHK [illegible]	[illegible]	JBR
F	REVISED PER T[illegible] 34[illegible] DR [illegible] CHK [illegible]	[illegible]	[illegible]
G	REVISED PER [illegible] DR [illegible]	[illegible]	[illegible]
H	REVISED PER [illegible] DR [illegible]	[illegible]	[illegible]
J	REVISED PER [illegible]49 DR [illegible]	[illegible]	[illegible]
K	REVISED PER T[illegible] 35[illegible]70 DR [illegible] CHK [illegible]	[illegible]	[illegible]

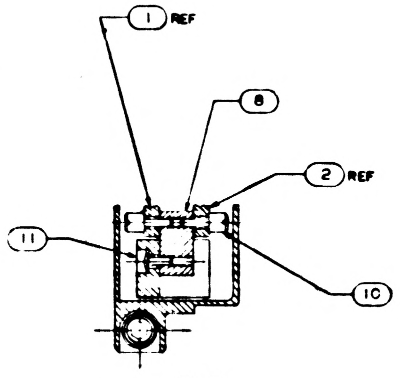

CR216
CR217
CR215
11 REF
6
33 REF
34
1 REF
22 REF
A
D
5
23 REF
10 REF
19 REF
B
4
37
38
A
B
D
REF 36
SEE NOTE 10
REF 18


.086 MAX TYP
.055 MAX TYP
.030 MAX TYP
.100 MAX TYP
.055 MAX TYP
.030 MAX TYP
38 REF
17 REF
16 REF
31
32
2
1
31
32
19 REF
18 REF
21 REF
20 REF
REF 25 26 27
28 29 30 REF
.025 MAX TYP
.050 MAX TYP
.090 MAX TYP
.055 MAX TYP
.080 MAX TYP
.115 MAX TYP

SECTION A-A


3
7
15
13
12
G
SEE SHEET 2
G
SEE SHEET 2
H
H
14
37 REF
SEE NOTE 3 & 20
POTTING HOLE REF
POTTING TO BE WITHIN .010 OF SURFACE 'A' 2 PLACES
SEE NOTE 18
SURFACE A
9 SEE NOTE 16

VIEWS SHOWN WITH POTTING COMPOUND
PARTIALLY REMOVED


1 REF
8
2 REF
11
10

SECTION B-B

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	2003986-021	COMPONENT BLOCK DIODE ASSY	39
☒	2005935	SCHEMATIC	REF
1	2004684	FLAT CABLE	38
4	2004150 — 003	SCREW, SHOULDERED	37
AR	1006806 — 26	INSULATION TAPE, ELECTRICAL	36
1	2004150 — 001	SCREW, SHOULDERED	35
1	2004150 — 002	SCREW, SHOULDERED	34
1	2004129	FLAT CABLE INTERCONNECTION	33
AR	1006776-25	SLEEVING	32
AR	1006757-12	WIRE, ELECTRICAL	31
1	2004125	FLAT CABLE	30
1	2004122	FLAT CABLE	29
1	2004124	FLAT CABLE	28
1	2004123	FLAT CABLE	27
1	2004121	FLAT CABLE	26
1	2004120	FLAT CABLE	25
1	2004 85	FLAT CABLE	[illegible]
1	2003051 — 013	MATRIX ASSY	23
1	2003051 — 014	MATRIX ASSY	22
8	2003051 — 016	MATRIX ASSY	21
8	2003051 — 015	MATRIX ASSY	20
1	2003051 — 017	MATRIX ASSY	19
1	2003051 — 018	MATRIX ASSY	18
1	2003051 — 011	MATRIX ASSY	17
1	2003051 — 012	MATRIX ASSY	16
2	MS16633-4015	E RING	15
2	1004546-3	WASHER	14
2	1004546-1	WASHER	13
2	1004579-1	SCREW, JACKING	12
4	1000093-1	SCREW, BUTTON HEAD	11
4	2004151	SCREW, STANDOFF	10
1	1006339	GASKET PLATE	9
2	2004071	STANDOFF	8
1	2004100	HOUSING	7
1	2003048-021	RESISTOR-DIODE BLOCK ASSY	6
1	2003052-021	COMPONENT BLOCK RESISTOR ASSY	5
1	2003045-021	COMPONENT BLOCK DIODE ASSY	4
1	2003973-011	CONNECTOR PLATE ASSY	3
1	2003061-SEE CHART	SENSE WIRING ASSY SIDE B	2
1	2003060-SEE CHART	SENSE WIRING ASSY SIDE A	1

SEE NOTE 16

LIST OF MATERIALS

FOR APPLICABLE PART
NO. SEE CHART

NEXT ASSY	USED ON
SEE CHART	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE
ASSEMBLY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO 2003972
SCALE 2/1
WT
SHEET 1 OF 3

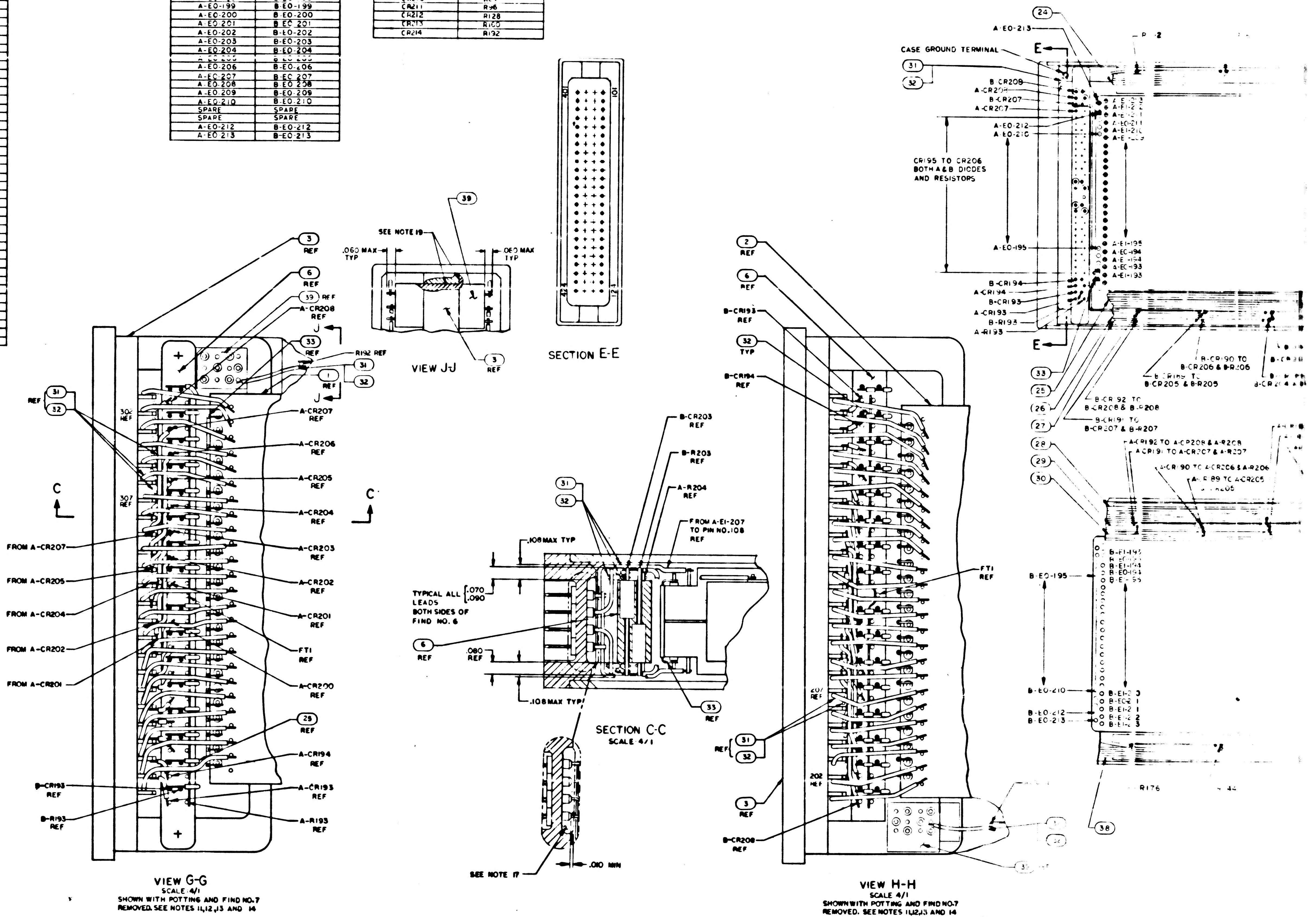
2003972 K

SHT 1/3 2003972 KE2/2

WIRE LIST			
PIN NO.	COMPONENT OR TERM. NO.	PIN NO.	COMPONENT OR TERM. NO.
101	A-E1-213	301	GROUND
102	A-E1-212	302	CR209
103	A-E1-211	303	CR210
104	A-EO-211	304	CR211
105	A-E1-210	305	CR212
106	A-E1-209	306	CR213
107	A-E1-208	307	CR214
108	A-E1-207	308	A-CR208
109	A-E1-206	309	A-CR207
110	A-E1-205	310	A-CR206
111	A-E1-204	311	A-CR205
112	A-E1-203	312	A-CR204
113	A-E1-202	313	A-CR203
114	A-E1-201	314	A-CR202
115	A-E1-200	315	A-CR201
116	A-E1-199	316	A-CR200
117	A-E1-198	317	A-CR199
118	A-E1-197	318	A-CR198
119	A-E1-196	319	A-CR197
120	A-E1-195	320	A-CR196
121	A-EO-194	321	A-CR195
122	A-E1-194	322	A-CR194
123	A-EO-193	323	A-CR193
124	A-E1-193	324	SPARE
201	B-R208	401	B-E1-213
202	CR215	402	B-E1-212
203	CR216	403	B-E1-211
204	CR217	404	B-EO-211
205	CR218	405	B-E1-210
206	CR219	406	B-E1-209
207	CR220	407	B-E1-208
208	B-CR208	408	B-E1-207
209	B-CR207	409	B-E1-206
210	B-CR206	410	B-E1-205
211	B-CR205	411	B-E1-204
212	B-CR204	412	B-E1-203
213	B-CR203	413	B-E1-202
214	B-CR202	414	B-E1-201
215	B-CR201	415	B-E1-200
216	B-CR200	416	B-E1-199
217	B-CR199	417	B-E1-198
218	B-CR198	418	B-E1-197
219	B-CR197	419	B-E1-196
220	B-CR196	420	B-E1-195
221	B-CR195	421	B-EO-194
222	B-CR194	422	B-E1-194
223	B-CR193	423	B-EO-193
224	SPARE	424	B-E1-193

WIRE LIST	
TERMINAL NO.	TERMINAL NO.
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
A-EO-195	B-EO-195
A-EO-196	B-EO-196
A-EO-197	B-EO-197
A-EO-198	B-EO-198
A-EO-199	B-EO-199
A-EO-200	B-EO-200
A-EO-201	B-EO-201
A-EO-202	B-EO-202
A-EO-203	B-EO-203
A-EO-204	B-EO-204
A-EO-205	B-EO-205
A-EO-206	B-EO-206
A-EO-207	B-EO-207
A-EO-208	B-EO-208
A-EO-209	B-EO-209
A-EO-210	B-EO-210
SPARE	SPARE
SPARE	SPARE
A-EO-212	B-EO-212
A-EO-213	B-EO-213

WIRE LIST	
COMPONENT NO.	COMPONENT NO.
CR215	R176
CR216	R144
CR217	R112
CR218	R80
CR219	R48
CR220	R16
CR209	R32
CR210	R64
CR211	R96
CR212	R128
CR213	R160
CR214	R192



39
SEE NOTE 19
.060 MAX TYP
.060 MAX TYP
3 REF
VIEW J-J
SECTION E-E
3 REF
6 REF
39 REF
A-CR208 REF
33 REF
R192 REF
31
32
1 REF
J
J
REF
31
32
304 REF
307 REF
C
C
A-CR207 REF
A-CR206 REF
A-CR205 REF
A-CR204 REF
A-CR203 REF
A-CR202 REF
A-CR201 REF
FT1 REF
A-CR200 REF
29 REF
A-CR194 REF
A-CR193 REF
A-R193 REF
FROM A-CR207
FROM A-CR205
FROM A-CR204
FROM A-CR202
FROM A-CR201
B-CR193 REF
B-R193 REF
31
32
B-CR203 REF
B-R203 REF
A-R204 REF
FROM A-E1-207 TO PIN NO. 108 REF
.108 MAX TYP
TYPICAL ALL LEADS BOTH SIDES OF FIND NO. 6
.070
.090
6 REF
.080 REF
.108 MAX TYP
33 REF
SEE NOTE 17
.010 MIN
2 REF
6 REF
B-CR193 REF
32 TYP
B-CR194 REF
FT1 REF
207 REF
31
32
REF
202 REF
3 REF
B-CR208 REF
24
A-EO-213
CASE GROUND TERMINAL
E
E
31
32
B-CR208
A-CR208
B-CR207
A-CR207
A-EO-212
A-EO-210
CR195 TO CR206 BOTH A & B DIODES AND RESISTORS
A-EO-195
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
A-E1-213
A-E1-212
A-E1-211
A-EO-211
A-E1-210
A-E1-209
A-E1-195
A-EO-194
A-E1-194
A-EO-193
A-E1-193
B-CR190 TO B-CR206 & B-R206
B-CR189 TO B-CR205 & B-R205
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205 & A-R205
33
25
26
27
28
29
30
B-EO-195
B-E1-195
B-EO-194
B-E1-194
B-EO-193
B-E1-193
B-EO-210
B-E1-210
B-EO-211
B-E1-211
B-EO-212
B-EO-213
B-E1-212
B-E1-213
R176
38

VIEW G-G
SCALE 4/1
SHOWN WITH POTTING AND FIND NO.7
REMOVED. SEE NOTES 11,12,13 AND 14

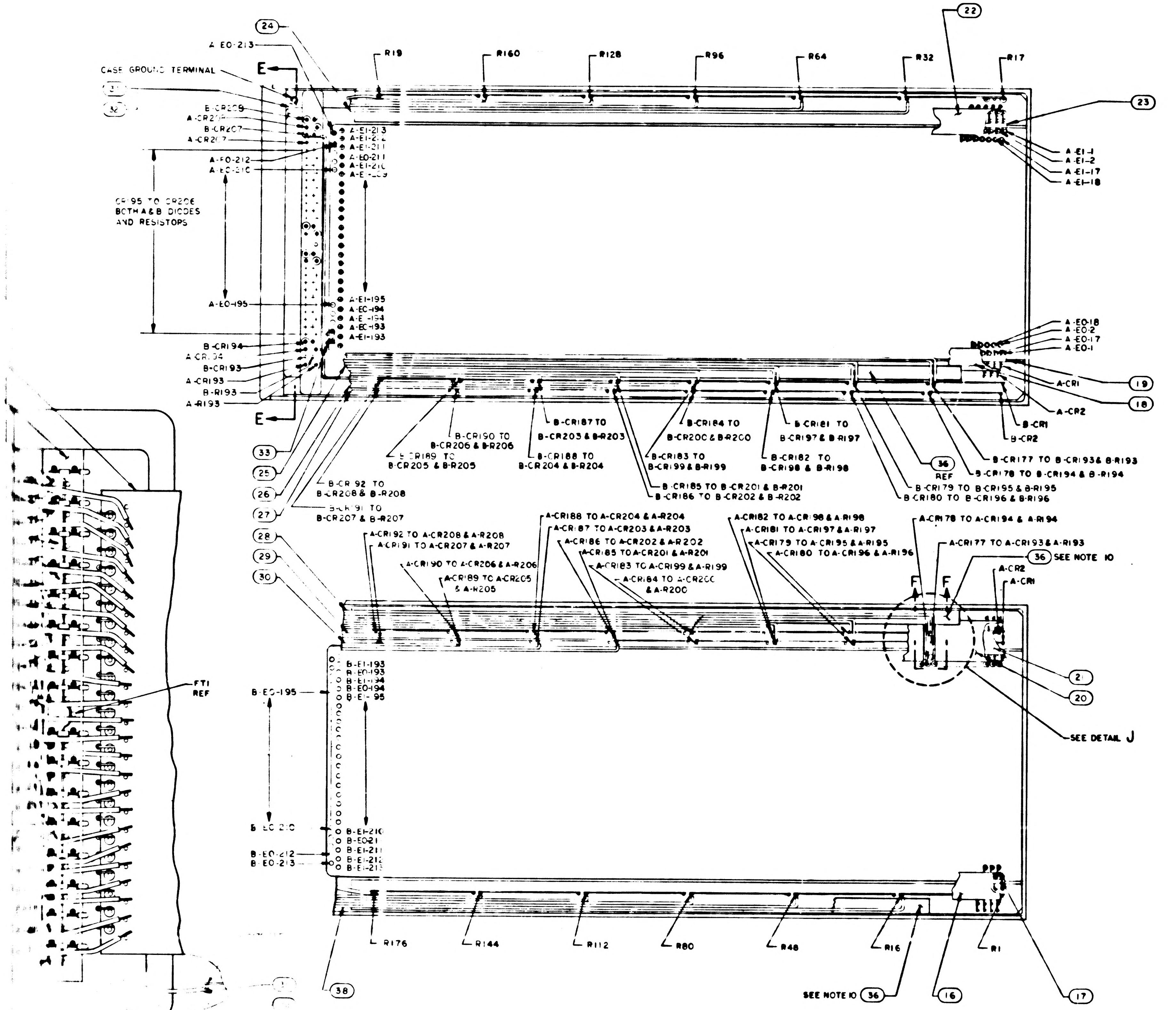
SECTION C-C
SCALE 4/1

VIEW H-H
SCALE 4/1
SHOWN WITH POTTING AND FIND NO.7
REMOVED. SEE NOTES 11,12,13 AND 14

2C03972 K

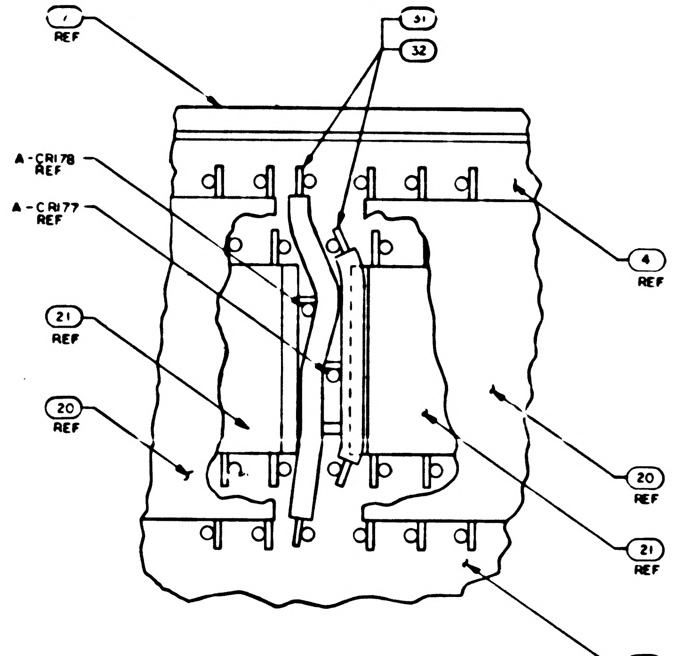
SH2/3 2003972 KF1/2

SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
		REVISIONS				
[illegible]		[illegible]				
B		REVISED PER TDRR [illegible]				
[illegible]		[illegible] PER [illegible]				
D		REVISED PER TDRR [illegible]				
E		REVISED PER TDRR [illegible]				
F		REVISED PER TDRR [illegible]				
[illegible]		REVISED PER TDRR [illegible]				
H		REVISED PER T[illegible]				
[illegible]		REVISED PER [illegible]				
K		REVISED PER T[illegible]				



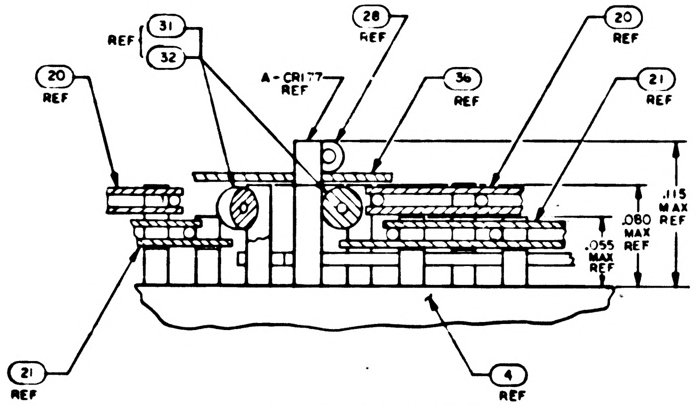
24
A EO-213
CASE GROUND TERMINAL
31
32
E
B-CR209
A-CR208
B-CR207
A-CR207
A-EO-212
A-EO-210
CR195 TO CR206
BOTH A & B DIODES
AND RESISTORS
A-EO-195
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
R19
R160
R128
R96
R64
R32
R17
22
23
A-EI-213
A-EI-212
A-EI-211
A-EO-211
A-EI-210
A-EI-209
A-EI-195
A-EO-194
A-EI-194
A-EO-193
A-EI-193
A-EI-1
A-EI-2
A-EI-17
A-EI-18
A-EO-18
A-EO-2
A-EO-17
A-EO-1
A-CR1
A-CR2
19
18
B-CR1
B-CR2
33
25
26
27
B-CR190 TO B-CR206 & B-R206
B-CR189 TO B-CR205 & B-R205
B-CR187 TO B-CR203 & B-R203
B-CR188 TO B-CR204 & B-R204
B-CR184 TO B-CR200 & B-R200
B-CR183 TO B-CR199 & B-R199
B-CR181 TO B-CR197 & B-R197
B-CR182 TO B-CR198 & B-R198
36 REF
B-CR177 TO B-CR193 & B-R193
B-CR178 TO B-CR194 & B-R194
B-CR185 TO B-CR201 & B-R201
B-CR186 TO B-CR202 & B-R202
B-CR179 TO B-CR195 & B-R195
B-CR180 TO B-CR196 & B-R196
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
28
29
30
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205 & A-R205
A-CR188 TO A-CR204 & A-R204
A-CR187 TO A-CR203 & A-R203
A-CR186 TO A-CR202 & A-R202
A-CR185 TO A-CR201 & A-R201
A-CR183 TO A-CR199 & A-R199
A-CR184 TO A-CR200 & A-R200
A-CR182 TO A-CR198 & A-R198
A-CR181 TO A-CR197 & A-R197
A-CR179 TO A-CR195 & A-R195
A-CR180 TO A-CR196 & A-R196
A-CR178 TO A-CR194 & A-R194
A-CR177 TO A-CR193 & A-R193
36 SEE NOTE 10
F
F
A-CR2
A-CR1
2
20
SEE DETAIL J
B-EI-193
B-EO-193
B-EI-194
B-EO-194
B-EI-195
B-EO-195
B-EO-210
B-EI-210
B-EO-211
B-EI-211
B-EI-212
B-EI-213
B-EO-212
B-EO-213
R176
R144
R112
R80
R48
R16
R1
38
SEE NOTE 10 36
16
17
FT1 REF

VIEW H-H
SCALE 4/1
[illegible] POTTING AND FIND NO.7
[illegible] NOTES 11,12,13 AND 14



1 REF
31
32
A-CR178 REF
A-CR177 REF
21 REF
20 REF
4 REF
20 REF
21 REF
2 REF

DETAIL J
SCALE 10/1
TYPICAL WIRING 8 PLACES, SHOWN
WITH FIND NO.S 28 AND 36 REMOVED



REF
31
32
20 REF
28 REF
A-CR177 REF
36 REF
20 REF
21 REF
.115 MAX REF
.080 MAX REF
.055 MAX REF
21 REF
4 REF

PARTIAL SECTION F-F
SCALE: 20/1

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

FIXED MEMORY MODULE ASSEMBLY

CODE IDENT NO 80230
SIZE J
DRAWING NO 2003972
SCALE 2/1
SHEET 2 OF 3

2003972 KF-2/2 SH 2/3

[illegible]

8 7 6 5

D

C

B

A

8 5

2003972 K

SH 3/3 2003972 KF 1/2

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		[illegible]				
B		REVISED PER TDRR 33[illegible]				
		REVISED PER TDRR [illegible]44				
D		REVISED PER TDRR [illegible]				
E		REVISED PER TDRR 34[illegible]				
F		REVISED PER TDRR 34489				
G		REVISED PER TDRR [illegible]				
H		REVISED PER TDRR 35[illegible]				
J		REVISED PER TDRR [illegible]				
K		REVISED PER TDRR 3597[illegible]				

WIRE LIST

TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.
A-EO-1	A-CR1	A-EO-97	A-CR97	B-EO-1	B-CR1	B-EO-97	B-CR97	A-EI-1	R1	A-EI-49	R49	A-EI-97	R97	A-EI-145	R145
A-EO-2	A-CR2	A-EO-98	A-CR98	B-EO-2	B-CR2	B-EO-98	B-CR98	B-EI-1		B-EI-49		B-EI-97		B-EI-145	
A-EO-3	A-CR3	A-EO-99	A-CR99	B-EO-3	B-CR3	B-EO-99	B-CR99	A-EI-2	R2	A-EI-50	R50	A-EI-98	R98	A-EI-146	R146
A-EO-4	A-CR4	A-EO-100	A-CR100	B-EO-4	B-CR4	B-EO-100	B-CR100	B-EI-2		B-EI-50		B-EI-98		B-EI-146	
A-EO-5	A-CR5	A-EO-101	A-CR101	B-EO-5	B-CR5	B-EO-101	B-CR101	A-EI-3	R3	A-EI-51	R51	A-EI-99	R99	A-EI-147	R147
A-EO-6	A-CR6	A-EO-102	A-CR102	B-EO-6	B-CR6	B-EO-102	B-CR102	B-EI-3		B-EI-51		B-EI-99		B-EI-147	
A-EO-7	A-CR7	A-EO-103	A-CR103	B-EO-7	B-CR7	B-EO-103	B-CR103	A-EI-4	R4	A-EI-52	R52	A-EI-100	R100	A-EI-148	R148
A-EO-8	A-CR8	A-EO-104	A-CR104	B-EO-8	B-CR8	B-EO-104	B-CR104	B-EI-4		B-EI-52		B-EI-100		B-EI-148	
A-EO-9	A-CR9	A-EO-105	A-CR105	B-EO-9	B-CR9	B-EO-105	B-CR105	A-EI-5	R5	A-EI-53	R53	A-EI-101	R101	A-EI-149	R149
A-EO-10	A-CR10	A-EO-106	A-CR106	B-EO-10	B-CR10	B-EO-106	B-CR106	B-EI-5		B-EI-53		B-EI-101		B-EI-149	
A-EO-11	A-CR11	A-EO-107	A-CR107	B-EO-11	B-CR11	B-EO-107	B-CR107	A-EI-6	R6	A-EI-54	R54	A-EI-102	R102	A-EI-150	R150
A-EO-12	A-CR12	A-EO-108	A-CR108	B-EO-12	B-CR12	B-EO-108	B-CR108	B-EI-6		B-EI-54		B-EI-102		B-EI-150	
A-EO-13	A-CR13	A-EO-109	A-CR109	B-EO-13	B-CR13	B-EO-109	B-CR109	A-EI-7	R7	A-EI-55	R55	A-EI-103	R103	A-EI-151	R151
A-EO-14	A-CR14	A-EO-110	A-CR110	B-EO-14	B-CR14	B-EO-110	B-CR110	B-EI-7		B-EI-55		B-EI-103		B-EI-151	
A-EO-15	A-CR15	A-EO-111	A-CR111	B-EO-15	B-CR15	B-EO-111	B-CR111	A-EI-8	R8	A-EI-56	R56	A-EI-104	R104	A-EI-152	R152
A-EO-16	A-CR16	A-EO-112	A-CR112	B-EO-16	B-CR16	B-EO-112	B-CR112	B-EI-8		B-EI-56		B-EI-104		B-EI-152	
A-EO-17	A-CR17	A-EO-113	A-CR113	B-EO-17	B-CR17	B-EO-113	B-CR113	A-EI-9	R9	A-EI-57	R57	A-EI-105	R105	A-EI-153	R153
A-EO-18	A-CR18	A-EO-114	A-CR114	B-EO-18	B-CR18	B-EO-114	B-CR114	B-EI-9		B-EI-57		B-EI-105		B-EI-153	
A-EO-19	A-CR19	A-EO-115	A-CR115	B-EO-19	B-CR19	B-EO-115	B-CR115	A-EI-10	R10	A-EI-58	R58	A-EI-106	R106	A-EI-154	R154
A-EO-20	A-CR20	A-EO-116	A-CR116	B-EO-20	B-CR20	B-EO-116	B-CR116	B-EI-10		B-EI-58		B-EI-106		B-EI-154	
A-EO-21	A-CR21	A-EO-117	A-CR117	B-EO-21	B-CR21	B-EO-117	B-CR117	A-EI-11	R11	A-EI-59	R59	A-EI-107	R107	A-EI-155	R155
A-EO-22	A-CR22	A-EO-118	A-CR118	B-EO-22	B-CR22	B-EO-118	B-CR118	B-EI-11		B-EI-59		B-EI-107		B-EI-155	
A-EO-23	A-CR23	A-EO-119	A-CR119	B-EO-23	B-CR23	B-EO-119	B-CR119	A-EI-12	R12	A-EI-60	R60	A-EI-108	R108	A-EI-156	R156
A-EO-24	A-CR24	A-EO-120	A-CR120	B-EO-24	B-CR24	B-EO-120	B-CR120	B-EI-12		B-EI-60		B-EI-108		B-EI-156	
A-EO-25	A-CR25	A-EO-121	A-CR121	B-EO-25	B-CR25	B-EO-121	B-CR121	A-EI-13	R13	A-EI-61	R61	A-EI-109	R109	A-EI-157	R157
A-EO-26	A-CR26	A-EO-122	A-CR122	B-EO-26	B-CR26	B-EO-122	B-CR122	B-EI-13		B-EI-61		B-EI-109		B-EI-157	
A-EO-27	A-CR27	A-EO-123	A-CR123	B-EO-27	B-CR27	B-EO-123	B-CR123	A-EI-14	R14	A-EI-62	R62	A-EI-110	R110	A-EI-158	R158
A-EO-28	A-CR28	A-EO-124	A-CR124	B-EO-28	B-CR28	B-EO-124	B-CR124	B-EI-14		B-EI-62		B-EI-110		B-EI-158	
A-EO-29	A-CR29	A-EO-125	A-CR125	B-EO-29	B-CR29	B-EO-125	B-CR125	A-EI-15	R15	A-EI-63	R63	A-EI-111	R111	A-EI-159	R159
A-EO-30	A-CR30	A-EO-126	A-CR126	B-EO-30	B-CR30	B-EO-126	B-CR126	B-EI-15		B-EI-63		B-EI-111		B-EI-159	
A-EO-31	A-CR31	A-EO-127	A-CR127	B-EO-31	B-CR31	B-EO-127	B-CR127	A-EI-16	R16	A-EI-64	R64	A-EI-112	R112	A-EI-160	R160
A-EO-32	A-CR32	A-EO-128	A-CR128	B-EO-32	B-CR32	B-EO-128	B-CR128	B-EI-16		B-EI-64		B-EI-112		B-EI-160	
A-EO-33	A-CR33	A-EO-129	A-CR129	B-EO-33	B-CR33	B-EO-129	B-CR129	A-EI-17	R17	A-EI-65	R65	A-EI-113	R113	A-EI-161	R161
A-EO-34	A-CR34	A-EO-130	A-CR130	B-EO-34	B-CR34	B-EO-130	B-CR130	B-EI-17		B-EI-65		B-EI-113		B-EI-161	
A-EO-35	A-CR35	A-EO-131	A-CR131	B-EO-35	B-CR35	B-EO-131	B-CR131	A-EI-18	R18	A-EI-66	R66	A-EI-114	R114	A-EI-162	R162
A-EO-36	A-CR36	A-EO-132	A-CR132	B-EO-36	B-CR36	B-EO-132	B-CR132	B-EI-18		B-EI-66		B-EI-114		B-EI-162	
A-EO-37	A-CR37	A-EO-133	A-CR133	B-EO-37	B-CR37	B-EO-133	B-CR133	A-EI-19	R19	A-EI-67	R67	A-EI-115	R115	A-EI-163	R163
A-EO-38	A-CR38	A-EO-134	A-CR134	B-EO-38	B-CR38	B-EO-134	B-CR134	B-EI-19		B-EI-67		B-EI-115		B-EI-163	
A-EO-39	A-CR39	A-EO-135	A-CR135	B-EO-39	B-CR39	B-EO-135	B-CR135	A-EI-20	R20	A-EI-68	R68	A-EI-116	R116	A-EI-164	R164
A-EO-40	A-CR40	A-EO-136	A-CR136	B-EO-40	B-CR40	B-EO-136	B-CR136	B-EI-20		B-EI-68		B-EI-116		B-EI-164	
A-EO-41	A-CR41	A-EO-137	A-CR137	B-EO-41	B-CR41	B-EO-137	B-CR137	A-EI-21	R21	A-EI-69	R69	A-EI-117	R117	A-EI-165	R165
A-EO-42	A-CR42	A-EO-138	A-CR138	B-EO-42	B-CR42	B-EO-138	B-CR138	B-EI-21		B-EI-69		B-EI-117		B-EI-165	
A-EO-43	A-CR43	A-EO-139	A-CR139	B-EO-43	B-CR43	B-EO-139	B-CR139	A-EI-22	R22	A-EI-70	R70	A-EI-118	R118	A-EI-166	R166
A-EO-44	A-CR44	A-EO-140	A-CR140	B-EO-44	B-CR44	B-EO-140	B-CR140	B-EI-22		B-EI-70		B-EI-118		B-EI-166	
A-EO-45	A-CR45	A-EO-141	A-CR141	B-EO-45	B-CR45	B-EO-141	B-CR141	A-EI-23	R23	A-EI-71	R71	A-EI-119	R119	A-EI-167	R167
A-EO-46	A-CR46	A-EO-142	A-CR142	B-EO-46	B-CR46	B-EO-142	B-CR142	B-EI-23		B-EI-71		B-EI-119		B-EI-167	
A-EO-47	A-CR47	A-EO-143	A-CR143	B-EO-47	B-CR47	B-EO-143	B-CR143	A-EI-24	R24	A-EI-72	R72	A-EI-120	R120	A-EI-168	R168
A-EO-48	A-CR48	A-EO-144	A-CR144	B-EO-48	B-CR48	B-EO-144	B-CR144	B-EI-24		B-EI-72		B-EI-120		B-EI-168	
A-EO-49	A-CR49	A-EO-145	A-CR145	B-EO-49	B-CR49	B-EO-145	B-CR145	A-EI-25	R25	A-EI-73	R73	A-EI-121	R121	A-EI-169	R169
A-EO-50	A-CR50	A-EO-146	A-CR146	B-EO-50	B-CR50	B-EO-146	B-CR146	B-EI-25		B-EI-73		B-EI-121		B-EI-169	
A-EO-51	A-CR51	A-EO-147	A-CR147	B-EO-51	B-CR51	B-EO-147	B-CR147	A-EI-26	R26	A-EI-74	R74	A-EI-122	R122	A-EI-170	R170
A-EO-52	A-CR52	A-EO-148	A-CR148	B-EO-52	B-CR52	B-EO-148	B-CR148	B-EI-26		B-EI-74		B-EI-122		B-EI-170	
A-EO-53	A-CR53	A-EO-149	A-CR149	B-EO-53	B-CR53	B-EO-149	B-CR149	A-EI-27	R27	A-EI-75	R75	A-EI-123	R123	A-EI-171	R171
A-EO-54	A-CR54	A-EO-150	A-CR150	B-EO-54	B-CR54	B-EO-150	B-CR150	B-EI-27		B-EI-75		B-EI-123		B-EI-171	
A-EO-55	A-CR55	A-EO-151	A-CR151	B-EO-55	B-CR55	B-EO-151	B-CR151	A-EI-28	R28	A-EI-76	R76	A-EI-124	R124	A-EI-172	R172
A-EO-56	A-CR56	A-EO-152	A-CR152	B-EO-56	B-CR56	B-EO-152	B-CR152	B-EI-28		B-EI-76		B-EI-124		B-EI-172	
A-EO-57	A-CR57	A-EO-153	A-CR153	B-EO-57	B-CR57	B-EO-153	B-CR153	A-EI-29	R29	A-EI-77	R77	A-EI-125	R125	A-EI-173	R173
A-EO-58	A-CR58	A-EO-154	A-CR154	B-EO-58	B-CR58	B-EO-154	B-CR154	B-EI-29		B-EI-77		B-EI-125		B-EI-173	
A-EO-59	A-CR59	A-EO-155	A-CR155	B-EO-59	B-CR59	B-EO-155	B-CR155	A-EI-30	R30	A-EI-78	R78	A-EI-126	R126	A-EI-174	R174
A-EO-60	A-CR60	A-EO-156	A-CR156	B-EO-60	B-CR60	B-EO-156	B-CR156	B-EI-30		B-EI-78		B-EI-126		B-EI-174	
A-EO-61	A-CR61	A-EO-157	A-CR157	B-EO-61	B-CR61	B-EO-157	B-CR157	A-EI-31	R31	A-EI-79	R79	A-EI-127	R127	A-EI-175	R175
A-EO-62	A-CR62	A-EO-158	A-CR158	B-EO-62	B-CR62	B-EO-158	B-CR158	B-EI-31		B-EI-79		B-EI-127		B-EI-175	
A-EO-63	A-CR63	A-EO-159	A-CR159	B-EO-63	B-CR63	B-EO-159	B-CR159	A-EI-32	R32	A-EI-80	R80	A-EI-128	R128	A-EI-176	R176
A-EO-64	A-CR64	A-EO-160	A-CR160	B-EO-64	B-CR64	B-EO-160	B-CR160	B-EI-32		B-EI-80		B-EI-128		B-EI-176	
A-EO-65	A-CR65	A-EO-161	A-CR161	B-EO-65	B-CR65	B-EO-161	B-CR161	A-EI-33	R33	A-EI-81	R81	A-EI-129	R129	A-EI-177	R177
A-EO-66	A-CR66	A-EO-162	A-CR162	B-EO-66	B-CR66	B-EO-162	B-CR162	B-EI-33		B-EI-81		B-EI-129		B-EI-177	
A-EO-67	A-CR67	A-EO-163	A-CR163	B-EO-67	B-CR67	B-EO-163	B-CR163	A-EI-34	R34	A-EI-82	R82	A-EI-130	R130	A-EI-178	R178
A-EO-68	A-CR68	A-EO-164	A-CR164	B-EO-68	B-CR68	B-EO-164	B-CR164	B-EI-34		B-EI-82		B-EI-130		B-EI-178	
A-EO-69	A-CR69	A-EO-165	A-CR165	B-EO-69	B-CR69	B-EO-165	B-CR165	A-EI-35	R35	A-EI-83	R83	A-EI-131	R131	A-EI-179	R179
A-EO-70	A-CR70	A-EO-166	A-CR166	B-EO-70	B-CR70	B-EO-166	B-CR166	B-EI-35		B-EI-83		B-EI-131		B-EI-179	
A-EO-71	A-CR71	A-EO-167	A-CR167	B-EO-71	B-CR71	B-EO-167	B-CR167	A-EI-36	R36	A-EI-84	R84	A-EI-132	R132	A-EI-180	R180
A-EO-72	A-CR72	A-EO-168	A-CR168	B-EO-72	B-CR72	B-EO-168	B-CR168	B-EI-36		B-EI-84		B-EI-132		B-EI-180	
A-EO-73	A-CR73	A-EO-169	A-CR169	B-EO-73	B-CR73	B-EO-169	B-CR169	A-EI-37	R37	A-EI-85	R85	A-EI-133	R133	A-EI-181	R181
A-EO-74	A-CR74	A-EO-170	A-CR170	B-EO-74	B-CR74	B-EO-170	B-CR170	B-EI-37		B-EI-85		B-EI-133		B-EI-181	
A-EO-75	A-CR75	A-EO-171	A-CR171	B-EO-75	B-CR75	B-EO-171	B-CR171	A-EI-38	R38	A-EI-86	R86	A-EI-134	R134	A-EI-182	R182
A-EO-76	A-CR76	A-EO-172	A-CR172	B-EO-76	B-CR76	B-EO-172	B-CR172	B-EI-38		B-EI-86		B-EI-134		B-EI-182	
A-EO-77	A-CR77	A-EO-173	A-CR173	B-EO-77	B-CR77	B-EO-173	B-CR173	A-EI-39	R39	A-EI-87	R87	A-EI-135	R135	A-EI-183	R183
A-EO-78	A-CR78	A-EO-174	A-CR174	B-EO-78	B-CR78	B-EO-174	B-CR174	B-EI-39		B-EI-87		B-EI-135		B-EI-183	
A-EO-79	A-CR79	A-EO-175	A-CR175	B-EO-79	B-CR79	B-EO-175	B-CR175	A-EI-40	R40	A-EI-88	R88	A-EI-136	R136	A-EI-184	R184
A-EO-80	A-CR80	A-EO-176	A-CR176	B-EO-80	B-CR80	B-EO-176	B-CR176	B-EI-40		B-EI-88		B-EI-136		B-EI-184	
A-EO-81	A-CR81	A-EO-177	A-CR177	B-EO-81	B-CR81	B-EO-177	B-CR177	A-EI-41	R41	A-EI-89	R89	A-EI-137	R137	A-EI-185	R185
A-EO-82	A-CR82	A-EO-178	A-CR178	B-EO-82	B-CR82	B-EO-178	B-CR178	B-EI-41		B-EI-89		B-EI-137		B-EI-185	
A-EO-83	A-CR83	A-EO-179	A-CR179	B-EO-83	B-CR83	B-EO-179	B-CR179	A-EI-42	R42	A-EI-90	R90	A-EI-138	R138	A-EI-186	R186
A-EO-84	A-CR84	A-EO-180	A-CR180	B-EO-84	B-CR84	B-EO-180	B-CR180	B-EI-42		B-EI-90		B-EI-138		B-EI-186	
A-EO-85	A-CR85	A-EO-181	A-CR181	B-EO-85	B-CR85	B-EO-181	B-CR181	A-EI-43	R43	A-EI-91	R91	A-EI-139	R139	A-EI-187	R187
A-EO-86	A-CR86	A-EO-182	A-CR182	B-EO-86	B-CR86	B-EO-182	B-CR182	B-EI-43		B-EI-91		B-EI-139		B-EI-187	
A-EO-87	A-CR87	A-EO-183	A-CR183	B-EO-87	B-CR87	B-EO-183	B-CR183	A-EI-44	R44	A-EI-92	R92	A-EI-140	R140	A-EI-188	R188
A-EO-88	A-CR88	A-EO-184	A-CR184	B-EO-88	B-CR88	B-EO-184	B-CR184	B-EI-44		B-EI-92		B-EI-140		B-EI-188	
A-EO-89	A-CR89	A-EO-185	A-CR185	B-EO-89	B-CR89	B-EO-185	B-CR185	A-EI-45	R45	A-EI-93	R93	A-EI-141	R141	A-EI-189	R189
A-EO-90	A-CR90	A-EO-186	A-CR186	B-EO-90	B-CR90	B-EO-186	B-CR186	B-EI-45		B-EI-93		B-EI-141		B-EI-189	
A-EO-91	A-CR91	A-EO-187	A-CR187	B-EO-91	B-CR91	B-EO-187	B-CR187	A-EI-46	R46	A-EI-94	R94	A-EI-142	R142	A-EI-190	R190
A-EO-92	A-CR92	A-EO-188	A-CR188	B-EO-92	B-CR92	B-EO-188	B-CR188	B-EI-46		B-EI-94		B-EI-142		B-EI-190	
A-EO-93	A-CR93	A-EO-189	A-CR189	B-EO-93	B-CR93	B-EO-189	B-CR189	A-EI-47	R47	A-EI-95	R95	A-EI-143	R143	A-EI-191	R191
A-EO-94	A-CR94	A-EO-190	A-CR190	B-EO-94	B-CR94	B-EO-190	B-CR190	B-EI-47		B-EI-95		B-EI-143		B-EI-191	
A-EO-95	A-CR95	A-EO-191	A-CR191	B-EO-95	B-CR95	B-EO-191	B-CR191	A-EI-48	R48	A-EI-96	R96	A-EI-144	R144	A-EI-192	R192
A-EO-96	A-CR96	A-EO-192	A-CR192	B-EO-96	B-CR96	B-EO-192	B-CR192	B-EI-48		B-EI-96		B-EI-144		B-EI-192	

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED
APPROVED
DATE

FIXED MEMORY MODULE
ASSEMBLY

CODE IDENT NO 80230
SIZE J
DRAWING NO 2003972
SCALE NONE
SHEET 3 OF 3

2003972 K

PART NO.	MODULE NO.	FIND NO. 1	FIND NO. 2	MODULE DECK NO.	NEXT ASSEMBLY NO. (REF)	PROCUREMENT SPECIFICATION SEE NOTE 15
2003972-011	B1	2003060-061	2003061-061	0205	2021101	PS2003972
2003972-021	B2	2003060-071	2003061-071	0206	2021101	
2003972-031	B3	2003060-081	2003061-081	0207	2021101	
2003972-041	B1	2003060-121	2003061-121	0210	2021104	
2003972-051	B2	2003060-131	2003061-131	0211	2021104	
2003972-061	B3	2003060-141	2003061-141	0212	2021104	
2003972-071	B2	2003060-151	2003061-151	0213	2021104	
2003972-081	B3	2003060-161	2003061-161	0214	2021104	
2003972 091	B2	2003060-171	2003061 171	0215	2021101	
2003972 111	B3	2003060-181	2003061-181	0216	2021101	PS2003972
2003972 121	B1	2003060-091	2003061-091	0208	2021105-031	PS2003960
2003972 13	B2	2003060 111	2003061 111	0209	2021105-031	PS2003960
2003972 14	B1	2003060-191	2003061-191	0217	2021106-011	PS2003972
2003972 151	B2	2003060 211	2003061 211	0218	2021106-011	
2003972 161	B3	2003060 221	2003061 221	0219	2021106-011	
2003972 171	B4	2003060 231	2003061 231	0220	2021106-011	
2003972 181	B5	2003060 241	2003061 241	0221	2021106 011	
2003972 191	B6	2003060 251	2003061 251	0222	2021106 011	
2003972-211	B3	2003060 261	2003061 261	0223	2021104 041	PS2003972
2003972-221	B	2003060-271	2003061-271	0224	2021105-041	PS2003960
2003972-231	B1	2003060-281	2003061-281	0225	2021106-021	PS2003972
2003972-241	B3	2003060 291	2003061 291	0226	2021106-021	
2003972 251	B5	2003060 311	2003061-311	0227	2021106-021	
2003972 261	B1	2003060-321	200306 321	0230	2021107-011	
2003972 271	B2	2003060 331	2003061 331	0229	2021107-0[illegible]	
2003972 2[illegible]	B3	2003060 341	2003061-341	023[illegible]	202[illegible]-031	
2003972-291	B1	2003060 351	2003061-351	0238	2021107-021	PS2003972
2003972 311	B1	2003060-361	2003061 361	0239	2021108-021	PS2016016
321	B2	2003060 371	2003061 371	0240	2021108-021	PS2016016
-331	B3	2003060 381	2003061 381	0241	2021108-021	PS2016016
-341	B4	2003060-391	2003061 391	0242	2021108-021	PS2016016
351	B5	2003060-411	2003061 411	0243	2021108-021	PS2016016
2003972 361	B6	2003060-421	2003061-421	0244	2021108-021	PS2016016
2003972 371	B1	2003060-431	2003061-431	0245	2021110-011	PS2016016
2003972-381	B2	2003060-441	2003061-441	0246	2021110-011	
2003972-391	B3	2003060-451	2003061-451	0247	2021110-011	
2003972 411	B4	2003060-461	2003061 461	0248	2021110-011	
2003972-421	B5	2003060-471	2003061-471	0249	2021110-011	
2003972-431	B6	2003060-491	2003061-481	0250	2021110-011	PS2016016
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[illegible]	B2	2003060-511	[illegible]		2021110-021	
[illegible]	B3	[illegible]	[illegible]	0253	2021110-021	
[illegible]	B4	2003060-[illegible]	2003061-531	0254	2021110-021	
[illegible]	B5	[illegible]	[illegible]	[illegible]	2021110-021	
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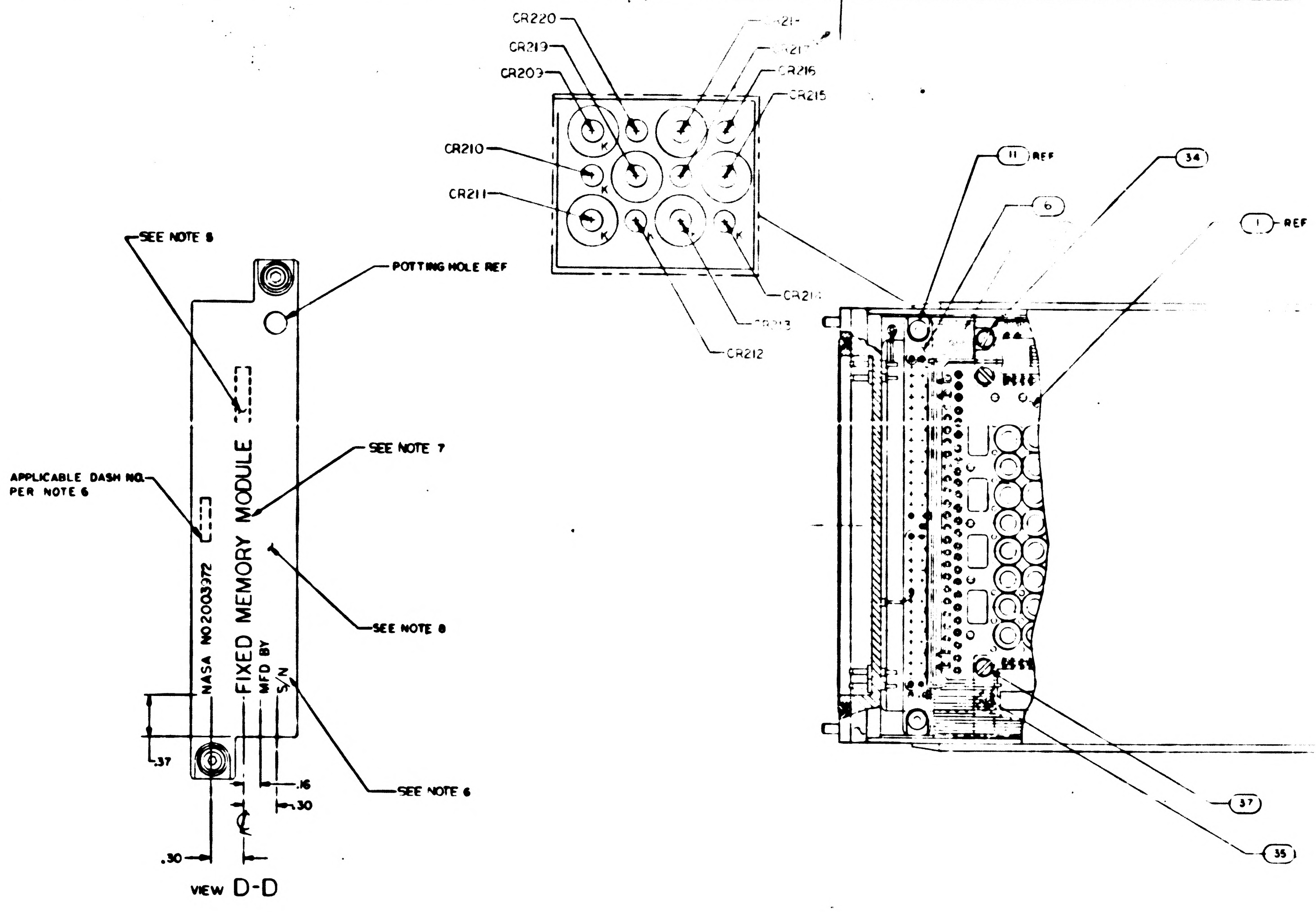
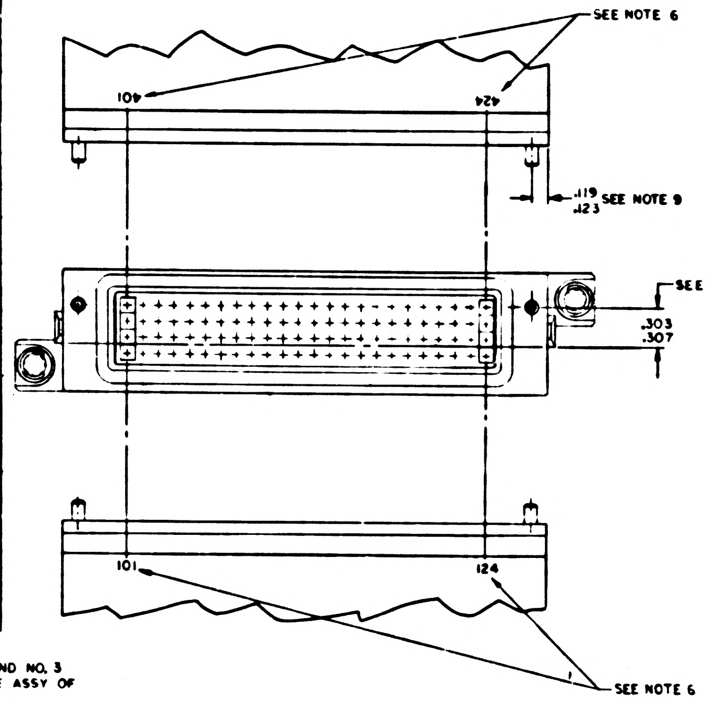
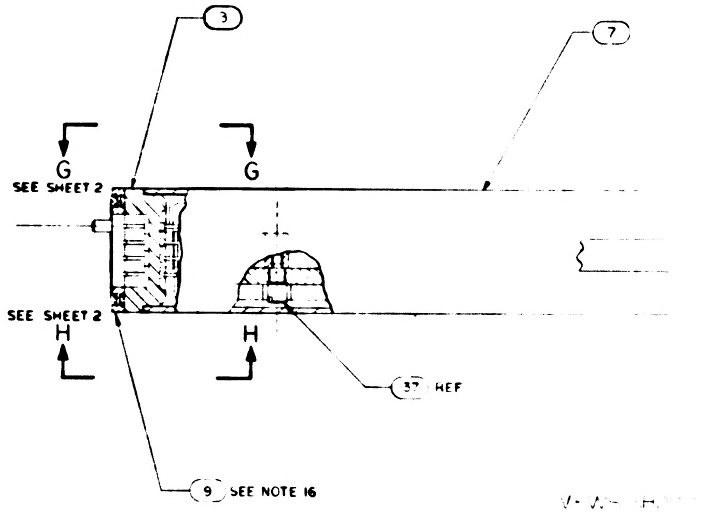






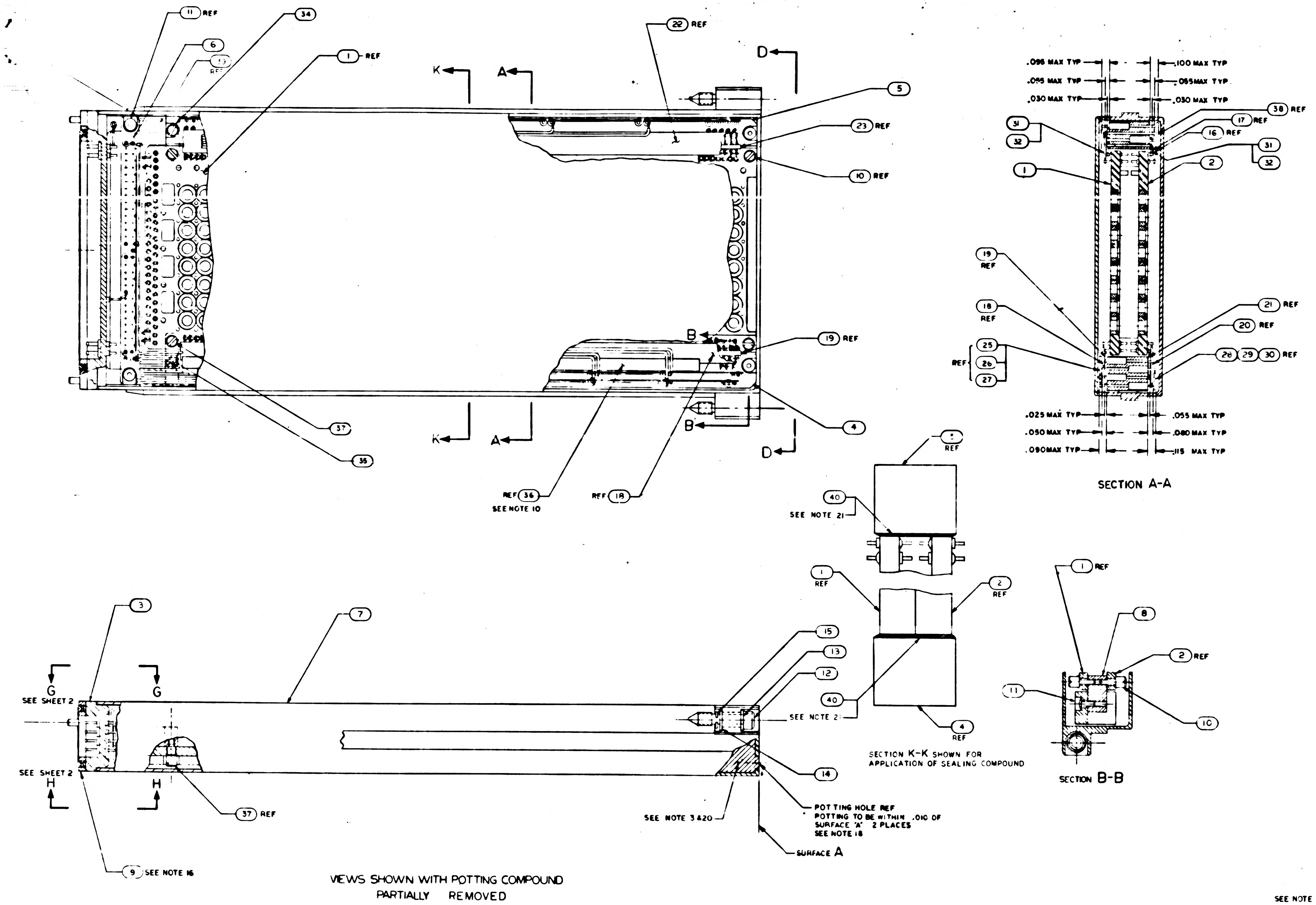
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
3. ENCAPSULATE MODULE PER ND1002226 METHOD II
4. WELD PER ND1002005
5. MARK APPROPRIATE MODULE NO. AS SHOWN IN CHART
6. MARK .08/.06 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
7. MARK .14/.10 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 USING INK 1006271-1
8. PAINT INDICATED SURFACES OF FIND NO 7. PER ND1002279 WITH SCD NO.1008809-1 DARK GREY EPOXY RESIN ENAMEL, FINAL COAT PER ND1002277 USING 1012543-003
9. ASSEMBLE FIND NO.7 AND FIND NO.3 TO DIMENSIONS SHOWN
10. REMOVE LINER FROM NEARSIDE OF FIND NO.36 AND ASSEMBLE 3 PLACES AS SHOWN. FIND NO.36 MUST INSULATE FLAT CABLES FROM TRIMMED COMPONENT LEADS. TRIM AS REQUIRED
11. WHITE DOT AND SINGLE SOLID LEAD DENOTES FIRST LEVEL WIRING UNLESS OTHERWISE SPECIFIED
12. BLACK DOT AND SINGLE SOLID LEAD DENOTES SECOND LEVEL WIRING
13. BLACK DOT AND CROSS HATCHED LEAD DENOTES THIRD LEVEL WIRING
14. ALL LEADS FROM FIND NO.1 AND FIND NO.2 TO FIND NO.3 TO BE THIRD LEVEL WIRING
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PROCUREMENT SPECIFICATION AS LISTED IN CHART.
16. FIND NO.9 TO BE SHIPPED UNASSEMBLED AND IDENTIFIED PER ND 1002019
17. SEAL PINS AND INSULATORS TO FIND NO. 3 PER ND1002004 TYPE III BEFORE ASSY OF FIND NO. 6
18. FILL AS SHOWN PER ND1002235 METHOD A
19. BOND FIND NO.39 TO FIND NO.3 PER ND1002004 TYPE VI AFTER ASSY OF FIND NO.6
20. PRIOR TO ENCAPSULATION PER NOTE 3, COAT OVER ALL TERMINALS OF FIND NO'S 1,2&3 AND OVER ALL WIRES, SLEEVING AND COMPONENT LEADS OF FIND NO.S 4,5,6,16,17,18,19,20,21,22,23,24, 25,26,27,28,29,30,31,32,33,38 &39 WITH A .03 MAXIMUM THICKNESS OF SILICONE RUBBER PER ND1002009, METHOD A. MASK ALL OUTSIDE SURFACES OF FIND NO.3 AND ALL OTHER SURFACES OF THIS ASSEMBLY COMING IN CLOSE CONTACT WITH FIND NO.7
21. FILL INTERFACE BETWEEN FIND NO. 4 AND SIDE SURFACES OF FIND NO'S 1 AND 2, AND INTERFACE BETWEEN FIND NO 5 AND SIDE SURFACES OF FIND NO.'S 1 AND 2 USING FIND NO. 40, ROOM TEMP CURE FOR 24 HOURS MIN.

REFERENCES:

1. PROCESS REQUIREMENTS FOR CONTROL AND INSPECTION OF ROPE MEMORY ASSEMBLIES ND1002285
2. FIXED MEMORY FIXTURE DWG NO AP22500

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL RELEASE TDRR 5199	[illegible]	[illegible]
B	REVISED PER TDRR [illegible] DR [illegible] CHK [illegible]	[illegible]	[illegible]
C	REVISED PER TDRR [illegible]4 DR [illegible] CHK [illegible]	[illegible]	[illegible]
D	REVISED PER TDRR 33605 DR [illegible] CHK [illegible]	5/4/67	[illegible]
E	REVISED PER TDRR [illegible]4[illegible] DR [illegible] CHK [illegible]	[illegible]	[illegible]
F	REVISED PER TDRR 3[illegible] DR [illegible] CHK [illegible]	10-16-67	[illegible]
G	REVISED PER [illegible] DR [illegible]	[illegible]	[illegible]
H	REVISED PER TDRR [illegible] DR [illegible]	[illegible]	[illegible]
J	REVISED PER [illegible] DR [illegible]	[illegible]	[illegible]
K	REVISED PER T[illegible] DR [illegible]	[illegible]	[illegible]
L	REVISED PER TDRR [illegible]217 DR [illegible] CHK [illegible]	[illegible]	[illegible]
M	REVISED PER [illegible]		[illegible]
N	REVISED PER TDRR [illegible] DR [illegible] CHK		[illegible]



11 REF
34
6
13 REF
1 REF
22 REF
K
A
D
5
23 REF
10 REF
19 REF
B
4
37
35
REF 36
SEE NOTE 10
REF 18
.095 MAX TYP
.055 MAX TYP
.030 MAX TYP
.100 MAX TYP
.055 MAX TYP
.030 MAX TYP
31
32
38 REF
17 REF
16 REF
1
2
19 REF
18 REF
21 REF
20 REF
25
26
27
REF
28 29 30 REF
.025 MAX TYP
.050 MAX TYP
.090 MAX TYP
.055 MAX TYP
.080 MAX TYP
.115 MAX TYP
SECTION A-A
40
SEE NOTE 21
REF
1 REF
2 REF
40
4 REF
SECTION K-K SHOWN FOR APPLICATION OF SEALING COMPOUND
1 REF
8
2 REF
11
10
SECTION B-B
3
7
15
13
12
SEE NOTE 21
14
G
SEE SHEET 2
SEE SHEET 2
H
37 REF
9 SEE NOTE 16
POTTING HOLE REF
POTTING TO BE WITHIN .010 OF SURFACE 'A' 2 PLACES
SEE NOTE 18
SEE NOTE 3 & 20
SURFACE A
VIEWS SHOWN WITH POTTING COMPOUND PARTIALLY REMOVED

SEE NOTE 16

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
AR	1006338-000	SEALING COMPOUND, SILICONE RUBBER	40
1	2003[illegible] 021	COMPONENT BLOCK DIODE ASSY	[illegible]
☒	2005935	SCHEMATIC	REF
1	2004[illegible]84	FLAT CABLE	38
4	2004150 - 003	SCREW, SHOULDERED	37
AR	1006806 - 26	INSULATION TAPE, ELECTRICAL	36
1	2004150 - 001	SCREW, SHOULDERED	35
1	2004150 - 002	SCREW, SHOULDERED	34
1	2004129	FLAT CABLE INTERCONNECTION	33
AR	1006776-25	SLEEVING	32
AR	1006757 12	WIRE, ELECTRICAL	31
1	2004125	FLAT CABLE	30
1	2004122	FLAT CABLE	29
1	2004124	FLAT CABLE	28
1	2004123	FLAT CABLE	27
1	2004121	FLAT CABLE	26
1	2004120	FLAT CABLE	25
1	2004[illegible]	FLAT CABLE	24
1	2003051 - 013	MATRIX ASSY	23
1	2003051 - 014	MATRIX ASSY	22
8	2003051 - 016	MATRIX ASSY	21
8	2003051 - 015	MATRIX ASSY	20
1	2003051 - 017	MATRIX ASSY	19
1	2003051 - 018	MATRIX ASSY	18
1	2003051 - 011	MATRIX ASSY	17
1	2003051 - 012	MATRIX ASSY	16
2	MS16633 4015	E RING	15
2	1004546-3	WASHER	14
2	1004546-1	WASHER	13
2	1004579-1	SCREW JACKING	12
4	1000093-1	SCREW, BUTTONHEAD	11
4	2004151	SCREW, STANDOFF	10
1	1006339	GASKET PLATE	9
2	2004071	STANDOFF	8
1	2004100	HOUSING	7
1	2003048-021	RESISTOR-DIODE BLOCK ASSY	6
1	2003052 021	COMPONENT BLOCK RESISTOR ASSY	5
1	2003045 021	COMPONENT BLOCK DIODE ASSY	4
1	2003973 -011	CONNECTOR PLATE ASSY	3
1	2003061-SEE CHART	SENSE WIRING ASSY SIDE B	2
1	2003060-SEE CHART	SENSE WIRING ASSY SIDE A	1

LIST OF MATERIALS

FOR APPLICABLE PART NO. SEE CHART

SEE CHART	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN [illegible] DATE [illegible]
CHECKED [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
[illegible] APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE ASSEMBLY

CODE IDENT NO	SIZE	NASA DRAWING NO
80230	J	2003972

SCALE 2/1 WT SHEET 1 OF 3

SH1/3 2003972 NF2/2

WIRE LIST

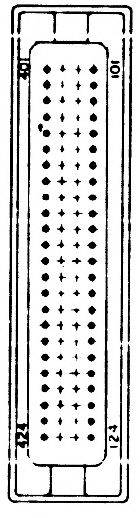
PIN NO.	COMPONENT OR TERM. NO.	PIN NO.	COMPONENT OR TERM. NO.
101	A-E1-213	301	GROUND
102	A-E1-212	302	CR209
103	A-E1-211	303	CR210
104	A-E0-211	304	CR211
105	A-E1-210	305	CR212
106	A-E1-209	306	CR213
107	A-E1-208	307	CR214
108	A-E1-207	308	A-CR208
109	A-E1-206	309	A-CR207
110	A-E1-205	310	A-CR206
111	A-E1-204	311	A-CR205
112	A-E1-203	312	A-CR204
113	A-E1-202	313	A-CR203
114	A-E1-201	314	A-CR202
115	A-E1-200	315	A-CR201
116	A-E1-199	316	A-CR200
117	A-E1-198	317	A-CR199
118	A-E1-197	318	A-CR198
119	A-E1-196	319	A-CR197
120	A-E1-195	320	A-CR196
121	A-E0-194	321	A-CR195
122	A-E1-194	322	A-CR194
123	A-E0-193	323	A-CR193
124	A-E1-193	324	SPARE
201	B-R208	401	B-E1-213
202	CR215	402	B-E1-212
203	CR216	403	B-E1-211
204	CR217	404	B-E0-211
205	CR218	405	B-E1-210
206	CR219	406	B-E1-209
207	CR220	407	B-E1-208
208	B-CR208	408	B-E1-207
209	B-CR207	409	B-E1-206
210	B-CR206	410	B-E1-205
211	B-CR205	411	B-E1-204
212	B-CR204	412	B-E1-203
213	B-CR203	413	B-E1-202
214	B-CR202	414	B-E1-201
215	B-CR201	415	B-E1-200
216	B-CR200	416	B-E1-199
217	B-CR199	417	B-E1-198
218	B-CR198	418	B-E1-197
219	B-CR197	419	B-E1-196
220	B-CR196	420	B-E1-195
221	B-CR195	421	B-E0-194
222	B-CR194	422	B-E1-194
223	B-CR193	423	B-E0-193
224	SPARE	424	B-E1-193

WIRE LIST

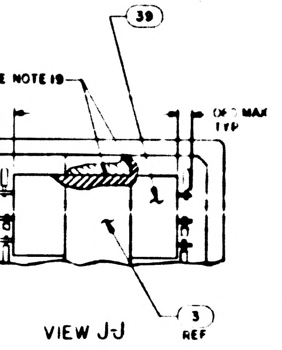
TERMINAL NO.	TERMINAL NO.
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
A-E0-195	B-E0-195
A-E0-196	B-E0-196
A-E0-197	B-E0-197
A-E0-198	B-E0-198
A-E0-199	B-E0-199
A-E0-200	B-E0-200
A-E0-201	B-E0-201
A-E0-202	B-E0-202
A-E0-203	B-E0-203
A-E0-204	B-E0-204
A-E0-205	B-E0-205
A-E0-206	B-E0-206
A-E0-207	B-E0-207
A-E0-208	B-E0-208
A-E0-209	B-E0-209
A-E0-210	B-E0-210
SPARE	SPARE
SPARE	SPARE
A-E0-212	B-E0-212
A-E0-213	B-E0-213

WIRE LIST

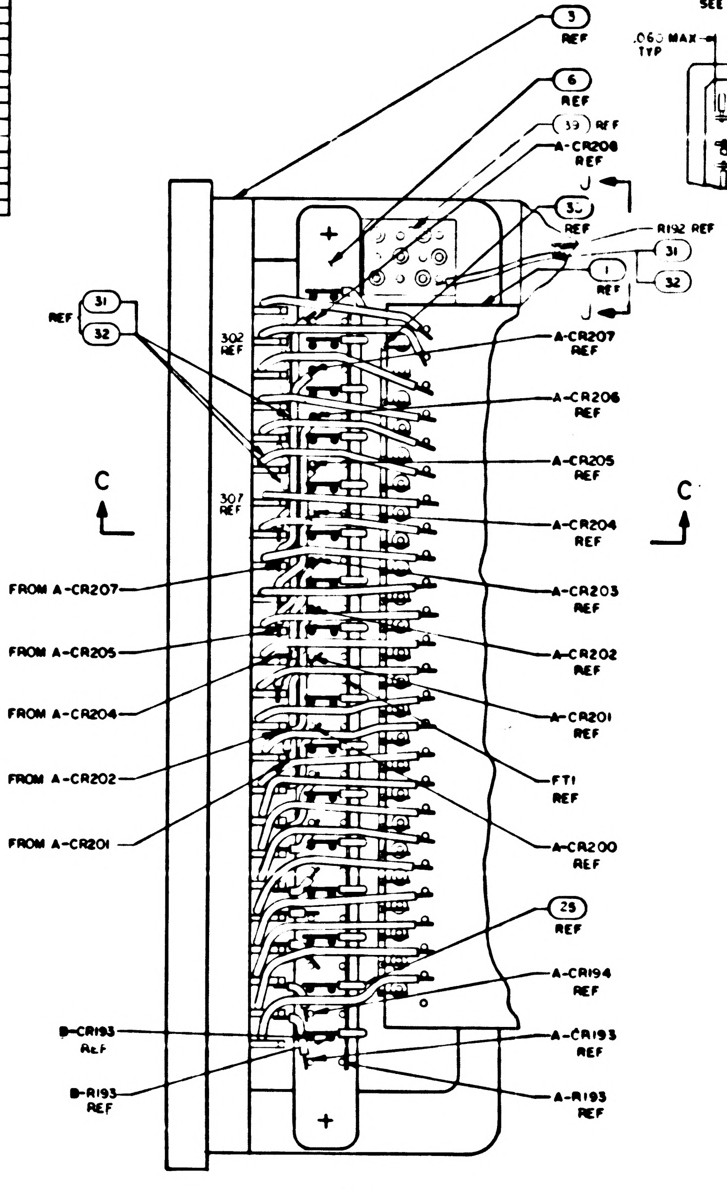
COMPONENT NO.	COMPONENT NO.
CR215	R176
CR216	R144
CR217	R112
CR218	R80
CR219	R48
CR220	R16
CR209	R32
CR210	R64
CR211	R96
CR212	R128
CR213	R160
CR214	R192


401
101
424
124

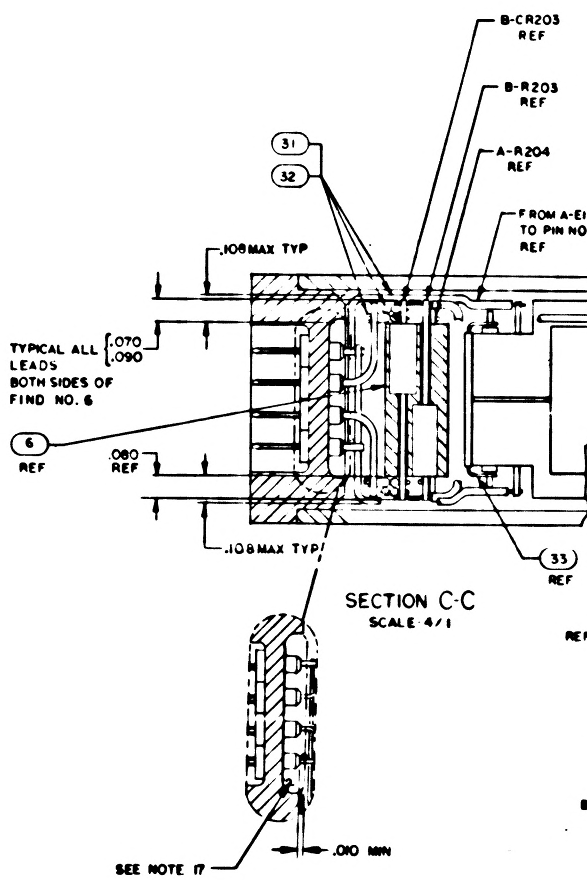
SECTION E-E


39
SEE NOTE 19
.060 MAX TYP
.060 MAX TYP
3 REF

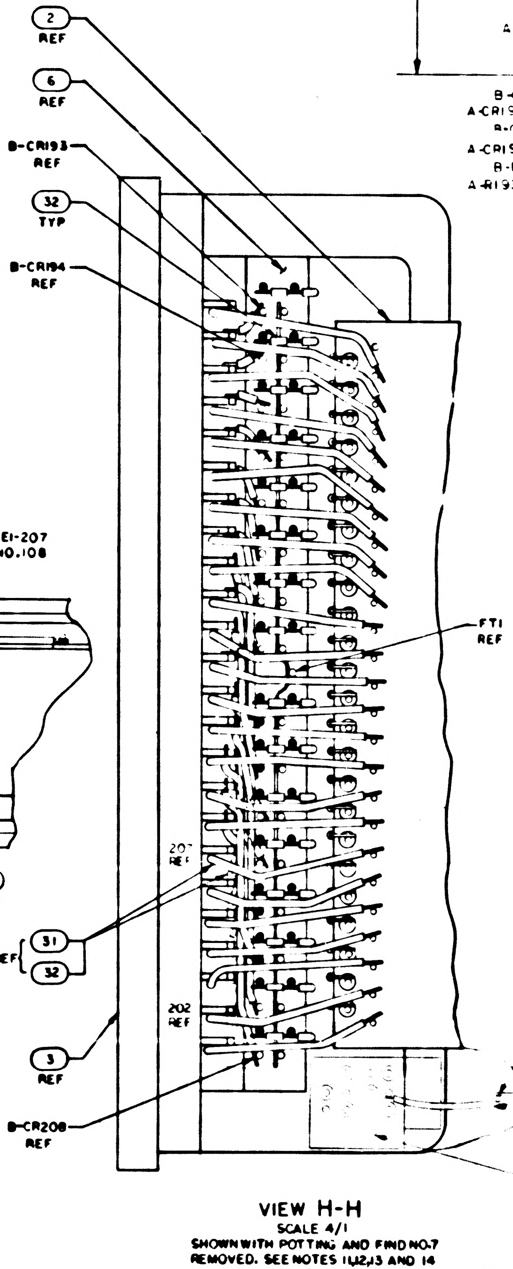
VIEW J-J


3 REF
6 REF
39 REF
A-CR208 REF
33 REF
J
R192 REF
31
1 REF
32
J
31
32
REF
302 REF
A-CR207 REF
A-CR206 REF
A-CR205 REF
307 REF
C
C
A-CR204 REF
FROM A-CR207
A-CR203 REF
FROM A-CR205
A-CR202 REF
FROM A-CR204
A-CR201 REF
FROM A-CR202
FT1 REF
FROM A-CR201
A-CR200 REF
25 REF
A-CR194 REF
B-CR193 REF
A-CR193 REF
B-R193 REF
A-R193 REF
+
+

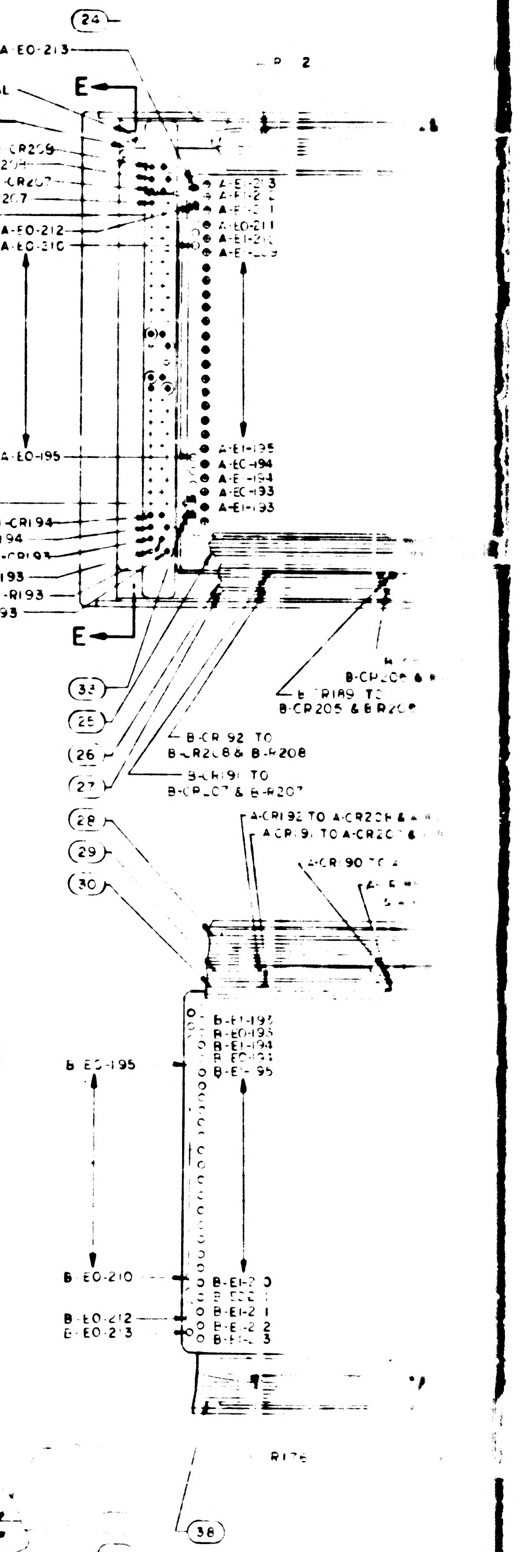
VIEW G-G
SCALE 4/1
SHOWN WITH POTTING AND FIND NO.7 REMOVED. SEE NOTES 11,12,13 AND 14


B-CR203 REF
B-R203 REF
A-R204 REF
31
32
FROM A-E1-207 TO PIN NO.108 REF
.108 MAX TYP
TYPICAL ALL LEADS BOTH SIDES OF FIND NO. 6
.070
.090
6 REF
.080 REF
.108 MAX TYP
33 REF
SEE NOTE 17
.010 MIN

SECTION C-C
SCALE 4/1


2 REF
6 REF
B-CR193 REF
32 TYP
B-CR194 REF
FT1 REF
207 REF
31
32
REF
202 REF
3 REF
B-CR208 REF

VIEW H-H
SCALE 4/1
SHOWN WITH POTTING AND FIND NO.7 REMOVED. SEE NOTES 11,12,13 AND 14

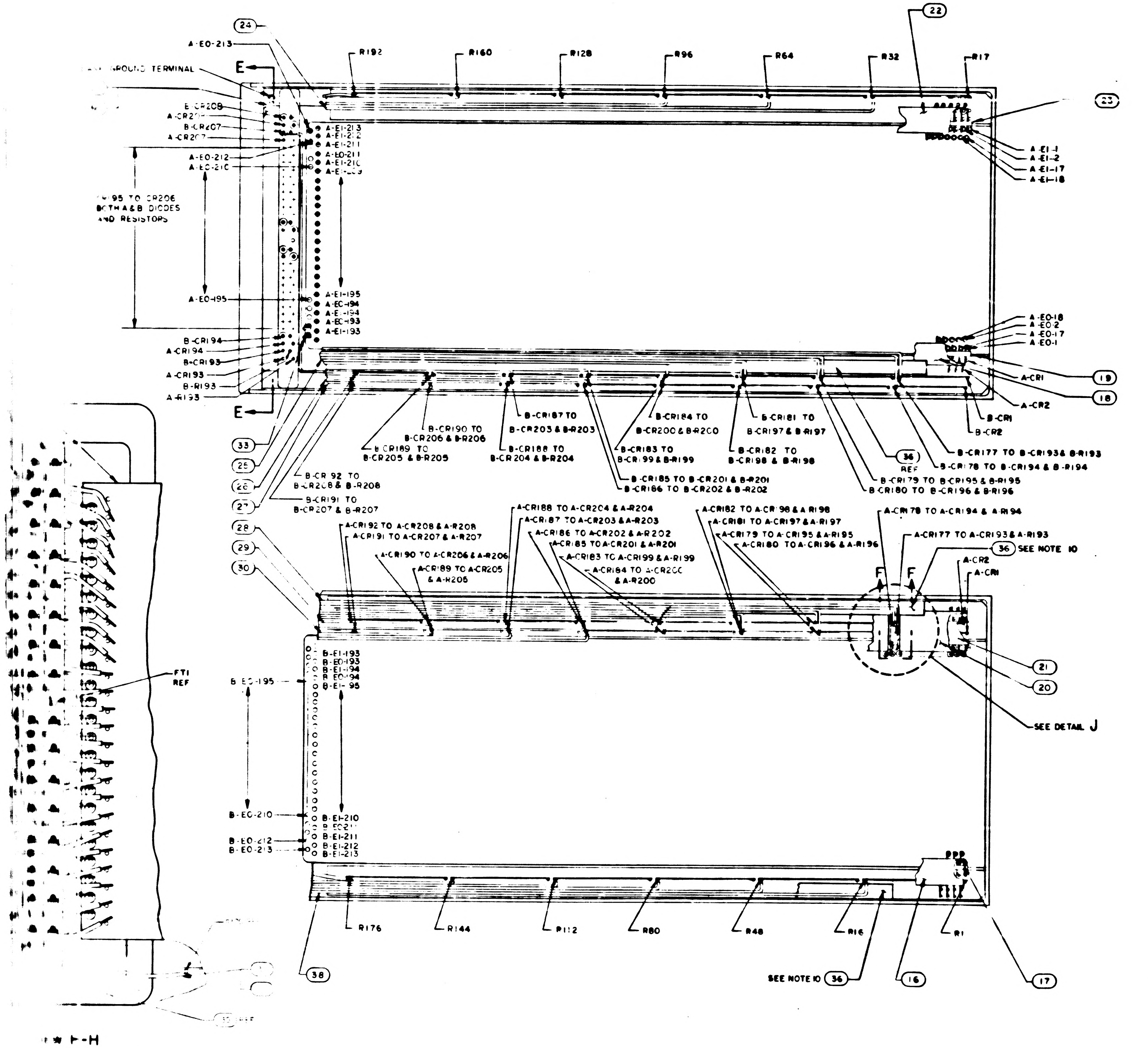

24
A-E0-213
CASE GROUND TERMINAL
E
31
32
B-CR208
A-CR208
B-CR207
A-CR207
A-E1-213
A-E1-212
A-E1-211
A-E0-211
A-E1-210
A-E1-209
A-E0-212
A-E0-210
CR195 TO CR206 BOTH A & B DIODES AND RESISTORS
A-E0-195
A-E1-195
A-E0-194
A-E1-194
A-E0-193
A-E1-193
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
E
33
25
26
27
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
B-CR189 TO B-CR205 & B-R205
28
29
30
A-CR192 TO A-CR208
A-CR191 TO A-CR207
A-CR190 TO A
B-E0-195
B-E1-193
B-E0-193
B-E1-194
B-E0-194
B-E1-195
B-E0-210
B-E1-210
B-E0-211
B-E1-211
B-E0-212
B-E0-213
B-E1-212
B-E1-213
R176
38

2003972 N

2003972 NF1/2 SH2/3

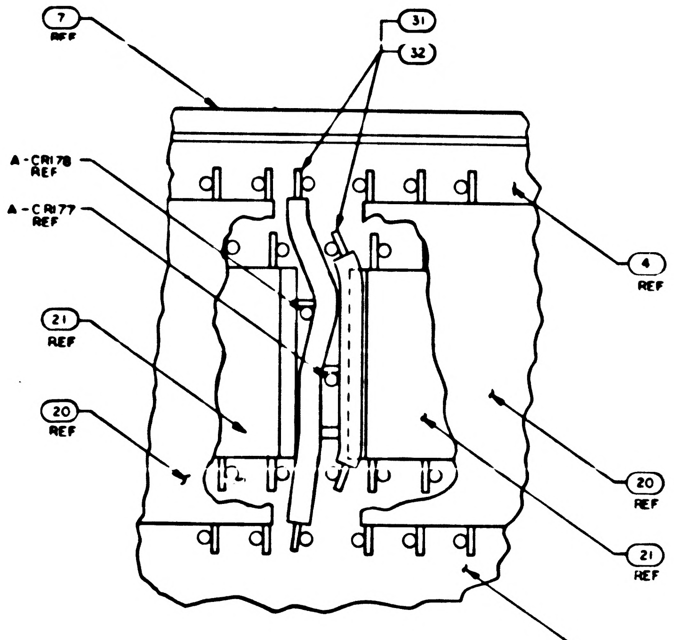
REVISIONS

A		INITIAL RELEASE TDRR 32 99				
B		REVISED PER TDRR 33460				
C		REVISED PER TDRR 33544				
D		REVISED PER TDRR 33606				
E		REVISED PER TDRR 34140				
F		REVISED PER TDRR 34483				
G		REVISED PER TDRR 349				
H		REVISED PER TDRR 35				
J		REVISED PER TDRR 35				
K		REVISED PER TDRR 35				
L		REVISED PER TDRR 3621			7/09/67	
M		REVISED PER TDRR 3				
N		REVISED PER TDRR 36 96				

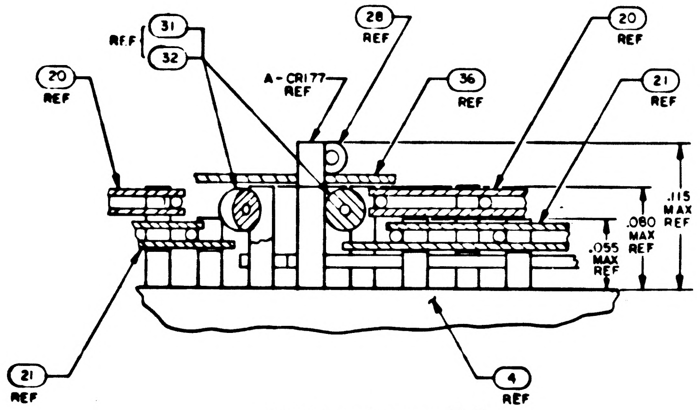

24
A-EO-213
GROUND TERMINAL
E
R192
R160
R128
R96
R64
R32
R17
22
23
B-CR208
A-CR208
B-CR207
A-CR207
A-EO-212
A-EO-210
CR195 TO CR206
BOTH A&B DIODES
AND RESISTORS
A-EI-213
A-EI-212
A-EI-211
A-EO-211
A-EI-210
A-EI-209
A-EI-1
A-EI-2
A-EI-17
A-EI-18
A-EO-195
A-EI-195
A-EO-194
A-EI-194
A-EO-193
A-EI-193
A-EO-18
A-EO-2
A-EO-17
A-EO-1
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
E
A-CR1
19
A-CR2
18
B-CR1
B-CR2
33
25
26
27
B-CR190 TO
B-CR206 & B-R206
B-CR189 TO
B-CR205 & B-R205
B-CR192 TO
B-CR208 & B-R208
B-CR191 TO
B-CR207 & B-R207
B-CR187 TO
B-CR203 & B-R203
B-CR188 TO
B-CR204 & B-R204
B-CR184 TO
B-CR200 & B-R200
B-CR183 TO
B-CR199 & B-R199
B-CR185 TO B-CR201 & B-R201
B-CR186 TO B-CR202 & B-R202
B-CR181 TO
B-CR197 & B-R197
B-CR182 TO
B-CR198 & B-R198
36
REF
B-CR179 TO B-CR195 & B-R195
B-CR180 TO B-CR196 & B-R196
B-CR177 TO B-CR193 & B-R193
B-CR178 TO B-CR194 & B-R194
28
29
30
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205
& A-R205
A-CR188 TO A-CR204 & A-R204
A-CR187 TO A-CR203 & A-R203
A-CR186 TO A-CR202 & A-R202
A-CR185 TO A-CR201 & A-R201
A-CR183 TO A-CR199 & A-R199
A-CR184 TO A-CR200
& A-R200
A-CR182 TO A-CR198 & A-R198
A-CR181 TO A-CR197 & A-R197
A-CR179 TO A-CR195 & A-R195
A-CR180 TO A-CR196 & A-R196
A-CR178 TO A-CR194 & A-R194
A-CR177 TO A-CR193 & A-R193
36 SEE NOTE 10
F
F
A-CR2
A-CR1
21
20
SEE DETAIL J
FT1
REF
B-EO-195
B-EI-193
B-EO-193
B-EI-194
B-EO-194
B-EI-195
B-EO-210
B-EI-210
B-EO-211
B-EI-211
B-EO-212
B-EO-213
B-EI-212
B-EI-213
R176
R144
R112
R80
R48
R16
R1
38
SEE NOTE 10
36
16
17
32 REF

VIEW F-H
SCALE 4/1
AND FIND NO.7
11,12,13 AND 14

N


7
REF
31
32
A-CR178
REF
A-CR177
REF
21
REF
20
REF
4
REF
20
REF
21
REF
2
REF

DETAIL J
SCALE 10/1
TYPICAL WIRING 8 PLACES, SHOWN
WITH FIND NOS 28 AND 36 REMOVED


REF
31
32
20
REF
A-CR177
REF
28
REF
36
REF
20
REF
21
REF
.115
MAX
REF
.080
MAX
REF
.055
MAX
REF
21
REF
4
REF

PARTIAL SECTION F-F
SCALE: 20/1

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE
ASSEMBLY

CODE IDENT NO 80230
SIZE J
DRAWING NO 2003972
SCALE 2/1
SHEET 2 OF 3

SH2/3 2003972 NF2/2

2003972	N	

SH3/3 2003972 NF1/2

4 3 2

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL RELEASE TDRR 3299				
B		REVISED PER TDRR 334[illegible]				
C		REVISED PER TDRR 33[illegible]4				
D		REVISED PER TDRR 33[illegible]06				
E		REVISED PER TDRR 34[illegible]40				
F		REVISED PER TDRR 34489				
G		REVISED PER TDRR [illegible]				
H		REVISED PER TDRR [illegible]339				
J		REVISED PER TDRR [illegible]				
K		REVISED PER TDRR 3597[illegible]				
L		REVISED PER TDRR 3[illegible]21[illegible]				
M		REVISED PER TDRR [illegible]				
N		REVISED PER TDRR 3[illegible]96				

WIRE LIST

TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.
A-E0-1	A-CR1	A-E0-97	A-CR97	B-E0-1	B-CR1	B-E0-97	B-CR97	A-E1-1	R1	A-E1-49	R49	A-E1-97	R97	A-E1-145	R145
A-E0-2	A-CR2	A-E0-98	A-CR98	B-E0-2	B-CR2	B-E0-98	B-CR98	B-E1-1		B-E1-49		B-E1-97		B-E1-145	
A-E0-3	A-CR3	A-E0-99	A-CR99	B-E0-3	B-CR3	B-E0-99	B-CR99	A-E1-2	R2	A-E1-50	R50	A-E1-98	R98	A-E1-146	R146
A-E0-4	A-CR4	A-E0-100	A-CR100	B-E0-4	B-CR4	B-E0-100	B-CR100	B-E1-2		B-E1-50		B-E1-98		B-E1-146	
A-E0-5	A-CR5	A-E0-101	A-CR101	B-E0-5	B-CR5	B-E0-101	B-CR101	A-E1-3	R3	A-E1-51	R51	A-E1-99	R99	A-E1-147	R147
A-E0-6	A-CR6	A-E0-102	A-CR102	B-E0-6	B-CR6	B-E0-102	B-CR102	B-E1-3		B-E1-51		B-E1-99		B-E1-147	
A-E0-7	A-CR7	A-E0-103	A-CR103	B-E0-7	B-CR7	B-E0-103	B-CR103	A-E1-4	R4	A-E1-52	R52	A-E1-100	R100	A-E1-148	R148
A-E0-8	A-CR8	A-E0-104	A-CR104	B-E0-8	B-CR8	B-E0-104	B-CR104	B-E1-4		B-E1-52		B-E1-100		B-E1-148	
A-E0-9	A-CR9	A-E0-105	A-CR105	B-E0-9	B-CR9	B-E0-105	B-CR105	A-E1-5	R5	A-E1-53	R53	A-E1-101	R101	A-E1-149	R149
A-E0-10	A-CR10	A-E0-106	A-CR106	B-E0-10	B-CR10	B-E0-106	B-CR106	B-E1-5		B-E1-53		B-E1-101		B-E1-149	
A-E0-11	A-CR11	A-E0-107	A-CR107	B-E0-11	B-CR11	B-E0-107	B-CR107	A-E1-6	R6	A-E1-54	R54	A-E1-102	R102	A-E1-150	R150
A-E0-12	A-CR12	A-E0-108	A-CR108	B-E0-12	B-CR12	B-E0-108	B-CR108	B-E1-6		B-E1-54		B-E1-102		B-E1-150	
A-E0-13	A-CR13	A-E0-109	A-CR109	B-E0-13	B-CR13	B-E0-109	B-CR109	A-E1-7	R7	A-E1-55	R55	A-E1-103	R103	A-E1-151	R151
A-E0-14	A-CR14	A-E0-110	A-CR110	B-E0-14	B-CR14	B-E0-110	B-CR110	B-E1-7		B-E1-55		B-E1-103		B-E1-151	
A-E0-15	A-CR15	A-E0-111	A-CR111	B-E0-15	B-CR15	B-E0-111	B-CR111	A-E1-8	R8	A-E1-56	R56	A-E1-104	R104	A-E1-152	R152
A-E0-16	A-CR16	A-E0-112	A-CR112	B-E0-16	B-CR16	B-E0-112	B-CR112	B-E1-8		B-E1-56		B-E1-104		B-E1-152	
A-E0-17	A-CR17	A-E0-113	A-CR113	B-E0-17	B-CR17	B-E0-113	B-CR113	A-E1-9	R9	A-E1-57	R57	A-E1-105	R105	A-E1-153	R153
A-E0-18	A-CR18	A-E0-114	A-CR114	B-E0-18	B-CR18	B-E0-114	B-CR114	B-E1-9		B-E1-57		B-E1-105		B-E1-153	
A-E0-19	A-CR19	A-E0-115	A-CR115	B-E0-19	B-CR19	B-E0-115	B-CR115	A-E1-10	R10	A-E1-58	R58	A-E1-106	R106	A-E1-154	R154
A-E0-20	A-CR20	A-E0-116	A-CR116	B-E0-20	B-CR20	B-E0-116	B-CR116	B-E1-10		B-E1-58		B-E1-106		B-E1-154	
A-E0-21	A-CR21	A-E0-117	A-CR117	B-E0-21	B-CR21	B-E0-117	B-CR117	A-E1-11	R11	A-E1-59	R59	A-E1-107	R107	A-E1-155	R155
A-E0-22	A-CR22	A-E0-118	A-CR118	B-E0-22	B-CR22	B-E0-118	B-CR118	B-E1-11		B-E1-59		B-E1-107		B-E1-155	
A-E0-23	A-CR23	A-E0-119	A-CR119	B-E0-23	B-CR23	B-E0-119	B-CR119	A-E1-12	R12	A-E1-60	R60	A-E1-108	R108	A-E1-156	R156
A-E0-24	A-CR24	A-E0-120	A-CR120	B-E0-24	B-CR24	B-E0-120	B-CR120	B-E1-12		B-E1-60		B-E1-108		B-E1-156	
A-E0-25	A-CR25	A-E0-121	A-CR121	B-E0-25	B-CR25	B-E0-121	B-CR121	A-E1-13	R13	A-E1-61	R61	A-E1-109	R109	A-E1-157	R157
A-E0-26	A-CR26	A-E0-122	A-CR122	B-E0-26	B-CR26	B-E0-122	B-CR122	B-E1-13		B-E1-61		B-E1-109		B-E1-157	
A-E0-27	A-CR27	A-E0-123	A-CR123	B-E0-27	B-CR27	B-E0-123	B-CR123	A-E1-14	R14	A-E1-62	R62	A-E1-110	R110	A-E1-158	R158
A-E0-28	A-CR28	A-E0-124	A-CR124	B-E0-28	B-CR28	B-E0-124	B-CR124	B-E1-14		B-E1-62		B-E1-110		B-E1-158	
A-E0-29	A-CR29	A-E0-125	A-CR125	B-E0-29	B-CR29	B-E0-125	B-CR125	A-E1-15	R15	A-E1-63	R63	A-E1-111	R111	A-E1-159	R159
A-E0-30	A-CR30	A-E0-126	A-CR126	B-E0-30	B-CR30	B-E0-126	B-CR126	B-E1-15		B-E1-63		B-E1-111		B-E1-159	
A-E0-31	A-CR31	A-E0-127	A-CR127	B-E0-31	B-CR31	B-E0-127	B-CR127	A-E1-16	R16	A-E1-64	R64	A-E1-112	R112	A-E1-160	R160
A-E0-32	A-CR32	A-E0-128	A-CR128	B-E0-32	B-CR32	B-E0-128	B-CR128	B-E1-16		B-E1-64		B-E1-112		B-E1-160	
A-E0-33	A-CR33	A-E0-129	A-CR129	B-E0-33	B-CR33	B-E0-129	B-CR129	A-E1-17	R17	A-E1-65	R65	A-E1-113	R113	A-E1-161	R161
A-E0-34	A-CR34	A-E0-130	A-CR130	B-E0-34	B-CR34	B-E0-130	B-CR130	B-E1-17		B-E1-65		B-E1-113		B-E1-161	
A-E0-35	A-CR35	A-E0-131	A-CR131	B-E0-35	B-CR35	B-E0-131	B-CR131	A-E1-18	R18	A-E1-66	R66	A-E1-114	R114	A-E1-162	R162
A-E0-36	A-CR36	A-E0-132	A-CR132	B-E0-36	B-CR36	B-E0-132	B-CR132	B-E1-18		B-E1-66		B-E1-114		B-E1-162	
A-E0-37	A-CR37	A-E0-133	A-CR133	B-E0-37	B-CR37	B-E0-133	B-CR133	A-E1-19	R19	A-E1-67	R67	A-E1-115	R115	A-E1-163	R163
A-E0-38	A-CR38	A-E0-134	A-CR134	B-E0-38	B-CR38	B-E0-134	B-CR134	B-E1-19		B-E1-67		B-E1-115		B-E1-163	
A-E0-39	A-CR39	A-E0-135	A-CR135	B-E0-39	B-CR39	B-E0-135	B-CR135	A-E1-20	R20	A-E1-68	R68	A-E1-116	R116	A-E1-164	R164
A-E0-40	A-CR40	A-E0-136	A-CR136	B-E0-40	B-CR40	B-E0-136	B-CR136	B-E1-20		B-E1-68		B-E1-116		B-E1-164	
A-E0-41	A-CR41	A-E0-137	A-CR137	B-E0-41	B-CR41	B-E0-137	B-CR137	A-E1-21	R21	A-E1-69	R69	A-E1-117	R117	A-E1-165	R165
A-E0-42	A-CR42	A-E0-138	A-CR138	B-E0-42	B-CR42	B-E0-138	B-CR138	B-E1-21		B-E1-69		B-E1-117		B-E1-165	
A-E0-43	A-CR43	A-E0-139	A-CR139	B-E0-43	B-CR43	B-E0-139	B-CR139	A-E1-22	R22	A-E1-70	R70	A-E1-118	R118	A-E1-166	R166
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A-E0-45	A-CR45	A-E0-141	A-CR141	B-E0-45	B-CR45	B-E0-141	B-CR141	A-E1-23	R23	A-E1-71	R71	A-E1-119	R119	A-E1-167	R167
A-E0-46	A-CR46	A-E0-142	A-CR142	B-E0-46	B-CR46	B-E0-142	B-CR142	B-E1-23		B-E1-71		B-E1-119		B-E1-167	
A-E0-47	A-CR47	A-E0-143	A-CR143	B-E0-47	B-CR47	B-E0-143	B-CR143	A-E1-24	R24	A-E1-72	R72	A-E1-120	R120	A-E1-168	R168
A-E0-48	A-CR48	A-E0-144	A-CR144	B-E0-48	B-CR48	B-E0-144	B-CR144	B-E1-24		B-E1-72		B-E1-120		B-E1-168	
A-E0-49	A-CR49	A-E0-145	A-CR145	B-E0-49	B-CR49	B-E0-145	B-CR145	A-E1-25	R25	A-E1-73	R73	A-E1-121	R121	A-E1-169	R169
A-E0-50	A-CR50	A-E0-146	A-CR146	B-E0-50	B-CR50	B-E0-146	B-CR146	B-E1-25		B-E1-73		B-E1-121		B-E1-169	
A-E0-51	A-CR51	A-E0-147	A-CR147	B-E0-51	B-CR51	B-E0-147	B-CR147	A-E1-26	R26	A-E1-74	R74	A-E1-122	R122	A-E1-170	R170
A-E0-52	A-CR52	A-E0-148	A-CR148	B-E0-52	B-CR52	B-E0-148	B-CR148	B-E1-26		B-E1-74		B-E1-122		B-E1-170	
A-E0-53	A-CR53	A-E0-149	A-CR149	B-E0-53	B-CR53	B-E0-149	B-CR149	A-E1-27	R27	A-E1-75	R75	A-E1-123	R123	A-E1-171	R171
A-E0-54	A-CR54	A-E0-150	A-CR150	B-E0-54	B-CR54	B-E0-150	B-CR150	B-E1-27		B-E1-75		B-E1-123		B-E1-171	
A-E0-55	A-CR55	A-E0-151	A-CR151	B-E0-55	B-CR55	B-E0-151	B-CR151	A-E1-28	R28	A-E1-76	R76	A-E1-124	R124	A-E1-172	R172
A-E0-56	A-CR56	A-E0-152	A-CR152	B-E0-56	B-CR56	B-E0-152	B-CR152	B-E1-28		B-E1-76		B-E1-124		B-E1-172	
A-E0-57	A-CR57	A-E0-153	A-CR153	B-E0-57	B-CR57	B-E0-153	B-CR153	A-E1-29	R29	A-E1-77	R77	A-E1-125	R125	A-E1-173	R173
A-E0-58	A-CR58	A-E0-154	A-CR154	B-E0-58	B-CR58	B-E0-154	B-CR154	B-E1-29		B-E1-77		B-E1-125		B-E1-173	
A-E0-59	A-CR59	A-E0-155	A-CR155	B-E0-59	B-CR59	B-E0-155	B-CR155	A-E1-30	R30	A-E1-78	R78	A-E1-126	R126	A-E1-174	R174
A-E0-60	A-CR60	A-E0-156	A-CR156	B-E0-60	B-CR60	B-E0-156	B-CR156	B-E1-30		B-E1-78		B-E1-126		B-E1-174	
A-E0-61	A-CR61	A-E0-157	A-CR157	B-E0-61	B-CR61	B-E0-157	B-CR157	A-E1-31	R31	A-E1-79	R79	A-E1-127	R127	A-E1-175	R175
A-E0-62	A-CR62	A-E0-158	A-CR158	B-E0-62	B-CR62	B-E0-158	B-CR158	B-E1-31		B-E1-79		B-E1-127		B-E1-175	
A-E0-63	A-CR63	A-E0-159	A-CR159	B-E0-63	B-CR63	B-E0-159	B-CR159	A-E1-32	R32	A-E1-80	R80	A-E1-128	R128	A-E1-176	R176
A-E0-64	A-CR64	A-E0-160	A-CR160	B-E0-64	B-CR64	B-E0-160	B-CR160	B-E1-32		B-E1-80		B-E1-128		B-E1-176	
A-E0-65	A-CR65	A-E0-161	A-CR161	B-E0-65	B-CR65	B-E0-161	B-CR161	A-E1-33	R33	A-E1-81	R81	A-E1-129	R129	A-E1-177	R177
A-E0-66	A-CR66	A-E0-162	A-CR162	B-E0-66	B-CR66	B-E0-162	B-CR162	B-E1-33		B-E1-81		B-E1-129		B-E1-177	
A-E0-67	A-CR67	A-E0-163	A-CR163	B-E0-67	B-CR67	B-E0-163	B-CR163	A-E1-34	R34	A-E1-82	R82	A-E1-130	R130	A-E1-178	R178
A-E0-68	A-CR68	A-E0-164	A-CR164	B-E0-68	B-CR68	B-E0-164	B-CR164	B-E1-34		B-E1-82		B-E1-130		B-E1-178	
A-E0-69	A-CR69	A-E0-165	A-CR165	B-E0-69	B-CR69	B-E0-165	B-CR165	A-E1-35	R35	A-E1-83	R83	A-E1-131	R131	A-E1-179	R179
A-E0-70	A-CR70	A-E0-166	A-CR166	B-E0-70	B-CR70	B-E0-166	B-CR166	B-E1-35		B-E1-83		B-E1-131		B-E1-179	
A-E0-71	A-CR71	A-E0-167	A-CR167	B-E0-71	B-CR71	B-E0-167	B-CR167	A-E1-36	R36	A-E1-84	R84	A-E1-132	R132	A-E1-180	R180
A-E0-72	A-CR72	A-E0-168	A-CR168	B-E0-72	B-CR72	B-E0-168	B-CR168	B-E1-36		B-E1-84		B-E1-132		B-E1-180	
A-E0-73	A-CR73	A-E0-169	A-CR169	B-E0-73	B-CR73	B-E0-169	B-CR169	A-E1-37	R37	A-E1-85	R85	A-E1-133	R133	A-E1-181	R181
A-E0-74	A-CR74	A-E0-170	A-CR170	B-E0-74	B-CR74	B-E0-170	B-CR170	B-E1-37		B-E1-85		B-E1-133		B-E1-181	
A-E0-75	A-CR75	A-E0-171	A-CR171	B-E0-75	B-CR75	B-E0-171	B-CR171	A-E1-38	R38	A-E1-86	R86	A-E1-134	R134	A-E1-182	R182
A-E0-76	A-CR76	A-E0-172	A-CR172	B-E0-76	B-CR76	B-E0-172	B-CR172	B-E1-38		B-E1-86		B-E1-134		B-E1-182	
A-E0-77	A-CR77	A-E0-173	A-CR173	B-E0-77	B-CR77	B-E0-173	B-CR173	A-E1-39	R39	A-E1-87	R87	A-E1-135	R135	A-E1-183	R183
A-E0-78	A-CR78	A-E0-174	A-CR174	B-E0-78	B-CR78	B-E0-174	B-CR174	B-E1-39		B-E1-87		B-E1-135		B-E1-183	
A-E0-79	A-CR79	A-E0-175	A-CR175	B-E0-79	B-CR79	B-E0-175	B-CR175	A-E1-40	R40	A-E1-88	R88	A-E1-136	R136	A-E1-184	R184
A-E0-80	A-CR80	A-E0-176	A-CR176	B-E0-80	B-CR80	B-E0-176	B-CR176	B-E1-40		B-E1-88		B-E1-136		B-E1-184	
A-E0-81	A-CR81	A-E0-177	A-CR177	B-E0-81	B-CR81	B-E0-177	B-CR177	A-E1-41	R41	A-E1-89	R89	A-E1-137	R137	A-E1-185	R185
A-E0-82	A-CR82	A-E0-178	A-CR178	B-E0-82	B-CR82	B-E0-178	B-CR178	B-E1-41		B-E1-89		B-E1-137		B-E1-185	
A-E0-83	A-CR83	A-E0-179	A-CR179	B-E0-83	B-CR83	B-E0-179	B-CR179	A-E1-42	R42	A-E1-90	R90	A-E1-138	R138	A-E1-186	R186
A-E0-84	A-CR84	A-E0-180	A-CR180	B-E0-84	B-CR84	B-E0-180	B-CR180	B-E1-42		B-E1-90		B-E1-138		B-E1-186	
A-E0-85	A-CR85	A-E0-181	A-CR181	B-E0-85	B-CR85	B-E0-181	B-CR181	A-E1-43	R43	A-E1-91	R91	A-E1-139	R139	A-E1-187	R187
A-E0-86	A-CR86	A-E0-182	A-CR182	B-E0-86	B-CR86	B-E0-182	B-CR182	B-E1-43		B-E1-91		B-E1-139		B-E1-187	
A-E0-87	A-CR87	A-E0-183	A-CR183	B-E0-87	B-CR87	B-E0-183	B-CR183	A-E1-44	R44	A-E1-92	R92	A-E1-140	R140	A-E1-188	R188
A-E0-88	A-CR88	A-E0-184	A-CR184	B-E0-88	B-CR88	B-E0-184	B-CR184	B-E1-44		B-E1-92		B-E1-140		B-E1-188	
A-E0-89	A-CR89	A-E0-185	A-CR185	B-E0-89	B-CR89	B-E0-185	B-CR185	A-E1-45	R45	A-E1-93	R93	A-E1-141	R141	A-E1-189	R189
A-E0-90	A-CR90	A-E0-186	A-CR186	B-E0-90	B-CR90	B-E0-186	B-CR186	B-E1-45		B-E1-93		B-E1-141		B-E1-189	
A-E0-91	A-CR91	A-E0-187	A-CR187	B-E0-91	B-CR91	B-E0-187	B-CR187	A-E1-46	R46	A-E1-94	R94	A-E1-142	R142	A-E1-190	R190
A-E0-92	A-CR92	A-E0-188	A-CR188	B-E0-92	B-CR92	B-E0-188	B-CR188	B-E1-46		B-E1-94		B-E1-142		B-E1-190	
A-E0-93	A-CR93	A-E0-189	A-CR189	B-E0-93	B-CR93	B-E0-189	B-CR189	A-E1-47	R47	A-E1-95	R95	A-E1-143	R143	A-E1-191	R191
A-E0-94	A-CR94	A-E0-190	A-CR190	B-E0-94	B-CR94	B-E0-190	B-CR190	B-E1-47		B-E1-95		B-E1-143		B-E1-191	
A-E0-95	A-CR95	A-E0-191	A-CR191	B-E0-95	B-CR95	B-E0-191	B-CR191	A-E1-48	R48	A-E1-96	R96	A-E1-144	R144	A-E1-192	R192
A-E0-96	A-CR96	A-E0-192	A-CR192	B-E0-96	B-CR96	B-E0-192	B-CR192	B-E1-48		B-E1-96		B-E1-144		B-E1-192	

C

B

A

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED
NASA
APPROVED
MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

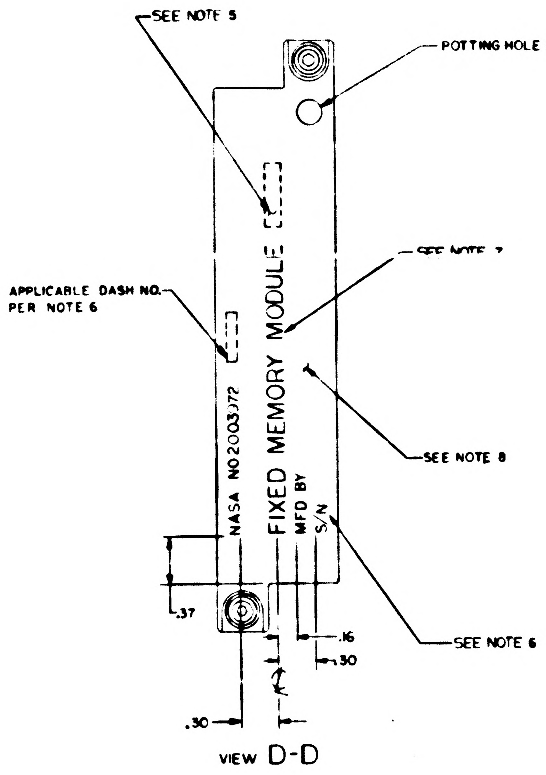
FIXED MEMORY MODULE
ASSEMBLY

CODE IDENT NO 80230
SIZE J
DRAWING NO 2003972
SCALE NONE
SHEET 3 OF 3

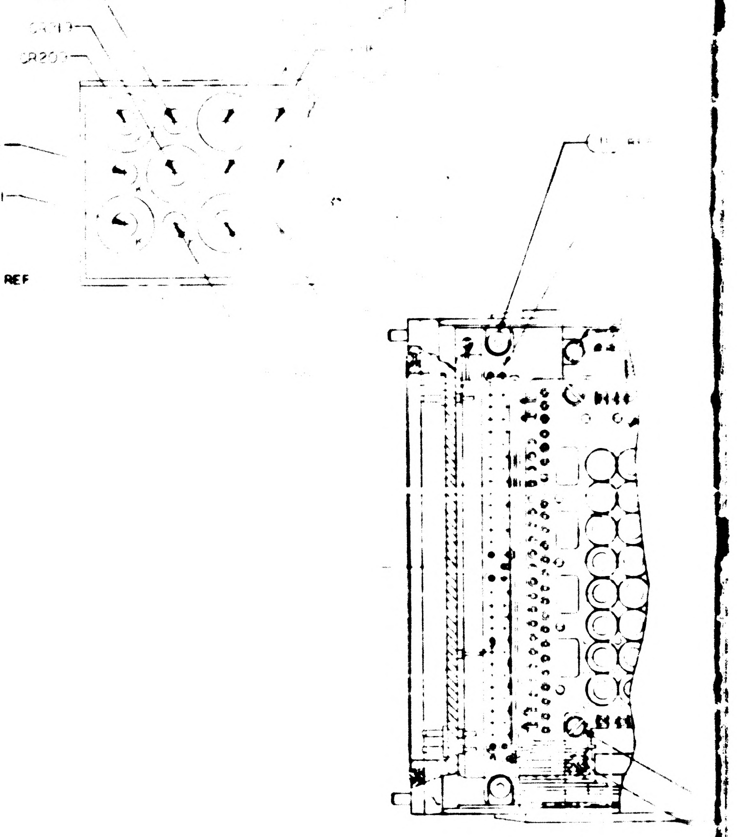
4

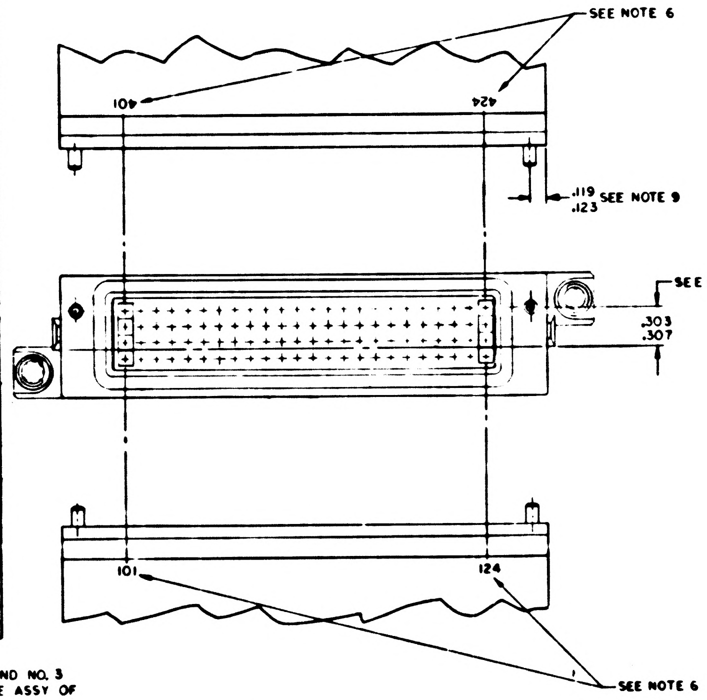
SH3/3 2003972 NF2/2

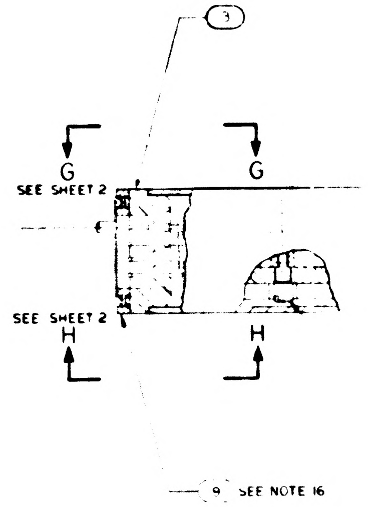
PART NO.	MODULE NO.	FIND NO. 1	FIND NO. 2	MODULE DECK NO.	NEXT ASSEMBLY NO. (REF)	PROCUREMENT SPECIFICATION SEE NOTE 15
2003972-011	B1	2003060-061	2003061-061	0205	2021101	PS2003972
2003972-021	B2	2003060-071	2003061-071	0206	2021101	
2003972-031	B3	2003060-081	2003061-081	0207	2021101	
2003972-041	B1	2003060-121	2003061-121	0210	2021104	
2003972-051	B2	2003060-131	2003061-131	0211	2021104	
2003972-061	B3	2003060-141	2003061-141	0212	2021104	
2003972-071	B2	2003060-151	2003061-151	0213	2021104	
2003972-081	B3	2003060-161	2003061-161	0214	202110[illegible]	
2003972-091	B2	2003060-171	2003061-171	0215	2021101	
2003972-111	B3	2003060-181	2003061-181	0216	2021101	PS2003972
2003972-121	B1	2003060-091	2003061-091	0208	2021105-031	PS2003960
2003972-131	B2	2003060-111	2003061-111	0209	2021105-031	PS2003960
2003972-141	B1	2003060-191	2003061-191	0217	2021106-011	PS2003972
2003972-151	B2	2003060-211	2003061-211	0218	2021106-011	
2003972-161	B3	2003060-221	2003061-221	0219	2021106-011	
2003972-171	B4	2003060-231	2003061-231	0220	2021106-011	
2003972-181	B5	2003060-241	2003061-241	0221	2021106-011	
2003972-191	B6	2003060-251	2003061-251	0222	2021106-011	
2003972-211	B3	2003060-261	2003061-261	0223	[illegible]	PS2003972
2003972-221	B1	2003060-271	2003061-271	0224	2021105-041	PS2003960
2003972-231	B1	2003060-281	2003061-281	0225	2021106-021	PS2003972
2003972-241	B3	2003060-291	2003061-291	0226	2021106-021	
2003972-251	B5	2003060-311	2003061-311	0227	2021106-021	
2003972-261	B1	2003060-321	2003061-321	0230	2021107-011	
2003972-271	B2	2003060-331	2003061-331	0229	2021107-011	
2003972-281	B3	2003060-341	2003061-341	0231	[illegible]	
2003972-291	B1	2003060-351	2003061-351	0238	2021107-021	PS2003972
2003972-311	B1	2003060-361	2003061-361	0239	2021108-021	PS2016016
-321	B2	2003060-371	2003061-371	0240	2021108-021	PS2016016
-331	B3	2003060-381	2003061-381	0241	2021108-021	PS2016016
-341	B4	2003060-391	2003061-391	0242	2021108-021	PS2016016
-351	B5	2003060-411	2003061-411	0243	2021108-021	PS2016016
2003972-361	B6	2003060-421	2003061-421	0244	2021108-021	PS2016016
2003972-371	B1	2003060-431	2003061-431	0245	2021110-011	PS2016016
2003972-381	B2	2003060-441	2003061-441	0246	2021110-011	
2003972-391	B3	2003060-451	2003061-451	0247	2021110-011	
2003972-411	B4	2003060-461	2003061-461	0248	2021110-011	
2003972-421	B5	2003060-471	2003061-471	0249	2021110-011	
2003972-431	B6	2003060-481	2003061-481	0250	2021110-011	PS2016016
[illegible]	B1	[illegible]	[illegible]	[illegible]	2021110-021	PS2016036
[illegible]	B2	2003060-511	[illegible]	[illegible]	2021110-021	
[illegible]	B3	[illegible]	[illegible]	0253	2021110-021	
[illegible]	B4	[illegible]	[illegible]	0254	2021110-021	
[illegible]	B5	[illegible]	[illegible]	0255	2021110-021	
2003972-491	B6	2003060-[illegible]	[illegible]	0256	[illegible]-021	[illegible]
-511	B1	[illegible]	[illegible]	0257	2021111-021&031	
-521	B2	[illegible]	[illegible]	0258	-021&031	
[illegible]	B3	[illegible]	[illegible]	0259	-021&031	
[illegible]	B4	-59[illegible]	[illegible]	0260	2021111-021&031	
[illegible]	B5	[illegible]	[illegible]	0261	2021111-[illegible]	
[illegible]	B6	[illegible]	[illegible]	0262	2021111-021&031	PS2016036
2003972-571	B5	2003060-631	2003061-631	0263	2021111-031	PS2016036



VIEW D-D







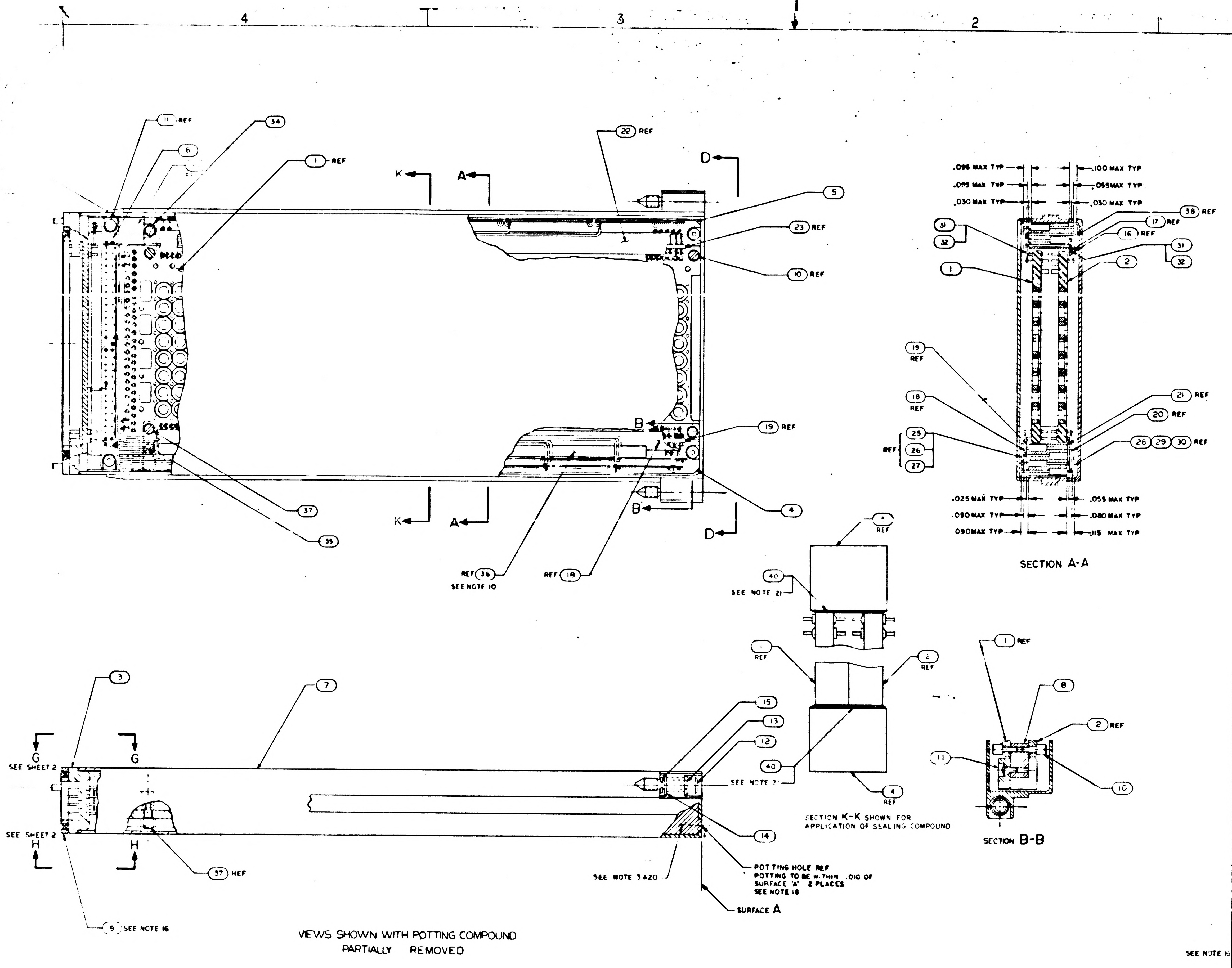
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
3. ENCAPSULATE MODULE PER ND1002226 METHOD II
4. WELD PER ND1002005
5. MARK APPROPRIATE MODULE NO. AS SHOWN IN CHART
6. MARK .08/.06 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
7. MARK .14/.10 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 USING INK 1006271-1
8. PAINT INDICATED SURFACES OF FIND NO 7. PER ND1002279 WITH SCD NO.1008809-1 DARK GREY EPOXY RESIN ENAMEL, FINAL COAT PER ND1002277 USING 1012543-003
9. ASSEMBLE FIND NO.7 AND FIND NO.3 TO DIMENSIONS SHOWN
10. REMOVE LINER FROM NEARSIDE OF FIND NO.36 AND ASSEMBLE 3 PLACES AS SHOWN. FIND NO.36 MUST INSULATE FLAT CABLES FROM TRIMMED COMPONENT LEADS. TRIM AS REQUIRED
11. WHITE DOT AND SINGLE SOLID LEAD DENOTES FIRST LEVEL WIRING UNLESS OTHERWISE SPECIFIED
12. BLACK DOT AND SINGLE SOLID LEAD DENOTES SECOND LEVEL WIRING
13. BLACK DOT AND CROSS HATCHED LEAD DENOTES THIRD LEVEL WIRING
14. ALL LEADS FROM FIND NO.1 AND FIND NO.2 TO FIND NO.3 TO BE THIRD LEVEL WIRING
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PROCUREMENT SPECIFICATION AS LISTED IN CHART.
16. FIND NO.9 TO BE SHIPPED UNASSEMBLED AND IDENTIFIED PER ND 10[illegible]
17. SEAL PINS AND INSULATORS TO FIND NO. 3 PER ND1002004 TYPE III BEFORE ASSY OF FIND NO. 6
18. FILL AS SHOWN PER ND1002235 METHOD A
19. BOND FIND NO.39 TO FIND NO.3 PER ND1002004 TYPE III AFTER ASSY OF FIND NO.6
20. PRIOR TO ENCAPSULATION PER NOTE 3, COAT OVER ALL TERMINALS OF FIND NO'S 1,2&3 AND OVER ALL WIRES, SLEEVING AND COMPONENT LEADS OF FIND NO'S 4,5,6,16,17,18,19,20,21,22,23,24, 25,26,27,28,29,30,31,32,33,38 & 39 WITH A .03 MAXIMUM THICKNESS OF SILICONE RUBBER PER ND1002009, METHOD A. MASK ALL OUTSIDE SURFACES OF FIND NO.3 AND ALL OTHER SURFACES OF THIS ASSEMBLY COMING IN CLOSE CONTACT WITH FIND NO.7
21. FILL INTERFACE BETWEEN FIND NO. 4 AND SIDE SURFACES OF FIND NO'S 1 AND 2, AND INTERFACE BETWEEN FIND NO 5 AND SIDE SURFACES OF FIND NO'S 1 AND 2 USING FIND NO. 40. ROOM TEMP CURE FOR 24 HOURS MIN.

REFERENCES:

1. PROCESS REQUIREMENTS FOR CONTROL AND INSPECTION OF ROPE MEMORY ASSE[illegible] ND1002245
2. FIXED MEMORY FIXTURE DWG NO AP22[illegible]

2003972 R


4
3
2
11 REF
34
6
1 REF
22 REF
D
K
A
5
23 REF
10 REF
19 REF
B
4
37
35
REF 36
SEE NOTE 10
REF 18
.096 MAX TYP
.095 MAX TYP
.030 MAX TYP
.100 MAX TYP
.055 MAX TYP
.030 MAX TYP
38 REF
17 REF
16 REF
31
32
1
2
19 REF
18 REF
21 REF
20 REF
25
26
27
REF
26 29 30 REF
.025 MAX TYP
.050 MAX TYP
.090 MAX TYP
.055 MAX TYP
.080 MAX TYP
.115 MAX TYP
SECTION A-A
* REF
40
SEE NOTE 21
1 REF
2 REF
40
4 REF
SECTION K-K SHOWN FOR APPLICATION OF SEALING COMPOUND
1 REF
8
2 REF
11
10
SECTION B-B
3
7
15
13
12
G
SEE SHEET 2
SEE SHEET 2
H
SEE NOTE 21
14
37 REF
SEE NOTE 3 4 20
POTTING HOLE REF POTTING TO BE WITHIN .010 OF SURFACE "A" 2 PLACES SEE NOTE 18
SURFACE A
9 SEE NOTE 16
VIEWS SHOWN WITH POTTING COMPOUND PARTIALLY REMOVED

	REVISIONS		
SYM	DESCRIPTION	DATE	APPROVAL
A	[illegible]		
B	REVISED PER TDRR [illegible] DR [illegible] CHK [illegible]		
C	REVISED PER TDRR [illegible] 4		
D	REVISED PER TDRR 33606 DR [illegible] CHK [illegible]		
E	REVISED PER TDRR 34,40[illegible] DR [illegible] CHK [illegible]		
F	REVISED PER TDRR 344[illegible] DR [illegible] CHK [illegible]		
G	[illegible]		
H	REVISED PER TDRR [illegible]		
J	REVISED PER [illegible]		
K	REVISED PER TDRR 35-7[illegible] DR [illegible] CHK [illegible]		
L	REVISED PER TDRR 3621[illegible] DR [illegible] CHK [illegible]		
M	[illegible]		
N	REVISED PER TDRR 36[illegible]86 DR [illegible] CHK [illegible]		
P	REVISED PER [illegible]		
R	REVISED PER [illegible]6818 DR [illegible] CHK [illegible]		

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
AR	1006338-000	SEALING COMPOUND, SILICONE RUBBER	4[illegible]
1	2003[illegible] 021	COMPONENT BLOCK [illegible] ASSY	[illegible]
╳	2005935	SCHEMATIC	REF
1	2004[illegible]	FLAT CABLE	38
4	2004150 — 003	SCREW, SHOULDERED	37
AR	1006806 — 26	INSULATION TAPE, ELECTRICAL	36
1	2004150 — 001	SCREW, SHOULDERED	35
1	2004150 — 002	SCREW, SHOULDERED	34
1	2004129	FLAT CABLE INTERCONNECTION	33
AR	1006776-25	SLEEVING	32
AR	1006757 12	WIRE, ELECTRICAL	31
1	2004125	FLAT CABLE	30
1	2004122	FLAT CABLE	29
1	2004124	FLAT CABLE	28
1	2004123	FLAT CABLE	27
1	2004121	FLAT CABLE	26
1	2004120	FLAT CABLE	25
1	2004[illegible]	FLAT CABLE	24
1	2003051 — 013	MATRIX ASSY	23
1	2003051 — 014	MATRIX ASSY	22
8	2003051 — 016	MATRIX ASSY	21
8	2003051 — 015	MATRIX ASSY	20
1	2003051 — 017	MATRIX ASSY	19
1	2003051 — 018	MATRIX ASSY	18
1	2003051 — 011	MATRIX ASSY	17
1	2003051 — 012	MATRIX ASSY	16
2	MS16633-4015	E RING	15
2	1004546-3	WASHER	14
2	1004546-1	WASHER	13
2	1004579-1	SCREW JACKING	12
4	1000093-1	SCREW, BUTTONHEAD	11
4	2004151	SCREW, STANDOFF	10
1	1006339	GASKET PLATE	9
2	2004071	STANDOFF	8
1	2004100	HOUSING	7
1	2003048-021	RESISTOR-DIODE BLOCK ASSY	6
1	2003052 021	COMPONENT BLOCK RESISTOR ASSY	5
1	2003045 021	COMPONENT BLOCK DIODE ASSY	4
1	2003973 -011	CONNECTOR PLATE ASSY	3
1	2003061-SEE CHART	SENSE WIRING ASSY SIDE B	2
1	2003060-SEE CHART	SENSE WIRING ASSY SIDE A	1

LIST OF MATERIALS

SEE NOTE 16

FOR APPLICABLE PART NO. SEE CHART

SEE CHART	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN [illegible] DATE [illegible]
CHECKED [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
[illegible] APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

FIXED MEMORY MODULE ASSEMBLY

CODE IDENT NO	SIZE	NASA DRAWING NO
80230	J	2003972

SCALE 2/1 WT SHEET 1 OF 3

SH1/3 2003972 RF2/2

WIRE LIST

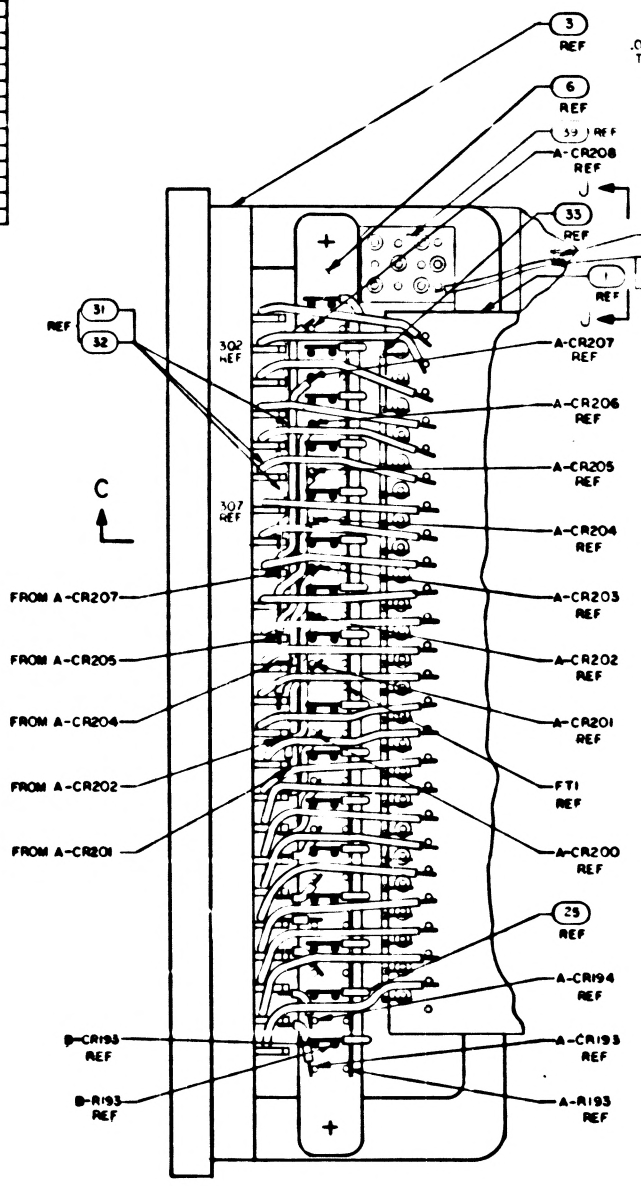
PIN NO.	COMPONENT OR TERM. NO.	PIN NO.	COMPONENT OR TERM. NO.
101	A-EI-213	301	GROUND
102	A-EI-212	302	CR209
103	A-EI-211	303	CR210
104	A-EO-211	304	CR211
105	A-EI-210	305	CR212
106	A-EI-209	306	CR213
107	A-EI-208	307	CR214
108	A-EI-207	308	A-CR208
109	A-EI-206	309	A-CR207
110	A-EI-205	310	A-CR206
111	A-EI-204	311	A-CR205
112	A-EI-203	312	A-CR204
113	A-EI-202	313	A-CR203
114	A-EI-201	314	A-CR202
115	A-EI-200	315	A-CR201
116	A-EI-199	316	A-CR200
117	A-EI-198	317	A-CR199
118	A-EI-197	318	A-CR198
119	A-EI-196	319	A-CR197
120	A-EI-195	320	A-CR196
121	A-EO-194	321	A-CR195
122	A-EI-194	322	A-CR194
123	A-EO-193	323	A-CR193
124	A-EI-193	324	SPARE
201	B-R208	401	B-EI-213
202	CR215	402	B-EI-212
203	CR216	403	B-EI-211
204	CR217	404	B-EO-211
205	CR218	405	B-EI-210
206	CR219	406	B-EI-209
207	CR220	407	B-EI-208
208	B-CR208	408	B-EI-207
209	B-CR207	409	B-EI-206
210	B-CR206	410	B-EI-205
211	B-CR205	411	B-EI-204
212	B-CR204	412	B-EI-203
213	B-CR203	413	B-EI-202
214	B-CR202	414	B-EI-201
215	B-CR201	415	B-EI-200
216	B-CR200	416	B-EI-199
217	B-CR199	417	B-EI-198
218	B-CR198	418	B-EI-197
219	B-CR197	419	B-EI-196
220	B-CR196	420	B-EI-195
221	B-CR195	421	B-EO-194
222	B-CR194	422	B-EI-194
223	B-CR193	423	B-EO-193
224	SPARE	424	B-EI-193

WIRE LIST

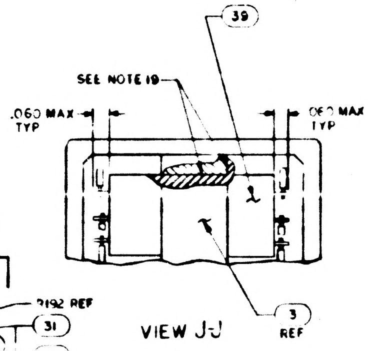
TERMINAL NO.	TERMINAL NO.
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
A-EO-195	B-EO-195
A-EO-196	B-EO-196
A-EO-197	B-EO-197
A-EO-198	B-EO-198
A-EO-199	B-EO-199
A-EO-200	B-EO-200
A-EO-201	B-EO-201
A-EO-202	B-EO-202
A-EO-203	B-EO-203
A-EO-204	B-EO-204
A-EO-205	B-EO-205
A-EO-206	B-EO-206
A-EO-207	B-EO-207
A-EO-208	B-EO-208
A-EO-209	B-EO-209
A-EO-210	B-EO-210
SPARE	SPARE
SPARE	SPARE
A-EO-212	B-EO-212
A-EO-213	B-EO-213

WIRE LIST

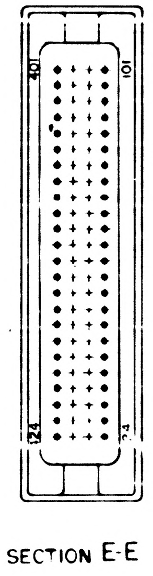
COMPONENT NO.	COMPONENT NO.
CR215	R176
CR216	R144
CR217	R112
CR218	R80
CR219	R48
CR220	R16
CR209	R32
CR210	R64
CR211	[illegible]
CR212	R128
CR213	R160
CR214	R192


3 REF
6 REF
39 REF
A-CR208 REF
J
33 REF
R192 REF
1 REF
31
32
REF 31 32
302 REF
307 REF
A-CR207 REF
A-CR206 REF
A-CR205 REF
A-CR204 REF
A-CR203 REF
A-CR202 REF
A-CR201 REF
FTI REF
A-CR200 REF
29 REF
A-CR194 REF
A-CR193 REF
A-R193 REF
C
FROM A-CR207
FROM A-CR205
FROM A-CR204
FROM A-CR202
FROM A-CR201
B-CR193 REF
B-R193 REF
+

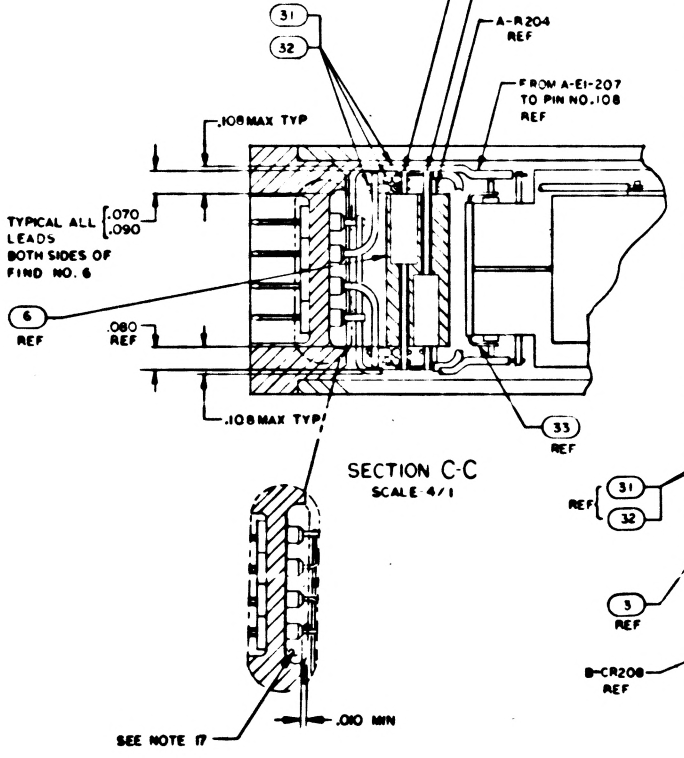
VIEW G-G
SCALE 4/1
SHOWN WITH POTTING AND FIND NO.7 REMOVED. SEE NOTES 11,12,13 AND 14


39
SEE NOTE 19
.060 MAX TYP
.060 MAX TYP
3 REF

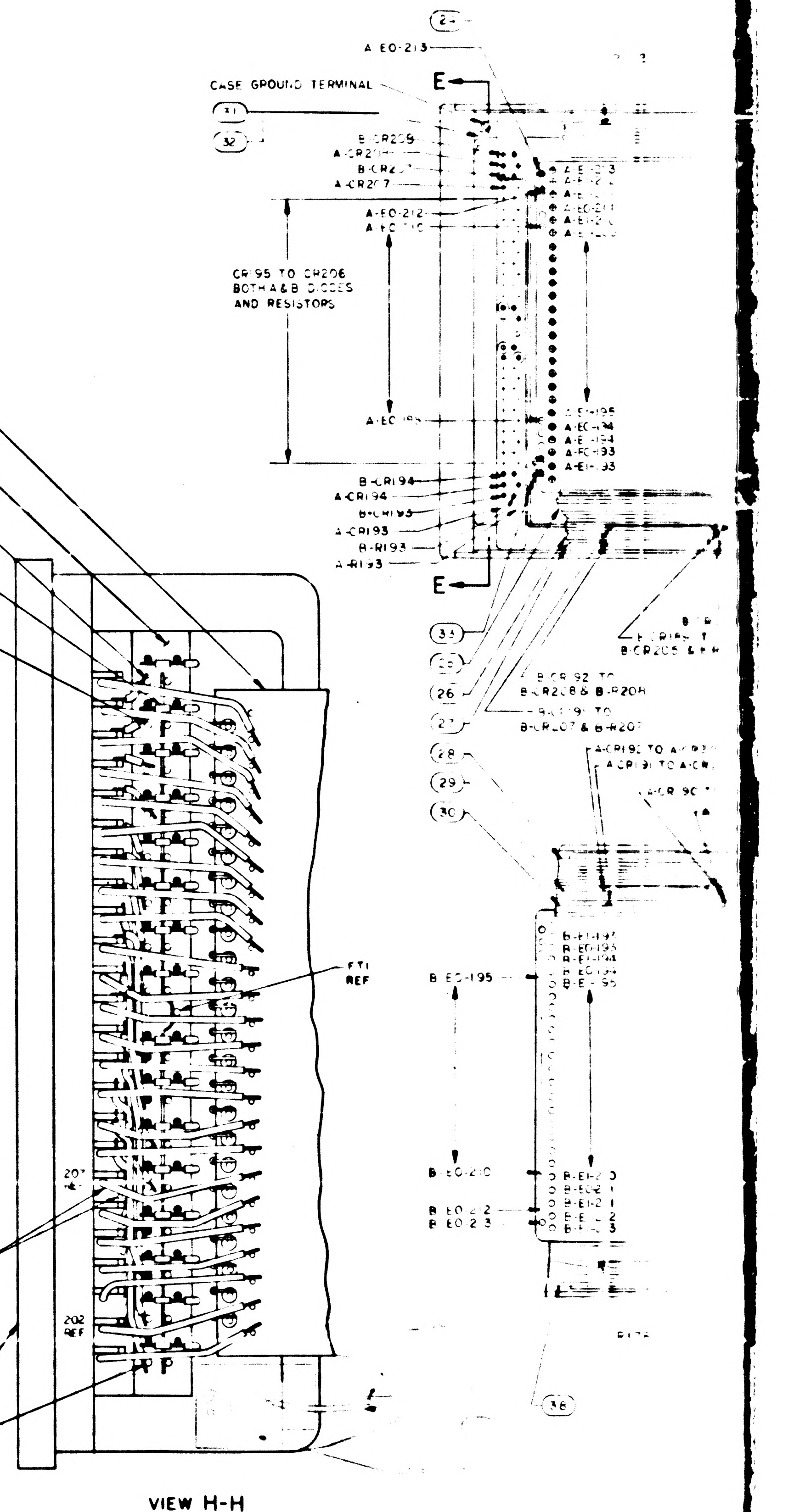
VIEW J-J


401
101
424
124

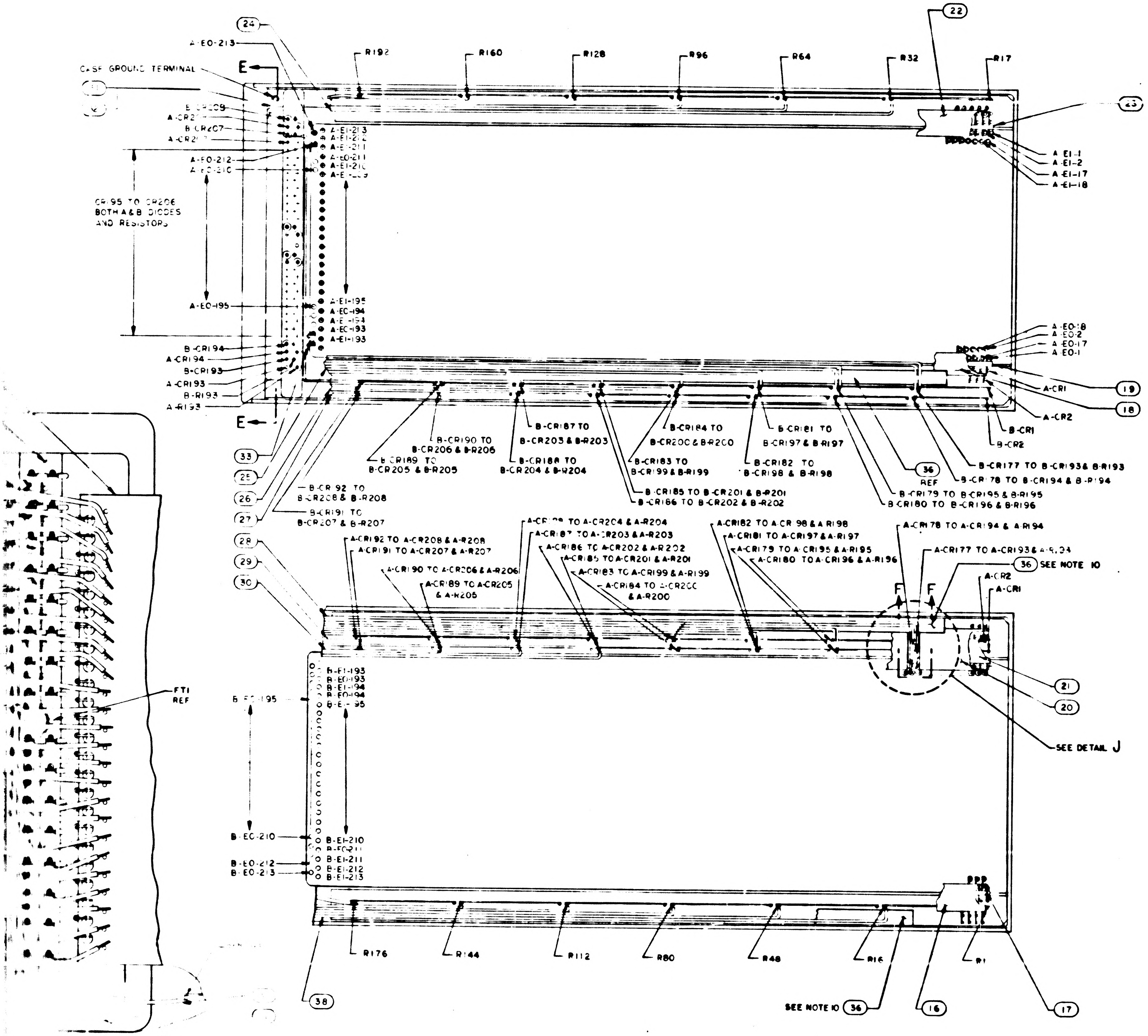
SECTION E-E


31
32
B-CR203 REF
B-R203 REF
A-R204 REF
FROM A-EI-207 TO PIN NO.108 REF
.108 MAX TYP
TYPICAL ALL LEADS BOTH SIDES OF FIND NO. 6
.070
.090
6 REF
.080 REF
.108 MAX TYP
33 REF
SEE NOTE 17
.010 MIN

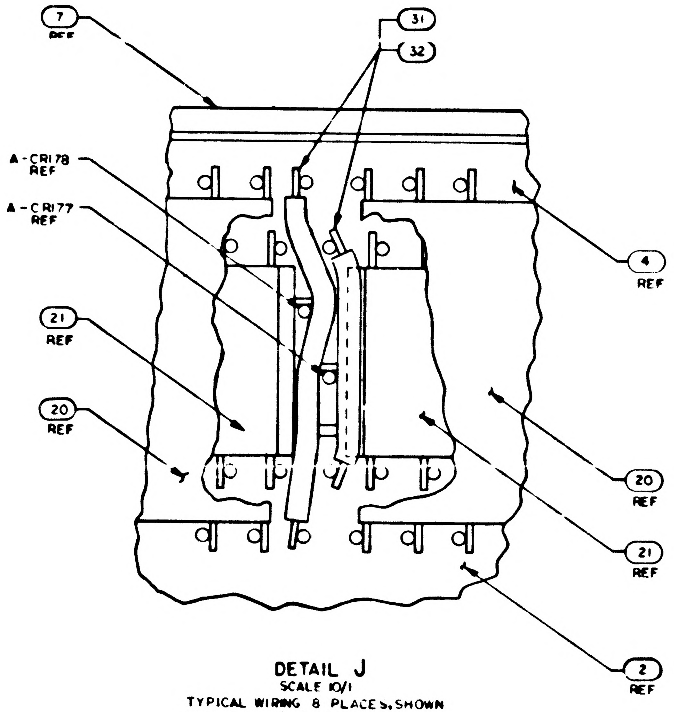
SECTION C-C
SCALE 4/1


2 REF
6 REF
B-CR193 REF
32 TYP
B-CR194 REF
FTI REF
207 REF
202 REF
REF 31 32
3 REF
B-CR208 REF
P
A-EO-213
CASE GROUND TERMINAL
E
31
32
B-CR209
A-CR20
B-CR2
A-CR207
A-EO-212
CR 195 TO CR206 BOTH A & B DIODES AND RESISTORS
A-EO-195
A-EI-195
A-EI-194
A-EO-194
A-EO-193
A-EI-193
B-R194
A-CR194
B-R193
A-CR193
B-R193
A-R193
33
26
27
28
29
30
36
B-EO-195
B-EO-210
B-EO-212
B-EO-213

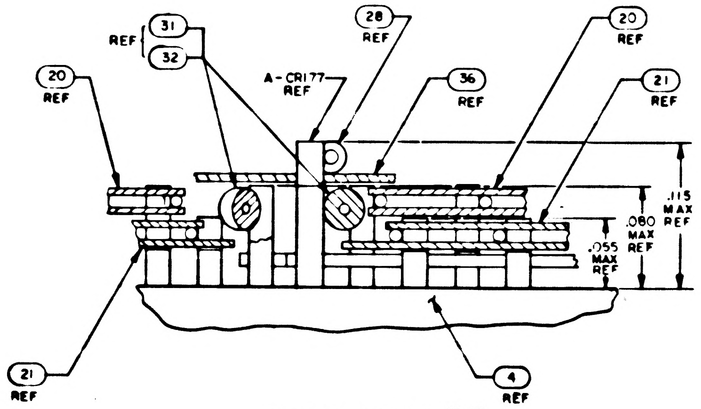
VIEW H-H
SCALE 4/1
SHOWN WITH POTTING AND FIND NO.7 REMOVED. SEE NOTES 11,12,13 AND 14


CASE GROUND TERMINAL
A-EO-213
24
E
R192
R160
R128
R96
R64
R32
22
R17
23
B-CR209
A-CR209
B-CR207
A-CR207
A-EO-212
A-EO-210
A-EI-213
A-EI-212
A-EI-211
A-EO-211
A-EI-210
A-EI-209
A-EI-1
A-EI-2
A-EI-17
A-EI-18
CR195 TO CR206 BOTH A & B DIODES AND RESISTORS
A-EO-195
A-EI-195
A-EO-194
A-EI-194
A-EO-193
A-EI-193
A-EO-18
A-EO-2
A-EO-17
A-EO-1
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
A-CR1
19
A-CR2
18
B-CR1
B-CR2
33
25
26
27
B-CR190 TO B-CR206 & B-R206
B-CR189 TO B-CR205 & B-R205
B-CR187 TO B-CR203 & B-R203
B-CR188 TO B-CR204 & B-R204
B-CR184 TO B-CR200 & B-R200
B-CR183 TO B-CR199 & B-R199
B-CR181 TO B-CR197 & B-R197
B-CR182 TO B-CR198 & B-R198
36 REF
B-CR177 TO B-CR193 & B-R193
B-CR178 TO B-CR194 & B-R194
B-CR185 TO B-CR201 & B-R201
B-CR186 TO B-CR202 & B-R202
B-CR179 TO B-CR195 & B-R195
B-CR180 TO B-CR196 & B-R196
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
28
29
30
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205 & A-R205
A-CR188 TO A-CR204 & A-R204
A-CR187 TO A-CR203 & A-R203
A-CR186 TO A-CR202 & A-R202
A-CR185 TO A-CR201 & A-R201
A-CR183 TO A-CR199 & A-R199
A-CR184 TO A-CR200 & A-R200
A-CR182 TO A-CR198 & A-R198
A-CR181 TO A-CR197 & A-R197
A-CR179 TO A-CR195 & A-R195
A-CR180 TO A-CR196 & A-R196
A-CR178 TO A-CR194 & A-R194
A-CR177 TO A-CR193 & A-R193
36 SEE NOTE 10
F
F
A-CR2
A-CR1
21
20
SEE DETAIL J
B-EI-193
B-EO-193
B-EI-194
B-EO-194
B-EI-195
B-EO-195
B-EO-210
B-EI-210
B-EO-211
B-EI-211
B-EO-212
B-EI-212
B-EO-213
B-EI-213
FT1 REF
R176
R144
R112
R80
R48
R16
R1
38
SEE NOTE 10
36
16
17

H-H
FIND NO.7
AND 14


7 REF
31
32
A-CR178 REF
A-CR177 REF
21 REF
20 REF
4 REF
20 REF
21 REF
2 REF

DETAIL J
SCALE 10/1
TYPICAL WIRING 8 PLACES, SHOWN
WITH FIND NOS 28 AND 36 REMOVED


REF
31
32
20 REF
A-CR177 REF
28 REF
36 REF
20 REF
21 REF
.115 MAX
.080 REF
.055 MAX REF
21 REF
4 REF

PARTIAL SECTION F-F
SCALE: 20/1

REVISIONS						
SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
[illegible]		[illegible]				
P		REVISED PER TDRR 33[illegible]				
[illegible]		[illegible] PER TDRR 33[illegible]44				
D		[illegible] PER TDRR [illegible]				
E		[illegible] PER TDRR 3[illegible]				
F		[illegible] PER TDRR [illegible]				
[illegible]		[illegible] PER TDRR [illegible]				
H		[illegible] PER TDRR [illegible]				
[illegible]		[illegible] PER TDRR [illegible]				
K		REVISED PER TDRR [illegible]57				
L		REVISED PER TDRR 3[illegible]21				
M		[illegible]				
N		REVISED PER TDRR [illegible]				
[illegible]		[illegible] PER TDRR [illegible]				
[illegible]		[illegible] PER TDRR [illegible]				

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ±.005 ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL

NEXT ASSY | USED ON
APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED
APPROVED
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE
ASSEMBLY

CODE IDENT NO 80230
SIZE J
DRAWING NO 2003972
SCALE 2/1
SHEET 2 OF 3

SH2/3 2003972 RF2/21

SH3/3 2003972 RF1/2

2003972 R

4 3 2

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL RELEASE				
B		REVISED PER TDRR				
		REVISED PER TDRR 4				
D		REVISED PER TDRR				
E		REVISED PER TDRR 34				
F		REVISED PER TDRR 34489				
		REVISED PER TDRR				
		REVISED PER TDRR				
J		REVISED PER TDRR				
K		REVISED PER TDRR 3547				
L		REVISED PER TDRR 3-21				
M		REVISED PER TDRR				
N		REVISED PER TDRR 36686				
		REVISED PER TDRR				
		REVISED PER TDRR				

WIRE LIST

TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.
A-EO-1	A-CR1	A-EO-97	A-CR97	B-EO-1	B-CR1	B-EO-97	B-CR97	A-EI-1	R1	A-EI-49	R49	A-EI-97	R97	A-EI-145	R145
A-EO-2	A-CR2	A-EO-98	A-CR98	B-EO-2	B-CR2	B-EO-98	B-CR98	B-EI-1		B-EI-49		B-EI-97		B-EI-145	
A-EO-3	A-CR3	A-EO-99	A-CR99	B-EO-3	B-CR3	B-EO-99	B-CR99	A-EI-2	R2	A-EI-50	R50	A-EI-98	R98	A-EI-146	R146
A-EO-4	A-CR4	A-EO-100	A-CR100	B-EO-4	B-CR4	B-EO-100	B-CR100	B-EI-2		B-EI-50		B-EI-98		B-EI-146	
A-EO-5	A-CR5	A-EO-101	A-CR101	B-EO-5	B-CR5	B-EO-101	B-CR101	A-EI-3	R3	A-EI-51	R51	A-EI-99	R99	A-EI-147	R147
A-EO-6	A-CR6	A-EO-102	A-CR102	B-EO-6	B-CR6	B-EO-102	B-CR102	B-EI-3		B-EI-51		B-EI-99		B-EI-147	
A-EO-7	A-CR7	A-EO-103	A-CR103	B-EO-7	B-CR7	B-EO-103	B-CR103	A-EI-4	R4	A-EI-52	R52	A-EI-100	R100	A-EI-148	R148
A-EO-8	A-CR8	A-EO-104	A-CR104	B-EO-8	B-CR8	B-EO-104	B-CR104	B-EI-4		B-EI-52		B-EI-100		B-EI-148	
A-EO-9	A-CR9	A-EO-105	A-CR105	B-EO-9	B-CR9	B-EO-105	B-CR105	A-EI-5	R5	A-EI-53	R53	A-EI-101	R101	A-EI-149	R149
A-EO-10	A-CR10	A-EO-106	A-CR106	B-EO-10	B-CR10	B-EO-106	B-CR106	B-EI-5		B-EI-53		B-EI-101		B-EI-149	
A-EO-11	A-CR11	A-EO-107	A-CR107	B-EO-11	B-CR11	B-EO-107	B-CR107	A-EI-6	R6	A-EI-54	R54	A-EI-102	R102	A-EI-150	R150
A-EO-12	A-CR12	A-EO-108	A-CR108	B-EO-12	B-CR12	B-EO-108	B-CR108	B-EI-6		B-EI-54		B-EI-102		B-EI-150	
A-EO-13	A-CR13	A-EO-109	A-CR109	B-EO-13	B-CR13	B-EO-109	B-CR109	A-EI-7	R7	A-EI-55	R55	A-EI-103	R103	A-EI-151	R151
A-EO-14	A-CR14	A-EO-110	A-CR110	B-EO-14	B-CR14	B-EO-110	B-CR110	B-EI-7		B-EI-55		B-EI-103		B-EI-151	
A-EO-15	A-CR15	A-EO-111	A-CR111	B-EO-15	B-CR15	B-EO-111	B-CR111	A-EI-8	R8	A-EI-56	R56	A-EI-104	R104	A-EI-152	R152
A-EO-16	A-CR16	A-EO-112	A-CR112	B-EO-16	B-CR16	B-EO-112	B-CR112	B-EI-8		B-EI-56		B-EI-104		B-EI-152	
A-EO-17	A-CR17	A-EO-113	A-CR113	B-EO-17	B-CR17	B-EO-113	B-CR113	A-EI-9	R9	A-EI-57	R57	A-EI-105	R105	A-EI-153	R153
A-EO-18	A-CR18	A-EO-114	A-CR114	B-EO-18	B-CR18	B-EO-114	B-CR114	B-EI-9		B-EI-57		B-EI-105		B-EI-153	
A-EO-19	A-CR19	A-EO-115	A-CR115	B-EO-19	B-CR19	B-EO-115	B-CR115	A-EI-10	R10	A-EI-58	R58	A-EI-106	R106	A-EI-154	R154
A-EO-20	A-CR20	A-EO-116	A-CR116	B-EO-20	B-CR20	B-EO-116	B-CR116	B-EI-10		B-EI-58		B-EI-106		B-EI-154	
A-EO-21	A-CR21	A-EO-117	A-CR117	B-EO-21	B-CR21	B-EO-117	B-CR117	A-EI-11	R11	A-EI-59	R59	A-EI-107	R107	A-EI-155	R155
A-EO-22	A-CR22	A-EO-118	A-CR118	B-EO-22	B-CR22	B-EO-118	B-CR118	B-EI-11		B-EI-59		B-EI-107		B-EI-155	
A-EO-23	A-CR23	A-EO-119	A-CR119	B-EO-23	B-CR23	B-EO-119	B-CR119	A-EI-12	R12	A-EI-60	R60	A-EI-108	R108	A-EI-156	R156
A-EO-24	A-CR24	A-EO-120	A-CR120	B-EO-24	B-CR24	B-EO-120	B-CR120	B-EI-12		B-EI-60		B-EI-108		B-EI-156	
A-EO-25	A-CR25	A-EO-121	A-CR121	B-EO-25	B-CR25	B-EO-121	B-CR121	A-EI-13	R13	A-EI-61	R61	A-EI-109	R109	A-EI-157	R157
A-EO-26	A-CR26	A-EO-122	A-CR122	B-EO-26	B-CR26	B-EO-122	B-CR122	B-EI-13		B-EI-61		B-EI-109		B-EI-157	
A-EO-27	A-CR27	A-EO-123	A-CR123	B-EO-27	B-CR27	B-EO-123	B-CR123	A-EI-14	R14	A-EI-62	R62	A-EI-110	R110	A-EI-158	R158
A-EO-28	A-CR28	A-EO-124	A-CR124	B-EO-28	B-CR28	B-EO-124	B-CR124	B-EI-14		B-EI-62		B-EI-110		B-EI-158	
A-EO-29	A-CR29	A-EO-125	A-CR125	B-EO-29	B-CR29	B-EO-125	B-CR125	A-EI-15	R15	A-EI-63	R63	A-EI-111	R111	A-EI-159	R159
A-EO-30	A-CR30	A-EO-126	A-CR126	B-EO-30	B-CR30	B-EO-126	B-CR126	B-EI-15		B-EI-63		B-EI-111		B-EI-159	
A-EO-31	A-CR31	A-EO-127	A-CR127	B-EO-31	B-CR31	B-EO-127	B-CR127	A-EI-16	R16	A-EI-64	R64	A-EI-112	R112	A-EI-160	R160
A-EO-32	A-CR32	A-EO-128	A-CR128	B-EO-32	B-CR32	B-EO-128	B-CR128	B-EI-16		B-EI-64		B-EI-112		B-EI-160	
A-EO-33	A-CR33	A-EO-129	A-CR129	B-EO-33	B-CR33	B-EO-129	B-CR129	A-EI-17	R17	A-EI-65	R65	A-EI-113	R113	A-EI-161	R161
A-EO-34	A-CR34	A-EO-130	A-CR130	B-EO-34	B-CR34	B-EO-130	B-CR130	B-EI-17		B-EI-65		B-EI-113		B-EI-161	
A-EO-35	A-CR35	A-EO-131	A-CR131	B-EO-35	B-CR35	B-EO-131	B-CR131	A-EI-18	R18	A-EI-66	R66	A-EI-114	R114	A-EI-162	R162
A-EO-36	A-CR36	A-EO-132	A-CR132	B-EO-36	B-CR36	B-EO-132	B-CR132	B-EI-18		B-EI-66		B-EI-114		B-EI-162	
A-EO-37	A-CR37	A-EO-133	A-CR133	B-EO-37	B-CR37	B-EO-133	B-CR133	A-EI-19	R19	A-EI-67	R67	A-EI-115	R115	A-EI-163	R163
A-EO-38	A-CR38	A-EO-134	A-CR134	B-EO-38	B-CR38	B-EO-134	B-CR134	B-EI-19		B-EI-67		B-EI-115		B-EI-163	
A-EO-39	A-CR39	A-EO-135	A-CR135	B-EO-39	B-CR39	B-EO-135	B-CR135	A-EI-20	R20	A-EI-68	R68	A-EI-116	R116	A-EI-164	R164
A-EO-40	A-CR40	A-EO-136	A-CR136	B-EO-40	B-CR40	B-EO-136	B-CR136	B-EI-20		B-EI-68		B-EI-116		B-EI-164	
A-EO-41	A-CR41	A-EO-137	A-CR137	B-EO-41	B-CR41	B-EO-137	B-CR137	A-EI-21	R21	A-EI-69	R69	A-EI-117	R117	A-EI-165	R165
A-EO-42	A-CR42	A-EO-138	A-CR138	B-EO-42	B-CR42	B-EO-138	B-CR138	B-EI-21		B-EI-69		B-EI-117		B-EI-165	
A-EO-43	A-CR43	A-EO-139	A-CR139	B-EO-43	B-CR43	B-EO-139	B-CR139	A-EI-22	R22	A-EI-70	R70	A-EI-118	R118	A-EI-166	R166
A-EO-44	A-CR44	A-EO-140	A-CR140	B-EO-44	B-CR44	B-EO-140	B-CR140	B-EI-22		B-EI-70		B-EI-118		B-EI-166	
A-EO-45	A-CR45	A-EO-141	A-CR141	B-EO-45	B-CR45	B-EO-141	B-CR141	A-EI-23	R23	A-EI-71	R71	A-EI-119	R119	A-EI-167	R167
A-EO-46	A-CR46	A-EO-142	A-CR142	B-EO-46	B-CR46	B-EO-142	B-CR142	B-EI-23		B-EI-71		B-EI-119		B-EI-167	
A-EO-47	A-CR47	A-EO-143	A-CR143	B-EO-47	B-CR47	B-EO-143	B-CR143	A-EI-24	R24	A-EI-72	R72	A-EI-120	R120	A-EI-168	R168
A-EO-48	A-CR48	A-EO-144	A-CR144	B-EO-48	B-CR48	B-EO-144	B-CR144	B-EI-24		B-EI-72		B-EI-120		B-EI-168	
A-EO-49	A-CR49	A-EO-145	A-CR145	B-EO-49	B-CR49	B-EO-145	B-CR145	A-EI-25	R25	A-EI-73	R73	A-EI-121	R121	A-EI-169	R169
A-EO-50	A-CR50	A-EO-146	A-CR146	B-EO-50	B-CR50	B-EO-146	B-CR146	B-EI-25		B-EI-73		B-EI-121		B-EI-169	
A-EO-51	A-CR51	A-EO-147	A-CR147	B-EO-51	B-CR51	B-EO-147	B-CR147	A-EI-26	R26	A-EI-74	R74	A-EI-122	R122	A-EI-170	R170
A-EO-52	A-CR52	A-EO-148	A-CR148	B-EO-52	B-CR52	B-EO-148	B-CR148	B-EI-26		B-EI-74		B-EI-122		B-EI-170	
A-EO-53	A-CR53	A-EO-149	A-CR149	B-EO-53	B-CR53	B-EO-149	B-CR149	A-EI-27	R27	A-EI-75	R75	A-EI-123	R123	A-EI-171	R171
A-EO-54	A-CR54	A-EO-150	A-CR150	B-EO-54	B-CR54	B-EO-150	B-CR150	B-EI-27		B-EI-75		B-EI-123		B-EI-171	
A-EO-55	A-CR55	A-EO-151	A-CR151	B-EO-55	B-CR55	B-EO-151	B-CR151	A-EI-28	R28	A-EI-76	R76	A-EI-124	R124	A-EI-172	R172
A-EO-56	A-CR56	A-EO-152	A-CR152	B-EO-56	B-CR56	B-EO-152	B-CR152	B-EI-28		B-EI-76		B-EI-124		B-EI-172	
A-EO-57	A-CR57	A-EO-153	A-CR153	B-EO-57	B-CR57	B-EO-153	B-CR153	A-EI-29	R29	A-EI-77	R77	A-EI-125	R125	A-EI-173	R173
A-EO-58	A-CR58	A-EO-154	A-CR154	B-EO-58	B-CR58	B-EO-154	B-CR154	B-EI-29		B-EI-77		B-EI-125		B-EI-173	
A-EO-59	A-CR59	A-EO-155	A-CR155	B-EO-59	B-CR59	B-EO-155	B-CR155	A-EI-30	R30	A-EI-78	R78	A-EI-126	R126	A-EI-174	R174
A-EO-60	A-CR60	A-EO-156	A-CR156	B-EO-60	B-CR60	B-EO-156	B-CR156	B-EI-30		B-EI-78		B-EI-126		B-EI-174	
A-EO-61	A-CR61	A-EO-157	A-CR157	B-EO-61	B-CR61	B-EO-157	B-CR157	A-EI-31	R31	A-EI-79	R79	A-EI-127	R127	A-EI-175	R175
A-EO-62	A-CR62	A-EO-158	A-CR158	B-EO-62	B-CR62	B-EO-158	B-CR158	B-EI-31		B-EI-79		B-EI-127		B-EI-175	
A-EO-63	A-CR63	A-EO-159	A-CR159	B-EO-63	B-CR63	B-EO-159	B-CR159	A-EI-32	R32	A-EI-80	R80	A-EI-128	R128	A-EI-176	R176
A-EO-64	A-CR64	A-EO-160	A-CR160	B-EO-64	B-CR64	B-EO-160	B-CR160	B-EI-32		B-EI-80		B-EI-128		B-EI-176	
A-EO-65	A-CR65	A-EO-161	A-CR161	B-EO-65	B-CR65	B-EO-161	B-CR161	A-EI-33	R33	A-EI-81	R81	A-EI-129	R129	A-EI-177	R177
A-EO-66	A-CR66	A-EO-162	A-CR162	B-EO-66	B-CR66	B-EO-162	B-CR162	B-EI-33		B-EI-81		B-EI-129		B-EI-177	
A-EO-67	A-CR67	A-EO-163	A-CR163	B-EO-67	B-CR67	B-EO-163	B-CR163	A-EI-34	R34	A-EI-82	R82	A-EI-130	R130	A-EI-178	R178
A-EO-68	A-CR68	A-EO-164	A-CR164	B-EO-68	B-CR68	B-EO-164	B-CR164	B-EI-34		B-EI-82		B-EI-130		B-EI-178	
A-EO-69	A-CR69	A-EO-165	A-CR165	B-EO-69	B-CR69	B-EO-165	B-CR165	A-EI-35	R35	A-EI-83	R83	A-EI-131	R131	A-EI-179	R179
A-EO-70	A-CR70	A-EO-166	A-CR166	B-EO-70	B-CR70	B-EO-166	B-CR166	B-EI-35		B-EI-83		B-EI-131		B-EI-179	
A-EO-71	A-CR71	A-EO-167	A-CR167	B-EO-71	B-CR71	B-EO-167	B-CR167	A-EI-36	R36	A-EI-84	R84	A-EI-132	R132	A-EI-180	R180
A-EO-72	A-CR72	A-EO-168	A-CR168	B-EO-72	B-CR72	B-EO-168	B-CR168	B-EI-36		B-EI-84		B-EI-132		B-EI-180	
A-EO-73	A-CR73	A-EO-169	A-CR169	B-EO-73	B-CR73	B-EO-169	B-CR169	A-EI-37	R37	A-EI-85	R85	A-EI-133	R133	A-EI-181	R181
A-EO-74	A-CR74	A-EO-170	A-CR170	B-EO-74	B-CR74	B-EO-170	B-CR170	B-EI-37		B-EI-85		B-EI-133		B-EI-181	
A-EO-75	A-CR75	A-EO-171	A-CR171	B-EO-75	B-CR75	B-EO-171	B-CR171	A-EI-38	R38	A-EI-86	R86	A-EI-134	R134	A-EI-182	R182
A-EO-76	A-CR76	A-EO-172	A-CR172	B-EO-76	B-CR76	B-EO-172	B-CR172	B-EI-38		B-EI-86		B-EI-134		B-EI-182	
A-EO-77	A-CR77	A-EO-173	A-CR173	B-EO-77	B-CR77	B-EO-173	B-CR173	A-EI-39	R39	A-EI-87	R87	A-EI-135	R135	A-EI-183	R183
A-EO-78	A-CR78	A-EO-174	A-CR174	B-EO-78	B-CR78	B-EO-174	B-CR174	B-EI-39		B-EI-87		B-EI-135		B-EI-183	
A-EO-79	A-CR79	A-EO-175	A-CR175	B-EO-79	B-CR79	B-EO-175	B-CR175	A-EI-40	R40	A-EI-88	R88	A-EI-136	R136	A-EI-184	R184
A-EO-80	A-CR80	A-EO-176	A-CR176	B-EO-80	B-CR80	B-EO-176	B-CR176	B-EI-40		B-EI-88		B-EI-136		B-EI-184	
A-EO-81	A-CR81	A-EO-177	A-CR177	B-EO-81	B-CR81	B-EO-177	B-CR177	A-EI-41	R41	A-EI-89	R89	A-EI-137	R137	A-EI-185	R185
A-EO-82	A-CR82	A-EO-178	A-CR178	B-EO-82	B-CR82	B-EO-178	B-CR178	B-EI-41		B-EI-89		B-EI-137		B-EI-185	
A-EO-83	A-CR83	A-EO-179	A-CR179	B-EO-83	B-CR83	B-EO-179	B-CR179	A-EI-42	R42	A-EI-90	R90	A-EI-138	R138	A-EI-186	R186
A-EO-84	A-CR84	A-EO-180	A-CR180	B-EO-84	B-CR84	B-EO-180	B-CR180	B-EI-42		B-EI-90		B-EI-138		B-EI-186	
A-EO-85	A-CR85	A-EO-181	A-CR181	B-EO-85	B-CR85	B-EO-181	B-CR181	A-EI-43	R43	A-EI-91	R91	A-EI-139	R139	A-EI-187	R187
A-EO-86	A-CR86	A-EO-182	A-CR182	B-EO-86	B-CR86	B-EO-182	B-CR182	B-EI-43		B-EI-91		B-EI-139		B-EI-187	
A-EO-87	A-CR87	A-EO-183	A-CR183	B-EO-87	B-CR87	B-EO-183	B-CR183	A-EI-44	R44	A-EI-92	R92	A-EI-140	R140	A-EI-188	R188
A-EO-88	A-CR88	A-EO-184	A-CR184	B-EO-88	B-CR88	B-EO-184	B-CR184	B-EI-44		B-EI-92		B-EI-140		B-EI-188	
A-EO-89	A-CR89	A-EO-185	A-CR185	B-EO-89	B-CR89	B-EO-185	B-CR185	A-EI-45	R45	A-EI-93	R93	A-EI-141	R141	A-EI-189	R189
A-EO-90	A-CR90	A-EO-186	A-CR186	B-EO-90	B-CR90	B-EO-186	B-CR186	B-EI-45		B-EI-93		B-EI-141		B-EI-189	
A-EO-91	A-CR91	A-EO-187	A-CR187	B-EO-91	B-CR91	B-EO-187	B-CR187	A-EI-46	R46	A-EI-94	R94	A-EI-142	R142	A-EI-190	R190
A-EO-92	A-CR92	A-EO-188	A-CR188	B-EO-92	B-CR92	B-EO-188	B-CR188	B-EI-46		B-EI-94		B-EI-142		B-EI-190	
A-EO-93	A-CR93	A-EO-189	A-CR189	B-EO-93	B-CR93	B-EO-189	B-CR189	A-EI-47	R47	A-EI-95	R95	A-EI-143	R143	A-EI-191	R191
A-EO-94	A-CR94	A-EO-190	A-CR190	B-EO-94	B-CR94	B-EO-190	B-CR190	B-EI-47		B-EI-95		B-EI-143		B-EI-191	
A-EO-95	A-CR95	A-EO-191	A-CR191	B-EO-95	B-CR95	B-EO-191	B-CR191	A-EI-48	R48	A-EI-96	R96	A-EI-144	R144	A-EI-192	R192
A-EO-96	A-CR96	A-EO-192	A-CR192	B-EO-96	B-CR96	B-EO-192	B-CR192	B-EI-48		B-EI-96		B-EI-144		B-EI-192	

D C B A

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED
APPROVED
NASA
MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

FIXED MEMORY MODULE
ASSEMBLY

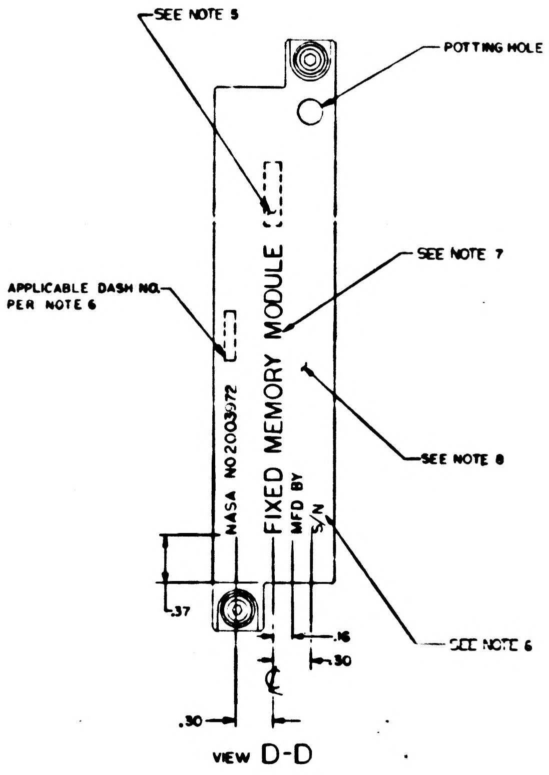
CODE IDENT NO	SIZE	DRAWING NO
80230	J	2003972

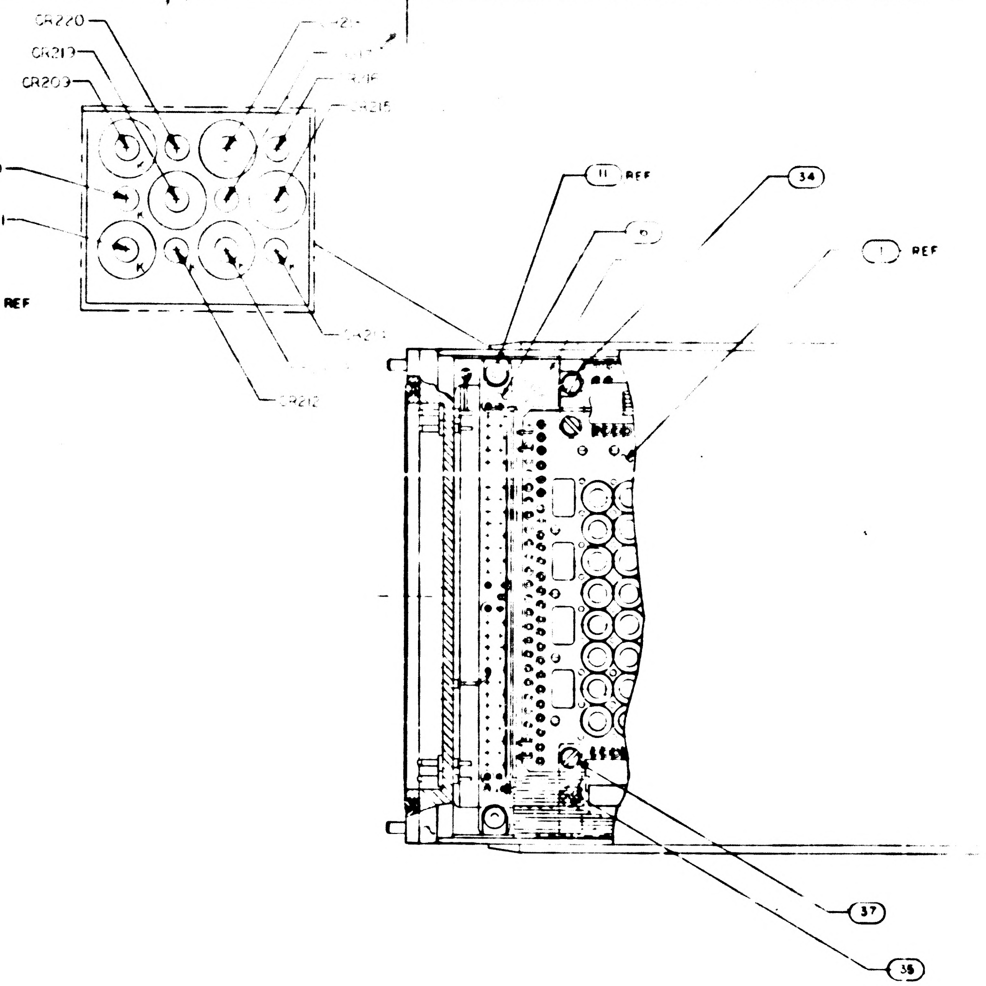
SCALE NONE
SHEET 3 OF 3

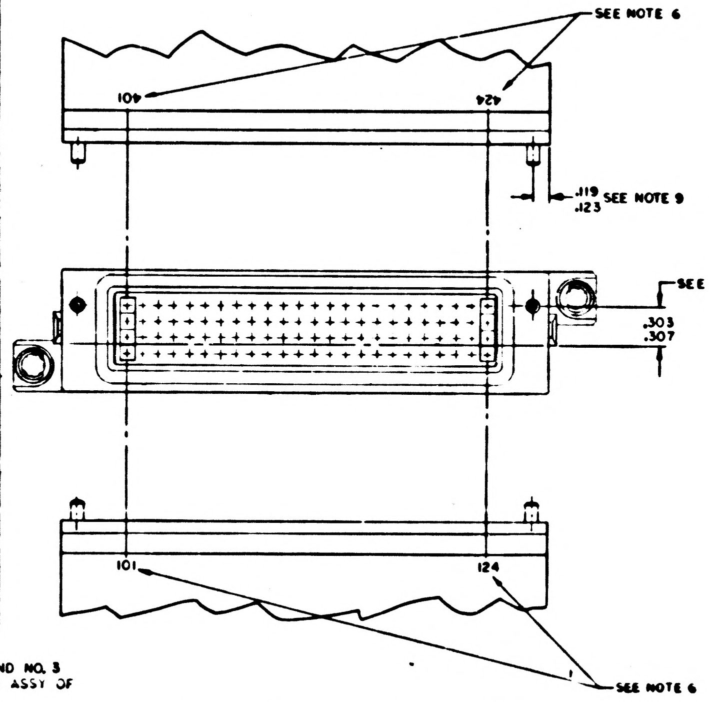
PART NO.	MODULE NO.	FIND NO. 1	FIND NO. 2	MODULE DECK NO.	NEXT ASSEMBLY NO. (REF)	PROCUREMENT SPECIFICATION SEE NOTE 15
2003972-011	B1	2003060-061	2003061-061	0205	2021101	PS2[illegible]3972
2003[illegible]-021	B2	2003060-071	2003061-071	0206	2021101	
2003[illegible]	B3	2003060-081	2003061-081	0207	2021101	
2003-[illegible]-041	B1	2003060-121	2003061-121	0210	2021104	
2003[illegible]	B2	2003060-131	2003061-131	0211	2021104	
2003[illegible]	B3	2003060-141	2003061-141	0212	2021104	
2003[illegible]	B	2003060-[illegible]	2003061-151	0213	2021104	
2003[illegible]	B3	2003060-161	2003061-161	0214	2021104	
2003972-091	B2	2003060-17	2003061-171	[illegible]	2021101	
2003972-111	B3	2003060-18	2003061-181	[illegible]	2021101	PS2003972
2003972-121	B1	2003060-09	2003061-091	0208	2021105-031	PS2003960
2003972-13	B2	2003060-111	2003061-111	0209	2021105-[illegible]	PS2[illegible]3960
2003972-141	B1	2003060-191	2003061-191	0217	2021106-011	PS2[illegible]3972
2003972-151	B2	2003060-211	2003061-211	0218	2021106-011	
2003972-16	B3	2003060-221	2003061-221	0219	2021106-011	
2003972-171	B4	2003060-231	2003061-231	0220	2021106-011	
2003972-181	B5	2003060-241	2003061-241	0221	2021106-011	
2003972-191	B6	2003060-251	2003061-251	0222	2021106-011	
2003972-211	B3	2003060-261	2003061-261	0223	2021104-041	PS2003972
2003972-221	B	2003060-271	2003061-271	0224	2021105-041	PS2003960
2003972-231	B1	2003060-281	2003061-281	0225	2021106-021	PS2[illegible]3972
2003972-241	B3	2003060-291	2003061-291	0226	2021106-021	
2003972-251	B5	2003060-311	2003061-311	0227	2021106-021	
2003972-261	B1	2003060-321	2003061-321	0230	2021107-011	
2003972-271	B2	2003060-331	2003061-331	0229	2021107-011	
2003972-2[illegible]	B3	2003060-341	2003061-341	[illegible]	20211[illegible]	
2003972-2[illegible]1	B1	2003060-351	2003061-351	0238	2021107-021	PS2[illegible]3972
2003972-3[illegible]	B1	2003060-361	2003061-361	0239	2021108-021	PS2016016
-321	B2	2003060-371	2003061-371	0240	2021108-021	PS2016016
-331	B3	2003060-381	2003061-381	0241	2021108-021	PS2016016
-341	B4	2003060-391	2003061-391	024[illegible]	2021108-021	PS2016016
351	B5	2003060-411	2003061-411	0242	2021108-021	PS2016016
2003972-361	B6	2003060-421	2003061-421	0244	2021108-021	PS2016016
2003972-371	B1	2003060-431	2003061-431	0245	2021110-011	PS2016016
2003972-381	B2	2003060-441	2003061-441	0246	2021110-011	
2003972-3[illegible]	B3	2003060-451	2003061-451	0247	2021110-011	
2003972-411	B4	2003060-461	2003061-461	0248	2021110-011	
2003972-421	B5	2003060-471	2003061-471	0249	2021110-011	
2003972-431	B6	2003060-481	2003061-481	0250	2021110-011	PS2016016
[illegible]	B	[illegible]	[illegible]	[illegible]	2021110-21	PS2[illegible]16016
[illegible]	B2	2003060-51[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	B3	[illegible]	[illegible]-21	0253	20211[illegible]-021	
[illegible]	B	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]-6	B5	2003060-[illegible]	2003061-[illegible]	[illegible]	2021110-021	
2003972-4	B6	2003060-[illegible]	2003061-[illegible]	[illegible]	2021110-021	PS2[illegible]6
-511	B1			0257	2021111-0216031	PS2016036
[illegible]	B2		-57	[illegible]	-0216031	
[illegible]	B3	-58	-58	[illegible]	-0216031	
[illegible]	B4	-59	[illegible]	[illegible]	2021111-0216031	
[illegible]	B5	-6[illegible]	-61	[illegible]	2021111-021	
[illegible]	B6	-2	2003061-62	[illegible]	2021111-0216031	PS2016036
2003972-5[illegible]	B3	[illegible]-63	2003061-631	0263	2021111-031	PS2016036

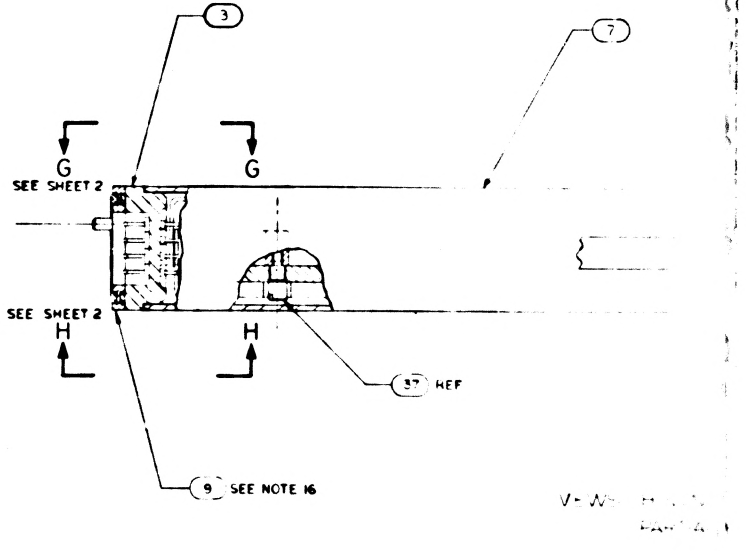
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
3. ENCAPSULATE MODULE PER ND1002226 METHOD II
4. WELD PER ND1002005
5. MARK APPROPRIATE MODULE NO. AS SHOWN IN CHART
6. MARK .08/.06 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
7. MARK .14/.10 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 USING INK 1006271-1
8. PAINT INDICATED SURFACES OF FIND NO 7. PER ND1002279 WITH SCD NO.1008809-1 DARK GREY EPOXY RESIN ENAMEL, FINAL COAT PER ND1002277 USING 1012543-003
9. ASSEMBLE FIND NO.7 AND FIND NO.3 TO DIMENSIONS SHOWN
10. REMOVE LINER FROM NEARSIDE OF FIND NO.36 AND ASSEMBLE 3 PLACES AS SHOWN. FIND NO.36 MUST INSULATE FLAT CABLES FROM TRIMMED COMPONENT LEADS. TRIM AS REQUIRED
11. WHITE DOT AND SINGLE SOLID LEAD DENOTES FIRST LEVEL WIRING UNLESS OTHERWISE SPECIFIED
12. BLACK DOT AND SINGLE SOLID LEAD DENOTES SECOND LEVEL WIRING
13. BLACK DOT AND CROSS HATCHED LEAD DENOTES THIRD LEVEL WIRING
14. ALL LEADS FROM FIND NO.1 AND FIND NO.2 TO FIND NO.3 TO BE THIRD LEVEL WIRING
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PROCUREMENT SPECIFICATION AS LISTED IN CHART.
16. FIND NO.9 TO BE SHIPPED UNASSEMBLED AND IDENTIFIED PER ND 1002019
17. SEAL PINS AND INSULATORS TO FIND NO. 3 PER ND1002004 TYPE XI BEFORE ASSY OF FIND NO. 6
18. FILL AS SHOWN PER ND1002235 METHOD A
19. BOND FIND NO.39 TO FIND NO.3 PER ND1002004 TYPE XI AFTER ASSY OF FIND NO.6
20. PRIOR TO ENCAPSULATION PER NOTE 3, COAT OVER ALL TERMINALS OF FIND NO'S 1,2&3 AND OVER ALL WIRES, SLEEVING AND COMPONENT LEADS OF FIND NO'S 4,5,6,16,17,18,19,20,21,22,23,24, 25,26,27,28,29,30,31,32,33,38 & 39 WITH A .03 MAXIMUM THICKNESS OF SILICONE RUBBER PER ND1002009, METHOD A. MASK ALL OUTSIDE SURFACES OF FIND NO.3 AND ALL OTHER SURFACES OF THIS ASSEMBLY COMING IN CLOSE CONTACT WITH FIND NO.7
21. FILL INTERFACE BETWEEN FIND NO.4 AND SIDE SURFACES OF FIND NO'S 1 AND 2, AND INTERFACE BETWEEN FIND NO 5 AND SIDE SURFACES OF FIND NO'S 1 AND 2 USING FIND NO. 40. ROOM TEMP CURE FOR 24 HOURS MIN.





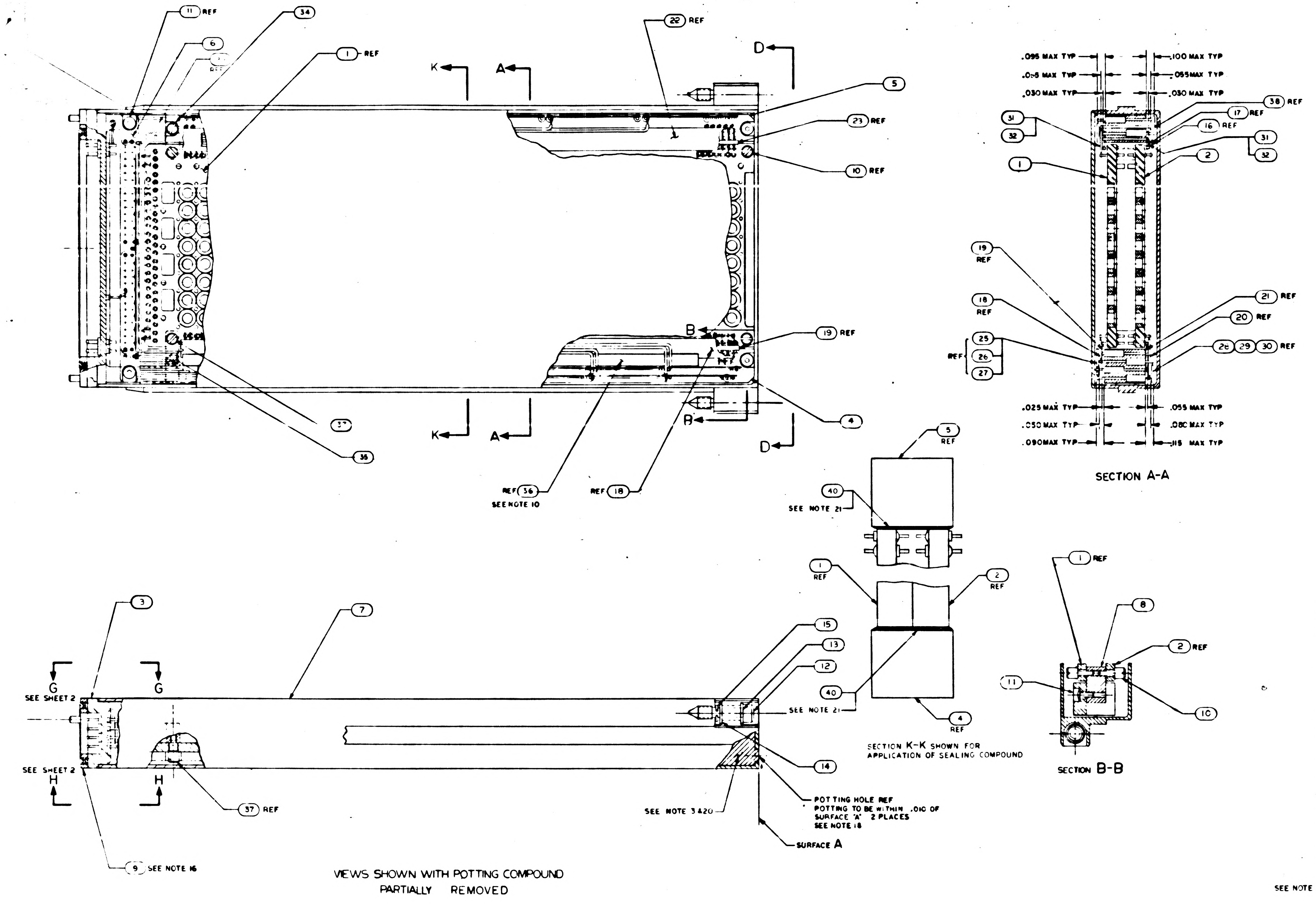




REFERENCES:

1. PROCESS REQUIREMENTS FOR CONTROL AND INSPECTION OF ROPE MEMORY ASSEMBLIES ND1002285
2. FIXED MEMORY FIXTURE DWG NO AP22500

2003972 | S


11 REF
34
6
1 REF
22 REF
K
A
D
5
23 REF
10 REF
19 REF
B
B
4
37
35
K
A
D
REF 36
SEE NOTE 10
REF 18
.095 MAX TYP
.100 MAX TYP
.085 MAX TYP
.055 MAX TYP
.030 MAX TYP
.030 MAX TYP
38 REF
17 REF
16 REF
31
32
31
32
1
2
19 REF
18 REF
21 REF
20 REF
25
26
27
REF
28 29 30 REF
.025 MAX TYP
.055 MAX TYP
.030 MAX TYP
.080 MAX TYP
.090 MAX TYP
.115 MAX TYP
SECTION A-A
5 REF
40
SEE NOTE 21
1 REF
2 REF
40
SEE NOTE 21
4 REF
SECTION K-K SHOWN FOR APPLICATION OF SEALING COMPOUND
1 REF
8
2 REF
11
10
SECTION B-B
3
7
G
G
SEE SHEET 2
SEE SHEET 2
H
H
15
13
12
14
37 REF
SEE NOTE 3 & 20
POTTING HOLE REF
POTTING TO BE WITHIN .010 OF SURFACE "A" 2 PLACES
SEE NOTE 18
SURFACE A
9 SEE NOTE 16
VIEWS SHOWN WITH POTTING COMPOUND PARTIALLY REMOVED

	REVISIONS		
SYM	DESCRIPTION	DATE	APPROVAL
A	[illegible]		
B	REVISED PER TDRR [illegible] DR [illegible] CHK [illegible]		
C	REVISED PER [illegible] 4 DR [illegible]		
D	REVISED PER TDRR [illegible] DR [illegible] CHK [illegible]	5/1/67	
E	REVISED PER TDRR 4440 DR [illegible] CHK [illegible]		
F	REVISED PER TDRR 3[illegible] DR [illegible] CHK [illegible]		
G	[illegible]		
H	REVISED PER TDRR [illegible]		
J	REVISED PER [illegible] DR [illegible] CHK [illegible]		
K	REVISED PER T[illegible] DR [illegible] CHK [illegible]		
L	REVISED PER TDRR [illegible] DR [illegible] CHK [illegible]		
M	[illegible]		
N	REVISED PER TDRR [illegible] DR [illegible] CHK [illegible]		
P	[illegible]		
R	REVISED PER [illegible] 888 DR [illegible] CHK [illegible]		
S	REVISED PER TDRR [illegible] DR [illegible] CHK [illegible]		

SEE NOTE 16

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
AR	1C0634	ADHESIVE SEALANT, SILICONE RUBBER	40
1	[illegible] 021	COMPONENT BLOCK DIODE ASSY	39
☒	2005935	SCHEMATIC	REF
1	2004184	FLAT CABLE	38
4	2004150 – 003	SCREW, SHOULDERED	37
AR	1006806 – 26	INSULATION TAPE, ELECTRICAL	36
1	2004150 – 001	SCREW, SHOULDERED	35
1	2004150 – 002	SCREW, SHOULDERED	34
1	2004129	FLAT CABLE INTERCONNECTION	33
AR	1006776 – 25	SLEEVING	32
AR	1006757 – 12	WIRE, ELECTRICAL	31
1	2004125	FLAT CABLE	30
1	2004122	FLAT CABLE	29
1	2004124	FLAT CABLE	28
1	2004123	FLAT CABLE	27
1	2004121	FLAT CABLE	26
1	2004120	FLAT CABLE	25
1	2004[illegible]	FLAT CABLE	24
1	2003051 – 013	MATRIX ASSY	23
1	2003051 – 014	MATRIX ASSY	22
8	2003051 – 016	MATRIX ASSY	21
8	2003051 – 015	MATRIX ASSY	20
1	2003051 – 017	MATRIX ASSY	19
1	2003051 – 018	MATRIX ASSY	18
1	2003051 – 011	MATRIX ASSY	17
1	2003051 – 012	MATRIX ASSY	16
2	MS16633-4015	E RING	15
2	1004546 – 3	WASHER	14
2	1004546 – 1	WASHER	13
2	1004579 – 1	SCREW JACKING	12
4	1000093 – 1	SCREW, BUTTONHEAD	11
4	2004151	SCREW, STANDOFF	10
1	1006339	GASKET PLATE	9
2	2004071	STANDOFF	8
1	2004100	HOUSING	7
1	2003048 – 021	RESISTOR-DIODE BLOCK ASSY	6
1	2003052 021	COMPONENT BLOCK RESISTOR ASSY	5
1	2003045 – 021	COMPONENT BLOCK DIODE ASSY	4
1	2003973 – 011	CONNECTOR PLATE ASSY	3
1	2003061 – SEE CHART	SENSE WIRING ASSY SIDE B	2
1	2003060 – SEE CHART	SENSE WIRING ASSY SIDE A	1

LIST OF MATERIALS

FOR APPLICABLE PART NO. SEE CHART

SEE CHART	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN [illegible] DATE 6-2-6[illegible]
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE ASSEMBLY

CODE IDENT NO 80230 | SIZE J | NASA DRAWING NO 2003972
SCALE 2/1 | WT | SHEET 1 OF 3

WIRE LIST

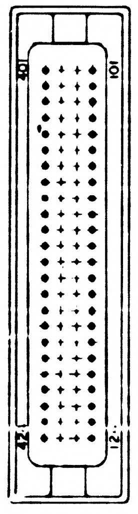
PIN NO.	COMPONENT OR TERM. NO.	PIN NO.	COMPONENT OR TERM. NO.
101	A-E1-213	301	GROUND
102	A-E1-212	302	CR209
103	A-E1-211	303	CR210
104	A-E0-211	304	CR211
105	A-E1-210	305	CR212
106	A-E1-209	306	CR213
107	A-E1-208	307	CR214
108	A-E1-207	308	A-CR208
109	A-E1-206	309	A-CR207
110	A-E1-205	310	A-CR206
111	A-E1-204	311	A-CR205
112	A-E1-203	312	A-CR204
113	A-E1-202	313	A-CR203
114	A-E1-201	314	A-CR202
115	A-E1-200	315	A-CR201
116	A-E1-199	316	A-CR200
117	A-E1-198	317	A-CR199
118	A-E1-197	318	A-CR198
119	A-E1-196	319	A-CR197
120	A-E1-195	320	A-CR196
121	A-E0-194	321	A-CR195
122	A-E1-194	322	A-CR194
123	A-E0-193	323	A-CR193
124	A-E1-193	324	SPARE
201	B-R208	401	B-E1-213
202	CR215	402	B-E1-212
203	CR216	403	B-E1-211
204	CR217	404	B-E0-211
205	CR218	405	B-E1-210
206	CR219	406	B-E1-209
207	CR220	407	B-E1-208
208	B-CR208	408	B-E1-207
209	B-CR207	409	B-E1-206
210	B-CR206	410	B-E1-205
211	B-CR205	411	B-E1-204
212	B-CR204	412	B-E1-203
213	B-CR203	413	B-E1-202
214	B-CR202	414	B-E1-201
215	B-CR201	415	B-E1-200
216	B-CR200	416	B-E1-199
217	B-CR199	417	B-E1-198
218	B-CR198	418	B-E1-197
219	B-CR197	419	B-E1-196
220	B-CR196	420	B-E1-195
221	B-CR195	421	B-E0-194
222	B-CR194	422	B-E1-194
223	B-CR193	423	B-E0-193
224	SPARE	424	B-E1-193

WIRE LIST

TERMINAL NO.	TERMINAL NO.
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
A-E0-195	B-E0-195
A-E0-196	B-E0-196
A-E0-197	B-E0-197
A-E0-198	B-E0-198
A-E0-199	B-E0-199
A-E0-200	B-E0-200
A-E0-201	B-E0-201
A-E0-202	B-E0-202
A-E0-203	B-E0-203
A-E0-204	B-E0-204
A-E0-205	B-E0-205
A-E0-206	B-E0-206
A-E0-207	B-E0-207
A-E0-208	B-E0-208
A-E0-209	B-E0-209
A-E0-210	B-E0-210
SPARE	SPARE
SPARE	SPARE
A-E0-212	B-E0-212
A-E0-213	B-E0-213

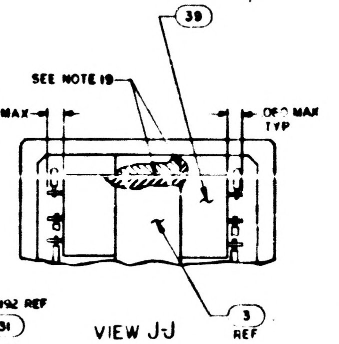
WIRE LIST

COMPONENT NO.	COMPONENT NO.
CR215	R176
CR216	R144
CR217	R112
CR218	R80
CR219	R48
CR220	R16
CR209	R32
CR210	R64
CR211	R96
CR212	R128
CR213	R160
CR214	R192



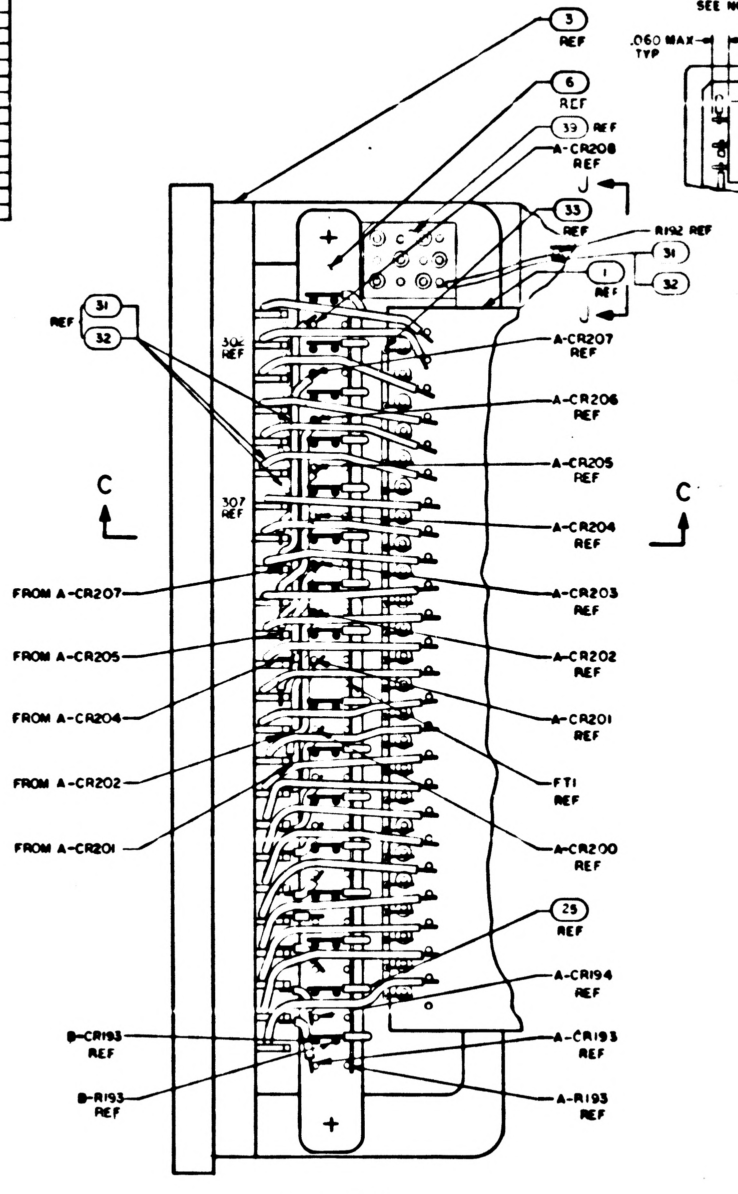
401
101
424
124

SECTION E-E



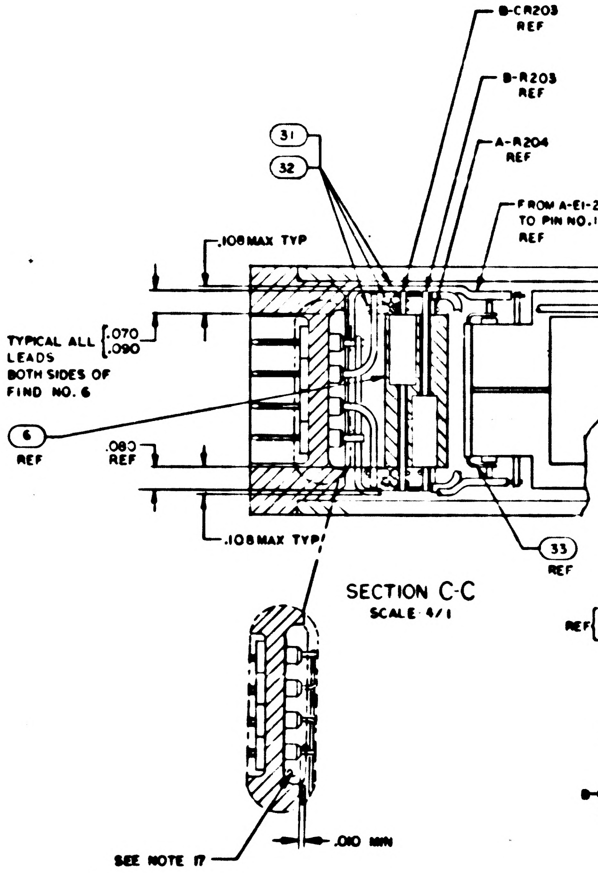
39
SEE NOTE 19
.060 MAX TYP
.060 MAX TYP
3 REF

VIEW J-J



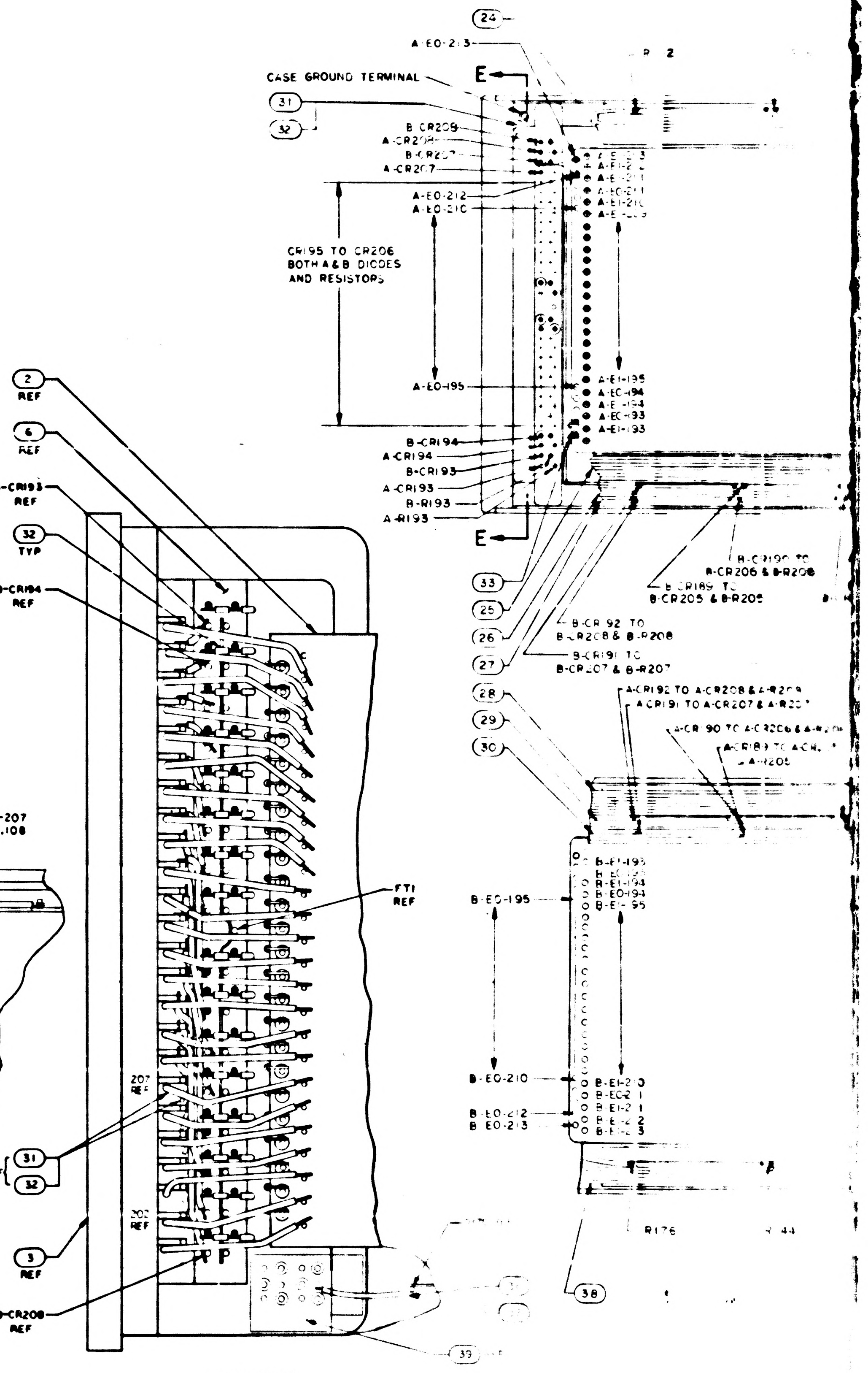
3 REF
6 REF
39 REF
A-CR208 REF
33 REF
R192 REF
31
32
1 REF
J
J
REF 31 32
306 REF
307 REF
A-CR207 REF
A-CR206 REF
A-CR205 REF
A-CR204 REF
A-CR203 REF
A-CR202 REF
A-CR201 REF
FT1 REF
A-CR200 REF
29 REF
A-CR194 REF
A-CR193 REF
A-R193 REF
C
C
FROM A-CR207
FROM A-CR205
FROM A-CR204
FROM A-CR202
FROM A-CR201
B-CR193 REF
B-R193 REF

VIEW G-G
SCALE 4/1
SHOWN WITH POTTING AND FIND NO.7 REMOVED. SEE NOTES 11,12,13 AND 14



B-CR203 REF
B-R203 REF
A-R204 REF
31
32
FROM A-E1-207 TO PIN NO.108 REF
.108 MAX TYP
TYPICAL ALL LEADS BOTH SIDES OF FIND NO. 6
.070 .090
6 REF
.080 REF
.108 MAX TYP
33 REF
SEE NOTE 17
.010 MIN

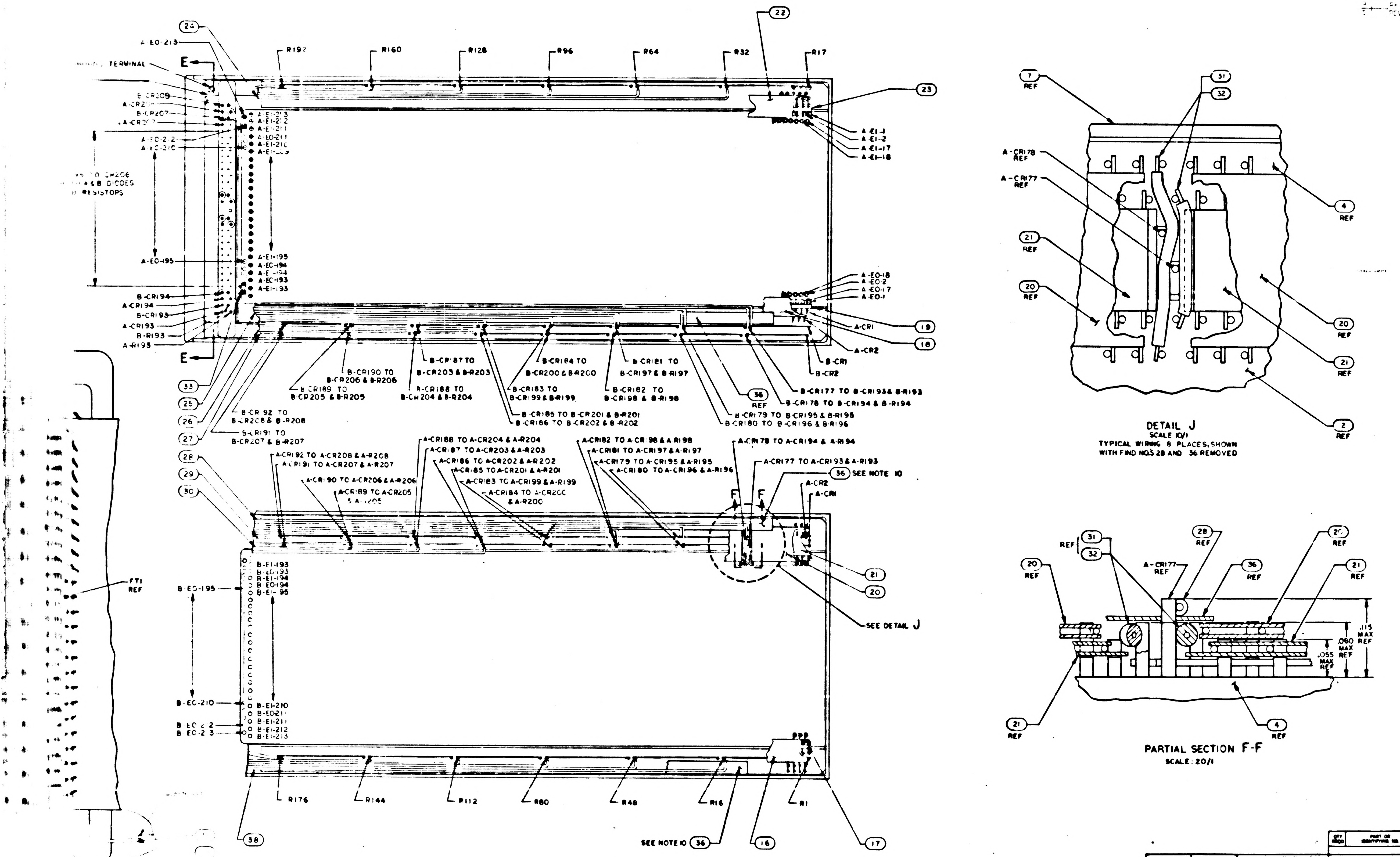
SECTION C-C
SCALE 4/1



2 REF
6 REF
B-CR193 REF
32 TYP
B-CR194 REF
FT1 REF
207 REF
202 REF
REF 31 32
3 REF
B-CR208 REF
39
24
A-E0-213
CASE GROUND TERMINAL
E
31
32
B-CR209
A-CR209
B-CR207
A-CR207
A-E0-212
A-E0-210
CR195 TO CR206 BOTH A & B DIODES AND RESISTORS
A-E0-195
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
E
A-E1-195
A-E0-194
A-E1-194
A-E0-193
A-E1-193
33
25
26
27
28
29
30
B-CR190 TO B-CR206 & B-R208
B-CR189 TO B-CR205 & B-R205
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205 & A-R205
B-E0-195
B-E1-195
B-E0-194
B-E1-194
B-E0-193
B-E1-193
B-E0-210
B-E1-210
B-E0-211
B-E1-211
B-E0-212
B-E0-213
B-E1-212
B-E1-213
R176
R144
38

VIEW H-H
SCALE 4/1
SHOWN WITH POTTING AND FIND NO.7 REMOVED. SEE NOTES 11,12,13 AND 14

		REVISIONS				
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL				
B		REVISED PER TDRR 33467				
		[illegible] 33544				
D		REVISED PER TDRR 33[illegible]6				
E		REVISED PER TDRR 34140				
F		REVISED PER TDRR [illegible]44[illegible]				
		[illegible] 349[illegible]				
H		REVISED PER TDRR [illegible]				
		REVISED PER TDRR [illegible]				
K		REVISED PER [illegible]				
L		REVISED PER TDRR 3521[illegible]				
M		[illegible]				
N		REVISED PER TDRR [illegible]				
P		REVISED PER TDRR [illegible]				
R		REVISED PER [illegible]				
S		REVISED [illegible]				


4
3
2
1
D
C
B
A
24
A-EO-213
TERMINAL
E
E
R192
R160
R128
R96
R64
R32
22
R17
23
B-CR209
A-CR2[illegible]
B-CR207
A-CR207
A-EO-212
A-EO-210
A-EI-213
A-EI-212
A-EI-211
A-EO-211
A-EI-210
A-EI-209
TO CR206
A & B DIODES
RESISTORS
A-EO-195
A-EI-195
A-EO-194
A-EI-194
A-EO-193
A-EI-193
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
A-EI-1
A-EI-2
A-EI-17
A-EI-18
A-EO-18
A-EO-2
A-EO-17
A-EO-1
A-CR1
A-CR2
B-CR1
B-CR2
19
18
33
25
26
27
28
29
30
B-CR190 TO B-CR206 & B-R206
B-CR189 TO B-CR205 & B-R205
B-CR187 TO B-CR203 & B-R203
B-CR188 TO B-CR204 & B-R204
B-CR184 TO B-CR200 & B-R200
B-CR183 TO B-CR199 & B-R199
B-CR181 TO B-CR197 & B-R197
B-CR182 TO B-CR198 & B-R198
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
B-CR185 TO B-CR201 & B-R201
B-CR186 TO B-CR202 & B-R202
36
REF
B-CR177 TO B-CR193 & B-R193
B-CR178 TO B-CR194 & B-R194
B-CR179 TO B-CR195 & B-R195
B-CR180 TO B-CR196 & B-R196
A-CR188 TO A-CR204 & A-R204
A-CR187 TO A-CR203 & A-R203
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR186 TO A-CR202 & A-R202
A-CR185 TO A-CR201 & A-R201
A-CR190 TO A-CR206 & A-R206
A-CR183 TO A-CR199 & A-R199
A-CR189 TO A-CR205 & A-R205
A-CR184 TO A-CR200 & A-R200
A-CR182 TO A-CR198 & A-R198
A-CR181 TO A-CR197 & A-R197
A-CR179 TO A-CR195 & A-R195
A-CR180 TO A-CR196 & A-R196
A-CR178 TO A-CR194 & A-R194
A-CR177 TO A-CR193 & A-R193
36 SEE NOTE 10
A-CR2
A-CR1
F F
21
20
SEE DETAIL J
FT1
REF
B-EO-195
B-EI-193
B-EO-193
B-EI-194
B-EO-194
B-EI-195
B-EO-210
B-EI-210
B-EO-211
B-EI-211
B-EO-212
B-EO-213
B-EI-212
B-EI-213
R176
R144
R112
R80
R48
R16
R1
38
SEE NOTE 10
36
16
17
H-H
AND FIND NO. 7
5 AND 14
7
REF
31
32
A-CR178
REF
A-CR177
REF
21
REF
20
REF
4
REF
20
REF
21
REF
2
REF
DETAIL J
SCALE 10/1
TYPICAL WIRING 8 PLACES, SHOWN WITH FIND NOS. 28 AND 36 REMOVED
REF
31
32
20
REF
A-CR177
REF
28
REF
36
REF
2
REF
21
REF
.115
MAX
.080 REF
MAX
.055 REF
MAX
REF
21
REF
4
REF
PARTIAL SECTION F-F
SCALE: 20/1

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED
NSC

FIXED MEMORY MODULE ASSEMBLY

CODE IDENT NO 80230
SIZE J
DRAWING NO 2003972
SCALE 2/1
SHEET 2 OF 3

SH2/3 2003972 SF2Y2

8 7 6 5

D

C

B

A

[illegible]

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		[illegible] 32[illegible]				
B		REVISED PER TDRR 334[illegible]				
		REVISED PER TDRR [illegible]4				
D		REVISED PER TDRR [illegible]6				
E		REVISED PER TDRR 34[illegible]				
F		REVISED PER TDRR 344[illegible]9				
G		REVISED PER [illegible]				
H		REVISED PER [illegible]33[illegible]				
J		REVISED PER [illegible]				
K		REVISED PER TDRR 34[illegible]				
L		REVISED PER TDRR 3[illegible]2[illegible]				
M		[illegible]				
N		REVISED PER TDRR [illegible]8[illegible]				
		REVISED PER [illegible]				
R		REVISED PER [illegible]				
S		REVISED PER TDRR [illegible]				

WIRE LIST

TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.
A-E0-1	A-CR1	A-E0-97	A-CR97	B-E0-1	B-CR1	B-E0-97	B-CR97	A-E1-1	R1	A-E1-49	R49	A-E1-97	R97	A-E1-145	R145
A-E0-2	A-CR2	A-E0-98	A-CR98	B-E0-2	B-CR2	B-E0-98	B-CR98	B-E1-1		B-E1-49		B-E1-97		B-E1-145	
A-E0-3	A-CR3	A-E0-99	A-CR99	B-E0-3	B-CR3	B-E0-99	B-CR99	A-E1-2	R2	A-E1-50	R50	A-E1-98	R98	A-E1-146	R146
A-E0-4	A-CR4	A-E0-100	A-CR100	B-E0-4	B-CR4	B-E0-100	B-CR100	B-E1-2		B-E1-50		B-E1-98		B-E1-146	
A-E0-5	A-CR5	A-E0-101	A-CR101	B-E0-5	B-CR5	B-E0-101	B-CR101	A-E1-3	R3	A-E1-51	R51	A-E1-99	R99	A-E1-147	R147
A-E0-6	A-CR6	A-E0-102	A-CR102	B-E0-6	B-CR6	B-E0-102	B-CR102	B-E1-3		B-E1-51		B-E1-99		B-E1-147	
A-E0-7	A-CR7	A-E0-103	A-CR103	B-E0-7	B-CR7	B-E0-103	B-CR103	A-E1-4	R4	A-E1-52	R52	A-E1-100	R100	A-E1-148	R148
A-E0-8	A-CR8	A-E0-104	A-CR104	B-E0-8	B-CR8	B-E0-104	B-CR104	B-E1-4		B-E1-52		B-E1-100		B-E1-148	
A-E0-9	A-CR9	A-E0-105	A-CR105	B-E0-9	B-CR9	B-E0-105	B-CR105	A-E1-5	R5	A-E1-53	R53	A-E1-101	R101	A-E1-149	R149
A-E0-10	A-CR10	A-E0-106	A-CR106	B-E0-10	B-CR10	B-E0-106	B-CR106	B-E1-5		B-E1-53		B-E1-101		B-E1-149	
A-E0-11	A-CR11	A-E0-107	A-CR107	B-E0-11	B-CR11	B-E0-107	B-CR107	A-E1-6	R6	A-E1-54	R54	A-E1-102	R102	A-E1-150	R150
A-E0-12	A-CR12	A-E0-108	A-CR108	B-E0-12	B-CR12	B-E0-108	B-CR108	B-E1-6		B-E1-54		B-E1-102		B-E1-150	
A-E0-13	A-CR13	A-E0-109	A-CR109	B-E0-13	B-CR13	B-E0-109	B-CR109	A-E1-7	R7	A-E1-55	R55	A-E1-103	R103	A-E1-151	R151
A-E0-14	A-CR14	A-E0-110	A-CR110	B-E0-14	B-CR14	B-E0-110	B-CR110	B-E1-7		B-E1-55		B-E1-103		B-E1-151	
A-E0-15	A-CR15	A-E0-111	A-CR111	B-E0-15	B-CR15	B-E0-111	B-CR111	A-E1-8	R8	A-E1-56	R56	A-E1-104	R104	A-E1-152	R152
A-E0-16	A-CR16	A-E0-112	A-CR112	B-E0-16	B-CR16	B-E0-112	B-CR112	B-E1-8		B-E1-56		B-E1-104		B-E1-152	
A-E0-17	A-CR17	A-E0-113	A-CR113	B-E0-17	B-CR17	B-E0-113	B-CR113	A-E1-9	R9	A-E1-57	R57	A-E1-105	R105	A-E1-153	R153
A-E0-18	A-CR18	A-E0-114	A-CR114	B-E0-18	B-CR18	B-E0-114	B-CR114	B-E1-9		B-E1-57		B-E1-105		B-E1-153	
A-E0-19	A-CR19	A-E0-115	A-CR115	B-E0-19	B-CR19	B-E0-115	B-CR115	A-E1-10	R10	A-E1-58	R58	A-E1-106	R106	A-E1-154	R154
A-E0-20	A-CR20	A-E0-116	A-CR116	B-E0-20	B-CR20	B-E0-116	B-CR116	B-E1-10		B-E1-58		B-E1-106		B-E1-154	
A-E0-21	A-CR21	A-E0-117	A-CR117	B-E0-21	B-CR21	B-E0-117	B-CR117	A-E1-11	R11	A-E1-59	R59	A-E1-107	R107	A-E1-155	R155
A-E0-22	A-CR22	A-E0-118	A-CR118	B-E0-22	B-CR22	B-E0-118	B-CR118	B-E1-11		B-E1-59		B-E1-107		B-E1-155	
A-E0-23	A-CR23	A-E0-119	A-CR119	B-E0-23	B-CR23	B-E0-119	B-CR119	A-E1-12	R12	A-E1-60	R60	A-E1-108	R108	A-E1-156	R156
A-E0-24	A-CR24	A-E0-120	A-CR120	B-E0-24	B-CR24	B-E0-120	B-CR120	B-E1-12		B-E1-60		B-E1-108		B-E1-156	
A-E0-25	A-CR25	A-E0-121	A-CR121	B-E0-25	B-CR25	B-E0-121	B-CR121	A-E1-13	R13	A-E1-61	R61	A-E1-109	R109	A-E1-157	R157
A-E0-26	A-CR26	A-E0-122	A-CR122	B-E0-26	B-CR26	B-E0-122	B-CR122	B-E1-13		B-E1-61		B-E1-109		B-E1-157	
A-E0-27	A-CR27	A-E0-123	A-CR123	B-E0-27	B-CR27	B-E0-123	B-CR123	A-E1-14	R14	A-E1-62	R62	A-E1-110	R110	A-E1-158	R158
A-E0-28	A-CR28	A-E0-124	A-CR124	B-E0-28	B-CR28	B-E0-124	B-CR124	B-E1-14		B-E1-62		B-E1-110		B-E1-158	
A-E0-29	A-CR29	A-E0-125	A-CR125	B-E0-29	B-CR29	B-E0-125	B-CR125	A-E1-15	R15	A-E1-63	R63	A-E1-111	R111	A-E1-159	R159
A-E0-30	A-CR30	A-E0-126	A-CR126	B-E0-30	B-CR30	B-E0-126	B-CR126	B-E1-15		B-E1-63		B-E1-111		B-E1-159	
A-E0-31	A-CR31	A-E0-127	A-CR127	B-E0-31	B-CR31	B-E0-127	B-CR127	A-E1-16	R16	A-E1-64	R64	A-E1-112	R112	A-E1-160	R160
A-E0-32	A-CR32	A-E0-128	A-CR128	B-E0-32	B-CR32	B-E0-128	B-CR128	B-E1-16		B-E1-64		B-E1-112		B-E1-160	
A-E0-33	A-CR33	A-E0-129	A-CR129	B-E0-33	B-CR33	B-E0-129	B-CR129	A-E1-17	R17	A-E1-65	R65	A-E1-113	R13	A-E1-161	R161
A-E0-34	A-CR34	A-E0-130	A-CR130	B-E0-34	B-CR34	B-E0-130	B-CR130	B-E1-17		B-E1-65		B-E1-113		B-E1-161	
A-E0-35	A-CR35	A-E0-131	A-CR131	B-E0-35	B-CR35	B-E0-131	B-CR131	A-E1-18	R18	A-E1-66	R66	A-E1-114	R114	A-E1-162	R162
A-E0-36	A-CR36	A-E0-132	A-CR132	B-E0-36	B-CR36	B-E0-132	B-CR132	B-E1-18		B-E1-66		B-E1-114		B-E1-162	
A-E0-37	A-CR37	A-E0-133	A-CR133	B-E0-37	B-CR37	B-E0-133	B-CR133	A-E1-19	R19	A-E1-67	R67	A-E1-115	R115	A-E1-163	R163
A-E0-38	A-CR38	A-E0-134	A-CR134	B-E0-38	B-CR38	B-E0-134	B-CR134	B-E1-19		B-E1-67		B-E1-115		B-E1-163	
A-E0-39	A-CR39	A-E0-135	A-CR135	B-E0-39	B-CR39	B-E0-135	B-CR135	A-E1-20	R20	A-E1-68	R68	A-E1-116	R116	A-E1-164	R164
A-E0-40	A-CR40	A-E0-136	A-CR136	B-E0-40	B-CR40	B-E0-136	B-CR136	B-E1-20		B-E1-68		B-E1-116		B-E1-164	
A-E0-41	A-CR41	A-E0-137	A-CR137	B-E0-41	B-CR41	B-E0-137	B-CR137	A-E1-21	R21	A-E1-69	R69	A-E1-117	R117	A-E1-165	R165
A-E0-42	A-CR42	A-E0-138	A-CR138	B-E0-42	B-CR42	B-E0-138	B-CR138	B-E1-21		B-E1-69		B-E1-117		B-E1-165	
A-E0-43	A-CR43	A-E0-139	A-CR139	B-E0-43	B-CR43	B-E0-139	B-CR139	A-E1-22	R22	A-E1-70	R70	A-E1-118	R118	A-E1-166	R166
A-E0-44	A-CR44	A-E0-140	A-CR140	B-E0-44	B-CR44	B-E0-140	B-CR140	B-E1-22		B-E1-70		B-E1-118		B-E1-166	
A-E0-45	A-CR45	A-E0-141	A-CR141	B-E0-45	B-CR45	B-E0-141	B-CR141	A-E1-23	R23	A-E1-71	R71	A-E1-119	R119	A-E1-167	R167
A-E0-46	A-CR46	A-E0-142	A-CR142	B-E0-46	B-CR46	B-E0-142	B-CR142	B-E1-23		B-E1-71		B-E1-119		B-E1-167	
A-E0-47	A-CR47	A-E0-143	A-CR143	B-E0-47	B-CR47	B-E0-143	B-CR143	A-E1-24	R24	A-E1-72	R72	A-E1-120	R120	A-E1-168	R168
A-E0-48	A-CR48	A-E0-144	A-CR144	B-E0-48	B-CR48	B-E0-144	B-CR144	B-E1-24		B-E1-72		B-E1-120		B-E1-168	
A-E0-49	A-CR49	A-E0-145	A-CR145	B-E0-49	B-CR49	B-E0-145	B-CR145	A-E1-25	R25	A-E1-73	R73	A-E1-121	R121	A-E1-169	R169
A-E0-50	A-CR50	A-E0-146	A-CR146	B-E0-50	B-CR50	B-E0-146	B-CR146	B-E1-25		B-E1-73		B-E1-121		B-E1-169	
A-E0-51	A-CR51	A-E0-147	A-CR147	B-E0-51	B-CR51	B-E0-147	B-CR147	A-E1-26	R26	A-E1-74	R74	A-E1-122	R122	A-E1-170	R170
A-E0-52	A-CR52	A-E0-148	A-CR148	B-E0-52	B-CR52	B-E0-148	B-CR148	B-E1-26		B-E1-74		B-E1-122		B-E1-170	
A-E0-53	A-CR53	A-E0-149	A-CR149	B-E0-53	B-CR53	B-E0-149	B-CR149	A-E1-27	R27	A-E1-75	R75	A-E1-123	R123	A-E1-171	R171
A-E0-54	A-CR54	A-E0-150	A-CR150	B-E0-54	B-CR54	B-E0-150	B-CR150	B-E1-27		B-E1-75		B-E1-123		B-E1-171	
A-E0-55	A-CR55	A-E0-151	A-CR151	B-E0-55	B-CR55	B-E0-151	B-CR151	A-E1-28	R28	A-E1-76	R76	A-E1-124	R124	A-E1-172	R172
A-E0-56	A-CR56	A-E0-152	A-CR152	B-E0-56	B-CR56	B-E0-152	B-CR152	B-E1-28		B-E1-76		B-E1-124		B-E1-172	
A-E0-57	A-CR57	A-E0-153	A-CR153	B-E0-57	B-CR57	B-E0-153	B-CR153	A-E1-29	R29	A-E1-77	R77	A-E1-125	R125	A-E1-173	R173
A-E0-58	A-CR58	A-E0-154	A-CR154	B-E0-58	B-CR58	B-E0-154	B-CR154	B-E1-29		B-E1-77		B-E1-125		B-E1-173	
A-E0-59	A-CR59	A-E0-155	A-CR155	B-E0-59	B-CR59	B-E0-155	B-CR155	A-E1-30	R30	A-E1-78	R78	A-E1-126	R126	A-E1-174	R174
A-E0-60	A-CR60	A-E0-156	A-CR156	B-E0-60	B-CR60	B-E0-156	B-CR156	B-E1-30		B-E1-78		B-E1-126		B-E1-174	
A-E0-61	A-CR61	A-E0-157	A-CR157	B-E0-61	B-CR61	B-E0-157	B-CR157	A-E1-31	R31	A-E1-79	R79	A-E1-127	R127	A-E1-175	R175
A-E0-62	A-CR62	A-E0-158	A-CR158	B-E0-62	B-CR62	B-E0-158	B-CR158	B-E1-31		B-E1-79		B-E1-127		B-E1-175	
A-E0-63	A-CR63	A-E0-159	A-CR159	B-E0-63	B-CR63	B-E0-159	B-CR159	A-E1-32	R32	A-E1-80	R80	A-E1-128	R128	A-E1-176	R176
A-E0-64	A-CR64	A-E0-160	A-CR160	B-E0-64	B-CR64	B-E0-160	B-CR160	B-E1-32		B-E1-80		B-E1-128		B-E1-176	
A-E0-65	A-CR65	A-E0-161	A-CR161	B-E0-65	B-CR65	B-E0-161	B-CR161	A-E1-33	R33	A-E1-81	R81	A-E1-129	R129	A-E1-177	R177
A-E0-66	A-CR66	A-E0-162	A-CR162	B-E0-66	B-CR66	B-E0-162	B-CR162	B-E1-33		B-E1-81		B-E1-129		B-E1-177	
A-E0-67	A-CR67	A-E0-163	A-CR163	B-E0-67	B-CR67	B-E0-163	B-CR163	A-E1-34	R34	A-E1-82	R82	A-E1-130	R130	A-E1-178	R178
A-E0-68	A-CR68	A-E0-164	A-CR164	B-E0-68	B-CR68	B-E0-164	B-CR164	B-E1-34		B-E1-82		B-E1-130		B-E1-178	
A-E0-69	A-CR69	A-E0-165	A-CR165	B-E0-69	B-CR69	B-E0-165	B-CR165	A-E1-35	R35	A-E1-83	R83	A-E1-131	R131	A-E1-179	R179
A-E0-70	A-CR70	A-E0-166	A-CR166	B-E0-70	B-CR70	B-E0-166	B-CR166	B-E1-35		B-E1-83		B-E1-131		B-E1-179	
A-E0-71	A-CR71	A-E0-167	A-CR167	B-E0-71	B-CR71	B-E0-167	B-CR167	A-E1-36	R36	A-E1-84	R84	A-E1-132	R132	A-E1-180	R180
A-E0-72	A-CR72	A-E0-168	A-CR168	B-E0-72	B-CR72	B-E0-168	B-CR168	B-E1-36		B-E1-84		B-E1-132		B-E1-180	
A-E0-73	A-CR73	A-E0-169	A-CR169	B-E0-73	B-CR73	B-E0-169	B-CR169	A-E1-37	R37	A-E1-85	R85	A-E1-133	R133	A-E1-181	R181
A-E0-74	A-CR74	A-E0-170	A-CR170	B-E0-74	B-CR74	B-E0-170	B-CR170	B-E1-37		B-E1-85		B-E1-133		B-E1-181	
A-E0-75	A-CR75	A-E0-171	A-CR171	B-E0-75	B-CR75	B-E0-171	B-CR171	A-E1-38	R38	A-E1-86	R86	A-E1-134	R134	A-E1-182	R182
A-E0-76	A-CR76	A-E0-172	A-CR172	B-E0-76	B-CR76	B-E0-172	B-CR172	B-E1-38		B-E1-86		B-E1-134		B-E1-182	
A-E0-77	A-CR77	A-E0-173	A-CR173	B-E0-77	B-CR77	B-E0-173	B-CR173	A-E1-39	R39	A-E1-87	R87	A-E1-135	R135	A-E1-183	R183
A-E0-78	A-CR78	A-E0-174	A-CR174	B-E0-78	B-CR78	B-E0-174	B-CR174	B-E1-39		B-E1-87		B-E1-135		B-E1-183	
A-E0-79	A-CR79	A-E0-175	A-CR175	B-E0-79	B-CR79	B-E0-175	B-CR175	A-E1-40	R40	A-E1-88	R88	A-E1-136	R136	A-E1-184	R184
A-E0-80	A-CR80	A-E0-176	A-CR176	B-E0-80	B-CR80	B-E0-176	B-CR176	B-E1-40		B-E1-88		B-E1-136		B-E1-184	
A-E0-81	A-CR81	A-E0-177	A-CR177	B-E0-81	B-CR81	B-E0-177	B-CR177	A-E1-41	R41	A-E1-89	R89	A-E1-137	R137	A-E1-185	R185
A-E0-82	A-CR82	A-E0-178	A-CR178	B-E0-82	B-CR82	B-E0-178	B-CR178	B-E1-41		B-E1-89		B-E1-137		B-E1-185	
A-E0-83	A-CR83	A-E0-179	A-CR179	B-E0-83	B-CR83	B-E0-179	B-CR179	A-E1-42	R42	A-E1-90	R90	A-E1-138	R138	A-E1-186	R186
A-E0-84	A-CR84	A-E0-180	A-CR180	B-E0-84	B-CR84	B-E0-180	B-CR180	B-E1-42		B-E1-90		B-E1-138		B-E1-186	
A-E0-85	A-CR85	A-E0-181	A-CR181	B-E0-85	B-CR85	B-E0-181	B-CR181	A-E1-43	R43	A-E1-91	R91	A-E1-139	R139	A-E1-187	R187
A-E0-86	A-CR86	A-E0-182	A-CR182	B-E0-86	B-CR86	B-E0-182	B-CR182	B-E1-43		B-E1-91		B-E1-139		B-E1-187	
A-E0-87	A-CR87	A-E0-183	A-CR183	B-E0-87	B-CR87	B-E0-183	B-CR183	A-E1-44	R44	A-E1-92	R92	A-E1-140	R140	A-E1-188	R188
A-E0-88	A-CR88	A-E0-184	A-CR184	B-E0-88	B-CR88	B-E0-184	B-CR184	B-E1-44		B-E1-92		B-E1-140		B-E1-188	
A-E0-89	A-CR89	A-E0-185	A-CR185	B-E0-89	B-CR89	B-E0-185	B-CR185	A-E1-45	R45	A-E1-93	R93	A-E1-141	R141	A-E1-189	R189
A-E0-90	A-CR90	A-E0-186	A-CR186	B-E0-90	B-CR90	B-E0-186	B-CR186	B-E1-45		B-E1-93		B-E1-141		B-E1-189	
A-E0-91	A-CR91	A-E0-187	A-CR187	B-E0-91	B-CR91	B-E0-187	B-CR187	A-E1-46	R46	A-E1-94	R94	A-E1-142	R142	A-E1-190	R190
A-E0-92	A-CR92	A-E0-188	A-CR188	B-E0-92	B-CR92	B-E0-188	B-CR188	B-E1-46		B-E1-94		B-E1-142		B-E1-190	
A-E0-93	A-CR93	A-E0-189	A-CR189	B-E0-93	B-CR93	B-E0-189	B-CR189	A-E1-47	R47	A-E1-95	R95	A-E1-143	R143	A-E1-191	R191
A-E0-94	A-CR94	A-E0-190	A-CR190	B-E0-94	B-CR94	B-E0-190	B-CR190	B-E1-47		B-E1-95		B-E1-143		B-E1-191	
A-E0-95	A-CR95	A-E0-191	A-CR191	B-E0-95	B-CR95	B-E0-191	B-CR191	A-E1-48	R48	A-E1-96	R96	A-E1-144	R144	A-E1-192	R192
A-E0-96	A-CR96	A-E0-192	A-CR192	B-E0-96	B-CR96	B-E0-192	B-CR192	B-E1-48		B-E1-96		B-E1-144		B-E1-192	

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MSC

FIXED MEMORY MODULE ASSEMBLY

CODE IDENT NO	SIZE	DRAWING NO
80230	J	2003972

SCALE NONE

SHEET 3 OF 3

2003972 SF2/2 SH3/3

PART NO.	MODULE NO.	FIND NO. 1	FIND NO. 2	MODULE DECK NO.	NEXT ASSEMBLY NO. (REF)	PROCUREMENT SPECIFICATION SEE NOTE 15
2003972-011	B1	2003060-061	2003061-061	0205	2021101	PS2003972
2003972-021	B2	2003060-071	2003061-071	0206	2021101	
2003972-031	B3	2003060-081	2003061-081	0207	2021101	
2003972-041	B1	2003060-121	2003061-121	0210	2021104	
2003972-051	B2	2003060-131	2003061-131	0211	2021104	
2003972-061	B3	2003060-141	2003061-141	0212	2021104	
2003972-071	B3	2003060-151	2003061-151	0213	2021104	
2003972-081	B3	2003060-161	2003061-161	0214	2021104	
2003972-091	B2	2003060-171	2003061-171	0215	2021101	
2003972-111	B2	2003060-181	2003061-181	0216	2021101	
2003972-121	B1	2003060-091	2003061-091	0208	2021105-031	PS2003972
2003972-131	B2	2003060-111	2003061-111	0209	2021105-031	PS2003960
2003972-141	B1	2003060-191	2003061-191	0217	2021106-011	PS2003960
2003972-151	B2	2003060-211	2003061-211	0218	2021106-011	PS2003972
2003972-161	B3	2003060-221	2003061-221	0219	2021106-011	
2003972-171	B4	2003060-231	2003061-231	0220	2021106-011	
2003972-181	B5	2003060-241	2003061-241	0221	2021106-011	
2003972-191	B6	2003060-251	2003061-251	0222	2021106-011	
2003972-211	B3	2003060-261	2003061-261	[illegible]	[illegible]	PS2003972
2003972-221	[illegible]	2003060-271	2003061-271	0224	2021105-041	PS2003960
2003972-231	B1	2003060-281	2003061-281	0225	2021106-021	
2003972-241	B3	2003060-291	2003061-291	0226	2021106-021	PS2003972
2003972-251	B5	2003060-311	2003061-311	0227	2021106-021	
2003972-261	B1	2003060-321	2003061-321	0230	2021107-011	
2003972-271	B2	2003060-331	2003061-331	0229	2021107-011	
[illegible]	B3	2003060-341	2003061-341	[illegible]	[illegible]	
[illegible]	B1	2003060-351	2003061-351	0238	2021107-021	
2003972-311	B1	2003060-361	2003061-361	0239	2021108-021	PS2003972
321	B2	2003060-371	2003061-371	0240	2021108-021	PS2016016
331	B3	2003060-381	2003061-381	0241	2021108-021	PS2016016
341	B4	2003060-391	2003061-391	[illegible]	2021108-021	PS2016016
351	B5	2003060-411	2003061-411	0242	2021108-021	PS2016016
2003972-361	B6	2003060-421	2003061-421	0244	2021108-021	PS2016016
2003972-371	B1	2003060-431	2003061-431	0245	2021110-011	PS2016016
2003972-381	B2	2003060-441	2003061-441	0246	2021110-011	PS2016016
2003972-391	B3	2003060-451	2003061-451	0247	2021110-011	
2003972-411	B4	2003060-461	2003061-461	0248	2021110-011	
2003972-421	B5	2003060-471	2003061-471	0249	2021110-011	
2003972-431	B6	2003060-481	2003061-481	0250	2021110-011	
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[illegible]	B4	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	B5	[illegible]	[illegible]	[illegible]	[illegible]	
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[illegible]	B4	[illegible]	[illegible]	[illegible]	-0214031	
[illegible]	B5	[illegible]	[illegible]	[illegible]	2021111-0214031	
[illegible]	B6	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2021111-0214031	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2021111-031	PS2016036
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[illegible]	B4	[illegible]	[illegible]	[illegible]	2021110-031	
[illegible]	B5	[illegible]	[illegible]	[illegible]	2021110-031	
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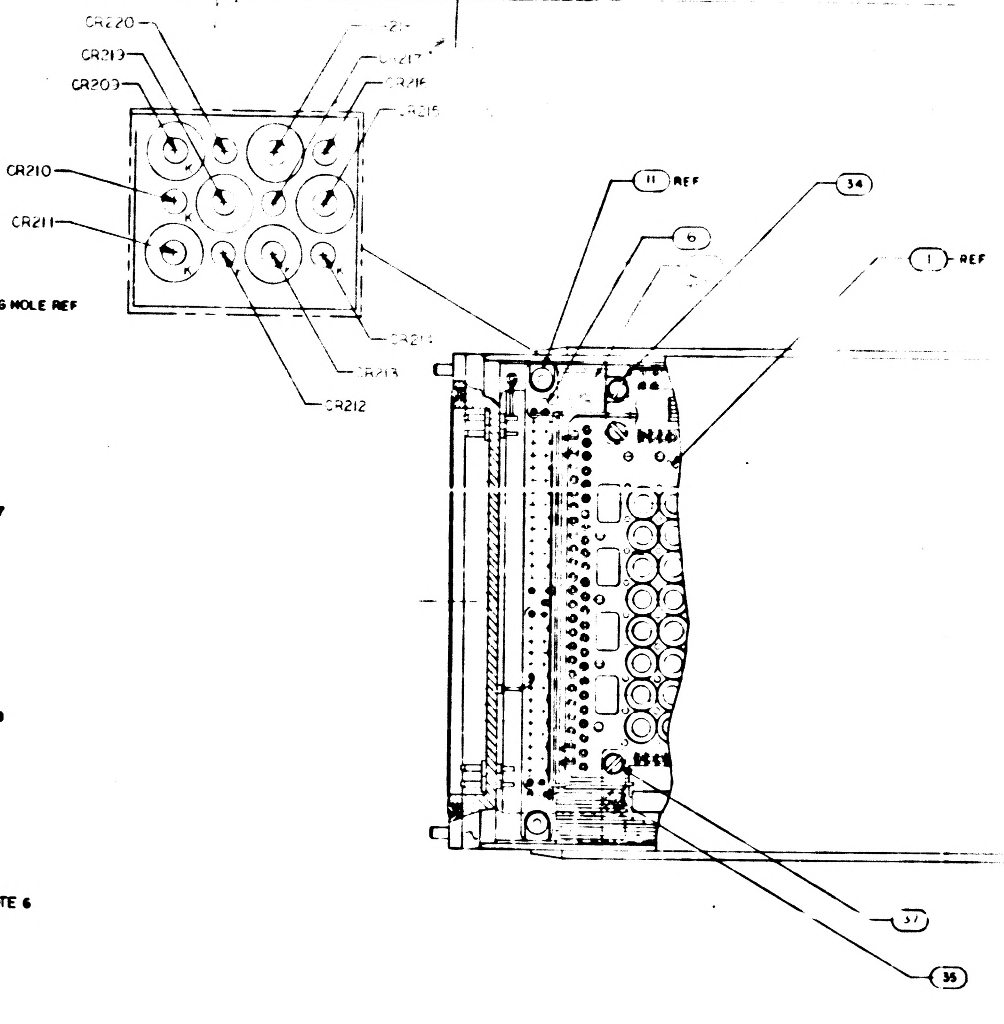

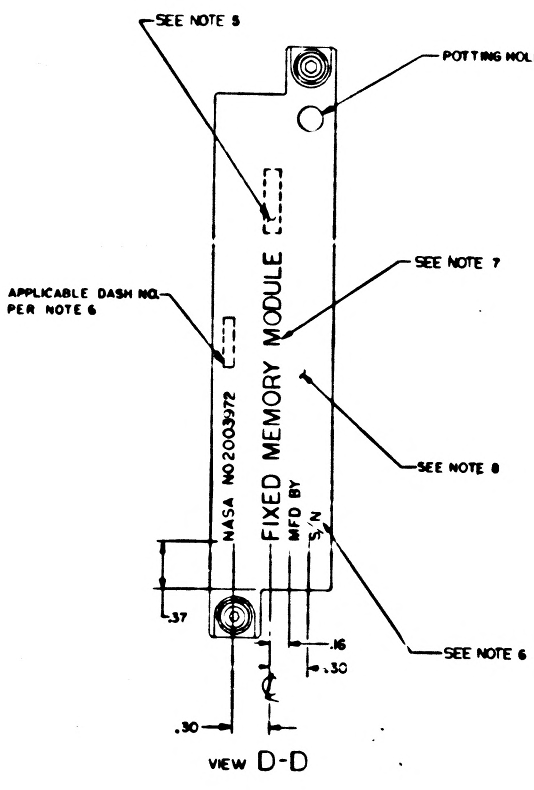

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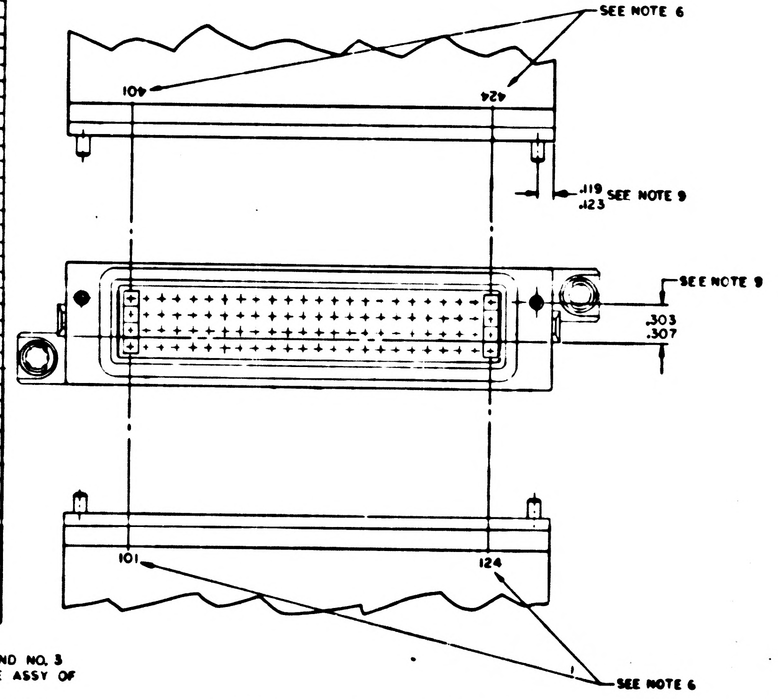
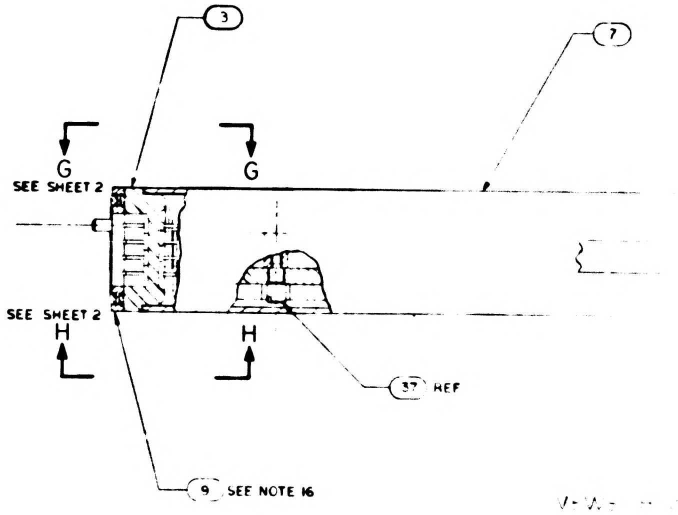




NOTES:

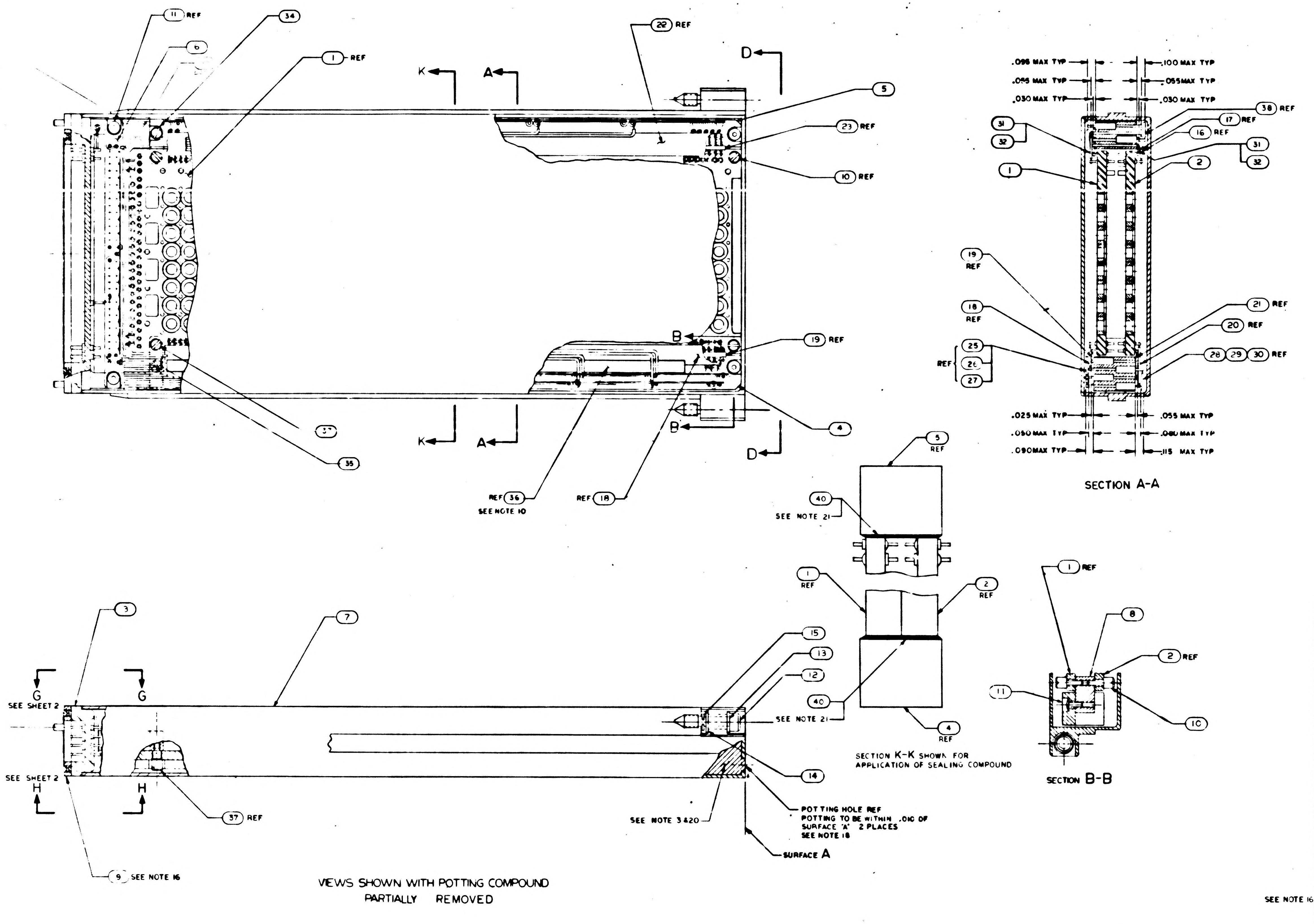
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
3. ENCAPSULATE MODULE PER ND1002226 METHOD II
4. WELD PER ND1002005
5. MARK APPROPRIATE MODULE NO. AS SHOWN IN CHART
6. MARK .08/.06 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
7. MARK .14/.10 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 USING INK 1006271-1
8. PAINT INDICATED SURFACES OF FIND NO 7. PER ND1002279 WITH SCD NO.1008809-1 DARK GREY EPOXY RESIN ENAMEL, FINAL COAT PER ND1002277 USING 1012543-003
9. ASSEMBLE FIND NO.7 AND FIND NO.3 TO DIMENSIONS SHOWN
10. REMOVE LINER FROM NEAR SIDE OF FIND NO.36 AND ASSEMBLE 3 PLACES AS SHOWN. FIND NO.36 MUST INSULATE FLAT CABLES FROM TRIMMED COMPONENT LEADS. TRIM AS REQUIRED
11. WHITE DOT AND SINGLE SOLID LEAD DENOTES FIRST LEVEL WIRING UNLESS OTHERWISE SPECIFIED
12. BLACK DOT AND SINGLE SOLID LEAD DENOTES SECOND LEVEL WIRING
13. BLACK DOT AND CROSS HATCHED LEAD DENOTES THIRD LEVEL WIRING
14. ALL LEADS FROM FIND NO.1 AND FIND NO.2 TO FIND NO.3 TO BE THIRD LEVEL WIRING
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PROCUREMENT SPECIFICATION AS LISTED IN CHART.
16. FIND NO.9 TO BE SHIPPED UNASSEMBLED AND IDENTIFIED PER ND 1002019
17. SEAL PINS AND INSULATORS TO FIND NO. 3 PER ND1002004 TYPE XI BEFORE ASSY OF FIND NO. 6
18. FILL AS SHOWN PER ND1002235 METHOD A
19. BOND FIND NO.39 TO FIND NO.3 PER ND1002004 TYPE XI AFTER ASSY OF FIND NO.6
20. PRIOR TO ENCAPSULATION PER NOTE 3, COAT OVER ALL TERMINALS OF FIND NO'S 1,2&3 AND OVER ALL WIRES, SLEEVING AND COMPONENT LEADS OF FIND NO'S 4,5,6,16,17,18,19,20,21,22,23,24, 25,26,27,28,29,30,31,32,33,38 &39 WITH A .03 MAXIMUM THICKNESS OF SILICONE RUBBER PER ND1002009, METHOD A. MASK ALL OUTSIDE SURFACES OF FIND NO.3 AND ALL OTHER SURFACES OF THIS ASSEMBLY COMING IN CLOSE CONTACT WITH FIND NO.7
21. FILL INTERFACE BETWEEN FIND NO.4 AND SIDE SURFACES OF FIND NO'S 1 AND 2, AND INTERFACE BETWEEN FIND NO.5 AND SIDE SURFACES OF FIND NO'S 1 AND 2 USING FIND NO.40. ROOM TEMP CURE FOR 24 HOURS MIN.

REFERENCES:

1. PROCESS REQUIREMENTS FOR CONTROL AND INSPECTION OF ROPE MEMORY ASSEMBLIES ND1002285
2. FIXED MEMORY FIXTURE DWG NO AP22500

2003972	T	

SH1/3 2003972 TF1/2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22 REF
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10 REF
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19 REF
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A
B
D
REF 36
SEE NOTE 10
REF 18
.095 MAX TYP
.095 MAX TYP
.030 MAX TYP
.100 MAX TYP
.055 MAX TYP
.030 MAX TYP
38 REF
17 REF
16 REF
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19 REF
18 REF
21 REF
20 REF
REF
25
26
27
28 29 30 REF
.025 MAX TYP
.050 MAX TYP
.090 MAX TYP
.055 MAX TYP
.080 MAX TYP
.115 MAX TYP
5 REF
40
SEE NOTE 21
1 REF
2 REF
40
SEE NOTE 21
4 REF
1 REF
8
2 REF
11
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SEE SHEET 2
SEE SHEET 2
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37 REF
SEE NOTE 3 & 20
9 SEE NOTE 16
SURFACE A

SECTION A-A

SECTION K-K SHOWN FOR APPLICATION OF SEALING COMPOUND

SECTION B-B

POTTING HOLE REF
POTTING TO BE WITHIN .010 OF SURFACE 'A' 2 PLACES
SEE NOTE 18

VIEWS SHOWN WITH POTTING COMPOUND PARTIALLY REMOVED

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	[illegible]		
B	REVISED PER TDRR [illegible] DR [illegible] CHK [illegible]		
C	REVISED PER TDRR [illegible]4 DR [illegible]		
D	REVISED PER TDRR 33[illegible]05 DR [illegible] CHK [illegible]	5/[illegible]	
E	REVISED PER TDRR 34[illegible]40 DR [illegible] CHK [illegible]		
F	REVISED PER TDRR 34489 DR [illegible] CHK [illegible]		
G	REVISED PER TDRR [illegible]		
H	REVISED PER TDRR [illegible] DR [illegible]		
J	REVISED PER TDRR [illegible] DR [illegible] CHK [illegible]		
K	REVISED PER TDRR 35[illegible]70 DR [illegible] CHK [illegible]		
L	REVISED PER TDRR 3621[illegible] DR [illegible] CHK [illegible]		
M	[illegible]		
N	REVISED PER TDRR 3[illegible]68[illegible] DR [illegible] CHK [illegible]		
P	[illegible] DR [illegible] CHK [illegible]		
R	REVISED PER TDRR [illegible]858 DR [illegible] CHK [illegible]		
S	REVISED PER TDRR [illegible] CHK [illegible]		
T	REVISED PER TDRR [illegible]370 DR [illegible] CHK [illegible]		

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
AR	1C0634	A.HE[illegible]E SEALANT, [illegible]ILICONE R[illegible]BBER	40
1	2003[illegible]-021	COMPONENT BLOCK DIODE ASSY	39
X	2005935	SCHEMATIC	REF
1	[illegible]004[illegible]84	FLAT CABLE	38
4	2004150-003	SCREW, SHOULDERED	37
AR	1006806-26	INSULATION TAPE, ELECTRICAL	36
1	2004150-001	SCREW, SHOULDERED	35
1	2004150-002	SCREW, SHOULDERED	34
1	2004129	FLAT CABLE INTERCONNECTION	33
AR	1006776-25	SLEEVING	32
AR	1006757-12	WIRE, ELECTRICAL	31
[illegible]	2004[illegible]25	FLAT CABLE	30
1	2004122	FLAT CABLE	29
1	2004124	FLAT CABLE	28
1	2004123	FLAT CABLE	27
1	2004121	FLAT CABLE	26
1	2004120	FLAT CABLE	25
1	2004[illegible]	FLAT CABLE	24
1	2003051-013	MATRIX ASSY	23
1	2003051-014	MATRIX ASSY	22
8	2003051-016	MATRIX ASSY	21
8	2003051-015	MATRIX ASSY	20
1	2003051-017	MATRIX ASSY	19
1	2003051-018	MATRIX ASSY	18
1	2003051-011	MATRIX ASSY	17
1	2003051-012	MATRIX ASSY	16
2	MS[illegible]33-4015	[illegible]	15
2	1004546-3	WASHER	14
2	1004546-1	WASHER	13
2	1004579-1	SCREW, JACKING	12
4	1000093-1	SCREW, BUTTONHEAD	11
4	2004151	SCREW, STANDOFF	10
1	1006339	GASKET PLATE	9
2	2004071	STANDOFF	8
1	2004100	HOUSING	7
1	2003048-021	RESISTOR-DIODE BLOCK ASSY	6
1	2003052-021	COMPONENT BLOCK RESISTOR ASSY	5
1	2003045-021	COMPONENT BLOCK DIODE ASSY	4
1	2003973-011	CONNECTOR PLATE ASSY	3
1	2003061-SEE CHART	SENSE WIRING ASSY SIDE B	2
1	2003060-SEE CHART	SENSE WIRING ASSY SIDE A	1

SEE NOTE 16

LIST OF MATERIALS

FOR APPLICABLE PART NO. SEE CHART

SEE CHART	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN [illegible] DATE [illegible]
CHECKED [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
[illegible] APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE ASSEMBLY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO 2003972
SCALE [illegible]
WT
SHEET 1 OF 3

SH1/3 2003972 TF2/2

WIRE LIST

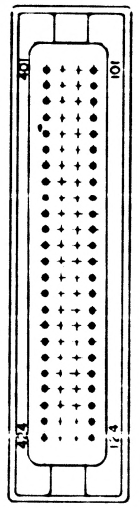
PIN NO.	COMPONENT OR TERM. NO.	PIN NO.	COMPONENT OR TERM. NO.
101	A-EI-213	301	GROUND
102	A-EI-212	302	CR209
103	A-EI-211	303	CR210
104	A-EO-211	304	CR211
105	A-EI-210	305	CR212
106	A-EI-209	306	CR213
107	A-EI-208	307	CR214
108	A-EI-207	308	A-CR208
109	A-EI-206	309	A-CR207
110	A-EI-205	310	A-CR206
111	A-EI-204	311	A-CR205
112	A-EI-203	312	A-CR204
113	A-EI-202	313	A-CR203
114	A-EI-201	314	A-CR202
115	A-EI-200	315	A-CR201
116	A-EI-199	316	A-CR200
117	A-EI-198	317	A-CR199
118	A-EI-197	318	A-CR198
119	A-EI-196	319	A-CR197
120	A-EI-195	320	A-CR196
121	A-EO-194	321	A-CR195
122	A-EI-194	322	A-CR194
123	A-EO-193	323	A-CR193
124	A-EI-193	324	SPARE
201	B-R208	401	B-EI-213
202	CR215	402	B-EI-212
203	CR216	403	B-EI-211
204	CR217	404	B-EO-211
205	CR218	405	B-EI-210
206	CR219	406	B-EI-209
207	CR220	407	B-EI-208
208	B-CR208	408	B-EI-207
209	B-CR207	409	B-EI-206
210	B-CR206	410	B-EI-205
211	B-CR205	411	B-EI-204
212	B-CR204	412	B-EI-203
213	B-CR203	413	B-EI-202
214	B-CR202	414	B-EI-201
215	B-CR201	415	B-EI-200
216	B-CR200	416	B-EI-199
217	B-CR199	417	B-EI-198
218	B-CR198	418	B-EI-197
219	B-CR197	419	B-EI-196
220	B-CR196	420	B-EI-195
221	B-CR195	421	B-EO-194
222	B-CR194	422	B-EI-194
223	B-CR193	423	B-EO-193
224	SPARE	424	B-EI-193

WIRE LIST

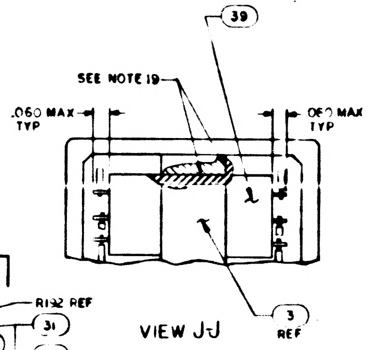
TERMINAL NO.	TERMINAL NO.
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
A-EO-195	B-EO-195
A-EO-196	B-EO-196
A-EO-197	B-EO-197
A-EO-198	B-EO-198
A-EO-199	B-EO-199
A-EO-200	B-EO-200
A-EO-201	B-EO-201
A-EO-202	B-EO-202
A-EO-203	B-EO-203
A-EO-204	B-EO-204
A-EO-205	B-EO-205
A-EO-206	B-EO-206
A-EO-207	B-EO-207
A-EO-208	B-EO-208
A-EO-209	B-EO-209
A-EO-210	B-EO-210
SPARE	SPARE
SPARE	SPARE
A-EO-212	B-EO-212
A-EO-213	B-EO-213

WIRE LIST

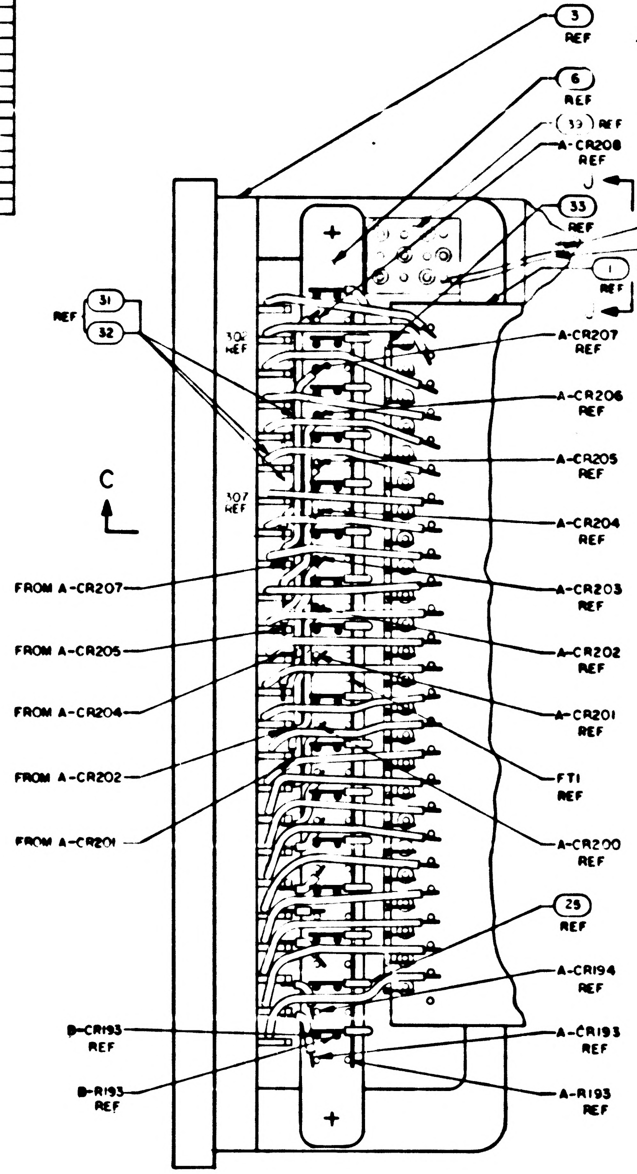
COMPONENT NO.	COMPONENT NO.
CR215	R176
CR216	R144
CR217	R112
CR218	R80
CR219	R48
CR220	R16
CR209	R32
CR210	R64
CR211	R96
CR212	R128
CR213	R160
CR214	R192


401
101
424
124

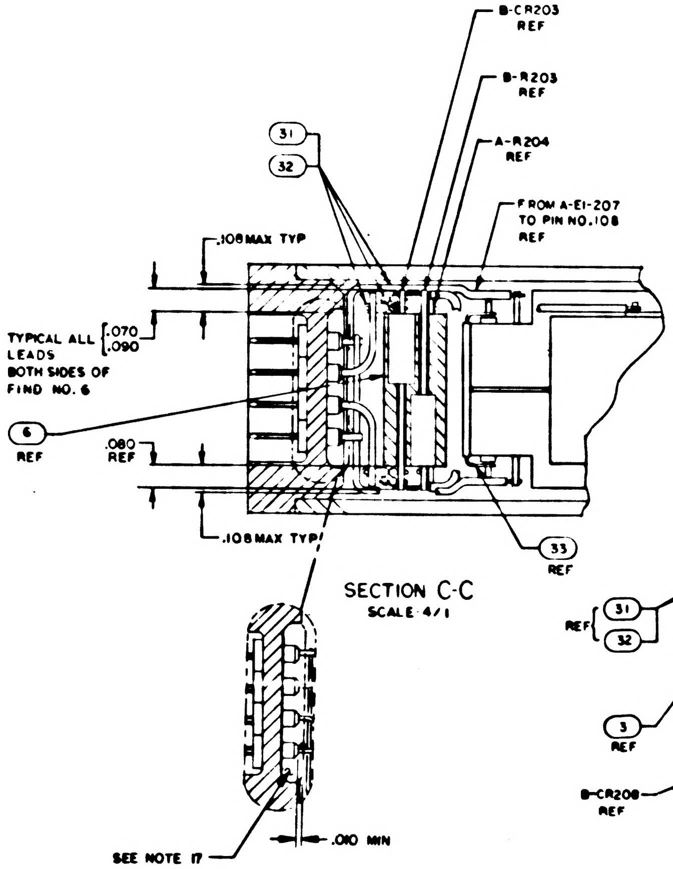
SECTION E-E


39
SEE NOTE 19
.060 MAX TYP
.060 MAX TYP
3 REF

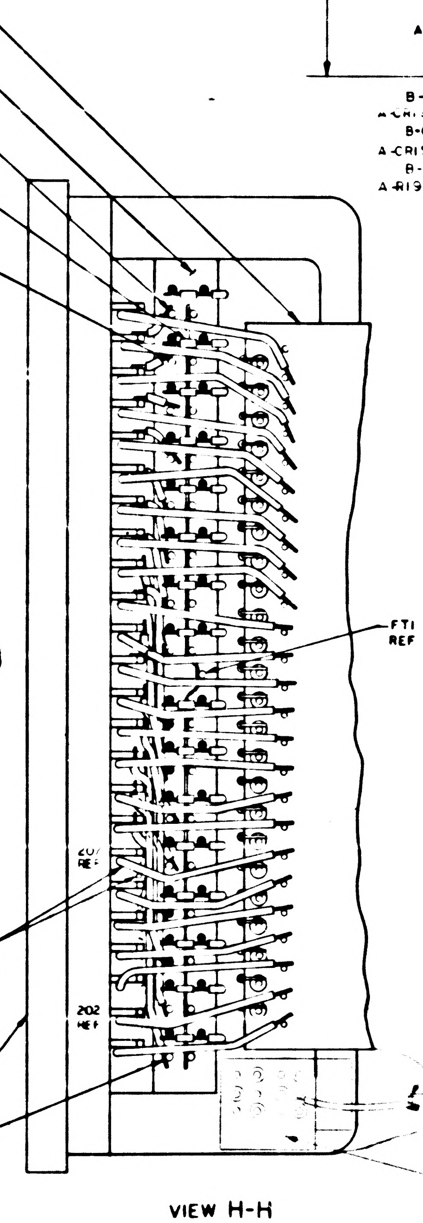
VIEW J-J


3 REF
6 REF
33 REF
A-CR208 REF
J
33 REF
R192 REF
1 REF
31
32
31 REF
32
301 REF
307 REF
C
C
A-CR207 REF
A-CR206 REF
A-CR205 REF
A-CR204 REF
FROM A-CR207
FROM A-CR205
FROM A-CR204
FROM A-CR202
FROM A-CR201
A-CR203 REF
A-CR202 REF
A-CR201 REF
FT1 REF
A-CR200 REF
25 REF
A-CR194 REF
B-CR193 REF
A-CR193 REF
B-R193 REF
A-R193 REF
+
+

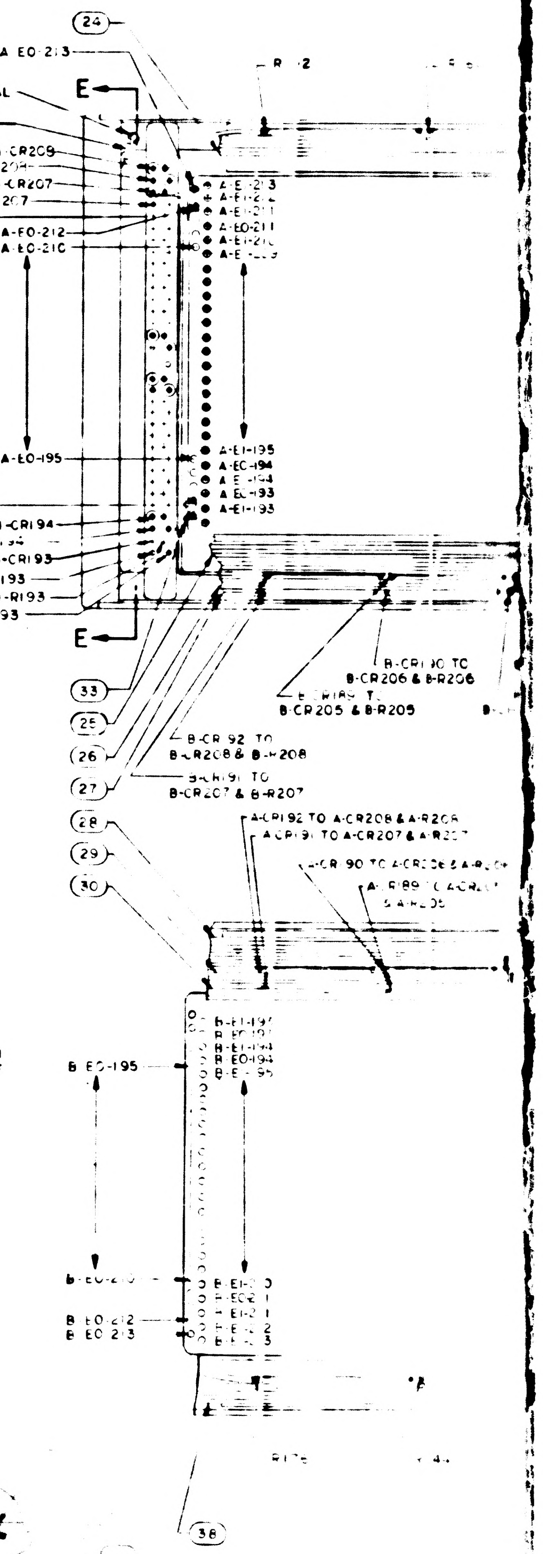
VIEW G-G
SCALE 4/1
SHOWN WITH POTTING AND FIND NO.7 REMOVED. SEE NOTES 11,12,13 AND 14


B-CR203 REF
B-R203 REF
A-R204 REF
FROM A-EI-207 TO PIN NO.108 REF
31
32
.108 MAX TYP
TYPICAL ALL LEADS BOTH SIDES OF FIND NO. 6
.070
.090
6 REF
.080 REF
.108 MAX TYP
33 REF
SEE NOTE 17
.010 MIN

SECTION C-C
SCALE 4/1


2 REF
6 REF
B-CR193 REF
32 TYP
B-CR194 REF
FT1 REF
201 REF
31
32
REF
202 REF
3 REF
B-CR208 REF

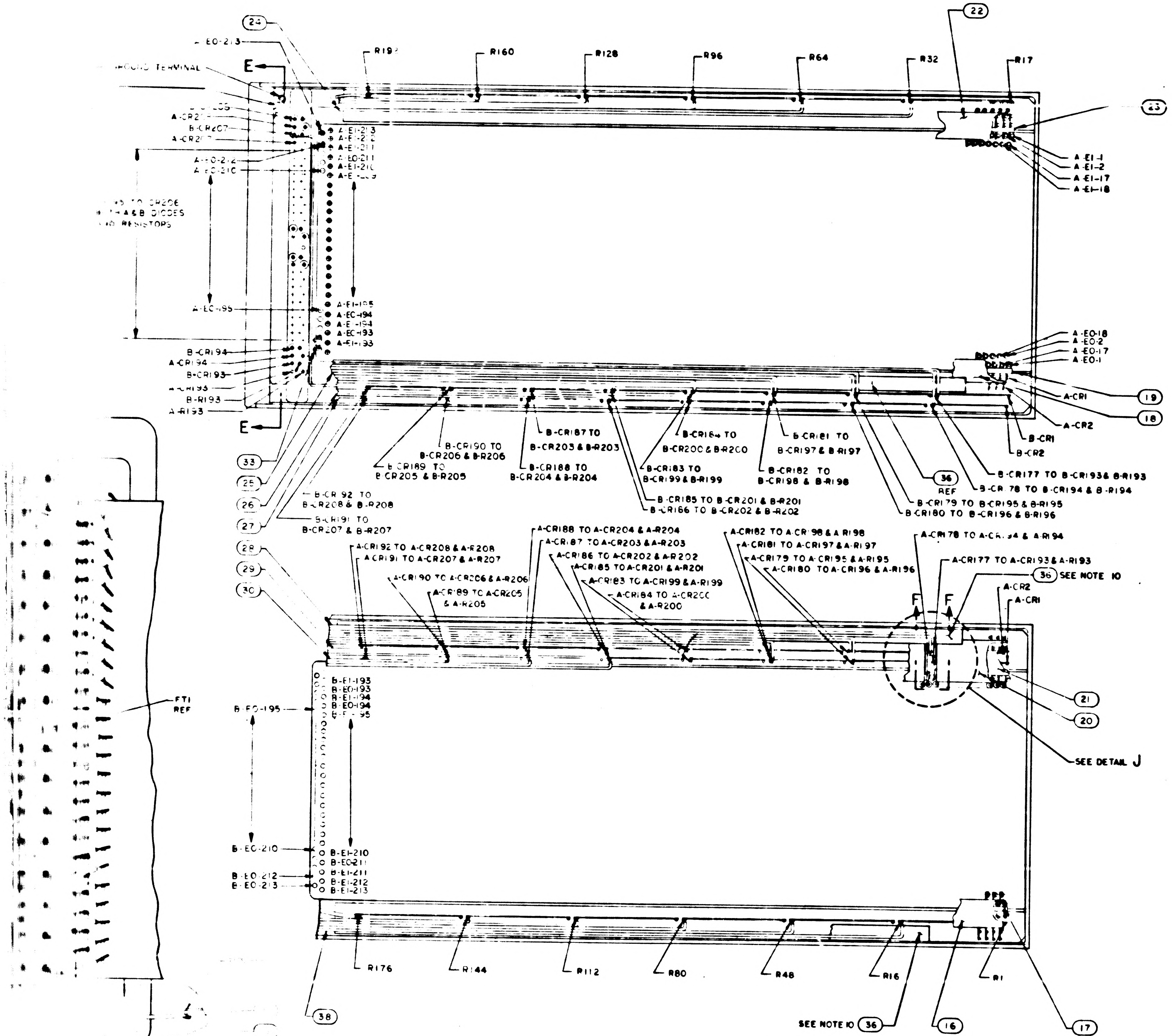
VIEW H-H
SCALE 4/1
SHOWN WITH POTTING AND FIND NO.7 REMOVED. SEE NOTES 11,12,13 AND 14


24
A-EO-213
R-12
CASE GROUND TERMINAL
E
31
32
B-CR209
A-CR208
B-CR207
A-CR207
A-EI-213
A-EI-212
A-EI-211
A-EO-211
A-EI-210
A-EO-212
A-EO-210
CR195 TO CR206 BOTH A&B DIODES AND RESISTORS
A-EI-195
A-EO-194
A-EI-194
A-EO-193
A-EI-193
A-EO-195
B-CR194
B-CR193
B-R193
A-CR193
A-R193
E
B-CR190 TO B-CR206 & B-R206
B-CR205 & B-R205
33
25
26
27
B-CR192 TO B-CR208 & B-R208
B-R191 TO B-CR207 & B-R207
28
29
30
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
B-EI-195
B-EO-194
B-EI-194
B-EO-193
B-EI-193
B-EO-195
B-EO-210
B-EO-212
B-EO-213
B-EI-210
B-EO-211
B-EI-211
B-EI-212
B-EI-213
38

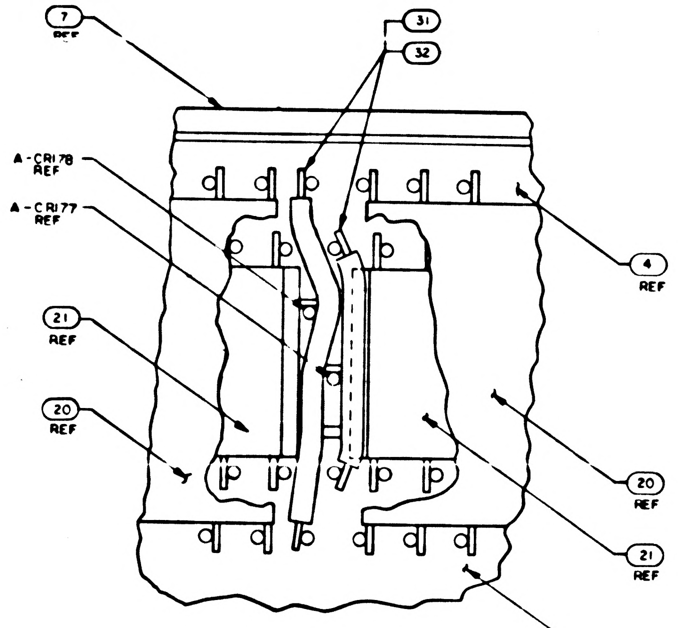
2003972 T

SH2/3 2003972 TF1/2

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		INITIAL [illegible]				
B		REVISED PER TDRR 33460				
C		REVISED PER TDRR 33544				
D		REVISED PER TDRR 33[illegible]6				
E		REVISED PER TDRR 34140				
F		REVISED PER TDRR 34485				
G		REVISED PER TDRR 349[illegible]				
H		REVISED PER TDRR 353[illegible]				
J		REVISED PER TDRR [illegible]				
K		REVISED PER TDRR 3557				
L		REVISED PER TDRR 3621[illegible]				
M		REVISED PER TDRR [illegible]				
N		REVISED PER TDRR [illegible]				
P		REVISED PER TDRR [illegible]				
R		REVISED PER [illegible]				
S		REVISED PER [illegible]				
T		REVISED PER [illegible]				

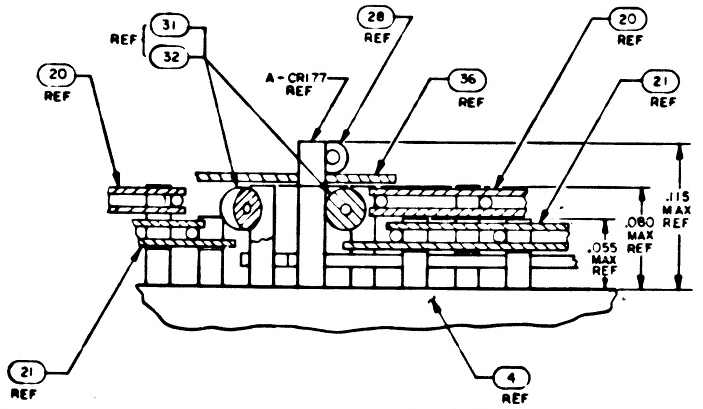


24
A-EO-213
GROUND TERMINAL
E
E
R192
R160
R128
R96
R64
R32
R17
22
23
A-E1-213
A-E1-212
A-E1-211
A-EO-211
A-E1-210
A-E1-209
A-E1-1
A-EO-2
A-E1-17
A-E1-18
A-CR205
A-CR207
B-CR207
A-CR211
A-EO-212
A-EO-210
CR193 TO CR206
WITH A & B DIODES
AND RESISTORS
A-EO-195
A-E1-195
A-EO-194
A-E1-194
A-EO-193
A-E1-193
A-EO-18
A-EO-2
A-EO-17
A-EO-1
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
A-CR1
A-CR2
19
18
B-CR1
B-CR2
33
25
26
27
B-CR190 TO B-CR206 & B-R206
B-CR189 TO B-CR205 & B-R205
B-CR187 TO B-CR203 & B-R203
B-CR188 TO B-CR204 & B-R204
B-CR184 TO B-CR200 & B-R200
B-CR183 TO B-CR199 & B-R199
B-CR181 TO B-CR197 & B-R197
B-CR182 TO B-CR198 & B-R198
B-CR185 TO B-CR201 & B-R201
B-CR186 TO B-CR202 & B-R202
36 REF
B-CR177 TO B-CR193 & B-R193
B-CR178 TO B-CR194 & B-R194
B-CR179 TO B-CR195 & B-R195
B-CR180 TO B-CR196 & B-R196
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
28
29
30
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205 & A-R205
A-CR188 TO A-CR204 & A-R204
A-CR187 TO A-CR203 & A-R203
A-CR186 TO A-CR202 & A-R202
A-CR185 TO A-CR201 & A-R201
A-CR183 TO A-CR199 & A-R199
A-CR184 TO A-CR200 & A-R200
A-CR182 TO A-CR198 & A-R198
A-CR181 TO A-CR197 & A-R197
A-CR179 TO A-CR195 & A-R195
A-CR180 TO A-CR196 & A-R196
A-CR178 TO A-CR194 & A-R194
A-CR177 TO A-CR193 & A-R193
36 SEE NOTE 10
A-CR2
A-CR1
F
F
21
20
SEE DETAIL J
FT1 REF
B-EO-195
B-E1-193
B-EO-193
B-E1-194
B-EO-194
B-E1-195
B-EO-210
B-EO-212
B-EO-213
B-E1-210
B-EO-211
B-E1-211
B-E1-212
B-E1-213
R176
R144
R112
R80
R48
R16
R1
38
SEE NOTE 10 36
16
17



7 REF
31
32
A-CR178 REF
A-CR177 REF
21 REF
20 REF
4 REF
20 REF
21 REF
2 REF

DETAIL J
SCALE 10/1
TYPICAL WIRING 8 PLACES, SHOWN
WITH FIND NOS. 28 AND 36 REMOVED



REF
31
32
28 REF
20 REF
20 REF
A-CR177 REF
36 REF
21 REF
.115 MAX REF
.080 MAX REF
.055 MAX REF
21 REF
4 REF

PARTIAL SECTION F-F
SCALE: 20/1

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED
APPROVED
DATE

FIXED MEMORY MODULE
ASSEMBLY

CODE IDENT NO	SIZE	DRAWING NO
80230	J	2003972

SCALE 2/1 SHEET 2 OF 3

SH2/3 2003972 TF2/2

8 7 6 5

D

C

B

A

8 5

2003972 | T

SH3/3 2003972 TF1/2

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		[illegible]				
B		REVISED PER TDRR 334				
		REVISED PER TDRR [illegible]4				
D		REVISED PER TDRR [illegible]6				
E		REVISED PER TDRR [illegible]				
F		REVISED PER TDRR 14449				
		REVISED PER TDRR [illegible]7				
		REVISED PER TDRR [illegible]				
J		REVISED PER TDRR [illegible]				
K		REVISED PER TDRR [illegible]				
L		REVISED PER TDRR [illegible]				
M		[illegible]				
N		REVISED PER TDRR [illegible]				
		REVISED PER [illegible]				
		REVISED PER [illegible]				
S		REVISED PER [illegible]				
T		[illegible]				

WIRE LIST

TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.
A-EO-1	A-CR1	A-EO-97	A-CR97	B-EO-1	B-CR1	B-EO-97	B-CR97	A-EI-1	R1	A-EI-49	R49	A-EI-97	R97	A-EI-145	R145
A-EO-2	A-CR2	A-EO-98	A-CR98	B-EO-2	B-CR2	B-EO-98	B-CR98	B-EI-1		B-EI-49		B-EI-97		B-EI-145	
A-EO-3	A-CR3	A-EO-99	A-CR99	B-EO-3	B-CR3	B-EO-99	B-CR99	A-EI-2	R2	A-EI-50	R50	A-EI-98	R98	A-EI-146	R146
A-EO-4	A-CR4	A-EO-100	A-CR100	B-EO-4	B-CR4	B-EO-100	B-CR100	B-EI-2		B-EI-50		B-EI-98		B-EI-146	
A-EO-5	A-CR5	A-EO-101	A-CR101	B-EO-5	B-CR5	B-EO-101	B-CR101	A-EI-3	R3	A-EI-51	R51	A-EI-99	R99	A-EI-147	R147
A-EO-6	A-CR6	A-EO-102	A-CR102	B-EO-6	B-CR6	B-EO-102	B-CR102	B-EI-3		B-EI-51		B-EI-99		B-EI-147	
A-EO-7	A-CR7	A-EO-103	A-CR103	B-EO-7	B-CR7	B-EO-103	B-CR103	A-EI-4	R4	A-EI-52	R52	A-EI-100	R100	A-EI-148	R148
A-EO-8	A-CR8	A-EO-104	A-CR104	B-EO-8	B-CR8	B-EO-104	B-CR104	B-EI-4		B-EI-52		B-EI-100		B-EI-148	
A-EO-9	A-CR9	A-EO-105	A-CR105	B-EO-9	B-CR9	B-EO-105	B-CR105	A-EI-5	R5	A-EI-53	R53	A-EI-101	R101	A-EI-149	R149
A-EO-10	A-CR10	A-EO-106	A-CR106	B-EO-10	B-CR10	B-EO-106	B-CR106	B-EI-5		B-EI-53		B-EI-101		B-EI-149	
A-EO-11	A-CR11	A-EO-107	A-CR107	B-EO-11	B-CR11	B-EO-107	B-CR107	A-EI-6	R6	A-EI-54	R54	A-EI-102	R102	A-EI-150	R150
A-EO-12	A-CR12	A-EO-108	A-CR108	B-EO-12	B-CR12	B-EO-108	B-CR108	B-EI-6		B-EI-54		B-EI-102		B-EI-150	
A-EO-13	A-CR13	A-EO-109	A-CR109	B-EO-13	B-CR13	B-EO-109	B-CR109	A-EI-7	R7	A-EI-55	R55	A-EI-103	R103	A-EI-151	R151
A-EO-14	A-CR14	A-EO-110	A-CR110	B-EO-14	B-CR14	B-EO-110	B-CR110	B-EI-7		B-EI-55		B-EI-103		B-EI-151	
A-EO-15	A-CR15	A-EO-111	A-CR111	B-EO-15	B-CR15	B-EO-111	B-CR111	A-EI-8	R8	A-EI-56	R56	A-EI-104	R104	A-EI-152	R152
A-EO-16	A-CR16	A-EO-112	A-CR112	B-EO-16	B-CR16	B-EO-112	B-CR112	B-EI-8		B-EI-56		B-EI-104		B-EI-152	
A-EO-17	A-CR17	A-EO-113	A-CR113	B-EO-17	B-CR17	B-EO-113	B-CR113	A-EI-9	R9	A-EI-57	R57	A-EI-105	R105	A-EI-153	R153
A-EO-18	A-CR18	A-EO-114	A-CR114	B-EO-18	B-CR18	B-EO-114	B-CR114	B-EI-9		B-EI-57		B-EI-105		B-EI-153	
A-EO-19	A-CR19	A-EO-115	A-CR115	B-EO-19	B-CR19	B-EO-115	B-CR115	A-EI-10	R10	A-EI-58	R58	A-EI-106	R106	A-EI-154	R154
A-EO-20	A-CR20	A-EO-116	A-CR116	B-EO-20	B-CR20	B-EO-116	B-CR116	B-EI-10		B-EI-58		B-EI-106		B-EI-154	
A-EO-21	A-CR21	A-EO-117	A-CR117	B-EO-21	B-CR21	B-EO-117	B-CR117	A-EI-11	R11	A-EI-59	R59	A-EI-107	R107	A-EI-155	R155
A-EO-22	A-CR22	A-EO-118	A-CR118	B-EO-22	B-CR22	B-EO-118	B-CR118	B-EI-11		B-EI-59		B-EI-107		B-EI-155	
A-EO-23	A-CR23	A-EO-119	A-CR119	B-EO-23	B-CR23	B-EO-119	B-CR119	A-EI-12	R12	A-EI-60	R60	A-EI-108	R108	A-EI-156	R156
A-EO-24	A-CR24	A-EO-120	A-CR120	B-EO-24	B-CR24	B-EO-120	B-CR120	B-EI-12		B-EI-60		B-EI-108		B-EI-156	
A-EO-25	A-CR25	A-EO-121	A-CR121	B-EO-25	B-CR25	B-EO-121	B-CR121	A-EI-13	R13	A-EI-61	R61	A-EI-109	R109	A-EI-157	R157
A-EO-26	A-CR26	A-EO-122	A-CR122	B-EO-26	B-CR26	B-EO-122	B-CR122	B-EI-13		B-EI-61		B-EI-109		B-EI-157	
A-EO-27	A-CR27	A-EO-123	A-CR123	B-EO-27	B-CR27	B-EO-123	B-CR123	A-EI-14	R14	A-EI-62	R62	A-EI-110	R110	A-EI-158	R158
A-EO-28	A-CR28	A-EO-124	A-CR124	B-EO-28	B-CR28	B-EO-124	B-CR124	B-EI-14		B-EI-62		B-EI-110		B-EI-158	
A-EO-29	A-CR29	A-EO-125	A-CR125	B-EO-29	B-CR29	B-EO-125	B-CR125	A-EI-15	R15	A-EI-63	R63	A-EI-111	R111	A-EI-159	R159
A-EO-30	A-CR30	A-EO-126	A-CR126	B-EO-30	B-CR30	B-EO-126	B-CR126	B-EI-15		B-EI-63		B-EI-111		B-EI-159	
A-EO-31	A-CR31	A-EO-127	A-CR127	B-EO-31	B-CR31	B-EO-127	B-CR127	A-EI-16	R16	A-EI-64	R64	A-EI-112	R112	A-EI-160	R160
A-EO-32	A-CR32	A-EO-128	A-CR128	B-EO-32	B-CR32	B-EO-128	B-CR128	B-EI-16		B-EI-64		B-EI-112		B-EI-160	
A-EO-33	A-CR33	A-EO-129	A-CR129	B-EO-33	B-CR33	B-EO-129	B-CR129	A-EI-17	R17	A-EI-65	R65	A-EI-113	R113	A-EI-161	R161
A-EO-34	A-CR34	A-EO-130	A-CR130	B-EO-34	B-CR34	B-EO-130	B-CR130	B-EI-17		B-EI-65		B-EI-113		B-EI-161	
A-EO-35	A-CR35	A-EO-131	A-CR131	B-EO-35	B-CR35	B-EO-131	B-CR131	A-EI-18	R18	A-EI-66	R66	A-EI-114	R114	A-EI-162	R162
A-EO-36	A-CR36	A-EO-132	A-CR132	B-EO-36	B-CR36	B-EO-132	B-CR132	B-EI-18		B-EI-66		B-EI-114		B-EI-162	
A-EO-37	A-CR37	A-EO-133	A-CR133	B-EO-37	B-CR37	B-EO-133	B-CR133	A-EI-19	R19	A-EI-67	R67	A-EI-115	R115	A-EI-163	R163
A-EO-38	A-CR38	A-EO-134	A-CR134	B-EO-38	B-CR38	B-EO-134	B-CR134	B-EI-19		B-EI-67		B-EI-115		B-EI-163	
A-EO-39	A-CR39	A-EO-135	A-CR135	B-EO-39	B-CR39	B-EO-135	B-CR135	A-EI-20	R20	A-EI-68	R68	A-EI-116	R116	A-EI-164	R164
A-EO-40	A-CR40	A-EO-136	A-CR136	B-EO-40	B-CR40	B-EO-136	B-CR136	B-EI-20		B-EI-68		B-EI-116		B-EI-164	
A-EO-41	A-CR41	A-EO-137	A-CR137	B-EO-41	B-CR41	B-EO-137	B-CR137	A-EI-21	R21	A-EI-69	R69	A-EI-117	R117	A-EI-165	R165
A-EO-42	A-CR42	A-EO-138	A-CR138	B-EO-42	B-CR42	B-EO-138	B-CR138	B-EI-21		B-EI-69		B-EI-117		B-EI-165	
A-EO-43	A-CR43	A-EO-139	A-CR139	B-EO-43	B-CR43	B-EO-139	B-CR139	A-EI-22	R22	A-EI-70	R70	A-EI-118	R118	A-EI-166	R166
A-EO-44	A-CR44	A-EO-140	A-CR140	B-EO-44	B-CR44	B-EO-140	B-CR140	B-EI-22		B-EI-70		B-EI-118		B-EI-166	
A-EO-45	A-CR45	A-EO-141	A-CR141	B-EO-45	B-CR45	B-EO-141	B-CR141	A-EI-23	R23	A-EI-71	R71	A-EI-119	R119	A-EI-167	R167
A-EO-46	A-CR46	A-EO-142	A-CR142	B-EO-46	B-CR46	B-EO-142	B-CR142	B-EI-23		B-EI-71		B-EI-119		B-EI-167	
A-EO-47	A-CR47	A-EO-143	A-CR143	B-EO-47	B-CR47	B-EO-143	B-CR143	A-EI-24	R24	A-EI-72	R72	A-EI-120	R120	A-EI-168	R168
A-EO-48	A-CR48	A-EO-144	A-CR144	B-EO-48	B-CR48	B-EO-144	B-CR144	B-EI-24		B-EI-72		B-EI-120		B-EI-168	
A-EO-49	A-CR49	A-EO-145	A-CR145	B-EO-49	B-CR49	B-EO-145	B-CR145	A-EI-25	R25	A-EI-73	R73	A-EI-121	R121	A-EI-169	R169
A-EO-50	A-CR50	A-EO-146	A-CR146	B-EO-50	B-CR50	B-EO-146	B-CR146	B-EI-25		B-EI-73		B-EI-121		B-EI-169	
A-EO-51	A-CR51	A-EO-147	A-CR147	B-EO-51	B-CR51	B-EO-147	B-CR147	A-EI-26	R26	A-EI-74	R74	A-EI-122	R122	A-EI-170	R170
A-EO-52	A-CR52	A-EO-148	A-CR148	B-EO-52	B-CR52	B-EO-148	B-CR148	B-EI-26		B-EI-74		B-EI-122		B-EI-170	
A-EO-53	A-CR53	A-EO-149	A-CR149	B-EO-53	B-CR53	B-EO-149	B-CR149	A-EI-27	R27	A-EI-75	R75	A-EI-123	R123	A-EI-171	R171
A-EO-54	A-CR54	A-EO-150	A-CR150	B-EO-54	B-CR54	B-EO-150	B-CR150	B-EI-27		B-EI-75		B-EI-123		B-EI-171	
A-EO-55	A-CR55	A-EO-151	A-CR151	B-EO-55	B-CR55	B-EO-151	B-CR151	A-EI-28	R28	A-EI-76	R76	A-EI-124	R124	A-EI-172	R172
A-EO-56	A-CR56	A-EO-152	A-CR152	B-EO-56	B-CR56	B-EO-152	B-CR152	B-EI-28		B-EI-76		B-EI-124		B-EI-172	
A-EO-57	A-CR57	A-EO-153	A-CR153	B-EO-57	B-CR57	B-EO-153	B-CR153	A-EI-29	R29	A-EI-77	R77	A-EI-125	R125	A-EI-173	R173
A-EO-58	A-CR58	A-EO-154	A-CR154	B-EO-58	B-CR58	B-EO-154	B-CR154	B-EI-29		B-EI-77		B-EI-125		B-EI-173	
A-EO-59	A-CR59	A-EO-155	A-CR155	B-EO-59	B-CR59	B-EO-155	B-CR155	A-EI-30	R30	A-EI-78	R78	A-EI-126	R126	A-EI-174	R174
A-EO-60	A-CR60	A-EO-156	A-CR156	B-EO-60	B-CR60	B-EO-156	B-CR156	B-EI-30		B-EI-78		B-EI-126		B-EI-174	
A-EO-61	A-CR61	A-EO-157	A-CR157	B-EO-61	B-CR61	B-EO-157	B-CR157	A-EI-31	R31	A-EI-79	R79	A-EI-127	R127	A-EI-175	R175
A-EO-62	A-CR62	A-EO-158	A-CR158	B-EO-62	B-CR62	B-EO-158	B-CR158	B-EI-31		B-EI-79		B-EI-127		B-EI-175	
A-EO-63	A-CR63	A-EO-159	A-CR159	B-EO-63	B-CR63	B-EO-159	B-CR159	A-EI-32	R32	A-EI-80	R80	A-EI-128	R128	A-EI-176	R176
A-EO-64	A-CR64	A-EO-160	A-CR160	B-EO-64	B-CR64	B-EO-160	B-CR160	B-EI-32		B-EI-80		B-EI-128		B-EI-176	
A-EO-65	A-CR65	A-EO-161	A-CR161	B-EO-65	B-CR65	B-EO-161	B-CR161	A-EI-33	R33	A-EI-81	R81	A-EI-129	R129	A-EI-177	R177
A-EO-66	A-CR66	A-EO-162	A-CR162	B-EO-66	B-CR66	B-EO-162	B-CR162	B-EI-33		B-EI-81		B-EI-129		B-EI-177	
A-EO-67	A-CR67	A-EO-163	A-CR163	B-EO-67	B-CR67	B-EO-163	B-CR163	A-EI-34	R34	A-EI-82	R82	A-EI-130	R130	A-EI-178	R178
A-EO-68	A-CR68	A-EO-164	A-CR164	B-EO-68	B-CR68	B-EO-164	B-CR164	B-EI-34		B-EI-82		B-EI-130		B-EI-178	
A-EO-69	A-CR69	A-EO-165	A-CR165	B-EO-69	B-CR69	B-EO-165	B-CR165	A-EI-35	R35	A-EI-83	R83	A-EI-131	R131	A-EI-179	R179
A-EO-70	A-CR70	A-EO-166	A-CR166	B-EO-70	B-CR70	B-EO-166	B-CR166	B-EI-35		B-EI-83		B-EI-131		B-EI-179	
A-EO-71	A-CR71	A-EO-167	A-CR167	B-EO-71	B-CR71	B-EO-167	B-CR167	A-EI-36	R36	A-EI-84	R84	A-EI-132	R132	A-EI-180	R180
A-EO-72	A-CR72	A-EO-168	A-CR168	B-EO-72	B-CR72	B-EO-168	B-CR168	B-EI-36		B-EI-84		B-EI-132		B-EI-180	
A-EO-73	A-CR73	A-EO-169	A-CR169	B-EO-73	B-CR73	B-EO-169	B-CR169	A-EI-37	R37	A-EI-85	R85	A-EI-133	R133	A-EI-181	R181
A-EO-74	A-CR74	A-EO-170	A-CR170	B-EO-74	B-CR74	B-EO-170	B-CR170	B-EI-37		B-EI-85		B-EI-133		B-EI-181	
A-EO-75	A-CR75	A-EO-171	A-CR171	B-EO-75	B-CR75	B-EO-171	B-CR171	A-EI-38	R38	A-EI-86	R86	A-EI-134	R134	A-EI-182	R182
A-EO-76	A-CR76	A-EO-172	A-CR172	B-EO-76	B-CR76	B-EO-172	B-CR172	B-EI-38		B-EI-86		B-EI-134		B-EI-182	
A-EO-77	A-CR77	A-EO-173	A-CR173	B-EO-77	B-CR77	B-EO-173	B-CR173	A-EI-39	R39	A-EI-87	R87	A-EI-135	R135	A-EI-183	R183
A-EO-78	A-CR78	A-EO-174	A-CR174	B-EO-78	B-CR78	B-EO-174	B-CR174	B-EI-39		B-EI-87		B-EI-135		B-EI-183	
A-EO-79	A-CR79	A-EO-175	A-CR175	B-EO-79	B-CR79	B-EO-175	B-CR175	A-EI-40	R40	A-EI-88	R88	A-EI-136	R136	A-EI-184	R184
A-EO-80	A-CR80	A-EO-176	A-CR176	B-EO-80	B-CR80	B-EO-176	B-CR176	B-EI-40		B-EI-88		B-EI-136		B-EI-184	
A-EO-81	A-CR81	A-EO-177	A-CR177	B-EO-81	B-CR81	B-EO-177	B-CR177	A-EI-41	R41	A-EI-89	R89	A-EI-137	R137	A-EI-185	R185
A-EO-82	A-CR82	A-EO-178	A-CR178	B-EO-82	B-CR82	B-EO-178	B-CR178	B-EI-41		B-EI-89		B-EI-137		B-EI-185	
A-EO-83	A-CR83	A-EO-179	A-CR179	B-EO-83	B-CR83	B-EO-179	B-CR179	A-EI-42	R42	A-EI-90	R90	A-EI-138	R138	A-EI-186	R186
A-EO-84	A-CR84	A-EO-180	A-CR180	B-EO-84	B-CR84	B-EO-180	B-CR180	B-EI-42		B-EI-90		B-EI-138		B-EI-186	
A-EO-85	A-CR85	A-EO-181	A-CR181	B-EO-85	B-CR85	B-EO-181	B-CR181	A-EI-43	R43	A-EI-91	R91	A-EI-139	R139	A-EI-187	R187
A-EO-86	A-CR86	A-EO-182	A-CR182	B-EO-86	B-CR86	B-EO-182	B-CR182	B-EI-43		B-EI-91		B-EI-139		B-EI-187	
A-EO-87	A-CR87	A-EO-183	A-CR183	B-EO-87	B-CR87	B-EO-183	B-CR183	A-EI-44	R44	A-EI-92	R92	A-EI-140	R140	A-EI-188	R188
A-EO-88	A-CR88	A-EO-184	A-CR184	B-EO-88	B-CR88	B-EO-184	B-CR184	B-EI-44		B-EI-92		B-EI-140		B-EI-188	
A-EO-89	A-CR89	A-EO-185	A-CR185	B-EO-89	B-CR89	B-EO-185	B-CR185	A-EI-45	R45	A-EI-93	R93	A-EI-141	R141	A-EI-189	R189
A-EO-90	A-CR90	A-EO-186	A-CR186	B-EO-90	B-CR90	B-EO-186	B-CR186	B-EI-45		B-EI-93		B-EI-141		B-EI-189	
A-EO-91	A-CR91	A-EO-187	A-CR187	B-EO-91	B-CR91	B-EO-187	B-CR187	A-EI-46	R46	A-EI-94	R94	A-EI-142	R142	A-EI-190	R190
A-EO-92	A-CR92	A-EO-188	A-CR188	B-EO-92	B-CR92	B-EO-188	B-CR188	B-EI-46		B-EI-94		B-EI-142		B-EI-190	
A-EO-93	A-CR93	A-EO-189	A-CR189	B-EO-93	B-CR93	B-EO-189	B-CR189	A-EI-47	R47	A-EI-95	R95	A-EI-143	R143	A-EI-191	R191
A-EO-94	A-CR94	A-EO-190	A-CR190	B-EO-94	B-CR94	B-EO-190	B-CR190	B-EI-47		B-EI-95		B-EI-143		B-EI-191	
A-EO-95	A-CR95	A-EO-191	A-CR191	B-EO-95	B-CR95	B-EO-191	B-CR191	A-EI-48	R48	A-EI-96	R96	A-EI-144	R144	A-EI-192	R192
A-EO-96	A-CR96	A-EO-192	A-CR192	B-EO-96	B-CR96	B-EO-192	B-CR192	B-EI-48		B-EI-96		B-EI-144		B-EI-192	

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED
APPROVED
DATE

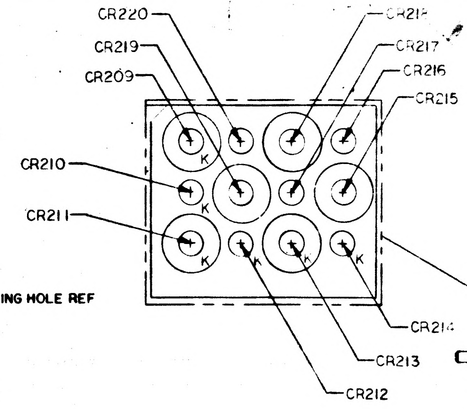
FIXED MEMORY MODULE ASSEMBLY

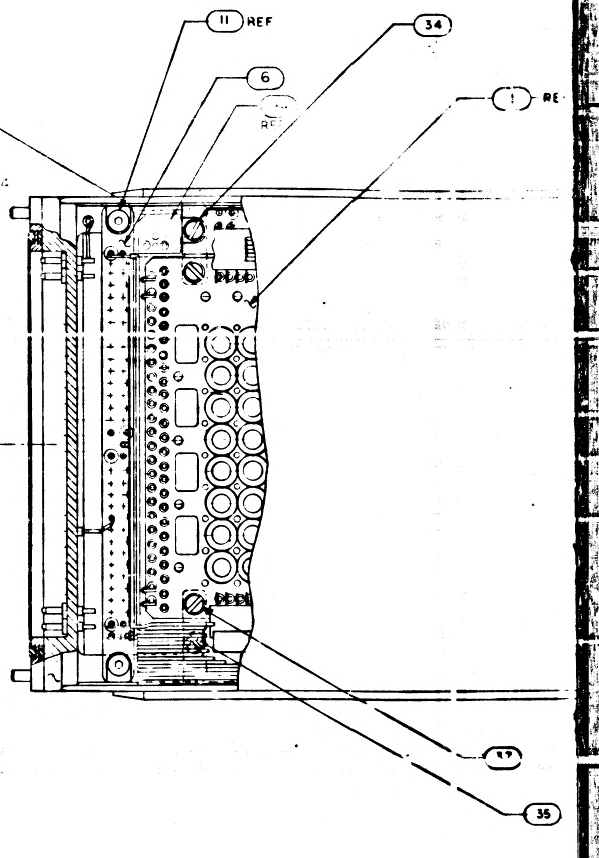
CODE IDENT NO	SIZE	DRAWING NO
80230	J	2003972

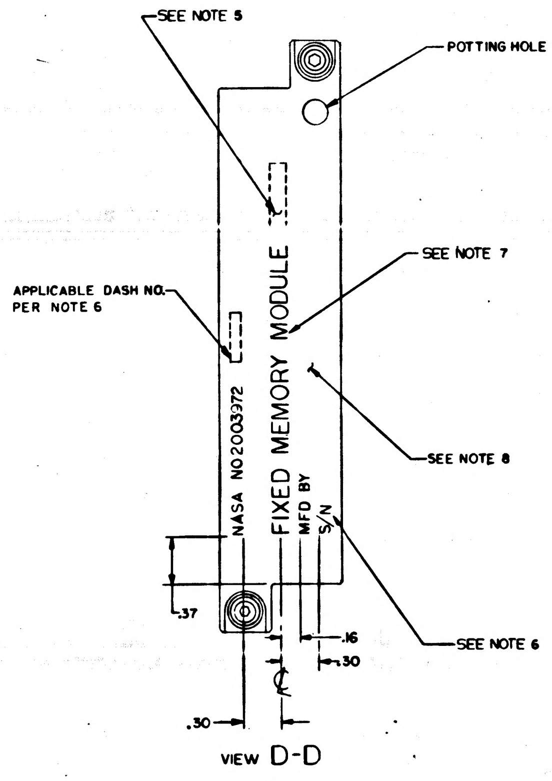
SCALE NONE
SHEET 3 OF 3

SH3/3 2003972 TF2/2

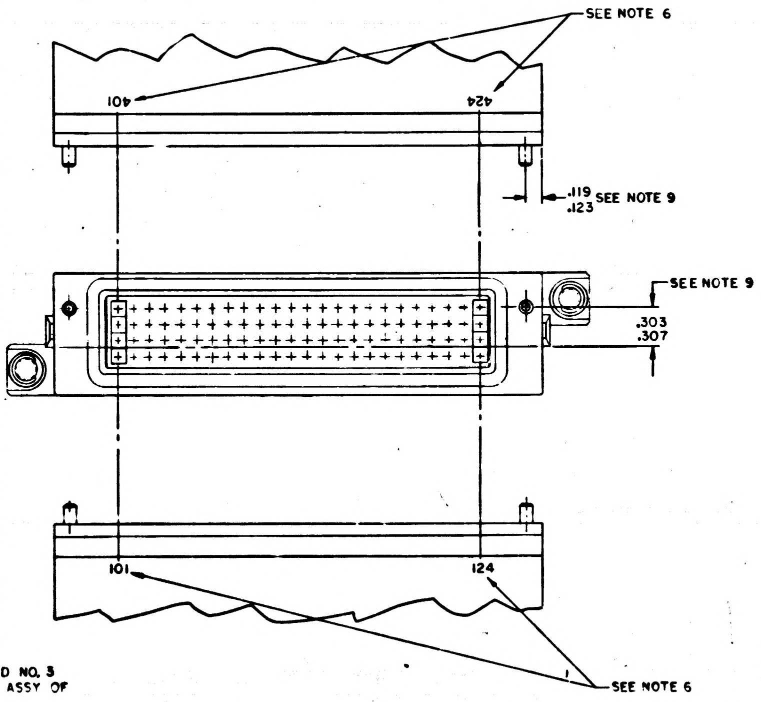
PART NO.	MODULE NO.	FIND NO. 1	FIND NO. 2	MODULE DECK NO.	NEXT ASSEMBLY NO. (REF)	PROCUREMENT SPECIFICATION SEE NOTE 15
2003972-011	B1	2003060-061	2003061-061	0205	2021101	PS2003972
2003972-021	B2	2003060-071	2003061-071	0206	2021101	
2003972-031	B3	2003060-081	2003061-081	0207	2021101	
2003972-041	B1	2003060-121	2003061-121	0210	2021104	
2003972-051	B2	2003060-131	2003061-131	0211	2021104	
2003972-061	B3	2003060-141	2003061-141	0212	2021104	
2003972-071	B2	2003060-151	2003061-151	0213	2021104	
2003972-081	B3	2003060-161	2003061-161	0214	2021104	
2003972-091	B2	2003060-171	2003061-171	0215	2021101	
2003972-111	B3	2003060-181	2003061-181	0216	2021101	PS2003972
2003972-121	B1	2003060-09	2003061-091	0208	2021105-031	PS2003960
2003972 13	B2	2003060-111	2003061-111	0209	2021105-031	PS2003960
2003972-141	B1	2003060-191	2003061-191	0217	2021106-011	PS2003972
2003972-151	B2	2003060 211	2003061-211	0218	2021106-011	
2003972-161	B3	2003060 221	2003061-221	0219	2021106-011	
2003972 171	B4	2003060 231	2003061-231	0220	2021106-011	
2003972 181	B5	2003060 241	2003061-241	0221	2021106-011	
2003972-191	B6	2003060 251	2003061-251	0222	2021106 011	
2003972-211	B3	2003060-261	2003061-261	0223	2021104-041	PS2003972
2003972-221	B1	2003060-271	2003061-271	0224	2021105-041	PS2003960
2003972-231	B1	2003060-281	2003061-281	0225	2021106-021	PS2003972
2003972-241	B3	2003060-291	2003061-291	0226	2021106-021	
2003972-251	B5	2003060-311	2003061-311	0227	2021106-021	
2003972-261	B1	2003060-321	2003061-321	0230	2021107-011	
2003972-271	B2	2003060-331	2003061-331	0229	2021107-011	
2003972-281	B2	2003060-341	2003061-341	0231	2021106-031	
2003972-291	B1	2003060-351	2003061-351	0238	2021107-021	PS2003972
2003972-311	B1	2003060-361	2003061-361	0239	2021108-021	PS2016016
-321	B2	2003060-371	2003061 371	0240	2021108-021	PS2016016
-331	B3	2003060-381	2003061 381	0241	2021108-021	PS2016016
-341	B4	2003060-391	2003061-391	0242	2021108-021	PS2016016
351	B5	2003060-411	2003061-411	0243	2021108-021	PS2016016
2003972-361	B6	2003060-421	2003061-421	0244	2021108-021	PS2016016
2003972-371	B1	2003060-431	2003061-431	0245	2021110-011	PS2016016
2003972-381	B2	2003060-441	2003061-441	0246	2021110-011	
2003972-391	B3	2003060-451	2003061-451	0247	2021110-011	
2003972-411	B4	2003060-461	2003061-461	0248	2021110-011	
2003972-421	B5	2003060-471	2003061-471	0249	2021110-011	
2003972-431	B6	2003060-481	2003061-481	0250	2021110-011	PS2016016
2003972-441	B1	2003060-491	2003061-491	0251	2021110-021	PS2016016
2003972-451	B2	2003060-511	2003061-511	0252	2021110-021	
2003972-461	B3	2003060-521	2003061-521	0253	2021110-021	
[illegible]	B4	2003060-531	2003061-531	0254	2021110-021	
2003972-481	B5	2003060-541	2003061-541	0255	2021110-021	
2003972-491	B6	2003060-551	2003061-551	0256	2021110-021	PS2016016
-511	B1	-561	-561	0257	2021111-021&031	PS2016036
-521	B2	-571	-571	0258	-021&031	
-531	B3	-581	-581	0259	-021&031	
541	B4	-591	-591	0260	2021111-021&031	
-551	B5	-611	-611	0261	2021111-021	
2003972-561	B6	2003060-621	2003061-621	0262	2021111-021&031	PS2016036
2003972-571	B5	2003060-631	2003061-631	0263	2021111-031	PS2016036
2003972-581	B1	2003060-641	2003061-641	0264	2021110-031	PS2016036
-591	B2	-651	-651	0265	2021110-031	
-611	B3	-661	-661	0266	2021110-031	
-621	B4	-671	-671	0267	2021110-031	
-631	B5	-681	-681	0268	2021110-031	
2003972-641	B6	2003060-691	2003061-691	0269	2021110-031	PS2016036
2003972-651	B1	2003060-711	2003061-711	0270	2021111-041	PS2016036
-661	B2	-721	-721	0271	-041	
-671	B3	-731	-731	0272	-041	
-681	B4	-741	-741	0273	-041	
-691	B5	-751	-751	0274	-041	
2003972-711	B6	2003060-761	2003061-761	0275	2021111-041	PS2016036

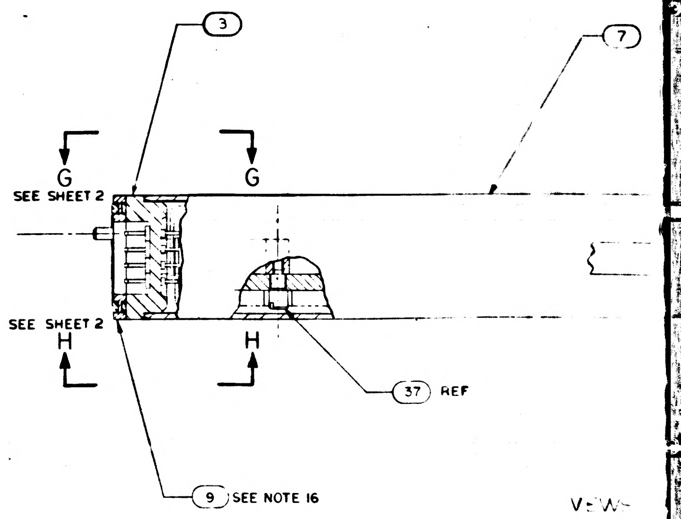






VIEW D-D



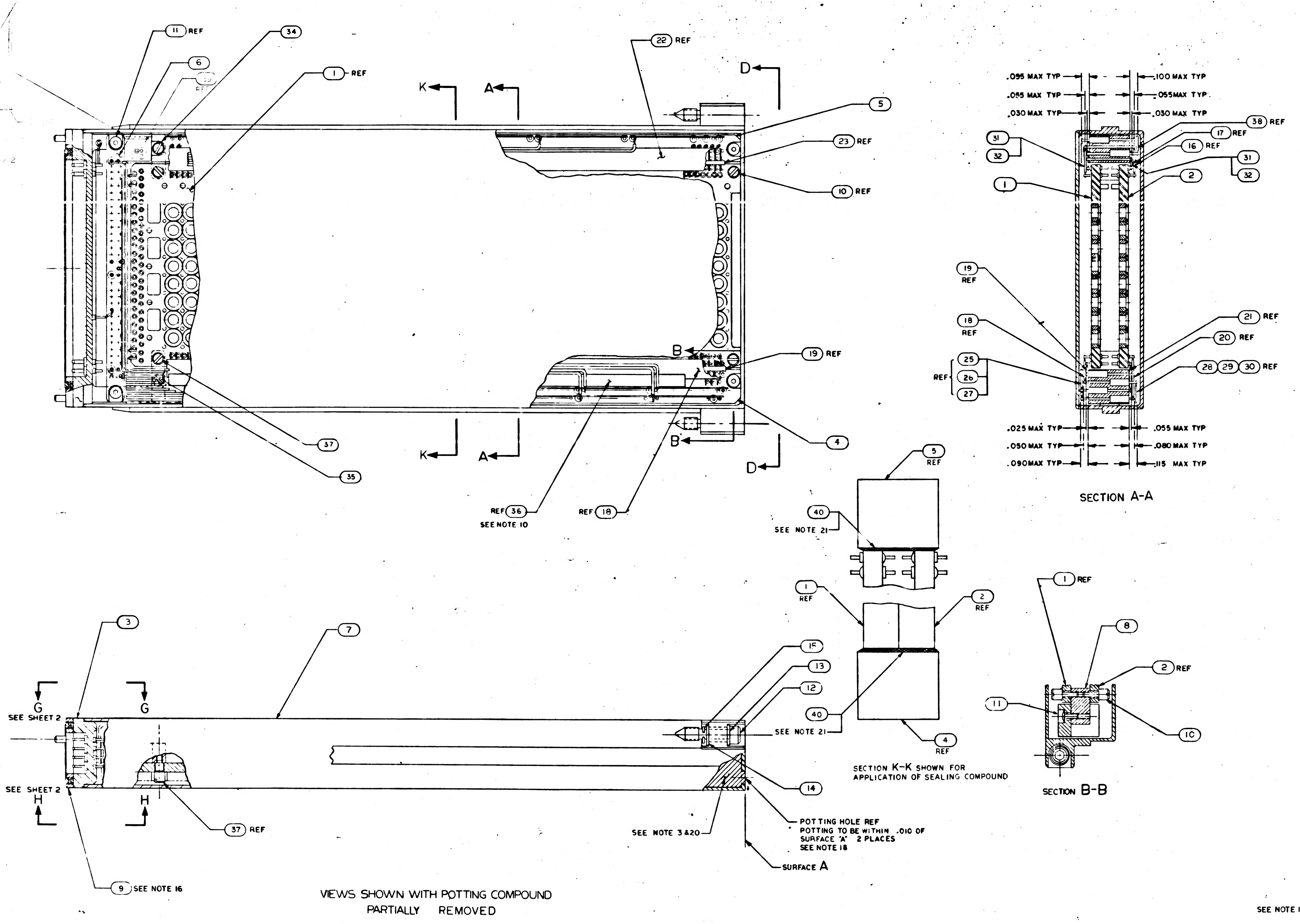


NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
3. ENCAPSULATE MODULE PER ND1002226 METHOD II
4. WELD PER ND1002005
5. MARK APPROPRIATE MODULE NO. AS SHOWN IN CHART
6. MARK .08/.06 HIGH PER ND1002019 AND ND1002122, TYPE II CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
7. MARK .14/.10 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 USING INK 1006271-1
8. PAINT INDICATED SURFACES OF FIND NO 7. PER ND1002279 WITH SCD NO. 1008809-1 DARK GREY EPOXY RESIN ENAMEL, FINAL COAT PER ND1002277 USING 1012543-003
9. ASSEMBLE FIND NO.7 AND FIND NO.3 TO DIMENSIONS SHOWN
10. REMOVE LINER FROM NEARSIDE OF FIND NO.36 AND ASSEMBLE 3 PLACES AS SHOWN. FIND NO.36 MUST INSULATE FLAT CABLES FROM TRIMMED COMPONENT LEADS, TRIM AS REQUIRED
11. WHITE DOT AND SINGLE SOLID LEAD DENOTES FIRST LEVEL WIRING UNLESS OTHERWISE SPECIFIED
12. BLACK DOT AND SINGLE SOLID LEAD DENOTES SECOND LEVEL WIRING
13. BLACK DOT AND CROSS HATCHED LEAD DENOTES THIRD LEVEL WIRING
14. ALL LEADS FROM FIND NO.1 AND FIND NO.2 TO FIND NO.3 TO BE THIRD LEVEL WIRING
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PROCUREMENT SPECIFICATION AS LISTED IN CHART.
16. FIND NO.9 TO BE SHIPPED UNASSEMBLED AND IDENTIFIED PER ND 1002019
17. SEAL PINS AND INSULATORS TO FIND NO. 3 PER ND1002004 TYPE VI BEFORE ASSY OF FIND NO. 6
18. FILL AS SHOWN PER ND1002235 METHOD A
19. BOND FIND NO.39 TO FIND NO.3 PER ND1002004 TYPE VI AFTER ASSY OF FIND NO.6
20. PRIOR TO ENCAPSULATION PER NOTE 3, COAT OVER ALL TERMINALS OF FIND NO'S 1,2 & 3 AND OVER ALL WIRES, SLEEVING AND COMPONENT LEADS OF FIND NO'S 4,5,6,16,17,18,19,20,21,22,23,24, 25,26,27,28,29,30,31,32,33,38 & 39 WITH A .03 MAXIMUM THICKNESS OF SILICONE RUBBER PER ND1002009, METHOD A. MASK ALL OUTSIDE SURFACES OF FIND NO.3 AND ALL OTHER SURFACES OF THIS ASSEMBLY COMING IN CLOSE CONTACT WITH FIND NO.7
21. FILL INTERFACE BETWEEN FIND NO. 4 AND SIDE SURFACES OF FIND NO'S 1 AND 2, AND INTERFACE BETWEEN FIND NO.5 AND SIDE SURFACES OF FIND NO'S 1 AND 2 USING FIND NO. 40. ROOM TEMP CURE FOR 24 HOURS MIN.

REFERENCES:

1. PROCESS REQUIREMENTS FOR CONTROL AND INSPECTION OF ROPE MEMORY ASSEMBLIES ND1002285
2. FIXED MEMORY FIXTURE DWG. NO. AP22500


11 REF
34
6
1 REF
22 REF
K
A
D
5
23 REF
10 REF
B
19 REF
4
37
35
REF 36
SEE NOTE 10
REF 18
.095 MAX TYP
.085 MAX TYP
.030 MAX TYP
.100 MAX TYP
.055 MAX TYP
.030 MAX TYP
38 REF
17 REF
16 REF
31
32
1
2
19 REF
18 REF
21 REF
20 REF
25
26
27
REF
28 29 30 REF
.025 MAX TYP
.050 MAX TYP
.090 MAX TYP
.055 MAX TYP
.080 MAX TYP
.115 MAX TYP
5 REF
40
SEE NOTE 21
1 REF
2 REF
4 REF
1 REF
8
2 REF
11
10
3
7
G
SEE SHEET 2
H
15
13
12
SEE NOTE 21
14
37 REF
SEE NOTE 3 & 20
POTTING HOLE REF
POTTING TO BE WITHIN .010 OF SURFACE 'A' 2 PLACES
SEE NOTE 18
SURFACE A
9 SEE NOTE 16

SECTION A-A

SECTION K-K SHOWN FOR APPLICATION OF SEALING COMPOUND

SECTION B-B

VIEWS SHOWN WITH POTTING COMPOUND PARTIALLY REMOVED

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL RELEASE TDRR 32991	[illegible]	[illegible]
B	REVISED PER TDRR 33460 DR [illegible] CHK A. Kiefer	[illegible]	[illegible]
C	REVISED PER TDRR 33[illegible]4 DR R. H. [illegible] CHK [illegible]	7/8/67	TSR
D	REVISED PER TDRR 33606 DR [illegible] CHK B. Harris	5/1967	TSR
E	REVISED PER TDRR 34140 DR [illegible] CHK [illegible]	[illegible]	TSR
F	REVISED PER TDRR 34489 DR [illegible] CHK [illegible]	10-16-67	TSR
G	REVISED PER TDRR 3[illegible] DR [illegible] CHK [illegible]	11-20-67	TSR
H	REVISED PER TDRR [illegible] DR S.B. CHK [illegible]	[illegible]	TSR
J	REVISED PER TDRR 35249 DR [illegible] CHK E. Urban	[illegible]	TSR
K	REVISED PER TDRR 35870 DR W.J. Makar CHK E. Urban	4/13/68	TSR
L	REVISED PER TDRR 36217 DR W.J. Makar CHK E. Urban	5/[illegible]/68	TSR
M	REVISED PER TDRR 3[illegible] DR [illegible] CHK [illegible]	[illegible]	TSR
N	REVISED PER TDRR 36686 DR [illegible] CHK E. Urban	[illegible]	TSR
P	REVISED PER TDRR [illegible] DR [illegible] Smith CHK [illegible]	[illegible]/68	TSR
R	REVISED PER TDRR 36858 DR [illegible] CHK E. Urban	[illegible]/68	TSR
S	REVISED PER TDRR 36916 DR [illegible] CHK E. Urban	1[illegible]/68	TSR
T	REVISED PER TDRR 36970 DR [illegible] Leonard CHK E. Urban	11/[illegible]/68	TSR
U	REVISED PER TDRR 37008 DR [illegible] Leonard CHK E. Urban	11/22/68	TSR

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006341	ADHESIVE SEALANT, SILICONE RUBBER	40
1	2003986-021	COMPONENT BLOCK DIODE ASSY	39
☒	2005935	SCHEMATIC	REF
1	2004684	FLAT CABLE	38
4	2004150 — 003	SCREW, SHOULDERED	37
AR	1006806 — 26	INSULATION TAPE, ELECTRICAL	36
1	2004150 — 001	SCREW, SHOULDERED	35
1	2004150 — 002	SCREW, SHOULDERED	34
1	2004129	FLAT CABLE INTERCONNECTION	33
AR	1006776-25	SLEEVING	32
AR	1006757-12	WIRE, ELECRICAL	31
1	2004125	FLAT CABLE	30
1	2004122	FLAT CABLE	29
1	2004124	FLAT CABLE	28
1	2004123	FLAT CABLE	27
1	2004121	FLAT CABLE	26
1	2004120	FLAT CABLE	25
1	2004[illegible]35	FLAT CABLE	24
1	2003051 — 013	MATRIX ASSY	23
1	2003051 — 014	MATRIX ASSY	22
8	2003051 — 016	MATRIX ASSY	21
8	2003051 — 015	MATRIX ASSY	20
1	2003051 — 017	MATRIX ASSY	19
1	2003051 — 018	MATRIX ASSY	18
1	2003051 — 011	MATRIX ASSY	17
1	2003051 — 012	MATRIX ASSY	16
2	MS16633 4015	"E" RING	15
2	1004546-3	WASHER	14
2	1004546-1	WASHER	13
2	1004579-1	SCREW, JACKING	12
4	1000093-1	SCREW, BUTTONHEAD	11
4	2004151	SCREW, STANDOFF	10
1	1006339	GASKET PLATE	9
2	2004071	STANDOFF	8
1	2004100	HOUSING	7
1	2003048-021	RESISTOR-DIODE BLOCK ASSY	6
1	2003052-021	COMPONENT BLOCK RESISTOR ASSY	5
1	2003045-021	COMPONENT BLOCK DIODE ASSY	4
1	2003973 -011	CONNECTOR PLATE ASSY	3
1	2003061-SEE CHART	SENSE WIRING ASSY SIDE B	2
1	2003060-SEE CHART	SENSE WIRING ASSY SIDE A	1

LIST OF MATERIALS

SEE NOTE 16

FOR APPLICABLE PART NO. SEE CHART

SEE CHART		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± — DECIMALS ±.02 ANGLES ± 2° DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB CAMBRIDGE MASS DWG NO CONTRACT	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
NEXT ASSY	USED ON	MATERIAL	DRAWN A. [illegible] DATE 6 AUG [illegible] CHECKED A. Kiefer 12 AUG [illegible] APPROVAL [illegible] APPROVAL [illegible]	FIXED MEMORY MODULE ASSEMBLY
APPLICATION		HEAT TREATMENT FINAL FINISH	NASA APPROVAL [illegible] CCA MIT APPROVAL [illegible]	CODE IDENT NO. 80230 SIZE J NASA DRAWING NO. 2003972 SCALE 2/1 WT SHEET 1 OF 3

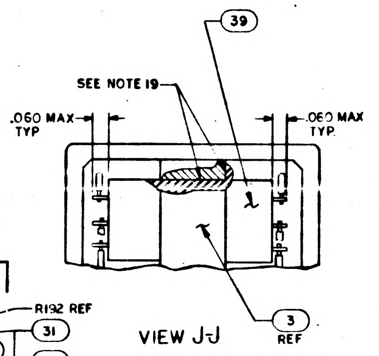
2003972 U

2003972 UF2/2 SH1/3

WIRE LIST			
PIN NO.	COMPONENT OR TERM. NO.	PIN NO.	COMPONENT OR TERM. NO.
101	A-E1-213	301	GROUND
102	A-E1-212	302	CR209
103	A-E1-211	303	CR210
104	A-E0-211	304	CR211
105	A-E1-210	305	CR212
106	A-E1-209	306	CR213
107	A-E1-208	307	CR214
108	A-E1-207	308	A-CR208
109	A-E1-206	309	A-CR207
110	A-E1-205	310	A-CR206
111	A-E1-204	311	A-CR205
112	A-E1-203	312	A-CR204
113	A-E1-202	313	A-CR203
114	A-E1-201	314	A-CR202
115	A-E1-200	315	A-CR201
116	A-E1-199	316	A-CR200
117	A-E1-198	317	A-CR199
118	A-E1-197	318	A-CR198
119	A-E1-196	319	A-CR197
120	A-E1-195	320	A-CR196
121	A-E0-194	321	A-CR195
122	A-E1-194	322	A-CR194
123	A-E0-193	323	A-CR193
124	A-E1-193	324	SPARE
201	B-R208	401	B-E1-213
202	CR215	402	B-E1-212
203	CR216	403	B-E1-211
204	CR217	404	B-E0-211
205	CR218	405	B-E1-210
206	CR219	406	B-E1-209
207	CR220	407	B-E1-208
208	B-CR208	408	B-E1-207
209	B-CR207	409	B-E1-206
210	B-CR206	410	B-E1-205
211	B-CR205	411	B-E1-204
212	B-CR204	412	B-E1-203
213	B-CR203	413	B-E1-202
214	B-CR202	414	B-E1-201
215	B-CR201	415	B-E1-200
216	B-CR200	416	B-E1-199
217	B-CR199	417	B-E1-198
218	B-CR198	418	B-E1-197
219	B-CR197	419	B-E1-196
220	B-CR196	420	B-E1-195
221	B-CR195	421	B-E0-194
222	B-CR194	422	B-E1-194
223	B-CR193	423	B-E0-193
224	SPARE	424	B-E1-193

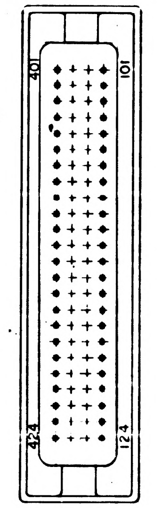
WIRE LIST	
TERMINAL NO.	TERMINAL NO.
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
A-E0-195	B-E0-195
A-E0-196	B-E0-196
A-E0-197	B-E0-197
A-E0-198	B-E0-198
A-E0-199	B-E0-199
A-E0-200	B-E0-200
A-E0-201	B-E0-201
A-E0-202	B-E0-202
A-E0-203	B-E0-203
A-E0-204	B-E0-204
A-E0-205	B-E0-205
A-E0-206	B-E0-206
A-E0-207	B-E0-207
A-E0-208	B-E0-208
A-E0-209	B-E0-209
A-E0-210	B-E0-210
SPARE	SPARE
SPARE	SPARE
A-E0-212	B-E0-212
A-E0-213	B-E0-213

WIRE LIST	
COMPONENT NO.	COMPONENT NO.
CR215	R176
CR216	R144
CR217	R112
CR218	R80
CR219	R48
CR220	R16
CR209	R32
CR210	R64
CR211	R96
CR212	R128
CR213	R160
CR214	R192



39
SEE NOTE 19
.060 MAX TYP
.060 MAX TYP
3
REF

VIEW J-J



401
101
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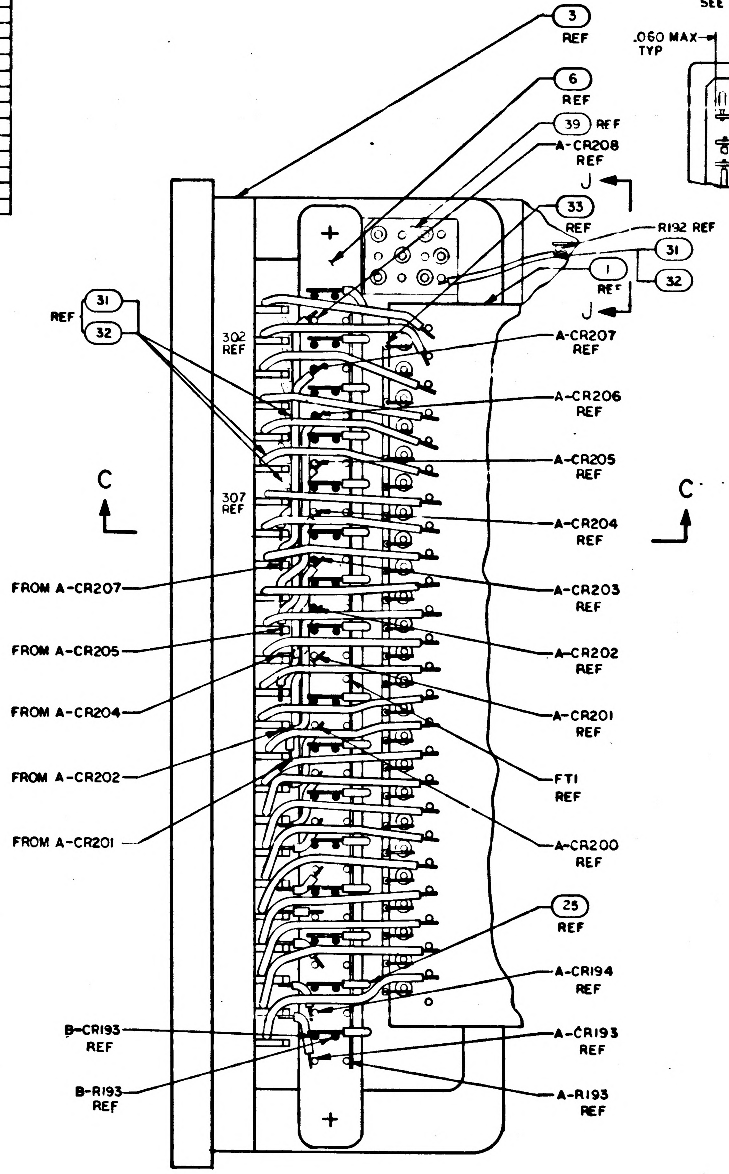
SECTION E-E

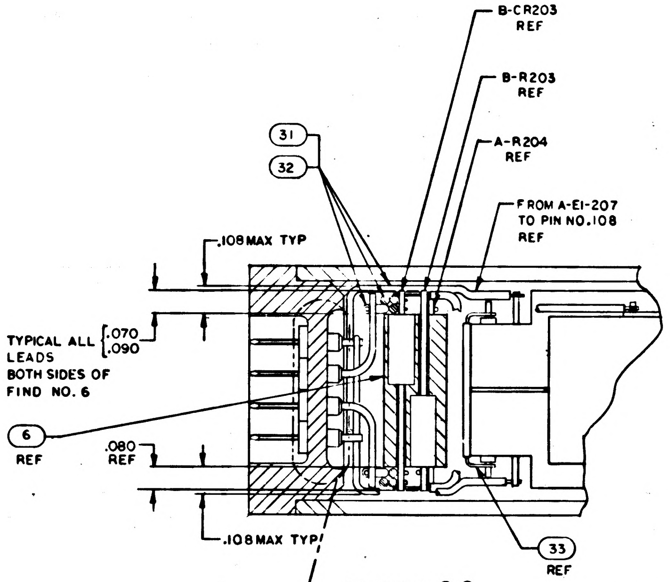


3
REF
6
REF
39 REF
A-CR208
REF
J
33
REF
R192 REF
31
1
REF
32
J
REF
31
32
302
REF
A-CR207
REF
A-CR206
REF
A-CR205
REF
307
REF
C
C
A-CR204
REF
FROM A-CR207
A-CR203
REF
FROM A-CR205
A-CR202
REF
FROM A-CR204
A-CR201
REF
FROM A-CR202
FTI
REF
FROM A-CR201
A-CR200
REF
25
REF
A-CR194
REF
B-CR193
REF
A-CR193
REF
B-R193
REF
A-R193
REF

VIEW G-G

SCALE: 4/1

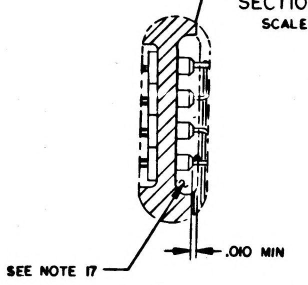
SHOWN WITH POTTING AND FIND NO. 7 REMOVED. SEE NOTES 11,12,13 AND 14



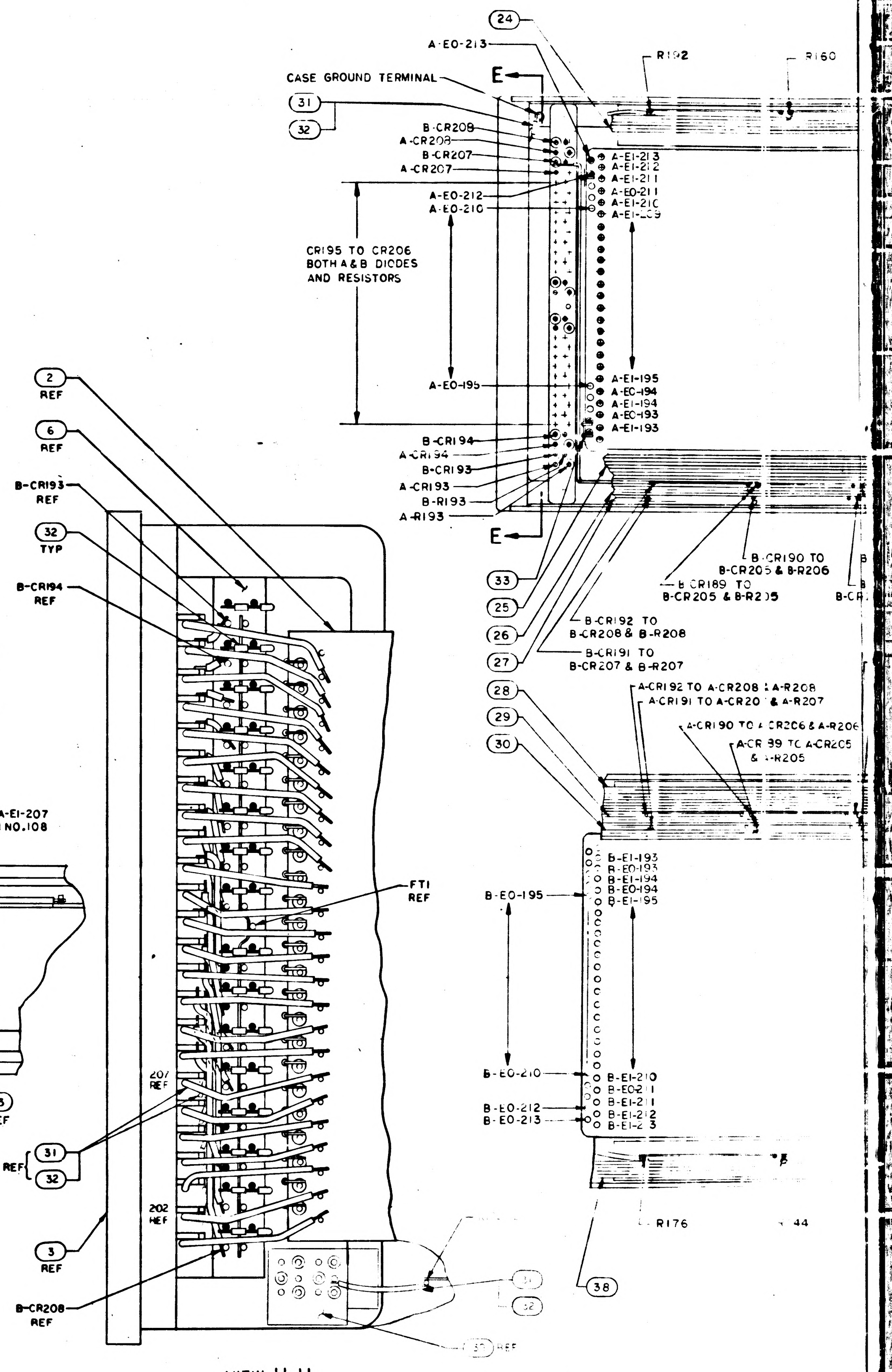
31
32
B-CR203
REF
B-R203
REF
A-R204
REF
FROM A-E1-207 TO PIN NO. 108
REF
.108 MAX TYP
TYPICAL ALL LEADS BOTH SIDES OF FIND NO. 6
.070
.090
6
REF
.080
REF
.108 MAX TYP
33
REF

SECTION C-C

SCALE: 4/1



SEE NOTE 17
.010 MIN



2
REF
6
REF
B-CR193
REF
32
TYP
B-CR194
REF
FTI
REF
207
REF
31
REF
32
202
REF
3
REF
B-CR208
REF
24
A-E0-213
R192
R160
CASE GROUND TERMINAL
E
31
32
B-CR208
A-CR208
B-CR207
A-CR207
A-E1-213
A-E1-212
A-E1-211
A-E0-211
A-E1-210
A-E1-209
A-E0-212
A-E0-210
CR195 TO CR206 BOTH A & B DIODES AND RESISTORS
A-E0-195
A-E1-195
A-E0-194
A-E1-194
A-E0-193
A-E1-193
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
E
B-CR190 TO B-CR205 & B-R206
B-CR189 TO B-CR205 & B-R205
33
25
26
27
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
28
29
30
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205 & A-R205
B-E1-193
B-E0-193
B-E1-194
B-E0-194
B-E1-195
B-E0-195
B-E0-210
B-E1-210
B-E0-211
B-E1-211
B-E0-212
B-E0-213
B-E1-212
B-E1-213
R176
38

VIEW H-H

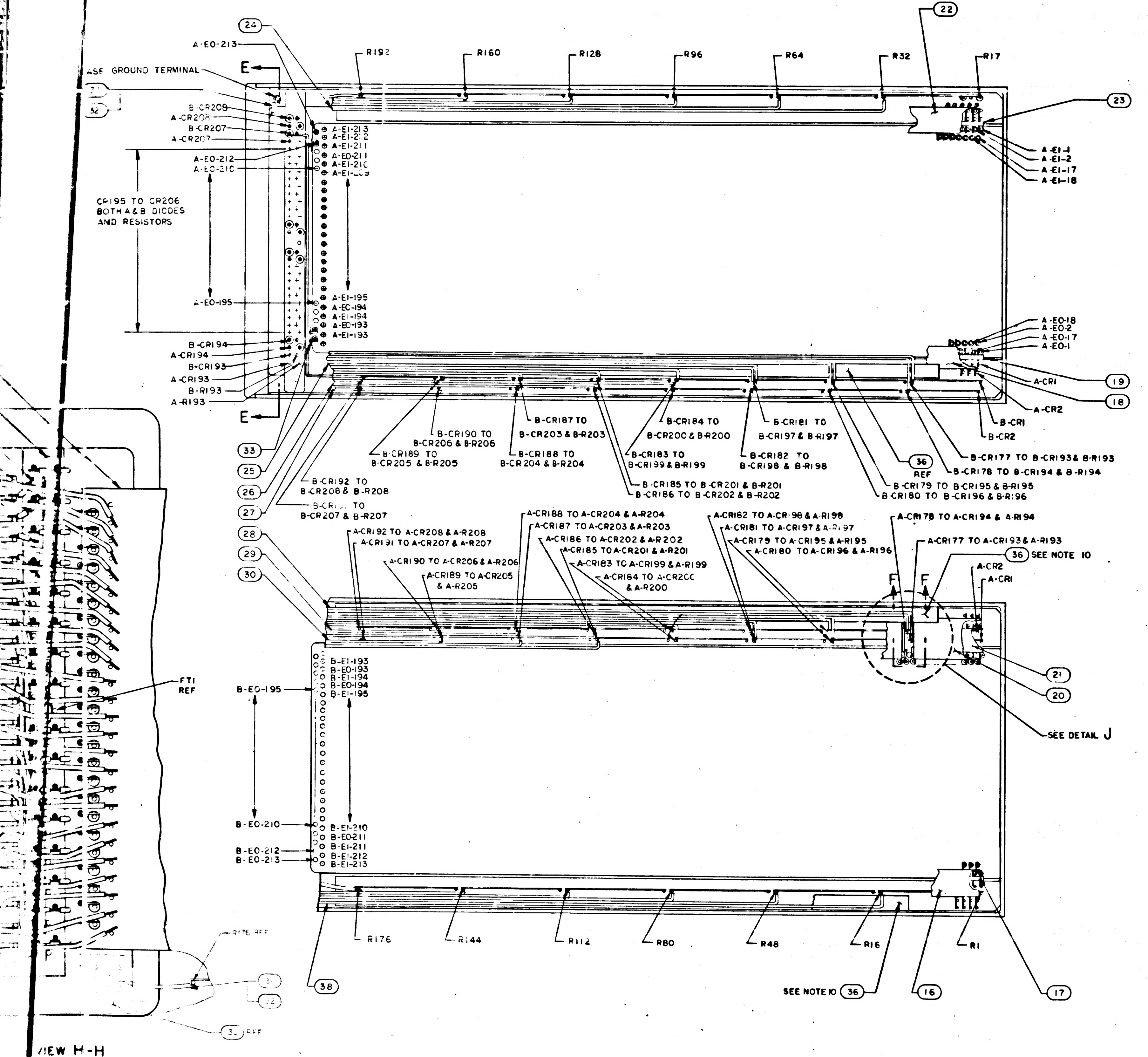
SCALE: 4/1

SHOWN WITH POTTING AND FIND NO. 7 REMOVED. SEE NOTES 11,12,13 AND 14

2003972 U

SH2/3 2003972 UF1/2

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		INITIAL RELEASE TDRR 32991				
B		REVISED PER TDRR 33460				
C		REVISED PER TDRR 33544				
D		REVISED PER TDRR 33606				
E		REVISED PER TDRR 34140				
F		REVISED PER TDRR 34489				
G		REVISED PER TDRR 34997				
H		REVISED PER TDRR 35339				
J		REVISED PER TDRR [illegible]				
K		REVISED PER TDRR 35870				
L		REVISED PER TDRR 36217				
M		REVISED PER TDRR [illegible]				
N		REVISED PER TDRR 36086				
P		REVISED PER TDRR [illegible]				
R		REVISED PER TDRR [illegible]858				
S		REVISED PER TDRR 36916				
T		REVISED PER TDRR [illegible]				
U		REVISED PER TDRR 37008				



24
22
23
A-EO-213
R192
R160
R128
R96
R64
R32
R17
E
ASE GROUND TERMINAL
32
B-CR208
A-CR208
B-CR207
A-CR207
A-EO-212
A-EO-210
A-EI-213
A-EI-212
A-EI-211
A-EO-211
A-EI-210
A-EI-209
CR195 TO CR206
BOTH A & B DIODES
AND RESISTORS
A-EO-195
A-EI-195
A-EO-194
A-EI-194
A-EO-193
A-EI-193
A-EI-1
A-EI-2
A-EI-17
A-EI-18
A-EO-18
A-EO-2
A-EO-17
A-EO-1
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
A-CR1
A-CR2
19
18
B-CR1
B-CR2
33
25
26
27
B-CR190 TO B-CR206 & B-R206
B-CR189 TO B-CR205 & B-R205
B-CR187 TO B-CR203 & B-R203
B-CR188 TO B-CR204 & B-R204
B-CR184 TO B-CR200 & B-R200
B-CR183 TO B-CR199 & B-R199
B-CR181 TO B-CR197 & B-R197
B-CR182 TO B-CR198 & B-R198
36 REF
B-CR177 TO B-CR193 & B-R193
B-CR178 TO B-CR194 & B-R194
B-CR185 TO B-CR201 & B-R201
B-CR186 TO B-CR202 & B-R202
B-CR179 TO B-CR195 & B-R195
B-CR180 TO B-CR196 & B-R196
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
28
29
30
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205 & A-R205
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A-CR187 TO A-CR203 & A-R203
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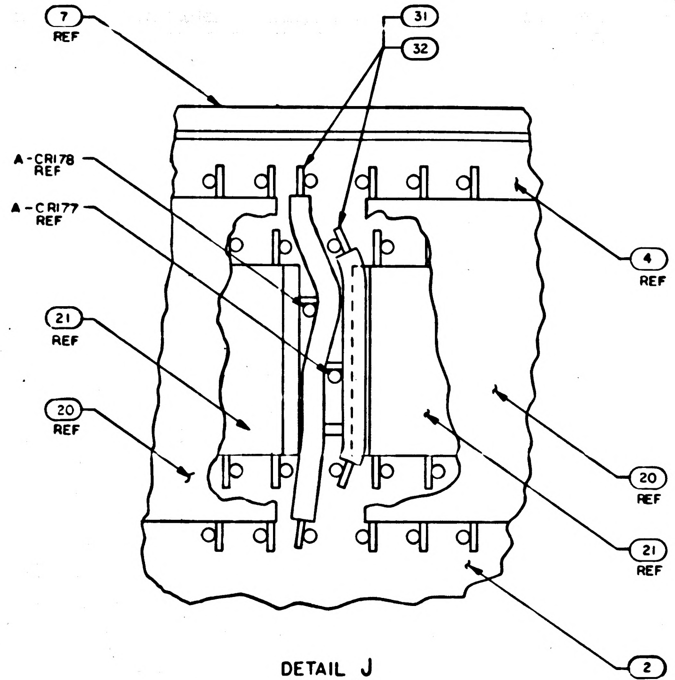
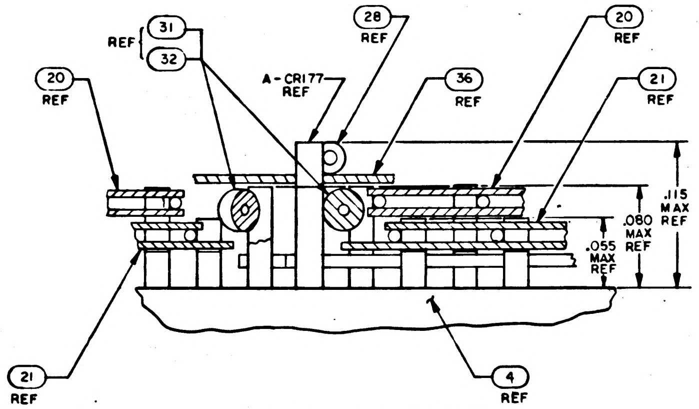
A-CR185 TO A-CR201 & A-R201
A-CR183 TO A-CR199 & A-R199
A-CR184 TO A-CR200 & A-R200
A-CR182 TO A-CR198 & A-R198
A-CR181 TO A-CR197 & A-R197
A-CR179 TO A-CR195 & A-R195
A-CR180 TO A-CR196 & A-R196
A-CR178 TO A-CR194 & A-R194
A-CR177 TO A-CR193 & A-R193
36 SEE NOTE 10
F
F
A-CR2
A-CR1
21
20
SEE DETAIL J
FT1 REF
B-EI-193
B-EO-193
B-EI-194
B-EO-194
B-EI-195
B-EO-195
B-EO-210
B-EI-210
B-EO-211
B-EI-211
B-EO-212
B-EI-212
B-EO-213
B-EI-213
R176
R144
R112
R80
R48
R16
R1
38
SEE NOTE 10 36
16
17
R176 REF
31
32
31 REF

VIEW H-H
SCALE 4/1
[illegible]TH POTTING AND FIND NO.7
SEE NOTES 11,12,13 AND 14



7 REF
31
32
A-CR178 REF
A-CR177 REF
4 REF
21 REF
20 REF
20 REF
21 REF
2 REF

DETAIL J
SCALE 10/1
TYPICAL WIRING 8 PLACES, SHOWN
WITH FIND NOS 28 AND 36 REMOVED



REF
31
32
20 REF
A-CR177 REF
28 REF
36 REF
20 REF
21 REF
.115 MAX
.080 MAX REF
.055 MAX REF
21 REF
4 REF

PARTIAL SECTION F-F
SCALE: 20/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003972
SCALE 2/1
SHEET 2 OF 3

SH2/3 2003972 UF2/2

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

8 7 6 5

D

C

B

A

8 5 4

2003972 U

WIRE LIST

TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.
A-EO-1	A-CR1	A-EO-97	A-CR97	B-EO-1	B-CR1	B-EO-97	B-CR97	A-EI-1	R1	A-EI-49	R49	A-EI-97	R97	A-EI-145	R145
A-EO-2	A-CR2	A-EO-98	A-CR98	B-EO-2	B-CR2	B-EO-98	B-CR98	B-EI-1		B-EI-49		B-EI-97		B-EI-145	
A-EO-3	A-CR3	A-EO-99	A-CR99	B-EO-3	B-CR3	B-EO-99	B-CR99	A-EI-2	R2	A-EI-50	R50	A-EI-98	R98	A-EI-146	R146
A-EO-4	A-CR4	A-EO-100	A-CR100	B-EO-4	B-CR4	B-EO-100	B-CR100	B-EI-2		B-EI-50		B-EI-98		B-EI-146	
A-EO-5	A-CR5	A-EO-101	A-CR101	B-EO-5	B-CR5	B-EO-101	B-CR101	A-EI-3	R3	A-EI-51	R51	A-EI-99	R99	A-EI-147	R147
A-EO-6	A-CR6	A-EO-102	A-CR102	B-EO-6	B-CR6	B-EO-102	B-CR102	B-EI-3		B-EI-51		B-EI-99		B-EI-147	
A-EO-7	A-CR7	A-EO-103	A-CR103	B-EO-7	B-CR7	B-EO-103	B-CR103	A-EI-4	R4	A-EI-52	R52	A-EI-100	R100	A-EI-148	R148
A-EO-8	A-CR8	A-EO-104	A-CR104	B-EO-8	B-CR8	B-EO-104	B-CR104	B-EI-4		B-EI-52		B-EI-100		B-EI-148	
A-EO-9	A-CR9	A-EO-105	A-CR105	B-EO-9	B-CR9	B-EO-105	B-CR105	A-EI-5	R5	A-EI-53	R53	A-EI-101	R101	A-EI-149	R149
A-EO-10	A-CR10	A-EO-106	A-CR106	B-EO-10	B-CR10	B-EO-106	B-CR106	B-EI-5		B-EI-53		B-EI-101		B-EI-149	
A-EO-11	A-CR11	A-EO-107	A-CR107	B-EO-11	B-CR11	B-EO-107	B-CR107	A-EI-6	R6	A-EI-54	R54	A-EI-102	R102	A-EI-150	R150
A-EO-12	A-CR12	A-EO-108	A-CR108	B-EO-12	B-CR12	B-EO-108	B-CR108	B-EI-6		B-EI-54		B-EI-102		B-EI-150	
A-EO-13	A-CR13	A-EO-109	A-CR109	B-EO-13	B-CR13	B-EO-109	B-CR109	A-EI-7	R7	A-EI-55	R55	A-EI-103	R103	A-EI-151	R151
A-EO-14	A-CR14	A-EO-110	A-CR110	B-EO-14	B-CR14	B-EO-110	B-CR110	B-EI-7		B-EI-55		B-EI-103		B-EI-151	
A-EO-15	A-CR15	A-EO-111	A-CR111	B-EO-15	B-CR15	B-EO-111	B-CR111	A-EI-8	R8	A-EI-56	R56	A-EI-104	R104	A-EI-152	R152
A-EO-16	A-CR16	A-EO-112	A-CR112	B-EO-16	B-CR16	B-EO-112	B-CR112	B-EI-8		B-EI-56		B-EI-104		B-EI-152	
A-EO-17	A-CR17	A-EO-113	A-CR113	B-EO-17	B-CR17	B-EO-113	B-CR113	A-EI-9	R9	A-EI-57	R57	A-EI-105	R105	A-EI-153	R153
A-EO-18	A-CR18	A-EO-114	A-CR114	B-EO-18	B-CR18	B-EO-114	B-CR114	B-EI-9		B-EI-57		B-EI-105		B-EI-153	
A-EO-19	A-CR19	A-EO-115	A-CR115	B-EO-19	B-CR19	B-EO-115	B-CR115	A-EI-10	R10	A-EI-58	R58	A-EI-106	R106	A-EI-154	R154
A-EO-20	A-CR20	A-EO-116	A-CR116	B-EO-20	B-CR20	B-EO-116	B-CR116	B-EI-10		B-EI-58		B-EI-106		B-EI-154	
A-EO-21	A-CR21	A-EO-117	A-CR117	B-EO-21	B-CR21	B-EO-117	B-CR117	A-EI-11	R11	A-EI-59	R59	A-EI-107	R107	A-EI-155	R155
A-EO-22	A-CR22	A-EO-118	A-CR118	B-EO-22	B-CR22	B-EO-118	B-CR118	B-EI-11		B-EI-59		B-EI-107		B-EI-155	
A-EO-23	A-CR23	A-EO-119	A-CR119	B-EO-23	B-CR23	B-EO-119	B-CR119	A-EI-12	R12	A-EI-60	R60	A-EI-108	R108	A-EI-156	R156
A-EO-24	A-CR24	A-EO-120	A-CR120	B-EO-24	B-CR24	B-EO-120	B-CR120	B-EI-12		B-EI-60		B-EI-108		B-EI-156	
A-EO-25	A-CR25	A-EO-121	A-CR121	B-EO-25	B-CR25	B-EO-121	B-CR121	A-EI-13	R13	A-EI-61	R61	A-EI-109	R109	A-EI-157	R157
A-EO-26	A-CR26	A-EO-122	A-CR122	B-EO-26	B-CR26	B-EO-122	B-CR122	B-EI-13		B-EI-61		B-EI-109		B-EI-157	
A-EO-27	A-CR27	A-EO-123	A-CR123	B-EO-27	B-CR27	B-EO-123	B-CR123	A-EI-14	R14	A-EI-62	R62	A-EI-110	R110	A-EI-158	R158
A-EO-28	A-CR28	A-EO-124	A-CR124	B-EO-28	B-CR28	B-EO-124	B-CR124	B-EI-14		B-EI-62		B-EI-110		B-EI-158	
A-EO-29	A-CR29	A-EO-125	A-CR125	B-EO-29	B-CR29	B-EO-125	B-CR125	A-EI-15	R15	A-EI-63	R63	A-EI-111	R111	A-EI-159	R159
A-EO-30	A-CR30	A-EO-126	A-CR126	B-EO-30	B-CR30	B-EO-126	B-CR126	B-EI-15		B-EI-63		B-EI-111		B-EI-159	
A-EO-31	A-CR31	A-EO-127	A-CR127	B-EO-31	B-CR31	B-EO-127	B-CR127	A-EI-16	R16	A-EI-64	R64	A-EI-112	R112	A-EI-160	R160
A-EO-32	A-CR32	A-EO-128	A-CR128	B-EO-32	B-CR32	B-EO-128	B-CR128	B-EI-16		B-EI-64		B-EI-112		B-EI-160	
A-EO-33	A-CR33	A-EO-129	A-CR129	B-EO-33	B-CR33	B-EO-129	B-CR129	A-EI-17	R17	A-EI-65	R65	A-EI-113	R113	A-EI-161	R161
A-EO-34	A-CR34	A-EO-130	A-CR130	B-EO-34	B-CR34	B-EO-130	B-CR130	B-EI-17		B-EI-65		B-EI-113		B-EI-161	
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A-EO-38	A-CR38	A-EO-134	A-CR134	B-EO-38	B-CR38	B-EO-134	B-CR134	B-EI-19		B-EI-67		B-EI-115		B-EI-163	
A-EO-39	A-CR39	A-EO-135	A-CR135	B-EO-39	B-CR39	B-EO-135	B-CR135	A-EI-20	R20	A-EI-68	R68	A-EI-116	R116	A-EI-164	R164
A-EO-40	A-CR40	A-EO-136	A-CR136	B-EO-40	B-CR40	B-EO-136	B-CR136	B-EI-20		B-EI-68		B-EI-116		B-EI-164	
A-EO-41	A-CR41	A-EO-137	A-CR137	B-EO-41	B-CR41	B-EO-137	B-CR137	A-EI-21	R21	A-EI-69	R69	A-EI-117	R117	A-EI-165	R165
A-EO-42	A-CR42	A-EO-138	A-CR138	B-EO-42	B-CR42	B-EO-138	B-CR138	B-EI-21		B-EI-69		B-EI-117		B-EI-165	
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A-EO-44	A-CR44	A-EO-140	A-CR140	B-EO-44	B-CR44	B-EO-140	B-CR140	B-EI-22		B-EI-70		B-EI-118		B-EI-166	
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A-EO-47	A-CR47	A-EO-143	A-CR143	B-EO-47	B-CR47	B-EO-143	B-CR143	A-EI-24	R24	A-EI-72	R72	A-EI-120	R120	A-EI-168	R168
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A-EO-51	A-CR51	A-EO-147	A-CR147	B-EO-51	B-CR51	B-EO-147	B-CR147	A-EI-26	R26	A-EI-74	R74	A-EI-122	R122	A-EI-170	R170
A-EO-52	A-CR52	A-EO-145	A-CR148	B-EO-52	B-CR52	B-EO-148	B-CR148	B-EI-26		B-EI-74		B-EI-122		B-EI-170	
A-EO-53	A-CR53	A-EO-149	A-CR149	B-EO-53	B-CR53	B-EO-149	B-CR149	A-EI-27	R27	A-EI-75	R75	A-EI-123	R123	A-EI-171	R171
A-EO-54	A-CR54	A-EO-150	A-CR150	B-EO-54	B-CR54	B-EO-150	B-CR150	B-EI-27		B-EI-75		B-EI-123		B-EI-171	
A-EO-55	A-CR55	A-EO-151	A-CR151	B-EO-55	B-CR55	B-EO-151	B-CR151	A-EI-28	R28	A-EI-76	R76	A-EI-124	R124	A-EI-172	R172
A-EO-56	A-CR56	A-EO-152	A-CR152	B-EO-56	B-CR56	B-EO-152	B-CR152	B-EI-28		B-EI-76		B-EI-124		B-EI-172	
A-EO-57	A-CR57	A-EO-153	A-CR153	B-EO-57	B-CR57	B-EO-153	B-CR153	A-EI-29	R29	A-EI-77	R77	A-EI-125	R125	A-EI-173	R173
A-EO-58	A-CR58	A-EO-154	A-CR154	B-EO-58	B-CR58	B-EO-154	B-CR154	B-EI-29		B-EI-77		B-EI-125		B-EI-173	
A-EO-59	A-CR59	A-EO-155	A-CR155	B-EO-59	B-CR59	B-EO-155	B-CR155	A-EI-30	R30	A-EI-78	R78	A-EI-126	R126	A-EI-174	R174
A-EO-60	A-CR60	A-EO-156	A-CR156	B-EO-60	B-CR60	B-EO-156	B-CR156	B-EI-30		B-EI-78		B-EI-126		B-EI-174	
A-EO-61	A-CR61	A-EO-157	A-CR157	B-EO-61	B-CR61	B-EO-157	B-CR157	A-EI-31	R31	A-EI-79	R79	A-EI-127	R127	A-EI-175	R175
A-EO-62	A-CR62	A-EO-158	A-CR158	B-EO-62	B-CR62	B-EO-158	B-CR158	B-EI-31		B-EI-79		B-EI-127		B-EI-175	
A-EO-63	A-CR63	A-EO-159	A-CR159	B-EO-63	B-CR63	B-EO-159	B-CR159	A-EI-32	R32	A-EI-80	R80	A-EI-128	R128	A-EI-176	R176
A-EO-64	A-CR64	A-EO-160	A-CR160	B-EO-64	B-CR64	B-EO-160	B-CR160	B-EI-32		B-EI-80		B-EI-128		B-EI-176	
A-EO-65	A-CR65	A-EO-161	A-CR161	B-EO-65	B-CR65	B-EO-161	B-CR161	A-EI-33	R33	A-EI-81	R81	A-EI-129	R129	A-EI-177	R177
A-EO-66	A-CR66	A-EO-162	A-CR162	B-EO-66	B-CR66	B-EO-162	B-CR162	B-EI-33		B-EI-81		B-EI-129		B-EI-177	
A-EO-67	A-CR67	A-EO-163	A-CR163	B-EO-67	B-CR67	B-EO-163	B-CR163	A-EI-34	R34	A-EI-82	R82	A-EI-130	R130	A-EI-178	R178
A-EO-68	A-CR68	A-EO-164	A-CR164	B-EO-68	B-CR68	B-EO-164	B-CR164	B-EI-34		B-EI-82		B-EI-130		B-EI-178	
A-EO-69	A-CR69	A-EO-165	A-CR165	B-EO-69	B-CR69	B-EO-165	B-CR165	A-EI-35	R35	A-EI-83	R83	A-EI-131	R131	A-EI-179	R179
A-EO-70	A-CR70	A-EO-166	A-CR166	B-EO-70	B-CR70	B-EO-166	B-CR166	B-EI-35		B-EI-83		B-EI-131		B-EI-179	
A-EO-71	A-CR71	A-EO-167	A-CR167	B-EO-71	B-CR71	B-EO-167	B-CR167	A-EI-36	R36	A-EI-84	R84	A-EI-132	R132	A-EI-180	R180
A-EO-72	A-CR72	A-EO-168	A-CR168	B-EO-72	B-CR72	B-EO-168	B-CR168	B-EI-36		B-EI-84		B-EI-132		B-EI-180	
A-EO-73	A-CR73	A-EO-169	A-CR169	B-EO-73	B-CR73	B-EO-169	B-CR169	A-EI-37	R37	A-EI-85	R85	A-EI-133	R133	A-EI-181	R181
A-EO-74	A-CR74	A-EO-170	A-CR170	B-EO-74	B-CR74	B-EO-170	B-CR170	B-EI-37		B-EI-85		B-EI-133		B-EI-181	
A-EO-75	A-CR75	A-EO-171	A-CR171	B-EO-75	B-CR75	B-EO-171	B-CR171	A-EI-38	R38	A-EI-86	R86	A-EI-134	R134	A-EI-182	R182
A-EO-76	A-CR76	A-EO-172	A-CR172	B-EO-76	B-CR76	B-EO-172	B-CR172	B-EI-38		B-EI-86		B-EI-134		B-EI-182	
A-EO-77	A-CR77	A-EO-173	A-CR173	B-EO-77	B-CR77	B-EO-173	B-CR173	A-EI-39	R39	A-EI-87	R87	A-EI-135	R135	A-EI-183	R183
A-EO-78	A-CR78	A-EO-174	A-CR174	B-EO-78	B-CR78	B-EO-174	B-CR174	B-EI-39		B-EI-87		B-EI-135		B-EI-183	
A-EO-79	A-CR79	A-EO-175	A-CR175	B-EO-79	B-CR79	B-EO-175	B-CR175	A-EI-40	R40	A-EI-88	R88	A-EI-136	R136	A-EI-184	R184
A-EO-80	A-CR80	A-EO-176	A-CR176	B-EO-80	B-CR80	B-EO-176	B-CR176	B-EI-40		B-EI-88		B-EI-136		B-EI-184	
A-EO-81	A-CR81	A-EO-177	A-CR177	B-EO-81	B-CR81	B-EO-177	B-CR177	A-EI-41	R41	A-EI-89	R89	A-EI-137	R137	A-EI-185	R185
A-EO-82	A-CR82	A-EO-178	A-CR178	B-EO-82	B-CR82	B-EO-178	B-CR178	B-EI-41		B-EI-89		B-EI-137		B-EI-185	
A-EO-83	A-CR83	A-EO-179	A-CR179	B-EO-83	B-CR83	B-EO-179	B-CR179	A-EI-42	R42	A-EI-90	R90	A-EI-138	R138	A-EI-186	R186
A-EO-84	A-CR84	A-EO-180	A-CR180	B-EO-84	B-CR84	B-EO-180	B-CR180	B-EI-42		B-EI-90		B-EI-138		B-EI-186	
A-EO-85	A-CR85	A-EO-181	A-CR181	B-EO-85	B-CR85	B-EO-181	B-CR181	A-EI-43	R43	A-EI-91	R91	A-EI-139	R139	A-EI-187	R187
A-EO-86	A-CR86	A-EO-182	A-CR182	B-EO-86	B-CR86	B-EO-182	B-CR182	B-EI-43		B-EI-91		B-EI-139		B-EI-187	
A-EO-87	A-CR87	A-EO-183	A-CR183	B-EO-87	B-CR87	B-EO-183	B-CR183	A-EI-44	R44	A-EI-92	R92	A-EI-140	R140	A-EI-188	R188
A-EO-88	A-CR88	A-EO-184	A-CR184	B-EO-88	B-CR88	B-EO-184	B-CR184	B-EI-44		B-EI-92		B-EI-140		B-EI-188	
A-EO-89	A-CR89	A-EO-185	A-CR185	B-EO-89	B-CR89	B-EO-185	B-CR185	A-EI-45	R45	A-EI-93	R93	A-EI-141	R141	A-EI-189	R189
A-EO-90	A-CR90	A-EO-186	A-CR186	B-EO-90	B-CR90	B-EO-186	B-CR186	B-EI-45		B-EI-93		B-EI-141		B-EI-189	
A-EO-91	A-CR91	A-EO-187	A-CR187	B-EO-91	B-CR91	B-EO-187	B-CR187	A-EI-46	R46	A-EI-94	R94	A-EI-142	R142	A-EI-190	R190
A-EO-92	A-CR92	A-EO-188	A-CR188	B-EO-92	B-CR92	B-EO-188	B-CR188	B-EI-46		B-EI-94		B-EI-142		B-EI-190	
A-EO-93	A-CR93	A-EO-189	A-CR189	B-EO-93	B-CR93	B-EO-189	B-CR189	A-EI-47	R47	A-EI-95	R95	A-EI-143	R143	A-EI-191	R191
A-EO-94	A-CR94	A-EO-190	A-CR190	B-EO-94	B-CR94	B-EO-190	B-CR190	B-EI-47		B-EI-95		B-EI-143		B-EI-191	
A-EO-95	A-CR95	A-EO-191	A-CR191	B-EO-95	B-CR95	B-EO-191	B-CR191	A-EI-48	R48	A-EI-96	R96	A-EI-144	R144	A-EI-192	R192
A-EO-96	A-CR96	A-EO-192	A-CR192	B-EO-96	B-CR96	B-EO-192	B-CR192	B-EI-48		B-EI-96		B-EI-144		B-EI-192	

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL RELEASE TDRR 32991				
B		REVISED PER TDRR 33410				
C		REVISED PER TDRR 33544				
D		REVISED PER TDRR 33606				
E		REVISED PER TDRR 34140				
F		REVISED PER TDRR 34489				
G		REVISED PER TDRR 34997				
H		REVISED PER TDRR 35339				
J		REVISED PER TDRR 35649				
K		REVISED PER TDRR 35970				
L		REVISED PER TDRR 36217				
M		REVISED PER TDRR 36531				
N		REVISED PER TDRR 36686				
P		REVISED PER TDRR 36810				
R		REVISED PER TDRR 36858				
S		REVISED PER TDRR 36916				
T		REVISED PER TDRR 36970				
U		REVISED PER TDRR 37008				

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED
APPROVED
MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

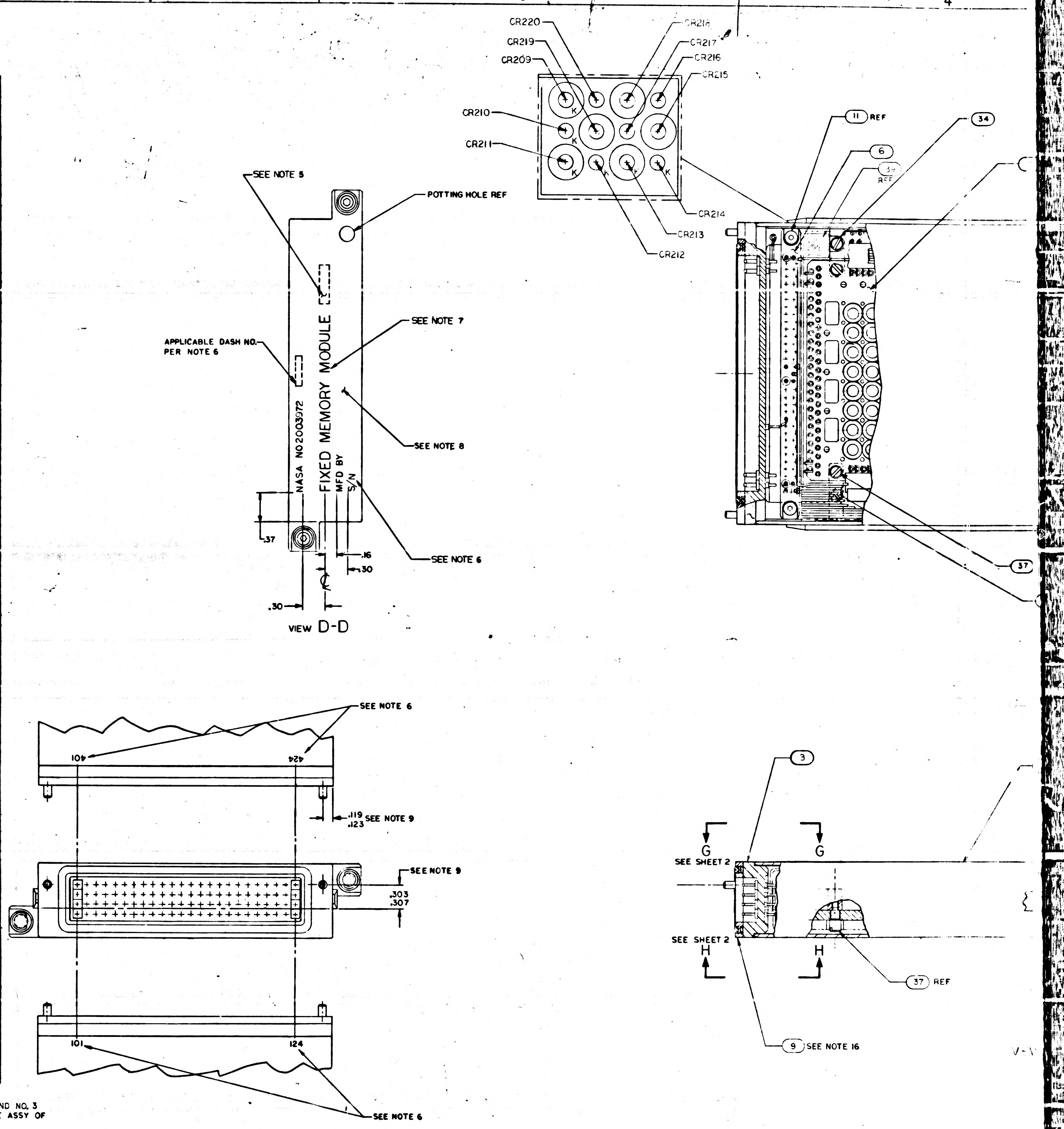
FIXED MEMORY MODULE ASSEMBLY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003972
SCALE NONE
SHEET 3 OF 3

SH3/3 2003972 UF2/2

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

PART NO.	MODULE NO.	FIND NO. 1	FIND NO. 2	MODULE DECK NO.	NEXT ASSEMBLY NO. (REF)	PROCUREMENT SPECIFICATION SEE NOTE 15
2003972-011	B1	2003060-061	2003061-061	0205	2021101	PS2003972
2003972-021	B2	2003060-071	2003061-071	0206	2021101	
2003972-031	B3	2003060-081	2003061-081	0207	2021101	
2003972-041	B1	2003060-121	2003061-121	0210	2021104	
2003972-051	B2	2003060-131	2003061-131	0211	2021104	
2003972-061	B3	2003060-141	2003061-141	0212	2021104	
2003972-071	B2	2003060-151	2003061-151	0213	2021104	
2003972-081	B3	2003060-161	2003061-161	0214	2021104	
2003972-091	B2	2003060-171	2003061-171	0215	2021101	
2003972-111	B3	2003060-181	2003061-181	0216	2021101	PS2003972
2003972-121	B1	2003060-091	2003061-091	0208	2021105-031	PS2003960
2003972-131	B2	2003060-111	2003061-111	0209	2021105-031	PS2003960
2003972-141	B1	2003060-191	2003061-191	0217	2021106-011	PS2003972
2003972-151	B2	2003060-211	2003061-211	0218	2021106-011	
2003972-161	B3	2003060-221	2003061-221	0219	2021106-011	
2003972-171	B4	2003060-231	2003061-231	0220	2021106-011	
2003972-181	B5	2003060-241	2003061-241	0221	2021106-011	
2003972-191	B6	2003060-251	2003061-251	0222	2021106-011	
2003972-211	B3	2003060-261	2003061-261	0223	2021104-041	PS2003972
2003972-221	B1	2003060-271	2003061-271	0224	2021105-041	PS2003960
2003972-231	B1	2003060-281	2003061-281	0225	2021106-021	PS2003972
2003972-241	B3	2003060-291	2003061-291	0226	2021106-021	
2003972-251	B5	2003060-311	2003061-311	0227	2021106-021	
2003972-261	B1	2003060-321	2003061-321	0230	2021107-011	
2003972-271	B2	2003060-331	2003061-331	0229	2021107-011	
2003972-281	B2	2003060-341	2003061-341	0231	2021106-031	
2003972-291	B1	2003060-351	2003061-351	0238	2021107-021	PS2003972
2003972-311	B1	2003060-361	2003061-361	0239	2021108-021	PS2016016
-321	B2	2003060-371	2003061-371	0240	2021108-021	PS2016016
-331	B3	2003060-381	2003061-381	0241	2021108-021	PS2016016
-341	B4	2003060-391	2003061-391	0242	2021108-021	PS2016016
-351	B5	2003060-411	2003061-411	0243	2021108-021	PS2016016
2003972-361	B6	2003060-421	2003061-421	0244	2021108-021	PS2016016
2003972-371	B1	2003060-431	2003061-431	0245	2021110-011	PS2016016
2003972-381	B2	2003060-441	2003061-441	0246	2021110-011	
2003972-391	B3	2003060-451	2003061-451	0247	2021110-011	
2003972-411	B4	2003060-461	2003061-461	0248	2021110-011	
2003972-421	B5	2003060-471	2003061-471	0249	2021110-011	
2003972-431	B6	2003060-481	2003061-481	0250	2021110-011	PS2016016
2003972-441	B1	2003060-491	2003061-491	0251	2021110-021	PS2016016
2003972-451	B2	2003060-511	2003061-511	0252	2021110-021	
2003972-461	B3	2003060-521	2003061-521	0253	2021110-021	
2003972-471	B4	2003060-531	2003061-531	0254	2021110-021	
2003972-481	B5	2003060-541	2003061-541	0255	2021110-021	
2003972-491	B6	2003060-551	2003061-551	0256	2021110-021	PS2016016
-511	B1	-561	-561	0257	2021111-021&031	PS2016036
-521	B2	-571	-571	0258	-021&031	
-531	B3	-581	-581	0259	-021&031	
-541	B4	-591	-591	0260	2021111-021&031	
-551	B5	-611	-611	0261	2021111-021	
2003972-561	B6	2003060-621	2003061-621	0262	2021111-021&031	PS2016036
2003972-571	B5	2003060-631	2003061-631	0263	2021111-031	PS2016036
2003972-581	B1	2003060-641	2003061-641	0264	2021110-031	PS2016036
-591	B2	-651	-651	0265	2021110-031	
-611	B3	-661	-661	0266	2021110-031	
-621	B4	-671	-671	0267	2021110-031	
-631	B5	-681	-681	0268	2021110-031	
2003972-641	B6	2003060-691	2003061-691	0269	2021110-031	PS2016036
2003972-651	B1	2003060-711	2003061-711	0270	2021111-041	PS2016036
-661	B2	-721	-721	0271	-041	
-671	B3	-731	-731	0272	-041	
-681	B4	-741	-741	0273	-041	
-691	B5	-751	-751	0274	-041	
2003972-711	B6	2003060-761	2003061-761	0275	2021111-041	PS2016036
2003972-721	B1	2003060-771	2003061-771	0276	2021112-011	PS2016036
-731	B2	-781	-781	0277	-011	
-741	B3	-791	-791	0278	-011	
-751	B4	-811	-811	0279	-011	
-761	B5	-821	-821	0280	-011	
2003972-771	B6	2003060-831	2003061-831	0281	2021112-011	PS2016036



NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
3. ENCAPSULATE MODULE PER ND1002226 METHOD II
4. WELD PER ND1002005
5. MARK APPROPRIATE MODULE NO. AS SHOWN IN CHART
6. MARK .08/.06 HIGH PER ND1002019 AND ND1002122, TYPE II CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
7. MARK .14/.10 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 USING INK 1006271-1
8. PAINT INDICATED SURFACES OF FIND NO 7. PER ND1002279 WITH SCD NO.1008809-1 DARK GREY EPOXY RESIN ENAMEL, FINAL COAT PER ND1002277 USING 1012543-003
9. ASSEMBLE FIND NO.7 AND FIND NO.3 TO DIMENSIONS SHOWN
10. REMOVE LINER FROM NEARSIDE OF FIND NO.36 AND ASSEMBLE 3 PLACES AS SHOWN. FIND NO.36 MUST INSULATE FLAT CABLES FROM TRIMMED COMPONENT LEADS. TRIM AS REQUIRED
11. WHITE DOT AND SINGLE SOLID LEAD DENOTES FIRST LEVEL WIRING UNLESS OTHERWISE SPECIFIED
12. BLACK DOT AND SINGLE SOLID LEAD DENOTES SECOND LEVEL WIRING
13. BLACK DOT AND CROSS HATCHED LEAD DENOTES THIRD LEVEL WIRING
14. ALL LEADS FROM FIND NO.1 AND FIND NO.2 TO FIND NO.3 TO BE THIRD LEVEL WIRING
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PROCUREMENT SPECIFICATION AS LISTED IN CHART.
16. FIND NO.9 TO BE SHIPPED UNASSEMBLED AND IDENTIFIED PER ND 1002019
17. SEAL PINS AND INSULATORS TO FIND NO. 3 PER ND1002004 TYPE VI BEFORE ASSY OF FIND NO. 6
18. FILL AS SHOWN PER ND1002235 METHOD A
19. BOND FIND NO.39 TO FIND NO.3 PER ND1002004 TYPE VI AFTER ASSY OF FIND NO.6
20. PRIOR TO ENCAPSULATION PER NOTE 3, COAT OVER ALL TERMINALS OF FIND NO.'S 1,2&3 AND OVER ALL WIRES, SLEEVING AND COMPONENT LEADS OF FIND NO.S 4,5,6,17,18,19,20,21,22,23,24, 25,26,27,28,29,30,31,32,33,38 &39 WITH A .03 MAXIMUM THICKNESS OF SILICONE RUBBER PER ND1002009, METHOD A. MASK ALL OUTSIDE SURFACES OF FIND NO.3 AND ALL OTHER SURFACES OF THIS ASSEMBLY COMING IN CLOSE CONTACT WITH FIND NO.7
21. FILL INTERFACE BETWEEN FIND NO. 4 AND SIDE SURFACES OF FIND NO.'S 1 AND 2, AND INTERFACE BETWEEN FIND NO.5 AND SIDE SURFACES OF FIND NO.'S 1 AND 2 USING FIND NO. 40. ROOM TEMP CURE FOR 24 HOURS MIN.

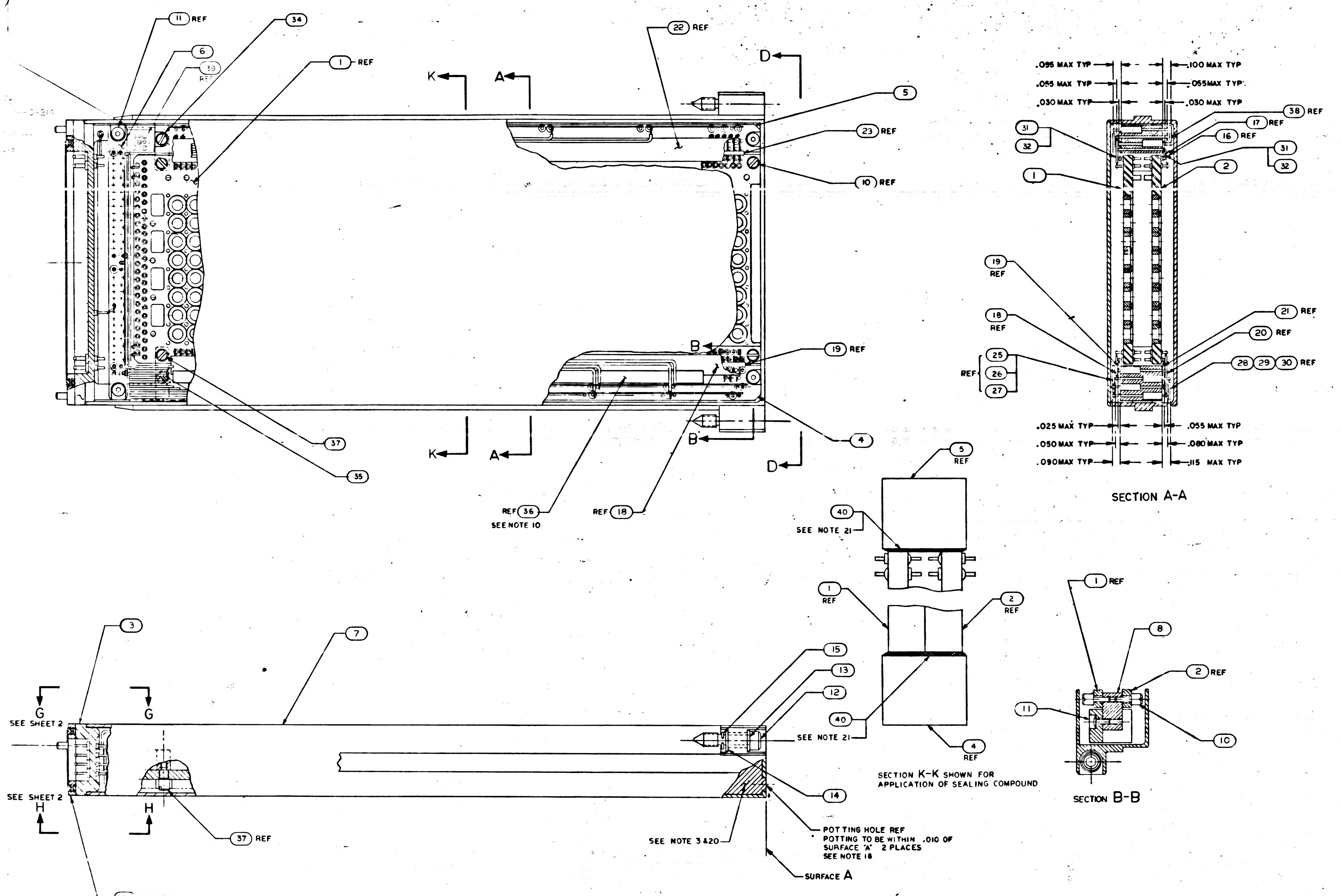
REFERENCES:

1. PROCESS REQUIREMENTS FOR CONTROL AND INSPECTION OF ROPE MEMORY ASSEMBLIES ND1002285
2. FIXED MEMORY FIXTURE DWG. NO. AP22500

2003972 V

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL RELEASE TDRR 32991	6/1/67	
B	REVISED PER TDRR 33460 DR [illegible] CHK [illegible]	[illegible]	TSR
C	REVISED PER TDRR 33544 DR [illegible] CHK [illegible]	5/8/67	TSR
D	REVISED PER TDRR 33606 DR [illegible] CHK [illegible]	5/1967	TSR
E	REVISED PER TDRR 34140 DR [illegible] CHK [illegible]	[illegible]	TSR
F	REVISED PER TDRR 34489 DR [illegible] CHK [illegible]	10-19-67	TSR
G	REVISED PER TDRR 34557 DR [illegible] CHK [illegible]	11-20-67	TSR
H	REVISED PER TDRR 35339 DR [illegible] CHK [illegible]	[illegible]	TSR
J	REVISED PER TDRR 35649 DR [illegible] CHK [illegible]	3-27-68	TSR
K	REVISED PER TDRR 35870 DR W.J. Makar CHK [illegible]	4/10/68	TSR
L	REVISED PER TDRR 36217 DR W.J. Makar CHK [illegible]	5/24/68	TSR
M	REVISED PER TDRR 36531 DR [illegible] CHK [illegible]		TSR
N	REVISED PER TDRR 36686 DR [illegible] CHK [illegible]	[illegible]	TSR
P	REVISED PER TDRR 36[illegible] DR [illegible] CHK [illegible]	9/25/68	TSR
R	REVISED PER TDRR 36858 DR [illegible] CHK [illegible]	10/4/68	TSR
S	REVISED PER TDRR 36916 DR [illegible] CHK [illegible]	10/23/68	TSR
T	REVISED PER TDRR 36970 DR [illegible] CHK [illegible]	11/6/68	TSR
U	REVISED PER TDRR 37008 DR [illegible] CHK [illegible]	11/22/68	TSR
V	REVISED PER TDRR 37146 DR [illegible] CHK [illegible]	3/11/69	TSR

CR216
CR217
CR215
CR215



11 REF
6
39 REF
34
1 REF
22 REF
K
A
D
5
23 REF
10 REF
B
19 REF
37
35
4
REF 36
SEE NOTE 10
REF 18
.095 MAX TYP
.065 MAX TYP
.030 MAX TYP
.100 MAX TYP
.055MAX TYP
.030 MAX TYP
38 REF
17 REF
16 REF
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32
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18 REF
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26
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REF
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28 29 30 REF
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.050 MAX TYP
.090MAX TYP
.055 MAX TYP
.080 MAX TYP
.115 MAX TYP
SECTION A-A
5 REF
40
SEE NOTE 21
1 REF
2 REF
40
4 REF
SECTION K-K SHOWN FOR APPLICATION OF SEALING COMPOUND
1 REF
8
2 REF
11
10
SECTION B-B
3
7
G
SEE SHEET 2
SEE SHEET 2
H
15
13
12
SEE NOTE 21
14
37 REF
9 SEE NOTE 16
SEE NOTE 3&20
POTTING HOLE REF
POTTING TO BE WITHIN .010 OF SURFACE "A" 2 PLACES
SEE NOTE 18
SURFACE A

VIEWS SHOWN WITH POTTING COMPOUND
PARTIALLY REMOVED

SEE NOTE 16

FOR APPLICABLE PART
NO. SEE CHART

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006341	ADHESIVE SEALANT, SILICONE RUBBER	40
1	2003986-021	COMPONENT BLOCK DIODE ASSY	39
☒	2005935	SCHEMATIC	REF
1	2004684	FLAT CABLE	38
4	2004150 — 003	SCREW, SHOULDERED	37
AR	1006806 — 26	INSULATION TAPE, ELECTRICAL	36
1	2004150 — 001	SCREW, SHOULDERED	35
1	2004150 — 002	SCREW, SHOULDERED	34
1	2004129	FLAT CABLE INTERCONNECTION	33
AR	1006776-25	SLEEVING	32
AR	1006757-12	WIRE, ELECRICAL	31
1	2004125	FLAT CABLE	30
1	2004122	FLAT CABLE	29
1	2004124	FLAT CABLE	28
1	2004123	FLAT CABLE	27
1	2004121	FLAT CABLE	26
1	2004120	FLAT CABLE	25
1	2004[illegible]5	FLAT CABLE	24
1	2003051 — 013	MATRIX ASSY	23
1	2003051 — 014	MATRIX ASSY	22
8	2003051 — 016	MATRIX ASSY	21
8	2003051 — 015	MATRIX ASSY	20
1	2003051 — 017	MATRIX ASSY	19
1	2003051 — 018	MATRIX ASSY	18
1	2003051 — 011	MATRIX ASSY	17
1	2003051 — 012	MATRIX ASSY	16
2	MS16633-4015	"E" RING	15
2	1004546-3	WASHER	14
2	1004546-1	WASHER	13
2	1004579-1	SCREW, JACKING	12
4	1000093-1	SCREW, BUTTONHEAD	11
4	2004151	SCREW, STANDOFF	10
1	1006339	GASKET PLATE	9
2	2004071	STANDOFF	8
1	2004100	HOUSING	7
1	2003048-021	RESISTOR-DIODE BLOCK ASSY	6
1	2003052-021	COMPONENT BLOCK RESISTOR ASSY	5
1	2003045-021	COMPONENT BLOCK DIODE ASSY	4
1	2003973-011	CONNECTOR PLATE ASSY	3
1	2003061-SEE CHART	SENSE WIRING ASSY SIDE B	2
1	2003060-SEE CHART	SENSE WIRING ASSY SIDE A	1

LIST OF MATERIALS

SEE CHART	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN [illegible] DATE 6AUG6[illegible]
CHECKED [illegible] 12AUG6[illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL
CCP APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003972
SCALE 2/1
WT
SHEET 1 OF 3

2003972 V

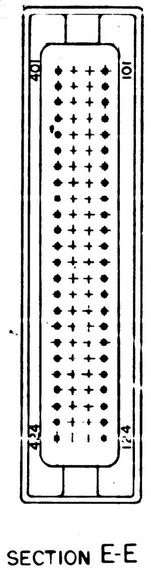
[illegible] OL
[illegible] ORY ASSEMBLIES
[illegible] NO. AP22500

SH1/3 2003972 VE2/2

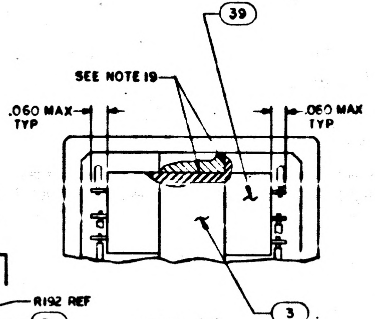
WIRE LIST			
PIN NO.	COMPONENT OR TERM. NO.	PIN NO.	COMPONENT OR TERM. NO.
101	A-E1-213	301	GROUND
102	A-E1-212	302	CR209
103	A-E1-211	303	CR210
104	A-E0-211	304	CR211
105	A-E1-210	305	CR212
106	A-E1-209	306	CR213
107	A-E1-208	307	CR214
108	A-E1-207	308	A-CR208
109	A-E1-206	309	A-CR207
110	A-E1-205	310	A-CR206
111	A-E1-204	311	A-CR205
112	A-E1-203	312	A-CR204
113	A-E1-202	313	A-CR203
114	A-E1-201	314	A-CR202
115	A-E1-200	315	A-CR201
116	A-E1-199	316	A-CR200
117	A-E1-198	317	A-CR199
118	A-E1-197	318	A-CR198
119	A-E1-196	319	A-CR197
120	A-E1-195	320	A-CR196
121	A-E0-194	321	A-CR195
122	A-E1-194	322	A-CR194
123	A-E0-193	323	A-CR193
124	A-E1-193	324	SPARE
201	B-R208	401	B-E1-213
202	CR215	402	B-E1-212
203	CR216	403	B-E1-211
204	CR217	404	B-E0-211
205	CR218	405	B-E1-210
206	CR219	406	B-E1-209
207	CR220	407	B-E1-208
208	B-CR208	408	B-E1-207
209	B-CR207	409	B-E1-206
210	B-CR206	410	B-E1-205
211	B-CR205	411	B-E1-204
212	B-CR204	412	B-E1-203
213	B-CR203	413	B-E1-202
214	B-CR202	414	B-E1-201
215	B-CR201	415	B-E1-200
216	B-CR200	416	B-E1-199
217	B-CR199	417	B-E1-198
218	B-CR198	418	B-E1-197
219	B-CR197	419	B-E1-196
220	B-CR196	420	B-E1-195
221	B-CR195	421	B-E0-194
222	B-CR194	422	B-E1-194
223	B-CR193	423	B-E0-193
224	SPARE	424	B-E1-193

WIRE LIST	
TERMINAL NO.	TERMINAL NO.
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
A-E0-195	B-E0-195
A-E0-196	B-E0-196
A-E0-197	B-E0-197
A-E0-198	B-E0-198
A-E0-199	B-E0-199
A-E0-200	B-E0-200
A-E0-201	B-E0-201
A-E0-202	B-E0-202
A-E0-203	B-E0-203
A-E0-204	B-E0-204
A-E0-205	B-E0-205
A-E0-206	B-E0-206
A-E0-207	B-E0-207
A-E0-208	B-E0-208
A-E0-209	B-E0-209
A-E0-210	B-E0-210
SPARE	SPARE
SPARE	SPARE
A-E0-212	B-E0-212
A-E0-213	B-E0-213

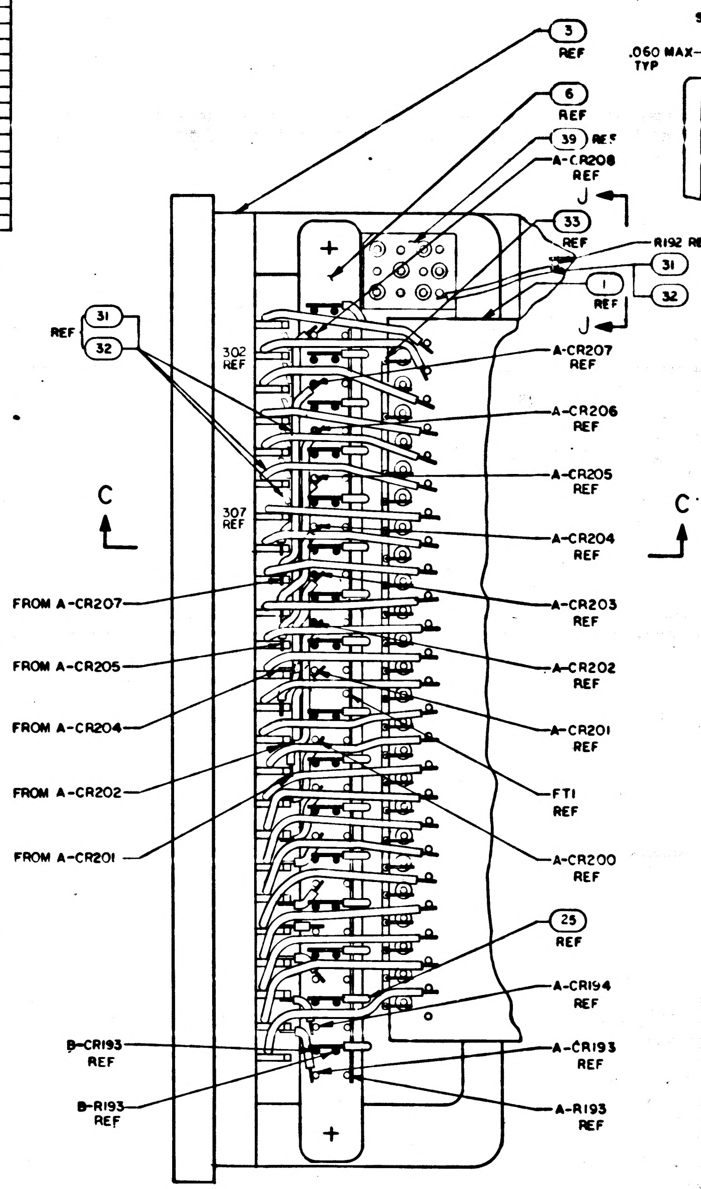
WIRE LIST	
COMPONENT NO.	COMPONENT NO.
CR215	R176
CR216	R144
CR217	R112
CR218	R80
CR219	R48
CR220	R16
CR209	R32
CR210	R64
CR211	R96
CR212	R128
CR213	R160
CR214	R132


401
101
424
124

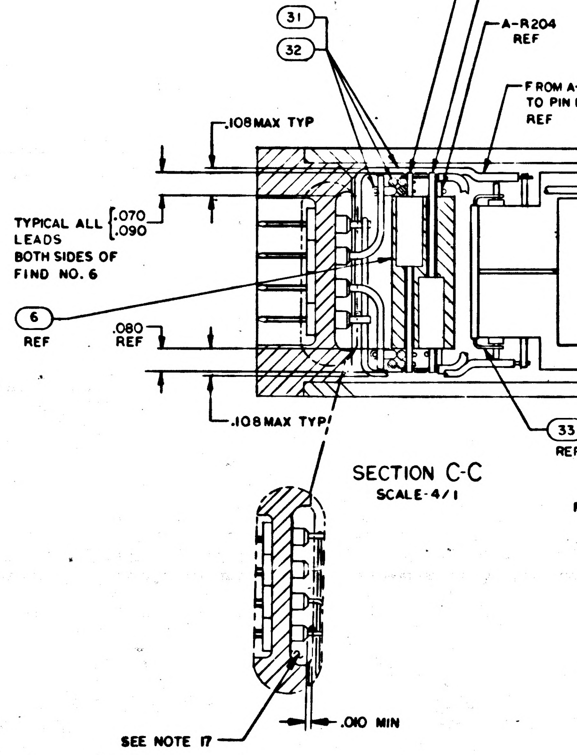
SECTION E-E


39
SEE NOTE 19
.060 MAX TYP
.060 MAX TYP
3 REF

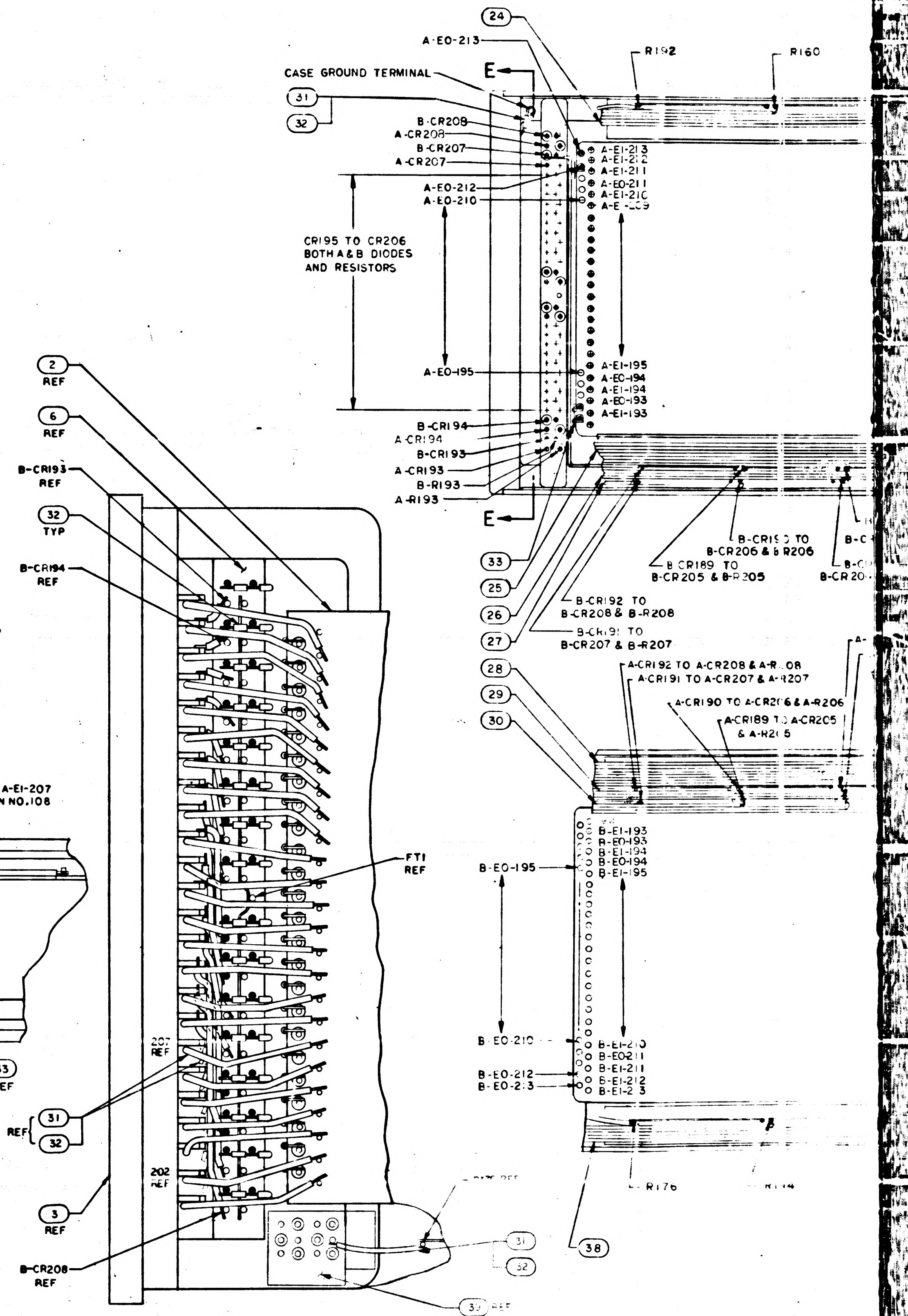
VIEW J-J


3 REF
6 REF
39 REF
A-CR208 REF
J
33 REF
R192 REF
31
32
1 REF
J
REF 31 32
302 REF
307 REF
C
C
A-CR207 REF
A-CR206 REF
A-CR205 REF
A-CR204 REF
A-CR203 REF
A-CR202 REF
A-CR201 REF
FT1 REF
A-CR200 REF
25 REF
A-CR194 REF
A-CR193 REF
A-R193 REF
FROM A-CR207
FROM A-CR205
FROM A-CR204
FROM A-CR202
FROM A-CR201
B-CR193 REF
B-R193 REF
+
+

VIEW G-G
SCALE-4/1
SHOWN WITH POTTING AND FIND NO.7
REMOVED. SEE NOTES 11,12,13 AND 14


B-CR203 REF
B-R203 REF
A-R204 REF
31
32
FROM A-E1-207 TO PIN NO.108 REF
.108 MAX TYP
TYPICAL ALL LEADS BOTH SIDES OF FIND NO. 6
.070
.090
6 REF
.080 REF
.108 MAX TYP
33 REF
SEE NOTE 17
.010 MIN

SECTION C-C
SCALE-4/1

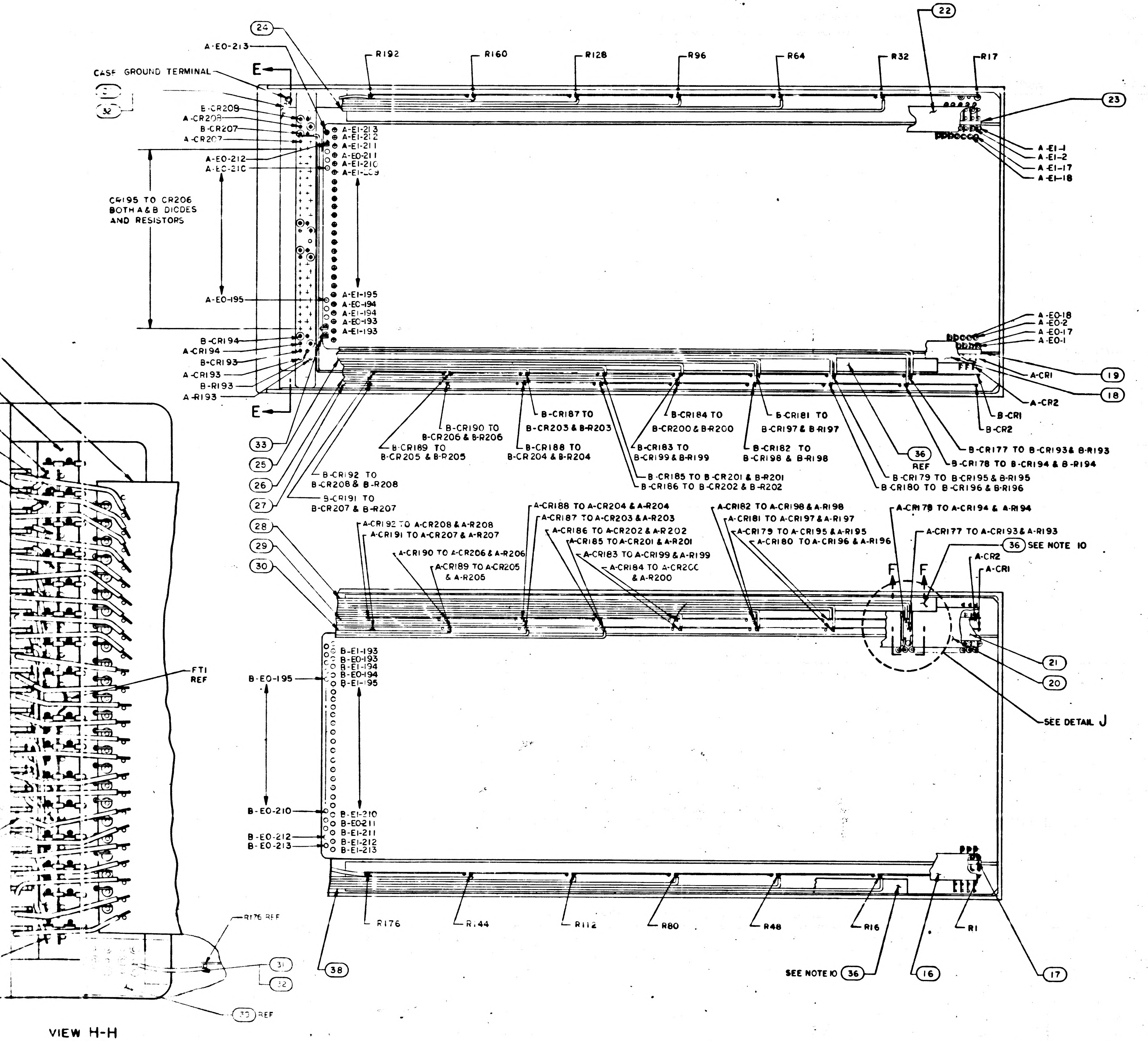

2 REF
6 REF
B-CR193 REF
32 TYP
B-CR194 REF
FT1 REF
207 REF
202 REF
REF 31 32
3 REF
B-CR208 REF
31
32
39 REF
24
A-E0-213
R192
R160
CASE GROUND TERMINAL
E
E
31
32
B-CR208
A-CR208
B-CR207
A-CR207
A-E0-212
A-E0-210
CR195 TO CR206 BOTH A & B DIODES AND RESISTORS
A-E0-195
A-E1-213
A-E1-212
A-E1-211
A-E0-211
A-E1-210
A-E1-209
A-E1-195
A-E0-194
A-E1-194
A-E0-193
A-E1-193
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
33
25
26
27
28
29
30
B-CR190 TO B-CR206 & B-R206
B-CR189 TO B-CR205 & B-R205
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205 & A-R205
B-E0-195
B-E1-193
B-E0-193
B-E1-194
B-E0-194
B-E1-195
B-E0-210
B-E0-212
B-E0-213
B-E1-210
B-E0-211
B-E1-211
B-E1-212
B-E1-213
R176
38

VIEW H-H
SCALE-4/1
SHOWN WITH POTTING AND FIND NO.7
REMOVED. SEE NOTES 11,12,13 AND 14

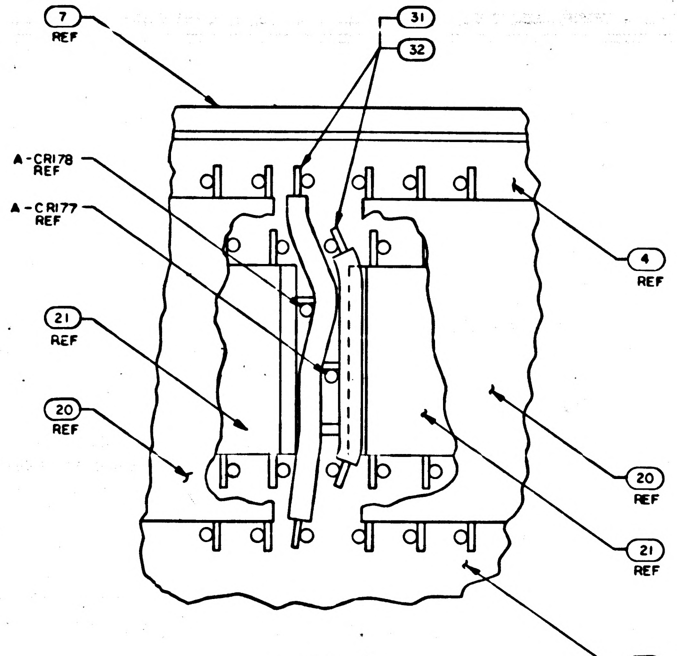
2003972 V

SH2/3 2003972 VF1/42

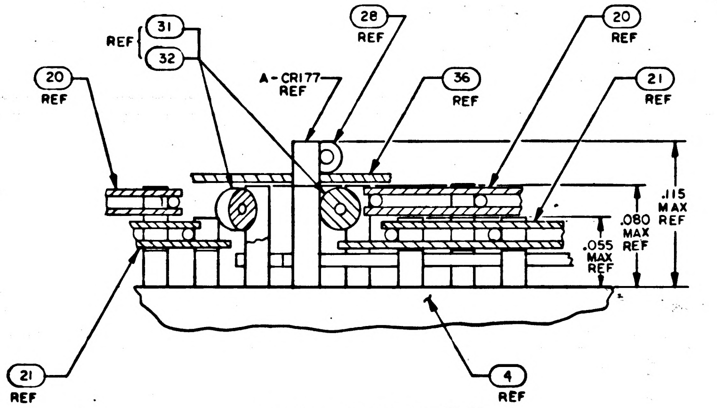
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		INITIAL RELEASE DRR 32991				
B		REVISED PER TDRR 33460				
C		REVISED PER TDRR 33544				
D		REVISED PER TDRR 33606				
E		REVISED PER TDRR 34140				
F		REVISED PER TDRR 34489				
G		REVISED PER TDRR 34997				
H		REVISED PER TDRR 35339				
J		REVISED PER TDRR 35640				
K		REVISED PER TDRR 35870				
L		REVISED PER TDRR 36217				
M		REVISED PER TDRR 36631				
N		REVISED PER TDRR 36686				
P		REVISED PER TDRR 36810				
R		REVISED PER TDRR 36858				
S		REVISED PER TDRR 36916				
T		REVISED PER TDRR 36970				
U		REVISED PER TDRR 37008				
V		REVISED PER TDRR 37148			3/1/69	


A-EO-213
24
22
R192
R160
R128
R96
R64
R32
R17
23
CASE GROUND TERMINAL
32
E
B-CR208
A-CR208
B-CR207
A-CR207
A-E1-213
A-E1-212
A-E1-211
A-EO-211
A-E1-210
A-E1-209
A-EO-212
A-EO-210
A-E1-1
A-E1-2
A-E1-17
A-E1-18
CR195 TO CR206
BOTH A & B DIODES
AND RESISTORS
A-EO-195
A-E1-195
A-EO-194
A-E1-194
A-EO-193
A-E1-193
A-EO-18
A-EO-2
A-EO-17
A-EO-1
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
A-CR1
19
18
A-CR2
B-CR1
B-CR2
33
25
26
27
B-CR190 TO B-CR206 & B-R206
B-CR189 TO B-CR205 & B-R205
B-CR187 TO B-CR203 & B-R203
B-CR188 TO B-CR204 & B-R204
B-CR184 TO B-CR200 & B-R200
B-CR183 TO B-CR199 & B-R199
B-CR181 TO B-CR197 & B-R197
B-CR182 TO B-CR198 & B-R198
36 REF
B-CR177 TO B-CR193 & B-R193
B-CR178 TO B-CR194 & B-R194
B-CR179 TO B-CR195 & B-R195
B-CR180 TO B-CR196 & B-R196
B-CR185 TO B-CR201 & B-R201
B-CR186 TO B-CR202 & B-R202
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
28
29
30
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205 & A-R205
A-CR188 TO A-CR204 & A-R204
A-CR187 TO A-CR203 & A-R203
A-CR186 TO A-CR202 & A-R202
A-CR185 TO A-CR201 & A-R201
A-CR183 TO A-CR199 & A-R199
A-CR184 TO A-CR200 & A-R200
A-CR182 TO A-CR198 & A-R198
A-CR181 TO A-CR197 & A-R197
A-CR179 TO A-CR195 & A-R195
A-CR180 TO A-CR196 & A-R196
A-CR178 TO A-CR194 & A-R194
A-CR177 TO A-CR193 & A-R193
36 SEE NOTE 10
A-CR2
A-CR1
F F
21
20
SEE DETAIL J
FT1 REF
B-EO-195
B-E1-193
B-EO-193
B-E1-194
B-EO-194
B-E1-195
B-EO-210
B-E1-210
B-EO211
B-E1-211
B-EO-212
B-EO-213
B-E1-212
B-E1-213
R176 REF
31
32
33 REF
38
R176
R144
R112
R80
R48
R16
R1
SEE NOTE 10 36
16
17

VIEW H-H
SCALE 4/1
SHOWN WITH POTTING AND FIND NO.7
REMOVED. SEE NOTES 11,12,13 AND 14


7 REF
31
32
A-CR178 REF
A-CR177 REF
4 REF
21 REF
20 REF
20 REF
21 REF
2 REF

DETAIL J
SCALE 10/1
TYPICAL WIRING 8 PLACES, SHOWN
WITH FIND NOS 28 AND 36 REMOVED


REF
31
32
20 REF
A-CR177 REF
28 REF
36 REF
20 REF
21 REF
.115 MAX REF
.080 MAX REF
.055 MAX REF
21 REF
4 REF

PARTIAL SECTION F-F
SCALE: 20/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE
ASSEMBLY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2003972

SCALE 2/1 SHEET 2 OF 3

SH 2/3 2003972 VF 2/21

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

4 3 2

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL RELEASE TDRR 32991				
B		REVISED PER TDRR 33460				
C		REVISED PER TDRR 33544				
D		REVISED PER TDRR 33606				
E		REVISED PER TDRR 34140				
F		REVISED PER TDRR 34489				
G		REVISED PER TDRR 34997				
H		REVISED PER TDRR 35339				
J		REVISED PER TDRR 35649				
K		REVISED PER TDRR 35870				
L		REVISED PER TDRR 36217				
M		REVISED PER TDRR 36531				
N		REVISED PER TDRR 36686				
P		REVISED PER TDRR 36810				
R		REVISED PER TDRR 36858				
S		REVISED PER TDRR 36916				
T		REVISED PER TDRR 36970				
U		REVISED PER TDRR 37006				
V		REVISED PER TDRR 37148				

WIRE LIST

TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.
A-E0-1	A-CR1	A-E0-97	A-CR97	B-E0-1	B-CR1	B-E0-97	B-CR97	A-E1-1	R1	A-E1-49	R49	A-E1-97	R97	A-E1-145	R145
A-E0-2	A-CR2	A-E0-98	A-CR98	B-E0-2	B-CR2	B-E0-98	B-CR98	B-E1-1		B-E1-49		B-E1-97		B-E1-145	
A-E0-3	A-CR3	A-E0-99	A-CR99	B-E0-3	B-CR3	B-E0-99	B-CR99	A-E1-2	R2	A-E1-50	R50	A-E1-98	R98	A-E1-146	R146
A-E0-4	A-CR4	A-E0-100	A-CR100	B-E0-4	B-CR4	B-E0-100	B-CR100	B-E1-2		B-E1-50		B-E1-98		B-E1-146	
A-E0-5	A-CR5	A-E0-101	A-CR101	B-E0-5	B-CR5	B-E0-101	B-CR101	A-E1-3	R3	A-E1-51	R51	A-E1-99	R99	A-E1-147	R147
A-E0-6	A-CR6	A-E0-102	A-CR102	B-E0-6	B-CR6	B-E0-102	B-CR102	B-E1-3		B-E1-51		B-E1-99		B-E1-147	
A-E0-7	A-CR7	A-E0-103	A-CR103	B-E0-7	B-CR7	B-E0-103	B-CR103	A-E1-4	R4	A-E1-52	R52	A-E1-100	R100	A-E1-148	R148
A-E0-8	A-CR8	A-E0-104	A-CR104	B-E0-8	B-CR8	B-E0-104	B-CR104	B-E1-4		B-E1-52		B-E1-100		B-E1-148	
A-E0-9	A-CR9	A-E0-105	A-CR105	B-E0-9	B-CR9	B-E0-105	B-CR105	A-E1-5	R5	A-E1-53	R53	A-E1-101	R101	A-E1-149	R149
A-E0-10	A-CR10	A-E0-106	A-CR106	B-E0-10	B-CR10	B-E0-106	B-CR106	B-E1-5		B-E1-53		B-E1-101		B-E1-149	
A-E0-11	A-CR11	A-E0-107	A-CR107	B-E0-11	B-CR11	B-E0-107	B-CR107	A-E1-6	R6	A-E1-54	R54	A-E1-102	R102	A-E1-150	R150
A-E0-12	A-CR12	A-E0-108	A-CR108	B-E0-12	B-CR12	B-E0-108	B-CR108	B-E1-6		B-E1-54		B-E1-102		B-E1-150	
A-E0-13	A-CR13	A-E0-109	A-CR109	B-E0-13	B-CR13	B-E0-109	B-CR109	A-E1-7	R7	A-E1-55	R55	A-E1-103	R103	A-E1-151	R151
A-E0-14	A-CR14	A-E0-110	A-CR110	B-E0-14	B-CR14	B-E0-110	B-CR110	B-E1-7		B-E1-55		B-E1-103		B-E1-151	
A-E0-15	A-CR15	A-E0-111	A-CR111	B-E0-15	B-CR15	B-E0-111	B-CR111	A-E1-8	R8	A-E1-56	R56	A-E1-104	R104	A-E1-152	R152
A-E0-16	A-CR16	A-E0-112	A-CR112	B-E0-16	B-CR16	B-E0-112	B-CR112	B-E1-8		B-E1-56		B-E1-104		B-E1-152	
A-E0-17	A-CR17	A-E0-113	A-CR113	B-E0-17	B-CR17	B-E0-113	B-CR113	A-E1-9	R9	A-E1-57	R57	A-E1-105	R105	A-E1-153	R153
A-E0-18	A-CR18	A-E0-114	A-CR114	B-E0-18	B-CR18	B-E0-114	B-CR114	B-E1-9		B-E1-57		B-E1-105		B-E1-153	
A-E0-19	A-CR19	A-E0-115	A-CR115	B-E0-19	B-CR19	B-E0-115	B-CR115	A-E1-10	R10	A-E1-58	R58	A-E1-106	R106	A-E1-154	R154
A-E0-20	A-CR20	A-E0-116	A-CR116	B-E0-20	B-CR20	B-E0-116	B-CR116	B-E1-10		B-E1-58		B-E1-106		B-E1-154	
A-E0-21	A-CR21	A-E0-117	A-CR117	B-E0-21	B-CR21	B-E0-117	B-CR117	A-E1-11	R11	A-E1-59	R59	A-E1-107	R107	A-E1-155	R155
A-E0-22	A-CR22	A-E0-118	A-CR118	B-E0-22	B-CR22	B-E0-118	B-CR118	B-E1-11		B-E1-59		B-E1-107		B-E1-155	
A-E0-23	A-CR23	A-E0-119	A-CR119	B-E0-23	B-CR23	B-E0-119	B-CR119	A-E1-12	R12	A-E1-60	R60	A-E1-108	R108	A-E1-156	R156
A-E0-24	A-CR24	A-E0-120	A-CR120	B-E0-24	B-CR24	B-E0-120	B-CR120	B-E1-12		B-E1-60		B-E1-108		B-E1-156	
A-E0-25	A-CR25	A-E0-121	A-CR121	B-E0-25	B-CR25	B-E0-121	B-CR121	A-E1-13	R13	A-E1-61	R61	A-E1-109	R109	A-E1-157	R157
A-E0-26	A-CR26	A-E0-122	A-CR122	B-E0-26	B-CR26	B-E0-122	B-CR122	B-E1-13		B-E1-61		B-E1-109		B-E1-157	
A-E0-27	A-CR27	A-E0-123	A-CR123	B-E0-27	B-CR27	B-E0-123	B-CR123	A-E1-14	R14	A-E1-62	R62	A-E1-110	R110	A-E1-158	R158
A-E0-28	A-CR28	A-E0-124	A-CR124	B-E0-28	B-CR28	B-E0-124	B-CR124	B-E1-14		B-E1-62		B-E1-110		B-E1-158	
A-E0-29	A-CR29	A-E0-125	A-CR125	B-E0-29	B-CR29	B-E0-125	B-CR125	A-E1-15	R15	A-E1-63	R63	A-E1-111	R111	A-E1-159	R159
A-E0-30	A-CR30	A-E0-126	A-CR126	B-E0-30	B-CR30	B-E0-126	B-CR126	B-E1-15		B-E1-63		B-E1-111		B-E1-159	
A-E0-31	A-CR31	A-E0-127	A-CR127	B-E0-31	B-CR31	B-E0-127	B-CR127	A-E1-16	R16	A-E1-64	R64	A-E1-112	R112	A-E1-160	R160
A-E0-32	A-CR32	A-E0-128	A-CR128	B-E0-32	B-CR32	B-E0-128	B-CR128	B-E1-16		B-E1-64		B-E1-112		B-E1-160	
A-E0-33	A-CR33	A-E0-129	A-CR129	B-E0-33	B-CR33	B-E0-129	B-CR129	A-E1-17	R17	A-E1-65	R65	A-E1-113	R113	A-E1-161	R161
A-E0-34	A-CR34	A-E0-130	A-CR130	B-E0-34	B-CR34	B-E0-130	B-CR130	B-E1-17		B-E1-65		B-E1-113		B-E1-161	
A-E0-35	A-CR35	A-E0-131	A-CR131	B-E0-35	B-CR35	B-E0-131	B-CR131	A-E1-18	R18	A-E1-66	R66	A-E1-114	R114	A-E1-162	R162
A-E0-36	A-CR36	A-E0-132	A-CR132	B-E0-36	B-CR36	B-E0-132	B-CR132	B-E1-18		B-E1-66		B-E1-114		B-E1-162	
A-E0-37	A-CR37	A-E0-133	A-CR133	B-E0-37	B-CR37	B-E0-133	B-CR133	A-E1-19	R19	A-E1-67	R67	A-E1-115	R115	A-E1-163	R163
A-E0-38	A-CR38	A-E0-134	A-CR134	B-E0-38	B-CR38	B-E0-134	B-CR134	B-E1-19		B-E1-67		B-E1-115		B-E1-163	
A-E0-39	A-CR39	A-E0-135	A-CR135	B-E0-39	B-CR39	B-E0-135	B-CR135	A-E1-20	R20	A-E1-68	R68	A-E1-116	R116	A-E1-164	R164
A-E0-40	A-CR40	A-E0-136	A-CR136	B-E0-40	B-CR40	B-E0-136	B-CR136	B-E1-20		B-E1-68		B-E1-116		B-E1-164	
A-E0-41	A-CR41	A-E0-137	A-CR137	B-E0-41	B-CR41	B-E0-137	B-CR137	A-E1-21	R21	A-E1-69	R69	A-E1-117	R117	A-E1-165	R165
A-E0-42	A-CR42	A-E0-138	A-CR138	B-E0-42	B-CR42	B-E0-138	B-CR138	B-E1-21		B-E1-69		B-E1-117		B-E1-165	
A-E0-43	A-CR43	A-E0-139	A-CR139	B-E0-43	B-CR43	B-E0-139	B-CR139	A-E1-22	R22	A-E1-70	R70	A-E1-118	R118	A-E1-166	R166
A-E0-44	A-CR44	A-E0-140	A-CR140	B-E0-44	B-CR44	B-E0-140	B-CR140	B-E1-22		B-E1-70		B-E1-118		B-E1-166	
A-E0-45	A-CR45	A-E0-141	A-CR141	B-E0-45	B-CR45	B-E0-141	B-CR141	A-E1-23	R23	A-E1-71	R71	A-E1-119	R119	A-E1-167	R167
A-E0-46	A-CR46	A-E0-142	A-CR142	B-E0-46	B-CR46	B-E0-142	B-CR142	B-E1-23		B-E1-71		B-E1-119		B-E1-167	
A-E0-47	A-CR47	A-E0-143	A-CR143	B-E0-47	B-CR47	B-E0-143	B-CR143	A-E1-24	R24	A-E1-72	R72	A-E1-120	R120	A-E1-168	R168
A-E0-48	A-CR48	A-E0-144	A-CR144	B-E0-48	B-CR48	B-E0-144	B-CR144	B-E1-24		B-E1-72		B-E1-120		B-E1-168	
A-E0-49	A-CR49	A-E0-145	A-CR145	B-E0-49	B-CR49	B-E0-145	B-CR145	A-E1-25	R25	A-E1-73	R73	A-E1-121	R121	A-E1-169	R169
A-E0-50	A-CR50	A-E0-146	A-CR146	B-E0-50	B-CR50	B-E0-146	B-CR146	B-E1-25		B-E1-73		B-E1-121		B-E1-169	
A-E0-51	A-CR51	A-E0-147	A-CR147	B-E0-51	B-CR51	B-E0-147	B-CR147	A-E1-26	R26	A-E1-74	R74	A-E1-122	R122	A-E1-170	R170
A-E0-52	A-CR52	A-E0-148	A-CR148	B-E0-52	B-CR52	B-E0-148	B-CR148	B-E1-26		B-E1-74		B-E1-122		B-E1-170	
A-E0-53	A-CR53	A-E0-149	A-CR149	B-E0-53	B-CR53	B-E0-149	B-CR149	A-E1-27	R27	A-E1-75	R75	A-E1-123	R123	A-E1-171	R171
A-E0-54	A-CR54	A-E0-150	A-CR150	B-E0-54	B-CR54	B-E0-150	B-CR150	B-E1-27		B-E1-75		B-E1-123		B-E1-171	
A-E0-55	A-CR55	A-E0-151	A-CR151	B-E0-55	B-CR55	B-E0-151	B-CR151	A-E1-28	R28	A-E1-76	R76	A-E1-124	R124	A-E1-172	R172
A-E0-56	A-CR56	A-E0-152	A-CR152	B-E0-56	B-CR56	B-E0-152	B-CR152	B-E1-28		B-E1-76		B-E1-124		B-E1-172	
A-E0-57	A-CR57	A-E0-153	A-CR153	B-E0-57	B-CR57	B-E0-153	B-CR153	A-E1-29	R29	A-E1-77	R77	A-E1-125	R125	A-E1-173	R173
A-E0-58	A-CR58	A-E0-154	A-CR154	B-E0-58	B-CR58	B-E0-154	B-CR154	B-E1-29		B-E1-77		B-E1-125		B-E1-173	
A-E0-59	A-CR59	A-E0-155	A-CR155	B-E0-59	B-CR59	B-E0-155	B-CR155	A-E1-30	R30	A-E1-78	R78	A-E1-126	R126	A-E1-174	R174
A-E0-60	A-CR60	A-E0-156	A-CR156	B-E0-60	B-CR60	B-E0-156	B-CR156	B-E1-30		B-E1-78		B-E1-126		B-E1-174	
A-E0-61	A-CR61	A-E0-157	A-CR157	B-E0-61	B-CR61	B-E0-157	B-CR157	A-E1-31	R31	A-E1-79	R79	A-E1-127	R127	A-E1-175	R175
A-E0-62	A-CR62	A-E0-158	A-CR158	B-E0-62	B-CR62	B-E0-158	B-CR158	B-E1-31		B-E1-79		B-E1-127		B-E1-175	
A-E0-63	A-CR63	A-E0-159	A-CR159	B-E0-63	B-CR63	B-E0-159	B-CR159	A-E1-32	R32	A-E1-80	R80	A-E1-128	R128	A-E1-176	R176
A-E0-64	A-CR64	A-E0-160	A-CR160	B-E0-64	B-CR64	B-E0-160	B-CR160	B-E1-32		B-E1-80		B-E1-128		B-E1-176	
A-E0-65	A-CR65	A-E0-161	A-CR161	B-E0-65	B-CR65	B-E0-161	B-CR161	A-E1-33	R33	A-E1-81	R81	A-E1-129	R129	A-E1-177	R177
A-E0-66	A-CR66	A-E0-162	A-CR162	B-E0-66	B-CR66	B-E0-162	B-CR162	B-E1-33		B-E1-81		B-E1-129		B-E1-177	
A-E0-67	A-CR67	A-E0-163	A-CR163	B-E0-67	B-CR67	B-E0-163	B-CR163	A-E1-34	R34	A-E1-82	R82	A-E1-130	R130	A-E1-178	R178
A-E0-68	A-CR68	A-E0-164	A-CR164	B-E0-68	B-CR68	B-E0-164	B-CR164	B-E1-34		B-E1-82		B-E1-130		B-E1-178	
A-E0-69	A-CR69	A-E0-165	A-CR165	B-E0-69	B-CR69	B-E0-165	B-CR165	A-E1-35	R35	A-E1-83	R83	A-E1-131	R131	A-E1-179	R179
A-E0-70	A-CR70	A-E0-166	A-CR166	B-E0-70	B-CR70	B-E0-166	B-CR166	B-E1-35		B-E1-83		B-E1-131		B-E1-179	
A-E0-71	A-CR71	A-E0-167	A-CR167	B-E0-71	B-CR71	B-E0-167	B-CR167	A-E1-36	R36	A-E1-84	R84	A-E1-132	R132	A-E1-180	R180
A-E0-72	A-CR72	A-E0-168	A-CR168	B-E0-72	B-CR72	B-E0-168	B-CR168	B-E1-36		B-E1-84		B-E1-132		B-E1-180	
A-E0-73	A-CR73	A-E0-169	A-CR169	B-E0-73	B-CR73	B-E0-169	B-CR169	A-E1-37	R37	A-E1-85	R85	A-E1-133	R133	A-E1-181	R181
A-E0-74	A-CR74	A-E0-170	A-CR170	B-E0-74	B-CR74	B-E0-170	B-CR170	B-E1-37		B-E1-85		B-E1-133		B-E1-181	
A-E0-75	A-CR75	A-E0-171	A-CR171	B-E0-75	B-CR75	B-E0-171	B-CR171	A-E1-38	R38	A-E1-86	R86	A-E1-134	R134	A-E1-182	R182
A-E0-76	A-CR76	A-E0-172	A-CR172	B-E0-76	B-CR76	B-E0-172	B-CR172	B-E1-38		B-E1-86		B-E1-134		B-E1-182	
A-E0-77	A-CR77	A-E0-173	A-CR173	B-E0-77	B-CR77	B-E0-173	B-CR173	A-E1-39	R39	A-E1-87	R87	A-E1-135	R135	A-E1-183	R183
A-E0-78	A-CR78	A-E0-174	A-CR174	B-E0-78	B-CR78	B-E0-174	B-CR174	B-E1-39		B-E1-87		B-E1-135		B-E1-183	
A-E0-79	A-CR79	A-E0-175	A-CR175	B-E0-79	B-CR79	B-E0-175	B-CR175	A-E1-40	R40	A-E1-88	R88	A-E1-136	R136	A-E1-184	R184
A-E0-80	A-CR80	A-E0-176	A-CR176	B-E0-80	B-CR80	B-E0-176	B-CR176	B-E1-40		B-E1-88		B-E1-136		B-E1-184	
A-E0-81	A-CR81	A-E0-177	A-CR177	B-E0-81	B-CR81	B-E0-177	B-CR177	A-E1-41	R41	A-E1-89	R89	A-E1-137	R137	A-E1-185	R185
A-E0-82	A-CR82	A-E0-178	A-CR178	B-E0-82	B-CR82	B-E0-178	B-CR178	B-E1-41		B-E1-89		B-E1-137		B-E1-185	
A-E0-83	A-CR83	A-E0-179	A-CR179	B-E0-83	B-CR83	B-E0-179	B-CR179	A-E1-42	R42	A-E1-90	R90	A-E1-138	R138	A-E1-186	R186
A-E0-84	A-CR84	A-E0-180	A-CR180	B-E0-84	B-CR84	B-E0-180	B-CR180	B-E1-42		B-E1-90		B-E1-138		B-E1-186	
A-E0-85	A-CR85	A-E0-181	A-CR181	B-E0-85	B-CR85	B-E0-181	B-CR181	A-E1-43	R43	A-E1-91	R91	A-E1-139	R139	A-E1-187	R187
A-E0-86	A-CR86	A-E0-182	A-CR182	B-E0-86	B-CR86	B-E0-182	B-CR182	B-E1-43		B-E1-91		B-E1-139		B-E1-187	
A-E0-87	A-CR87	A-E0-183	A-CR183	B-E0-87	B-CR87	B-E0-183	B-CR183	A-E1-44	R44	A-E1-92	R92	A-E1-140	R140	A-E1-188	R188
A-E0-88	A-CR88	A-E0-184	A-CR184	B-E0-88	B-CR88	B-E0-184	B-CR184	B-E1-44		B-E1-92		B-E1-140		B-E1-188	
A-E0-89	A-CR89	A-E0-185	A-CR185	B-E0-89	B-CR89	B-E0-185	B-CR185	A-E1-45	R45	A-E1-93	R93	A-E1-141	R141	A-E1-189	R189
A-E0-90	A-CR90	A-E0-186	A-CR186	B-E0-90	B-CR90	B-E0-186	B-CR186	B-E1-45		B-E1-93		B-E1-141		B-E1-189	
A-E0-91	A-CR91	A-E0-187	A-CR187	B-E0-91	B-CR91	B-E0-187	B-CR187	A-E1-46	R46	A-E1-94	R94	A-E1-142	R142	A-E1-190	R190
A-E0-92	A-CR92	A-E0-188	A-CR188	B-E0-92	B-CR92	B-E0-188	B-CR188	B-E1-46		B-E1-94		B-E1-142		B-E1-190	
A-E0-93	A-CR93	A-E0-189	A-CR189	B-E0-93	B-CR93	B-E0-189	B-CR189	A-E1-47	R47	A-E1-95	R95	A-E1-143	R143	A-E1-191	R191
A-E0-94	A-CR94	A-E0-190	A-CR190	B-E0-94	B-CR94	B-E0-190	B-CR190	B-E1-47		B-E1-95		B-E1-143		B-E1-191	
A-E0-95	A-CR95	A-E0-191	A-CR191	B-E0-95	B-CR95	B-E0-191	B-CR191	A-E1-48	R48	A-E1-96	R96	A-E1-144	R144	A-E1-192	R192
A-E0-96	A-CR96	A-E0-192	A-CR192	B-E0-96	B-CR96	B-E0-192	B-CR192	B-E1-48		B-E1-96		B-E1-144		B-E1-192	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

NEXT ASSY | USED ON
APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED
APPROVED MSC

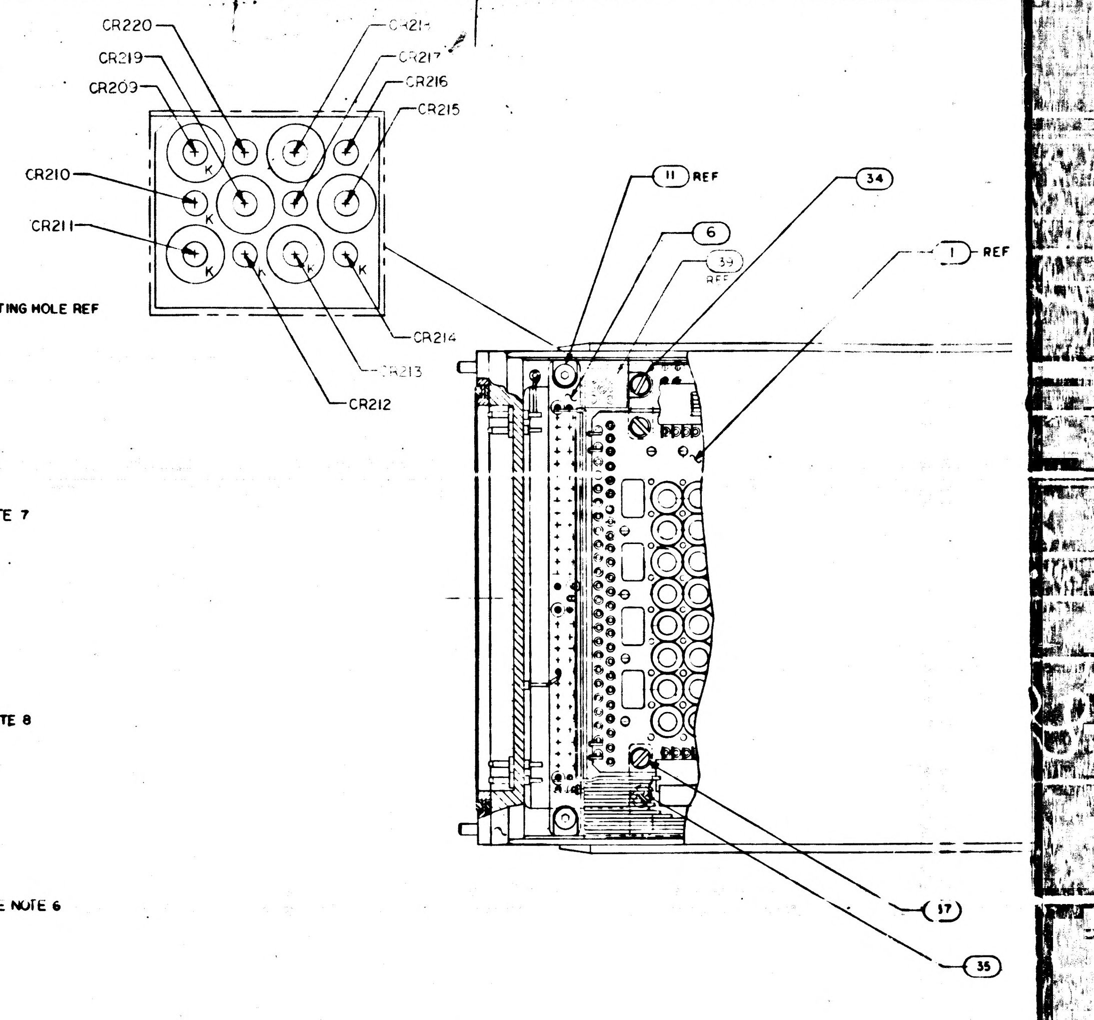
FIXED MEMORY MODULE ASSEMBLY

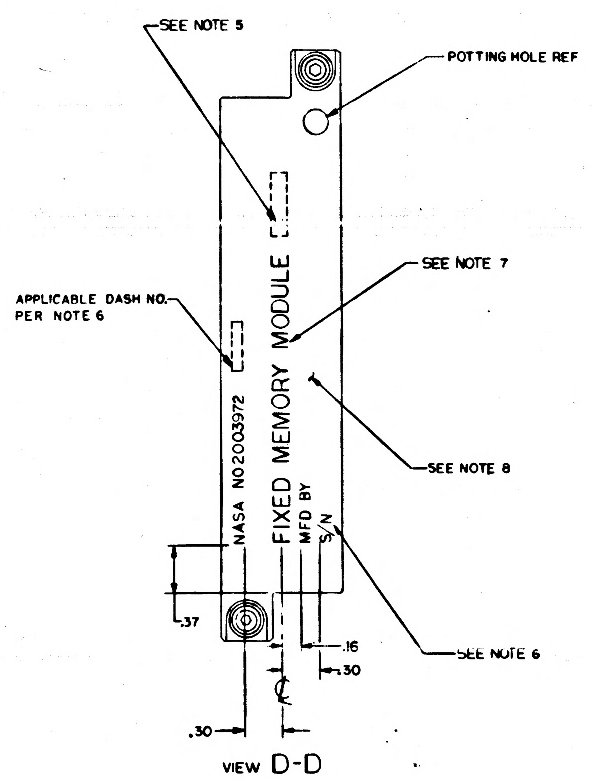
CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003972
DATE
SCALE NONE
SHEET 3 OF 3

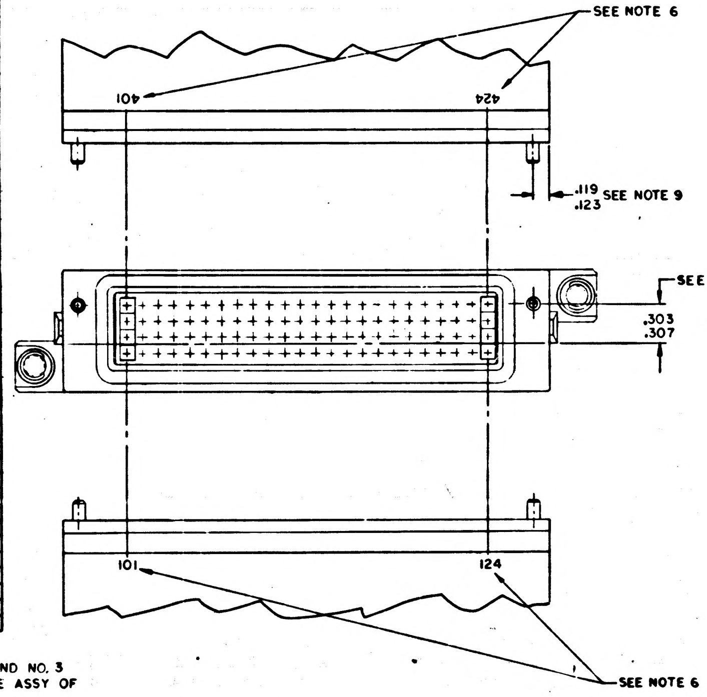
3972 V

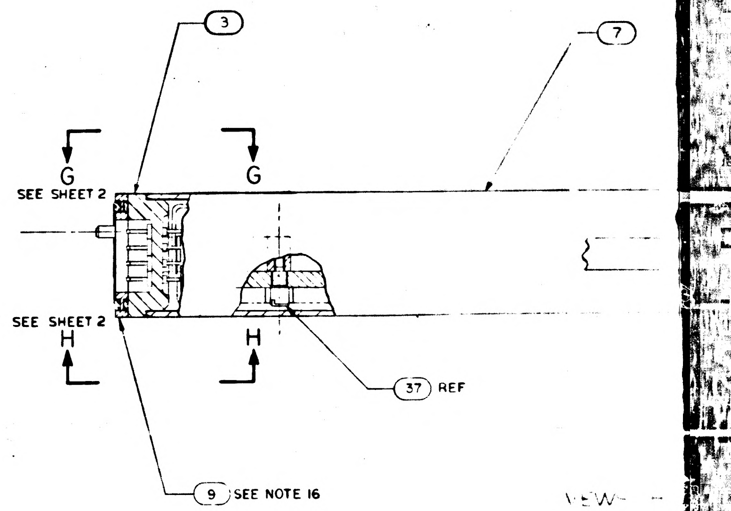
SH3/3 2003972 VF2/2

PART NO.	MODULE NO.	FIND NO. 1	FIND NO. 2	MODULE DECK NO.	NEXT ASSEMBLY NO. (REF)	PROCUREMENT SPECIFICATION SEE NOTE 15
2003972-011	B1	2003060-061	2003061-061	0205	2021101	PS2003972
2003972-021	B2	2003060-071	2003061-071	0206	2021101	
2003972-031	B3	2003060-081	2003061-081	0207	2021101	
2003972-041	B1	2003060-121	2003061-121	0210	2021104	
2003972-051	B2	2003060-131	2003061-131	0211	2021104	
2003972-061	B3	2003060-141	2003061-141	0212	2021104	
2003972-071	B2	2003060-151	2003061-151	0213	2021104	
2003972-081	B3	2003060-161	2003061-161	0214	2021104	
2003972-091	B2	2003060-171	2003061-171	0215	2021101	
2003972-111	B3	2003060-181	2003061-181	0215	2021101	PS2003972
2003972-121	B1	2003060-09	2003061-091	0208	2021105-031	PS2003960
2003972-131	B2	2003060-111	2003061-111	0209	2021105-031	PS2003960
2003972-141	B1	2003060-191	2003061-191	0217	2021106-011	PS2003972
2003972-151	B2	2003060-211	2003061-211	0218	2021106-011	
2003972-161	B3	2003060-221	2003061-221	0219	2021106-011	
2003972-171	B4	2003060-231	2003061-231	0220	2021106-011	
2003972-181	B5	2003060-241	2003061-241	0221	2021106-011	
2003972-191	B6	2003060-251	2003061-251	0222	2021106-011	
2003972-211	B3	2003060-261	2003061-261	0223	2021104-041	PS2003972
2003972-221	B1	2003060-271	2003061-271	0224	2021105-041	PS2003960
2003972-231	B1	2003060-281	2003061-281	0225	2021106-021	PS2003972
2003972-241	B3	2003060-291	2003061-291	0226	2021106-021	
2003972-251	B5	2003060-311	2003061-311	0227	2021106-021	
2003972-261	B1	2003060-321	2003061-321	0230	2021107-011	
2003972-271	B2	2003060-331	2003061-331	0229	2021107-011	
2003972-281	B2	2003060-341	2003061-341	0231	2021106-031	
2003972-291	B1	2003060-351	2003061-351	0238	2021107-021	PS2003972
2003972-311	B1	2003060-361	2003061-361	0239	2021108-021	PS2016016
-321	B2	2003060-371	2003061-371	0240	2021108-021	PS2016016
-331	B3	2003060-381	2003061-381	0241	2021108-021	PS2016016
-341	B4	2003060-391	2003061-391	0242	2021108-021	PS2016016
351	B5	2003060-411	2003061-411	0243	2021108-021	PS2016016
2003972-361	B6	2003060-421	2003061-421	0244	2021108-021	PS2016016
2003972-371	B1	2003060-431	2003061-431	0245	2021110-011	PS2016016
2003972-381	B2	2003060-441	2003061-441	0246	2021110-011	
2003972-391	B3	2003060-451	2003061-451	0247	2021110-011	
2003972-411	B4	2003060-461	2003061-461	0248	2021110-011	
2003972-421	B5	2003060-471	2003061-471	0249	2021110-011	
2003972-431	B6	2003060-481	2003061-481	0250	2021110-011	PS2016015
2003972-441	B1	2003060-491	2003061-491	0251	2021110-021	PS2016016
2003972-451	B2	2003060-511	2003061-511	0252	2021110-021	
2003972-461	B3	2003060-521	2003061-521	0253	2021110-021	
2003972-471	B4	2003060-531	2003061-531	0254	2021110-021	
2003972-481	B5	2003060-541	2003061-541	0255	2021110-021	
2003972-491	B6	2003060-551	2003061-551	0256	2021110-021	PS2016016
-501	B1	-561	-561	0257	2021111-021&031	PS2016036
-521	B2	-571	-571	0258	-021&031	
-531	B3	-581	-581	0259	-021&031	
-541	B4	-591	-591	0260	2021111-021&031	
[illegible]	B5	-611	-611	0261	2021111-021	
2003972-561	B6	2003060-621	2003061-621	0262	2021111-021&031	PS2016036
2003972-571	B6	2003060-631	2003061-631	0263	2021111-031	PS2016036
2003972-581	B1	2003060-641	2003061-641	0264	2021110-031	PS2016036
-591	B2	-651	-651	0265	2021110-031	
-611	B3	-661	-661	0266	2021110-031	
-621	B4	-671	-671	0267	2021110-031	
-631	B5	-681	-681	0268	2021110-031	
2003972-641	B6	2003060-691	2003061-691	0269	2021110-031	PS2016036
2003972-651	B1	2003060-711	2003061-711	0270	2021111-041	PS2016036
-661	B2	-721	-721	0271	-041	
-671	B3	-731	-731	0272	-041	
-681	B4	-741	-741	0273	-041	
-691	B5	-751	-751	0274	-041	
2003972-711	B6	2003060-761	2003061-761	0275	2021111-041	PS2016036
2003972-721	B1	2003060-771	2003061-771	0276	2021112-011	PS2016036
-731	B2	-781	-781	0277	-011	
-741	B3	-791	-791	0278	-011	
-751	B4	-811	-811	0279	-011	
-761	B5	-821	-821	0280	-011	
2003972-771	B6	2003060-831	2003061-831	0281	2021112-011	PS2016036
2003972-781	B1	2003060-841	2003061-841	0282	2021113-011	PS2016036
-791	B2	-851	-851	0283	-011	
-811	B3	-861	-861	0284	-011	
-821	B4	-871	-871	0285	-011	
-831	B5	-881	-881	0286	-011	
2003972-841	B6	2003060-891	2003061-891	0287	2021113-011	PS2016036







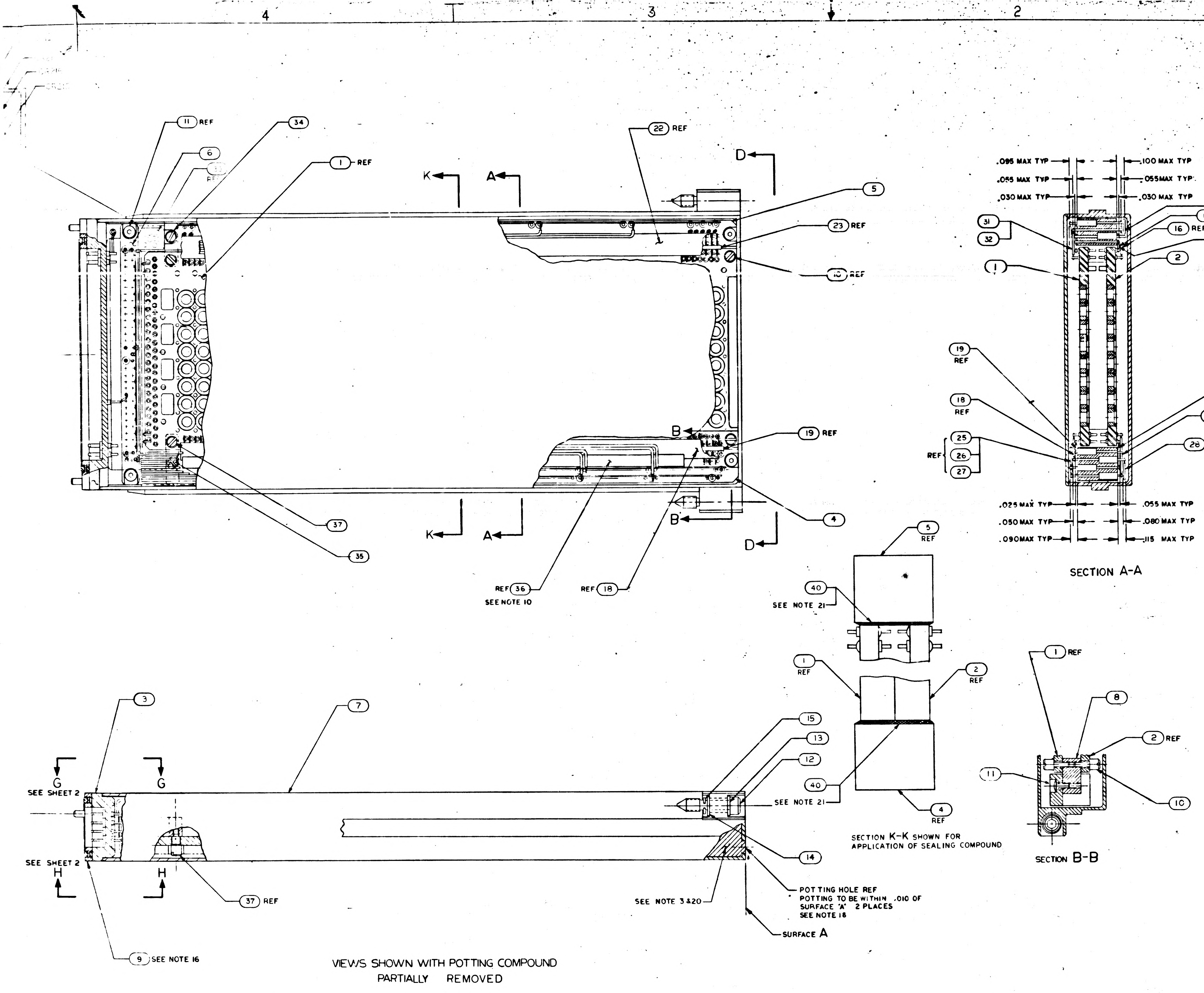


NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
3. ENCAPSULATE MODULE PER ND1002226 METHOD II
4. WELD PER ND1002005
5. MARK APPROPRIATE MODULE NO. AS SHOWN IN CHART
6. MARK .08/.06 HIGH PER ND1002019 AND ND1002122, TYPE II CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
7. MARK .14/.10 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 USING INK 1006271-1
8. PAINT INDICATED SURFACES OF FIND NO 7. PER ND1002279 WITH SCD NO. 1008809-1 DARK GREY EPOXY RESIN ENAMEL, FINAL COAT PER ND1002277 USING 1012543-003
9. ASSEMBLE FIND NO.7 AND FIND NO.3 TO DIMENSIONS SHOWN
10. REMOVE LINER FROM NEARSIDE OF FIND NO.36 AND ASSEMBLE 3 PLACES AS SHOWN. FIND NO.36 MUST INSULATE FLAT CABLES FROM TRIMMED COMPONENT LEADS. TRIM AS REQUIRED
11. WHITE DOT AND SINGLE SOLID LEAD DENOTES FIRST LEVEL WIRING UNLESS OTHERWISE SPECIFIED
12. BLACK DOT AND SINGLE SOLID LEAD DENOTES SECOND LEVEL WIRING
13. BLACK DOT AND CROSS HATCHED LEAD DENOTES THIRD LEVEL WIRING
14. ALL LEADS FROM FIND NO.1 AND FIND NO.2 TO FIND NO.3 TO BE THIRD LEVEL WIRING
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PROCUREMENT SPECIFICATION AS LISTED IN CHART.
16. FIND NO.9 TO BE SHIPPED UNASSEMBLED AND IDENTIFIED PER ND 1002019
17. SEAL PINS AND INSULATORS TO FIND NO. 3 PER ND1002004 TYPE VI BEFORE ASSY OF FIND NO. 6
18. FILL AS SHOWN PER ND1002235 METHOD A
19. BOND FIND NO.39 TO FIND NO.3 PER ND1002004 TYPE VI AFTER ASSY OF FIND NO.6
20. PRIOR TO ENCAPSULATION PER NOTE 3, COAT OVER ALL TERMINALS OF FIND NO.'S 1,2,&3 AND OVER ALL WIRES, SLEEVING AND COMPONENT LEADS OF FIND NO.'S 4,5,6,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,38 &39 WITH A .03 MAXIMUM THICKNESS OF SILICONE RUBBER PER ND1002009, METHOD A. MASK ALL OUTSIDE SURFACES OF FIND NO.3 AND ALL OTHER SURFACES OF THIS ASSEMBLY COMING IN CLOSE CONTACT WITH FIND NO.7
21. FILL INTERFACE BETWEEN FIND NO. 4 AND SIDE SURFACES OF FIND NO.'S 1 AND 2, AND INTERFACE BETWEEN FIND NO.5 AND SIDE SURFACES OF FIND NO.'S 1 AND 2 USING FIND NO. 40. ROOM TEMP CURE FOR 24 HOURS MIN.

REFERENCES:

1. PROCESS REQUIREMENTS FOR CONTROL AND INSPECTION OF ROPE MEMORY ASSEMBLIES ND1002285
2. FIXED MEMORY FIXTURE DWG. NO. AP22500



11 REF
6
34
1 REF
22 REF
K
A
D
5
23 REF
10 REF
B
19 REF
37
35
K
A
B
D
4
REF 36
SEE NOTE 10
REF 18
.095 MAX TYP
.055 MAX TYP
.030 MAX TYP
.100 MAX TYP
.055MAX TYP
.030 MAX TYP
38 REF
17 REF
16 REF
31
32
1
2
31
32
19 REF
18 REF
21 REF
20 REF
25
26
27
REF
28 29 30 REF
.025 MAX TYP
.050 MAX TYP
.090MAX TYP
.055 MAX TYP
.080 MAX TYP
.115 MAX TYP
5 REF
40
SEE NOTE 21
1 REF
2 REF
40
4 REF
1 REF
8
2 REF
11
10
3
7
15
13
12
SEE NOTE 21
G
SEE SHEET 2
G
SEE SHEET 2
H
H
37 REF
14
SEE NOTE 3&20
POTTING HOLE REF
POTTING TO BE WITHIN .010 OF SURFACE "A" 2 PLACES
SEE NOTE 18
SURFACE A
9 SEE NOTE 16

SECTION A-A

SECTION K-K SHOWN FOR APPLICATION OF SEALING COMPOUND

SECTION B-B

VIEWS SHOWN WITH POTTING COMPOUND PARTIALLY REMOVED

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL RELEASE TDRR 31991		
B	REVISED PER TDRR 33460 DR CHK		
C	REVISED PER TDRR 33644 DR CHK	5/8/	
D	REVISED PER TDRR 33606 DR CHK	5/1967	TAR
E	REVISED PER TDRR 34140 DR CHK		
F	REVISED PER TDRR 34489 DR CHK	10-16-67	
G	REVISED PER TDRR 3[illegible] DR	11-20-67	
H	REVISED PER TDRR 35339 DR CHK		
J	REVISED PER TDRR 35649 DR CHK		
K	REVISED PER TDRR 35870 DR CHK	4/10/	
L	REVISED PER TDRR 36217 DR W.O. Makar CHK	5/29/68	
M	REVISED PER TDRR 3[illegible] DR CHK		
N	REVISED PER TDRR 36686 DR CHK		
P	REVISED PER TDRR 3[illegible] DR CHK	9/25/68	
R	REVISED PER TDRR 36858 DR CHK		
S	REVISED PER TDRR 36916 DR CHK		
T	REVISED PER TDRR 36970 DR CHK		
U	REVISED PER TDRR 37008 DR CHK		
V	REVISED PER TDRR 37149 DR CHK	1/1/69	
W	REVISED PER TDRR 37387 DR CHK	3/15/69	

SEE NOTE 16

FOR APPLICABLE PART NO. SEE CHART

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006341	ADHESIVE SEALANT, SILICONE RUBBER	40
1	2003986-021	COMPONENT BLOCK DIODE ASSY	39
☒	2005935	SCHEMATIC	REF
1	2004684	FLAT CABLE	38
4	2004150 — 003	SCREW, SHOULDERED	37
AR	1006806 — 26	INSULATION TAPE, ELECTRICAL	36
1	2004150 — 001	SCREW, SHOULDERED	35
1	2004150 — 002	SCREW, SHOULDERED	34
1	2004129	FLAT CABLE INTERCONNECTION	33
AR	1006776-25	SLEEVING	32
AR	1006757 12	WIRE, ELECTRICAL	31
1	2004125	FLAT CABLE	30
1	2004122	FLAT CABLE	29
1	2004124	FLAT CABLE	28
1	2004123	FLAT CABLE	27
1	2004121	FLAT CABLE	26
1	2004120	FLAT CABLE	25
1	2004[illegible]	FLAT CABLE	24
1	2003051 — 013	MATRIX ASSY	23
1	2003051 — 014	MATRIX ASSY	22
8	2003051 — 016	MATRIX ASSY	21
8	2003051 — 015	MATRIX ASSY	20
1	2003051 — 017	MATRIX ASSY	19
1	2003051 — 018	MATRIX ASSY	18
1	2003051 — 011	MATRIX ASSY	17
1	2003051 — 012	MATRIX ASSY	16
2	MS16633-4015	"E" RING	15
2	1004546-3	WASHER	14
2	1004546-1	WASHER	13
2	1004579-1	SCREW, JACKING	12
4	1000093-1	SCREW, BUTTONHEAD	11
4	2004151	SCREW, STANDOFF	10
1	1006339	GASKET PLATE	9
2	2004071	STANDOFF	8
1	2004100	HOUSING	7
1	2003048-021	RESISTOR-DIODE BLOCK ASSY	6
1	2003052-021	COMPONENT BLOCK RESISTOR ASSY	5
1	2003045-021	COMPONENT BLOCK DIODE ASSY	4
1	2003973 -011	CONNECTOR PLATE ASSY	3
1	2003061-SEE CHART	SENSE WIRING ASSY SIDE B	2
1	2003060-SEE CHART	SENSE WIRING ASSY SIDE A	1

LIST OF MATERIALS

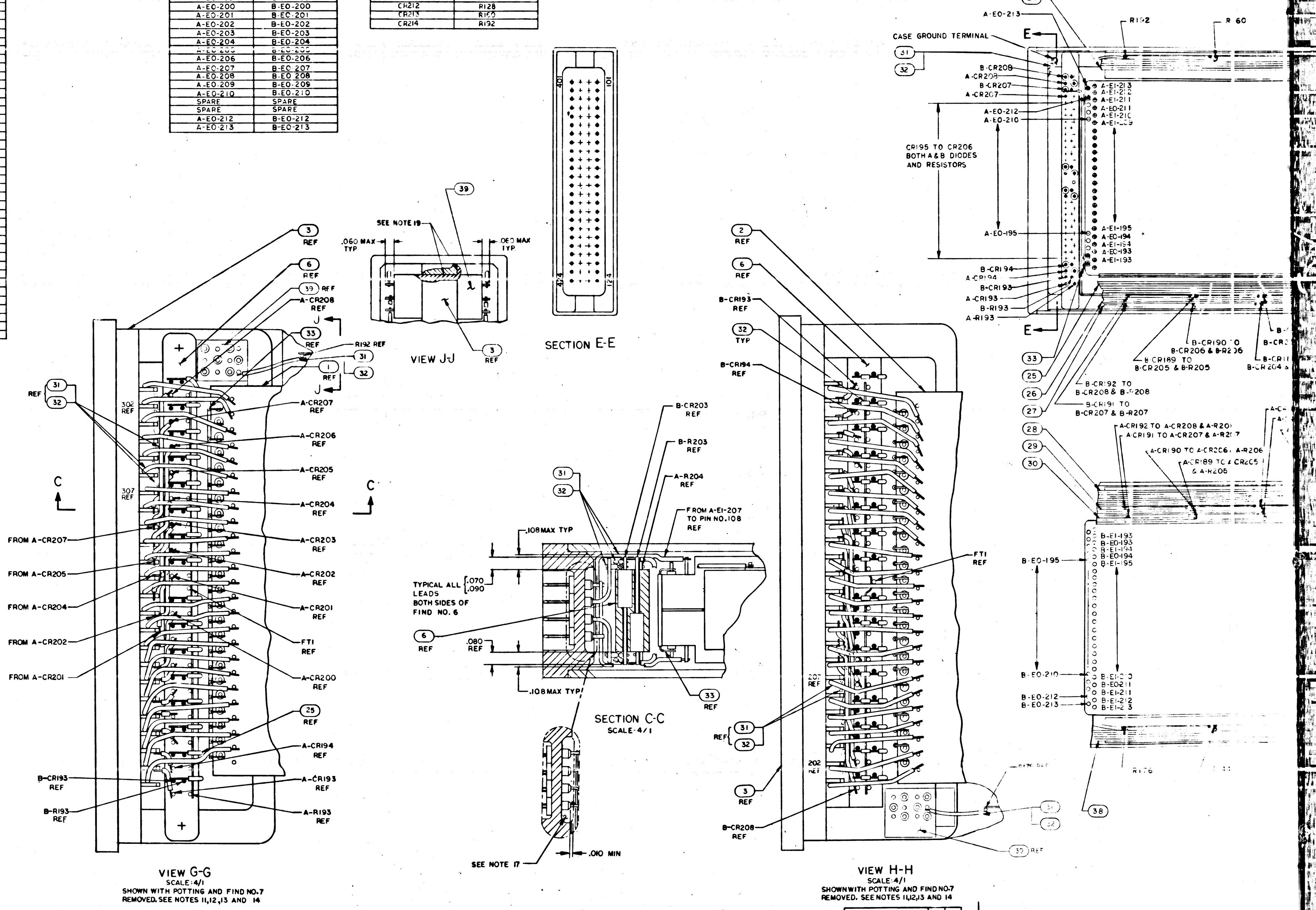
SEE CHART		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± — DECIMALS ±.02 ANGLES ± 2° DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB CAMBRIDGE MASS	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
NEXT ASSY	USED ON	MATERIAL	DRAWN DATE 6AUG CHECKED 12AUG APPROVAL APPROVAL	FIXED MEMORY MODULE ASSEMBLY
APPLICATION		HEAT TREATMENT FINAL FINISH	NASA APPROVAL MIT APPROVAL	CODE IDENT NO. 80230 SIZE J NASA DRAWING NO. 2003972 SCALE 2/1 WT SHEET 1 OF 3

SH 1/3 2003972 WF 2/21

WIRE LIST			
PIN NO.	COMPONENT OR TERM. NO.	PIN NO.	COMPONENT OR TERM. NO.
101	A-E1-213	301	GROUND
102	A-E1-212	302	CR209
103	A-E1-211	303	CR210
104	A-E0-211	304	CR211
105	A-E1-210	305	CR212
106	A-E1-209	306	CR213
107	A-E1-208	307	CR214
108	A-E1-207	308	A-CR208
109	A-E1-206	309	A-CR207
110	A-E1-205	310	A-CR206
111	A-E1-204	311	A-CR205
112	A-E1-203	312	A-CR204
113	A-E1-202	313	A-CR203
114	A-E1-201	314	A-CR202
115	A-E1-200	315	A-CR201
116	A-E1-199	316	A-CR200
117	A-E1-198	317	A-CR199
118	A-E1-197	318	A-CR198
119	A-E1-196	319	A-CR197
120	A-E1-195	320	A-CR196
121	A-E0-194	321	A-CR195
122	A-E1-194	322	A-CR194
123	A-E0-193	323	A-CR193
124	A-E1-193	324	SPARE
201	B-R208	401	B-E1-213
202	CR215	402	B-E1-212
203	CR216	403	B-E1-211
204	CR217	404	B-E0-211
205	CR218	405	B-E1-210
206	CR219	406	B-E1-209
207	CR220	407	B-E1-208
208	B-CR208	408	B-E1-207
209	B-CR207	409	B-E1-206
210	B-CR206	410	B-E1-205
211	B-CR205	411	B-E1-204
212	B-CR204	412	B-E1-203
213	B-CR203	413	B-E1-202
214	B-CR202	414	B-E1-201
215	B-CR201	415	B-E1-200
216	B-CR200	416	B-E1-199
217	B-CR199	417	B-E1-198
218	B-CR198	418	B-E1-197
219	B-CR197	419	B-E1-196
220	B-CR196	420	B-E1-195
221	B-CR195	421	B-E0-194
222	B-CR194	422	B-E1-194
223	B-CR193	423	B-E0-193
224	SPARE	424	B-E1-193

WIRE LIST	
TERMINAL NO.	TERMINAL NO.
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
A-E0-195	B-E0-195
A-E0-196	B-E0-196
A-E0-197	B-E0-197
A-E0-198	B-E0-198
A-E0-199	B-E0-199
A-E0-200	B-E0-200
A-E0-201	B-E0-201
A-E0-202	B-E0-202
A-E0-203	B-E0-203
A-E0-204	B-E0-204
A-E0-205	B-E0-205
A-E0-206	B-E0-206
A-E0-207	B-E0-207
A-E0-208	B-E0-208
A-E0-209	B-E0-209
A-E0-210	B-E0-210
SPARE	SPARE
SPARE	SPARE
A-E0-212	B-E0-212
A-E0-213	B-E0-213

WIRE LIST	
COMPONENT NO.	COMPONENT NO.
CR215	R176
CR216	R144
CR217	R112
CR218	R80
CR219	R48
CR220	R16
CR209	R32
CR210	R64
CR211	R96
CR212	R128
CR213	R160
CR214	R192


39
SEE NOTE 19
.060 MAX TYP
.060 MAX TYP
3 REF
VIEW J-J
401
101
424
124
SECTION E-E
3 REF
6 REF
39 REF
A-CR208
J
33
R192 REF
31
1 REF
32
J
REF 31 32
302 REF
307 REF
A-CR207 REF
A-CR206 REF
A-CR205 REF
A-CR204 REF
A-CR203 REF
A-CR202 REF
A-CR201 REF
FTI REF
A-CR200 REF
25 REF
A-CR194 REF
A-CR193 REF
A-R193 REF
B-CR193 REF
B-R193 REF
FROM A-CR207
FROM A-CR205
FROM A-CR204
FROM A-CR202
FROM A-CR201
C
C
B-CR203 REF
B-R203 REF
A-R204 REF
FROM A-E1-207 TO PIN NO. 108 REF
31
32
.108 MAX TYP
TYPICAL ALL LEADS BOTH SIDES OF FIND NO. 6
.070 .090
6 REF
.080 REF
.108 MAX TYP
33 REF
SEE NOTE 17
.010 MIN
2 REF
6 REF
B-CR193 REF
32 TYP
B-CR194 REF
FTI REF
207 REF
202 REF
REF 31 32
3 REF
B-CR208 REF
35 REF
24
A-E0-213
R192
R 60
CASE GROUND TERMINAL
31
32
E
B-CR208
A-CR208
B-CR207
A-CR207
A-E0-212
A-E0-210
A-E1-213
A-E1-212
A-E1-211
A-E0-211
A-E1-210
A-E1-209
CR195 TO CR206 BOTH A & B DIODES AND RESISTORS
A-E0-195
A-E1-195
A-E0-194
A-E1-194
A-E0-193
A-E1-193
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
E
B-CR190 TO B-CR206 & B-R206
B-CR189 TO B-CR205 & B-R205
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
33
25
26
27
28
29
30
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205 & A-R205
B-E1-193
B-E0-193
B-E1-194
B-E0-194
B-E1-195
B-E0-195
B-E0-210
B-E1-210
B-E0-211
B-E1-211
B-E1-212
B-E1-213
B-E0-212
B-E0-213
R176
38

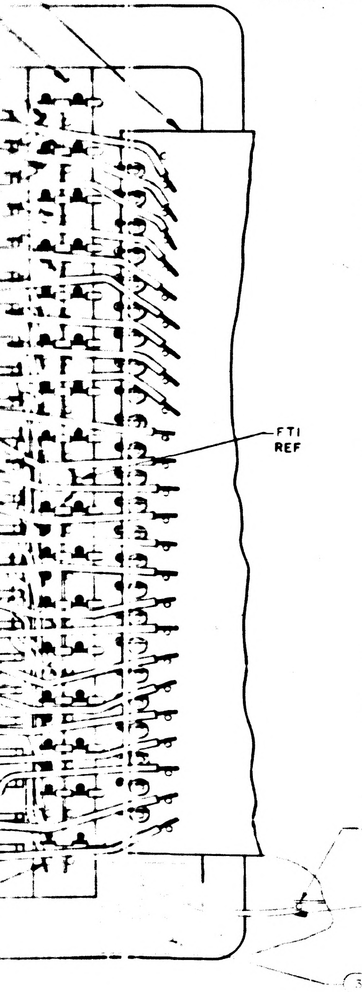
VIEW G-G
SCALE: 4/1
SHOWN WITH POTTING AND FIND NO. 7
REMOVED. SEE NOTES 11, 12, 13 AND 14

SECTION C-C
SCALE 4/1

VIEW H-H
SCALE: 4/1
SHOWN WITH POTTING AND FIND NO. 7
REMOVED. SEE NOTES 11, 12, 13 AND 14

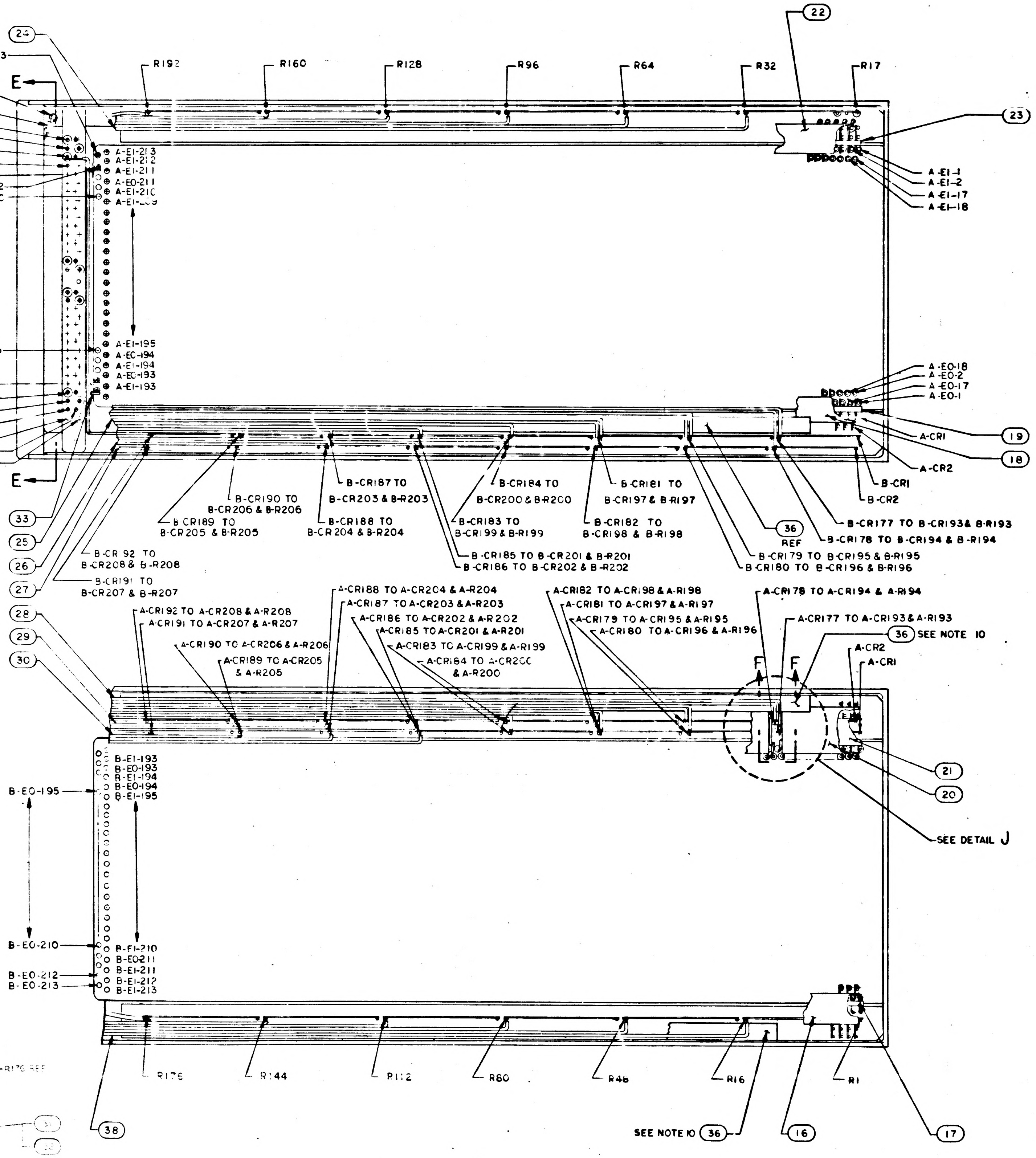
2003972 W

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
REVISIONS						
A		INITIAL RE[illegible] TDRR 32997				
B		REVISED PER TDRR 33460				
C		REVISED PER TDRR 33544				
D		REVISED PER TDRR 33606				
E		REVISED PER TDRR 34140				
F		REVISED PER TDRR 34489				
G		REVISED PER TDRR 34997				
H		REVISED PER TDRR 35339				
J		REVISED PER TDRR 35[illegible]				
K		REVISED PER TDRR 3587[illegible]				
L		REVISED PER TDRR 3621[illegible]	dm		5/29/6[illegible]	
M		REVISED PER TDRR 36[illegible]				
N		REVISED PER TDRR 36[illegible]86				
P		REVISED PER TDRR 3[illegible]				
R		REVISED PER TDRR 3[illegible]59				
S		REVISED PER TDRR [illegible]				
T		REVISED PER TDRR [illegible]970				
U		REVISED PER TDRR [illegible]09				
V		REVISED PER TDRR 371[illegible]				
W		REVISED PER TDRR 37[illegible]				



FT1
REF
R176 REF

VIEW H-H
SCALE 4/1
[illegible]WN WITH POTTIN[illegible] AND FIND NO.7
[illegible]MOVED. SEE NOTE [illegible] 12,13 AND 14



24
A-EO-213
CASE GROUND TERMINAL
E
E
R192
R160
R128
R96
R64
R32
R17
22
23
B-CR209
A-CR208
B-CR207
A-CR207
A-EI-213
A-EI-212
A-EI-211
A-EO-211
A-EI-210
A-EI-209
A-EO-212
A-EO-210
CR195 TO CR206
BOTH A & B DIODES
AND RESISTORS
A-EI-1
A-EI-2
A-EI-17
A-EI-18
A-EO-195
A-EI-195
A-EO-194
A-EI-194
A-EO-193
A-EI-193
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
A-EO-18
A-EO-2
A-EO-17
A-EO-1
A-CR1
A-CR2
19
18
B-CR1
B-CR2
33
25
26
27
B-CR190 TO
B-CR206 & B-R206
B-CR189 TO
B-CR205 & B-R205
B-CR187 TO
B-CR203 & B-R203
B-CR188 TO
B-CR204 & B-R204
B-CR184 TO
B-CR200 & B-R200
B-CR183 TO
B-CR199 & B-R199
B-CR181 TO
B-CR197 & B-R197
B-CR182 TO
B-CR198 & B-R198
36
REF
B-CR177 TO B-CR193 & B-R193
B-CR178 TO B-CR194 & B-R194
B-CR185 TO B-CR201 & B-R201
B-CR186 TO B-CR202 & B-R202
B-CR179 TO B-CR195 & B-R195
B-CR180 TO B-CR196 & B-R196
B-CR192 TO
B-CR208 & B-R208
B-CR191 TO
B-CR207 & B-R207
28
29
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A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205
& A-R205
A-CR188 TO A-CR204 & A-R204
A-CR187 TO A-CR203 & A-R203
A-CR186 TO A-CR202 & A-R202
A-CR185 TO A-CR201 & A-R201
A-CR183 TO A-CR199 & A-R199
A-CR184 TO A-CR200
& A-R200
A-CR182 TO A-CR198 & A-R198
A-CR181 TO A-CR197 & A-R197
A-CR179 TO A-CR195 & A-R195
A-CR180 TO A-CR196 & A-R196
A-CR178 TO A-CR194 & A-R194
A-CR177 TO A-CR193 & A-R193
F
F
36 SEE NOTE 10
A-CR2
A-CR1
21
20
SEE DETAIL J
B-EO-195
B-EI-193
B-EO-193
B-EI-194
B-EO-194
B-EI-195
B-EO-210
B-EI-210
B-EO211
B-EI-211
B-EO-212
B-EO-213
B-EI-212
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R176
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R112
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R1
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SEE NOTE 10
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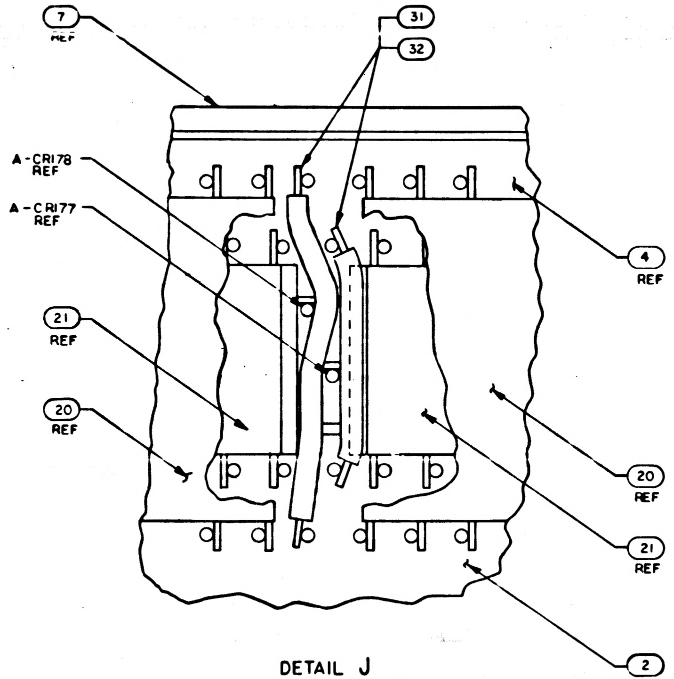

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A-CR177
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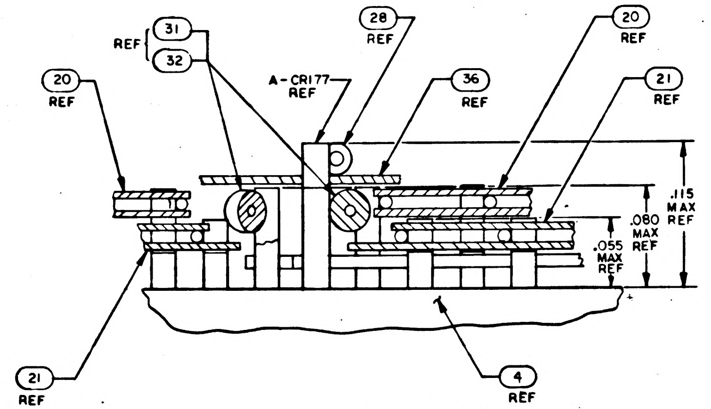
DETAIL J
SCALE 10/1
TYPICAL WIRING 8 PLACES, SHOWN
WITH FIND NO'S 28 AND 36 REMOVED



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MAX
REF
.055
MAX
REF
21
REF
4
REF

PARTIAL SECTION F-F
SCALE: 20/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003972
SCALE 2/1
SHEET 2 OF 3

2003972 W

SH2/3 2003972 WF2/2

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

8 7 6 5

D

C

B

A

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2003972 W

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL RE[illegible] TDRR 32991				
B		REVISED PER TDRR 33460				
C		REVISED PER TDRR 33544				
D		REVISED PER TDRR 33606				
E		REVISED PER TDRR 34140				
F		REVISED PER TDRR 34489				
G		REVISED PER TDRR [illegible]				
H		REVISED PER TDRR 35339				
J		REVISED PER TDRR [illegible]				
K		REVISED PER TDRR 35873				
L		REVISED PER TDRR 36217				
M		REVISED PER TDRR [illegible]				
N		REVISED PER TDRR 36686				
P		REVISED PER TDRR [illegible]				
R		REVISED PER TDRR [illegible]				
S		REVISED PER TDRR [illegible]				
T		REVISED PER TDRR [illegible]				
U		REVISED PER TDRR [illegible]				
V		REVISED PER TDRR 37148				
W		REVISED PER TDRR 37387				

D

WIRE LIST

TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.
A-EO-1	A-CR1	A-EO-97	A-CR97	B-EO-1	B-CR1	B-EO-97	B-CR97	A-EI-1	R1	A-EI-49	R49	A-EI-97	R97	A-EI-145	R145
A-EO-2	A-CR2	A-EO-98	A-CR98	B-EO-2	B-CR2	B-EO-98	B-CR98	B-EI-1		B-EI-49		B-EI-97		B-EI-145	
A-EO-3	A-CR3	A-EO-99	A-CR99	B-EO-3	B-CR3	B-EO-99	B-CR99	A-EI-2	R2	A-EI-50	R50	A-EI-98	R98	A-EI-146	R146
A-EO-4	A-CR4	A-EO-100	A-CR100	B-EO-4	B-CR4	B-EO-100	B-CR100	B-EI-2		B-EI-50		B-EI-98		B-EI-146	
A-EO-5	A-CR5	A-EO-101	A-CR101	B-EO-5	B-CR5	B-EO-101	B-CR101	A-EI-3	R3	A-EI-51	R51	A-EI-99	R99	A-EI-147	R147
A-EO-6	A-CR6	A-EO-102	A-CR102	B-EO-6	B-CR6	B-EO-102	B-CR102	B-EI-3		B-EI-51		B-EI-99		B-EI-147	
A-EO-7	A-CR7	A-EO-103	A-CR103	B-EO-7	B-CR7	B-EO-103	B-CR103	A-EI-4	R4	A-EI-52	R52	A-EI-100	R100	A-EI-148	R148
A-EO-8	A-CR8	A-EO-104	A-CR104	B-EO-8	B-CR8	B-EO-104	B-CR104	B-EI-4		B-EI-52		B-EI-100		B-EI-148	
A-EO-9	A-CR9	A-EO-105	A-CR105	B-EO-9	B-CR9	B-EO-105	B-CR105	A-EI-5	R5	A-EI-53	R53	A-EI-101	R101	A-EI-149	R149
A-EO-10	A-CR10	A-EO-106	A-CR106	B-EO-10	B-CR10	B-EO-106	B-CR106	B-EI-5		B-EI-53		B-EI-101		B-EI-149	
A-EO-11	A-CR11	A-EO-107	A-CR107	B-EO-11	B-CR11	B-EO-107	B-CR107	A-EI-6	R6	A-EI-54	R54	A-EI-102	R102	A-EI-150	R150
A-EO-12	A-CR12	A-EO-108	A-CR108	B-EO-12	B-CR12	B-EO-108	B-CR108	B-EI-6		B-EI-54		B-EI-102		B-EI-150	
A-EO-13	A-CR13	A-EO-109	A-CR109	B-EO-13	B-CR13	B-EO-109	B-CR109	A-EI-7	R7	A-EI-55	R55	A-EI-103	R103	A-EI-151	R151
A-EO-14	A-CR14	A-EO-110	A-CR110	B-EO-14	B-CR14	B-EO-110	B-CR110	B-EI-7		B-EI-55		B-EI-103		B-EI-151	
A-EO-15	A-CR15	A-EO-111	A-CR111	B-EO-15	B-CR15	B-EO-111	B-CR111	A-EI-8	R8	A-EI-56	R56	A-EI-104	R104	A-EI-152	R152
A-EO-16	A-CR16	A-EO-112	A-CR112	B-EO-16	B-CR16	B-EO-112	B-CR112	B-EI-8		B-EI-56		B-EI-104		B-EI-152	
A-EO-17	A-CR17	A-EO-113	A-CR113	B-EO-17	B-CR17	B-EO-113	B-CR113	A-EI-9	R9	A-EI-57	R57	A-EI-105	R105	A-EI-153	R153
A-EO-18	A-CR18	A-EO-114	A-CR114	B-EO-18	B-CR18	B-EO-114	B-CR114	B-EI-9		B-EI-57		B-EI-105		B-EI-153	
A-EO-19	A-CR19	A-EO-115	A-CR115	B-EO-19	B-CR19	B-EO-115	B-CR115	A-EI-10	R10	A-EI-58	R58	A-EI-106	R106	A-EI-154	R154
A-EO-20	A-CR20	A-EO-116	A-CR116	B-EO-20	B-CR20	B-EO-116	B-CR116	B-EI-10		B-EI-58		B-EI-106		B-EI-154	
A-EO-21	A-CR21	A-EO-117	A-CR117	B-EO-21	B-CR21	B-EO-117	B-CR117	A-EI-11	R11	A-EI-59	R59	A-EI-107	R107	A-EI-155	R155
A-EO-22	A-CR22	A-EO-118	A-CR118	B-EO-22	B-CR22	B-EO-118	B-CR118	B-EI-11		B-EI-59		B-EI-107		B-EI-155	
A-EO-23	A-CR23	A-EO-119	A-CR119	B-EO-23	B-CR23	B-EO-119	B-CR119	A-EI-12	R12	A-EI-60	R60	A-EI-108	R108	A-EI-156	R156
A-EO-24	A-CR24	A-EO-120	A-CR120	B-EO-24	B-CR24	B-EO-120	B-CR120	B-EI-12		B-EI-60		B-EI-108		B-EI-156	
A-EO-25	A-CR25	A-EO-121	A-CR121	B-EO-25	B-CR25	B-EO-121	B-CR121	A-EI-13	R13	A-EI-61	R61	A-EI-109	R109	A-EI-157	R157
A-EO-26	A-CR26	A-EO-122	A-CR122	B-EO-26	B-CR26	B-EO-122	B-CR122	B-EI-13		B-EI-61		B-EI-109		B-EI-157	
A-EO-27	A-CR27	A-EO-123	A-CR123	B-EO-27	B-CR27	B-EO-123	B-CR123	A-EI-14	R14	A-EI-62	R62	A-EI-110	R110	A-EI-158	R158
A-EO-28	A-CR28	A-EO-124	A-CR124	B-EO-28	B-CR28	B-EO-124	B-CR124	B-EI-14		B-EI-62		B-EI-110		B-EI-158	
A-EO-29	A-CR29	A-EO-125	A-CR125	B-EO-29	B-CR29	B-EO-125	B-CR125	A-EI-15	R15	A-EI-63	R63	A-EI-111	R111	A-EI-159	R159
A-EO-30	A-CR30	A-EO-126	A-CR126	B-EO-30	B-CR30	B-EO-126	B-CR126	B-EI-15		B-EI-63		B-EI-111		B-EI-159	
A-EO-31	A-CR31	A-EO-127	A-CR127	B-EO-31	B-CR31	B-EO-127	B-CR127	A-EI-16	R16	A-EI-64	R64	A-EI-112	R112	A-EI-160	R160
A-EO-32	A-CR32	A-EO-128	A-CR128	B-EO-32	B-CR32	B-EO-128	B-CR128	B-EI-16		B-EI-64		B-EI-112		B-EI-160	
A-EO-33	A-CR33	A-EO-129	A-CR129	B-EO-33	B-CR33	B-EO-129	B-CR129	A-EI-17	R17	A-EI-65	R65	A-EI-113	R113	A-EI-161	R161
A-EO-34	A-CR34	A-EO-130	A-CR130	B-EO-34	B-CR34	B-EO-130	B-CR130	B-EI-17		B-EI-65		B-EI-113		B-EI-161	
A-EO-35	A-CR35	A-EO-131	A-CR131	B-EO-35	B-CR35	B-EO-131	B-CR131	A-EI-18	R18	A-EI-66	R66	A-EI-114	R114	A-EI-162	R162
A-EO-36	A-CR36	A-EO-132	A-CR132	B-EO-36	B-CR36	B-EO-132	B-CR132	B-EI-18		B-EI-66		B-EI-114		B-EI-162	
A-EO-37	A-CR37	A-EO-133	A-CR133	B-EO-37	B-CR37	B-EO-133	B-CR133	A-EI-19	R19	A-EI-67	R67	A-EI-115	R115	A-EI-163	R163
A-EO-38	A-CR38	A-EO-134	A-CR134	B-EO-38	B-CR38	B-EO-134	B-CR134	B-EI-19		B-EI-67		B-EI-115		B-EI-163	
A-EO-39	A-CR39	A-EO-135	A-CR135	B-EO-39	B-CR39	B-EO-135	B-CR135	A-EI-20	R20	A-EI-68	R68	A-EI-116	R116	A-EI-164	R164
A-EO-40	A-CR40	A-EO-136	A-CR136	B-EO-40	B-CR40	B-EO-136	B-CR136	B-EI-20		B-EI-68		B-EI-116		B-EI-164	
A-EO-41	A-CR41	A-EO-137	A-CR137	B-EO-41	B-CR41	B-EO-137	B-CR137	A-EI-21	R21	A-EI-69	R69	A-EI-117	R117	A-EI-165	R165
A-EO-42	A-CR42	A-EO-138	A-CR138	B-EO-42	B-CR42	B-EO-138	B-CR138	B-EI-21		B-EI-69		B-EI-117		B-EI-165	
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A-EO-46	A-CR46	A-EO-142	A-CR142	B-EO-46	B-CR46	B-EO-142	B-CR142	B-EI-23		B-EI-71		B-EI-119		B-EI-167	
A-EO-47	A-CR47	A-EO-143	A-CR143	B-EO-47	B-CR47	B-EO-143	B-CR143	A-EI-24	R24	A-EI-72	R72	A-EI-120	R120	A-EI-168	R168
A-EO-48	A-CR48	A-EO-144	A-CR144	B-EO-48	B-CR48	B-EO-144	B-CR144	B-EI-24		B-EI-72		B-EI-120		B-EI-168	
A-EO-49	A-CR49	A-EO-145	A-CR145	B-EO-49	B-CR49	B-EO-145	B-CR145	A-EI-25	R25	A-EI-73	R73	A-EI-121	R121	A-EI-169	R169
A-EO-50	A-CR50	A-EO-146	A-CR146	B-EO-50	B-CR50	B-EO-146	B-CR146	B-EI-25		B-EI-73		B-EI-121		B-EI-169	
A-EO-51	A-CR51	A-EO-147	A-CR147	B-EO-51	B-CR51	B-EO-147	B-CR147	A-EI-26	R26	A-EI-74	R74	A-EI-122	R122	A-EI-170	R170
A-EO-52	A-CR52	A-EO-148	A-CR148	B-EO-52	B-CR52	B-EO-148	B-CR148	B-EI-26		B-EI-74		B-EI-122		B-EI-170	
A-EO-53	A-CR53	A-EO-149	A-CR149	B-EO-53	B-CR53	B-EO-149	B-CR149	A-EI-27	R27	A-EI-75	R75	A-EI-123	R123	A-EI-171	R171
A-EO-54	A-CR54	A-EO-150	A-CR150	B-EO-54	B-CR54	B-EO-150	B-CR150	B-EI-27		B-EI-75		B-EI-123		B-EI-171	
A-EO-55	A-CR55	A-EO-151	A-CR151	B-EO-55	B-CR55	B-EO-151	B-CR151	A-EI-28	R28	A-EI-76	R76	A-EI-124	R124	A-EI-172	R172
A-EO-56	A-CR56	A-EO-152	A-CR152	B-EO-56	B-CR56	B-EO-152	B-CR152	B-EI-28		B-EI-76		B-EI-124		B-EI-172	
A-EO-57	A-CR57	A-EO-153	A-CR153	B-EO-57	B-CR57	B-EO-153	B-CR153	A-EI-29	R29	A-EI-77	R77	A-EI-125	R125	A-EI-173	R173
A-EO-58	A-CR58	A-EO-154	A-CR154	B-EO-58	B-CR58	B-EO-154	B-CR154	B-EI-29		B-EI-77		B-EI-125		B-EI-173	
A-EO-59	A-CR59	A-EO-155	A-CR155	B-EO-59	B-CR59	B-EO-155	B-CR155	A-EI-30	R30	A-EI-78	R78	A-EI-126	R126	A-EI-174	R174
A-EO-60	A-CR60	A-EO-156	A-CR156	B-EO-60	B-CR60	B-EO-156	B-CR156	B-EI-30		B-EI-78		B-EI-126		B-EI-174	
A-EO-61	A-CR61	A-EO-157	A-CR157	B-EO-61	B-CR61	B-EO-157	B-CR157	A-EI-31	R31	A-EI-79	R79	A-EI-127	R127	A-EI-175	R175
A-EO-62	A-CR62	A-EO-158	A-CR158	B-EO-62	B-CR62	B-EO-158	B-CR158	B-EI-31		B-EI-79		B-EI-127		B-EI-175	
A-EO-63	A-CR63	A-EO-159	A-CR159	B-EO-63	B-CR63	B-EO-159	B-CR159	A-EI-32	R32	A-EI-80	R80	A-EI-128	R128	A-EI-176	R176
A-EO-64	A-CR64	A-EO-160	A-CR160	B-EO-64	B-CR64	B-EO-160	B-CR160	B-EI-32		B-EI-80		B-EI-128		B-EI-176	
A-EO-65	A-CR65	A-EO-161	A-CR161	B-EO-65	B-CR65	B-EO-161	B-CR161	A-EI-33	R33	A-EI-81	R81	A-EI-129	R129	A-EI-177	R177
A-EO-66	A-CR66	A-EO-162	A-CR162	B-EO-66	B-CR66	B-EO-162	B-CR162	B-EI-33		B-EI-81		B-EI-129		B-EI-177	
A-EO-67	A-CR67	A-EO-163	A-CR163	B-EO-67	B-CR67	B-EO-163	B-CR163	A-EI-34	R34	A-EI-82	R82	A-EI-130	R130	A-EI-178	R178
A-EO-68	A-CR68	A-EO-164	A-CR164	B-EO-68	B-CR68	B-EO-164	B-CR164	B-EI-34		B-EI-82		B-EI-130		B-EI-178	
A-EO-69	A-CR69	A-EO-165	A-CR165	B-EO-69	B-CR69	B-EO-165	B-CR165	A-EI-35	R35	A-EI-83	R83	A-EI-131	R131	A-EI-179	R179
A-EO-70	A-CR70	A-EO-166	A-CR166	B-EO-70	B-CR70	B-EO-166	B-CR166	B-EI-35		B-EI-83		B-EI-131		B-EI-179	
A-EO-71	A-CR71	A-EO-167	A-CR167	B-EO-71	B-CR71	B-EO-167	B-CR167	A-EI-36	R36	A-EI-84	R84	A-EI-132	R132	A-EI-180	R180
A-EO-72	A-CR72	A-EO-168	A-CR168	B-EO-72	B-CR72	B-EO-168	B-CR168	B-EI-36		B-EI-84		B-EI-132		B-EI-180	
A-EO-73	A-CR73	A-EO-169	A-CR169	B-EO-73	B-CR73	B-EO-169	B-CR169	A-EI-37	R37	A-EI-85	R85	A-EI-133	R133	A-EI-181	R181
A-EO-74	A-CR74	A-EO-170	A-CR170	B-EO-74	B-CR74	B-EO-170	B-CR170	B-EI-37		B-EI-85		B-EI-133		B-EI-181	
A-EO-75	A-CR75	A-EO-171	A-CR171	B-EO-75	B-CR75	B-EO-171	B-CR171	A-EI-38	R38	A-EI-86	R86	A-EI-134	R134	A-EI-182	R182
A-EO-76	A-CR76	A-EO-172	A-CR172	B-EO-76	B-CR76	B-EO-172	B-CR172	B-EI-38		B-EI-86		B-EI-134		B-EI-182	
A-EO-77	A-CR77	A-EO-173	A-CR173	B-EO-77	B-CR77	B-EO-173	B-CR173	A-EI-39	R39	A-EI-87	R87	A-EI-135	R135	A-EI-183	R183
A-EO-78	A-CR78	A-EO-174	A-CR174	B-EO-78	B-CR78	B-EO-174	B-CR174	B-EI-39		B-EI-87		B-EI-135		B-EI-183	
A-EO-79	A-CR79	A-EO-175	A-CR175	B-EO-79	B-CR79	B-EO-175	B-CR175	A-EI-40	R40	A-EI-88	R88	A-EI-136	R136	A-EI-184	R184
A-EO-80	A-CR80	A-EO-176	A-CR176	B-EO-80	B-CR80	B-EO-176	B-CR176	B-EI-40		B-EI-88		B-EI-136		B-EI-184	
A-EO-81	A-CR81	A-EO-177	A-CR177	B-EO-81	B-CR81	B-EO-177	B-CR177	A-EI-41	R41	A-EI-89	R89	A-EI-137	R137	A-EI-185	R185
A-EO-82	A-CR82	A-EO-178	A-CR178	B-EO-82	B-CR82	B-EO-178	B-CR178	B-EI-41		B-EI-89		B-EI-137		B-EI-185	
A-EO-83	A-CR83	A-EO-179	A-CR179	B-EO-83	B-CR83	B-EO-179	B-CR179	A-EI-42	R42	A-EI-90	R90	A-EI-138	R138	A-EI-186	R186
A-EO-84	A-CR84	A-EO-180	A-CR180	B-EO-84	B-CR84	B-EO-180	B-CR180	B-EI-42		B-EI-90		B-EI-138		B-EI-186	
A-EO-85	A-CR85	A-EO-181	A-CR181	B-EO-85	B-CR85	B-EO-181	B-CR181	A-EI-43	R43	A-EI-91	R91	A-EI-139	R139	A-EI-187	R187
A-EO-86	A-CR86	A-EO-182	A-CR182	B-EO-86	B-CR86	B-EO-182	B-CR182	B-EI-43		B-EI-91		B-EI-139		B-EI-187	
A-EO-87	A-CR87	A-EO-183	A-CR183	B-EO-87	B-CR87	B-EO-183	B-CR183	A-EI-44	R44	A-EI-92	R92	A-EI-140	R140	A-EI-188	R188
A-EO-88	A-CR88	A-EO-184	A-CR184	B-EO-88	B-CR88	B-EO-184	B-CR184	B-EI-44		B-EI-92		B-EI-140		B-EI-188	
A-EO-89	A-CR89	A-EO-185	A-CR185	B-EO-89	B-CR89	B-EO-185	B-CR185	A-EI-45	R45	A-EI-93	R93	A-EI-141	R141	A-EI-189	R189
A-EO-90	A-CR90	A-EO-186	A-CR186	B-EO-90	B-CR90	B-EO-186	B-CR186	B-EI-45		B-EI-93		B-EI-141		B-EI-189	
A-EO-91	A-CR91	A-EO-187	A-CR187	B-EO-91	B-CR91	B-EO-187	B-CR187	A-EI-46	R46	A-EI-94	R94	A-EI-142	R142	A-EI-190	R190
A-EO-92	A-CR92	A-EO-188	A-CR188	B-EO-92	B-CR92	B-EO-188	B-CR188	B-EI-46		B-EI-94		B-EI-142		B-EI-190	
A-EO-93	A-CR93	A-EO-189	A-CR189	B-EO-93	B-CR93	B-EO-189	B-CR189	A-EI-47	R47	A-EI-95	R95	A-EI-143	R143	A-EI-191	R191
A-EO-94	A-CR94	A-EO-190	A-CR190	B-EO-94	B-CR94	B-EO-190	B-CR190	B-EI-47		B-EI-95		B-EI-143		B-EI-191	
A-EO-95	A-CR95	A-EO-191	A-CR191	B-EO-95	B-CR95	B-EO-191	B-CR191	A-EI-48	R48	A-EI-96	R96	A-EI-144	R144	A-EI-192	R192
A-EO-96	A-CR96	A-EO-192	A-CR192	B-EO-96	B-CR96	B-EO-192	B-CR192	B-EI-48		B-EI-96		B-EI-144		B-EI-192	

C

B

A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE
ASSEMBLY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2003972

SCALE NONE
SHEET 3 OF 3

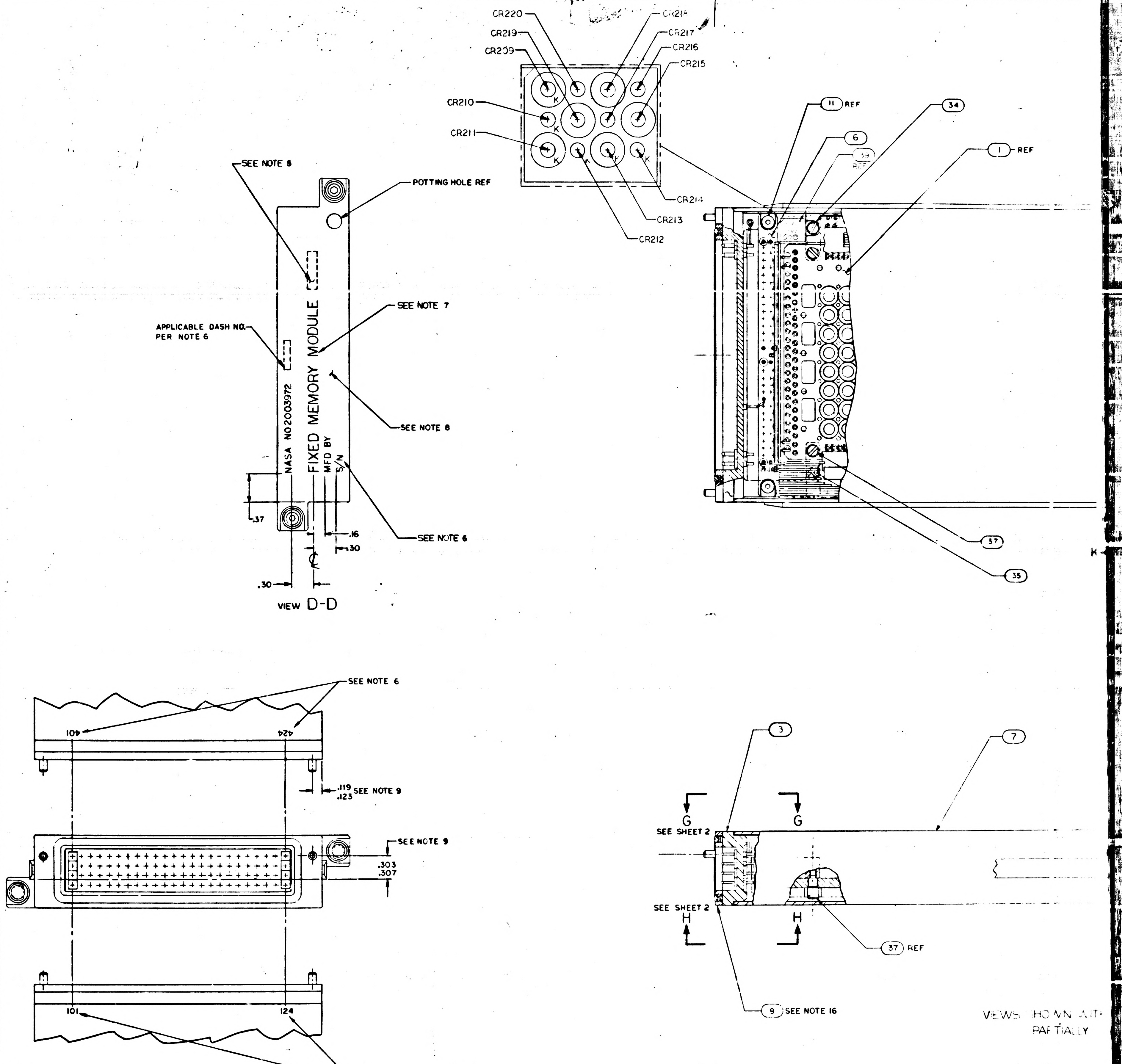
W

4

SH3/3 2003972 WF2/2

[illegible]

PART NO.	MODULE NO.	FIND NO. 1	FIND NO. 2	MODULE DECK NO.	NEXT ASSEMBLY NO. (REF)	PROCUREMENT SPECIFICATION SEE NOTE 15
2003972-011	B1	2003060-061	2003061-061	0205	2021101	PS2003972
2003972-021	B2	2003060-071	2003061-071	0206	2021101	
2003972-031	B3	2003060-081	2003061-081	0207	2021101	
2003972-041	B1	2003060-121	2003061-121	0210	2021104	
2003972-051	B2	2003060-131	2003061-131	0211	2021104	
2003972-061	B3	2003060-141	2003061-141	0212	2021104	
2003972-071	B2	2003060-151	2003061-151	0213	2021104	
2003972-081	B3	2003060-161	2003061-161	0214	2021104	
2003972-091	B2	2003060-171	2003061-171	0215	2021101	
2003972-111	B3	2003060-181	2003061-181	0216	2021101	PS2003972
2003972-121	B1	2003060-091	2003061-091	0208	2021105-031	PS2003960
2003972-13	B2	2003060-111	2003061-111	0209	2021105-031	PS2003960
2003972-141	B1	2003060-191	2003061-191	0217	2021106-011	PS2003972
2003972-151	B2	2003060-211	2003061-211	0218	2021106-011	
2003972-161	B3	2003060-221	2003061-221	0219	2021106-011	
2003972-171	B4	2003060-231	2003061-231	0220	2021106-011	
2003972-181	B5	2003060-241	2003061-241	0221	2021106-011	
2003972-191	B6	2003060-251	2003061-251	0222	2021106-011	
2003972-211	B3	2003060-261	2003061-261	0223	2021104-041	PS2003972
2003972-221	B1	2003060-271	2003061-271	0224	2021105-041	PS2003960
2003972-231	B1	2003060-281	2003061-281	0225	2021106-021	PS2003972
2003972-241	B3	2003060-291	2003061-291	0226	2021106-021	
2003972-251	B5	2003060-311	2003061-311	0227	2021106-021	
2003972-261	B1	2003060-321	2003061-321	0230	2021107-011	
2003972-271	B2	2003060-331	2003061-331	0229	2021107-011	
2003972-281	B2	2003060-341	2003061-341	0231	2021106-031	
2003972-291	B1	2003060-351	2003061-351	0238	2021107-021	PS2003972
2003972-311	B1	2003060-361	2003061-361	0239	2021108-021	PS2016016
-321	B2	2003060-371	2003061-371	0240	2021108-021	PS2016016
-331	B3	2003060-381	2003061-381	0241	2021108-021	PS2016016
-341	B4	2003060-391	2003061-391	0242	2021108-021	PS2016016
-351	B5	2003060-411	2003061-411	0243	2021108-021	PS2016016
2003972-361	B6	2003060-421	2003061-421	0244	2021108-021	PS2016016
2003972-371	B1	2003060-431	2003061-431	0245	2021110-011	PS2016016
2003972-381	B2	2003060-441	2003061-441	0246	2021110-011	
2003972-391	B3	2003060-451	2003061-451	0247	2021110-011	
2003972-411	B4	2003060-461	2003061-461	0248	2021110-011	
2003972-421	B5	2003060-471	2003061-471	0249	2021110-011	
2003972-431	B6	2003060-481	2003061-481	0250	2021110-011	PS2016016
2003972-441	B1	2003060-491	2003061-491	0251	2021110-021	PS2016016
2003972-451	B2	2003060-511	2003061-511	0252	2021110-021	
2003972-461	B3	2003060-521	2003061-521	0253	2021110-021	
2003972-471	34	2003060-531	2003061-531	0254	2021110-021	
2003972-481	35	2003060-541	2003061-541	0255	2021110-021	
2003972-491	B6	2003060-551	2003061-551	0256	2021110-021	PS2016016
-511	B1	-561	-561	0257	2021111-021&031	PS2016036
-521	B2	-571	-571	0258	-021&031	
-531	B3	-581	-581	0259	-021&031	
-541	B4	-591	-591	0260	2021111-021&031	
-551	35	-611	-611	0261	2021111-021	
2003972-561	B6	2003060-621	2003061-621	0262	2021111-021&031	PS2016036
2003972-571	B5	2003060-631	2003061-631	0263	2021111-031	PS2016036
2003972-581	B1	2003060-641	2003061-641	0264	2021110-031	PS2016036
-591	B2	-651	-651	0265	2021110-031	
-611	B3	-661	-661	0266	2021110-031	
-621	B4	-671	-671	0267	2021110-031	
-631	B5	-681	-681	0268	2021110-031	
2003972-641	B6	2003060-691	2003061-691	0269	2021110-031	PS2016036
2003972-651	B1	2003060-711	2003061-711	0270	2021111-041	PS2016036
-661	B2	-721	-721	0271	-041	
-671	B3	-731	-731	0272	-041	
-681	B4	-741	-741	0273	-041	
-691	B5	-751	-751	0274	-041	
2003972-711	B6	2003060-761	2003061-761	0275	2021111-041	PS2016036
2003972-721	B1	2003060-771	2003061-771	0276	2021112-011	PS2016036
-731	B2	-781	-781	0277	-011	
-741	B3	-791	-791	0278	-011	
-751	B4	-811	-811	0279	-011	
-761	B5	-821	-821	0280	-011	
2003972-771	B6	2003060-831	2003061-831	0281	2021112-011	PS2016036
2003972-781	B1	2003060-841	2003061-841	0282	2021113-011	PS2016036
-791	B2	-851	-851	0283	-011	
-811	B3	-861	-861	0284	-011	
-821	B4	-871	-871	0285	-011	
-831	B5	-881	-881	0286	-011	
2003972-841	B6	2003060-891	2003061-891	0287	2021113-011	PS2016036
2003972-851	B3	2003060-911	2003061-911	0288	2021113-011	PS2016036



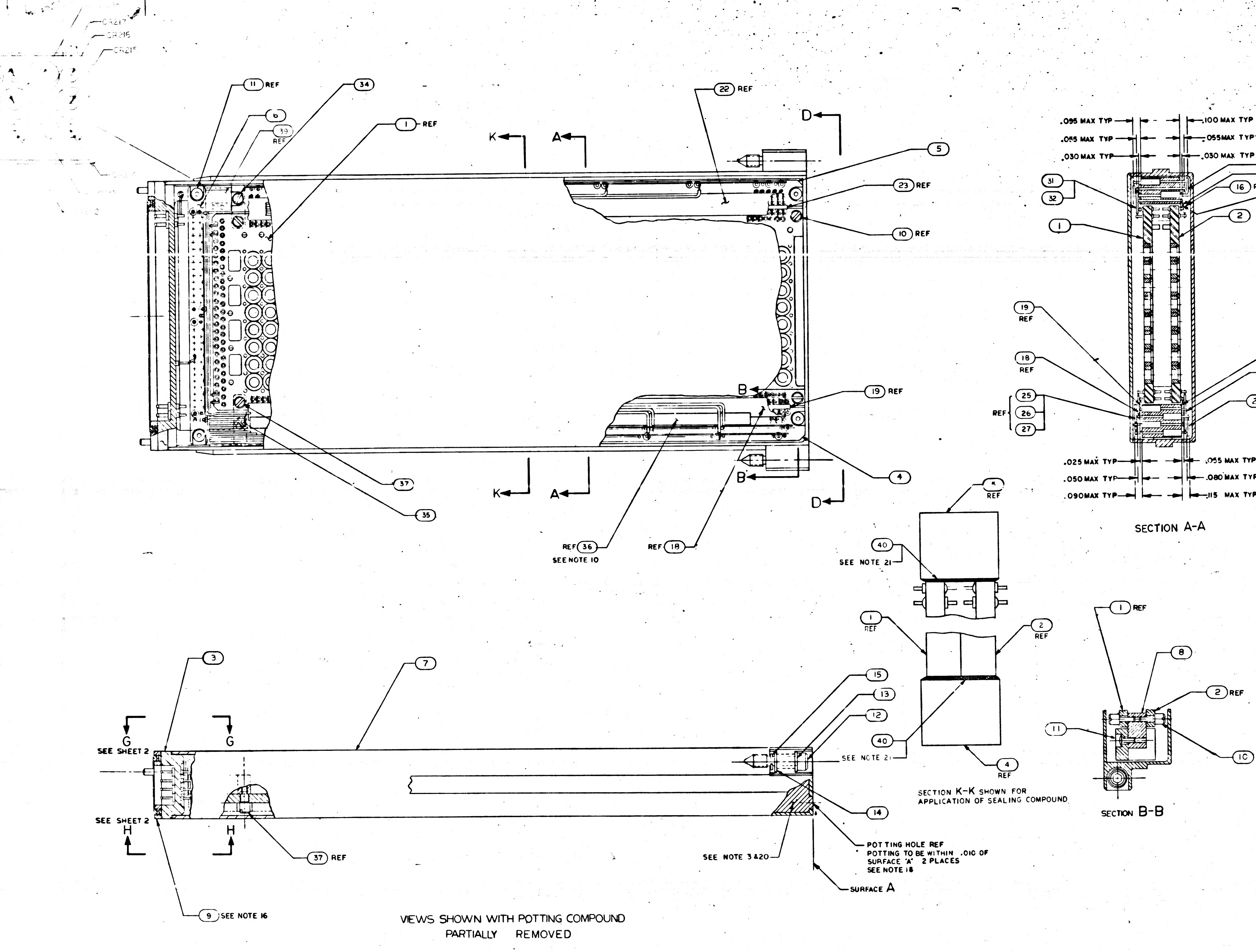
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
3. ENCAPSULATE MODULE PER ND1002226 METHOD II
4. WELD PER ND1002005
5. MARK APPROPRIATE MODULE NO. AS SHOWN IN CHART
6. MARK .08/.06 HIGH PER ND1002019 AND ND1002122. TYPE II CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
7. MARK .14/.10 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 USING INK 1006271-1
8. PAINT INDICATED SURFACES OF FIND NO 7. PER ND1002279 WITH SCD NO. 1008809-1 DARK GREY EPOXY RESIN ENAMEL, FINAL COAT PER ND1002277 USING 1012543-003
9. ASSEMBLE FIND NO.7 AND FIND NO.3 TO DIMENSIONS SHOWN
10. REMOVE LINER FROM NEARSIDE OF FIND NO.36 AND ASSEMBLE 3 PLACES AS SHOWN. FIND NO.36 MUST INSULATE FLAT CABLES FROM TRIMMED COMPONENT LEADS, TRIM AS REQUIRED
11. WHITE DOT AND SINGLE SOLID LEAD DENOTES FIRST LEVEL WIRING UNLESS OTHERWISE SPECIFIED
12. BLACK DOT AND SINGLE SOLID LEAD DENOTES SECOND LEVEL WIRING
13. BLACK DOT AND CROSS HATCHED LEAD DENOTES THIRD LEVEL WIRING
14. ALL LEADS FROM FIND NO.1 AND FIND NO.2 TO FIND NO.3 TO BE THIRD LEVEL WIRING
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PROCUREMENT SPECIFICATION AS LISTED IN CHART.
16. FIND NO.9 TO BE SHIPPED UNASSEMBLED AND IDENTIFIED PER ND 1002019
17. SEAL PINS AND INSULATORS TO FIND NO. 3 PER ND1002004 TYPE VI BEFORE ASSY OF FIND NO. 6
18. FILL AS SHOWN PER ND1002235 METHOD A
19. BOND FIND NO.39 TO FIND NO.3 PER ND1002004 TYPE VI AFTER ASSY OF FIND NO.6
20. PRIOR TO ENCAPSULATION PER NOTE 3, COAT OVER ALL TERMINALS OF FIND NO'S 1,2&3 AND OVER ALL WIRES, SLEEVING AND COMPONENT LEADS OF FIND NO'S 4,5,6,16,17,18,19,20,21,22,23,24, 25,26,27,28,29,30,31,32,33,38 & 39 WITH A .03 MAXIMUM THICKNESS OF SILICONE RUBBER PER ND1002009; METHOD A. MASK ALL OUTSIDE SURFACES OF FIND NO.3 AND ALL OTHER SURFACES OF THIS ASSEMBLY COMING IN CLOSE CONTACT WITH FIND NO.7
21. FILL INTERFACE BETWEEN FIND NO. 4 AND SIDE SURFACES OF FIND NO'S 1 AND 2, AND INTERFACE BETWEEN FIND NO.5 AND SIDE SURFACES OF FIND NO'S 1 AND 2 USING FIND NO. 40. ROOM TEMP CURE FOR 24 HOURS MIN.

REFERENCES:

1. PROCESS REQUIREMENTS FOR CONTROL AND INSPECTION OF ROPE MEMORY ASSEMBLIES ND1002285
2. FIXED MEMORY FIXTURE DWG NO. AP22500

SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL RELEASE TDRR 32991	[illegible]	[illegible]
B	REVISED PER TDRR 33460 DR [illegible] CHK [illegible]	[illegible]	[illegible]
C.	REVISED PER TDRR 33544 DR [illegible] CHK [illegible]	5/5/67	TJR
D	REVISED PER TDRR 33605 DR [illegible] CHK B. Harris	5/1967	TJR
E	REVISED PER TDRR 34140 DR [illegible] CHK [illegible]	[illegible]	TJR
F	REVISED PER TDRR 34189 DR [illegible] CHK [illegible]	10-11-67	TJR
G	REVISED PER TDRR [illegible] DR [illegible] CHK [illegible]	11-20-67	TJR
H	REVISED PER TDRR 35339 DR S.B. CHK [illegible]	[illegible]	TJR
J	REVISED PER TDRR 35649 DR [illegible] CHK [illegible]	2-27-68	TJR
K	REVISED PER TDRR 35870 DR W.J. Makar CHK [illegible]	4/10/68	TJR
L	REVISED PER TDRR 36217 DR W.J. Makar CHK [illegible]	5/29/68	TJR
M	REVISED PER TDRR 36531 DR [illegible] CHK [illegible]	[illegible]	TJR
N	REVISED PER TDRR 36686 DR [illegible] CHK [illegible]	[illegible]	TJR
P	REVISED PER TDRR [illegible] DR [illegible] Smith CHK [illegible]	9/25/68	TJR
R	REVISED PER TDRR [illegible] DR [illegible] CHK [illegible]	[illegible]	TJR
S	REVISED PER TDRR 36916 DR [illegible] Smith CHK [illegible]	11/29/68	TJR
T	REVISED PER TDRR 36970 DR [illegible] CHK [illegible]	[illegible]	TJR
U	REVISED PER TDRR 37008 DR [illegible] CHK [illegible]	[illegible]	TJR
V	REVISED PER TDRR 37148 DR [illegible] CHK [illegible]	3/1/69	TJR
W	REVISED PER TDRR 37387 DR [illegible] CHK [illegible]	3/15/69	TJR
Y	REVISED PER TDRR 37427 DR [illegible] CHK [illegible]	4/5/69	TJR



4
3
2
11 REF
34
6
39 REF
1 REF
22 REF
K
A
D
5
23 REF
10 REF
19 REF
B
4
37
35
K
A
B
D
REF 36
SEE NOTE 10
REF 18
.095 MAX TYP
.055 MAX TYP
.030 MAX TYP
.100 MAX TYP
.055MAX TYP
.030 MAX TYP
38 REF
17 REF
16 REF
31
32
31
32
1
2
19 REF
18 REF
21 REF
20 REF
REF 25 26 27
28 29 30 REF
.025 MAX TYP
.050 MAX TYP
.090MAX TYP
.055 MAX TYP
.080 MAX TYP
.115 MAX TYP
SECTION A-A
5 REF
40
SEE NOTE 21
1 REF
2 REF
40
4 REF
SECTION K-K SHOWN FOR APPLICATION OF SEALING COMPOUND
1 REF
8
2 REF
11
10
SECTION B-B
3
7
15
13
12
G
SEE SHEET 2
G
SEE NOTE 21
SEE SHEET 2
H
H
14
37 REF
SEE NOTE 3 & 20
POTTING HOLE REF
POTTING TO BE WITHIN .010 OF SURFACE 'A' 2 PLACES
SEE NOTE 18
SURFACE A
9 SEE NOTE 16

VIEWS SHOWN WITH POTTING COMPOUND
PARTIALLY REMOVED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006341	ADHESIVE SEALANT, SILICONE RUBBER	40
1	2003986-021	COMPONENT BLOCK DIODE ASSY	39
☒	2005935	SCHEMATIC	REF
1	2004684	FLAT CABLE	38
4	2004150 — 003	SCREW, SHOULDERED	37
AR	1006806 — 26	INSULATION TAPE, ELECTRICAL	36
1	2004150 — 001	SCREW, SHOULDERED	35
1	2004150 — 002	SCREW, SHOULDERED	34
1	2004129	FLAT CABLE INTERCONNECTION	33
AR	1006776-25	SLEEVING	32
AR	1006757-12	WIRE, ELECRICAL	31
1	2004125	FLAT CABLE	30
1	2004122	FLAT CABLE	29
1	2004124	FLAT CABLE	28
1	2004123	FLAT CABLE	27
1	2004121	FLAT CABLE	26
1	2004120	FLAT CABLE	25
1	2004 [illegible]	FLAT CABLE	24
1	2003051 — 013	MATRIX ASSY	23
1	2003051 — 014	MATRIX ASSY	22
8	2003051 — 016	MATRIX ASSY	21
8	2003051 — 015	MATRIX ASSY	20
1	2003051 — 017	MATRIX ASSY	19
1	2003051 — 018	MATRIX ASSY	18
1	2003051 — 011	MATRIX ASSY	17
1	2003051 — 012	MATRIX ASSY	16
2	MS16633-4015	E RING	15
2	1004546-3	WASHER	14
2	1004546-1	WASHER	13
2	1004579-1	SCREW, JACKING	12
4	1000093-1	SCREW, BUTTONHEAD	11
4	2004151	SCREW, STANDOFF	10
1	1006339	GASKET PLATE	9
2	2004071	STANDOFF	8
1	2004100	HOUSING	7
1	2003048-021	RESISTOR-DIODE BLOCK ASSY	6
1	2003052-021	COMPONENT BLOCK RESISTOR ASSY	5
1	2003045-021	COMPONENT BLOCK DIODE ASSY	4
1	2003973-011	CONNECTOR PLATE ASSY	3
1	2003061-SEE CHART	SENSE WIRING ASSY SIDE B	2
1	2003060-SEE CHART	SENSE WIRING ASSY SIDE A	1

SEE NOTE 16

LIST OF MATERIALS

FOR APPLICABLE PART
NO. SEE CHART

SEE CHART	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN [illegible] DATE 6AUG[illegible]
CHECKED [illegible] 12AUG[illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE
ASSEMBLY

CODE IDENT NO. 80230 | SIZE J | NASA DRAWING NO. 2003972
SCALE 2/1 | WT | SHEET 1 OF 3

2003972

ORY ASSEMBLIES
AP23500

SH1/3 2003972 YF2/2

[illegible] GOVERNMENT DRAWINGS, SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

WIRE LIST

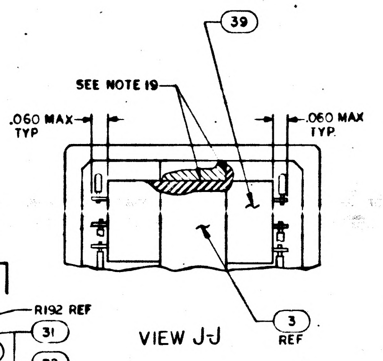
PIN NO.	COMPONENT OR TERM. NO.	PIN NO.	COMPONENT OR TERM. NO.
101	A-E1-213	301	GROUND
102	A-E1-212	302	CR209
103	A-E1-211	303	CR210
104	A-E0-211	304	CR211
105	A-E1-210	305	CR212
106	A-E1-209	306	CR213
107	A-E1-208	307	CR214
108	A-E1-207	308	A-CR208
109	A-E1-206	309	A-CR207
110	A-E1-205	310	A-CR206
111	A-E1-204	311	A-CR205
112	A-E1-203	312	A-CR204
113	A-E1-202	313	A-CR203
114	A-E1-201	314	A-CR202
115	A-E1-200	315	A-CR201
116	A-E1-199	316	A-CR200
117	A-E1-198	317	A-CR199
118	A-E1-197	318	A-CR198
119	A-E1-196	319	A-CR197
120	A-E1-195	320	A-CR196
121	A-E0-194	321	A-CR195
122	A-E1-194	322	A-CR194
123	A-E0-193	323	A-CR193
124	A-E1-193	324	SPARE
201	B-R208	401	B-E1-213
202	CR215	402	B-E1-212
203	CR216	403	B-E1-211
204	CR217	404	B-E0-211
205	CR218	405	B-E1-210
206	CR219	406	B-E1-209
207	CR220	407	B-E1-208
208	B-CR208	408	B-E1-207
209	B-CR207	409	B-E1-206
210	B-CR206	410	B-E1-205
211	B-CR205	411	B-E1-204
212	B-CR204	412	B-E1-203
213	B-CR203	413	B-E1-202
214	B-CR202	414	B-E1-201
215	B-CR201	415	B-E1-200
216	B-CR200	416	B-E1-199
217	B-CR199	417	B-E1-198
218	B-CR198	418	B-E1-197
219	B-CR197	419	B-E1-196
220	B-CR196	420	B-E1-195
221	B-CR195	421	B-E0-194
222	B-CR194	422	B-E1-194
223	B-CR193	423	B-E0-193
224	SPARE	424	B-E1-193

WIRE LIST

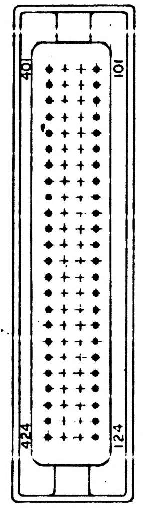
TERMINAL NO.	TERMINAL NO.
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
A-E0-195	B-E0-195
A-E0-196	B-E0-196
A-E0-197	B-E0-197
A-E0-198	B-E0-198
A-E0-199	B-E0-199
A-E0-200	B-E0-200
A-E0-201	B-E0-201
A-E0-202	B-E0-202
A-E0-203	B-E0-203
A-E0-204	B-E0-204
A-E0-205	B-E0-205
A-E0-206	B-E0-206
A-E0-207	B-E0-207
A-E0-208	B-E0-208
A-E0-209	B-E0-209
A-E0-210	B-E0-210
SPARE	SPARE
SPARE	SPARE
A-E0-212	B-E0-212
A-E0-213	B-E0-213

WIRE LIST

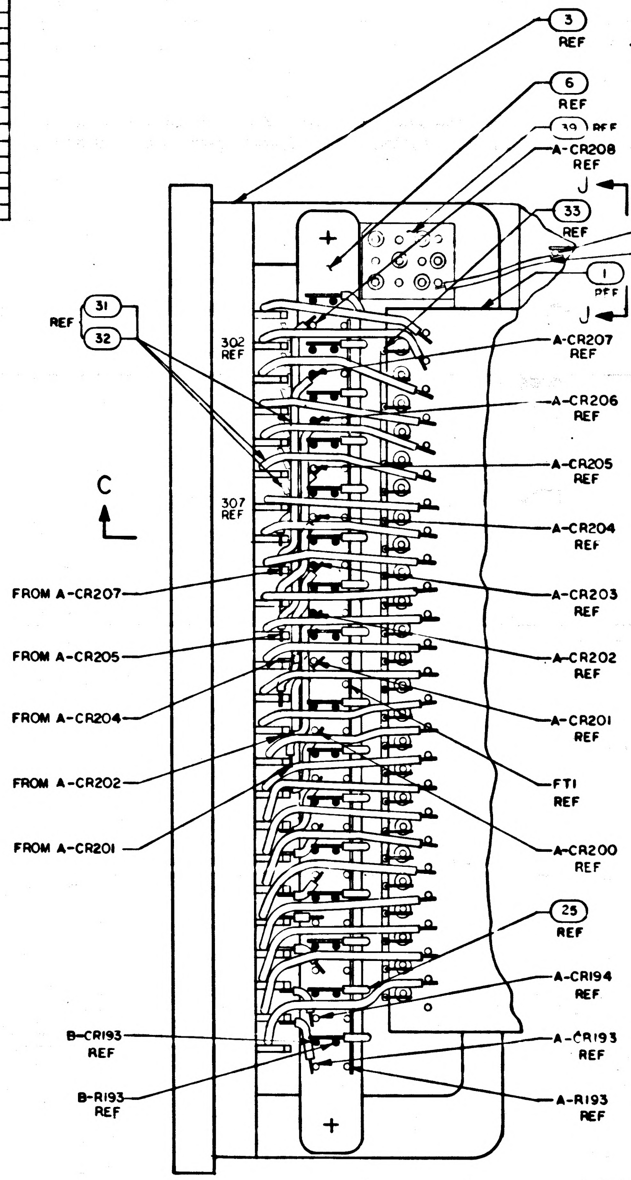
COMPONENT NO.	COMPONENT NO.
CR215	R176
CR216	R144
CR217	R112
CR218	R80
CR219	R48
CR220	R16
CR209	R32
CR210	R64
CR211	R96
CR212	R128
CR213	R160
CR214	R192


39
SEE NOTE 19
.060 MAX TYP
.060 MAX TYP
3 REF
R192 REF
31
32

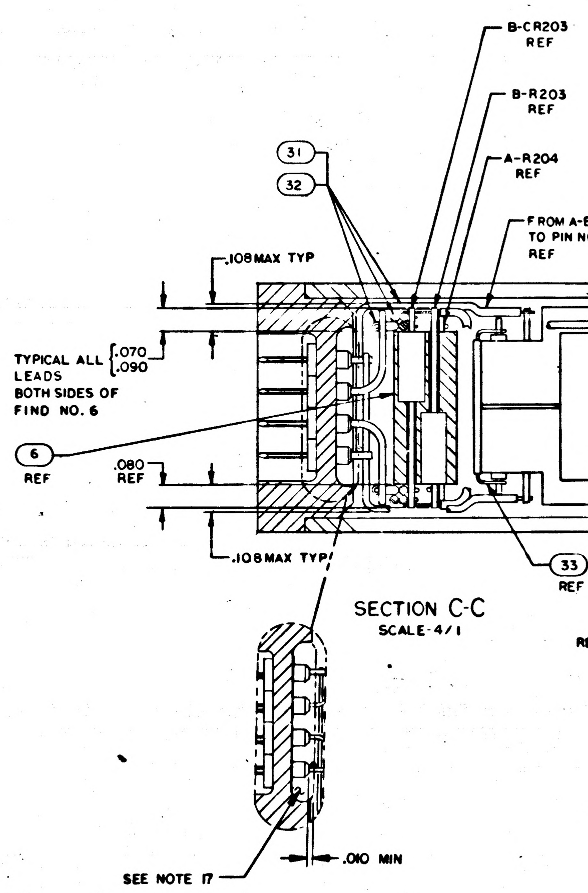
VIEW J-J


401
101
424
124

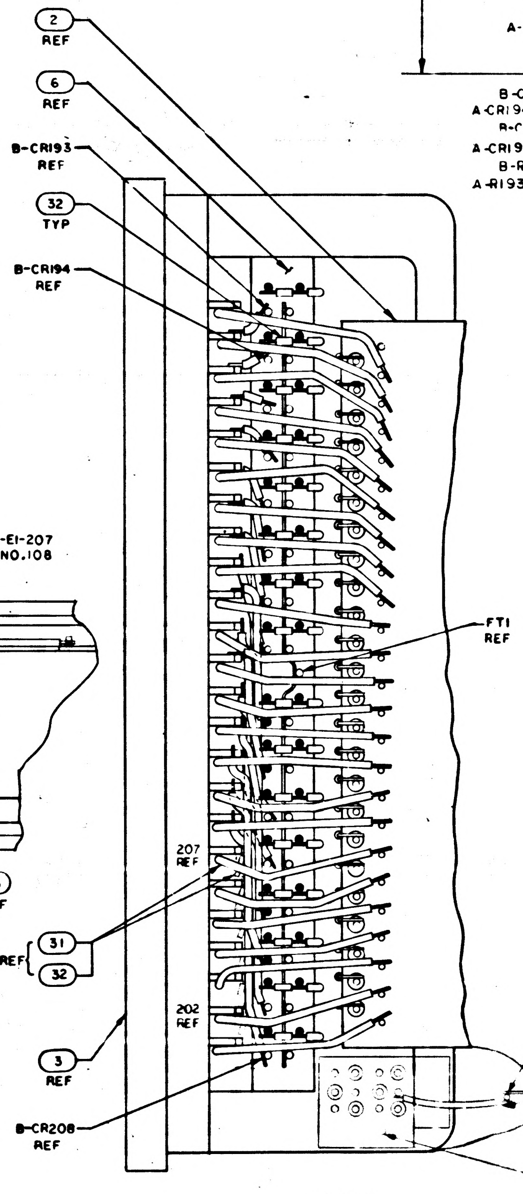
SECTION E-E


3 REF
6 REF
39 REF
A-CR208 REF
33 REF
1 REF
J
J
31
32
REF
302 REF
307 REF
C
A-CR207 REF
A-CR206 REF
A-CR205 REF
A-CR204 REF
A-CR203 REF
A-CR202 REF
A-CR201 REF
FT1 REF
A-CR200 REF
25 REF
A-CR194 REF
A-CR193 REF
A-R193 REF
FROM A-CR207
FROM A-CR205
FROM A-CR204
FROM A-CR202
FROM A-CR201
B-CR193 REF
B-R193 REF
+
+

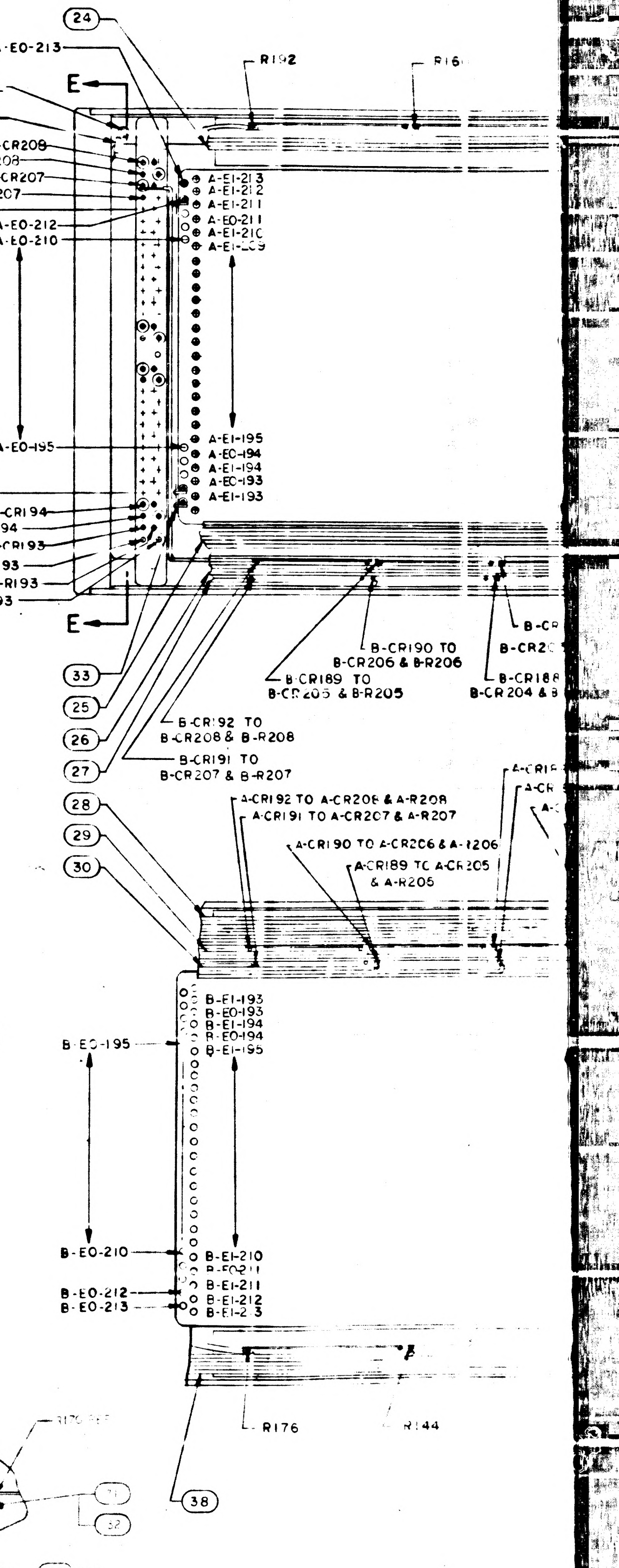
VIEW G-G
SCALE-4/1
SHOWN WITH POTTING AND FIND NO.7
REMOVED. SEE NOTES 11,12,13 AND 14


C
B-CR203 REF
B-R203 REF
A-R204 REF
FROM A-E1-207 TO PIN NO.108 REF
31
32
.108 MAX TYP
TYPICAL ALL LEADS BOTH SIDES OF FIND NO. 6
.070
.090
6 REF
.080 REF
.108 MAX TYP
33 REF
SEE NOTE 17
.010 MIN

SECTION C-C
SCALE-4/1

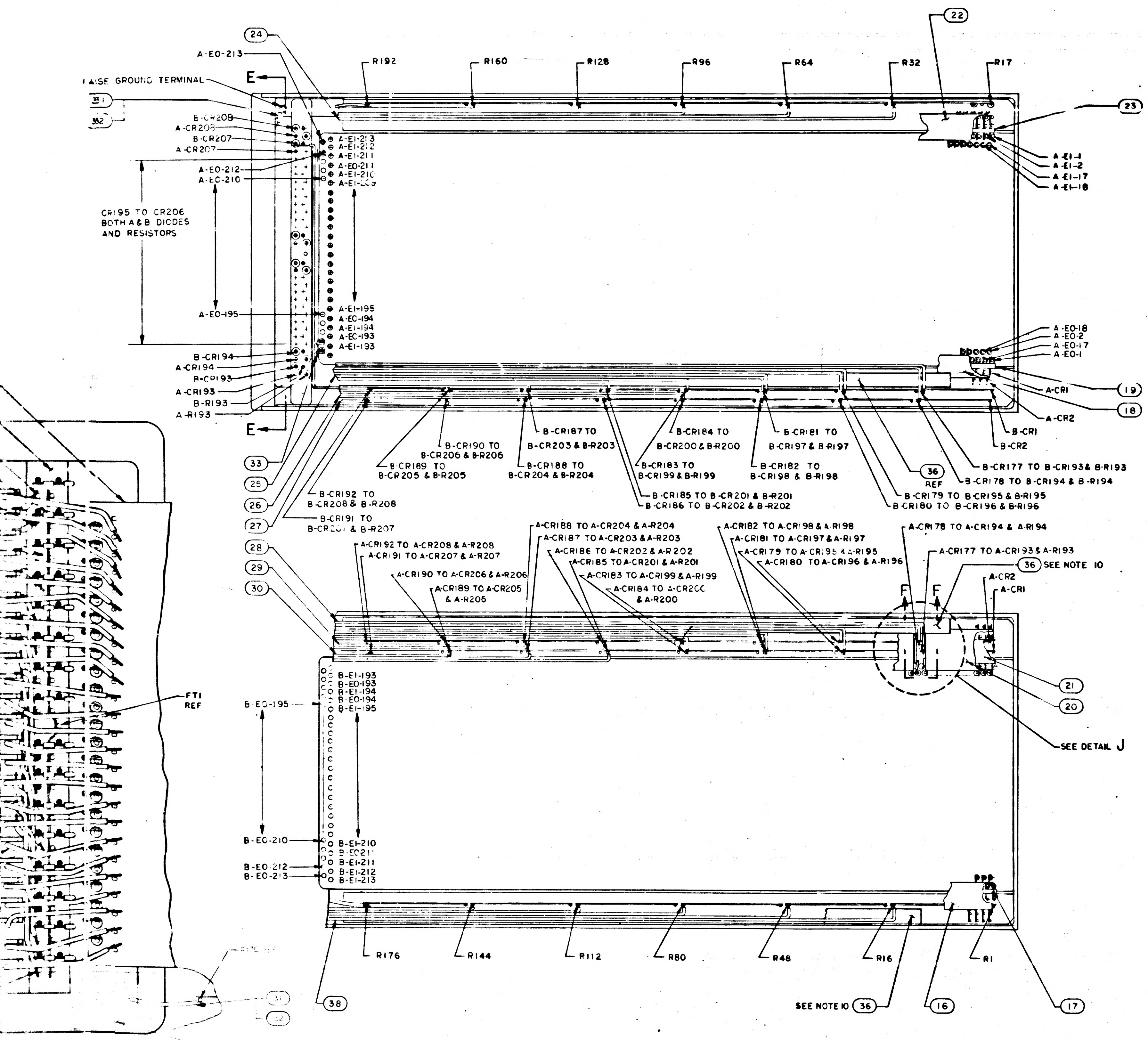

2 REF
6 REF
B-CR193 REF
32 TYP
B-CR194 REF
FT1 REF
207 REF
202 REF
REF
31
32
3 REF
B-CR208 REF

VIEW H-H
SCALE-4/1
SHOWN WITH POTTING AND FIND NO.7
REMOVED. SEE NOTES 11,12,13 AND 14


24
A-E0-213
CASE GROUND TERMINAL
E
31
32
R192
R16
B-CR208
A-CR208
B-CR207
A-CR207
A-E1-213
A-E1-212
A-E1-211
A-E0-211
A-E1-210
A-E1-209
A-E0-212
A-E0-210
CR195 TO CR206 BOTH A & B DIODES AND RESISTORS
A-E0-195
A-E1-195
A-E0-194
A-E1-194
A-E0-193
A-E1-193
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
E
33
25
26
27
28
29
30
B-CR190 TO B-CR206 & B-R206
B-CR189 TO B-CR205 & B-R205
B-CR188
B-CR204 & B
B-CR
B-CR2
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205 & A-R205
B-E1-193
B-E0-193
B-E1-194
B-E0-194
B-E1-195
B-E0-195
B-E0-210
B-E0-212
B-E0-213
B-E1-210
B-E0-211
B-E1-211
B-E1-212
B-E1-213
R176
R144
38
31
32
39 REF

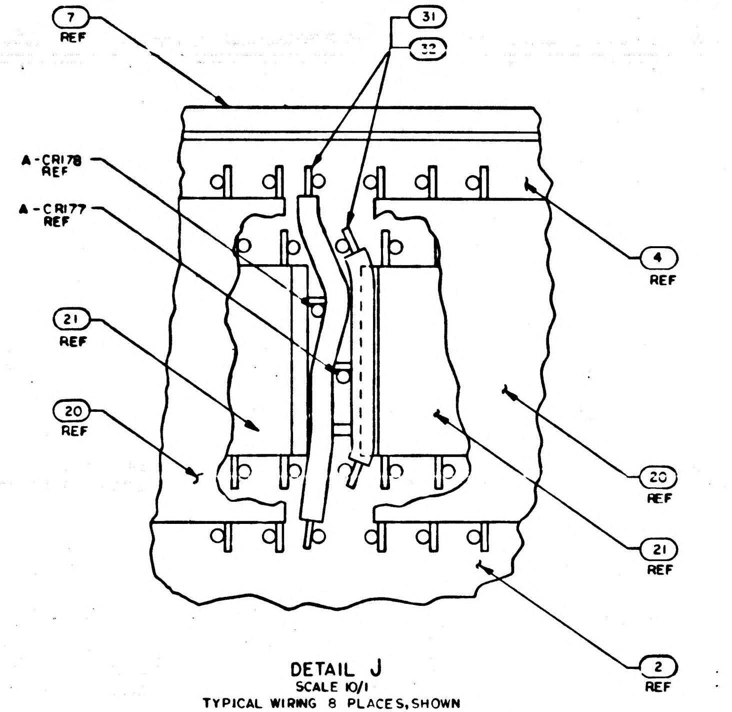
2003972 Y

SYM	ZONE	REVISIONS DESCRIPTION	DR	CHK	DATE	APPROVED
A		INITIAL [illegible] TDRR 32[illegible]				
B		REVISED PER TDRR 334[illegible]				
C		REVISED PER TDRR 33544				
D		REVISED PER TDRR 33[illegible]				
E		REVISED PER TDRR 341[illegible]				
F		REVISED PER TDRR 344[illegible]				
G		REVISED PER TDRR 349[illegible]				
H		REVISED PER TDRR 353[illegible]				
J		REVISED PER TDRR 3[illegible]				
K		REVISED PER TDRR 3557[illegible]				
L		REVISED PER TDRR 362[illegible]			5/29/68	
M		REVISED PER TDRR 36[illegible]				
N		REVISED PER TDRR 36[illegible]86				
P		REVISED PER TDRR 36[illegible]				
R		REVISED PER TDRR 3[illegible]55				
S		REVISED PER TDRR				
T		REVISED PER TDRR				
U		REVISED PER TDRR 3700[illegible]				
V		REVISED PER TDRR				
W		REVISED PER TDRR 3738[illegible]				
Y		REVISED PER TDRR 3742[illegible]				



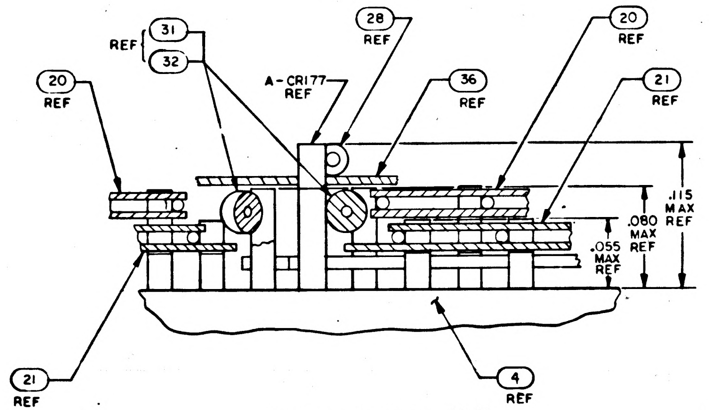
24
A-E0-213
FALSE GROUND TERMINAL
31
32
E
B-CR208
A-CR208
B-CR207
A-CR207
A-E0-212
A-E0-210
A-E1-213
A-E1-212
A-E1-211
A-E0-211
A-E1-210
A-E1-209
CR195 TO CR206 BOTH A & B DIODES AND RESISTORS
A-E0-195
A-E1-195
A-E0-194
A-E1-194
A-E0-193
A-E1-193
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
E
R192
R160
R128
R96
R64
R32
R17
22
23
A-E1-1
A-E1-2
A-E1-17
A-E1-18
A-E0-18
A-E0-2
A-E0-17
A-E0-1
A-CR1
19
18
A-CR2
B-CR1
B-CR2
33
25
26
27
B-CR190 TO B-CR206 & B-R206
B-CR187 TO B-CR203 & B-R203
B-CR184 TO B-CR200 & B-R200
B-CR181 TO B-CR197 & B-R197
B-CR189 TO B-CR205 & B-R205
B-CR188 TO B-CR204 & B-R204
B-CR183 TO B-CR199 & B-R199
B-CR182 TO B-CR198 & B-R198
36 REF
B-CR177 TO B-CR193 & B-R193
B-CR178 TO B-CR194 & B-R194
B-CR185 TO B-CR201 & B-R201
B-CR186 TO B-CR202 & B-R202
B-CR179 TO B-CR195 & B-R195
B-CR180 TO B-CR196 & B-R196
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
28
29
30
A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
A-CR190 TO A-CR206 & A-R206
A-CR189 TO A-CR205 & A-R205
A-CR188 TO A-CR204 & A-R204
A-CR187 TO A-CR203 & A-R203
A-CR186 TO A-CR202 & A-R202
A-CR185 TO A-CR201 & A-R201
A-CR183 TO A-CR199 & A-R199
A-CR184 TO A-CR200 & A-R200
A-CR182 TO A-CR198 & A-R198
A-CR181 TO A-CR197 & A-R197
A-CR179 TO A-CR195 & A-R195
A-CR180 TO A-CR196 & A-R196
A-CR178 TO A-CR194 & A-R194
A-CR177 TO A-CR193 & A-R193
36 SEE NOTE 10
F
F
A-CR2
A-CR1
21
20
SEE DETAIL J
FT1 REF
B-E0-195
B-E1-193
B-E0-193
B-E1-194
B-E0-194
B-E1-195
B-E0-210
B-E1-210
B-E0-211
B-E1-211
B-E0-212
B-E0-213
B-E1-212
B-E1-213
R176
R144
R112
R80
R48
R16
R1
38
SEE NOTE 10
36
16
17

VIEW H-H
SCALE [illegible]/1
[illegible] WITH POTTING AND FIND NO. 7
[illegible] SEE NOTES 11, 12, 13 AND 14



7 REF
31
32
A-CR178 REF
A-CR177 REF
21 REF
20 REF
4 REF
20 REF
21 REF
2 REF

DETAIL J
SCALE 10/1
TYPICAL WIRING 8 PLACES, SHOWN WITH FIND NO'S 28 AND 36 REMOVED



REF
31
32
20 REF
A-CR177 REF
28 REF
36 REF
20 REF
21 REF
.115 MAX
.080 MAX REF
.055 MAX REF
21 REF
4 REF

PARTIAL SECTION F-F
SCALE: 20/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003972
SCALE 2/1
SHEET 2 OF 3

2003972 Y

8 7 6 5

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

D

C

B

A

8

2003972 Y

4 3 2

WIRE LIST

TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.
A-EO-1	A-CR1	A-EO-97	A-CR97	B-EO-1	B-CR1	B-EO-97	B-CR97	A-EI-1	R1	A-EI-49	R49	A-EI-97	R97	A-EI-145	R145
A-EO-2	A-CR2	A-EO-98	A-CR98	B-EO-2	B-CR2	B-EO-98	B-CR98	B-EI-1		B-EI-49		B-EI-97		B-EI-145	
A-EO-3	A-CR3	A-EO-99	A-CR99	B-EO-3	B-CR3	B-EO-99	B-CR99	A-EI-2	R2	A-EI-50	R50	A-EI-98	R98	A-EI-146	R146
A-EO-4	A-CR4	A-EO-100	A-CR100	B-EO-4	B-CR4	B-EO-100	B-CR100	B-EI-2		B-EI-50		B-EI-98		B-EI-146	
A-EO-5	A-CR5	A-EO-101	A-CR101	B-EO-5	B-CR5	B-EO-101	B-CR101	A-EI-3	R3	A-EI-51	R51	A-EI-99	R99	A-EI-147	R147
A-EO-6	A-CR6	A-EO-102	A-CR102	B-EO-6	B-CR6	B-EO-102	B-CR102	B-EI-3		B-EI-51		B-EI-99		B-EI-147	
A-EO-7	A-CR7	A-EO-103	A-CR103	B-EO-7	B-CR7	B-EO-103	B-CR103	A-EI-4	R4	A-EI-52	R52	A-EI-100	R100	A-EI-148	R148
A-EO-8	A-CR8	A-EO-104	A-CR104	B-EO-8	B-CR8	B-EO-104	B-CR104	B-EI-4		B-EI-52		B-EI-100		B-EI-148	
A-EO-9	A-CR9	A-EO-105	A-CR105	B-EO-9	B-CR9	B-EO-105	B-CR105	A-EI-5	R5	A-EI-53	R53	A-EI-101	R101	A-EI-149	R149
A-EO-10	A-CR10	A-EO-106	A-CR106	B-EO-10	B-CR10	B-EO-106	B-CR106	B-EI-5		B-EI-53		B-EI-101		B-EI-149	
A-EO-11	A-CR11	A-EO-107	A-CR107	B-EO-11	B-CR11	B-EO-107	B-CR107	A-EI-6	R6	A-EI-54	R54	A-EI-102	R102	A-EI-150	R150
A-EO-12	A-CR12	A-EO-108	A-CR108	B-EO-12	B-CR12	B-EO-108	B-CR108	B-EI-6		B-EI-54		B-EI-102		B-EI-150	
A-EO-13	A-CR13	A-EO-109	A-CR109	B-EO-13	B-CR13	B-EO-109	B-CR109	A-EI-7	R7	A-EI-55	R55	A-EI-103	R103	A-EI-151	R151
A-EO-14	A-CR14	A-EO-110	A-CR110	B-EO-14	B-CR14	B-EO-110	B-CR110	B-EI-7		B-EI-55		B-EI-103		B-EI-151	
A-EO-15	A-CR15	A-EO-111	A-CR111	B-EO-15	B-CR15	B-EO-111	B-CR111	A-EI-8	R8	A-EI-56	R56	A-EI-104	R104	A-EI-152	R152
A-EO-16	A-CR16	A-EO-112	A-CR112	B-EO-16	B-CR16	B-EO-112	B-CR112	B-EI-8		B-EI-56		B-EI-104		B-EI-152	
A-EO-17	A-CR17	A-EO-113	A-CR113	B-EO-17	B-CR17	B-EO-113	B-CR113	A-EI-9	R9	A-EI-57	R57	A-EI-105	R105	A-EI-153	R153
A-EO-18	A-CR18	A-EO-114	A-CR114	B-EO-18	B-CR18	B-EO-114	B-CR114	B-EI-9		B-EI-57		B-EI-105		B-EI-153	
A-EO-19	A-CR19	A-EO-115	A-CR115	B-EO-19	B-CR19	B-EO-115	B-CR115	A-EI-10	R10	A-EI-58	R58	A-EI-106	R106	A-EI-154	R154
A-EO-20	A-CR20	A-EO-116	A-CR116	B-EO-20	B-CR20	B-EO-116	B-CR116	B-EI-10		B-EI-58		B-EI-106		B-EI-154	
A-EO-21	A-CR21	A-EO-117	A-CR117	B-EO-21	B-CR21	B-EO-117	B-CR117	A-EI-11	R11	A-EI-59	R59	A-EI-107	R107	A-EI-155	R155
A-EO-22	A-CR22	A-EO-118	A-CR118	B-EO-22	B-CR22	B-EO-118	B-CR118	B-EI-11		B-EI-59		B-EI-107		B-EI-155	
A-EO-23	A-CR23	A-EO-119	A-CR119	B-EO-23	B-CR23	B-EO-119	B-CR119	A-EI-12	R12	A-EI-60	R60	A-EI-108	R108	A-EI-156	R156
A-EO-24	A-CR24	A-EO-120	A-CR120	B-EO-24	B-CR24	B-EO-120	B-CR120	B-EI-12		B-EI-60		B-EI-108		B-EI-156	
A-EO-25	A-CR25	A-EO-121	A-CR121	B-EO-25	B-CR25	B-EO-121	B-CR121	A-EI-13	R13	A-EI-61	R61	A-EI-109	R109	A-EI-157	R157
A-EO-26	A-CR26	A-EO-122	A-CR122	B-EO-26	B-CR26	B-EO-122	B-CR122	B-EI-13		B-EI-61		B-EI-109		B-EI-157	
A-EO-27	A-CR27	A-EO-123	A-CR123	B-EO-27	B-CR27	B-EO-123	B-CR123	A-EI-14	R14	A-EI-62	R62	A-EI-110	R110	A-EI-158	R158
A-EO-28	A-CR28	A-EO-124	A-CR124	B-EO-28	B-CR28	B-EO-124	B-CR124	B-EI-14		B-EI-62		B-EI-110		B-EI-158	
A-EO-29	A-CR29	A-EO-125	A-CR125	B-EO-29	B-CR29	B-EO-125	B-CR125	A-EI-15	R15	A-EI-63	R63	A-EI-111	R111	A-EI-159	R159
A-EO-30	A-CR30	A-EO-126	A-CR126	B-EO-30	B-CR30	B-EO-126	B-CR126	B-EI-15		B-EI-63		B-EI-111		B-EI-159	
A-EO-31	A-CR31	A-EO-127	A-CR127	B-EO-31	B-CR31	B-EO-127	B-CR127	A-EI-16	R16	A-EI-64	R64	A-EI-112	R112	A-EI-160	R160
A-EO-32	A-CR32	A-EO-128	A-CR128	B-EO-32	B-CR32	B-EO-128	B-CR128	B-EI-16		B-EI-64		B-EI-112		B-EI-160	
A-EO-33	A-CR33	A-EO-129	A-CR129	B-EO-33	B-CR33	B-EO-129	B-CR129	A-EI-17	R17	A-EI-65	R65	A-EI-113	R113	A-EI-161	R161
A-EO-34	A-CR34	A-EO-130	A-CR130	B-EO-34	B-CR34	B-EO-130	B-CR130	B-EI-17		B-EI-65		B-EI-113		B-EI-161	
A-EO-35	A-CR35	A-EO-131	A-CR131	B-EO-35	B-CR35	B-EO-131	B-CR131	A-EI-18	R18	A-EI-66	R66	A-EI-114	R114	A-EI-162	R162
A-EO-36	A-CR36	A-EO-132	A-CR132	B-EO-36	B-CR36	B-EO-132	B-CR132	B-EI-18		B-EI-66		B-EI-114		B-EI-162	
A-EO-37	A-CR37	A-EO-133	A-CR133	B-EO-37	B-CR37	B-EO-133	B-CR133	A-EI-19	R19	A-EI-67	R67	A-EI-115	R115	A-EI-163	R163
A-EO-38	A-CR38	A-EO-134	A-CR134	B-EO-38	B-CR38	B-EO-134	B-CR134	B-EI-19		B-EI-67		B-EI-115		B-EI-163	
A-EO-39	A-CR39	A-EO-135	A-CR135	B-EO-39	B-CR39	B-EO-135	B-CR135	A-EI-20	R20	A-EI-68	R68	A-EI-116	R116	A-EI-164	R164
A-EO-40	A-CR40	A-EO-136	A-CR136	B-EO-40	B-CR40	B-EO-136	B-CR136	B-EI-20		B-EI-68		B-EI-116		B-EI-164	
A-EO-41	A-CR41	A-EO-137	A-CR137	B-EO-41	B-CR41	B-EO-137	B-CR137	A-EI-21	R21	A-EI-69	R69	A-EI-117	R117	A-EI-165	R165
A-EO-42	A-CR42	A-EO-138	A-CR138	B-EO-42	B-CR42	B-EO-138	B-CR138	B-EI-21		B-EI-69		B-EI-117		B-EI-165	
A-EO-43	A-CR43	A-EO-139	A-CR139	B-EO-43	B-CR43	B-EO-139	B-CR139	A-EI-22	R22	A-EI-70	R70	A-EI-118	R118	A-EI-166	R166
A-EO-44	A-CR44	A-EO-140	A-CR140	B-EO-44	B-CR44	B-EO-140	B-CR140	B-EI-22		B-EI-70		B-EI-118		B-EI-166	
A-EO-45	A-CR45	A-EO-141	A-CR141	B-EO-45	B-CR45	B-EO-141	B-CR141	A-EI-23	R23	A-EI-71	R71	A-EI-119	R119	A-EI-167	R167
A-EO-46	A-CR46	A-EO-142	A-CR142	B-EO-46	B-CR46	B-EO-142	B-CR142	B-EI-23		B-EI-71		B-EI-119		B-EI-167	
A-EO-47	A-CR47	A-EO-143	A-CR143	B-EO-47	B-CR47	B-EO-143	B-CR143	A-EI-24	R24	A-EI-72	R72	A-EI-120	R120	A-EI-168	R168
A-EO-48	A-CR48	A-EO-144	A-CR144	B-EO-48	B-CR48	B-EO-144	B-CR144	B-EI-24		B-EI-72		B-EI-120		B-EI-168	
A-EO-49	A-CR49	A-EO-145	A-CR145	B-EO-49	B-CR49	B-EO-145	B-CR145	A-EI-25	R25	A-EI-73	R73	A-EI-121	R121	A-EI-169	R169
A-EO-50	A-CR50	A-EO-146	A-CR146	B-EO-50	B-CR50	B-EO-146	B-CR146	B-EI-25		B-EI-73		B-EI-121		B-EI-169	
A-EO-51	A-CR51	A-EO-147	A-CR147	B-EO-51	B-CR51	B-EO-147	B-CR147	A-EI-26	R26	A-EI-74	R74	A-EI-122	R122	A-EI-170	R170
A-EO-52	A-CR52	A-EO-148	A-CR148	B-EO-52	B-CR52	B-EO-148	B-CR148	B-EI-26		B-EI-74		B-EI-122		B-EI-170	
A-EO-53	A-CR53	A-EO-149	A-CR149	B-EO-53	B-CR53	B-EO-149	B-CR149	A-EI-27	R27	A-EI-75	R75	A-EI-123	R123	A-EI-171	R171
A-EO-54	A-CR54	A-EO-150	A-CR150	B-EO-54	B-CR54	B-EO-150	B-CR150	B-EI-27		B-EI-75		B-EI-123		B-EI-171	
A-EO-55	A-CR55	A-EO-151	A-CR151	B-EO-55	B-CR55	B-EO-151	B-CR151	A-EI-28	R28	A-EI-76	R76	A-EI-124	R124	A-EI-172	R172
A-EO-56	A-CR56	A-EO-152	A-CR152	B-EO-56	B-CR56	B-EO-152	B-CR152	B-EI-28		B-EI-76		B-EI-124		B-EI-172	
A-EO-57	A-CR57	A-EO-153	A-CR153	B-EO-57	B-CR57	B-EO-153	B-CR153	A-EI-29	R29	A-EI-77	R77	A-EI-125	R125	A-EI-173	R173
A-EO-58	A-CR58	A-EO-154	A-CR154	B-EO-58	B-CR58	B-EO-154	B-CR154	B-EI-29		B-EI-77		B-EI-125		B-EI-173	
A-EO-59	A-CR59	A-EO-155	A-CR155	B-EO-59	B-CR59	B-EO-155	B-CR155	A-EI-30	R30	A-EI-78	R78	A-EI-126	R126	A-EI-174	R174
A-EO-60	A-CR60	A-EO-156	A-CR156	B-EO-60	B-CR60	B-EO-156	B-CR156	B-EI-30		B-EI-78		B-EI-126		B-EI-174	
A-EO-61	A-CR61	A-EO-157	A-CR157	B-EO-61	B-CR61	B-EO-157	B-CR157	A-EI-31	R31	A-EI-79	R79	A-EI-127	R127	A-EI-175	R175
A-EO-62	A-CR62	A-EO-158	A-CR158	B-EO-62	B-CR62	B-EO-158	B-CR158	B-EI-31		B-EI-79		B-EI-127		B-EI-175	
A-EO-63	A-CR63	A-EO-159	A-CR159	B-EO-63	B-CR63	B-EO-159	B-CR159	A-EI-32	R32	A-EI-80	R80	A-EI-128	R128	A-EI-176	R176
A-EO-64	A-CR64	A-EO-160	A-CR160	B-EO-64	B-CR64	B-EO-160	B-CR160	B-EI-32		B-EI-80		B-EI-128		B-EI-176	
A-EO-65	A-CR65	A-EO-161	A-CR161	B-EO-65	B-CR65	B-EO-161	B-CR161	A-EI-33	R33	A-EI-81	R81	A-EI-129	R129	A-EI-177	R177
A-EO-66	A-CR66	A-EO-162	A-CR162	B-EO-66	B-CR66	B-EO-162	B-CR162	B-EI-33		B-EI-81		B-EI-129		B-EI-177	
A-EO-67	A-CR67	A-EO-163	A-CR163	B-EO-67	B-CR67	B-EO-163	B-CR163	A-EI-34	R34	A-EI-82	R82	A-EI-130	R130	A-EI-178	R178
A-EO-68	A-CR68	A-EO-164	A-CR164	B-EO-68	B-CR68	B-EO-164	B-CR164	B-EI-34		B-EI-82		B-EI-130		B-EI-178	
A-EO-69	A-CR69	A-EO-165	A-CR165	B-EO-69	B-CR69	B-EO-165	B-CR165	A-EI-35	R35	A-EI-83	R83	A-EI-131	R131	A-EI-179	R179
A-EO-70	A-CR70	A-EO-166	A-CR166	B-EO-70	B-CR70	B-EO-166	B-CR166	B-EI-35		B-EI-83		B-EI-131		B-EI-179	
A-EO-71	A-CR71	A-EO-167	A-CR167	B-EO-71	B-CR71	B-EO-167	B-CR167	A-EI-36	R36	A-EI-84	R84	A-EI-132	R132	A-EI-180	R180
A-EO-72	A-CR72	A-EO-168	A-CR168	B-EO-72	B-CR72	B-EO-168	B-CR168	B-EI-36		B-EI-84		B-EI-132		B-EI-180	
A-EO-73	A-CR73	A-EO-169	A-CR169	B-EO-73	B-CR73	B-EO-169	B-CR169	A-EI-37	R37	A-EI-85	R85	A-EI-133	R133	A-EI-181	R181
A-EO-74	A-CR74	A-EO-170	A-CR170	B-EO-74	B-CR74	B-EO-170	B-CR170	B-EI-37		B-EI-85		B-EI-133		B-EI-181	
A-EO-75	A-CR75	A-EO-171	A-CR171	B-EO-75	B-CR75	B-EO-171	B-CR171	A-EI-38	R38	A-EI-86	R86	A-EI-134	R134	A-EI-182	R182
A-EO-76	A-CR76	A-EO-172	A-CR172	B-EO-76	B-CR76	B-EO-172	B-CR172	B-EI-38		B-EI-86		B-EI-134		B-EI-182	
A-EO-77	A-CR77	A-EO-173	A-CR173	B-EO-77	B-CR77	B-EO-173	B-CR173	A-EI-39	R39	A-EI-87	R87	A-EI-135	R135	A-EI-183	R183
A-EO-78	A-CR78	A-EO-174	A-CR174	B-EO-78	B-CR78	B-EO-174	B-CR174	B-EI-39		B-EI-87		B-EI-135		B-EI-183	
A-EO-79	A-CR79	A-EO-175	A-CR175	B-EO-79	B-CR79	B-EO-175	B-CR175	A-EI-40	R40	A-EI-88	R88	A-EI-136	R136	A-EI-184	R184
A-EO-80	A-CR80	A-EO-176	A-CR176	B-EO-80	B-CR80	B-EO-176	B-CR176	B-EI-40		B-EI-88		B-EI-136		B-EI-184	
A-EO-81	A-CR81	A-EO-177	A-CR177	B-EO-81	B-CR81	B-EO-177	B-CR177	A-EI-41	R41	A-EI-89	R89	A-EI-137	R137	A-EI-185	R185
A-EO-82	A-CR82	A-EO-178	A-CR178	B-EO-82	B-CR82	B-EO-178	B-CR178	B-EI-41		B-EI-89		B-EI-137		B-EI-185	
A-EO-83	A-CR83	A-EO-179	A-CR179	B-EO-83	B-CR83	B-EO-179	B-CR179	A-EI-42	R42	A-EI-90	R90	A-EI-138	R138	A-EI-186	R186
A-EO-84	A-CR84	A-EO-180	A-CR180	B-EO-84	B-CR84	B-EO-180	B-CR180	B-EI-42		B-EI-90		B-EI-138		B-EI-186	
A-EO-85	A-CR85	A-EO-181	A-CR181	B-EO-85	B-CR85	B-EO-181	B-CR181	A-EI-43	R43	A-EI-91	R91	A-EI-139	R139	A-EI-187	R187
A-EO-86	A-CR86	A-EO-182	A-CR182	B-EO-86	B-CR86	B-EO-182	B-CR182	B-EI-43		B-EI-91		B-EI-139		B-EI-187	
A-EO-87	A-CR87	A-EO-183	A-CR183	B-EO-87	B-CR87	B-EO-183	B-CR183	A-EI-44	R44	A-EI-92	R92	A-EI-140	R140	A-EI-188	R188
A-EO-88	A-CR88	A-EO-184	A-CR184	B-EO-88	B-CR88	B-EO-184	B-CR184	B-EI-44		B-EI-92		B-EI-140		B-EI-188	
A-EO-89	A-CR89	A-EO-185	A-CR185	B-EO-89	B-CR89	B-EO-185	B-CR185	A-EI-45	R45	A-EI-93	R93	A-EI-141	R141	A-EI-189	R189
A-EO-90	A-CR90	A-EO-186	A-CR186	B-EO-90	B-CR90	B-EO-186	B-CR186	B-EI-45		B-EI-93		B-EI-141		B-EI-189	
A-EO-91	A-CR91	A-EO-187	A-CR187	B-EO-91	B-CR91	B-EO-187	B-CR187	A-EI-46	R46	A-EI-94	R94	A-EI-142	R142	A-EI-190	R190
A-EO-92	A-CR92	A-EO-188	A-CR188	B-EO-92	B-CR92	B-EO-188	B-CR188	B-EI-46		B-EI-94		B-EI-142		B-EI-190	
A-EO-93	A-CR93	A-EO-189	A-CR189	B-EO-93	B-CR93	B-EO-189	B-CR189	A-EI-47	R47	A-EI-95	R95	A-EI-143	R143	A-EI-191	R191
A-EO-94	A-CR94	A-EO-190	A-CR190	B-EO-94	B-CR94	B-EO-190	B-CR190	B-EI-47		B-EI-95		B-EI-143		B-EI-191	
A-EO-95	A-CR95	A-EO-191	A-CR191	B-EO-95	B-CR95	B-EO-191	B-CR191	A-EI-48	R48	A-EI-96	R96	A-EI-144	R144	A-EI-192	R192
A-EO-96	A-CR96	A-EO-192	A-CR192	B-EO-96	B-CR96	B-EO-192	B-CR192	B-EI-48		B-EI-96		B-EI-144		B-EI-192	

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL RE[illegible] TDRR 32991				
B		REVISED PER TDRR 33410				
C		REVISED PER TDRR 33544				
D		REVISED PER TDRR 33606				
E		REVISED PER TDRR 34140				
F		REVISED PER TDRR 34489				
G		REVISED PER TDRR 34997				
H		REVISED PER TDRR 35339				
J		REVISED PER TDRR 35649				
K		REVISED PER TDRR 35370				
L		REVISED PER TDRR 36217				
M		REVISED PER TDRR 36[illegible]				
N		REVISED PER TDRR 36686				
P		REVISED PER TDRR 36810				
R		REVISED PER TDRR 36839				
S		REVISED PER TDRR 36916				
T		REVISED PER TDRR 36970				
U		REVISED PER TDRR 37005				
V		REVISED PER TDRR 37148				
W		REVISED PER TDRR 37387				
Y		REVISED PER TDRR 37427				

D

C

B

A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED
MSC
APPROVED
MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE
ASSEMBLY

CODE IDENT NO 80230
SIZE J
DRAWING NO. 2003972
SCALE NONE
SHEET 3 OF 3

Y

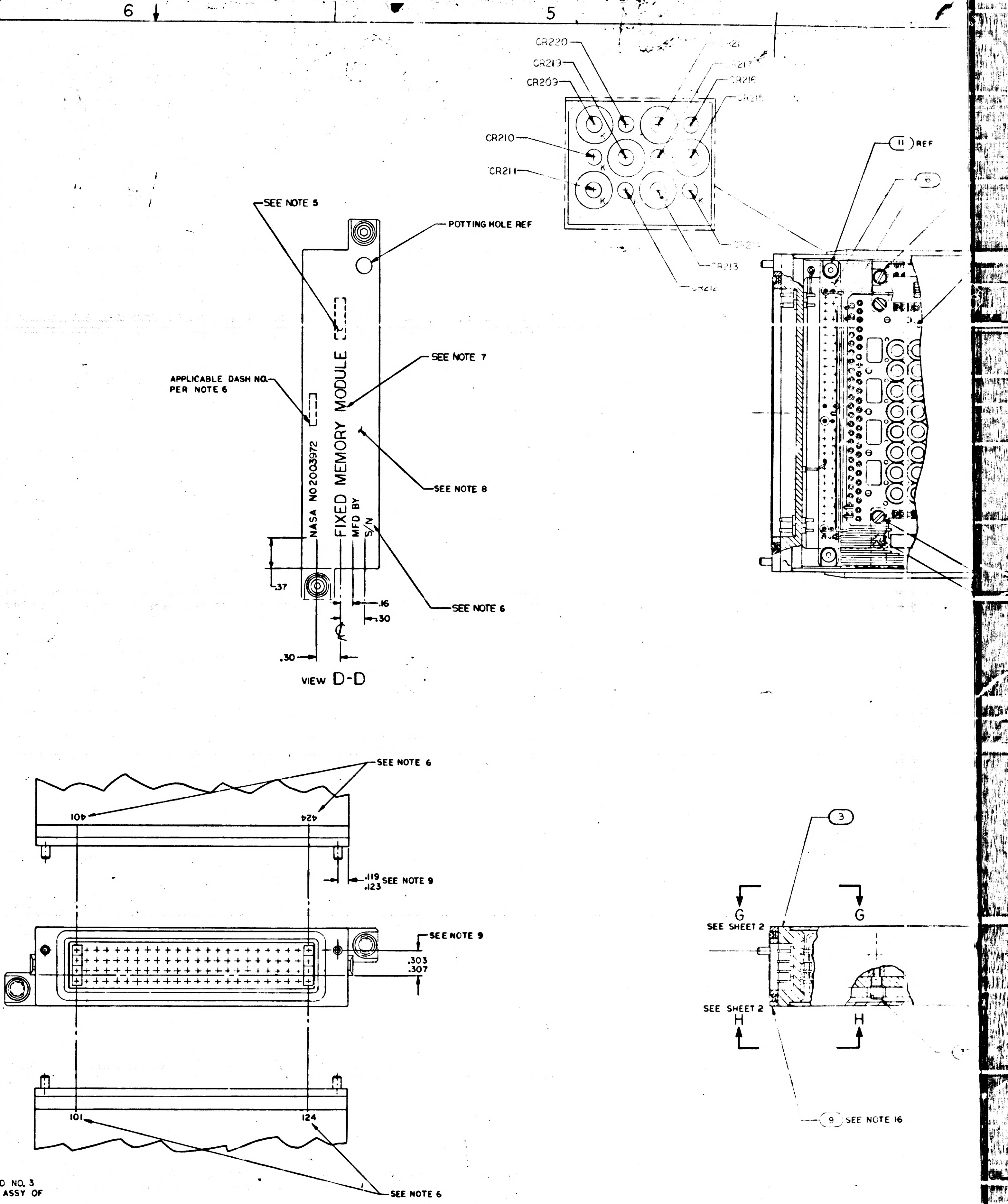
4 1

SH 3/3 2003972 YF2/21

SH 1 OF 2
2003972

NOTICE - WHEN GOVT. DRAWINGS, SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

PART NO.	MODULE NO.	FIND NO. 1	FIND NO. 2	MODULE DECK NO.	NEXT ASSEMBLY NO. (REF)	PROCUREMENT SPECIFICATION SEE NOTE 15
2003972-011	B1	2003060-061	2003061-061	0205	2021101	PS2003972
2003972-021	B2	2003060-071	2003061-071	0206	2021101	
2003972-031	B3	2003060-081	2003061-081	0207	2021101	
2003972-041	B1	2003060-121	2003061-121	0210	2021104	
2003972-051	B2	2003060-131	2003061-131	0211	2021104	
2003972-061	B3	2003060-141	2003061-141	0212	2021104	
2003972-071	B2	2003060-151	2003061-151	0213	2021104	
2003972-081	B3	2003060-161	2003061-161	0214	2021104	
2003972-091	B2	2003060-171	2003061-171	0215	2021101	
2003972-111	B3	2003060-181	2003061-181	0216	2021101	PS2003972
2003972-121	B1	2003060-091	2003061-091	0208	2021105-031	PS2003960
2003972-131	B2	2003060-111	2003061-111	0209	2021105-031	PS2003960
2003972-141	B1	2003060-191	2003061-191	0217	2021106-011	PS2003972
2003972-151	B2	2003060-211	2003061-211	0218	2021106-011	
2003972-161	B3	2003060-221	2003061-221	0219	2021106-011	
2003972-171	B4	2003060-231	2003061-231	0220	2021106-011	
2003972-181	B5	2003060-241	2003061-241	0221	2021106-011	
2003972-191	B6	2003060-251	2003061-251	0222	2021106-011	
2003972-211	B3	2003060-261	2003061-261	0223	2021104-041	PS2003972
2003972-221	B1	2003060-271	2003061-271	0224	2021105-041	PS2003960
2003972-231	B1	2003060-281	2003061-281	0225	2021106-021	PS2003972
2003972-241	B3	2003060-291	2003061-291	0226	2021106-021	
2003972-251	B5	2003060-311	2003061-311	0227	2021105-021	
2003972-261	B1	2003060-321	2003061-321	0230	2021107-011	
2003972-271	B2	2003060-331	2003061-331	0229	2021107-011	
2003972-281	B2	2003060-341	2003061-341	0231	2021106-031	
2003972-291	B1	2003060-351	2003061-351	0238	2021107-021	PS2003972
2003972-311	B1	2003060-361	2003061-361	0239	2021108-021	PS2016016
-321	B2	2003060-371	2003061-371	0240	2021108-021	PS2016016
-331	B3	2003060-381	2003061-381	0241	2021108-021	PS2016016
-341	B4	2003060-391	2003061-391	0242	2021108-021	PS2016016
-351	B5	2003060-411	2003061-411	0243	2021108-021	PS2016016
2003972-361	B6	2003060-421	2003061-421	0244	2021108-021	PS2016016
2003972-371	B1	2003060-431	2003061-431	0245	2021110-011	PS2016016
2003972-381	B2	2003060-441	2003061-441	0246	2021110-011	
2003972-391	B3	2003060-451	2003061-451	0247	2021110-011	
2003972-411	B4	2003060-461	2003061-461	0248	2021110-011	
2003972-421	B5	2003060-471	2003061-471	0249	2021110-011	
2003972-431	B6	2003060-481	2003061-481	0250	2021110-011	PS2016016
2003972-441	B1	2003060-491	2003061-491	0251	2021110-021	PS2016016
2003972-451	B2	2003060-511	2003061-511	0252	2021110-021	
2003972-461	B3	2003060-521	2003061-521	0253	[illegible]	
2003972-471	B4	2003060-531	2003061-531	0254	2021110-021	
2003972-481	B5	2003060-541	2003061-541	0255	2021110-021	
2003972-491	B6	2003060-551	2003061-551	0256	2021110-021	PS2016016
-511	B1	-561	-561	0257	2021111-021&031	PS2016036
-521	B2	-571	-571	0258	-021&031	
-531	B3	-581	-581	0259	-021&031	
-541	B4	-591	-591	0260	2021111-021&031	
-551	B5	-611	-611	0261	2021111-021	
2003972-561	B6	2003060-621	2003061-621	0262	2021111-021&031	PS2016036
2003972-571	B5	2003060-631	2003061-631	0263	2021111-031	PS2016036
2003972-581	B1	2003060-641	2003061-641	0264	2021110-031	PS2016036
-591	B2	-651	-651	0265	2021110-031	
-611	B3	-661	-661	0266	2021110-031	
-621	B4	-671	-671	0267	2021110-031	
-631	B5	-681	-681	0268	2021110-031	
2003972-641	B6	2003060-691	2003061-691	0269	2021110-031	PS2016036
2003972-651	B1	2003060-711	2003061-711	0270	2021111-041	PS2016036
-661	B2	-721	-721	0271	-041	
-671	B3	-731	-731	0272	-041	
-681	B4	-741	-741	0273	-041	
-691	B5	-751	-751	0274	-041	
2003972-711	B6	2003060-761	2003061-761	0275	2021111-041	PS2016036
2003972-721	B1	2003060-771	2003061-771	0276	2021112-011	PS2016036
-731	B2	-781	-781	0277	-011	
-741	B3	-791	-791	0278	-011	
-751	B4	-811	-811	0279	-011	
-761	B5	-821	-821	0280	-011	
2003972-771	B6	2003060-831	2003061-831	0281	2021112-011	PS2016036
2003972-781	B1	2003060-841	2003061-841	0282	2021113-011	PS2016036
-791	B2	-851	-851	0283	-011	
-811	B3	-861	-861	0284	-011	
-821	B4	-871	-871	0285	-011	
-831	B5	-881	-881	0286	-011	
2003972-841	B6	2003060-891	2003061-891	0287	2021113-011	PS2016036
2003972-851	B3	2003060-911	2003061-911	0288	2021113-021	PS2016036
2003972-861	B1	2003060-921	2003061-921	0289	2021113-031	PS2016036
-871	B2	-931	-931	0290	-031	
-881	B3	-941	-941	0291	-031	
-891	B4	-951	-951	0292	-031	
-911	B5	-961	-961	0293	-031	
2003972-9[illegible]1	B6	2003060-971	2003061-971	0294	2021113-031	PS2016036



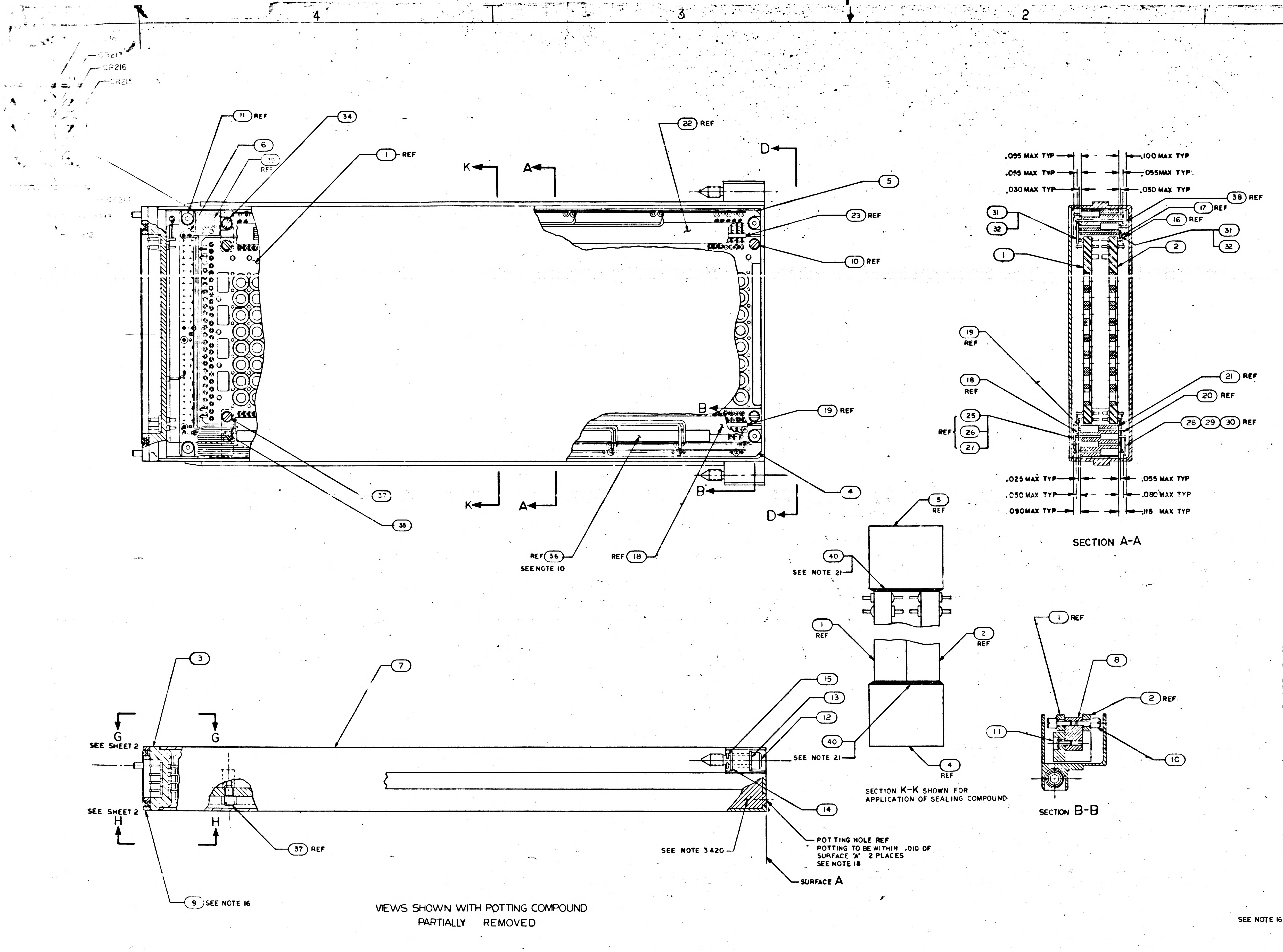
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
3. ENCAPSULATE MODULE PER ND1002226 METHOD II
4. WELD PER ND1002005
5. MARK APPROPRIATE MODULE NO. AS SHOWN IN CHART
6. MARK .08/.06 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 AND SERIALIZE PER ND 1002023 USING INK 1006271-1
7. MARK .14/.10 HIGH PER ND1002019 AND ND1002122 TYPE II CLASS 2 USING INK 1006271-1
8. PAINT INDICATED SURFACES OF FIND NO 7. PER ND1002279 WITH SCD NO.1008809-1 DARK GREY EPOXY RESIN ENAMEL, FINAL COAT PER ND1002277 USING 1012543-003
9. ASSEMBLE FIND NO.7 AND FIND NO.3 TO DIMENSIONS SHOWN
10. REMOVE LINER FROM NEARSIDE OF FIND NO.36 AND ASSEMBLE 3 PLACES AS SHOWN. FIND NO.36 MUST INSULATE FLAT CABLES FROM TRIMMED COMPONENT LEADS, TRIM AS REQUIRED
11. WHITE DOT AND SINGLE SOLID LEAD DENOTES FIRST LEVEL WIRING UNLESS OTHERWISE SPECIFIED
12. BLACK DOT AND SINGLE SOLID LEAD DENOTES SECOND LEVEL WIRING
13. BLACK DOT AND CROSS HATCHED LEAD DENOTES THIRD LEVEL WIRING
14. ALL LEADS FROM FIND NO.1 AND FIND NO.2 TO FIND NO.3 TO BE THIRD LEVEL WIRING
15. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PROCUREMENT SPECIFICATION AS LISTED IN CHART.
16. FIND NO.9 TO BE SHIPPED UNASSEMBLED AND IDENTIFIED PER ND 1002019
17. SEAL PINS AND INSULATORS TO FIND NO. 3 PER ND1002004 TYPE VI BEFORE ASSY OF FIND NO. 6
18. FILL AS SHOWN PER ND1002235 METHOD A
19. BOND FIND NO.39 TO FIND NO.3 PER ND1002004 TYPE VI AFTER ASSY OF FIND NO.6
20. PRIOR TO ENCAPSULATION PER NOTE 3, COAT OVER ALL TERMINALS OF FIND NO'S 1,2&3 AND OVER ALL WIRES, SLEEVING AND COMPONENT LEADS OF FIND NO'S 4,5,6,16,17,18,19,20,21,22,23,24, 25,26,27,28,29,30,31,32,33,38 &39 WITH A .03 MAXIMUM THICKNESS OF SILICONE RUBBER PER ND1002009, METHOD A. MASK ALL OUTSIDE SURFACES OF FIND NO.3 AND ALL OTHER SURFACES OF THIS ASSEMBLY COMING IN CLOSE CONTACT WITH FIND NO.7
21. FILL INTERFACE BETWEEN FIND NO. 4 AND SIDE SURFACES OF FIND NO'S 1 AND 2, AND INTERFACE BETWEEN FIND NO.5 AND SIDE SURFACES OF FIND NO'S 1 AND 2 USING FIND NO. 40. ROOM TEMP CURE FOR 24 HOURS MIN.

REFERENCES:

1. PROCESS REQUIREMENTS FOR CONTROL AND INSPECTION OF ROPE MEMORY ASSEMBLIES ND1002285
2. FIXED MEMORY FIXTURE DWG NO AP225[illegible]

2003972 Z


4
3
2
CR217
CR216
CR215
11 REF
6
34
30 REF
1 REF
22 REF
K
A
D
5
23 REF
10 REF
B
19 REF
4
37
35
REF 36 SEE NOTE 10
REF 18
.095 MAX TYP
.055 MAX TYP
.030 MAX TYP
.100 MAX TYP
.055MAX TYP
.030 MAX TYP
38 REF
17 REF
16 REF
31
32
2
19 REF
18 REF
21 REF
20 REF
25
26
27
REF
28 29 30 REF
.025 MAX TYP
.050 MAX TYP
.090MAX TYP
.055 MAX TYP
.080 MAX TYP
.115 MAX TYP
SECTION A-A
5 REF
40
SEE NOTE 21
1 REF
2 REF
40
SEE NOTE 21
4 REF
SECTION K-K SHOWN FOR APPLICATION OF SEALING COMPOUND
1 REF
8
2 REF
11
10
SECTION B-B
3
7
G
SEE SHEET 2
15
13
12
14
SEE SHEET 2
H
37 REF
SEE NOTE 3 & 20
POTTING HOLE REF POTTING TO BE WITHIN .010 OF SURFACE "A" 2 PLACES SEE NOTE 18
SURFACE A
9 SEE NOTE 16
VIEWS SHOWN WITH POTTING COMPOUND PARTIALLY REMOVED

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL RELEASE TDRR 33991	[illegible]	[illegible]
B	REVISED PER TDRR 33480 DR [illegible] CHK [illegible]	[illegible]	[illegible]
C	REVISED PER TDRR 33 4 DR [illegible] CHK [illegible]	7/8/67	TJR
D	REVISED PER TDRR 33506 DR P.A. Tobert CHK [illegible]	5/11/67	TJR
E	REVISED PER TDRR 34140 DR [illegible] CHK [illegible]	[illegible]	TJR
F	REVISED PER TDRR 34489 DR [illegible] CHK [illegible]	10-18-67	TJR
G	REVISED PER TDRR [illegible] DR [illegible] CHK [illegible]	[illegible]	TJR
H	REVISED PER TDRR 3537 DR J B CHK [illegible]	[illegible]	TJR
J	REVISED PER TDRR 35649 DR [illegible] CHK E Urban	[illegible]	TJR
K	REVISED PER TDRR 35870 DR W.J. Makar CHK E Urban	4/10/68	TJR
L	REVISED PER TDRR 36217 DR W.J. Makar CHK E Urban	5/29/68	TJR.
M	REVISED PER TDRR 36[illegible] DR [illegible] CHK Urban	[illegible]	TJR
N	REVISED PEP TDRR 36686 DR P.F. Campbell CHK E Urban	[illegible]	TJR
P	REVISED PER TDRR 36[illegible] DR [illegible] CHK [illegible]	[illegible]	TJR
R	REVISED PER TDRR 36858 DR P. Leonard CHK Urban	10/4/68	TJR
S	REVISED PER TDRR 36916 DR Tom Smith CHK Urban	10/23/68	TJR
T	REVISED PER TDRR 36970 DP P Leonard CHK Urban	11/1/68	TJR
U	REVISED PER TDRR 37008 DR P Leonard CHK E Urban	[illegible]	TJR
V	REVISED PER TDRR 37148 DR E Vinton CHK Urban	3/11/69	TJR
W	REVISED PER TDRR 37387 DR E Vinton CHK Urban	3/15/69	TJR
Y	REVISED PER TDRR 37427 DR P Leonard CHK Urban	4/2/69	TJR
Z	REVISED PER TDRR 37454 DR E Vinton CHK E Urban	16 APR 69	TJR

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006341	ADHESIVE SEALANT, SILICONE RUBBER	40
1	2003986-021	COMPONENT BLOCK DIODE ASSY	39
☒	2005935	SCHEMATIC	REF
1	2004684	FLAT CABLE	38
4	2004150 — 003	SCREW, SHOULDERED	37
AR	1006806 — 26	INSULATION TAPE, ELECTRICAL	36
1	2004150 — 001	SCREW, SHOULDERED	35
1	2004150 — 002	SCREW, SHOULDERED	34
1	2004129	FLAT CABLE INTERCONNECTION	33
AR	1006776-25	SLEEVING	32
AR	1006757-12	WIRE, ELECRICAL	31
1	2004125	FLAT CABLE	30
1	2004122	FLAT CABLE	29
1	2004124	FLAT CABLE	28
1	2004123	FLAT CABLE	27
1	2004121	FLAT CABLE	26
1	2004120	FLAT CABLE	25
1	2004[illegible]	FLAT CABLE	24
1	2003051 — 013	MATRIX ASSY	23
1	2003051 — 014	MATRIX ASSY	22
8	2003051 — 016	MATRIX ASSY	21
8	2003051 — 015	MATRIX ASSY	20
1	2003051 — 017	MATRIX ASSY	19
1	2003051 — 018	MATRIX ASSY	18
1	2003051 — 011	MATRIX ASSY	17
1	2003051 — 012	MATRIX ASSY	16
2	MS16633-4015	"E" RING	15
2	1004546-3	WASHER	14
2	1004546-1	WASHER	13
2	1004579-1	SCREW, JACKING	12
4	1000093-1	SCREW, BUTTON HEAD	11
4	2004151	SCREW, STANDOFF	10
1	1006339	GASKET PLATE	9
2	2004071	STANDOFF	8
1	2004100	HOUSING	7
1	2003048-021	RESISTOR-DIODE BLOCK ASSY	6
1	2003052-021	COMPONENT BLOCK RESISTOR ASSY	5
1	2003045-021	COMPONENT BLOCK DIODE ASSY	4
1	2003973 -011	CONNECTOR PLATE ASSY	3
1	2003061-SEE CHART	SENSE WIRING ASSY SIDE B	2
1	2003060-SEE CHART	SENSE WIRING ASSY SIDE A	1

SEE NOTE 16

LIST OF MATERIALS

FOR APPLICABLE PART NO. SEE CHART

NEXT ASSY	USED ON
SEE CHART	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN A. Graves DATE 6 AUG 6[illegible]
CHECKED [illegible] 12 AUG 6[illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE ASSEMBLY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003972
SCALE 2/1
WT
SHEET 1 OF 3

2003972 ZF2/2 SH1/3

[illegible] ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

WIRE LIST

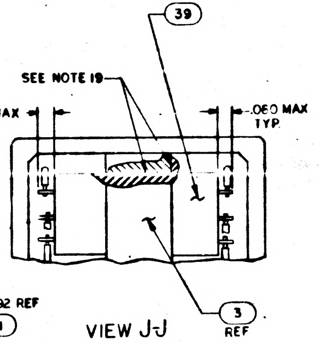
PIN NO.	COMPONENT OR TERM. NO.	PIN NO.	COMPONENT OR TERM. NO.
101	A-E1-213	301	GROUND
102	A-E1-212	302	CR209
103	A-E1-211	303	CR210
104	A-E0-211	304	CR211
105	A-E1-210	305	CR212
106	A-E1-209	306	CR213
107	A-E1-208	307	CR214
108	A-E1-207	308	A-CR208
109	A-E1-206	309	A-CR207
110	A-E1-205	310	A-CR206
111	A-E1-204	311	A-CR205
112	A-E1-203	312	A-CR204
113	A-E1-202	313	A-CR203
114	A-E1-201	314	A-CR202
115	A-E1-200	315	A-CR201
116	A-E1-199	316	A-CR200
117	A-E1-198	317	A-CR199
118	A-E1-197	318	A-CR198
119	A-E1-196	319	A-CR197
120	A-E1-195	320	A-CR196
121	A-E0-194	321	A-CR195
122	A-E1-194	322	A-CR194
123	A-E0-193	323	A-CR193
124	A-E1-193	324	SPARE
201	B-R208	401	B-E1-213
202	CR215	402	B-E1-212
203	CR216	403	B-E1-211
204	CR217	404	B-E0-211
205	CR218	405	B-E1-210
206	CR219	406	B-E1-209
207	CR220	407	B-E1-208
208	B-CR208	408	B-E1-207
209	B-CR207	409	B-E1-206
210	B-CR206	410	B-E1-205
211	B-CR205	411	B-E1-204
212	B-CR204	412	B-E1-203
213	B-CR203	413	B-E1-202
214	B-CR202	414	B-E1-201
215	B-CR201	415	B-E1-200
216	B-CR200	416	B-E1-199
217	B-CR199	417	B-E1-198
218	B-CR198	418	B-E1-197
219	B-CR197	419	B-E1-196
220	B-CR196	420	B-E1-195
221	B-CR195	421	B-E0-194
222	B-CR194	422	B-E1-194
223	B-CR193	423	B-E0-193
224	SPARE	424	B-E1-193

WIRE LIST

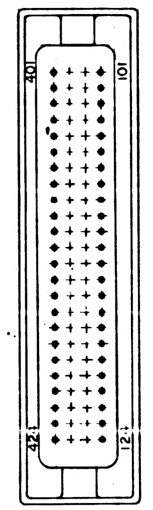
TERMINAL NO.	TERMINAL NO.
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
SPARE	SPARE
A-E0-195	B-E0-195
A-E0-196	B-E0-196
A-E0-197	B-E0-197
A-E0-198	B-E0-198
A-E0-199	B-E0-199
A-E0-200	B-E0-200
A-E0-201	B-E0-201
A-E0-202	B-E0-202
A-E0-203	B-E0-203
A-E0-204	B-E0-204
A-E0-205	B-E0-205
A-E0-206	B-E0-206
A-E0-207	B-E0-207
A-E0-208	B-E0-208
A-E0-209	B-E0-209
A-E0-210	B-E0-210
SPARE	SPARE
SPARE	SPARE
A-E0-212	B-E0-212
A-E0-213	B-E0-213

WIRE LIST

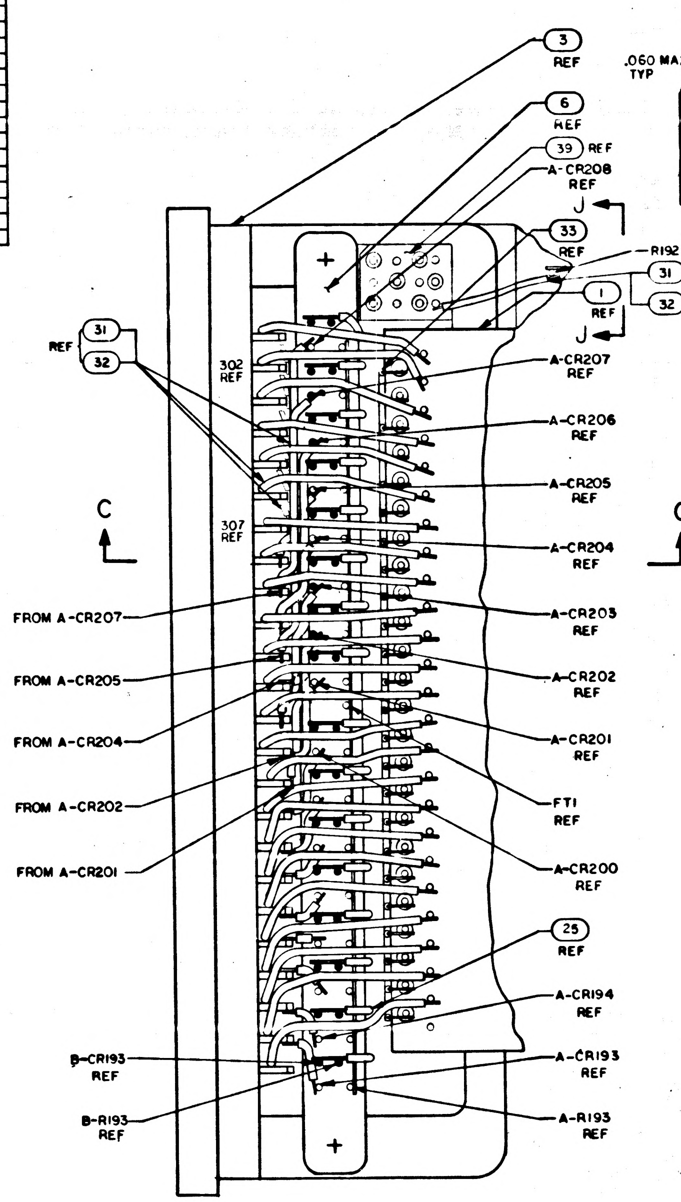
COMPONENT NO.	COMPONENT NO.
CR215	R176
CR216	R144
CR217	R112
CR218	R80
CR219	R48
CR220	R16
CR209	R32
CR210	R64
CR211	R96
CR212	R128
CR213	R160
CR214	R192


SEE NOTE 19
39
.060 MAX TYP
3 REF

VIEW J-J


401
101
421
121

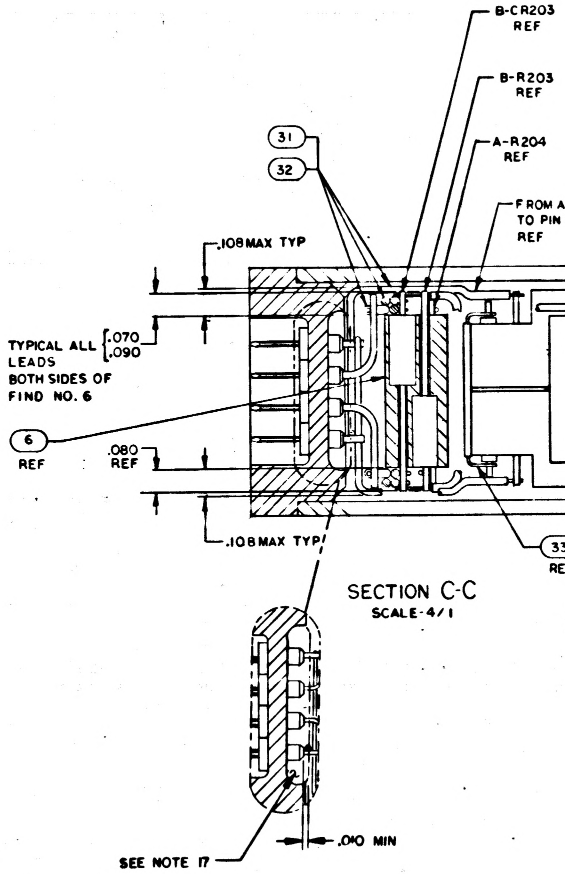
SECTION E-E


3 REF
6 REF
39 REF
A-CR208 REF
J
33 REF
R192 REF
31
32
1 REF
REF 31 32
302 REF
307 REF
A-CR207 REF
A-CR206 REF
A-CR205 REF
C
C
A-CR204 REF
FROM A-CR207
A-CR203 REF
FROM A-CR205
A-CR202 REF
FROM A-CR204
A-CR201 REF
FROM A-CR202
FT1 REF
FROM A-CR201
A-CR200 REF
25 REF
A-CR194 REF
B-CR193 REF
A-CR193 REF
B-R193 REF
A-R193 REF
+
+

VIEW G-G

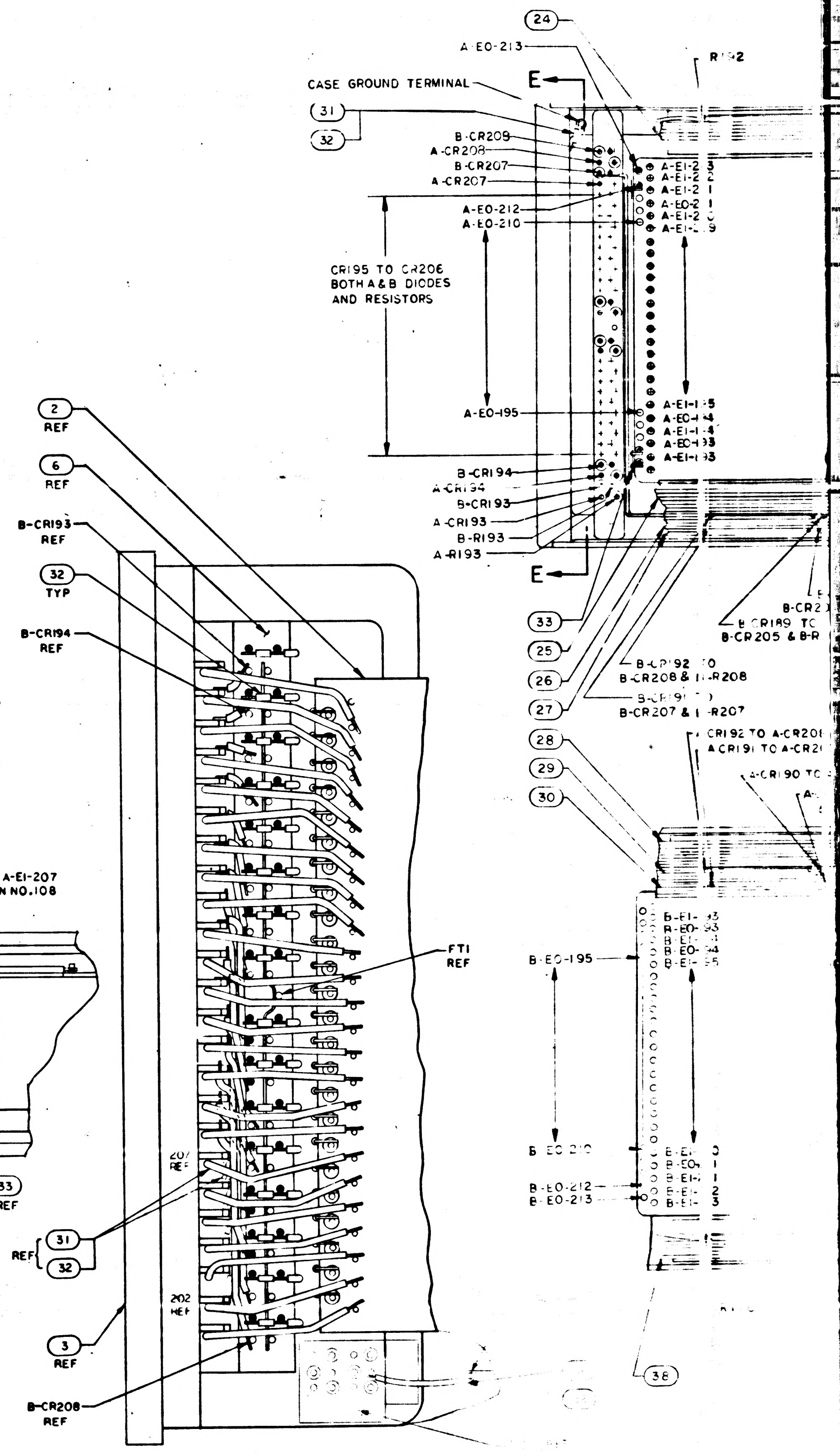
SCALE: 4/1

SHOWN WITH POTTING AND FIND NO.7 REMOVED. SEE NOTES 11,12,13 AND 14


B-CR203 REF
B-R203 REF
A-R204 REF
31
32
FROM A-E1-207 TO PIN NO.108 REF
.108 MAX TYP
TYPICAL ALL LEADS BOTH SIDES OF FIND NO. 6
.070
.090
6 REF
.080 REF
.108 MAX TYP
33 REF
SEE NOTE 17
.010 MIN

SECTION C-C

SCALE 4/1

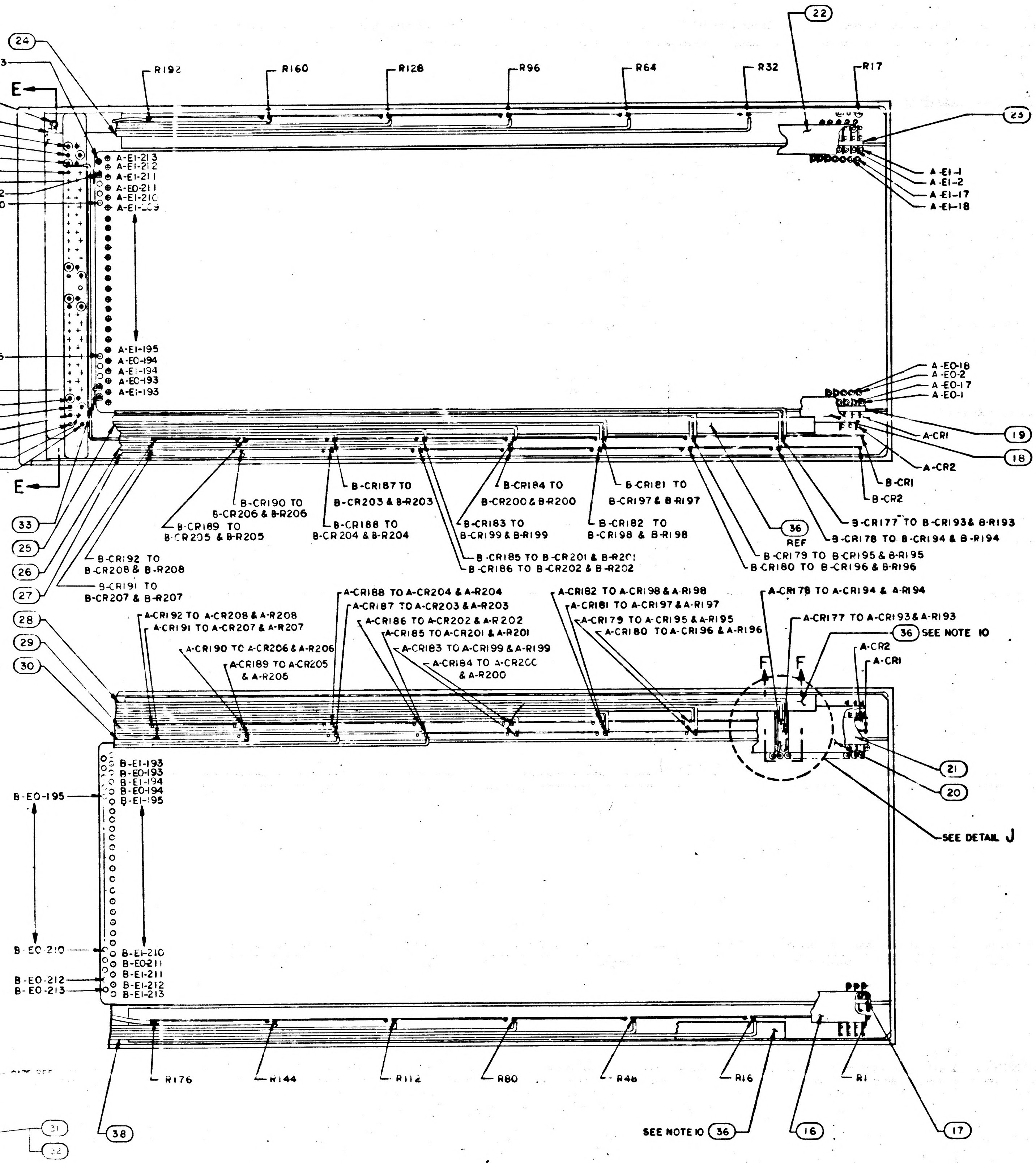

2 REF
6 REF
B-CR193 REF
32 TYP
B-CR194 REF
FT1 REF
31
32
REF
202 REF
3 REF
B-CR208 REF
24
A-E0-213
R192
CASE GROUND TERMINAL
E
31
32
B-CR208
A-CR208
B-CR207
A-CR207
A-E0-212
A-E0-210
CR195 TO CR206 BOTH A & B DIODES AND RESISTORS
A-E0-195
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
E
33
25
26
27
28
29
30
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
B-CR189 TO B-CR205 & B-R
A-CR192 TO A-CR208
A-CR191 TO A-CR2
A-CR190 TO
B-E0-195
B-E0-210
B-E0-212
B-E0-213
38

VIEW H-H

SCALE: 4/1

SHOWN WITH POTTING AND FIND NO.7 REMOVED. SEE NOTES 11,12,13 AND 14

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		INITIAL RELEASE TDRR 32991			[illegible]	[illegible]
B		REVISED PER TDRR 33460	[illegible]	[illegible]	[illegible]	[illegible]
C		REVISED PER TDRR 33544	[illegible]	[illegible]	[illegible]	
D		REVISED PER TDRR 33606	[illegible]	[illegible]	[illegible]	[illegible]
E		REVISED PER TDRR 34140	[illegible]	[illegible]	[illegible]	[illegible]
F		REVISED PER TDRR 34483	[illegible]	[illegible]	[illegible]	[illegible]
G		REVISED PER TDRR 34997		[illegible]	[illegible]	[illegible]
H		REVISED PER TDRR 35335	[illegible]		[illegible]	[illegible]
J		REVISED PER TDRR [illegible]	[illegible]	[illegible]	[illegible]	[illegible]
K		REVISED PER TDRR 35870	[illegible]	[illegible]	[illegible]	[illegible]
L		REVISED PER TDRR 36217	[illegible]	[illegible]	5/29/68	[illegible]
M		REVISED PER TDRR [illegible]			[illegible]	[illegible]
N		REVISED PER TDRR 36.86	[illegible]	[illegible]	[illegible]	[illegible]
P		REVISED PER TDRR [illegible]	[illegible]	[illegible]	[illegible]	[illegible]
R		REVISED PER TDRR 3.559	[illegible]	[illegible]	[illegible]	[illegible]
S		REVISED PER TDRR [illegible]	[illegible]	[illegible]	[illegible]	[illegible]
T		REVISED PER TDRR .070	[illegible]	[illegible]	[illegible]	[illegible]
U		REVISED PER TDRR [illegible]	[illegible]			[illegible]
V		REVISED PER TDRR 37145	[illegible]	[illegible]	[illegible]	[illegible]
W		REVISED PER TDRR 37387	[illegible]	[illegible]	[illegible]	[illegible]
Y		REVISED PER TDRR 37427	[illegible]	[illegible]	[illegible]	[illegible]
Z		REVISED PER TDRR 37454	[illegible]	[illegible]	[illegible]	[illegible]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CASE GROUND TERMINAL
E
24
R192
R160
R128
R96
R64
R32
R17
22
23
B-CR208
A-CR208
B-CR207
A-CR207
A-E1-213
A-E1-212
A-E1-211
A-E0-211
A-E1-210
A-E1-209
A-E0-212
A-E0-210
CR195 TO CR206 BOTH A & B DIODES AND RESISTORS
A-E1-1
A-E1-2
A-E1-17
A-E1-18
A-E0-195
A-E1-195
A-E0-194
A-E1-194
A-E0-193
A-E1-193
A-E0-18
A-E0-2
A-E0-17
A-E0-1
B-CR194
A-CR194
B-CR193
A-CR193
B-R193
A-R193
A-CR1
A-CR2
19
18
B-CR1
B-CR2
33
25
26
27
B-CR190 TO B-CR206 & B-R206
B-CR189 TO B-CR205 & B-R205
B-CR187 TO B-CR203 & B-R203
B-CR188 TO B-CR204 & B-R204
B-CR184 TO B-CR200 & B-R200
B-CR183 TO B-CR199 & B-R199
B-CR181 TO B-CR197 & B-R197
B-CR182 TO B-CR198 & B-R198
B-CR185 TO B-CR201 & B-R201
B-CR186 TO B-CR202 & B-R202
36
REF
B-CR177 TO B-CR193 & B-R193
B-CR178 TO B-CR194 & B-R194
B-CR179 TO B-CR195 & B-R195
B-CR180 TO B-CR196 & B-R196
B-CR192 TO B-CR208 & B-R208
B-CR191 TO B-CR207 & B-R207
28
29
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A-CR192 TO A-CR208 & A-R208
A-CR191 TO A-CR207 & A-R207
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A-CR184 TO A-CR200 & A-R200
A-CR182 TO A-CR198 & A-R198
A-CR181 TO A-CR197 & A-R197
A-CR179 TO A-CR195 & A-R195
A-CR180 TO A-CR196 & A-R196
A-CR178 TO A-CR194 & A-R194
A-CR177 TO A-CR193 & A-R193
36 SEE NOTE 10
A-CR2
A-CR1
F
F
21
20
SEE DETAIL J
B-E1-193
B-E0-193
B-E1-194
B-E0-194
B-E1-195
B-E0-195
B-E0-210
B-E1-210
B-E0-211
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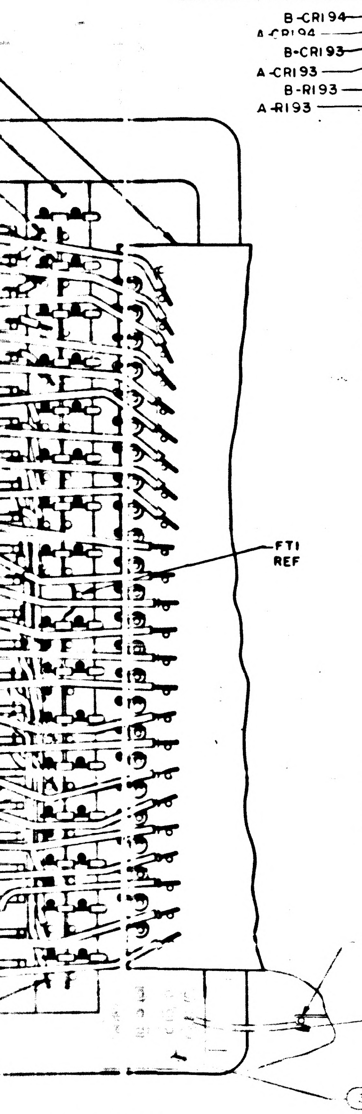
38
R176
R144
R112
R80
R48
R16
R1
SEE NOTE 10 36
16
17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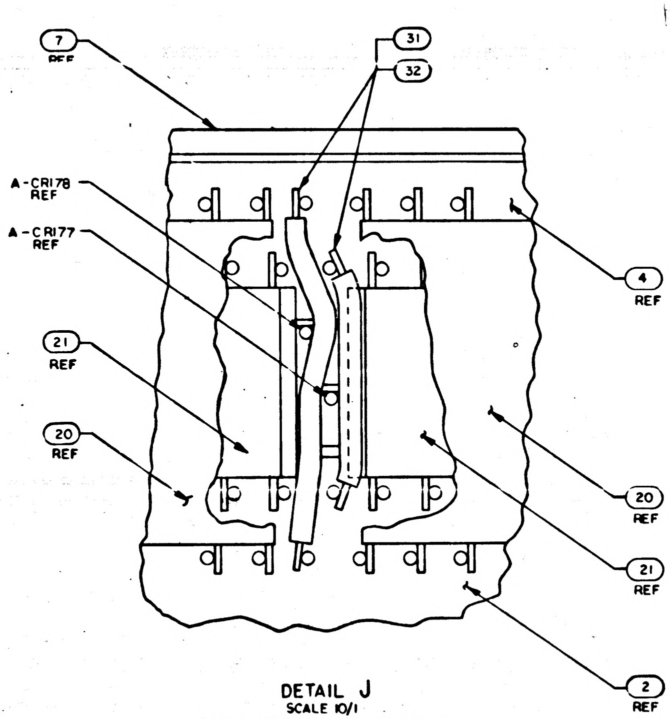
33 REF

VIEW H-H
SCALE 4/1
[illegible] WITH POTTING AND FIND NO. 7
[illegible]VED. SEE NOTES 11, 12, 13 AND 14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A-CR177
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4
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21
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21
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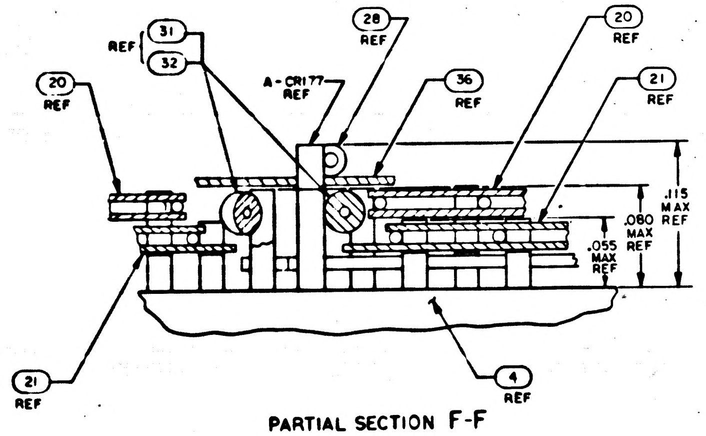
2
REF

DETAIL J
SCALE 10/1
TYPICAL WIRING 8 PLACES, SHOWN WITH FIND NOS 28 AND 36 REMOVED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36
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.115
MAX
.080
MAX
REF
.055
MAX
REF
21
REF
4
REF

PARTIAL SECTION F-F
SCALE: 20/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE ASSEMBLY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003972
SCALE 2/1
SHEET 2 OF 3

2003972 Z

SH 2/3 2003972 ZF 2/2

2003972 Z

2003972 ZF1/2 SH3/3

4 3 2

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		INITIAL RELEASE DRC 32991				
B		REVISED PER TDRR 33400				
C		REVISED PER TDRR 33504				
D		REVISED PER TDRR 33606				
E		REVISED PER TDRR 34140				
F		REVISED PER TDRR 34489				
G		REVISED PER TDRR 34997				
H		REVISED PER TDRR 35339				
J		REVISED PER TDRR 35649				
K		REVISED PER TDRR 35870				
L		REVISED PER TDRR 36217				
M		REVISED PER TDRR [illegible]				
N		REVISED PER TDRR 36686				
P		REVISED PER TDRR 36810				
R		REVISED PER TDRR 36859				
S		REVISED PER TDRR 36916				
T		REVISED PER TDRR 36970				
U		REVISED PER TDRR 37005				
V		REVISED PER TDRR 37148				
W		REVISED PER TDRR 37387				
Y		REVISED PER TDRR 37427				
Z		REVISED PER TDRR 374[illegible]				

WIRE LIST

TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.	TERM. NO.	COMPONENT NO.
A-EO-1	A-CR1	A-EO-97	A-CR97	B-EO-1	B-CR1	B-EO-97	B-CR97	A-EI-1	R1	A-EI-49	R49	A-EI-97	R97	A-EI-145	R145
A-EO-2	A-CR2	A-EO-98	A-CR98	B-EO-2	B-CR2	B-EO-98	B-CR98	B-EI-1		B-EI-49		B-EI-97		B-EI-145	
A-EO-3	A-CR3	A-EO-99	A-CR99	B-EO-3	B-CR3	B-EO-99	B-CR99	A-EI-2	R2	A-EI-50	R50	A-EI-98	R98	A-EI-146	R146
A-EO-4	A-CR4	A-EO-100	A-CR100	B-EO-4	B-CR4	B-EO-100	B-CR100	B-EI-2		B-EI-50		B-EI-98		B-EI-146	
A-EO-5	A-CR5	A-EO-101	A-CR101	B-EO-5	B-CR5	B-EO-101	B-CR101	A-EI-3	R3	A-EI-51	R51	A-EI-99	R99	A-EI-147	R147
A-EO-6	A-CR6	A-EO-102	A-CR102	B-EO-6	B-CR6	B-EO-102	B-CR102	B-EI-3		B-EI-51		B-EI-99		B-EI-147	
A-EO-7	A-CR7	A-EO-103	A-CR103	B-EO-7	B-CR7	B-EO-103	B-CR103	A-EI-4	R4	A-EI-52	R52	A-EI-100	R100	A-EI-148	R148
A-EO-8	A-CR8	A-EO-104	A-CR104	B-EO-8	B-CR8	B-EO-104	B-CR104	B-EI-4		B-EI-52		B-EI-100		B-EI-148	
A-EO-9	A-CR9	A-EO-105	A-CR105	B-EO-9	B-CR9	B-EO-105	B-CR105	A-EI-5	R5	A-EI-53	R53	A-EI-101	R101	A-EI-149	R149
A-EO-10	A-CR10	A-EO-106	A-CR106	B-EO-10	B-CR10	B-EO-106	B-CR106	B-EI-5		B-EI-53		B-EI-101		B-EI-149	
A-EO-11	A-CR11	A-EO-107	A-CR107	B-EO-11	B-CR11	B-EO-107	B-CR107	A-EI-6	R6	A-EI-54	R54	A-EI-102	R102	A-EI-150	R150
A-EO-12	A-CR12	A-EO-108	A-CR108	B-EO-12	B-CR12	B-EO-108	B-CR108	B-EI-6		B-EI-54		B-EI-102		B-EI-150	
A-EO-13	A-CR13	A-EO-109	A-CR109	B-EO-13	B-CR13	B-EO-109	B-CR109	A-EI-7	R7	A-EI-55	R55	A-EI-103	R103	A-EI-151	R151
A-EO-14	A-CR14	A-EO-110	A-CR110	B-EO-14	B-CR14	B-EO-110	B-CR110	B-EI-7		B-EI-55		B-EI-103		B-EI-151	
A-EO-15	A-CR15	A-EO-111	A-CR111	B-EO-15	B-CR15	B-EO-111	B-CR111	A-EI-8	R8	A-EI-56	R56	A-EI-104	R104	A-EI-152	R152
A-EO-16	A-CR16	A-EO-112	A-CR112	B-EO-16	B-CR16	B-EO-112	B-CR112	B-EI-8		B-EI-56		B-EI-104		B-EI-152	
A-EO-17	A-CR17	A-EO-113	A-CR113	B-EO-17	B-CR17	B-EO-113	B-CR113	A-EI-9	R9	A-EI-57	R57	A-EI-105	R105	A-EI-153	R153
A-EO-18	A-CR18	A-EO-114	A-CR114	B-EO-18	B-CR18	B-EO-114	B-CR114	B-EI-9		B-EI-57		B-EI-105		B-EI-153	
A-EO-19	A-CR19	A-EO-115	A-CR115	B-EO-19	B-CR19	B-EO-115	B-CR115	A-EI-10	R10	A-EI-58	R58	A-EI-106	R106	A-EI-154	R154
A-EO-20	A-CR20	A-EO-116	A-CR116	B-EO-20	B-CR20	B-EO-116	B-CR116	B-EI-10		B-EI-58		B-EI-106		B-EI-154	
A-EO-21	A-CR21	A-EO-117	A-CR117	B-EO-21	B-CR21	B-EO-117	B-CR117	A-EI-11	R11	A-EI-59	R59	A-EI-107	R107	A-EI-155	R155
A-EO-22	A-CR22	A-EO-118	A-CR118	B-EO-22	B-CR22	B-EO-118	B-CR118	B-EI-11		B-EI-59		B-EI-107		B-EI-155	
A-EO-23	A-CR23	A-EO-119	A-CR119	B-EO-23	B-CR23	B-EO-119	B-CR119	A-EI-12	R12	A-EI-60	R60	A-EI-108	R108	A-EI-156	R156
A-EO-24	A-CR24	A-EO-120	A-CR120	B-EO-24	B-CR24	B-EO-120	B-CR120	B-EI-12		B-EI-60		B-EI-108		B-EI-156	
A-EO-25	A-CR25	A-EO-121	A-CR121	B-EO-25	B-CR25	B-EO-121	B-CR121	A-EI-13	R13	A-EI-61	R61	A-EI-109	R109	A-EI-157	R157
A-EO-26	A-CR26	A-EO-122	A-CR122	B-EO-26	B-CR26	B-EO-122	B-CR122	B-EI-13		B-EI-61		B-EI-109		B-EI-157	
A-EO-27	A-CR27	A-EO-123	A-CR123	B-EO-27	B-CR27	B-EO-123	B-CR123	A-EI-14	R14	A-EI-62	R62	A-EI-110	R110	A-EI-158	R158
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A-EO-36	A-CR36	A-EO-132	A-CR132	B-EO-36	B-CR36	B-EO-132	B-CR132	B-EI-18		B-EI-66		B-EI-114		B-EI-162	
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A-EO-38	A-CR38	A-EO-134	A-CR134	B-EO-38	B-CR38	B-EO-134	B-CR134	B-EI-19		B-EI-67		B-EI-115		B-EI-163	
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A-EO-46	A-CR46	A-EO-142	A-CR142	B-EO-46	B-CR46	B-EO-142	B-CR142	B-EI-23		B-EI-71		B-EI-119		B-EI-167	
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A-EO-48	A-CR48	A-EO-144	A-CR144	B-EO-48	B-CR48	B-EO-144	B-CR144	B-EI-24		B-EI-72		B-EI-120		B-EI-168	
A-EO-49	A-CR49	A-EO-145	A-CR145	B-EO-49	B-CR49	B-EO-145	B-CR145	A-EI-25	R25	A-EI-73	R73	A-EI-121	R121	A-EI-169	R169
A-EO-50	A-CR50	A-EO-146	A-CR146	B-EO-50	B-CR50	B-EO-146	B-CR146	B-EI-25		B-EI-73		B-EI-121		B-EI-169	
A-EO-51	A-CR51	A-EO-147	A-CR147	B-EO-51	B-CR51	B-EO-147	B-CR147	A-EI-26	R26	A-EI-74	R74	A-EI-122	R122	A-EI-170	R170
A-EO-52	A-CR52	A-EO-148	A-CR148	B-EO-52	B-CR52	B-EO-148	B-CR148	B-EI-26		B-EI-74		B-EI-122		B-EI-170	
A-EO-53	A-CR53	A-EO-149	A-CR149	B-EO-53	B-CR53	B-EO-149	B-CR149	A-EI-27	R27	A-EI-75	R75	A-EI-123	R123	A-EI-171	R171
A-EO-54	A-CR54	A-EO-150	A-CR150	B-EO-54	B-CR54	B-EO-150	B-CR150	B-EI-27		B-EI-75		B-EI-123		B-EI-171	
A-EO-55	A-CR55	A-EO-151	A-CR151	B-EO-55	B-CR55	B-EO-151	B-CR151	A-EI-28	R28	A-EI-76	R76	A-EI-124	R124	A-EI-172	R172
A-EO-56	A-CR56	A-EO-152	A-CR152	B-EO-56	B-CR56	B-EO-152	B-CR152	B-EI-28		B-EI-76		B-EI-124		B-EI-172	
A-EO-57	A-CR57	A-EO-153	A-CR153	B-EO-57	B-CR57	B-EO-153	B-CR153	A-EI-29	R29	A-EI-77	R77	A-EI-125	R125	A-EI-173	R173
A-EO-58	A-CR58	A-EO-154	A-CR154	B-EO-58	B-CR58	B-EO-154	B-CR154	B-EI-29		B-EI-77		B-EI-125		B-EI-173	
A-EO-59	A-CR59	A-EO-155	A-CR155	B-EO-59	B-CR59	B-EO-155	B-CR155	A-EI-30	R30	A-EI-78	R78	A-EI-126	R126	A-EI-174	R174
A-EO-60	A-CR60	A-EO-156	A-CR156	B-EO-60	B-CR60	B-EO-156	B-CR156	B-EI-30		B-EI-78		B-EI-126		B-EI-174	
A-EO-61	A-CR61	A-EO-157	A-CR157	B-EO-61	B-CR61	B-EO-157	B-CR157	A-EI-31	R31	A-EI-79	R79	A-EI-127	R127	A-EI-175	R175
A-EO-62	A-CR62	A-EO-158	A-CR158	B-EO-62	B-CR62	B-EO-158	B-CR158	B-EI-31		B-EI-79		B-EI-127		B-EI-175	
A-EO-63	A-CR63	A-EO-159	A-CR159	B-EO-63	B-CR63	B-EO-159	B-CR159	A-EI-32	R32	A-EI-80	R80	A-EI-128	R128	A-EI-176	R176
A-EO-64	A-CR64	A-EO-160	A-CR160	B-EO-64	B-CR64	B-EO-160	B-CR160	B-EI-32		B-EI-80		B-EI-128		B-EI-176	
A-EO-65	A-CR65	A-EO-161	A-CR161	B-EO-65	B-CR65	B-EO-161	B-CR161	A-EI-33	R33	A-EI-81	R81	A-EI-129	R129	A-EI-177	R177
A-EO-66	A-CR66	A-EO-162	A-CR162	B-EO-66	B-CR66	B-EO-162	B-CR162	B-EI-33		B-EI-81		B-EI-129		B-EI-177	
A-EO-67	A-CR67	A-EO-163	A-CR163	B-EO-67	B-CR67	B-EO-163	B-CR163	A-EI-34	R34	A-EI-82	R82	A-EI-130	R130	A-EI-178	R178
A-EO-68	A-CR68	A-EO-164	A-CR164	B-EO-68	B-CR68	B-EO-164	B-CR164	B-EI-34		B-EI-82		B-EI-130		B-EI-178	
A-EO-69	A-CR69	A-EO-165	A-CR165	B-EO-69	B-CR69	B-EO-165	B-CR165	A-EI-35	R35	A-EI-83	R83	A-EI-131	R131	A-EI-179	R179
A-EO-70	A-CR70	A-EO-166	A-CR166	B-EO-70	B-CR70	B-EO-166	B-CR166	B-EI-35		B-EI-83		B-EI-131		B-EI-179	
A-EO-71	A-CR71	A-EO-167	A-CR167	B-EO-71	B-CR71	B-EO-167	B-CR167	A-EI-36	R36	A-EI-84	R84	A-EI-132	R132	A-EI-180	R180
A-EO-72	A-CR72	A-EO-168	A-CR168	B-EO-72	B-CR72	B-EO-168	B-CR168	B-EI-36		B-EI-84		B-EI-132		B-EI-180	
A-EO-73	A-CR73	A-EO-169	A-CR169	B-EO-73	B-CR73	B-EO-169	B-CR169	A-EI-37	R37	A-EI-85	R85	A-EI-133	R133	A-EI-181	R181
A-EO-74	A-CR74	A-EO-170	A-CR170	B-EO-74	B-CR74	B-EO-170	B-CR170	B-EI-37		B-EI-85		B-EI-133		B-EI-181	
A-EO-75	A-CR75	A-EO-171	A-CR171	B-EO-75	B-CR75	B-EO-171	B-CR171	A-EI-38	R38	A-EI-86	R86	A-EI-134	R134	A-EI-182	R182
A-EO-76	A-CR76	A-EO-172	A-CR172	B-EO-76	B-CR76	B-EO-172	B-CR172	B-EI-38		B-EI-86		B-EI-134		B-EI-182	
A-EO-77	A-CR77	A-EO-173	A-CR173	B-EO-77	B-CR77	B-EO-173	B-CR173	A-EI-39	R39	A-EI-87	R87	A-EI-135	R135	A-EI-183	R183
A-EO-78	A-CR78	A-EO-174	A-CR174	B-EO-78	B-CR78	B-EO-174	B-CR174	B-EI-39		B-EI-87		B-EI-135		B-EI-183	
A-EO-79	A-CR79	A-EO-175	A-CR175	B-EO-79	B-CR79	B-EO-175	B-CR175	A-EI-40	R40	A-EI-88	R88	A-EI-136	R136	A-EI-184	R184
A-EO-80	A-CR80	A-EO-176	A-CR176	B-EO-80	B-CR80	B-EO-176	B-CR176	B-EI-40		B-EI-88		B-EI-136		B-EI-184	
A-EO-81	A-CR81	A-EO-177	A-CR177	B-EO-81	B-CR81	B-EO-177	B-CR177	A-EI-41	R41	A-EI-89	R89	A-EI-137	R137	A-EI-185	R185
A-EO-82	A-CR82	A-EO-178	A-CR178	B-EO-82	B-CR82	B-EO-178	B-CR178	B-EI-41		B-EI-89		B-EI-137		B-EI-185	
A-EO-83	A-CR83	A-EO-179	A-CR179	B-EO-83	B-CR83	B-EO-179	B-CR179	A-EI-42	R42	A-EI-90	R90	A-EI-138	R138	A-EI-186	R186
A-EO-84	A-CR84	A-EO-180	A-CR180	B-EO-84	B-CR84	B-EO-180	B-CR180	B-EI-42		B-EI-90		B-EI-138		B-EI-186	
A-EO-85	A-CR85	A-EO-181	A-CR181	B-EO-85	B-CR85	B-EO-181	B-CR181	A-EI-43	R43	A-EI-91	R91	A-EI-139	R139	A-EI-187	R187
A-EO-86	A-CR86	A-EO-182	A-CR182	B-EO-86	B-CR86	B-EO-182	B-CR182	B-EI-43		B-EI-91		B-EI-139		B-EI-187	
A-EO-87	A-CR87	A-EO-183	A-CR183	B-EO-87	B-CR87	B-EO-183	B-CR183	A-EI-44	R44	A-EI-92	R92	A-EI-140	R140	A-EI-188	R188
A-EO-88	A-CR88	A-EO-184	A-CR184	B-EO-88	B-CR88	B-EO-184	B-CR184	B-EI-44		B-EI-92		B-EI-140		B-EI-188	
A-EO-89	A-CR89	A-EO-185	A-CR185	B-EO-89	B-CR89	B-EO-185	B-CR185	A-EI-45	R45	A-EI-93	R93	A-EI-141	R141	A-EI-189	R189
A-EO-90	A-CR90	A-EO-186	A-CR186	B-EO-90	B-CR90	B-EO-186	B-CR186	B-EI-45		B-EI-93		B-EI-141		B-EI-189	
A-EO-91	A-CR91	A-EO-187	A-CR187	B-EO-91	B-CR91	B-EO-187	B-CR187	A-EI-46	R46	A-EI-94	R94	A-EI-142	R142	A-EI-190	R190
A-EO-92	A-CR92	A-EO-188	A-CR188	B-EO-92	B-CR92	B-EO-188	B-CR188	B-EI-46		B-EI-94		B-EI-142		B-EI-190	
A-EO-93	A-CR93	A-EO-189	A-CR189	B-EO-93	B-CR93	B-EO-189	B-CR189	A-EI-47	R47	A-EI-95	R95	A-EI-143	R143	A-EI-191	R191
A-EO-94	A-CR94	A-EO-190	A-CR190	B-EO-94	B-CR94	B-EO-190	B-CR190	B-EI-47		B-EI-95		B-EI-143		B-EI-191	
A-EO-95	A-CR95	A-EO-191	A-CR191	B-EO-95	B-CR95	B-EO-191	B-CR191	A-EI-48	R48	A-EI-96	R96	A-EI-144	R144	A-EI-192	R192
A-EO-96	A-CR96	A-EO-192	A-CR192	B-EO-96	B-CR96	B-EO-192	B-CR192	B-EI-48		B-EI-96		B-EI-144		B-EI-192	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
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MATERIAL

MIT
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CHECKED
APPROVED
APPROVED
APPROVED
MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FIXED MEMORY MODULE ASSEMBLY

CODE IDENT NO	SIZE	DRAWING NO.
80230	J	2003972

SCALE NONE SHEET 3 OF 3

D C B A

4 1

SH3/3 2003972 ZF2/2

APOLLO G&N Specification
PS 2003972 Rev -
Original Issue Date: 2-16-67
Release Authority: TDRR 32994
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

FIXED MEMORY MODULE B1 -B6 ASSEMBLY

DRAWING NO. 2003972

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA

This specification consists of pages 1 to 21 inclusive.

APPROVALS	NASA/MSC	MIT/IL	RAY
		E C Hall 11/8/66 W. S. Lameris 8 Dec 66	W. J. Flaherty 11-7-66 D. W. [illegible] 11/7/66 BC [illegible] 11/7/66

1. SCOPE

1.1 This specification establishes the detail requirements for complete identification and acceptance of the Fixed Memory Module Assembly, Part Number 2003972 (all dash numbers).

2. APPLICABLE DOCUMENTS

2.1 The following documents form a part of this specification to the extent specified herein.

2.1.2 Effective Issues

2.1.3 Unless otherwise specified herein, Military and Government Standards and Specifications shall be the issue in effect on the date of request for proposal or invitation to bid.

SPECIFICATIONS

APOLLO G&N

ND 1002214	General Specification for Preservation, Packaging, Packing and Container Marking of APOLLO Guidance and Navigation Major Assemblies, Assemblies, Subassemblies, Parts and Associated Ground Support Equipment.

DRAWINGS

APOLLO G&N

2003972	Fixed Memory Module Assembly

(Copies of Specifications, Standards, Drawings, Bulletins and Publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the Contracting Officer).

3.1.9 Sense Outputs. With the input and timing waveforms as specified in paragraph 4.2.9, the sense outputs shall be as follows:

3.1.9.1 The output on sense lines, parity through sign shall be as shown in Figure 3, and defined as follows:

V_p NMT 175 mv

V_1 NLT 45 mv

3.1.9.2 Zero Noise (V_0 max) measured between $1.1\ ^{+0}_{-0.05}$ usec and $2.3\ ^{+0.05}_{-0}$ usec after the start of Logic Reset (FR) shall be NMT 25 mv.

3.1.9.3 An all zero output shall occur when Logic STAGAT is zero.

V_0 max = NMT 5 mv, 1.1 to 2.3 usec after RSET.

3.1.9.4 An all zero output shall occur when Module Select current is removed.

V_0 max = NMT 5 mv, 1.1 to 2.3 usec after RESET (FR).

3.1.10 Temperature Extremes.

3.1.10.1 The module shall operate as specified in paragraphs 3.1.8 and 3.1.9 at an ambient temperature of $-10^{\circ}C\ ^{+0C^{\circ}}_{-2.8C^{\circ}}$.

3.1.10.2 The module shall operate as specified in paragraphs 3.1.8 and 3.1.9 at an ambient temperature of $70^{\circ}C\ ^{+2.8C^{\circ}}_{-0C^{\circ}}$.

3.1.11 Vibration. The module shall exhibit no intermittent opens or shorts on Drive and Sense lines in excess of 1 microsecond while being subjected to the random vibration specified below:

Random vibration shall be Gaussian distributed with the exception that magnitude limiting shall occur at a peak to rms "g" ratio of 3 to 1.

Vibration in each of three mutually perpendicular axis shall be for not less than 2 minutes and not more than 6 minutes as follows: 3db/octave rollup 10 HZ to $0.12g^2$/HZ at 70 HZ, $0.12g^2$/HZ to 420 HZ, 3db/octave rolloff from 420 HZ to 2000 HZ.

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REVISIONS 21877

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
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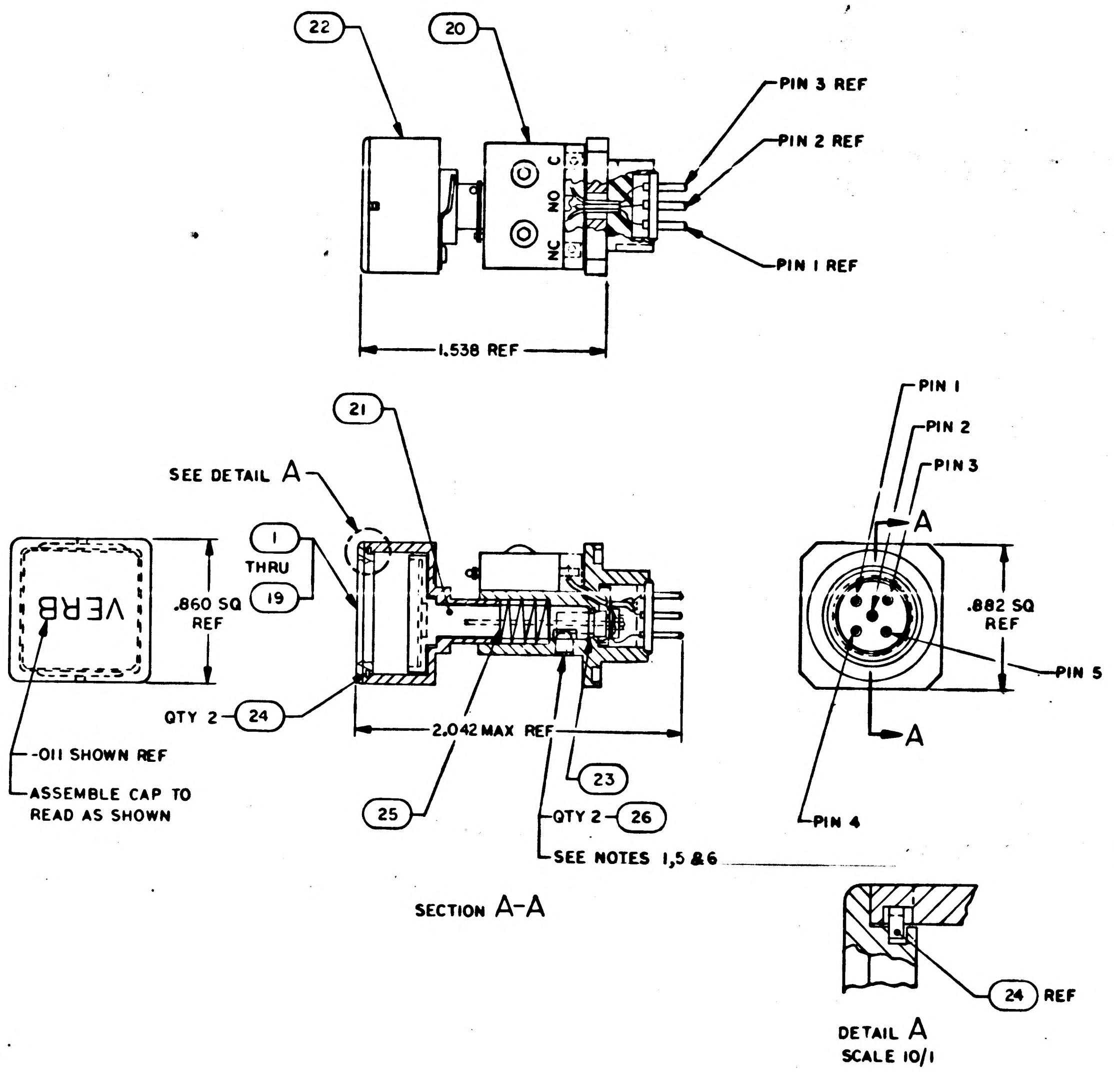

NOTES

1. STAKE FIND NO.26 TO FIND NO. 20 USING STAKING COMPOUND PER MIL-S-40083, CLASS 31
2. PINS INDICATED 1 THRU 5 ARE FOR REFERENCE ONLY AND ARE NOT TO BE MARKED
3. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
4. IDENTIFY WITH PART NO. PER ND1002019
5. FIND NO.21 AND FIND NO.23 TO BE BOTTOM BEFORE ASSEMBLING FIND NO.26
6. MOUNTING TORQUE OF FIND NO.26 TO BE 4-5 INCH POUNDS

LIST OF MATERIALS

QTY REQD 211	QTY REQD 191	QTY REQD 181	QTY REQD 171	QTY REQD 161	QTY REQD 151	QTY REQD 141	QTY REQD 131	QTY REQD 121	QTY REQD 111	QTY REQD 091	QTY REQD 081	QTY REQD 071	QTY REQD 061	QTY REQD 051	QTY REQD 041	QTY REQD 031	QTY REQD 021	QTY REQD 011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	AN565DC4H3	SET-SCREW	26
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2004941	SPRING, COMPRESSION	25
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2004944	SPRING, CAP RETAINING	24
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1006369	PACKING PREFORM	23
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2003926-011	HOUSING ASSY (CAP)	22
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2003975-011	SHAFT ASSY	21
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2003933-011	HOUSING ASSY (MOUNTING)	20
1																			1006353-019	CAP, ELECTRICAL, ENGRAVED	19
	1																		-018		18
		1																	-017		17
			1																-016		16
				1															-015		15
					1														-014		14
						1													-013		13
							1												-012		12
								1											-011		11
									1										-010		10
										1									-009		9
											1								-008		8
												1							-007		7
													1						-006		6
														1					-005		5
															1				-004		4
																1			-003		3
																	1		-002		2
																		1	1006353-001	CAP, ELECTRICAL, ENGRAVED	1

NEXT ASSY	USED ON
2003953	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN 8 JUL 66
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PUSH BUTTON SWITCH
ASSEMBLY
PLUG IN UNIT
AGC DSKY

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2003974
SCALE 2/1
SHEET 1 OF 1

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REVISIONS 2/877

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
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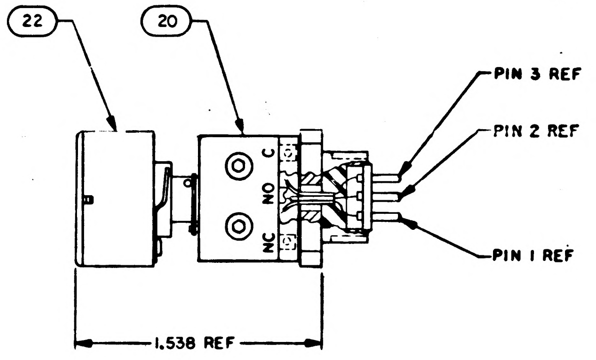
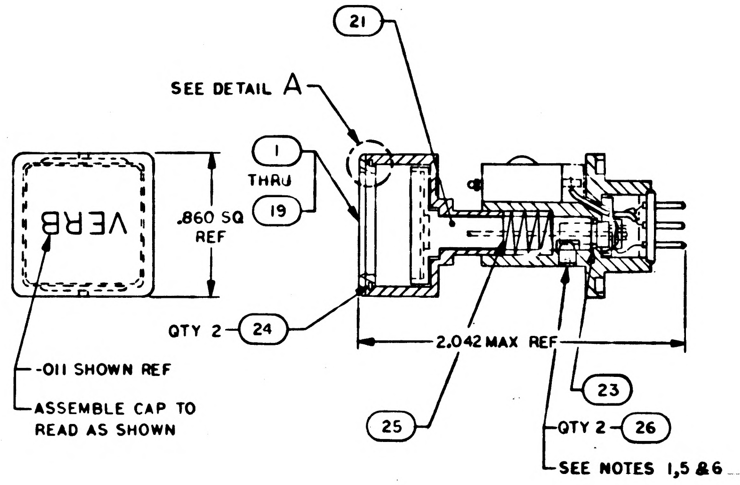
B		REVISED PER TDRR 24237	EAU		12/6/65	





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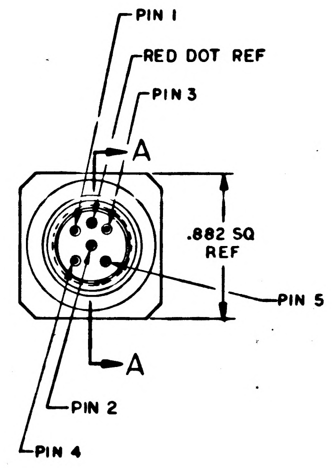

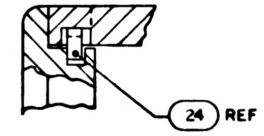

DETAIL A
SCALE 10/1

NOTES

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2. PINS INDICATED 1 THRU 5 ARE FOR REFERENCE ONLY AND ARE NOT TO BE MARKED
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4. IDENTIFY WITH PART NO. PER ND1002019
5. FIND NO.21 AND FIND NO.23 TO BE BOTTOM BEFORE ASSEMBLING FIND NO.26
6. MOUNTING TORQUE OF FIND NO.26 TO BE 2.5 TO 2.8 INCH POUNDS

LIST OF MATERIALS

QTY REQD 211	QTY REQD 191	QTY REQD 181	QTY REQD 171	QTY REQD 161	QTY REQD 151	QTY REQD 141	QTY REQD 131	QTY REQD 121	QTY REQD 111	QTY REQD 091	QTY REQD 081	QTY REQD 071	QTY REQD 061	QTY REQD 051	QTY REQD 041	QTY REQD 031	QTY REQD 021	QTY REQD 011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	AN565DC4H3	SET-SCREW	26
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2004941	SPRING, COMPRESSION	25
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				1															-015		15
					1														-014		14
						1													-013		13
							1												-012		12
								1											-011		11
									1										-010		10
										1									-009		9
											1								-008		8
												1							-007		7
													1						-006		6
														1					-005		5
															1				-004		4
																1			-003		3
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APPLICATION

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DRAWN
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PUSH BUTTON SWITCH
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CODE IDENT NO. 80230
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SHEET 1 OF 1

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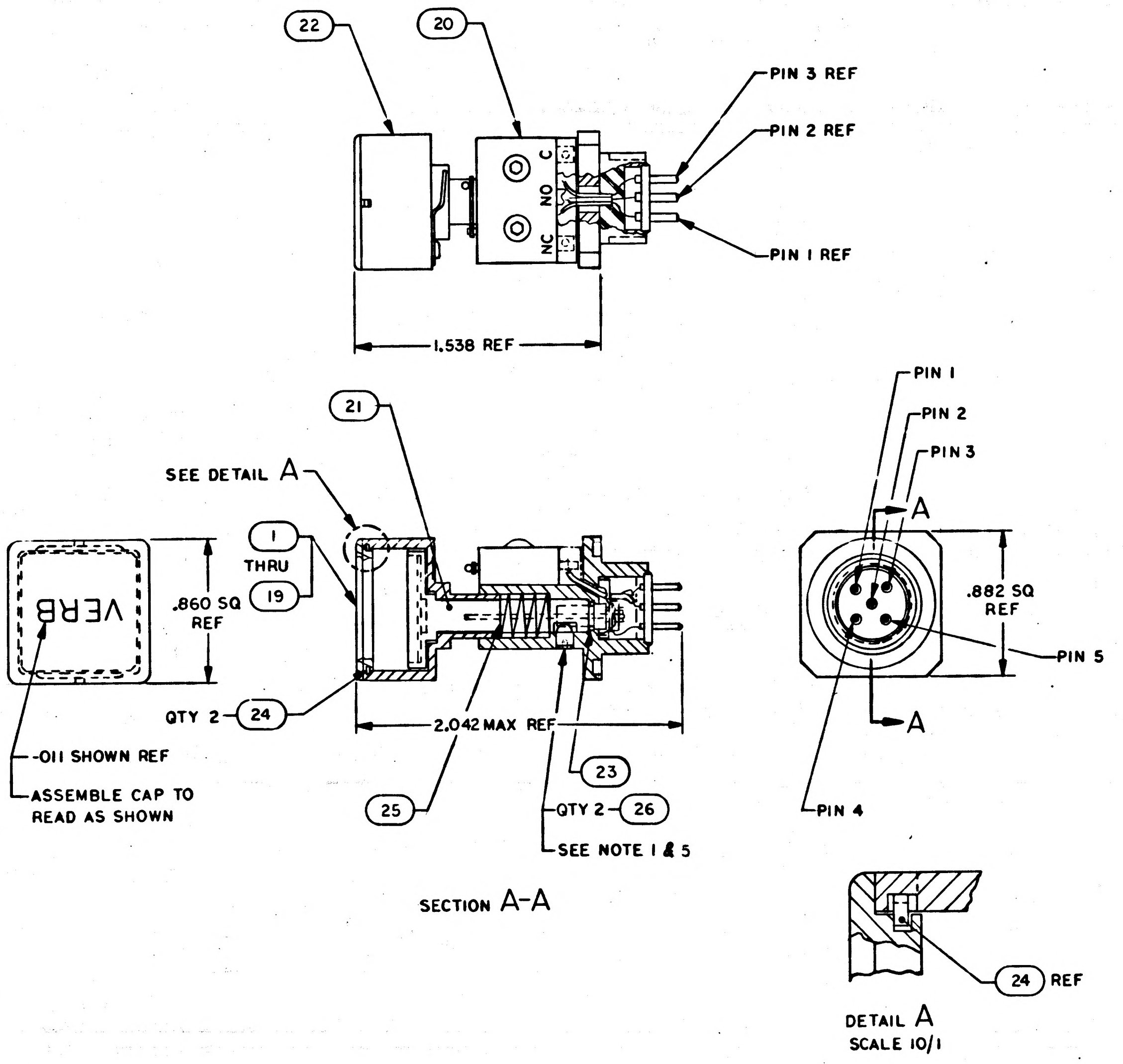

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1. STAKE FIND NO.26 TO FIND NO.20 USING STAKING COMPOUND PER MIL-S-40083, CLASS 31
2. PINS INDICATED 1 THRU 5 ARE FOR REFERENCE ONLY AND ARE NOT TO BE MARKED
3. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
4. IDENTIFY WITH PART NO. PER ND1002019
5. FIND NO.21 AND FIND NO.23 TO BE BOTTOM BEFORE ASSEMBLING FIND NO.26

QTY REQD 211	QTY REQD 191	QTY REQD 181	QTY REQD 171	QTY REQD 161	QTY REQD 151	QTY REQD 141	QTY REQD 131	QTY REQD 121	QTY REQD 111	QTY REQD 091	QTY REQD 081	QTY REQD 071	QTY REQD 061	QTY REQD 051	QTY REQD 041	QTY REQD 031	QTY REQD 021	QTY REQD 011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	AN565DC4H3	SET-SCREW	26
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2004941	SPRING, COMPRESSION	25
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2004944	SPRING, CAP RETAINING	24
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1006369	PACKING PREFORM	23
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2003926-011	HOUSING ASSY (CAP)	22
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2003975-011	SHAFT ASSY	21
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2003933-011	HOUSING ASSY (MOUNTING)	20
1																			1006353-019	CAP, ELECTRICAL, ENGRAVED	19
	1																		-018		18
		1																	-017		17
			1																-016		16
				1															-015		15
					1														-014		14
						1													-013		13
							1												-012		12
								1											-011		11
									1										-010		10
										1									-009		9
											1								-008		8
												1							-007		7
													1						-006		6
														1					-005		5
															1				-004		4
																1			-003		3
																	1		-002		2
																		1	1006353-001	CAP, ELECTRICAL, ENGRAVED	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003953	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	R. Simpson	8 JUL 65
CHECKED	[illegible]	10 Aug 65
APPROVED	E. J. Manning	12 Aug 65
APPROVED	[illegible]	24 Aug 65
APPROVED MIT	W. Crofton	24 Aug 65
APPROVED MSC	[illegible]	[illegible]
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PUSH BUTTON SWITCH
ASSEMBLY
PLUG IN UNIT
AGC DSKY

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2003974
SCALE 2/1
SHEET 1 OF 1

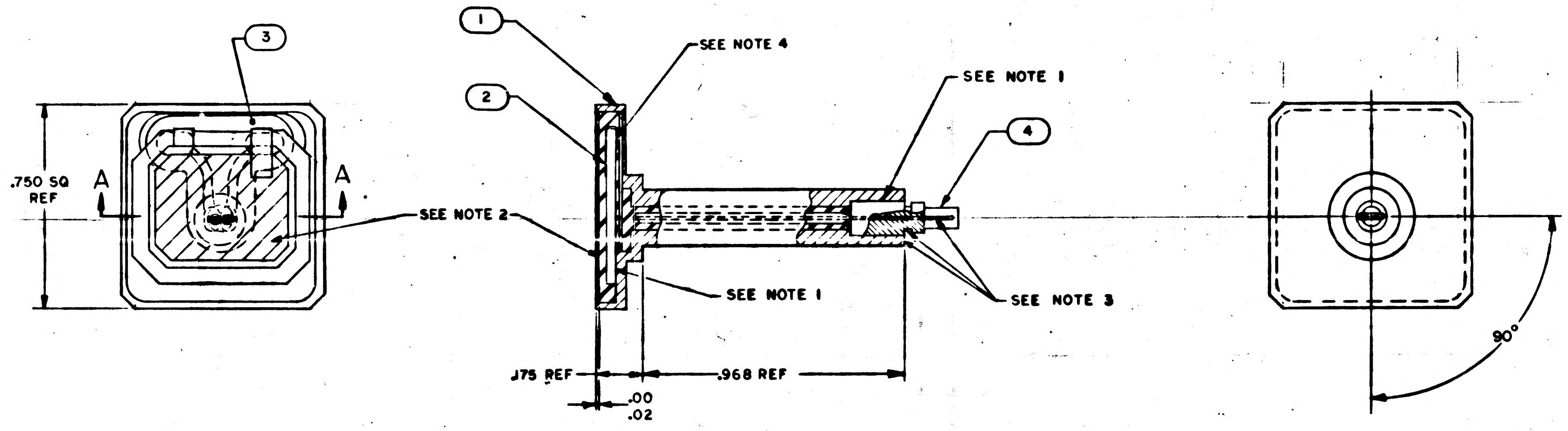
2003974

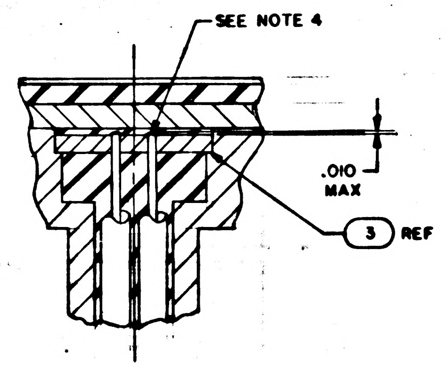
MASTER

NOTICE WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 2:77

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
Ⓜ A		REVISED PER TDRR 23127				





PARTIAL SECTION A-A
SCALE 10/1

NOTES
1. BOND FIND NO. 2 AND 4 TO FIND NO. 1 PER ND1002004, TYPE IV
2. ENCAPSULATE PER ND1002276, TYPE II, EXCEPT CROSSHATCHED AREA TO BE OPTICALLY CLEAR, FREE OF AIR BUBBLES AND SURFACE IRREGULARITIES
3. SURFACES TO BE FREE OF ENCAPSULATING COMPOUND BONDING AGENT
4. SOLDER FIND NO. 3 TO FIND NO. 2 AND 4 PER ND1002074 USING SOLDER ND1002075
5. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
6. IDENTIFY WITH PART NO. PER ND1002019
7. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003975

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	2003932-011	PLUG, ASSY	4
1	1006371	CABLE ASSY, SPECIAL PURPOSE	3
1	1006340	PANEL, E/L	2
1	2004948	SHAFT	1
011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003974	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	J. A. Saffini	6 Jul 65
CHECKED		
APPROVED		
APPROVED	Eldon C. Hall	
APPROVED MIT		
APPROVED MSC		

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SHAFT ASSEMBLY
PUSH BUTTON SWITCH
AGC DSKY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2003975

SCALE 4/1 SHEET 1 OF 1

APOLLO G&N Specification
PS 2003975 Rev A
Original Issue Date:
Release Authority: TDRR 23149
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

FOR

AGC DSKY PUSHBUTTON SWITCH SHAFT ASSEMBLY

DRAWING NO. 2003975

Record of Revisions

Ⓜ

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
1/6/67	A	32578	1, 2	WJ FG	WJ FG

This specification consists of pages 1 to 5 inclusive.

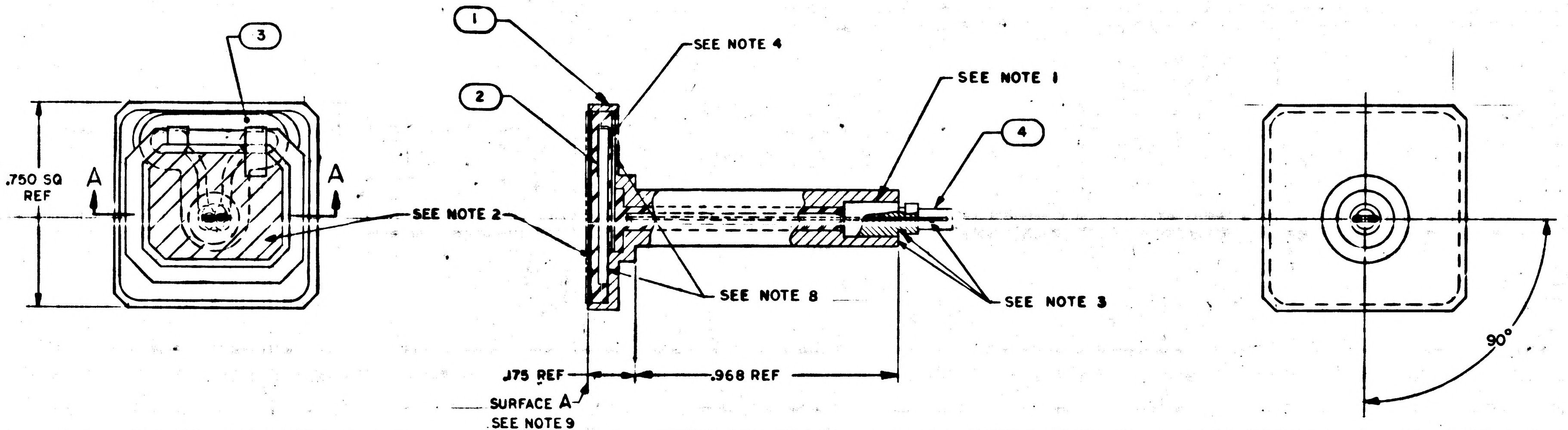
APPROVALS	NASA/MSC	MIT/IL	RAY
		Eldon C Hall 10/13/65 W [illegible] 13Oct65	[illegible] 9/1/65 Fred [illegible] 9/3/65 F. J. [illegible] 9/3/65 HJ 9/7/65

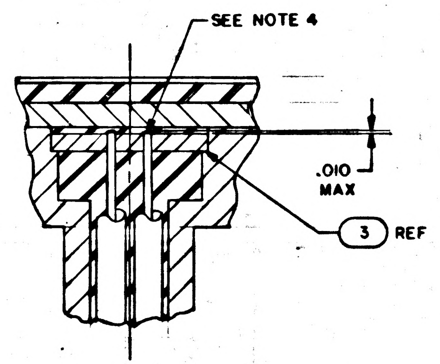
NOT REQUIRED PER LETTER
NASA PP7-65-612

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 21877

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 23127		JCJ		
B		REVISED PER TDRR 27467	W.B.		4/12/66	





PARTIAL SECTION A-A
SCALE 10/1

NOTES
1. BOND FIND NO. 4 TO FIND NO. 1 PER ND1002004, TYPE IV
2. ENCAPSULATE PER ND1002276, TYPE II, EXCEPT CROSSHATCHED AREA TO BE OPTICALLY CLEAR, FREE OF AIR BUBBLES AND SURFACE IRREGULARITIES.
3. SURFACES TO BE FREE OF ENCAPSULATING COMPOUND BONDING AGENT
4. SOLDER FIND NO.3 TO FIND NO.2 AND 4 PER ND1002071 USING SOLDER ND1002075
5. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
6. IDENTIFY WITH PART NO. PER ND1002019
7. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003975
8. BOND FIND NO. 2 AND 3 TO FIND NO. 1 USING FIND NO. 5
9. SURFACE OF ENCAPSULANT SHALL BE BETWEEN .020 MAX BELOW SURFACE A TO .005 MAX. ABOVE SURFACE A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1012536	ADHESIVE	5
1	2003932-011	PLUG, ASSY	4
1	1006371	CABLE ASSY, SPECIAL PURPOSE	3
1	1006340	PANEL, E/L	2
1	2004948	SHAFT	1
01	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003984	
2003974	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

		DATE
DRAWN	J. A. Zaffini	6 Jul 65
CHECKED		
APPROVED		
APPROVED	Eldon C. Hall	
APPROVED MIT		
APPROVED MSC		

SHAFT ASSEMBLY
PUSH BUTTON SWITCH
AGC DSKY

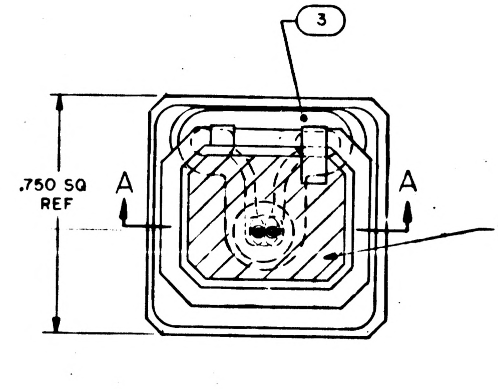
CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2003975
SCALE 4/1
SHEET 1 OF 1

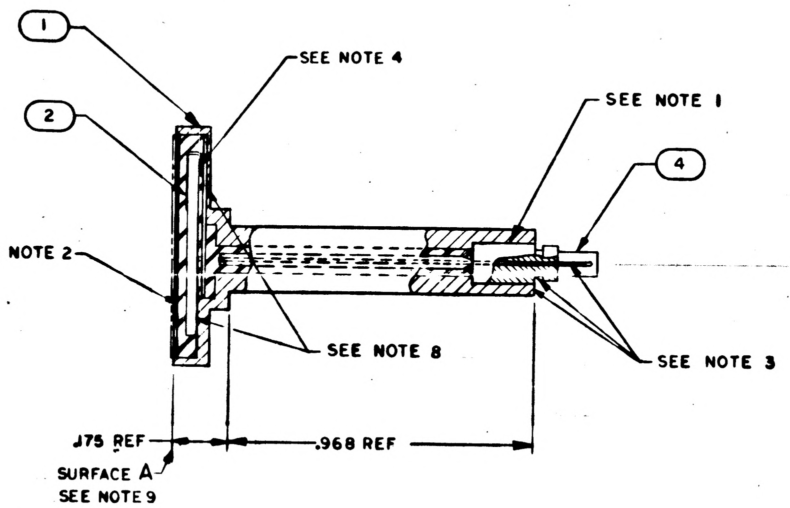
2003975 (B)

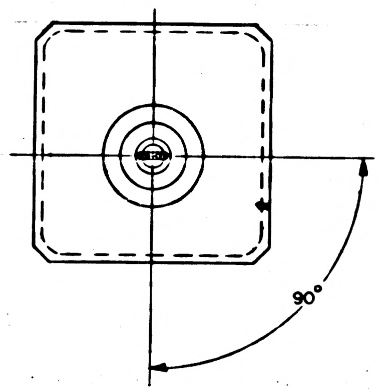
NOTICE WHEN GOVERNMENT DRAWINGS SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

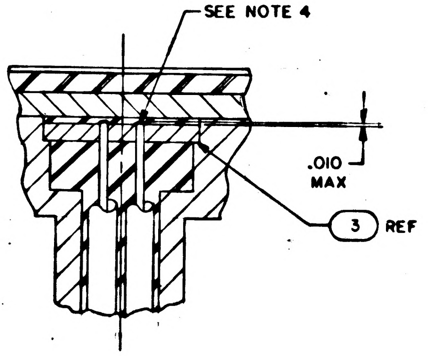
REVISIONS 21877

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 23127		JC		
B		REVISED PER TDRR 27467	W. B.		4/12/66	
C		REVISED PER TDRR 27915			5-25-66	P. Rosen









PARTIAL SECTION A-A
SCALE 10/1

NOTES

1. BOND FIND NO. 4 TO FIND NO. 1 PER ND1002004, TYPE IV
2. ENCAPSULATE PER ND1002276, TYPE II, EXCEPT CROSSHATCHED AREA TO BE OPTICALLY CLEAR, FREE OF AIR BUBBLES AND SURFACE IRREGULARITIES
3. SURFACES TO BE FREE OF ENCAPSULATING COMPOUND BONDING AGENT
4. SOLDER FIND NO. 3 TO FIND NO. 2 AND 4 PER ND1002071 USING SOLDER ND1002075
5. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
6. IDENTIFY WITH PART NO. PER ND1002019
7. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003975
8. BOND FIND NO. 2 AND 3 TO FIND NO. 1 USING FIND NO. 5 OR PER ND1002004 TYPE IV
9. SURFACE OF ENCAPSULANT SHALL BE BETWEEN .010 MAX BELOW SURFACE A TO .005 MAX. ABOVE SURFACE A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
A R	1012536	ADHESIVE	5
1	2003932-011	PLUG, ASSY	4
1	1006371	CABLE ASSY, SPECIAL PURPOSE	3
1	1006340	PANEL, E/L	2
1	2004948	SHAFT	1
011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003984	
2003974	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J. A. Saffini 6 Nov 65
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SHAFT ASSEMBLY
PUSH BUTTON SWITCH
AGC DSKY

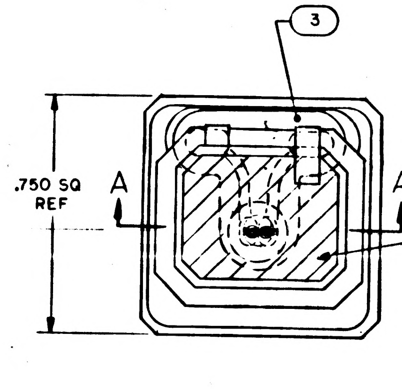
CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2003975
SCALE 4/1
SHEET 1 OF 1

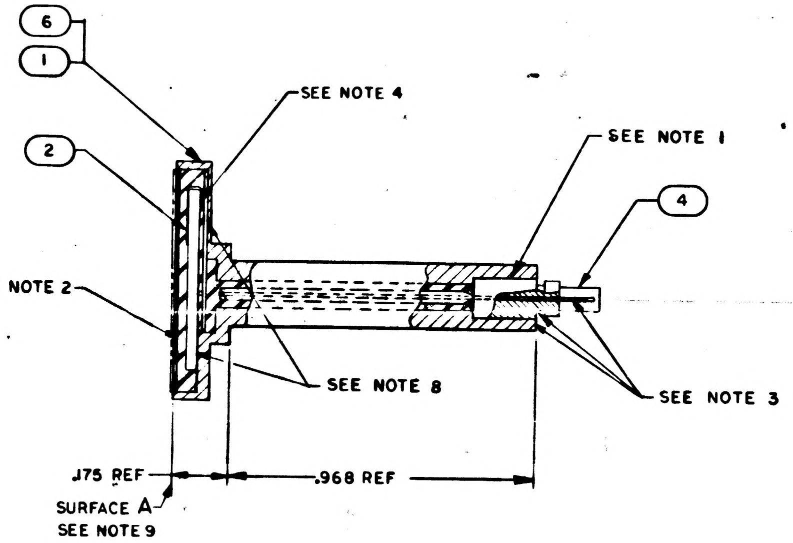
2003975 C

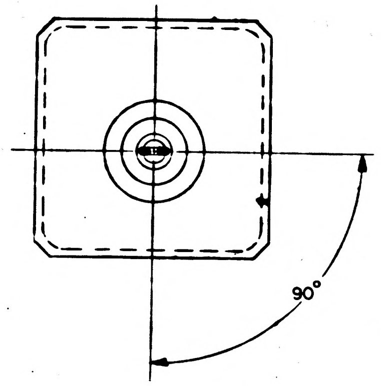
NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

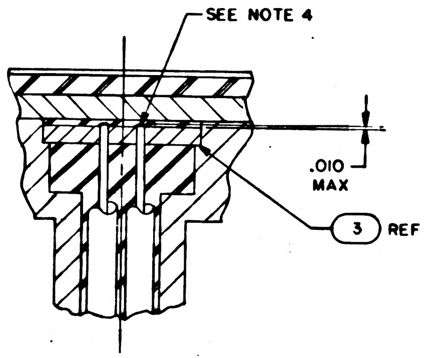
REVISIONS 21877

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 23127				
B		REVISED PER TDRR 27467	W. B.		4/12/66	
C		REVISED PER TDRR 27915			5-25-66	P. Rowan
D		REVISED PER TDRR 32580			3/67	









PARTIAL SECTION A-A
SCALE 10/1

NOTES

1. BOND FIND NO. 4 TO FIND NO. 1 OR FIND NO. 6 PER ND1002004, TYPE IV
2. ENCAPSULATE PER ND1002276, TYPE II, EXCEPT CROSSHATCHED AREA TO BE OPTICALLY CLEAR, FREE OF AIR BUBBLES AND SURFACE IRREGULARITIES
3. SURFACES TO BE FREE OF ENCAPSULATING COMPOUND BONDING AGENT
4. SOLDER FIND NO. 3 TO FIND NO. 2 AND 4 PER ND1002071 USING SOLDER ND1002075
5. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

6. IDENTIFY WITH PART NO. PER ND1002019
7. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003975
8. BOND FIND NO. 2 AND 3 TO FIND NO. 1 OR 6 USING FIND NO. 5 OR PER ND1002004, TYPE IV
9. SURFACE OF ENCAPSULANT SHALL BE BETWEEN .010 MAX BELOW SURFACE A TO .005 MAX. ABOVE SURFACE A

MASTER

QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
1	—	2004678	SHAFT	6
AR	AR	1012536	ADHESIVE	5
1	1	2003932-011	PLUG, ASSY	4
1	1	006371	CABLE ASSY, SPECIAL PURPOSE	3
1	1	1006340	PANEL, E/L	2
—	1	2004948	SHAFT	1
-021	011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003875	
2003984	
2003974	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J. Q. Zaffini 6 JULY 65
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SHAFT ASSEMBLY
PUSH BUTTON SWITCH
AGC DSKY

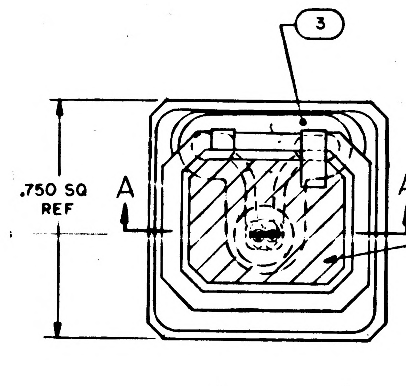
CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2003975
SCALE 4/1
SHEET 1 OF 1

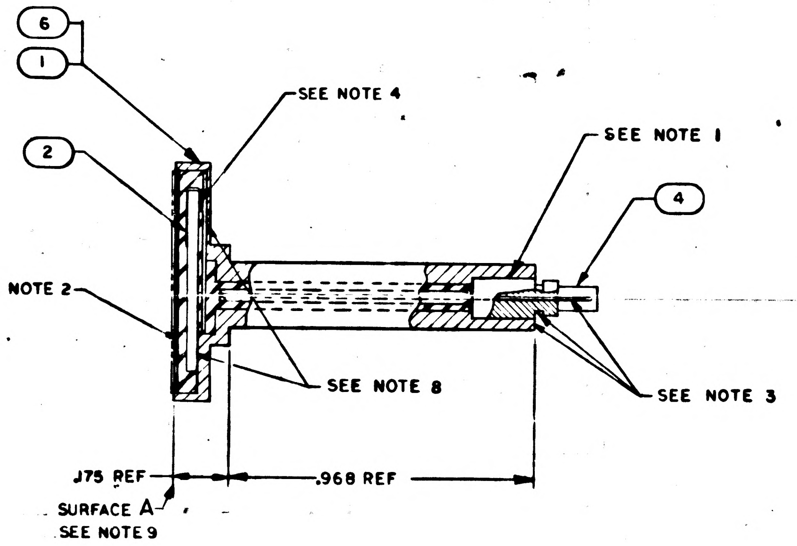
2003975 D

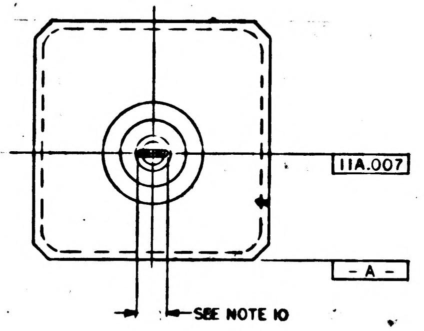
NOTICE WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

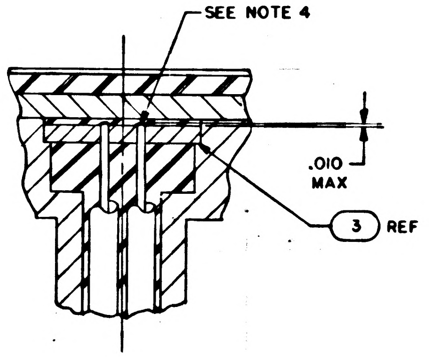
REVISIONS 21877

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 23127		J.C.		
B		REVISED PER TDRR 27467	W.B.		4/12/66	
C		REVISED PER TDRR 27915			5-25-66	P.
D		REVISED PER TDRR 32580			23/67	T.S.K.
E		REVISED PER TDRR 32724			2-1-67	T.S.K.









PARTIAL SECTION A-A
SCALE 10/1

NOTES

1. BOND FIND NO. 4 TO FIND NO. 1 OR FIND NO. 6 PER ND1002004, TYPE IV
2. ENCAPSULATE PER ND1002276, TYPE II, EXCEPT CROSSHATCHED AREA TO BE OPTICALLY CLEAR, FREE OF AIR BUBBLES AND SURFACE IRREGULARITIES
3. SURFACES TO BE FREE OF ENCAPSULATING COMPOUND BONDING AGENT
4. SOLDER FIND NO. 3 TO FIND NO. 2 AND 4 PER ND1002071 USING SOLDER ND1002075
5. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
6. IDENTIFY WITH PART NO. PER ND1002019
7. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003975
8. BOND FIND NO. 2 AND 3 TO FIND NO. 1 OR 6 USING FIND NO. 5 OR PER ND1002004, TYPE IV
9. SURFACE OF ENCAPSULANT SHALL BE BETWEEN .010 MAX BELOW SURFACE A TO .005 MAX. ABOVE SURFACE A
10. REFERENCE .082/.087 REQUIRED ACROSS OUTSIDE EDGE OF WIRES.

MASTER

QTY REQD -021	QTY REQD 011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	—	2004678	SHAFT	6
AR	AR	1012536	ADHESIVE	5
1	1	2003932-011	PLUG, ASSY	4
1	1	1006371	CABLE ASSY, SPECIAL PURPOSE	3
1	1	1006340	PANEL, E/L	2
—	1	2004948	SHAFT	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003875	
2003984	
2003974	

APPLICATION

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RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J. A. Gaffini 6 JULY 65
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SHAFT ASSEMBLY
PUSH BUTTON SWITCH
AGC DSKY

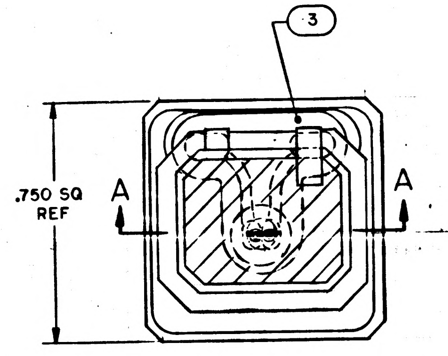
CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2003975
SCALE 4/1
SHEET 1 OF 1

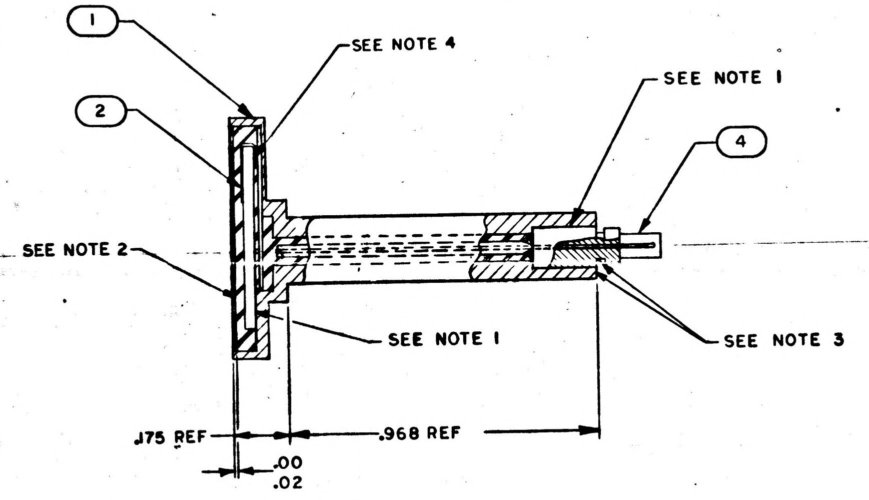
2003975 E

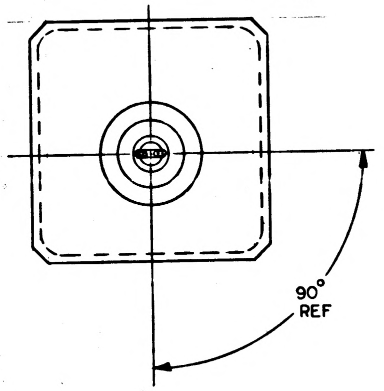
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

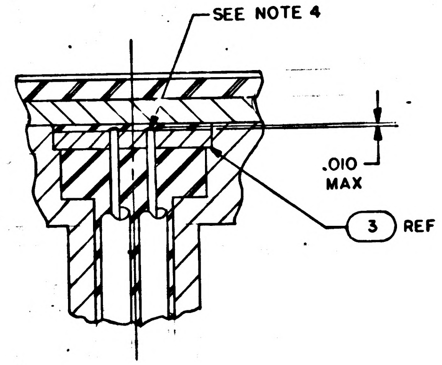
REVISIONS 2, 877

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED









PARTIAL SECTION A-A
SCALE 10/1

NOTES

1. BOND FIND NO. 2 AND 4 TO FIND NO. 1 PER ND1002004, TYPE IV
2. ENCAPSULATE PER ND1002276, TYPE II
3. SURFACES TO BE FREE OF ENCAPSULANTING COMPOUND BONDING AGENT
4. SOLDER FIND NO. 3 TO FIND NO. 2 AND 4 PER ND1002071 USING SOLDER ND1002075
5. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
6. IDENTIFY WITH PART NO. PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	2003932-011	PLUG, ASSY	4
1	1006371	CABLE ASSY, SPECIAL PURPOSE	3
1	1006340	PANEL, E/L	2
1	2004948	SHAFT	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003974	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J. A. Baffini 6 JULY 65
CHECKED 12 Aug 65
APPROVED 12 Aug 65
APPROVED Eldon C Hall 24 Aug 65
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SHAFT ASSEMBLY
PUSH BUTTON SWITCH
AGC DSKY

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2003975
SCALE 4/1
SHEET 1 OF 1

2003975

APOLLO G&N Specification
PS 2003975
Original Issue Date:
Release Authority: TDRR 23149
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

FOR

AGC DSKY PUSHBUTTON SWITCH SHAFT ASSEMBLY

DRAWING NO. 2003975

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA

This specification consists of pages 1 to 5 inclusive.

APPROVALS	NASA/MSC	Eldon C Hall 10/13/65 W Kupfer 13Oct65 MIT/IL	C Murphy 9/3/65 Fred Peterson 9/3/65 F. J. Murray 9/3/65 HJ 9/7/65 RAY

NOT REQUIRED PER LETTER
NASA PP7-65-612

1. SCOPE

This specification establishes the detail requirements for complete identification and acceptance of the AGC DSKY PUSHBUTTON SWITCH SHAFT ASSEMBLY, part number 2003975, hereinafter called the Shaft Assembly.

2. APPLICABLE DOCUMENTS

2.1 Effective Issues. The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, Military Standards and Specifications shall be the issue in effect on the date of request for proposal or invitation to bid.

SPECIFICATIONS

APOLLO G & N

ND 1002215 -	Mechanical and Electrical Items, Preparation for Delivery of, General Requirements

STANDARDS

MILITARY -

MIL-STD-202	Test Methods for Electrical and Electronic Component Parts

DRAWINGS

APOLLO G & N

2003975	AGC DSKY Pushbutton Switch Shaft Assembly

Copies of specifications, standards, drawings, and publications required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.

2.2 Conflicting Requirements. In the event of conflict between the requirements of the contract, this specification, and the documents listed in this section; the following order of precedence shall apply and the Contractor shall notify MIT APOLLO Management of the conflict as soon as it is determined.

(a) The contract.
(b) This specification.
(c) Documents listed in this section.

3. REQUIREMENTS

3.1 Performance

3.1.1 Dielectric Withstanding Voltage. The Shaft Assembly shall withstand a minimum of 150 Vrms applied across the case and each of the two leads for 60 sec. + 0 sec. - 6 sec. without affecting the operation of the unit.

3.1.2 Brightness. The electroluminescent panel portion of the Shaft Assembly shall emit a brightness of not less than 2.0 foot-lamberts with a maximum of 5.5 milliwatts power consumption, when 75 Vrms ± 1 Vrms at 400 cps is applied across the two leads.

3.2 Product Configuration

3.2.1 Drawings. The configuration of the Shaft Assembly shall be in accordance with APOLLO G & N Drawing 2003975 and all drawings and engineering data referenced thereon.

3.2.2 Workmanship. The fabrication of the Shaft Assembly, its assemblies, subassemblies, and parts, shall be such as to produce a unit free from any defect that would affect proper functioning in service.

3.2.3 Appearance. The finish, coatings, color, nameplate or product marking shall comply with the requirements specified herein or on the applicable drawings.

4. QUALITY ASSURANCE PROVISIONS

4.1 General. The contractor responsible for the manufacture of the Shaft Assembly shall be responsible for performing all test required herein.

4.1.1 Nonconforming Units. The failure of the Shaft Assembly to pass any examination or test of this section will automatically classify the unit as nonconforming. When nonconforming units are corrected by the contractor, the unit shall be reinspected. When corrective action has been taken, the reinspection of a nonconforming unit may be limited to the test or examination which defined the nonconformance or, when so directed by the cognizant inspector, a complete reexamination and retest of the unit may be required. Nonconforming units which have not been corrected will be considered for acceptance only upon formal application by the contractor to the cognizant procuring activity representative.

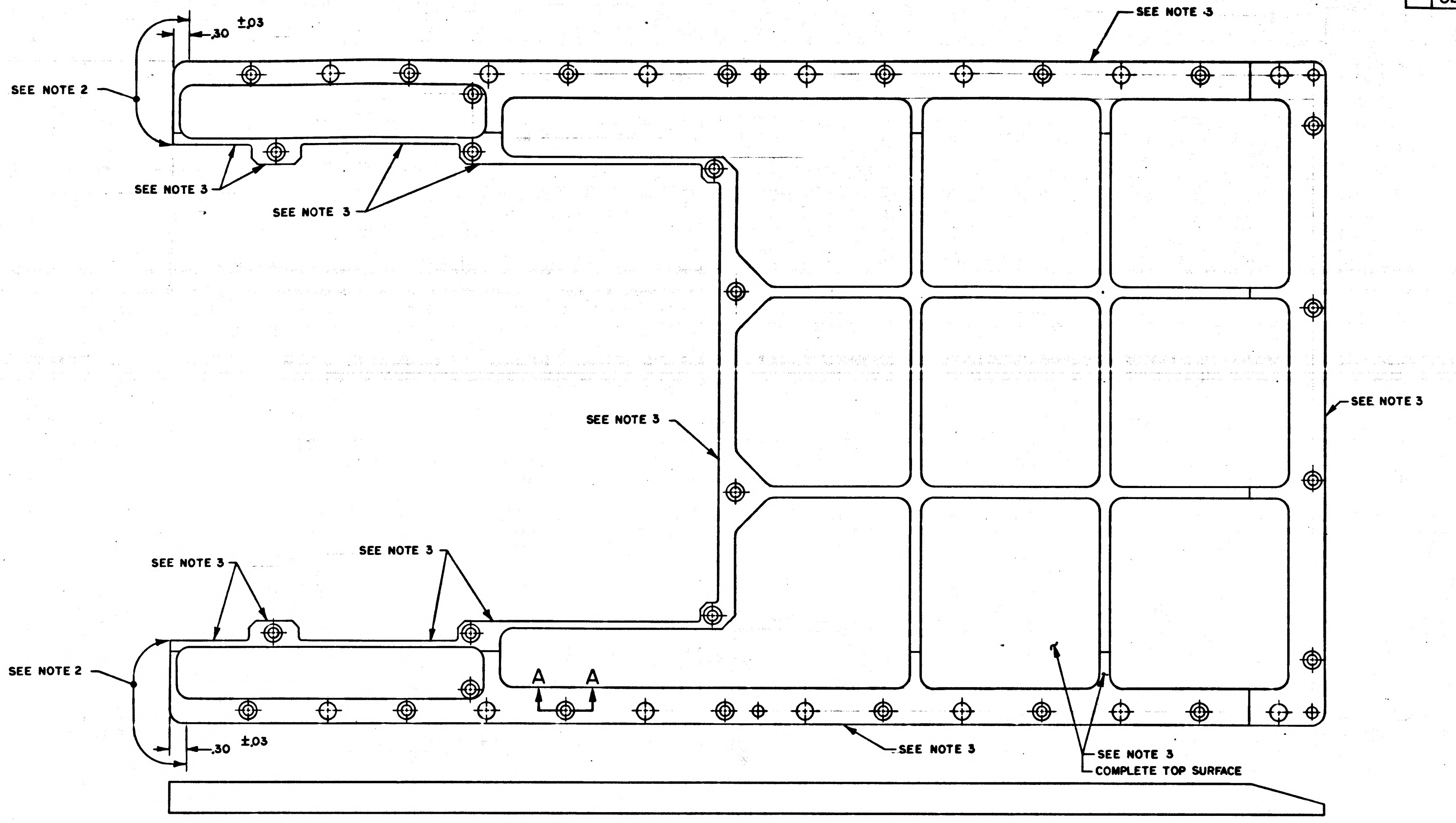
4.1.2 Test Conditions. Unless otherwise specified herein, the Shaft Assembly shall be subjected to tests under the following ambient conditions:

Temperature	25° ± 10°C
Relative Humidity	Not more than 90%
Barometric Pressure	28 to 32 inches Hg

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2003976 —

SYM	DESCRIPTION	DATE	APPROVAL
REVISIONS 030			



SEE NOTE 2
.30
±.03
SEE NOTE 3
SEE NOTE 3
SEE NOTE 3
SEE NOTE 3
SEE NOTE 3
SEE NOTE 3
SEE NOTE 3
SEE NOTE 2
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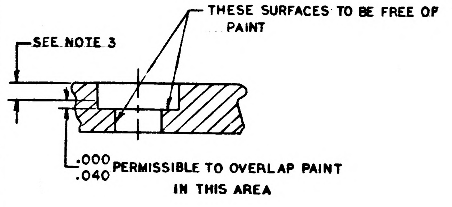
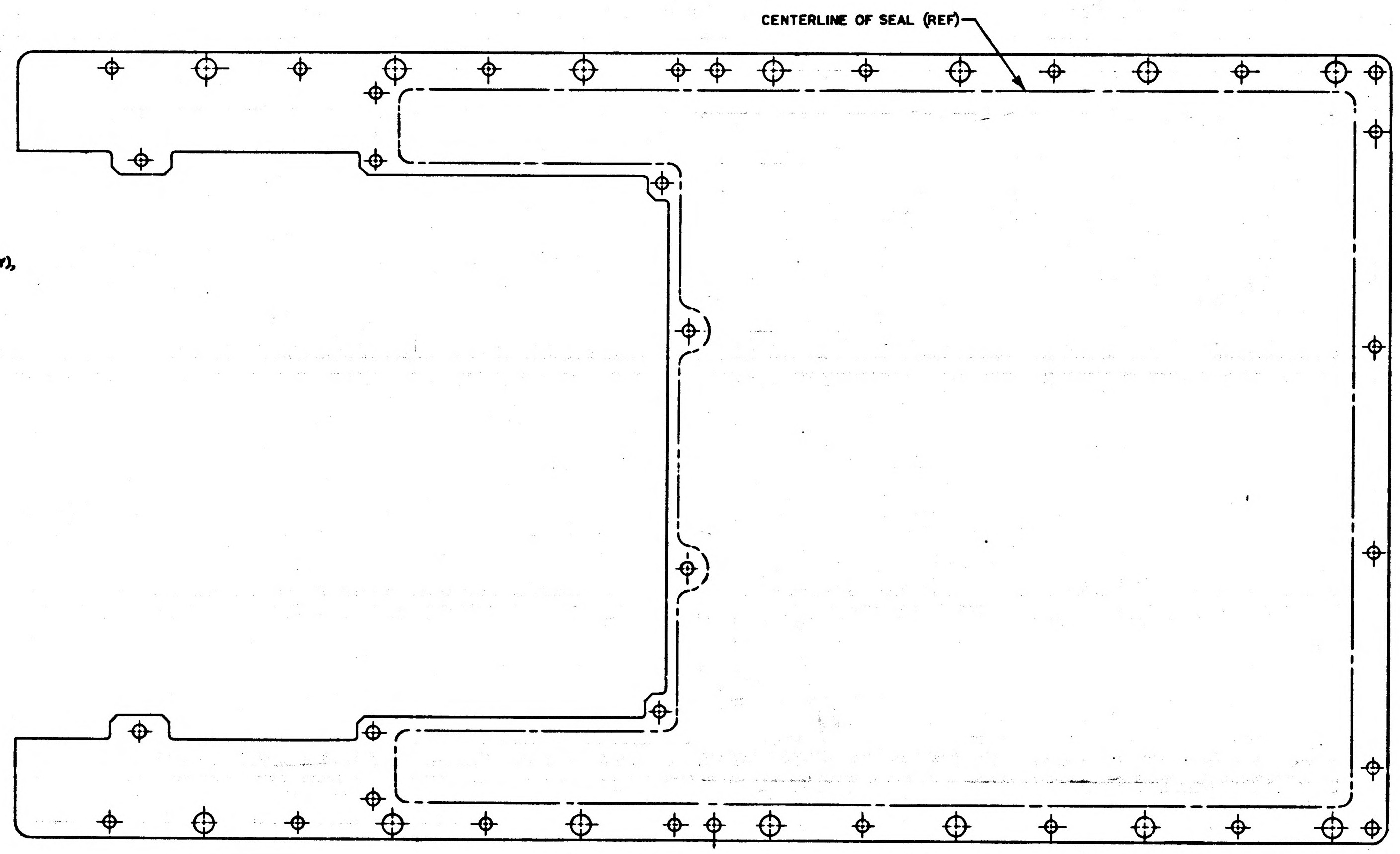
A
.30
±.03
SEE NOTE 3
SEE NOTE 3
COMPLETE TOP SURFACE



SEE NOTE 3
THESE SURFACES TO BE FREE OF PAINT
.000
.040
PERMISSIBLE TO OVERLAP PAINT IN THIS AREA

SECTION A-A
SCALE 4/1
28 PLACES



CENTERLINE OF SEAL (REF)

NOTES

1. MATL: MAKE FROM 1006378-001
2. PAINT THIS EDGE INCLUDING RADII PER ND1002279 USING 1008809-1 (DARK GRAY), FINAL COAT SURFACES PER ND1002277 USING 1012543-003 OVERLAPPING THE AL FILLED CLEAR EPOXY PERMISSIBLE
3. APPLY THE FOLLOWING FINISHES TO SURFACES INDICATED
   PRIMER ONLY PER ND1002279 USING 1010992
   P NT AL FILLED CLEAR EPOXY PER ND1002289
4. IN ERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED B MIL-D-70327
5. MASK ALL HOLES, EXCEPT AS NOTED

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

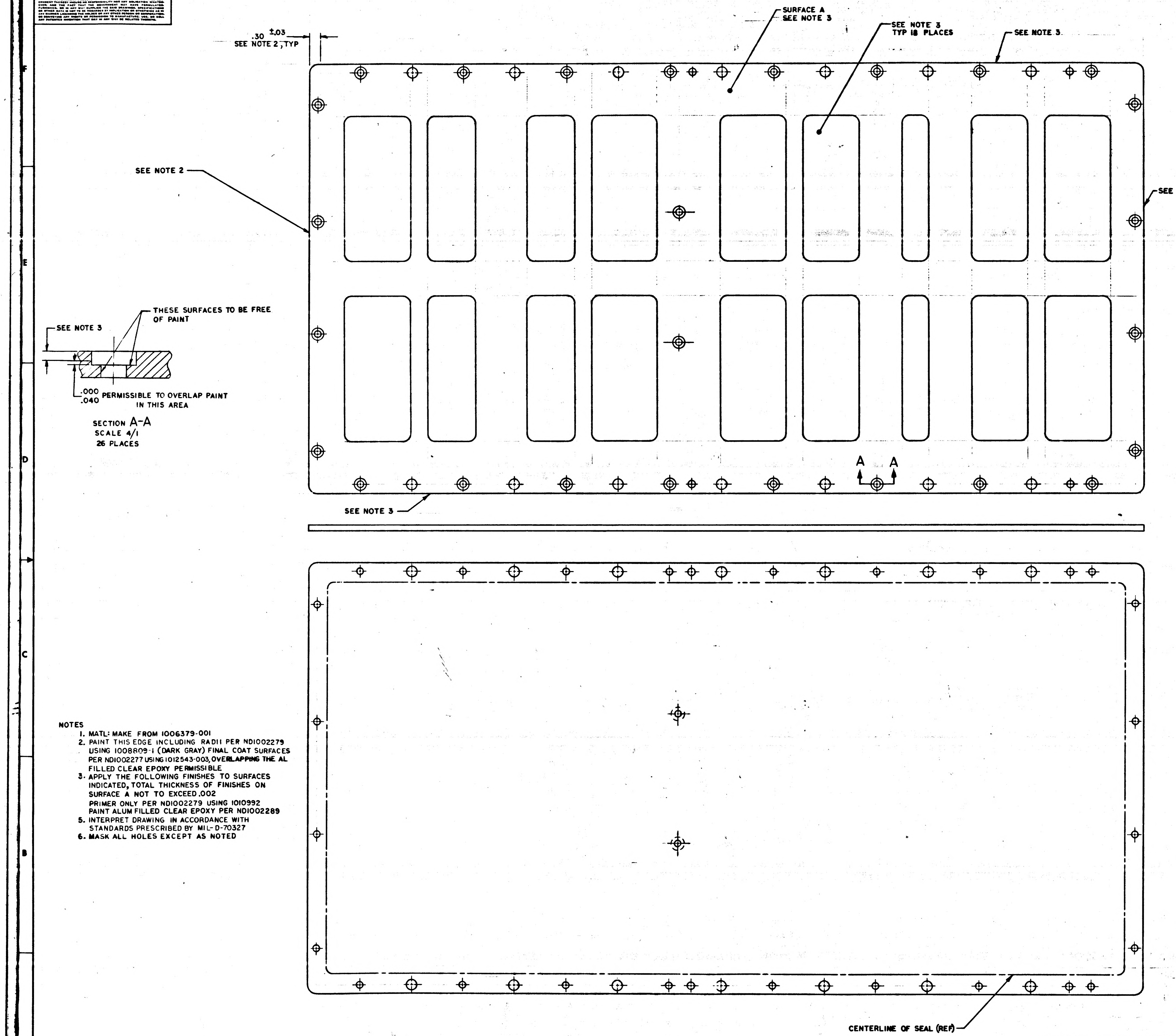
LIST OF MATERIALS

2003200		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ± ANGLES ± DO NOT SCALE THIS DRAWING MATERIAL SEE NOTE 1 HEAT TREATMENT FINAL FINISH	MIT INSTRUMENTATION LAB CAMBRIDGE, MASS DWG NO CONTRACT DRAWN R.D. Luibock DATE 28 Feb 66 CHECKED [illegible] March 24 FEB 66 APPROVAL Z.J. [illegible] 28 FEB 66 APPROVAL Eldon C. Hall 11 Mar 66 NASA APPROVAL [illegible] 4/1/66 MIT APPROVAL [illegible] 13 Apr 66	MANNED SPACECRAFT CENTER HOUSTON, TEXAS TRAY B COVER PAINTED ASSEMBLY CODE IDENT NO. 80230 SIZE E NASA DRAWING NO. 2003976 SCALE 1/1 WT SHEET 1 OF 1
NEXT ASSY	USED ON			
APPLICATION				

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2003977 –

REVISIONS 28030			
SYM	DESCRIPTION	DATE	APPROVAL



.30 ±.03
SEE NOTE 2, TYP
SURFACE A
SEE NOTE 3
SEE NOTE 3
TYP 18 PLACES
SEE NOTE 3
SEE NOTE 2
SEE NOTE 3
THESE SURFACES TO BE FREE OF PAINT
SEE NOTE 3
.000
.040
PERMISSIBLE TO OVERLAP PAINT IN THIS AREA
SECTION A-A
SCALE 4/1
26 PLACES
A
A
SEE NOTE 3
CENTERLINE OF SEAL (REF)

NOTES
1. MATL: MAKE FROM 1006379-001
2. PAINT THIS EDGE INCLUDING RADII PER ND1002279 USING 1008809-1 (DARK GRAY) FINAL COAT SURFACES PER ND1002277 USING 1012543-003, OVERLAPPING THE AL FILLED CLEAR EPOXY PERMISSIBLE
3. APPLY THE FOLLOWING FINISHES TO SURFACES INDICATED, TOTAL THICKNESS OF FINISHES ON SURFACE A NOT TO EXCEED .002
PRIMER ONLY PER ND1002279 USING 1010992
PAINT ALUM FILLED CLEAR EPOXY PER ND1002289
5. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
6. MASK ALL HOLES EXCEPT AS NOTED

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
2003200	
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 1
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO CONTRACT
DRAWN R.R. Zuiland DATE 17 Feb 66
CHECKED Bob March 24 FEB 66
APPROVAL F.J. Landon 28 FEB 66
APPROVAL John C. Hall 11 Mar 66
NASA APPROVAL M. Lich 4/1/66
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRAY A COVER
PAINTED ASSEMBLY

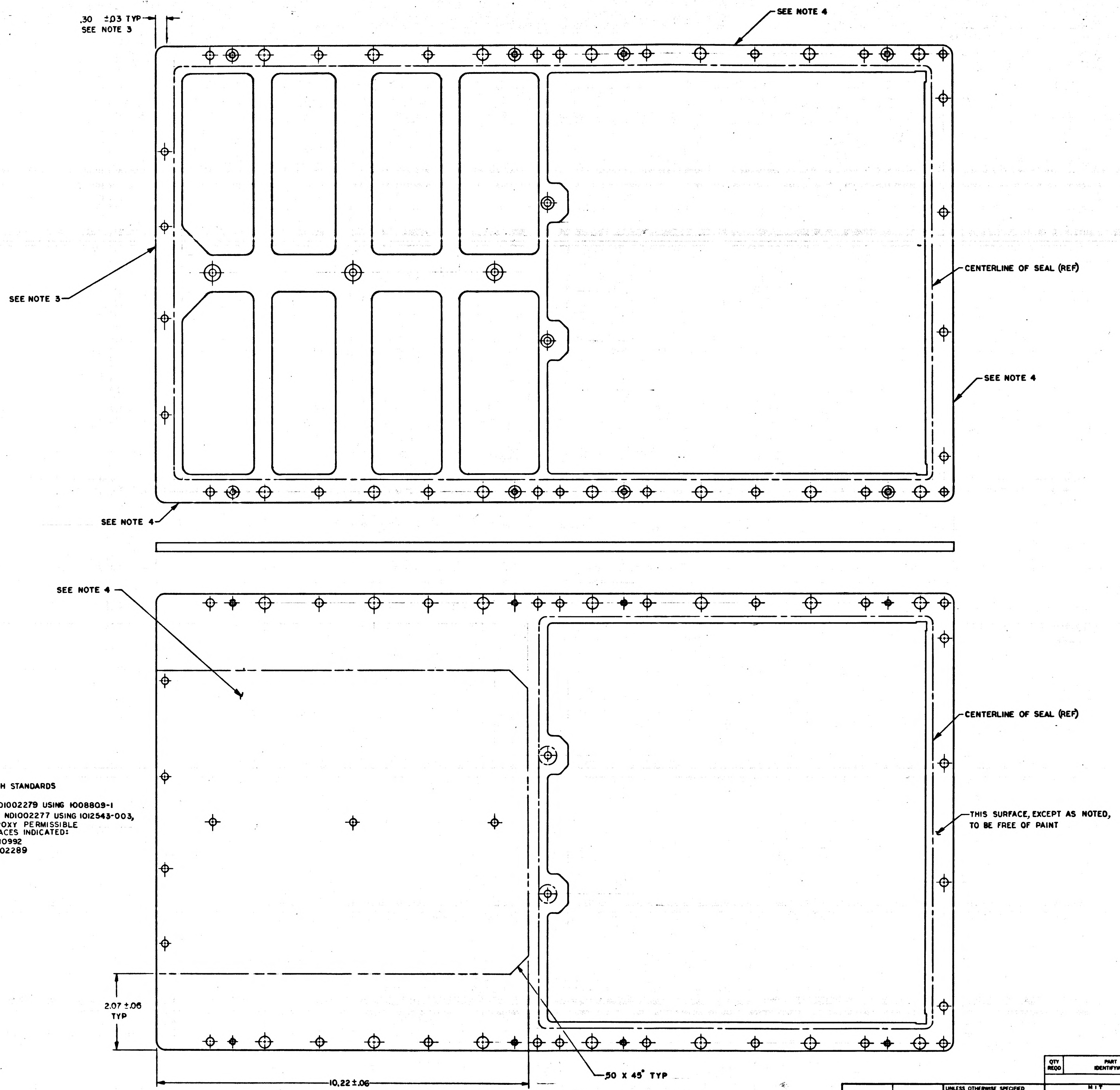
CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	E	2003977
SCALE 1/1	WT	SHEET 1 OF 1

2003977 –

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2003978 | –

SYM	REVISIONS DESCRIPTION	DATE	APPROVAL



NOTES

1. MATL: MAKE FROM 1006381-001
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
3. PAINT THIS EDGE INCLUDING RADII PER ND1002279 USING 1008809-1 (DARK GRAY), FINAL COAT SURFACES PER ND1002277 USING 1012543-003, OVERLAPPING THE AL FILLED CLEAR EPOXY PERMISSIBLE
4. APPLY THE FOLLOWING FINISHES TO SURFACES INDICATED:
   PRIMER ONLY PER ND1002279 USING 1010992
   PAINT AL FILLED CLEAR EPOXY PER ND1002289
5. MASK ALL HOLES

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
2003200	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±5°
DO NOT SCALE THIS DRAWING
MATERIAL
SEE NOTE 1
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO CONTRACT
DRAWN R.D. Guibord DATE 21 FEB 66
CHECKED Bob Munck 24 FEB 66
APPROVAL F.J. Sanborn 28 FEB 66
APPROVAL Ellen C Heath 11 Mar 66
NASA APPROVAL
MIT APPROVAL 13 Apr 66

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MID SPACER
PAINTED ASSEMBLY

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 2003978
SCALE 1/1
WT
SHEET 1 OF 1

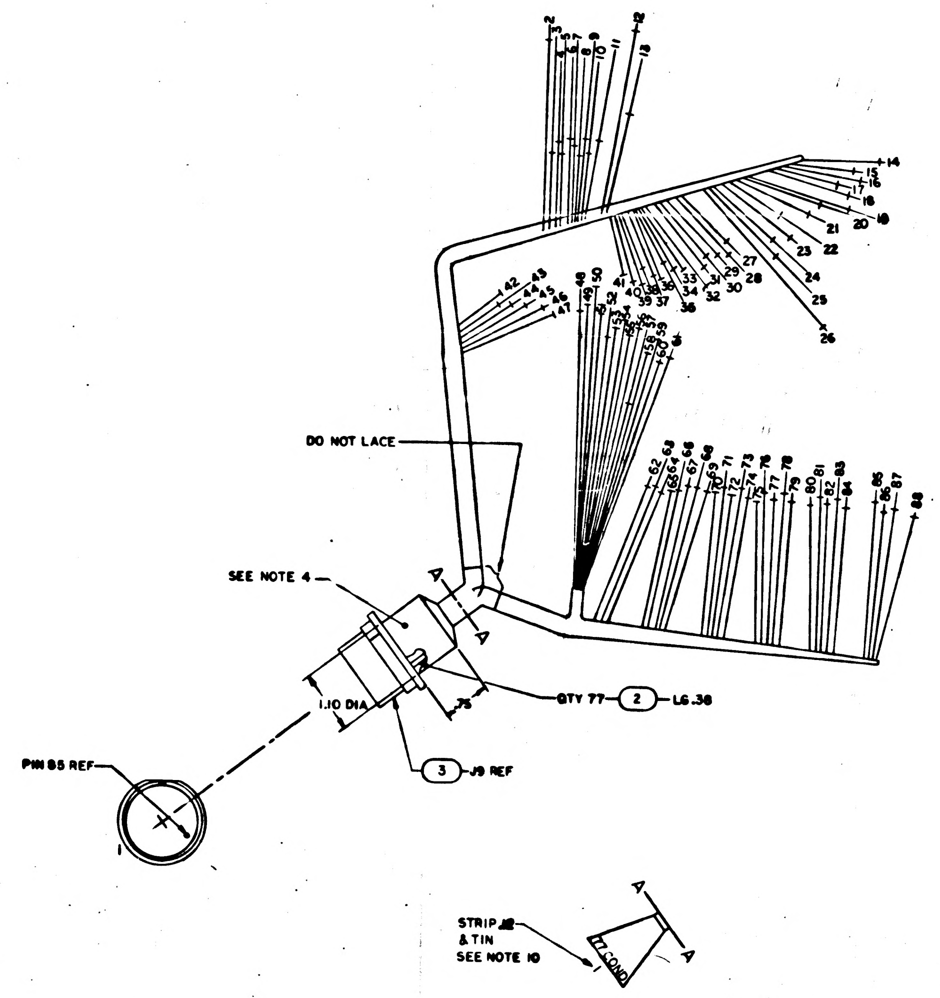
2003978 –

REV	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22163 DR Ky Shaw CHK	8/65	

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DESTINATION	COLOR	AWG	FIND NO	STA NO.	DESTINATION	REMARKS
	B1	1	J9-37	WHITE	26	1	37	J5-6	
	B2	1	J9-53				24	J3-12	
	B3	1	J9-80				28	J4-10	
	B4	1	J9-31				18	J2-11	
	B5	1	J9-19				34	J5-5	
	B6	1	J9-28				53	J12-199	
	B7	1	J9-61				38	J5-3	
	B8	1	J9-59				41	J5-12	
	B9	1	J9-81				30	J4-8	
	B10	1	J9-82				27	J4-2	
	B11	1	J9-54				31	J4-12	
	B12	1	J9-27				71	J4-86	
	B13	1	J9-83				29	J4-11	
	B14	1	J9-47				78	J3-88	
	B15	1	J9-14				8	J6-2	
	B16	1	J9-4				44	J7-7	
	B17	1	J9-15				6	J6-10	
	B18	1	J9-12				64	J6-90	
	B19	1	J9-32				3	J6-8	
	B20	1	J9-26				73	J4-85	
	B21	1	J9-55				10	J6-1	
	B22	1	J9-46				83	J2-85	
	B23	1	J9-84				4	J6-11	
	B24	1	J9-72				86	J1-85	
	B25	1	J9-5				45	J7-5	
	B26	1	J9-3				79	J3-89	
	B27	1	J9-16				23	J3-15	
	B28	1	J9-11				65	J5-91	
	B29	1	J9-33				25	J3-20	
	B30	1	J9-25				67	J5-86	
	B31	1	J9-56				19	J3-21	
	B32	1	J9-45				62	J6-86	
	B33	1	J9-79				48	J12-211	SEE NOTE 3
	B34	1	J9-71				81	J2-86	
	B35	1	J9-1				46	J7-3	
	B36	1	J9-2				87	J1-90	
	B37	1	J9-6				40	J5-15	
	B38	1	J9-10				72	J4-90	
	B39	1	J9-17				13	J5-20	
	B40	1	J9-24				70	J4-91	
	B41	1	J9-34				32	J5-21	
	B42	1	J9-44				76	J3-86	
	B43	1	J9-49				51	J12-206	
	B44	1	J9-70				85	J1-86	
	B45	1	J9-51				49	J12-212	
	B46	1	J9-8				47	J7-2	
	B47	1	J9-7				43	J7-11	
	B48	1	J9-9				88	J1-89	
	B49	1	J9-18				65	J6-85	
	B50	1	J9-23				74	J4-89	
	B51	1	J9-35				39	J5-11	
	B52	1	J9-43				75	J3-91	
	B53	1	J9-58				35	J5-1	
	B54	1	J9-69				68	J5-85	
	B55	1	J9-78				52	J12-198	
	B56	1	J9-21				42	J7-9	
	B57	1	J9-36				7	J6-6	
	B58	1	J9-22				82	J2-90	
	B59	1	J9-48				54	J12-200	
	B60	1	J9-42				66	J5-90	
	B61	1	J9-77				59	J12-188	
	B62	1	J9-68				80	J2-91	
	B63	1	J9-30				60	J12-180	
	B64	1	J9-57				57	J2-1	
	B65	1	J9-60	WHITE		1	5	J6-3	
	B66	1	J9-40	ORN		6	55	J12-193	TWIST SEE NOTE 3
	B67	1	J9-38	RED		5	56	J12-194	
	B68	1	J9-41	WHITE		1	84	J2-89	
	B69	1	J9-76				50	J12-205	
	B70	1	J9-67				69	J5-89	
	B71	1	J9-85				11	J6-5	
	B72	1	J9-64				14	J1-3	
	B73	1	J9-63				61	J12-181	
	B74	1	J9-65				58	J12-186	
	B75	1	J9-62				16	J2-10	SEE NOTE 3
	B76	1	J9-66	WHITE		1	77	J3-90	
	B77	1	J9-39	BLK		7	57	J12-184	
	B78	2	J6-64	WHITE		1	36	J5-10	
	B79	9	J6-9				20	J3-9	
SEE NOTE 3	B80	17	J2-3				22	J3-3	
	B81	21	J3-10				33	J5-9	
	B82	26	J3 64	WHITE	26	1	12	J5-64	

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. FABRICATE PER ND1002032
3. UNLESS OTHERWISE SPECIFIED STRIP ALL LEADS .20 AND TIN
4. POT INDICATED AREA PER ND1002236
5. AR DENOTES AS REQUIRED
6. IDENTIFY WITH DRAWING NO. & REVISION PER ND1002019
7. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; PREFIX DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH
8. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED USING FIND NO.4
9. DO NOT APPLY HEAT GREATER THAN 250° F TO FIND NO.2
10. SOLDER PER ND1002071 USING ND1002075
11. ETCH WIRE PER ND1002146



● DENOTES LENGTH IN FEET

	QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
SEE NOTE 11 ●	1.0	1010416-11	WIRE, INSULATED	7
SEE NOTE 11 ●	1.0	1010416-14	WIRE, INSULATED	6
SEE NOTE 11 ●	1.0	1010416-13	WIRE, INSULATED	5
	AR	101.507-003	TAPE, LACING	4
	1	1006361-003	CONNECTOR, RECEPTACLE	3
●	2.5	1006322-004	SLEEVING, INSULATION	2
SEE NOTE 11 ●	142	1010416-20	WIRE, INSULATED	1
	-011	LIST OF MATERIALS		

2003954	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.06 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN J. A. Baffino DATE 28 JUN 65
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED
AGC DSKY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO 2003980
SCALE 1/1
WT
SHEET 1 OF 1

2003980 A

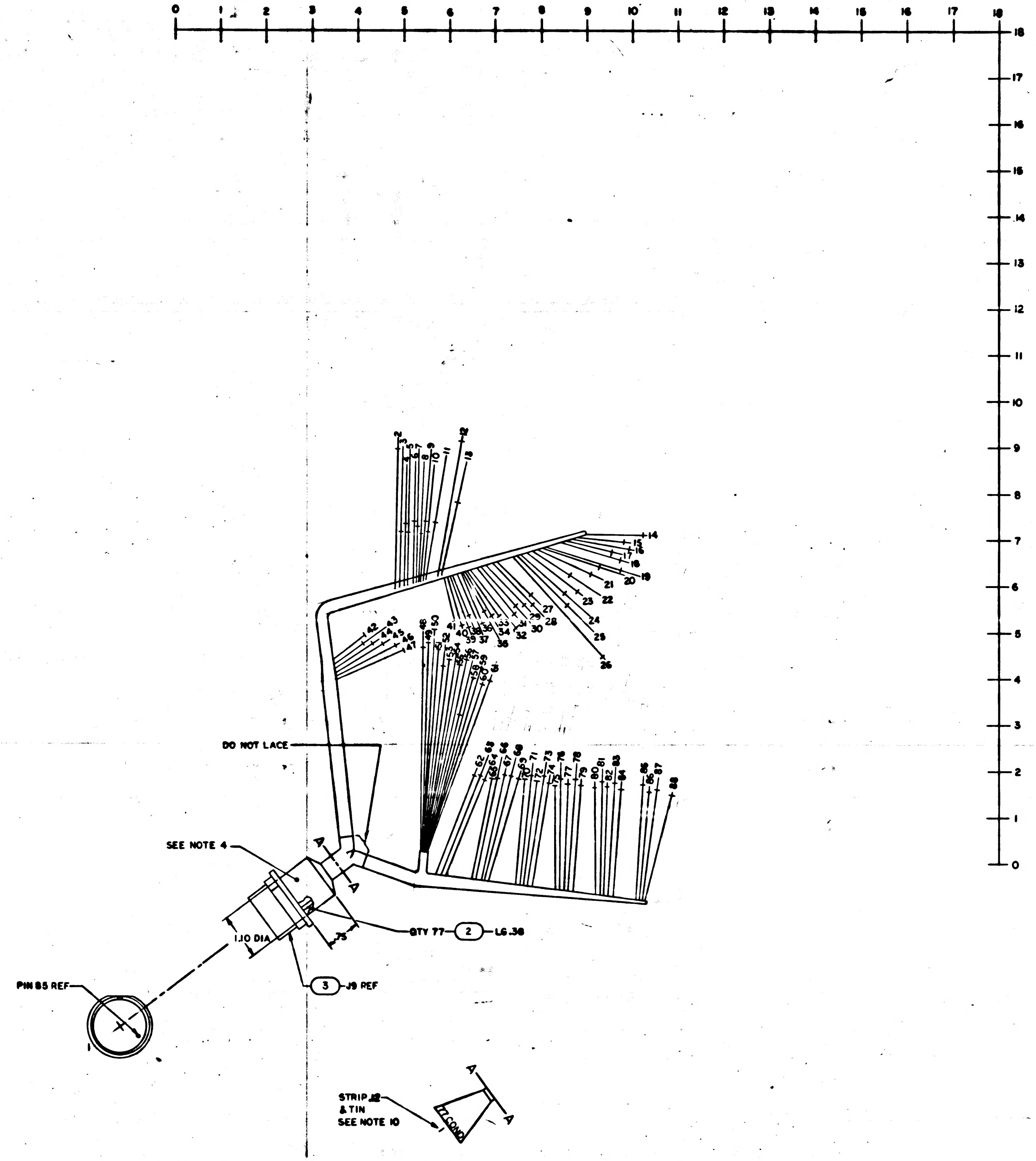
2003980 B

REVISIONS 20943			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22163 DR K. Simon CHK C.A.P.	9/1/65	
B	REVISED PER TDRR 22540 DR K. Simon CHK R.H.E.		

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DESTINATION	COLOR	AWG	FIND NO.	STA NO.	DESTINATION	REMARKS
	B1	1	J9-37	WHITE	26	1	37	J5-6	
	B2	1	J9-53				24	J3-12	
	B3	1	J9-80				28	J4-10	
	B4	1	J9-31				18	J2-11	
	B5	1	J9-19				34	J5-5	
	B6	1	J9-28				53	J12-199	
	B7	1	J9-61				38	J5-3	
	B8	1	J9-59				41	J5-12	
	B9	1	J9-81				30	J4-8	
	B10	1	J9-82				27	J4-2	
	B11	1	J9-54				31	J4-12	
	B12	1	J9-27				71	J4-86	
	B13	1	J9-83				29	J4-11	
	B14	1	J9-47				78	J3-85	
	B15	1	J9-14				8	J6-2	
	B16	1	J9-4				44	J7-7	
	B17	1	J9-15				6	J6-10	
	B18	1	J9-12				64	J6-90	
	B19	1	J9-32				3	J6-8	
	B20	1	J9-26				73	J4-85	
	B21	1	J9-55				10	J6-1	
	B22	1	J9-46				83	J2-85	
	B23	1	J9-84				4	J6-11	
	B24	1	J9-72				86	J1-85	
	B25	1	J9-5				45	J7-5	
	B26	1	J9-3				79	J3-89	
	B27	1	J9-16				23	J3-15	
	B28	1	J9-11				65	J5-91	
	B29	1	J9-33				25	J3-20	
	B30	1	J9-25				67	J5-86	
	B31	1	J9-56				19	J3-21	
	B32	1	J9-45				62	J6-86	
	B33	1	J9-79				48	J12-211	SEE NOTE 3
	B34	1	J9-71				81	J2-86	
	B35	1	J9-1				46	J7-3	
	B36	1	J9-2				87	J1-90	
	B37	1	J9-6				40	J5-15	
	B38	1	J9-10				72	J4-90	
	B39	1	J9-17				13	J5-20	
	B40	1	J9-24				70	J4-91	
	B41	1	J9-34				32	J5-21	
	B42	1	J9-44				76	J3-86	
	B43	1	J9-49				51	J12-206	
	B44	1	J9-70				85	J1-86	
	B45	1	J9-51				49	J12-212	
	B46	1	J9-8				47	J7-2	
	B47	1	J9-7				43	J7-11	
	B48	1	J9-9				88	J1-89	
	B49	1	J9-18				63	J6-85	
	B50	1	J9-23				74	J4-89	
	B51	1	J9-35				39	J5-11	
	B52	1	J9-43				75	J3-91	
	B53	1	J9-58				35	J5-1	
	B54	1	J9-69				68	J5-85	
	B55	1	J9-78				52	J12-198	
	B56	1	J9-21				42	J7-9	
	B57	1	J9-36				7	J6-6	
	B58	1	J9-22				82	J2-90	
	B59	1	J9-48				54	J12-200	
	B60	1	J9-42				66	J5-90	
	B61	1	J9-77				59	J12-188	
	B62	1	J9-68				80	J2-91	
	B63	1	J9-30				60	J12-180	
	B64	1	J9-57				15	J2-1	
	B65	1	J9-60	WHITE		1	5	J6-3	
	B66	1	J9-40	ORN		6	55	J12-193	TWIST
	B67	1	J9-38	RED		5	56	J12-194	SEE NOTE 3
	B68	1	J9-41	WHITE		1	84	J2-89	
	B69	1	J9-76				50	J12-205	
	B70	1	J9-67				69	J5-89	
	B71	1	J9-85				11	J6-5	
	B72	1	J9-64				14	J1-3	
	B73	1	J9-63				61	J12-181	
	B74	1	J9-65				58	J12-186	
	B75	1	J9-62				16	J2-10	SEE NOTE 3
	B76	1	J9-66	WHITE		1	77	J3-90	
	B77	1	J9-39	BLK		7	57	J12-184	
	B78	2	J6-64	WHITE		1	36	J5-10	
	B79	9	J6-9				20	J3-9	
SEE NOTE 3	B80	17	J2-3				22	J3-3	
	B81	21	J3-10				33	J5-9	
	B82	26	J3 64	WHITE	26	1	12	J5-64	

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. FABRICATE PER ND1002032
3. UNLESS OTHERWISE SPECIFIED STRIP ALL LEADS .20 AND TIN
4. POT INDICATED AREA PER ND1002236
5. AR DENOTES AS REQUIRED
6. IDENTIFY WITH DRAWING NO. & REVISION PER ND1002019
7. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; PREFIX DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH
8. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED USING FIND NO.4
9. DO NOT APPLY HEAT GREATER THAN 250° F TO FIND NO.2
10. SOLDER PER ND1002071 USING ND1002075
11. ETCH WIRE PER ND1002146



	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
SEE NOTE 11 ●	1.0	1010416-11	WIRE, INSULATED	7
●	1.0	1010416-14	WIRE, INSULATED	6
●	1.0	1010416-15	WIRE, INSULATED	5
	AR	1012507-003	TAPE, LACING	4
	1	1006361-003	CONNECTOR, RECEPTACLE	3
●	2.5	1006322-004	SLEEVING, INSULATION	2
SEE NOTE 11 ●	142	1010416-20	WIRE, INSULATED	1
	-011	LIST OF MATERIALS		

● DENOTES LENGTH IN FEET

MASTER

2003954	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.06 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
CONTRACT
DRAWN J. Q. Baffini DATE 28 JUN 65
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED
AGC DSKY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003980
SCALE 1/1
WT
SHEET 1 OF 1

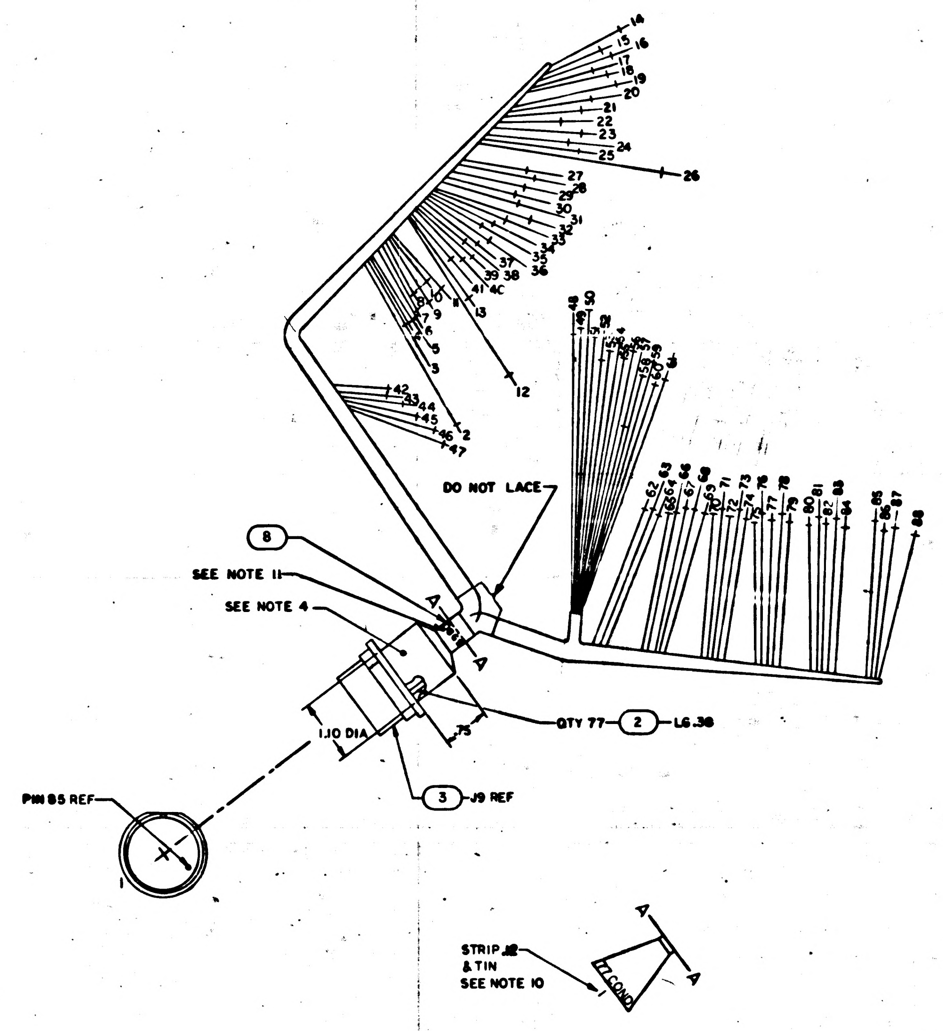
2003980 B

2003980 C

REV	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22163 DR K W Simon CHK C.A.P.		
B	REVISED PER TDRR 22540 DR K W Simon CHK R.A.E.		
C	REVISED-PER TDRR 23229 DR D.Q. Clement CHK Hagar		

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DESTINATION	COLOR	AWG	FIND NO	STA NO.	DESTINATION	REMARKS
	B1	1	J9-37	YELLOW	26	1	37	J5-6	SEE NOTE 3
	B2	1	J9-53				24	J3-12	
	B3	1	J9-80				28	J4-10	
	B4	1	J9-31				18	J2-11	
	B5	1	J9-19				34	J5-5	
	B6	1	J9-28				53	J12-199	
	B7	1	J9-61				38	J5-3	
	B8	1	J9-59				41	J5-12	
	B9	1	J9-81				30	J4-8	
	B10	1	J9-82				27	J4-2	
	B11	1	J9-54				31	J4-12	
	B12	1	J9-27				71	J4-86	
	B13	1	J9-83				29	J4-11	
	B14	1	J9-47				78	J3-85	
	B15	1	J9-14				8	J6-2	
	B16	1	J9-4				44	J7-7	
	B17	1	J9-15				6	J6-10	
	B18	1	J9-12				64	J6-90	
	B19	1	J9-32				3	J6-8	
	B20	1	J9-26				73	J4-85	
	B21	1	J9-55				10	J6-1	
	B22	1	J9-46				83	J2-85	
	B23	1	J9-84				4	J6-11	
	B24	1	J9-72				86	J1-85	
	B25	1	J9-5				45	J7-5	
	B26	1	J9-3				79	J3-89	
	B27	1	J9-16				23	J3-15	
	B28	1	J9-11				65	J5-91	
	B29	1	J9-33				25	J3-20	
	B30	1	J9-25				67	J5-86	
	B31	1	J9-56				19	J3-21	
	B32	1	J9-45				62	J6-86	
	B33	1	J9-79				48	J12-211	
	B34	1	J9-71				81	J2-86	
	B35	1	J9-1				46	J7-3	
	B36	1	J9-2				87	J1-90	
	B37	1	J9-6				40	J5-15	
	B38	1	J9-10				72	J4-90	
	B39	1	J9-17				13	J5-20	
	B40	1	J9-24				70	J4-91	
	B41	1	J9-34				32	J5-21	
	B42	1	J9-44				76	J3-86	
	B43	1	J9-49				51	J12-206	
	B44	1	J9-70				85	J1-86	
	B45	1	J9-51				49	J12-212	
	B46	1	J9-8				47	J7-2	
	B47	1	J9-7				43	J7-11	
	B48	1	J9-9				88	J1-89	
	B49	1	J9-18				63	J6-85	
	B50	1	J9-23				74	J4-89	
	B51	1	J9-35				39	J5-11	
	B52	1	J9-43				75	J3-91	
	B53	1	J9-58				35	J5-1	
	B54	1	J9-69				68	J5-85	
	B55	1	J9-78				52	J12-198	
	B56	1	J9-21				42	J7-9	
	B57	1	J9-36				7	J6-6	
	B58	1	J9-22				82	J2-90	
	B59	1	J9-48				54	J12-200	
	B60	1	J9-42				66	J5-90	
	B61	1	J9-77				59	J12-188	
	B62	1	J9-68				80	J2-91	
	B63	1	J9-30				60	J12-180	
	B64	1	J9-57				15	J2-1	
	B65	1	J9-60			1	5	J6-3	
	B66	1	J9-40	YELLOW		5	55	J12-193	TWIST SEE NOTE 3
	B67	1	J9-38	RED		5	56	J12-194	
	B68	1	J9-41	YELLOW		1	84	J2-89	SEE NOTE 3
	B69	1	J9-76				50	J12-205	
	B70	1	J9-67				69	J5-89	
	B71	1	J9-85				11	J6-5	
	B72	1	J9-64				14	J1-3	
	B73	1	J9-63				61	J12-181	
	B74	1	J9-65				58	J12-186	
	B75	1	J9-62				16	J2-10	
	B76	1	J9-66	YELLOW		1	77	J3-90	
	B77	1	J9-39	BLK		7	57	J12-184	
SEE NOTE 3	B78	2	J6-64	YELLOW		1	36	J5-10	
	B79	9	J6-9				20	J3-9	
	B80	17	J2-3				22	J3-3	
	B81	21	J3-10				33	J5-9	
	B82	26	J3 64	YELLOW	26	1	12	J5-64	



NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. FABRICATE PER ND1002032
3. UNLESS OTHERWISE SPECIFIED STRIP ALL LEADS .20 AND TIN
4. POT INDICATED AREA PER ND1002236
5. AR DENOTES AS REQUIRED
6. IDENTIFY WITH PART NO. PER ND1002019
7. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; PREFIX DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH
8. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED USING FIND NO.4
9. DO NOT APPLY HEAT GREATER THAN 250° F TO FIND NO.2
10. SOLDER PER ND1002071 USING ND1002075
11. MARK .060/.100 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 USING INK 1006271-11. CENTRALIZE AS SHOWN

● DENOTES LENGTH IN FEET

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	1	MS18035-1-2	STRAP, CABLE	8
●	1.0	1010789-024	WIRE, INSULATED	7
~~●~~	~~1.0~~	~~1010415-14~~	~~WIRE, INSULATED~~	~~6~~
●	1.0	1010789-017	WIRE, INSULATED	5
	AR	1012507-003	TAPE, LACING	4
	1	1006361-003	CONNECTOR, RECEPTACLE	3
●	2.5	1006322-004	SLEEVING, INSULATION	2
●	142	1010789-016	WIRE, INSULATED	1
	-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003954	
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.06 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN J. A. Gaffney DATE 28 JUN 65
CHECKED Hagar
APPROVAL
APPROVAL Eldon C. Hall
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED
AGC DSKY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2003980
SCALE 1/1
WT
SHEET 1 OF 1

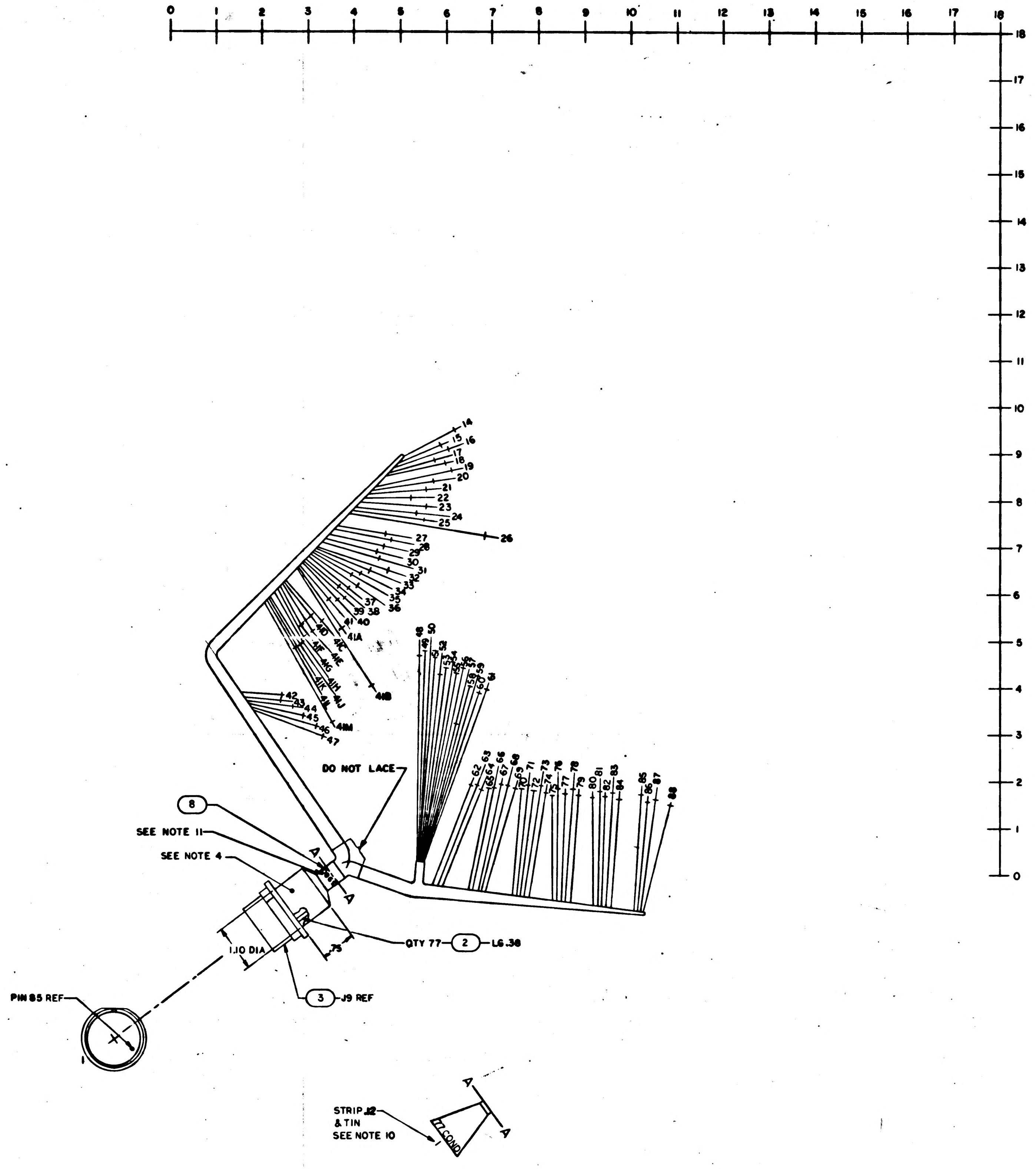
2003980 C

2003980 D

A	REVISED PER TDRR 22163		
B	REVISED PER TDRR 22540		
C	REVISED PER TDRR 23229 DR D.Q. Clemont CHK		
D	REVISED PER TDRR 23955		

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DESTINATION	COLOR	AWG	FIND NO	STA NO.	DESTINATION	REMARKS
	B1	1	J9-37	YELLOW	26	1	37	J5-6	SEE NOTE 3
	B2	1	J9-53				24	J3-12	
	B3	1	J9-80				28	J4-10	
	B4	1	J9-31				18	J2-11	
	B5	1	J9-19				34	J5-5	
	B6	1	J9-28				53	J12-199	
	B7	1	J9-61				38	J5-3	
	B8	1	J9-59				41	J5-12	
	B9	1	J9-81				30	J4-8	
	B10	1	J9-82				27	J4-2	
	B11	1	J9-54				31	J4-12	
	B12	1	J9-27				71	J4-86	
	B13	1	J9-83				29	J4-11	
	B14	1	J9-47				78	J3-85	
	B15	1	J9-14				41F	J6-2	
	B16	1	J9-4				44	J7-7	
	B17	1	J9-15				41H	J6-10	
	B18	1	J9-12				64	J6-90	
	B19	1	J9-32				41L	J6-8	
	B20	1	J9-26				73	J4-85	
	B21	1	J9-55				41D	J6-1	
	B22	1	J9-46				83	J2-85	
	B23	1	J9-84				41K	J6-11	
	B24	1	J9-72				86	J1-85	
	B25	1	J9-5				45	J7-5	
	B26	1	J9-3				79	J3-89	
	B27	1	J9-16				23	J3-15	
	B28	1	J9-11				65	J5-91	
	B29	1	J9-33				25	J3-20	
	B30	1	J9-25				67	J5-86	
	B31	1	J9-56				19	J3-21	
	B32	1	J9-45				62	J6-86	
	B33	1	J9-79				48	J12-211	
	B34	1	J9-71				81	J2-86	
	B35	1	J9-1				46	J7-3	
	B36	1	J9-2				87	J1-90	
	B37	1	J9-6				40	J5-15	
	B38	1	J9-10				72	J4-90	
	B39	1	J9-17				41A	J5-20	
	B40	1	J9-24				70	J4-91	
	B41	1	J9-34				32	J5-21	
	B42	1	J9-44				76	J3-86	
	B43	1	J9-49				51	J12-206	
	B44	1	J9-70				85	J1-86	
	B45	1	J9-51				49	J12-212	
	B46	1	J9-8				47	J7-2	
	B47	1	J9-7				43	J7-11	
	B48	1	J9-9				88	J1-89	
	B49	1	J9-18				63	J6-85	
	B50	1	J9-23				74	J4-89	
	B51	1	J9-35				39	J5-11	
	B52	1	J9-43				75	J3-91	
	B53	1	J9-58				35	J5-1	
	B54	1	J9-69				68	J5-85	
	B55	1	J9-78				52	J12-198	
	B56	1	J9-21				42	J7-9	
	B57	1	J9-36				41G	J6-6	
	B58	1	J9-22				82	J2-90	
	B59	1	J9-48				54	J12-200	
	B60	1	J9-42				66	J5-90	
	B61	1	J9-77				59	J12-188	
	B62	1	J9-68				80	J2-91	
	B63	1	J9-30				60	J12-180	
	B64	1	J9-57				15	J2-1	
	B65	1	J9-60			1	41J	J6-3	
	B66	1	J9-40	YELLOW		5	55	J12-193	TWIST SEE NOTE 3
	B67	1	J9-38	RED		5	56	J12-194	
	B68	1	J9-41	YELLOW		1	84	J2-89	SEE NOTE 3
	B69	1	J9-76				50	J12-205	
	B70	1	J9-67				69	J5-89	
	B71	1	J9-85				41C	J6-5	
	B72	1	J9-64				14	J1-3	
	B73	1	J9-63				61	J12-181	
	B74	1	J9-65				58	J12-186	
	B75	1	J9-62				16	J2-10	
	B76	1	J9-66	YELLOW		1	77	J3-90	
	B77	1	J9-39	BLK		7	57	J12-184	
SEE NOTE 3	B78	41M	J6-64	YELLOW		1	36	J5-10	
	B79	41E	J6-9				20	J3-9	
	B80	17	J2-3				22	J3-3	
	B81	21	J3-10				33	J5-9	
	B82	26	J3 64	YELLOW	26	1	41B	J5-64	



NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. FABRICATE PER ND1002032
3. UNLESS OTHERWISE SPECIFIED STRIP ALL LEADS .20 AND TIN
4. POT INDICATED AREA PER ND1002236
5. AR DENOTES AS REQUIRED
6. IDENTIFY WITH PART NO. PER ND1002019
7. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; PREFIX DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH
8. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED USING FIND NO.4
9. DO NOT APPLY HEAT GREATER THAN 250° F TO FIND NO.2
10. SOLDER PER ND1002071 USING ND1002075
11. MARK .060/.100 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 USING INK 1006271-11. CENTRALIZE AS SHOWN

	QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
	1	MS18035-1-2	STRAP, CABLE	8
*	1.0	1010789-024	WIRE, INSULATED	7
~~*~~	~~1.0~~	~~1010416-14~~	~~WIRE, INSULATED~~	~~6~~
*	1.0	1010789-017	WIRE, INSULATED	5
	AR	1012507-003	TAPE, LACING	4
	1	1006361-003	CONNECTOR, RECEPTACLE	3
*	2.5	1006322-004	SLEEVING, INSULATION	2
*	142	1010789-016	WIRE, INSULATED	1
	-011	LIST OF MATERIALS		

* DENOTES LENGTH IN FEET

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.06 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

NEXT ASSY	USED ON
2003954	
APPLICATION	

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN J. Q. Geffin DATE 28 JUN 65
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING HARNESS, BRANCHED
AGC DSKY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO 2003980
SCALE 1/1
WT
SHEET 1 OF 1

2003980 D

REVISIONS

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DESTINATION	COLOR	AWG	FIND NO.	STA NO.	DESTINATION	REMARKS
	B1	1	J9-37	WHITE	26	1	15	J5-6	
	B2	1	J9-53				58	J3-12	
	B3	1	J9-80				56	J4-10	
	B4	1	J9-31				62	J2-11	
	B5	1	J9-19				16	J5-5	
	B6	1	J9-28				25	J12-199	
	B7	1	J9-61				13	J5-3	
	B8	1	J9-59				11	J5-12	
	B9	1	J9-81				54	J4-8	
	B10	1	J9-82				57	J4-2	
	B11	1	J9-54				53	J4-12	
	B12	1	J9-27				36	J4-86	
	B13	1	J9-83				55	J4-11	
	B14	1	J9-47				43	J3-85	
	B15	1	J9-14				5	J6-2	
	B16	1	J9-4				22	J7-7	
	B17	1	J9-15				7	J6-10	
	B18	1	J9-12				26	J6-90	
	B19	1	J9-32				2	J6-8	
	B20	1	J9-26				38	J4-85	
	B21	1	J9-55				8	J6-1	
	B22	1	J9-46				48	J2-85	
	B23	1	J9-84				3	J6-11	
	B24	1	J9-72				52	J1-85	
	B25	1	J9-5				21	J7-5	
	B26	1	J9-3				42	J3-89	
	B27	1	J9-16				60	J3-15	
	B28	1	J9-11				29	J5-91	
	B29	1	J9-33				59	J3-20	
	B30	1	J9-25				31	J5-86	
	B31	1	J9-56				61	J3-21	
	B32	1	J9-45				27	J6-86	
	B33	1	J9-79				25	J12-211	
	B34	1	J9-71				46	J2-86	
	B35	1	J9-1				20	J7-3	
	B36	1	J9-2				49	J1-90	
	B37	1	J9-6				14	J5-15	
	B38	1	J9-10				35	J4-90	
	B39	1	J9-17				10	J5-20	
	B40	1	J9-24				34	J4-91	
	B41	1	J9-34				18	J5-21	
	B42	1	J9-44				41	J3-86	
	B43	1	J9-49				25	J12-206	
	B44	1	J9-70				50	J1-86	
	B45	1	J9-51				25	J12-212	
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	B47	1	J9-7				24	J7-11	
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	B49	1	J9-18				28	J6-85	
	B50	1	J9-23				37	J4-89	
	B51	1	J9-35				12	J5-11	
	B52	1	J9-43				39	J3-91	
	B53	1	J9-58				17	J5-1	
	B54	1	J9-69				33	J5-85	
	B55	1	J9-78				25	J12-198	
	B56	1	J9-21				23	J7-9	
	B57	1	J9-36				6	J6-6	
	B58	1	J9-22				45	J2-90	
	B59	1	J9-48				25	J12-200	
	B60	1	J9-42				30	J5-90	
	B61	1	J9-77				25	J12-188	
	B62	1	J9-68				44	J2-91	
	B63	1	J9-30				25	J12-180	
	B64	1	J9-57				64	J2-1	
	B65	1	J9-60				4	J6-3	
	B66	1	J9-40				25	J12-193	TWIST
	B67	1	J9-38				25	J12-194	
	B68	1	J9-41				47	J2-89	
	B69	1	J9-76				25	J12-205	
	B70	1	J9-67				32	J5-89	
	B71	1	J9-85				9	J6-5	
	B72	1	J9-64				65	J1-3	
	B73	1	J9-63				25	J12-181	
	B74	1	J9-65				25	J12-186	
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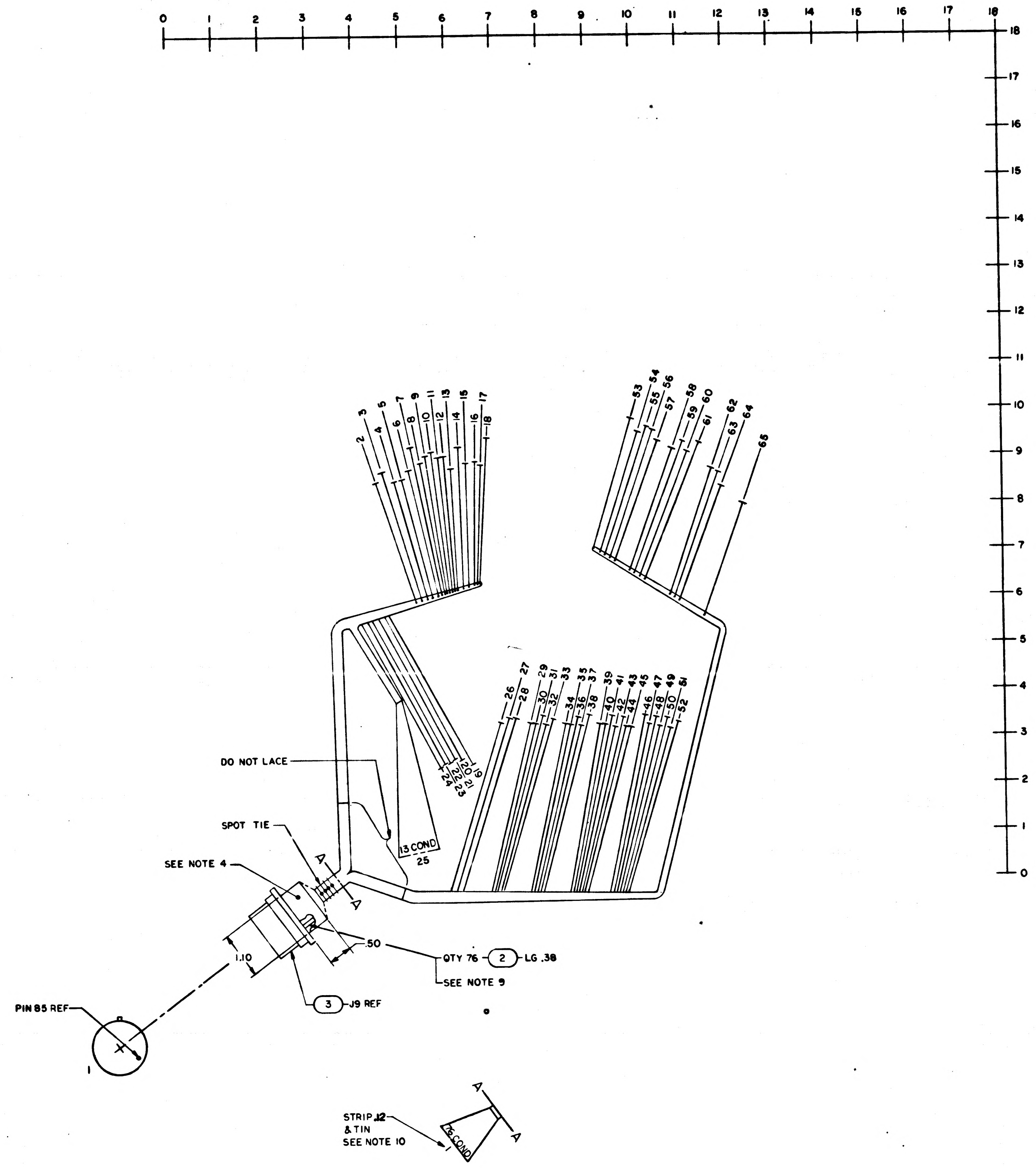

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. FABRICATE PER ND1002032
3. STRIP ALL LEADS 1.12 AND DO NOT TIN UNLESS OTHERWISE SPECIFIED
4. POT INDICATED AREA PER ND1002236
5. AR DENOTES AS REQUIRED
6. IDENTIFY WITH DRAWING NO. & REVISION PER ND1002019
7. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; PREFIX DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH
8. LACE ENTIRE HARNESS CONFIGURATION UNLESS OTHERWISE SPECIFIED USING FIND NO. 4
9. DO NOT APPLY HEAT GREATER THAN 250° F TO FIND NO. 2
10. SOLDER PER ND1002071 USING ND1002075

* DENOTES LENGTH IN FEET

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	AR	1012507-003	TAPE, LACING	4
	1	1006361-003	CONNECTOR, RECEPTACLE	3
*	2.5	1006322-004	SLEEVING, INSULATION	2
*	142	1010807-22	WIRE, INSULATED	1
	-011	LIST OF MATERIALS		

2003954	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.06 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN J. A. Gaffini DATE 28 JUN 65
CHECKED Boyer 28 June 65
APPROVAL
APPROVAL Eldon C. Hall
NASA APPROVAL
MIT APPROVAL W. Kupfer 30 July 65

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

WIRING HARNESS, BRANCHED
AGC DSKY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO 2003980
SCALE 1/1
WT
SHEET 1 OF 1

2003980

ASSEMBLY INFORMATION CHART

FROM				DESCRIPTION			TO		
REMARKS	COND IDENT	STA NO.	DESTINATION	COLOR	AWG	FIND NO.	STA NO.	DESTINATION	REMARKS
	B1	1	J9-37	WHITE	26	1	15	J5-6	
	B2	1	J9-53				58	J3-12	
	B3	1	J9-80				56	J4-10	
	B4	1	J9-31				62	J2-11	
	B5	1	J9-19				16	J5-5	
	B6	1	J9-28				25	J12-199	
	B7	1	J9-61				13	J5-3	
	B8	1	J9-59				11	J5-12	
	B9	1	J9-81				54	J4-8	
	B10	1	J9-82				57	J4-2	
	B11	1	J9-54				53	J4-12	
	B12	1	J9-27				36	J4-86	
	B13	1	J9-83				55	J4-11	
	B14	1	J9-47				43	J3-85	
	B15	1	J9-14				5	J6-2	
	B16	1	J9-4				22	J7-7	
	B17	1	J9-15				7	J6-10	
	B18	1	J9-12				26	J6-30	
	B19	1	J9-32				2	J6-8	
	B20	1	J9-26				38	J4-85	
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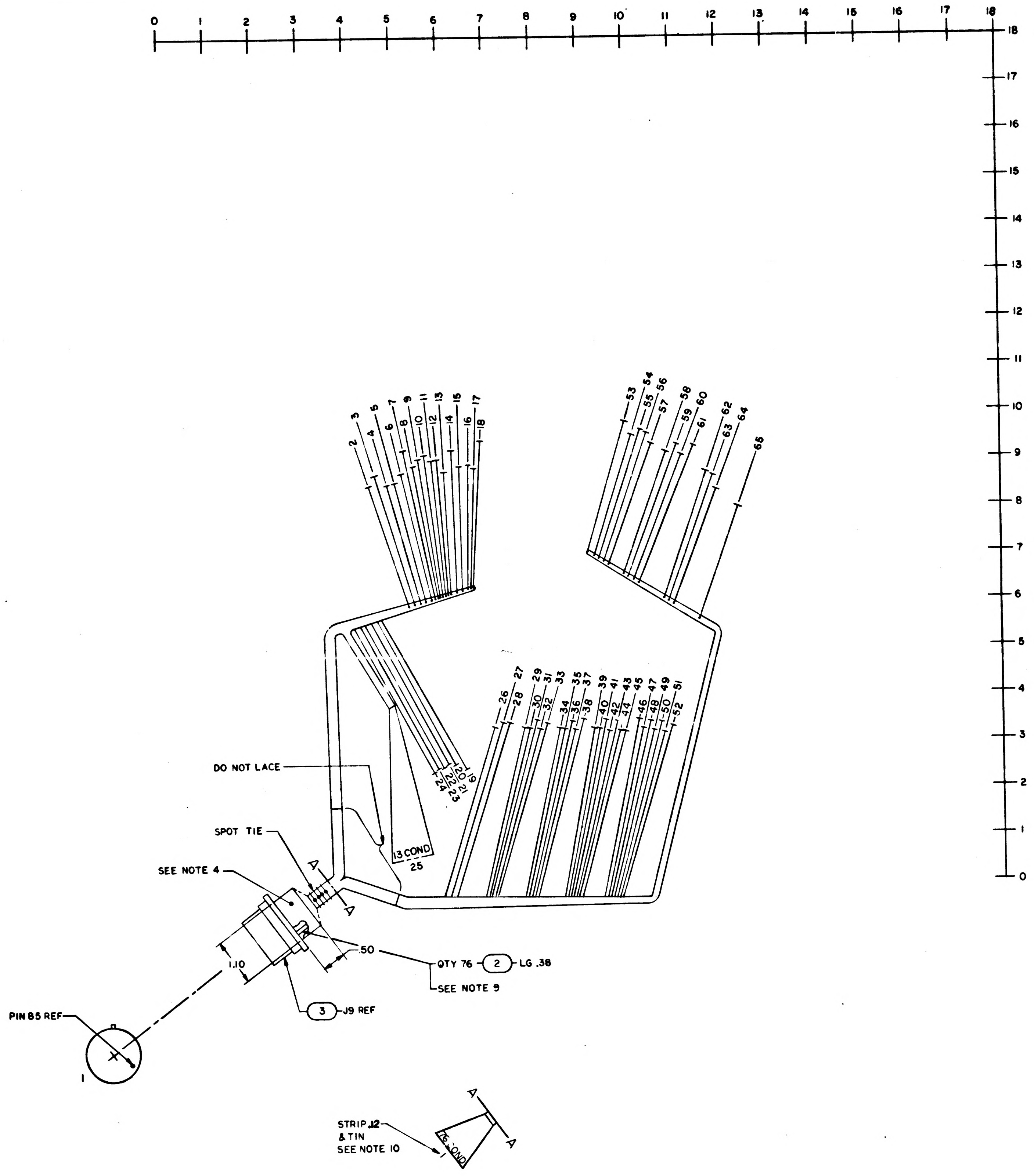
	B22	1	J9-46				48	J2-85	
	B23	1	J9-84				3	J6-11	
	B24	1	J9-72				52	J1-85	
	B25	1	J9-5				21	J7-5	
	B26	1	J9-3				42	J3-89	
	B27	1	J9-16				60	J3-15	
	B28	1	J9-11				29	J5-91	
	B29	1	J9-33				59	J3-20	
	B30	1	J9-25				31	J5-86	
	B31	1	J9-56				61	J3-21	
	B32	1	J9-45				27	J6-86	
	B33	1	J9-79				25	J12-211	
	B34	1	J9-71				46	J2-86	
	B35	1	J9-1				20	J7-3	
	B36	1	J9-2				49	J1-90	
	B37	1	J9-6				14	J5-15	
	B38	1	J9-10				35	J4-90	
	B39	1	J9-17				10	J5-20	
	B40	1	J9-24				34	J4-91	
	B41	1	J9-34				18	J5-21	
	B42	1	J9-44				41	J3-86	
	B43	1	J9-49				25	J12-206	
	B44	1	J9-70				50	J1-86	
	B45	1	J9-51				25	J12-212	
	B46	1	J9-8				19	J7-2	
	B47	1	J9-7				24	J7-11	
	B48	1	J9-9				51	J1-89	
	B49	1	J9-18				28	J6-85	
	B50	1	J9-23				37	J4-89	
	B51	1	J9-35				12	J5-11	
	B52	1	J9-43				39	J3-91	
	B53	1	J9-58				17	J5-1	
	B54	1	J9-69				33	J5-85	
	B55	1	J9-78				25	J12-198	
	B56	1	J9-21				23	J7-9	
	B57	1	J9-36				6	J6-6	
	B58	1	J9-22				45	J2-90	
	B59	1	J9-48				25	J12-200	
	B60	1	J9-42				30	J5-90	
	B61	1	J9-77				25	J12-188	
	B62	1	J9-68				44	J2-91	
	B63	1	J9-30				25	J12-180	
	B64	1	J9-57				64	J2-1	
	B65	1	J9-60				4	J6-3	
	B66	1	J9-40				25	J12-193	TWIST
	B67	1	J9-38				25	J12-194	
	B68	1	J9-41				47	J2-89	
	B69	1	J9-76				25	J12-205	
	B70	1	J9-67				32	J5-89	
	B71	1	J9-85				9	J6-5	
	B72	1	J9-64				65	J1-3	
	B73	1	J9-63				25	J12-181	
	B74	1	J9-65				25	J12-186	
	B75	1	J9-62				63	J2-10	
	B76	1	J9-66	WHITE	26	1	40	J3-90	



NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. FABRICATE PER ND1002032
3. STRIP ALL LEADS 1.12 AND DO NOT TIN UNLESS OTHERWISE SPECIFIED
4. POT INDICATED AREA PER ND1002236
5. AR DENOTES AS REQUIRED
6. IDENTIFY WITH DRAWING NO. & REVISION PER ND1002019
7. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN; PREFIX DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH
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9. DO NOT APPLY HEAT GREATER THAN 250° F TO FIND NO. 2
10. SOLDER PER ND1002071 USING ND1002075

* DENOTES LENGTH IN FEET

	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
	AR	1012507-003	TAPE, LACING
	1	1006361-003	CONNECTOR, RECEPTACLE
*	2.5	1006322-004	SLEEVING, INSULATION
*	142	1010307-22	WIRE, INSULATED
	-011		LIST OF MATERIALS

NEXT ASSY	USED ON
2003954	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
±.06
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN J. Q. Zaffini DATE 28 JUN 65
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

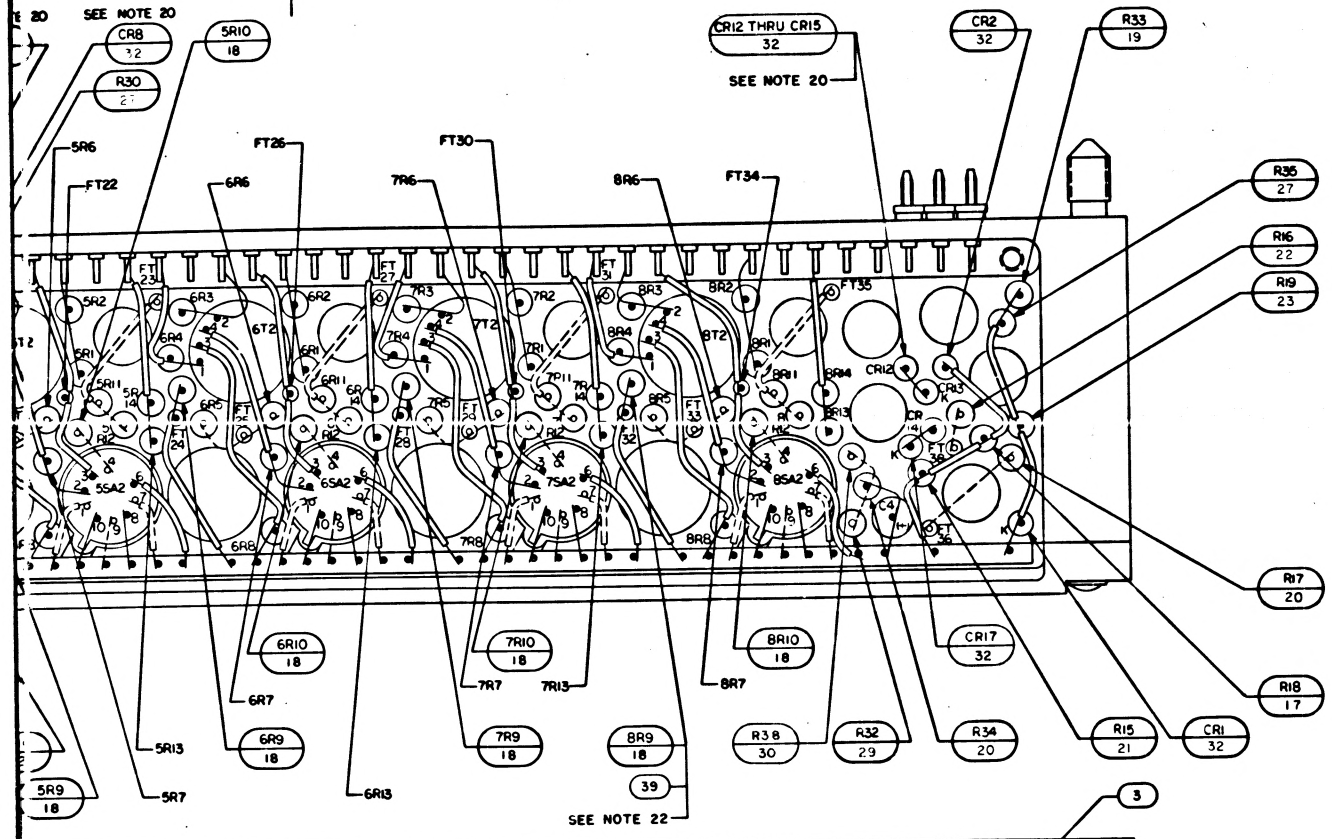
MANNED SPACECRAFT CE
HOUSTON, TEXAS

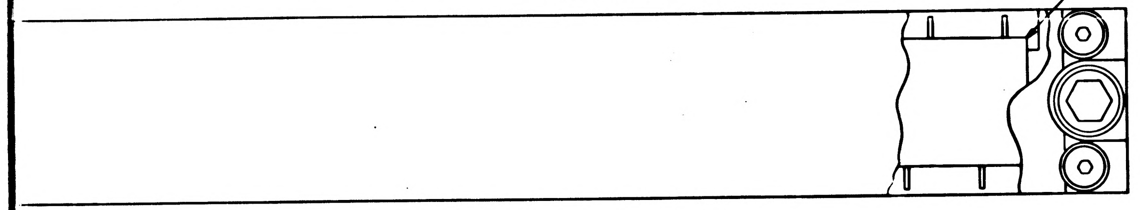
WIRING HARNESS, B
AGC DSKY

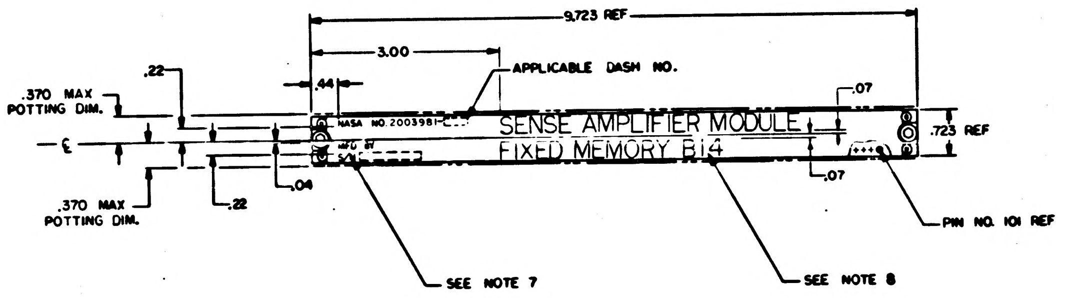
CODE IDENT NO. 80230
SIZE J
2003
SCALE 1/1

2003980

	REVISIONS 2P035					
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 28247			5/2/66	


SEE NOTE 20
CR8 32
R30 27
5R10 18
CR12 THRU CR15 32
SEE NOTE 20
CR2 32
R33 19
R35 27
R16 22
R19 23
5R6
FT22
FT26
6R6
FT30
7R6
8R6
FT34
FT35
5R2
6R3
6T2
6R2
7R3
7R4
7R2
7R1
8R3
8R2
8R4
8T2
8R1
8R11
8R14
8R13
CR12
5R1
5SA2
6SA2
7SA2
8SA2
C4
K
6R8
7R8
8R8
R17 20
R18 17
6R10 18
7R10 18
8R10 18
CR17 32
6R7
7R7
7R13
8R7
5R13
6R9 18
7R9 18
8R9 18
R38 30
R32 29
R34 20
R15 21
CR1 32
5R9 18
5R7
6R13
39
SEE NOTE 22

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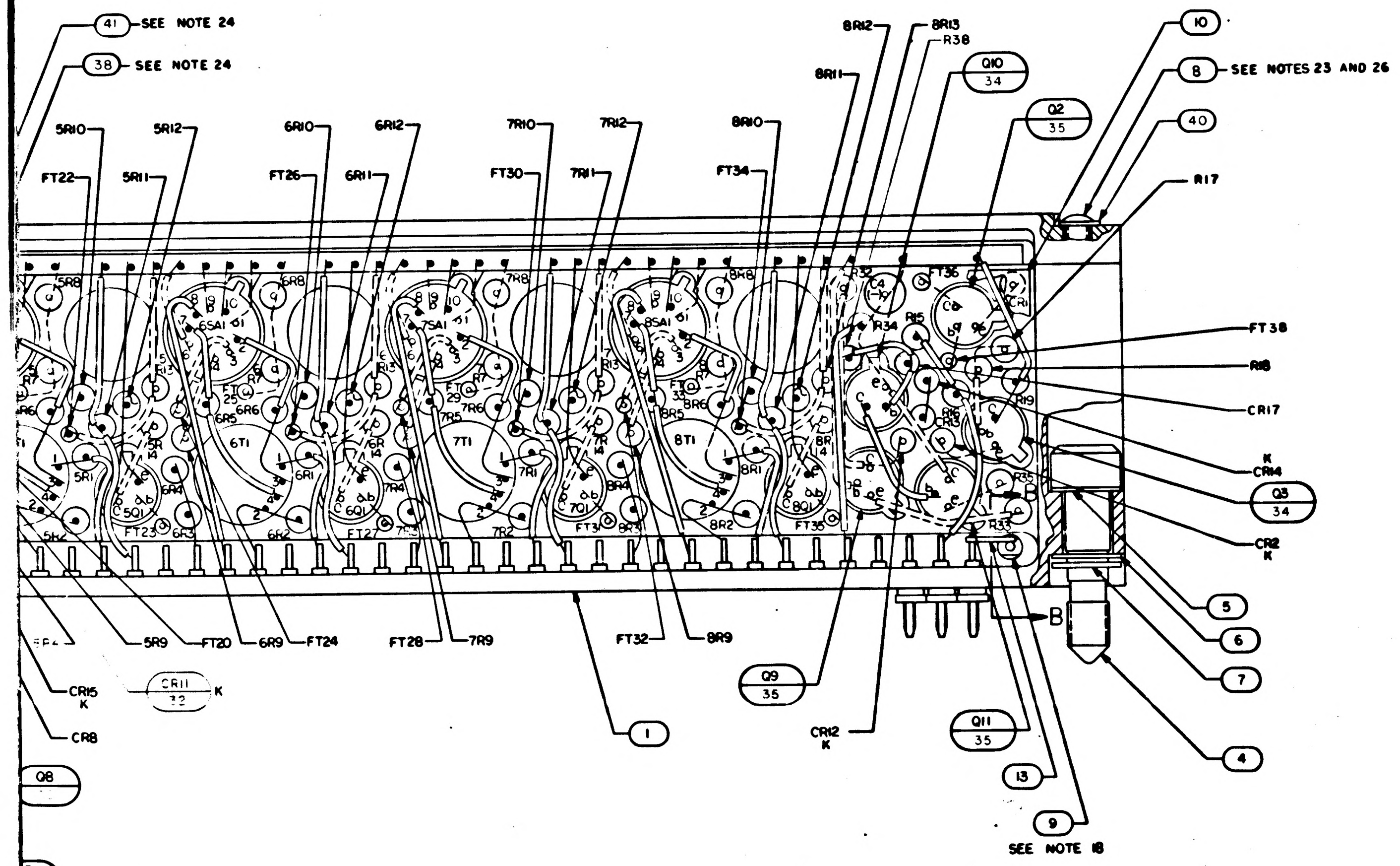
APPLICABLE DASH NO.
.44
.22
.370 MAX POTTING DIM.
℄
.04
.22
.370 MAX POTTING DIM.
NASA NO 2003981-
SENSE AMPLIFIER MODULE
FIXED MEMORY B14
.07
.723 REF
.07
PIN NO. 101 REF
SEE NOTE 7
SEE NOTE 8

MARKING VIEW
SCALE 1/1


41 SEE NOTE 24
38 SEE NOTE 24
8R12
8R13
R38
8R11
Q10 34
10
8 SEE NOTES 23 AND 26
Q2 35
40
R17
5R10
5R12
6R10
6R12
7R10
7R12
8R10
FT22
5R11
FT26
6R11
FT30
7R11
FT34
FT36
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7R8
8R8
6SA1
7SA1
8SA1
C4
R34
FT38
R18
CR17
6R6
7R6
8R6
6T1
7T1
8T1
5R1
K
CR14
Q3 34
CR2 K
6R4
7R4
8R4
6R1
8R1
5G1
6G1
7G1
8G1
FT23
FT27
FT31
FT35
6S2
7R2
8R2
R33
5R9
FT20
6R9
FT24
FT28
7R9
FT32
8R9
B
5
6
7
4
CR15 K
CR11 32 K
CR8
1
Q9 35
CR12 K
Q11 35
13
9
SEE NOTE 18
Q8

	2005919	SCHEMATIC	REF
AR	1006776-25	INSULATION, SLEEVING	41
4	NAS620A-2	WASHER, FLAT	40
19	2004074	WASHER, INSULATOR	39
AR	1006757-12	WIRE, ELECTRICAL	38
16	2004003-001	INTEGRATED SENSE AMPL	37
16	1006293	TRANSFORMER	36
6	2004004-001	TRANSISTOR, POTTED	35
12	2004004-002	TRANSISTOR, POTTED	34
2	2004112-002	DIODE	33
15	2004103-001	DIODE	32
4	1006755-69	CAPACITOR	31
2	1006750-63	RESISTOR	30
1	SEE NOTES 12 & 22	RESISTOR	29
1	1006750-43	RESISTOR	28
2	1006750-12	RESISTOR	27
1	SEE NOTES 12 & 22	RESISTOR	26
1	1006750-25	RESISTOR	25
1	SEE NOTES 12 & 22	RESISTOR	24
3	1006750-36	RESISTOR	23
1	1006750-15	RESISTOR	22
9	1006750-49	RESISTOR	21
13	1006750-39	RESISTOR	20
19	1006750-32	RESISTOR	19
16	SEE NOTES 12 & 22	RESISTOR	18
34	1006750-24	RESISTOR	17
32	1006750-42	RESISTOR	16
AR	1006776-22	INSULATION, SLEEVING	15
AR	1006776-21	INSULATION, SLEEVING	14
AR	1006757-8	WIRE, ELECTRICAL	13
AR	1006757-1	WIRE, ELECTRICAL	12
1	2004711	INSULATOR B	11
1	2004710	INSULATOR A	10
1	2004039	TERMINAL, THREADED	9
4	1006783-10	SCREW, BUTTON HEAD	8
2	MS16633-4015	RING, RETAINING, EXTERNAL E	[illegible]
2	2004984-003	WASHER, FLAT	6
2	2004984-001	WASHER, FLAT	5
2	1004579-1	SCREW, JACKING	[illegible]
1	2003005-011	MATRIX ASSY	[illegible]
1	2004044	COVER	[illegible]
1	2003044-021	HEADER HOUSING ASSY	[illegible]
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
011	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ±.02 ANGLES ± ——
DO NOT SCALE THIS DRAWING

MATERIAL
——

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN E. Ufting 29MAR
CHECKED 3/
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

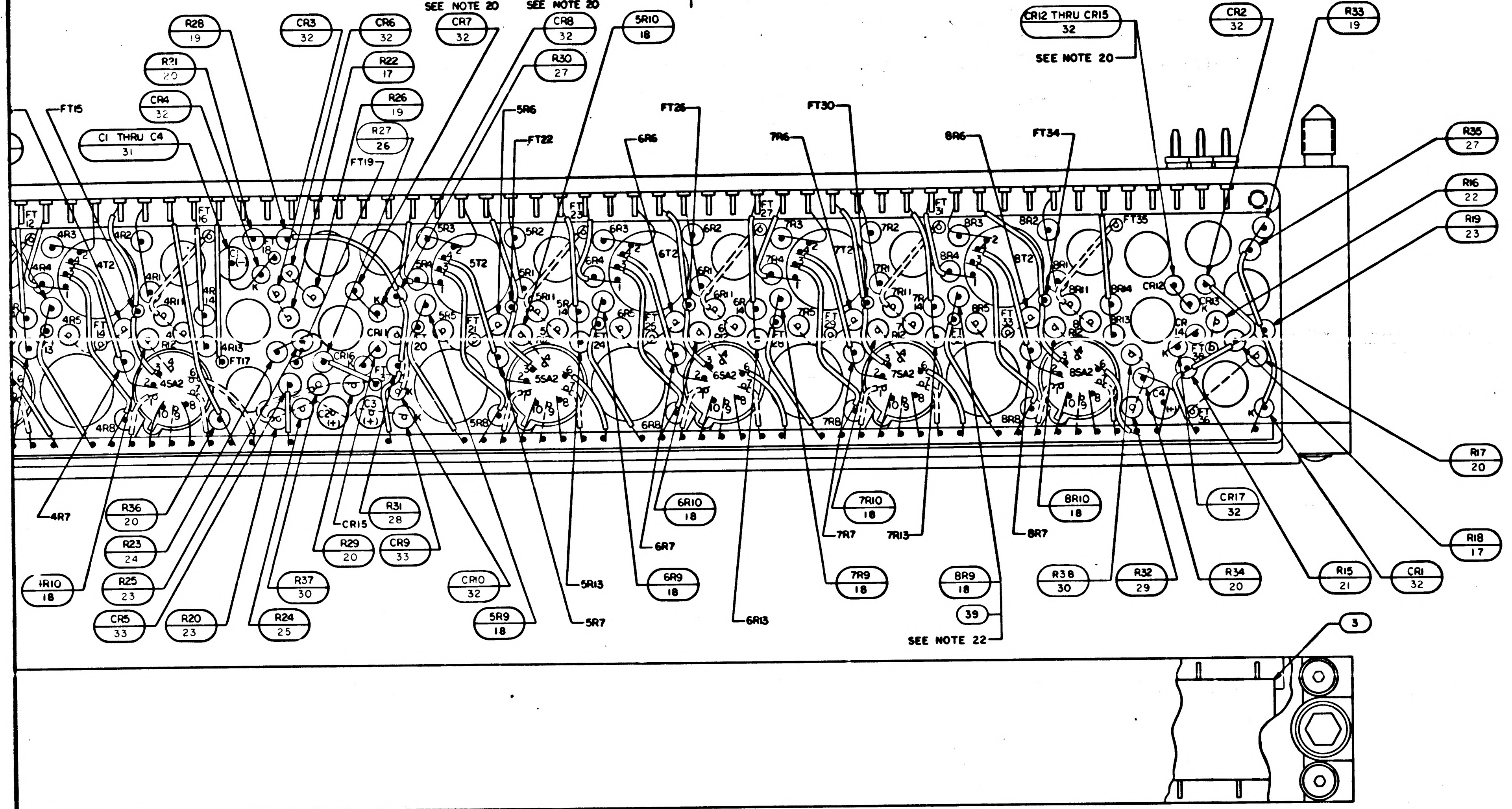
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SENSE AMPLIFIER MODULE,
FIXED MEMORY B14
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003981
SCALE 4/1
SHEET 1 OF 1

2003981 A

F3/13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CR6
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SEE NOTE 20
CR7
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SEE NOTE 20
CR8
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5R10
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R21
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R30
27
CR4
32
R26
19
C1 THRU C4
31
R27
26
FT19
FT15
5R6
FT22
FT25
6R6
FT30
7R6
8R6
FT34
CR12 THRU CR15
32
SEE NOTE 20
CR2
32
R33
19
R35
27
R16
22
R19
23
R17
20
R18
17
CR1
32
R15
21
R34
20
CR17
32
R32
29
R38
30
8R10
18
8R7
8R9
18
39
SEE NOTE 22
7R13
7R10
18
7R7
7R9
18
6R13
6R10
18
6R7
6R9
18
5R13
5R7
5R9
18
CR10
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R31
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CR9
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R29
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CR15
R37
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1R10
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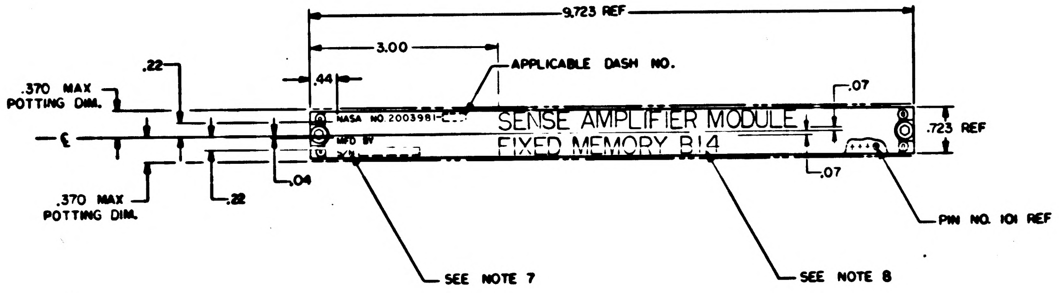
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APPLICABLE DASH NO.
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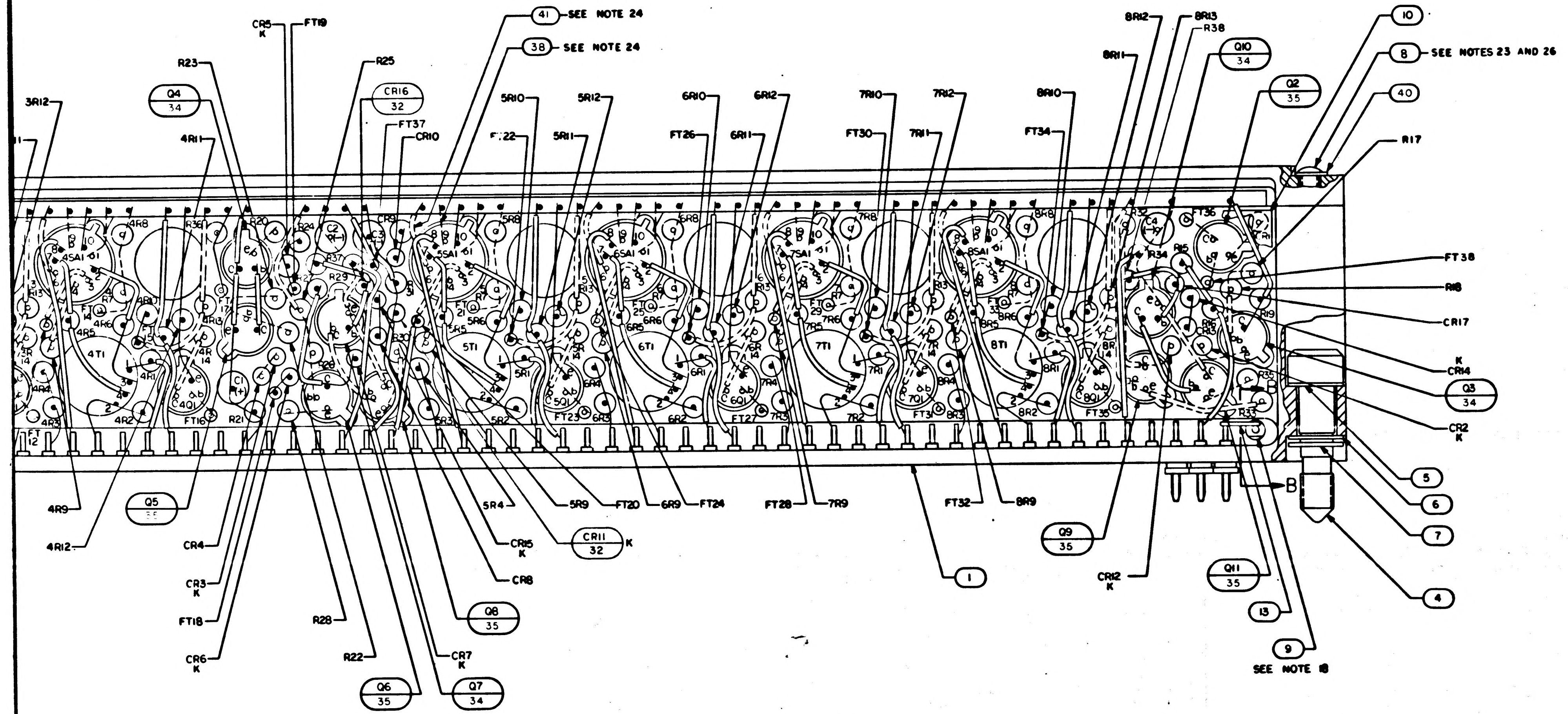
POTTING DIM.
.22
.04
NASA NO. 2003981-
MFD BY
SENSE AMPLIFIER MODULE
FIXED MEMORY B14
.07
.07
.723 REF
PIN NO. 101 REF
SEE NOTE 7
SEE NOTE 8

MARKING VIEW
SCALE 1/1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SEE NOTE 24
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SEE NOTE 24
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FT19
R23
R25
CR16
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FT37
CR10
Q4
34
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4R11
5R10
5R12
F22
5R11
6R10
6R12
FT26
6R11
7R10
7R12
FT30
7R11
8R10
FT34
8R12
8R13
R38
8R11
Q10
34
Q2
35
10
8
SEE NOTES 23 AND 26
40
R17
FT38
R18
CR17
K
CR14
Q3
34
CR2
K
5
6
7
4
B
1
9
SEE NOTE 18
13
Q11
35
CR12
K
Q9
35
FT32
8R9
FT28
7R9
FT24
6R9
FT20
5R9
5R4
CR11
32
K
CR15
K
CR8
Q8
35
Q7
34
CR7
K
Q6
35
R22
R28
CR6
K
FT18
CR3
K
CR4
Q5
35
4R12
4R9
3R9

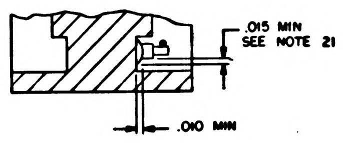
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPE
DIMENSIONS ARE IN INC
CAPACITOR VALUES ARE
RESISTOR VALUES ARE
TOLERANCES ON
FRACTIONS DECIMALS
± —— ±.02
DO NOT SCALE THIS DR
MATERIAL

2003981 A

R9, R10	
PART NO.	VALUE
1006750-25	510
-26	560
-27	620
-28	680
-29	750
-30	820
-31	910
-32	1K
-33	1.1K
-34	1.2K
-35	1.3K
-36	1.5K
-37	1.6K
-38	1.8K
-39	2.0K
-40	2.2K
-41	2.4K
-42	2.7K
-43	3.0K
-44	3.3K
-45	3.6K
-46	3.9K
-47	4.3K
-48	4.7K
-49	5.1K
-16	220
-17	240
-18	270
-19	300
-20	330
-21	360
-22	390
-23	430
1006750-24	470

R23, R27, R32	
PART NO.	VALUE
1006750-32	1K
-33	1.1K
-34	1.2K
-35	1.3K
-36	1.5K
-37	1.6K
-38	1.8K
-39	2.0K
-40	2.2K
-41	2.4K
-42	2.7K
-43	3.0K
-44	3.3K
-45	3.6K
-46	3.9K
-47	4.3K
-48	4.7K
-49	5.1K
-119	1.4K
-121	1.7K
-122	1.9K
-123	2.1K
-124	2.3K
-125	2.55K
-126	2.85K
-127	3.15K
-128	3.45K
-129	3.75K
1006750-130	4.1K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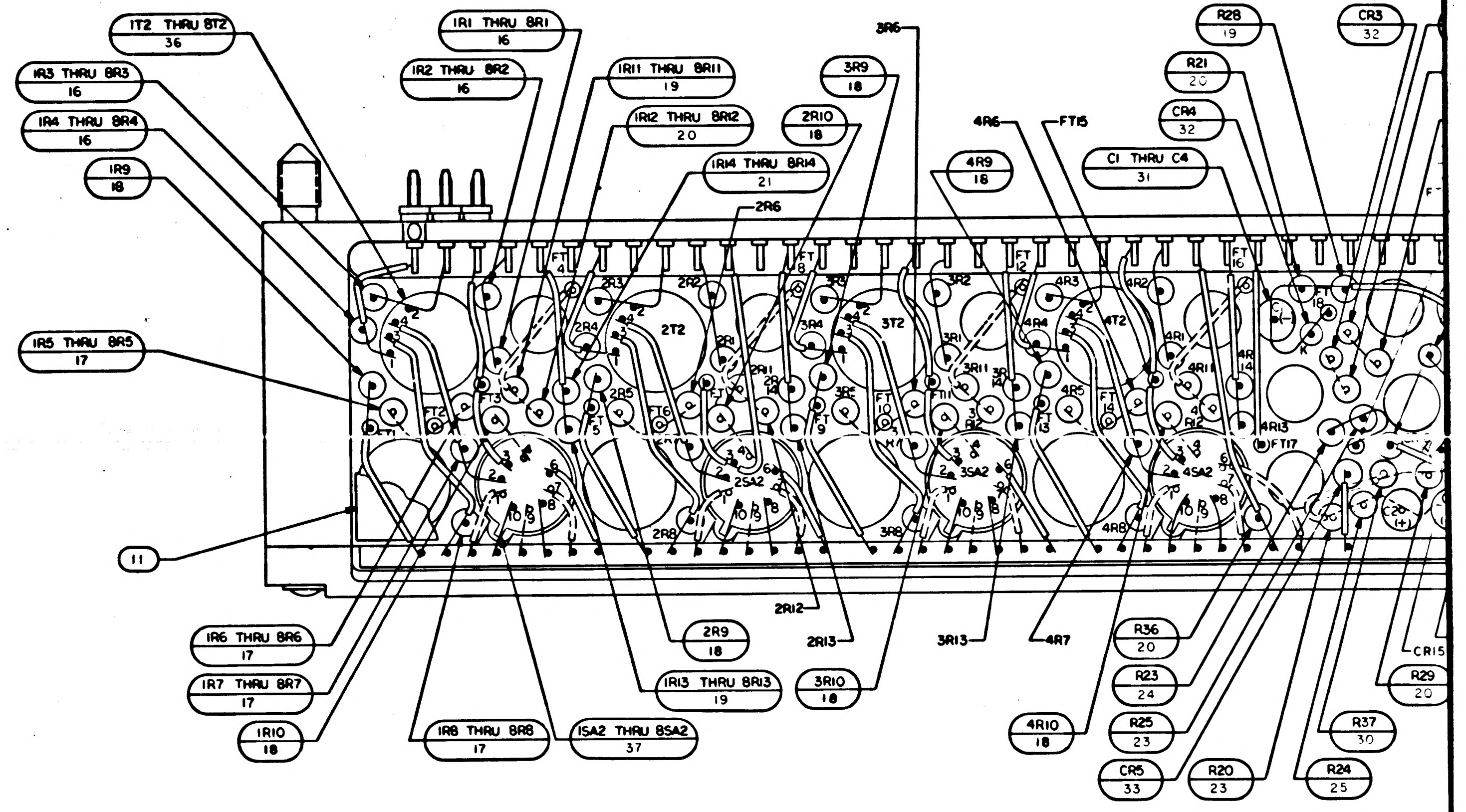
SEE NOTE 21
.010 MIN

SECTION B-B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1R3 THRU 8R3
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1R4 THRU 8R4
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1R9
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1R1 THRU 8R1
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1R2 THRU 8R2
16
1R11 THRU 8R11
19
1R12 THRU 8R12
20
1R14 THRU 8R14
21
2R6
3R9
18
2R10
18
3R6
4R9
18
4R6
FT15
C1 THRU C4
31
R28
19
R21
20
CR4
32
CR3
32
1R5 THRU 8R5
17
11
1R6 THRU 8R6
17
1R7 THRU 8R7
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1R10
18
1R8 THRU 8R8
17
1SA2 THRU 8SA2
37
1R13 THRU 8R13
19
2R9
18
2R12
2R13
3R10
18
3R13
4R7
4R10
18
R36
20
R23
24
R25
23
CR5
33
R20
23
R24
25
R37
30
R29
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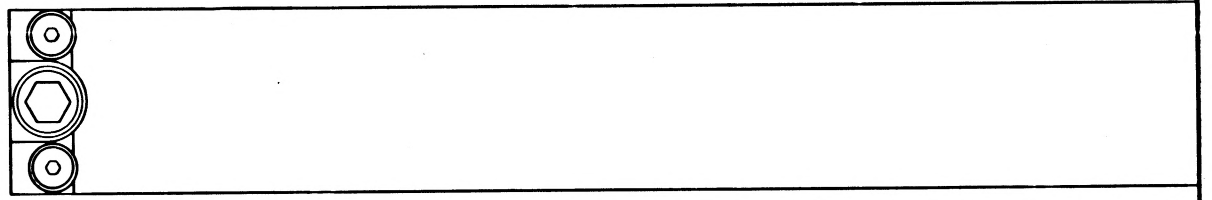
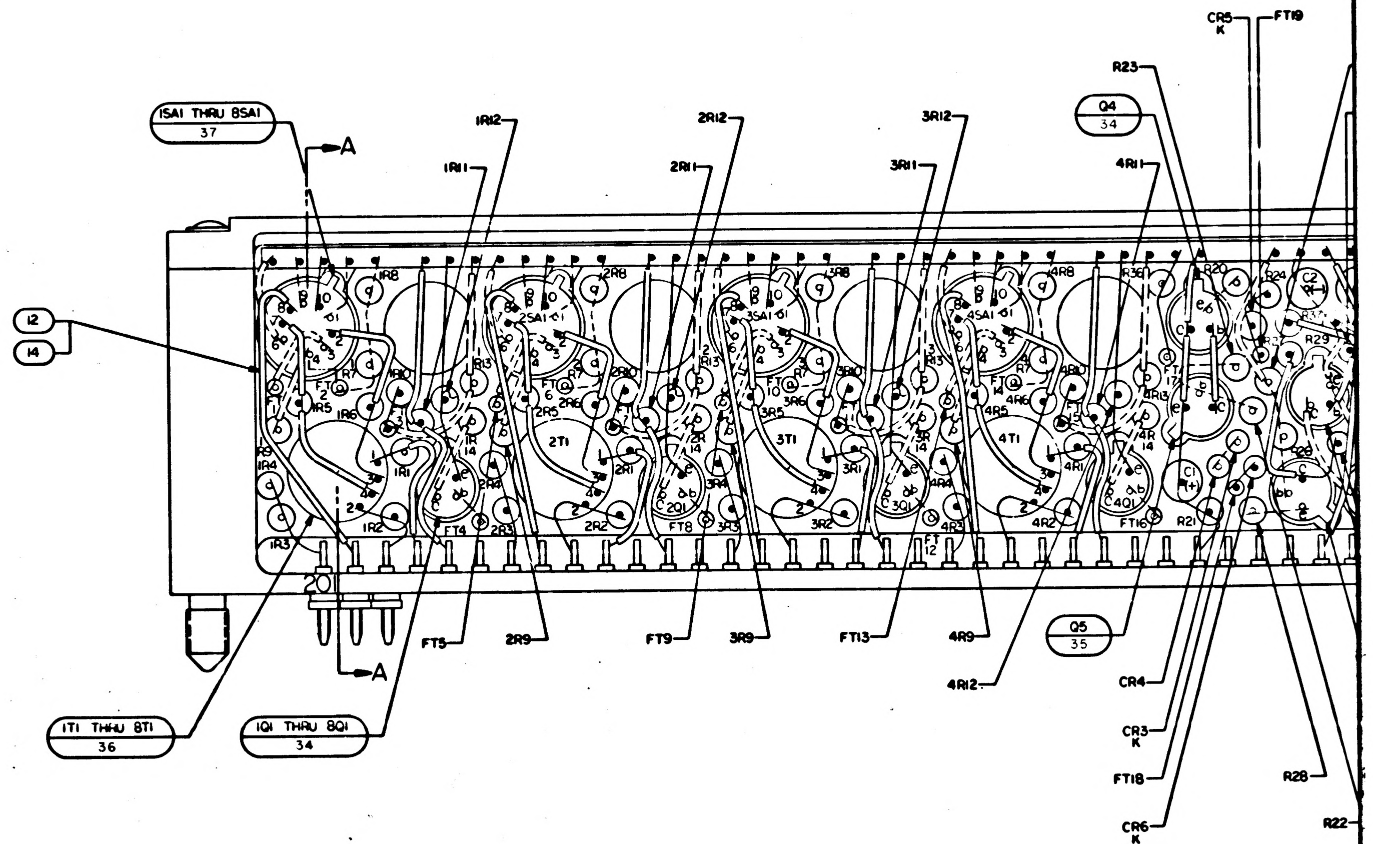
CR15
2T2
3T2
4T2
2SA2
3SA2
4SA2
2R8
3R8
4R8

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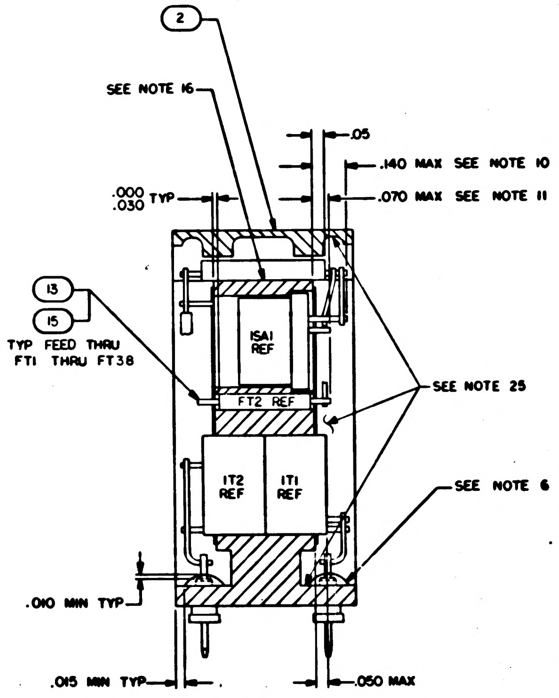
A
1R12
1R11
2R12
2R11
3R12
3R11
Q4
34
4R11
R23
CR5
K
FT19
12
14
2SA1
3SA1
4SA1
1T1
2T1
3T1
4T1
2Q1
3Q1
4Q1
FT5
2R9
FT9
3R9
FT13
4R9
4R12
Q5
35
CR4
CR3
K
FT18
CR6
K
R28
R22
1T1 THRU 8T1
36
1Q1 THRU 8Q1
34
A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SEE NOTE 16
.05
.140 MAX SEE NOTE 10
.000
.030 TYP
.070 MAX SEE NOTE 11
13
15
TYP FEED THRU
FT1 THRU FT38
1SA1
REF
FT2 REF
SEE NOTE 25
1T2
REF
1T1
REF
SEE NOTE 6
.010 MIN TYP
.015 MIN TYP
.050 MAX

SECTION A-A

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. (+) DENOTES POSITIVE SIDE OF CAPACITOR
5. K DENOTES CATHODE SIDE OF DIODE
6. SEAL INSULATORS AND TERMINALS TO HEADER PER ND1002004, TYPE VI
7. MARK .10/.08 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271-1
8. MARK .26/.24 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 USING INK 1006271-1
9. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND 1002069
10. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
11. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
12. THE VALUES OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST R9, R10, R23, R27 AND R32 TO BE SELECTED FROM APPROPRIATE CHART
13. STAKE FIND NO. 16 THRU FIND NO. 37 TO FIND NO. 1 PER ND1002009 METHOD C OR D
14. ENCAPSULATE PER ND1002002. REMOVE FLASHING
15. WELD PER ND1002005
16. BOND FIND NO. 3 TO FIND NO. 1 PER ND1002004 TYPE I
17. TRIM UNUSED LEAD OF FIND NO. 37 .010/.030 FROM CASE
18. MOUNTING TORQUE FOR FIND NO. 9 TO BE 15-20 INCH OUNCES
19. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF P.S. 2003981
20. CR7, 8, 15 AND CR12, 13, 14 ARE TO BE SELECTED BY ELECTRICAL TEST. ONE, TWO, OR THREE DIODES WILL BE SELECTED IN EACH AREA. IF LESS THAN THREE DIODES ARE REQUIRED, FIND NO. 13 AND 15 WILL BE USED IN THE REMAINING COMPONENT HOLES AND WIRING WILL BE COMPLETED AS SHOWN
21. SEAL FIND NO. 9 TO HEADER PER ND1002004, TYPE VI
22. ASSEMBLE FIND NO. 39 TO MODULE AFTER SELECTED VALUE HAS BEEN DETERMINED
23. MOUNTING TORQUE FOR FIND NO. 8 TO BE 2.0–2.5 INCH POUNDS
24. USE FIND NO. 38 & FIND NO. 41 WHERE APPLICABLE ON ALL FIRST LEVEL WIRING TO THE MATRIX
25. COAT INDICATED SURFACES, BOTH ENDS, TOP AND BOTTOM, BOTH SIDES PER ND1002187, TYPE II
26. APPLY MIL-S-22473, GRADE HV TO FIND NO. 8

APOLLO G&N Specification
PS 2003981 Rev A
Original Issue Date: 4-26-66
Release Authority: TDRR 28256
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

FIXED MEMORY SENSE AMPLIFIER MODULE B14

DRAWING NO. 2003981

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
Ⓜ 5/1/66	A	29209	1, 4, 7, 12		

This specification consists of pages 1 to 13 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	EC Hall 4/30/66 4/4/66 MIT/IL	E. Bernard 4/1/66 4/1/66 RAY

3.1.5 Threshold Voltages

3.1.5.1 Outputs. The output of each stage shall be measured as shown in Figure 1 when an input as specified in section 4.1.5.1 is applied.

3.1.5.2 Threshold Voltage (A_k and A_q). Threshold voltage for each stage shall be 35 ± 4.0 mv.

3.1.5.3 Gain Resolution. The gain resolution for each stage shall be not more than 3.5 mv.

3.1.6 Delay Time

3.1.6.1 Strobe Driver Output (STROBE, STROBF). The Strobe Driver output shall be as shown in Figure 2, and shall have the following characteristics when an input as specified in section 4.1.5.2 is applied.

Amplitude (high)	NMT 1.0V below B+
Amplitude (low)	8.0 ± 0.5V below B+
Rise Time (t_r)	NMT 60 nanosec
T_2	70 ± 20 nanosec
T OFF	NMT 0.75 usec

3.1.6.2 Sense Amplifier Outputs. Each of the Sense Amplifier outputs shall be as shown in Figure 2, and shall have the following characteristics when an input as specified in section 4.1.5.2 is applied.

Amplitude (high)	NMT 0.3V below B+
Amplitude (low)	NLT 1.7V below B+
Rise Time (t_r)	NMT 100 nanosec
Fall Time (t_f, t_{f2})	NMT 125 nanosec
T_4	140 ± 40 nanosec
T_5, T_6	NMT 100 nanosec

3.1.6.3 PNP (Q_1) Stage Output. Each PNP Stage Output shall be as shown in Figure 2, and shall have the following characteristics when an input as specified in section 4.1.5.2 is applied.

Amplitude (high)	1.25 ± 0.15V
Amplitude (low)	NMT 0.1V
Rise Time (t_r)	NMT 125 nanosec
Fall Time (t_f)	NMT 400 nanosec
T7	180 ± 60 nanosec
T8	NMT 1.3 usec

3.1.7 Marginal Voltage and Temperature Extremes.

3.1.7.1 With the input voltage adjusted to 12.2 ± 0.1 VDC, and an ambient temperature of $-10^{\circ}C\ {}^{+0C^{\circ}}_{-2.8C^{\circ}}$, the module shall operate as specified in sections 3.1.5 and 3.1.6, except threshold voltage shall be $35\ {}^{+7}_{-4}$ mv, and PNP and STROBE output amplitudes may decrease by 20%. The only times measured shall be:

T_2	$70\ {}^{+40}_{-20}$	ns
T_4	$140\ {}^{+80}_{-40}$	ns
T_7	$180\ {}^{+140}_{-60}$	ns
T_5, T_6	NMT 125	ns
T_8	NMT 1.5	us

3.1.7.2 With the input voltage adjusted to 16.5 ± 0.1 VDC, and an ambient temperature of $70^{\circ}C\ {}^{+2.8C^{\circ}}_{-0C^{\circ}}$, the module shall operate as specified in sections 3.1.5 and 3.1.6, except threshold voltage shall be $35\ {}^{+4}_{-7}$ mv, and PNP and STROBE output amplitudes may increase by 20%. The only times measured shall be:

T_2	$70\ {}^{+40}_{-20}$	ns
T_4	$140\ {}^{+80}_{-40}$	ns
T_7	$180\ {}^{+140}_{-60}$	ns
T_5, T_6	NMT 125	ns
T_8	NMT 1.5	us

3.1.8 Vibration. The module shall perform as specified in paragraphs 3.1.5.1 through 3.1.6.3 when installed in an operating computer which is being subjected to the vibration requirements specified in the applicable specifications for the computer subsystem. Acceptance criteria for the module shall be the compliance of the computer subsystem with its applicable specifications.

3.2 PRODUCT CONFIGURATION

3.2.1 DRAWING. The configuration of the assembly shall be in accordance with APOLLO G&N Drawing 2003981 and all drawings and engineering data referenced thereon.

3.2.2 Maximum allowable weight of the assembly shall be 0.70 pounds.

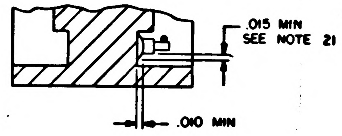
[illegible]

R9, R10

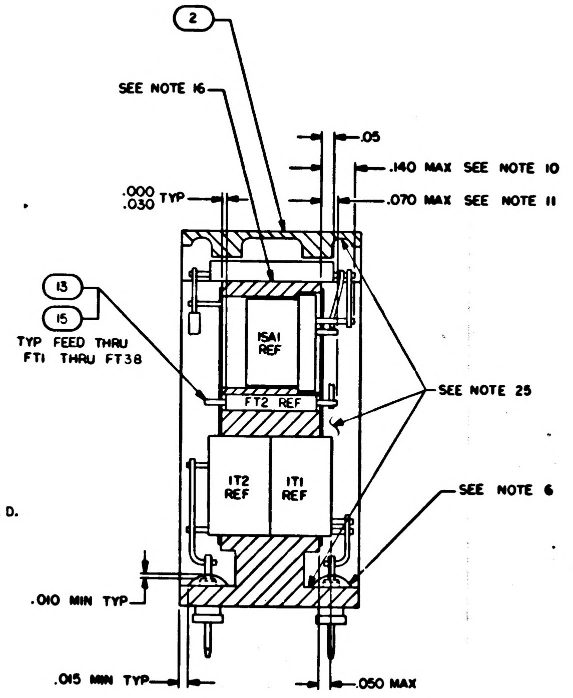
PART NO.	VALUE
1006750 -25	510
-26	560
-27	620
-28	680
-29	750
-30	820
-31	910
-32	1K
-33	1.1K
-34	1.2K
-35	1.3K
-36	1.5K
-37	1.6K
-38	1.8K
-39	2.0K
-40	2.2K
-41	2.4K
-42	2.7K
-43	3.0K
-44	3.3K
-45	3.6K
-46	3.9K
-47	4.3K
-48	4.7K
-49	5.1K
-16	220
-17	240
-18	270
-19	300
-20	330
-21	360
-22	390
-23	430
1006750 -24	470

R23, R27, R32

PART NO.	VALUE
1006750 -32	1K
-33	1.1K
-34	1.2K
-35	1.3K
-36	1.5K
-37	1.6K
-38	1.8K
-39	2.0K
-40	2.2K
-41	2.4K
-42	2.7K
-43	3.0K
-44	3.3K
-45	3.6K
-46	3.9K
-47	4.3K
-48	4.7K
-49	5.1K
-119	1.4K
-121	1.7K
-122	1.9K
-123	2.1K
-124	2.3K
-125	2.55K
-126	2.85K
-127	3.15K
-128	3.45K
-129	3.75K
1006750-130	4.1K


.015 MIN
SEE NOTE 21
.010 MIN

SECTION B-B


2
SEE NOTE 16
.05
.140 MAX SEE NOTE 10
.000
.030 TYP
.070 MAX SEE NOTE 11
13
15
TYP FEED THRU
FT1 THRU FT38
1SA1
REF
FT2 REF
SEE NOTE 25
1T2
REF
1T1
REF
SEE NOTE 6
.010 MIN TYP
.015 MIN TYP
.050 MAX

SECTION A-A

NOTES:

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3. FT DENOTES FEED THRU
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11. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
12. THE VALUES OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST R9, R10, R23, R27 AND R32 TO BE SELECTED FROM APPROPRIATE CHART
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14. ENCAPSULATE PER ND1002002. REMOVE FLASHING
15. WELD PER ND1002005
16. BOND FIND NO. 3 TO FIND NO. 1 PER ND1002004 TYPE I
17. TRIM UNUSED LEAD OF FIND NO. 37 .010/.030 FROM CASE
18. MOUNTING TORQUE FOR FIND NO. 9 TO BE 15-20 INCH OUNCES
19. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF P.S. 2003981
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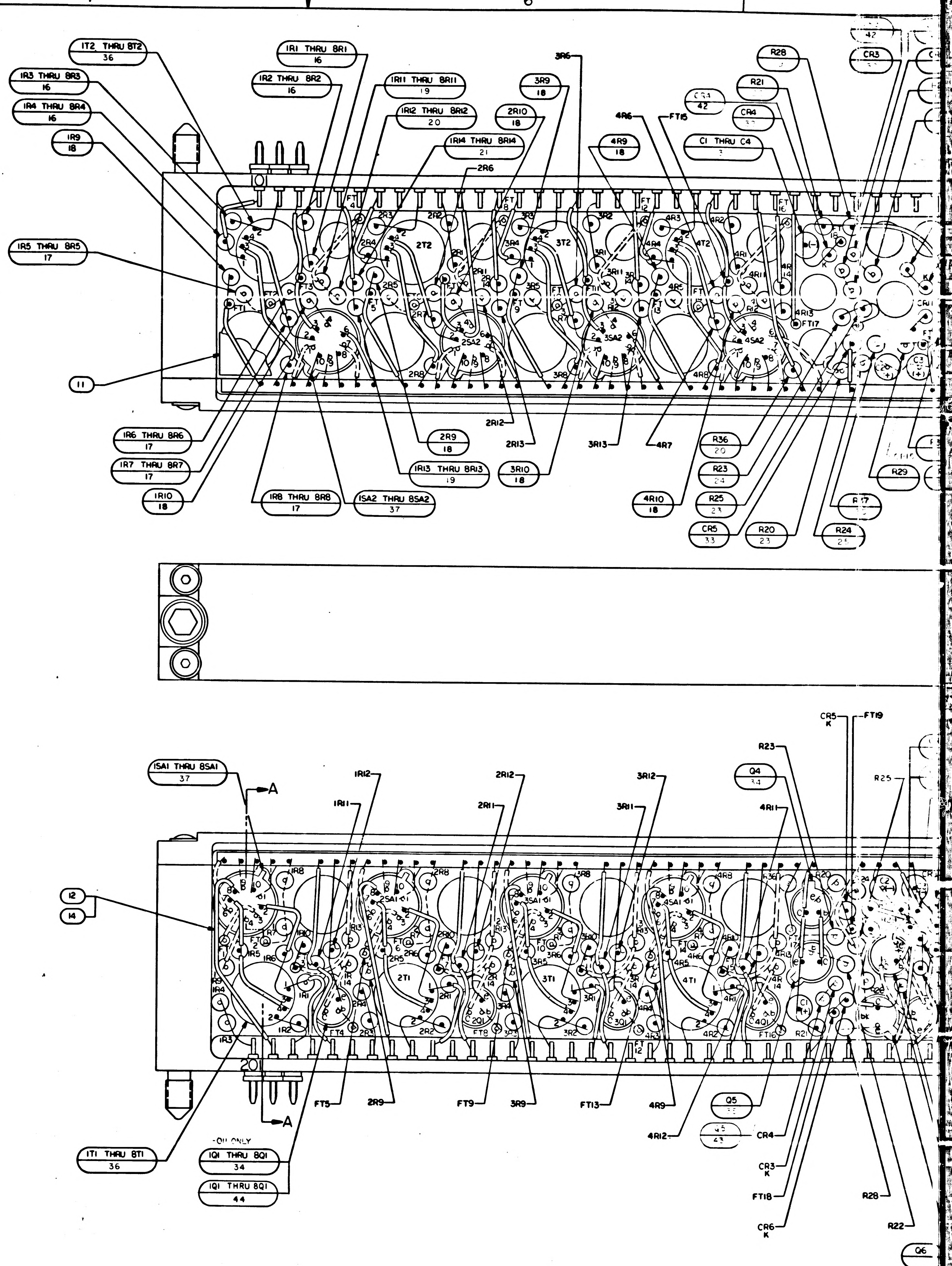
21. SEAL FIND NO. 9 TO HEADER PER ND1002004, TYPE VI
22. ASSEMBLE FIND NO. 39 TO MODULE AFTER SELECTED VALUE HAS BEEN DETERMINED
23. MOUNTING TORQUE FOR FIND NO. 8 TO BE 2.0–2.5 INCH POUNDS
24. USE FIND NO. 38 & FIND NO. 41 WHERE APPLICABLE ON ALL FIRST LEVEL WIRING TO THE MATRIX
25. COAT INDICATED SURFACES, BOTH ENDS, TOP AND BOTTOM, BOTH SIDES PER ND1002187, TYPE II
26. APPLY MIL-S-22473, GRADE HV TO FIND NO. 8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1R4 THRU 8R4
16
1R12 THRU 8R12
20
1R9
18
1R14 THRU 8R14
21
2R10
18
3R9
18
3R6
2R6
4R9
18
4R6
FT15
C1 THRU C4
3
CR4
42
CR4
R21
R28
CR3
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1R5 THRU 8R5
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11
1R6 THRU 8R6
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1R7 THRU 8R7
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1R10
18
1R8 THRU 8R8
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1SA2 THRU 8SA2
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1R13 THRU 8R13
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2R9
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2R12
2R13
3R10
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3R13
4R7
4R10
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R36
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R23
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R25
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CR5
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R20
23
R24
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R29
2T2
3T2
4T2
2SA2
3SA2
4SA2
1SA1 THRU 8SA1
37
A
1R12
1R11
2R12
2R11
3R12
3R11
Q4
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4R11
R23
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K
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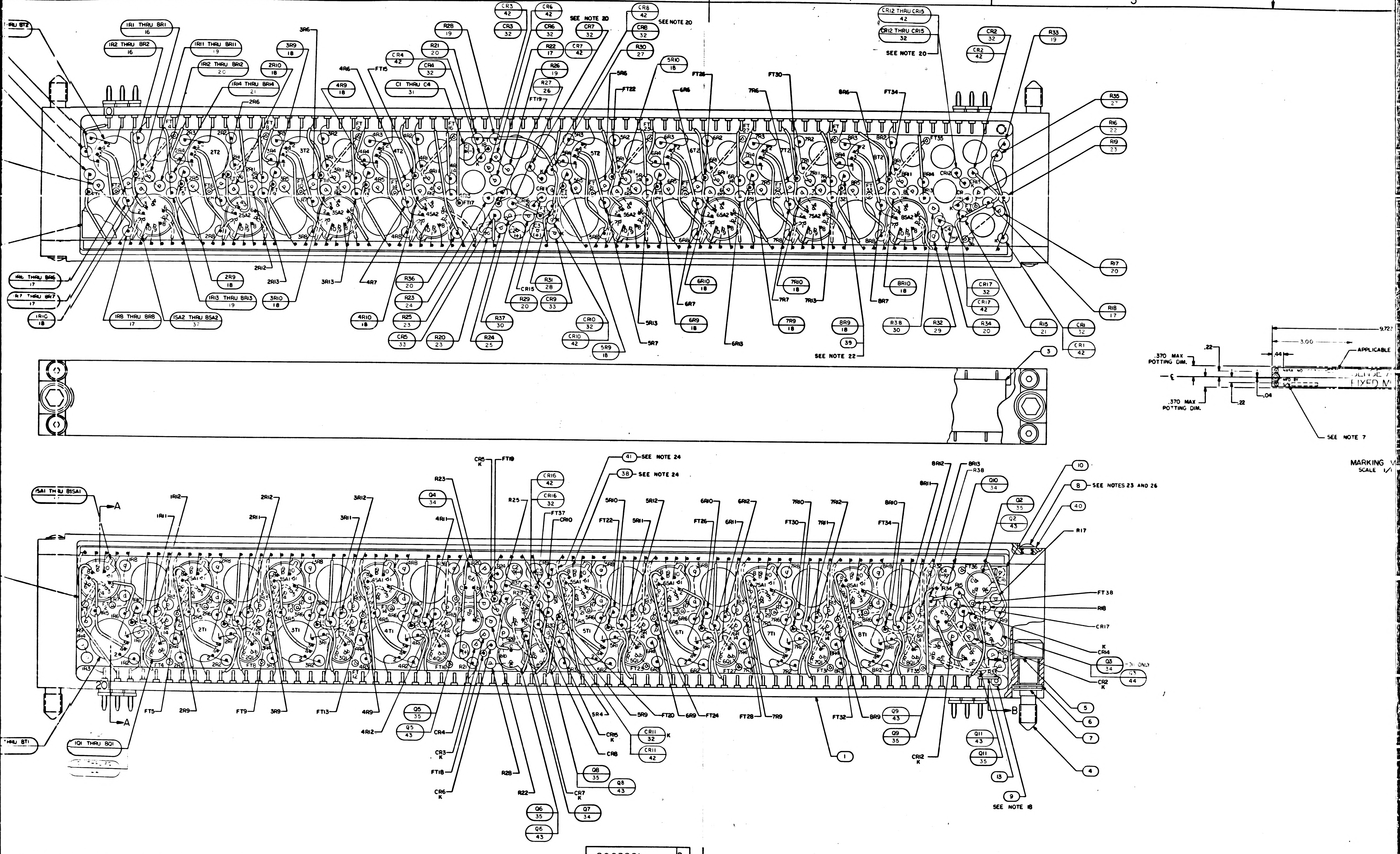
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4R9 18
C1 THRU C4 31
CR3 42
CR3 32
CR6 42
CR6 32
CR7 32
CR7 42
CR8 42
CR8 32
SEE NOTE 20
R28 19
R21 20
CR4 42
CR4 32
R22 17
R26 19
R27 26
R30 27
5R10 18
CR12 THRU CR15 42
CR12 THRU CR15 32
CR2 32
CR2 42
R33 19
R35 27
R16 22
R19 23
R17 20
R18 17
1R6 THRU 8R6 17
1R7 THRU 8R7 17
1R10 18
1R8 THRU 8R8 17
1SA2 THRU 8SA2 37
2R9 18
1R13 THRU 8R13 19
3R10 18
4R10 18
R36 20
R23 24
R25 23
CR5 33
R20 23
R24 25
R37 30
R29 20
CR15
R31 28
CR9 33
CR10 32
CR10 42
5R9 18
6R10 18
6R9 18
7R10 18
7R9 18
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8R9 18
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CR1 32
CR1 42
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SCALE 1/1
1SA1 THRU 81SA1
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41 SEE NOTE 24
38 SEE NOTE 24
CR16 42
CR16 32
Q4 34
Q10 34
Q2 35
Q2 43
10
8 SEE NOTES 23 AND 26
40
R17
FT38
R18
CR17
CR14 K
Q3 34
Q3 44
CR2 K
5
6
7
4
B
Q5 35
Q5 43
Q9 43
Q9 35
Q11 43
Q11 35
CR11 32
CR11 42
Q8 35
Q8 43
Q6 35
Q6 43
Q7 34
CR12 K
1
13
9 SEE NOTE 18
1Q1 THRU 8Q1
THRU 8T1

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
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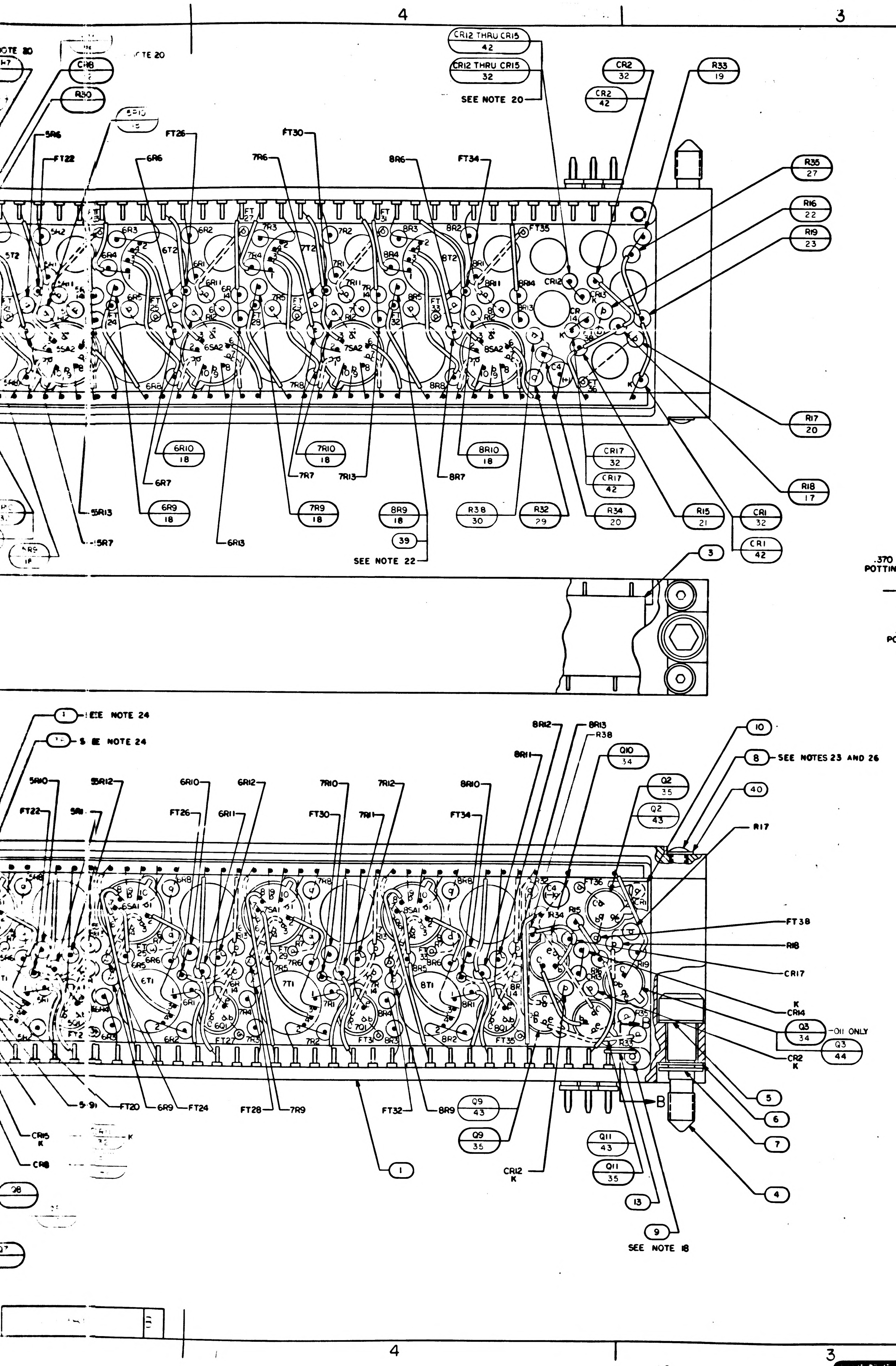
B		REVISED PER TDRR 32561			1/20/6	



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R30
5R6
FT22
FT26
6R6
7R6
FT30
8R6
FT34
CR12 THRU CR15 42
CR12 THRU CR15 32
SEE NOTE 20
CR2 32
CR2 42
R33 19
R35 27
R16 22
R19 23
R17 20
R18 17
5A2
5T2
6T2
7T2
8T2
6SA2
7SA2
8SA2
FT35
CR12
CR3
C4
6R10 18
7R10 18
8R10 18
CR17 32
CR17 42
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7R7
7R13
8R7
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5R7
6R9 18
7R9 18
8R9 18
6R13
39
SEE NOTE 22
R38 30
R32 29
R34 20
R15 21
CR1 32
CR1 42
3
SEE NOTE 24
5R10
5R12
6R10
6R12
7R10
7R12
8R10
6R11
7R11
8R12
8R13
R38
8R11
Q10 34
Q2 35
Q2 43
10
8 SEE NOTES 23 AND 26
40
R17
FT38
R18
CR17
K CR14
Q3 34 -011 ONLY
Q3 44
CR2 K
6SA1
7SA1
8SA1
6T1
7T1
8T1
FT36
C4
R15
R34
R33
5-9
FT20
6R9
FT24
FT28
7R9
FT32
8R9
Q9 43
Q9 35
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CR15 K
CR8
5
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7
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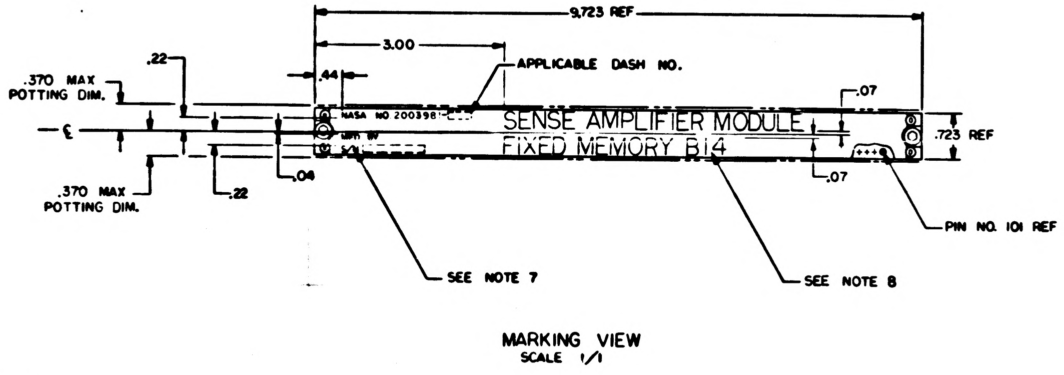
1
13
9
SEE NOTE 18
B



9.723 REF
3.00
APPLICABLE DASH NO.
.22
.370 MAX POTTING DIM.
.44
.07
NASA NO 2003981-
SENSE AMPLIFIER MODULE
FIXED MEMORY B14
.723 REF
.04
.22
.370 MAX POTTING DIM.
.07
PIN NO. 101 REF
SEE NOTE 7
SEE NOTE 8

MARKING VIEW
SCALE 1/1

☒	–	2005929	SCHEMATIC	REF
–	☒	2005919	SCHEMATIC	REF
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6	–	2004184-001	TRANSISTOR POTTED	43
15	–	2004183-001	DIODE	42
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4	4	NAS620A-2	WASHER, FLAT	40
19	19	2004074	WASHER, INSULATOR	39
AR	AR	1006757-12	WIRE, ELECTRICAL	38
16	16	2004003-001	INTEGRATED SENSE AMPL	37
16	16	1006293	TRANSFORMER	36
–	6	2004004-001	TRANSISTOR, POTTED	35
3	12	2004004-002	TRANSISTOR, POTTED	34
2	2	2004112-002	DIODE	33
–	15	2004103-001	DIODE	32
4	4	1006755-69	CAPACITOR	31
2	2	1006750-63	RESISTOR	30
1	1	SEE NOTES 12 & 22	RESISTOR	29
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1	1	1006750-25	RESISTOR	25
1	1	SEE NOTES 12 & 22	RESISTOR	24
3	3	1006750-36	RESISTOR	23
1	1	1006750-15	RESISTOR	22
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13	13	1006750-39	RESISTOR	20
19	19	1006750-32	RESISTOR	19
16	16	SEE NOTES 12 & 22	RESISTOR	18
34	34	1006750-24	RESISTOR	17
32	32	1006750-42	RESISTOR	16
AR	AR	1006776-22	INSULATION, SLEEVING	15
AR	AR	1006776-21	INSULATION, SLEEVING	14
AR	AR	1006757-8	WIRE, ELECTRICAL	13
AR	AR	1006757-1	WIRE, ELECTRICAL	12
1	1	2004711	INSULATOR B	11
1	1	2004710	INSULATOR A	10
1	1	2004039	TERMINAL, THREADED	9
4	4	1006783-10	SCREW, BUTTON HEAD	8
2	2	MS16633-4015	RING, RETAINING, EXTERNAL E	7
2	2	2004984-003	WASHER, FLAT	6
2	2	2004984-001	WASHER, FLAT	5
2	2	1004579-1	SCREW, JACKING	4
1	1	2003005-011	MATRIX ASSY	3
1	1	2004044	COVER	2
1	1	2003044-021	HEADER HOUSING ASSY	1
QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
021	011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003993	
2003200	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

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MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN E. Uhring 29 MAR 66
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

SENSE AMPLIFIER MODULE, FIXED MEMORY B14 ASSEMBLY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003981
SCALE 4/1
SHEET 1 OF 1

2003981

MASTER

F3/13

APOLLO G&N Specification
PS 2003981 Rev B
Original Issue Date: 4-26-66
Release Authority: TDRR 28256
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

FIXED MEMORY SENSE AMPLIFIER MODULE B14

DRAWING NO. 2003981

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
5/1/66	A	29209	1, 4, 7, 12		
9/1/66	B	30877	1, 7	FS	FS

This specification consists of pages 1 **to** 13 **inclusive.**

APPROVALS	A. C. METZGER NASA/MSC	MIT/IL	RAY

3.1.7 Marginal Voltage and Temperature Extremes.

3.1.7.1 With the input voltage adjusted to 12.2 ± 0.1 VDC, and an ambient temperature of $-10^{\circ}C\,^{+0C^{\circ}}_{-2.8C^{\circ}}$, the module shall operate as specified in sections 3.1.5 and 3.1.6, except threshold voltage shall be $35\,^{+7}_{-4}$ mv, and PNP and STROBE output amplitudes may decrease by 20%. The only times measured shall be:

T_2	$70\,^{+40}_{-20}$	ns
T_4	$140\,^{+80}_{-40}$	ns
T_7	$180\,^{+140}_{-60}$	ns
T_5, T_6	NMT 125	ns
T_8	NMT 1.5	us

3.1.7.2 With the input voltage adjusted to 16.5 ± 0.1 VDC, and an ambient temperature of $70^{\circ}C\,^{+2.8C^{\circ}}_{-0C^{\circ}}$, the module shall operate as specified in sections 3.1.5 and 3.1.6, except threshold voltage shall be $35\,^{+4}_{-7}$ mv, and PNP and STROBE output amplitudes may increase by 20%. The only times measured shall be:

T_2	$70\,^{+40}_{-20}$	ns
T_4	$140\,^{+80}_{-40}$	ns
T_7	$180\,^{+140}_{-60}$	ns
T_5, T_6	NMT 125	ns
T_8	NMT 1.5	us

3.1.8 Vibration. The module shall perform as specified in paragraphs 3.1.5.1 through 3.1.6.3 when installed in an operating computer which is being subjected to the vibration requirements specified in the applicable specifications for the computer subsystem. Acceptance criteria for the module shall be the compliance of the computer subsystem with its applicable specifications.

3.2 PRODUCT CONFIGURATION

3.2.1 DRAWING. The configuration of the assembly shall be in accordance with APOLLO G&N Drawing 2003981 and all drawings and engineering data referenced thereon.

3.2.2 Maximum allowable weight of the assembly shall be 0.58 pounds.

~~APOLLO G&N Specification~~
PS 2003981 Rev C
Original Issue Date: 4-26-66
Release Authority: TDRR 28256
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

FIXED MEMORY SENSE AMPLIFIER MODULE B14

DRAWING NO. 2003981

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
Ⓜ 5/1/66	A	29209	1, 4, 7, 12		
Ⓜ 9/1/66	B	30877	1, 7	FG	FG
Ⓜ 10/13/66	C	31537	1, 4, 6	FG	FG

This specification consists of pages 1 to 13 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	EC Hall 4/22/66 MIT/IL	BC Dill 4/1/66 4-1-66 RAY

3.1.5 Threshold Voltages

3.1.5.1 Outputs. The output of each stage shall be measured as shown in Figure 1 when an input as specified in section 4.1.5.1 is applied.

3.1.5.2 Threshold Voltage (A_k and A_q). Threshold voltage for each stage shall be 35 ± 4.0 mv.

3.1.5.3 Gain Resolution. The gain resolution for each stage shall be not more than 3.5 mv.

3.1.6 Delay Time

3.1.6.1 Strobe Driver Output (STROBE, STROBF). The Strobe Driver output shall be as shown in Figure 2, and shall have the following characteristics when an input as specified in section 4.1.5.2 is applied.

Amplitude (high)	NMT 1.0V below B+
Amplitude (low)	8.0 ± 0.5V below B+
Rise Time (t_r)	NMT 60 nanosec
T_2	70 ± 20 nanosec
T OFF	NMT 0.75 usec

3.1.6.2 Sense Amplifier Outputs. Each of the Sense Amplifier outputs shall be as shown in Figure 2, and shall have the following characteristics when an input as specified in section 4.1.5.2 is applied.

Amplitude (high)	NMT 0.3V below B+
Amplitude (low)	NLT 1.7V below B+
Rise Time (t_r)	NMT 100 nanosec
Fall Time (t_f, t_{f2})	NMT 125 nanosec
T_4	140 ± 40 nanosec
T_5, T_6	NMT 100 nanosec

3.1.6.3 PNP (Q_1) Stage Output. Each PNP Stage Output shall be as shown in Figure 2, and shall have the following characteristics when an input as specified in section 4.1.5.2 is applied.

Amplitude (high)	1.25 ± 0.15V
Amplitude (low)	NMT 0.20V
Rise Time (t_r)	NMT 125 nanosec
Fall Time (t_f)	NMT 400 nanosec
T_7	180 ± 60 nanosec
T_8	NMT 1.3 usec

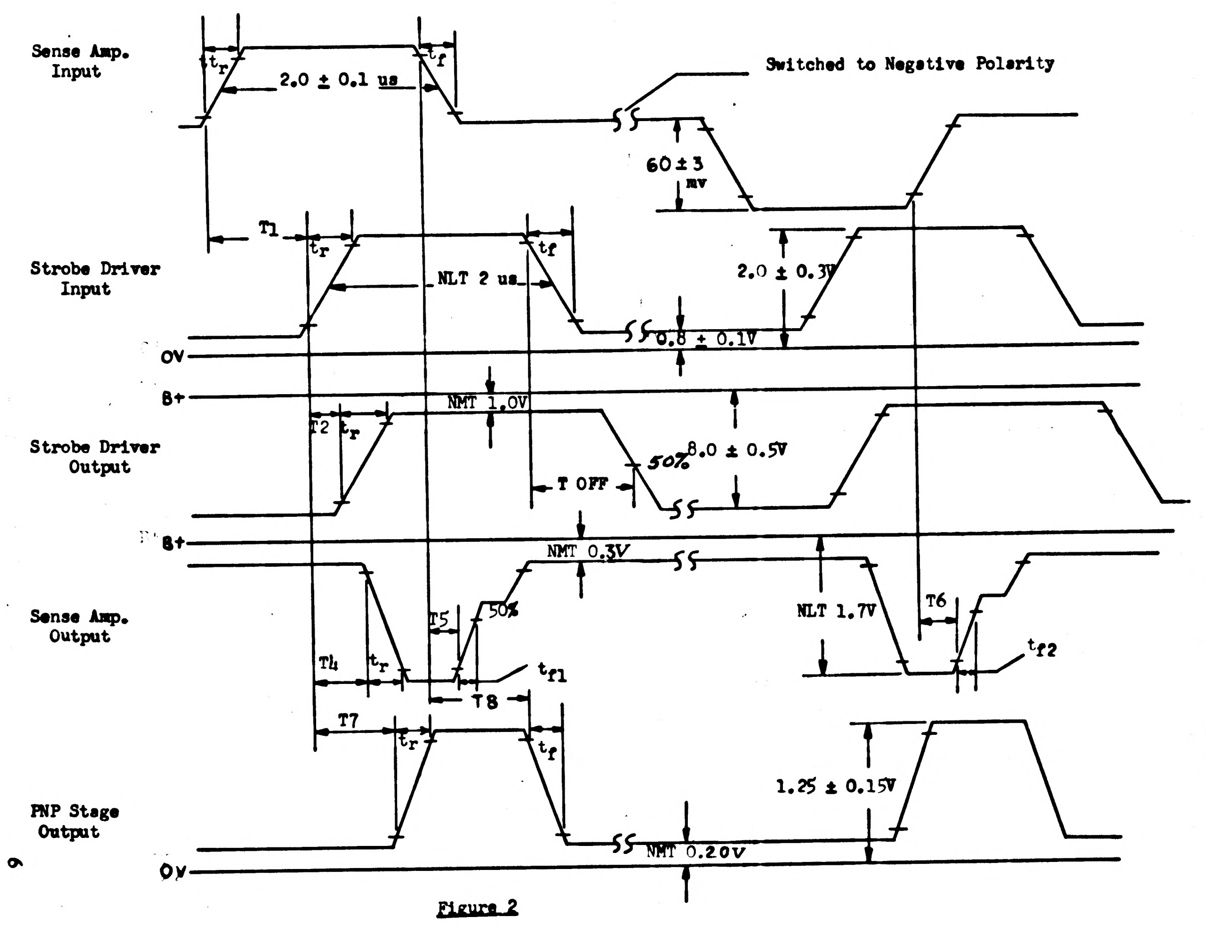
Sense Amp. Input
Strobe Driver Input
Strobe Driver Output
Sense Amp. Output
PNP Stage Output
t_r
2.0 ± 0.1 us
t_f
Switched to Negative Polarity
60 ± 3 mv
T1
t_r
NLT 2 us
t_f
2.0 ± 0.3V
0.8 ± 0.1V
0V
B+
NMT 1.0V
T2
t_r
T OFF
50%
8.0 ± 0.5V
B+
NMT 0.3V
NLT 1.7V
T6
t_{f2}
T5
50%
T4
t_r
T8
t_{f1}
T7
t_r
t_f
1.25 ± 0.15V
NMT 0.20V
0V

Figure 2

APOLLO G&N Specification
PS 2003981 Rev D
Original Issue Date: 4-26-66
Release Authority: TDRR 28256
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

FIXED MEMORY SENSE AMPLIFIER MODULE B14

DRAWING NO. 2003981

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals MIT	Approvals NASA
5/1/66	A	29209	1, 4, 7, 12		
9/1/66	B	30877	1, 7		
10/13/66	C	31537	1, 4, 6		
1/6/67	D	32545	1,7,8,13		

This specification consists of pages 1 **to** 13 **inclusive.**

APPROVALS	A. C. METZGER NASA/MSC	EC Hall 4/22/66 MIT/IL	RAY

4.2.5.6 With the input signal of paragraph 4.1.5.2.1 applied to pins A & C and D & F of each stage, and pin I loaded with a 1000 ohm ± 5% resistor, measure the output at pin I and verify that it is in accordance with paragraph 3.1.6.3.

4.2.6 Gain Resolution. Using the following formula, calculate the gain resolution for each stage, and verify that they are in accordance with paragraph 3.1.5.3.

NOTE: See paragraph 4.1.5.1 for definitions of symbols

$$\text{GAIN RESOLUTION} = AK - A_K$$

$$= AQ - A_q$$

4.2.7 Weight. Weigh the module to the nearest .01 pound. Verify that the weight does not exceed the maximum allowable weight specified in paragraph 3.2.2.

4.3 WORKMANSHIP. The following tests shall be pweformed under the conditions specified as a verification of good workmanship.

4.3.1 Marginal Voltage and Temperature Extremes.

4.3.1.1 With the input voltage and ambient temperature as specified in paragraph 3.1.7.1, repeat tests 4.2.5.1 through 4.2.6. Verify that the module performs as specified in paragraph 3.1.7.1.

NOTE: The module shall be maintained at the specified temperature for not less than 30 minutes prior to start of tests.

4.3.1.2 With the input voltage and ambient temperature as specified in paragraph 3.1.7.2, repeat tests 4.2.5.1 through 4.2.6. Verify that the module performs as specified in paragraph 3.1.7.2.

NOTE: The module shall be maintained at the specified temperature for not less than 30 minutes prior to start of tests.

4.3.1.3 With the input voltage and ambient temperature as specified in paragraph 3.1.7.3, repeat tests 4.2.5.1 through 4.2.6. Verify that the module performs as specified in paragraph 3.1.7.3.

NOTE: The module shall be maintained at the specified temperature for not less than 30 minutes prior to start of tests.

4.3.2 Vibration. Install the module in an applicable computer. Subject the computer subsystem to the vibration tests specified in the applicable JDC. Verify that the computer subsystem meets the requirements of the applicable specification.

5. PREPARATION FOR DELIVERY

5.1 GENERAL. Preparation for delivery shall be in accordance with Specification ND 1002214.

6. NOTES: None.

APOLLO G&N Specification
PS 2003981 **Rev. E**
Original Issue Date: 4-26-66
Release Authority: TDRR 28256
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

FIXED MEMORY SENSE AMPLIFIER MODULE B14

DRAWING NO. 2003981

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
Ⓜ 5/1/66	A	29209	1, 4, 7, 12		
Ⓜ 9/1/66	B	30877	1, 7	FA	FA
Ⓜ 10/13/66	C	31537	1, 4, 6	FA	FA
1/6/67	D	32545	1,7,8,13	FA	FA
Ⓜ 1/5/67	E	32551	1,2,4,6,7	FA	FA

This specification consists of pages 1 **to** 13 **inclusive.**

APPROVALS	A. C. METZGER NASA/MSC	EC Hall 4/20/66 4/1/66 MIT/IL	E Bernard 4/1/66 RAY	BCD 4/1/66 4-1-66

3.1.7 Marginal Voltages and Temperature Extremes.

3.1.7.1 With the input voltage adjusted to 12.2 ± 0.1 VDC, and an ambient temperature of $-10^\circ C\ ^{+0C^\circ}_{-2.8C^\circ}$, the module shall operate as specified in sections 3.1.5 and 3.1.6, except threshold voltage shall be $35\ ^{+7}_{-4}$ mv, and PNP and STROBE output amplitudes may decrease by 20%. The only times measured shall be:

T_2	$70\ ^{+40}_{-20}$ ns
T_4	$140\ ^{+80}_{-40}$ ns
T_7	$180\ ^{+140}_{-60}$ ns
T5, T6	NMT 125 ns
T8	NMT 1.125 µs
T OFF	NMT 0.45 µs

3.1.7.2 With the input voltage adjusted to 16.5 ± 0.1 VDC, and an ambient temperature of $-10^\circ C\ ^{+0C^\circ}_{-2.8C^\circ}$, the module shall operate as specified in sections 3.1.5 and 3.1.6, except threshold voltage shall be $35\ ^{+7}_{-4}$ mv, and PNP and STROBE output amplitudes may increase by 20%. The only times measured shall be:

T_2	$70\ ^{+40}_{-20}$ ns
T_4	$140\ ^{+80}_{-40}$ ns
T_7	$180\ ^{+140}_{-60}$ ns
T5, T6	NMT 125 ns
T8	NMT 1.125 µs
T OFF	NMT 0.45 µs

3.1.7.3 With the input voltage adjusted to 16.5 ± 0.1 VDC, and an ambient temperature of $70^\circ\ ^{+2.8C^\circ}_{-0C^\circ}$, the module shall operate as specified in sections 3 1.5 and 3.1.6, except threshold voltage shall be $35\ ^{+4}_{-7}$ mv, and PNP and STROBE output amplitudes may increase by 20%. The only times measured shall be:

T_2	$70\ ^{+40}_{-20}$ ns
T_4	$140\ ^{+80}_{-40}$ ns
T_7	$180\ ^{+140}_{-60}$ ns
T5,T6	NMT 125 ns
T8	NMT 1.125 µs
T OFF	NMT 0.45 µs

3.1.8 Vibration. The module shall perform as specified in paragraphs 3.1.5.1 through 3.1.6.3 when installed in an operating computer which is being subjected to the vibration requirements specified in the applicable specifications for the computer subsystem. Acceptance criteria for the module shall be the compliance of the computer subsystem with its applicable specifications.

3.2 PRODUCT CONFIGURATION

3.2.1 DRAWING. The configuration of the assembly shall be in accordance with APOLLO G&N Drawing 2003981 and all drawings and engineering data referenced thereon.

3.2.2 Maximum allowable weight of the assembly shall be 0.58 pounds.

3.1.7 Marginal Voltages and Temperature Extremes.

3.1.7.1 With the input voltage adjusted to 12.2 ± 0.1 VDC, and an ambient temperature of $-10^\circ C\ ^{+0C^\circ}_{-2.8C^\circ}$, the module shall operate as specified in sections 3.1.5 and 3.1.6, except threshold voltage shall be $35\ ^{+7}_{-4}$ mv, and PNP and STROBE output amplitudes may decrease by 20%. The only times measured shall be:

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T_7 $180\ ^{+140}_{-60}$ ns
T5, T6 NMT 125 ns
T8 NMT 1.125 µs
T OFF NMT 0.45 µs

3.1.7.2 With the input voltage adjusted to 16.5 ± 0.1 VDC, and an ambient temperature of $-10^\circ C\ ^{+0C^\circ}_{-2.8C^\circ}$, the module shall operate as specified in sections 3.1.5 and 3.1.6, except threshold voltage shall be $35\ ^{+7}_{-4}$ mv, and PNP and STROBE output amplitudes may increase by 20%. The only times measured shall be:

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T_7 $180\ ^{+140}_{-60}$ ns
T5, T6 NMT 125 ns
T8 NMT 1.125 µs
T OFF NMT 0.45 µs

3.1.7.3 With the input voltage adjusted to 16.5 ± 0.1 VDC, and an ambient temperature of $70^\circ\ ^{+2.8C^\circ}_{-0C^\circ}$, the module shall operate as specified in sections 3.1.5 and 3.1.6, except threshold voltage shall be $35\ ^{+4}_{-7}$ mv, and PNP and STROBE output amplitudes may increase by 20%. The only times measured shall be:

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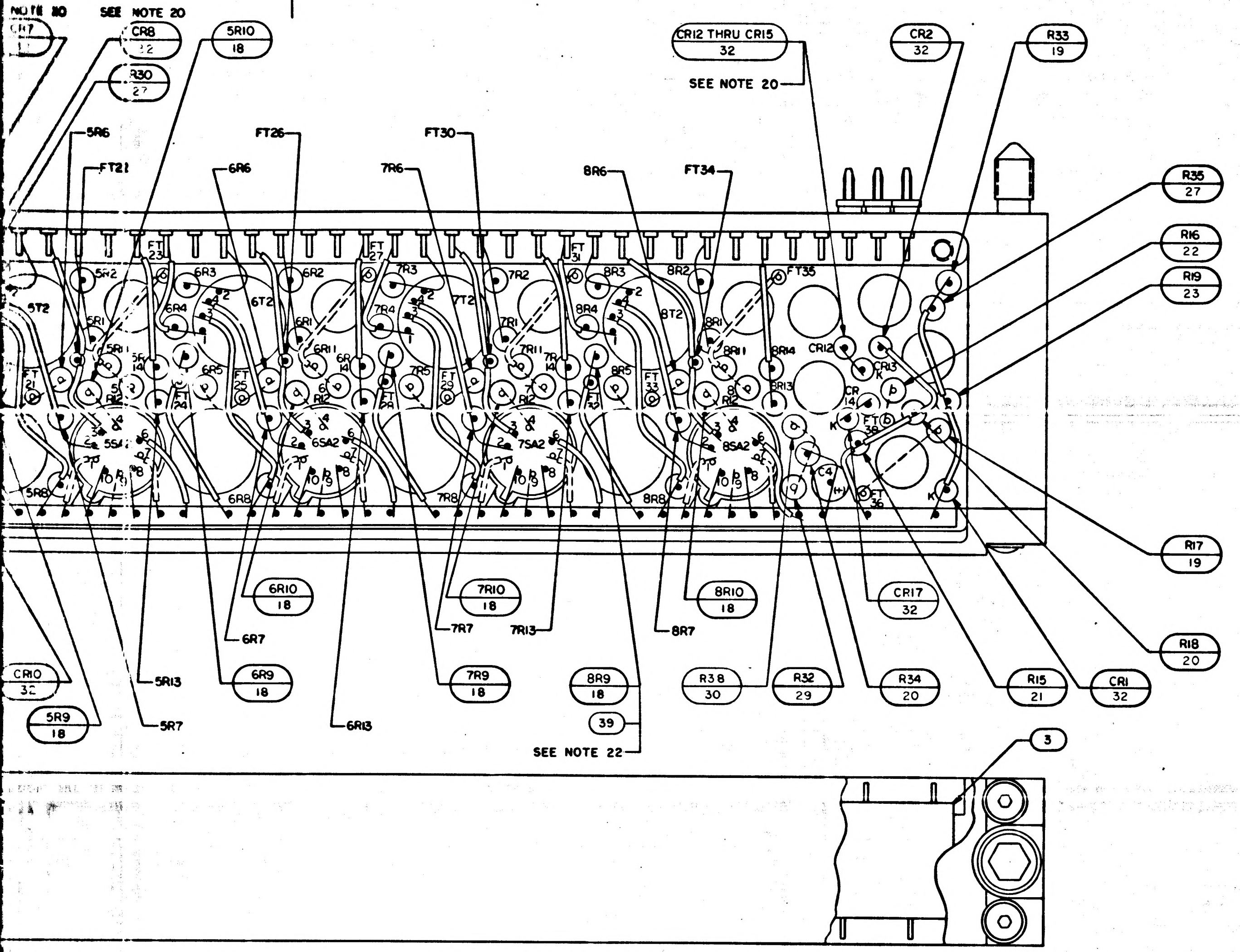
3.1.8 Vibration. The module shall perform as specified in paragraphs 3.1.5.1 through 3.1.6.3 when installed in an operating computer which is being subjected to the vibration requirements specified in the applicable specifications for the computer subsystem. Acceptance criteria for the module shall be the compliance of the computer subsystem with its applicable specifications.

3.2 PRODUCT CONFIGURATION

3.2.1 DRAWING. The configuration of the assembly shall be in accordance with APOLLO G&N Drawing 2003981 and all drawings and engineering data referenced thereon.

3.2.2 Weight of the module shall be recorded.

REVISIONS 2ℓ035						
SYM	ZONE	DESCRIPTION	BR	CHK	DATE	APPROVED



SEE NOTE 20
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R30 27
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CR12 THRU CR15 32
SEE NOTE 20
CR2 32
R33 19
R35 27
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R19 23
R17 19
R18 20
CR1 32
R15 21
R34 20
R32 29
R38 30
CR17 32
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6R9 18
7R9 18
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39
SEE NOTE 22
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5R6
FT21
FT26
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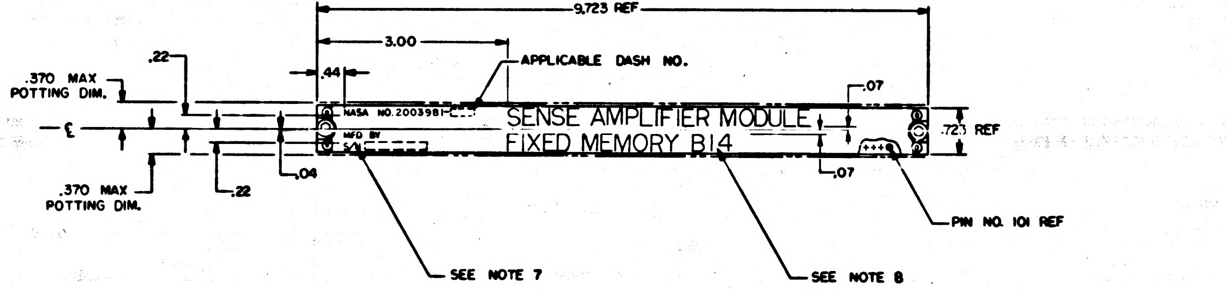
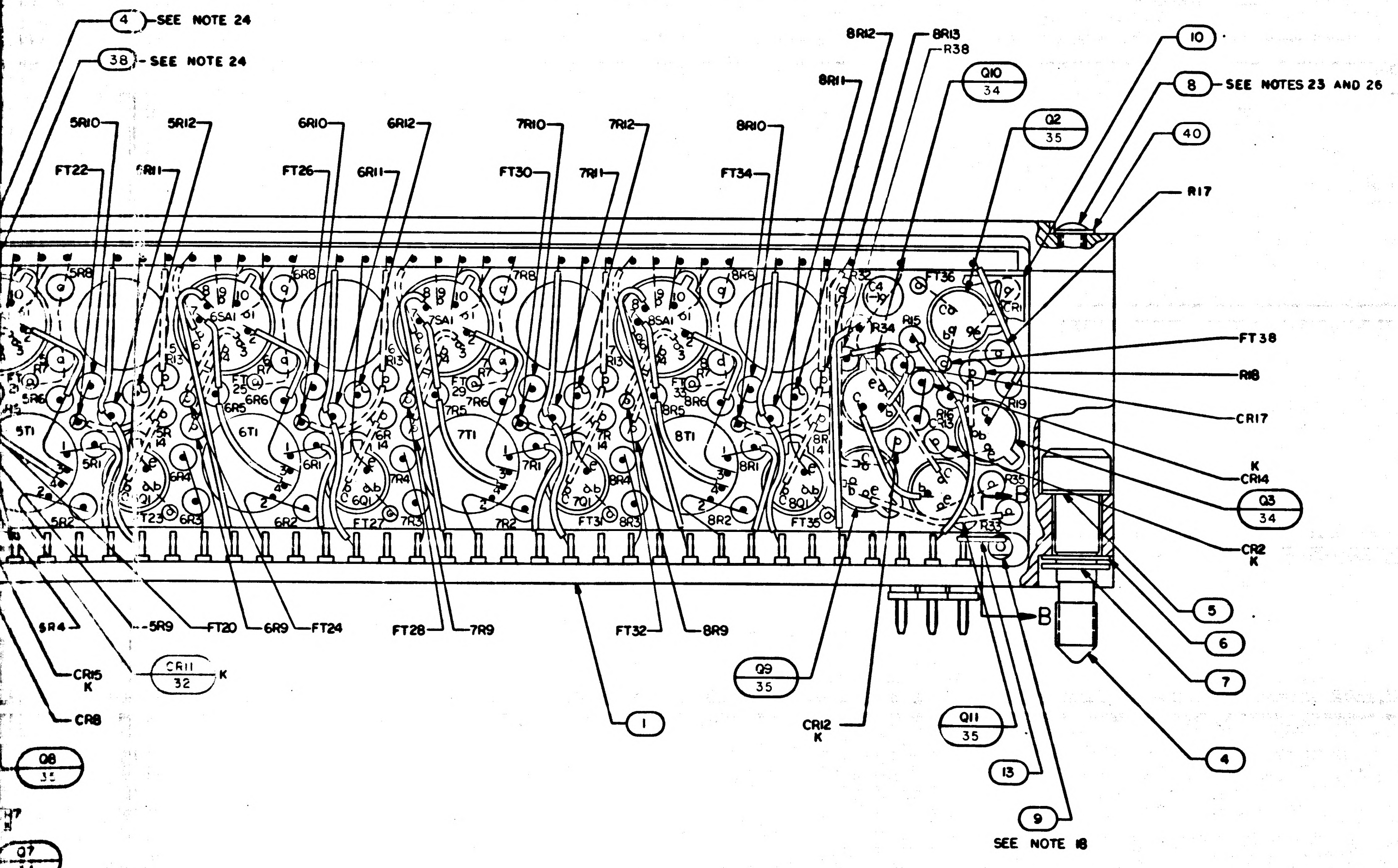


9.723 REF
3.00
APPLICABLE DASH NO.
.44
.22
.370 MAX POTTING DIM.
℄
.04
.22
.370 MAX POTTING DIM.
NASA NO. 2003981
MFD BY
S/N
SENSE AMPLIFIER MODULE
FIXED MEMORY B14
.07
.07
.723 REF
PIN NO. 101 REF
SEE NOTE 7
SEE NOTE 8

MARKING VIEW
SCALE 1/1



4 SEE NOTE 24
38 SEE NOTE 24
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6R12
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7R12
8R10
FT22
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FT26
6R11
FT30
7R11
FT34
8R11
8R12
8R13
R38
Q10 34
Q2 35
10
8 SEE NOTES 23 AND 26
40
R17
FT38
R18
CR17
K CR14
Q3 34
CR2 K
5
6
7
B
4
9 SEE NOTE 18
13
Q11 35
CR12 K
Q9 35
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8R9
FT28
7R9
FT24
6R9
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5R9
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CR8
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Q7 34

☒	2005919	SCHEMATIC	REF
AR	1006776-25	INSULATION, SLEEVING	41
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19	2004074	WASHER, INSULATOR	39
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2	1006750-63	RESISTOR	30
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1	1006750-25	RESISTOR	25
1	SEE NOTES 12 & 22	RESISTOR	24
3	1006750-36	RESISTOR	23
1	1006750-15	RESISTOR	22
9	1006750-49	RESISTOR	21
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20	1006750-32	RESISTOR	19
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33	1006750-24	RESISTOR	17
32	1006750-42	RESISTOR	16
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AR	1006757-1	WIRE, ELECTRICAL	12
1	2004711	INSULATOR B	11
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1	2004039	TERMINAL, THREADED	9
4	1006783-10	SCREW, BUTTON HEAD	8
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2	2004984-003	WASHER, FLAT	6
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2	1004579-1	SCREW, JACKING	4
1	2003005-011	MATRIX ASSY	3
1	2004044	COVER	2
1	2003044-021	HEADER HOUSING ASSY	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
011	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN E. Ultring 29MAR
CHECKED E. Edwards 31Mar
APPROVED
APPROVED Ellen C. Hall
APPROVED MIT 7Apr
APPROVED MSC
DATE

SENSE AMPLIFIER MODULE,
FIXED MEMORY B14
ASSEMBLY

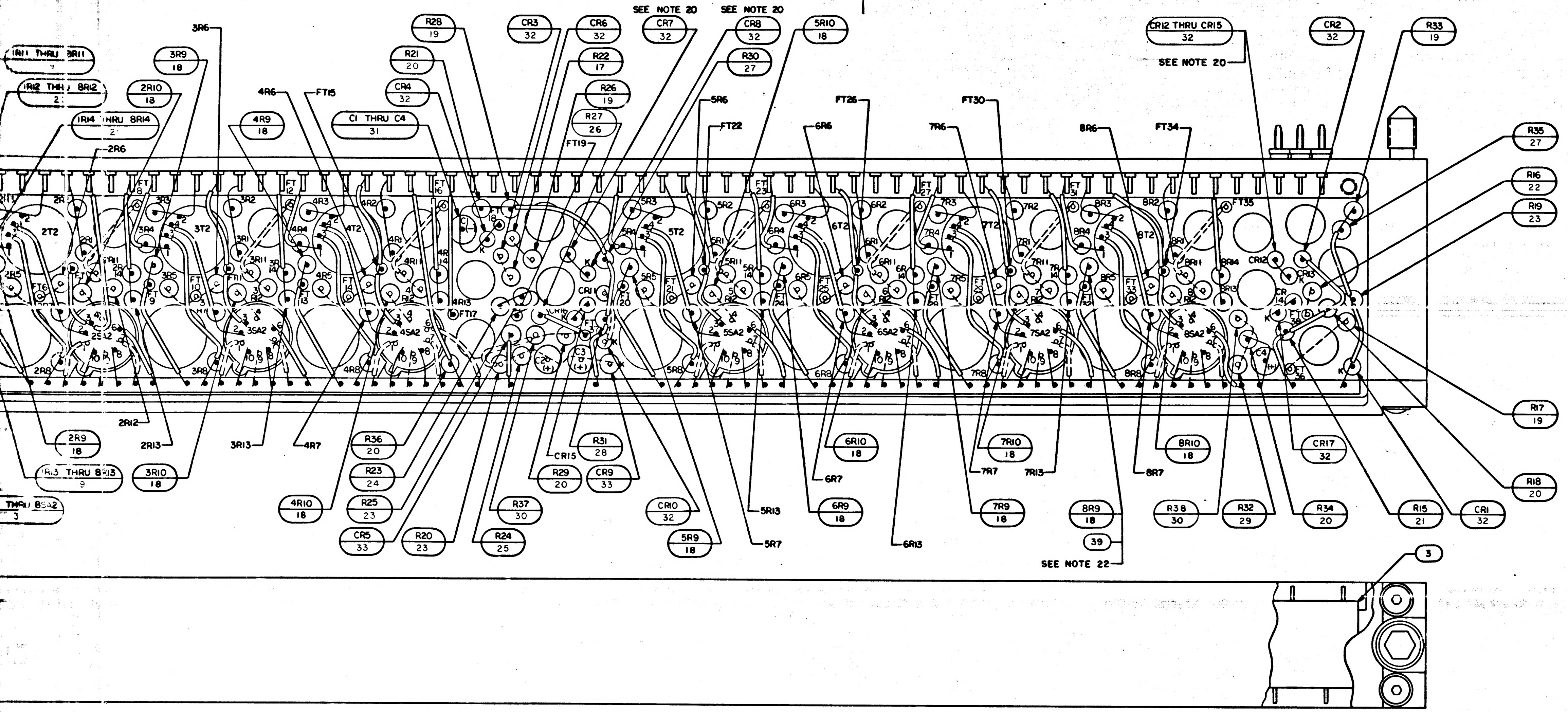
CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003981
SCALE 4/1
SHEET 1 OF 1

2003981

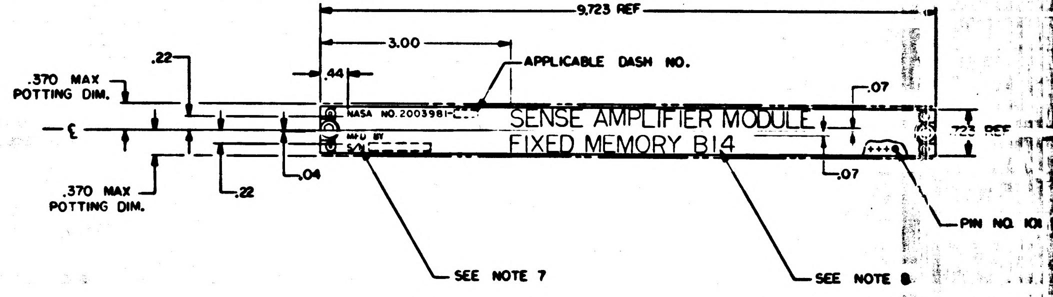
MASTER

3H

2003981

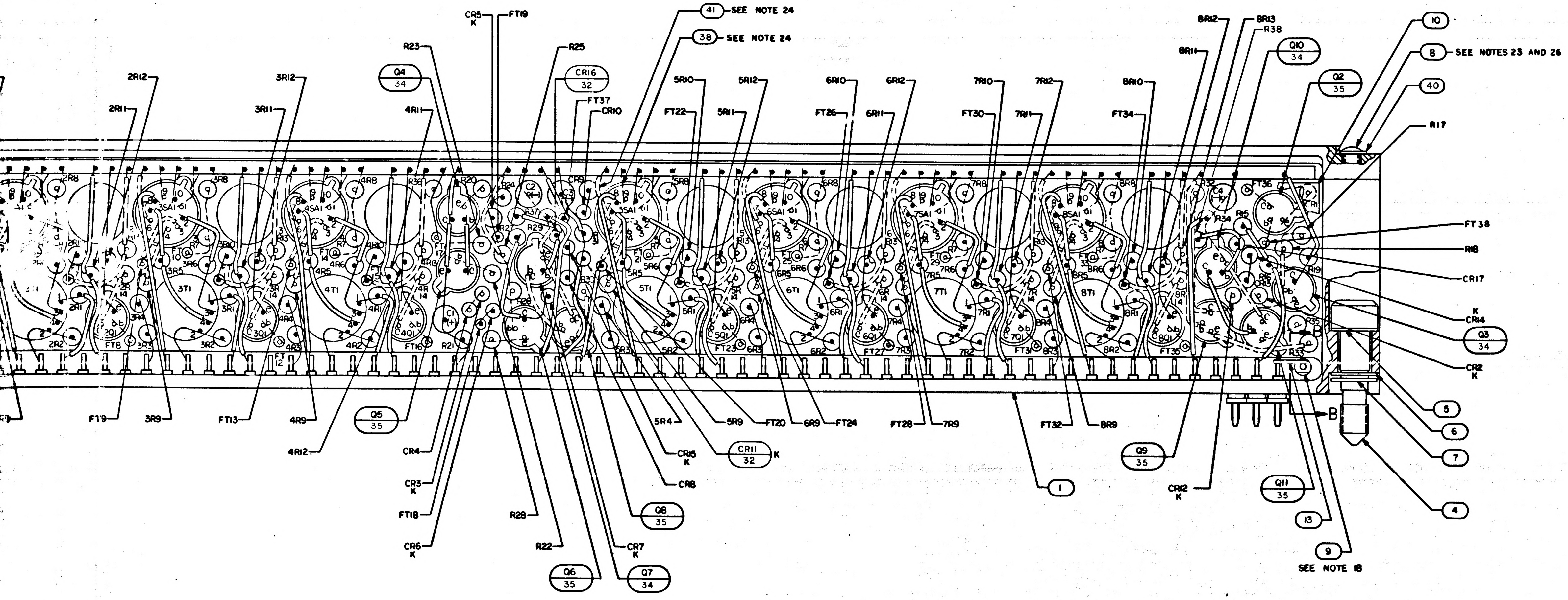


1R11 THRU 8R11
7
1R12 THRU 8R12
2
1R14 THRU 8R14
2
2R6
3R9
18
2R10
18
3R6
4R6
FT15
4R9
18
C1 THRU C4
31
R28
19
R21
20
CR4
32
CR3
32
CR6
32
R22
17
R26
19
R27
26
FT19
SEE NOTE 20
CR7
32
SEE NOTE 20
CR8
32
R30
27
5R10
18
5R6
FT22
6R6
FT26
7R6
FT30
8R6
FT34
CR12 THRU CR15
32
SEE NOTE 20
CR2
32
R33
19
R35
27
R16
22
R19
23
R17
19
R18
20
2T2
3T2
4T2
5T2
6T2
7T2
8T2
2SA2
3SA2
4SA2
5SA2
6SA2
7SA2
8SA2
C2
C3
C4
CR11
FT35
FT36
2R9
18
2R12
2R13
R13 THRU 8R13
9
3R10
18
3R13
4R7
R36
20
R23
24
R25
23
CR5
33
R20
23
4R10
18
R37
30
R24
25
CR15
R31
28
R29
20
CR9
33
CR10
32
5R9
18
5R13
5R7
6R10
18
6R7
6R9
18
6R13
7R10
18
7R7
7R13
7R9
18
8R10
18
8R7
8R9
18
39
SEE NOTE 22
CR17
32
R38
30
R32
29
R34
20
R15
21
CR1
32
THRU 8SA2
3
3



9.723 REF
3.00
.44
APPLICABLE DASH NO.
.22
.370 MAX
POTTING DIM.
℄
.370 MAX
POTTING DIM.
.22
.04
NASA NO. 2003981-
MFD BY
S/N
SENSE AMPLIFIER MODULE
FIXED MEMORY B14
.07
.07
.723 REF
PIN NO. 101
SEE NOTE 7
SEE NOTE 8

MARKING VIEW
SCALE 1/1



CR5
K
FT19
41
SEE NOTE 24
38
SEE NOTE 24
R23
R25
2R12
2R11
3R12
3R11
Q4
34
4R11
CR16
32
FT37
CR10
5R10
FT22
5R12
5R11
6R10
FT26
6R12
6R11
7R10
FT30
7R12
7R11
8R10
FT34
8R12
8R11
8R13
R38
Q10
34
Q2
35
10
8
SEE NOTES 23 AND 26
40
R17
FT38
R18
CR17
K
CR14
Q3
34
CR2
K
5
6
7
4
3T1
4T1
5T1
6T1
7T1
8T1
3SA1
4SA1
5SA1
6SA1
7SA1
8SA1
FT9
3R9
FT13
4R9
4R12
Q5
35
CR4
CR3
K
FT18
CR6
K
R28
R22
Q6
35
Q7
34
CR7
K
Q8
35
CR8
CR15
K
CR11
32
K
5R4
5R9
FT20
6R9
FT24
FT28
7R9
1
FT32
8R9
Q9
35
B
CR12
K
Q11
35
13
9
SEE NOTE 18

MASTER

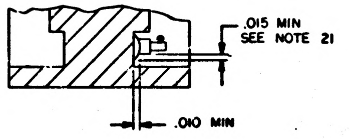
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

R9, R10

PART NO.	VALUE
1006750 -25	510
-26	560
-27	620
-28	680
-29	750
-30	820
-31	910
-32	1K
-33	1.1K
-34	1.2K
-35	1.3K
-36	1.5K
-37	1.6K
-38	1.8K
-39	2.0K
-40	2.2K
-41	2.4K
-42	2.7K
-43	3.0K
-44	3.3K
-45	3.6K
-46	3.9K
-47	4.3K
-48	4.7K
-49	5.1K
-16	220
-17	240
-18	270
-19	300
-20	330
-21	360
-22	390
-23	430
1006750 -24	470

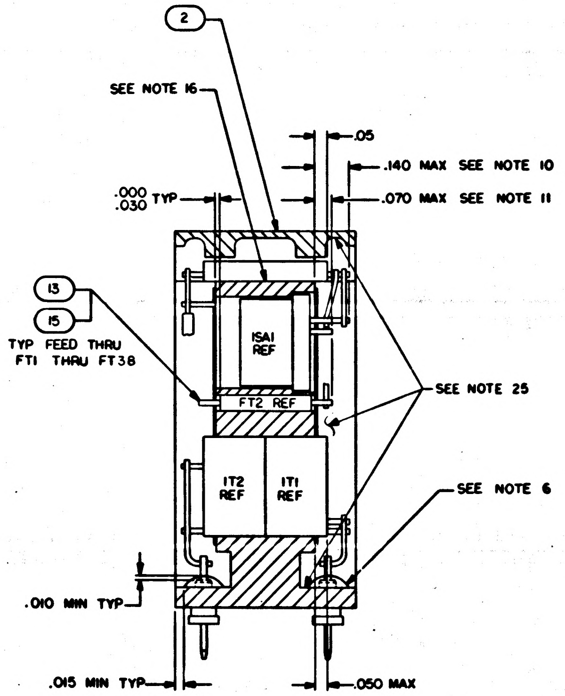
R23, R27, R32

PART NO.	VALUE
1006750-32	1K
-33	1.1K
-34	1.2K
-35	1.3K
-36	1.5K
-37	1.6K
-38	1.8K
-39	2.0K
-40	2.2K
-41	2.4K
-42	2.7K
-43	3.0K
-44	3.3K
-45	3.6K
-46	3.9K
-47	4.3K
-48	4.7K
-49	5.1K
-119	1.4K
-121	1.7K
-122	1.9K
-123	2.1K
-124	2.3K
-125	2.55K
-126	2.85K
-127	3.15K
-128	3.45K
-129	3.75K
1006750-130	4.1K

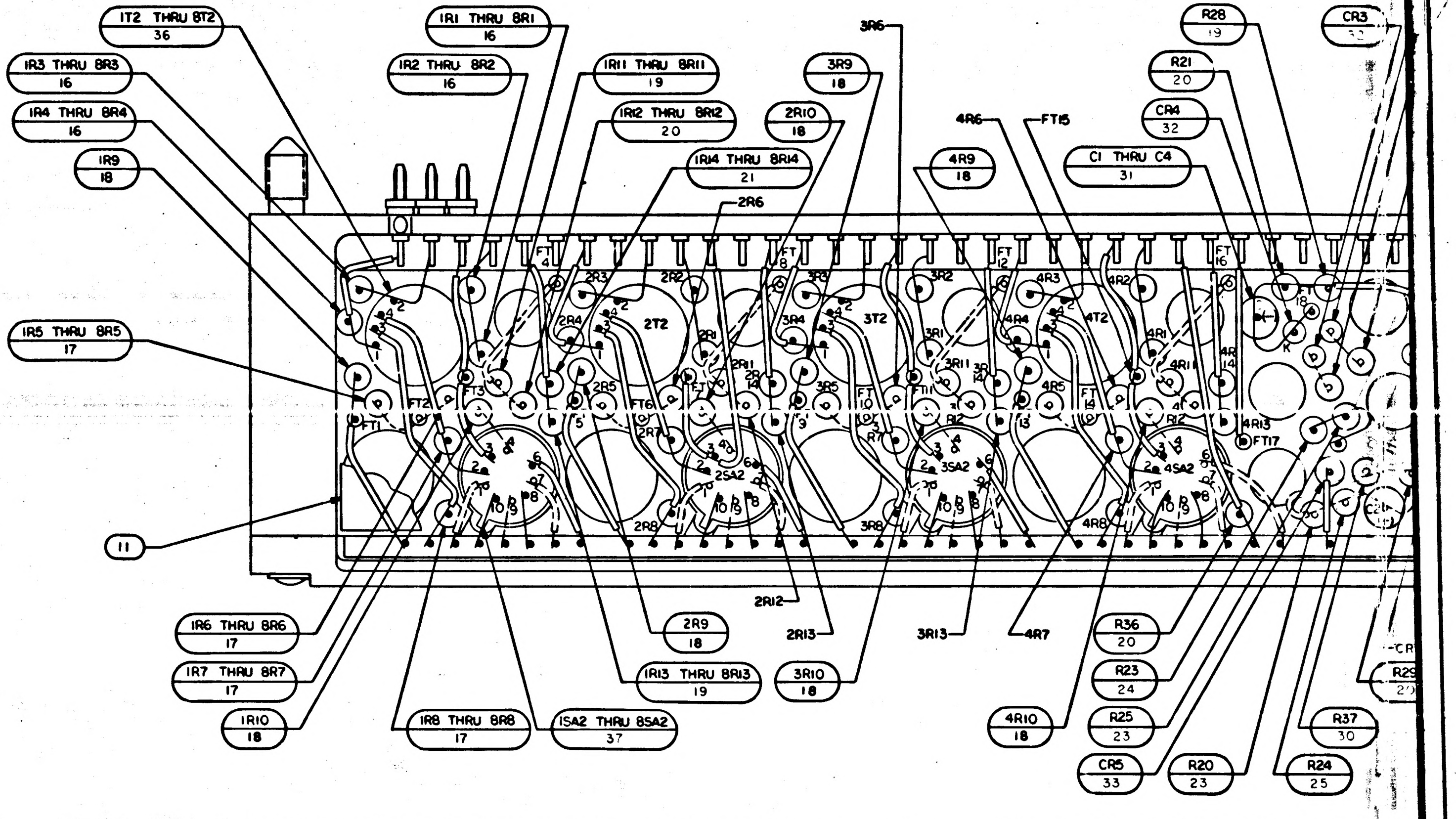

.015 MIN
SEE NOTE 21
.010 MIN

SECTION B-B

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. (+) DENOTES POSITIVE SIDE OF CAPACITOR
5. K DENOTES CATHODE SIDE OF DIODE
6. SEAL INSULATORS AND TERMINALS TO HEADER PER ND1002004, TYPE VI
7. MARK .10/.08 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271-1
8. MARK .26/.24 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 USING INK 1006271-1
9. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND 1002069
10. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
11. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
12. THE VALUES OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST R9, R10, R23, R27 AND R32 TO BE SELECTED FROM APPROPRIATE CHART
13. STAKE FIND NO. 16 THRU FIND NO. 37 TO FIND NO. 1 PER ND1002009 METHOD C OR D
14. ENCAPSULATE PER ND1002002. REMOVE FLASHING
15. WELD PER ND1002005
16. BOND FIND NO. 3 TO FIND NO. 1 PER ND1002004 TYPE I
17. TRIM UNUSED LEAD OF FIND NO. 37 .010/.030 FROM CASE
18. MOUNTING TORQUE FOR FIND NO. 9 TO BE 15-20 INCH OUNCES
19. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF P.S. 2003981
20. CR7, 8, 15 AND CR12, 13, 14 ARE TO BE SELECTED BY ELECTRICAL TEST. ONE, TWO, OR THREE DIODES WILL BE SELECTED IN EACH AREA. IF LESS THAN THREE DIODES ARE REQUIRED, FIND NO. 13 AND 15 WILL BE USED IN THE REMAINING COMPONENT HOLES AND WIRING WILL BE COMPLETED AS SHOWN
21. SEAL FIND NO. 9 TO HEADER PER ND1002004, TYPE VI
22. ASSEMBLE FIND NO. 39 TO MODULE AFTER SELECTED VALUE HAS BEEN DETERMINED
23. MOUNTING TORQUE FOR FIND NO. 8 TO BE 2.0-2.5 INCH POUNDS
24. USE FIND NO. 38 & FIND NO. 41 WHERE APPLICABLE ON ALL FIRST LEVEL WIRING TO THE MATRIX
25. COAT INDICATED SURFACES, BOTH ENDS, TOP AND BOTTOM, BOTH SIDES PER ND1002187, TYPE II
26. APPLY MIL-S-22473, GRADE HV TO FIND NO. 8


2
SEE NOTE 16
.05
.140 MAX SEE NOTE 10
.000
.030 TYP
.070 MAX SEE NOTE 11
13
15
TYP FEED THRU
FT1 THRU FT38
1SA1 REF
FT2 REF
SEE NOTE 25
1T2 REF
1T1 REF
SEE NOTE 6
.010 MIN TYP
.015 MIN TYP
.050 MAX

SECTION A-A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1R1 THRU 8R1 16
1R3 THRU 8R3 16
1R2 THRU 8R2 16
1R11 THRU 8R11 19
3R9 18
3R6
R28 19
CR3
1R4 THRU 8R4 16
1R12 THRU 8R12 20
2R10 18
R21 20
4R6
FT15
CR4 32
1R9 18
1R14 THRU 8R14 21
4R9 18
C1 THRU C4 31
2R6
1R5 THRU 8R5 17
11
2R12
1R6 THRU 8R6 17
2R9 18
2R13
3R13
4R7
R36 20
1R7 THRU 8R7 17
1R13 THRU 8R13 19
3R10 18
R23 24
1R10 18
1R8 THRU 8R8 17
1SA2 THRU 8SA2 37
4R10 18
R25 23
R37 30
R29
CR5 33
R20 23
R24 25
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FT 8
FT 12
FT 16
FT 18
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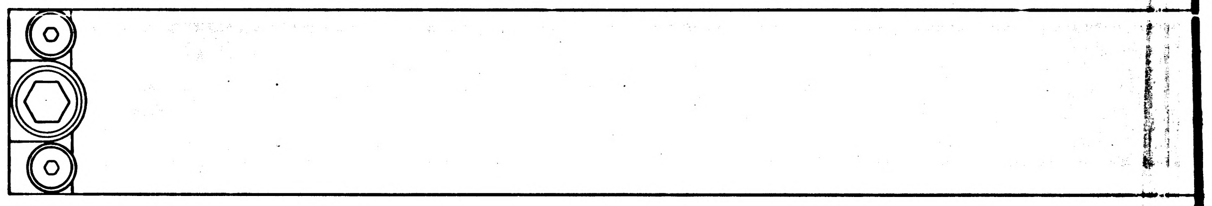
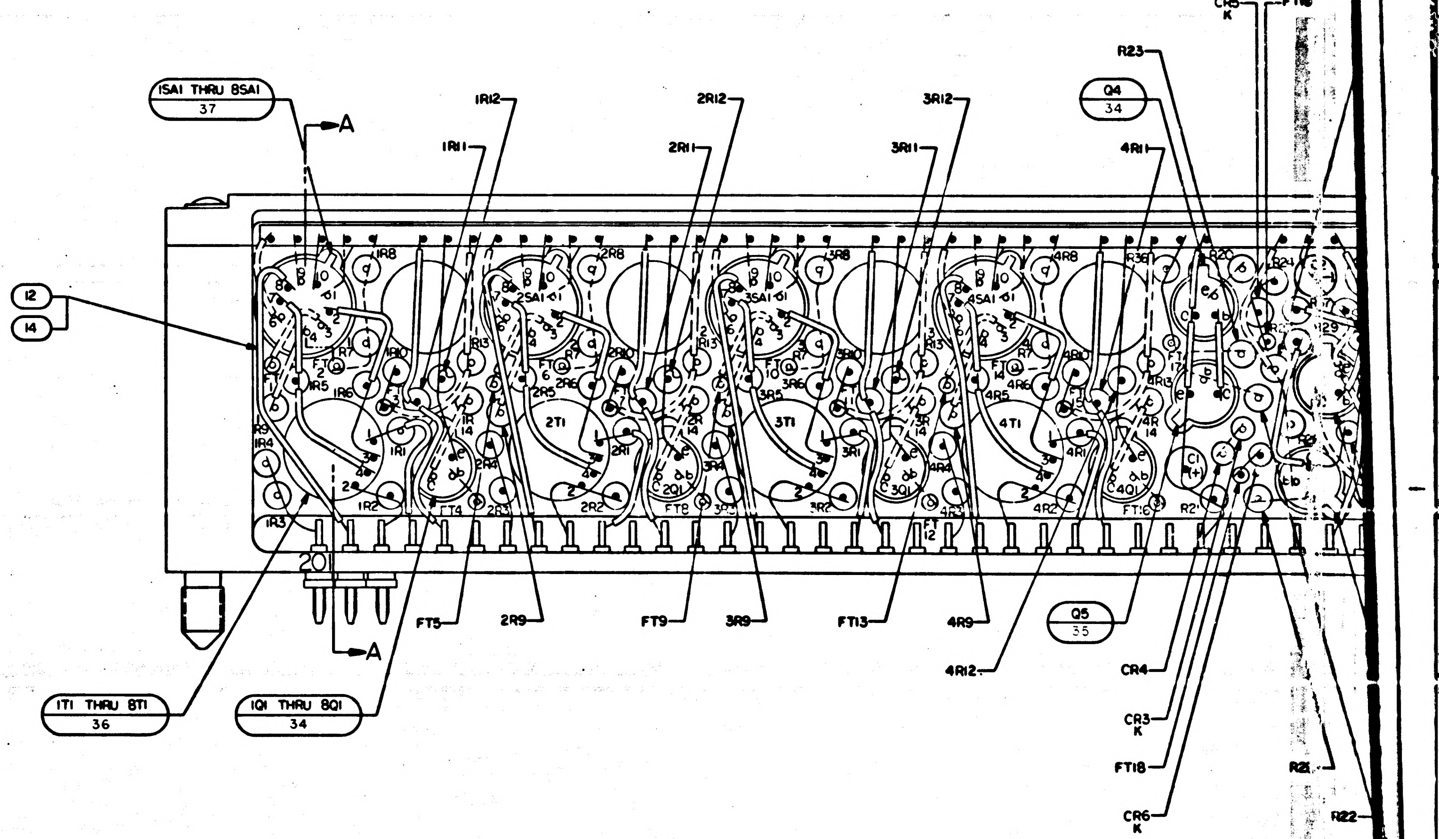
3T2
4T2
2SA2
3SA2
4SA2




CR5 K
FT16
R23
1SA1 THRU 8SA1 37
A
1R12
2R12
3R12
Q4 34
1R11
2R11
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4R11
12
14
2SA1
3SA1
4SA1
2T1
3T1
4T1
2Q1
3Q1
4Q1
FT5
2R9
FT9
3R9
FT13
4R9
Q5 35
4R12
CR4
CR3 K
FT18
CR6 K
R21
R22
1T1 THRU 8T1 36
1Q1 THRU 8Q1 34
A

2003981

4. QUALITY ASSURANCE PROVISIONS

4.1 GENERAL. The contractor responsible for the manufacture of the assembly shall be responsible for the accomplishment of each test required herein. See Table I, Product Performance and Configuration Requirement/Quality Verification Cross Reference Index.

TABLE I

Requirements	Verification
3.1.1	4.2.2
3.1.2.1	4.2.3.1
3.1.2.2	4.2.3.2
3.1.2.3	4.2.3.3
3.1.3.1	4.2.4.1
3.1.3.2	4.2.4.2
3.1.3.3	4.2.4.3
3.1.3.4	4.2.4.4
3.1.5.1	4.2.5.1, 4.2.5.2
3.1.5.3	4.2.6
3.1.6.1	4.2.5.5
3.1.6.2	4.2.5.3, 4.2.5.4
3.1.6.3	4.2.5.6
3.1.7.1	4.3.1.1
3.1.7.2	4.3.1.2
3.1.8	4.3.2
3.2.1	4.2.1
3.2.2	4.2.7

4.1.1 Test Conditions

4.1.1.1 Environmental. Unless otherwise specified, the assemblies shall be tested under the following ambient conditions:

a. Temperature 25°C ± 10°C

b. Relative Humidity 90% max.

c. Barometric Pressure 28 to 32 inches of Hg

APOLLO G&N Specification
PS 2003981 Rev -
Original Issue Date: 4-26-66
Release Authority: **TDRR** 28256
Class A Release

PROCUREMENT SPECIFICATION
PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS
FIXED MEMORY SENSE AMPLIFIER MODULE B14
DRAWING NO. 2003981

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA

This specification consists of pages 1 to 13 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	E C Hall MIT/IL	4-1-66 RAY

1. SCOPE

This specification establishes the detail requirements for complete identification and acceptance of the Fixed Memory Sense Amplifier Module B14 Part No. 2003981-011.

2. APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein.

2.1 EFFECTIVE ISSUES. Unless otherwise specified herein, Military and Government Standards and specifications shall be the issue in effect on the date of request for proposal or invitation to bid.

SPECIFICATIONS

APOLLO G&N

ND 1002214	General Specification for Preservation, Packaging, Packing and Container Marking of APOLLO Guidance and Navigation Major Assemblies, Assemblies, Subassemblies, Parts and Associated Ground Support Equipment.

DRAWINGS

APOLLO G&N

2003981	Fixed Memory Sense Amplifier Module B14

(Copies of Specifications, Standards, Drawings, Bulletins, and Publications required by suppliers in connection with specific procurement functions should be obtained from the Procuring Activity or as directed by the Contracting Officer).

2.2 CONFLICTING REQUIREMENTS. In event of conflict between the requirements of the contract, this Specification and the documents listed in this section the following order of precedence shall apply and the contractor shall notify MIT Apollo Management of the conflict as soon as it is determined.

a. The contract
b. This Specification
c. Documents listed in this section

3.1.5 Threshold Voltages

3.1.5.1 Outputs. The output of each stage shall be measured as shown in Figure 1 when an input as specified in section 4.1.5.1 is applied.

3.1.5.2 Threshold Voltage (A_k and A_q). Threshold voltage for each stage shall be 35 ± 4.0 mv.

3.1.5.3 Gain Resolution. The gain resolution for each stage shall be not more than 2.0 mv.

3.1.6 Delay Time

3.1.6.1 Strobe Driver Output (STROBE, STROBF). The Strobe Driver output shall be as shown in Figure 2, and shall have the following characteristics when an input as specified in section 4.1.5.2 is applied.

Amplitude (high)	NMT 1.0V below B+
Amplitude (low)	8.0 ± 0.5V below B+
Rise Time (t_r)	NMT 60 nanosec
T_2	65 ± 10 nanosec
T OFF	NMT 0.75 usec

3.1.6.2 Sense Amplifier Outputs. Each of the Sense Amplifier outputs shall be as shown in Figure 2, and shall have the following characteristics when an input as specified in section 4.1.5.2 is applied.

Amplitude (high)	NMT 0.1V below B+
Amplitude (low)	NLT 1.7V below B+
Rise Time (t_r)	NMT 60 nanosec
Fall Time (t_f, t_{f2})	NMT 100 nanosec
T_4	135 ± 30 nanosec
T_5, T_6	NMT 100 nanosec

3.1.6.3 PNP (Q_1) Stage Output. Each PNP Stage Output shall be as shown in Figure 2, and shall have the following characteristics when an input as specified in section 4.1.5.2 is applied.

Amplitude (high)	1.25 ± 0.15V
Amplitude (low)	NMT 0.1V
Rise Time (t_r)	NMT 100 nanosec
Fall Time (t_f)	NMT 400 nanosec
T7	175 ± 50 nanosec
T8	NMT 1.3 usec

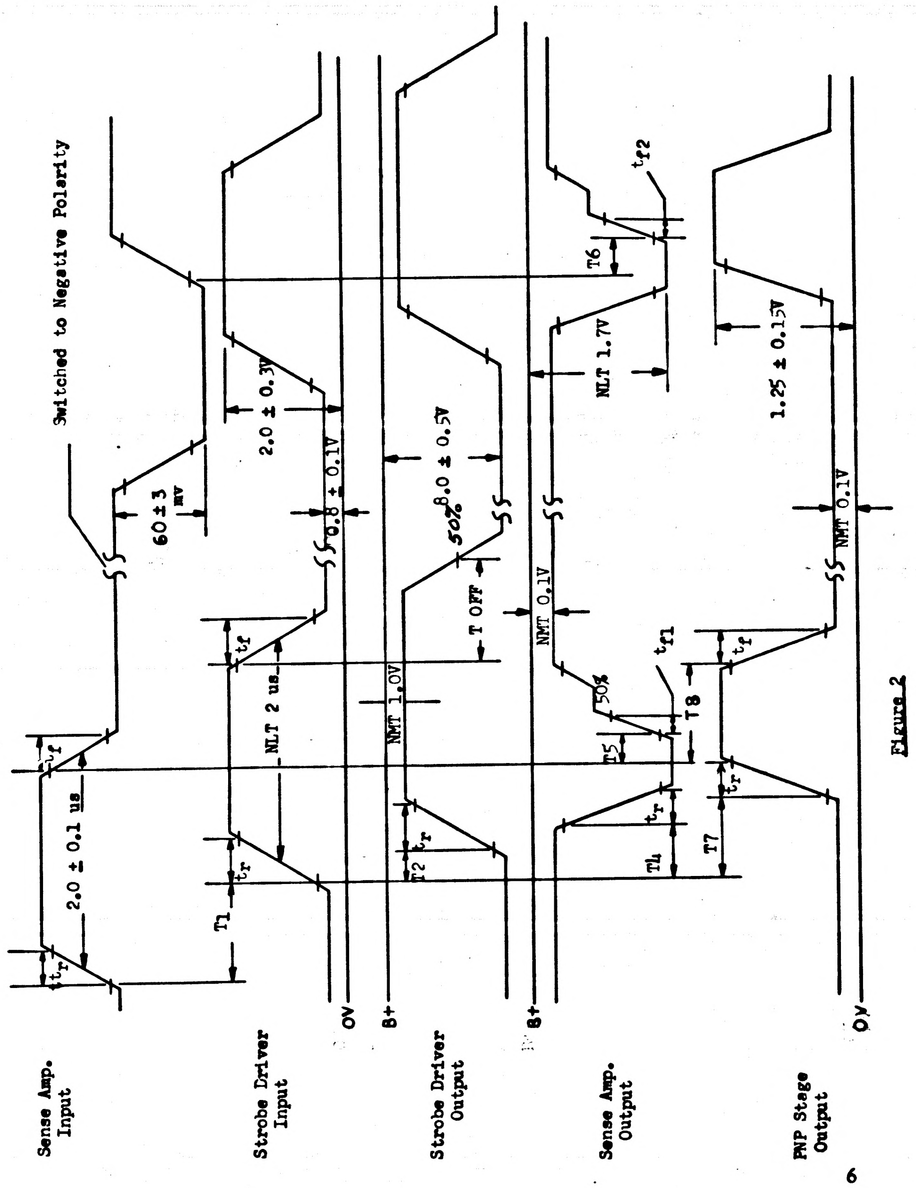

Sense Amp. Input
Strobe Driver Input
Strobe Driver Output
Sense Amp. Output
PNP Stage Output
Switched to Negative Polarity
t_r
t_f
2.0 ± 0.1 us
60 ± 3 mv
T1
NLT 2 us
2.0 ± 0.3V
0.8 ± 0.1V
OV
B+
T2
NMT 1.0V
T OFF
50%
8.0 ± 0.5V
B+
T4
T5
50%
t_{f1}
T8
NMT 0.1V
NLT 1.7V
T6
t_{f2}
T7
NMT 0.1V
1.25 ± 0.15V
OV

Figure 2

3.1.7 Marginal Voltage and Temperature Extremes.

3.1.7.1 With the input voltage adjusted to 12.2 ± 0.1 VDC, and an ambient temperature of $-10^{\circ}\mathrm{C}\,^{+0\mathrm{C}^{\circ}}_{-2.8\mathrm{C}^{\circ}}$, the module shall operate as specified in sections 3.1.5 and 3.1.6, except threshold voltage shall be $35\,^{+7}_{-4}$ mv, and PNP and STROBE output amplitudes may decrease by 20%.

3.1.7.2 With the input voltage adjusted to 16.5 ± 0.1 VDC, and an ambient temperature of $70^{\circ}\mathrm{C}\,^{+2.8\mathrm{C}^{\circ}}_{-0\mathrm{C}^{\circ}}$, the module shall operate as specified in sections 3.1.5 and 3.1.6, except threshold voltage shall be $35\,^{+4}_{-7}$ mv, and PNP and STROBE output amplitudes may increase by 20%.

3.1.8 Vibration. The module shall perform as specified in paragraphs 3.1.5.1 through 3.1.6.3 when installed in an operating computer which is being subjected to the vibration requirements specified in the applicable specifications for the computer subsystem. Acceptance criteria for the module shall be the compliance of the computer subsystem with its applicable specifications.

3.2 PRODUCT CONFIGURATION

3.2.1 DRAWING. The configuration of the assembly shall be in accordance with APOLLO G&N Drawing 2003981 and all drawings and engineering data referenced thereon.

3.2.2 Maximum allowable weight of the assembly shall be 0.70 pounds.

4.2.3.3 Measure the resistance between pin 269 (chassis ground) and the chassis, and verify that it is as specified in paragraph 3.1.2.3.

4.2.4 Insulation Resistance Tests. Using a resistance bridge or equivalent with a test potential of 50 VDC limited to a short circuit current of 50 microamperes, perform the following:

4.2.4.1 Measure the resistance between any one pin B and all other pin B's, and any one pin E and all other pin E's, and verify that they are specified in paragraph 3.1.3.1.

4.2.4.2 Measure the resistance between each pin B and all pins G, H, I, J, and pins 126, 128, 103, 229, 234, and 268. Verify that they are as specified in paragraph 3.1.3.2.

4.2.4.3 Measure the resistance between each pin E and all pins G, H, I, J, and pins 126, 128, 103, 229, 234, and 268. Verify that they are as specified in paragraph 3.1.3.3.

4.2.4.4 Measure the resistance between pin 269 and all other pins on the module, and verify that they are as specified in paragraph 3.1.3.4.

4.2.5 Functional Tests

4.2.5.1 With the input signal of paragraph 4.1.5.1 applied to pins A & C of each stage, and the output (pin G) loaded with the circuit shown in paragraph 4.1.4, measure the output at pin G and verify that it is in accordance with paragraphs 3.1.5.1 and 3.1.5.2.

4.2.5.2 With the input signal of paragraph 4.1.5.1 applied to Pins D & F of each stage, measure the output at pin J and verify that it is in accordance with p paragraphs 3.1.5.1 and 3.1.5.2.

4.2.5.3 With the input signal of paragraph 4.1.5.2.1 applied to pins A & C of each stage, and the output (pin G) loaded with the circuit shown in paragraph 4.1.4, measure the output at pin G and verify that it is in accordance with paragraph 3.1.6.2.

4.2.5.4 With the input signal of paragraph 4.1.5.2.1 applied to pins D & F of each stage, measure the output at pin J and verify that it is in accordance with paragraph 3.1.6.2.

4.2.5.5 With the input signal of paragraph 4.1.5.2.2 applied to pin 268, measure the output at pin 126 and verify that it is in accordance with paragraph 3.1.6.1

4.2.5.6 With the input signal of paragraph 4.1.5.2.1 applied to pins A & C and D & F of each stage, and pin I loaded with a 1000 ohm ± 5% resistor, measure the output at pin I and verify that it is in accordance with paragraph 3.1.6.3.

4.2.6 Gain Resolution. Using the following formula, calculate the gain resolution for each stage, and verify that they are in accordance with paragraph 3.1.5.3.

NOTE: See paragraph 4.1.5.1 for definitions of symbols

$$\text{GAIN RESOLUTION} = AK - A_k$$

$$= AQ - A_q$$

4.2.7 Weight. Weigh the module to the nearest .01 pound. Verify that the weight does not exceed the maximum allowable weight specified in paragraph 3.2.2.

4.3 WORKMANSHIP. The following tests shall be performed under the conditions specified as a verification of good workmanship.

4.3.1 Marginal Voltage and Temperature Extremes.

4.3.1.1 With the input voltage and ambient temperature as specified in paragraph 3.1.7.1, repeat tests 4.2.5.1 through 4.2.6. Verify that the module performs as specified in paragraph 3.1.7.1.

NOTE: The module shall be maintained at the specified temperature for not less than 30 minutes prior to start of tests.

4.3.1.2 With the input voltage and ambient temperature as specified in paragraph 3.1.7.2, repeat tests 4.2.5.1 through 4.2.6. Verify that the module performs as specified in paragraph 3.1.7.2.

NOTE: The module shall be maintained at the specified temperature for not less than 30 minutes prior to start of tests.

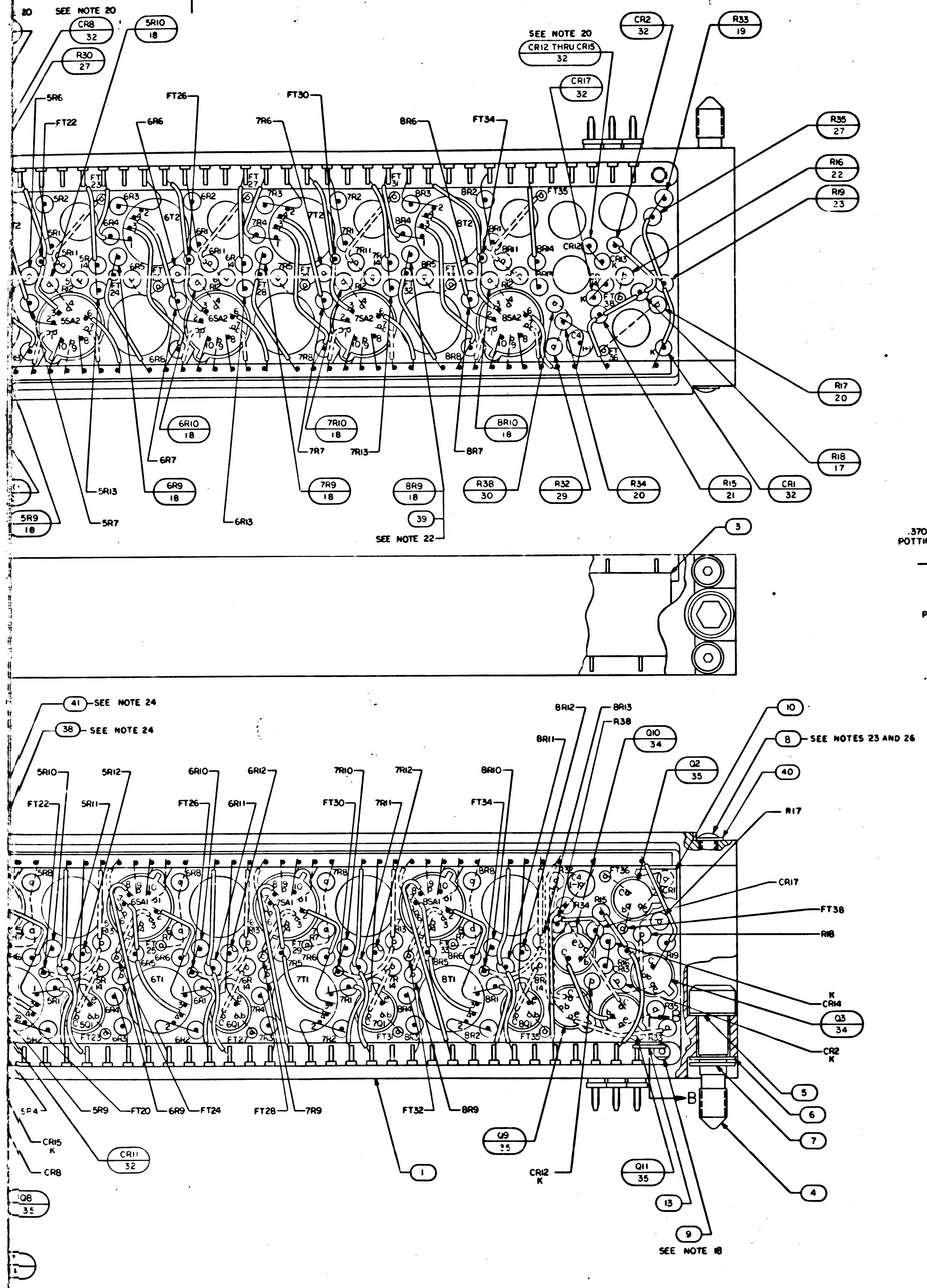
4.3.2 Vibration. Install the module in an applicable computer. Subject the computer subsystem tothe vibration tests specified in the applicable JDC. Verify that the computer subsystem meets the requirements of the applicable specification.

5. PREPARATION FOR DELIVERY

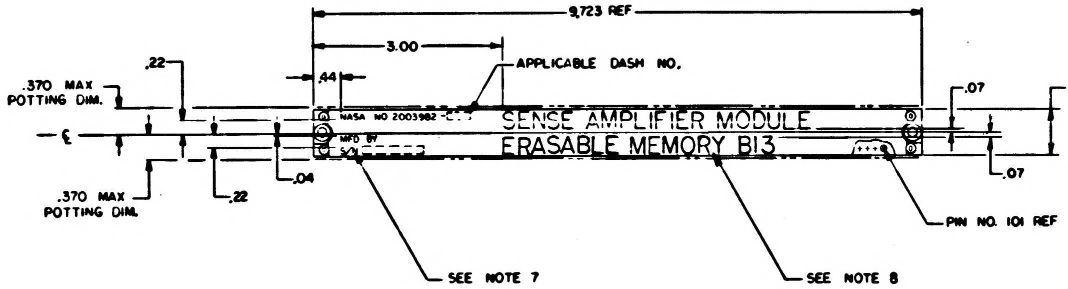
5.1 GENERAL. Preparation for delivery shall be in accordance with Specification ND 1002214.

6. NOTES: None

				REVISIONS 28035		
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 28247				



SEE NOTE 20
CR8 32
5R10 18
R30 27
5R6
FT22
FT26
6R6
FT30
7R6
8R6
FT34
SEE NOTE 20
CR12 THRU CR15 32
CR17 32
CR2 32
R33 19
R35 27
R16 22
R19 23
R17 20
R18 17
6R10 18
7R10 18
8R10 18
6R7
7R7
7R13
8R7
5R13
6R9 18
7R9 18
8R9 18
R38 30
R32 29
R34 20
R15 21
CR1 32
5R7
6R13
5R9 18
39
SEE NOTE 22
3
41 SEE NOTE 24
38 SEE NOTE 24
8R12
8R13
8R11
R38
Q10 34
Q2 35
10
8 SEE NOTES 23 AND 26
40
R17
5R10
5R12
6R10
6R12
7R10
7R12
8R10
FT22
5R11
FT26
6R11
FT30
7R11
FT34
CR17
FT38
R18
K CR14
Q3 34
CR2 K
5
6
7
4
5R4
5R9
FT20
6R9
FT24
FT28
7R9
FT32
8R9
B
CR15 K
CR8
CR11 32
Q8 35
1
Q9 35
CR12 K
Q11 35
13
9
SEE NOTE 18



9.723 REF
3.00
.44
APPLICABLE DASH NO.
.22
.370 MAX POTTING DIM.
.07
.723 REF
NASA NO 2003982-
MFD BY
SENSE AMPLIFIER MODULE
ERASABLE MEMORY B13
.22
.04
.370 MAX POTTING DIM.
.07
PIN NO. 101 REF
SEE NOTE 7
SEE NOTE 8

MARKING VIEW
SCALE 1/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2005920	SCHEMATIC	REF
AR	1006776-25	INSULATION SLEEVING	41
4	NAS620A-2	WASHER, FLAT	40
19	2004074	WASHER, INSULATOR	39
AR	1006757-12	WIRE, ELECTRICAL	38
16	2004003-001	INTEGRATED SENSE AMPL	37
16	1006293	TRANSFORMER	36
6	2004004-001	TRANSISTOR, POTTED	35
12	2004004-002	TRANSISTOR, POTTED	34
2	2004112-002	DIODE	33
15	2004103-001	DIODE	32
4	1006755-69	CAPACITOR	31
2	1006750-63	RESISTOR	30
1	SEE NOTES 12&22	RESISTOR	29
1	1006750-43	RESISTOR	28
2	1006750-12	RESISTOR	27
1	SEE NOTES 12&22	RESISTOR	26
1	1006750-25	RESISTOR	25
1	SEE NOTES 12&22	RESISTOR	24
3	1006750-36	RESISTOR	23
1	1006750-15	RESISTOR	22
9	1006750-49	RESISTOR	21
13	1006750-39	RESISTOR	20
19	1006750-32	RESISTOR	19
16	SEE NOTE 12&22	RESISTOR	18
34	1006750-24	RESISTOR	17
32	1006750-42	RESISTOR	16
AR	1006776-22	INSULATION, SLEEVING	15
AR	1006776-21	INSULATION, SLEEVING	14
AR	1006757-8	WIRE, ELECTRICAL	13
AR	1006757-1	WIRE, ELECTRICAL	12
1	2004711	INSULATOR B	11
1	2004710	INSULATOR A	10
1	2004039	TERMINAL, THREADED	9
4	1006783-10	SCREW, BUTTON HEAD	8
2	MS16633-4015	RING, RETAINING, EXTERNAL E	7
2	2004984-003	WASHER, FLAT	6
2	2004984-001	WASHER, FLAT	5
2	1004579-1	SCREW, JACKING	4
1	2003005-011	MATRIX ASSY	3
1	2004044	COVER	2
1	2003044-021	HEADER HOUSING ASSY	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003200	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN D.G. Clermont
CHECKED R. Edwards
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

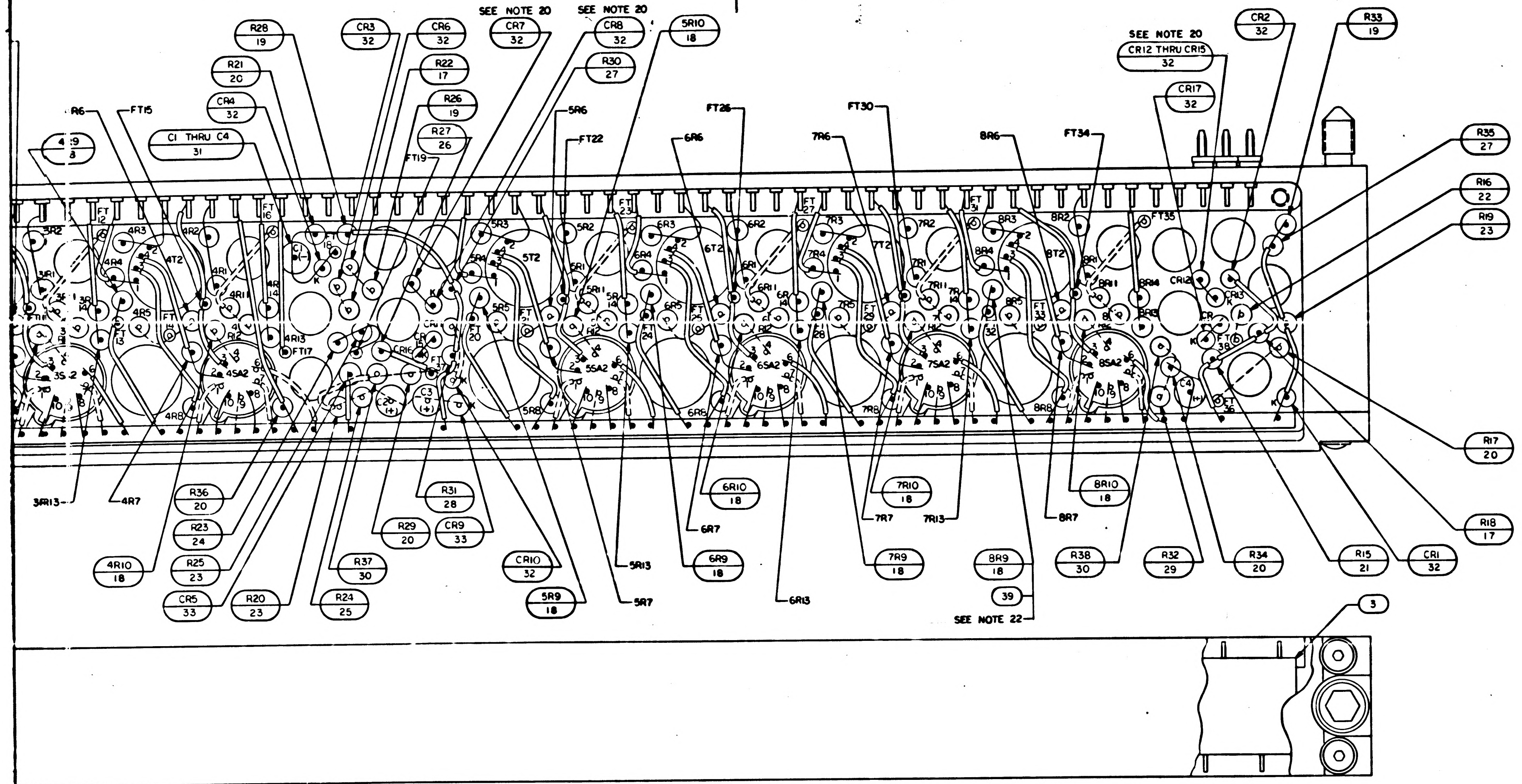
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SENSE AMPLIFIER MODULE, ERASABLE MEMORY B13 ASSEMBLY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003982
SCALE 4/1
SHEET 1 OF 1

2003982 A

F3/3


SEE NOTE 20
CR7 32
SEE NOTE 20
CR8 32
5R10 18
R28 19
CR3 32
CR6 32
R30 27
R21 20
R22 17
CR4 32
R26 19
R27 26
C1 THRU C4 31
FT19
R6
FT15
5R6
FT22
6R6
FT26
7R6
FT30
8R6
FT34
SEE NOTE 20
CR12 THRU CR15 32
CR17 32
CR2 32
R33 19
R35 27
R16 22
R19 23
R17 20
R18 17
3R13
4R7
R36 20
R23 24
4R10 18
R25 23
CR5 33
R20 23
R29 20
R37 30
R24 25
R31 28
CR9 33
CR10 32
5R9 18
5R13
5R7
6R10 18
6R7
6R9 18
6R13
7R10 18
7R7
7R13
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8R7
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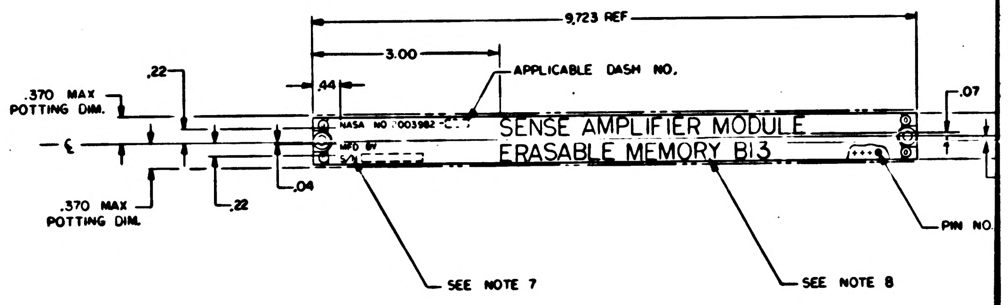
R32 29
R34 20
R15 21
CR1 32
3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.44
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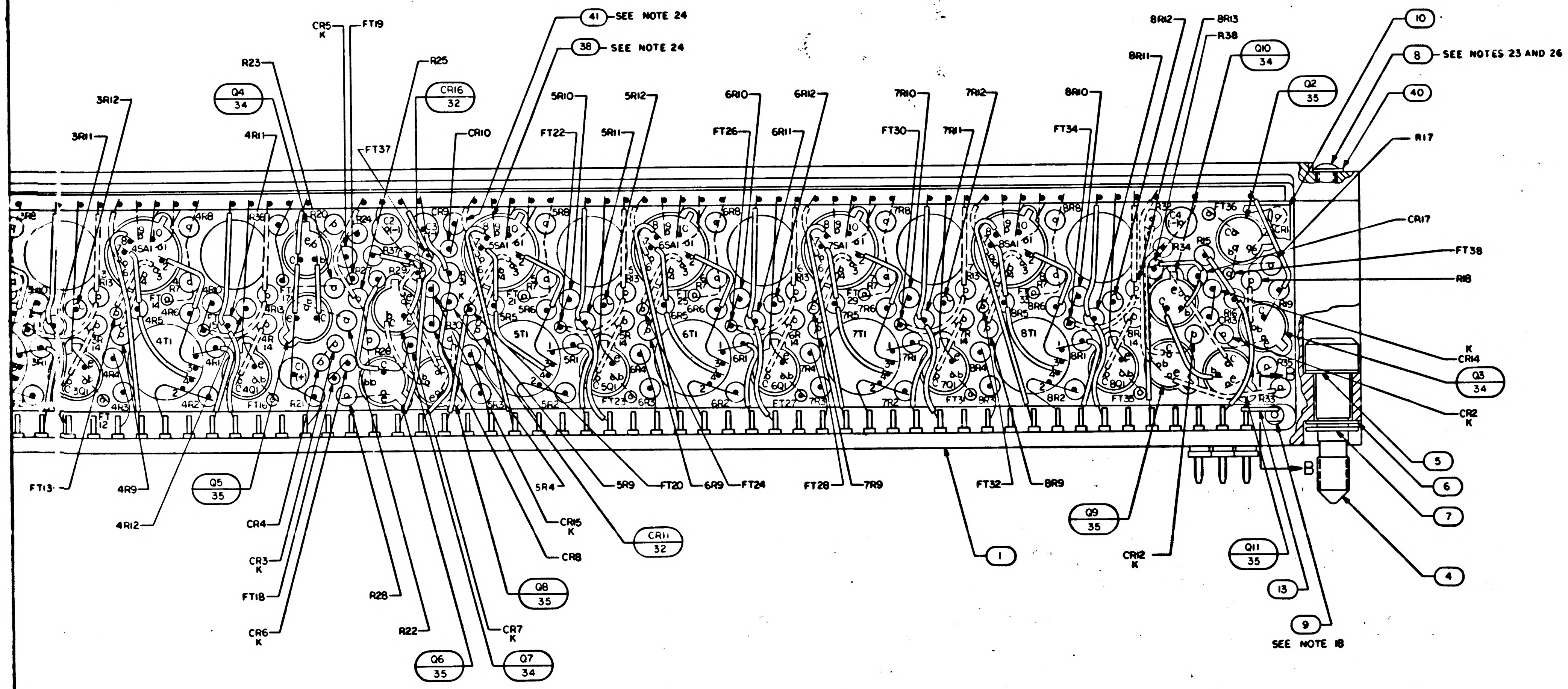
.22
.07
.370 MAX POTTING DIM.
℄
NASA NO 2003982
MFD BY
SENSE AMPLIFIER MODULE
ERASABLE MEMORY B13
.370 MAX POTTING DIM.
.22
.04
PIN NO.
SEE NOTE 7
SEE NOTE 8

MARKING VIEW
SCALE 1/1

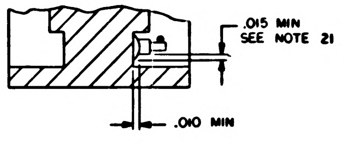

41 SEE NOTE 24
38 SEE NOTE 24
CR5 K
FT19
R23
R25
3R12
3R11
Q4 34
4R11
FT37
CR16 32
CR10
5R10
5R12
FT22
5R11
6R10
6R12
FT26
6R11
7R10
7R12
FT30
7R11
8R10
FT34
8R12
8R13
8R11
R38
Q10 34
Q2 35
10
8 SEE NOTES 23 AND 26
40
R17
CR17
FT38
R18
K CR14
Q3 34
CR2 K
5
6
7
4
B
FT13
4R9
4R12
Q5 35
CR4
CR3 K
FT18
CR6 K
R28
R22
Q6 35
Q7 34
CR7 K
Q8 35
CR8
CR15 K
5R4
5R9
FT20
6R9
FT24
CR11 32
FT28
7R9
FT32
8R9
1
Q9 35
CR12 K
Q11 35
13
9
SEE NOTE 18

2003200	
NEXT ASSY	USED ON
APPLICATION	

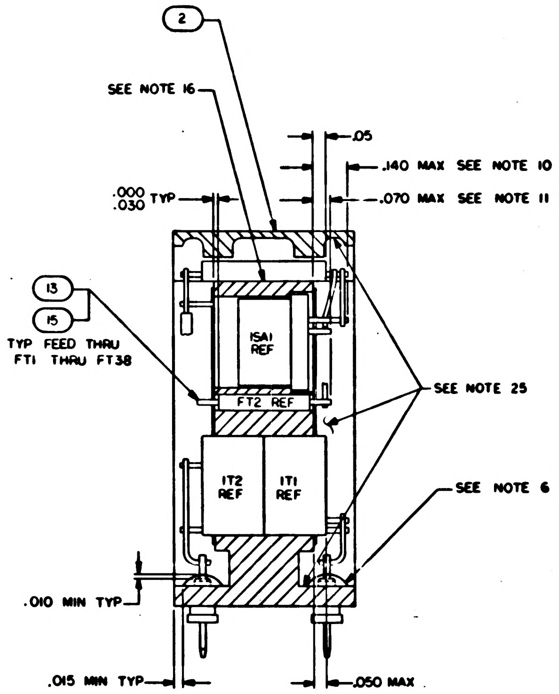
2003982 A

R9, R10	
PART NO.	VALUE
1006750 -25	510
-26	560
-27	620
-28	680
-29	750
-30	820
-31	910
-32	1K
-33	1.1K
-34	1.2K
-35	1.3K
-36	1.5K
-37	1.6K
-38	1.8K
-39	2.0K
-40	2.2K
-41	2.4K
-42	2.7K
-43	3.0K
-44	3.3K
-45	3.6K
-46	3.9K
-47	4.3K
-48	4.7K
-49	5.1K
-16	220
-17	240
-18	270
-19	300
-20	330
-21	360
-22	390
-23	430
1006750 -24	470

R23, R27, R32	
PART NO.	VALUE
1006750 -32	1K
-33	1.1K
-34	1.2K
-35	1.3K
-36	1.5K
-37	1.6K
-38	1.8K
-39	2.0K
-40	2.2K
-41	2.4K
-42	2.7K
-43	3.0K
-44	3.3K
-45	3.6K
-46	3.9K
-47	4.3K
-48	4.7K
-49	5.1K
-119	1.4K
-121	1.7K
-122	1.9K
-123	2.1K
-124	2.3K
-125	2.55K
-126	2.85K
-127	3.15K
-128	3.45K
-129	3.75K
1006750 -130	4.1K


.015 MIN
SEE NOTE 21
.010 MIN

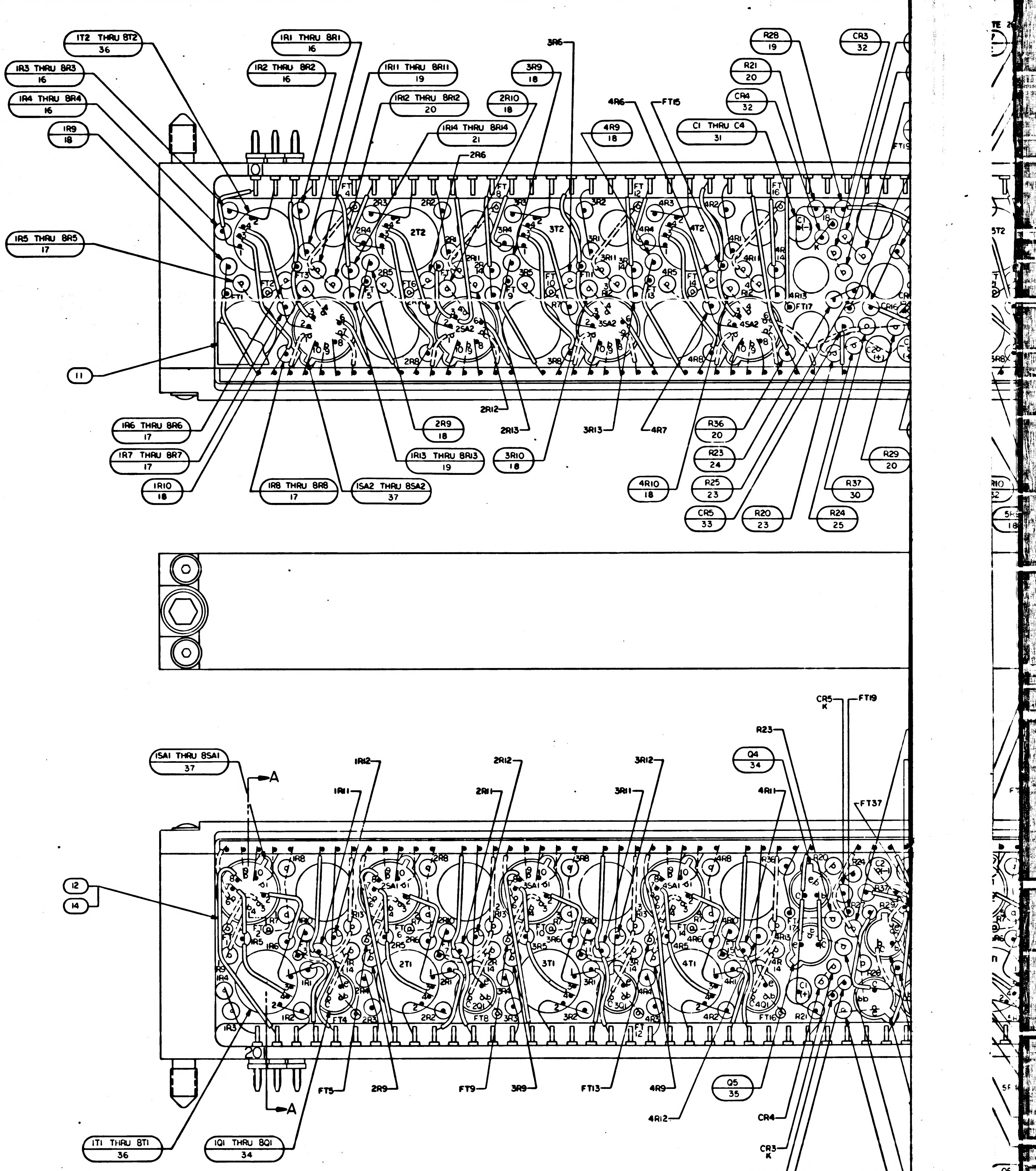
SECTION B-B


2
SEE NOTE 16
.05
.140 MAX SEE NOTE 10
.070 MAX SEE NOTE 11
.000
.030 TYP
13
15
TYP FEED THRU
FT1 THRU FT38
1SA1
REF
FT2 REF
1T2
REF
1T1
REF
SEE NOTE 25
SEE NOTE 6
.010 MIN TYP
.015 MIN TYP
.050 MAX

SECTION A-A

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. (+) DENOTES POSITIVE SIDE OF CAPACITOR
5. K DENOTES CATHODE SIDE OF DIODE
6. SEAL INSULATORS AND TERMINALS TO HEADER PER ND1002004, TYPE VI
7. MARK .10/.08 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271-1
8. MARK .26/.24 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 USING INK 1006271-1
9. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND 1002069
10. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
11. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
12. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST. R9, R10, R23, R27 AND R32 TO BE SELECTED FROM APPROPRIATE CHART.
13. STAKE FIND NO. 16 THRU FIND NO. 37 TO FIND NO. 1 PER ND1002009 METHOD C OR D
14. ENCAPSULATE PER ND1002002. REMOVE FLASHING
15. WELD PER ND1002005
16. BOND FIND NO 3 TO FIND NO 1 PER ND1002004 TYPE I
17. TRIM UNUSED LEAD OF FIND NO.37 .010/.030 FROM CASE
18. MOUNTING TORQUE FOR FIND NO. 9 TO BE 15-20 INCH OUNCES
19. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF P.S. 2003982
20. CR7, 8, 15 AND CR12, 13, 14 ARE TO BE SELECTED BY ELECTRICAL TEST. ONE, TWO, OR THREE DIODES WILL BE SELECTED IN EACH AREA. IF LESS THAN THREE DIODES ARE REQUIRED, FIND NO. 13 AND 15 WILL BE USED IN THE REMAINING COMPONENT HOLES AND WIRING WILL BE COMPLETED AS. SHOWN
21. SEAL FIND NO. 9 TO HEADER PER ND1002004, TYPE VI
22. ASSEMBLE FIND NO. 39 TO MODULE AFTER SELECTED VALUE HAS BEEN DETERMINED
23. MOUNTING TORQUE FOR FIND NO. 8 TO BE 2.0–2.5 INCH POUNDS
24. USE FIND NO.38 & FIND NO.41 WHERE APPLICABLE ON ALL FIRST LEVEL WIRING TO THE MATRIX
25. COAT INDICATED SURFACES, BOTH ENDS, TOP AND BOTTOM, BOTH SIDES PER ND1002187, TYPE II
26. APPLY MIL-S-22473, GRADE HV TO FIND NO. 8


1T2 THRU 8T2
36
1R1 THRU 8R1
16
1R3 THRU 8R3
16
1R2 THRU 8R2
16
1R11 THRU 8R11
19
1R4 THRU 8R4
16
1R12 THRU 8R12
20
1R9
18
1R14 THRU 8R14
21
3R9
18
2R10
18
3R6
4R6
FT15
4R9
18
C1 THRU C4
31
R28
19
R21
20
CR4
32
CR3
32
2R6
1R5 THRU 8R5
17
11
1R6 THRU 8R6
17
1R7 THRU 8R7
17
1R10
18
1R8 THRU 8R8
17
1SA2 THRU 8SA2
37
2R9
18
1R13 THRU 8R13
19
2R12
2R13
3R10
18
3R13
4R7
4R10
18
R36
20
R23
24
R25
23
CR5
33
R20
23
R24
25
R37
30
R29
20
1SA1 THRU 8SA1
37
A
1R12
1R11
2R12
2R11
3R12
3R11
Q4
34
4R11
CR5
K
FT19
R23
FT37
12
14
FT5
2R9
FT9
3R9
FT13
4R9
4R12
Q5
35
CR4
CR3
K
FT18
CR6
K
R28
R22
1T1 THRU 8T1
36
1Q1 THRU 8Q1
34

APOLLO G&N Specification
PS 2003982 Rev. - A
Original Issue Date: 4-26-66
Release Authority: TDRR 28256
Class A Release

PROCUREMENT SPECIFICATION
PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS
ERASABLE MEMORY SENSE AMPLIFIER MODULE B13
DRAWING NO. 2003982

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
Ⓜ 6/1/66	A	29208	1, 5, 7, 12		

This specification consists of pages 1 to 13 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	Eldon C Hall 4/22/66 MIT/IL	BC Dutton 4/1/66 4-1-66 RAY

3.1.5 Threshold Voltage

3.1.5.1 Outputs. The output of each stage shall be measured as shown in Figure 1 when an input as specified in section 4.1.5.1 is applied.

3.1.5.2 Threshold Voltage (A_k and A_q). Threshold voltage for each stage shall be 18 ± 4.0 mv.

3.1.5.3 Gain Resolution. The gain resolution for each stage shall be not more than 3.5 mv.

3.1.6 Delay Time

3.1.6.1 Strobe Driver Output (STROBE, STROBF). The Strobe Driver output shall be as shown in Figure 2, and shall have the following characteristics when an input as specified in section 4.1.5.2 is applied.

Amplitude (high)	NMT 1.0V below B+
Amplitude (low)	8.0 ± 0.5V below B+
Rise Time (t_r)	NMT 60 nanosec
T_2	70 ± 20 nanosec
T OFF	NMT 0.75 usec

3.1.6.2 Sense Amplifier Outputs. Each of the Sense Amplifier outputs shall be as shown in Figure 2, and shall have the following characteristics when an input as specified in section 4.1.5.2 is applied.

Amplitude (high)	NMT 0.3V below B+
Amplitude (low)	NLT 1.7V below B+
Rise Time (t_r)	NMT 100 nanosec
Fall Time (t_{f1}, t_{f2})	NMT 125 nanosec
T_4	140 ± 40 nanosec
T_5, T_6	NMT 100 nanosec

3.1.6.3 PNP (Q1) Stage Output. Each PNP Stage Output shall be as shown in Figure 2, and shall have the following characteristics when an input as specified in section 4.1.5.2 is applied.

Amplitude (high)	1.25 ± 0.15V
Amplitude (low)	NMT 0.1V
Rise Time (t_r)	NMT 125 nanosec
Fall Time (t_f)	NMT 400 nanosec
T_7	180 ± 60 nanosec
T_8	NMT 1.3 usec

3.1.7 Marginal Voltage and Temperature Extremes.

3.1.7.1 With the input voltage adjusted to 12.2 ± 0.1 VDC, and an ambient temperature of $-10^{\circ}\mathrm{C}\ {}^{+0\mathrm{C}^{\circ}}_{-2.8\mathrm{C}^{\circ}}$, the module shall operate as specified in paragraphs 3.1.5 and 3.1.6, except threshold voltage shall be $18\ {}^{+7}_{-4}$ mv, and PNP and STROBE output amplitudes may decrease by 20%. The only times measured shall be:

T_2	$70\ {}^{+40}_{-20}$ ns
T_4	$140\ {}^{+80}_{-40}$ ns
T_7	$180\ {}^{+140}_{-60}$ ns
T_5, T_6	NMT 125 ns
T_8	NMT 1.5 us

3.1.7.2 With the input voltage adjusted to 16.5 ± 0.1 VDC, and an ambient temperature of $70^{\circ}\mathrm{C}\ {}^{+2.8\mathrm{C}^{\circ}}_{-0\mathrm{C}^{\circ}}$, the module shall operate as specified in paragraphs 3.1.5 and 3.1.6, except threshold voltage shall be $18\ {}^{+4}_{-7}$ mv, and PNP and STROBE output amplitudes may increase by 20%. The only times measured shall be:

T_2	$70\ {}^{+40}_{-20}$ ns
T_4	$140\ {}^{+80}_{-40}$ ns
T_7	$180\ {}^{+140}_{-60}$ ns
T_5, T_6	NMT 125 ns
T_8	NMT 1.5 us

3.1.8 Vibration. The module shall perform as specified in paragraphs 3.1.5.1 through 3.1.6.3 when installed in an operating computer which is being subjected to the vibration requirements specified in the applicable specifications for the computer subsystem. Acceptance criteria for the module shall be the compliance of the computer subsystem with its applicable specifications.

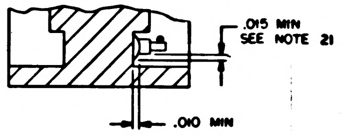
3.2 PRODUCT CONFIGURATION

3.2.1 DRAWINGS. The configuration of the assembly shall be in accordance with APOLLO G&N Drawing 2003982 and all drawings and engineering data referenced thereon.

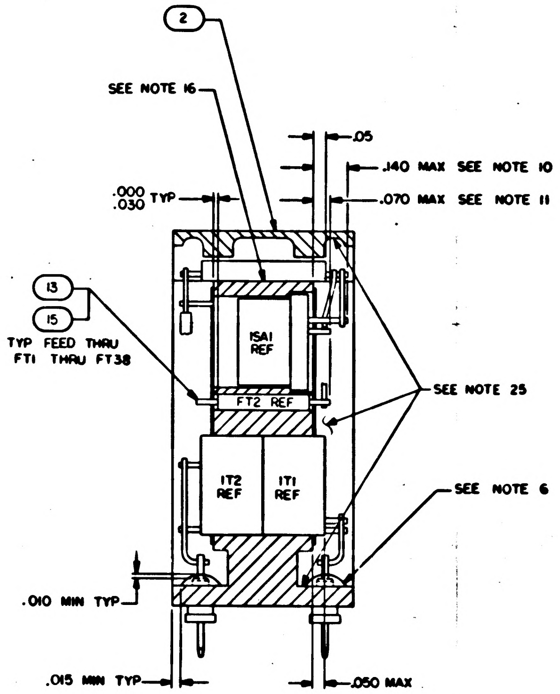
3.2.2 Maximum allowable weight of the assembly shall be 0.70 pounds.

R9, R10	
PART NO.	VALUE
1006750 -25	510
-26	560
-27	620
-28	680
-29	750
-30	820
-31	910
-32	1K
-33	1.1K
-34	1.2K
-35	1.3K
-36	1.5K
-37	1.6K
-38	1.8K
-39	2.0K
-40	2.2K
-41	2.4K
-42	2.7K
-43	3.0K
-44	3.3K
-45	3.6K
-46	3.9K
-47	4.3K
-48	4.7K
-49	5.1K
-16	220
-17	240
-18	270
-19	300
-20	330
-21	360
-22	390
-23	430
1006750 -24	470

R23, R27, R32	
PART NO.	VALUE
1006750 -32	1K
-33	1.1K
-34	1.2K
-35	1.3K
-36	1.5K
-37	1.6K
-38	1.8K
-39	2.0K
-40	2.2K
-41	2.4K
-42	2.7K
-43	3.0K
-44	3.3K
-45	3.6K
-46	3.9K
-47	4.3K
-48	4.7K
-49	5.1K
-119	1.4K
-121	1.7K
-122	1.9K
-123	2.1K
-124	2.3K
-125	2.55K
-126	2.85K
-127	3.15K
-128	3.45K
-129	3.75K
1006750-130	4.1K


.015 MIN
SEE NOTE 21
.010 MIN

SECTION B-B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.05
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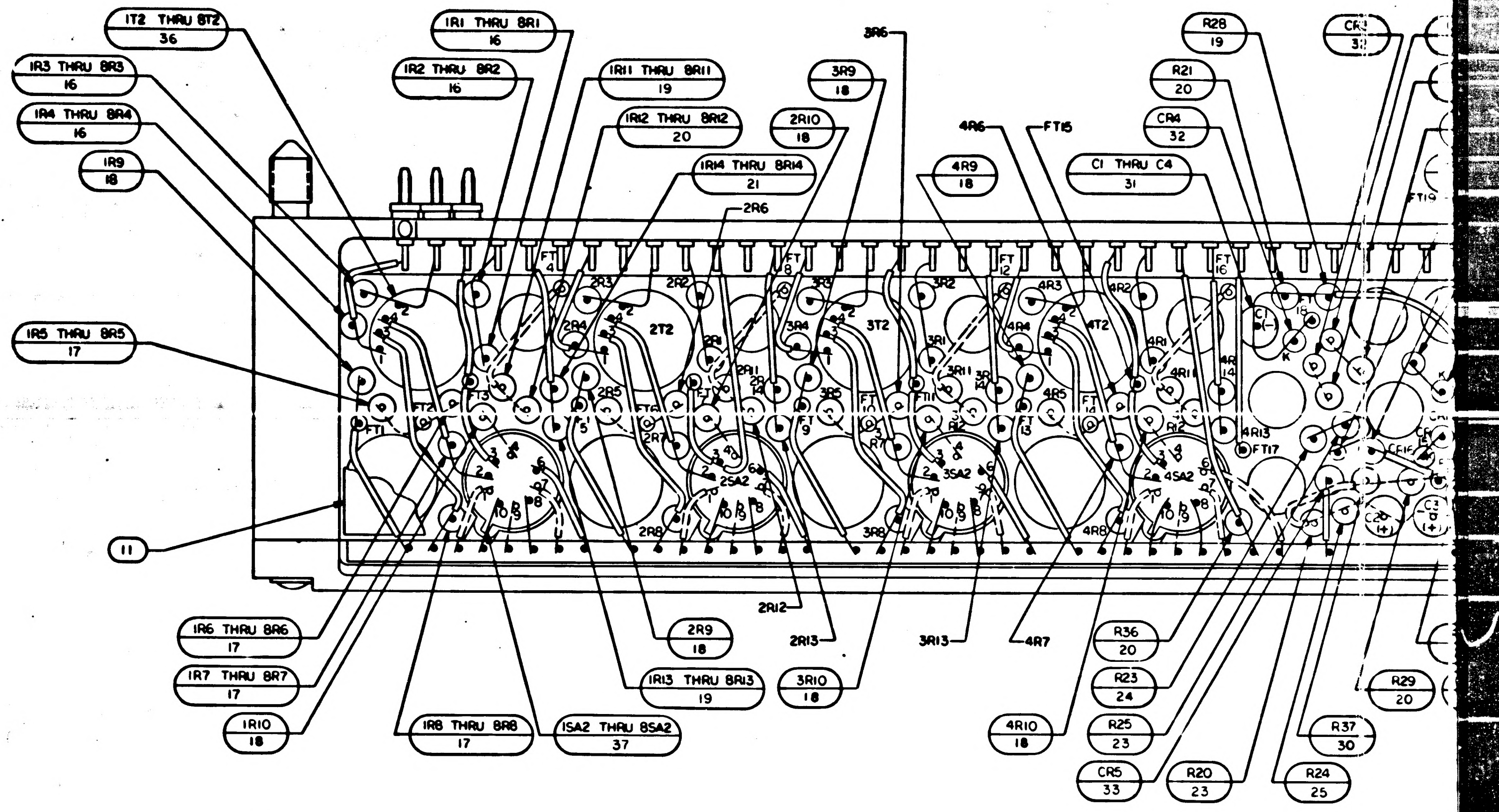
.070 MAX SEE NOTE 11
.000 TYP
.030
13
15
TYP FEED THRU FT1 THRU FT38
1SA1 REF
FT2 REF
1T2 REF
1T1 REF
SEE NOTE 25
SEE NOTE 6
.010 MIN TYP
.015 MIN TYP
.050 MAX

SECTION A-A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36
1R1 THRU 8R1
16
1R3 THRU 8R3
16
1R2 THRU 8R2
16
1R11 THRU 8R11
19
3R9
18
3R6
R28
19
1R4 THRU 8R4
16
1R12 THRU 8R12
20
2R10
18
R21
20
CR4
32
1R9
18
1R14 THRU 8R14
21
4R6
FT15
4R9
18
C1 THRU C4
31
2R6
1R5 THRU 8R5
17
11
1R6 THRU 8R6
17
1R7 THRU 8R7
17
1R10
18
1R8 THRU 8R8
17
1SA2 THRU 8SA2
37
2R9
18
1R13 THRU 8R13
19
3R10
18
2R12
2R13
3R13
4R7
R36
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R23
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R25
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4R10
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CR5
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R20
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R29
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R37
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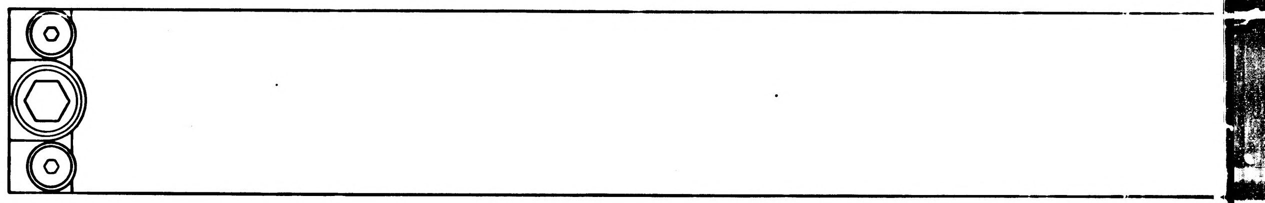
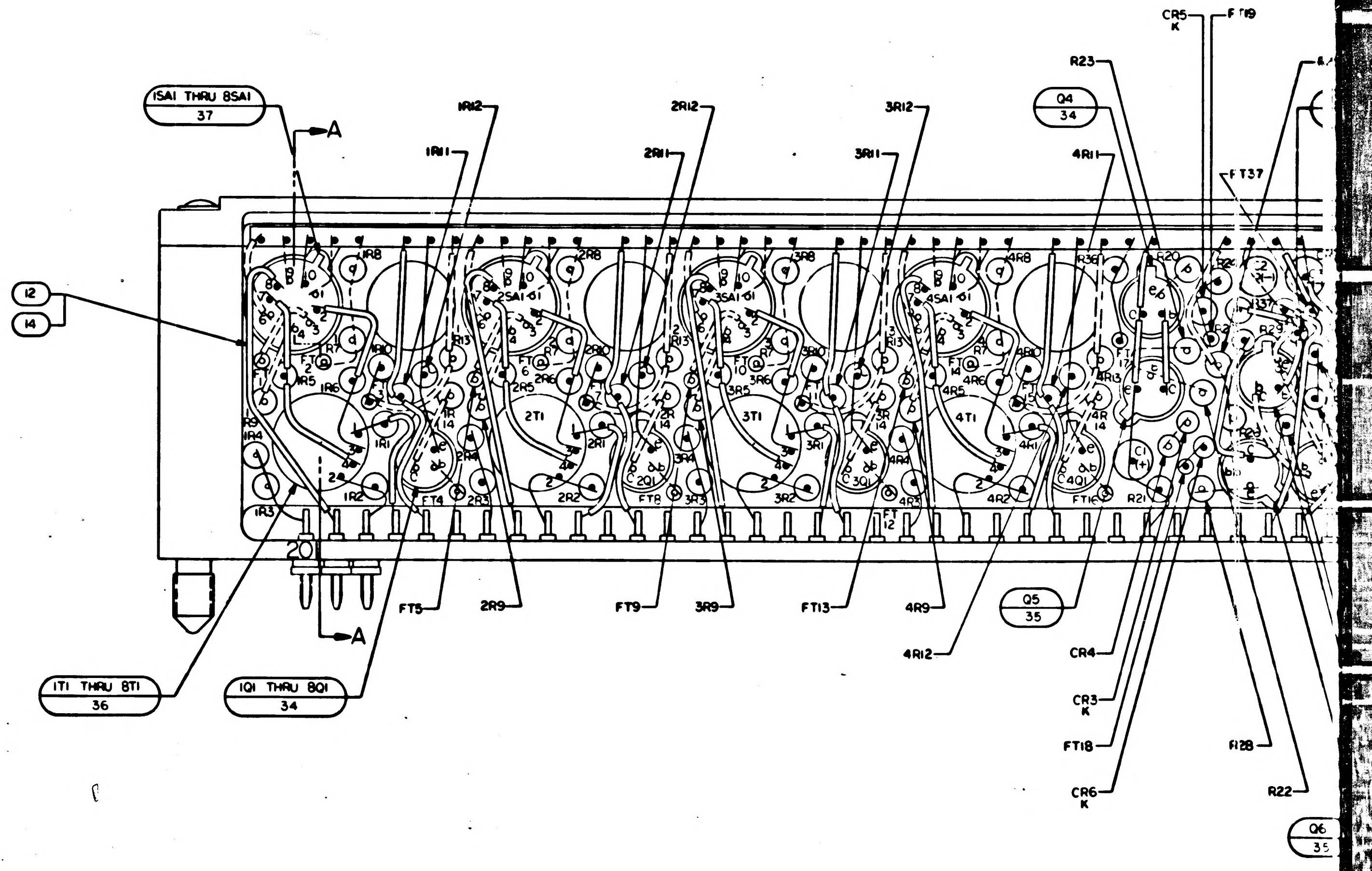
R24
25




CR5
K
FT19
R23
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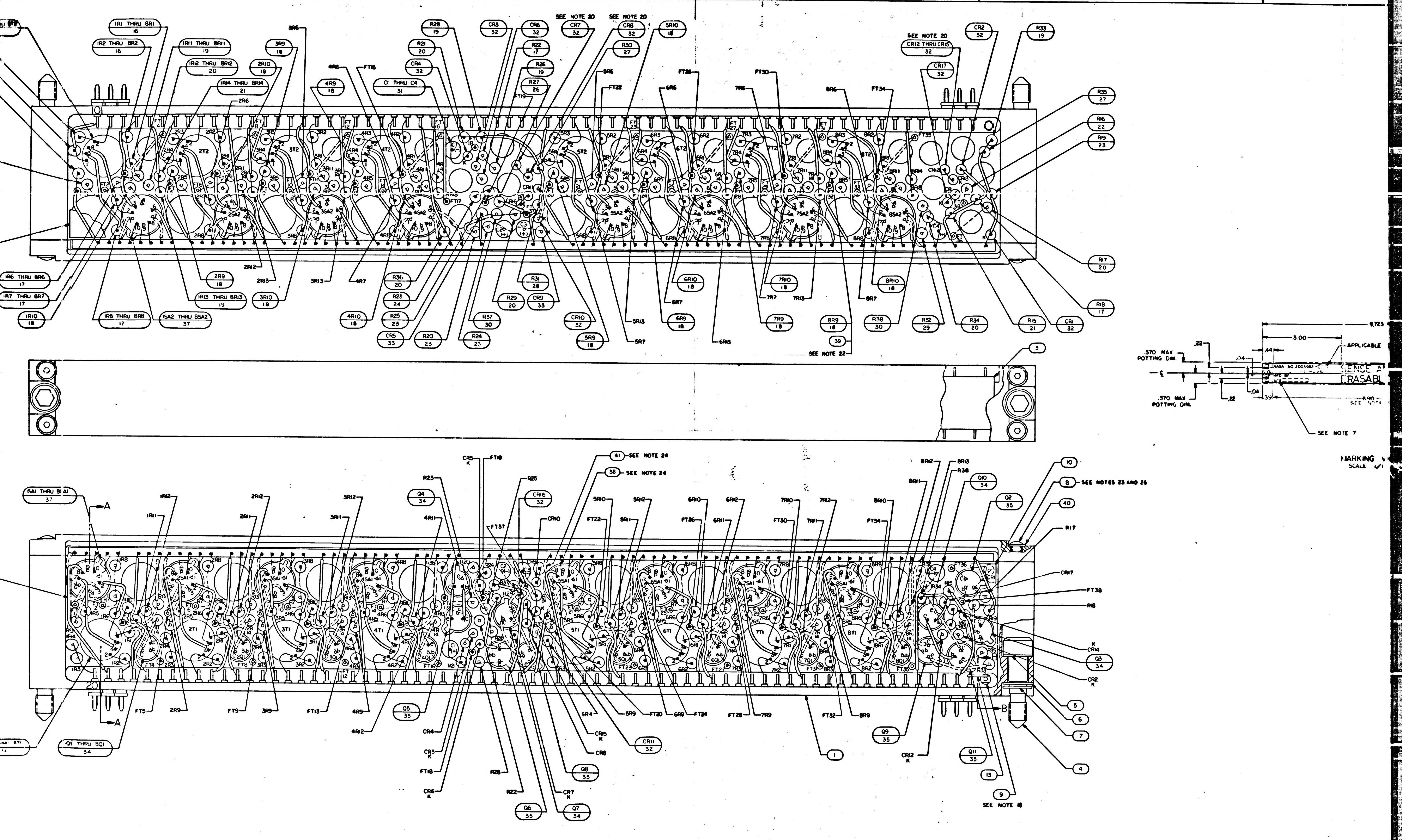
37
A
1R12
1R11
2R12
2R11
3R12
3R11
Q4
34
4R11
FT37
12
14
A
FT5
2R9
FT9
3R9
FT13
4R9
4R12
Q5
35
1T1 THRU 8T1
36
1Q1 THRU 8Q1
34
CR4
CR3
K
FT18
R28
CR6
K
R22
Q6

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. (+) DENOTES POSITIVE SIDE OF CAPACITOR
5. K DENOTES CATHODE SIDE OF DIODE
6. SEAL INSULATORS AND TERMINALS TO HEADER PER ND1002004, TYPE VI
7. MARK .10/.08 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271-1
8. MARK .26/.24 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 USING INK 1006271-1
9. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND 1002069
10. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
11. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
12. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST. R9, R10, R23, R27 AND R32 TO BE SELECTED FROM APPROPRIATE CHART.
13. STAKE FIND NO. 16 THRU FIND NO. 37 TO FIND NO. 1 PER ND1002009 METHOD C OR D
14. ENCAPSULATE PER ND1002002. REMOVE FLASHING
15. WELD PER ND1002005
16. BOND FIND NO. 3 TO FIND NO. 1 PER ND1002004 TYPE I
17. TRIM UNUSED LEAD OF FIND NO. 37 .010/.030 FROM CASE
18. MOUNTING TORQUE FOR FIND NO. 9 TO BE 15-20 INCH OUNCES
19. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF P.S. 2003982
20. CR7, 8, 15 AND CR12, 13, 14 ARE TO BE SELECTED BY ELECTRICAL TEST. ONE, TWO, OR THREE DIODES WILL BE SELECTED IN EACH AREA. IF LESS THAN THREE DIODES ARE REQUIRED, FIND NO. 13 AND 15 WILL BE USED IN THE REMAINING COMPONENT HOLES AND WIRING WILL BE COMPLETED AS. SHOWN
21. SEAL FIND NO. 9 TO HEADER PER ND1002004, TYPE VI
22. ASSEMBLE FIND NO. 39 TO MODULE AFTER SELECTED VALUE HAS BEEN DETERMINED
23. MOUNTING TORQUE FOR FIND NO. 8 TO BE 2.0-2.5 INCH POUNDS
24. USE FIND NO. 38 & FIND NO. 41 WHERE APPLICABLE ON ALL FIRST LEVEL WIRING TO THE MATRIX
25. COAT INDICATED SURFACES, BOTH ENDS, TOP AND BOTTOM, BOTH SIDES PER ND1002187, TYPE II
26. APPLY MIL-S-22473, GRADE HV TO FIND NO. 8
27. PAINT SURFACE INDICATED, RED, USING MARKING INK 1006271-9



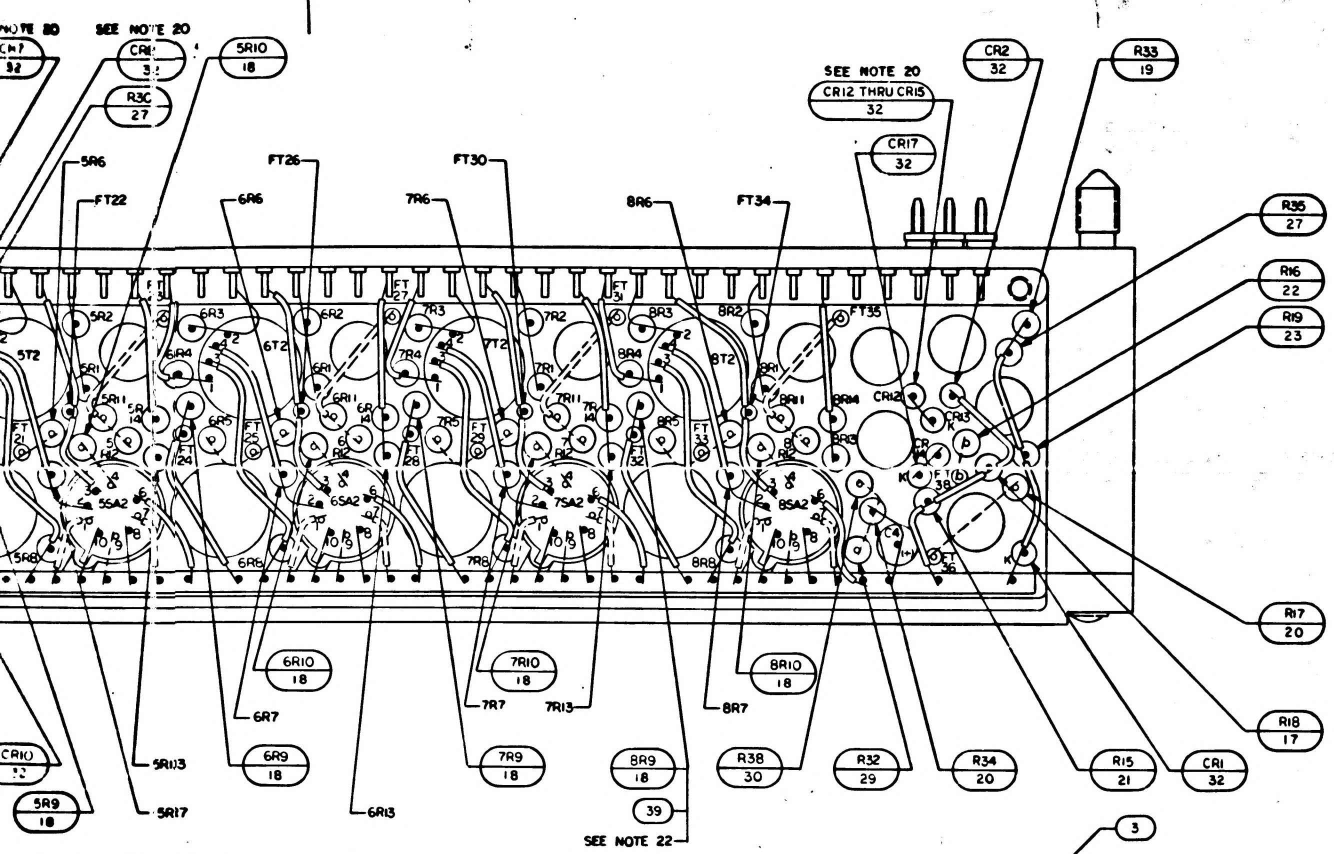
1R1 THRU 8R1 16
1R2 THRU 8R2 16
1R11 THRU 8R11 19
1R12 THRU 8R12 20
1R14 THRU 8R14 21
3R9 18
2R10 18
4R9 18
C1 THRU C4 31
CR4 32
R21 20
R28 19
CR3 32
CR6 32
SEE NOTE 20
CR7 32
CR8 32
5R10 18
R30 27
R22 17
R26 19
R27 26
CR2 32
R33 19
SEE NOTE 20
CR12 THRU CR15 32
CR17 32
R35 27
R16 22
R19 23
R17 20
R18 17
CR1 32
R15 21
R34 20
R32 29
R38 30
8R9 18
39
SEE NOTE 22
8R10 18
7R10 18
7R9 18
6R10 18
6R9 18
5R9 18
CR10 32
R31 28
CR9 33
R29 20
R37 30
R24 25
R20 23
CR5 33
R25 23
R23 24
R36 20
4R10 18
3R10 18
2R9 18
1R13 THRU 8R13 19
1SA2 THRU 8SA2 37
1R8 THRU 8R8 17
1R10 18
1R6 THRU 8R6 17
1R7 THRU 8R7 17
3
.370 MAX POTTING DIM.
.22
.04
.44
3.00
9.723
APPLICABLE
NASA NO 2003982
SENSE A
ERASABL
.39
8.90
SEE NOTE 7
MARKING
SCALE
1SA1 THRU 8SA1 37
A
Q1 THRU 8Q1 34
Q4 34
CR16 32
41 SEE NOTE 24
38 SEE NOTE 24
Q10 34
8 SEE NOTES 23 AND 26
10
Q2 35
40
R17
CR17
FT38
R18
CR14
Q3 34
CR2
5
6
7
4
13
9 SEE NOTE 18
Q11 35
Q9 35
CR12
1
CR11 32
Q8 35
Q7 34
Q6 35
Q5 35
CR7
R22
R28
CR6
FT18
CR3
CR4
4R12
CR8
CR15
B

2003982 B

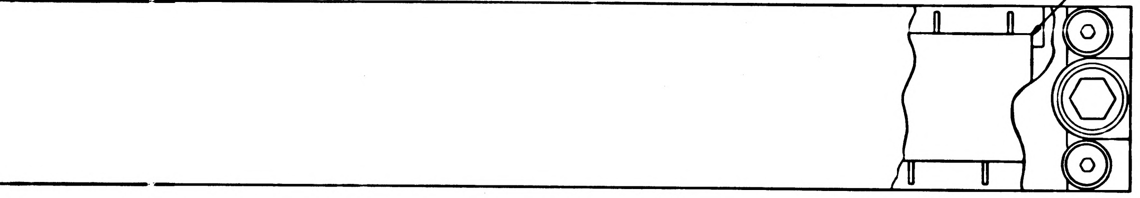
F 2/3

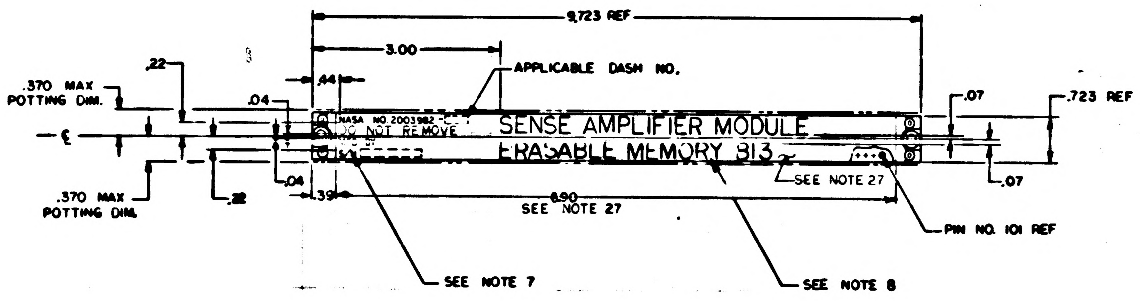
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
–		REVISED PER TDRR 28247				
B		REVISED PER TDRR 3C687			6/14/66	

REVISIONS 28035



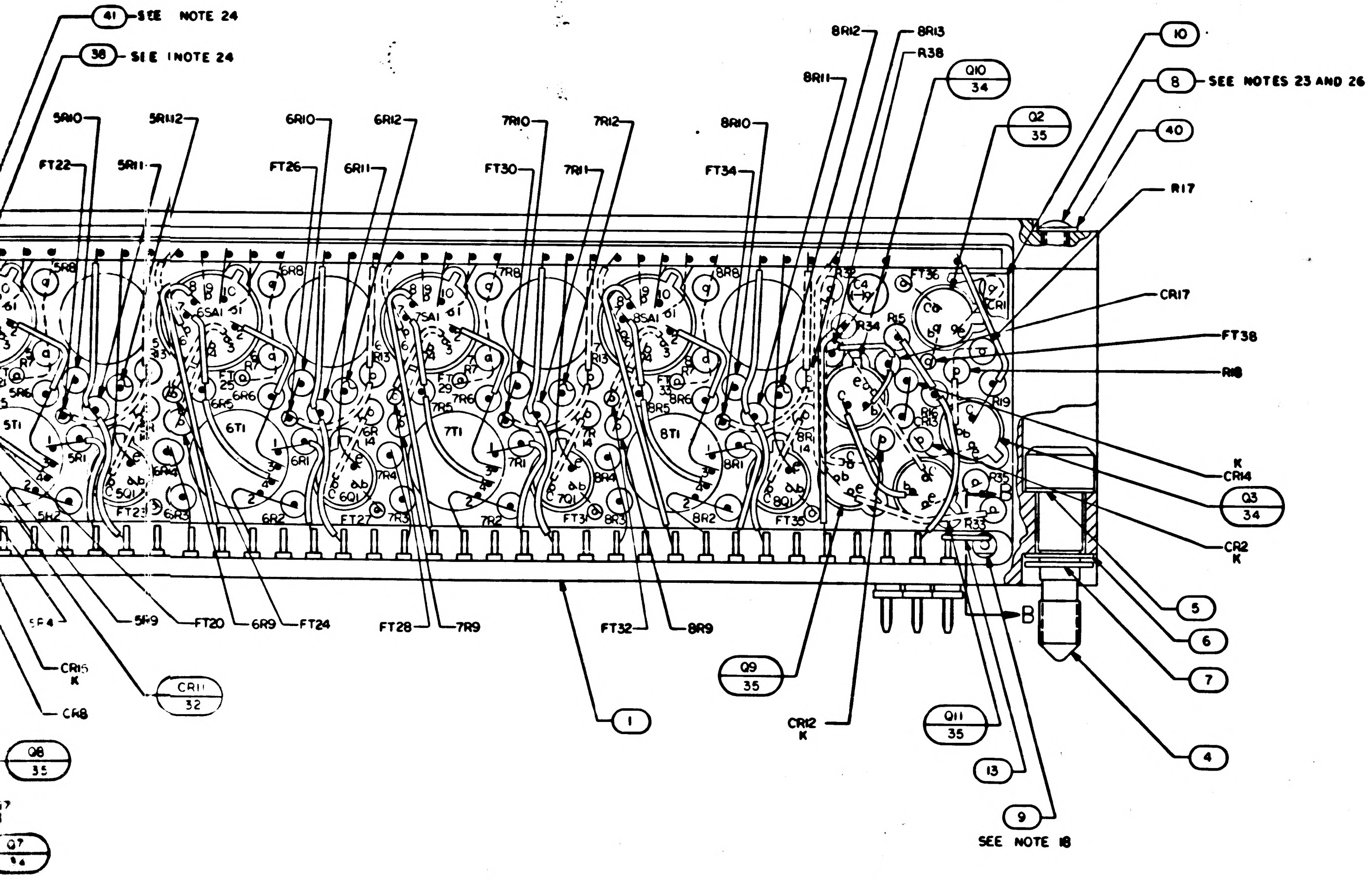
SEE NOTE 20
CR11 32
5R10 18
R30 27
5R6
FT22
FT26
6R6
FT30
7R6
8R6
FT34
SEE NOTE 20
CR12 THRU CR15 32
CR2 32
R33 19
CR17 32
R35 27
R16 22
R19 23
R17 20
R18 17
6R10 18
7R10 18
8R10 18
6R7
7R7
7R13
8R7
CR10 32
5R13
6R9 18
7R9 18
8R9 18
R38 30
R32 29
R34 20
R15 21
CR1 32
5R9 18
5R17
6R13
39
SEE NOTE 22
3





9.723 REF
3.00
APPLICABLE DASH NO.
.22
.370 MAX POTTING DIM.
.04
.44
.07
.723 REF
NASA NO 2003982-
DO NOT REMOVE
SENSE AMPLIFIER MODULE
ERASABLE MEMORY B13
SEE NOTE 27
.07
.04
.370 MAX POTTING DIM.
.22
.39
8.90 SEE NOTE 27
PIN NO. 101 REF
SEE NOTE 7
SEE NOTE 8

MARKING VIEW
SCALE 1/1



41 SEE NOTE 24
38 SEE NOTE 24
5R10
5R12
6R10
6R12
7R10
7R12
8R10
8R12
8R13
R38
8R11
Q10 34
Q2 35
10
8 SEE NOTES 23 AND 26
40
R17
FT22
5R11
FT26
6R11
FT30
7R11
FT34
CR17
FT38
R18
K CR14
Q3 34
CR2 K
5R9
FT20
6R9
FT24
FT28
7R9
FT32
8R9
CR15 K
CR11 32
CR8
Q8 35
Q7 34
Q9 35
1
CR12 K
Q11 35
13
9
SEE NOTE 18
B
5
6
7
4

2003982 F

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	2005920	SCHEMATIC	REF
AR	1006776-25	INSULATION SLEEVING	41
4	NAS620A-2	WASHER, FLAT	40
19	2004074	WASHER, INSULATOR	39
AR	1006757-12	WIRE, ELECTRICAL	38
16	2004003-001	INTEGRATED SENSE AMPL	37
16	1006293	TRANSFORMER	36
6	2004004-001	TRANSISTOR, POTTED	35
12	2004004-002	TRANSISTOR, POTTED	34
2	2004112-002	DIODE	33
15	2004103-001	DIODE	32
4	1006755-69	CAPACITOR	31
2	1006750-63	RESISTOR	30
1	SEE NOTES 12&22	RESISTOR	29
1	1006750-43	RESISTOR	28
2	1006750-12	RESISTOR	27
1	SEE NOTES 12&22	RESISTOR	26
1	1006750-25	RESISTOR	25
1	SEE NOTES 12&22	RESISTOR	24
3	1006750-36	RESISTOR	23
1	1006750-15	RESISTOR	22
9	1006750-49	RESISTOR	21
13	1006750-39	RESISTOR	20
19	1006750-32	RESISTOR	19
16	SEE NOTE 12&22	RESISTOR	18
34	1006750-24	RESISTOR	17
32	1006750-42	RESISTOR	16
AR	1006776-22	INSULATION, SLEEVING	15
AR	1006776-21	INSULATION, SLEEVING	14
AR	1006757-8	WIRE, ELECTRICAL	13
AR	1006757-1	WIRE, ELECTRICAL	12
1	2004711	INSULATOR B	11
1	2004710	INSULATOR A	10
1	2004039	TERMINAL, THREADED	9
4	1006783-10	SCREW, BUTTON HEAD	8
2	MS16633-4015	RING, RETAINING, EXTERNAL E	7
2	2004984-003	WASHER, FLAT	6
2	2004984-001	WASHER, FLAT	5
2	1004579-1	SCREW, JACKING	4
1	2003005-011	MATRIX ASSY	3
1	2004044	COVER	2
1	2003044-021	HEADER HOUSING ASSY	1
011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003200	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ±.02 ANGLES ± ——
DO NOT SCALE THIS DRAWING

MATERIAL ——

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN D.G. Clermont 29Mar66
CHECKED R. Edwards
APPROVED
APPROVED E.M. Cha 29Apr66
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SENSE AMPLIFIER MODULE, ERASABLE MEMORY B13 ASSEMBLY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003982
SCALE 4/1
SHEET 1 OF 1

2003982

MASTER

~~APOLLO G&N Specification~~
PS 2003982 Rev. B
Original Issue Date: 4-26-66
Release Authority: TDRR 28256
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

ERASABLE MEMORY SENSE AMPLIFIER MODULE B13

DRAWING NO. 2003982

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
Ⓜ 6/1/66	A	29208	1, 5, 7, 12		
Ⓜ 9/1/66	B	30870	1, 7		

This specification consists of pages 1 to 13 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	Eldon C Hall 4/22/66 MIT/IL	RAY

3.1.7 Marginal Voltage and Temperature Extremes.

3.1.7.1 With the input voltage adjusted to 12.2 ± 0.1 VDC, and an ambient temperature of $-10^{\circ}C\,^{+0C^{\circ}}_{-2.8C^{\circ}}$, the module shall operate as specified in paragraphs 3.1.5 and 3.1.6, except threshold voltage shall be $18\,^{+7}_{-4}$ mv, and PNP and STROBE output amplitudes may decrease by 20%. The only times measured shall be:

T_2	$70\,^{+40}_{-20}$ ns
T_4	$140\,^{+80}_{-40}$ ns
T_7	$180\,^{+140}_{-60}$ ns
T_5, T_6	NMT 125 ns
T_8	NMT 1.5 us

3.1.7.2 With the input voltage adjusted to 16.5 ± 0.1 VDC, and an ambient temperature of $70^{\circ}C\,^{+2.8C^{\circ}}_{-0C^{\circ}}$, the module shall operate as specified in paragraphs 3.1.5 and 3.1.6, except threshold voltage shall be $18\,^{+4}_{-7}$ mv, and PNP and STROBE output amplitudes may increase by 20%. The only times measured shall be:

T_2	$70\,^{+40}_{-20}$ ns
T_4	$140\,^{+80}_{-40}$ ns
T_7	$180\,^{+140}_{-60}$ ns
T_5, T_6	NMT 125 ns
T_8	NMT 1.5 us

3.1.8 Vibration. The module shall perform as specified in paragraphs 3.1.5.1 through 3.1.6.3 when installed in an operating computer which is being subjected to the vibration requirements specified in the applicable specifications for the computer subsystem. Acceptance criteria for the module shall be the compliance of the computer subsystem with its applicable specifications.

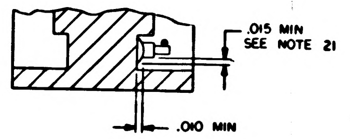
3.2 PRODUCT CONFIGURATION

3.2.1 DRAWINGS. The configuration of the assembly shall be in accordance with APOLLO G&N Drawing 2003982 and all drawings and engineering data referenced thereon.

3.2.2 Maximum allowable weight of the assembly shall be 0.58 pounds.

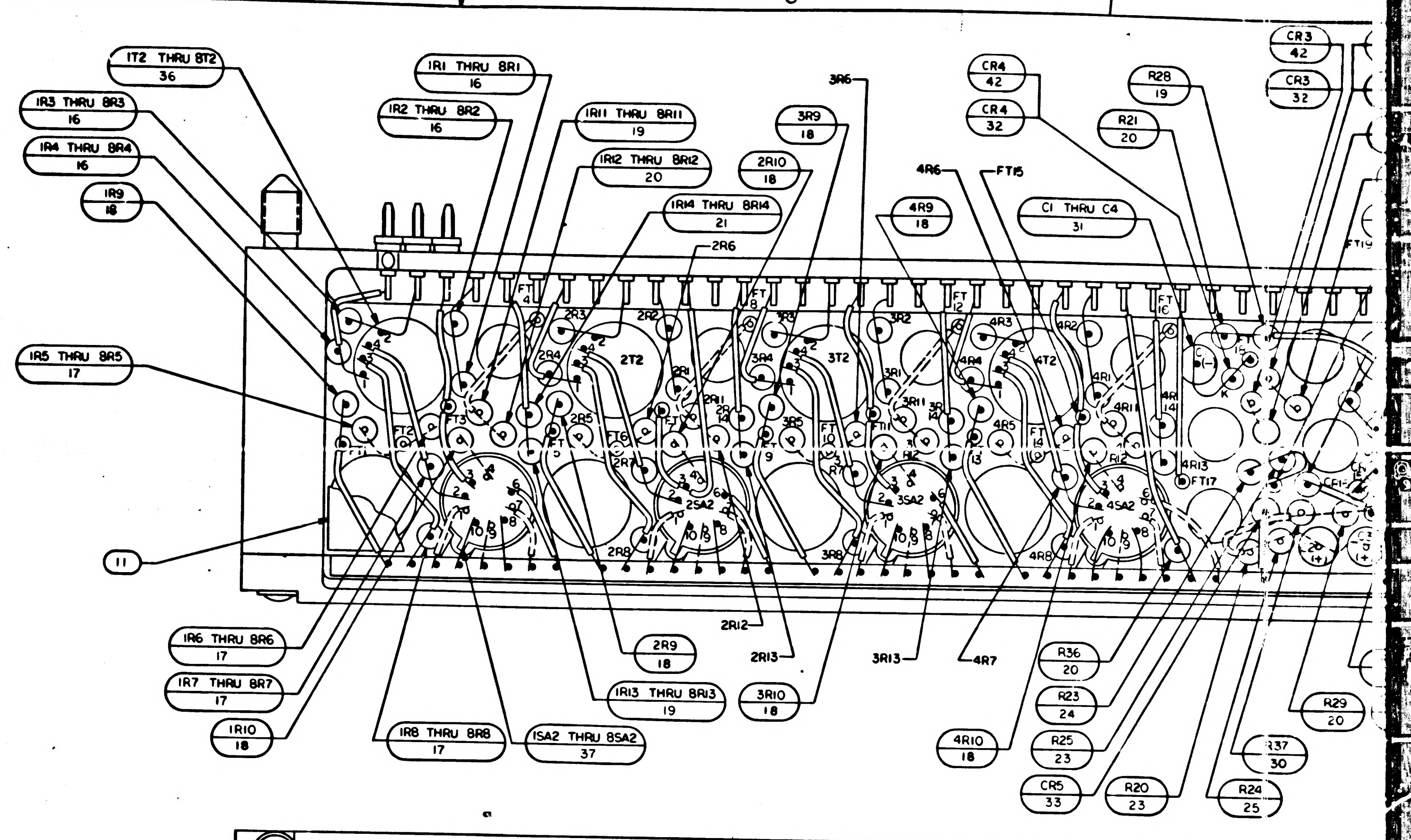
R9, R10	
PART NO.	VALUE
1006750 -25	510
-26	560
-27	620
-28	680
-29	750
-30	820
-31	910
-32	1K
-33	1.1K
-34	1.2K
-35	1.3K
-36	1.5K
-37	1.6K
-38	1.8K
-39	2.0K
-40	2.2K
-41	2.4K
-42	2.7K
-43	3.0K
-44	3.3K
-45	3.6K
-46	3.9K
-47	4.3K
-48	4.7K
-49	5.1K
-16	220
-17	240
-18	270
-19	300
-20	330
-21	360
-22	390
-23	430
1006750 -24	470

R23, R27, R32	
PART NO.	VALUE
1006750 -32	1K
-33	1.1K
-34	1.2K
-35	1.3K
-36	1.5K
-37	1.6K
-38	1.8K
-39	2.0K
-40	2.2K
-41	2.4K
-42	2.7K
-43	3.0K
-44	3.3K
-45	3.6K
-46	3.9K
-47	4.3K
-48	4.7K
-49	5.1K
-119	1.4K
-121	1.7K
-122	1.9K
-123	2.1K
-124	2.3K
-125	2.55K
-126	2.85K
-127	3.15K
-128	3.45K
-129	3.75K
1006750-130	4.1K

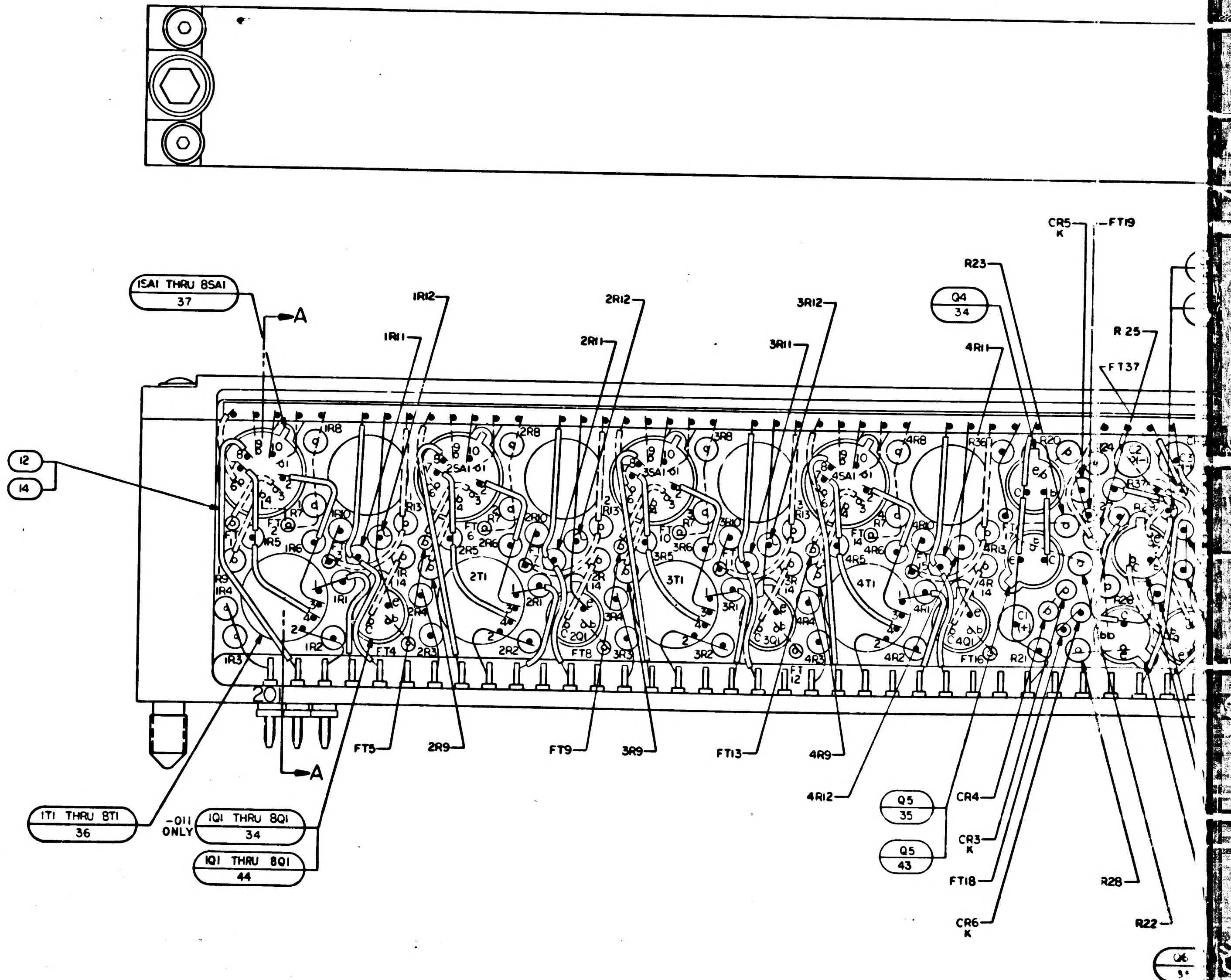


.015 MIN
SEE NOTE 21
.010 MIN

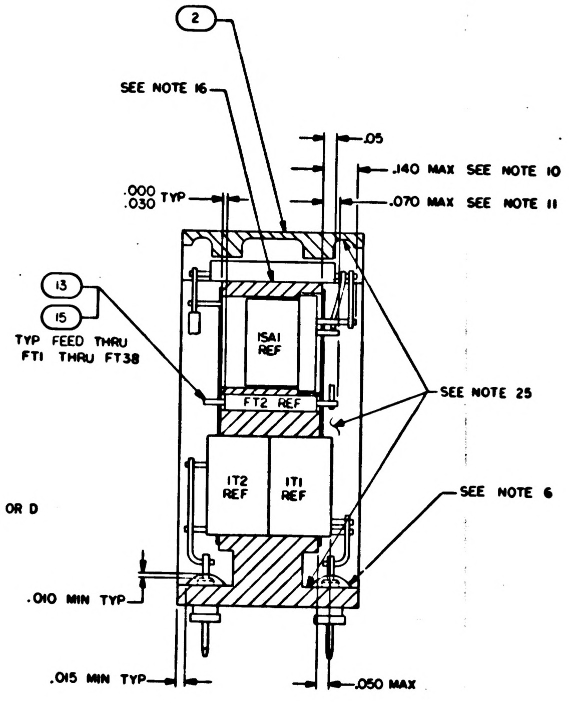
SECTION B-B



1T2 THRU 8T2
36
1R1 THRU 8R1
16
1R3 THRU 8R3
16
1R2 THRU 8R2
16
1R11 THRU 8R11
19
1R4 THRU 8R4
16
1R12 THRU 8R12
20
1R9
18
1R14 THRU 8R14
21
3R9
18
2R10
18
CR4
42
CR4
32
R28
19
R21
20
CR3
42
CR3
32
4R6
FT15
4R9
18
C1 THRU C4
31
1R5 THRU 8R5
17
11
1R6 THRU 8R6
17
1R7 THRU 8R7
17
1R10
18
1R8 THRU 8R8
17
1SA2 THRU 8SA2
37
1R13 THRU 8R13
19
2R9
18
3R10
18
2R12
2R13
3R13
4R7
R36
20
R23
24
R25
23
4R10
18
CR5
33
R20
23
R24
25
R37
30
R29
20



CR5
K
FT19
1SA1 THRU 8SA1
37
A
1R12
1R11
2R12
2R11
3R12
3R11
Q4
34
4R11
R23
R25
FT37
12
14
FT5
2R9
FT9
3R9
FT13
4R9
4R12
A
1T1 THRU 8T1
36
-011
ONLY
1Q1 THRU 8Q1
34
1Q1 THRU 8Q1
44
Q5
35
Q5
43
CR4
CR3
K
FT18
CR6
K
R28
R22



2
SEE NOTE 16
.05
.140 MAX SEE NOTE 10
.070 MAX SEE NOTE 11
.000
.030 TYP
13
15
TYP FEED THRU
FT1 THRU FT38
1SA1
REF
FT2 REF
SEE NOTE 25
1T2
REF
1T1
REF
SEE NOTE 6
.010 MIN TYP
.015 MIN TYP
.050 MAX

SECTION A-A

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. (+) DENOTES POSITIVE SIDE OF CAPACITOR
5. K DENOTES CATHODE SIDE OF DIODE
6. SEAL INSULATORS AND TERMINALS TO HEADER PER ND1002004, TYPE VI
7. MARK .10/.08 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271-1
8. MARK .26/.24 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 USING INK 1006271-1
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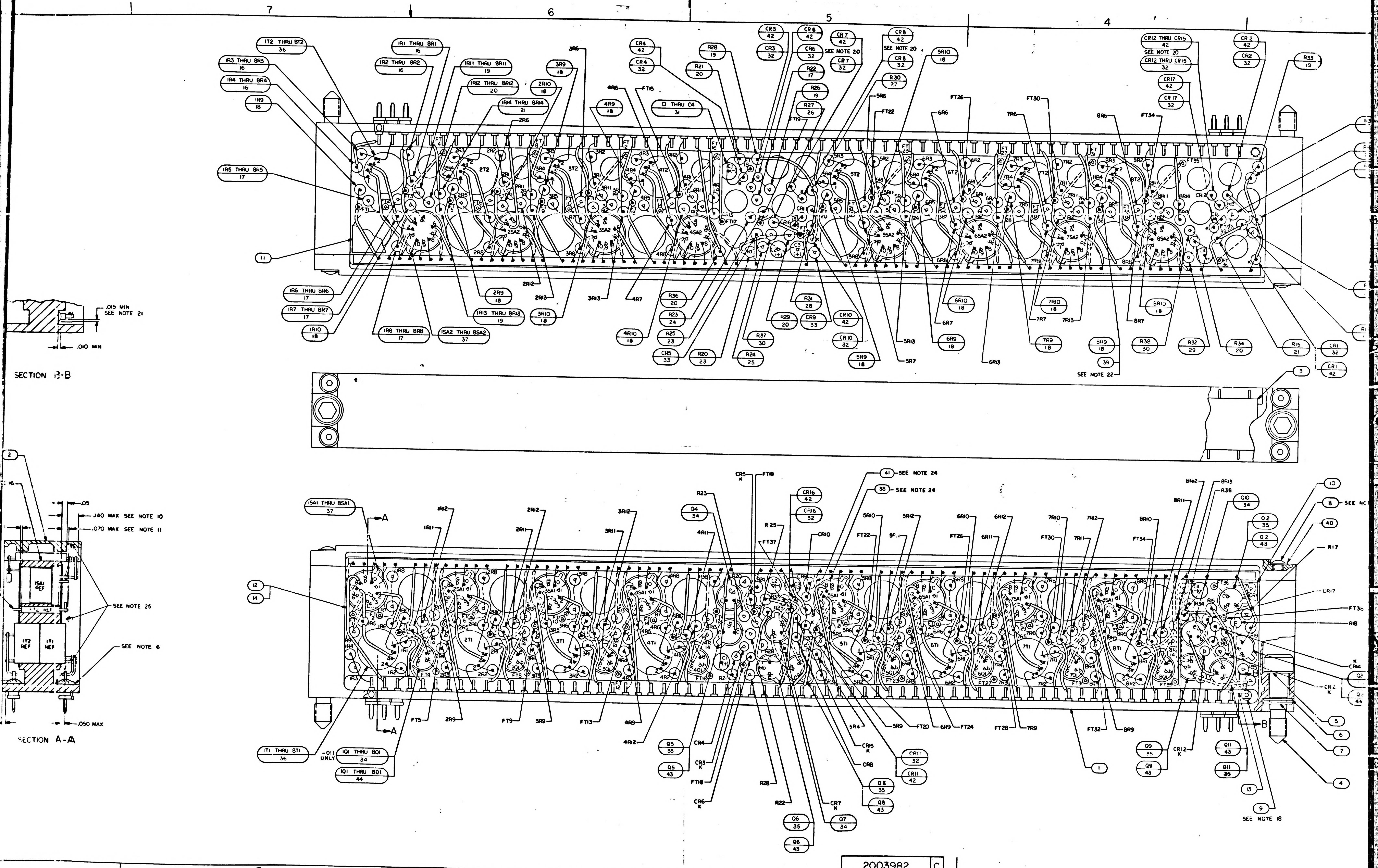
11. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
12. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST. R9, R10, R23, R27 AND R32 TO BE SELECTED FROM APPROPRIATE CHART.
13. STAKE FIND NO. 16 THRU FIND NO. 37 FIND NO. 42,43 AND 44 TO FIND NO. 1 PER ND1002009 METHOD C OR D
14. ENCAPSULATE PER ND1002002. REMOVE FLASHING
15. WELD PER ND1002005
16. BOND FIND NO. 3 TO FIND NO. 1 PER ND1002004 TYPE I
17. TRIM UNUSED LEAD OF FIND NO. 37 .010/.030 FROM CASE
18. MOUNTING TORQUE FOR FIND NO. 9 TO BE 15-20 INCH OUNCES
19. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF P.S. 2003982
20. CR7, 8, 15 AND CR12, 13, 14 ARE TO BE SELECTED BY ELECTRICAL TEST. ONE, TWO, OR THREE DIODES WILL BE SELECTED IN EACH AREA. IF LESS THAN THREE DIODES ARE REQUIRED, FIND NO. 13 AND 15 WILL BE USED IN THE REMAINING COMPONENT HOLES AND WIRING WILL BE COMPLETED AS, SHOWN
21. SEAL FIND NO. 9 TO HEADER PER ND1002004, TYPE VI
22. ASSEMBLE FIND NO. 39 TO MODULE AFTER SELECTED VALUE HAS BEEN DETERMINED
23. MOUNTING TORQUE FOR FIND NO. 8 TO BE 2.0-2.5 INCH POUNDS
24. USE FIND NO. 38 & FIND NO. 41 WHERE APPLICABLE ON ALL FIRST LEVEL WIRING TO THE MATRIX
25. COAT INDICATED SURFACES, BOTH ENDS, TOP AND BOTTOM, BOTH SIDES PER ND1002187, TYPE II
26. APPLY MIL-S-22473, GRADE HV TO FIND NO. 8
27. PAINT SURFACE INDICATED, RED, USING MARKING INK 1006271-9

2003982	C


7
6
5
4
1T2 THRU 8T2 36
1R3 THRU 8R3 16
1R4 THRU 8R4 16
1R9 18
1R5 THRU 8R5 17
1R1 THRU 8R1 16
1R2 THRU 8R2 16
1R11 THRU 8R11 19
1R12 THRU 8R12 20
1R14 THRU 8R14 21
2R10 18
3R9 18
3R6
4R9 18
C1 THRU C4 31
CR4 42
CR4 32
R21 20
R28 19
CR3 42
CR3 32
CR6 42
CR6 32
CR7 42
CR7 32
SEE NOTE 20
CR8 42
CR8 32
SEE NOTE 20
R22 17
R26 19
R27 26
R30 27
5R10 18
CR12 THRU CR15 42
SEE NOTE 20
CR12 THRU CR15 32
CR17 42
CR 17 32
CR 2 42
CR2 32
R33 19
11
1R6 THRU 8R6 17
1R7 THRU 8R7 17
1R10 18
1R8 THRU 8R8 17
1SA2 THRU 8SA2 37
1R13 THRU 8R13 19
2R9 18
3R10 18
2R12
2R13
3R13
4R7
4R10 18
R36 20
R23 24
R25 23
CR5 33
R20 23
R37 30
R24 25
R29 20
CR9 33
R31 28
CR10 42
CR10 32
5R9 18
5R13
5R7
6R9 18
6R7
6R10 18
6R13
7R9 18
7R7
7R10 18
7R13
8R9 18
39
SEE NOTE 22
8R7
8R10 18
R38 30
R32 29
R34 20
R15 21
CR1 32
CR1 42
3
.015 MIN SEE NOTE 21
.010 MIN
SECTION B-B
2
16
.05
.140 MAX SEE NOTE 10
.070 MAX SEE NOTE 11
1SA1 REF
1T2 REF
1T1 REF
SEE NOTE 25
SEE NOTE 6
.050 MAX
SECTION A-A
1SA1 THRU 8SA1 37
A
12
14
1T1 THRU 8T1 36
-.011 ONLY
1Q1 THRU 8Q1 34
1Q1 THRU 8Q1 44
CR5 K
FT19
R23
Q4 34
R 25
FT37
CR16 42
CR16 32
CR10
41 SEE NOTE 24
38 SEE NOTE 24
Q5 35
Q5 43
CR4
CR3 K
FT18
CR6 K
R28
R22
Q6 35
Q6 43
Q7 34
CR7 K
Q8 35
Q8 43
CR8
CR15 K
CR11 32
CR11 42
1
Q9 35
Q9 43
CR12 K
Q11 43
Q11 35
13
9
SEE NOTE 18
4
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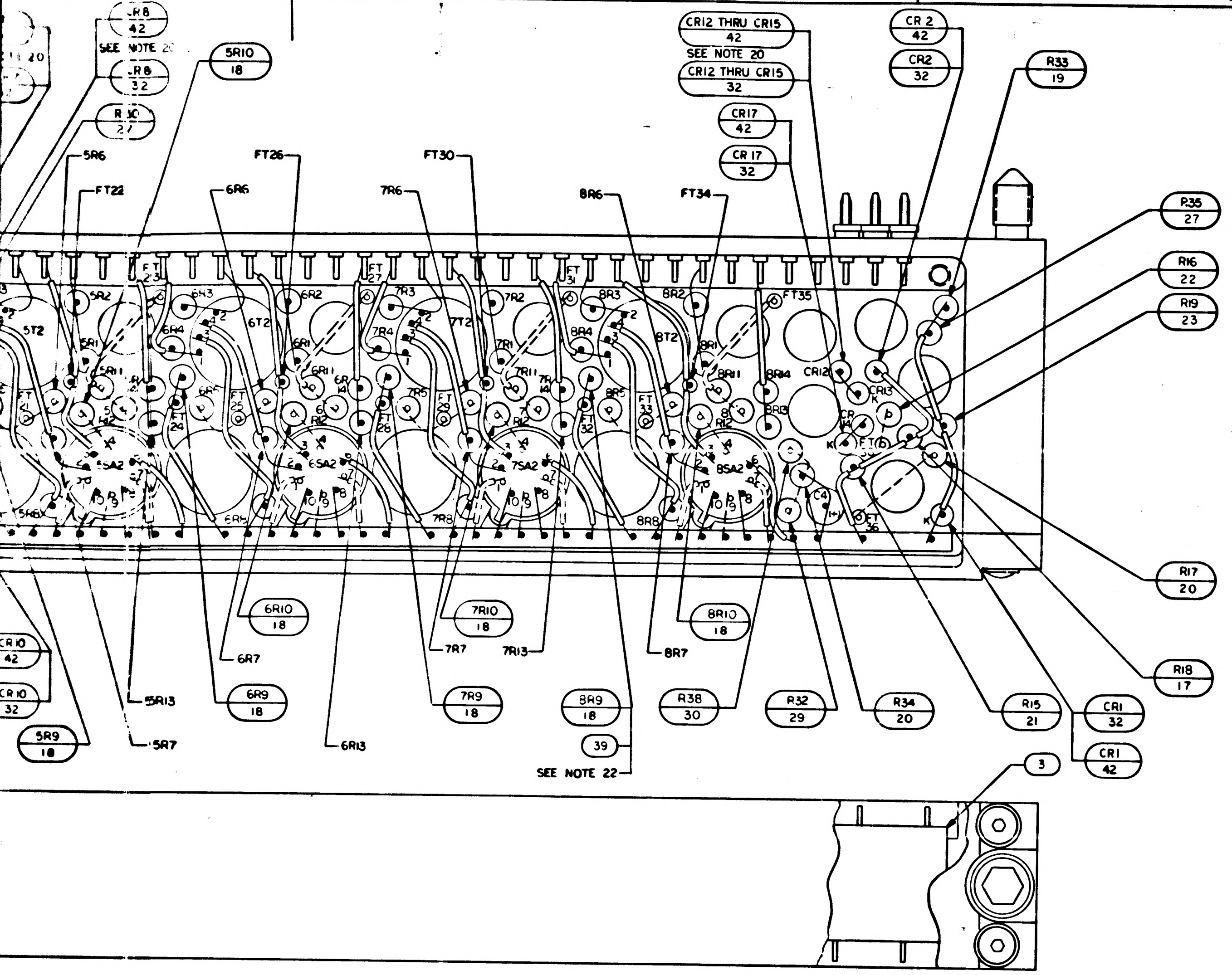
8 SEE NOTE
Q10 34
Q2 35
Q2 43
40
R17
CR17
FT36
R18
CR14 K
CR 2 K
B
FT5
2R9
FT9
3R9
FT13
4R9
4R12
5R4
5R9
FT20
6R9
FT24
FT28
7R9
FT32
8R9

2003982 C

2003982 C F2/3

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
–		REVISED PER TDRR 28247				
B		REVISED PER TDRR 30887				
C		REVISED PER TDRR 32561				

REVISIONS 28035



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FT30
7R6
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FT34
CR12 THRU CR15 42
CR12 THRU CR15 32
CR17 42
CR 17 32
CR 2 42
CR2 32
R33 19
R35 27
R16 22
R19 23
R17 20
R18 17
6R10 18
7R10 18
8R10 18
6R7
7R7
7R13
8R7
5R13
5R7
6R9 18
6R13
7R9 18
8R9 18
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SEE NOTE 22
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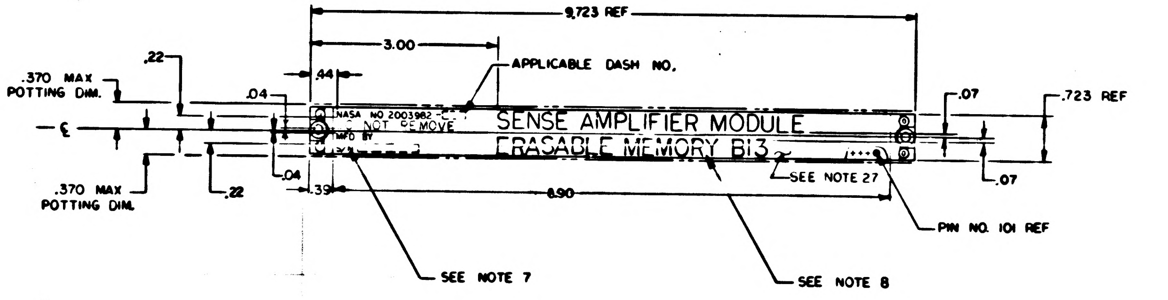
R32 29
R34 20
R15 21
CR1 32
CR1 42
5R9 18
3



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.22
.04
.370 MAX POTTING DIM.
.370 MAX POTTING DIM.
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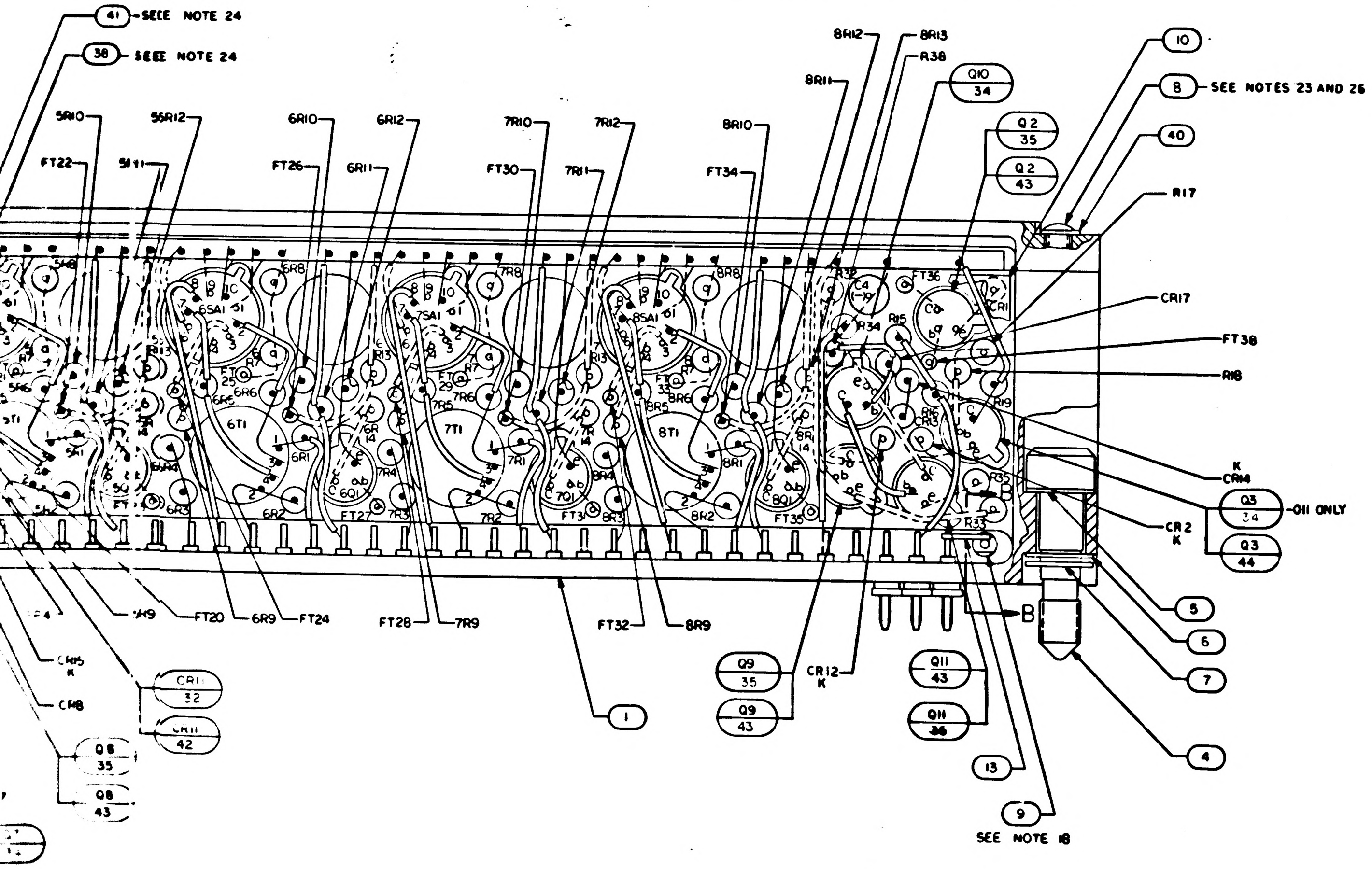
.39
8.90
.07
.723 REF
.07
NASA NO 2003982
DO NOT REMOVE
MFD BY
SENSE AMPLIFIER MODULE
ERASABLE MEMORY B13
SEE NOTE 27
PIN NO. 101 REF
SEE NOTE 7
SEE NOTE 8

MARKING VIEW
SCALE 1/1



41 SEE NOTE 24
38 SEE NOTE 24
5R10
5R12
FT22
5R11
6R10
6R12
FT26
6R11
7R10
7R12
FT30
7R11
8R10
FT34
8R11
8R12
8R13
R38
Q10 34
Q2 35
Q2 43
10
8 SEE NOTES 23 AND 26
40
R17
CR17
FT38
R18
K CR14
Q3 34 -011 ONLY
Q3 44
CR2 K
5
6
7
4
B
FT20
6R9
FT24
FT28
7R9
FT32
8R9
1
Q9 35
Q9 43
CR12 K
Q11 43
Q11 35
13
9
SEE NOTE 18
CR15 K
CR8
CR11 32
CR11 42
Q8 35
Q8 43

QTY REQD 021	QTY REQD 011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	—	2005932	SCHEMATIC	REF
—	☒	2005920	SCHEMATIC	REF
9	—	2004004-006	TRANSISTOR, POTTED	44
6	—	2004184-001	TRANSISTOR, POTTED	43
15	—	2004183-001	DIODE	42
AR	AR	1006776-25	INSULATION SLEEVING	41
4	4	NAS620A-2	WASHER, FLAT	40
19	19	2004074	WASHER, INSULATOR	39
AR	AR	1006757-12	WIRE, ELECTRICAL	38
16	16	2004003-001	INTEGRATED SENSE AMPL	37
16	16	1006293	TRANSFORMER	36
—	6	2004004-001	TRANSISTOR, POTTED	35
3	12	2004004-002	TRANSISTOR, POTTED	34
2	2	2004112-002	DIODE	33
—	15	2004103-001	DIODE	32
4	4	1006755-69	CAPACITOR	31
2	2	1006750-63	RESISTOR	30
1	1	SEE NOTES 12&22	RESISTOR	29
1	1	1006750-43	RESISTOR	28
2	2	1006750-12	RESISTOR	27
1	1	SEE NOTES 12&22	RESISTOR	26
1	1	1006750-25	RESISTOR	25
1	1	SEE NOTES 12&22	RESISTOR	24
3	3	1006750-36	RESISTOR	23
1	1	1006750-15	RESISTOR	22
9	9	1006750-49	RESISTOR	21
13	13	1006750-39	RESISTOR	20
19	19	1006750-32	RESISTOR	19
16	16	SEE NOTE 12&22	RESISTOR	18
34	34	1006750-24	RESISTOR	17
32	32	1006750-42	RESISTOR	16
AR	AR	1006776-22	INSULATION, SLEEVING	15
AR	AR	1006776-21	INSULATION, SLEEVING	14
AR	AR	1006757-8	WIRE, ELECTRICAL	13
AR	AR	1006757-1	WIRE, ELECTRICAL	12
1	1	2004711	INSULATOR B	11
1	1	2004710	INSULATOR A	10
1	1	2004039	TERMINAL, THREADED	9
4	4	1006783-10	SCREW, BUTTON HEAD	8
2	2	MS16633-4015	RING, RETAINING, EXTERNAL E	7
2	2	2004984-003	WASHER, FLAT	6
2	2	2004984-001	WASHER, FLAT	5
2	2	1004579-1	SCREW, JACKING	4
1	1	2003005-011	MATRIX ASSY	3
1	1	2004044	COVER	2
1	1	2003044-021	HEADER HOUSING ASSY	1

LIST OF MATERIALS

2003982 C

NEXT ASSY	USED ON
2003993	
2003200	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.02 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN D.G. Clermont 29 Mar 66
CHECKED R. Edwards 9 Apr 66
APPROVED
APPROVED Ellen Chall 2 Apr 66
APPROVED MIT
APPROVED MSC
DATE

SENSE AMPLIFIER MODULE, ERASABLE MEMORY B13 ASSEMBLY

CODE IDENT NO. 80230 | SIZE J | DRAWING NO. 2003982

SCALE 4/1 | SHEET 1 OF 1

2003982 C

F3/3

APOLLO G&N Specification
PS 2003982 Rev. C
Original Issue Date: 4-26-66
Release Authority: TDRR 28256
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

FRASABLE MEMORY SENSE AMPLIFIER MODULE B13

DRAWING NO. 2003982

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
Ⓜ 6/1/66	A	29208	1, 5, 7, 12		
Ⓜ 9/1/66	B	30870	1, 7	FH	FH
Ⓜ 10/13/66	C	31538	1, 5, 6	FH	FH

This specification consists of pages 1 to 13 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	Eldon C Hall 4/22/66 MIT/IL	BC 4/1/66 4-1-66 RAY

3.1.5 Threshold Voltage

3.1.5.1 Outputs. The output of each stage shall be measured as shown in Figure 1 when an input as specified in section 4.1.5.1 is applied.

3.1.5.2 Threshold Voltage (A_k and A_q). Threshold voltage for each stage shall be 18 ± 4.0 mv.

3.1.5.3 Gain Resolution. The gain resolution for each stage shall be not more than 3.5 mv.

3.1.6 Delay Time

3.1.6.1 Strobe Driver Output (STROBE, STROBF). The Strobe Driver output shall be as shown in Figure 2, and shall have the following characteristics when an input as specified in section 4.1.5.2 is applied.

Amplitude (high)	NMT 1.0V below B+
Amplitude (low)	8.0 ± 0.5V below B+
Rise Time (t_r)	NMT 60 nanosec
T_2	70 ± 20 nanosec
T OFF	NMT 0.75 usec

3.1.6.2 Sense Amplifier Outputs. Each of the Sense Amplifier outputs shall be as shown in Figure 2, and shall have the following characteristics when an input as specified in section 4.1.5.2 is applied.

Amplitude (high)	NMT 0.3V below B+
Amplitude (low)	NLT 1.7V below B+
Rise Time (t_r)	NMT 100 nanosec
Fall Time (t_{f1}, t_{f2})	NMT 125 nanosec
T_4	140 ± 40 nanosec
T_5, T_6	NMT 100 nanosec

3.1.6.3 PNP (Q1) Stage Output. Each PNP Stage Output shall be as shown in Figure 2, and shall have the following characteristics when an input as specified in section 4.1.5.2 is applied.

Amplitude (high)	1.25 ± 0.15V
Amplitude (low)	NMT 0.20V
Rise Time (t_r)	NMT 125 nanosec
Fall Time (t_f)	NMT 400 nanosec
T_7	180 ± 60 nanosec
T_8	NMT 1.3 usec

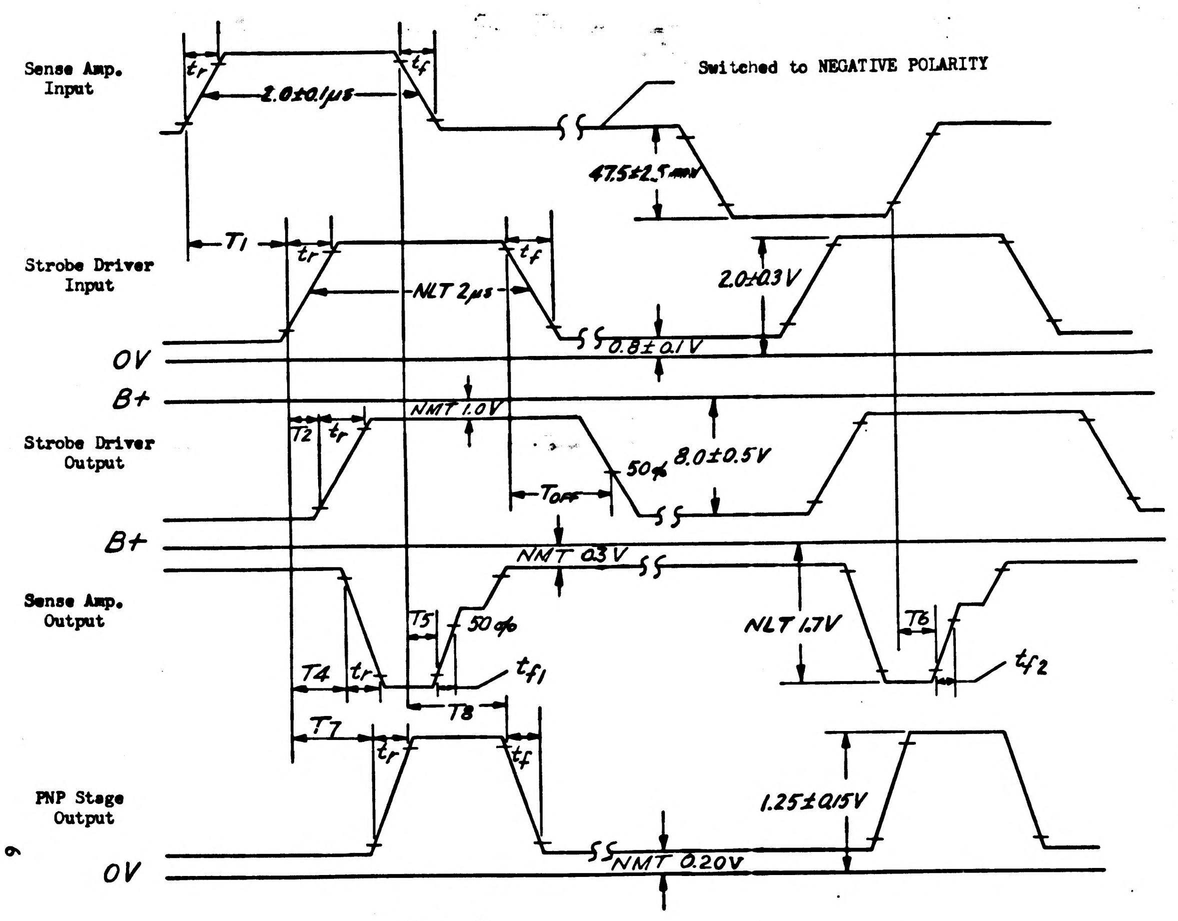

Sense Amp. Input
t_r
2.0±0.1μs
t_f
Switched to NEGATIVE POLARITY
47.5±2.5 mv
T_1
Strobe Driver Input
t_r
t_f
NLT 2μs
2.0±0.3V
0.8±0.1V
OV
B+
NMT 1.0V
Strobe Driver Output
T_2
t_r
50%
8.0±0.5V
T_{OFF}
B+
NMT 0.3V
Sense Amp. Output
T_4
t_r
T_5
50%
t_{f1}
NLT 1.7V
T_6
t_{f2}
T_8
T_7
t_r
t_f
PNP Stage Output
1.25±0.15V
NMT 0.20V
OV

Figure 2

APOLLO G&N Specification
PS 2003982 **Rev.** D
Original Issue Date: 4-26-66
Release Authority: TDRR 28256
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

ERASABLE MEMORY SENSE AMPLIFIER MODULE B13

DRAWING NO. 2003982

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
6/1/66	A	29208	1, 5, 7, 12		
9/1/66	B	30870	1, 7	FA	FA
10/13/66	C	31538	1, 5, 6	FA	FA
1/5/67	D	32546	1, 7, 8, 13	FA	FA

This specification consists of pages 1 **to** 13**inclusive.**

APPROVALS	A. C. METZGER NASA/MSC	Eldon C Hall 4/22/66 MIT/IL		BC Dutton 4/1/66 4-1-66 RAY

3.1.7 Marginal Voltage and Temperature Extremes.

3.1.7.1 With the input voltage adjusted to 12.2 ± 0.1 VDC, and an ambient temperature of $-10^{\circ}C\,{}^{+0C^{\circ}}_{-2.8C^{\circ}}$, the module shall operate as specified in paragraphs 3.1.5 and 3.1.6, except threshold voltage shall be $18\,{}^{+7}_{-4}$ mv, and PMP and STROBE output amplitudes may decrease by 20%. The only times measured shall be:

T_2	$70\,{}^{+40}_{-20}$ ns
T_4	$140\,{}^{+80}_{-40}$ ns
T_7	$180\,{}^{+140}_{-60}$ ns
T_5, T_6	NMT 125 ns
T T_8	NMT 1.5 us

3.1.7.2 With the input voltage adjusted to 16.5 ± 0.1 VDC, and an ambient temperature of $-10^{\circ}C\,{}^{+0C^{\circ}}_{-2.8C^{\circ}}$, the module shall operate as specified in paragraphs 3.1.5 and 3.1.6, except threshold voltage shall be $18\,{}^{+7}_{-4}$ mv, and PMP and STROBE output amplitudes may increase by 20%. The only times measured shall be:

T_2	$70\,{}^{+40}_{-20}$ ns
T_4	$140\,{}^{+80}_{-40}$ ns
T_7	$180\,{}^{+140}_{-60}$ ns
T_5, T_6	NMT 125 ns
T_8	NMT 1.5 us

3.1.7.3 With the input voltage adjusted to 16.5 ± 0.1 VDC, and an ambient temperature of $70^{\circ}C\,{}^{+2.8C^{\circ}}_{-0C^{\circ}}$, the module shall operate as specified in paragraphs 3.1.5 and 3.1.6, except threshold voltage shall be $18\,{}^{+4}_{-7}$ mv, and PMP and STROBE output amplitudes may increase by 20%. The only times measured shall be:

T_2	$70\,{}^{+40}_{-20}$ ns
T_4	$140\,{}^{+80}_{-40}$ ns
T_7	$180\,{}^{+140}_{-60}$ ns
T_5, T_6	NMT 125 ns
T_8	NMT 1.5 us

3.1.8 Vibration. The module shall perform as specified in paragraphs 3.1.5.1 through 3.1.6.3 when installed in an operating computer which is being subjected to the vibration requirements specified in the applicable specifications for the computer subsystem. Acceptance criteria for the module shall be the compliance of the computer subsystem with its applicable specifications.

3.2 PRODUCT CONFIGURATION

3.2.1 DRAWINGS. The configuration of the assembly shall be in accordance with APOLLO G&N Drawing 2003982 and all drawings and engineering data referenced thereon.

3.2.2 Maximum allowable weight of the assembly shall be 0.58 pounds.

4.2.5.6 With the input signal of paragraph 4.1.5.2.1 applied to pins A & C and D & F of each stage, and pin I loaded with a 1000 ohm ± 5% resistor, measure the output at pin I and verify that it is in accordance with paragraph 3.1.6.3.

4.2.6 Gain Resolution. Using the following formula, calculate the gain resolution for each stage, and verify that they are in accordance with paragraph 3.1.5.3.

$$\text{GAIN RESOLUTION} = A_K - Ak$$

$$= A_Q - A_q$$

NOTE: See paragraph 4.1.5.1 for definitions of symbols.

4.2.7 Weight. Weigh the module to the nearest .01 pound. Verify that the weight does not exceed the maximum allowable weight specified in paragraph 3.2.2.

4.3 WORKMANSHIP. The following tests shall be performed under the conditions specified as a verification of good workmanship.

4.3.1 Marginal Voltage and Temperature Extremes.

4.3.1.1 With the input voltage and ambient temperature as specified in paragraph 3.1.7.1, repeat tests 4.2.5.1 through 4.2.6. Verify that the module performs as specified in paragraph 3.1.7.1.

NOTE: The module shall be maintained at the specified temperature for not less than 30 minutes prior to start of tests.

4.3.1.2 With the input voltage and ambient temperature as specified in paragraph 3.1.7.2, repeat tests 4.2.5.1 through 4.2.6. Verify that the module performs as specified in paragraph 3.1.7.2.

NOTE: The module shall be maintained at the specified temperature for not less than 30 minutes prior to start of tests.

4.3.1.3 With the input voltage and ambient temperature as specified in paragraph 3.1.7.3, repeat tests 4.2.5.1 through 4.2.6. Verify that the module performs as specified in paragraph 3.1.7.3.

NOTE: The module shall be maintained at the specified temperature for not less than 30 minutes prior to start of tests.

4.3.2 Vibration. Install the module in an applicable computer. Subject the computer subsystem to the vibration tests specified in the applicable JDC. Verify that the computer subsystem meets the requirements of the applicable specification.

5. PREPARATION FOR DELIVERY

5.1 GENERAL. Preparation for delivery shall be in accordance with Specification ND 1002214.

6. NOTES: None

3.1.7 Marginal Voltage and Temperature Extremes.

3.1.7.1 With the input voltage adjusted to 12.2 ± 0.1 VDC, and an ambient temperature of $-10^{\circ}C\,{}^{+0C^{\circ}}_{-2.8C^{\circ}}$, the module shall operate as specified in paragraphs 3.1.5 and 3.1.6, except threshold voltage shall be $18\,{}^{+7}_{-4}$ mv, and PNP and STROBE output amplitudes may decrease by 20%. The only times measured shall be:

T_2	$70\,{}^{+40}_{-20}$ ns	
T_4	$140\,{}^{+80}_{-40}$ ns	
T_7	$180\,{}^{+140}_{-60}$ ns	
T_5, T_6	NMT 125 ns	T OFF NMT 0.45 µs
T_8	NMT 1.125 µs	

3.1.7.2 With the input voltage adjusted to 16.5 ± 0.1 VDC, and an ambient temperature of $-10^{\circ}C\,{}^{+0C^{\circ}}_{-2.8C^{\circ}}$, the module shall operate as specified in paragraphs 3.1.5 and 3.1.6, except threshold voltage shall be $18\,{}^{+7}_{-4}$ mv, and PNP and STROBE output amplitudes may increase by 20%. The only times measured shall be:

T_2	$70\,{}^{+40}_{-20}$ ns	
T_4	$140\,{}^{+80}_{-40}$ ns	
T_7	$180\,{}^{+140}_{-60}$ ns	
T_5, T_6	NMT 125 ns	T OFF NMT 0.45 µs
T_8	NMT 1.125 µs	

3.1.7.3 With the input voltage adjusted to 16.5 ± 0.1 VDC, and an ambient temperature of $70^{\circ}C\,{}^{+2.8C^{\circ}}_{-0C^{\circ}}$, the module shall operate as specified in paragraphs 3.1.5 and 3.1.6, except threshold voltage shall be $18\,{}^{+4}_{-7}$ mv, and PNP and STROBE output amplitudes may increase by 20%. The only times measured shall be:

T_2	$70\,{}^{+40}_{-20}$ ns	
T_4	$140\,{}^{+80}_{-40}$ ns	
T_7	$180\,{}^{+140}_{-60}$ ns	
T_5, T_6	NMT 125 ns	T OFF NMT 0.45 µs
T_8	NMT 1.125 µs	

3.1.8 Vibration. The module shall perform as specified in paragraphs 3.1.5.1 through 3.1.6.3 when installed in an operating computer which is being subjected to the vibration requirements specified in the applicable specifications for the computer subsystem. Acceptance criteria for the module shall be the compliance of the computer subsystem with its applicable specifications.

3.2 PRODUCT CONFIGURATION

3.2.1 DRAWINGS. The configuration of the assembly shall be in accordance with APOLLO G&N Drawing 2003982 and all drawings and engineering data referenced thereon.

3.2.2 Maximum allowable weight of the assembly shall be 0.58 pounds.

APOLLO G&N Specification
PS 2003982 Rev.: F
Original Issue Date: 4-26-66
Release Authority: TDRR 28256
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

ERASABLE MEMORY SENSE AMPLIFIER MODULE B13

DRAWING NO. 2003982

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
6/1/66	A	[illegible]205	1, 5, 7, 12		
9/1/66	B	30870	1, 7	FA	FA
10/13/66	C	31538	1, 5, 6	FA	FA
1/5/67	D	32546	1, 7, 8, 13	FA	FA
1/5/67	E	32557	1, [illegible], 5, 6, 7	FA	FA
4-6-67	F	33542	1, 7, 13	FA	FA

This specification consists of pages 1 to 13 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	Eldon C Hall 4/22/66 MIT/IL	BC 4.166 RAY

3.1.7 Marginal Voltage and Temperature Extremes.

3.1.7.1 With the input voltage adjusted to 12.2 ± 0.1 VDC, and an ambient temperature of $-10^{\circ}C\ {}^{+0C^{\circ}}_{-2.8C^{\circ}}$, the module shall operate as specified in paragraphs 3.1.5 and 3.1.6, except threshold voltage shall be 18^{+7}_{-4} mv, and PNP and STROBE output amplitudes may decrease by 20%. The only times measured shall be:

T2	70^{+40}_{-20} ns	
T4	140^{+80}_{-40} ns	
T7	180^{+140}_{-60} ns	
T5, T6	NMT 125 ns	T OFF NMT 0.45 µs
T T8	NMT 1.125 µs	

3.1.7.2 With the input voltage adjusted to 16.5 ± 0.1 VDC, and an ambient temperature of $-10^{\circ}C\ {}^{+0C^{\circ}}_{-2.8C^{\circ}}$, the module shall operate as specified in paragraphs 3.1.5 and 3.1.6, except threshold voltage shall be 18^{+7}_{-4} mv, and PNP and STROBE output amplitudes may increase by 20%. The only times measured shall be:

T2	70^{+40}_{-20} ns	
T4	140^{+80}_{-40} ns	
T7	180^{+140}_{-60} ns	
T5, T6	NMT 125 ns	T OFF NMT 0.45 µs
T8	NMT 1.125 µs	

3.1.7.3 With the input voltage adjusted to 16.5 ± 0.1 VDC, and an ambient temperature of $70^{\circ}C\ {}^{+2.8C^{\circ}}_{-0C^{\circ}}$, the module shall operate as specified in paragraphs 3.1.5 and 3.1.6, except threshold voltage shall be 18^{+4}_{-7} mv, and PNP and STROBE output amplitudes may increase by 20%. The only times measured shall be:

T2	70^{+40}_{-20} ns	
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T7	180^{+140}_{-60} ns	
T5, T6	NMT 125 ns	T OFF NMT 0.45 µs
T8	NMT 1.125 µs	

3.1.8 Vibration. The module shall perform as specified in paragraphs 3.1.5.1 through 3.1.6.3 when installed in an operating computer which is being subjected to the vibration requirements specified in the applicable specifications for the computer subsystem. Acceptance criteria for the module shall be the compliance of the computer subsystem with its applicable specifications.

3.2 PRODUCT CONFIGURATION

3.2.1 DRAWINGS. The configuration of the assembly shall be in accordance with APOLLO G&N Drawing 2003982 and all drawings and engineering data referenced thereon.

3.2.2 Weight of the module shall be recorded.

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SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

REVISIONS 24035

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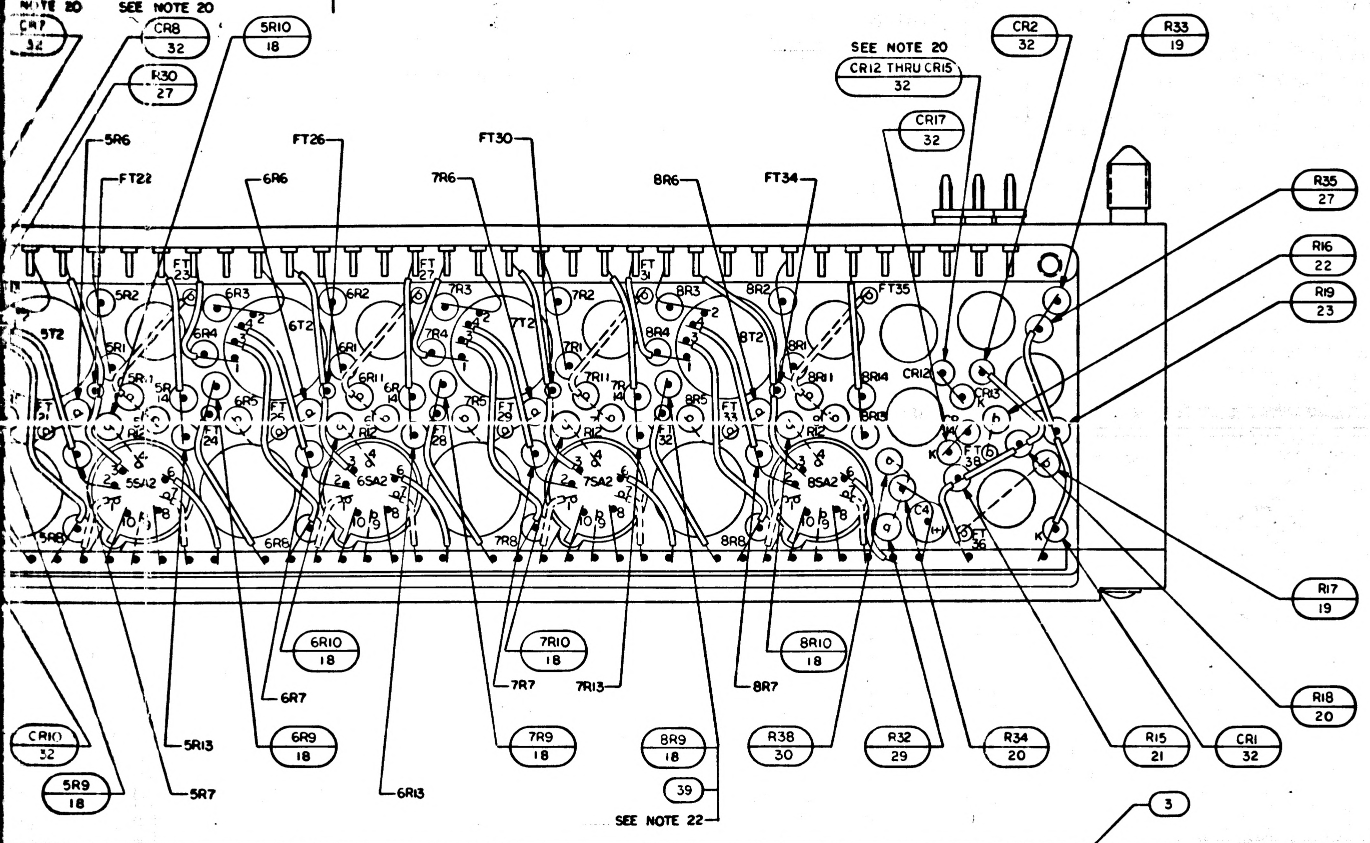
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FT22
FT26
6R6
FT30
7R6
8R6
FT34
R35 27
R16 22
R19 23
R17 19
6R10 18
7R10 18
8R10 18
6R7
7R7
7R13
8R7
R18 20
CR10 32
5R13
6R9 18
7R9 18
8R9 18
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R34 20
R15 21
CR1 32
5R9 18
5R7
6R13
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SEE NOTE 22
3

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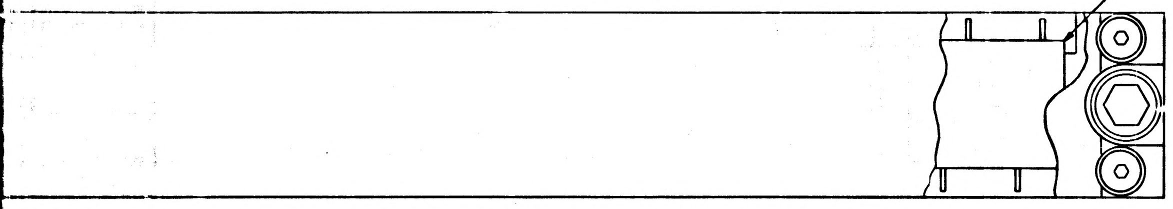

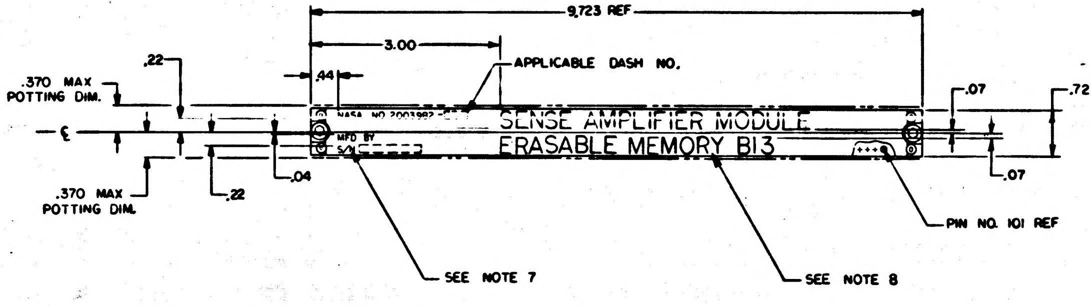
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APPLICABLE DASH NO.
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NASA NO 2003982-
MFD BY
S/N
SENSE AMPLIFIER MODULE
ERASABLE MEMORY B13
.07
.723 REF
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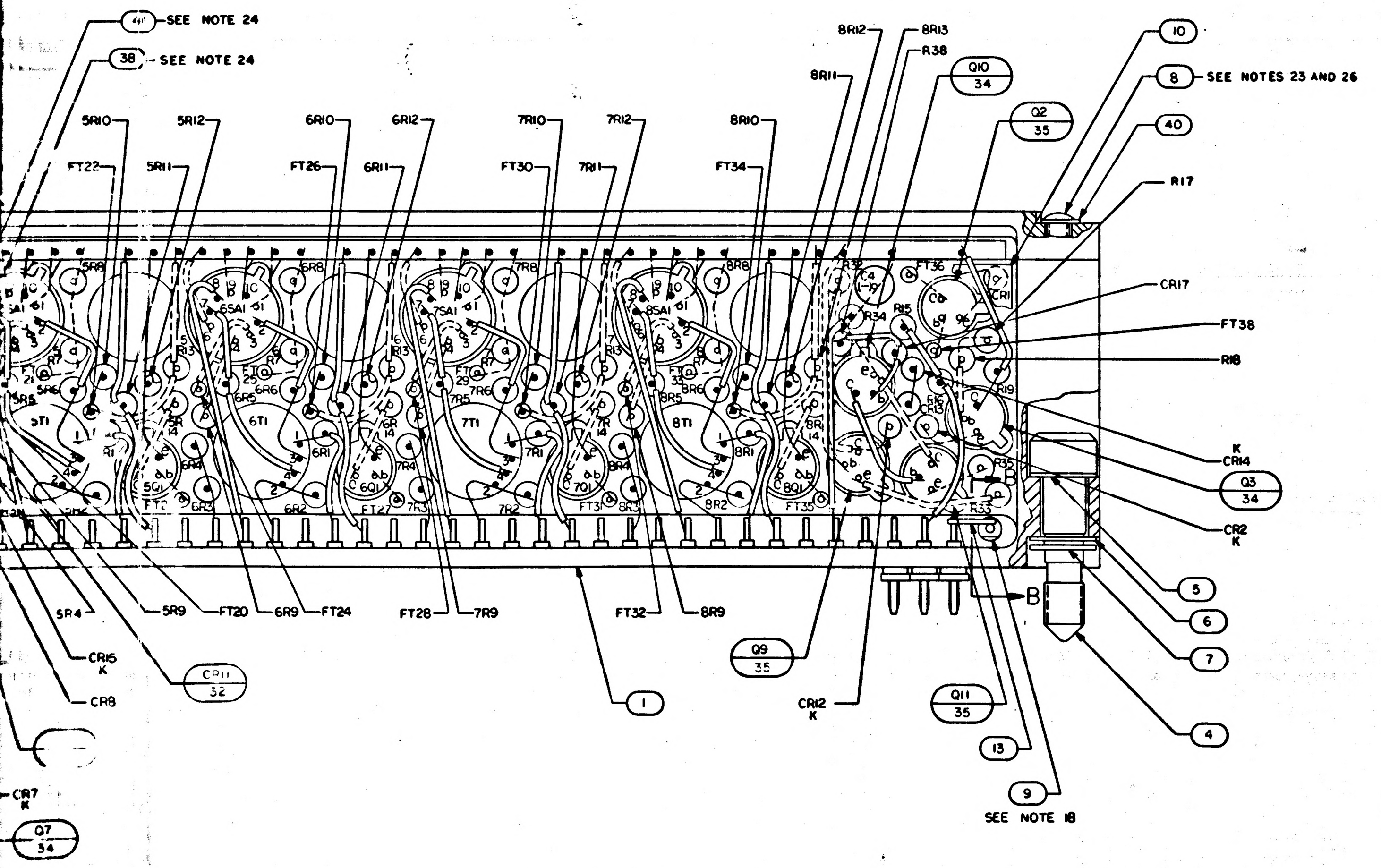
PIN NO. 101 REF
SEE NOTE 7
SEE NOTE 8

MARKING VIEW
SCALE 1/1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8R13
8R11
R38
FT22
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FT26
6R11
FT30
7R11
FT34
Q10 34
Q2 35
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8 SEE NOTES 23 AND 26
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R17
CR17
FT38
R18
K CR14
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CR2 K
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CR8
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CR12 K
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SEE NOTE 18
CR7 K
Q7 34

B

3H

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2005920	SCHEMATIC	REF
AR	1006776-25	INSULATION SLEEVING	41
4	NAS620A-2	WASHER, FLAT	40
19	2004074	WASHER, INSULATOR	39
AR	1006757-12	WIRE, ELECTRICAL	38
16	2004003-001	INTEGRATED SENSE AMPL	37
16	1006293	TRANSFORMER	36
6	2004004-001	TRANSISTOR, POTTED	35
12	2004004-002	TRANSISTOR, POTTED	34
2	2004112-002	DIODE	33
15	2004103-001	DIODE	32
4	1006755-69	CAPACITOR	31
2	1006750-63	RESISTOR	30
1	SEE NOTES 12&22	RESISTOR	29
1	1006750-43	RESISTOR	28
2	1006750-12	RESISTOR	27
1	SEE NOTES 12&22	RESISTOR	26
1	1006750-25	RESISTOR	25
1	SEE NOTES 12&22	RESISTOR	24
3	1006750-36	RESISTOR	23
1	1006750-15	RESISTOR	22
9	1006750-49	RESISTOR	21
13	1006750-39	RESISTOR	20
20	1006750-32	RESISTOR	19
16	SEE NOTE 12 & 22	RESISTOR	18
33	1006750-24	RESISTOR	17
32	1006750-42	RESISTOR	16
AR	1006776-22	INSULATION, SLEEVING	15
AR	1006776-21	INSULATION, SLEEVING	14
AR	1006757-8	WIRE, ELECTRICAL	13
AR	1006757-1	WIRE, ELECTRICAL	12
1	2004711	INSULATOR B	11
1	2004710	INSULATOR A	10
1	2004039	TERMINAL, THREADED	9
4	1006783-10	SCREW, BUTTON HEAD	8
2	MS16633-4015	RING, RETAINING, EXTERNAL E	7
2	2004984-003	WASHER, FLAT	6
2	2004984-001	WASHER, FLAT	5
2	1004579-1	SCREW, JACKING	4
1	2003005-011	MATRIX ASSY	3
1	2004044	COVER	2
1	2003044-021	HEADER HOUSING ASSY	1

011 LIST OF MATERIALS

2003982

A

NEXT ASSY	USED ON
2003200	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ±.02 ANGLES ± ——
DO NOT SCALE THIS DRAWING

MATERIAL
——

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN D.G. Clermont 29 MAR 66
CHECKED R. Edward 4 Apr 66
APPROVED
APPROVED E. Hall 2 Apr 66
APPROVED MIT W. Kupfer 12 Apr 66
APPROVED MSC 4/66
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SENSE AMPLIFIER MODULE, ERASABLE MEMORY B13 ASSEMBLY

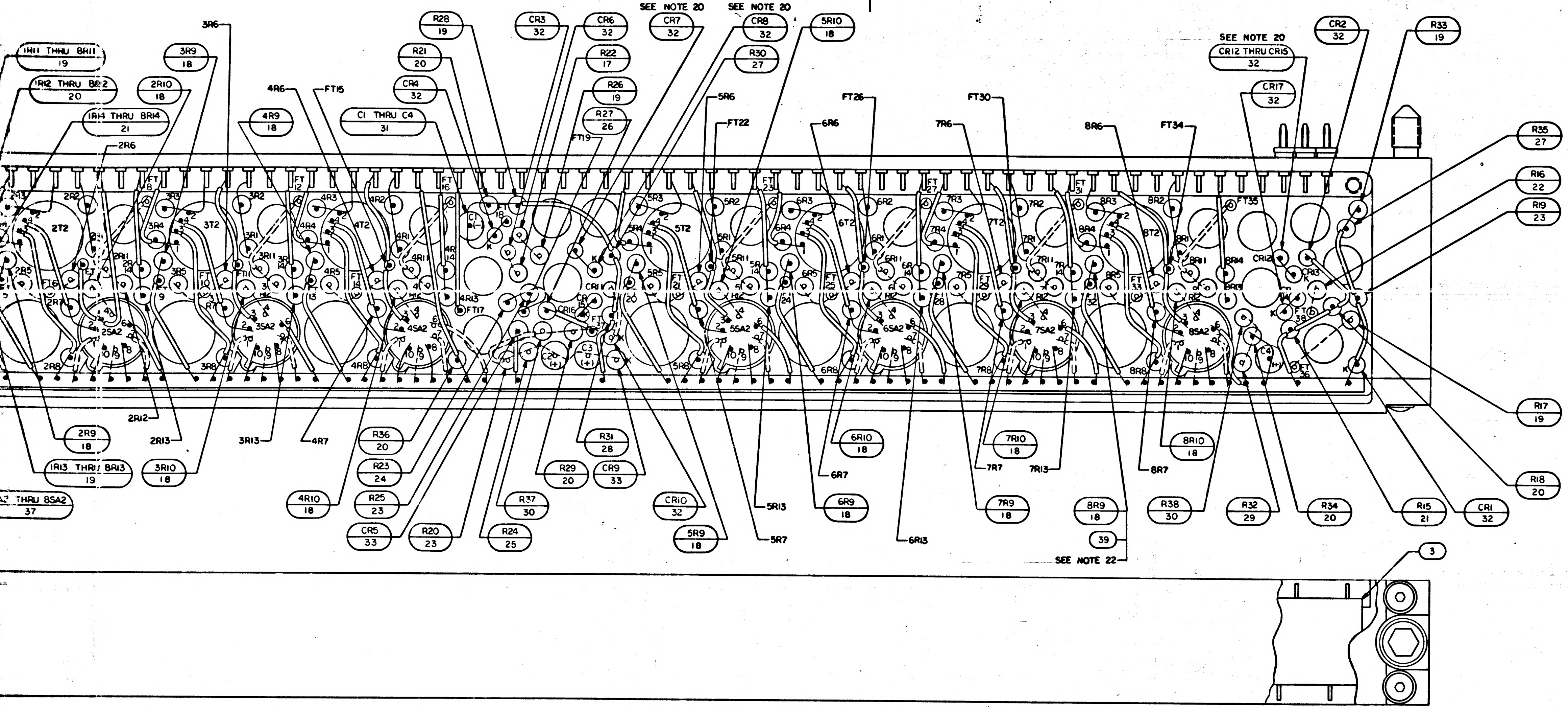
CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003982
SCALE 4/1
SHEET 1 OF 1

MASTER

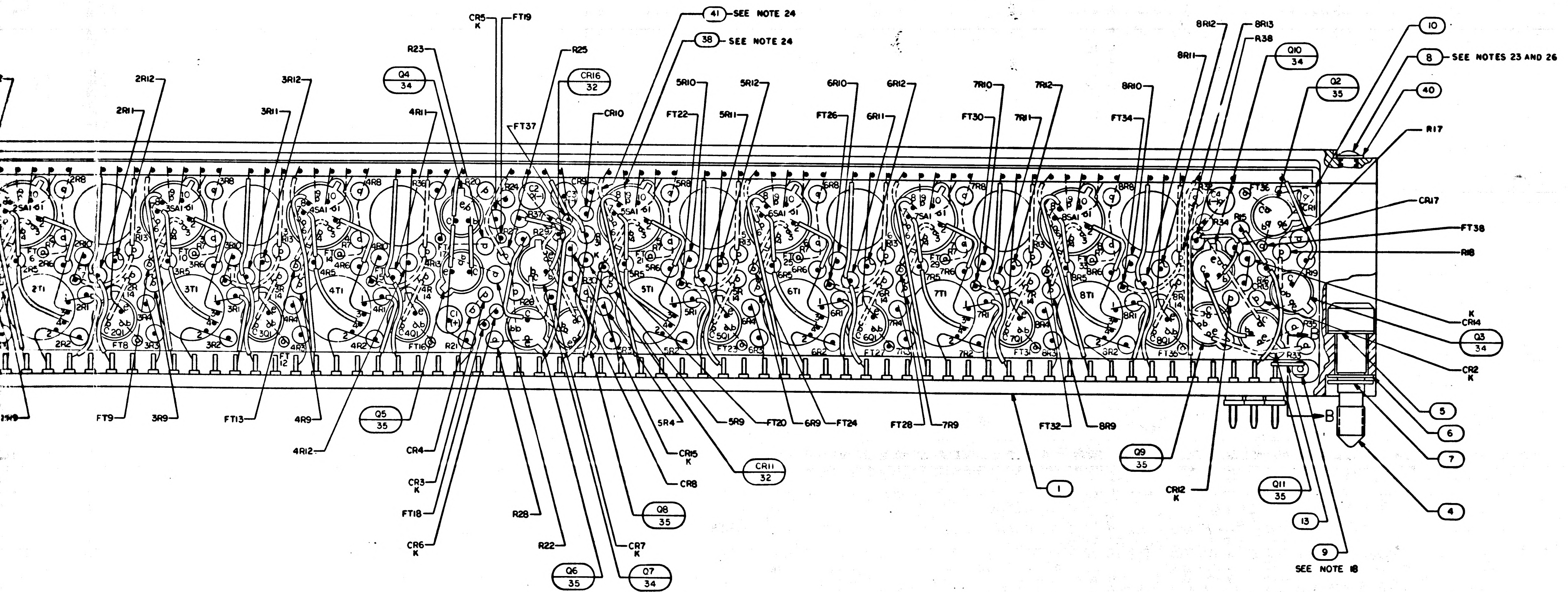
2003982

4 3 2 1

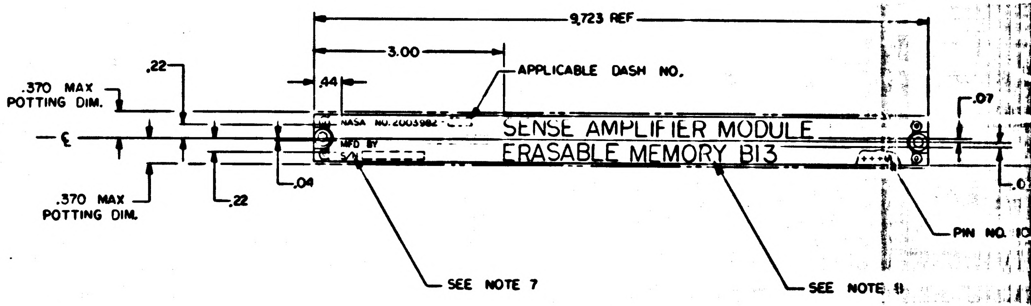
E3



3R6
1R11 THRU 8R11 19
1R12 THRU 8R12 20
1R14 THRU 8R14 21
2R10 18
3R9 18
2R6
4R6
FT15
4R9 18
R28 19
R21 20
CR4 32
C1 THRU C4 31
CR3 32
CR6 32
R22 17
R26 19
R27 26
FT19
SEE NOTE 20
CR7 32
SEE NOTE 20
CR8 32
R30 27
5R10 18
5R6
FT22
6R6
FT26
7R6
FT30
8R6
FT34
SEE NOTE 20
CR12 THRU CR15 32
CR17 32
CR2 32
R33 19
R35 27
R16 22
R19 23
R17 19
R18 20
CR1 32
R15 21
R34 20
R32 29
R38 30
8R10 18
8R7
8R9 18
39
SEE NOTE 22
7R10 18
7R7
7R13
7R9 18
6R10 18
6R7
6R9 18
6R13
5R13
5R7
5R9 18
CR10 32
R31 28
R29 20
CR9 33
R37 30
R24 25
R20 23
R36 20
R23 24
R25 23
CR5 33
4R10 18
4R7
3R13
3R10 18
2R9 18
2R12
2R13
1R13 THRU 8R13 19
1SA2 THRU 8SA2 37
3



2R12
2R11
3R12
3R11
R23
Q4 34
4R11
CR5 K
FT19
FT37
R25
CR16 32
CR10
41 SEE NOTE 24
38 SEE NOTE 24
5R10
5R12
5R11
FT22
6R10
6R12
6R11
FT26
7R10
7R12
7R11
FT30
8R10
FT34
8R12
8R13
8R11
R38
Q10 34
Q2 35
10
8 SEE NOTES 23 AND 26
40
R17
CR17
FT38
R18
K CR14
Q3 34
CR2 K
5
6
7
4
9 SEE NOTE 18
13
Q11 35
CR12 K
Q9 35
1
FT32
8R9
FT28
7R9
FT20
6R9
FT24
5R9
5R4
CR15 K
CR8
CR11 32
Q8 35
CR7 K
Q7 34
Q6 35
R22
R28
CR6 K
FT18
CR3 K
CR4
Q5 35
4R12
4R9
FT13
3R9
FT9
B



9.723 REF
3.00
.44
APPLICABLE DASH NO.
.22
.07
.370 MAX POTTING DIM.
℄
NASA NO. 2003982
MFD BY
SENSE AMPLIFIER MODULE
ERASABLE MEMORY B13
.04
.22
.370 MAX POTTING DIM.
PIN NO. 10
SEE NOTE 7
SEE NOTE 8

MARKING VIEW
SCALE 1/1

MASTER

2003982

2003200
NEXT ASSY | USED ON
APPLICATION

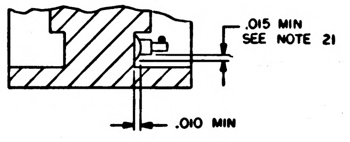
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

R9, R10

PART NO.	VALUE
1006750 -25	510
-26	560
-27	620
-28	680
-29	750
-30	820
-31	910
-32	1K
-33	1.1K
-34	1.2K
-35	1.3K
-36	1.5K
-37	1.6K
-38	1.8K
-39	2.0K
-40	2.2K
-41	2.4K
-42	2.7K
-43	3.0K
-44	3.3K
-45	3.6K
-46	3.9K
-47	4.3K
-48	4.7K
-49	5.1K
-16	220
-17	240
-18	270
-19	300
-20	330
-21	360
-22	390
-23	430
1006750 -24	470

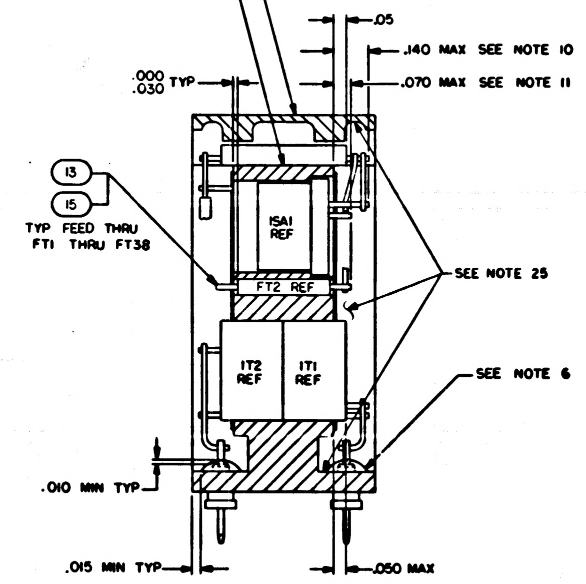
R23, R27, R32

PART NO.	VALUE
1006750-32	1K
-33	1.1K
-34	1.2K
-35	1.3K
-36	1.5K
-37	1.6K
-38	1.8K
-39	2.0K
-40	2.2K
-41	2.4K
-42	2.7K
-43	3.0K
-44	3.3K
-45	3.6K
-46	3.9K
-47	4.3K
-48	4.7K
-49	5.1K
-119	1.4K
-121	1.7K
-122	1.9K
-123	2.1K
-124	2.3K
-125	2.55K
-126	2.85K
-127	3.15K
-128	3.45K
-129	3.75K
1006750-130	4.1K



.015 MIN
SEE NOTE 21
.010 MIN

SECTION B-B

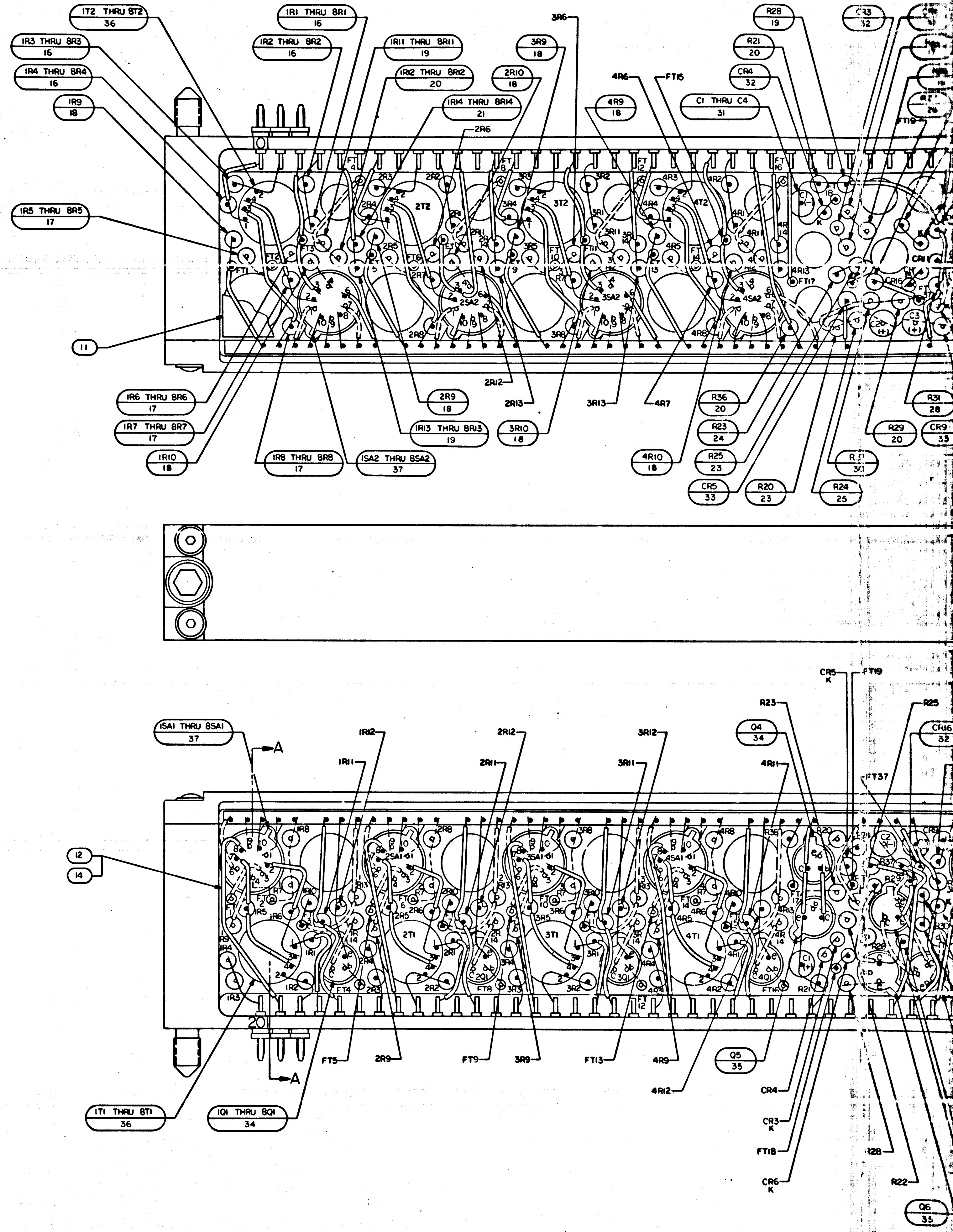


2
SEE NOTE 16
.05
.140 MAX SEE NOTE 10
.070 MAX SEE NOTE 11
.000
.030 TYP
13
15
TYP FEED THRU
FT1 THRU FT38
1SA1
REF
FT2 REF
SEE NOTE 25
1T2
REF
1T1
REF
SEE NOTE 6
.010 MIN TYP
.015 MIN TYP
.050 MAX

SECTION A-A

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. (+) DENOTES POSITIVE SIDE OF CAPACITOR
5. K DENOTES CATHODE SIDE OF DIODE
6. SEAL INSULATORS AND TERMINALS TO HEADER PER ND1002004, TYPE VI
7. MARK .10/.08 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271-1
8. MARK .26/.24 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 USING INK 1006271-1
9. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND 1002069
10. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
11. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
12. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST. R9, R10, R23, R27 AND R32 TO BE SELECTED FROM APPROPRIATE CHART.
13. STAKE FIND NO. 16 THRU FIND NO. 37 TO FIND NO. 1 PER ND1002009 METHOD C OR D
14. ENCAPSULATE PER ND1002002. REMOVE FLASHING
15. WELD PER ND1002005
16. BOND FIND NO. 3 TO FIND NO. 1 PER ND1002004 TYPE I
17. TRIM UNUSED LEAD OF FIND NO. 37 .010/.030 FROM CASE
18. MOUNTING TORQUE FOR FIND NO. 9 TO BE 15-20 INCH OUNCES
19. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF P.S. 2003982
20. CR7, 8, 15 AND CR12, 13, 14 ARE TO BE SELECTED BY ELECTRICAL TEST. ONE, TWO, OR THREE DIODES WILL BE SELECTED IN EACH AREA. IF LESS THAN THREE DIODES ARE REQUIRED, FIND NO. 13 AND 15 WILL BE USED IN THE REMAINING COMPONENT HOLES AND WIRING WILL BE COMPLETED AS. SHOWN
21. SEAL FIND NO. 9 TO HEADER PER ND1002004, TYPE VI
22. ASSEMBLE FIND NO. 39 TO MODULE AFTER SELECTED VALUE HAS BEEN DETERMINED
23. MOUNTING TORQUE FOR FIND NO. 8 TO BE 2.0–2.5 INCH POUNDS
24. USE FIND NO. 38 & FIND NO. 41 WHERE APPLICABLE ON ALL FIRST LEVEL WIRING TO THE MATRIX
25. COAT INDICATED SURFACES, BOTH ENDS, TOP AND BOTTOM, BOTH SIDES PER ND1002187, TYPE II
26. APPLY MIL-S-22473, GRADE HV TO FIND NO. 8



1T2 THRU 8T2
36
1R1 THRU 8R1
16
1R3 THRU 8R3
16
1R2 THRU 8R2
16
1R11 THRU 8R11
19
1R4 THRU 8R4
16
1R12 THRU 8R12
20
1R9
18
1R14 THRU 8R14
21
2R6
3R6
3R9
18
2R10
18
4R6
FT15
4R9
18
C1 THRU C4
31
R28
19
R21
20
CR4
32
C33
12
FT19
1R5 THRU 8R5
17
11
1R6 THRU 8R6
17
1R7 THRU 8R7
17
1R10
18
1R8 THRU 8R8
17
1SA2 THRU 8SA2
37
2R9
18
1R13 THRU 8R13
19
2R12
2R13
3R10
18
3R13
4R7
4R10
18
R36
20
R23
24
R25
23
CR5
33
R20
23
R24
25
R29
20
R31
28
CR9
33
CR5
K
FT19
R23
R25
1SA1 THRU 8SA1
37
A
1R12
1R11
2R12
2R11
3R12
3R11
Q4
34
4R11
CR16
32
FT37
12
14
FT5
2R9
FT9
3R9
FT13
4R9
4R12
Q5
35
CR4
CR3
K
FT18
CR6
K
R28
R22
Q6
35
1T1 THRU 8T1
36
1Q1 THRU 8Q1
34
A

2003982

4. QUALITY ASSURANCE PROVISIONS

4.1 GENERAL. The contractor responsible for the manufacture of the assembly shall be responsible for the accomplishment of each test required herein. See Table I, Product Performance and Configuration Requirement/Quality Verification Cross Reference Index.

TABLE I

Requirements	Verification
3.1.1	4.2.2
3.1.2.1	4.2.3.1
3.1.2.2	4.2.3.2
3.1.2.3	4.2.3.3
3.1.3.1	4.2.4.1
3.1.3.2	4.2.4.2
3.1.3.3	4.2.4.3
3.1.3.4	4.2.4.4
3.1.5.1	4.2.5.1, 4.2.5.2
3.1.5.2	4.2.5.1, 4.2.5.2
3.1.5.3	4.2.6
3.1.6.1	4.2.5.5
3.1.6.2	4.2.5.3, 4.2.5.4
3.1.6.3	4.2.5.6
3.1.7.1	4.3.1.1
3.1.7.2	4.3.1.2
3.1.8	4.3.2
3.2.1	4.2.1
3.2.2	4.2.7

4.1.1 Test Conditions

4.1.1.1 Environmental. Unless otherwise specified, the assemblies shall be tested under the following ambient conditions:

a. Temperature 25°C ± 10°C

b. Relative Humidity 90% max.

c. Barometric Pressure 28 to 32 inches of Hg

APOLLO G&N Specification
PS 2003982 Rev. -
Original Issue Date: 4-26-66
Release Authority: TDRR 28256
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

ERASABLE MEMORY SENSE AMPLIFIER MODULE B13

DRAWING NO. 2003982

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA

This specification consists of pages 1 to 13 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	Eldon C Hall 4/22/66 MIT/IL	BC 4/1/66 4-1-66 RAY

1. SCOPE

This specification establishes the detail requirements for complete identification and acceptance of the Erasable Memory Sense Amplifier Module B13 Part No. 2003982-011.

2. APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein.

2.1 EFFECTIVE ISSUES. Unless otherwise specified herein, Military and Government Standards and specifications shall be the issue in effect on the date of request for proposal or invitation to bid.

SPECIFICATIONS

APOLLO G&N

ND 1002214	General Specification for Preservation, Packaging, Packing and Container Marking of APOLLO Guidance and Navigation Major Assemblies, Assemblies, Subassemblies, Parts and Associated Ground Support Equipment.

DRAWINGS

APOLLO G&N

2003982	**Erasable Memory Sense Amplifier Module B13**

(Copies of Specifications, Standards, Drawings, Bulletins and Publications required by suppliers in connection with specific procurement functions should be obtained from the Procuring Activity or as directed by the Contracting Officer).

2.2 CONFLICTING REQUIREMENTS. In the event of conflict between the requirements of the contract, this Specification and the documents listed in this section the following order of precedence shall apply and the contractor shall notify MIT Apollo Management of the conflict as soon as it is determined.

a. The contract
b. This Specification
c. Documents listed in this section

3. REQUIREMENTS

3.1 PERFORMANCE

3.1.1 Thermal Conditioning. The module shall be subjected to two complete thermal cycles, as specified below prior to acceptance testing:

25°C down to -10°C ± 3C° in NLT 20 minutes,
held at -10°C ± 3C° for NLT 30 minutes,
raised to 70°C ± 3C° in NLT 40 minutes,
held at 70°C ± 3C° for NLT 30 minutes,
lowered to 25°C in NLT 20 minutes.

3.1.2 Continuity

3.1.2.1 The resistance measured from each pin A to the corresponding Pin B, and from each pin D to the corresponding pin E, shall be 1350 ± 68 ohms.

3.1.2.2 The resistance measured from pin 139 to each of the following pins shall not be more than 0.5 ohm.

Pin Numbers

146
153
159
103
117
124
235
111

3.1.2.3 The resistance measured between chassis ground (pin 269) and the chassis shall be not more than 0.5 ohm.

3.1.3 Insulation Resistance

3.1.3.1 There shall be not less than 100 megohms resistance between any one pin B and all other pin B's, and between any one pin E and all other pin E's.

3.1.3.2 There shall be not less than 100 megohms resistance between each pin B and all pins G, H, I, J, and pins 126, 128, 103, 229, 234, and 268.

3.1.3.3 There shall be not less than 100 megohms resistance between each pin E and all pins G, H, I, J, and pins 126, 128, 103, 229, 234, and 268.

3.1.3.4 The resistance between chassis ground (pin 269) and all other pins connected together shall be 100 megohms minimum.

3.1.4 Input Voltage. The assembly shall function as specified herein when supplied with 14.0 ± 0.1 VDC to pin 128, and 0 VDC to pins of section 3.1.2.2.

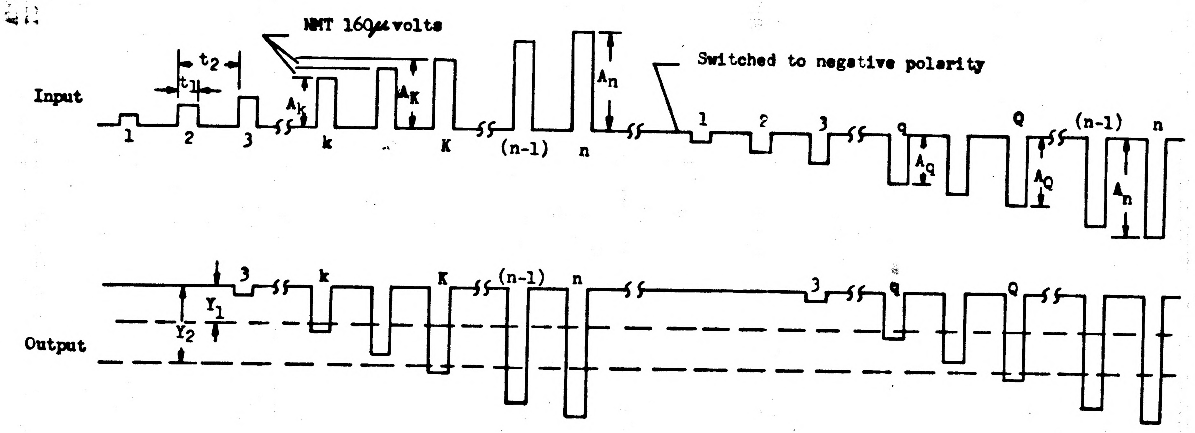

Input
1
2
3
t_1
t_2
NMT 160μ volts
A_k
k
A_K
K
(n-1)
n
A_n
Switched to negative polarity
1
2
3
q
A_q
Q
A_Q
(n-1)
n
A_n
Output
Y_1
Y_2
3
k
K
(n-1)
n
3
q
Q

Figure 1

3.1.5 Threshold Voltage

3.1.5.1 Outputs. The output of each stage shall be measured as shown in Figure 1 when an input as specified in section 4.1.5.1 is applied.

3.1.5.2 Threshold Voltage (A_k and A_q). Threshold voltage for each stage shall be 18 ± 4.0 mv.

3.1.5.3 Gain Resolution. The gain resolution for each stage shall be not more than 2.0 mv.

3.1.6 Delay Time

3.1.6.1 Strobe Driver Output (STROBE, STROBF). The Strobe Driver output shall be as shown in Figure 2, and shall have the following characteristics when an input as specified in section 4.1.5.2 is applied.

Amplitude (high)	NMT 1.0V below B+
Amplitude (low)	8.0 ± 0.5V below B+
Rise Time (t_r)	NMT 60 nanosec
T_2	65 ± 10 nanosec
T OFF	NMT 0.75 usec

3.1.6.2 Sense Amplifier Outputs. Each of the Sense Amplifier outputs shall be as shown in Figure 2, and shall have the following characteristics when an input as specified in section 4.1.5.2 is applied.

Amplitude (high)	NMT 0.1V below B+
Amplitude (low)	NLT 1.7V below B+
Rise Time (t_r)	NMT 60 nanosec
Fall Time (t_{f1}, t_{f2})	NMT 100 nanosec
T_4	135 ± 30 nanosec
T_5, T_6	NMT 100 nanosec

3.1.6.3 PNP (Q1) Stage Output. Each PNP Stage Output shall be as shown in Figure 2, and shall have the following characteristics when an input as specified in section 4.1.5.2 is applied.

Amplitude (high)	1.25 ± 0.15V
Amplitude (low)	NMT 0.1V
Rise Time (t_r)	NMT 100 nanosec
Fall Time (t_f)	NMT 400 nanosec
T_7	175 ± 50 nanosec
T_8	NMT 1.3 usec

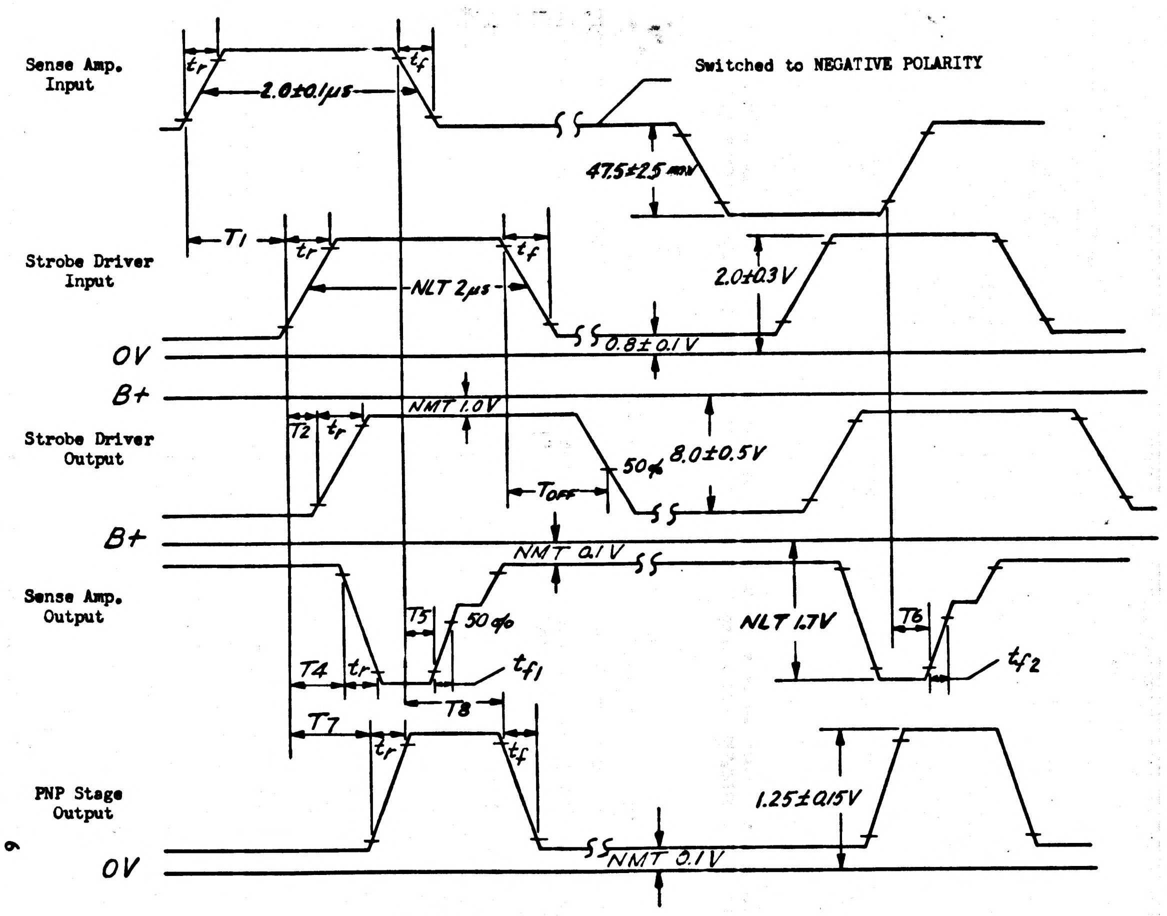

Sense Amp. Input
Switched to NEGATIVE POLARITY
t_r
2.0±0.1μs
t_f
47.5±25 mv
Strobe Driver Input
T_1
t_r
NLT 2μs
t_f
2.0±0.3V
0.8±0.1V
OV
B+
NMT 1.0V
Strobe Driver Output
T_2
t_r
T_{OFF}
50%
8.0±0.5V
B+
NMT 0.1V
Sense Amp. Output
T_4
t_r
T_5
50%
t_{f1}
T_8
NLT 1.7V
T_6
t_{f2}
T_7
t_r
t_f
PNP Stage Output
1.25±0.15V
OV
NMT 0.1V

Figure 2

3.1.7 **Marginal Voltage and Temperature Extremes.**

3.1.7.1 With the input voltage adjusted to 12.2 ± 0.1 VDC, and an ambient temperature of $-10^{\circ}C\,{}^{+0C^{\circ}}_{-2.8C^{\circ}}$, the module shall operate as specified in paragraphs 3.1.5 and 3.1.6, except threshold voltage shall be $18\,{}^{+7}_{-4}$ mv, and PNP and STROBE output amplitudes may decrease by 20%.

3.1.7.2 With the input voltage adjusted to 16.5 ± 0.1 VDC, and an ambient temperature of $70^{\circ}C\,{}^{+2.8C^{\circ}}_{-0}$, the module shall operate as specified in paragraphs 3.1.5 and 3.1.6, except threshold voltage shall be $18\,{}^{+4}_{-7}$ mv, and PNP and STROBE output amplitudes may increase by 20%.

3.1.8 **Vibration.** The module shall perform as specified in paragraphs 3.1.5.1 through 3.1.6.3 when installed in an operating computer which is being subjected to the vibration requirements specified in the applicable specifications for the computer subsystem. Acceptance criteria for the module shall be the compliance of the computer subsystem with its applicable specifications.

3.2 PRODUCT CONFIGURATION

3.2.1 DRAWINGS. The configuration of the assembly shall be in accordance with APOLLO G&N Drawing 2003982 and all drawings and engineering data referenced thereon.

3.2.2 **Maximum allowable weight of the assembly shall be 0.70 pounds.**

4.2.3.3 Measure the resistance between pin 269 (chassis ground) and the chassis, and verify that it is as specified in paragraph 3.1.2.3.

4.2.4 Insulation Resistance Tests. Using a resistance bridge or equivalent with a test potential of 50 VDC limited to a short circuit current of 50 microamperes, perform the following:

4.2.4.1 Measure the resistance between any one pin B and all other pin B's, and any one pin E and all other pin E's, and verify that they are as specified in paragraph 3.1.3.1.

4.2.4.2 Measure the resistance between each pin B and all pins G, H, I, J, and pins 126, 128, 103, 229, 234, and 268. Verify that they are as specified in paragraph 3.1.3.2.

4.2.4.3 Measure the resistance between each pin E and all pins G, H, I, J, and pins 126, 128, 103, 229, 234, and 268. Verify that they are as specified in paragraph 3.1.3.3.

4.2.4.4 Measure the resistance between pin 269 and all other pins on the module, and verify that they are as specified in paragraph 3.1.3.4.

4.2.5 Functional Tests

4.2.5.1 With the input signal of paragraph 4.1.5.1 applied to pins A & C of each stage, and the output (pin G) loaded with the circuit shown in paragraph 4.1.4, measure the output at pin G and verify that it is in accordance with paragraphs 3.1.5.1 and 3.1.5.2.

4.2.5.2 With the input signal of paragraph 4.1.5.1 applied to Pins D & F of each stage, measure the output at pin J and verify that it is in accordance with paragraphs 3.1.5.1 and 3.1.5.2.

4.2.5.3 With the input signal of paragraph 4.1.5.2.1 applied to pins A & C of each stage, and the output (pin G) loaded with the circuit shown in paragraph 4.1.4, measure the output at pin G and verify that it is in accordance with paragraph 3.1.6.2.

4.2.5.4 With the input signal of paragraph 4.1.5.2.1, applied to pins D & F of each stage, measure the output at pin J and verify that it is in accordance with paragraph 3.1.6.2.

4.2.5.5 With the input signal of paragraph 4.1.5.2.2 applied to pin 268, measure the output at pin 126 and verify that it is in accordance with paragraph 3.1.6.1.

4.2.5.6 With the input signal of paragraph 4.1.5.2.1 applied to pins A & C and D & F of each stage, and pin I loaded with a 1000 ohm ± 5% resistor, measure the output at pin I and verify that it is in accordance with paragraph 3.1.6.3.

4.2.6 Gain Resolution. Using the following formula, calculate the gain resolution for each stage, and verify that they are in accordance with paragraph 3.1.5.3.

$$\text{GAIN RESOLUTION} = A_K - A_k$$
$$= A_Q - A_q$$

NOTE: See paragraph 4.1.5.1 for definitions of symbols.

4.2.7 Weight. Weigh the module to the nearest .01 pound. Verify that the weight does not exceed the maximum allowable weight specified in paragraph 3.2.2.

4.3 WORKMANSHIP. The following tests shall be performed under the conditions specified as a verification of good workmanship.

4.3.1 Marginal Voltage and Temperature Extremes.

4.3.1.1 With the input voltage and ambient temperature as specified in paragraph 3.1.7.1, repeat tests 4.2.5.1 through 4.2.6. Verify that the module performs as specified in paragraph 3.1.7.1.

NOTE: The module shall be maintained at the specified temperature for not less than 30 minutes prior to start of tests.

4.3.1.2 With the input voltage and ambient temperature as specified in paragraph 3.1.7.2, repeat tests 4.2.5.1 through 4.2.6. Verify that the module performs as specified in paragraph 3.1.7.2.

NOTE: The module shall be maintained at the specified temperature for not less than 30 minutes prior to start of tests.

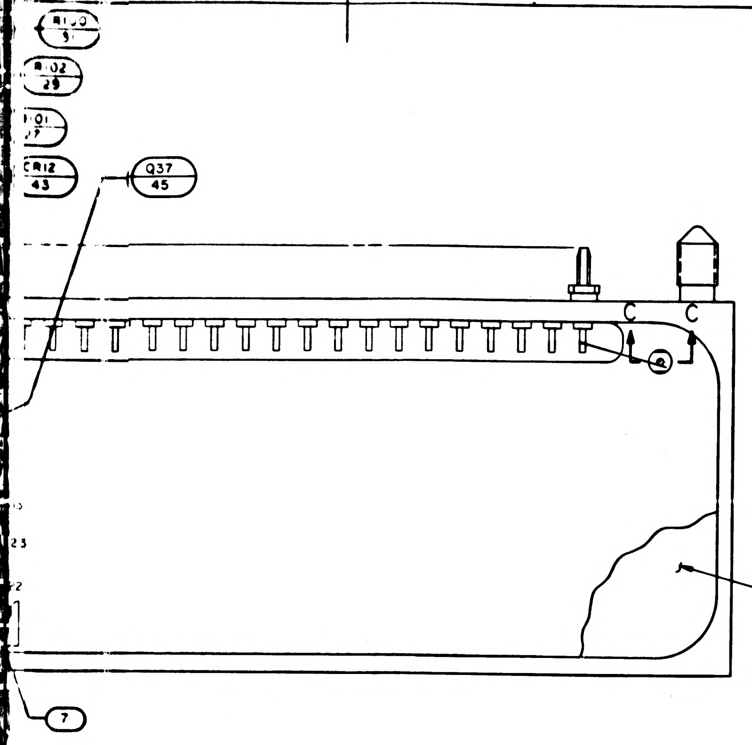
4.3.2 Vibration. Install the module in an applicable computer. Subject the computer subsystem to the vibration tests specified in the applicable JDC. Verify that the computer subsystem meets the requirements of the applicable specification.

5. PREPARATION FOR DELIVERY

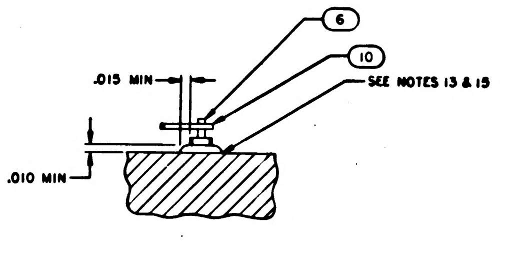
5.1 GENERAL. Preparation for delivery shall be in accordance with Specification ND 1002214.

6. NOTES. None

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		CHANGED PER TDRR 28449				

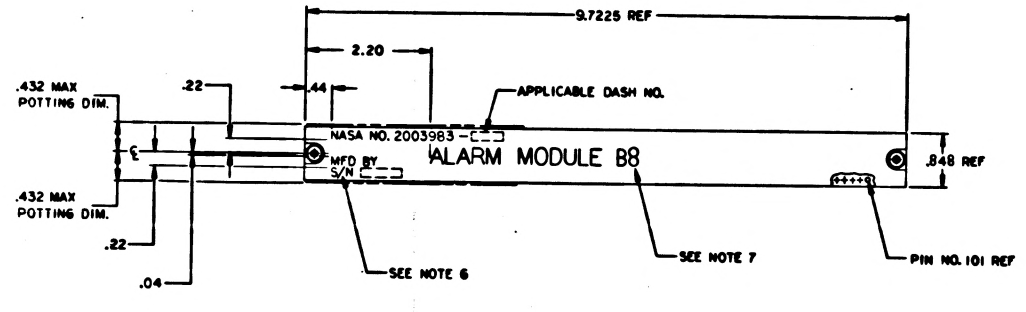


R100
3
R102
29
101
27
CR12
43
Q37
45
C
C
SEE NOTE 18
7



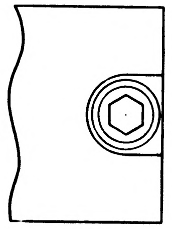
6
10
.015 MIN
SEE NOTES 13 & 15
.010 MIN

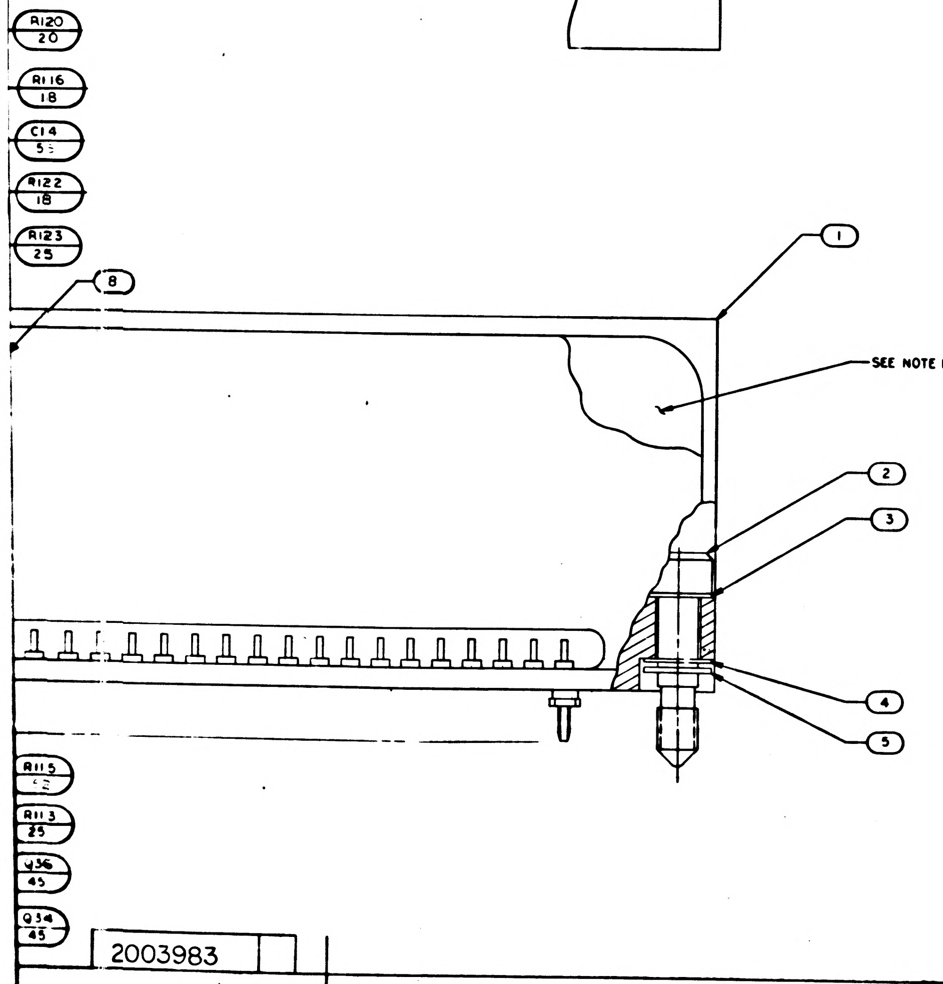
PARTIAL SECTION C-C



9.7225 REF
2.20
.44
.22
APPLICABLE DASH NO.
.432 MAX
POTTING DIM.
NASA NO. 2003983 -
MFD BY
S/N
ALARM MODULE B8
.848 REF
.432 MAX
POTTING DIM.
.22
.04
SEE NOTE 6
SEE NOTE 7
PIN NO. 101 REF

MARKING VIEW
SCALE 1/1





R120
20
R116
18
C14
5
R122
18
R123
25
8
1
SEE NOTE 18
2
3
4
5
R115
R113
25
Q36
45
Q34
45
2003983

2005922	SCHEMATIC		REF

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1006750-53	RESISTOR	56
1	1006755-69	CAPACITOR	55
1	1006755-21	CAPACITOR	54
1	1006750-50	RESISTOR	53
1	1006750-36	RESISTOR	52
5	2004074	INSULATOR, WASHER	51
5	SEE NOTE 8	RESISTOR	50
9	1006750-39	RESISTOR	49
1	1006755-128	CAPACITOR	48
7	1010376-1	TRANSISTOR	47
15	2004004-002	TRANSISTOR	46
16	2004004-001	TRANSISTOR	45
4	2004112-002	DIODE	44
8	2004103-001	DIODE	43
2	1006777-25	CAPACITOR	42
1	1006777-24	CAPACITOR	41
1	1006777-20	CAPACITOR	40
1	1006755-79	CAPACITOR	39
4	1006755-57	CAPACITOR	38
1	1006755-36	CAPACITOR	37
1	1006755-31	CAPACITOR	36
2	1006788-6	RESISTOR	35
6	1010377-227	RESISTOR	34
3	1010377-51	RESISTOR	33
1	1010377-50	RESISTOR	32
6	1006750-84	RESISTOR	31
1	1006750-83	RESISTOR	30
1	1006750-63	RESISTOR	29
9	1006750-58	RESISTOR	28
15	1006750-56	RESISTOR	27
17	1006750-49	RESISTOR	26
16	1006750-47	RESISTOR	25
5	1006750-43	RESISTOR	24
1	1006750-41	RESISTOR	23
1	1006750-33	RESISTOR	21
5	1006750-32	RESISTOR	20
2	1006750-30	RESISTOR	19
3	1006750-25	RESISTOR	18
3	1006750-15	RESISTOR	17
1	1006750-17	RESISTOR	16
3	1006750-8	RESISTOR	15
2	1006750-6	RESISTOR	14
3	1006750-1	RESISTOR	13
AR	1006776-22	INSULATION, SLEEVING	12
AR	1006776-21	INSULATION, SLEEVING	11
AR	1006757-8	WIRE, ELEC	10
AR	1006757-1	WIRE, ELEC	9
1	2003990	INSULATOR B ASSEMBLY	8
1	2004719	INSULATOR A	7
1	2004039	TERMINAL, THREADED	6
2	MS16633-4015	RING, RETAINING, EXTERNAL, "E"	5
2	[illegible]-003	WASHER, FLAT	4
2	2004984-001	WASHER, FLAT	3
2	1004579-1	SCREW, JACKING	2
1	2003032-021	HEADER, HOUSING ASSY	1

-011

LIST OF MATERIALS

NEXT ASSY	USED ON
2003200	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS XX± .02 ANGLES ± ——
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN D.A. Clermont 30 Mar 66
CHECKED R. Edward 5 Apr 66
APPROVED
APPROVED Eldon C. Hall 12 Apr 66
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

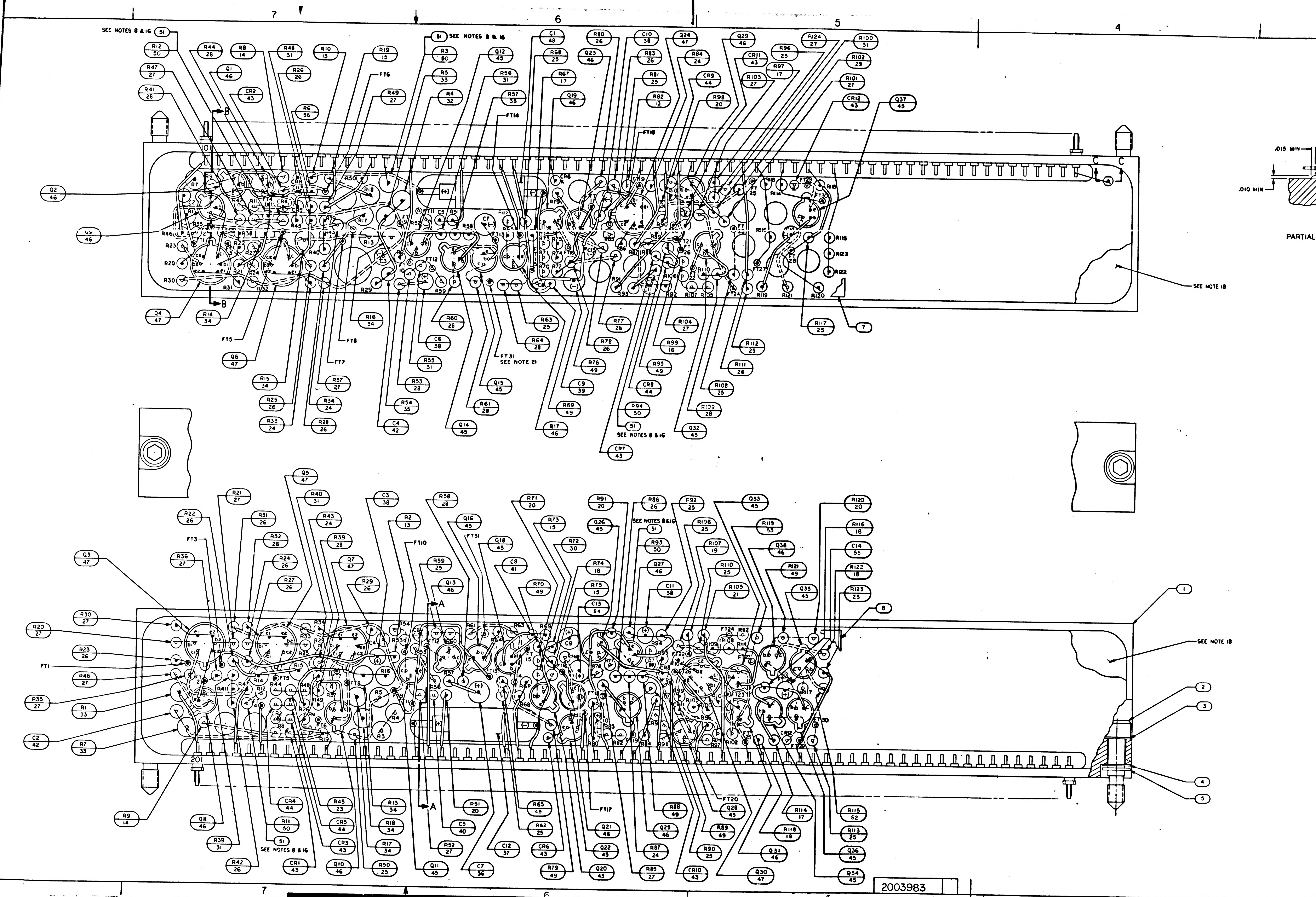
ALARM MODULE
B8
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003983
SCALE 4/1
SHEET 1 OF 1

2003983 A

3#

F3/3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6
5
4
SEE NOTES 8 & 16
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SEE NOTES 8 & 16
R12 50
R47 27
R41 28
R44 28
R8 14
Q1 46
CR2 43
R48 31
R26 26
R6 56
R10 13
R19 15
FT6
R49 27
R3 80
R5 33
R4 32
Q12 45
R56 31
R57 35
FT14
C1 48
R68 25
R67 17
Q19 46
R80 26
Q23 46
C10 38
R83 26
R81 25
R82 13
FT18
Q24 47
R84 24
CR9 44
R98 20
Q29 46
CR11 43
R103 27
R96 25
R97 17
R124 27
R100 31
R102 29
R101 27
CR12 43
Q37 45
Q2 46
Q9 46
Q4 47
R14 34
FT5
Q6 47
R15 34
R25 26
R33 24
R16 34
FT8
FT7
R37 27
R34 24
R28 26
C6 38
R55 31
R53 28
R54 35
C4 42
R60 28
FT 31
SEE NOTE 21
Q15 45
R61 28
Q14 45
R63 25
R64 28
C9 39
R69 49
Q17 46
R77 26
R78 26
R76 49
R94 50
51
SEE NOTES 8 & 16
CR7 43
R104 27
R99 16
R95 49
CR8 44
R108 25
R109 28
Q32 45
R112 25
R111 26
R117 25
7
SEE NOTE 18
.015 MIN
.010 MIN
PARTIAL
B
C
101
Q5 47
R21 27
R40 31
C3 38
R58 28
R71 20
R91 20
R86 26
R92 25
Q33 45
R120 20
R22 26
R31 26
R43 24
R2 13
Q16 45
FT31
R73 15
Q26 45
SEE NOTES 8 & 16
51
R106 25
R119 53
R116 18
FT3
R32 26
R39 28
FT10
Q18 45
R72 30
R93 50
R107 19
Q38 46
C14 55
R36 27
R24 26
Q7 47
R59 25
C8 41
R74 18
Q27 46
R110 25
R121 49
R122 18
Q3 47
R27 26
R29 26
Q13 46
R70 49
R75 15
C11 38
R105 21
Q35 45
R123 25
C13 54
1
8
R30 27
R20 27
R23 26
FT1
R46 27
R35 27
R1 33
C2 42
R7 33
A
SEE NOTE 18
2
3
4
5
201
R9 14
Q8 46
R38 31
R42 26
CR4 44
R11 50
51
SEE NOTES 8 & 16
CR1 43
R45 23
CR5 44
CR3 43
Q10 46
R13 34
R18 34
R17 34
R50 25
R51 20
C5 40
R52 27
Q11 45
C12 37
C7 36
R65 49
R62 25
CR6 43
R79 49
FT17
Q21 46
Q22 45
Q20 45
R88 49
Q25 46
R87 24
R85 27
FT20
Q28 45
R89 49
R90 25
CR10 43
Q30 47
R114 17
R118 19
Q31 46
R115 52
R113 25
Q36 45
Q34 45

2003983

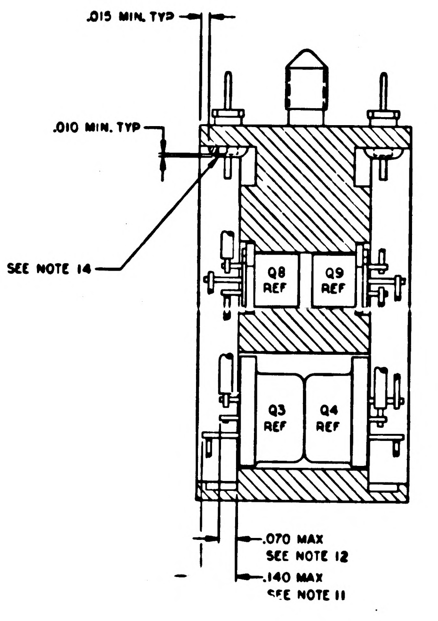
2003983 A F2/3

R11, R93	
PART NO.	VALUE
1006738-6	10
1006738-9	27
1006750-1	51
-4	68
-7	91
-9	110
-11	130
-12	150
-13	160
-14	180
-15	200
-16	220
1006750-17	240

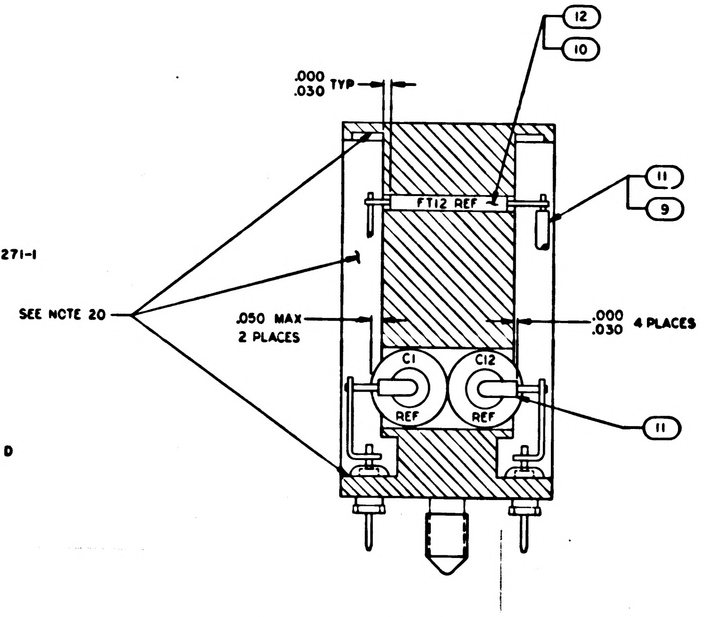
R12	
PART NO.	VALUE
1006750-36	1500
-37	1600
-38	1800
-39	2000
-40	2200
1006750-41	2400

R94	
PART NO.	VALUE
1006750-27	620
-30	820
-32	1000
-34	1200
-35	1300
-36	1500
-37	1600
1006750-38	1800

R3	
PART NO.	VALUE
1006750-128	3450
-45	3600
-129	3750
-46	3900
-130	4100
-47	4300
-131	4500
1006750-48	4700


.015 MIN. TYP
.010 MIN. TYP
SEE NOTE 14
Q8 REF
Q9 REF
Q3 REF
Q4 REF
.070 MAX
SEE NOTE 12
.140 MAX
SEE NOTE 11

SECTION B-B
FIND NO. 7&8 REMOVED FOR CLARITY


12
10
.000
.030 TYP
FT12 REF
11
9
SEE NOTE 20
.050 MAX
2 PLACES
.000
.030 4 PLACES
C1
C12
REF
REF
11

SECTION A-A
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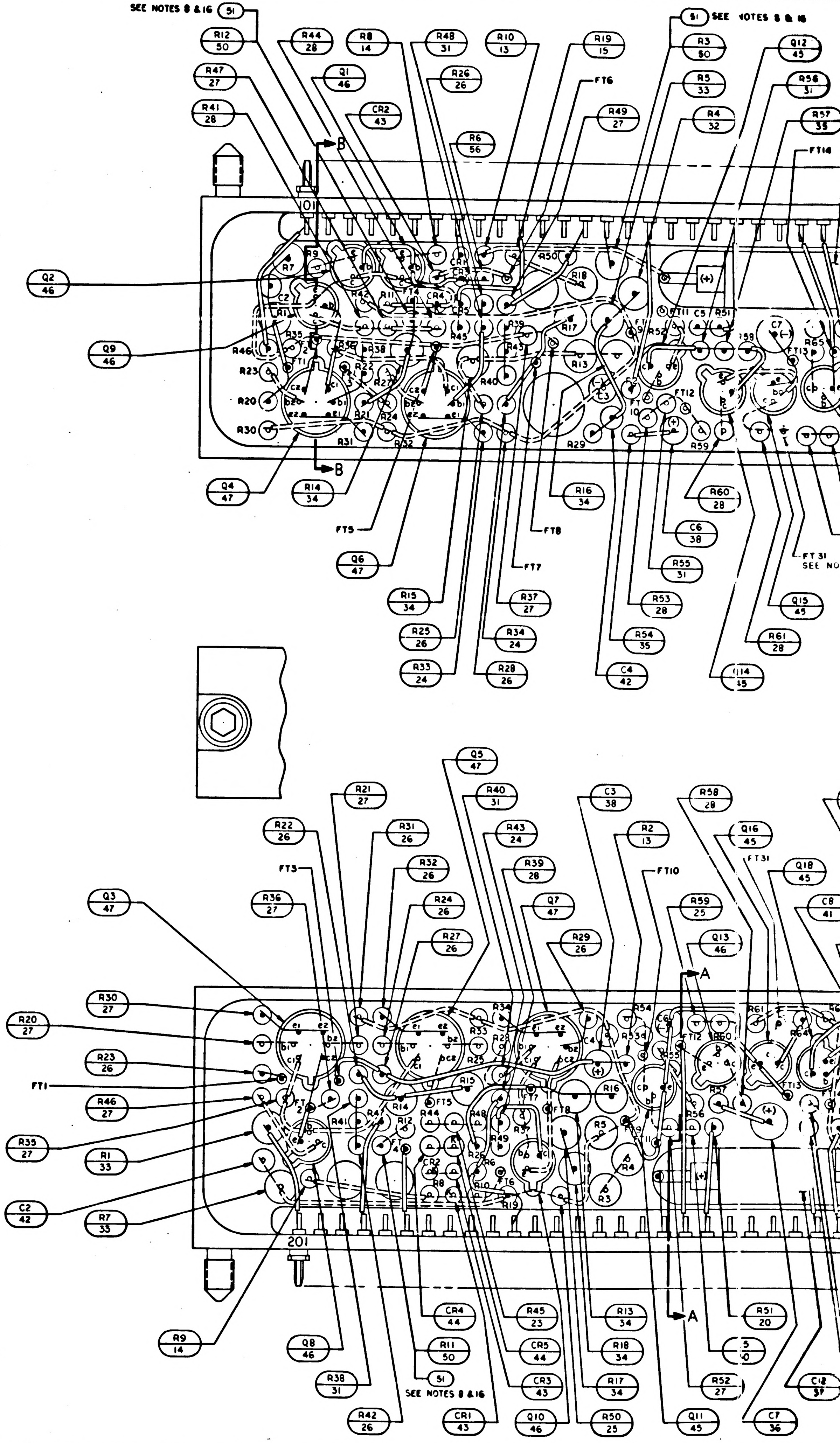
SEE NOTES 8 & 16
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51 SEE NOTES 8 & 16
R12 50
R47 27
R41 28
R44 28
Q1 46
R8 14
CR2 43
R48 31
R26 26
R6 56
R10 13
R19 15
FT6
R49 27
R3 50
R5 33
R4 32
Q12 45
R56 31
R57 35
FT14
B
101
Q2 46
Q9 46
Q4 47
R14 34
FT5
Q6 47
R15 34
R25 26
R33 24
R37 27
R34 24
R28 26
FT8
FT7
R16 34
R53 28
R54 35
C4 42
R55 31
C6 38
R60 28
FT 31
Q15 45
R61 28
Q14 45
Q5 47
R21 27
R40 31
C3 38
R58 28
R22 26
R31 26
R43 24
R2 13
Q16 45
FT31
FT3
R32 26
R39 28
FT10
Q18 45
Q3 47
R36 27
R24 26
Q7 47
R59 25
C8 41
R27 26
R29 26
Q13 46
A
R30 27
R20 27
R23 26
FT1
R46 27
R35 27
R1 33
C2 42
R7 33
201
R9 14
Q8 46
R38 31
R42 26
CR4 44
R11 50
51
SEE NOTES 8 & 16
CR1 43
R45 23
CR5 44
CR3 43
Q10 46
R13 34
R18 34
R17 34
R50 25
A
R51 20
5
R52 27
Q11 45
C7 36
C12 37

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. + DENOTES POSITIVE SIDE OF CAPACITOR
5. K DENOTES CATHODE SIDE OF DIODE
6. MARK .10/.08 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271-1
7. MARK .26/.24 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 USING INK 1006271-1
8. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST. R3, R11, R12, R93 AND R94 TO BE SELECTED FROM APPROPRIATE CHART
9. WELD PER ND1002005
10. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
11. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
12. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
13. MOUNTING TORQUE FOR FIND NO. 6 TO BE 15-20 INCH OUNCES
14. SEAL INSULATORS AND TERMINALS TO HEADER PER ND1002004, TYPE VI
15. SEAL FIND NO. 6 TO HEADER PER ND1002004, TYPE VI
16. ASSEMBLE FIND NO. 51 TO MODULE AFTER SELECTED VALUE HAS BEEN DETERMINED
17. STAKE FIND NO. 13 THRU FIND NO. 50 AND FIND NO. 52 THRU FIND NO. 56 TO FIND NO. 1 PER ND1002009 METHOD C OR D
18. ENCAPSULATE PER ND1002002. REMOVE FLASHING
19. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS 2003983
20. COAT INDICATED SURFACES, BOTH ENDS, TOP AND BOTTOM, BOTH SIDES PER ND1002187, TYPE II
21. STAKE FT31, FIND NO. 10 & FIND NO. 12. CENTRALLY. PER ND1002009 METHOD C OR D

APOLLO G&N Specification
PS 2003983 Rev A
Original Issue Date: 6-1-66
Release Authority: TDRR 29205
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

ALARM MODULE

(MODULE B8)

DRAWING NO. 2003983

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
Ⓜ 7/1/66	A	29906	1,4,17	DMS FG	DMS FG

This specification consists of pages 1 to 17 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	E C Hall 6/1/66	6-1-66 MIT/IL	5-24-66	D. M. Hooper 28 April 66 RA

4.2.7 **Workmanship.** The following tests shall be performed under the conditions specified as a verification of good workmanship.

4.2.7.1 **Vibration.** Install the module in an applicable computer. Subject the computer subsystem to the vibration tests specified in the applicable JDC. Verify that the computer subsystem meets the requirements of the applicable specification.

4.2.7.2 **Thermal Extremes and Marginal Voltages.** Repeat the tests of paragraph 4.2.6 at -10°C +0 -2.8°C and +70°C -0 +2.8°C to determine compliance with paragraphs 3.1.6 through 3.1.12. Modules shall be stabilized at thermal extremes for not less than ½ hour before testing.

4.2.7.3 **Weight.** Weigh the module to the nearest .01 pound. Verify that the weight does not exceed the maximum allowable weight specified in paragraph 3.2.2.

5.0 PREPARATION FOR DELIVERY

5.1 Preparation for delivery shall be in accordance with Specification ND 1002214.

6.0 NOTES. None.

3.1.6 **+5 VDC Source Circuit.** The output at pin 233 shall be in accordance with Table I.

TABLE I

INPUT (B PLUS)	+5 VDC OUTPUT	
	AT +25°C	AT -10°C and +70°C
14.0 ± 0.1 VDC	5.00 ± 0.02 VDC	5.00 ± 0.07 VDC
12.2 ± 0.1 VDC	5.00 ± 0.07 VDC	5.00 ± 0.10 VDC
16.5 ± 0.1 VDC	5.00 ± 0.07 VDC	5.00 ± 0.10 VDC

3.1.7 **Voltage Alarm Circuit.** The output voltages at pins 101, 114, and 204 (V FAIL) shall change from NMT 100 mv to 900 ± 45 mv and vice versa at the marginal supply voltages as specified in Tables II, III and IV, and within the time lapse after supply voltage turn-off as shown in Figure I.

TABLE II

INPUTS				OUTPUT*
+4 VDC	+28 COM VDC	B PLUS VDC	MEASURE B. PLUS When V FAIL Changes*	V FAIL OFF = 0.1V MAX ON = 0.900 ± 0.045 VDC
4.0 ± 0.1	22.25 ± 0.15	Set to 11.5	———	ON
		INCREASE	(V2)	OFF
		↓	16.0 ± 0.2	ON
		Set to 17.5	———	ON
		DECREASE	16.0 ± 0.2	OFF
		↓	12.5 ± 0.2 (V1)	ON
	36.0 ± 0.1	Set to 11.5	———	ON
			(V4)	OFF
		INCREASE ↓	16.0 ± 0.2	ON
		Set to 17.5	———	ON
			16.0 ± 0.2	OFF
		DECREASE ↓	12.5 ± 0.2 (V3)	ON

*V2-V1 = 0.26 ± 0.05 volts.

V4-V3 = 0.26 ± 0.05 volts.

10 9 8 7

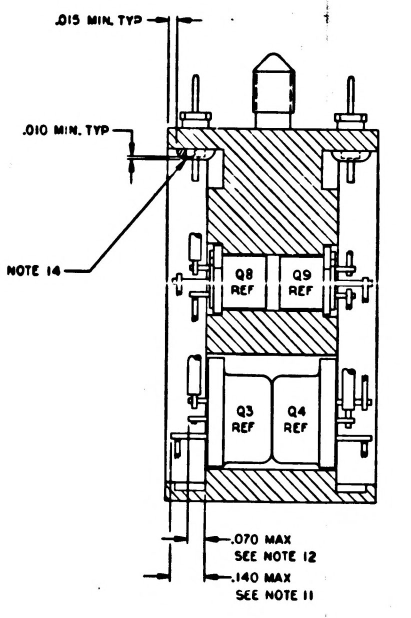
D

R11,R93	
PART NO.	VALUE
1006788-6	10
1006788-9	27
1006750-1	51
-4	68
-7	91
-9	110
-11	130
-12	150
-13	160
-14	180
-15	200
-16	220
1006750-17	240

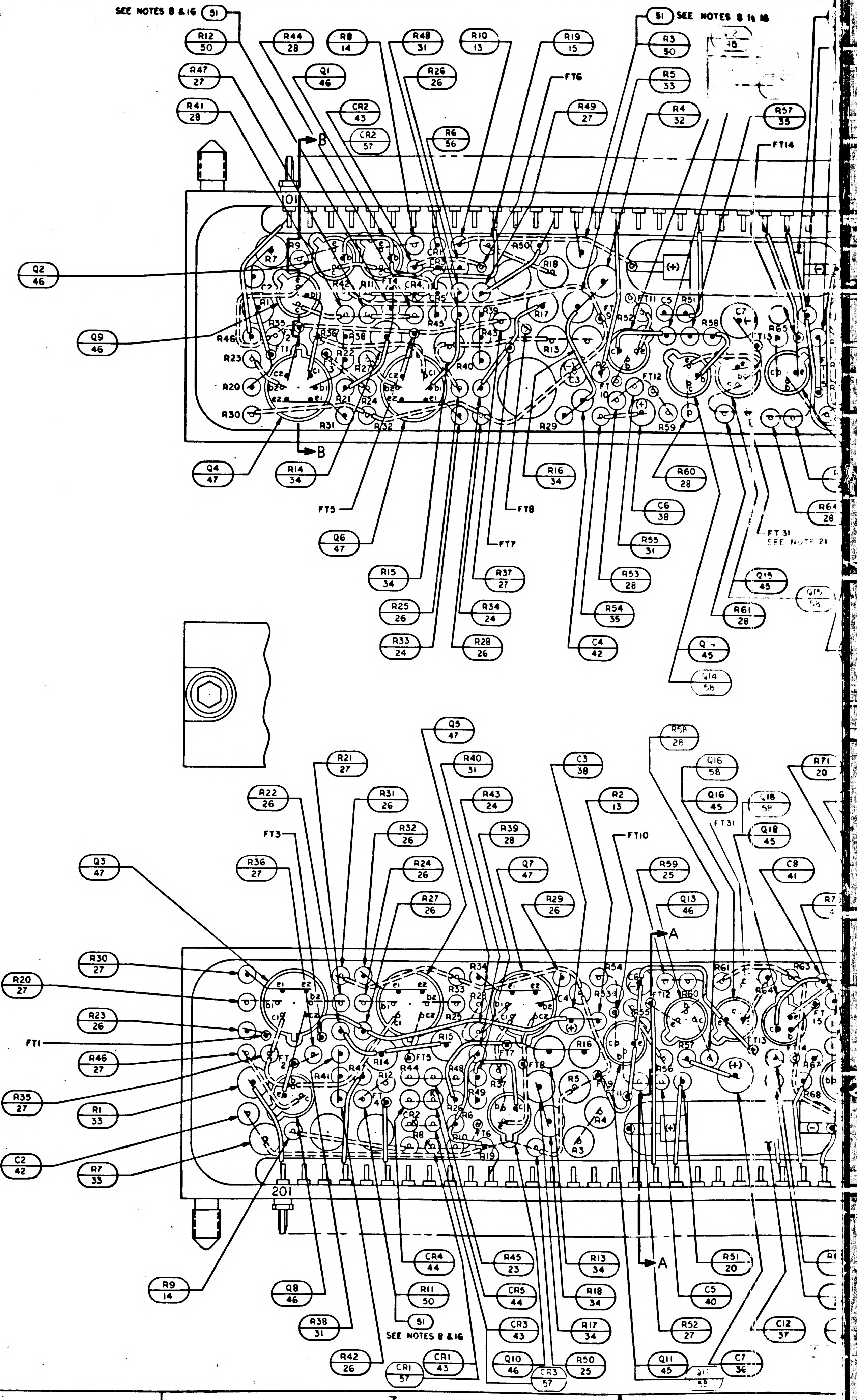
R12	
PART NO.	VALUE
1006750-36	1500
-37	1600
-38	1800
-39	2000
-40	2200
1006750-41	2400

R94	
PART NO.	VALUE
1006750-27	620
-30	820
-32	1000
-34	1200
-35	1300
-36	1500
-37	1600
1006750-38	1800

R3	
PART NO.	VALUE
1006750-128	3450
-45	3600
-129	3750
-46	3900
-130	4100
-47	4300
-131	4500
1006750 -48	4700


.015 MIN. TYP
.010 MIN. TYP
SEE NOTE 14
B
Q8 REF
Q9 REF
Q3 REF
Q4 REF
.070 MAX
SEE NOTE 12
.140 MAX
SEE NOTE 11

SECTION B-B
FIND NO. 7 & 8 REMOVED FOR CLARITY

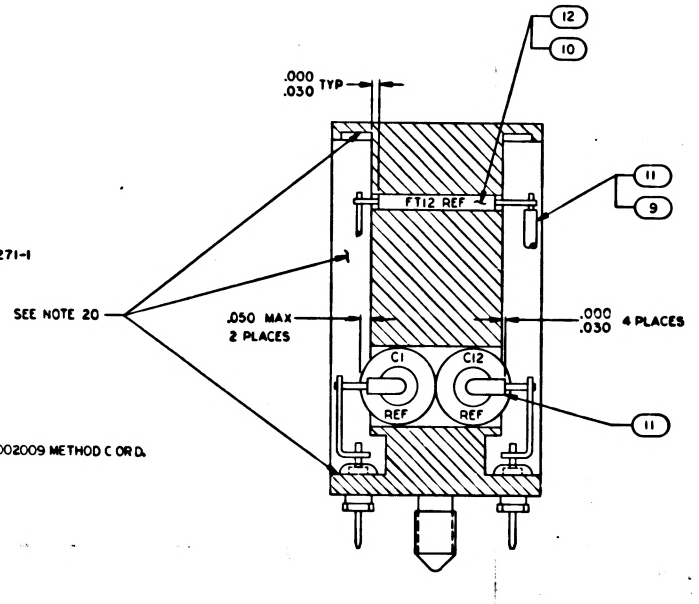

SEE NOTES 8 & 16 51
R12 50
R44 28
R8 14
R48 31
R10 13
R19 15
51 SEE NOTES 8 & 16
R3 50
R47 27
Q1 46
R26 26
FT6
R5 33
R41 28
CR2 43
CR2 57
R6 56
R49 27
R4 32
R57 35
FT14
B
101
Q2 46
Q9 46
Q4 47
R14 34
R16 34
R60 28
FT5
FT8
C6 38
R64 28
FT7
Q6 47
R55 31
FT 31 SEE NOTE 21
R15 34
R37 27
R53 28
Q15 45
Q15 58
R25 26
R34 24
R54 35
R61 28
R33 24
R28 26
C4 42
Q14 45
Q14 58
Q5 47
R58 28
R21 27
R40 31
C3 38
Q16 58
R71 20
R22 26
R31 26
R43 24
R2 13
Q16 45
Q18 58
FT31
FT3
R32 26
R39 28
FT10
Q18 45
R36 27
R24 26
Q7 47
R59 25
C8 41
Q3 47
R27 26
R29 26
Q13 46
A
R30 27
R20 27
R23 26
FT1
R46 27
R35 27
R1 33
C2 42
R7 33
201
R9 14
Q8 46
CR4 44
R45 23
R13 34
R51 20
R11 50
CR5 44
R18 34
A
C5 40
R38 31
51 SEE NOTES 8 & 16
CR3 43
R17 34
R52 27
C12 37
R42 26
CR1 57
CR1 43
Q10 46
CR3 57
R50 25
Q11 45
Q11 58
C7 36

C

B

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. + DENOTES POSITIVE SIDE OF CAPACITOR
5. K DENOTES CATHODE SIDE OF DIODE
6. MARK .10/.08 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271-1
7. MARK .26/.24 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 USING INK 1006271-1
8. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST. R3, R11, R12, R93 AND R94 TO BE SELECTED FROM APPROPRIATE CHART
9. WELD PER ND1002005
10. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
11. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
12. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
13. MOUNTING TORQUE FOR FIND NO. 6 TO BE 15-20 INCH OUNCES
14. SEAL INSULATORS AND TERMINALS TO HEADER PER ND1002004, TYPE VI
15. SEAL FIND NO. 6 TO HEADER PER ND1002004, TYPE VI
16. ASSEMBLE FIND NO. 51 TO MODULE AFTER SELECTED VALUE HAS BEEN DETERMINED
17. STAKE FIND NO. 13 THRU FIND NO. 50 AND FIND NO. 52 THRU FIND NO. 56 AND FIND NO. 57 AND 58 TO FIND NO. 1 PER ND1002009 METHOD C OR D.
18. ENCAPSULATE PER ND1002002. REMOVE FLASHING
19. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS 2003983
20. COAT INDICATED SURFACES, BOTH ENDS, TOP AND BOTTOM, BOTH SIDES PER ND1002187, TYPE II
21. STAKE FT31, FIND NO. 10 & FIND NO. 12, CENTRALLY, PER ND1002009 METHOD C OR D

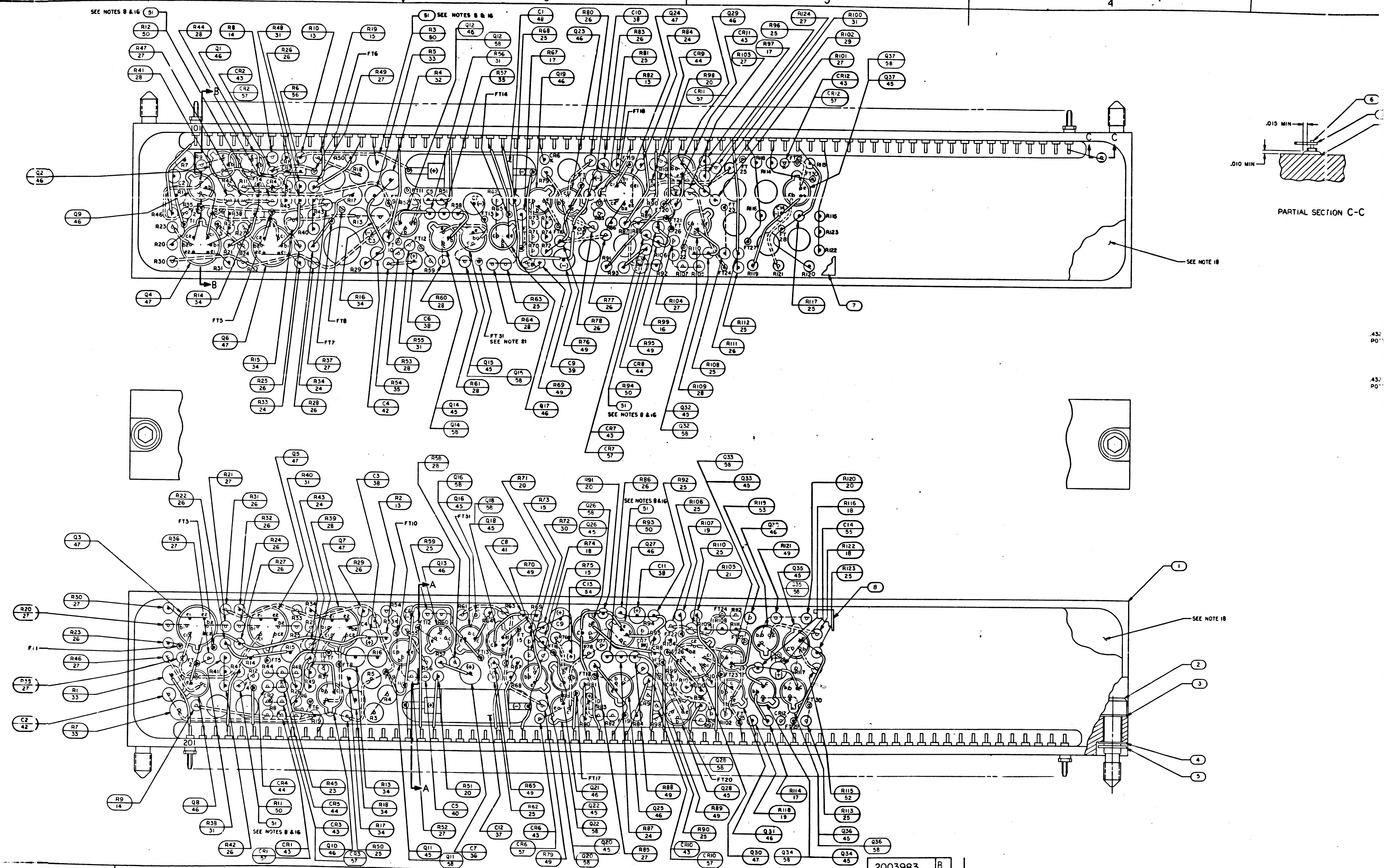

12
10
.000
.030 TYP
FT12 REF
11
9
SEE NOTE 20
.050 MAX
2 PLACES
.000
.030 4 PLACES
C1
C12
REF
REF
11

SECTION A-A
FIND NO. 7 & 8 REMOVED FOR CLARITY

A

10 7

2003983 B

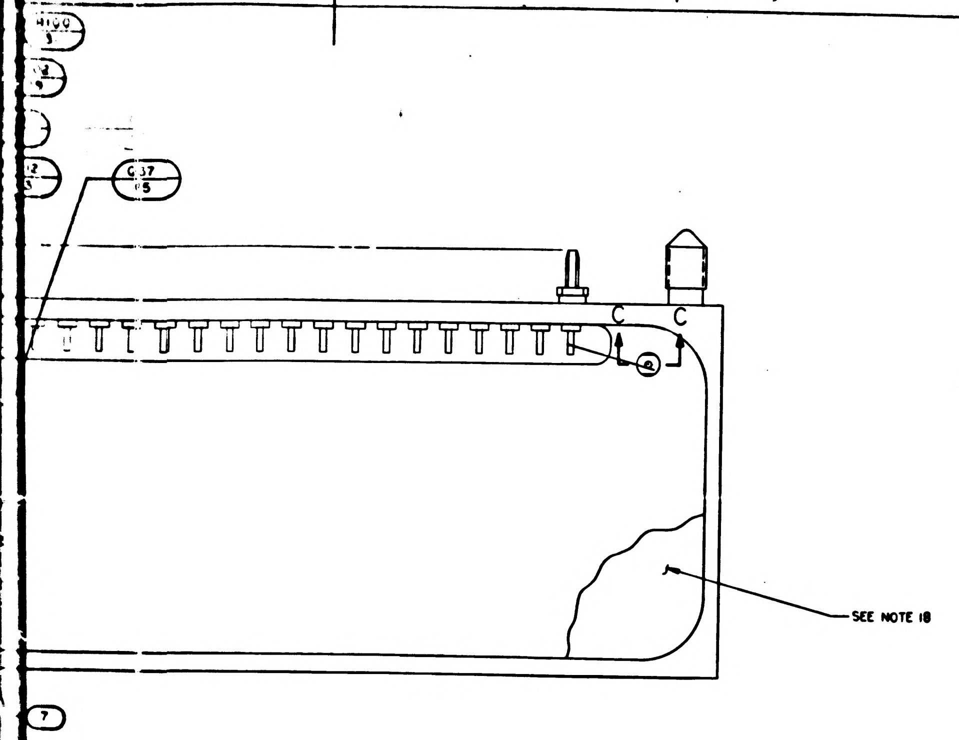


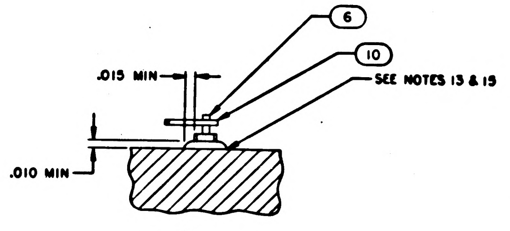
7
6
5
4
SEE NOTES 8 & 16
51
FT6
FT14
FT18
FT5
FT7
FT8
FT31
SEE NOTE 21
FT3
FT10
FT17
FT20
F11
A
B
C
101
201
PARTIAL SECTION C-C
.015 MIN
.010 MIN
SEE NOTE 18
1
2
3
4
5
6
7
8
Q2 46
Q9 46
Q4 47
R14 34
Q6 47
R15 34
R25 26
R33 24
R28 26
R34 24
R37 27
C4 42
R54 35
R53 28
R55 31
C6 38
R60 28
R63 25
R64 28
Q15 45
Q15 58
R61 28
Q14 45
Q14 58
C9 39
R69 49
Q17 46
R76 49
R77 26
R78 26
R95 49
CR8 44
R94 50
CR7 43
CR7 57
R104 27
R99 16
R108 25
R109 28
Q32 45
Q32 58
R112 25
R111 26
R117 25
R12 50
R47 27
R41 28
R44 28
Q1 46
CR2 43
CR2 57
R8 14
R48 31
R26 26
R6 56
R10 13
R19 15
R49 27
R3 50
R5 33
R4 32
Q12 46
Q12 58
R56 31
R57 35
C1 48
R68 25
R67 17
Q19 46
R80 26
Q23 46
C10 38
R83 26
R81 25
R82 13
Q24 47
R84 24
CR9 44
R98 20
CR11 57
Q29 46
CR11 43
R103 27
R96 25
R97 17
R124 27
R100 31
R102 29
R101 27
CR12 43
CR12 57
Q37 58
Q37 45
Q3 47
R36 27
R22 26
R21 27
R31 26
R32 26
R24 26
R27 26
Q5 47
R40 31
R43 24
R39 28
Q7 47
C3 38
R29 26
R2 13
R59 25
Q13 46
R58 28
Q16 58
Q16 45
Q18 58
Q18 45
C8 41
R71 20
R73 15
R70 49
R72 30
R74 18
R75 15
C13 54
R91 20
Q26 58
Q26 45
Q27 46
C11 38
R86 26
R93 50
R92 25
R106 25
R107 19
R110 25
R105 21
R119 53
Q38 46
R121 49
Q35 45
Q35 58
R120 20
R116 18
C14 55
R122 18
R123 25
R30 27
R20 27
R23 26
R46 27
R35 27
R1 33
C2 42
R7 33
R9 14
Q8 46
R38 31
R42 26
CR4 44
R11 50
CR1 57
CR1 43
R45 23
CR5 44
CR3 43
CR3 57
Q10 46
R13 34
R18 34
R17 34
R50 25
R51 20
C5 40
R52 27
Q11 45
Q11 58
C7 36
C12 37
R65 49
R62 25
CR6 43
CR6 57
R79 49
Q21 46
Q22 45
Q22 58
Q20 45
Q20 58
R87 24
R85 27
Q25 46
R88 49
CR10 43
CR10 57
R89 49
R90 25
Q28 58
Q28 45
Q31 46
Q30 47
Q34 58
Q34 45
R114 17
R118 19
R115 52
R113 25
Q36 45
Q36 58
Q33 58
Q33 45

2003983 B

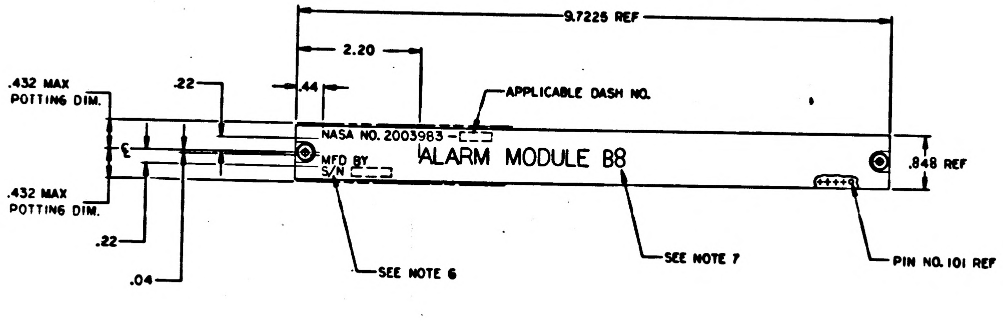
2003983 B F2/3

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		CHANGED PER TDRR 28449	RAB			EBB
B		CHANGED PER TDRR 32561	RSJ		1/20/67	

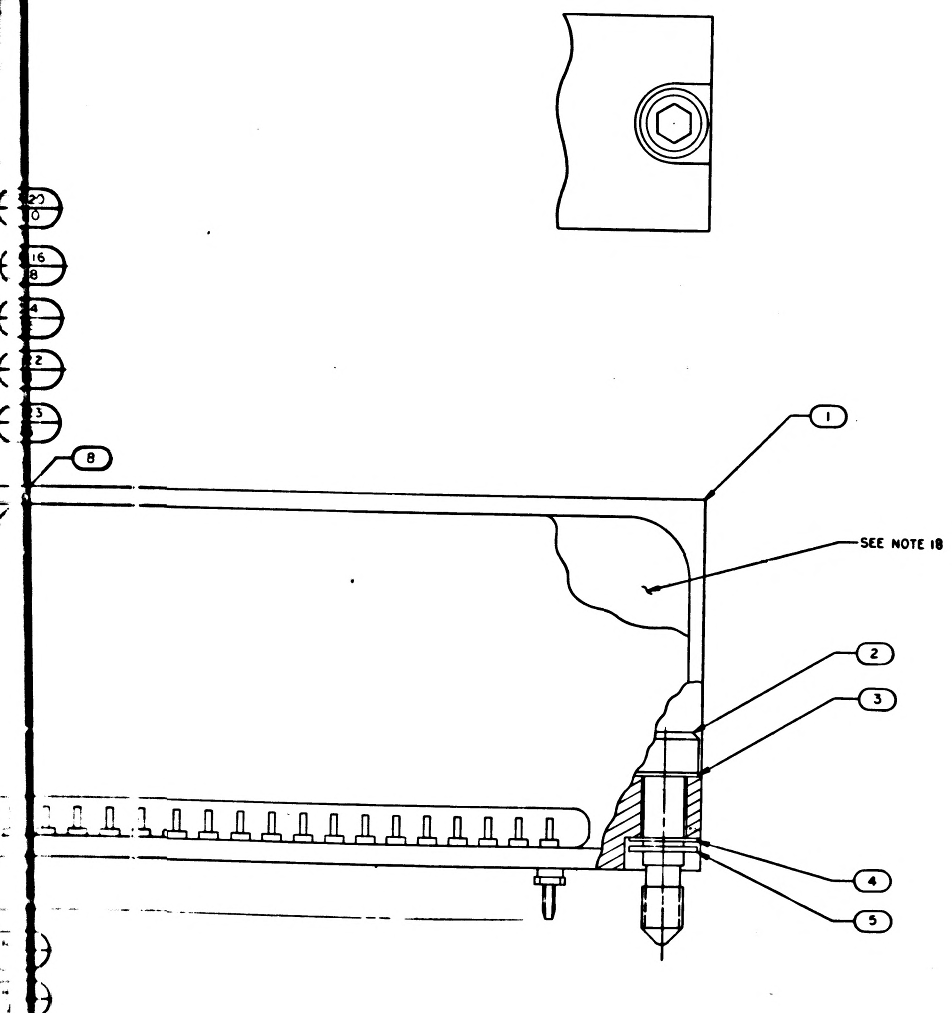




PARTIAL SECTION C-C



MARKING VIEW
SCALE 1/1



☒	—	2005927	SCHEMATIC	REF
—	☒	2005922	SCHEMATIC	REF
16	—	2004184-001	TRANSISTOR	58
8	—	2004183-001	DIODE	57
1	1	1006750-53	RESISTOR	56
1	1	1006755-69	CAPACITOR	55
1	1	1006755-21	CAPACITOR	54
1	1	1006750-50	RESISTOR	53
1	1	1006750-36	RESISTOR	52
5	5	2004074	INSULATOR, WASHER	51
5	5	SEE NOTE 8	RESISTOR	50
9	9	1006750-39	RESISTOR	49
1	1	1006755-128	CAPACITOR	48
7	7	1010376-1	TRANSISTOR	47
15	15	2004004-002	TRANSISTOR	46
—	16	2004004-001	TRANSISTOR	45
4	4	2004112-002	DIODE	44
—	8	2004103-001	DIODE	43
2	2	1006777-25	CAPACITOR	42
1	1	1006777-24	CAPACITOR	41
1	1	1006777-20	CAPACITOR	40
1	1	1006755-79	CAPACITOR	39
4	4	1006755-57	CAPACITOR	38
1	1	1006755-36	CAPACITOR	37
1	1	1006755-31	CAPACITOR	36
2	2	1006788-6	RESISTOR	35
6	6	1010377-227	RESISTOR	34
3	3	1010377-51	RESISTOR	33
1	1	1010377-50	RESISTOR	32
6	6	1006750-84	RESISTOR	31
1	1	1006750-83	RESISTOR	30
1	1	1006750-63	RESISTOR	29
9	9	1006750-58	RESISTOR	28
15	15	1006750-56	RESISTOR	27
17	17	1006750-49	RESISTOR	26
16	16	1006750-47	RESISTOR	25
5	5	1006750-43	RESISTOR	24
1	1	1006750-41	RESISTOR	23
1	1	1006750-33	RESISTOR	21
5	5	1006750-32	RESISTOR	20
2	2	1006750-30	RESISTOR	19
3	3	1006750-25	RESISTOR	18
3	3	1006750-15	RESISTOR	17
1	1	1006750-17	RESISTOR	16
3	3	1006750-8	RESISTOR	15
2	2	1006750-6	RESISTOR	14
3	3	1006750-1	RESISTOR	13
AR	AR	1006776-22	INSULATION, SLEEVING	12
AR	AR	1006776-21	INSULATION, SLEEVING	11
AR	AR	1006757-8	WIRE, ELEC	10
AR	AR	1006757-1	WIRE, ELEC	9
1	1	2003990	INSULATOR B ASSEMBLY	8
1	1	2004719	INSULATOR A	7
1	1	2004039	TERMINAL, THREADED	6
2	2	MS16633-4015	RING, RETAINING, EXTERNAL, "E"	5
2	2	2004984-003	WASHER, FLAT	4
2	2	2004984-001	WASHER, FLAT	3
2	2	1004579-1	SCREW, JACKING	2
1	1	2003032-021	HEADER, HOUSING ASSY	1
QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
-021	-011			

LIST OF MATERIALS

NEXT ASSY	USED ON
2003993	
2003200	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS XX± .02 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN D.A. Vermont 30 MAR 66
CHECKED R. Edwards 5 Apr 66
APPROVED
APPROVED Eldon C. Hall 12 Apr 66
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ALARM MODULE
B8
ASSEMBLY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003983
SCALE 4/1
SHEET 1 OF 1

2003983 B

2003983 B

F3/3

APOLLO G&N Specification
PS 2003983 Rev B
Original Issue Date: 6-1-66
Release Authority: TDRR 29206
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

ALARM MODULE

(MODULE B8)

DRAWING NO. 2003983

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
Ⓜ 7/1/66	A	29906	1,4,17	DMS FA	DMS FA
Ⓜ 8/18/66	B	30653	1, 4	DMS FA	DMS FA

This specification consists of pages 1 to 17 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	E C Hall 6/1/66 6-1-66 MIT/IL	28 APRIL 66 RAY

3.1.6 +5 VDC Source Circuit. The output at pin 233 shall be in accordance with Table I.

TABLE I

INPUT (B PLUS)	+5 VDC OUTPUT	
	AT +25°C	AT -10°C and +70°C
14.0 ± 0.1 VDC	5.00 ± 0.02 VDC	5.00 ± 0.07 VDC
12.2 ± 0.1 VDC	5.00 ± 0.07 VDC	5.00 ± 0.10 VDC
16.5 ± 0.1 VDC	5.00 ± 0.07 VDC	5.00 ± 0.10 VDC

3.1.7 Voltage Alarm Circuit. The output voltages at pins 101, 114, and 204 (V FAIL) shall change from NMT 100 mv to 900 ± 45 mv and vice versa at the marginal supply voltages as specified in Tables II, III and IV, and within the time lapse after supply voltage turn-off as shown in Figure 2.

TABLE II

INPUTS				OUTPUT*
+4 VDC	+28 COM VDC	B PLUS VDC	MEASURE B. PLUS When V FAIL Changes*	V FAIL OFF = 0.1V MAX ON = 0.900 ± 0.045 VDC
4.0 ± 0.1	22.25 ± 0.15	Set to 11.5	———	ON
		INCREASE	(V2)	OFF
		↓	16.0 ± 0.2	ON
		Set to 17.5	———	ON
		DECREASE	16.0 ± 0.2	OFF
		↓	12.5 ± 0.2 (V1)	ON
	36.0 ± 0.1	Set to 11.5	———	ON
			(V4)	OFF
		INCREASE ↓	16.0 ± 0.2	ON
		Set to 17.5	———	ON
			16.0 ± 0.2	OFF
		DECREASE ↓	12.5 ± 0.2 (V3)	ON

*V2-V1 = 0.24 ± 0.07 volts

V4-V3 = 0.24 ± 0.07 volts

APOLLO G&N Specification
PS 2003983 Rev C
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Release Authority: TDRR 29205
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

ALARM MODULE

(MODULE B8)

DRAWING NO. 2003983

Record of Revisions

	Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
					MIT	NASA
Ⓜ	7/1/66	A	29906	1,4,17	JMS FG	JMS FG
Ⓜ	8/18/66	B	30653	1, 4	JMS FG	JMS FG
Ⓜ	11/3/66	C	31832	1, 5, 6	WJ FG	WJ FG

This specification consists of pages 1 to 17 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	E C Hall 4/1/66 M B Mulry 6-1-66 MIT/IL	5-24-66	D.M. Sleeper 28 April 66 BC Smith RA

TABLE III

INPUTS				OUTPUT
+28 COM VDC	B PLUS VDC	+4 VDC	MEASURE +4 VDC when V FAIL changes*	V FAIL OFF = 0.1 VDC MAX ON = 0.900 ± 0.045V
36.0 ± 0.1	13.2 ± 0.1	Set to 3.0 INCREASE ↓	——— (V2) 4.4 ± 0.1	ON OFF ON
		Set to 5.0 DECREASE ↓	——— 4.4 ± 0.1 3.65 ± 0.05 (V1)	ON OFF ON
	15.5 ± 0.1	Set to 3.0 INCREASE ↓	——— (V1) 4.4 ± 0.1	ON OFF ON
		Set to 5.0 DECREASE ↓	——— 4.4 ± 0.1 3.65 ± 0.05 (V3)	ON OFF ON
22.25 ± 0.15	15.5 ± 0.1	Set to 3.0 INCREASE ↓	——— (V6) 4.4 ± 0.1	ON OFF ON
		Set to 5.0 DECREASE ↓	——— 4.4 ± 0.1 3.65 ± 0.05 (V5)	ON OFF ON
	13.2 ± 0.1	Set to 3.0 INCREASE ↓	——— (V8) 4.4 ± 0.1	ON OFF ON
		Set to 5.0 DECREASE ↓	——— 4.4 ± 0.1 3.65 ± 0.05 (V7)	ON OFF ON

*V2-V1, V4-V3, V6-V5, and V8-V7 all equal 0.08 ± 0.04 volts.

TABLE IV

INPUTS				OUTPUT
+4 VDC	B PLUS VDC	+28 COM* VDC	MEASURE +28 COM when V FAIL changes**	V FAIL OFF = 0.1 VDC max ON = 0.900 ± 0.045V
4.0 ± 0.1	13.2 ± 0.1	Set to 19.0	______	ON
		INCREASE ↓	(V2)	OFF
		Set to 23.0	______	OFF
		DECREASE ↓	21.6 ± 0.2 (V1)	ON
	15.5 ± 0.1	Set to 19.0	______	ON
		INCREASE ↓	(V4)	OFF
		Set to 23.0	______	OFF
		DECREASE ↓	21.6 ± 0.2 (V3)	ON

*VLT REF shall be 8.10 ± 0.02 VDC at time of initial setup.

**V2-V1 = +0.5 ± 0.2, V4-V3 = 0.5 ± 0.2.

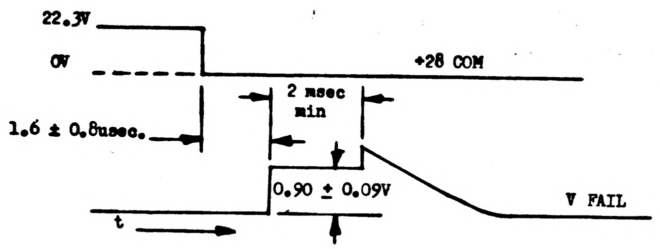
22.3V
0V
+28 COM
2 msec min
1.6 ± 0.8usec.
0.90 ± 0.09V
V FAIL
t

FIG. 1 (a) +28 COM TURN-OFF RESPONSE

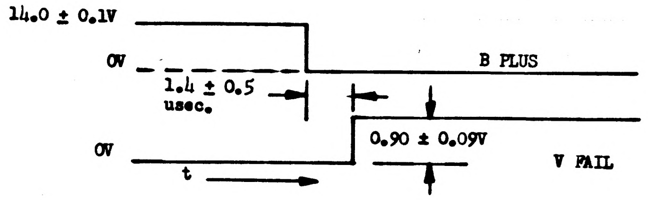
14.0 ± 0.1V
0V
B PLUS
1.4 ± 0.5 usec.
0.90 ± 0.09V
0V
V FAIL
t

FIGURE 1 (b) B PLUS TURN-OFF RESPONSE

APOLLO G&N Specification
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PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

ALARM MODULE

(MODULE B8)

DRAWING NO. 2003983

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
Ⓜ 7/1/66	A	29906	1,4,17	DMS FG	DMS FG
Ⓜ 8/18/66	B	30653	1, 4	DMS FG	DMS FG
Ⓜ 11/3/66	C	31832	1, 5, 6	FG	FG
1/5/67	D	32552	1, 2	FG	FG

This specification consists of pages 1 to 17 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	E C Hall 6/1/66	6-1-66 MIT/IL	5-24-66	D. M. Sleeper 28 April 66 B C Smith RAY

APOLLO G&N Specification
PS 2003983 Rev. E
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Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

ALARM MODULE

(MODULE B8)

DRAWING NO. 2003983

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
7/1/66	A	29906	1,4,17		
8/18/66	B	30653	1, 4		
11/3/66	C	31832	1, 5, 6		
1/5/67	D	32552	1, 2		
4/6/67	E	33542	1, 12, 17		

This specification consists of pages 1 to 17 inclusive.

APPROVALS	A. C. METZGER NASA/MSC	E C Hall 6/1/66	6-1-66 MIT/IL	5-24-66	D. M. Sloper 28 April 66 RA

APOLLO G&N Specification
PS 2003983 Rev F
Original Issue Date: 6-1-66
Release Authority: TDRR 29205
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

ALARM MODULE

(MODULE B8)

DRAWING NO. 2003983

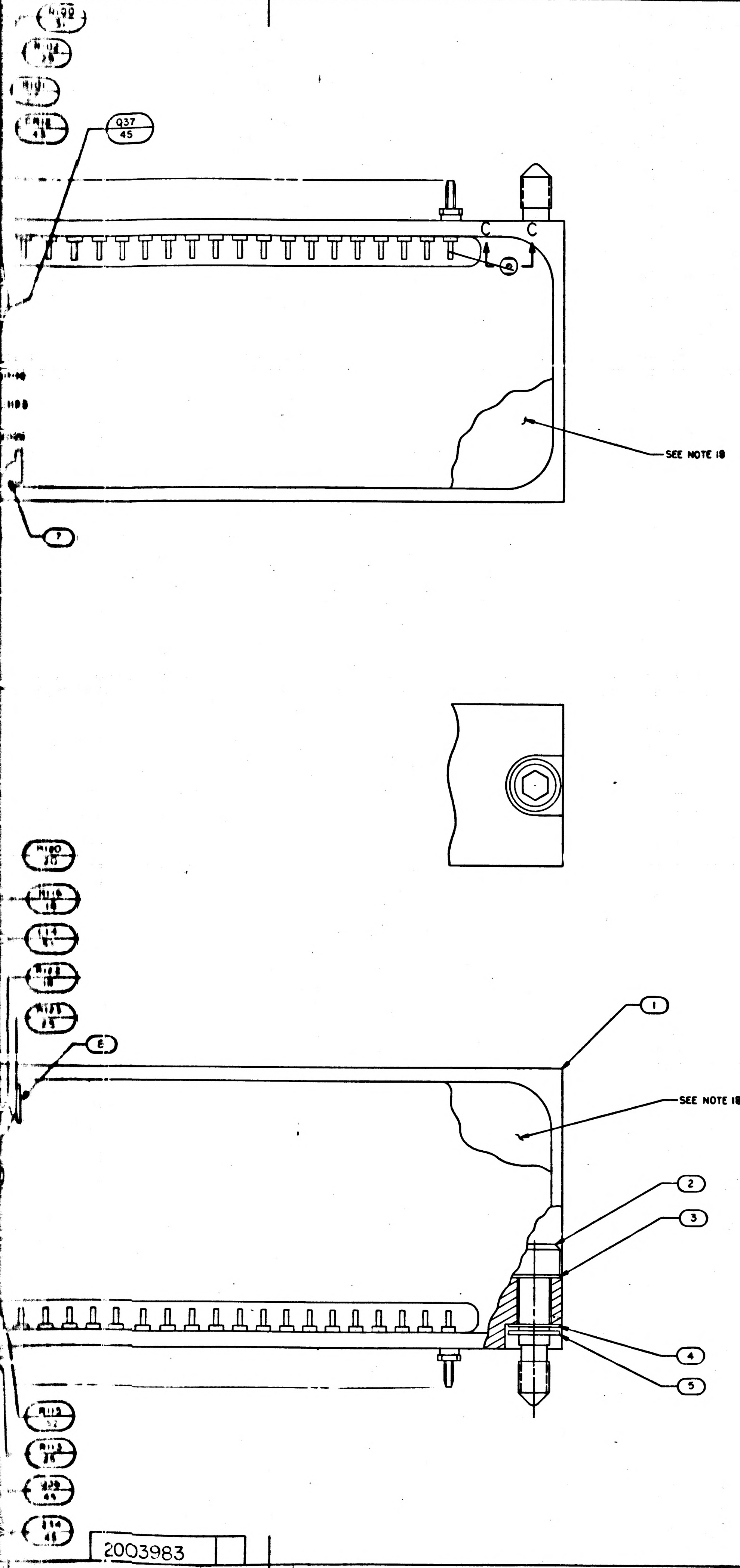
Record of Revisions

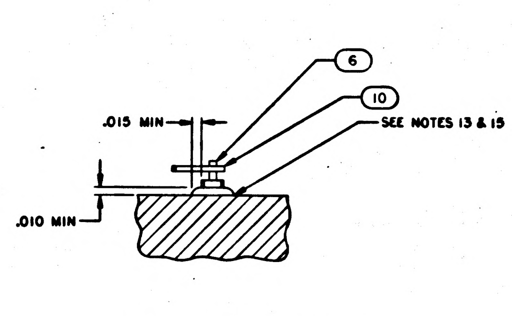
Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
7/1/66	A	29906	1,4,17	JMS FG	JMS FG
8/18/66	B	30653	1, 4	JMS FG	JMS FG
11/3/66	C	31832	1, 5, 6	[illegible] FG	[illegible] FG
1/5/67	D	32552	1, 2	[illegible] FG	[illegible] FG
4/6/67	E	33542	1, 12, 17	JMS FG	JMS FG
6/24/6[illegible]	F	36266	1,4-8,10	JMS FG	JMS FG

This specification consists of pages 1 to 17 inclusive.

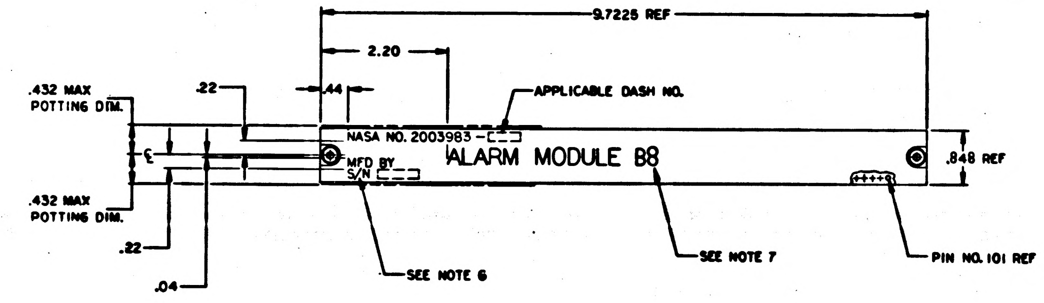
APPROVALS	A. C. METZGER NASA/MSC	E C Hall 6/1/66	6-1-66	5-24-66	E. M. Sloper 28 April 66
		MIT/IL			RAY

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED





PARTIAL SECTION C-C



MARKING VIEW
SCALE 1/1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	2005922	SCHEMATIC	REF
1	1006750-53	RESISTOR	56
1	1006755-69	CAPACITOR	55
1	1006755-21	CAPACITOR	54
1	1006750-50	RESISTOR	53
1	1006750-36	RESISTOR	52
5	2004074	INSULATOR, WASHER	51
5	SEE NOTE 8	RESISTOR	50
8	1006750-39	RESISTOR	49
1	1006755-128	CAPACITOR	48
7	1010376-1	TRANSISTOR	47
15	2004004-002	TRANSISTOR	46
16	2004004-001	TRANSISTOR	45
4	2004112-002	DIODE	44
8	2004103-001	DIODE	43
2	1006777-25	CAPACITOR	42
1	1006777-24	CAPACITOR	41
1	1006777-20	CAPACITOR	40
1	1006755-79	CAPACITOR	39
4	1006755-57	CAPACITOR	38
1	1006755-36	CAPACITOR	37
1	1006755-31	CAPACITOR	36
2	1006788-6	RESISTOR	35
6	1010377-227	RESISTOR	34
3	1010377-51	RESISTOR	33
1	1010377-50	RESISTOR	32
6	1006750-84	RESISTOR	31
1	1006750-83	RESISTOR	30
1	1006750-63	RESISTOR	29
9	1006750-58	RESISTOR	28
15	1006750-56	RESISTOR	27
18	1006750-49	RESISTOR	26
17	1006750-47	RESISTOR	25
5	1006750-43	RESISTOR	24
1	1006750-41	RESISTOR	23
1	1006750-33	RESISTOR	21
5	1006750-32	RESISTOR	20
2	1006750-30	RESISTOR	19
3	1006750-25	RESISTOR	18
3	1006750-15	RESISTOR	17
1	1006750-17	RESISTOR	16
3	1006750-8	RESISTOR	15
2	1006750-6	RESISTOR	14
3	1006750-1	RESISTOR	13
AR	1006776-22	INSULATION, SLEEVING	12
AR	1006776-21	INSULATION, SLEEVING	11
AR	1006757-8	WIRE, ELEC	10
AR	1006757-1	WIRE, ELEC	9
1	2003979	INSULATOR B ASSEMBLY	8
1	2004713	INSULATOR A	7
1	2004039	TERMINAL, THREADED	6
2	MS16633-4015	RING, RETAINING, EXTERNAL, "E"	5
2	2004984-003	WASHER, FLAT	4
2	2004984-001	WASHER, FLAT	3
2	1004579-1	SCREW, JACKING	2
1	2003032-021	HEADER, HOUSING ASSY	1
-011	LIST OF MATERIALS		

2003200	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± —— XX± .02 ± ——
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN D.A. Clermont 30 Mar 66
CHECKED R. Edward 5 Apr 66
APPROVED
APPROVED Eldon C. Hall 12 Apr 66
APPROVED MIT 13 Apr 66
APPROVED MSC 4/13/66
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ALARM MODULE
B8
ASSEMBLY

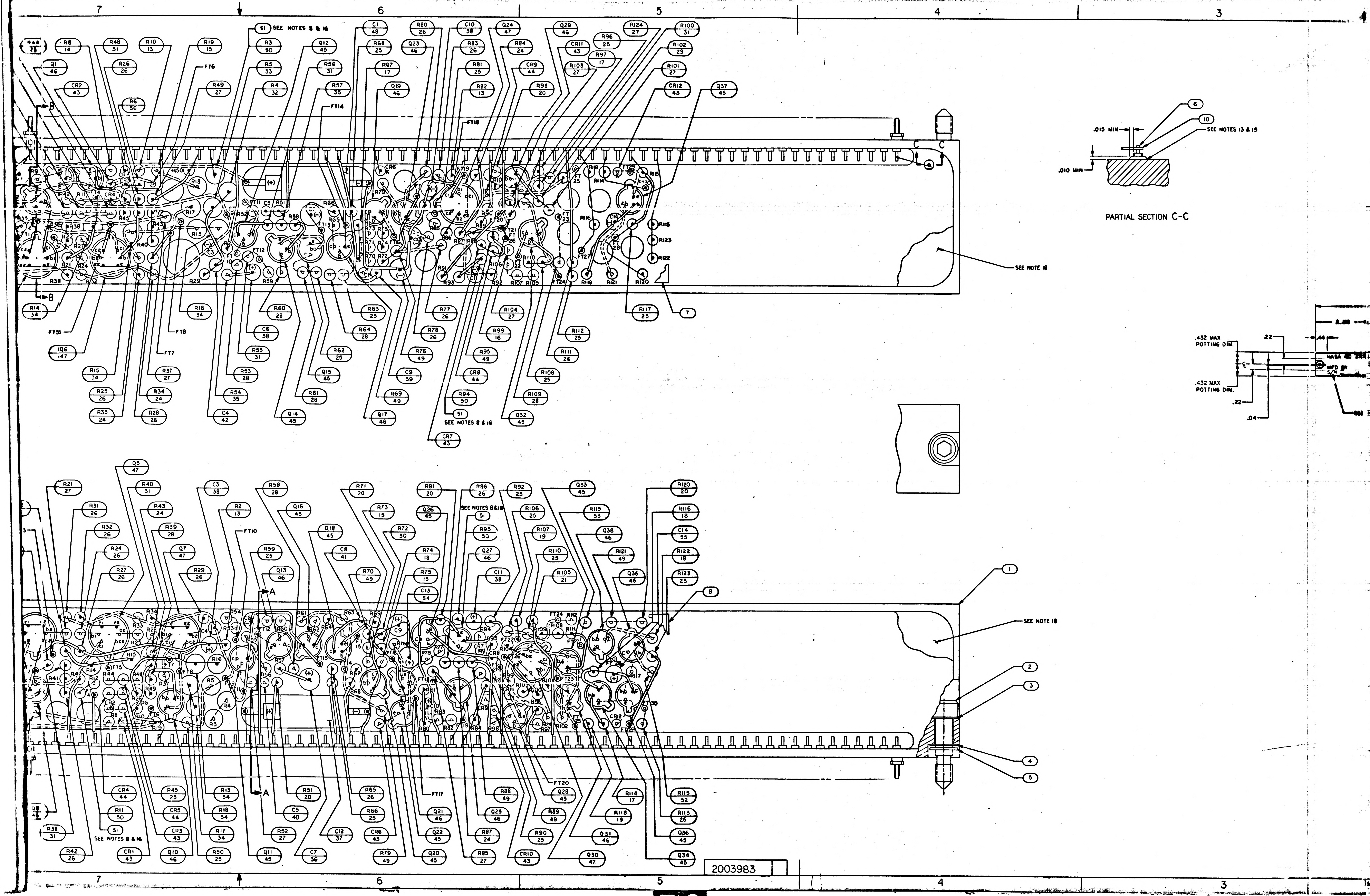
CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003983
SCALE 4/1
SHEET 1 OF 1

2003983

2003983

MASTER

F3


7
6
5
4
3
51 SEE NOTES 8 & 16
SEE NOTES 8 & 16
SEE NOTES 8&16
SEE NOTES 13 & 15
SEE NOTE 18
.015 MIN
.010 MIN
PARTIAL SECTION C-C
.432 MAX POTTING DIM.
.432 MAX POTTING DIM.
.22
.44
.04
B
C
A
1
2
3
4
5
6
7
8
10
2003983

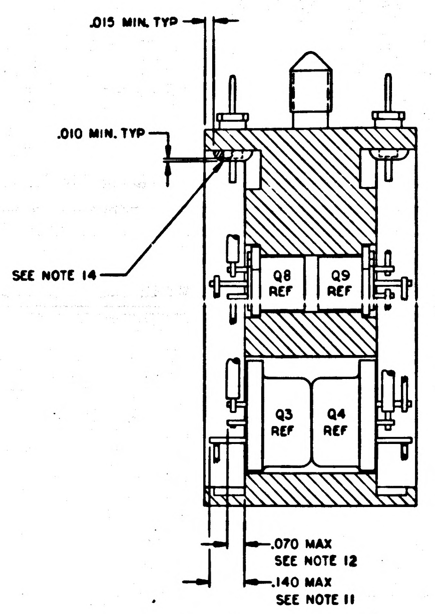
NOTICE – [illegible]

R11,R93	
PART NO.	VALUE
1006788-6	10
1006788-9	27
1006750-1	51
-4	68
-7	91
-9	110
-11	130
-12	150
-13	160
-14	180
-15	200
-16	220
1006750-17	240

R12	
PART NO.	VALUE
1006750-36	1500
-37	1600
-38	1800
-39	2000
-40	2200
1006750-41	2400

R94	
PART NO.	VALUE
1006750-27	620
-30	820
-32	1000
-34	1200
-35	1300
-36	1500
-37	1600
1006750-38	1800

R3	
PART NO.	VALUE
1006750-128	3450
-45	3600
-129	3750
-46	3900
-130	4100
-47	4300
-131	4500
1006750 -48	4700

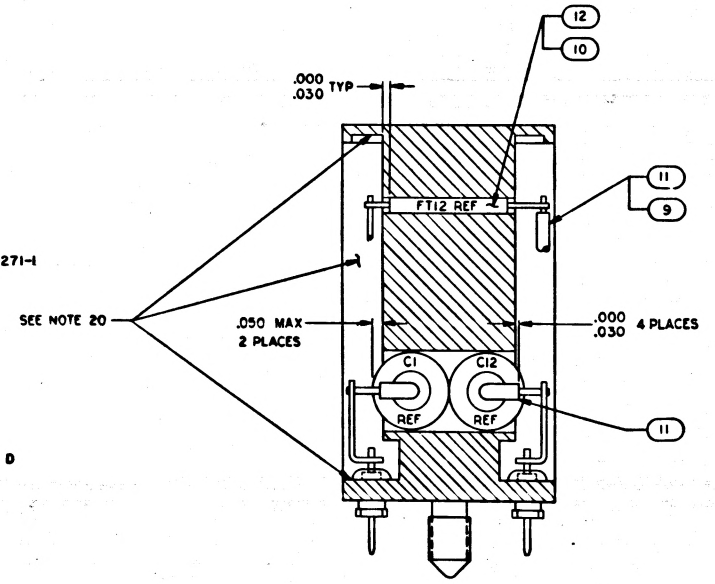

.015 MIN. TYP
.010 MIN. TYP
SEE NOTE 14
Q8 REF
Q9 REF
Q3 REF
Q4 REF
.070 MAX
SEE NOTE 12
.140 MAX
SEE NOTE 11

SECTION B-B

FIND NO. 7 & 8 REMOVED FOR CLARITY

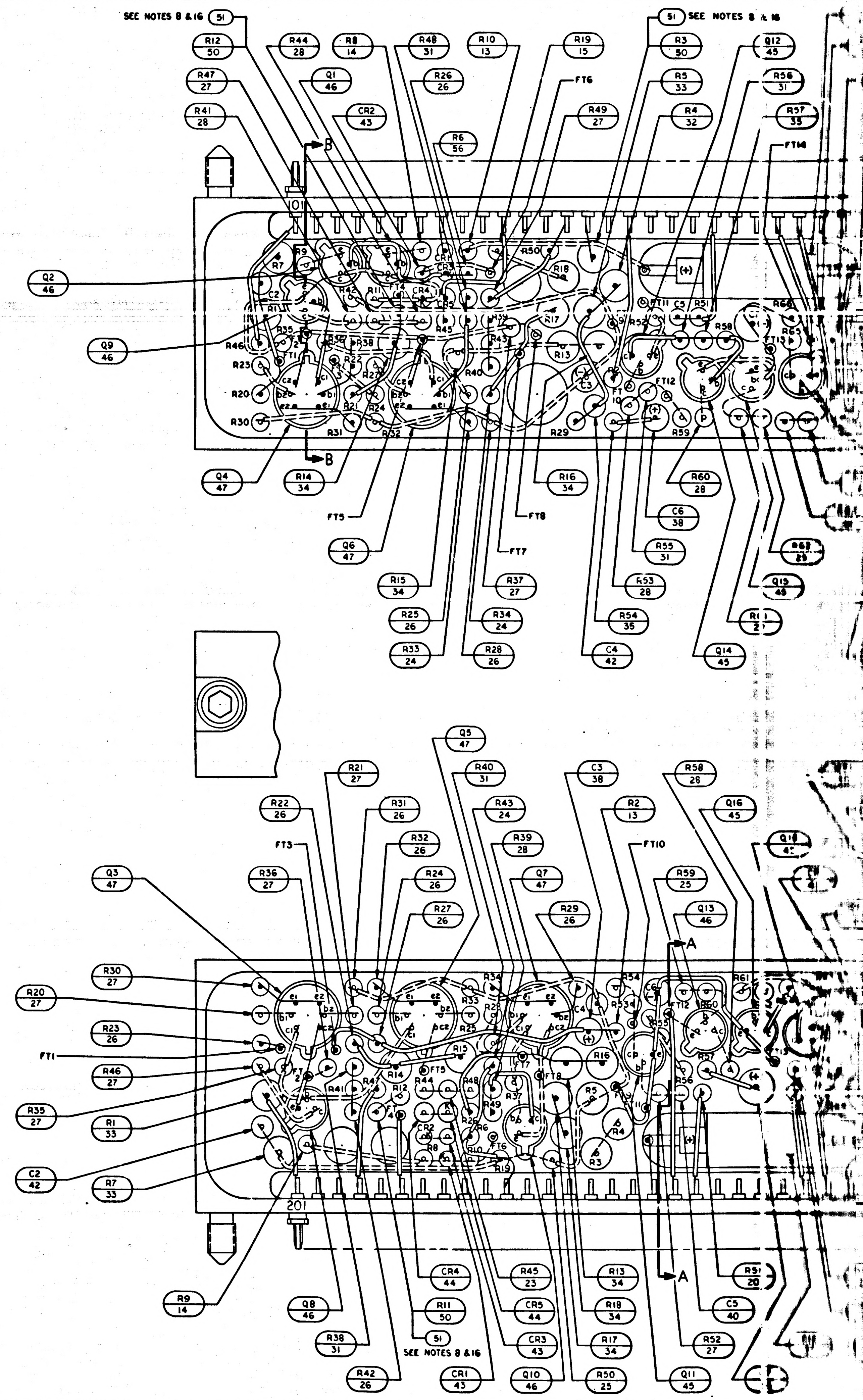
NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. AR DENOTES AS REQUIRED
3. FT DENOTES FEED THRU
4. + DENOTES POSITIVE SIDE OF CAPACITOR
5. K DENOTES CATHODE SIDE OF DIODE
6. MARK .10/.08 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271-1
7. MARK .26/.24 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 USING INK 1006271-1
8. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST. R3, R11, R12, R93 AND R94 TO BE SELECTED FROM APPROPRIATE CHART
9. WELD PER ND1002005
10. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE IN ACCORDANCE WITH ND1002069
11. BLACK DOT AND SINGLE SOLID LEADS INDICATE UPPER LEVEL WIRING
12. WHITE DOT AND SINGLE DOTTED LEADS INDICATE LOWER LEVEL WIRING
13. MOUNTING TORQUE FOR FIND NO. 6 TO BE 15-20 INCH OUNCES
14. SEAL INSULATORS AND TERMINALS TO HEADER PER ND1002004, TYPE VI
15. SEAL FIND NO. 6 TO HEADER PER ND1002004, TYPE VI
16. ASSEMBLE FIND NO. 51 TO MODULE AFTER SELECTED VALUE HAS BEEN DETERMINED
17. STAKE FIND NO. 13 THRU FIND NO. 50 AND FIND NO. 52 THRU FIND NO. 56 TO FIND NO. 1 PER ND1002009 METHOD C OR D
18. ENCAPSULATE PER ND1002002. REMOVE FLASHING
19. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS 2003983
20. COAT INDICATED SURFACES, BOTH ENDS, TOP AND BOTTOM, BOTH SIDES PER ND1002187, TYPE II


12
10
.000
.030 TYP
FT12 REF
11
9
SEE NOTE 20
.050 MAX
2 PLACES
.000
.030 4 PLACES
C1 REF
C12 REF
11

SECTION A-A

FIND NO. 7 & 8 REMOVED FOR CLARITY


SEE NOTES 8 & 16
51
R12 50
R44 28
R8 14
R48 31
R10 13
R19 15
R3 50
Q12 45
R47 27
Q1 46
R26 26
FT6
R5 33
R56 31
R41 28
CR2 43
R49 27
R4 32
R57 33
R6 56
FT14
B
101
Q2 46
Q9 46
Q4 47
R14 34
FT5
Q6 47
R15 34
R25 26
R33 24
R37 27
R34 24
R28 26
FT7
FT8
R16 34
C4 42
R54 35
R53 28
R55 31
C6 38
R60 28
R63 28
Q15 45
R61 27
Q14 45
Q5 47
R21 27
R40 31
C3 38
R58 28
R22 26
R31 26
R43 24
R2 13
Q16 45
FT3
R32 26
R39 28
FT10
R36 27
R24 26
Q7 47
R59 25
Q3 47
R27 26
R29 26
Q13 46
A
R30 27
R20 27
R23 26
FT1
R46 27
R35 27
R1 33
C2 42
R7 33
201
R9 14
Q8 46
R38 31
R42 26
CR4 44
R11 50
51
SEE NOTES 8 & 16
CR1 43
R45 23
CR5 44
CR3 43
Q10 46
R13 34
R18 34
R17 34
R50 25
R51 20
C5 40
R52 27
Q11 45

3.1.9 **Scaler Alarm.** The output voltage level at pin 232 (SCAFAL) shall be a function of marginal DC supply voltages and the presence of absence of an input signal (SCAS17) as specified in Table VI. The waveform shall be in accordance with Figure 3.

TABLE VI

INPUTS				OUTPUT	
+5 VDC	B PLUS VDC	+4 VDC	SCAS17 f=0.78 ±0.08 cps	SCAFAL VDC	T_d* sec
5.00 ± 0.02	12.0 ± 0.1	3.4 ± 0.1	SIGNAL	0	———
			NO SIG	1.70 ± 0.15	2.6 ± 0.4
	14.0 ± 0.1	4.0 ± 0.1	SIGNAL	0	———
			NO SIG	1.90 ± 0.15	2.0 ± 0.4
	16.5 ± 0.1	4.8 ± 0.1	SIGNAL	0	———
			NO SIG	2.25 ± 0.15	1.6 ± 0.4

*See Figure 3.

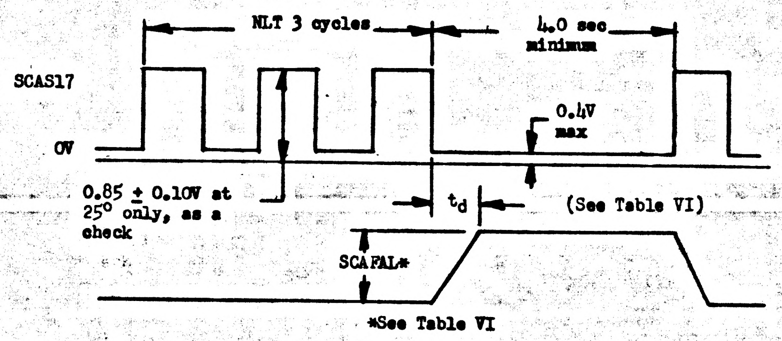

NLT 3 cycles
4.0 sec minimum
SCAS17
0V
0.4V max
0.85 ± 0.10V at 25° only, as a check
t_d
(See Table VI)
SCAFAL*
*See Table VI

FIGURE 3 - SCALER ALARM CONDITIONS

APOLLO G&N Specification
PS 2003983 **Rev** -
Original Issue Date: 6-1-66
Release Authority: TDRR 29205
Class A Release

PROCUREMENT SPECIFICATION
PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS
ALARM MODULE
(MODULE B8)
DRAWING NO. 2003983

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA

This specification consists of pages 1 to 17 inclusive.

APPROVALS	**A. C. METZGER** **NASA/MSC**	E C Hall 6/1/66	6-1-66 **MIT/IL**	5-24-66	D. M. Sleeper 28 April 66 **RA**

1.0 SCOPE

This specification establishes the detail requirements for complete identification and acceptance of the Alarm Module (B8) Part No. 2003983-011.

2.0 APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein.

2.1 EFFECTIVE ISSUES. Unless otherwise specified herein, Military and Government Standards and Specifications shall be the issue in effect on the date of request for proposal or invitation to bid.

SPECIFICATIONS

APOLLO G&N

ND 1002214	General Specification for Preservation, Packaging, Packing, and Container Marking of Apollo Guidance and Navigation Major Assemblies, Assemblies, Subassemblies, Parts and Associated Ground Support Equipment.

DRAWINGS

APOLLO G&N

2003983	ALARM MODULE

(Copies of Specifications, drawings, standards, bulletins, and publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer).

2.2 CONFLICTING REQUIREMENTS. In the event of conflict between the requirements of the contract, this specification, and the documents listed in this section, the following order of precedence shall apply and the contractor shall notify MIT APOLLO Management of the conflict as soon as it is determined.

a. The contract
b. This specification
c. Documents listed in this section

3.1.6 +5 VDC Source Circuit. The output at pin 233 shall be in accordance with Table I.

TABLE I

INPUT (B PLUS)	+5 VDC OUTPUT	
	AT +25°C	AT -10°C and +70°C
14.0 ± 0.1 VDC	5.00 ± 0.02 VDC	5.00 ± 0.07 VDC
12.2 ± 0.1 VDC	5.00 ± 0.07 VDC	5.00 ± 0.10 VDC
16.5 ± 0.1 VDC	5.00 ± 0.07 VDC	5.00 ± 0.10 VDC

3.1.7 Voltage Alarm Circuit. The output voltages at pins 101, 114, and 204 (V FAIL) shall change from NMT 100 mv to 900 ± 45 mv and vice versa at the marginal supply voltages as specified in Tables II, III and IV, and within the time lapse after supply voltage turn-off as shown in Figure 2.

TABLE II

INPUTS				OUTPUT*
+4 VDC	+28 COM VDC	B PLUS VDC	MEASURE B. PLUS When V FAIL Changes*	V FAIL OFF = 0.1V MAX ON = 0.900 ± 0.045 VDC
4.0 ± 0.1	22.25 ± 0.15	Set to 11.5	——	ON
		INCREASE	(V2)	OFF
		↓	16.0 ± 0.2	ON
		Set to 17.5	——	ON
		DECREASE	16.0 ± 0.2	OFF
		↓	12.5 ± 0.2 (V1)	ON
	36.0 ± 0.1	Set to 11.5	——	ON
		INCREASE	(V4)	OFF
		↓	16.0 ± 0.2	ON
		Set to 17.5	——	ON
		DECREASE	16.0 ± 0.2	OFF
		↓	12.5 ± 0.2 (V3)	ON

*V2-V1 = 0.28 ± 0.05 volts.

V4-V3 = 0.28 ± 0.05 volts.

TABLE III

INPUTS				OUTPUT
+28 COM VDC	B PLUS VDC	+4 VDC	MEASURE +4 VDC when V FAIL changes*	V FAIL OFF = 0.1 VDC MAX ON = 0.900 ± 0.045V
36.0 ± 0.1	13.2 ± 0.1	Set to 3.0 [illegible]	———— (V2) 4.4 ± 0.1	ON OFF ON
		[illegible] 5.0 [illegible]	———— 4.4 ± 0.1 3.65 ± 0.05 (V1)	ON OFF ON
	15.8 ± 0.1	Set to 3.0 INCREASE	———— (V1) 4.4 ± 0.1	ON OFF ON
		Set to 5.0 DECREASE	———— 4.4 ± 0.1 3.65 ± 0.05 (V3)	ON OFF ON
22.25 ± 0.15	15.8 ± 0.1	Set to 3.0 INCREASE	———— (V6) 4.4 ± 0.1	ON OFF ON
		Set to 5.0 DECREASE	———— 4.4 ± 0.1 3.65 ± 0.05 (V5)	ON OFF ON
	13.2 ± 0.1	Set to 3.0 INCREASE	———— (V8) 4.4 ± 0.1	ON OFF ON
		Set to 5.0 DECREASE	———— 4.4 ± 0.1 3.65 ± 0.05 (V7)	ON OFF ON

*V2-V1, V4-V3, V6-V5, and V8-V7 all equal 0.08 ± 0.04 volts.

TABLE IV

INPUTS				OUTPUT
+4 VDC	B PLUS VDC	+28 COM* VDC	MEASURE +28 COM when V FAIL changes**	V FAIL OFF = 0.1 VDC max ON = 0.900 ± 0.045V
4.0 ± 0.1	13.2 ± 0.1	Set to 19.0	———	ON
		INCREASE ↓	(V2)	OFF
		Set to 23.0	———	OFF
		DECREASE ↓	21.6 ± 0.2 (V1)	ON
	15.8 ± 0.1	Set to 19.0	———	ON
		INCREASE ↓	(V4)	OFF
		Set to 23.0	———	OFF
		DECREASE ↓	21.6 ± 0.2 (V3)	ON

*VLT REF shall be 8.10 ± 0.02 VDC at time of initial setup.

**V2-V1 = +0.5 ± 0.2, V4-V3 = 0.5 ± 0.2.

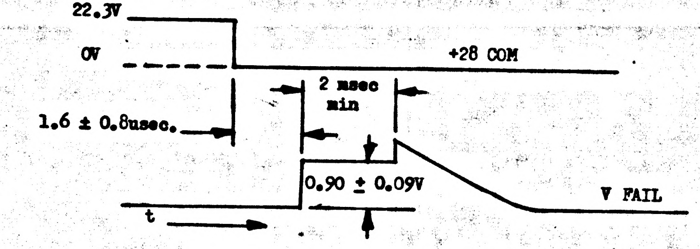

22.3V
OV
+28 COM
2 msec min
1.6 ± 0.8usec.
0.90 ± 0.09V
V FAIL
t

FIG. V (a) +28 COM TURN-OFF RESPONSE

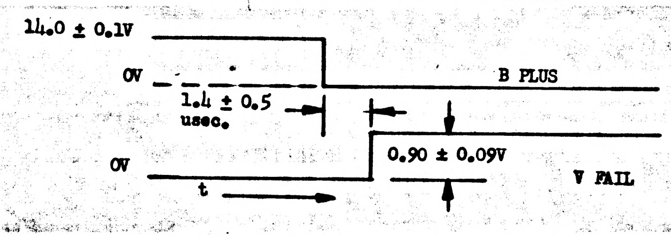

14.0 ± 0.1V
OV
B PLUS
1.4 ± 0.5 usec.
0.90 ± 0.09V
OV
V FAIL
t

FIGURE V (b) B PLUS TURN-OFF RESPONSE

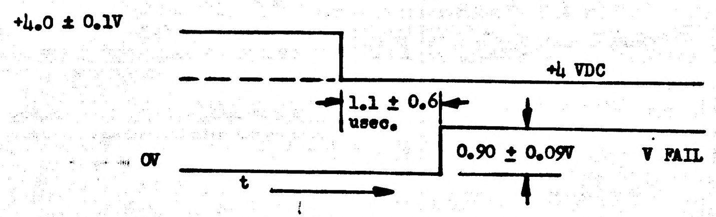

+4.0 ± 0.1V
+4 VDC
1.1 ± 0.6 usec.
OV
0.90 ± 0.09V
V FAIL
t

FIG. [illegible] (c) +4 VDC TURN-OFF RESPONSE

3.1.8 **Oscillator Alarm.** The output voltage level at pin 225 (STRT2) shall be a function of marginal DC supply voltages and the presence or absence of an input signal (Q2A) as specified in Table V. The waveform shall be in accordance with Figure 22

TABLE V

INPUTS			OUTPUT		
B PLUS & BPLSSW	+4 SW VDC	Q2A*	STRT2 VDC	t_{d1}	t_{d2}
12.2 ± 0.1	3.4 ± 0.1	0	4.00 ± 0.20	—	—
		3.0 Min	0	300 ± 100	50 ± 25
14.0 ± 0.1	4.0 ± 0.1	0	4.60 ± 0.20	—	—
		3.0 Min	0	260 ± 75	45 ± 25
16.5 ± 0.1	4.8 ± 0.1	0	5.60 ± 0.25	—	—
		3.0 Min	0	210 ± 50	40 ± 20

*See Figure 4.

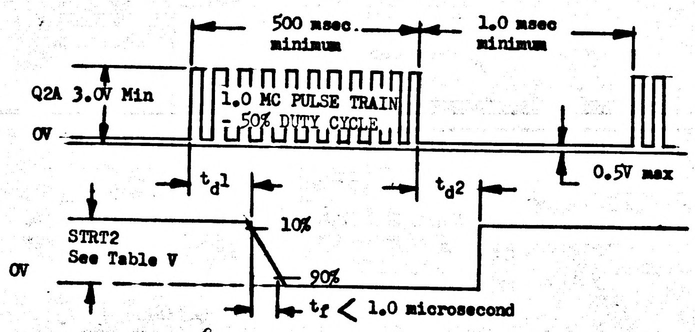

500 msec. minimum
1.0 msec minimum
Q2A 3.0V Min
OV
1.0 MC PULSE TRAIN - 50% DUTY CYCLE
t_d1
t_d2
0.5V max
10%
STRT2
See Table V
OV
90%
t_f < 1.0 microsecond

FIG. 2 - OSCILLATOR ALARM CONDITIONS

3.1.10 Warning Integrator Alarm. The output voltage level at pin 143 (FLTOUT) shall be a function of marginal DC supply voltages and the presence of absence of an input signal (FILTIN) as specified in Table VII. The waveform shall be in accordance with Figure, 8.

TABLE VII

INPUTS				OUTPUT
+5 VDC	B PLUS VDC	+4 VDC	FILTIN 1.5V @ 6 pps	FLTOUT VDC
5.00 ± 0.02	12.2 ± 0.1	3.4 ± 0.1	NO SIGNAL	100 mv max
			SIGNAL	1.55 ± 0.10
	14.0 ± 0.1	4.0 ± 0.1	NO SIGNAL	100 mv max
			SIGNAL	1.8 ± 0.1
	16.5 ± 0.1	4.8 ± 0.1	NO SIGNAL	100 mv max
			SIGNAL	2.15 ± 0.10

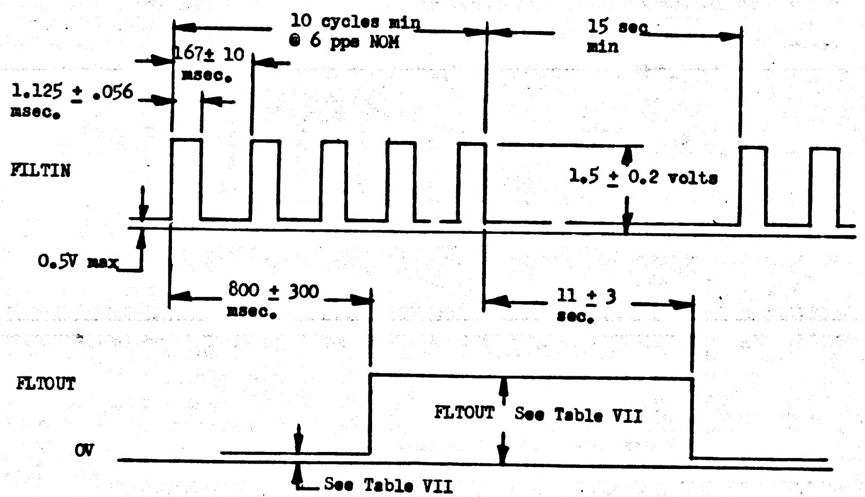

10 cycles min
@ 6 pps NOM
15 sec
min
167 ± 10
msec.
1.125 ± .056
msec.
FILTIN
1.5 ± 0.2 volts
0.5V max
800 ± 300
msec.
11 ± 3
sec.
FLTOUT
FLTOUT See Table VII
OV
See Table VII

FIGURE 8 - WARNING INTEGRATOR ALARM CONDITIONS

3.1.11 MYCLMP Circuit Alarm. The output voltage level at pin 137 (MYCLMP or STRT2) shall change from NMT 100 mv to 4.0 ± 0.1 volts and vice versa at the low marginal +4 sw supply voltage and within the time lapse after +4 sw voltage turn-off as specified in Table VIII, and Figure 5.
5

TABLE VIII

INPUTS				OUTPUT
B PLUS VDC	+5 VDC VDC	+4 SW VDC	MEASURE +4 SW when MYCLMP changes	MYCLMP VDC
14.0 ± 0.1	5.00 ± 0.02	Set to 3.5	______	100 mv max
		DECREASE ↓	2.0 ± 0.1	4.00 ± 0.20
		Set to 1.5	______	4.00 ± 0.20
		INCREASE ↓	2.1 ± 0.1	100 mv max

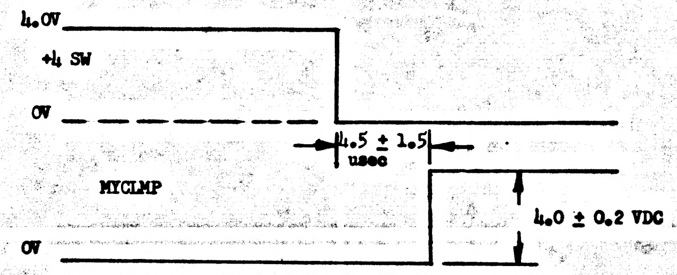


FIGURE 5 - RESPONSE TIME FOR MYCLMP ALARM

3.1.13 Thermal Extremes. The module shall meet the requirements of paragraph 3.1.6 thru 3.1.12 as specified at -10°C and +70°C.

3.2 PRODUCT CONFIGURATION

3.2.1 DRAWINGS. The module configuration shall be in accordance with APOLLO G&N Drawing 2003983 and all drawings and engineering data referenced thereon.

3.2.2 Weight. Maximum allowable weight of the module shall be 0.70 pounds.

4.0 QUALITY ASSURANCE PROVISIONS

4.1 GENERAL. The contractor responsible for module assembly shall be responsible for accomplishing the tests required herein.

Product Performance and Configuration Requirement/Quality
Verification Cross Reference Index

Requirement	Verification	Requirement	Verification
3.1.1	4.2.2	3.1.6	4.2.6.1
3.1.2	4.2.3	3.1.7	4.2.6.2
3.1.3	4.2.4	3.1.8	4.2.6.3
3.1.4	4.2.5	3.1.9	4.2.6.4
3.1.5	4.2.7.1	3.1.10	4.2.6.5
3.2.1	4.2.1	3.1.11	4.2.6.6
3.2.2	4.2.7.3	3.1.12	4.2.6.7
		3.1.13	4.2.7.2

4.1.1 Nonconforming Units. Failure of the unit to pass any examination or test of this specification shall automatically classify the unit as nonconforming. Each nonconforming unit corrected by the contractor shall be reinspected. Reinspection may be limited to the test or examination which defined the nonconformance, or, when directed by the cognizant inspector, a complete retest and re-examination may be required. Nonconforming units which have not been corrected will be considered for acceptance only upon formal application by the contractor to the cognizant NASA representative.

4.1.2 Environmental Test Conditions. Unless otherwise specified, modules shall be tested under the following conditions:

a. Temperature: at +25° ± 10°C
b. Relative Humidity: 90% maximum
c. Barometric Pressure: between 28 and 32 inches of mercury

4.2.7 Workmanship. The following tests shall be performed under the conditions specified as a verification of good workmanship.

4.2.7.1 Vibration. Install the module in an applicable computer. Subject the computer subsystem to the vibration tests specified in the applicable JDC. Verify that the computer subsystem meets the requirements of the applicable specification.

4.2.7.2 Thermal Extremes and Marginal Voltages. Repeat the tests of paragraph 4.2.6 at -10°C +0 -2.8°C and +70°C -0 +2.8°C to determine compliance with paragraph 3.1.6. Modules shall be stabilized at thermal extremes for ½ hour before testing.

4.2.7.3 Weight. Weigh the module to the nearest .01 pound. Verify that the weight does not exceed the maximum allowable weight specified in paragraph 3.2.2.

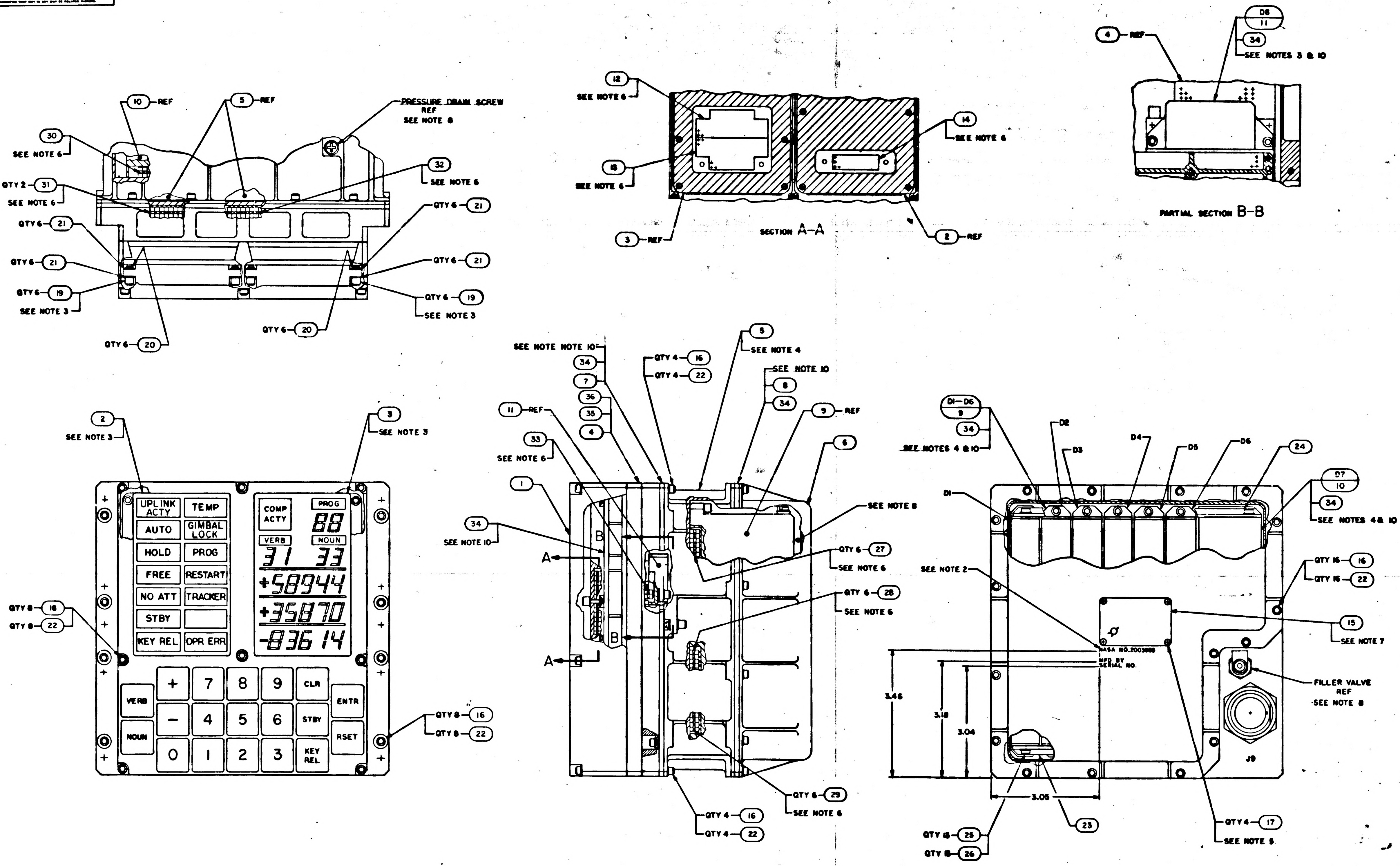
5.0 PREPARATION FOR DELIVERY

5.1 Preparation for delivery shall be in accordance with Specification ND 1002214.

6.0 NOTES. None

SYM	DESCRIPTION	DATE	APPROVAL	
A	REVISED PER TDRR 22462 DR. W. [illegible] CHK. [illegible] APPD. [illegible]			

2003985 A



10 REF
5 REF
PRESSURE DRAIN SCREW REF
SEE NOTE 8
30
SEE NOTE 6
QTY 2 31
SEE NOTE 6
32
SEE NOTE 6
QTY 6 21
QTY 6 21
QTY 6 21
QTY 6 21
QTY 6 19
SEE NOTE 3
QTY 6 19
SEE NOTE 3
QTY 6 20
QTY 6 20
12
SEE NOTE 6
13
SEE NOTE 6
14
SEE NOTE 6
3 REF
2 REF
SECTION A-A
4 REF
D8
11
34
SEE NOTES 3 & 10
PARTIAL SECTION B-B
2
SEE NOTE 3
3
SEE NOTE 3
UPLINK ACTY
TEMP
AUTO
GIMBAL LOCK
HOLD
PROG
FREE
RESTART
NO ATT
TRACKER
STBY
KEY REL
OPR ERR
COMP ACTY
PROG
88
VERB
NOUN
31 33
+58944
+35870
-83614
VERB
NOUN
+
7
8
9
CLR
ENTR
−
4
5
6
STBY
RSET
0
1
2
3
KEY REL
QTY 8 18
QTY 8 22
QTY 8 16
QTY 8 22
SEE NOTE NOTE 10
34
7
36
35
4
11 REF
33
SEE NOTE 6
1
34
SEE NOTE 10
A
B
B
A
QTY 4 16
QTY 4 22
5
SEE NOTE 4
SEE NOTE 10
8
34
9 REF
6
SEE NOTE 8
QTY 6 27
SEE NOTE 6
QTY 6 28
SEE NOTE 6
QTY 6 29
SEE NOTE 6
QTY 4 16
QTY 4 22
D1-D6
9
34
SEE NOTES 4 & 10
D1
D2
D3
D4
D5
D6
24
D7
10
34
SEE NOTES 4 & 10
SEE NOTE 2
NASA NO. 2003985
MFD BY
SERIAL NO.
QTY 16 16
QTY 16 22
15
SEE NOTE 7
FILLER VALVE REF
SEE NOTE 8
J9
3.46
3.18
3.04
3.05
QTY 13 25
QTY 13 26
23
QTY 4 17
SEE NOTE 5

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK .10/.08 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271-11
3. MOUNTING TORQUE FOR FIND NO. 19 AND JACK SCREWS OF FIND NO. 11 TO BE 7-10 INCH POUNDS
4. MOUNTING TORQUE FOR JACK SCREWS OF FIND NO. 5, 9 & 10 TO BE 15-19 INCH POUNDS
5. APPLY SEALING COMPOUND MIL-S-22473 GRADE H TO FIND NO. 17
6. BOND FIND NO. 12, 13 TO FIND NO. 3, FIND NO. 14 TO FIND NO. 2, FIND NO. 27, 28, 29 TO FIND NO. 9, FIND NO. 30 TO FIND NO. 10, FIND NO. 31, 32 TO FIND NO. 5, FIND NO. 33 TO FIND NO. 11 PER ND1002237
7. STAMP CHARACTERS PER ND1002019 AND SERIALIZE PER ND1002023
8. FILL WITH A MINIMUM OF 87% NITROGEN AND 8.7% HELIUM AND A MAXIMUM OF 4.3% AIR TO 1.05/1.10 ATMOSPHERES. DO NOT EXCEED 2 ATMOSPHERES DURING PRESSURIZATION
9. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003985
10. APPLY FIND NO. 34 TO MATING SURFACES OF FIND NO. 4, 7, 8, 9, 10 AND 11
DO NOT APPLY TO BONDED BUBBER OF FIND NO. 4, 7, AND 8
11. AR DENOTES AS REQUIRED

QTY REQD 031	QTY REQD 021	QTY REQD 011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	☒	☒	2003956	OUTLINE DRAWING	REF
☒	☒	☒	2005957	SIGNAL PIN ASSIGNMENT	REF
☒	☒	☒	2005951	INTERCONNECTING DIAGRAM	REF
☒	☒	☒	2005950	SIGNAL FLOW DIAGRAM	REF
1	—	—	2003903-031	FRONT HOUSING ASSY	36
—	1	—	2003903-021	FRONT HOUSING ASSY	35
AR	AR	AR	1006879	SILICONE COMPOUND	34
1	1	1	2004955-005	GASKET	33
1	1	1	2004955-008	GASKET	32
2	2	2	2004955-007	GASKET	31
1	1	1	2004955-006	GASKET	30
6	6	6	2004955-003	GASKET	29
6	6	6	2004955-002	GASKET	28
6	6	6	2004955-004	GASKET	27
13	13	13	MS16995-10	SCREW, HEX SOCKET HEAD	26
13	13	13	NAS620C4	WASHER, FLAT	25
1	1	1	2004958	BRACKET, MODULE	24
1	1	1	2004959	BRACKET, MODULE	23
40	40	40	NAS620C6	WASHER, FLAT	22
24	24	24	1004546-4	WASHER, FLAT	21
12	12	12	MS16633-4014	RING, RETAINING	20
12	12	12	2004932-001	SCREW, JACKING	19
8	8	8	1001489-59	SCREW, HEX SOCKET HEAD	18
4	4	4	MS35216-1	SCREW, PAN HEAD, CROSS RECESSED	17
32	32	32	MS16995-18	SCREW, CAP, SOCKET HEAD	16
1	1	1	1004260-20	NAMEPLATE	15
1	1	1	2004955-001	GASKET	14
1	1	1	2004953-002	GASKET	13
1	1	1	2004953-001	GASKET	12
1	1	1	2003909-011	KEYBOARD MODULE ASSY D8	11
1	1	1	2003901-011	POWER SUPPLY ASSY MODULE D7	10
6	6	6	2003902-011	INDICATOR DRIVER MODULE D1-D6	9
1	1	1	1006349	GASKET, BONDED, RUBBER	8
1	1	1	1006350	GASKET, BONDED, RUBBER	7
1	1	1	2004900	COVER, REAR	6
1	1	1	2003954-011	MAIN HOUSING ASSY	5
—	—	1	2003903-011	FRONT HOUSING ASSY	4
1	1	1	1006315	INDICATOR, DIGITAL	3
1	1	1	1006316	INDICATOR, ALARM	2
1	1	1	2004929-011	COVER, FRONT	1

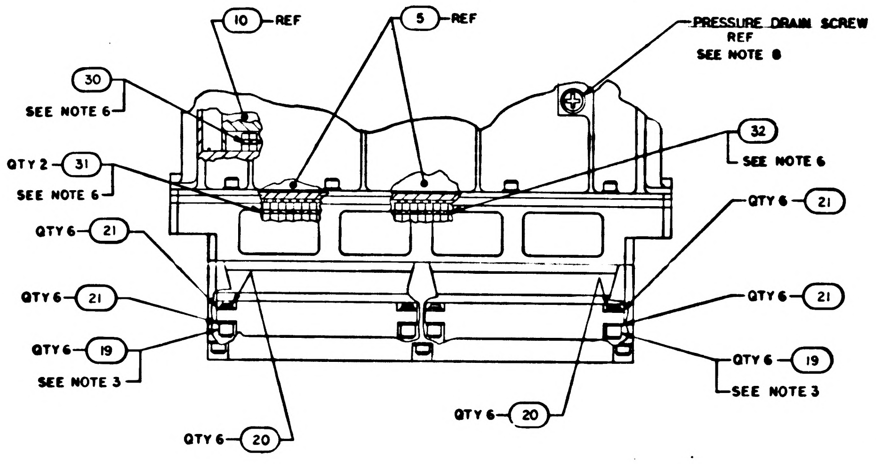
LIST OF MATERIALS

NEXT ASSY	USED ON	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ±.02 ANGLES ± DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB Cambridge Mass	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
APPLICATION		MATERIAL	DRAWN A. Vorce DATE [illegible] CHECKED R. Edwards 12 July [illegible] APPROVAL [illegible] APPROVAL [illegible] 16 July [illegible]	AGC DSKY ASSEMBLY
		HEAT TREATMENT	NASA APPROVAL [illegible]	CODE IDENT NO. 80230 SIZE J NASA DRAWING NO 2003985
		FINAL FINISH	MIT APPROVAL [illegible]	SCALE 1/1 WT SHEET 1 OF 1

2003985 A

2003985 B

	REVISIONS 20/4/3			
SYM	DESCRIPTION		DATE	APPROVAL
A	REVISED PER TDRR 22462 DR. W. Pearn CHK. APPD.			
B	REVISED PER TDRR 23637 DR E. Uhing CHK L. Lopez		1/17/66	


10 REF
5 REF
PRESSURE DRAIN SCREW REF SEE NOTE 8
30
SEE NOTE 6
32
SEE NOTE 6
QTY 2 31
SEE NOTE 6
QTY 6 21
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QTY 6 21
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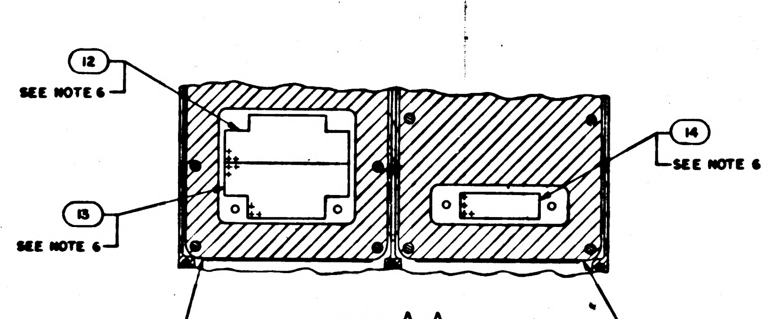
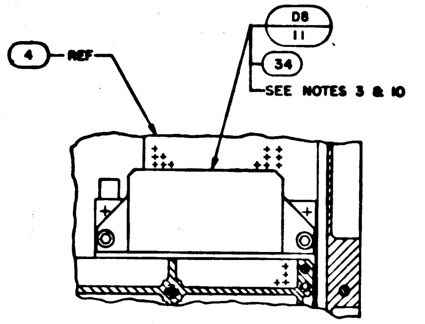
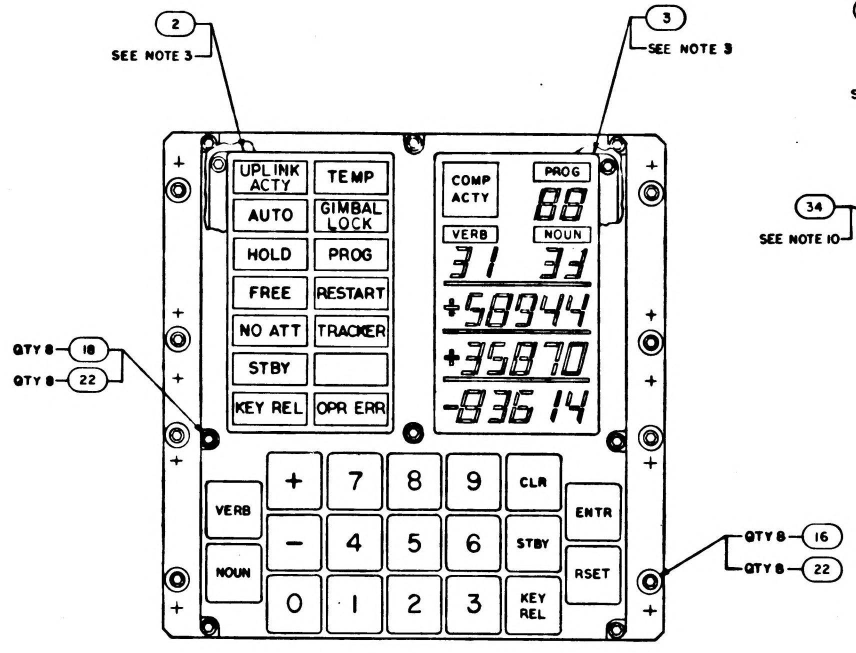
QTY 6 19
SEE NOTE 3
QTY 6 20
QTY 6 20

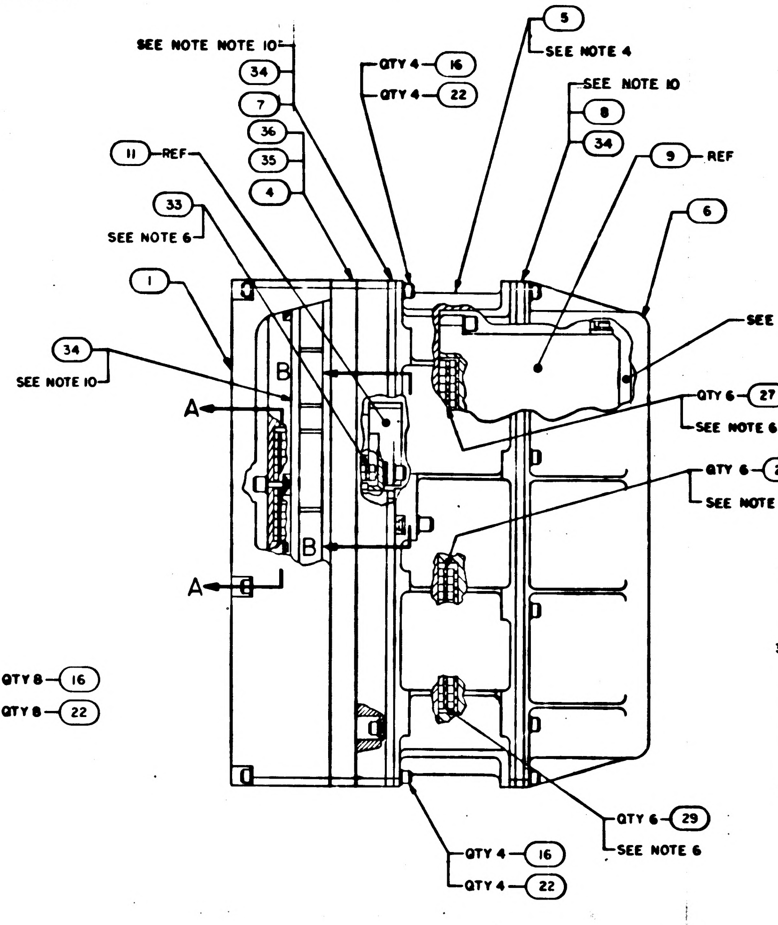

12
SEE NOTE 6
13
SEE NOTE 6
14
SEE NOTE 6
3 REF
2 REF

SECTION A–A


4 REF
D8
11
34
SEE NOTES 3 & 10

PARTIAL SECTION B–B


2
SEE NOTE 3
3
SEE NOTE 3
UPLINK ACTY
TEMP
AUTO
GIMBAL LOCK
HOLD
PROG
FREE
RESTART
NO ATT
TRACKER
STBY
KEY REL
OPR ERR
COMP ACTY
PROG
88
VERB
NOUN
31 34
+58944
+35870
-83614
QTY 8 18
QTY 8 22
VERB
NOUN
+
-
7
8
9
4
5
6
0
1
2
3
CLR
ENTR
STBY
RSET
KEY REL
QTY 8 16
QTY 8 22


SEE NOTE NOTE 10
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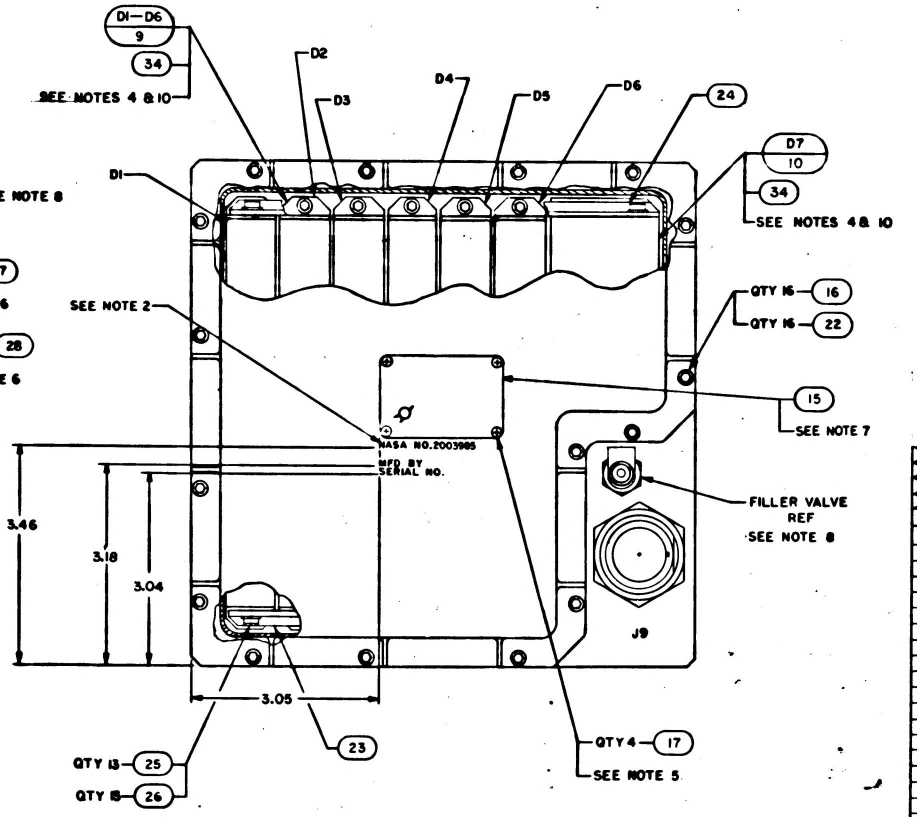
35
4
11 REF
33
SEE NOTE 6
1
34
SEE NOTE 10
QTY 4 16
QTY 4 22
5
SEE NOTE 4
SEE NOTE 10
8
34
9 REF
6
SEE NOTE 8
QTY 6 27
SEE NOTE 6
QTY 6 28
SEE NOTE 6
A
B
B
A
QTY 6 29
SEE NOTE 6
QTY 4 16
QTY 4 22


D1–D6
9
34
SEE NOTES 4 & 10
D2
D3
D4
D5
D6
24
D1
D7
10
34
SEE NOTES 4 & 10
QTY 16 16
QTY 16 22
SEE NOTE 2
NASA NO. 2003985
MFD BY
SERIAL NO.
15
SEE NOTE 7
FILLER VALVE REF SEE NOTE 8
3.46
3.18
3.04
3.05
J9
23
QTY 4 17
SEE NOTE 5
QTY 13 25
QTY 13 26

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK .10/.08 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271-11
3. MOUNTING TORQUE FOR FIND NO. 19 AND JACK SCREWS OF FIND NO. 11 TO BE 7-10 INCH POUNDS
4. MOUNTING TORQUE FOR JACK SCREWS OF FIND NO. 5, 9 & 10 TO BE 15-19 INCH POUNDS
5. APPLY SEALING COMPOUND MIL-S-22473 GRADE H TO FIND NO. 17
6. BOND FIND NO. 12, 13 TO FIND NO. 3, FIND NO. 14 TO FIND NO. 2, FIND NO. 27, 28, 29 TO FIND NO. 9, FIND NO. 30 TO FIND NO. 10, FIND NO. 31, 32 TO FIND NO. 5, FIND NO. 33 TO FIND NO. 11 PER ND1002237
7. STAMP CHARACTERS PER ND1002019 AND SERIALIZE PER ND1002023
8. FILL WITH A MINIMUM OF 87% NITROGEN AND 8.7% HELIUM AND A MAXIMUM OF 4.3% AIR TO 1.05/1.10 ATMOSPHERES. DO NOT EXCEED 2 ATMOSPHERES DURING PRESSURIZATION
9. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003985
10. APPLY FIND NO. 34 TO MATING SURFACES OF FIND NO. 4, 7, 8, 9, 10 AND 11 DO NOT APPLY TO BONDED BUBBER OF FIND NO. 4, 7, AND 8
11. AR DENOTES AS REQUIRED

QTY REQD	QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
			2003956	OUTLINE DRAWING	REF
			2005957	SIGNAL PIN ASSIGNMENT	REF
			2005951	INTERCONNECTING DIAGRAM	REF
			2005950	SIGNAL FLOW DIAGRAM	REF
1	—	—	2003903-031	FRONT HOUSING ASSY	36
—	1	—	2003903-021	FRONT HOUSING ASSY	35
AR	AR	AR	1006879	SILICONE COMPOUND	34
1	1	1	2004955-005	GASKET	33
1	1	1	2004955-008	GASKET	32
2	2	2	2004955-007	GASKET	31
1	1	1	2004955-006	GASKET	30
6	6	6	2004955-003	GASKET	29
6	6	6	2004955-002	GASKET	28
6	6	6	2004955-004	GASKET	27
13	13	13	MS16995-10	SCREW, HEX SOCKET HEAD	26
13	13	13	NAS620C4	WASHER, FLAT	25
1	1	1	2004958	BRACKET, MODULE	24
1	1	1	2004959	BRACKET, MODULE	23
40	40	40	NAS620C6	WASHER, FLAT	22
24	24	24	1004546-4	WASHER, FLAT	21
12	12	12	MS16633-4014	RING, RETAINING	20
12	12	12	2004932-001	SCREW, JACKING	19
8	8	8	1001489-59	SCREW, HEX SOCKET HEAD	18
4	4	4	MS35216-1	SCREW, PAN HEAD, CROSS RECESSED	17
32	32	32	MS16995-18	SCREW, CAP, SOCKET HEAD	16
1	1	1	1004260-20	NAMEPLATE	15
1	1	1	2004955-001	GASKET	14
1	1	1	2004953-002	GASKET	13
1	1	1	2004953-001	GASKET	12
1	1	1	2003909-011	KEYBOARD MODULE ASSY D8	11
1	1	1	2003901-011	POWER SUPPLY ASSY MODULE D7	10
6	6	6	2003902-011	INDICATOR DRIVER MODULE D1-D6	9
1	1	1	1006349	GASKET, BONDED, RUBBER	8
1	1	1	1006350	GASKET, BONDED, RUBBER	7
1	1	1	2004900	COVER, REAR	6
1	1	1	2003954-011	MAIN HOUSING ASSY	5
—	—	1	2003903-011	FRONT HOUSING ASSY	4
1	1	1	2004935	INDICATOR, DIGITAL	3
1	1	1	1006316	INDICATOR, ALARM	2
1	1	1	2004929-011	COVER, FRONT	1
031	021	011	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS - DECIMALS ±.02 ANGLES -
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN A. Vorce DATE 8 Jul 65
CHECKED R. Edwards 12 July 65
APPROVAL
APPROVAL Eldon C. Hall
NASA APPROVAL
MIT APPROVAL 20 July 65

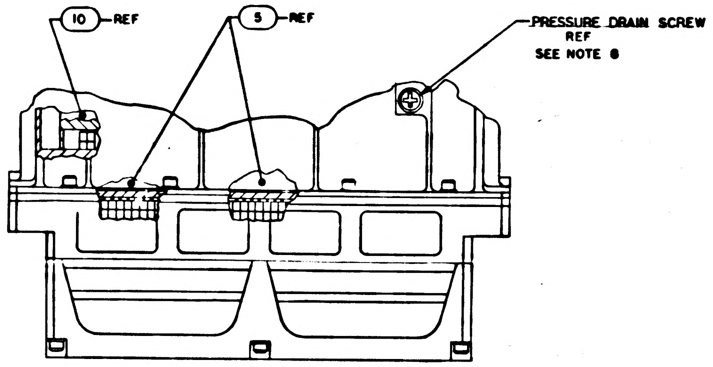
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

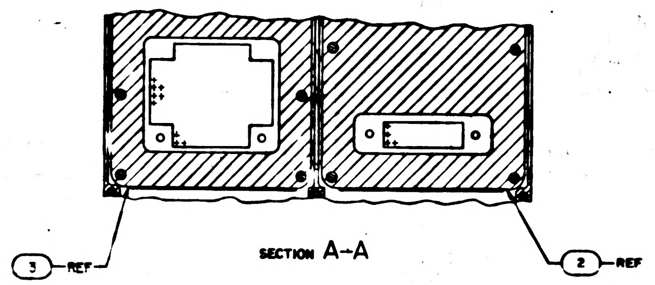
AGC DSKY ASSEMBLY

CODE IDENT NO 80230 SIZE J NASA DRAWING NO 2003985
SCALE 1/1 WT SHEET 1 OF 1

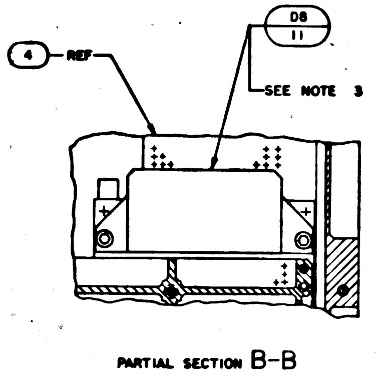
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22462 DR W. Penn CHK. APPD.		
B	REVISED PER TDRR 23637 DR E. Ufting CHK	11/17/6	
C	REVISED PER TDRR 24214 DR CHK APPD	12/ /65	

2003985 C

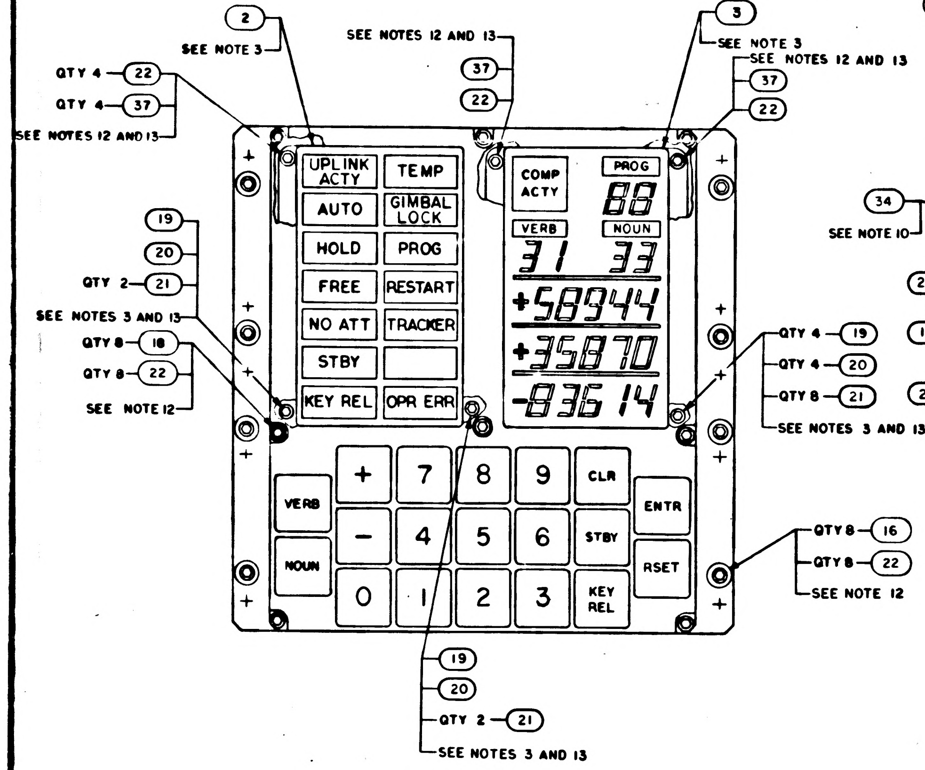

10 REF
5 REF
PRESSURE DRAIN SCREW REF
SEE NOTE 8

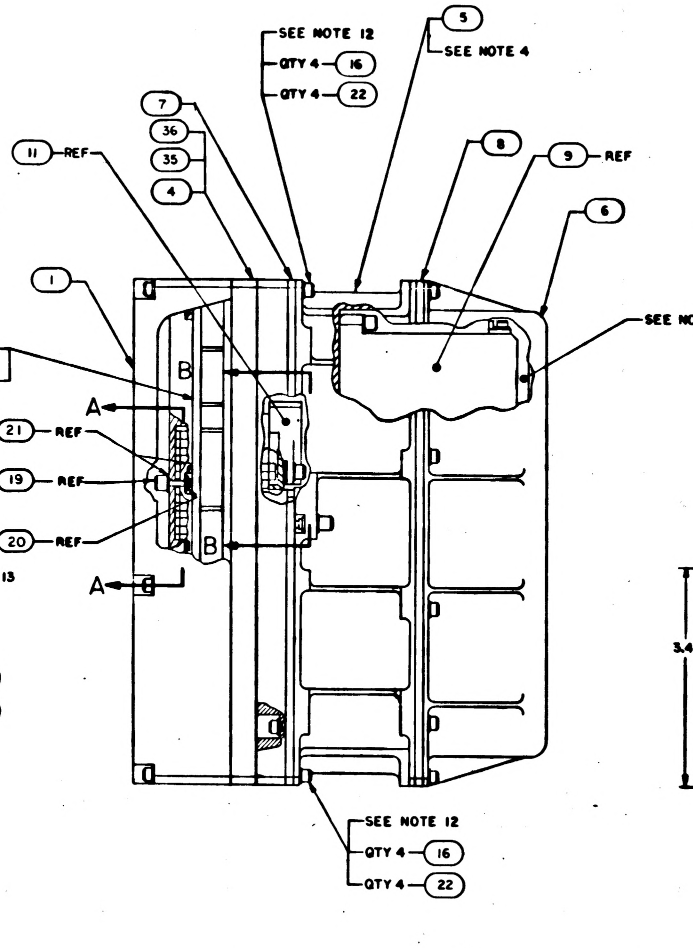


SECTION A-A


4 REF
D8
11
SEE NOTE 3

PARTIAL SECTION B-B


2
SEE NOTE 3
SEE NOTES 12 AND 13
37
22
3
SEE NOTE 3
SEE NOTES 12 AND 13
QTY 4 22
QTY 4 37
UPLINK ACTY
TEMP
COMP ACTY
PROG
AUTO
GIMBAL LOCK
88
VERB
NOUN
HOLD
PROG
31 33
FREE
RESTART
+58944
NO ATT
TRACKER
+35870
STBY
KEY REL
OPR ERR
-83614
19
20
QTY 2 21
SEE NOTES 3 AND 13
QTY 8 18
QTY 8 22
SEE NOTE 12
QTY 4 19
QTY 4 20
QTY 8 21
SEE NOTES 3 AND 13
VERB
NOUN
+
7
8
9
CLR
ENTR
−
4
5
6
STBY
RSET
0
1
2
3
KEY REL
QTY 8 16
QTY 8 22
SEE NOTE 12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QTY 4 16
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11 REF
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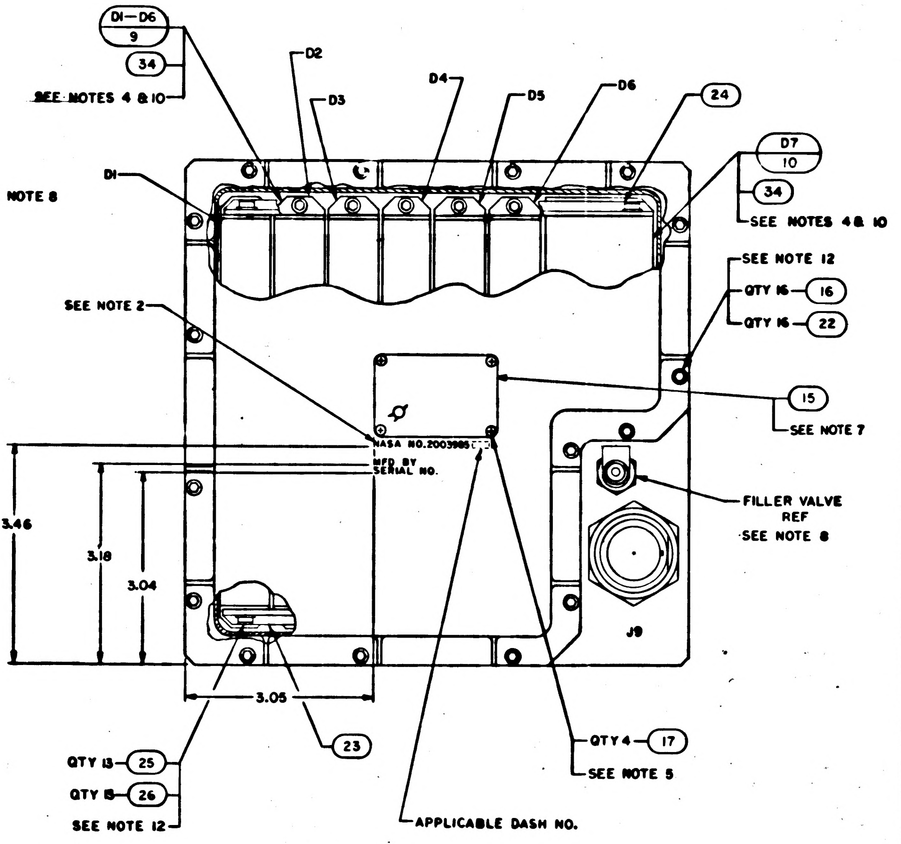
A
SEE NOTE 12
QTY 4 16
QTY 4 22


D1-D6
9
34
SEE NOTES 4 & 10
D2
D3
D4
D5
D6
24
D1
D7
10
34
SEE NOTES 4 & 10
SEE NOTE 12
QTY 16 16
QTY 16 22
SEE NOTE 2
15
SEE NOTE 7
NASA NO. 2003985
MFD BY
SERIAL NO.
FILLER VALVE REF
SEE NOTE 8
3.46
3.18
3.04
J9
3.05
QTY 13 25
QTY 13 26
SEE NOTE 12
23
QTY 4 17
SEE NOTE 5
APPLICABLE DASH NO.

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK .10/.08 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271-1
3. MOUNTING TORQUE FOR FIND NO. 19 AND JACK SCREWS OF FIND NO. 11 TO BE 7-10 INCH POUNDS
4. MOUNTING TORQUE FOR JACK SCREWS OF FIND NO. 5, 9 & 10 TO BE 15-19 INCH POUNDS
5. APPLY SEALING COMPOUND MIL-S-22473 GRADE H TO FIND NO. 17
6. ~~BOND FIND NO. 12, 13 TO FIND NO. 3, FIND NO. 14 TO FIND NO. 2, FIND NO. 27, 28, 29 TO FIND NO. 9, FIND NO. 30 TO FIND NO. 10, FIND NO. 31, 32 TO FIND NO. 5, FIND NO. 33 TO FIND NO. 11 PER ND1002237~~
7. STAMP CHARACTERS PER ND1002019 AND SERIALIZE PER ND1002023
8. FILL WITH A MINIMUM OF 87% NITROGEN AND 8.7% HELIUM AND A MAXIMUM OF 4.3% AIR TO 1.05/1.10 ATMOSPHERES. DO NOT EXCEED 2 ATMOSPHERES DURING PRESSURIZATION
9. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003985
10. APPLY FIND NO. 34 TO MATING SURFACES OF FIND NO. 4, 9 AND 10 DO NOT APPLY TO BONDED RUBBER OF FIND NO. 4,
11. AR DENOTES AS REQUIRED
12. MOUNTING TORQUE FOR FIND NO. 16 AND 37 TO BE 8-9 INCH POUNDS MOUNTING TORQUE FOR FIND NO. 18 AND 26 TO BE 3.5-4.5 INCH POUNDS
13. FIND NO. 2 AND 3 TO BE ASSEMBLE TO HEIGHT OF BONDED RUBBER OF FIND NO 4, 35 OR 36 USING FIND NO. 19, BEFORE INSTALLING FIND NO. 37

QTY REQD 031	QTY REQD 021	QTY REQD 011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
			2003956	OUTLINE DRAWING	REF
			2005957	SIGNAL PIN ASSIGNMENT	REF
			2005951	INTERCONNECTING DIAGRAM	REF
			2005950	SIGNAL FLOW DIAGRAM	REF
6	6	6	MS16995-20	SCREW, CAP, SOCKET HEAD	37
1	—	—	2003903-031	FRONT HOUSING ASSY	36
—	1	—	2003903-021	FRONT HOUSING ASSY	35
AR	AR	AR	1006879	SILICONE COMPOUND	34
~~1~~	~~1~~	~~1~~	~~2004955-009~~	~~GASKET~~	~~33~~
~~1~~	~~1~~	~~1~~	~~2004955-008~~	~~GASKET~~	~~32~~
~~2~~	~~2~~	~~2~~	~~2004955-007~~	~~GASKET~~	~~31~~
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~~6~~	~~6~~	~~6~~	~~2004958-001~~	~~GASKET~~	~~27~~
13	13	13	MS16995-10	SCREW, HEX SOCKET HEAD	26
13	13	13	NAS620C4	WASHER, FLAT	25
1	1	1	2004958	BRACKET, MODULE	24
1	1	1	2004959	BRACKET, MODULE	23
46	46	46	NAS620C6	WASHER, FLAT	22
18	18	18	1004546-4	WASHER, FLAT	21
6	6	6	MS16633-4014	RING, RETAINING	20
6	6	6	2004932-001	SCREW, JACKING	19
8	8	8	1001489-59	SCREW, HEX SOCKET HEAD	18
4	4	4	MS35216-1	SCREW, PAN HEAD, CROSS RECESSED	17
32	32	32	MS16995-18	SCREW, CAP, SOCKET HEAD	16
1	1	1	1004260-20	NAMEPLATE	15
~~1~~	~~1~~	~~1~~	~~2004955-001~~	~~GASKET~~	~~14~~
~~1~~	~~1~~	~~1~~	~~2004953-002~~	~~GASKET~~	~~13~~
~~1~~	~~1~~	~~1~~	~~2004953-001~~	~~GASKET~~	~~12~~
1	1	1	2003909-011	KEYBOARD MODULE ASSY D8	11
1	1	1	2003901-011	POWER SUPPLY ASSY MODULE D7	10
6	6	6	2003902-011	INDICATOR DRIVER MODULE D1-D6	9
1	1	1	1006349	GASKET, BONDED, RUBBER	8
1	1	1	1006350	GASKET, BONDED, RUBBER	7
1	1	1	2004900	COVER, REAR	6
1	1	1	2003954-011	MAIN HOUSING ASSY	5
—	—	1	2003903-011	FRONT HOUSING ASSY	4
1	1	1	2004935	INDICATOR, DIGITAL	3
1	1	1	1006316	INDICATOR, ALARM	2
1	1	1	2004929-011	COVER, FRONT	1

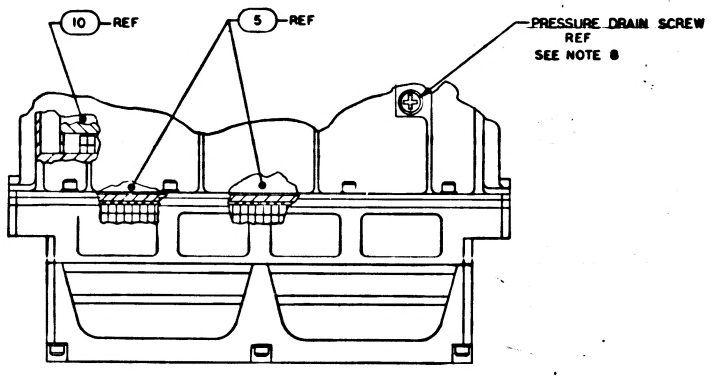
LIST OF MATERIALS

NEXT ASSY	USED ON	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS - DECIMALS ±.02 ANGLES - DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB CAMBRIDGE MASS	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
APPLICATION		MATERIAL	DRAWN A. Voce DATE 8 JUL 65 CHECKED R. Edwards 12 July 65 APPROVAL APPROVAL	AGC DSKY ASSEMBLY
		HEAT TREATMENT FINAL FINISH	NASA APPROVAL MIT APPROVAL 20 July 65	CODE IDENT NO. 80230 SIZE J NASA DRAWING NO. 2003985 SCALE 1/1 WT SHEET 1 OF 1

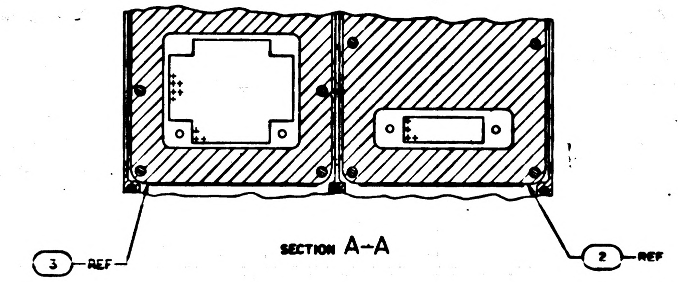
2003985 C

2003985 D

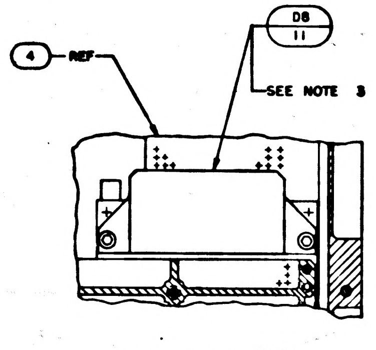
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22462 DR. W. Penn CHK. APPD.		
B	REVISED PER TDRR 23637 DR E. Uffing CHK	11/17/6	
C	REVISED PER TDRR 24214 DR R.B. CHK APPD	12/1/65	
D	REVISED PER TDRR 24667 DR CHK		



10 REF
5 REF
PRESSURE DRAIN SCREW REF SEE NOTE 8

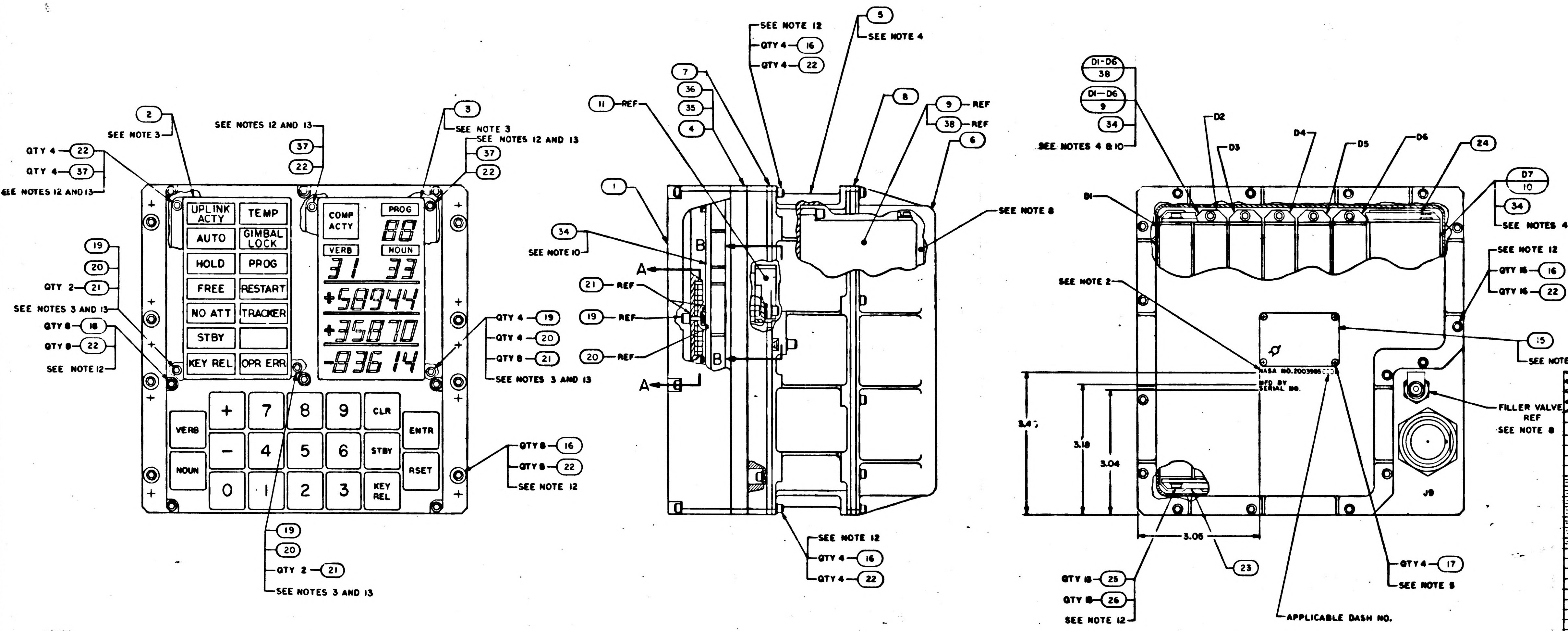


SECTION A–A



4 REF
D8 11
SEE NOTE 3

PARTIAL SECTION B–B



2
SEE NOTE 3
QTY 4 22
QTY 4 37
SEE NOTES 12 AND 13
SEE NOTES 12 AND 13
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3
SEE NOTE 3
SEE NOTES 12 AND 13
37
22
UPLINK ACTY
TEMP
AUTO
GIMBAL LOCK
HOLD
PROG
FREE
RESTART
NO ATT
TRACKER
STBY
KEY REL
OPR ERR
COMP ACTY
PROG
88
VERB
NOUN
31
33
+58944
+35870
-83614
VERB
NOUN
+
-
0
7
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1
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3
CLR
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KEY REL
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19
20
QTY 2 21
SEE NOTES 3 AND 13
QTY 8 16
QTY 8 22
SEE NOTE 12
QTY 4 19
QTY 4 20
QTY 8 21
SEE NOTES 3 AND 13
QTY 8 16
QTY 8 22
SEE NOTE 12
19
20
QTY 2 21
SEE NOTES 3 AND 13
SEE NOTE 12
QTY 4 16
QTY 4 22
5
SEE NOTE 4
7
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35
4
11 REF
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9 REF
38 REF
6
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SEE NOTE 8
34
SEE NOTE 10
A
B
21 REF
19 REF
20 REF
B
A
SEE NOTE 12
QTY 4 16
QTY 4 22
D1-D6 38
D1-D6 9
34
SEE NOTES 4 & 10
D2
D3
D4
D5
D6
24
D1
D7 10
34
SEE NOTES 4 & 10
SEE NOTE 12
QTY 16 16
QTY 16 22
SEE NOTE 2
NASA NO. 2003985
MFD BY
SERIAL NO.
15
SEE NOTE 7
FILLER VALVE REF
SEE NOTE 8
J9
3.47
3.18
3.04
3.05
QTY 18 25
QTY 18 26
SEE NOTE 12
23
QTY 4 17
SEE NOTE 5
APPLICABLE DASH NO.

					2003956	OUTLINE DRAWING	REF
					2005957	SIGNAL PIN ASSIGNMENT	REF
					2005951	INTERCONNECTING DIAGRAM	REF
					2005950	SIGNAL FLOW DIAGRAM	REF
6	6	—	—	—	2003952-011	INDICATOR DRIVER MODULE D1-D6	38
6	6	6	6	6	MS16995-20	SCREW, CAP, SOCKET HEAD	37
1	—	1	—	—	2003903-031	FRONT HOUSING ASSY	36
—	1	—	1	—	2003903-021	FRONT HOUSING ASSY	35
AR	AR	AR	AR	AR	1006879	SILICONE COMPOUND	34
		~~1~~	~~1~~	~~1~~	~~2004955-009~~	~~GASKET~~	~~33~~
		~~1~~	~~1~~	~~1~~	~~2004955-008~~	~~GASKET~~	~~32~~
		~~2~~	~~2~~	~~2~~	~~2004955-007~~	~~GASKET~~	~~31~~
		~~1~~	~~1~~	~~1~~	~~2004955-006~~	~~GASKET~~	~~30~~
		~~6~~	~~6~~	~~6~~	~~2004958-003~~	~~GASKET~~	~~29~~
		~~6~~	~~6~~	~~6~~	~~2004958-002~~	~~GASKET~~	~~28~~
		~~6~~	~~6~~	~~6~~	~~2004958-001~~	~~GASKET~~	~~27~~
13	13	13	13	13	MS16995-10	SCREW, HEX SOCKET HEAD	26
13	13	13	13	13	NAS620C4	WASHER, FLAT	25
1	1	1	1	1	2004958	BRACKET, MODULE	24
1	1	1	1	1	2004959	BRACKET, MODULE	23
46	46	46	46	46	NAS620C6	WASHER, FLAT	22
18	18	18	18	18	1004546-4	WASHER, FLAT	21
6	6	6	6	6	MS16633-4014	RING, RETAINING	20
6	6	6	6	6	2004932-001	SCREW, JACKING	19
8	8	8	8	8	1001489-59	SCREW, HEX SOCKET HEAD	18
4	4	4	4	4	MS35216-1	SCREW, PAN HEAD, CROSS RECESSED	17
32	32	32	32	32	MS16995-18	SCREW, CAP, SOCKET HEAD	16
1	1	1	1	1	1004260-20	NAMEPLATE	15
		~~1~~	~~1~~	~~1~~	~~2004955-001~~	~~GASKET~~	~~14~~
		~~1~~	~~1~~	~~1~~	~~2004953-002~~	~~GASKET~~	~~13~~
		~~1~~	~~1~~	~~1~~	~~2004953-001~~	~~GASKET~~	~~12~~
1	1	1	1	1	2003909-011	KEYBOARD MODULE ASSY D8	11
1	1	1	1	1	2003901-011	POWER SUPPLY ASSY MODULE D7	10
—	—	6	6	6	2003902-011	INDICATOR DRIVER MODULE D1-D6	9
1	1	1	1	1	1006349	GASKET, BONDED, RUBBER	8
1	1	1	1	1	1006350	GASKET, BONDED, RUBBER	7
1	1	1	1	1	2004900	COVER, REAR	6
1	1	1	1	1	2003954-011	MAIN HOUSING ASSY	5
—	—	—	—	1	2003903-011	FRONT HOUSING ASSY	4
1	1	1	1	1	2004935	INDICATOR, DIGITAL	3
1	1	1	1	1	1006316	INDICATOR, ALARM	2
1	1	1	1	1	2004929-011	COVER, FRONT	1
QTY REQD	QTY REQD	QTY REQD	QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
051	041	031	021	011	LIST OF MATERIALS		

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK .10/.08 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271-1
3. MOUNTING TORQUE FOR FIND NO. 19 AND JACK SCREWS OF FIND NO. 11 TO BE 7-10 INCH POUNDS
4. MOUNTING TORQUE FOR JACK SCREWS OF FIND NO. 5,9,10 & 38 TO BE 15-19 INCH POUNDS
5. APPLY SEALING COMPOUND MIL-S-22473 GRADE H TO FIND NO.17
6. ~~BOND FIND NO. 12, 13 TO FIND NO. 3, FIND NO. 14 TO FIND NO. 2, FIND NO. 27, 28, 29 TO FIND NO. 9, FIND NO. 30 TO FIND NO. 10, FIND NO. 31, 32 TO FIND NO. 5, FIND NO. 33 TO FIND NO. 11 PER ND1002232~~
7. STAMP CHARACTERS PER ND1002019 AND SERIALIZE PER ND1002023
8. FILL WITH A MINIMUM OF 87% NITROGEN AND 8.7% HELIUM AND A MAXIMUM OF 4.3% AIR TO 1.05/1.10 ATMOSPHERES. DO NOT EXCEED 2 ATMOSPHERES DURING PRESSURIZATION
9. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003985
10. APPLY FIND NO. 34 TO MATING SURFACES OF FIND NO. 4,9,10 & 38 DO NOT APPLY TO BONDED RUBBER OF FIND NO.4,
11. AR DENOTES AS REQUIRED
12. MOUNTING TORQUE FOR FIND NO. 16 AND 37 TO BE 8-9 INCH POUNDS MOUNTING TORQUE FOR FIND NO. 18 AND 26 TO BE 3.5-4.5 INCH POUNDS
13. FIND NO. 2 AND 3 TO BE ASSEMBLE TO HEIGHT OF BONDED RUBBER OF FIND NO 4, 35 OR 36 USING FIND NO. 19, BEFORE INSTALLING FIND NO. 37

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
Cambridge Mass

DRAWN A. Vocca DATE
CHECKED R. Edwards
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

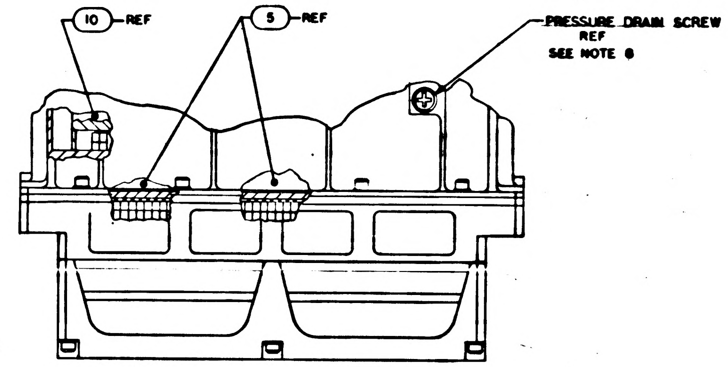
AGC DSKY ASSEMBLY

CODE IDENT NO 80230 SIZE J NASA DRAWING NO 2003985
SCALE 1/1 WT SHEET 1 OF 1

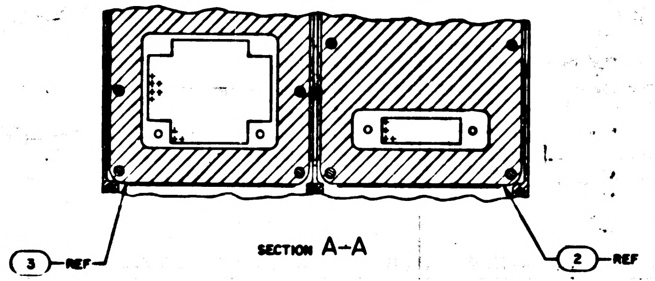
2003985 D

2003985 E

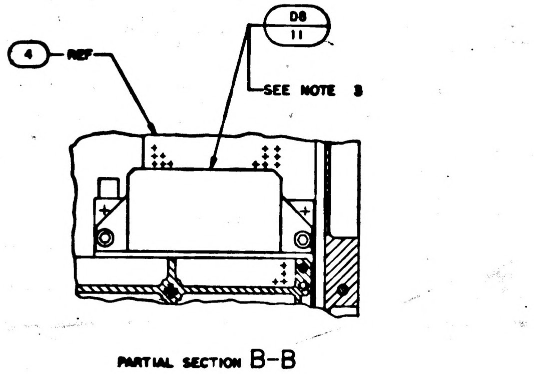
LTR	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22462 DR. W. Pom CHK. APPD.		
B	REVISED PER TDRR 23637 DR C. Yfing CHK	11/07/	
C	REVISED PER TDRR 24214 DR CHK APPD		
D	REVISED PER TDRR 24667 DR CHK		
E	REVISED PER TDRR 25150 DR CHK		



10 REF
5 REF
PRESSURE DRAIN SCREW REF SEE NOTE 8

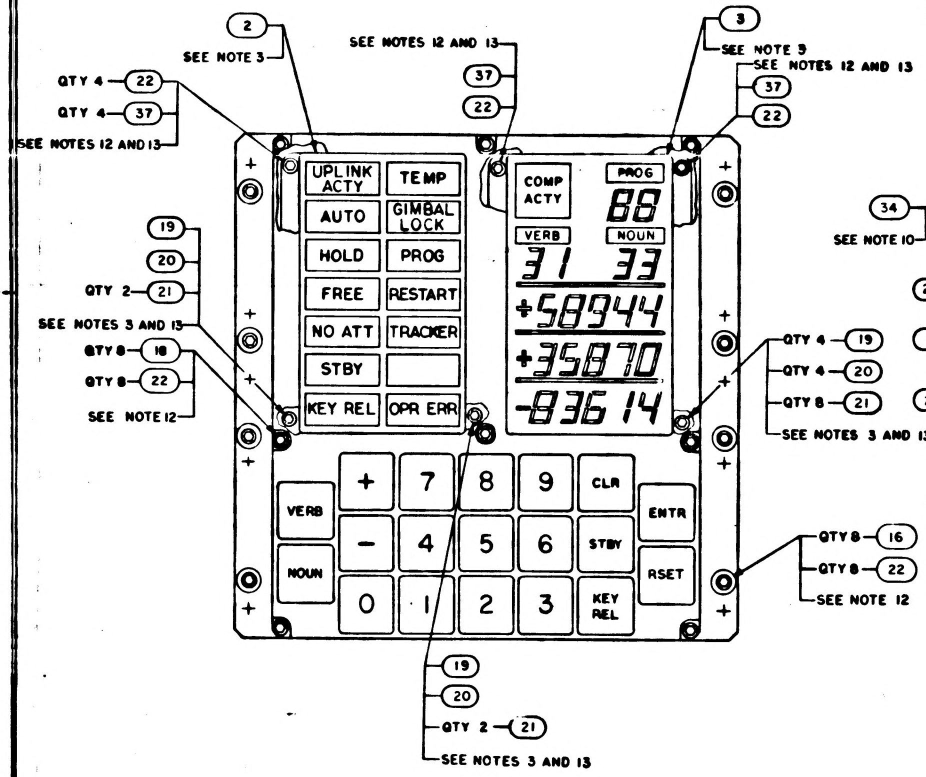


SECTION A-A



4 REF
D8 11
SEE NOTE 3

PARTIAL SECTION B-B



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QTY 4 22
QTY 4 37
SEE NOTES 12 AND 13
SEE NOTES 12 AND 13
37
22
3
SEE NOTE 3
SEE NOTES 12 AND 13
37
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UPLINK ACTY
TEMP
AUTO
GIMBAL LOCK
HOLD
PROG
FREE
RESTART
NO ATT
TRACKER
STBY
KEY REL
OPR ERR
COMP ACTY
PROG
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VERB
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+35870
-83614
19
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QTY 2 21
SEE NOTES 3 AND 13
QTY 8 18
QTY 8 22
SEE NOTE 12
QTY 4 19
QTY 4 20
QTY 8 21
SEE NOTES 3 AND 13
VERB
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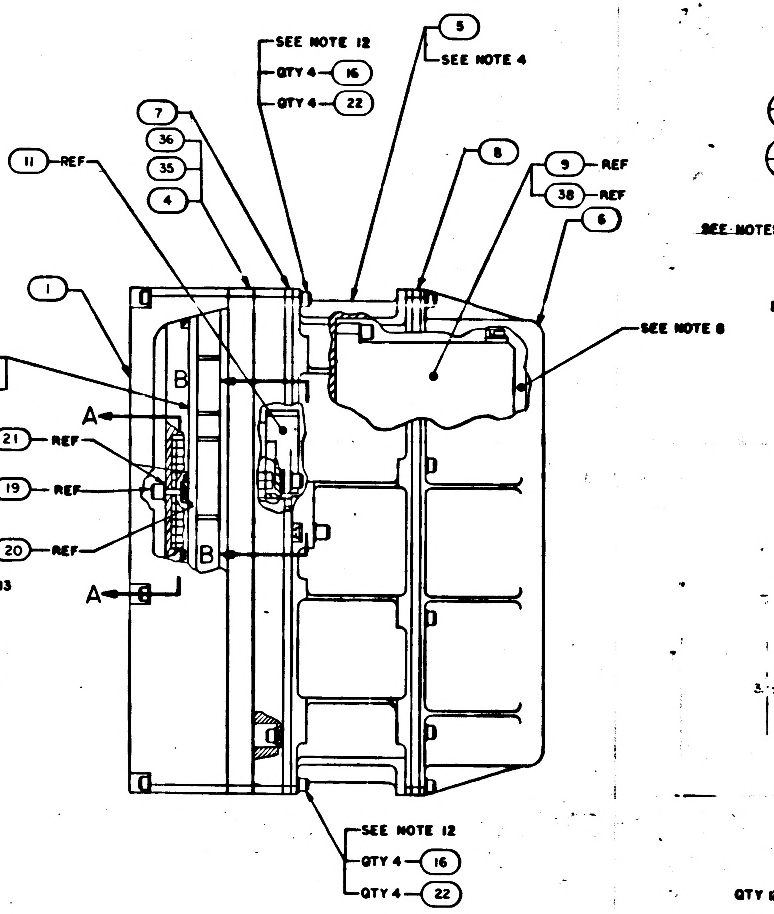
SEE NOTES 3 AND 13



SEE NOTE 12
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QTY 4 22
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SEE NOTE 4
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35
4
11 REF
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9 REF
38 REF
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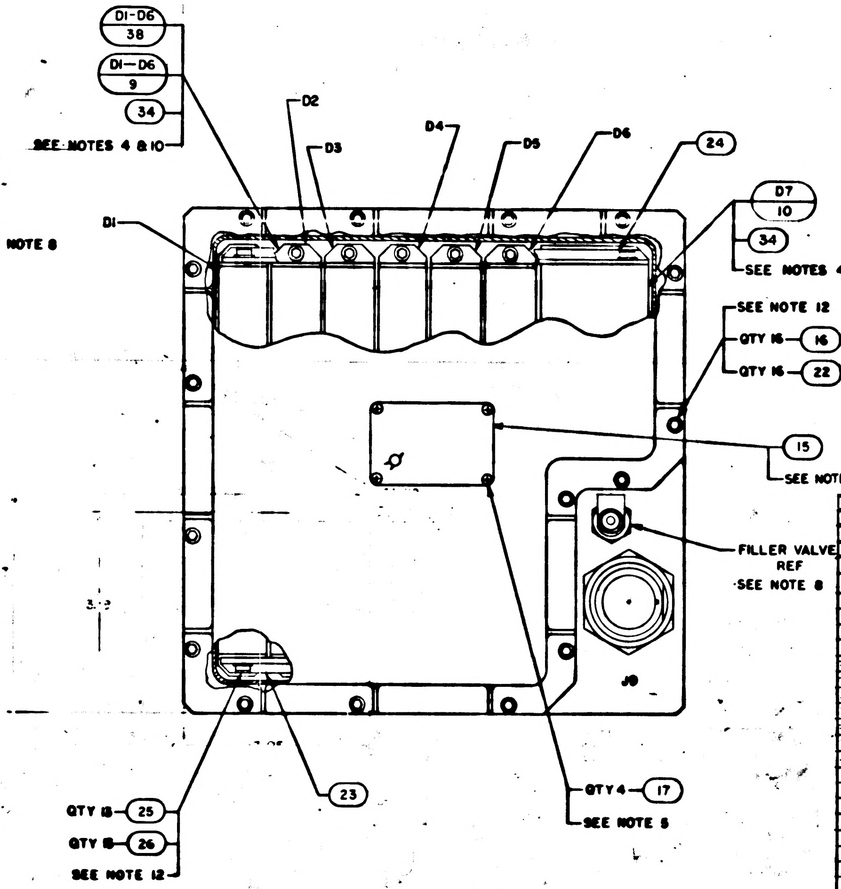
A
SEE NOTE 12
QTY 4 16
QTY 4 22



D1-D6 38
D1-D6 9
34
SEE NOTES 4 & 10
D2
D3
D4
D5
D6
24
D1
D7 10
34
SEE NOTES 4 & 10
SEE NOTE 12
QTY 16 16
QTY 16 22
15
SEE NOTE 7
FILLER VALVE REF
SEE NOTE 8
J9
QTY 4 17
SEE NOTE 5
23
QTY 13 25
QTY 13 26
SEE NOTE 12

QTY REQD 051	QTY REQD 041	QTY REQD 031	QTY REQD 021	QTY REQD 011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
					2003956	OUTLINE DRAWING	REF
					2005957	SIGNAL PIN ASSIGNMENT	REF
					2005951	INTERCONNECTING DIAGRAM	REF
					2005950	SIGNAL FLOW DIAGRAM	REF
6	6	—	—	—	2003952-011	INDICATOR DRIVER MODULE D1-D6	38
6	6	6	6	6	MS16995-20	SCREW, CAP, SOCKET HEAD	37
1	—	1	—	—	2003903-031	FRONT HOUSING ASSY	36
—	1	—	1	—	2003903-021	FRONT HOUSING ASSY	35
AR	AR	AR	AR	AR	1006879	SILICONE COMPOUND	34
		~~1~~	~~1~~	~~1~~	~~2004955-009~~	~~GASKET~~	~~33~~
		~~1~~	~~1~~	~~1~~	~~2004955-008~~	~~GASKET~~	~~32~~
		~~2~~	~~2~~	~~2~~	~~2004955-007~~	~~GASKET~~	~~31~~
		~~1~~	~~1~~	~~1~~	~~2004955-006~~	~~GASKET~~	~~30~~
		~~6~~	~~6~~	~~6~~	~~2004988-003~~	~~GASKET~~	~~29~~
		~~6~~	~~6~~	~~6~~	~~2004988-002~~	~~GASKET~~	~~28~~
		~~6~~	~~6~~	~~6~~	~~2004988-001~~	~~GASKET~~	~~27~~
13	13	13	13	13	MS16995-10	SCREW, HEX SOCKET HEAD	26
13	13	13	13	13	NAS620C4	WASHER, FLAT	25
1	1	1	1	1	2004958	BRACKET, MODULE	24
1	1	1	1	1	2004959	BRACKET, MODULE	23
46	46	46	46	46	NAS620C6	WASHER, FLAT	22
12	12	12	12	12	1004546-4	WASHER, FLAT	21
6	6	6	6	6	MS16633-4014	RING, RETAINING	20
6	6	6	6	6	2004932-001	SCREW, JACKING	19
8	8	8	8	8	1001489-59	SCREW, HEX SOCKET HEAD	18
4	4	4	4	4	MS35216-1	SCREW, PAN HEAD, CROSS RECESSED	17
32	32	32	32	32	MS16995-18	SCREW, CAP, SOCKET HEAD	16
1	1	1	1	1	1004260-20	NAMEPLATE	15
		~~1~~	~~1~~	~~1~~	~~2004955-003~~	~~GASKET~~	~~14~~
		~~1~~	~~1~~	~~1~~	~~2004955-002~~	~~GASKET~~	~~13~~
		~~1~~	~~1~~	~~1~~	~~2004955-001~~	~~GASKET~~	~~12~~
1	1	1	1	1	2003909-011	KEYBOARD MODULE ASSY D8	11
1	1	1	1	1	2003901-011	POWER SUPPLY ASSY MODULE D7	10
—	—	6	6	6	2003902-011	INDICATOR DRIVER MODULE D1-D6	9
1	1	1	1	1	1006349	GASKET, BONDED, RUBBER	8
1	1	1	1	1	1006350	GASKET, BONDED, RUBBER	7
1	1	1	1	1	2004900	COVER, REAR	6
1	1	1	1	1	2003954-011	MAIN HOUSING ASSY	5
—	—	—	—	1	2003903-011	FRONT HOUSING ASSY	4
1	1	1	1	1	2004935	INDICATOR, DIGITAL	3
1	1	1	1	1	1006316	INDICATOR, ALARM	2
1	1	1	1	1	2004929-011	COVER, FRONT	1

LIST OF MATERIALS

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
~~2. MARK .10/.08 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271~~
3. MOUNTING TORQUE FOR FIND NO. 19 AND JACK SCREWS OF FIND NO. 11 TO BE 7-10 INCH POUNDS
4. MOUNTING TORQUE FOR JACK SCREWS OF FIND NO. 5, 9, 10 & 38 TO BE 15-19 INCH POUNDS
5. APPLY SEALING COMPOUND MIL-S-22473 GRADE H TO FIND NO. 17
~~6. BOND FIND NO. 12, 13 TO FIND NO. 3, FIND NO. 14 TO FIND NO. 2, FIND NO. 27, 28, 29 TO FIND NO. 9, FIND NO. 30 TO FIND NO. 10, FIND NO. 31, 32 TO FIND NO. 5, FIND NO. 33 TO FIND NO. 11 PER ND1002238~~
7. MARK "AGC DSKY ASSEMBLY" AND IT'S RESPECTIVE PART NO., SERIAL NO. AND CONTRACT NO. MARKING TO BE PER ND1002019 AND SERIALIZE PER ND1002023
8. FILL WITH A MINIMUM OF 87% NITROGEN AND 8.7% HELIUM AND A MAXIMUM OF 4.3% AIR TO 1.05/1.10 ATMOSPHERES. DO NOT EXCEED 2 ATMOSPHERES DURING PRESSURIZATION
9. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003985
10. APPLY FIND NO. 34 TO MATING SURFACES OF FIND NO. 4, 9, 10, & 38 DO NOT APPLY TO BONDED RUBBER OF FIND NO. 4
11. AR DENOTES AS REQUIRED
12. MOUNTING TORQUE FOR FIND NO. 16 AND 37 TO BE 8-9 INCH POUNDS MOUNTING TORQUE FOR FIND NO. 18 AND 26 TO BE 3.5-4.5 INCH POUNDS
13. FIND NO. 2 AND 3 TO BE ASSEMBLE TO HEIGHT OF BONDED RUBBER OF FIND NO. 4, 35 OR 36 USING FIND NO. 19, BEFORE INSTALLING FIND NO. 37

NEXT ASSY	USED ON	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ±.02 ANGLES ± DO NOT SCALE THIS DRAWING	M I T INSTRUMENTATION LAB CAMBRIDGE MASS
APPLICATION		MATERIAL	DRAWN a. Vocca DATE 8 JUL 65 CHECKED R. Edwards 12 July 65 APPROVAL APPROVAL
		HEAT TREATMENT	NASA APPROVAL
		FINAL FINISH	MIT APPROVAL WKupfer 20 Jul 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

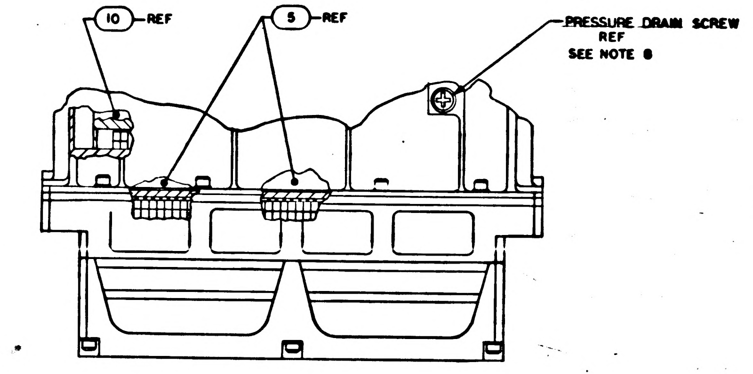
AGC DSKY ASSEMBLY

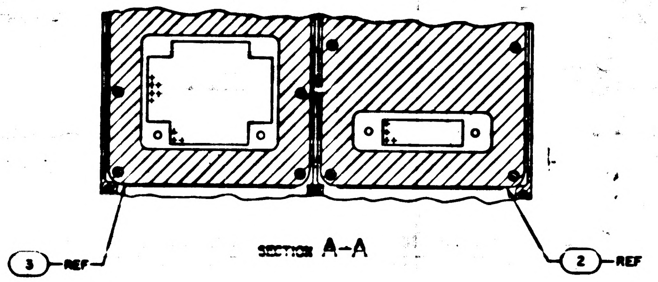
CODE IDENT NO. 80230 SIZE J NASA DRAWING NO. 2003985
SCALE 1/1 WT SHEET 1 OF 1

2003985 E

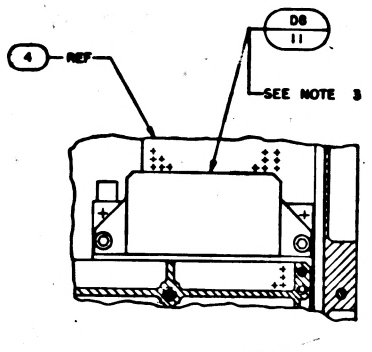
2003985 F

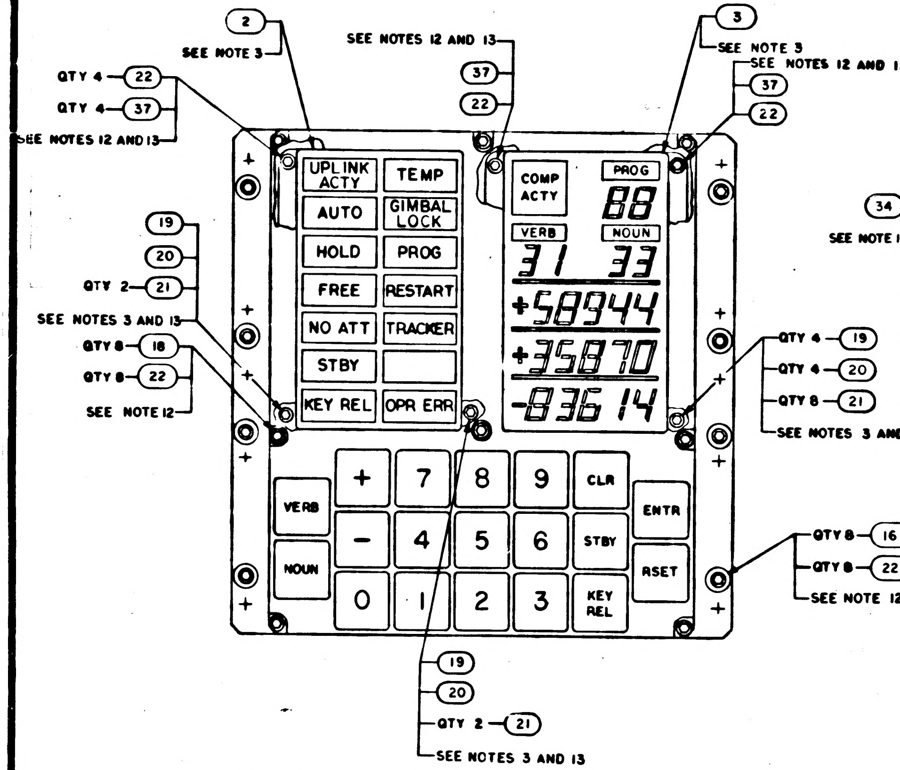
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22462 DR. W. Pearson CHK. APPD.		
B	REVISED PER TDRR 23637 DR C. Yfting CHK	11/07/6	
C	REVISED PER TDRR 24214 DR CHK APPD		
D	REVISED PER TDRR 24667 DR 1G CHK		
E	REVISED PER TDRR 25150 DR CHK		
F	REVISED PER TDRR 25771 DR CHK		


10 REF
5 REF
PRESSURE DRAIN SCREW REF
SEE NOTE 8



SECTION A-A


4 REF
D8 11
SEE NOTE 3
PARTIAL SECTION B-B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SEE NOTE 3
SEE NOTES 12 AND 13
37
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SEE NOTES 12 AND 13
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QTY 4 22
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SEE NOTES 12 AND 13
UPLINK ACTY
TEMP
AUTO
GIMBAL LOCK
HOLD
PROG
FREE
RESTART
NO ATT
TRACKER
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KEY REL
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COMP ACTY
PROG
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SEE NOTES 3 AND 13
QTY 8 18
QTY 8 22
SEE NOTE 12
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SEE NOTE 12
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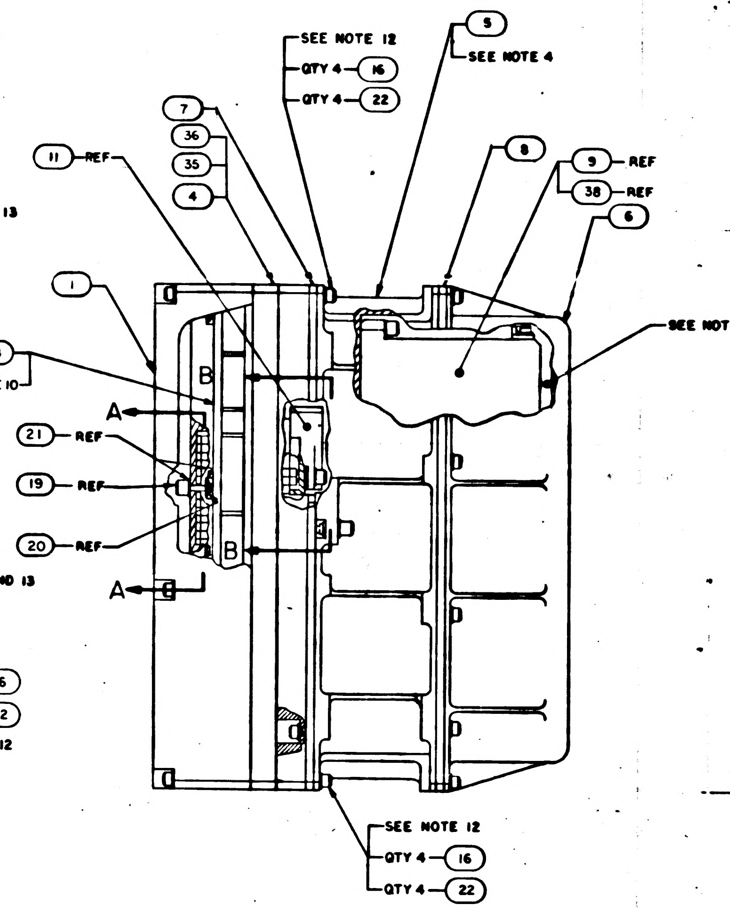
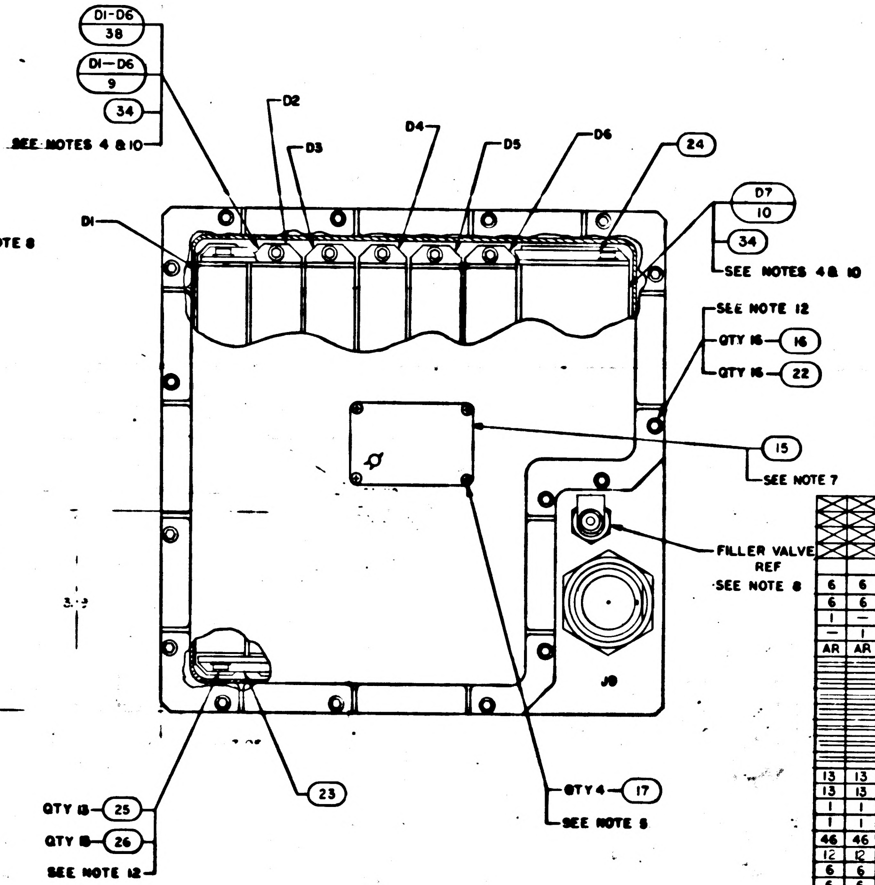
QTY 2 21
SEE NOTES 3 AND 13


SEE NOTE 12
QTY 4 16
QTY 4 22
5
SEE NOTE 4
7
36
35
4
11 REF
8
9 REF
38 REF
6
1
34
SEE NOTE 10
SEE NOTE 8
A
B
21 REF
19 REF
20 REF
B
A
SEE NOTE 12
QTY 4 16
QTY 4 22


D1-D6 38
D1-D6 9
34
SEE NOTES 4 & 10
D2
D3
D4
D5
D6
24
D1
D7 10
34
SEE NOTES 4 & 10
SEE NOTE 12
QTY 16 16
QTY 16 22
15
SEE NOTE 7
FILLER VALVE REF
SEE NOTE 8
J9
QTY 13 25
QTY 13 26
SEE NOTE 12
23
QTY 4 17
SEE NOTE 5

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ~~MARK 10/08 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271~~
3. MOUNTING TORQUE FOR FIND NO. 19 AND JACK SCREWS OF FIND NO. 11 TO BE 8.5-9.5 INCH POUNDS
4. MOUNTING TORQUE FOR JACK SCREWS OF FIND NO. 5, 9, 10 & 38 TO BE 15-19 INCH POUNDS
5. APPLY SEALING COMPOUND MIL-S-22473 GRADE H TO FIND NO. 17
6. ~~BOND FIND NO. 12, 13 TO FIND NO. 3, FIND NO. 14 TO FIND NO. 2, FIND NO. 27, 28, 29 TO FIND NO. 9, FIND NO. 30 TO FIND NO. 10, FIND NO. 31, 32 TO FIND NO. 5, FIND NO. 33 TO FIND NO. 11 PER ND1002237~~
7. MARK "AGC DSKY ASSEMBLY" AND IT'S RESPECTIVE PART NO., SERIAL NO. AND CONTRACT NO. MARKING TO BE PER ND1002019 AND SERIALIZE PER ND1002023
8. FILL WITH A MINIMUM OF 87% NITROGEN AND 8.7% HELIUM AND A MAXIMUM OF 4.3% AIR TO 1.05/1.10 ATMOSPHERES. DO NOT EXCEED 2 ATMOSPHERES DURING PRESSURIZATION
9. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003985
10. APPLY FIND NO. 34 TO MATING SURFACES OF FIND NO. 4, 9, 10, & 38 DO NOT APPLY TO BONDED RUBBER OF FIND NO. 4
11. AR DENOTES AS REQUIRED
12. MOUNTING TORQUE FOR FIND NO. 16, 18 & 37 TO BE 8-9 INCH POUNDS MOUNTING TORQUE FOR FIND NO. 26 TO BE 3.5—4.5 INCH POUNDS
13. FIND NO. 2 AND 3 TO BE ASSEMBLE TO HEIGHT OF BONDED RUBBER OF FIND NO. 4, 35 OR 36 USING FIND NO. 19, BEFORE INSTALLING FIND NO. 37

QTY REQD	QTY REQD	QTY REQD	QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
051	041	031	021	011	LIST OF MATERIALS		
					2003956	OUTLINE DRAWING	REF
					2005957	SIGNAL PIN ASSIGNMENT	REF
					2005951	INTERCONNECTING DIAGRAM	REF
					2005950	SIGNAL FLOW DIAGRAM	REF
6	6	—	—	—	2003952-011	INDICATOR DRIVER MODULE D1-D6	38
6	6	6	6	6	MS16995-20	SCREW, CAP, SOCKET HEAD	37
1	—	1	—	—	2003903-031	FRONT HOUSING ASSY	36
—	1	—	1	—	2003903-021	FRONT HOUSING ASSY	35
AR	AR	AR	AR	AR	1006879	SILICONE COMPOUND	34
		~~1~~	~~1~~	~~1~~	~~2004955-009~~	~~GASKET~~	~~33~~
		~~1~~	~~1~~	~~1~~	~~2004955-008~~	~~GASKET~~	~~32~~
		~~2~~	~~2~~	~~2~~	~~2004955-007~~	~~GASKET~~	~~31~~
		~~1~~	~~1~~	~~1~~	~~2004988-006~~	~~GASKET~~	~~30~~
		~~6~~	~~6~~	~~6~~	~~2004988-003~~	~~GASKET~~	~~29~~
		~~6~~	~~6~~	~~6~~	~~2004988-002~~	~~GASKET~~	~~28~~
		~~6~~	~~6~~	~~6~~	~~2004988-004~~	~~GASKET~~	~~27~~
13	13	13	13	13	MS16995-10	SCREW, HEX SOCKET HEAD	26
13	13	13	13	13	NAS620C4	WASHER, FLAT	25
1	1	1	1	1	2004958	BRACKET, MODULE	24
1	1	1	1	1	2004959	BRACKET, MODULE	23
46	46	46	46	46	NAS620C6	WASHER, FLAT	22
12	12	12	12	12	1004546-4	WASHER, FLAT	21
6	6	6	6	6	MS16633-4014	RING, RETAINING	20
6	6	6	6	6	2004932-001	SCREW, JACKING	19
8	8	8	8	8	1001489-59	SCREW, HEX SOCKET HEAD	18
4	4	4	4	4	MS35216-1	SCREW, PAN HEAD, CROSS RECESSED	17
32	32	32	32	32	MS16995-18	SCREW, CAP, SOCKET HEAD	16
1	1	1	1	1	1004260-20	NAMEPLATE	15
		~~1~~	~~1~~	~~1~~	~~2004955-001~~	~~GASKET~~	~~14~~
		~~1~~	~~1~~	~~1~~	~~2004955-002~~	~~GASKET~~	~~13~~
		~~1~~	~~1~~	~~1~~	~~2004953-001~~	~~GASKET~~	~~12~~
1	1	1	1	1	2003909-011	KEYBOARD MODULE ASSY D8	11
1	1	1	1	1	2003901-011	POWER SUPPLY ASSY MODULE D7	10
—	—	6	6	6	2003912-011	INDICATOR DRIVER MODULE D1-D6	9
1	1	1	1	1	1006349	GASKET, BONDED, RUBBER	8
1	1	1	1	1	1006350	GASKET, BONDED, RUBBER	7
1	1	1	1	1	2004900	COVER, REAR	6
1	1	1	1	1	2003954-011	MAIN HOUSING ASSY	5
—	—	—	—	1	2003903-011	FRONT HOUSING ASSY	4
1	1	1	1	1	2004935	INDICATOR, DIGITAL	3
1	1	1	1	1	1006316	INDICATOR, ALARM	2
1	1	1	1	1	2004929-011	COVER, FRONT	1

NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS - DECIMALS ±.02 ANGLES -
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN A. Vocca DATE
CHECKED R. Edwards
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

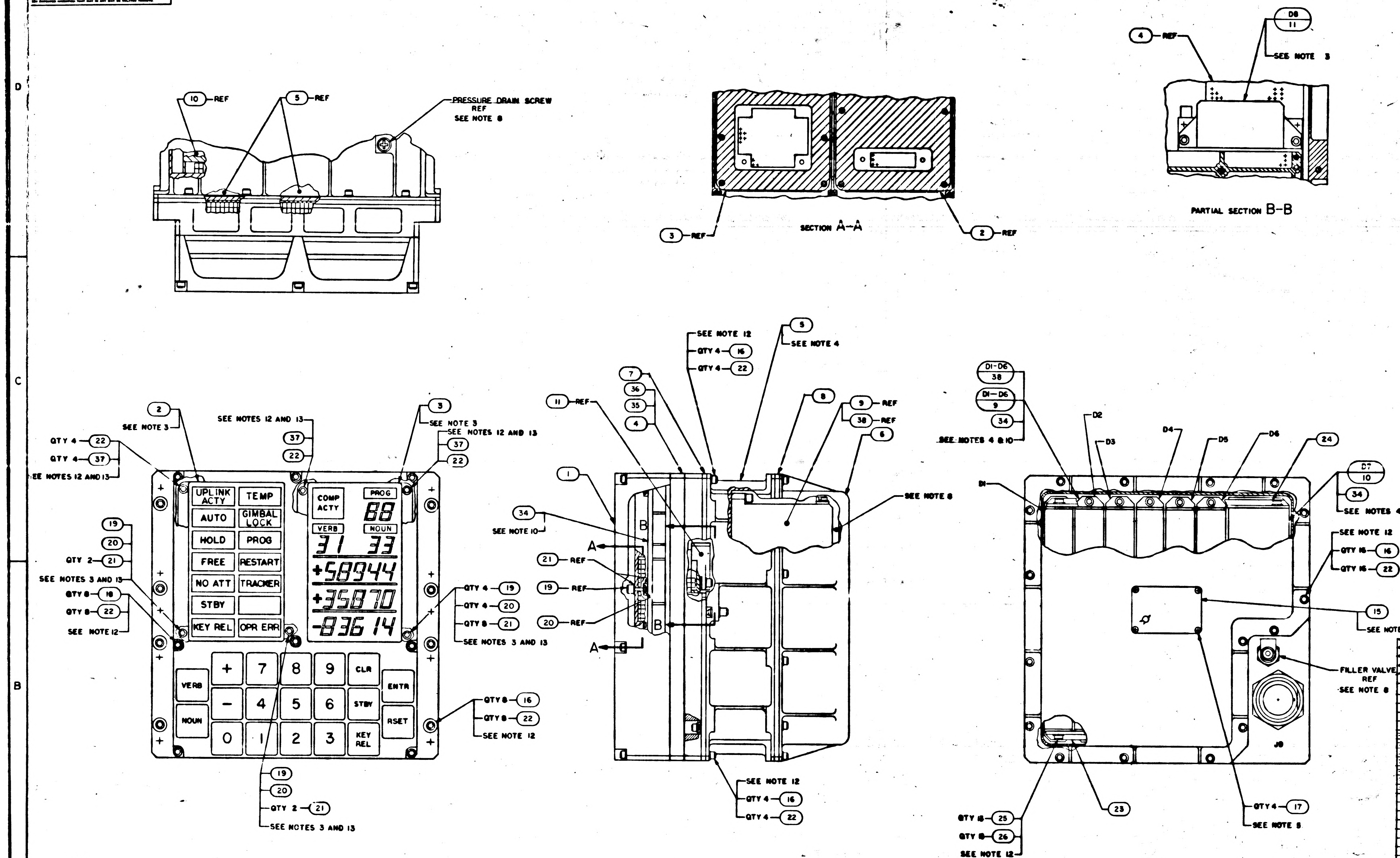
AGC DSKY ASSEMBLY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO 2003985
SCALE 1/1
SHEET 1 OF 1

2003985 F

2003985 G

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22462 DR. CHK. APPD.		
B	REVISED PER TDRR 23637 DR CHK		
C	REVISED PER TDRR 24214 DR CHK APPD		
D	REVISED PER TDRR 24667 DR CHK		
E	REVISED PER TDRR 25150 DR CHK	4/17/66	
F	REVISED PER TDRR 25771 DR CHK		
G	REVISED PER TDRR 27087 DR CHK APPD		


10 REF
5 REF
PRESSURE DRAIN SCREW REF SEE NOTE 8
3 REF
SECTION A-A
2 REF
4 REF
D8 11
SEE NOTE 3
PARTIAL SECTION B-B
2 SEE NOTE 3
SEE NOTES 12 AND 13
37
22
3 SEE NOTE 3
SEE NOTES 12 AND 13
37
22
QTY 4 22
QTY 4 37
SEE NOTES 12 AND 13
UPLINK ACTY
TEMP
AUTO
GIMBAL LOCK
HOLD
PROG
FREE
RESTART
NO ATT
TRACKER
STBY
KEY REL
OPR ERR
COMP ACTY
PROG
88
VERB
NOUN
31 33
+58944
+35870
-83614
19
20
QTY 2 21
SEE NOTES 3 AND 13
QTY 8 18
QTY 8 22
SEE NOTE 12
QTY 4 19
QTY 4 20
QTY 8 21
SEE NOTES 3 AND 13
VERB
NOUN
+
-
0 1 2 3 4 5 6 7 8 9
CLR
STBY
KEY REL
ENTR
RSET
QTY 8 16
QTY 8 22
SEE NOTE 12
19
20
QTY 2 21
SEE NOTES 3 AND 13
SEE NOTE 12
QTY 4 16
QTY 4 22
5 SEE NOTE 4
7
36
35
4
11 REF
1
8
9 REF
38 REF
6
34 SEE NOTE 10
21 REF
19 REF
20 REF
A
B
SEE NOTE 8
SEE NOTE 12
QTY 4 16
QTY 4 22
D1-D6 38
D1-D6 9
34
SEE NOTES 4 & 10
D1
D2
D3
D4
D5
D6
24
D7 10
34
SEE NOTES 4 & 10
SEE NOTE 12
QTY 16 16
QTY 16 22
15
SEE NOTE 7
FILLER VALVE REF SEE NOTE 8
J8
QTY 13 25
QTY 13 26
SEE NOTE 12
23
QTY 4 17
SEE NOTE 5

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ~~MARK 10/08 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271~~
3. MOUNTING TORQUE FOR FIND NO. 19 AND JACK SCREWS OF FIND NO. 11 TO BE 8.5-9.5 INCH POUNDS
4. MOUNTING TORQUE FOR JACK SCREWS OF FIND NO. 5, 9, 10 & 38 TO BE 15-19 INCH POUNDS
5. APPLY SEALING COMPOUND MIL-S-22473 GRADE H TO FIND NO. 17
6. ~~BOND FIND NO. 12, 13 TO FIND NO. 3, FIND NO. 14 TO FIND NO. 2, FIND NO. 27, 28, 29 TO FIND NO. 9, FIND NO. 30 TO FIND NO. 10, FIND NO. 31, 32 TO FIND NO. 5, FIND NO. 33 TO FIND NO. 11 PER ND1002238~~
7. MARK "AGC DSKY ASSEMBLY" AND IT'S RESPECTIVE PART NO., SERIAL NO. AND CONTRACT NO. MARKING TO BE PER ND1002019 AND SERIALIZE PER ND1002023
8. FILL WITH A MINIMUM OF 87% NITROGEN AND 8.7% HELIUM AND A MAXIMUM OF 4.3% AIR TO 1.05/1.10 ATMOSPHERES. DO NOT EXCEED 2 ATMOSPHERES DURING PRESSURIZATION
9. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003985
10. APPLY FIND NO. 34 TO MATING SURFACES OF FIND NO. 4, 9, 10, & 38 DO NOT APPLY TO BONDED RUBBER OF FIND NO. 4
11. AR DENOTES AS REQUIRED
12. MOUNTING TORQUE FOR FIND NO. 16, 18 & 37 TO BE 8-9 INCH POUNDS MOUNTING TORQUE FOR FIND NO. 26 TO BE 3.5—4.5 INCH POUNDS
13. FIND NO. 2 AND 3 TO BE ASSEMBLE TO HEIGHT OF BONDED RUBBER OF FIND NO. 4, 35 OR 36 USING FIND NO. 19, BEFORE INSTALLING FIND NO. 37

QTY REQD 051	QTY REQD 041	QTY REQD 031	QTY REQD 021	QTY REQD 011	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
					2003956	OUTLINE DRAWING	REF
					2005957	SIGNAL PIN ASSIGNMENT	REF
					2005951	INTERCONNECTING DIAGRAM	REF
					2005950	SIGNAL FLOW DIAGRAM	REF
6	6	—	—	—	2003952-011	INDICATOR DRIVER MODULE D1-D6	38
6	6	6	6	6	MS16995-20	SCREW, CAP, SOCKET HEAD	37
1	—	1	—	—	2003903-031	FRONT HOUSING ASSY	36
—	1	—	1	—	2003903-021	FRONT HOUSING ASSY	35
AR	AR	AR	AR	AR	1006879	SILICONE COMPOUND	34
~~—~~	~~—~~	~~1~~	~~1~~	~~1~~	~~2004955-009~~	~~GASKET~~	~~33~~
~~—~~	~~—~~	~~1~~	~~1~~	~~1~~	~~2004955-008~~	~~GASKET~~	~~32~~
~~—~~	~~—~~	~~2~~	~~2~~	~~2~~	~~2004955-007~~	~~GASKET~~	~~31~~
~~—~~	~~—~~	~~1~~	~~1~~	~~1~~	~~2004955-006~~	~~GASKET~~	~~30~~
~~—~~	~~—~~	~~6~~	~~6~~	~~6~~	~~2004958-003~~	~~GASKET~~	~~29~~
~~—~~	~~—~~	~~6~~	~~6~~	~~6~~	~~2004958-002~~	~~GASKET~~	~~28~~
~~—~~	~~—~~	~~6~~	~~6~~	~~6~~	~~2004958-001~~	~~GASKET~~	~~27~~
13	13	13	13	13	MS16995-10	SCREW, HEX SOCKET HEAD	26
13	13	13	13	13	NAS620C4	WASHER, FLAT	25
1	1	1	1	1	2004958	BRACKET, MODULE	24
1	1	1	1	1	2004959	BRACKET, MODULE	23
46	46	46	46	46	NAS620C6	WASHER, FLAT	22
12	12	12	12	12	1004546-4	WASHER, FLAT	21
6	6	6	6	6	MS16633-4014	RING, RETAINING	20
6	6	6	6	6	2004932-001	SCREW, JACKING	19
8	8	8	8	8	1001489-59	SCREW, HEX SOCKET HEAD	18
4	4	4	4	4	MS35216-1	SCREW, PAN HEAD, CROSS RECESSED	17
32	32	32	32	32	MS16995-18	SCREW, CAP, SOCKET HEAD	16
1	1	1	1	1	1004260-20	NAMEPLATE	15
~~—~~	~~—~~	~~1~~	~~1~~	~~1~~	~~2004955-001~~	~~GASKET~~	~~14~~
~~—~~	~~—~~	~~1~~	~~1~~	~~1~~	~~2004953-002~~	~~GASKET~~	~~13~~
~~—~~	~~—~~	~~1~~	~~1~~	~~1~~	~~2004953-001~~	~~GASKET~~	~~12~~
1	1	1	1	1	2003909-011	KEYBOARD MODULE ASSY D8	11
1	1	1	1	1	2003901-011	POWER SUPPLY ASSY MODULE D7	10
—	—	6	6	6	2003902-011	INDICATOR DRIVER MODULE D1-D6	9
1	1	1	1	1	1006349	GASKET, BONDED, RUBBER	8
1	1	1	1	1	1006350	GASKET, BONDED, RUBBER	7
1	1	1	1	1	2004900	COVER, REAR	6
1	1	1	1	1	2003954-011	MAIN HOUSING ASSY	5
—	—	—	—	1	2003903-011	FRONT HOUSING ASSY	4
1	1	1	1	1	1006315	INDICATOR, DIGITAL	3
1	1	1	1	1	1006316	INDICATOR, ALARM	2
1	1	1	1	1	2004929-011	COVER, FRONT	1

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS — DECIMALS ±.02 — ANGLES —
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH
NEXT ASSY — USED ON
APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO — CONTRACT
DRAWN A. Vorce DATE
CHECKED R. Edwards
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC DSKY ASSEMBLY

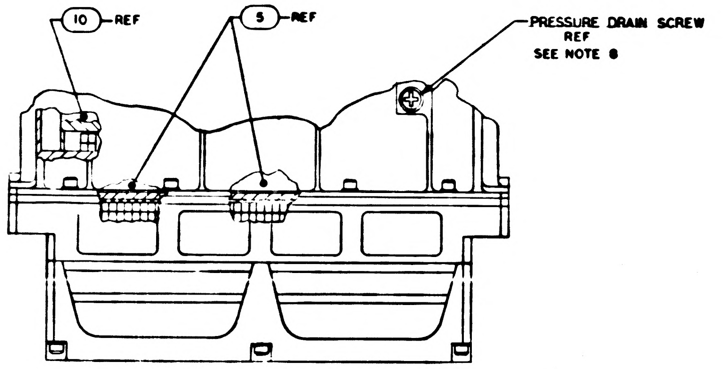
CODE IDENT NO 80230
SIZE J
NASA DRAWING NO 2003985
SCALE 1/1
WT
SHEET 1 OF 1

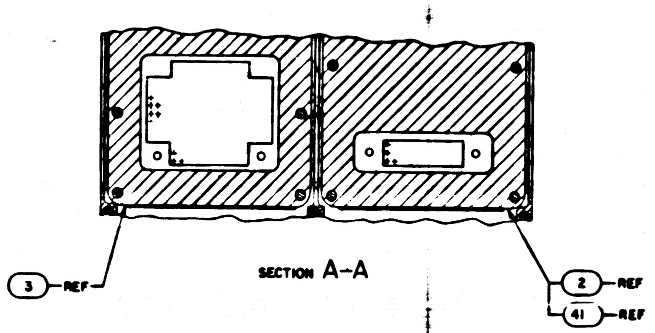
MASTER

2003985 G

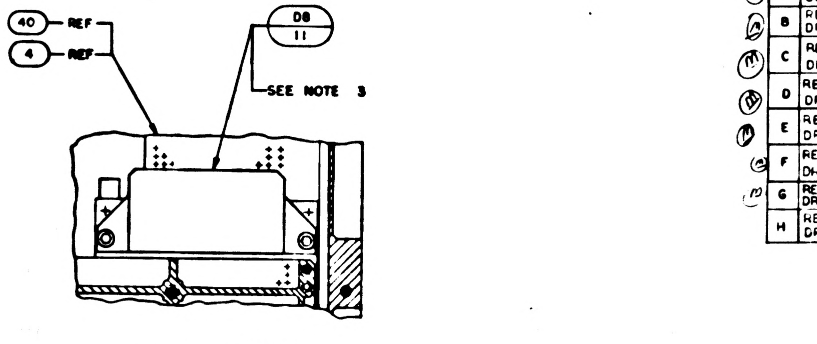
2003985 G

SYM	DESCRIPTION	DATE	APPROVAL
	REVISIONS 307-3		
A	REVISED PER TDRR 22462 DR CHK. APPD		
B	REVISED PER TDRR 23637 DR CHK		
C	REVISED PER TDRR 24214 DR CHK APPD		
D	REVISED PER TDRR 24667 DR CHK		
E	REVISED PER TDRR 25150 DR CHK		
F	REVISED PER TDRR 25771 DR CHK		
G	REVISED PER TDRR 27087 DR CHK APPD		
H	REVISED PER TDRR 35068 DR CHK APPD		


10 REF
5 REF
PRESSURE DRAIN SCREW REF
SEE NOTE 8


3 REF
2 REF
41 REF

SECTION A-A


40 REF
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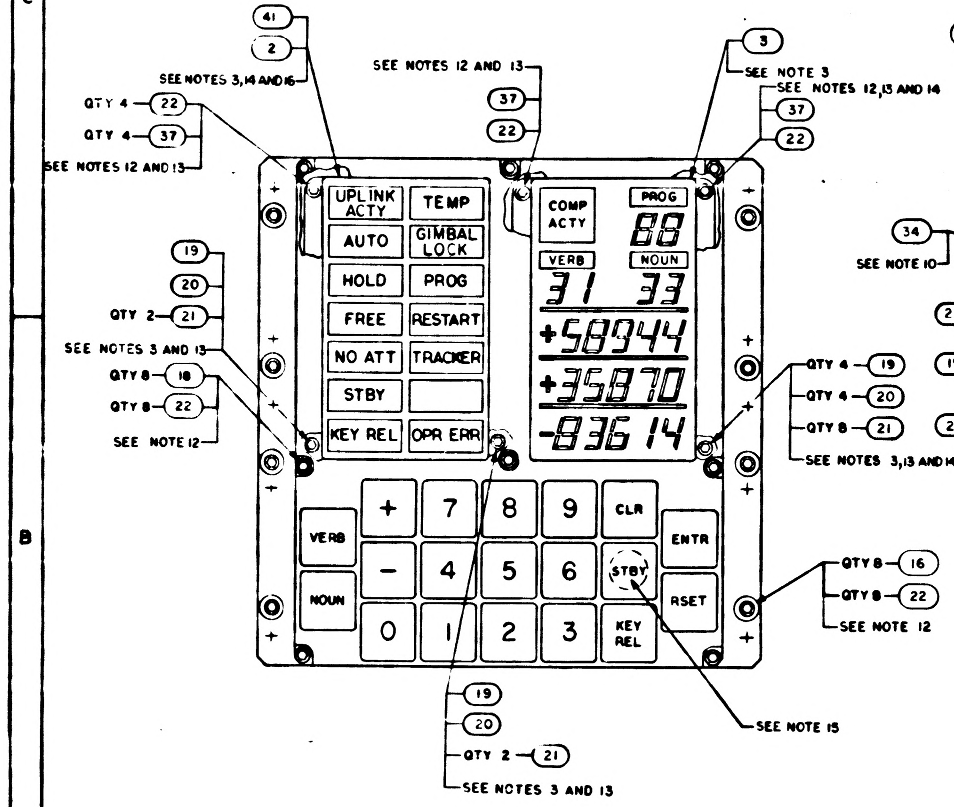
D8
11
SEE NOTE 3

PARTIAL SECTION B-B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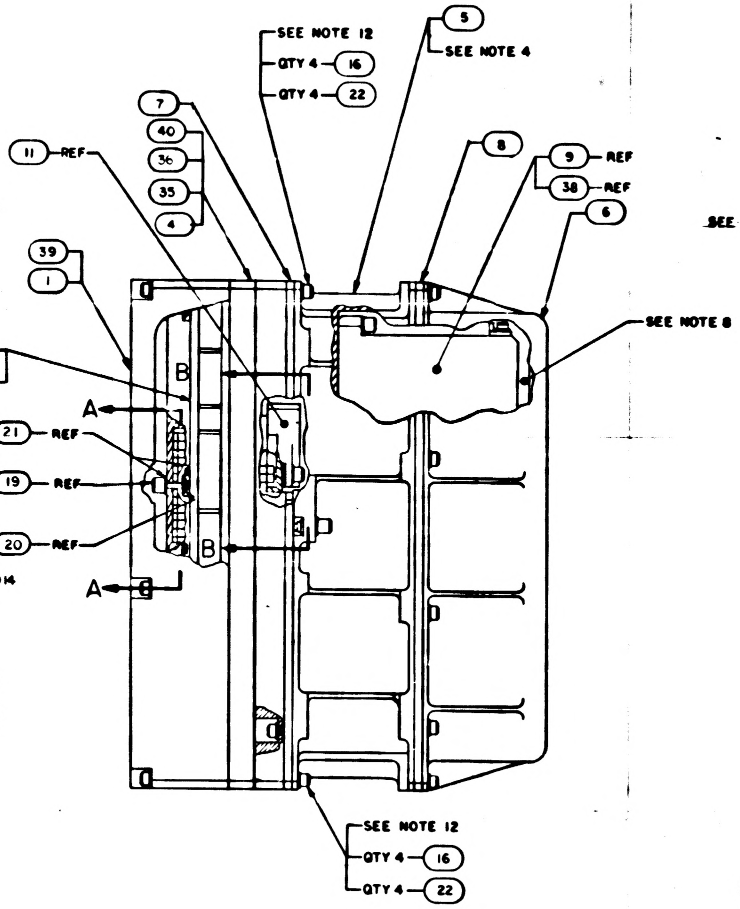
2
SEE NOTES 3,14 AND 16
QTY 4 22
QTY 4 37
SEE NOTES 12 AND 13
SEE NOTES 12 AND 13
37
22
3
SEE NOTE 3
SEE NOTES 12,13 AND 14
37
22
UPLINK ACTY
TEMP
AUTO
GIMBAL LOCK
HOLD
PROG
FREE
RESTART
NO ATT
TRACKER
STBY
KEY REL
OPR ERR
COMP ACTY
PROG
88
VERB
NOUN
31 33
+58944
+35870
-83614
VERB
NOUN
+
−
0 1 2 3 4 5 6 7 8 9
CLR
STBY
ENTR
RSET
KEY REL
19
20
QTY 2 21
SEE NOTES 3 AND 13
QTY 8 18
QTY 8 22
SEE NOTE 12
QTY 4 19
QTY 4 20
QTY 8 21
SEE NOTES 3,13 AND 14
QTY 8 16
QTY 8 22
SEE NOTE 12
19
20
QTY 2 21
SEE NOTES 3 AND 13
SEE NOTE 15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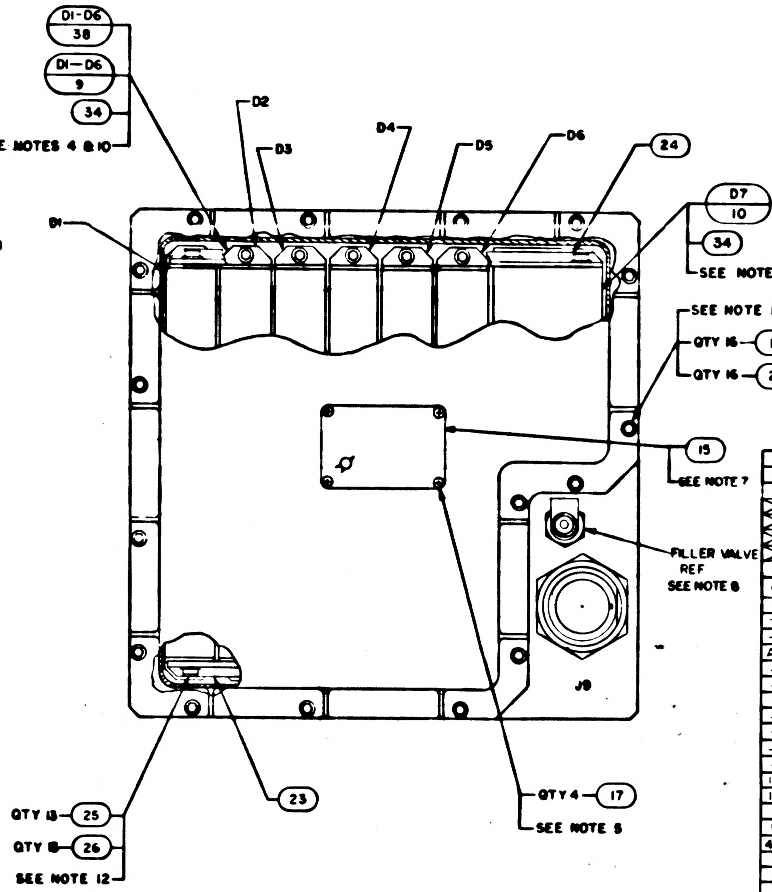
QTY 4 16
QTY 4 22
5
SEE NOTE 4
7
40
36
35
4
8
9 REF
38 REF
6
11 REF
39
1
34
SEE NOTE 10
SEE NOTE 8
A
B
21 REF
19 REF
20 REF
A
B
SEE NOTE 12
QTY 4 16
QTY 4 22


D1-D6
38
D1-D6
9
34
SEE NOTES 4 & 10
D1
D2
D3
D4
D5
D6
24
D7
10
34
SEE NOTES 4 & 10
SEE NOTE 12
QTY 16 16
QTY 16 22
15
SEE NOTE 7
FILLER VALVE REF
SEE NOTE 8
J9
QTY 13 25
QTY 13 26
SEE NOTE 12
23
QTY 4 17
SEE NOTE 5

QTY REQD 061	QTY REQD 051	QTY REQD 041	QTY REQD 031	QTY REQD 021	QTY REQD 011	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
1	—	—	—	—	—	2003899-011	INDICATOR ALARM & COVER ASSY	41
1	—	—	—	—	—	2003903-041	FRONT HOUSING ASSY	40
1	—	—	—	—	—	2004739	COVER, FRONT	39
						2003956	OUTLINE DRAWING	REF
						2005957	SIGNAL PIN ASSIGNMENT	REF
						2005951	INTERCONNECTING DIAGRAM	REF
						2005950	SIGNAL FLOW DIAGRAM	REF
6	6	6	—	—	—	2003952-011	INDICATOR DRIVER MODULE D1-D6	38
2	6	6	6	6	6	MS16995-20	SCREW, CAP, SOCKET HEAD	37
—	1	—	1	—	—	2003903-031	FRONT HOUSING ASSY	36
—	—	1	—	1	—	2003903-021	FRONT HOUSING ASSY	35
AR	AR	AR	AR	AR	AR	1006879	SILICONE COMPOUND	34
—			~~1~~	~~1~~	~~1~~	~~2004953-008~~	~~GASKET~~	~~33~~
—			~~1~~	~~1~~	~~1~~	~~2004953-008~~	~~GASKET~~	~~32~~
—			~~2~~	~~2~~	~~2~~	~~2004955-007~~	~~GASKET~~	~~31~~
—			~~1~~	~~1~~	~~1~~	~~2004955-006~~	~~GASKET~~	~~30~~
—			~~6~~	~~6~~	~~6~~	~~2004958-003~~	~~GASKET~~	~~29~~
—			~~6~~	~~6~~	~~6~~	~~2004958-002~~	~~GASKET~~	~~28~~
—			~~6~~	~~6~~	~~6~~	~~2004958-004~~	~~GASKET~~	~~27~~
13	13	13	13	13	13	MS16995-10	SCREW, HEX SOCKET HEAD	26
13	13	13	13	13	13	NAS620C4	WASHER, FLAT	25
1	1	1	1	1	1	2004958	BRACKET, MODULE	24
1	1	1	1	1	1	2004959	BRACKET, MODULE	23
42	46	46	46	46	46	NAS620C6	WASHER, FLAT	22
8	12	12	12	12	12	1004546-4	WASHER, FLAT	21
4	6	6	6	6	6	MS16633-4014	RING, RETAINING	20
4	6	6	6	6	6	2004932-001	SCREW, JACKING	19
2	8	8	8	8	8	1001489-59	SCREW, HEX SOCKET HEAD	18
4	4	4	4	4	4	MS35216-1	SCREW, PAN HEAD, CROSS RECESSED	17
32	32	32	32	32	32	MS16995-18	SCREW, CAP, SOCKET HEAD	16
1	1	1	1	1	1	1004260-20	NAMEPLATE	15
—			~~1~~	~~1~~	~~1~~	~~2004955-001~~	~~GASKET~~	~~14~~
—			~~1~~	~~1~~	~~1~~	~~2004953-002~~	~~GASKET~~	~~13~~
—			~~1~~	~~1~~	~~1~~	~~2004953-001~~	~~GASKET~~	~~12~~
1	1	1	1	1	1	2003909-011	KEYBOARD MODULE ASSY D8	11
1	1	1	1	1	1	2003901-011	POWER SUPPLY ASSY MODULE D7	10
—	—	—	6	6	6	2003902-011	INDICATOR DRIVER MODULE D1-D6	9
1	1	1	1	1	1	1006349	GASKET, BONDED, RUBBER	8
1	1	1	1	1	1	1006350	GASKET, BONDED, RUBBER	7
1	1	1	1	1	1	2004900	COVER, REAR	6
1	1	1	1	1	1	2003954-011	MAIN HOUSING ASSY	5
—	—	—	—	—	1	2003903-011	FRONT HOUSING ASSY	4
1	1	1	1	1	1	1006315	INDICATOR, DIGITAL	3
—	1	1	1	1	1	1006316	INDICATOR, ALARM	2
—	1	1	1	1	1	2004929-011	COVER, FRONT	1

LIST OF MATERIALS

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
~~2. MARK 10/08 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271-1~~
3. MOUNTING TORQUE FOR FIND NO. 19 AND JACK SCREWS OF FIND NO. 11 AND 41 TO BE 6.5-9.5 INCH POUNDS
4. MOUNTING TORQUE FOR JACK SCREWS OF FIND NO. 5, 9, 10 & 38 TO BE 15-19 INCH POUNDS
5. APPLY SEALING COMPOUND MIL-S-22473 GRADE H TO FIND NO. 17
~~6. BOND FIND NO. 12, 13 TO FIND NO. 3, FIND NO. 14 TO FIND NO. 2, FIND NO. 27, 28, 29 TO FIND NO. 9, FIND NO. 30 TO FIND NO. 10, FIND NO. 31, 32 TO FIND NO. 5, FIND NO. 33 TO FIND NO. 11 PER ND1002232~~
7. MARK "AGC DSKY ASSEMBLY" AND IT'S RESPECTIVE PART NO., SERIAL NO. AND CONTRACT NO. MARKING TO BE PER ND1002019 AND SERIALIZE PER ND1002023
8. FILL WITH A MINIMUM OF 87% NITROGEN AND 8.7% HELIUM AND A MAXIMUM OF 4.3% AIR TO 1.05/1.10 ATMOSPHERES. DO NOT EXCEED 2 ATMOSPHERES DURING PRESSURIZATION
9. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003985
10. APPLY FIND NO. 34 TO MATING SURFACES OF FIND NO. 4, 9, 10, 38, 35, 36, & 40 DO NOT APPLY TO BONDED RUBBER OF FIND NO. 4, 35, 36, OR 40
11. AR DENOTES AS REQUIRED
12. MOUNTING TORQUE FOR FIND NO. 16, 18 & 37 TO BE 8-9 INCH POUNDS MOUNTING TORQUE FOR FIND NO. 26 TO BE 3.5 — 4.5 INCH POUNDS
13. FIND NO. 2 AND 3 TO BE ASSEMBLE TO HEIGHT OF BONDED RUBBER OF FIND NO. 4, 35 OR 36 USING FIND NO. 19, BEFORE INSTALLING FIND NO. 37
14. FIND NO. 3 TO BE ASSEMBLED TO HEIGHT OF BONDED RUBBER OF FIND NO. 40 USING FIND NO. 19 BEFORE INSTALLING FIND NO. 37. FIND NO. 41 TO BE INSTALLED USING EXISTING JACKING SCREWS. ASSEMBLE IN AN ENVIRONMENT HAVING A TEMPERATURE OF 72° ± 5°F AND A RELATIVE HUMIDITY OF 50% OR LESS.
15. THE -011, -021, -031, -041 & -051 CONFIGURATIONS SHALL REFLECT A NOMENCLATURE AS SHOWN. THE -061 CONFIGURATION SHALL REFLECT "PRO" IN KEY POSITION INDICATED.
16. PICTORIAL SHOWN IS THAT OF THE -011 THRU -051 CONFIGURATIONS. THE -061 CONFIGURATION SHALL EXHIBIT ONLY TEN ALARM LEGENDS ON FIND NO 41.

DASH NO	APPLICABLE
-061	1 THRU 12, 14 THRU 16
-051	1 THRU 13 AND 15
-041	1 THRU 13 AND 15
-031	1 THRU 13 AND 15
-021	1 THRU 13 AND 15
-011	1 THRU 13 AND 15

NOTE APPLICATION

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS - DECIMALS ±.02 ANGLES -
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN A. Vorce DATE 8 JUL 65
CHECKED R. Edwards
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

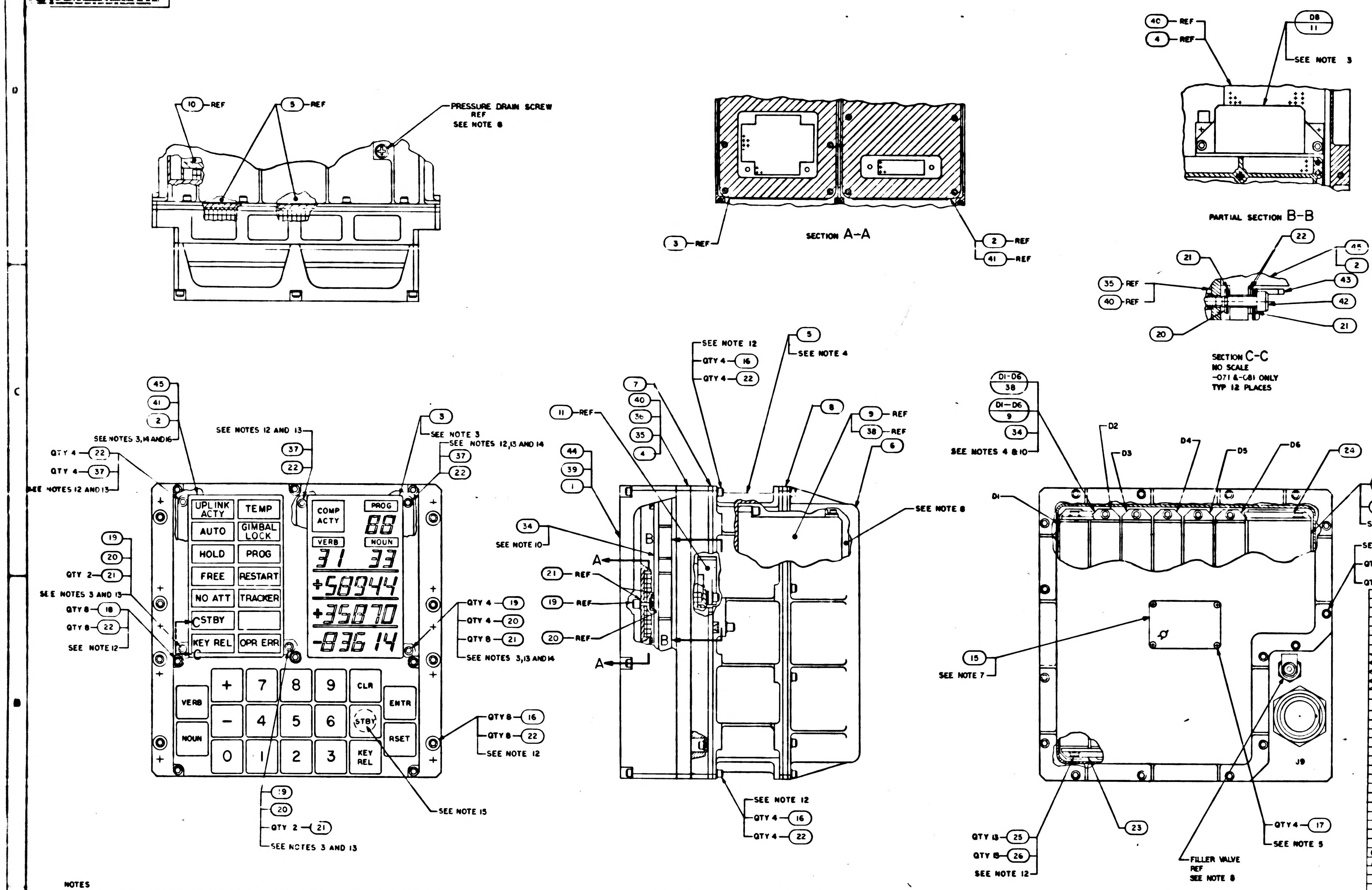
MANNED SPACECRAFT CENTER
HOUSTON TEXAS

AGC DSKY ASSEMBLY

CODE IDENT NO 80230 SIZE J NASA DRAWING NO 2003985
SCALE 1/1 WT SHEET 1 OF 1

2003985 K

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22462 DR CHK APPD		
B	REVISED PER TDRR 23637 DR CHK		
C	REVISED PER TDRR 24214 DR CHK APPD		
D	REVISED PER TDRR 24667 DR CHK		
E	REVISED PER TDRR 25150 DR CHK		
F	REVISED PER TDRR 25771 DR CHK		
G	REVISED PER TDRR 27087 DR CHK APPD		
H	REVISED PER TDRR 35065 DR CHK APPD		
J	REVISED PER TDRR 36014 APPD DR Smith CHK		
K	REVISED PER TDRR 36654 APPD DR Smith CHK		


10 REF
5 REF
PRESSURE DRAIN SCREW
REF
SEE NOTE 8
SECTION A-A
3 REF
2 REF
41 REF
40 REF
4 REF
D8
11
SEE NOTE 3
PARTIAL SECTION B-B
22
45 REF
2 REF
21
43
35 REF
40 REF
42
21
20
SECTION C-C
NO SCALE
-071 & -081 ONLY
TYP 12 PLACES
45
41
2
SEE NOTES 3,14 AND 16
QTY 4 22
QTY 4 37
SEE NOTES 12 AND 13
SEE NOTES 12 AND 13
37
22
3
SEE NOTE 3
SEE NOTES 12,13 AND 14
37
22
UPLINK ACTY
TEMP
AUTO
GIMBAL LOCK
HOLD
PROG
FREE
RESTART
NO ATT
TRACKER
STBY
KEY REL
OPR ERR
COMP ACTY
PROG
88
VERB
NOUN
31
33
+58944
+35870
-83614
+
7
8
9
CLR
VERB
ENTR
−
4
5
6
STBY
NOUN
RSET
0
1
2
3
KEY REL
19
20
QTY 2 21
SEE NOTES 3 AND 13
QTY 8 18
QTY 8 22
SEE NOTE 12
QTY 4 19
QTY 4 20
QTY 8 21
SEE NOTES 3,13 AND 14
QTY 8 16
QTY 8 22
SEE NOTE 12
19
20
QTY 2 21
SEE NOTES 3 AND 13
SEE NOTE 15
SEE NOTE 12
QTY 4 16
QTY 4 22
5
SEE NOTE 4
7
40
36
35
4
11 REF
8
9 REF
38 REF
6
44
39
1
34
SEE NOTE 10
A
A
B
B
21 REF
19 REF
20 REF
SEE NOTE 8
SEE NOTE 12
QTY 4 16
QTY 4 22
D1-D6 38
D1-D6 9
34
SEE NOTES 4 & 10
D1
D2
D3
D4
D5
D6
24
D7 10
34
SEE NOTES 4 & 10
SEE NOTE 12
QTY 16 16
QTY 16 22
15
SEE NOTE 7
J9
QTY 13 25
QTY 13 26
SEE NOTE 12
23
FILLER VALVE
REF
SEE NOTE 8
QTY 4 17
SEE NOTE 5

17 FIND NO. 45 TO BE EITHER 1006387-002 OR 1006387-003

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ~~MARK 10/08 HIGH WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 AND SERIALIZE PER ND1002023 USING INK 1006271-1.~~
3. MOUNTING TORQUE FOR FIND NO.19 & FIND NO.42 AND JACK SCREWS OF FIND NO. 11 AND 41 TO BE 8.5–9.5 INCH POUNDS
4. MOUNTING TORQUE FOR JACK SCREWS OF FIND NO.5,9,10 & 38 TO BE 15-19 INCH POUNDS
5. APPLY SEALING COMPOUND PER 1008953-004 TO FIND NO.17
6. ~~BOND FIND NO.12,13 TO FIND NO.3, FIND NO. 14 TO FIND NO.2, FIND NO.27,28,29 TO FIND NO.9, FIND NO.30 TO FIND NO.10, FIND NO.31,32 TO FIND NO.5, FIND NO.33 TO FIND NO.11 PER ND1002237~~
7. MARK "AGC DSKY ASSEMBLY" AND IT'S RESPECTIVE PART NO., SERIAL NO. AND CONTRACT NO. MARKING TO BE PER ND1002019 AND SERIALIZE PER ND1002023
8. FILL WITH A MINIMUM OF 87% NITROGEN AND 8.7% HELIUM AND A MAXIMUM OF 4.3% AIR TO 1.05/1.10 ATMOSPHERES. DO NOT EXCEED 2 ATMOSPHERES DURING PRESSURIZATION
9. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003985
10. APPLY FIND NO. 34 TO MATING SURFACES OF FIND NO. 4, 9, 10, 38, 35, 36, & 40 DO NOT APPLY TO BONDED RUBBER OF FIND NO. 4, 35, 36, OR 40
11. AR DENOTES AS REQUIRED
12. MOUNTING TORQUE FOR FIND NO. 16, 18 & 37 TO BE 8-9 INCH POUNDS MOUNTING TORQUE FOR FIND NO 26 TO BE 3.5—4.5 INCH POUNDS
13. FILL FEMALE INSULATATORS OF FIND NO 4, 35 OR 36 USING SILICONE COMPOUND PER 1008954 PRIOR TO ASSEMBLY OF FIND NO.2 & FIND NO.3. FIND NO 2 & 3 TO BE ASSEMBLED TO HEIGHT OF BONDED RUBBER OF FIND NO. 4,35 OR 36 USING FIND NO.19, BEFORE INSTALLING FIND NO.37
14. FILL FEMALE INSULATOR OF FIND NO.40 USING SILICONE COMPOUND PER 1008954 PRIOR TO ASSEMBLY OF FIND NO.3. FINE NO.3 TO BE ASSEMBLED TO HEIGHT OF BONDED RUBBER OF FIND NO.40 USING FIND NO.19 BEFORE INSTALLING FIND NO 37. FIND NO.41 TO BE INSTALLED USING EXISTING JACKING SCREWS.
15. THE -011,-021,-031,-041,-051 & -071 CONFIGURATIONS SHALL REFLECT A NOMENCLATURE AS SHOWN. THE -061 & -081 CONFIGURATION SHALL REFLECT "PRO" IN KEY POSITION INDICATED.
16. PICTORIAL SHOWN IS THAT OF THE -011 THRU -051 & -071 CONFIGURATIONS. THE -061 & -081 CONFIGURATION SHALL EXHIBIT ONLY TEN ALARM LEGENDS ON FIND NO 41 OR FIND NO. 45

DASH NO	APPLICABLE
-081	1 THRU 12, 15 THRU 17
-071	1 THRU 12, 15, 16
-061	1 THRU 12, 14 THRU 16
-051	1 THRU 13 AND 15
-041	1 THRU 13 AND 15
-031	1 THRU 13 AND 15
-021	1 THRU 13 AND 15
-011	1 THRU 13 AND 15
NOTE APPLICATION	

QTY REQD 081	QTY REQD 071	QTY REQD 061	QTY REQD 051	QTY REQD 041	QTY REQD 031	QTY REQD 021	QTY REQD 011	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
1	—	—	—	—	—	—	—	SEE NOTE 17	INDICATOR ALARM	45
1	1	—	—	—	—	—	—	2004739-001	COVER, FRONT	44
2	2	—	—	—	—	—	—	2003897-041	COVER ASSY	43
12	12	—	—	—	—	—	—	2004932-004	SCREW JACKING	42
—	—	1	—	—	—	—	—	2003[illegible]-011	INDICATOR ALARM & COVER ASSY	41
1	—	1		—	—	—	—	2003903-041	FRONT HOUSING ASSY	40
—	—	1	—		—	—	—	2004739-000	COVER, FRONT	39
X	X	X	X	X	X	X	X	2003956	OUTLINE DRAWING	REF
X	X	X	X	X	X	X	X	2005957	SIGNAL PIN ASSIGNMENT	REF
X	X	X	X	X	X	X	X	2005951	INTERCONNECTING DIAGRAM	REF
X	X	X	X	X	X	X	X	2005950	SIGNAL FLOW DIAGRAM	REF
6	—	6	6	6	—	—	—	2003952-011	INDICATOR DRIVER MODULE D1-D6	38
—	—	2	6	6	6	6	6	MS16995 20	SCREW, CAP, SOCKET HEAD	37
—	—		1	—	1	—	—	2003903-031	FRONT HOUSING ASSY	36
—	1	—	—	1	—	1	—	2003903-021	FRONT HOUSING ASSY	35
AR	AR	AR	AR	AR	AR	AR	AR	1006879	SILICONE COMPOUND	34
—	—	—			~~1~~	~~1~~	~~1~~	~~2004955-009~~	~~GASKET~~	~~33~~
—	—	—			~~1~~	~~1~~	~~1~~	~~2004955-008~~	~~GASKET~~	~~32~~
—	—	—			~~2~~	~~2~~	~~2~~	~~2004955-007~~	~~GASKET~~	~~31~~
—	—	—			~~1~~	~~1~~	~~1~~	~~2004955-006~~	~~GASKET~~	~~30~~
—	—	—			~~6~~	~~6~~	~~6~~	~~2004958-003~~	~~GASKET~~	~~29~~
—	—	—			~~6~~	~~6~~	~~6~~	~~2004958-002~~	~~GASKET~~	~~28~~
—	—				~~6~~	~~6~~	~~6~~	~~2004958-001~~	~~GASKET~~	~~27~~
13	13	13	13	13	13	13	13	MS16995-10	SCREW, HEX SOCKET HEAD	26
13	13	13	13	13	13	13	13	NAS620C4	WASHER, FLAT	25
1	1		1	1	1	1	1	2004958	BRACKET, MODULE	24
1	1	1	1	1	1	1	1	2004959	BRACKET, MODULE	23
64	64	42	46	46	46	46	46	NAS620C6	WASHER, FLAT	22
24	24	8	12	12	12	12	12	1004546-4	WASHER, FLAT	21
12	12	4	6	6	6	6	6	MS16633-4014	RING, RETAINING	20
—	—	4	6	6	6	6	6	2004932-001	SCREW, JACKING	19
8	8	[illegible]	8	8	8	8	8	1001489-59	SCREW, HEX SOCKET HEAD	18
4	4	4	4	4	4	4	4	MS35216-1	SCREW, PAN HEAD, CROSS RECESSED	17
32	32	32	32	32	32	32	32	MS16995-18	SCREW, CAP, SOCKET HEAD	16
1	1	1	1	1	1	1	1	1004260-20	NAMEPLATE	15
—	—	—			~~1~~	~~1~~	~~1~~	~~2003955-001~~	~~GASKET~~	~~14~~
—	—	—			~~1~~	~~1~~	~~1~~	~~2004953-002~~	~~GASKET~~	~~13~~
—	—	—			~~1~~	~~1~~	~~1~~	~~2004953-001~~	~~GASKET~~	~~12~~
1	1	1	1	1	1	1	1	2003909-011	KEYBOARD MODULE ASSY D8	11
1	1	1	1	1	1	1	1	2003901-011	POWER SUPPLY ASSY MODULE D7	10
—	6	—	—	—	6	6	6	2003902-011	INDICATOR DRIVER MODULE D1-D6	9
1	1	1	1	1	1	1	1	1006349	GASKET, BONDED, RUBBER	8
1	1	1	1	1	1	1	1	1006350	GASKET, BONDED, RUBBER	7
1	1	1	1	1	1	1	1	2004900	COVER, REAR	6
1	1	1	1	1	1	1	1	2003954-011	MAIN HOUSING ASSY	5
—	—	—	—	—	—	—	1	2003903-011	FRONT HOUSING ASSY	4
1	1	1	1	1	1	1	1	1006315	INDICATOR, DIGITAL	3
—	1	—	1	1	1	1	1	1006316	INDICATOR, ALARM	2
—	—	—	1	1	1	1	1	2004929-011	COVER, FRONT	1

LIST OF MATERIALS

2003985 K

NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.02 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN A. Voss DATE
CHECKED R. Edwards
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

AGC DSKY ASSEMBLY

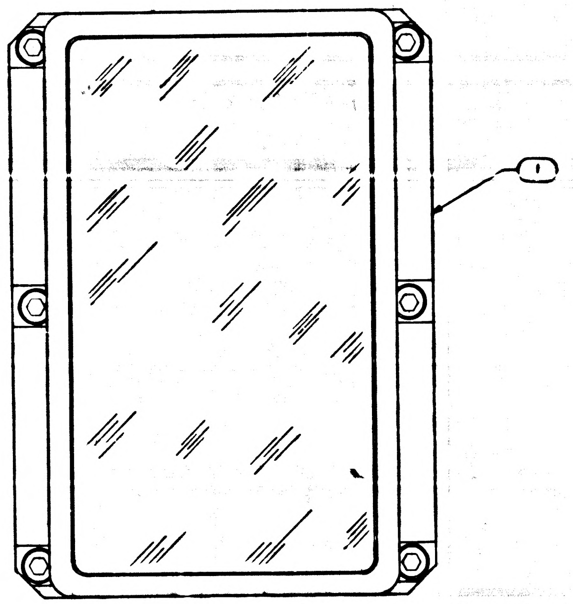
CODE IDENT NO 80230 | SIZE J | NASA DRAWING NO 2003985
SCALE 1/1 | WT | SHEET 1 OF 1

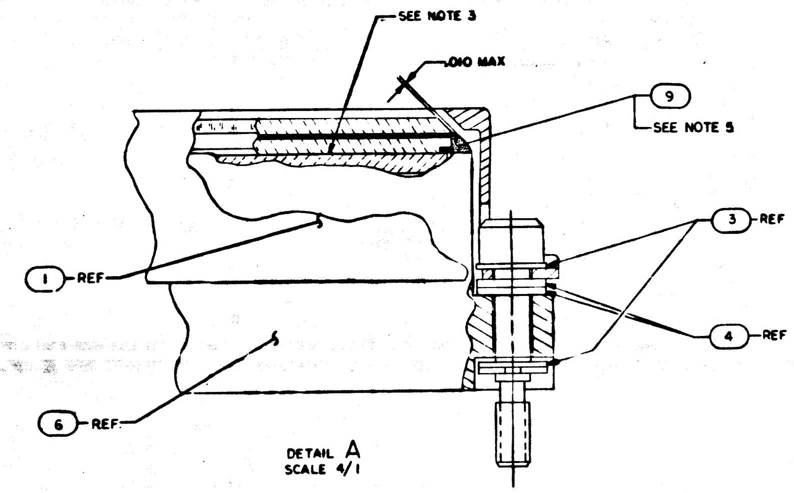
2003985 K

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

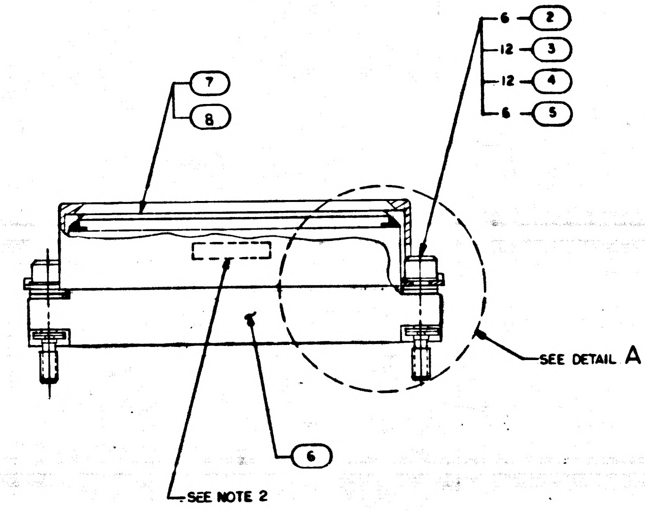
REVISIONS TDRR 37320

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 37467 DR JL Leonard CHK E Uhlen	5 APR 69	JEK





DETAIL A
SCALE 4/1



NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. IDENTIFY WITH PART NO. PER ND1002019 AND SERIALIZE PER ND1002023
3. BOND FIND NO.7 OR 8 TO FIND NO.6 USING A THERMOSETTING OPTICAL ADHESIVE PER MIL-A-3920. CURE AT 140°±5° F FOR A MINIMUM OF 24 HRS. FIND NO.7 OR 8 SHALL BE CENTRALLY LOCATED ON THE GLASS FACE OF FIND NO.6 WITHIN ±.015".
4. COMPLETED ASSY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET WHEN MOUNTED TO SIMULATE APPLICATION THE REQUIREMENTS OF PS2016043 EXCEPT PARA 4.2.1
5. APPLY A BEAD OF FIND NO.9 AROUND THE ENTIRE PERIPHERY OF THE INTERFACE OF FIND NO.6 AND FIND NO.7 OR FIND NO.8 AS SHOWN. CURE AT ROOM TEMPERATURE FOR A MINIMUM OF 24 HRS. FIND NO.9 SHALL COMPLETELY COVER THE POLYVINYL BUTYRAL BINDER OF FIND NO.7 OR FIND NO.8

QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
AR	AR	1006338-002	SEALING COMPOUND, SILICONE	9
1	—	2004745-002	PANEL, INDICATOR (E/L)	8
—	1	2004745-001	PANEL, INDICATOR (E/L)	7
1	1	2004746-001	INDICATOR, DIGITAL, THERMAL VAC	6
6	6	MS16633-4014	RING, RETAINING	5
12	12	NAS620C6	WASHER, FLAT	4
12	12	1004546-4	WASHER, FLAT	3
6	6	2004932-004	SCREW, JACKING	2
1	1	2004699-001	FRAME, INDICATOR COVER	1
021	011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003994	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN JL Leonard DATE 6 Jan 69
CHECKED E Uhlen 27 JAN 69
APPROVAL Eldon C Hall 28 Jan 69
APPROVAL 28 Jan 69
NASA APPROVAL
MIT APPROVAL 29 Jan 69

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

E/L & COVER ASSEMBLY

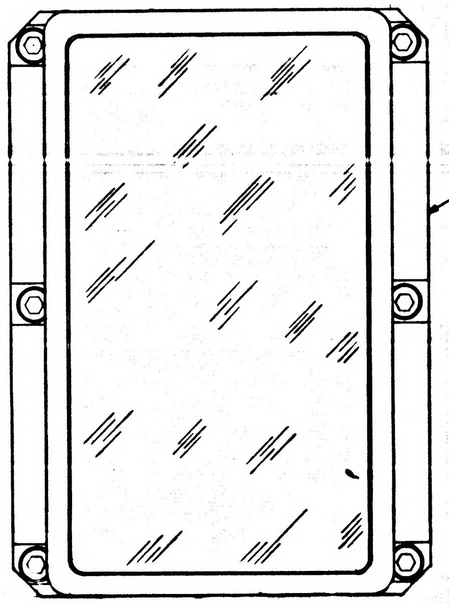
AGC DSKY

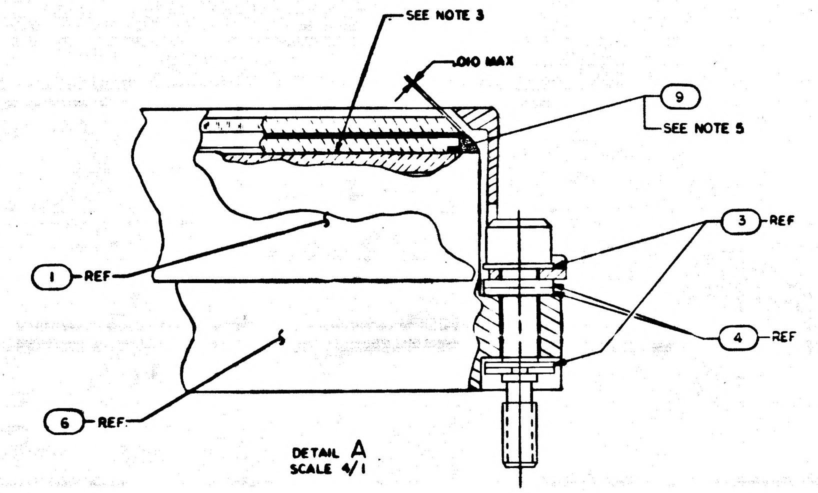
CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 2003988
SCALE 2/1
WT
SHEET 1 OF 1

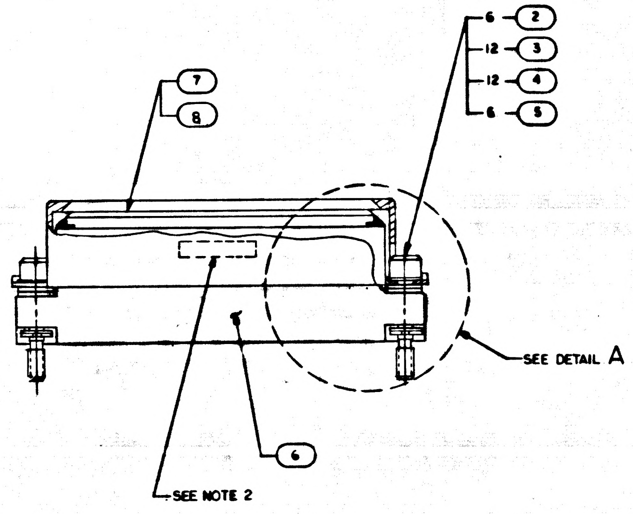
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS TDRR 37320

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 37467 DR CHK	5 APR 69	
B	REVISED PER TDRR 37599 DR CHK	27 JUN 69	R R







NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. IDENTIFY WITH PART NO. PER ND1002019 AND SERIALIZE PER ND1002023
3. BOND FIND NO.7 OR 8 TO FIND NO.6 USING A THERMOSETTING OPTICAL ADHESIVE PER 1009003 . CURE AT 140°±5° F FOR A MINIMUM OF 24 HRS. FIND NO. 7 OR 8 SHALL BE CENTRALLY LOCATED ON THE GLASS FACE OF FIND NO.6 WITHIN ±.015".
4. COMPLETED ASSY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET WHEN MOUNTED TO SIMULATE APPLICATION THE REQUIREMENTS OF PS2016043 EXCEPT PARA 4.2.1
5. APPLY A BEAD OF FIND NO.9 AROUND THE ENTIRE PERIPHERY OF THE INTERFACE OF FIND NO.6 AND FIND NO.7 OR FIND NO.8 AS SHOWN. CURE AT ROOM TEMPERATURE FOR A MINIMUM OF 24 HRS. FIND NO.9 SHALL COMPLETELY COVER THE POLYVINYL BUTYRAL BINDER OF FIND NO.7 OR FIND NO.8

QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
AR	AR	1006338-002	SEALING COMPOUND, SILICONE	9
1	—	2004745-002	PANEL, INDICATOR (E/L)	8
—	1	2004745-001	PANEL, INDICATOR (E/L)	7
1	1	2004746-001	INDICATOR, DIGITAL, THERMAL VAC	6
6	6	MS16633-4014	RING, RETAINING	5
12	12	NAS620C6	WASHER, FLAT	4
12	12	1004546-4	WASHER, FLAT	3
6	6	2004932-004	SCREW, JACKING	2
1	1	2004699-001	FRAME, INDICATOR COVER	1
021	011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003994	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT

DRAWN DATE Jan 69
CHECKED E Uhlman 27 JAN 69
APPROVAL Eldon C Hall 31 Jan 69
APPROVAL 28 Jan 69
NASA APPROVAL
MIT APPROVAL Jan 69

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

E/L & COVER ASSEMBLY

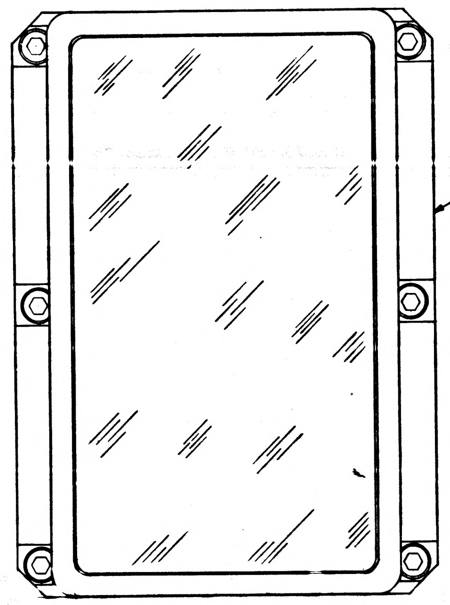
AGC DSKY

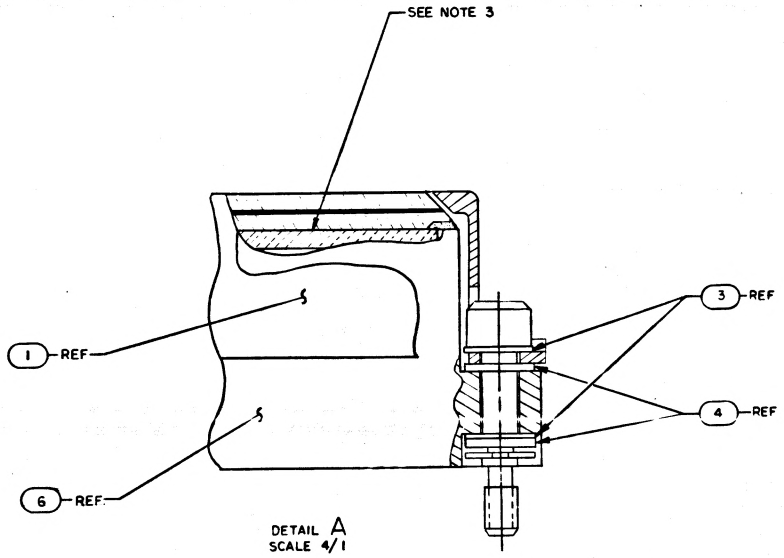
CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 2003988
SCALE 2/1
WT
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

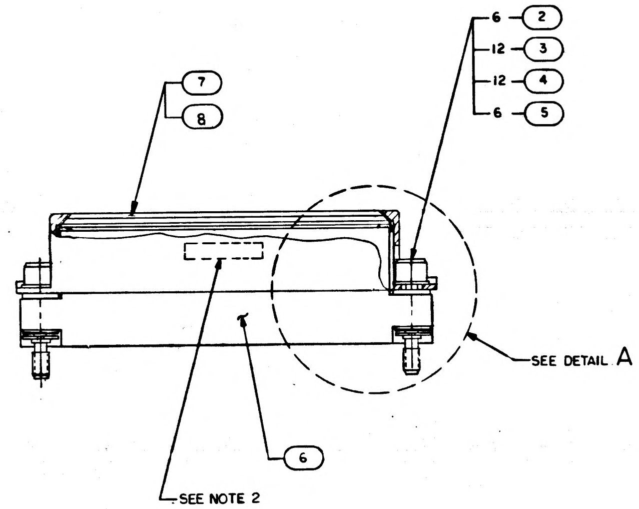
REVISIONS TDRR 37320

SYM	DESCRIPTION	DATE	APPROVAL





DETAIL A
SCALE 4/1



NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. IDENTIFY WITH PART NO. PER ND1002019 AND SERIALIZE PER ND1002023
3. BOND FIND NO.7 OR 8 TO FIND NO.6 USING A THERMOSETTING OPTICAL ADHESIVE PER MIL-A-3920. CURE AT 100 °F FOR A MINIMUM OF 15 HRS. FIND NO. 7 OR 8 SHALL BE CENTRALLY LOCATED ON THE GLASS FACE OF FIND NO.6 WITHIN ±.015".
4. COMPLETED ASSY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET WHEN MOUNTED TO SIMULATE APPLICATION THE REQUIREMENTS OF PS2016043 EXCEPT PARA 4.2.1

QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
1	—	2004745-002	PANEL, INDICATOR(E/L)	8
—	1	2004745-001	PANEL, INDICATOR(E/L)	7
1	1	2004746-001	INDICATOR, DIGITAL, THERMAL VAC	6
6	6	MS16633-4014	RING, RETAINING	5
12	12	NAS620C6	WASHER, FLAT	4
12	12	1004546-4	WASHER, FLAT	3
6	6	2004932-004	SCREW, JACKING	2
1	1	2004699-001	FRAME, INDICATOR COVER	1
021	011	LIST OF MATERIALS		

2003994	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN J.P. Leonard DATE 6 Jan 69
CHECKED S. Urban 27 JAN 69
APPROVAL Eldon C Hall 27 Jan 69
APPROVAL W. Stameris 28 Jan 69
NASA APPROVAL
MIT APPROVAL 30 Jan 69

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

E/L & COVER ASSEMBLY

AGC DSKY

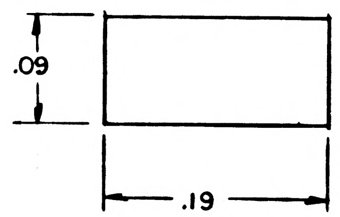
CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 2003988
SCALE 2/1
WT
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2003989 A

REVISIONS 25910

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
—		INITIAL RELEASE PER TDRR				
A		CHANGED PER TDRR 28818		JR	5/25/66	E.S.S.



NOTES
1. MAKE FROM 1006806-13 OR 1006806-6
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003083	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.01 ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN W. Brown 3Feb66
CHECKED C. Mazza 3Feb66
APPROVED
APPROVED Eldon C Hall 3Feb66
APPROVED MIT 3Feb66
APPROVED MSC R. C. METZGER
DATE

TAPE, ADHESIVE
AGC LOGIC MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2003989

SCALE
SHEET 1 OF 1

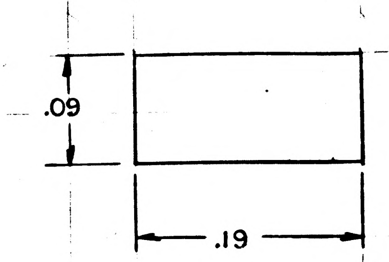
2003989 A

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

— 2003989

REVISIONS 25910

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
—		INITIAL RELEASE PER TDRR				



NOTES.

1. MAKE FROM 1006806-13
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003083	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.01 ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN W. Brown 3Feb66
CHECKED C. Mazza 3Feb66
APPROVED
APPROVED Eldon C Hall 3Feb66
APPROVED MIT 3Feb66
C. METZGER
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TAPE, ADHESIVE
AGC LOGIC MODULE

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2003989
SCALE
SHEET 1 OF 1

NOTICE WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 28820

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		CHANGED PER TDRR 30753	JTR		9-2-66	SS

PROC SPEC NUMBER	SUBSYSTEM NUMBER	AGC NUMBER	RAY. SERIAL NUMBER REF	DSKY NUMBER	RAY. SERIAL NUMBER REF	RAY. SERIAL NUMBER REF	KIT ASSY NUMBER
2016005	C1	2003200-011	16	2003950-011	27	28	200199-011
2016005	C2	2003200-011	22	2003950-011	20		6004000-011

2003991 A

FOR REFERENCE ONLY

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN Simpson 9 MAY 1966
CHECKED
APPROVED
APPROVED
APPROVED MIT 5-17-66
APPROVED MSC A. O. METZGER
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

APOLLO GUIDANCE
COMPUTER SUBSYSTEM

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2003991
SCALE NONE
SHEET 1 OF 1

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 28820

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		CHANGED PER TDRR 30753			9-2-66	SS
B		CHANGED PER TDRR 32350		J.C.	1/7/67	T.F.L.

PROC SPEC NUMBER	SUBSYSTEM NUMBER	AGC NUMBER	RAY. SERIAL NUMBER REF	DSKY NUMBER	RAY. SERIAL NUMBER REF	RAY. SERIAL NUMBER REF	KIT ASSY NUMBER
~~2016005~~	~~C1~~	~~2003200-011~~	~~16~~	~~2003950-011~~	~~27~~	~~28~~	~~2004199-011~~
2016005	C2	2003200-011	22	2003950-011	20		6004000-011
2016005	C1	2003200-021	16	2003950-011	27	28	2004199-011
2016005	C2	2003200-021	22	2003950-011	20		6004000-011

2003991 B

FOR REFERENCE ONLY

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN R. L. Simpson 9 MAY 1966
CHECKED A. Stern
APPROVED J. J. Rabin May 66
APPROVED 12 May 66
APPROVED MIT 5-17-66
APPROVED MSC A. O. METZGER
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

APOLLO GUIDANCE
COMPUTER SUBSYSTEM

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2003991
SCALE NONE
SHEET 1 OF 1

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REVISIONS 28820

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		CHANGED PER TDRR 30753			9-2-66	SS
B		CHANGED PER TDRR 32350		J.C.	1/17/67	T.P.R.
C		CHANGED PER TDRR 33043			3/14/67	T.P.R.

PROC SPEC NUMBER	COMPUTER SUB-SYSTEM	AGC NUMBER	RAY. SERIAL NUMBER REF	KIT ASSY NUMBER	DSKY NUMBER	DSKY SUB-SYSTEM NO.	RAY. SERIAL NUMBER REF.	RAY SERIAL NUMBER REF.
2016005	C1	2003200-011	16	2004199-011	2003950-011		27	28
2016005	C2	2003200-011	22	6004000-011	2003950-011		20	
2016005	C1	2003200-021	16	2004199-011	↑		27	28
2016005	C2	2003200-021	22	6004000-011			20	
↑	C1	2003200-031	16	2004199-011			19	
	C2	↑	22	6004000-011			20	
	C3		17	6004000-011			27	
	C4		18	2004199-011			28	
	C5		19	6004000-011			30	
↓	C6	↓	20	2004199-011			31	
2016005	C7	2003200-031	23	6004000-011	↓		32	
					2003950-011		33	
					2003994-011	D1	34	
					↑	D2	35	
					↓	D3	36	
					2003994-011	D4	37	

2003991 C

FOR REFERENCE ONLY

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN [illegible] 9 MAY 1966
CHECKED [illegible]
APPROVED [illegible]
APPROVED Eldon C Hall
APPROVED MIT [illegible] 5-17-66
APPROVED MSC A. C. METZGER
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

APOLLO GUIDANCE
COMPUTER SUBSYSTEM

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2003991
SCALE NONE
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 28820

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

PROC SPEC NUMBER	SUBSYSTEM NUMBER	AGC NUMBER	RAY. SERIAL NUMBER REF	DSKY NUMBER	RAY. SERIAL NUMBER REF	RAY. SERIAL NUMBER REF	KIT ASSY NUMBER
2016005	C1	2003200-011		2003950-011			2004199-011

FOR REFERENCE ONLY

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

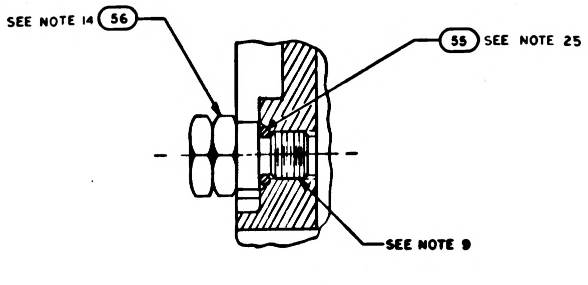
MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN R.L. Simpson 9 MAY 1966
CHECKED 10 May 66
APPROVED 10 May 66
APPROVED Eldon C Hall 12 May 66
APPROVED MIT 5-17-66
APPROVED MSC A. G. METZGER
DATE

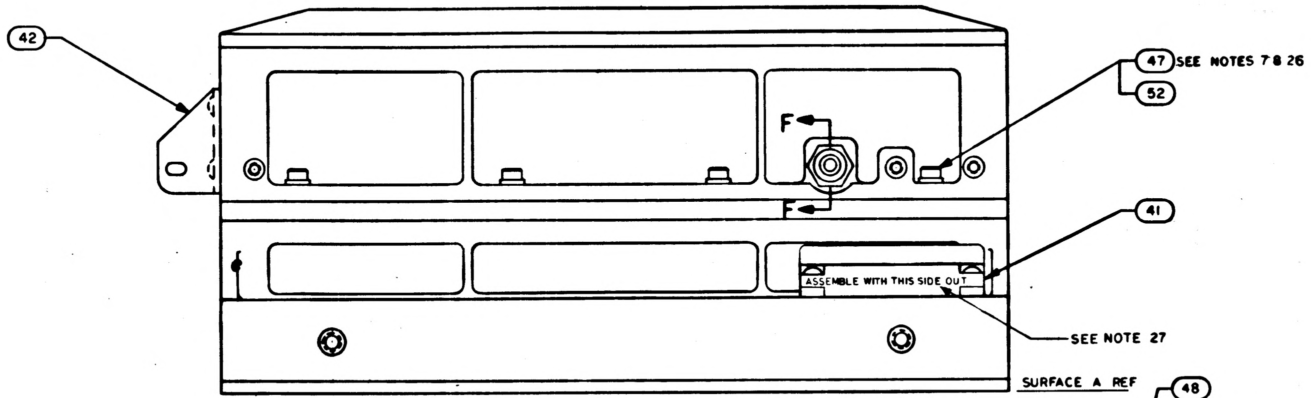
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

APOLLO GUIDANCE
COMPUTER SUBSYSTEM

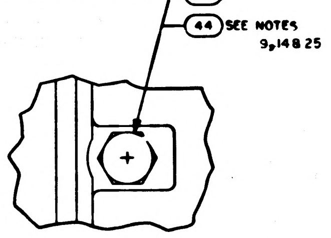
CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2003991
SCALE NONE
SHEET 1 OF 1


SEE NOTE 14 56
55 SEE NOTE 25
SEE NOTE 9

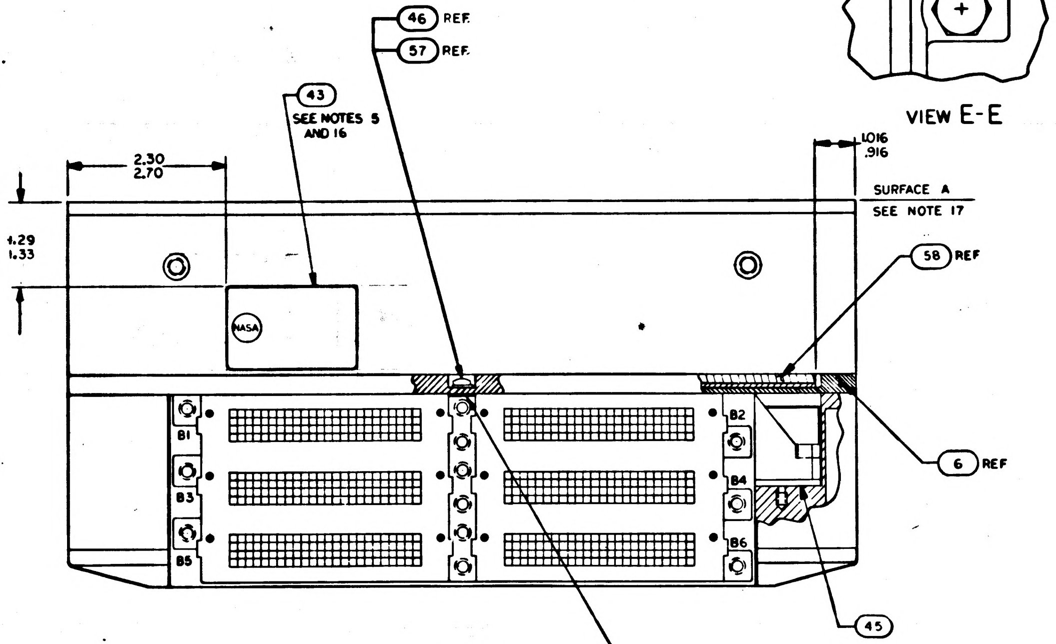
PARTIAL SECTION F F
SCALE: 2/1


42
47 SEE NOTES 7 & 26
52
F
F
41
ASSEMBLE WITH THIS SIDE OUT
SEE NOTE 27
SURFACE A REF

VIEW B-B

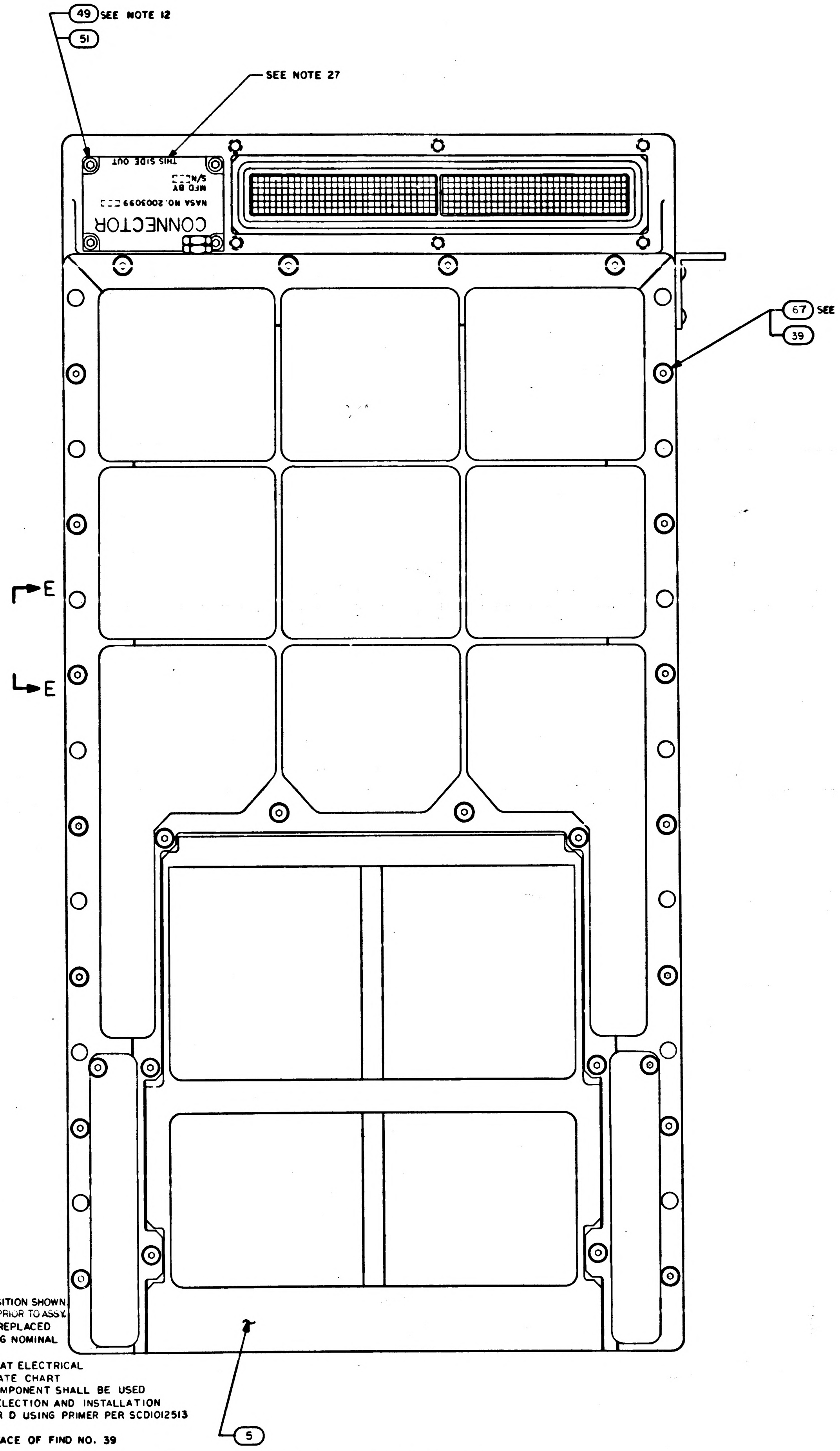

48
44 SEE NOTES 9,14 & 25

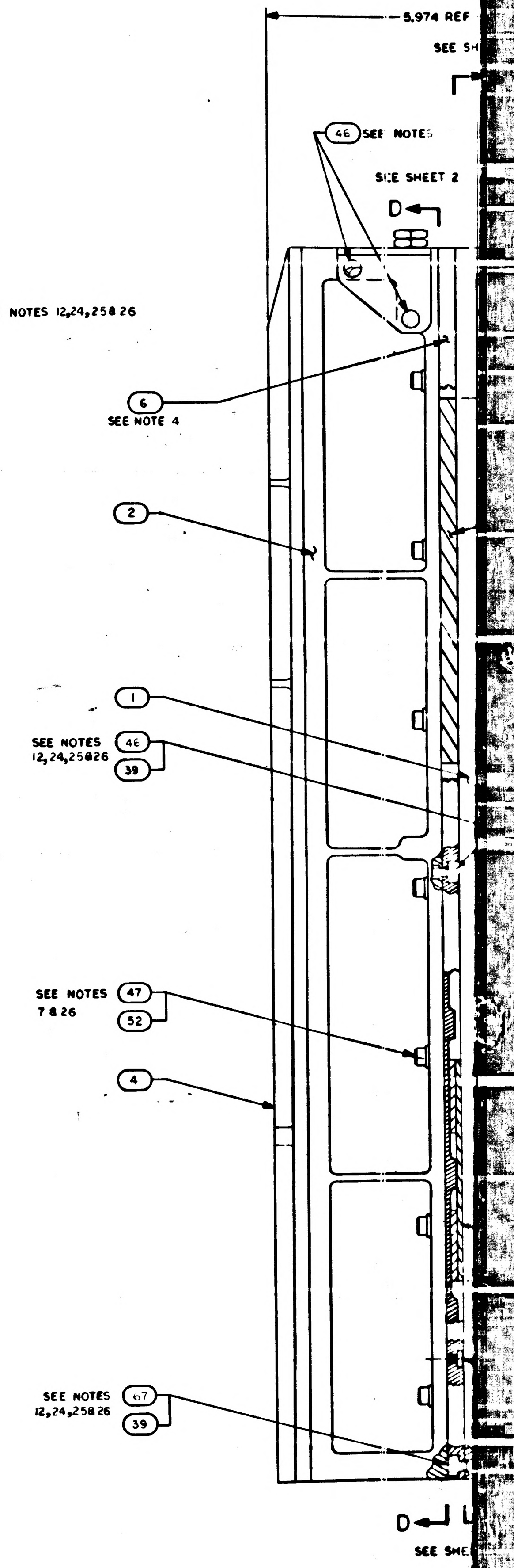
VIEW E-E


46 REF.
57 REF.
43 SEE NOTES 5 AND 16
2.30
2.70
1.016
.916
SURFACE A
SEE NOTE 17
4.29
4.33
NASA
58 REF
6 REF
B1
B2
B3
B4
B5
B6
45

VIEW A-A

60
61


49 SEE NOTE 12
51
SEE NOTE 27
CONNECTOR
NASA NO. 2003993
MFD BY
S/N
THIS SIDE OUT
67 SEE NOTES 12,24,25 & 26
39
E
E
5


5.974 REF
SEE SH
46 SEE NOTES
SEE SHEET 2
D
6 SEE NOTE 4
2
1
SEE NOTES 12,24,25&26 46
39
SEE NOTES 7 & 26 47
52
4
SEE NOTES 12,24,25&26 67
39
D
SEE SHE

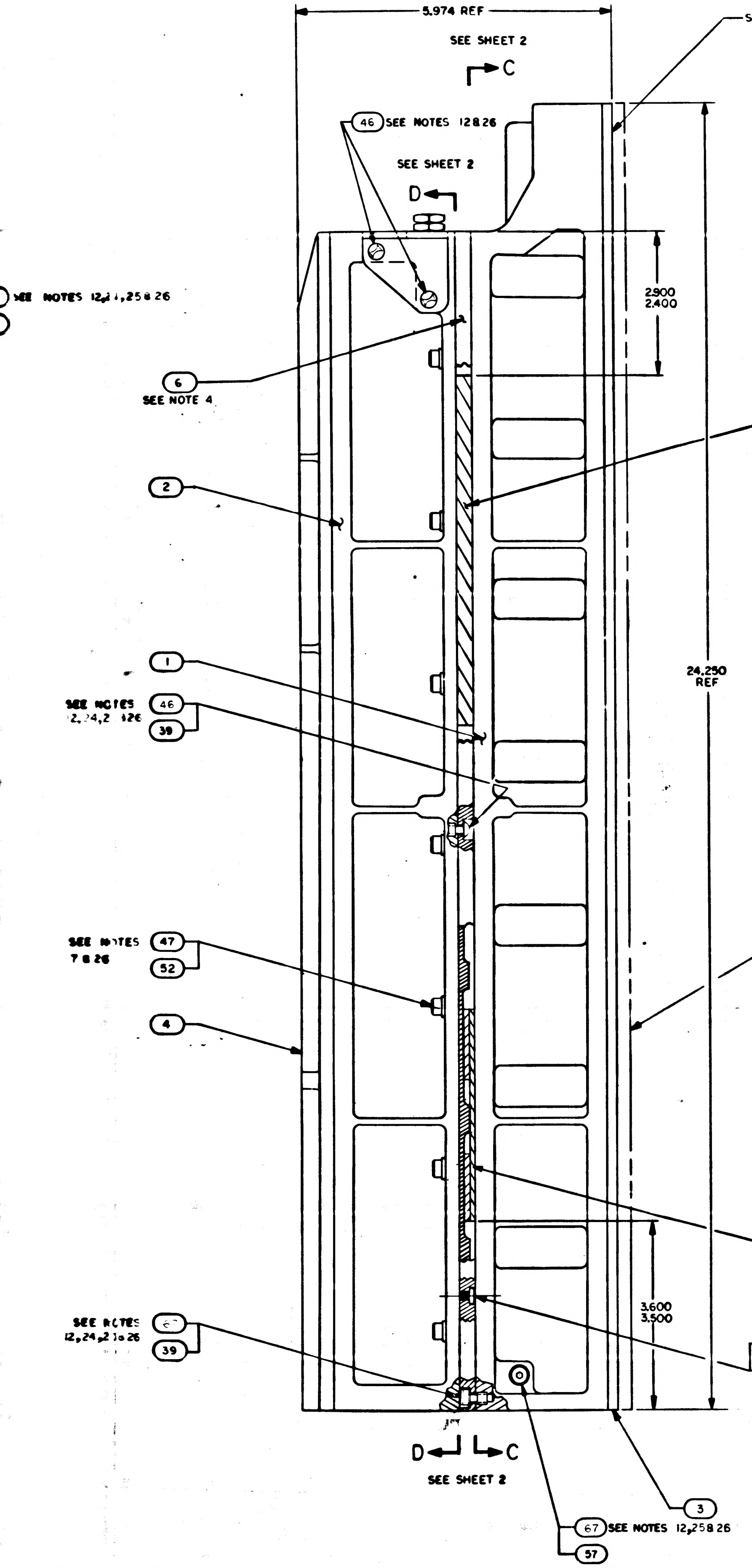
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. PHANTOM LINES DENOTE AGC COLDPLATE AND HANDLING FIXTURE TO BE SUPPLIED BY NORTH AMERICAN AVIATION, INC
3. ADD SILICONE COMPOUND 1006879 TO MODULE MATING METAL SURFACES AND TRAY MATING SURFACES
4. ASSEMBLE FIND NO.53 AND FIND NO.63 TO FIND NO.6 AND FIND NO.6 TO FIND NO.2 PRIOR TO ASSEMBLY OF FIND NO.2 TO FIND NO.1
5. BOND FIND NO.43 TO FIND NO.1 PER ND1002004 TYPE IV
6. UNLESS OTHERWISE SPECIFIED TORQUE ALL MODULE MOUNTING SCREWS 15/19 INCH POUNDS
7. TORQUE FIND NO.47 TO 28/32 INCH POUNDS
8. FINISH IS REQUIRED TO SATISFY ICD GAEC 510-10001
9. APPLY SEALING COMPOUND MIL-S-22473 GRADE H TO FIND NO.53, FIND NO.56 AND FIND NO.44
10. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2016007
11. TORQUE FOR FIND NO. 36 MOUNTING SCREWS TO BE 4/6 INCH POUNDS
12. TORQUE FOR FIND NO. 46,49,50 AND 67 TO BE 18/22 INCH POUNDS
13. TORQUE FOR FIND NO. 53 TO BE 4/6 INCH POUNDS
14. TORQUE FOR FIND NO. 44 AND FIND NO. 56 TO BE 137/157 INCH POUNDS
15. FIND NO. 40 SHALL BE SUPPLIED AS PART OF THIS ASSEMBLY
16. MARK "COMPUTER ASSEMBLY" AND RELATED PART NO., APPLICABLE DASH NO., SERIAL NO. AND CONTRACT NO. PER 1004260 AND SERIALIZE PER ND1002023
17. FINISH SURFACE $\boxed{-A-}$ PER ICD NAA MH01-01302-116 THIS ASSEMBLY MUST BE CAPABLE OF MEETING ELECTRICAL BONDING REQUIREMENTS OF ICD NAA MH01-01302-116
18. BOND FIND NO. 58 TO FIND NO. 6 IN POSITION SHOWN. USING 1006336. CURE AT ROOM TEMP 24 HRS PRIOR TO ASSY.
19. REFERENCED MODULES MUST NOT BE REPLACED OR INTERCHANGED WITHOUT REPEATING NOMINAL SELECTION PROCEDURE PER NOTE 10
20. THE VALUE OF C1 TO BE DETERMINED AT ELECTRICAL TEST AND SELECTED FROM APPROPRIATE CHART
21. WHEN THE VALUE OF C1 IS ZERO NO COMPONENT SHALL BE USED
22. ENCAPSULATE AREA SHOWN AFTER SELECTION AND INSTALLATION OF C1 USING ND1002009 METHOD C OR D USING PRIMER PER SCD1012513
23. WELD PER ND1002005
24. ASSEMBLE HARDWARE WITH SMOOTH FACE OF FIND NO. 39 IN CONTACT WITH SCREW HEAD
25. FIND NO.39, 48, 55 & 57 TO BE DISCARDED AND REPLACED WITH NEW PARTS EACH TIME THEY ARE DISASSEMBLED
26. SEAL EXPOSED HARDWARE ASSEMBLIES WITH .002 MIN THICK COATING OF FIND NO.66. OVERALL COMPUTER ASSEMBLY DIMENSIONS SHALL NOT BE EXCEEDED. CURE AT ROOM TEMP 24 HRS
27. STENCILING SHOWN FOR ORIENTATION ONLY
28. KEEP ALL MATING THREADS OF SCREWS, TRAY AND MID SPACER INSERTS FREE OF SILICONE COMPOUND.

2003993	A

1/2003993

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		INITIAL RELEASE TDRR 32558				


5.974 REF
SEE SHEET 2
C
SURFACE A REF
46 SEE NOTES 12&26
SEE SHEET 2
D
SEE NOTES 12,24,25&26
2.900
2.400
6
SEE NOTE 4
59
2
24.250
REF
1
SEE NOTES 12,24,25&26
46
39
SEE NOTES 7&26
47
52
COLDPLATE REF
4
58 SEE NOTE 18
3.600
3.500
SEE NOTES 12,24,25&26
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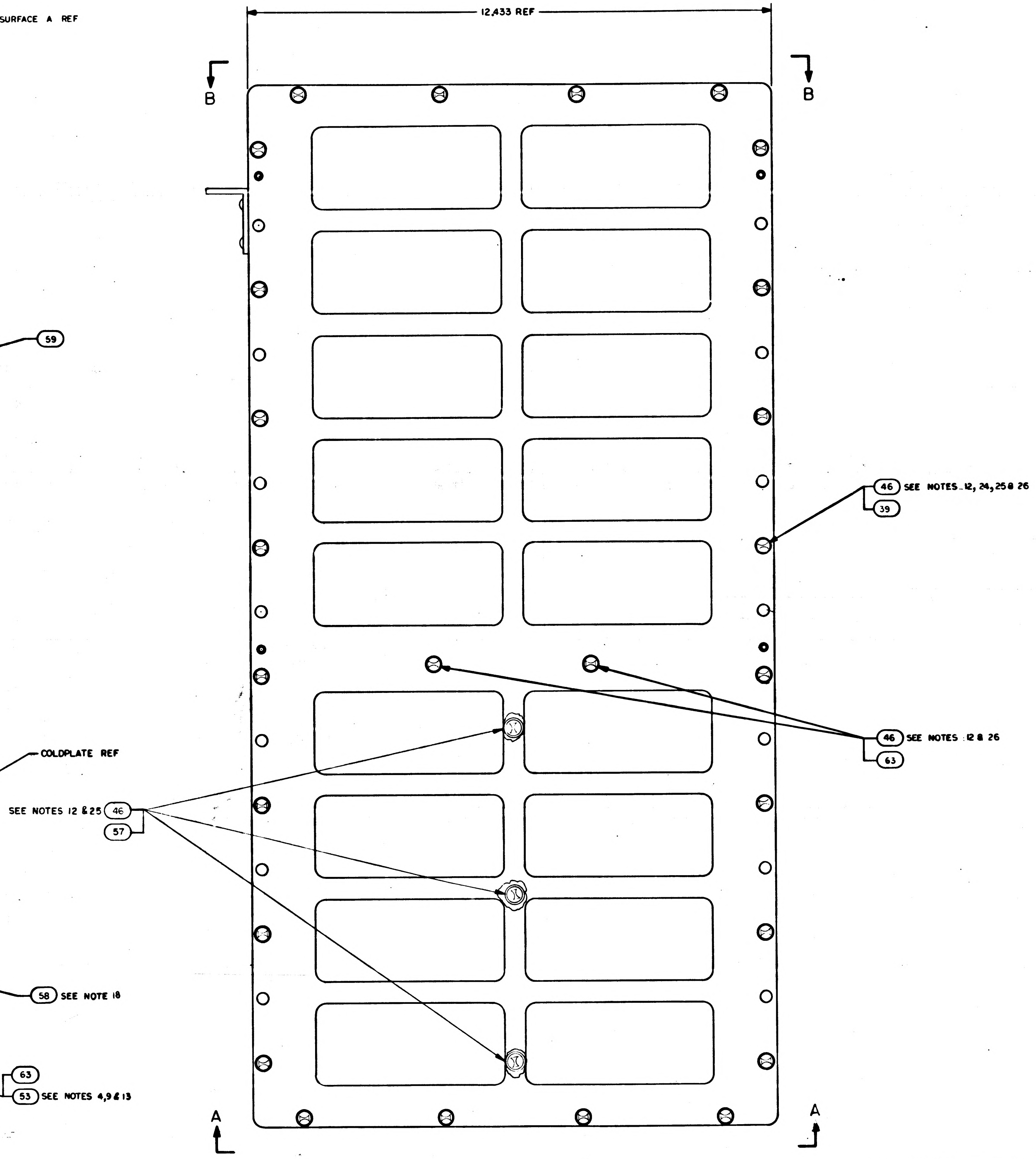
39
63
53 SEE NOTES 4,9&13
D
C
SEE SHEET 2
3
67 SEE NOTES 12,25&26
57


12.433 REF
B
B
46 SEE NOTES 12,24,25&26
39
46 SEE NOTES 12&26
63
SEE NOTES 12&25 46
57
A
A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2005944	AGC WIRE LIST	REF
33	2004732-002	SCREW, COATED	67
AR	1006338-000	SEALING COMPOUND, SILICONE RUBBER	66
AR	1006776-22	INSULATION, SLEEVING ELECTRICAL	65
1	SEE NOTE 20	CAPACITOR	64
10	2004148-007	WASHER, FLAT	63
1	2003981-021	SENSE AMPLIFIER MODULE, FIXED MEMORY B14	62
AR	2004895-002	SHIM AGC	61
AR	2004895-001	SHIM AGC	60
1	2004899-001	PAD VIBRATION	59
1	2003970	VIBRATION PAD ASSY	58
4	NAS1598-D08N	WASHER, SEALING	57
1	2018773	VALVE PRESSURE ASSEMBLY	56
1	1000159-5	PACKING, PREFORMED "O" RING	55
2	2004984-001	WASHER, FLAT	54
8	2004130	PAD, THREADED	53
13	2004894-014	WASHER, FLAT	52
4	2004894-012	WASHER, FLAT	51
2	1001489-36	SCREW, HEX SOCKET HEAD	50
4	1004722-2	SCREW, CAPTIVE	49
1	1000159-7	PACKING, PREFORMED "O" RING	48
18	2004732-003	SCREW, COATED	47
33	2004732-001	SCREW, COATED	46
2	1006347	GASKET, PLATE	45
1	2004986	PLUG, MACHINE THREAD	44
1	1004260-19	NAME PLATE, TYPE I	43
1	2004113-001	BRACKET, CABLE	42
1	2003099-011	CONNECTOR ASSEMBLY	41
1	1006380	GASKET, RETAINED	40
58	2004707	WASHER, KNURLED	39
3	2003067-041	INTERFACE MODULE A27-29	38
2	2003070-031	INTERFACE MODULE A25-26	37
2	2003887-011	POWER SUPPLY MODULE A30-31	36
1	2003121-231	LOGIC MODULE A24	35
1	2003121-221	LOGIC MODULE A23	34
1	2003121-211	LOGIC MODULE A22	33
1	2003121-191	LOGIC MODULE A21	32
1	2003121-181	LOGIC MODULE A20	31
1	2003121-171	LOGIC MODULE A19	30
1	2003121-161	LOGIC MODULE A18	29
1	2003121-151	LOGIC MODULE A17	28
1	2003121-141	LOGIC MODULE A16	27
1	2003121-131	LOGIC MODULE A15	26
1	2003121-121	LOGIC MODULE A14	25
1	2003121-111	LOGIC MODULE A13	24
1	2003121-091	LOGIC MODULE A12	23
4	2003121-081	LOGIC MODULE A8-11	22
1	2003121-071	LOGIC MODULE A7	21
1	2003121-061	LOGIC MODULE A6	20
1	2003121-051	LOGIC MODULE A5	19
1	2003121-041	LOGIC MODULE A4	18
1	2003121-031	LOGIC MODULE A3	17
1	2003121-021	LOGIC MODULE A2	16
1	2003121-011	LOGIC MODULE A1	15
2	2003140-031	ROPE DRIVER MODULE B16-17	14
1	2003027-031	STRAND SELECT MODULE B15	13
1	2003982-021	SENSE AMPL MOD, ERASABLE MEMORY B13	12
1	2003111-021	ERASABLE MEMORY MODULE B12	11
1	2003026-031	CURRENT SWITCH MODULE B11	10
2	2003114-021	ERASABLE DRIVER MODULE B9-10	9
1	2003983-021	ALARM MODULE B8	8
1	2003036-031	OSCILLATOR MODULE B7	7
1	2003978-001	MID SPACER	6
1	2003059-021	INTERCONNECTION HEADER ASSEMBLY	5
1	2003976-011	TRAY B COVER	4
1	2003977-011	TRAY A COVER	3
1	2003093-011	TRAY B WIRED ASSEMBLY	2
1	2003092-031	TRAY A WIRED ASSEMBLY	1

-011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003991	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN R.E. Fleischer 11 AUG 6
CHECKED 24 AUG
APPROVED
APPROVED Eldon C. Hall
APPROVED NASA
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER ASSEMBLY

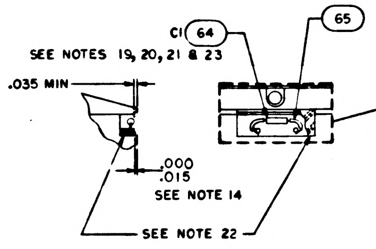
CODE IDENT NO. 80230 | SIZE J | DRAWING NO. 2003993
SCALE 1/1 | — | SHEET 1 OF 2

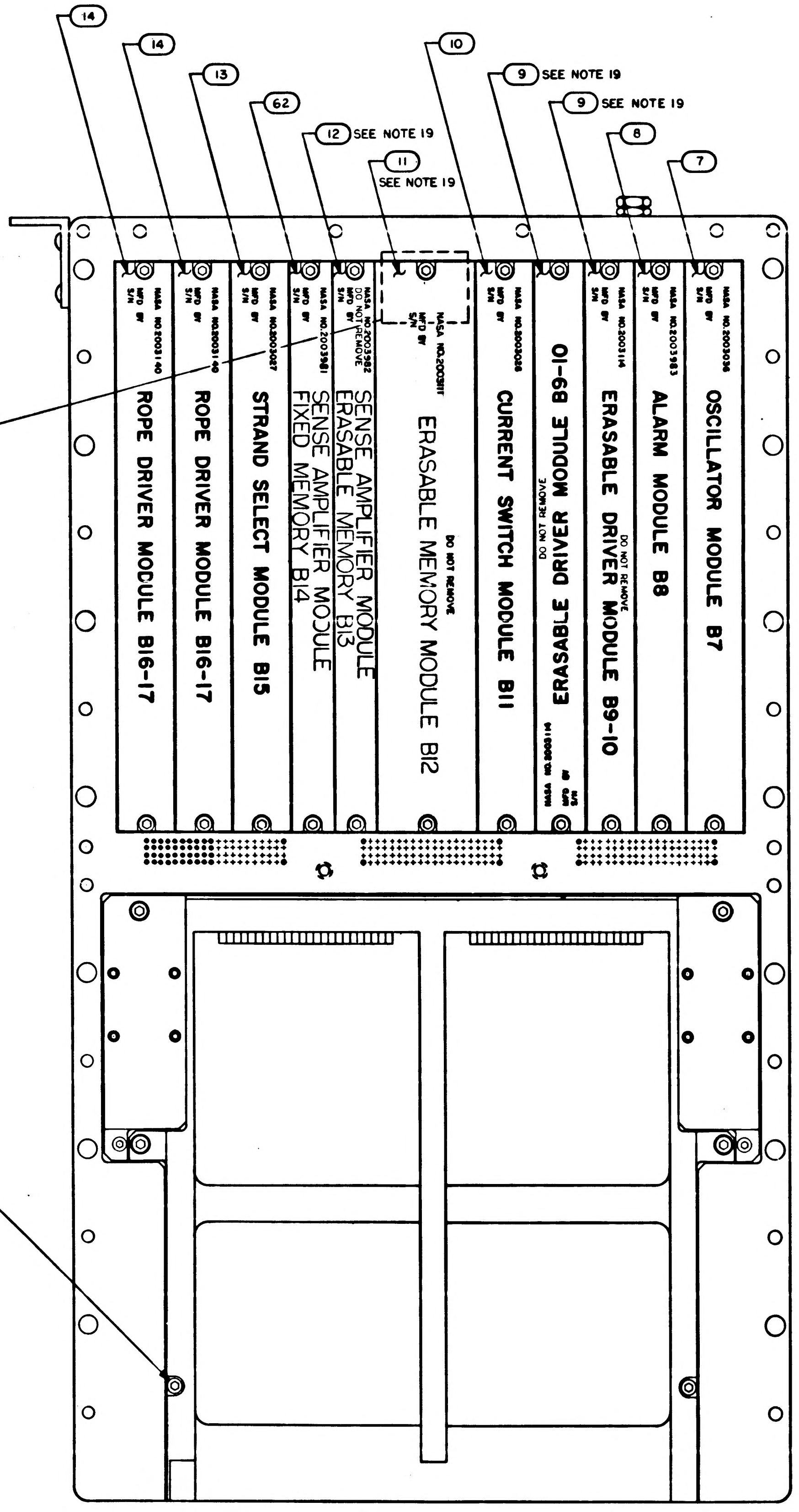
2003993 A

2/2003993

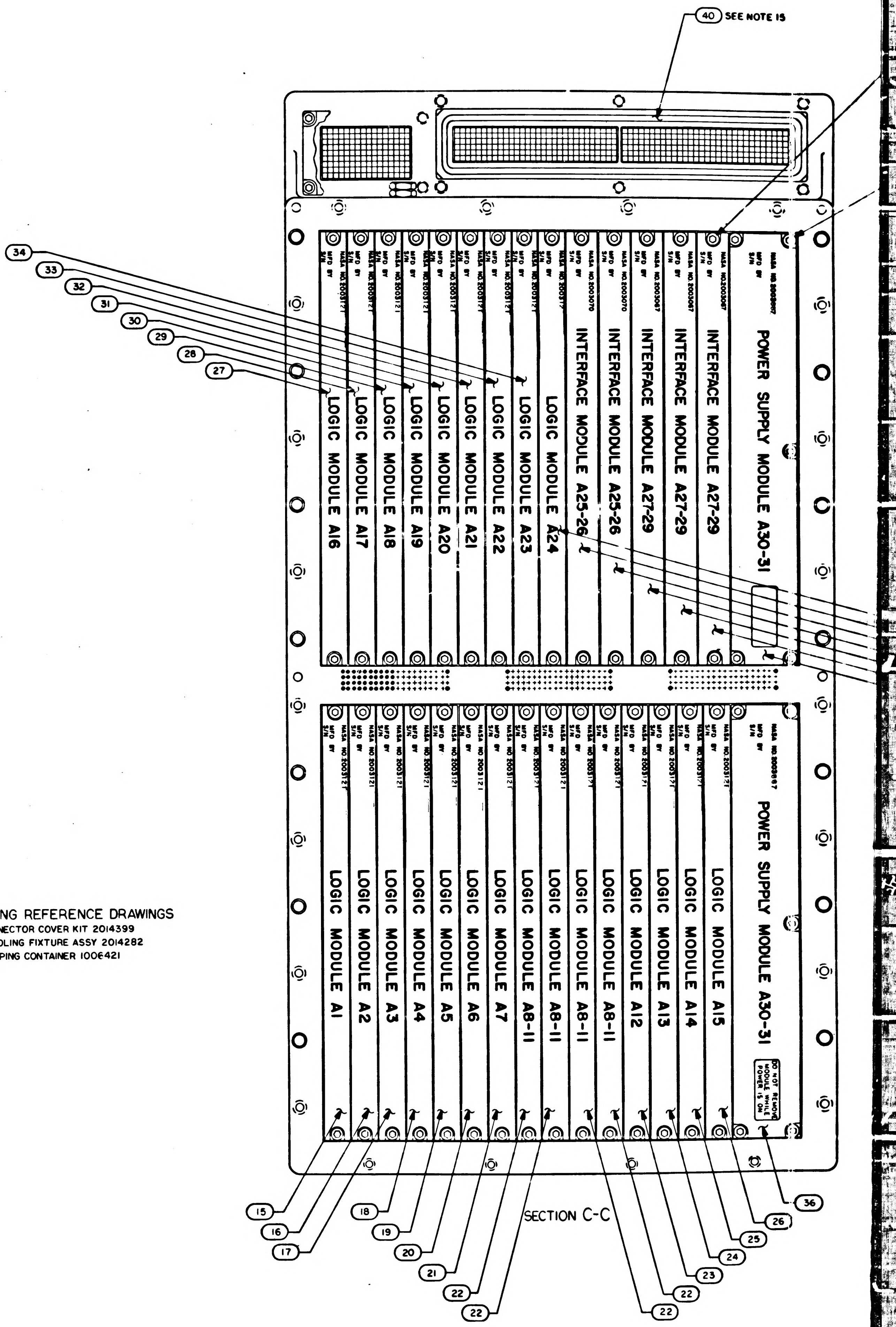
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

CI	
PART NO.	VALUE UUF
1006777-1	10
-15	150
-18	330
-20	470
-22	680
1006777-23	820
SEE NOTE 21	0
1006777-16	220
1006777-17	270


C1 64
SEE NOTES 19, 20, 21 & 23
65
.035 MIN
.000
.015
SEE NOTE 14
SEE NOTE 22


14
14
13
62
12 SEE NOTE 19
11 SEE NOTE 19
10
9 SEE NOTE 19
9 SEE NOTE 19
8
7
ROPE DRIVER MODULE B16-17
ROPE DRIVER MODULE B16-17
STRAND SELECT MODULE B15
SENSE AMPLIFIER MODULE FIXED MEMORY B14
SENSE AMPLIFIER MODULE ERASABLE MEMORY B13
DO NOT REMOVE
ERASABLE MEMORY MODULE B12
CURRENT SWITCH MODULE B11
DO NOT REMOVE
ERASABLE DRIVER MODULE B9-10
DO NOT REMOVE
ERASABLE DRIVER MODULE B9-10
ALARM MODULE B8
OSCILLATOR MODULE B7
SEE NOTES 12 & 26 50
54

SECTION D-D

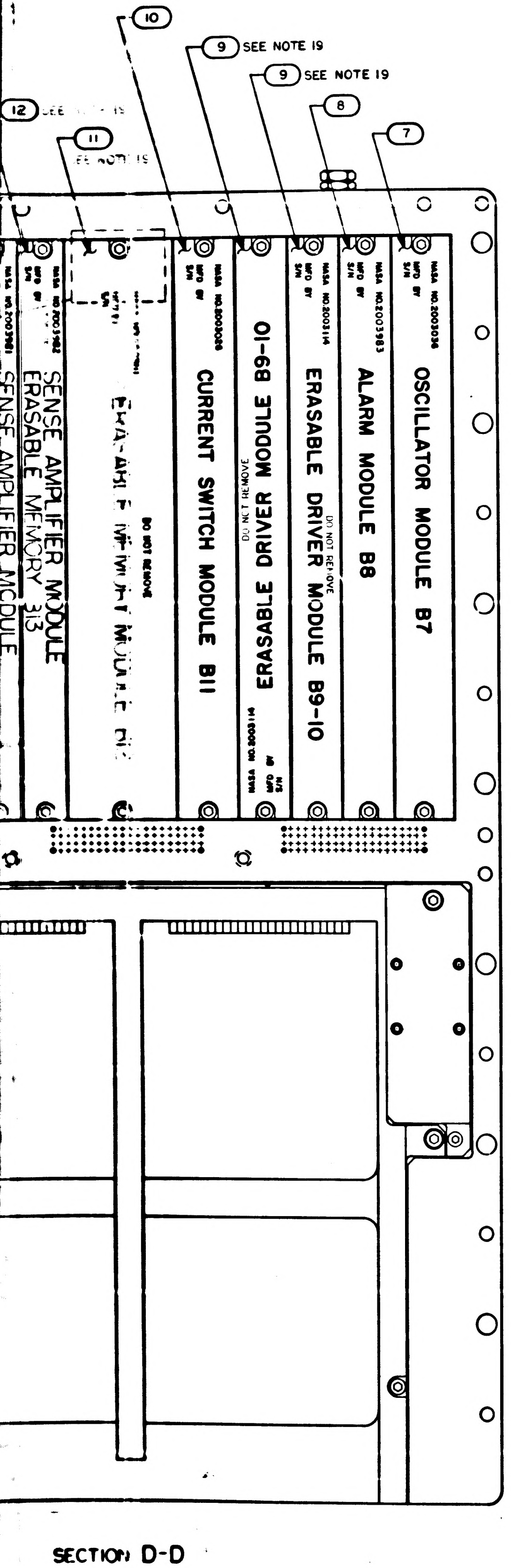

40 SEE NOTE 15
34
33
32
31
30
29
28
27
LOGIC MODULE A16
LOGIC MODULE A17
LOGIC MODULE A18
LOGIC MODULE A19
LOGIC MODULE A20
LOGIC MODULE A21
LOGIC MODULE A22
LOGIC MODULE A23
LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
DO NOT REMOVE MODULE WHILE POWER IS ON
15
16
17
18
19
20
21
22
22
22
22
23
24
25
26
36

SECTION C-C

PACKAGING REFERENCE DRAWINGS
1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421

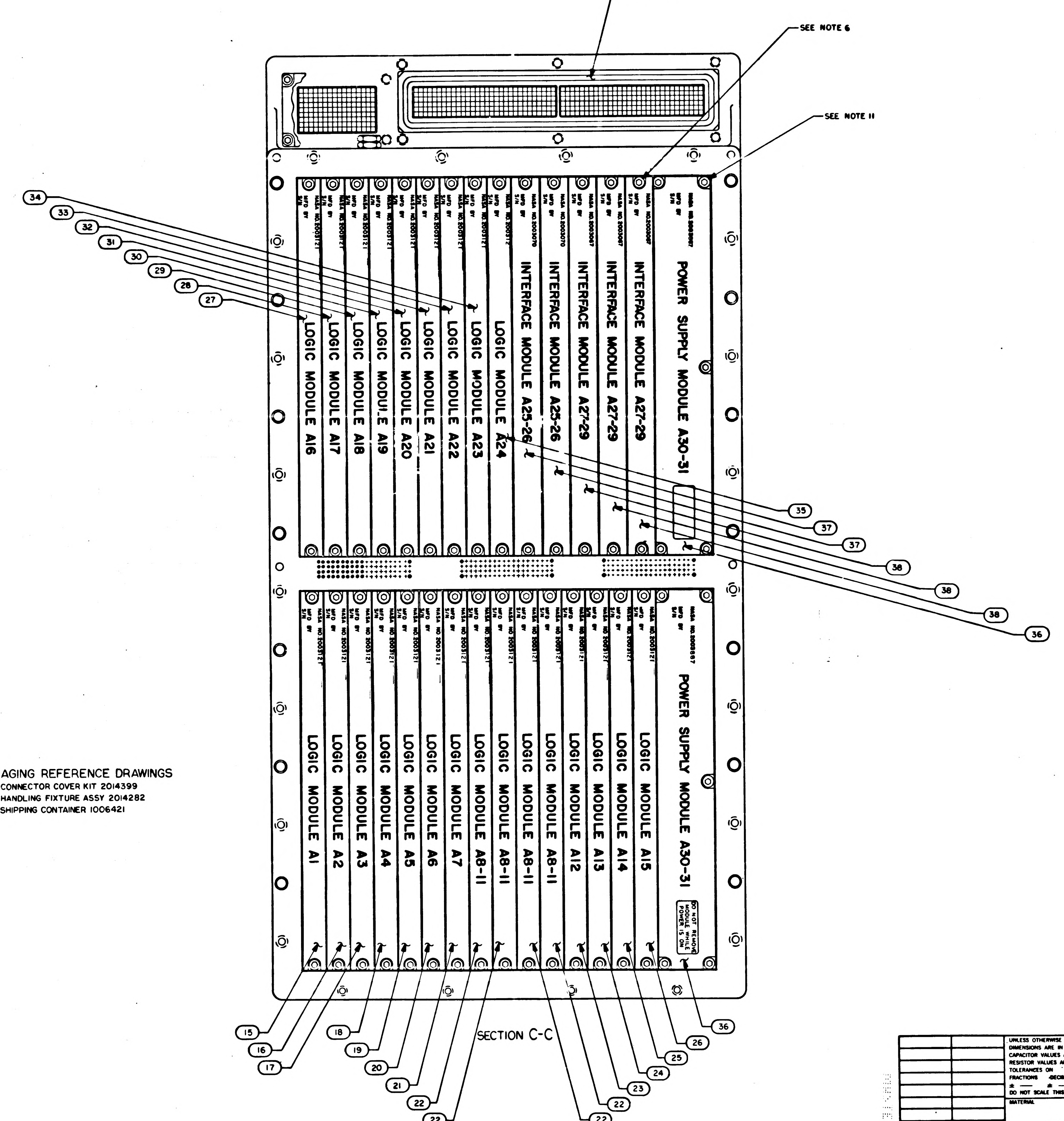
2003993	A

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		INITIAL RELEASE TDM 32558				



(12) SEE NOTE 15
(11) SEE NOTE 15
(10)
(9) SEE NOTE 19
(9) SEE NOTE 19
(8)
(7)
SENSE AMPLIFIER MODULE
ERASABLE MEMORY B13
SENSE AMPLIFIER MODULE
ERASABLE MEMORY MODULE B12
CURRENT SWITCH MODULE B11
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
ALARM MODULE B8
OSCILLATOR MODULE B7
DO NOT REMOVE

SECTION D-D



(40) SEE NOTE 15
SEE NOTE 6
SEE NOTE 11
(34)
(33)
(32)
(31)
(30)
(29)
(28)
(27)
LOGIC MODULE A16
LOGIC MODULE A17
LOGIC MODULE A18
LOGIC MODULE A19
LOGIC MODULE A20
LOGIC MODULE A21
LOGIC MODULE A22
LOGIC MODULE A23
LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
(35)
(37)
(37)
(38)
(38)
(38)
(36)
LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
DO NOT REMOVE MODULE WHILE POWER IS ON
NASA NO. 2003121
MFD BY
S/N
(15)
(16)
(17)
(18)
(19)
(20)
(21)
(22)
(22)
(22)
(22)
(23)
(24)
(25)
(26)
(36)

SECTION C-C

PACKAGING REFERENCE DRAWINGS
1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
		LIST OF MATERIALS	

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING
MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN B Vapia 24 Aug 66
CHECKED A. Kupfer 29 AUG 66
APPROVED
APPROVED Eldon C Hall
APPROVED CCB 1/6/67
APPROVED MSC

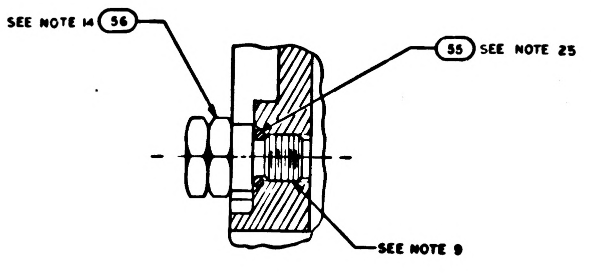
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER
ASSEMBLY

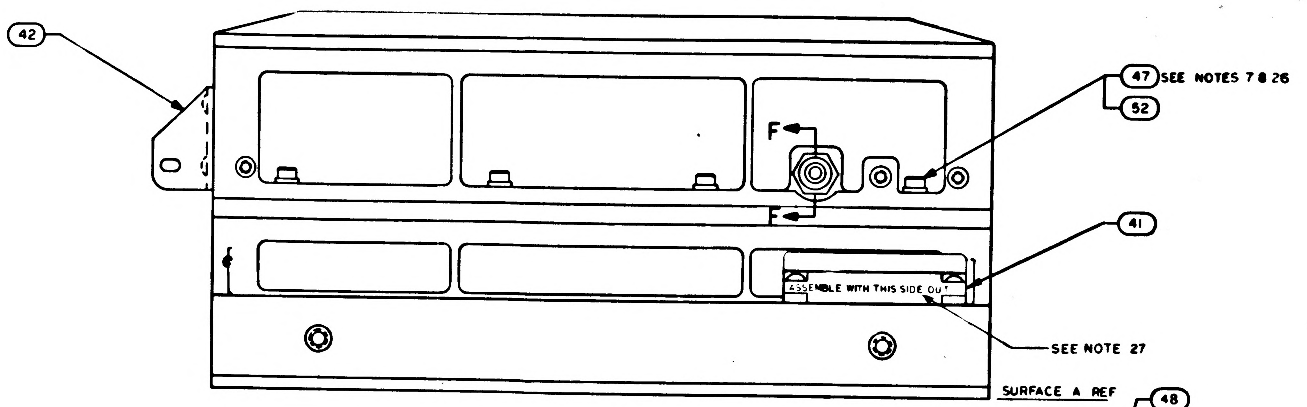
CODE IDENT NO. 80230 SIZE J DRAWING NO. 2003993
SCALE 1/1 SHEET 2 OF 2

2003993 A

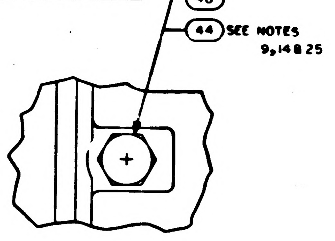
2/2003993


SEE NOTE 14 (56)
(55) SEE NOTE 25
SEE NOTE 9

PARTIAL SECTION F F
SCALE: 2/1


(42)
(47) SEE NOTES 7 & 26
(52)
F
F
(41)
ASSEMBLE WITH THIS SIDE OUT
SEE NOTE 27
SURFACE A REF

VIEW B-B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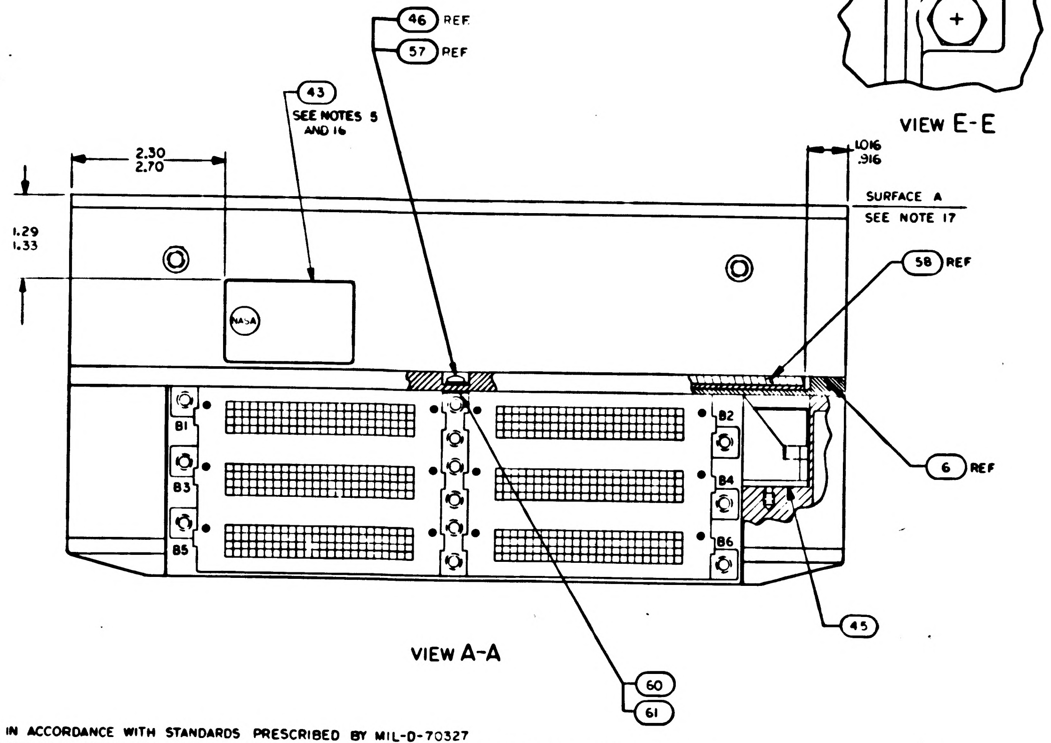
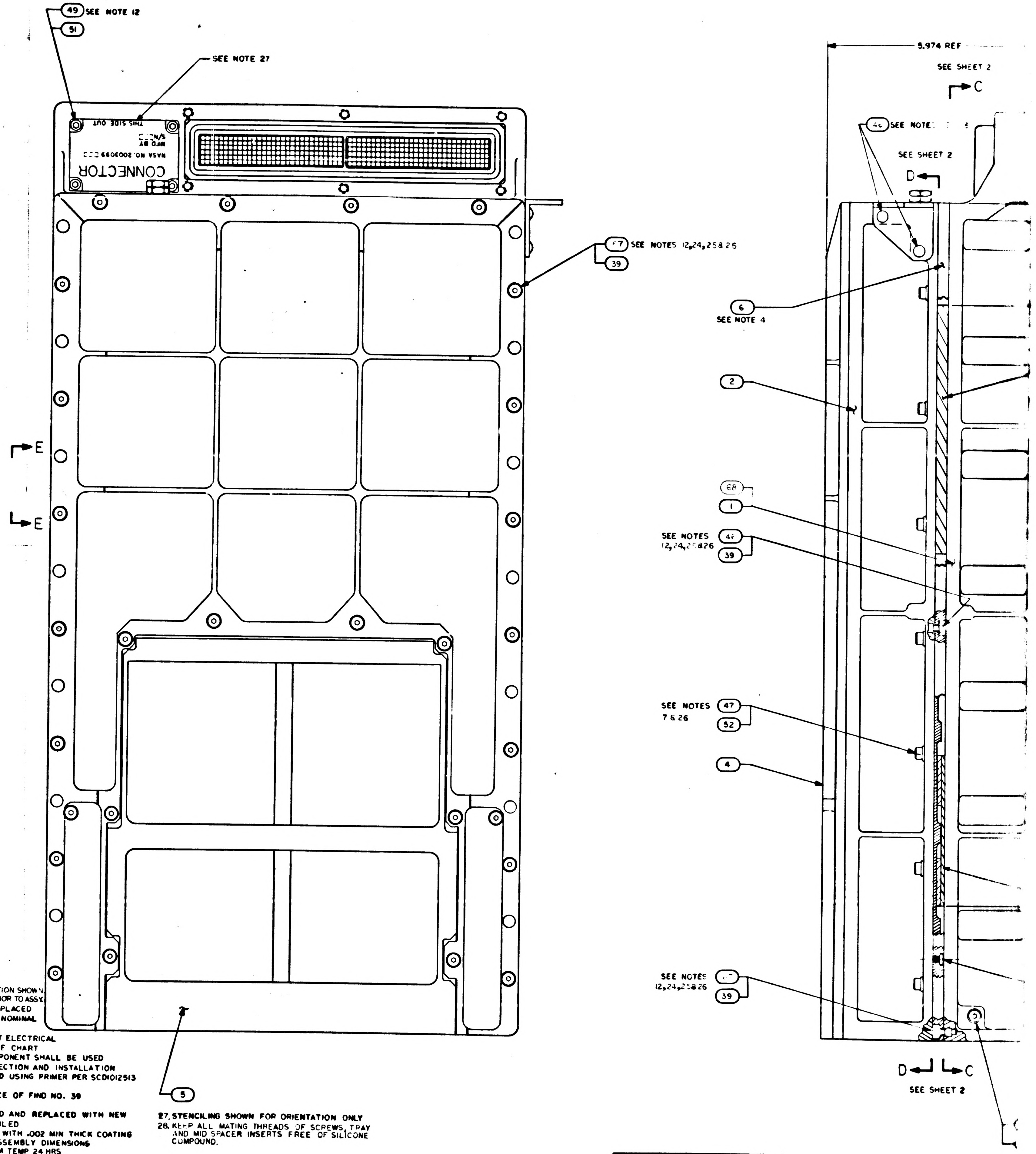
(44) SEE NOTES 9, 14 & 25

VIEW E-E


(46) REF
(57) REF
(43) SEE NOTES 5 AND 16
2.30
2.70
1.016
.916
SURFACE A
SEE NOTE 17
1.29
1.33
NASA
(58) REF
B1
B2
B3
B4
B5
B6
(6) REF
(45)
(60)
(61)

VIEW A-A


(49) SEE NOTE 12
(51)
SEE NOTE 27
CONNECTOR
NASA NO 2003993
MFD BY
THIS SIDE OUT
(47) SEE NOTES 12, 24, 25 & 26
(39)
E
E
(5)
5.974 REF
SEE SHEET 2
C
SEE NOTE
SEE SHEET 2
D
(6) SEE NOTE 4
(2)
(68)
(1)
SEE NOTES 12, 24, 25 & 26 (47)
(39)
SEE NOTES 7 & 26 (47)
(52)
(4)
SEE NOTES 12, 24, 25 & 26
(39)
D C
SEE SHEET 2

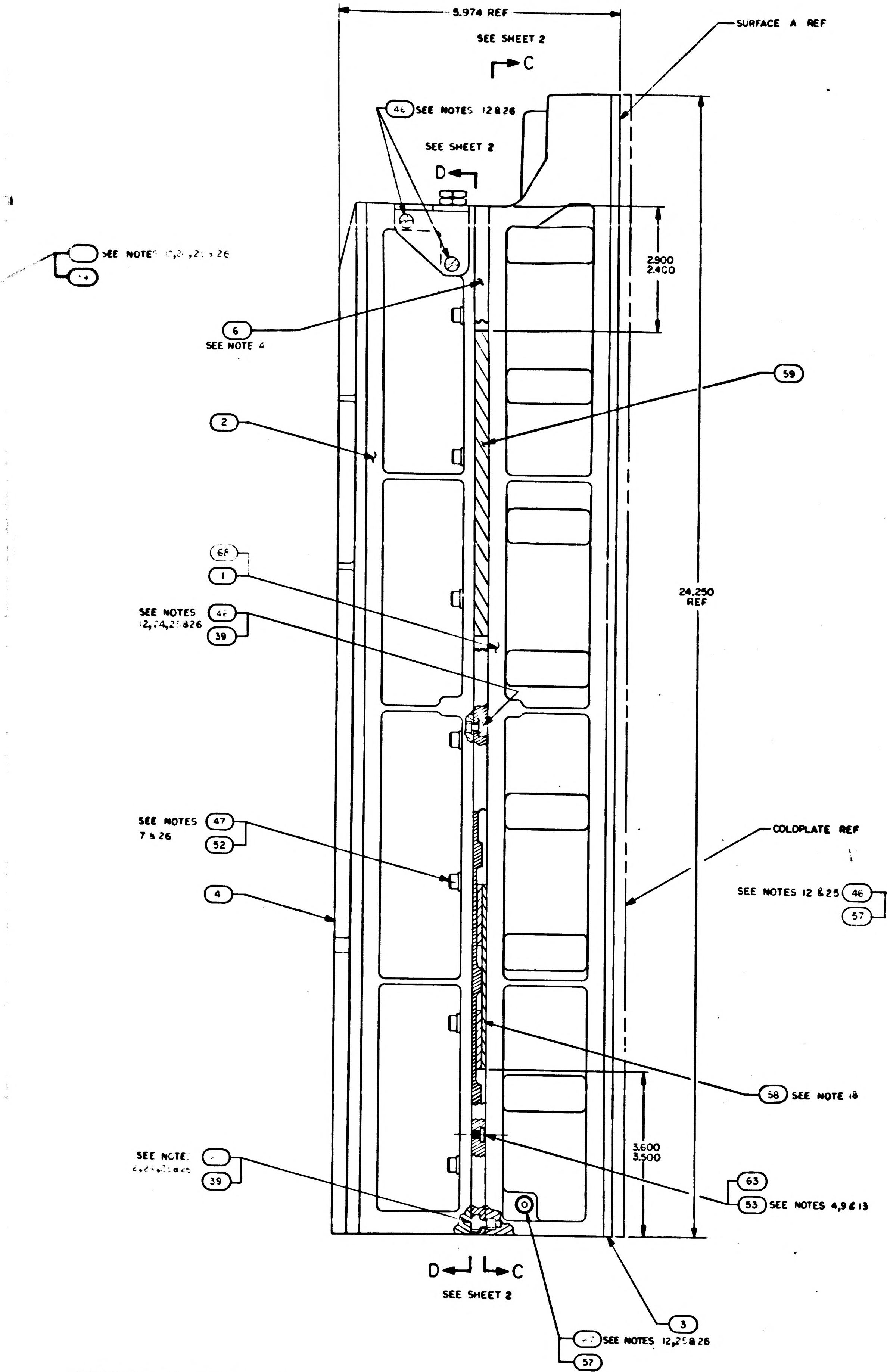
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. PHANTOM LINES DENOTE AGC COLDPLATE AND HANDLING FIXTURE TO BE SUPPLIED BY NORTH AMERICAN AVIATION, INC
3. ADD SILICONE [illegible] NO 1006879 TO MODULE MATING METAL SURFACES AND TRAY MATING SURFACES
4. ASSEMBLE FIND NO.53 AND FIND NO.63 TO FIND NO.6 AND FIND NO.6 TO FIND NO.2 PRIOR TO ASSEMBLY OF FIND NO.2 TO FIND NO.1 & FIND NO. 68
5. BOND FIND NO.43 TO FIND. NO. [illegible] AND FIND NO. 68 PER ND1002004 TYPE I7
6. UNLESS OTHERWISE SPECIFIED TORQUE ALL MODULE MOUNTING SCREWS 15/19 INCH POUNDS
7. TORQUE FIND NO.47 TO 28/32 INCH POUNDS
8. FINISH IS REQUIRED TO SATISFY ICD GAEC 510-10001
9. APPLY SEALING COMPOUND MIL-S-22473 GRADE H TO FIND NO.53, FIND NO.56 AND FIND NO. 44
10. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2016007
11. TORQUE FOR FIND NO.36 AND FIND NO.69 MOUNTING SCREWS TO BE 4/6 INCH POUNDS
12. TORQUE FOR FIND NO. 46,49,50 AND [illegible] TO BE 18/22 INCH POUNDS
13. TORQUE FOR FIND NO. 53 TO BE 4/6 INCH POUNDS
14. TORQUE FOR FIND NO. 44 AND FIND NO. 56 TO BE 137/157 INCH POUNDS
15. FIND NO. 40 SHALL BE SUPPLIED AS PART OF THIS ASSEMBLY
16. MARK COMPUTER ASSEMBLY AND RELATED PART NO., APPLICABLE DASH NO., SERIAL NO. AND CONTRACT NO. PER 1004260 AND SERIALIZE PER ND1002023
17. FINISH SURFACE [-A-] PER ICD NAA MH01-01302-116 THIS ASSEMBLY MUST BE CAPABLE OF MEETING ELECTRICAL BONDING REQUIREMENTS OF ICD NAA MH01-01302-116
18. BOND FIND NO. 58 TO FIND NO. 6 IN POSITION SHOWN USING 1006338, CURE AT ROOM TEMP 24 HRS PRIOR TO ASSY.
19. REFERENCED MODULES MUST NOT BE REPLACED OR INTERCHANGED WITHOUT REPEATING NOMINAL SELECTION PROCEDURE PER NOTE 10
20. THE VALUE OF C1 TO BE DETERMINED AT ELECTRICAL TEST AND SELECTED FROM APPROPRIATE CHART
21. WHEN THE VALUE OF C1 IS ZERO NO COMPONENT SHALL BE USED
22. ENCAPSULATE AREA SHOWN AFTER SELECTION AND INSTALLATION OF C1 USING ND1002009 METHOD C OR D USING PRIMER PER SCD1012513
23. WELD PER ND1002005
24. ASSEMBLE HARDWARE WITH SMOOTH FACE OF FIND NO. 39 IN CONTACT WITH SCREW HEAD
25. FIND NO.39, 48, 55 & 57 TO BE DISCARDED AND REPLACED WITH NEW PARTS EACH TIME THEY ARE DISASSEMBLED
26. SEAL EXPOSED HARDWARE ASSEMBLIES WITH .002 MIN THICK COATING OF FIND NO. 66. OVERALL COMPUTER ASSEMBLY DIMENSIONS SHALL NOT BE EXCEEDED. CURE AT ROOM TEMP 24 HRS.
27. STENCILING SHOWN FOR ORIENTATION ONLY
28. KEEP ALL MATING THREADS OF SCREWS, TRAY AND MID SPACER INSERTS FREE OF SILICONE COMPOUND.

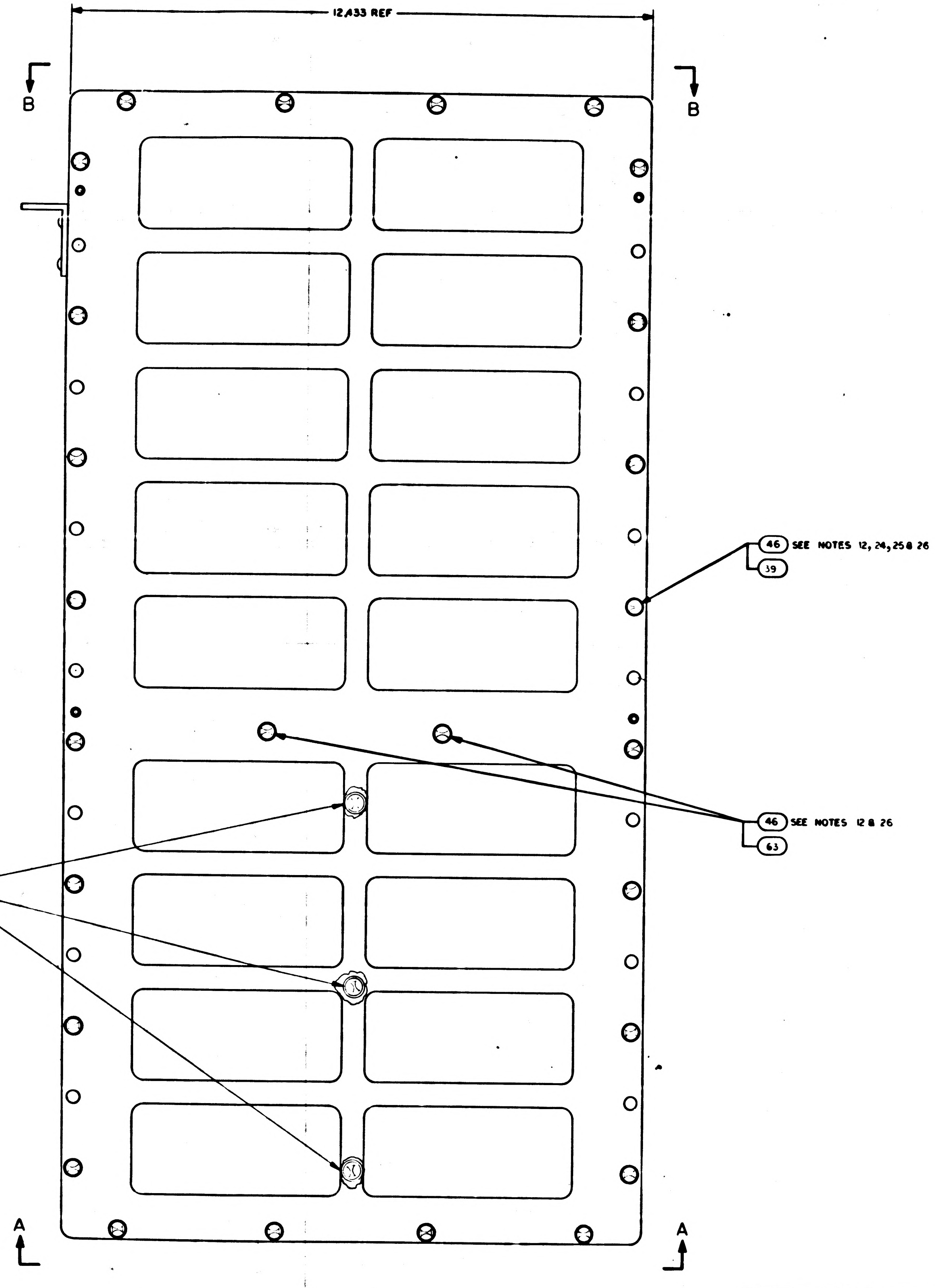
2003993 B

4 3 2

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		INITIAL RELEASE TDRR 32558				
B		REVISED PER TDRR 32965				



5.974 REF
SEE SHEET 2
C
SURFACE A REF
46 SEE NOTES 12 & 26
SEE SHEET 2
D
SEE NOTES 12,24,25 & 26
2.900
2.400
6
SEE NOTE 4
59
2
24.250 REF
68
1
SEE NOTES 12,24,25 & 26
46
39
SEE NOTES 7 & 26
47
52
4
COLDPLATE REF
58 SEE NOTE 18
SEE NOTES 12,24,25 & 26
39
3.600
3.500
63
53 SEE NOTES 4,9 & 13
D C
SEE SHEET 2
3
SEE NOTES 12,25 & 26
57



12.433 REF
B
B
46 SEE NOTES 12, 24, 25 & 26
39
SEE NOTES 12 & 25 46
57
46 SEE NOTES 12 & 26
63
A
A

QTY REQD	QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
-021	-011	LIST OF MATERIALS		
		2005944	AGC WIRE LIST	[illegible]
2	—	2003892-011	POWER SUPPLY MODULE A30-31	69
1	—	2003092-041	TRAY "A" WIRED ASSY	68
33	33	2004732-002	SCREW, COATED	67
AR	AR	1006338-000	SEALING COMPOUND, SILICONE RUBBER	66
AR	AR	1006776-002	INSULATION, SLEEVING ELECTRICAL	65
1	1	SEE NOTE 20	CAPACITOR	64
10	10	2004148-007	WASHER, FLAT	63
1	1	2003981-0[illegible]	SENSE AMPLIFIER MODULE, FIXED MEMORY B14	62
AR	AR	2004895-002	SHIM AGC	61
AR	AR	2004895-001	SHIM AGC	60
1	1	2004899-001	PAD VIBRATION	59
1	1	2003970	VIBRATION PAD ASSY	58
4	4	NAS1598-D08N	WASHER, SEALING	57
1	1	2018773	VALVE PRESSURE ASSEMBLY	56
1	1	1000159-5	PACKING, PREFORMED "O" RING	55
2	2	2004984-001	WASHER, FLAT	54
8	8	2004130	PAD, THREADED	53
19	19	2004894-014	WASHER, FLAT	52
4	4	2004894-012	WASHER, FLAT	51
2	2	1004489-36	SCREW, HEX SOCKET HEAD	50
4	4	1004722-2	SCREW, CAPTIVE	49
1	1	1000159-7	PACKING, PREFORMED "O" RING	48
19	18	[illegible]	SCREW, COATED	47
33	33	2004732-[illegible]	SCREW, COATED	46
2	2	1006347	GASKET, PLATE	45
1	1	2004986	PLUG, MACHINE THREAD	44
1	1	1004260-19	NAME PLATE, TYPE I	43
1	1	2004113-001	BRACKET, CABLE	42
1	1	2003099-011	CONNECTOR ASSEMBLY	41
	1	1006380	GASKET, RETAINED	40
58	58	2004707	WASHER, KNURLED	39
3	3	2003067-041	INTERFACE MODULE A27-29	38
2	2	2003070-031	INTERFACE MODULE A25-26	37
—	2	2003[illegible]-011	POWER SUPPLY MODULE A30-31	36
1	1	2003121-231	LOGIC MODULE A24	35
1	1	2003121-221	LOGIC MODULE A23	34
1	1	2003121-211	LOGIC MODULE A22	33
1	1	2003121-191	LOGIC MODULE A21	32
1	1	2003121-181	LOGIC MODULE A20	31
1	1	2003121-171	LOGIC MODULE A19	30
1	1	2003121-161	LOGIC MODULE A18	29
1	1	2003121-151	LOGIC MODULE A17	28
1	1	2003121-141	LOGIC MODULE A16	27
1	1	2003121-131	LOGIC MODULE A15	26
1	1	2003121-121	LOGIC MODULE A14	25
1	1	2003121-111	LOGIC MODULE A13	24
1	1	2003121-091	LOGIC MODULE A12	23
4	4	2003121-081	LOGIC MODULE A8-11	22
1	1	2003121-071	LOGIC MODULE A7	21
1	1	2003121-061	LOGIC MODULE A6	20
1	1	2003121-051	LOGIC MODULE A5	19
1	1	2003121-041	LOGIC MODULE A4	18
1	1	2003121-031	LOGIC MODULE A3	17
1	1	2003121-021	LOGIC MODULE A2	16
1	1	2003121-011	LOGIC MODULE A1	15
2	2	2003140-031	ROPE DRIVER MODULE B16-17	14
1	1	2003027-031	STRAND SELECT MODULE B15	13
1	1	2003982-021	SENSE AMPL MOD, ERASABLE MEMORY B13	12
1	1	2003111-021	ERASABLE MEMORY MODULE B12	11
1	1	2003026-031	CURRENT SWITCH MODULE B11	10
2	2	2003114-021	ERASABLE DRIVER MODULE B9-10	9
1	1	2003983-021	ALARM MODULE B8	8
1	1	2003036-031	OSCILLATOR MODULE B7	7
1	1	2003978-[illegible]	MID SPACER	6
1	1	2003059-021	INTERCONNECTION HEADER ASSEMBLY	5
1	1	2003976-011	TRAY B COVER	4
1	1	2003977-011	TRAY A COVER	3
1	1	2003093-011	TRAY B WIRED ASSEMBLY	2
—	1	2003092-031	TRAY A WIRED ASSEMBLY	1

NEXT ASSY	USED ON
2003991	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
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DRAWN R. E. Flanders 11 AUG 66
CHECKED
APPROVED
APPROVED
APPROVED MSC

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER
ASSEMBLY

CODE IDENT NO 80230
SIZE J
DRAWING NO. 2003993
SCALE 1/1
SHEET 1 OF 2

2003993 B

4 3 2

E 2/2

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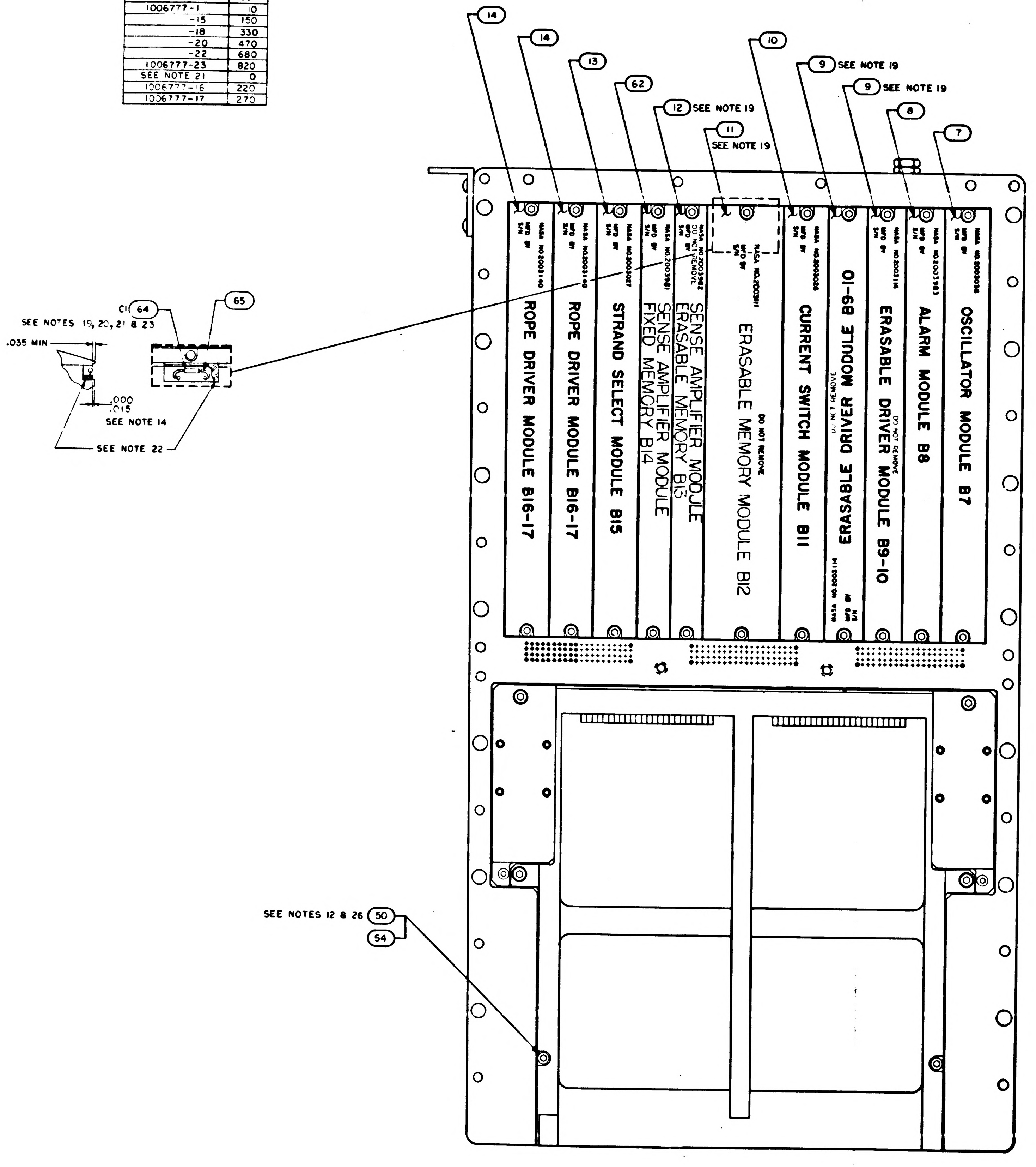
CI	
PART NO.	VALUE UUF
1006777-1	10
-15	150
-18	330
-20	470
-22	680
1006777-23	820
SEE NOTE 21	0
1006777-16	220
1006777-17	270


CI 64
65
SEE NOTES 19, 20, 21 & 23
.035 MIN
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.015
SEE NOTE 14
SEE NOTE 22
14
14
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62
12 SEE NOTE 19
11 SEE NOTE 19
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9 SEE NOTE 19
9 SEE NOTE 19
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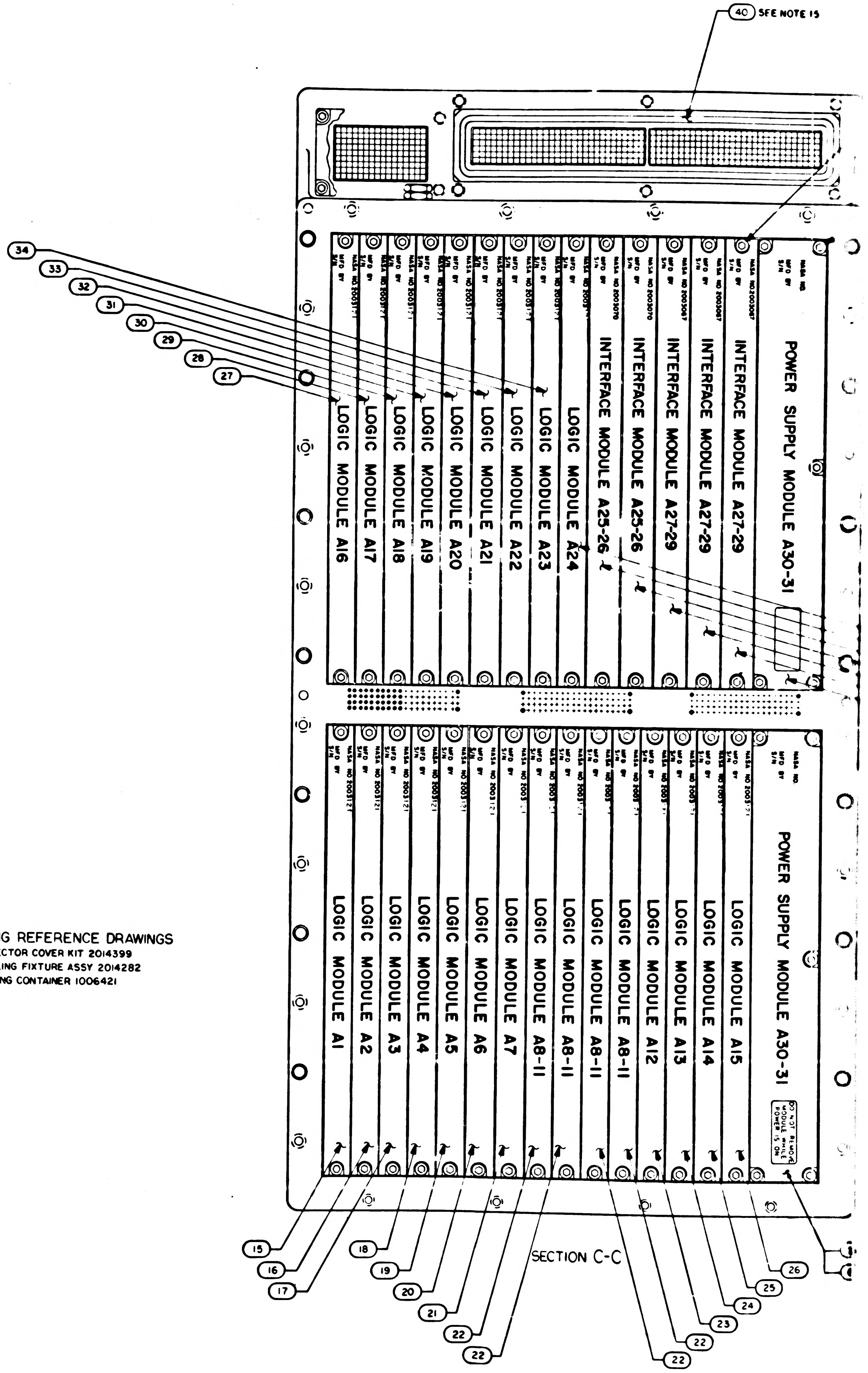
7
ROPE DRIVER MODULE B16-17
ROPE DRIVER MODULE B16-17
STRAND SELECT MODULE B15
SENSE AMPLIFIER MODULE FIXED MEMORY B14
SENSE AMPLIFIER MODULE ERASABLE MEMORY B13
DO NOT REMOVE
ERASABLE MEMORY MODULE B12
CURRENT SWITCH MODULE B11
DO NOT REMOVE
ERASABLE DRIVER MODULE B9-10
DO NOT REMOVE
ERASABLE DRIVER MODULE B9-10
ALARM MODULE B8
OSCILLATOR MODULE B7
SEE NOTES 12 & 26 50
54

SECTION D-D


40 SEE NOTE 15
34
33
32
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27
LOGIC MODULE A16
LOGIC MODULE A17
LOGIC MODULE A18
LOGIC MODULE A19
LOGIC MODULE A20
LOGIC MODULE A21
LOGIC MODULE A22
LOGIC MODULE A23
LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
DO NOT REMOVE MODULE WHILE POWER IS ON
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SECTION C-C

PACKAGING REFERENCE DRAWINGS
1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421

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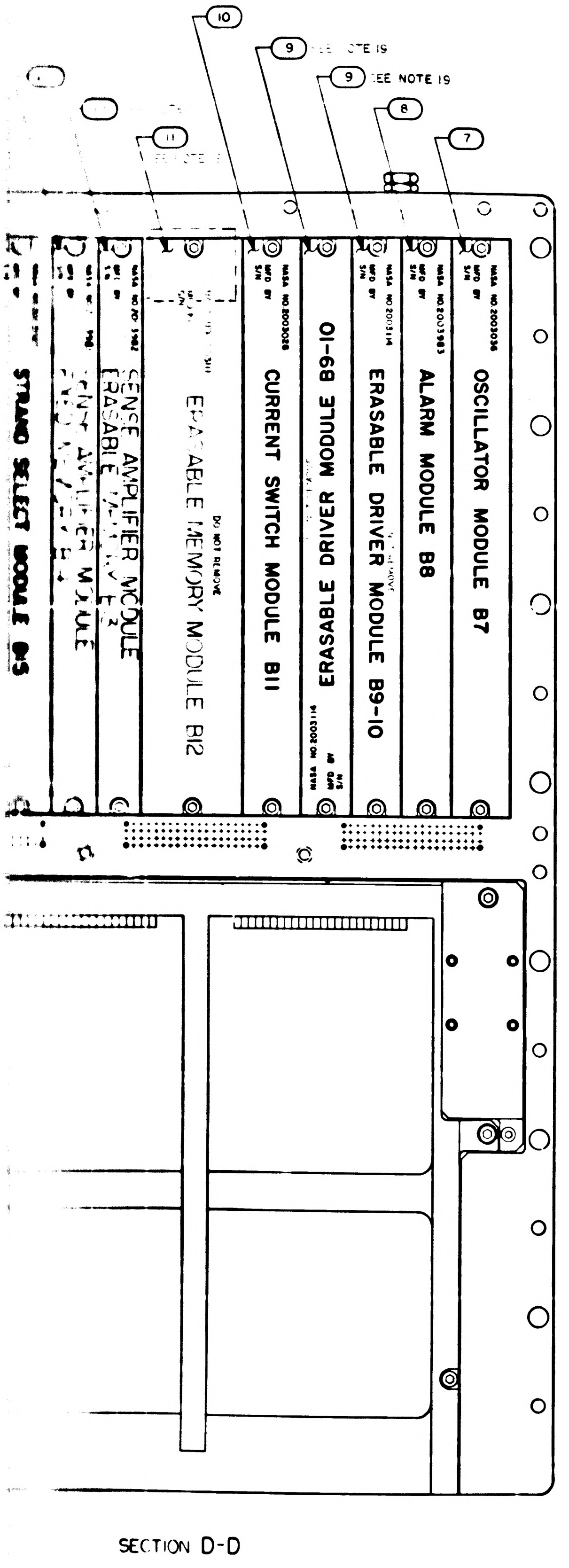
B		RELEASED PER TDRR 32965				



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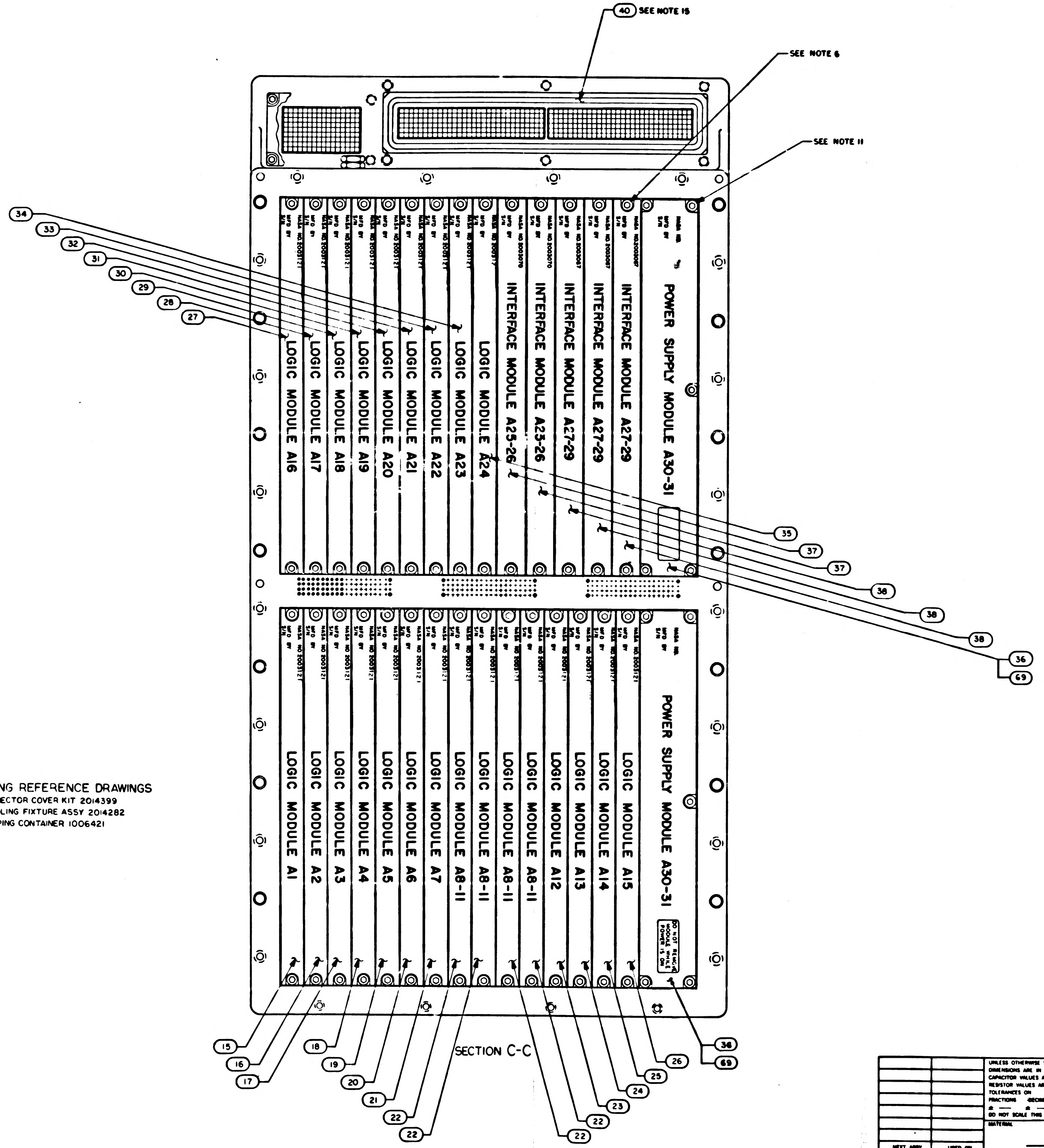
9 SEE NOTE 19
9 SEE NOTE 19
8
7
11 SEE NOTE
OSCILLATOR MODULE B7
ALARM MODULE B8
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
CURRENT SWITCH MODULE B11
ERASABLE MEMORY MODULE B12
SENSE AMPLIFIER MODULE
STRAND SELECT MODULE B15
NASA NO 2003036
NASA NO 2003983
NASA NO 2003114
NASA NO 2003028
SECTION D-D



40 SEE NOTE 15
SEE NOTE 6
SEE NOTE 11
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LOGIC MODULE A16
LOGIC MODULE A17
LOGIC MODULE A18
LOGIC MODULE A19
LOGIC MODULE A20
LOGIC MODULE A21
LOGIC MODULE A22
LOGIC MODULE A23
LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
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LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
DO NOT REMOVE MODULE WHILE POWER IS ON
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36
69
SECTION C-C

PACKAGING REFERENCE DRAWINGS
1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING
MATERIAL
—

MIT
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CAMBRIDGE MASS

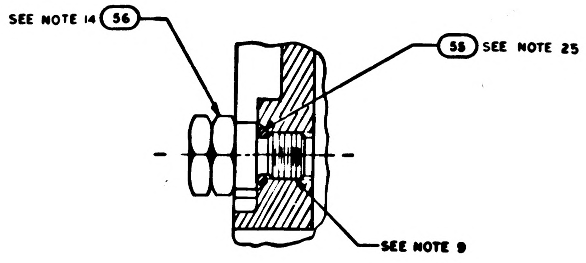
DRAWN
CHECKED
APPROVED
APPROVED Eldon C Hall
APPROVED
APPROVED
MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

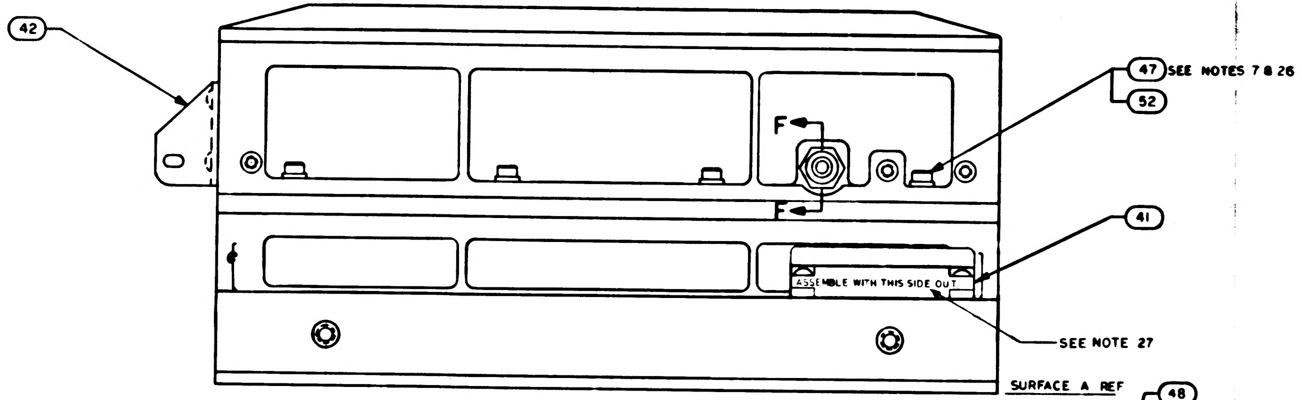
COMPUTER
ASSEMBLY

CODE IDENT NO	SIZE	DRAWING NO.
80230	J	2003993

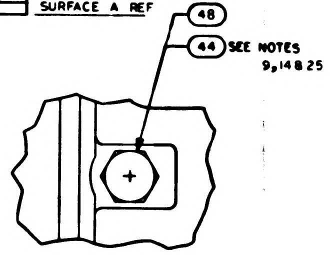
SCALE 1/1
SHEET 2 OF 2


SEE NOTE 14 (56)
(55) SEE NOTE 25
SEE NOTE 9

PARTIAL SECTION F F
SCALE: 2/1


42
47 SEE NOTES 7 & 26
52
F
F
41
ASSEMBLE WITH THIS SIDE OUT
SEE NOTE 27
SURFACE A REF

VIEW B-B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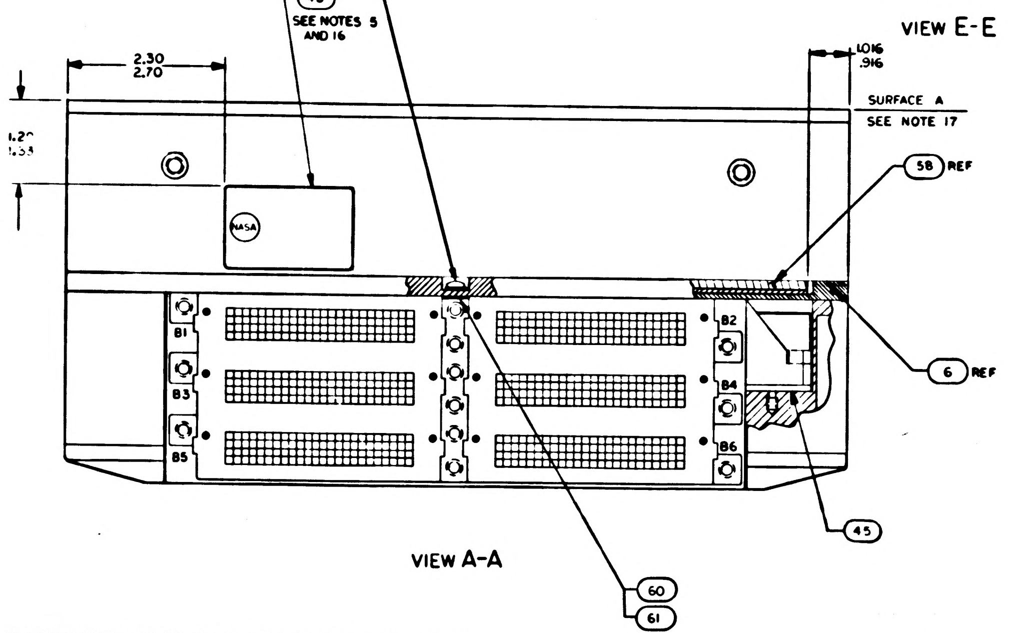
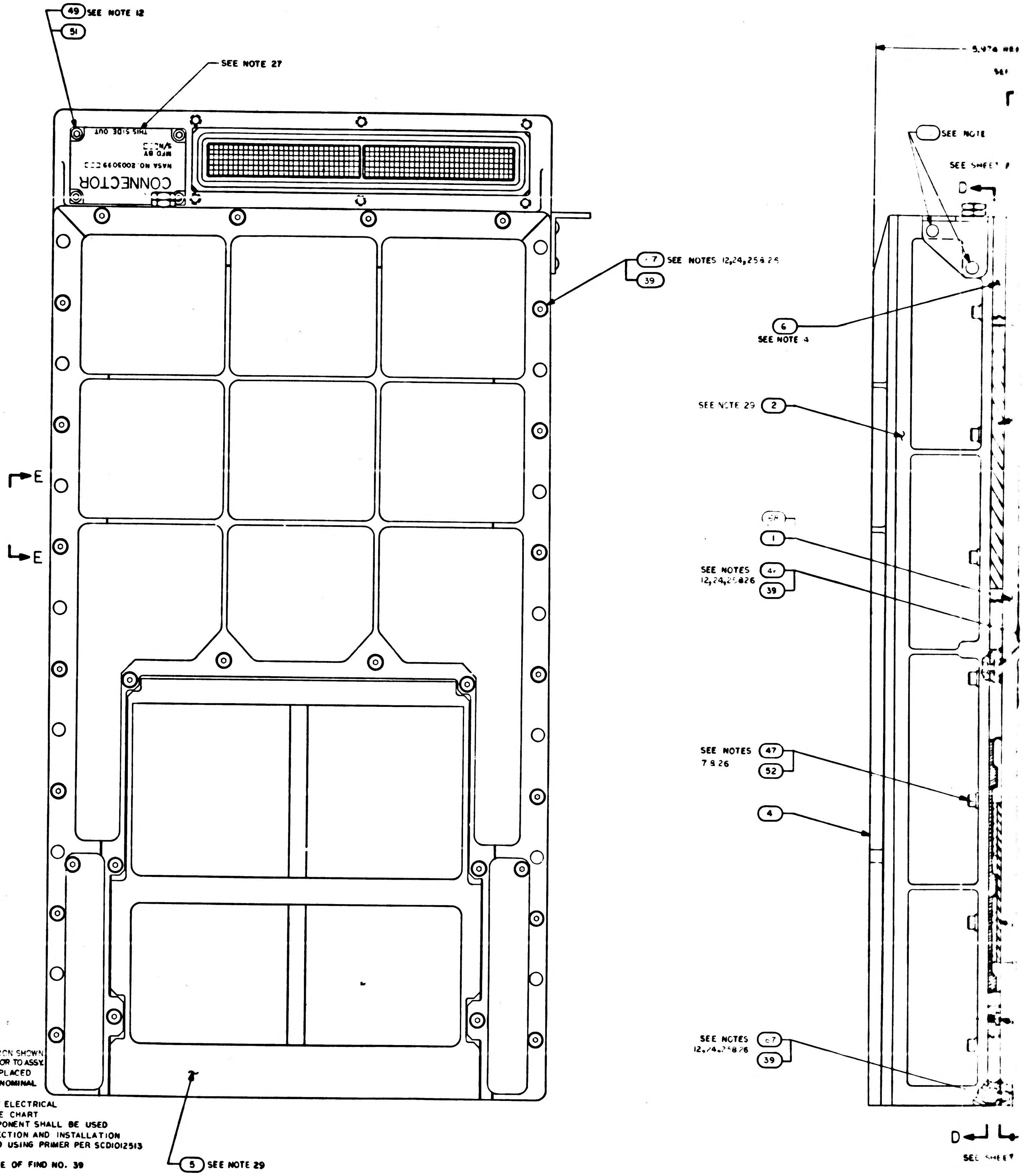
44 SEE NOTES 9,14 & 25

VIEW E-E


46 REF
57 REF
43
SEE NOTES 5 AND 16
2.30
2.70
1.016
.916
SURFACE A
SEE NOTE 17
NASA
58 REF
6 REF
B1
B2
B3
B4
B5
B6
45
60
61

VIEW A-A

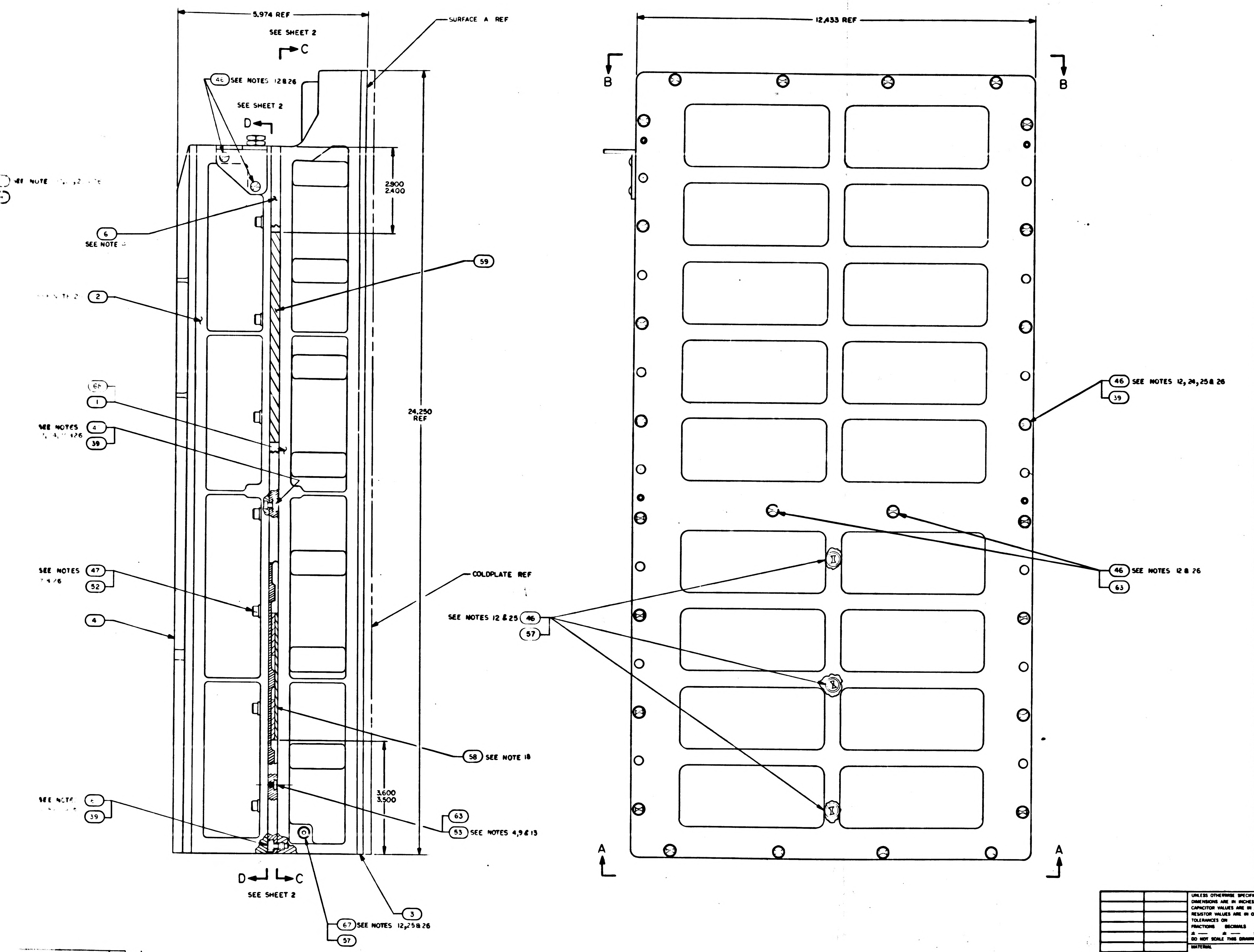

49 SEE NOTE 12
51
SEE NOTE 27
CONNECTOR
NASA NO. 2003993
MFD BY
S/N
THIS SIDE OUT
7 SEE NOTES 12,24,25 & 26
39
E
E
5 SEE NOTE 29
6
SEE NOTE 4
SEE NOTE 29 2
1
SEE NOTES 12,24,25 & 26
39
SEE NOTES 7 & 26
47
52
4
SEE NOTES 12,24,25 & 26
39
D
D
SEE NOTE
SEE SHEET

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. PHANTOM LINES DENOTE AGC COLDPLATE AND HANDLING FIXTURE TO BE SUPPLIED BY NORTH AMERICAN AVIATION, INC
3. ADD SILICONE COMPOUND 1006879 TO MODULE MATING METAL SURFACES AND TRAY MATING SURFACES
4. ASSEMBLE FIND NO.53 AND FIND NO.63 TO FIND NO.6 AND FIND NO.6 TO FIND NO.2 PRIOR TO ASSEMBLY OF FIND NO.2 TO FIND NO.1 & FIND NO. 68
5. BOND FIND NO.43 TO FIND. NO. AND FIND NO.68 PER ND1002004 TYPE II
6. UNLESS OTHERWISE SPECIFIED TORQUE ALL MODULE MOUNTING SCREWS 15/19 INCH POUNDS
7. TORQUE FIND NO.47 TO 28/32 INCH POUNDS
8. FINISH IS REQUIRED TO SATISFY ICD GAEC 510-10001
9. APPLY SEALING COMPOUND MIL-S-22473 GRADE H TO FIND NO.53, FIND NO.56 AND FIND NO.44
10. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2016007
11. TORQUE FOR FIND NO.36 AND FIND NO.69 MOUNTING SCREWS TO BE 4/6 INCH POUNDS
12. TORQUE FOR FIND NO. 46,49,50 AND 67 TO BE 18/22 INCH POUNDS
13. TORQUE FOR FIND NO. 53 TO BE 4/6 INCH POUNDS
14. TORQUE FOR FIND NO. 44 AND FIND NO. 56 TO BE 137/157 INCH POUNDS
15. FIND NO. 40 SHALL BE SUPPLIED AS PART OF THIS ASSEMBLY
16. MARK COMPUTER ASSEMBLY AND RELATED PART NO., APPLICABLE DASH NO., SERIAL NO. AND CONTRACT NO. PER 1004260 AND SERIALIZE PER ND1002023
17. FINISH SURFACE [-A-] PER ICD NAA MH01-01302-116 THIS ASSEMBLY MUST BE CAPABLE OF MEETING ELECTRICAL BONDING REQUIREMENTS OF ICD NAA MH01-01302-116
18. BOND FIND NO. 58 TO FIND NO. 6 IN POSITION SHOWN USING 1006338. CURE AT ROOM TEMP. 24 HRS PRIOR TO ASSY.
19. REFERENCED MODULES MUST NOT BE REPLACED OR INTERCHANGED WITHOUT REPEATING NOMINAL SELECTION PROCEDURE PER NOTE 10
20. THE VALUE OF C1 TO BE DETERMINED AT ELECTRICAL TEST AND SELECTED FROM APPROPRIATE CHART
21. WHEN THE VALUE OF C1 IS ZERO NO COMPONENT SHALL BE USED
22. ENCAPSULATE AREA SHOWN AFTER SELECTION AND INSTALLATION OF C1 USING ND1002009 METHOD C OR D USING PRIMER PER SCD1012513
23. WELD PER ND1002005
24. ASSEMBLE HARDWARE WITH SMOOTH FACE OF FIND NO. 39 IN CONTACT WITH SCREW HEAD
25. FIND NO.39, 48, 55 & 57 TO BE DISCARDED AND REPLACED WITH NEW PARTS EACH TIME THEY ARE DISASSEMBLED
26. SEAL EXPOSED HARDWARE ASSEMBLIES WITH .002 MIN THICK COATING OF FIND NO.66. OVERALL COMPUTER ASSEMBLY DIMENSIONS SHALL NOT BE EXCEEDED. CURE AT ROOM TEMP 24 HRS.
27. STENCILING SHOWN FOR ORIENTATION ONLY
28. KEEP ALL MATING THREADS OF SCREWS, TRAY AND MID SPACER INSERTS FREE OF SILICONE COMPOUND
29. FILL FEMALE INSULATORS OF B41 AND B42 CONNECTORS USING FIND NO. 70 PRIOR TO ASSEMBLY OF FIND NO.5 TO FIND NO.2

2003993 C

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		INITIAL RELEASE TDRR 32558				
B		REVISED PER TDRR 32963				
C		REVISED PER TDRR 33300				



QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
		2005944	AGC WIRE LIST	REF
AR	AR	MIL-S-8660	SILICONE COMPOUND	70
2	—	2003892-011	POWER SUPPLY MODULE A30-31	69
1	—	2003092-041	TRAY "A" WIRED ASSY	68
33	33	2004732-002	SCREW, COATED	67
AR	AR	1006338-000	SEALING COMPOUND, SILICONE RUBBER	66
AR	AR	1006776-22	INSULATION, SLEEVING ELECTRICAL	65
1	1	SEE NOTE 20	CAPACITOR	64
10	10	2004148-007	WASHER, FLAT	63
1	1	2003981-021	SENSE AMPLIFIER MODULE, FIXED MEMORY B14	62
AR	AR	2004895-002	SHIM AGC	61
AR	AR	2004895-001	SHIM AGC	60
1	1	2004899-001	PAD VIBRATION	59
1	1	2003970	VIBRATION PAD ASSY	58
4	4	NAS1598-D08N	WASHER, SEALING	57
1	1	2018773	VALVE PRESSURE ASSEMBLY	56
1	1	1000159-5	PACKING, PREFORMED "O" RING	55
2	2	2004984-001	WASHER, FLAT	54
8	8	2004130	PAD, THREADED	53
18	18	2004894-014	WASHER, FLAT	52
4	4	2004894-012	WASHER, FLAT	51
2	2	1001489-36	SCREW, HEX SOCKET HEAD	50
4	4	1004722-2	SCREW, CAPTIVE	49
1	1	1000159-7	PACKING, PREFORMED "O" RING	48
18	18	2004732-003	SCREW, COATED	47
33	33	2004732-001	SCREW, COATED	46
2	2	1006347	GASKET, PLATE	45
1	1	2004986	PLUG, MACHINE THREAD	44
1	1	1004260-19	NAME PLATE, TYPE I	43
1	1	2004113-001	BRACKET, CABLE	42
1	1	2003[illegible]59-011	CONNECTOR ASSEMBLY	41
1	1	1006380	GASKET, RETAINED	40
58	58	2004707	WASHER, KNURLED	39
3	3	2003067-041	INTERFACE MODULE A27-29	38
2	2	2003070-031	INTERFACE MODULE A25-26	37
—	2	2003887-011	POWER SUPPLY MODULE A30-31	36
1	1	2003121-231	LOGIC MODULE A24	35
1	1	2003121-221	LOGIC MODULE A23	34
1	1	2003121-211	LOGIC MODULE A22	33
1	1	2003121-191	LOGIC MODULE A21	32
1	1	2003121-181	LOGIC MODULE A20	31
1	1	2003121-171	LOGIC MODULE A19	30
1	1	2003121-161	LOGIC MODULE A18	29
1	1	2003121-151	LOGIC MODULE A17	28
1	1	2003121-141	LOGIC MODULE A16	27
1	1	2003121-131	LOGIC MODULE A15	26
1	1	2003121-121	LOGIC MODULE A14	25
1	1	2003121-111	LOGIC MODULE A13	24
1	1	2003121-091	LOGIC MODULE A12	23
4	4	2003121-081	LOGIC MODULE A8-11	22
1	1	2003121-071	LOGIC MODULE A7	21
1	1	2003121-061	LOGIC MODULE A6	20
1	1	2003121-051	LOGIC MODULE A5	19
1	1	2003121-041	LOGIC MODULE A4	18
1	1	2003121-031	LOGIC MODULE A3	17
1	1	2003121-021	LOGIC MODULE A2	16
1	1	2003121-011	LOGIC MODULE A1	15
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1	1	2003982-021	SENSE AMPL MOD, ERASABLE MEMORY B13	12
1	1	2003111-021	ERASABLE MEMORY MODULE B12	11
1	1	2003026-031	CURRENT SWITCH MODULE B11	10
2	2	2003114-021	ERASABLE DRIVER MODULE B9-10	9
1	1	2003983-021	ALARM MODULE B8	8
1	1	2003036-031	OSCILLATOR MODULE B7	7
1	1	2003978-001	MID SPACER	6
1	1	2003059-021	INTERCONNECTION HEADER ASSEMBLY	5
1	1	2003976-011	TRAY B COVER	4
1	1	2003977-011	TRAY A COVER	3
1	1	2003093-011	TRAY B WIRED ASSEMBLY	2
—	1	2003092-031	TRAY A WIRED ASSEMBLY	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003991	

APPLICATION

UNLESS OTHERWISE SPECIFIED
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CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN R.E. Hoyt
CHECKED
APPROVED
APPROVED
APPROVED NAA
APPROVED MSC
DATE

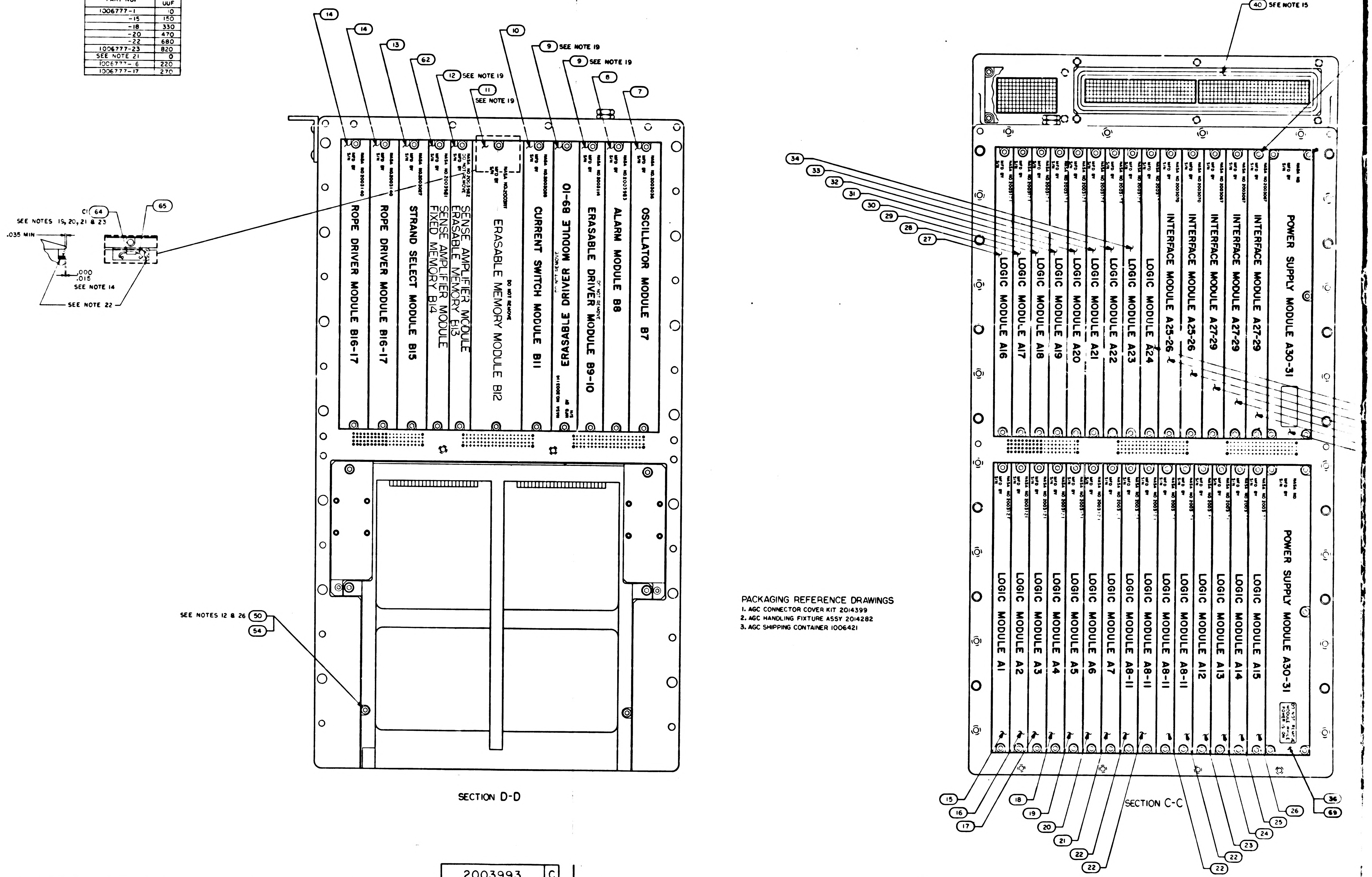
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER ASSEMBLY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003993
SCALE 1/1
SHEET 1 OF 2

F 2 / 2

CI	
PART NO.	VALUE UUF
1006777-1	10
-15	150
-18	330
-20	470
-22	680
1006777-23	820
SEE NOTE 21	0
1006777-16	220
1006777-17	270


SEE NOTES 19, 20, 21 & 23
C1 64
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.035 MIN
.000
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SEE NOTE 14
SEE NOTE 22
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12 SEE NOTE 19
11 SEE NOTE 19
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9 SEE NOTE 19
9 SEE NOTE 19
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7
ROPE DRIVER MODULE B16-17
ROPE DRIVER MODULE B16-17
STRAND SELECT MODULE B15
SENSE AMPLIFIER MODULE FIXED MEMORY B14
SENSE AMPLIFIER MODULE ERASABLE MEMORY B13
DO NOT REMOVE
ERASABLE MEMORY MODULE B12
DO NOT REMOVE
CURRENT SWITCH MODULE B11
ERASABLE DRIVER MODULE B9-10
DO NOT REMOVE
ERASABLE DRIVER MODULE B9-10
DO NOT REMOVE
ALARM MODULE B8
OSCILLATOR MODULE B7
NASA NO.
MFD BY
S/N
SEE NOTES 12 & 26 50
54
SECTION D-D
40 SEE NOTE 15
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LOGIC MODULE A16
LOGIC MODULE A17
LOGIC MODULE A18
LOGIC MODULE A19
LOGIC MODULE A20
LOGIC MODULE A21
LOGIC MODULE A22
LOGIC MODULE A23
LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
DO NOT REMOVE MODULE WHILE POWER IS ON
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SECTION C-C
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69

PACKAGING REFERENCE DRAWINGS
1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
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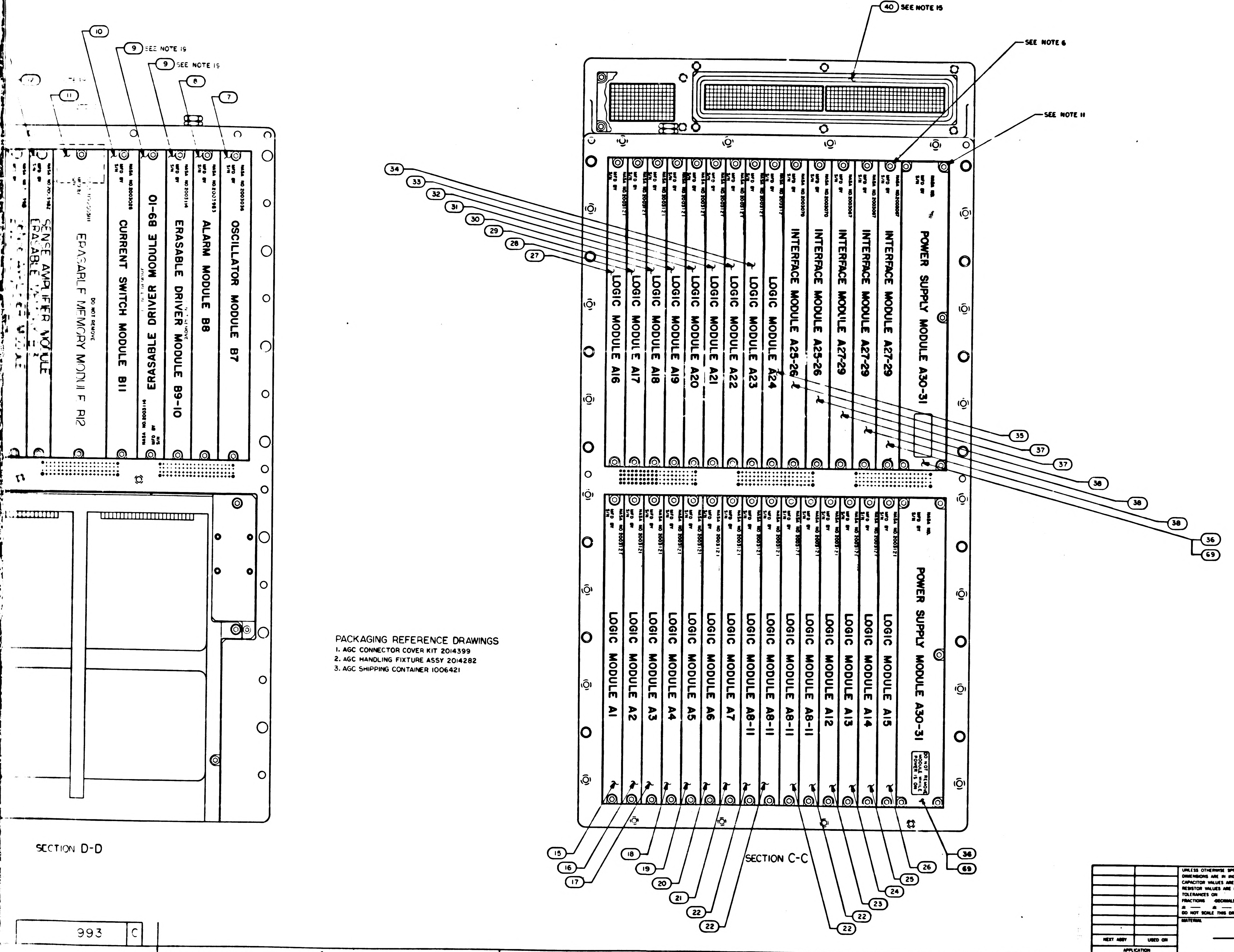
B		RELEASED PER TDRR 32905				
C		REVISED PER TDRR 33300				



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SEE NOTE 6
SEE NOTE 11
10
9 SEE NOTE 19
9 SEE NOTE 19
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7
11
OSCILLATOR MODULE B7
NASA NO 2003036
MFD BY
S/N
ALARM MODULE B8
NASA NO 2003983
ERASABLE DRIVER MODULE B9-10
NASA NO 2003114
DO NOT REMOVE
ERASABLE DRIVER MODULE B9-10
CURRENT SWITCH MODULE B11
NASA NO 2003028
ERASABLE MEMORY MODULE R12
DO NOT REMOVE
SENSE AMPLIFIER MODULE
ERASABLE
POWER SUPPLY MODULE A30-31
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
LOGIC MODULE A24
LOGIC MODULE A23
LOGIC MODULE A22
LOGIC MODULE A21
LOGIC MODULE A20
LOGIC MODULE A19
LOGIC MODULE A18
LOGIC MODULE A17
LOGIC MODULE A16
POWER SUPPLY MODULE A30-31
DO NOT REMOVE MODULE WHILE POWER IS ON
LOGIC MODULE A15
LOGIC MODULE A14
LOGIC MODULE A13
LOGIC MODULE A12
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A7
LOGIC MODULE A6
LOGIC MODULE A5
LOGIC MODULE A4
LOGIC MODULE A3
LOGIC MODULE A2
LOGIC MODULE A1
NASA NO 2003121
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23
24
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26
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69
SECTION D-D
SECTION C-C

PACKAGING REFERENCE DRAWINGS
1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING
MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN A Wapia 2-3 Aug 66
CHECKED 2 Aug 66
APPROVED
APPROVED Eldon C Hall
APPROVED 1/6/67
APPROVED
MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

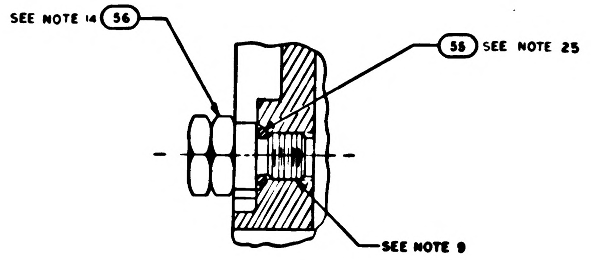
COMPUTER
ASSEMBLY

CODE IDENT NO 80230
SIZE J
DRAWING NO. 2003993
SCALE 1/1
SHEET 2 OF 2

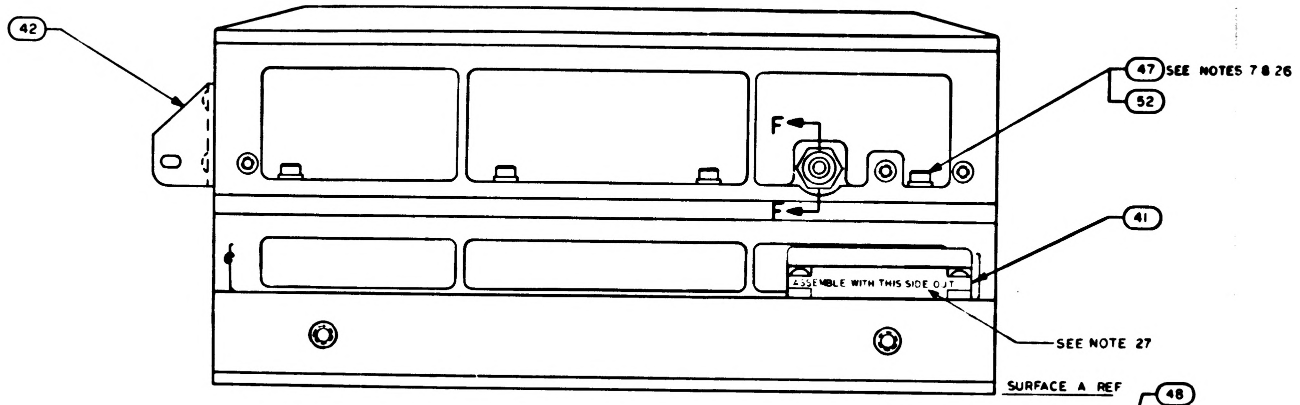
993 C

2003993

F 2/2


SEE NOTE 14 56
55 SEE NOTE 25
SEE NOTE 9

PARTIAL SECTION F F
SCALE: 2/1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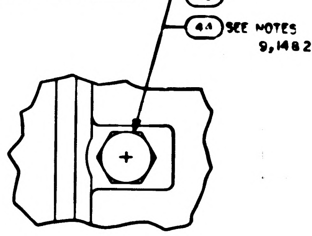
47 SEE NOTES 7 & 26
52
41
ASSEMBLE WITH THIS SIDE OUT
SEE NOTE 27
SURFACE A REF

VIEW B-B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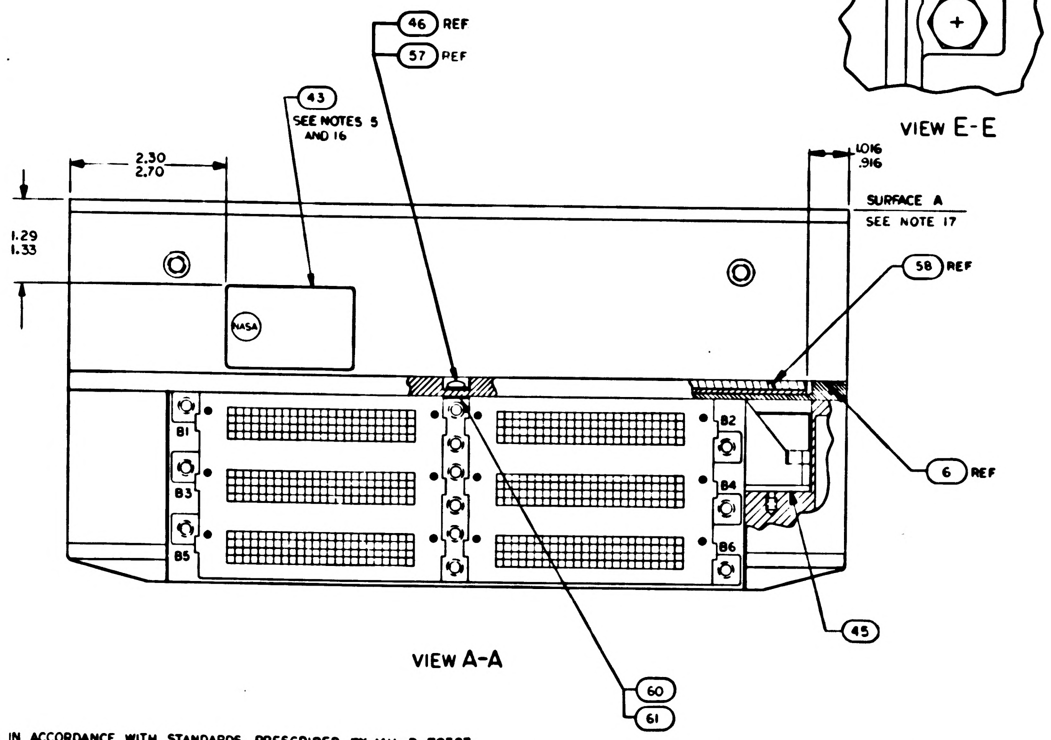
44 SEE NOTES 9,14 & 25

VIEW E-E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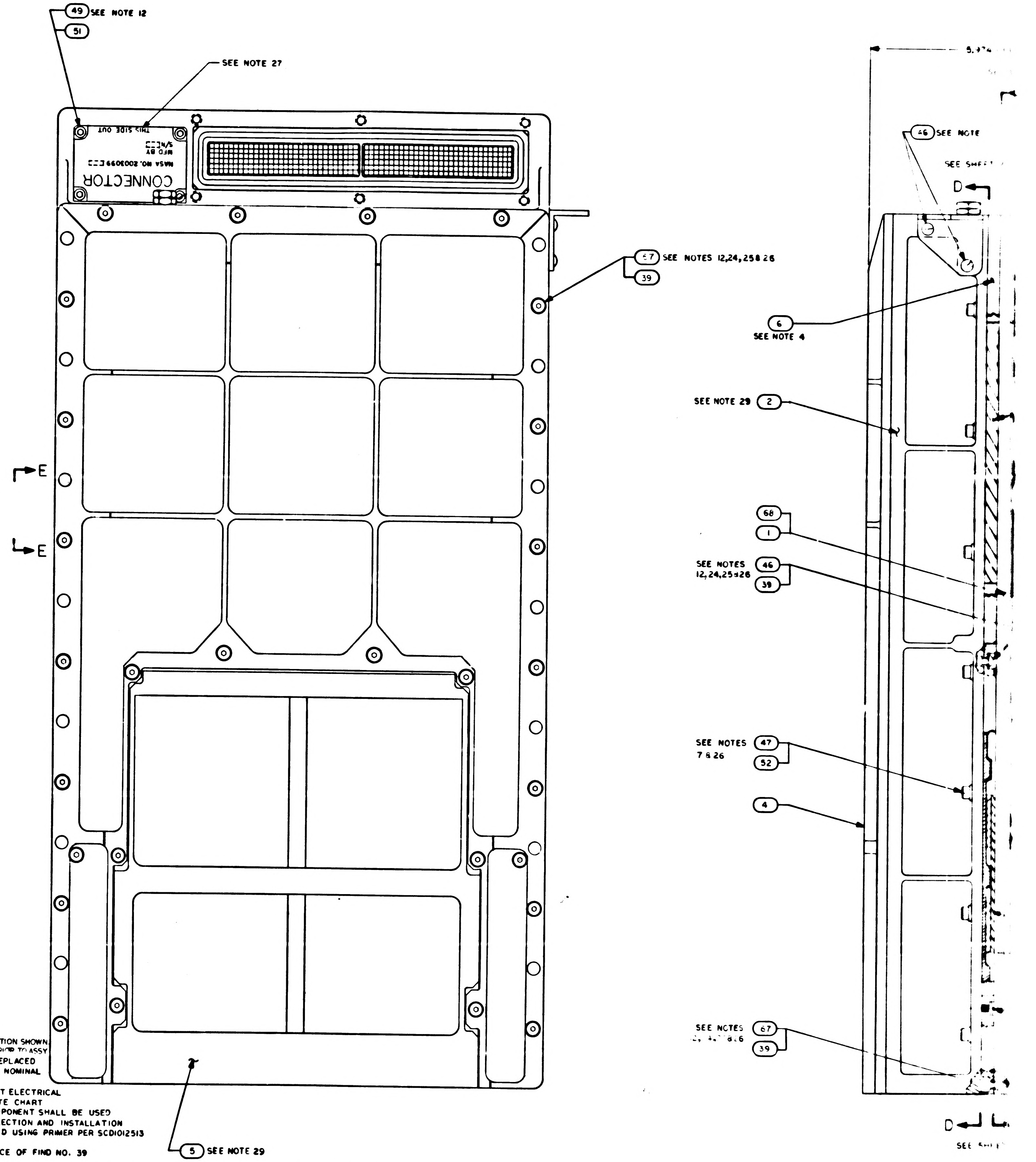
57 REF
43 SEE NOTES 5 AND 16
2.30
2.70
1.29
1.33
1.016
.916
SURFACE A
SEE NOTE 17
58 REF
NASA
B1
B2
B3
B4
B5
B6
6 REF
45
60
61

VIEW A-A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SEE NOTE 27
CONNECTOR
NASA NO. 2003099
MFD BY
S/N
THIS SIDE OUT
67 SEE NOTES 12,24,25 & 26
39
E
E
5 SEE NOTE 29
46 SEE NOTE
D
6
SEE NOTE 4
SEE NOTE 29 2
68
1
SEE NOTES 12,24,25 & 26 46
39
SEE NOTES 7 & 26 47
52
4
SEE NOTES 67
39
D

NOTES:

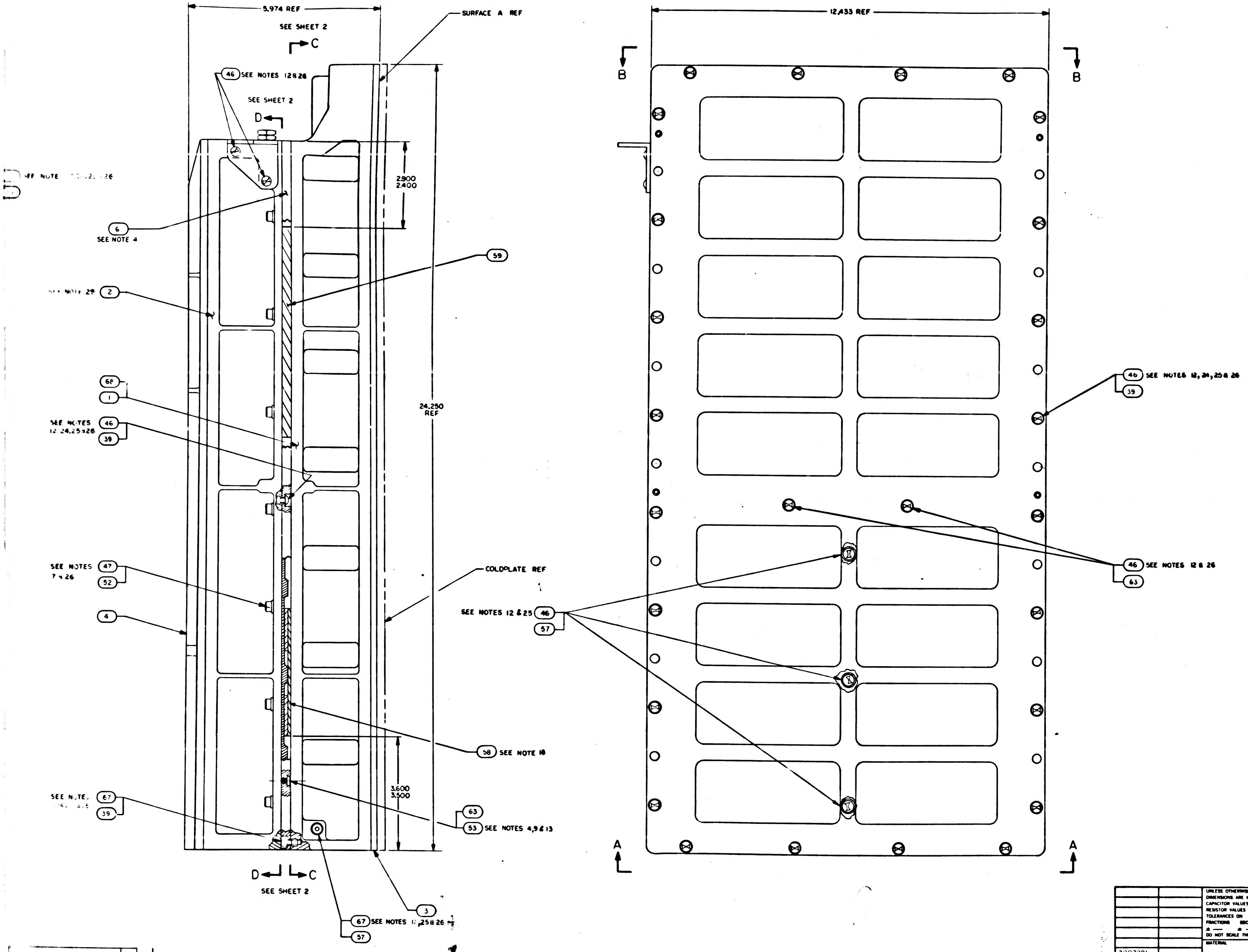
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. PHANTOM LINES DENOTE AGC COLDPLATE AND HANDLING FIXTURE TO BE SUPPLIED BY NORTH AMERICAN AVIATION, INC
3. ADD SILICONE COMPOUND 1006879 TO MODULE MATING METAL SURFACES AND TRAY MATING SURFACES
4. ASSEMBLE FIND NO.53 AND FIND NO.63 TO FIND NO.6 AND FIND NO.6 TO FIND NO.2 PRIOR TO ASSEMBLY OF FIND NO.2 TO FIND NO.1 & FIND NO 68
5. BOND FIND NO.43 TO FIND NO.1 AND FIND NO.68 PER ND1002004 TYPE IV
6. UNLESS OTHERWISE SPECIFIED TORQUE ALL MODULE MOUNTING SCREWS 15/19 INCH POUNDS
7. TORQUE FIND NO.47 TO 28/32 INCH POUNDS
8. FINISH IS REQUIRED TO SATISFY ICD GAEC 510-10001
9. APPLY SEALING COMPOUND MIL-S-22473 GRADE H TO FIND NO.53, FIND NO.56 AND FIND NO.44
10. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2016007
11. TORQUE FOR FIND NO.36 AND FIND NO 69 MOUNTING SCREWS TO BE 4/6 INCH POUNDS
12. TORQUE FOR FIND NO. 46,49,50 AND 67 TO BE 18/22 INCH POUNDS
13. TORQUE FOR FIND NO.53 TO BE 4/6 INCH POUNDS
14. TORQUE FOR FIND NO. 44 AND FIND NO. 56 TO BE 137/157 INCH POUNDS
15. FIND NO. 40 SHALL BE SUPPLIED AS PART OF THIS ASSEMBLY
16. MARK COMPUTER ASSEMBLY AND RELATED PART NO., APPLICABLE DASH NO., SERIAL NO. AND CONTRACT NO. PER 1004260 AND SERIALIZE PER ND1002023
17. FINISH SURFACE -A- PER ICD NAA MH01-01302-116 THIS ASSEMBLY MUST BE CAPABLE OF MEETING ELECTRICAL BONDING REQUIREMENTS OF ICD NAA MH01-01302-116
18. BOND FIND NO. 58 TO FIND NO. 6 IN POSITION SHOWN USING 1006338, CURE AT ROOM TEMP 24 HRS PRIOR TO ASSY
19. REFERENCED MODULES MUST NOT BE REPLACED OR INTERCHANGED WITHOUT REPEATING NOMINAL SELECTION PROCEDURE PER NOTE 10
20. THE VALUE OF C1 TO BE DETERMINED AT ELECTRICAL TEST AND SELECTED FROM APPROPRIATE CHART
21. WHEN THE VALUE OF C1 IS ZERO NO COMPONENT SHALL BE USED
22. ENCAPSULATE AREA SHOWN AFTER SELECTION AND INSTALLATION OF C1 USING ND1002009 METHOD C OR D USING PRIMER PER SCD1012513
23. WELD PER ND1002005
24. ASSEMBLE HARDWARE WITH SMOOTH FACE OF FIND NO. 39 IN CONTACT WITH SCREW HEAD
25. FIND NO.39, 48, 55 & 57 TO BE DISCARDED AND REPLACED WITH NEW PARTS EACH TIME THEY ARE DISASSEMBLED
26. SEAL EXPOSED HARDWARE ASSEMBLIES WITH .002 MIN THICK COATING OF FIND NO. 66. OVERALL COMPUTER ASSEMBLY DIMENSIONS SHALL NOT BE EXCEEDED. CURE AT ROOM TEMP 24 HRS.
27. STENCILING SHOWN FOR ORIENTATION ONLY
28. KEEP ALL MATING THREADS OF SCREWS, TRAY AND MID SPACER INSERTS FREE OF SILICONE COMPOUND
29. FILL FEMALE INSULATORS OF B41 AND B42 CONNECTORS USING FIND NO. 70 PRIOR TO ASSEMBLY OF FIND NO.5 TO FIND NO.2

200399 D

SH 1/2 F 1/2

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		INITIAL RELEASE TDRR 32558				
B		REVISED PER TDRR 32965				
C		REVISED PER TDRR 333[illegible]				
D		REVISED PER TDRR 333[illegible]				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SEE SHEET 2
C
SURFACE A REF
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SEE SHEET 2
D
SEE NOTE [illegible] 24, 25 & 26
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SEE NOTE 4
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2.400
59
SEE NOTE 29
2
68
1
SEE NOTES 12, 24, 25 & 26
46
39
24.250 REF
SEE NOTES 7 & 26
47
52
COLDPLATE REF
4
58 SEE NOTE 18
3.600
3.500
SEE NOTES
67
39
63
53 SEE NOTES 4, 9 & 13
D
C
SEE SHEET 2
3
67 SEE NOTES 12, 25 & 26
57
12.433 REF
B
B
46 SEE NOTES 12, 24, 25 & 26
39
46 SEE NOTES 12 & 26
63
SEE NOTES 12 & 25 46
57
A
A
4
3
2
1
D
C
B
A

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
		2005944	AGC WIRE LIST	REF
AR	AR	MIL-S-8660	SILICONE COMPOUND	70
2	—	2003892-011	POWER SUPPLY MODULE A30-31	69
1	—	2003092-041	TRAY "A" WIRED ASSY	68
33	33	2004732-002	SCREW, COATED	67
AR	AR	1006338-000	SEALING COMPOUND, SILICONE RUBBER	66
AR	AR	1006776-22	INSULATION, SLEEVING ELECTRICAL	65
1	1	SEE NOTE 20	CAPACITOR	64
10	10	2004148-007	WASHER, FLAT	63
1	1	2003981-021	SENSE AMPLIFIER MODULE, FIXED MEMORY B14	62
AR	AR	2004895-002	SHIM AGC	61
AR	AR	2004895-001	SHIM AGC	60
1	1	2004899-001	PAD VIBRATION	59
1	1	2003970	VIBRATION PAD ASSY	58
4	4	NAS1598-D08N	WASHER, SEALING	57
1	1	2018773	VALVE PRESSURE ASSEMBLY	56
1	1	1000159-5	PACKING, PREFORMED "O" RING	55
2	2	2004984-001	WASHER, FLAT	54
8	8	2004130	PAD, THREADED	53
18	18	2004894-014	WASHER, FLAT	52
4	4	2004894-012	WASHER, FLAT	51
2	2	1001489-36	SCREW, HEX SOCKET HEAD	50
4	4	1004722-2	SCREW, CAPTIVE	49
1	1	1000159-7	PACKING, PREFORMED "O" RING	48
18	18	2004732-003	SCREW, COATED	47
33	33	2004732-001	SCREW, COATED	46
2	2	1006347	GASKET, PLATE	45
1	1	2004986	PLUG, MACHINE THREAD	44
1	1	1004260-19	NAME PLATE, TYPE I	43
1	1	2004113-001	BRACKET, CABLE	42
1	1	2003099-011	CONNECTOR ASSEMBLY	41
1	1	1006380	GASKET, RETAINED	40
58	58	2004707	WASHER, KNURLED	39
3	3	2003067-041	INTERFACE MODULE A27-29	38
2	2	2003070-031	INTERFACE MODULE A25-26	37
—	2	2003887-011	POWER SUPPLY MODULE A30-31	36
1	1	2003121-231	LOGIC MODULE A24	35
1	1	2003121-221	LOGIC MODULE A23	34
1	1	2003121-211	LOGIC MODULE A22	33
1	1	2003121-191	LOGIC MODULE A21	32
1	1	2003121-181	LOGIC MODULE A20	31
1	1	2003121-171	LOGIC MODULE A19	30
1	1	2003121-161	LOGIC MODULE A18	29
1	1	2003121-151	LOGIC MODULE A17	28
1	1	2003121-141	LOGIC MODULE A16	27
1	1	2003121-131	LOGIC MODULE A15	26
1	1	2003121-121	LOGIC MODULE A14	25
1	1	2003121-111	LOGIC MODULE A13	24
1	1	2003121-091	LOGIC MODULE A12	23
4	4	2003121-081	LOGIC MODULE A8-11	22
1	1	2003121-071	LOGIC MODULE A7	21
1	1	2003121-061	LOGIC MODULE A6	20
1	1	2003121-051	LOGIC MODULE A5	19
1	1	2003121-041	LOGIC MODULE A4	18
1	1	2003121-031	LOGIC MODULE A3	17
1	1	2003121-021	LOGIC MODULE A2	16
1	1	2003121-011	LOGIC MODULE A1	15
2	2	2003140-031	ROPE DRIVER MODULE B16-17	14
1	1	2003027-031	STRAND SELECT MODULE B15	13
1	1	2003982-021	SENSE AMPL MOD, ERASABLE MEMORY B13	12
1	1	2003111-021	ERASABLE MEMORY MODULE B12	11
1	1	2003026-031	CURRENT SWITCH MODULE B11	10
2	2	2003114-021	ERASABLE DRIVER MODULE B9-10	9
1	1	2003983-021	ALARM MODULE B8	8
1	1	2003036-031	OSCILLATOR MODULE B7	7
1	1	2003978-001	MID SPACER	6
1	1	2003059-021	INTERCONNECTION HEADER ASSEMBLY	5
1	1	2003976-011	TRAY B COVER	4
1	1	2003977-011	TRAY A COVER	3
1	1	2003093-021	TRAY B WIRED ASSEMBLY	2
—	1	2003092-031	TRAY A WIRED ASSEMBLY	1

LIST OF MATERIALS

2003991	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL
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MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED NASA
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER ASSEMBLY

CODE IDENT NO 80230
SIZE J
DRAWING NO. 2003[illegible]93
SCALE 1/1
SHEET 1 OF 2

[illegible]3 | D

F2/2

C1	
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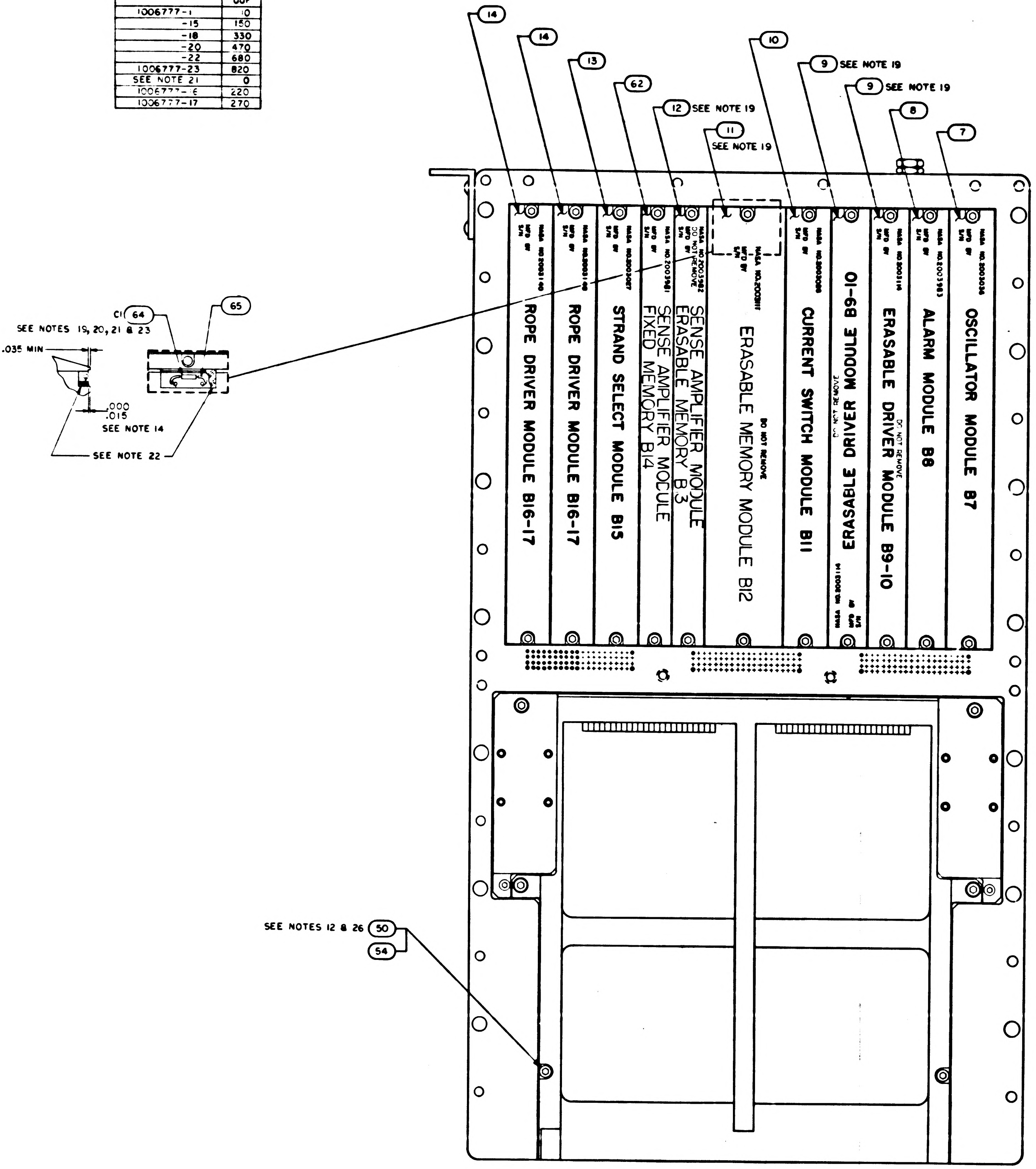
SEE NOTE 21	0
1006777-6	220
1006777-17	270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12 SEE NOTE 19
11 SEE NOTE 19
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9 SEE NOTE 19
9 SEE NOTE 19
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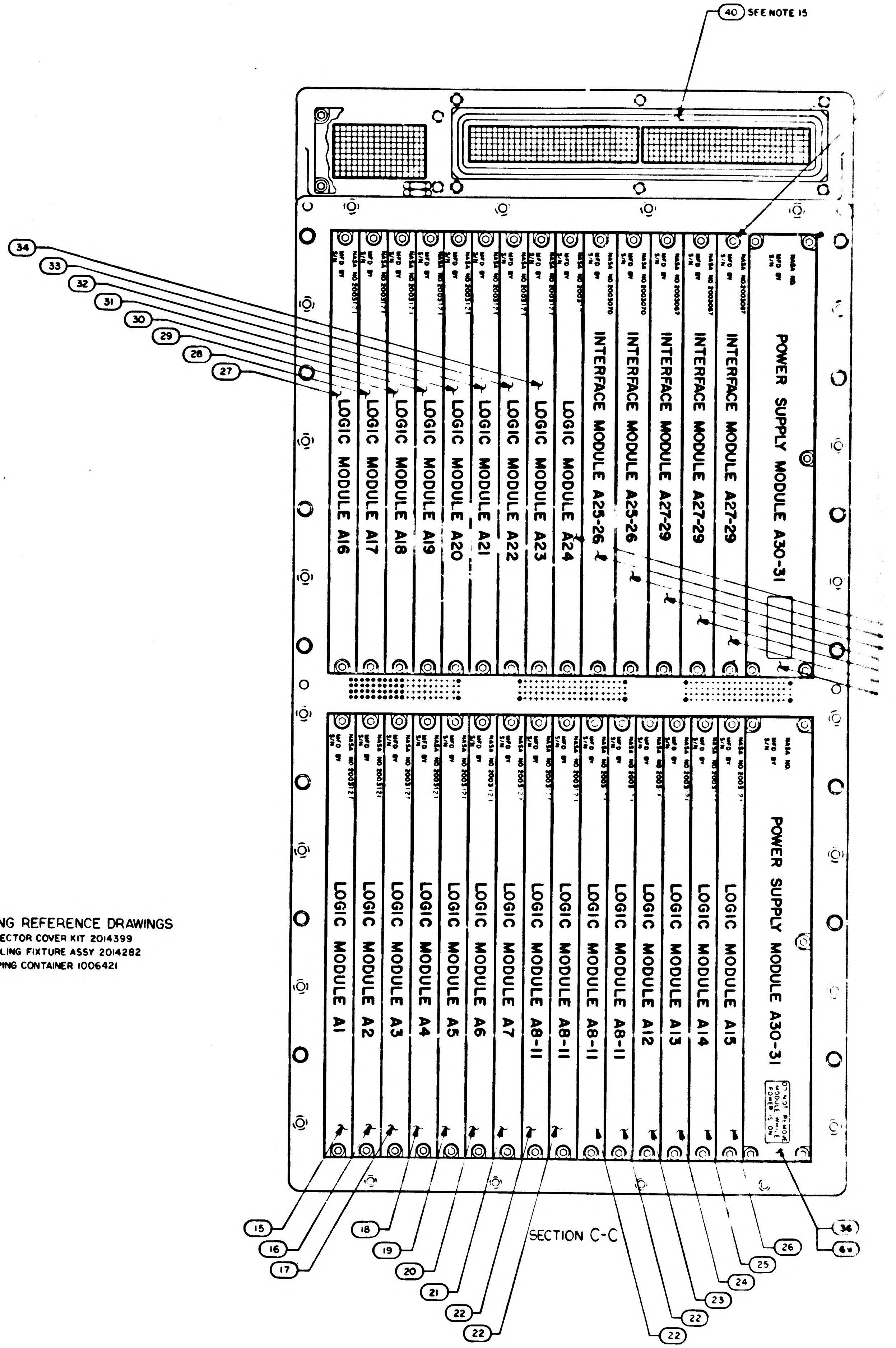
OSCILLATOR MODULE B7
ALARM MODULE B8
ERASABLE DRIVER MODULE B9-10
DO NOT REMOVE
ERASABLE DRIVER MODULE B9-10
CURRENT SWITCH MODULE B11
DO NOT REMOVE
ERASABLE MEMORY MODULE B12
SENSE AMPLIFIER MODULE ERASABLE MEMORY B13
SENSE AMPLIFIER MODULE FIXED MEMORY B14
STRAND SELECT MODULE B15
ROPE DRIVER MODULE B16-17
ROPE DRIVER MODULE B16-17
C1 64
65
SEE NOTES 15, 20, 21 & 23
.035 MIN
.000
.015
SEE NOTE 14
SEE NOTE 22
SEE NOTES 12 & 26
50
54

SECTION D-D

PACKAGING REFERENCE DRAWINGS

1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421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POWER SUPPLY MODULE A30-31
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
LOGIC MODULE A24
LOGIC MODULE A23
LOGIC MODULE A22
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LOGIC MODULE A19
LOGIC MODULE A18
LOGIC MODULE A17
LOGIC MODULE A16
POWER SUPPLY MODULE A30-31
LOGIC MODULE A15
LOGIC MODULE A14
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LOGIC MODULE A12
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A7
LOGIC MODULE A6
LOGIC MODULE A5
LOGIC MODULE A4
LOGIC MODULE A3
LOGIC MODULE A2
LOGIC MODULE A1
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SECTION C-C

REVISIONS						
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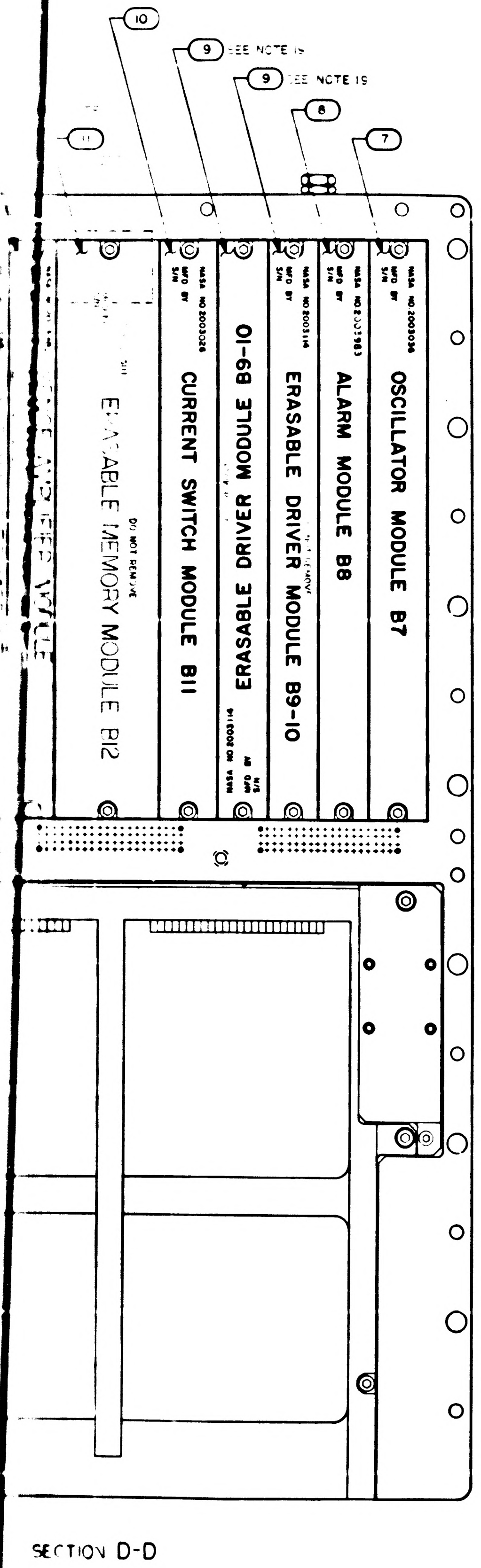
C		REVISED PER TDRR 33[illegible]				
D		REVISED PER TDRR 333C6				



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9 SEE NOTE 19
9 SEE NOTE 19
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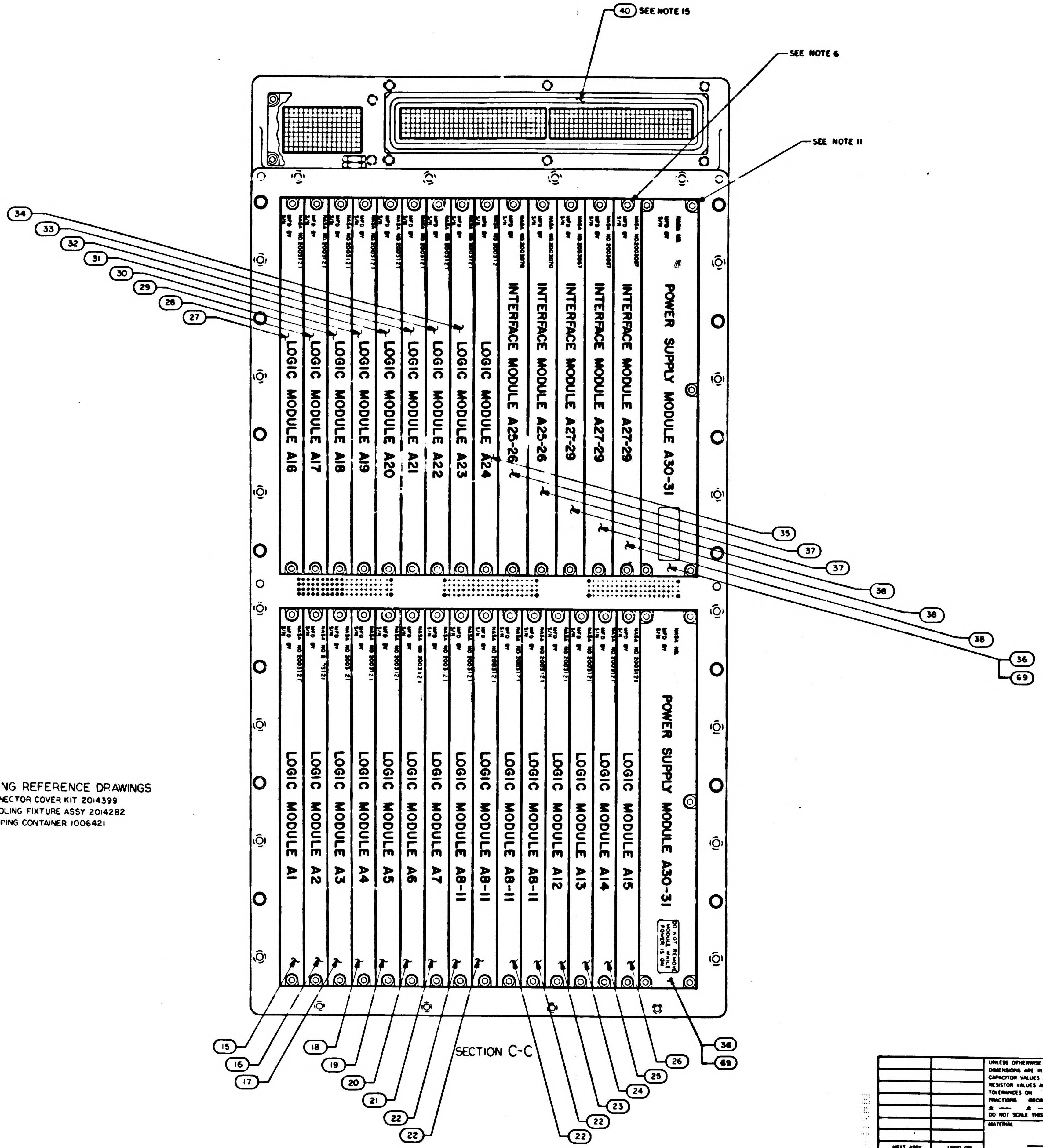
OSCILLATOR MODULE B7
NASA NO 2003036
MFD BY
S/N
ALARM MODULE B8
NASA NO 2001983
ERASABLE DRIVER MODULE B9-10
NASA NO 2003114
ERASABLE DRIVER MODULE B9-10
NASA NO 2003114
CURRENT SWITCH MODULE B11
NASA NO 2003026
ERASABLE MEMORY MODULE B12
DO NOT REMOVE

SECTION D-D

PACKAGING REFERENCE DRAWINGS
1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421



40 SEE NOTE 15
SEE NOTE 6
SEE NOTE 11
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LOGIC MODULE A16
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LOGIC MODULE A19
LOGIC MODULE A20
LOGIC MODULE A21
LOGIC MODULE A22
LOGIC MODULE A23
LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
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LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
DO NOT REMOVE MODULE WHILE POWER IS ON
15
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36
69

SECTION C-C

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
	LIST OF MATERIALS		

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL
—

NEXT ASSY	USED ON
APPLICATION	

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED
APPROVED
MSC

COMPUTER
ASSEMBLY

CODE IDENT NO	SIZE	DRAWING NO.
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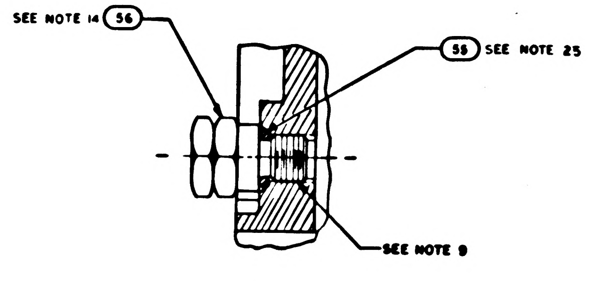
SCALE 1/1		SHEET 2 OF 2

2003993 D

F 2/2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55 SEE NOTE 25
SEE NOTE 9

PARTIAL SECTION F F
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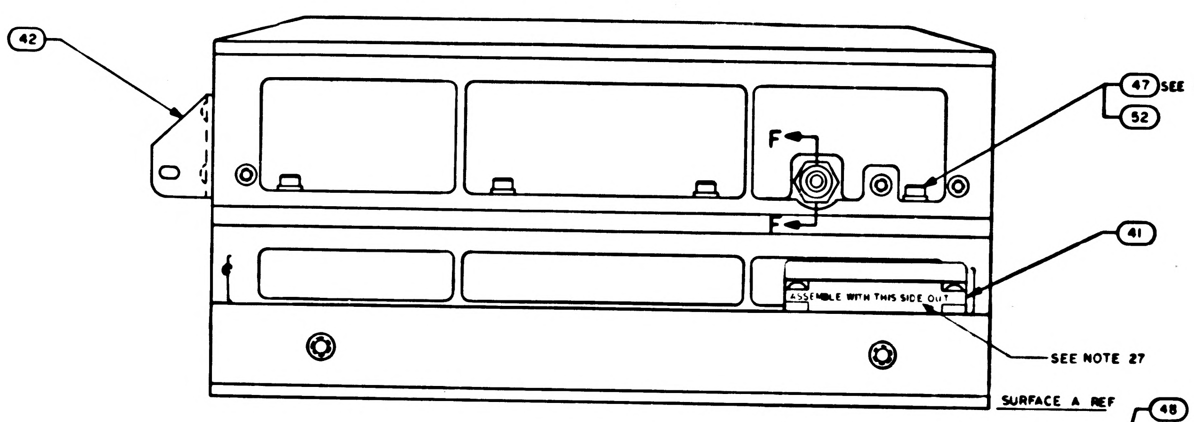
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47 SEE NOTES 7 & 26
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F
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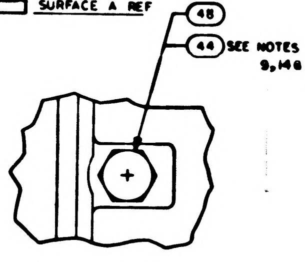
ASSEMBLE WITH THIS SIDE OUT
SEE NOTE 27
SURFACE A REF

VIEW B-B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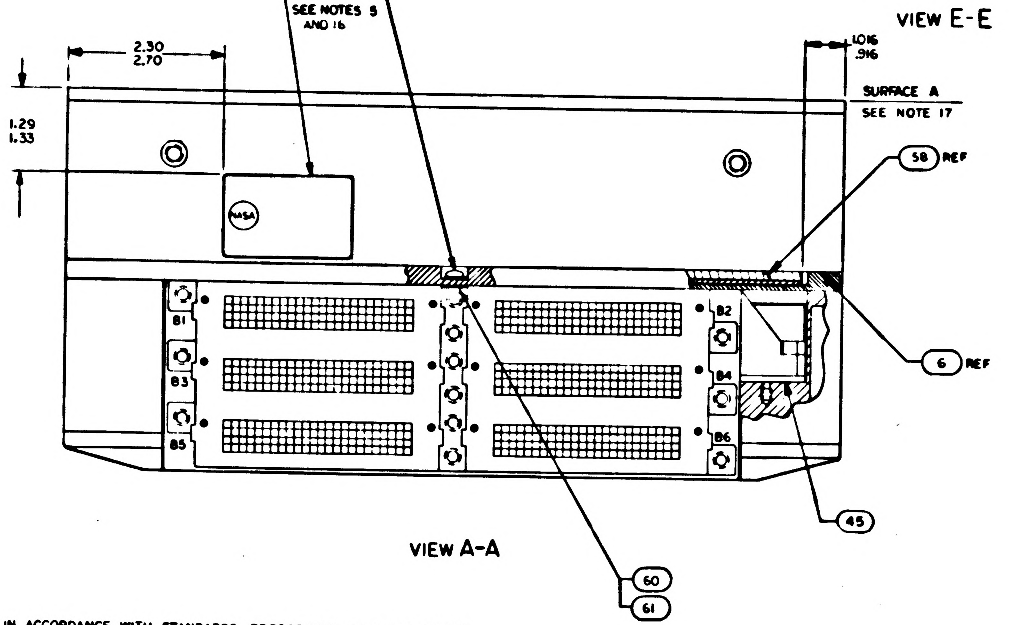
44 SEE NOTES 9,14 & 25

VIEW E-E


46 REF
57 REF
43
SEE NOTES 5 AND 16
2.30
2.70
1.016
.916
SURFACE A
SEE NOTE 17
1.29
1.33
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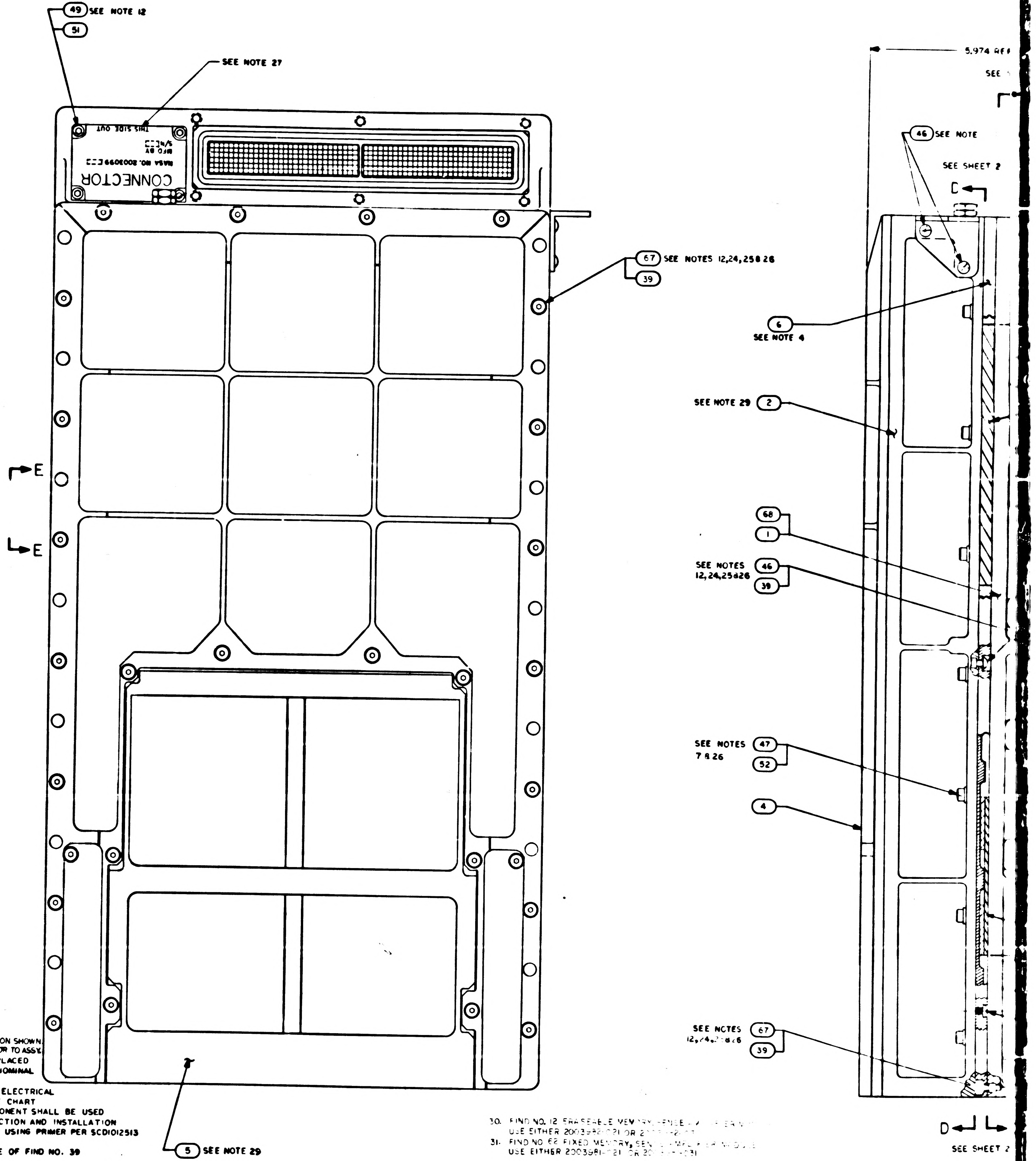
NASA
B1
B2
B3
B4
B5
B6
6 REF
45
60
61

VIEW A-A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51
SEE NOTE 27
THIS SIDE OUT
CONNECTOR
NASA NO. 2003099
67 SEE NOTES 12,24,25 & 26
39
E
E
5 SEE NOTE 29
5.974 REF
SEE
46 SEE NOTE
SEE SHEET 2
C
6
SEE NOTE 4
SEE NOTE 29 2
68
1
SEE NOTES 12,24,25 & 26 46
39
SEE NOTES 7 & 26 47
52
4
SEE NOTES 12,24,25 & 26 67
39
D
SEE SHEET 2

NOTES:

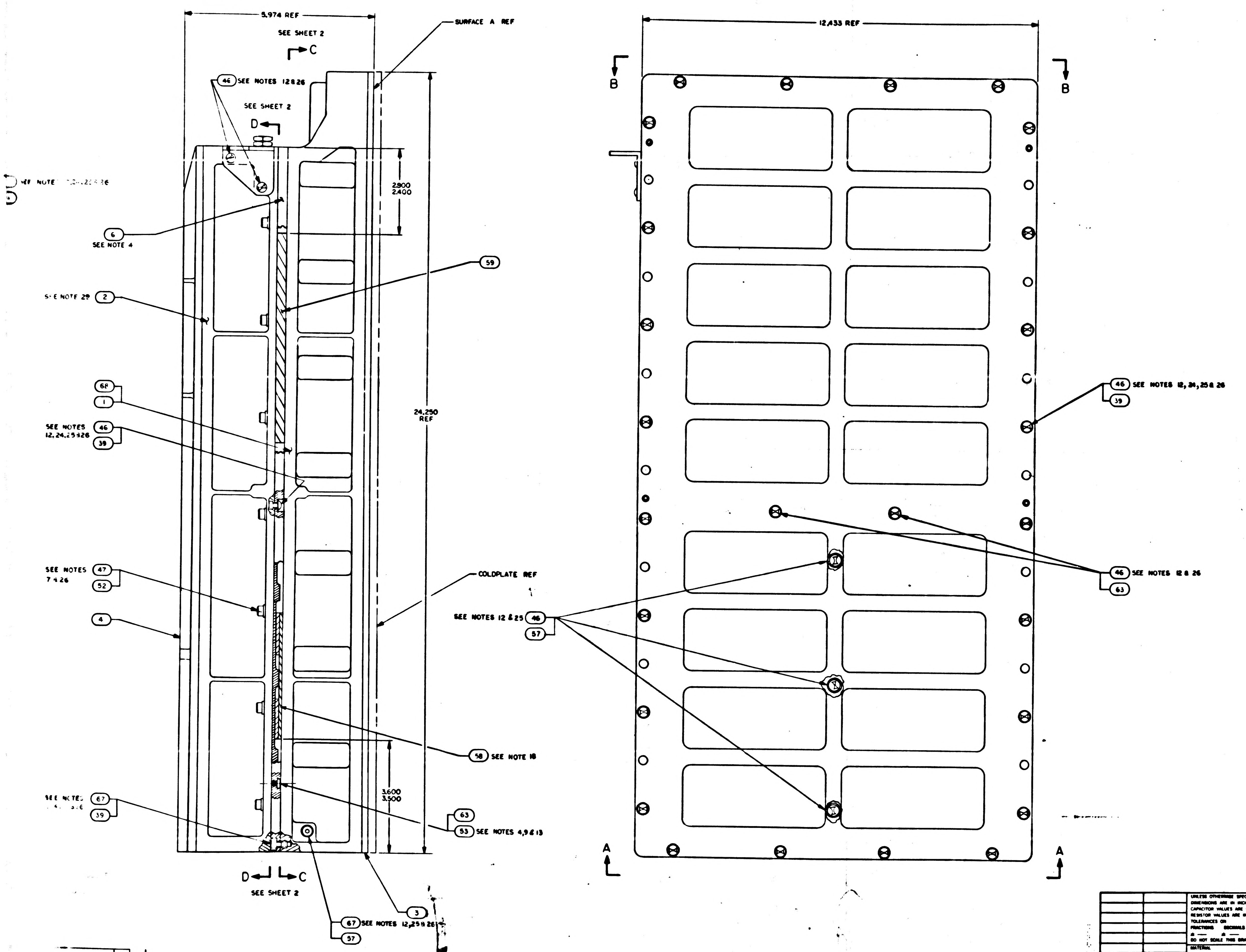
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. PHANTOM LINES DENOTE AGC COLDPLATE AND HANDLING FIXTURE TO BE SUPPLIED BY NORTH AMERICAN AVIATION, INC
3. ADD SILICONE COMPOUND 1006879 TO MODULE MATING METAL SURFACES AND TRAY MATING SURFACES
4. ASSEMBLE FIND NO.53 AND FIND NO.63 TO FIND NO.6 AND FIND NO.6 TO FIND NO.2 PRIOR TO ASSEMBLY OF FIND NO.2 TO FIND NO.1 & FIND NO 68
5. BOND FIND NO.43 TO FIND. NO.1 AND FIND NO.68 PER ND1002004 TYPE IV
6. UNLESS OTHERWISE SPECIFIED TORQUE ALL MODULE MOUNTING SCREWS 15/19 INCH POUNDS
7. TORQUE FIND NO.47 TO 28/32 INCH POUNDS
8. FINISH IS REQUIRED TO SATISFY ICD GAEC 510-10001
9. APPLY SEALING COMPOUND MIL-S-22473 GRADE H TO FIND NO.53, FIND NO.56 AND FIND NO. 44
10. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2016007
11. TORQUE FOR FIND NO.36 AND FIND NO 69 MOUNTING SCREWS TO BE 4/6 INCH POUNDS
12. TORQUE FOR FIND NO. 46,49,50 AND 67 TO BE 18/22 INCH POUNDS
13. TORQUE FOR FIND NO. 53 TO BE 4/6 INCH POUNDS
14. TORQUE FOR FIND NO. 44 AND FIND NO. 56 TO BE 137/157 INCH POUNDS
15. FIND NO. 40 SHALL BE SUPPLIED AS PART OF THIS ASSEMBLY
16. MARK COMPUTER ASSEMBLY AND RELATED PART NO., APPLICABLE DASH NO., SERIAL NO. AND CONTRACT NO. PER 1004260 AND SERIALIZE PER ND1002023
17. FINISH SURFACE -A- PER ICD NAA MH01-01302-116 THIS ASSEMBLY MUST BE CAPABLE OF MEETING ELECTRICAL BONDING REQUIREMENTS OF ICD NAA MH01-01302-116
18. BOND FIND NO. 58 TO FIND NO. 6 IN POSITION SHOWN USING 1006338, CURE AT ROOM TEMP 24 HRS PRIOR TO ASSY.
19. REFERENCED MODULES MUST NOT BE REPLACED OR INTERCHANGED WITHOUT REPEATING NOMINAL SELECTION PROCEDURE PER NOTE 10
20. THE VALUE OF C TO BE DETERMINED AT ELECTRICAL TEST AND SELECTED FROM APPROPRIATE CHART
21. WHEN THE VALUE OF C1 IS ZERO NO COMPONENT SHALL BE USED
22. ENCAPSULATE AREA SHOWN AFTER SELECTION AND INSTALLATION OF C1 USING ND1002009 METHOD C OR D USING PRIMER PER SCD1012513
23. WELD PER ND1002005
24. ASSEMBLE HARDWARE WITH SMOOTH FACE OF FIND NO. 39 IN CONTACT WITH SCREW HEAD
25. FIND NO.39, 48, 55 & 57 TO BE DISCARDED AND REPLACED WITH NEW PARTS EACH TIME THEY ARE DISASSEMBLED
26. SEAL EXPOSED HARDWARE ASSEMBLIES WITH .002 MIN THICK COATING OF FIND NO.66. OVERALL COMPUTER ASSEMBLY DIMENSIONS SHALL NOT BE EXCEEDED. CURE AT ROOM TEMP 24 HRS
27. STENCILING SHOWN FOR ORIENTATION ONLY
28. KEEP ALL MATING THREADS OF SCREWS, TRAY AND MID SPACER INSERTS FREE OF SILICONE COMPOUND
29. FILL FEMALE INSULATORS OF B41 AND B42 CONNECTORS USING FIND NO. 70 PRIOR TO ASSEMBLY OF FIND NO.5 TO FIND NO.2
30. FIND NO. 12 ERASEABLE MEMORY, SENSE [illegible] USE EITHER 2003982-021 OR [illegible]
31. FIND NO 62 FIXED MEMORY, SENSE [illegible] USE EITHER 2003981-021 OR [illegible]

2003993 E

SH1/2 E1/2

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		INITIAL RELEASE TDRR 32552				
B		REVISED PER TDRR 32965				
C		REVISED PER TDRR 33[illegible]				
D		REVISED PER TDRR [illegible]				
E		REVISED PER TDRR 3[illegible]5				


4
3
2
1
5.974 REF
SEE SHEET 2
C
SURFACE A REF
46 SEE NOTES 12 & 26
SEE SHEET 2
D
REF NOTES 12,24,25 & 26
2.900
2.400
6
SEE NOTE 4
59
SEE NOTE 29
2
68
1
SEE NOTES 12,24,25 & 26
46
39
24.250 REF
COLDPLATE REF
SEE NOTES 7 & 26
47
52
4
58 SEE NOTE 18
3.600
3.500
SEE NOTES
67
39
63
53 SEE NOTES 4,9 & 13
D C
SEE SHEET 2
3
67 SEE NOTES 12,25 & 26
57
12.433 REF
B
B
46 SEE NOTES 12, 24, 25 & 26
39
46 SEE NOTES 12 & 26
63
SEE NOTES 12 & 25
46
57
A
A
D
C
B
A

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	☒	2005944	AGC WIRE LIST	REF
AR	AR	MIL-S-8660	SILICONE COMPOUND	70
2	—	2003892-011	POWER SUPPLY MODULE A30-31	69
1	—	2003092-041	TRAY "A" WIRED ASSY	68
33	33	2004732-002	SCREW, COATED	67
AR	AR	1006338-000	SEALING COMPOUND, SILICONE RUBBER	66
AR	AR	1006776-22	INSULATION, SLEEVING ELECTRICAL	65
1	1	SEE NOTE 20	CAPACITOR	64
10	10	2004148-007	WASHER, FLAT	63
1	1	[illegible]	SENSE AMPLIFIER MODULE, FIXED MEMORY B14	62
AR	AR	2004895-002	SHIM AGC	61
AR	AR	2004895-001	SHIM AGC	60
1	1	2004899-001	PAD VIBRATION	59
1	1	2003970	VIBRATION PAD ASSY	58
4	4	NAS1598-008N	WASHER, SEALING	57
1	1	2018773	VALVE PRESSURE ASSEMBLY	56
1	1	1000159-5	PACKING, PREFORMED "O" RING	55
2	2	2004984-001	WASHER, FLAT	54
8	8	2004130	PAD, THREADED	53
18	18	2004894-014	WASHER, FLAT	52
4	4	2004894-012	WASHER, FLAT	51
2	2	100.489-36	SCREW, HEX SOCKET HEAD	50
4	4	1004722-2	SCREW, CAPTIVE	49
1	1	1000159-7	PACKING, PREFORMED "O" RING	48
18	18	2004732-003	SCREW, COATED	47
33	33	2004732-001	SCREW, COATED	46
2	2	1006347	GASKET, PLATE	45
1	1	2004986	PLUG, MACHINE THREAD	44
1	1	1004260-19	NAME PLATE, TYPE I	43
1	1	2004113-001	BRACKET, CABLE	42
1	1	2003099-011	CONNECTOR ASSEMBLY	41
1	1	1006380	GASKET, RETAINED	40
58	58	2004707	WASHER, KNURLED	39
3	3	2003067-041	INTERFACE MODULE A27-29	38
2	2	2003070-031	INTERFACE MODULE A25-26	37
—	2	2003887-011	POWER SUPPLY MODULE A30-31	36
1	1	2003121-231	LOGIC MODULE A24	35
1	1	2003121-221	LOGIC MODULE A23	34
1	1	2003121-211	LOGIC MODULE A22	33
1	1	2003121-191	LOGIC MODULE A21	32
1	1	2003121-181	LOGIC MODULE A20	31
1	1	2003121-171	LOGIC MODULE A19	30
1	1	2003121-161	LOGIC MODULE A18	29
1	1	2003121-151	LOGIC MODULE A17	28
1	1	2003121-141	LOGIC MODULE A16	27
1	1	2003121-131	LOGIC MODULE A15	26
1	1	2003121-121	LOGIC MODULE A14	25
1	1	2003121-111	LOGIC MODULE A13	24
1	1	2003121-091	LOGIC MODULE A12	23
4	4	2003121-081	LOGIC MODULE A8-11	22
1	1	2003121-071	LOGIC MODULE A7	21
1	1	2003121-061	LOGIC MODULE A6	20
1	1	2003121-051	LOGIC MODULE A5	19
1	1	2003121-041	LOGIC MODULE A4	18
1	1	2003121-031	LOGIC MODULE A3	17
1	1	2003121-021	LOGIC MODULE A2	16
1	1	2003121-011	LOGIC MODULE A1	15
2	2	2003140-031	ROPE DRIVER MODULE B16-17	14
1	1	2003027-031	STRAND SELECT MODULE B15	13
1	1	SEE NOTE 20	SENSE AMPL MOD, ERASABLE MEMORY B13	12
1	1	2003111-021	ERASABLE MEMORY MODULE B12	11
1	1	2003026-031	CURRENT SWITCH MODULE B11	10
2	2	2003114-021	ERASABLE DRIVER MODULE B9-10	9
1	1	2003983-021	ALARM MODULE B8	8
1	1	2003036-031	OSCILLATOR MODULE B7	7
1	1	2003978-001	MID SPACER	6
1	1	2003059-021	INTERCONNECTION HEADER ASSEMBLY	5
1	1	2003976-011	TRAY B COVER	4
1	1	2003977-011	TRAY A COVER	3
1	1	2003093-021	TRAY B WIRED ASSEMBLY	2
—	1	2003092-031	TRAY A WIRED ASSEMBLY	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003991	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED NASA
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER ASSEMBLY

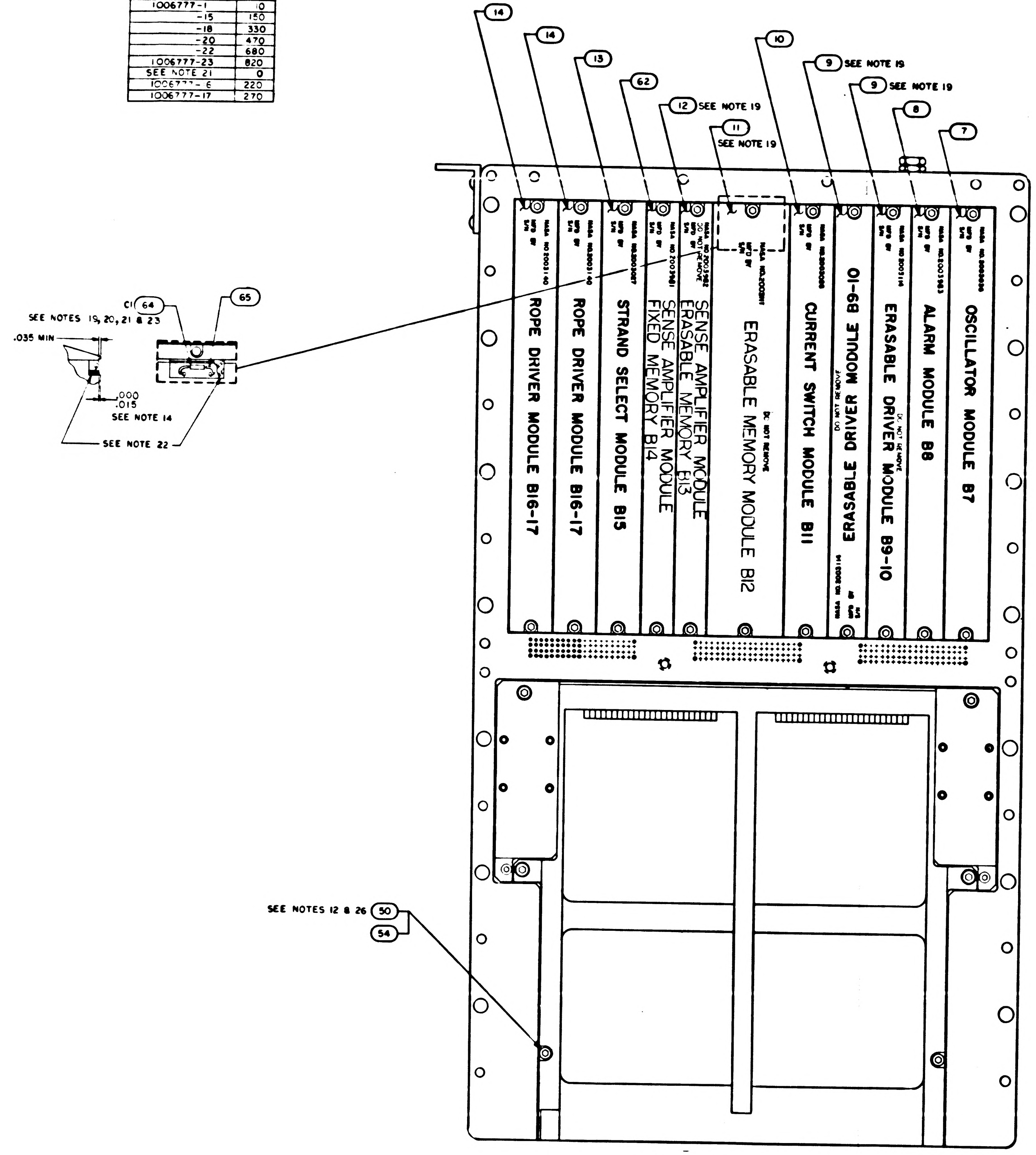
CODE IDENT NO 80230
SIZE J
DRAWING NO. 2003993
SCALE 1/1
SHEET 1 OF 2

2003993

3 E

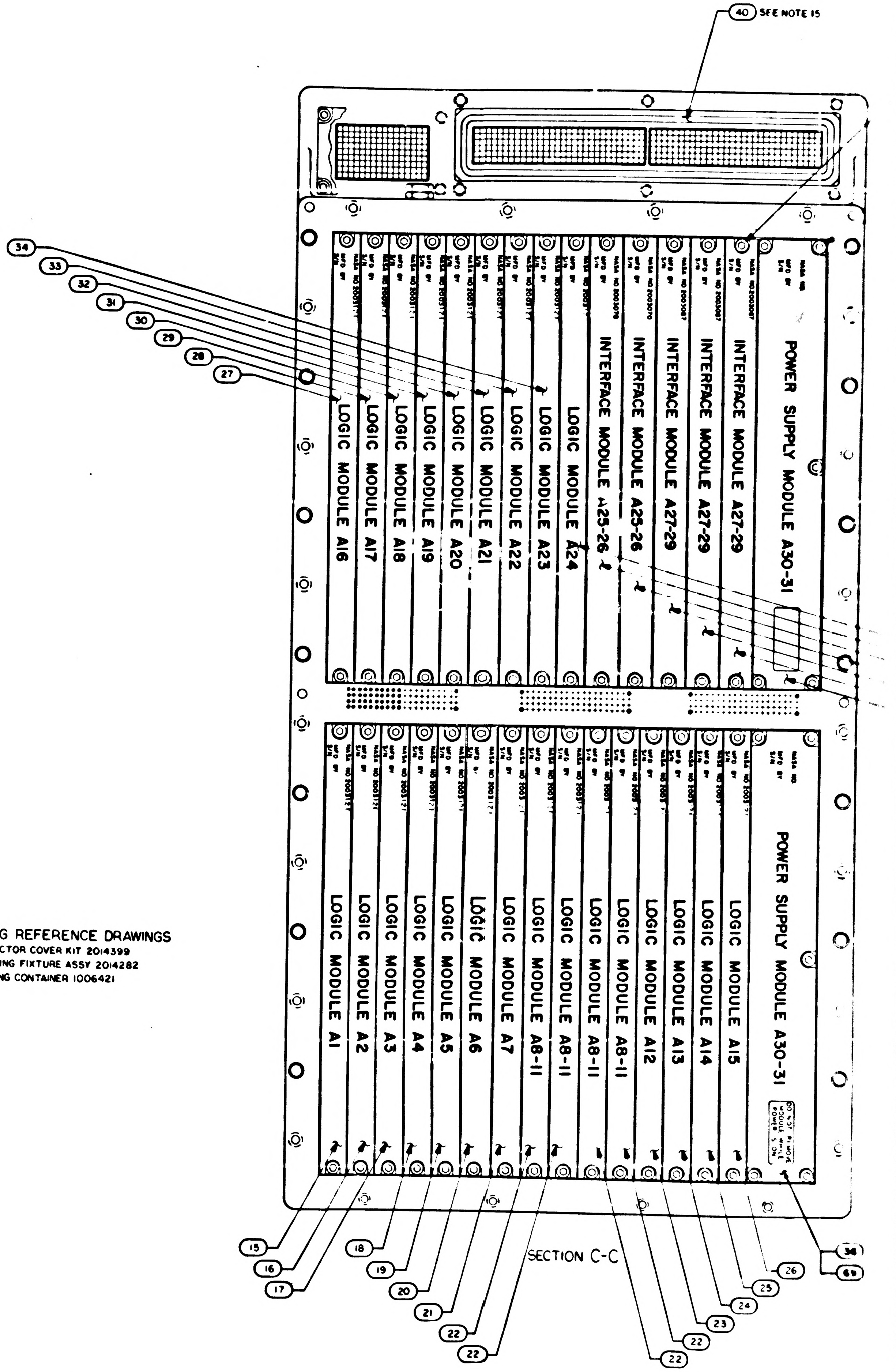
F2/2

CI	
PART NO.	VALUE UUF
1006777-1	10
-15	150
-18	330
-20	470
-22	680
1006777-23	820
SEE NOTE 21	0
1006777-16	220
1006777-17	270



14
14
13
62
12 SEE NOTE 19
11 SEE NOTE 19
10
9 SEE NOTE 19
9 SEE NOTE 19
8
7
C1 64
65
SEE NOTES 19, 20, 21 & 23
.035 MIN
.000
.015
SEE NOTE 14
SEE NOTE 22
ROPE DRIVER MODULE B16-17
ROPE DRIVER MODULE B16-17
STRAND SELECT MODULE B15
SENSE AMPLIFIER MODULE FIXED MEMORY B14
SENSE AMPLIFIER MODULE ERASABLE MEMORY B13
ERASABLE MEMORY MODULE B12
DO NOT REMOVE
CURRENT SWITCH MODULE B11
ERASABLE DRIVER MODULE B9-10
DO NOT REMOVE
ERASABLE DRIVER MODULE B9-10
DO NOT REMOVE
ALARM MODULE B8
OSCILLATOR MODULE B7
SEE NOTES 12 & 26 50
54

SECTION D-D



40 SEE NOTE 15
34
33
32
31
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29
28
27
POWER SUPPLY MODULE A30-31
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
LOGIC MODULE A24
LOGIC MODULE A23
LOGIC MODULE A22
LOGIC MODULE A21
LOGIC MODULE A20
LOGIC MODULE A19
LOGIC MODULE A18
LOGIC MODULE A17
LOGIC MODULE A16
POWER SUPPLY MODULE A30-31
DO NOT REMOVE MODULE WHILE POWER IS ON
LOGIC MODULE A15
LOGIC MODULE A14
LOGIC MODULE A13
LOGIC MODULE A12
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A7
LOGIC MODULE A6
LOGIC MODULE A5
LOGIC MODULE A4
LOGIC MODULE A3
LOGIC MODULE A2
LOGIC MODULE A1
15
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24
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36
69

SECTION C-C

PACKAGING REFERENCE DRAWINGS

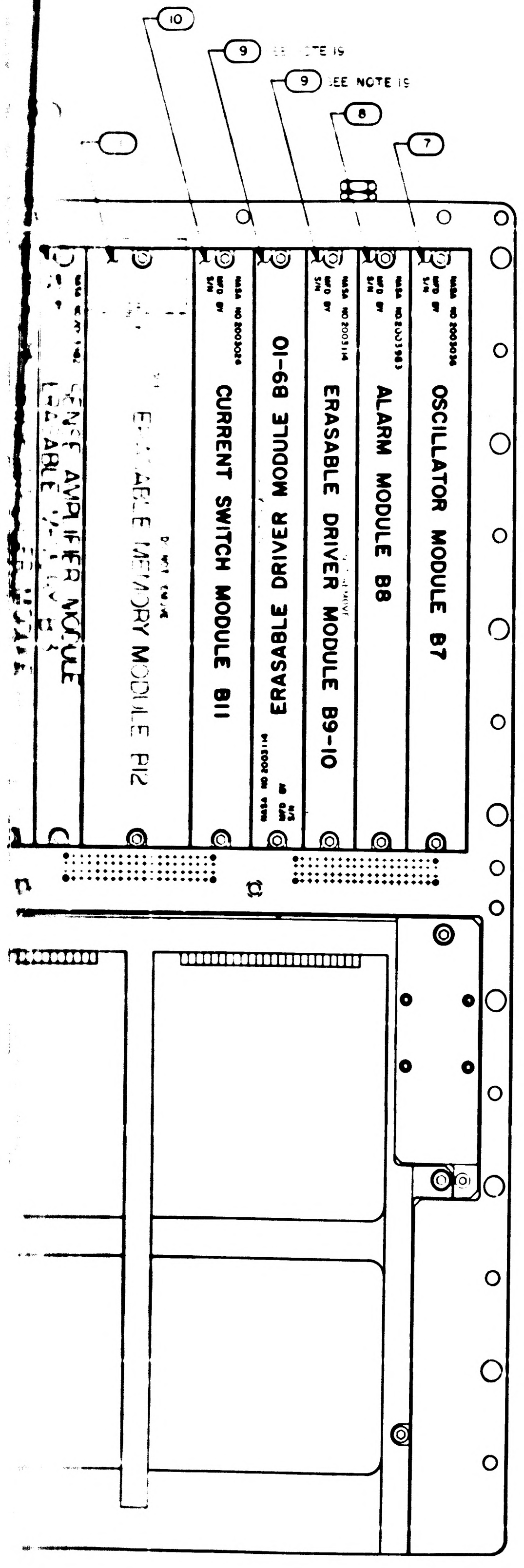
1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421

2003993	E

SH 2/2

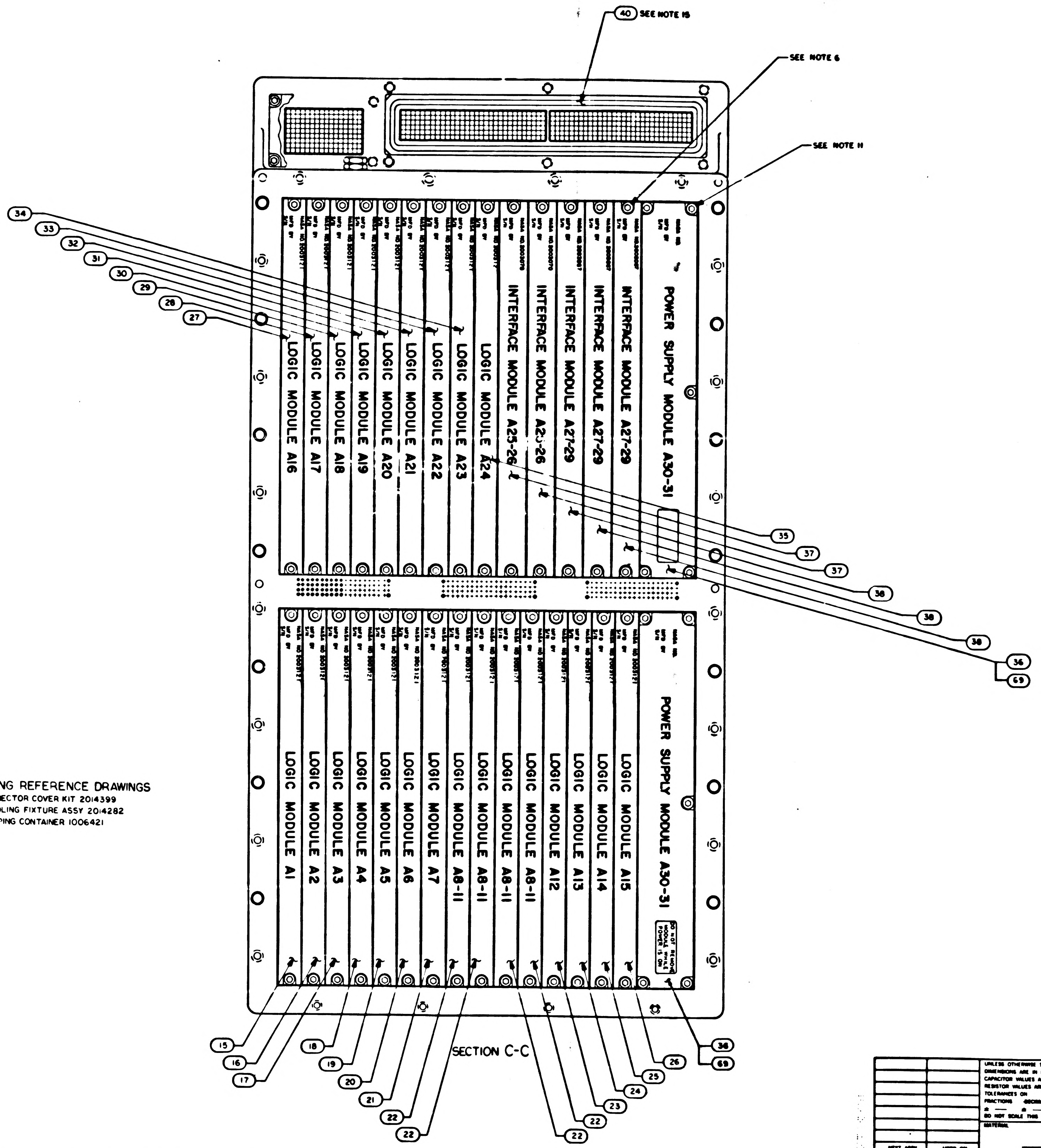
F1/2

LTR	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
REVISIONS						
A		[illegible] A RELEASE TDRR 32558				
B		RELEASED PER TDRR 32965				
C		REVISED PER TDRR 33300				
D		REVISED PER TDRR 33306				
E		REVISED PER TDRR 33425				


10
9 SEE NOTE 15
9 SEE NOTE 15
8
7
OSCILLATOR MODULE B7
ALARM MODULE B8
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
CURRENT SWITCH MODULE B11
ERASABLE MEMORY MODULE B12
SENSE AMPLIFIER MODULE

SECTION D-D

PACKAGING REFERENCE DRAWINGS
1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421


40 SEE NOTE 15
SEE NOTE 6
SEE NOTE 11
34
33
32
31
30
29
28
27
LOGIC MODULE A16
LOGIC MODULE A17
LOGIC MODULE A18
LOGIC MODULE A19
LOGIC MODULE A20
LOGIC MODULE A21
LOGIC MODULE A22
LOGIC MODULE A23
LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
35
37
37
38
38
38
36
69
LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
15
16
17
18
19
20
21
22
22
22
23
24
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26
36
69
SECTION C-C

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING
MATERIAL
—

MIT
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CAMBRIDGE MASS

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HOUSTON, TEXAS

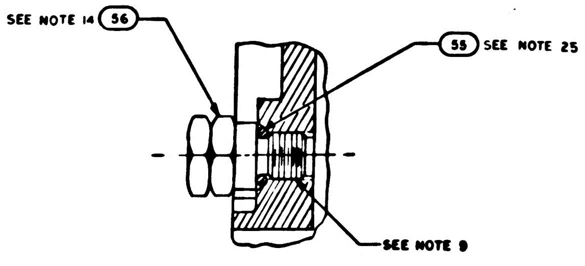
DRAWN
CHECKED
APPROVED
APPROVED
APPROVED
APPROVED
DATE

COMPUTER ASSEMBLY

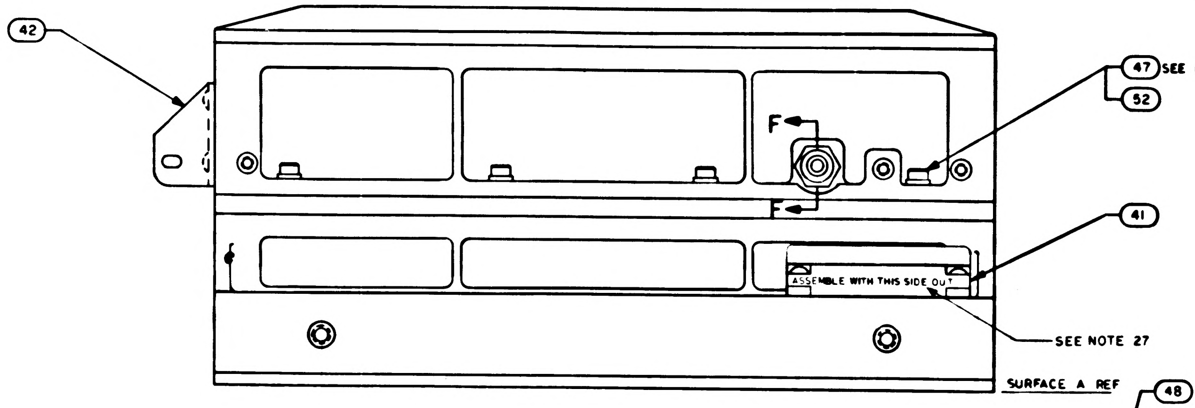
CODE IDENT NO	SIZE	DRAWING NO.
80230	J	2003993
SCALE 1/1		SHEET 2 OF 2

2003993 E

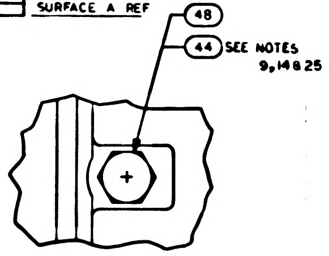
F2/2


SEE NOTE 14 (56)
(55) SEE NOTE 25
SEE NOTE 9

PARTIAL SECTION F F
SCALE: 2/1


42
F
F
47 SEE NOTES 7 & 26
52
41
ASSEMBLE WITH THIS SIDE OUT
SEE NOTE 27
SURFACE A REF

VIEW B-B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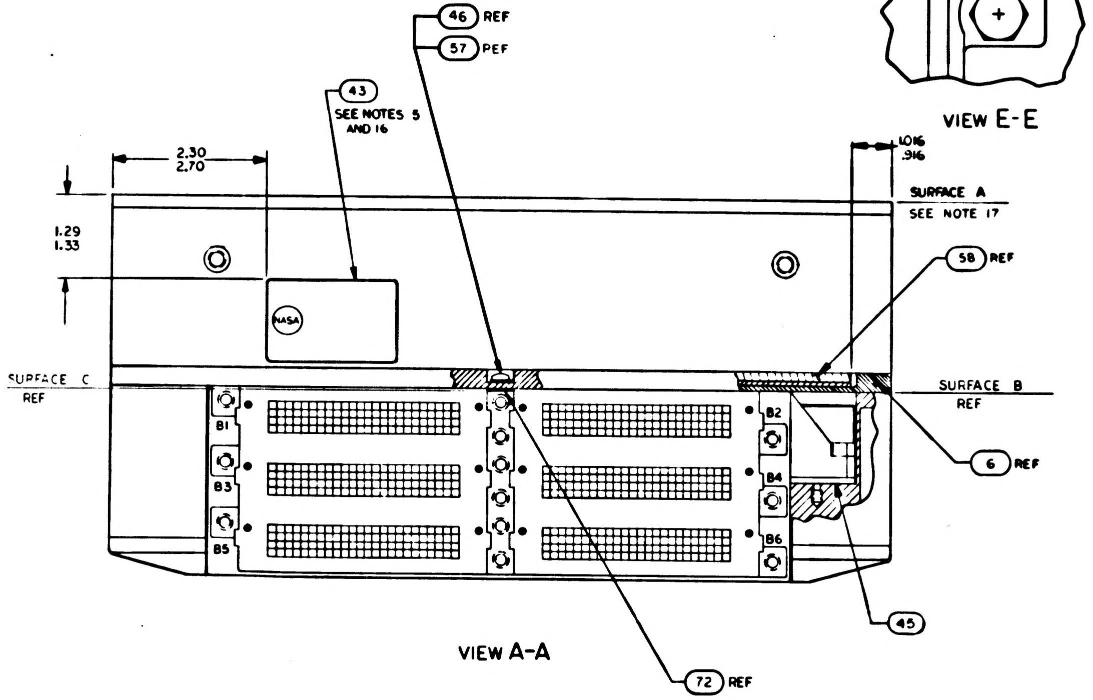
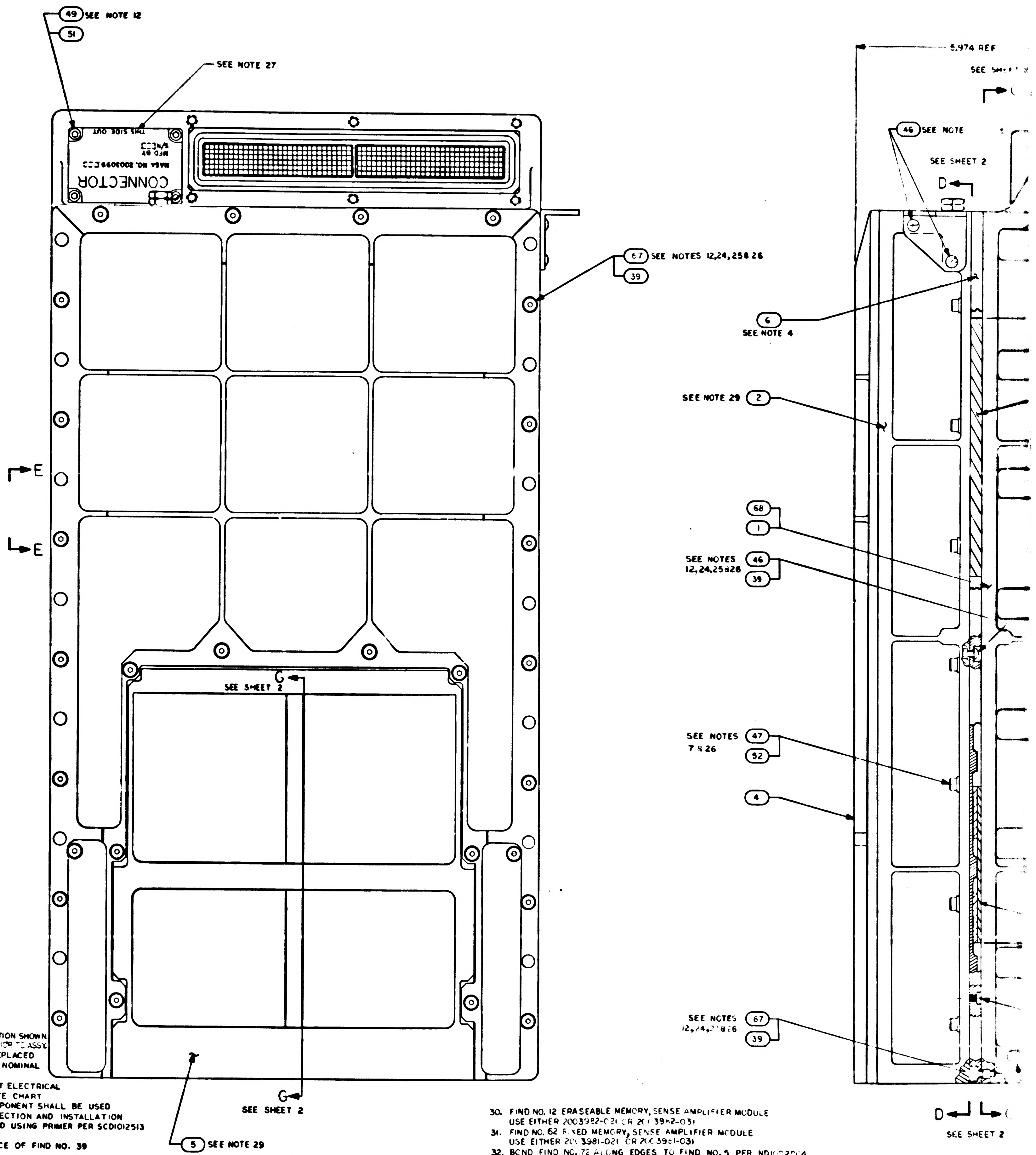
44 SEE NOTES 9,14 & 25

VIEW E-E


46 REF
57 REF
43
SEE NOTES 5 AND 16
2.30
2.70
1.016
.916
SURFACE A
SEE NOTE 17
1.29
1.33
NASA
58 REF
SURFACE C REF
SURFACE B REF
B1
B2
B3
B4
B5
B6
6 REF
45
72 REF

VIEW A-A


49 SEE NOTE 12
51
SEE NOTE 27
THIS SIDE OUT
MFD BY
S/N
NASA NO. 2003099
CONNECTOR
67 SEE NOTES 12,24,25 & 26
39
E
E
G
SEE SHEET 2
G
SEE SHEET 2
5 SEE NOTE 29
5.974 REF
SEE SHEET 2
46 SEE NOTE
SEE SHEET 2
D
6
SEE NOTE 4
SEE NOTE 29 (2)
68
1
SEE NOTES 12,24,25&26
46
39
SEE NOTES 7 & 26
47
52
4
SEE NOTES 12,24,25&26
67
39
D
SEE SHEET 2

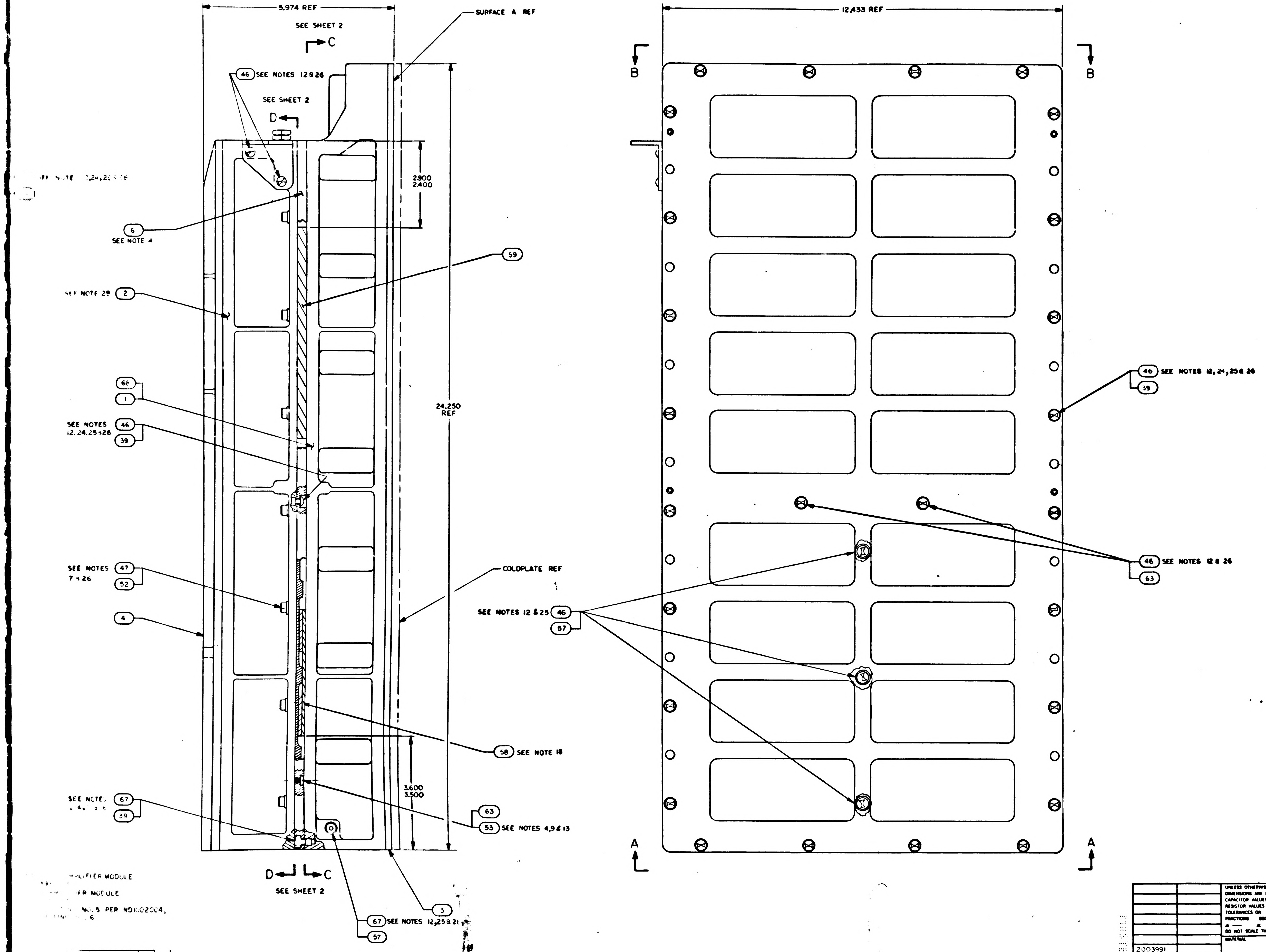
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. PHANTOM LINES DENOTE AGC COLDPLATE AND HANDLING FIXTURE TO BE SUPPLIED BY NORTH AMERICAN AVIATION, INC
3. ADD SILICONE COMPOUND 1006879 TO MODULE MATING METAL SURFACES AND TRAY MATING SURFACES
4. ASSEMBLE FIND NO.53 AND FIND NO.63 TO FIND NO.6 AND FIND NO.6 TO FIND NO.2 PRIOR TO ASSEMBLY OF FIND NO.2 TO FIND NO.1 & FIND NO 68
5. BOND FIND NO.43 TO FIND NO.1 AND FIND NO.68 PER ND1002004 TYPE IV
6. UNLESS OTHERWISE SPECIFIED TORQUE ALL MODULE MOUNTING SCREWS 15/19 INCH POUNDS
7. TORQUE FIND NO.47 TO 28/32 INCH POUNDS
8. FINISH IS REQUIRED TO SATISFY ICD GAEC 510-10001
9. APPLY SEALING COMPOUND MIL-S-22473 GRADE H TO FIND NO.53, FIND NO.56 AND FIND NO. 44
10. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2016007
11. TORQUE FOR FIND NO.36 AND FIND NO 69 MOUNTING SCREWS TO BE 4/6 INCH POUNDS
12. TORQUE FOR FIND NO. 46,49,50 AND 67 TO BE 18/22 INCH POUNDS
13. TORQUE FOR FIND NO.53 TO BE 4/6 INCH POUNDS
14. TORQUE FOR FIND NO. 44 AND FIND NO. 56 TO BE 137/157 INCH POUNDS
15. FIND NO.40 SHALL BE SUPPLIED AS PART OF THIS ASSEMBLY
16. MARK COMPUTER ASSEMBLY AND RELATED PART NO., APPLICABLE DASH NO., SERIAL NO. AND CONTRACT NO. PER 1004260 AND SERIALIZE PER ND1002023
17. FINISH SURFACE $\boxed{-A-}$ PER ICD NAA MH01-01302-116 THIS ASSEMBLY MUST BE CAPABLE OF MEETING ELECTRICAL BONDING REQUIREMENTS OF ICD NAA MH01-01302-116
18. BOND FIND NO.58 TO FIND NO. 6 IN POSITION SHOWN USING 1006338, CURE AT ROOM TEMP 24 HRS PRIOR TO ASSY.
19. REFERENCED MODULES MUST NOT BE REPLACED OR INTERCHANGED WITHOUT REPEATING NOMINAL SELECTION PROCEDURE PER NOTE 10
20. THE VALUE OF C1 TO BE DETERMINED AT ELECTRICAL TEST AND SELECTED FROM APPROPRIATE CHART
21. WHEN THE VALUE OF C1 IS ZERO NO COMPONENT SHALL BE USED
22. ENCAPSULATE AREA SHOWN AFTER SELECTION AND INSTALLATION OF C1 USING ND1002009 METHOD C OR D USING PRIMER PER SCD1012513
23. WELD PER ND1002005
24. ASSEMBLE HARDWARE WITH SMOOTH FACE OF FIND NO. 39 IN CONTACT WITH SCREW HEAD
25. FIND NO.39,48,55 & 57 TO BE DISCARDED AND REPLACED WITH NEW PARTS EACH TIME THEY ARE DISASSEMBLED
26. SEAL EXPOSED HARDWARE ASSEMBLIES WITH .002 MIN THICK COATING OF FIND NO.66. OVERALL COMPUTER ASSEMBLY DIMENSIONS SHALL NOT BE EXCEEDED. CURE AT ROOM TEMP 24 HRS
27. STENCILING SHOWN FOR ORIENTATION ONLY
28. KEEP ALL MATING THREADS OF SCREWS, TRAY AND MID SPACER INSERTS FREE OF SILICONE COMPOUND
29. FILL FEMALE INSULATORS OF B41 AND B42 CONNECTORS USING FIND NO.70 PRIOR TO ASSEMBLY OF FIND NO.5 TO FIND NO.2
30. FIND NO. 12 ERASEABLE MEMORY, SENSE AMPLIFIER MODULE USE EITHER 2003982-021 OR 2003982-031
31. FIND NO. 62 FIXED MEMORY, SENSE AMPLIFIER MODULE USE EITHER 2003981-021 OR 2003981-031
32. BOND FIND NO. 72 ALONG EDGES TO FIND NO. 5 PER ND1002004, TYPE V PRIOR TO ASSEMBLY OF FIND NO. 6
33. SEE SHEET 2
34. SEE SHEET 2

2003993	F

SH 1/2 F 1/2

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
REVISIONS						
A		INITIAL RELEASE TDRR 32558				
B		REVISED PER TDRR 32965				
C		REVISED PER TDRR 333[illegible]				
D		REVISED PER TDRR 333[illegible]				
E		REVISED PER TDRR 3[illegible]5				
F		REVISED PER TDRR 33638				



PLIFIER MODULE
FER MODULE
NO. 5 PER ND1002004,
6

QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
AR	AR	2010801	SHIM AGC	72
AR	AR	2010[illegible]-000	SHIM	71
		2005944	AGC WIRE LIST	REF
AR	AR	MIL-S-8660	SILICONE COMPOUND	70
2	—	2003892-011	POWER SUPPLY MODULE A30-31	69
1	—	2003092-041	TRAY "A" WIRED ASSY	68
33	33	2004732-002	SCREW, COATED	67
AR	AR	1006338-000	SEALING COMPOUND, SILICONE RUBBER	66
AR	AR	1006776-22	INSULATION, SLEEVING ELECTRICAL	65
1	1	SEE NOTE 20	CAPACITOR	64
10	10	2004148-007	WASHER, FLAT	63
1	1	[illegible]	SENSE AMPLIFIER MODULE, FIXED MEMORY B14	62
~~AR~~	~~AR~~	~~2004895-002~~	~~SHIM AGC~~	~~61~~
~~AR~~	~~AR~~	~~2004895-001~~	~~SHIM AGC~~	~~60~~
1	1	2004899-001	PAD VIBRATION	59
1	1	2003970	VIBRATION PAD ASSY	58
4	4	NAS1598-008N	WASHER, SEALING	57
1	1	2018773	VALVE PRESSURE ASSEMBLY	56
1	1	1000159-5	PACKING, PREFORMED "O" RING	55
2	2	2004984-001	WASHER, FLAT	54
8	8	2004130	PAD, THREADED	53
18	18	2004894-014	WASHER, FLAT	52
4	4	2004894-012	WASHER, FLAT	51
2	2	1001489-36	SCREW, HEX SOCKET HEAD	50
4	4	1004722-2	SCREW, CAPTIVE	49
1	1	1000159-7	PACKING, PREFORMED "O" RING	48
18	18	2004732-003	SCREW, COATED	47
33	33	2004732-001	SCREW, COATED	46
2	2	1006347	GASKET, PLATE	45
1	1	2004986	PLUG, MACHINE THREAD	44
1	1	1004260-19	NAME PLATE, TYPE I	43
1	1	2004113-001	BRACKET, CABLE	42
1	1	2003099-011	CONNECTOR ASSEMBLY	41
1	1	1006380	GASKET, RETAINED	40
58	58	2004707	WASHER, KNURLED	39
3	3	2003067-041	INTERFACE MODULE A27-29	38
2	2	2003070-031	INTERFACE MODULE A25-26	37
—	2	2003887-011	POWER SUPPLY MODULE A30-31	36
1	1	2003121-231	LOGIC MODULE A24	35
1	1	2003121-221	LOGIC MODULE A23	34
1	1	2003121-211	LOGIC MODULE A22	33
1	1	2003121-191	LOGIC MODULE A21	32
1	1	2003121-181	LOGIC MODULE A20	31
1	1	2003121-171	LOGIC MODULE A19	30
1	1	2003121-161	LOGIC MODULE A18	29
1	1	2003121-151	LOGIC MODULE A17	28
1	1	2003121-141	LOGIC MODULE A16	27
1	1	2003121-131	LOGIC MODULE A15	26
1	1	2003121-121	LOGIC MODULE A14	25
1	1	2003121-111	LOGIC MODULE A13	24
1	1	2003121-091	LOGIC MODULE A12	23
4	4	2003121-081	LOGIC MODULE A8-11	22
1	1	2003121-071	LOGIC MODULE A7	21
1	1	2003121-061	LOGIC MODULE A6	20
1	1	2003121-051	LOGIC MODULE A5	19
1	1	2003121-041	LOGIC MODULE A4	18
1	1	2003121-031	LOGIC MODULE A3	17
1	1	2003121-021	LOGIC MODULE A2	16
1	1	2003121-011	LOGIC MODULE A1	15
2	2	2003140-031	ROPE DRIVER MODULE B16-17	14
1	1	2003027-031	STRAND SELECT MODULE B15	13
1	1	SEE NOTE 30	SENSE AMPL MOD, ERASABLE MEMORY B13	12
1	1	2003111-021	ERASABLE MEMORY MODULE B12	11
1	1	2003026-031	CURRENT SWITCH MODULE B11	10
2	2	2003114-021	ERASABLE DRIVER MODULE B9-10	9
1	1	2003983-021	ALARM MODULE B8	8
1	1	2003036-031	OSCILLATOR MODULE B7	7
1	1	2003978-001	MID SPACER	6
1	1	2003059-021	INTERCONNECTION HEADER ASSEMBLY	5
1	1	2003976-011	TRAY B COVER	4
1	1	2003977-011	TRAY A COVER	3
1	1	2003093-021	TRAY B WIRED ASSEMBLY	2
—	1	2003092-031	TRAY A WIRED ASSEMBLY	1
-021	-011	LIST OF MATERIALS		

2003991	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

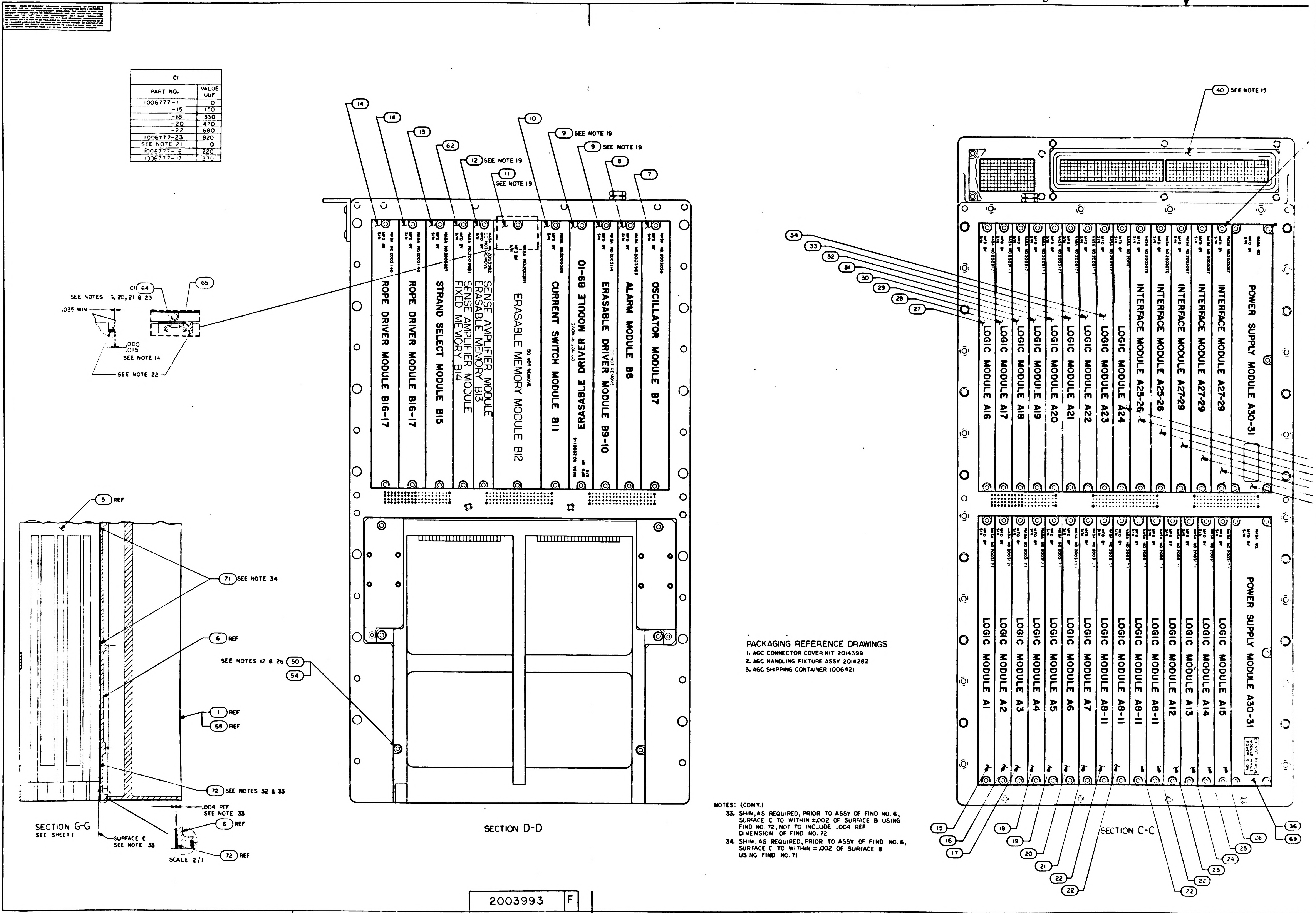
COMPUTER
ASSEMBLY

CODE IDENT NO 80230
SIZE J
DRAWING NO. 2003993
SCALE 1/1
SHEET 1 OF 2

2003993

F

F2/2


6
5
4
3
D
C
B
A
14
14
13
62
12 SEE NOTE 19
11 SEE NOTE 19
10
9 SEE NOTE 19
9 SEE NOTE 19
8
7
ROPE DRIVER MODULE B16-17
ROPE DRIVER MODULE B16-17
STRAND SELECT MODULE B15
SENSE AMPLIFIER MODULE FIXED MEMORY B14
SENSE AMPLIFIER MODULE ERASABLE MEMORY B13
DO NOT REMOVE
ERASABLE MEMORY MODULE B12
CURRENT SWITCH MODULE B11
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
ALARM MODULE B8
OSCILLATOR MODULE B7
C1 64
65
SEE NOTES 19, 20, 21 & 23
.035 MIN
.000
.015
SEE NOTE 14
SEE NOTE 22
40 SEE NOTE 15
34
33
32
31
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29
28
27
LOGIC MODULE A16
LOGIC MODULE A17
LOGIC MODULE A18
LOGIC MODULE A19
LOGIC MODULE A20
LOGIC MODULE A21
LOGIC MODULE A22
LOGIC MODULE A23
LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
5 REF
71 SEE NOTE 34
6 REF
SEE NOTES 12 & 26 50
54
1 REF
68 REF
72 SEE NOTES 32 & 33
.004 REF
SEE NOTE 33
6 REF
72 REF
SURFACE C
SEE NOTE 33
SCALE 2/1
SECTION G-G
SEE SHEET 1
SECTION D-D
SECTION C-C
15
16
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18
19
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21
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22
22
22
23
24
25
26
36
69

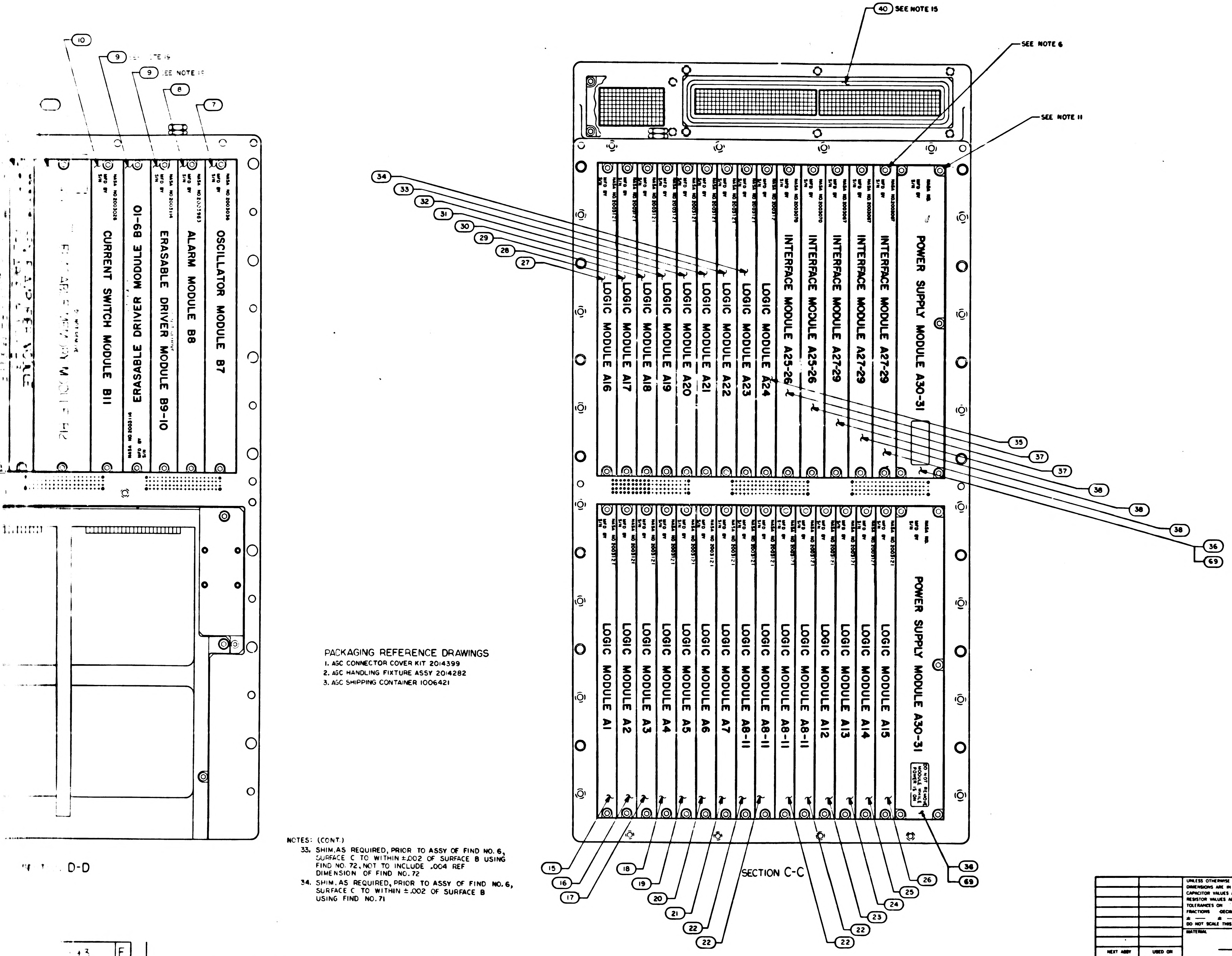
C1	
PART NO.	VALUE UUF
1006777-1	10
-15	150
-18	330
-20	470
-22	680
1006777-23	820
SEE NOTE 21	0
1006777-16	220
1006777-17	270

PACKAGING REFERENCE DRAWINGS
1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421

NOTES: (CONT.)
33. SHIM, AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 72, NOT TO INCLUDE .004 REF DIMENSION OF FIND NO. 72
34. SHIM, AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 71

2003993 F

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		[illegible] RELEASE TDRR 32558				
B		RELEASED PER TDRR 32965				
C		REVISED PER TDRR 33[illegible]				
D		REVISED PER TDRR 333C6				
E		REVISED PER TDRR 33425				
F		REVISED PER TDRR 33639				



40 SEE NOTE 15
SEE NOTE 6
SEE NOTE 11
10
9 SEE NOTE 19
9 SEE NOTE 19
8
7
OSCILLATOR MODULE B7
ALARM MODULE B8
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
CURRENT SWITCH MODULE B11
NASA NO 2003036
NASA NO 2003983
NASA NO 2003114
NASA NO 2003026
MFD BY
S/N
POWER SUPPLY MODULE A30-31
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
LOGIC MODULE A24
LOGIC MODULE A23
LOGIC MODULE A22
LOGIC MODULE A21
LOGIC MODULE A20
LOGIC MODULE A19
LOGIC MODULE A18
LOGIC MODULE A17
LOGIC MODULE A16
POWER SUPPLY MODULE A30-31
DO NOT REMOVE MODULE WHILE POWER IS ON
LOGIC MODULE A15
LOGIC MODULE A14
LOGIC MODULE A13
LOGIC MODULE A12
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A7
LOGIC MODULE A6
LOGIC MODULE A5
LOGIC MODULE A4
LOGIC MODULE A3
LOGIC MODULE A2
LOGIC MODULE A1
34
33
32
31
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23
24
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26
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69
SECTION C-C
D-D

PACKAGING REFERENCE DRAWINGS
1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421

NOTES: (CONT.)

33. SHIM, AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 72, NOT TO INCLUDE .004 REF DIMENSION OF FIND NO. 72
34. SHIM, AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 71

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING
MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

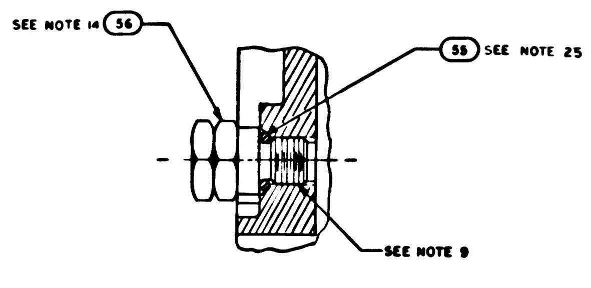
COMPUTER
ASSEMBLY

CODE IDENT NO 80230
SIZE J
DRAWING NO. 2003993
SCALE 1/1
SHEET 2 OF 2

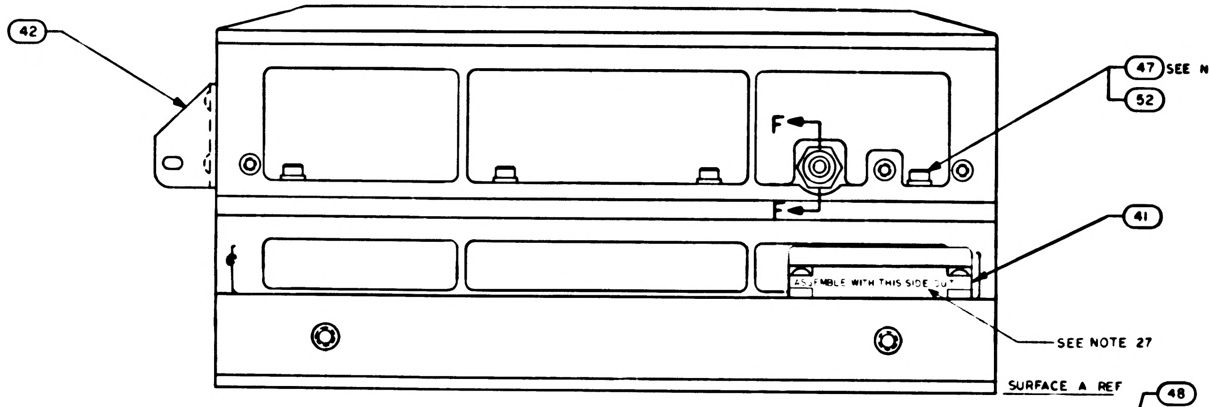
2003993 F

F 2/2

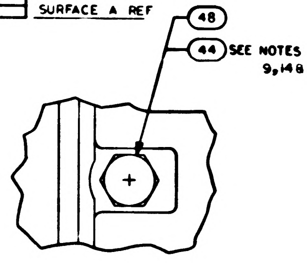
CHART A SEE NOTES 36 & 37		
PART NO. FOR -011 & -021 CONFIGURATION	PART NO. FOR -011, 021 & 031 CONFIGURATION	MODULES
2003 2[illegible] -011	[illegible] -011	LOGIC MODULE A1
-021	-021	A2
-031	-031	A3
-04	-041	A4
[illegible]	-05	A5
[illegible]	-06	A6
-07	-07	A7
[illegible]	-0[illegible]	A[illegible]
[illegible]	-09	A12
[illegible]	-11	A13
-12	-1[illegible]	A14
-13	-13	A1[illegible]
-14	-14	A1[illegible]
[illegible]	-15	A[illegible]
[illegible]	-16	A1[illegible]
-17	-17	A[illegible]
[illegible]	[illegible]	A20
[illegible]	-19	A2[illegible]
21	-21	A2[illegible]
-22	-22	A23
[illegible] -[illegible]	-2[illegible]	LOGIC MODULE A[illegible]


SEE NOTE 14
56
55
SEE NOTE 25
SEE NOTE 9

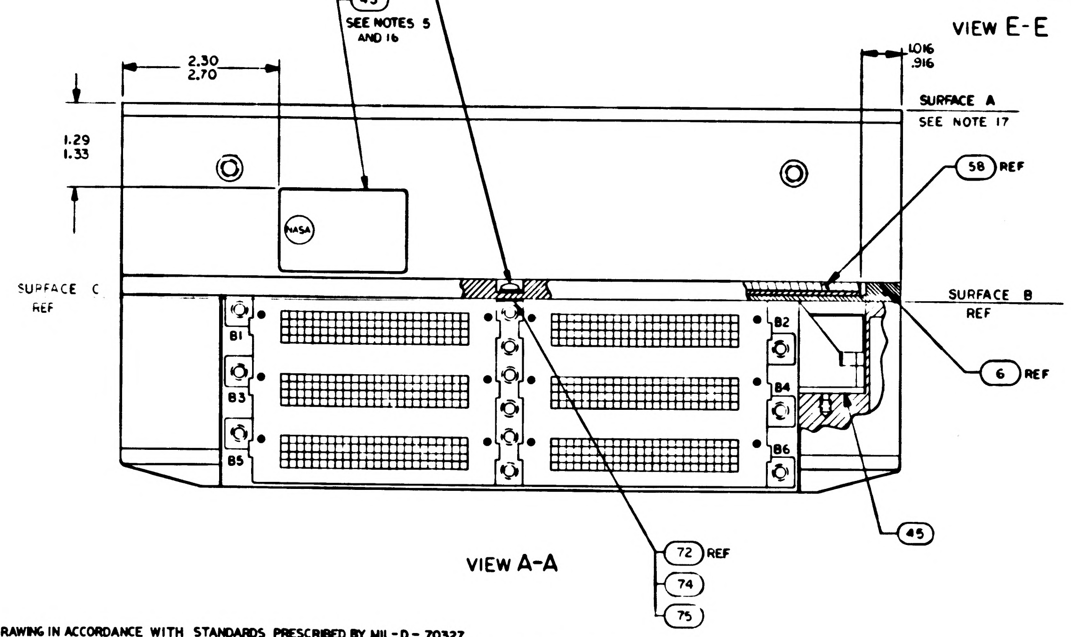
PARTIAL SECTION F F
SCALE: 2/1


42
47
52
SEE NOTES 7 & 26
F
F
41
ASSEMBLE WITH THIS SIDE OUT
SEE NOTE 27
SURFACE A REF

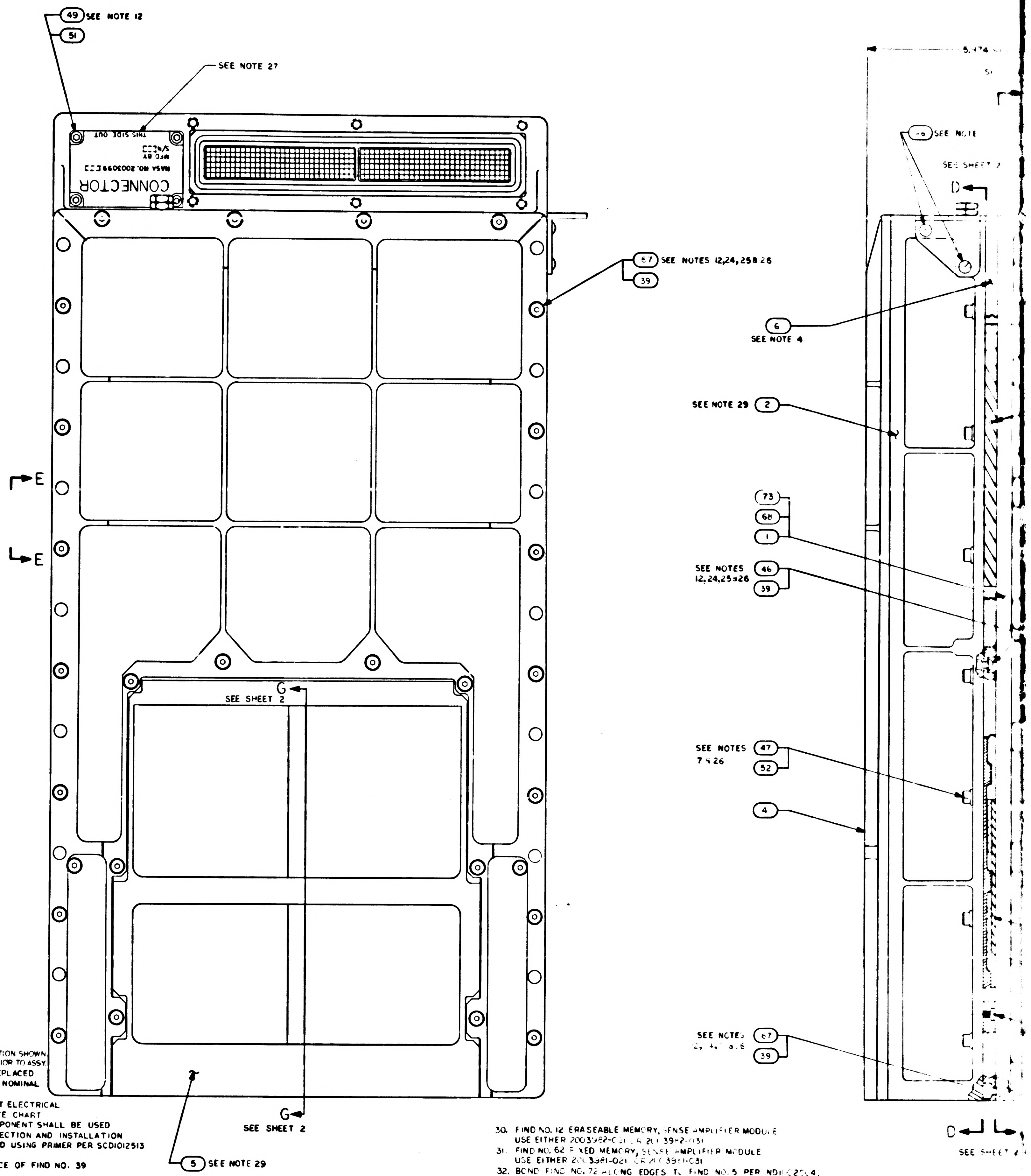
VIEW B-B


48
44
SEE NOTES 9, 14 & 25

VIEW E-E


46 REF
57 REF
43
SEE NOTES 5 AND 16
2.30
2.70
1.016
.916
SURFACE A
SEE NOTE 17
1.29
1.33
NASA
58 REF
SURFACE C REF
SURFACE B REF
B1
B2
B3
B4
B5
B6
6 REF
45
72 REF
74
75

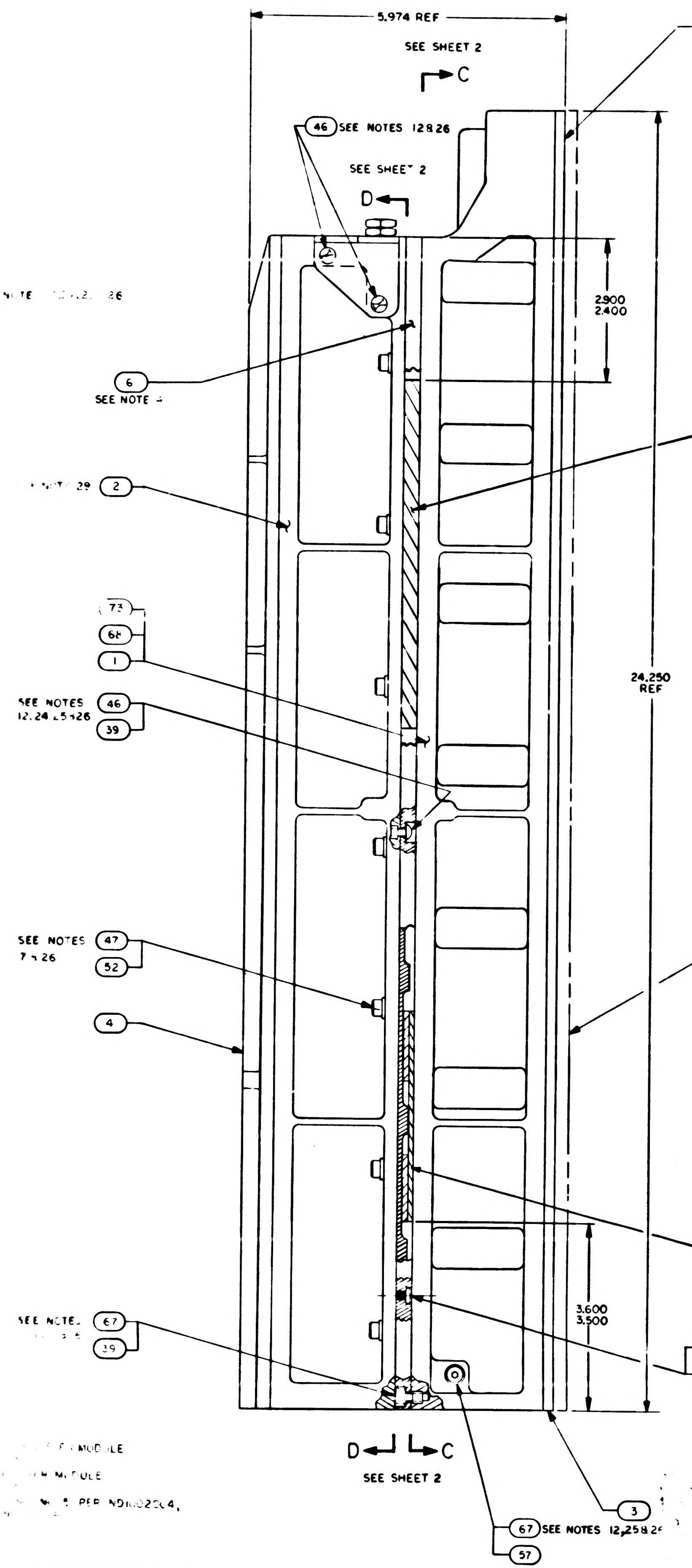
VIEW A-A

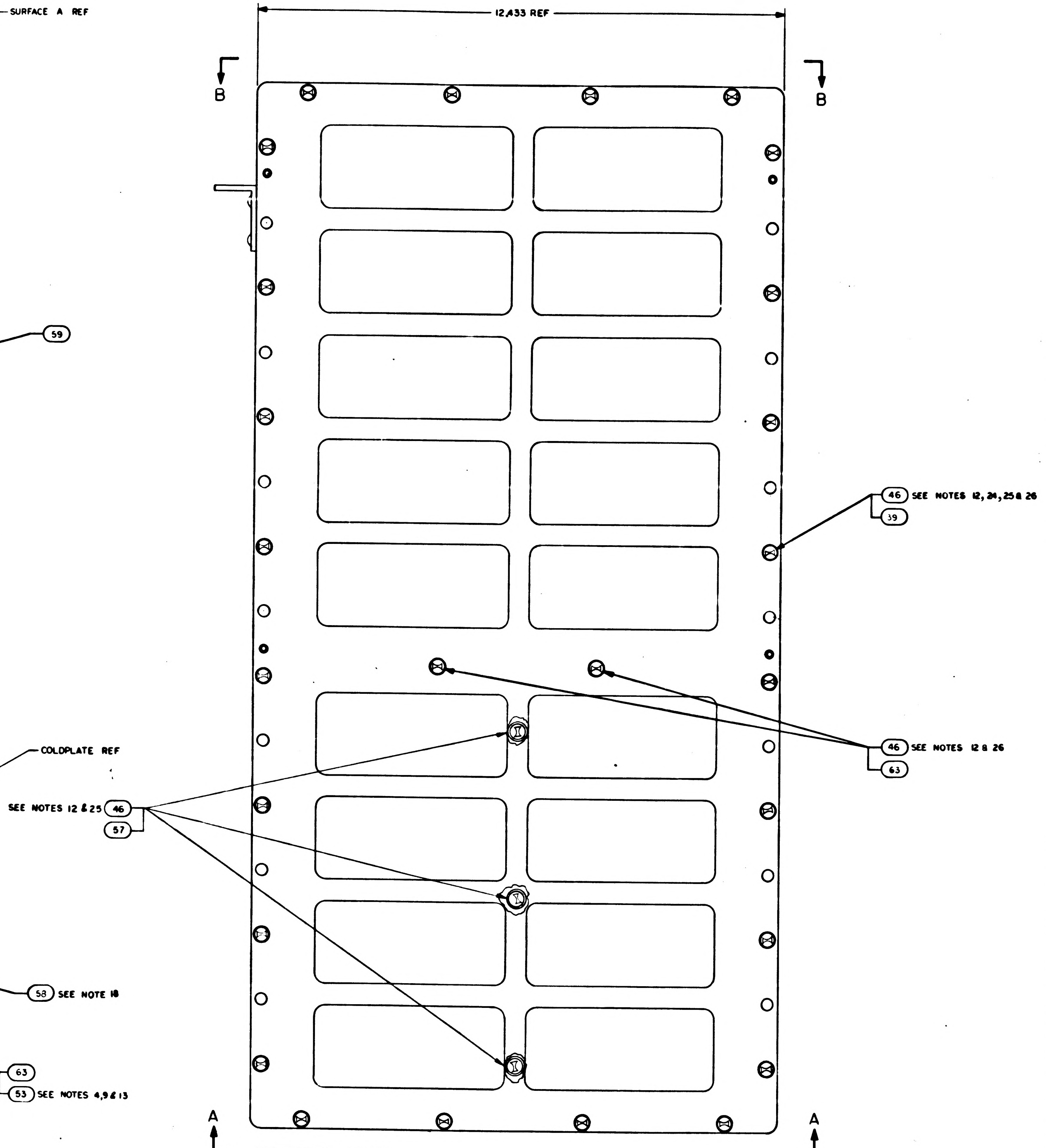

49
51
SEE NOTE 12
SEE NOTE 27
CONNECTOR
NASA NO. 2003993 [illegible]
MFD. BY
S/N
THIS SIDE OUT
67
39
SEE NOTES 12, 24, 25 & 26
E
E
G
SEE SHEET 2
G
SEE SHEET 2
5
SEE NOTE 29
5.474
SEE NOTE
SEE SHEET 2
D
6
SEE NOTE 4
SEE NOTE 29
2
73
68
1
SEE NOTES 12, 24, 25 & 26
46
39
SEE NOTES 7 & 26
47
52
4
SEE NOTES 12, 24, 25 & 26
67
39
D
SEE SHEET 2

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. PHANTOM LINES DENOTE AGC COLDPLATE AND HANDLING FIXTURE TO BE SUPPLIED BY NORTH AMERICAN AVIATION, INC
3. ADD SILICONE COMPOUND 1006879 TO MODULE MATING METAL SURFACES AND TRAY MATING SURFACES
4. ASSEMBLE FIND NO. 53 AND FIND NO. 63 TO FIND NO. 6 AND FIND NO. 6 TO FIND NO. 2 PRIOR TO ASSEMBLY OF FIND NO. 2 TO FIND NO. 1 OR FIND NO. 68 OR FIND NO. 73
5. BOND FIND NO. 43 TO FIND NO. 1 OR FIND NO. 68 OR FIND NO. 73 PER ND1002004 TYPE IV
6. UNLESS OTHERWISE SPECIFIED TORQUE ALL MODULE MOUNTING SCREWS 15/19 INCH POUNDS
7. TORQUE FIND NO. 47 TO 28/32 INCH POUNDS
8. FINISH IS REQUIRED TO SATISFY ICD GAEC 510-10001
9. APPLY SEALING COMPOUND MIL-S-22473 GRADE H TO FIND NO. 53, FIND NO. 56 AND FIND NO. 44
10. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2016007
11. TORQUE FOR FIND NO. 36 AND FIND NO. 69 MOUNTING SCREWS TO BE 4/6 INCH POUNDS
12. TORQUE FOR FIND NO. 46, 49, 50 AND 67 TO BE 18/22 INCH POUNDS
13. TORQUE FOR FIND NO. 53 TO BE 4/6 INCH POUNDS
14. TORQUE FOR FIND NO. 44 AND FIND NO. 56 TO BE 137/157 INCH POUNDS
15. FIND NO. 40 SHALL BE SUPPLIED AS PART OF THIS ASSEMBLY
16. MARK COMPUTER ASSEMBLY AND RELATED PART NO., APPLICABLE DASH NO., SERIAL NO. AND CONTRACT NO. PER 1004260 AND SERIALIZE PER ND1002023
17. FINISH SURFACE $\boxed{-A-}$ PER ICD NAA MH01-01302-116 THIS ASSEMBLY MUST BE CAPABLE OF MEETING ELECTRICAL BONDING REQUIREMENTS OF ICD NAA MH01-01302-116
18. BOND FIND NO. 58 TO FIND NO. 6 IN POSITION SHOWN USING 1006338, CURE AT ROOM TEMP 24 HRS PRIOR TO ASSY.
19. REFERENCED MODULES MUST NOT BE REPLACED OR INTERCHANGED WITHOUT REPEATING NOMINAL SELECTION PROCEDURE PER NOTE 10
20. THE VALUE OF CI TO BE DETERMINED AT ELECTRICAL TEST AND SELECTED FROM APPROPRIATE CHART
21. WHEN THE VALUE OF CI IS ZERO NO COMPONENT SHALL BE USED
22. ENCAPSULATE AREA SHOWN AFTER SELECTION AND INSTALLATION OF CI USING ND1002009 METHOD C OR D USING PRIMER PER SCD1012513
23. WELD PER ND1002005
24. ASSEMBLE HARDWARE WITH SMOOTH FACE OF FIND NO. 39 IN CONTACT WITH SCREW HEAD
25. FIND NO. 39, 48, 55 & 57 TO BE DISCARDED AND REPLACED WITH NEW PARTS EACH TIME THEY ARE DISASSEMBLED
26. SEAL EXPOSED HARDWARE ASSEMBLIES WITH .002 MIN THICK COATING OF FIND NO. 66. OVERALL COMPUTER ASSEMBLY DIMENSIONS SHALL NOT BE EXCEEDED. CURE AT ROOM TEMP 24 HRS.
27. STENCILING SHOWN FOR ORIENTATION ONLY
28. KEEP ALL MATING THREADS OF SCREWS, TRAY AND MID SPACER INSERTS FREE OF SILICONE COMPOUND
29. FILL FEMALE INSULATORS OF B41 AND B42 CONNECTORS USING FIND NO. 70 PRIOR TO ASSEMBLY OF FIND NO. 5 TO FIND NO. 2
30. FIND NO. 12 ERASEABLE MEMORY, SENSE AMPLIFIER MODULE USE EITHER 2003982-031 OR 20039-2-031
31. FIND NO. 62 FIXED MEMORY, SENSE AMPLIFIER MODULE USE EITHER 2003981-021 OR 2003981-031
32. BOND FIND NO. 72 ALONG EDGES TO FIND NO. 5 PER ND1002004, TYPE V PRIOR TO ASSEMBLY OF FIND NO. 6
33. SEE SHEET 2
34. SEE SHEET 2
35. SEE SHEET 2
36. SEE SHEET 2
37. SEE SHEET 2
38. SEE SHEET 2

2003[illegible] G

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		INITIAL RELEASE TDRR 32558				
B		REVISED PER TDRR 32965				
C		REVISED PER TDRR 333[illegible]				
D		REVISED PER TDRR [illegible]				
E		[illegible]				
F		REVISED PER TDRR 33636				
G		REVISED PER TDRR 34265				





NOTE APPLICATION	
DASH NO.	NOTES APPL'CABLE
-011	1 THRU 34 & 37
-021	1 THRU 35,37 & 38
-031	1 THRU 31 & 36

QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
AR	—	—	2004895-002	SHIM AGC	75
AR	—	—	2004895-001	SHIM AGC	74
1	—	—	2003092-041	TRAY A WIRED ASSY	73
—	AR	AR	[illegible]	SHIM AGC	72
—	AR	AR	[illegible]-006	SHIM	71
			2005944	AGC WIRE LIST	REF
AR	AR	AR	MIL-S-8660	SILICONE COMPOUND	70
2	2	—	2003892-011	POWER SUPPLY MODULE A30-31	69
—	1	—	SEE NOTE 35	TRAY "A" WIRED ASSY	68
33	33	33	2004732-002	SCREW, COATED	67
AR	AR	AR	1006338-000	SEALING COMPOUND, SILICONE RUBBER	66
AR	AR	AR	1006776-22	INSULATION, SLEEVING ELECTRICAL	65
1	1	1	SEE NOTE 20	CAPACITOR	64
10	10	10	2004148-007	WASHER, FLAT	63
1	1	1	[illegible]	SENSE AMPLIFIER MODULE, FIXED MEMORY B14	62
—	~~AR~~	~~AR~~	~~2004895-002~~	~~SHIM AGC~~	~~61~~
—	~~AR~~	~~AR~~	~~2004895-001~~	~~SHIM AGC~~	~~60~~
1	1	1	2004899-001	PAD VIBRATION	59
1	1	1	2003970	VIBRATION PAD ASSY	58
4	4	4	NAS1598-D08N	WASHER, SEALING	57
1	1	1	2018773	VALVE PRESSURE ASSEMBLY	56
1	1	1	1000159-5	PACKING, PREFORMED "O" RING	55
2	2	2	2004984-001	WASHER, FLAT	54
8	8	8	2004130	PAD, THREADED	53
18	18	18	2004894-014	WASHER, FLAT	52
4	4	4	2004894-012	WASHER, FLAT	51
2	2	2	100469-36	SCREW, HEX SOCKET HEAD	50
4	4	4	1004722-2	SCREW, CAPTIVE	49
1	1	1	1000159-7	PACKING, PREFORMED "O" RING	48
18	18	18	2004732-003	SCREW, COATED	47
33	33	33	2004732-001	SCREW, COATED	46
2	2	2	1006347	GASKET, PLATE	45
1	1	1	2004986	PLUG, MACHINE THREAD	44
1	1	1	1004260-19	NAME PLATE, TYPE I	43
1	1	1	2004113-001	BRACKET, CABLE	42
1	1	1	2003099-011	CONNECTOR ASSEMBLY	41
1	1	1	1006380	GASKET, RETAINED	40
58	58	58	2004707	WASHER, KNURLED	39
3	3	3	2003067-041	INTERFACE MODULE A27-29	38
2	2	2	2003070-031	INTERFACE MODULE A25-26	37
—	—	2	2003887-011	POWER SUPPLY MODULE A30-31	36
1	1	1	SEE NOTES 36 & 37	LOGIC MODULE A24	35
1	1	1		LOGIC MODULE A23	34
1	1	1		LOGIC MODULE A22	33
1	1	1		LOGIC MODULE A21	32
1	1	1		LOGIC MODULE A20	31
1	1	1		LOGIC MODULE A19	30
1	1	1		LOGIC MODULE A18	29
1	1	1		LOGIC MODULE A17	28
1	1	1		LOGIC MODULE A16	27
1	1	1		LOGIC MODULE A15	26
1	1	1		LOGIC MODULE A14	25
1	1	1		LOGIC MODULE A13	24
1	1	1		LOGIC MODULE A12	23
4	4	4		LOGIC MODULE A8-11	22
1	1	1		LOGIC MODULE A7	21
1	1	1		LOGIC MODULE A6	20
1	1	1		LOGIC MODULE A5	19
1	1	1		LOGIC MODULE A4	18
1	1	1		LOGIC MODULE A3	17
1	1	1		LOGIC MODULE A2	16
1	1	1	SEE NOTES 36 & 37	LOGIC MODULE A1	15
2	2	2	2003140-031	ROPE DRIVER MODULE B16-17	14
1	1	1	2003027-031	STRAND SELECT MODULE B15	13
1	1	1	[illegible]	SENSE AMPL MOD, ERASABLE MEMORY B13	12
1	1	1	2003111-021	ERASABLE MEMORY MODULE B12	11
1	1	1	2003026-031	CURRENT SWITCH MODULE B11	10
2	2	2	2003114-021	ERASABLE DRIVER MODULE B9-10	9
1	1	1	2003983-02	ALARM MODULE B8	8
1	1	1	2003036-031	OSCILLATOR MODULE B7	7
1	1	1	2003978-001	MID SPACER	6
1	1	1	2003059-021	INTERCONNECTION HEADER ASSEMBLY	5
1	1	1	2003976 011	TRAY B COVER	4
1	1	1	2003977 011	TRAY A COVER	3
1	1	1	2003093-021	TRAY B WIRED ASSEMBLY	2
—	—	1	2003092-031	TRAY A WIRED ASSEMBLY	1

LIST OF MATERIALS

2003991	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

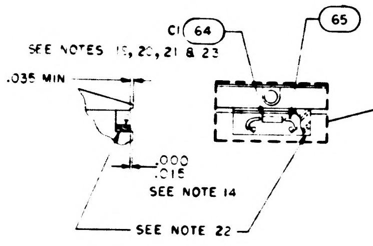
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

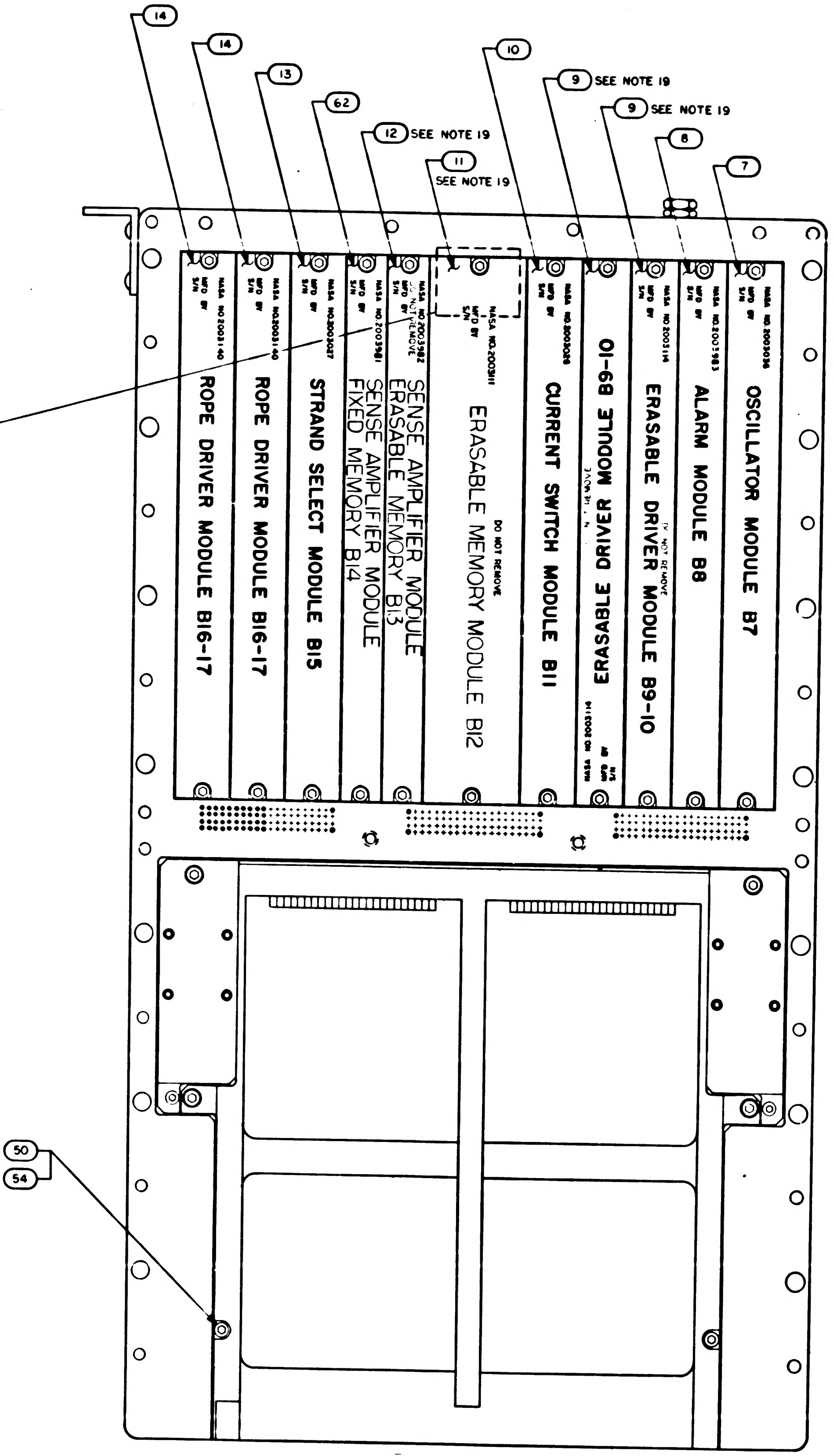
COMPUTER
ASSEMBLY

CODE IDENT NO 80230 | SIZE J | DRAWING NO. 2003993
SCALE 1 | SHEET 1 OF 2

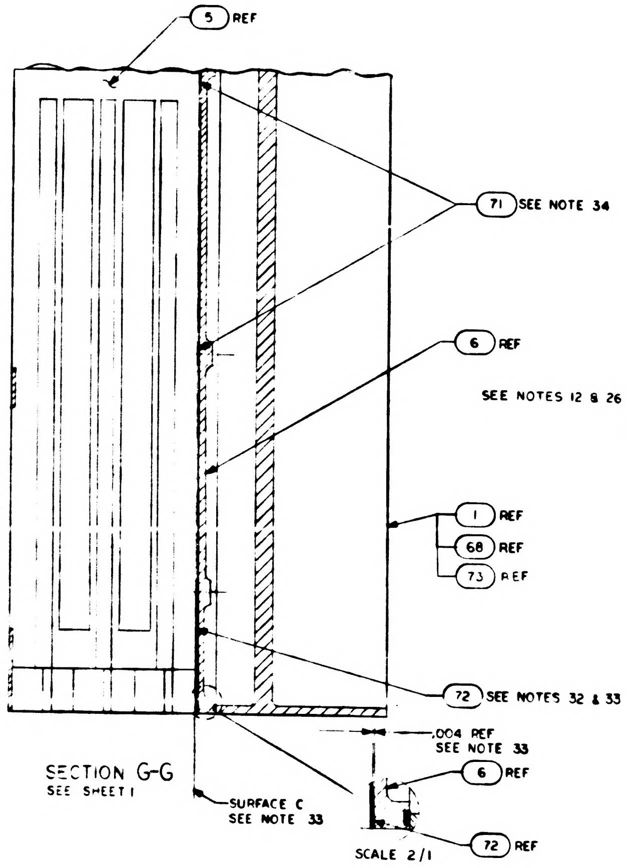
2003993 G [illegible] F 2/2

C1	
PART NO.	VALUE UUF
1006777-1	10
-15	150
-18	330
-20	470
-22	680
1006777-23	820
SEE NOTE 21	0
1006777-6	220
1006777-17	270

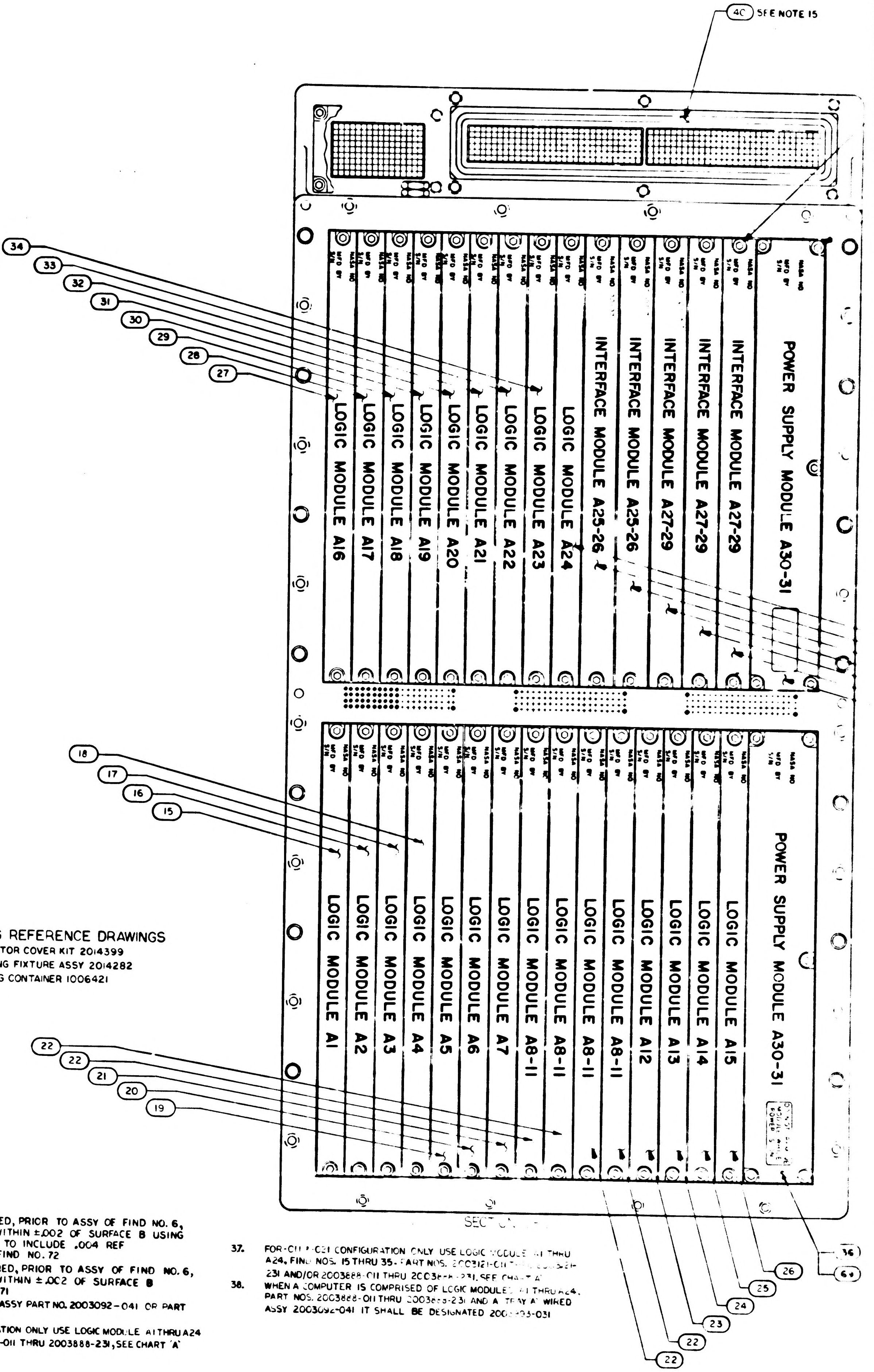

C1 64
65
SEE NOTES 15, 20, 21 & 23
.035 MIN
.000
.015
SEE NOTE 14
SEE NOTE 22


14
14
13
62
12 SEE NOTE 19
11 SEE NOTE 19
10
9 SEE NOTE 19
9 SEE NOTE 19
8
7
ROPE DRIVER MODULE B16-17
ROPE DRIVER MODULE B16-17
STRAND SELECT MODULE B15
SENSE AMPLIFIER MODULE FIXED MEMORY B14
SENSE AMPLIFIER MODULE ERASABLE MEMORY B13
DO NOT REMOVE
ERASABLE MEMORY MODULE B12
CURRENT SWITCH MODULE B11
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
ALARM MODULE B8
OSCILLATOR MODULE B7
SEE NOTES 12 & 26
50
54

SECTION D-D


5 REF
71 SEE NOTE 34
6 REF
1 REF
68 REF
73 REF
72 SEE NOTES 32 & 33
.004 REF
SEE NOTE 33
6 REF
SURFACE C
SEE NOTE 33
72 REF
SCALE 2/1

SECTION G-G
SEE SHEET 1


40 SEE NOTE 15
34
33
32
31
30
29
28
27
LOGIC MODULE A16
LOGIC MODULE A17
LOGIC MODULE A18
LOGIC MODULE A19
LOGIC MODULE A20
LOGIC MODULE A21
LOGIC MODULE A22
LOGIC MODULE A23
LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
18
17
16
15
LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
22
22
21
20
19
36
64
26
25
24
23
22
22
SECT

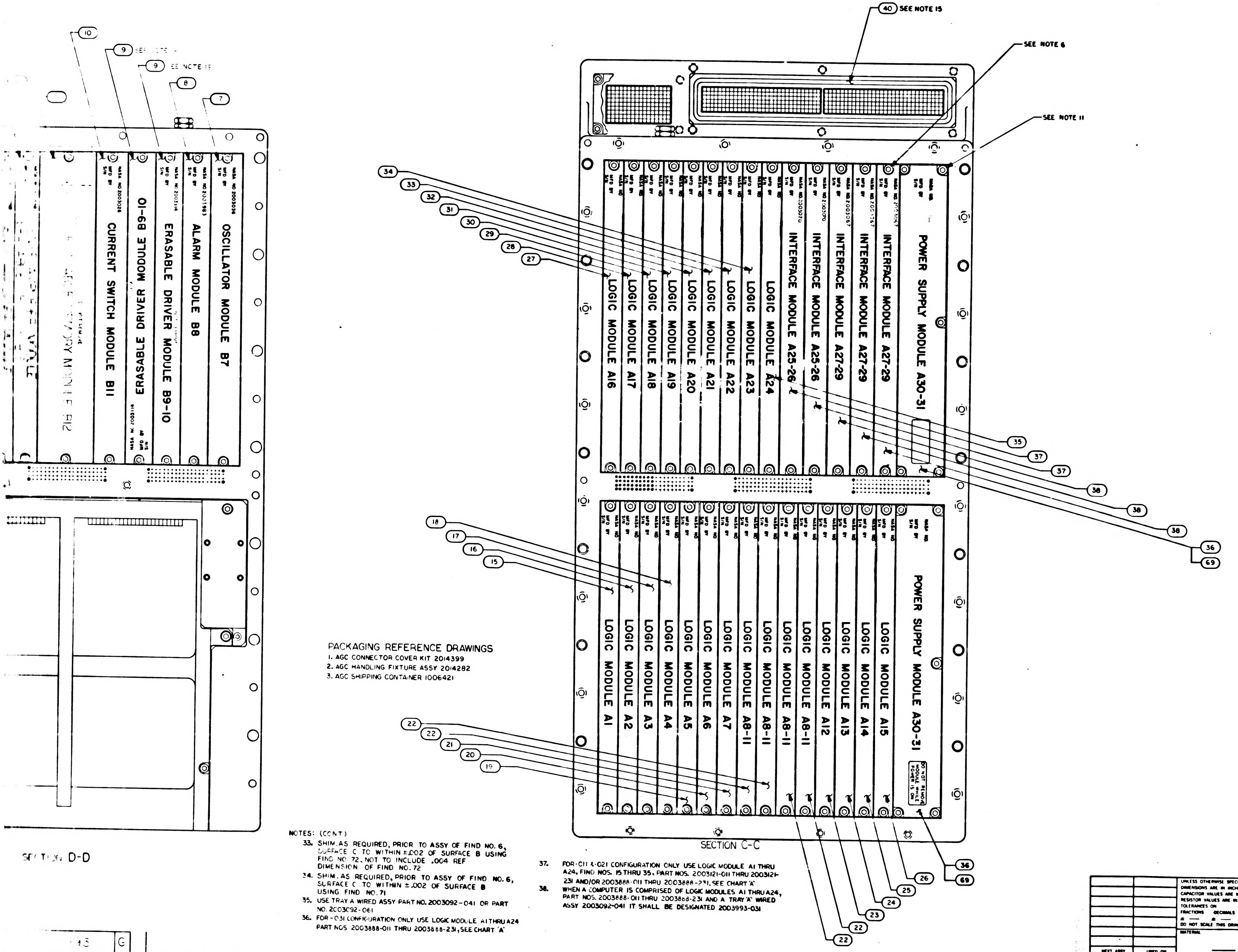
PACKAGING REFERENCE DRAWINGS

1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421

NOTES: (CONT.)

33. SHIM, AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 72, NOT TO INCLUDE .004 REF DIMENSION OF FIND NO. 72
34. SHIM, AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 71
35. USE TRAY A WIRED ASSY PART NO. 2003092-041 OR PART NO. 2003092-061
36. FOR -031 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24 PART NOS. 2003888-011 THRU 2003888-231, SEE CHART 'A'
37. FOR -011 & -021 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24, FIND NOS. 15 THRU 35. PART NOS. 2003121-011 THRU [illegible]-231 AND/OR 2003888-011 THRU 2003888-231, SEE CHART 'A'
38. WHEN A COMPUTER IS COMPRISED OF LOGIC MODULES A1 THRU A24, PART NOS. 2003888-011 THRU 2003888-231 AND A TRAY 'A' WIRED ASSY 2003092-041 IT SHALL BE DESIGNATED 200[illegible]-031

REVISIONS						
REV	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		INITIAL RELEASE TDRR 32558				
B		RELEASED PER TDRR 32965				
C		REVISED PER TDRR [illegible]				
D		REVISED PER TDRR 33306				
E		[illegible] TDRR [illegible]5				
F		REVISED PER TDRR 33634				
G		REVISED PER TDRR 34265				


4
3
2
1
D
C
B
A
40 SEE NOTE 15
SEE NOTE 6
SEE NOTE 11
10
9 SEE NOTE 15
9 SEE NOTE 15
8
7
OSCILLATOR MODULE B7
ALARM MODULE B8
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
CURRENT SWITCH MODULE B11
MEMORY MODULE B12
NASA NO
MFD BY
S/N
POWER SUPPLY MODULE A30-31
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
LOGIC MODULE A24
LOGIC MODULE A23
LOGIC MODULE A22
LOGIC MODULE A21
LOGIC MODULE A20
LOGIC MODULE A19
LOGIC MODULE A18
LOGIC MODULE A17
LOGIC MODULE A16
34
33
32
31
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37
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38
38
36
69
18
17
16
15
POWER SUPPLY MODULE A30-31
DO NOT REMOVE MODULE WHILE POWER IS ON
LOGIC MODULE A15
LOGIC MODULE A14
LOGIC MODULE A13
LOGIC MODULE A12
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A7
LOGIC MODULE A6
LOGIC MODULE A5
LOGIC MODULE A4
LOGIC MODULE A3
LOGIC MODULE A2
LOGIC MODULE A1
22
22
21
20
19
26
25
24
23
22
36
69
SECTION C-C
SECTION D-D

PACKAGING REFERENCE DRAWINGS
1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421

NOTES: (CONT)

33. SHIM AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 72, NOT TO INCLUDE .004 REF DIMENSION OF FIND NO. 72
34. SHIM AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 71
35. USE TRAY A WIRED ASSY PART NO. 2003092-041 OR PART NO. 2003092-061
36. FOR-031 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24 PART NOS 2003888-011 THRU 2003888-231, SEE CHART 'A'
37. FOR-011 & -021 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24, FIND NOS. 15 THRU 35, PART NOS. 2003121-011 THRU 2003121-231 AND/OR 2003888-011 THRU 2003888-231, SEE CHART 'A'
38. WHEN A COMPUTER IS COMPRISED OF LOGIC MODULES A1 THRU A24, PART NOS. 2003888-011 THRU 2003888-231 AND A TRAY 'A' WIRED ASSY 2003092-041 IT SHALL BE DESIGNATED 2003993-031

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN E Wupta
CHECKED
APPROVED
APPROVED
APPROVED NASA
CCB
APPROVED
MSC
DATE

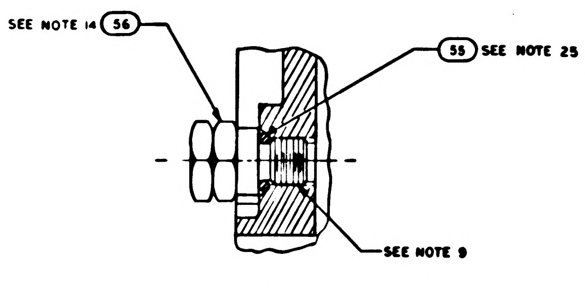
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER
ASSEMBLY

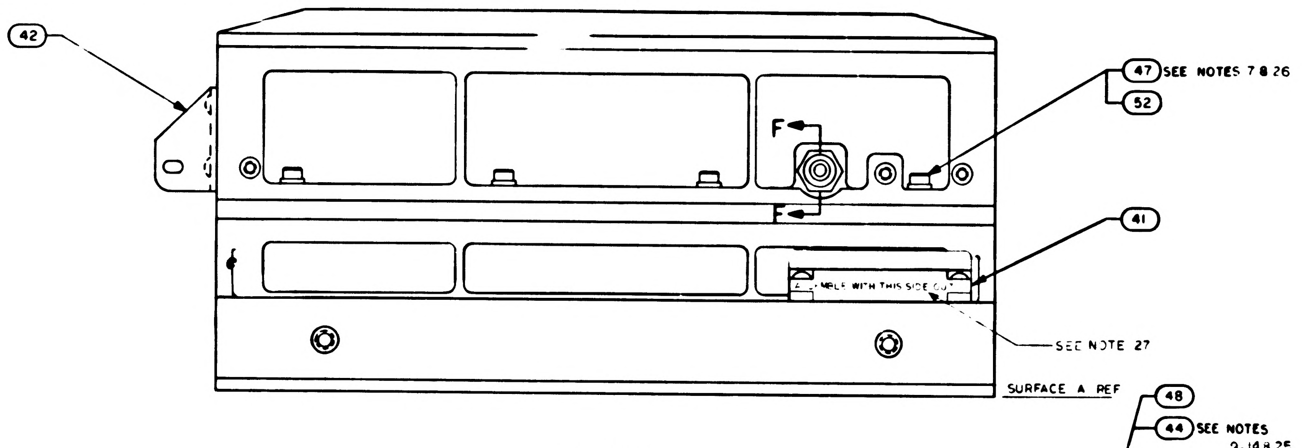
CODE IDENT NO 80230
SIZE J
DRAWING NO. 2003993
SCALE 1/1
SHEET 2 OF 2

2003993 G F2/2

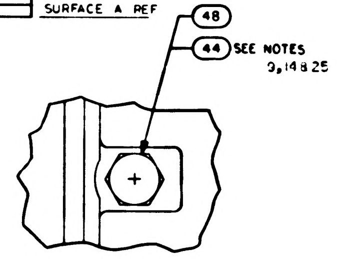
CHART A SEE NOTES 36&37					
PART NO. FOR -011 & -021 CONFIGURATION		PART NO. FOR -011-021 & -031 CONFIGURATION		MODULES	
2003121	-011	2003888	-011	LOGIC MODULE	A1
	-021		-021		A2
	-031		-031		A3
	-041		-041		A4
	-051		-051		A5
	-061		-061		A6
	-071		-071		A7
	-081		-081		A8-A11
	-091		-091		A12
	-111		-111		A13
	-121		-121		A14
	-131		-131		A15
	-141		-141		A16
	-151		-151		A17
	-161		-161		A18
	-171		-171		A19
	-181		-181		A20
	-191		-191		A21
	-211		-211		A22
	-221		-221		A23
2003121	-231	2003888	-231	LOGIC MODULE	A24


SEE NOTE 14 56
55 SEE NOTE 25
SEE NOTE 9

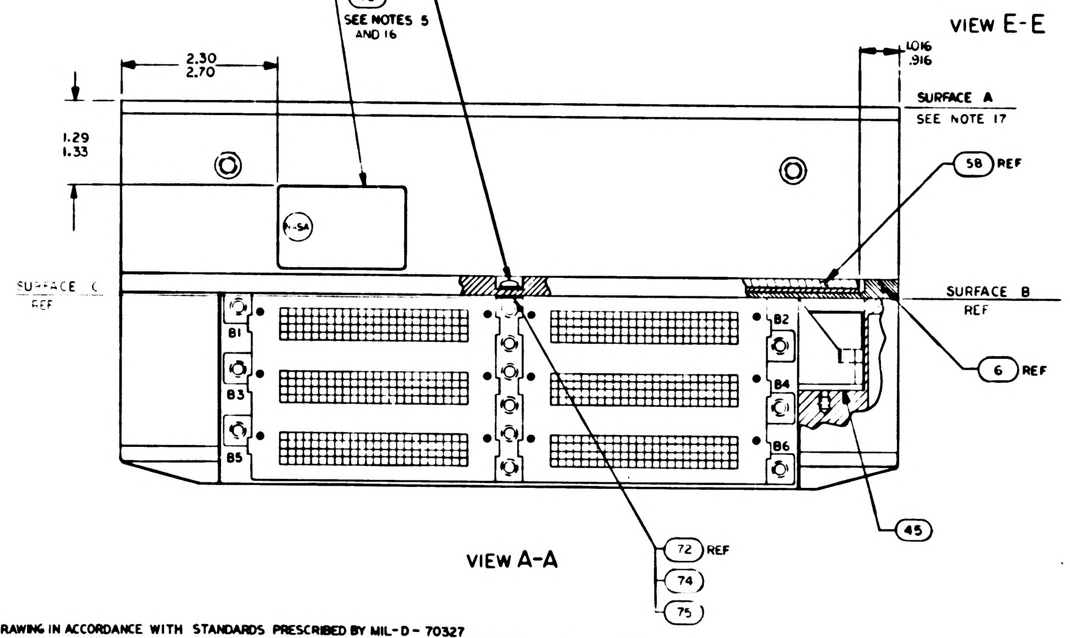
PARTIAL SECTION F F
SCALE: 2/1


42
47 SEE NOTES 7 & 26
52
F
41
SEE NOTE 27
SURFACE A REF

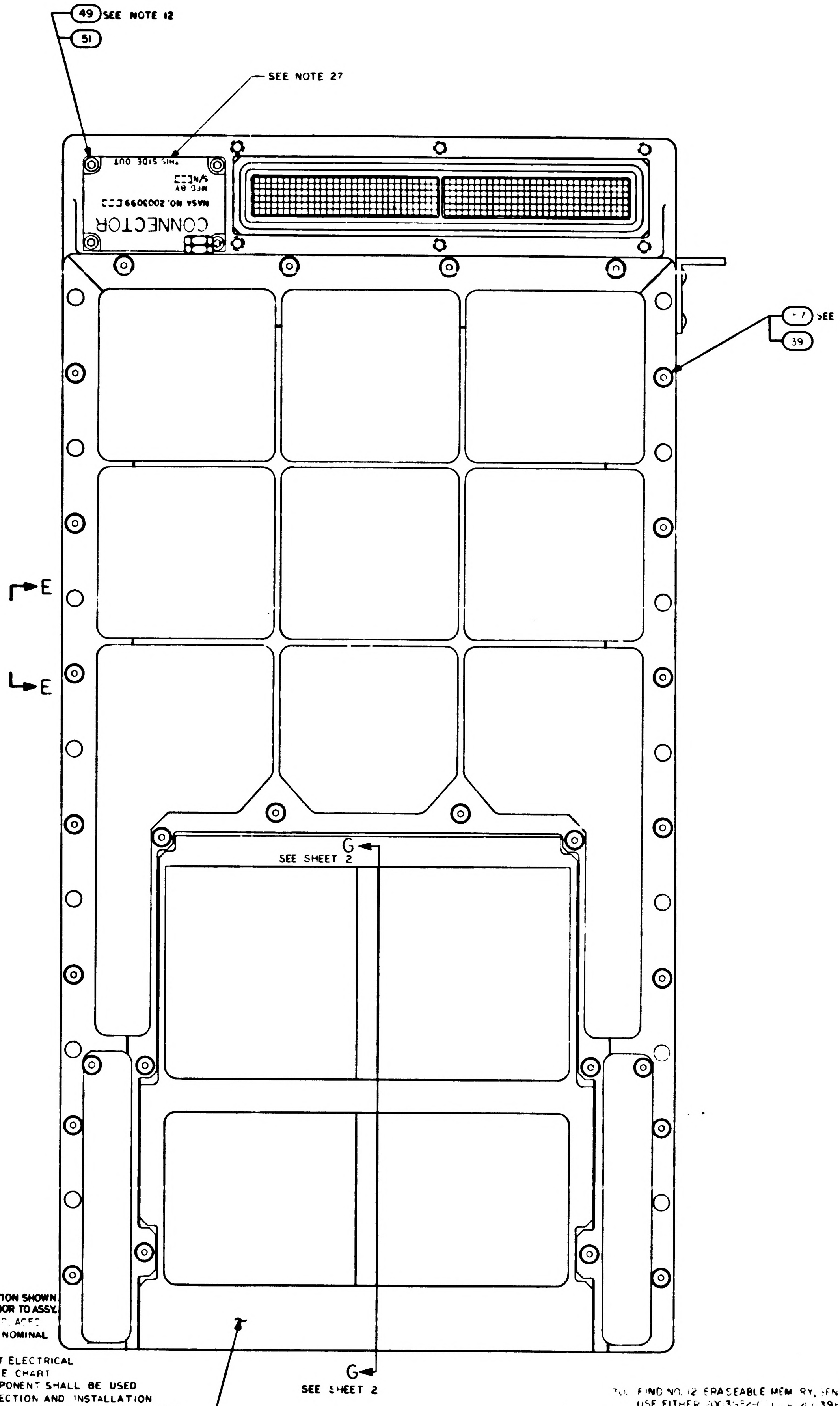
VIEW B-B

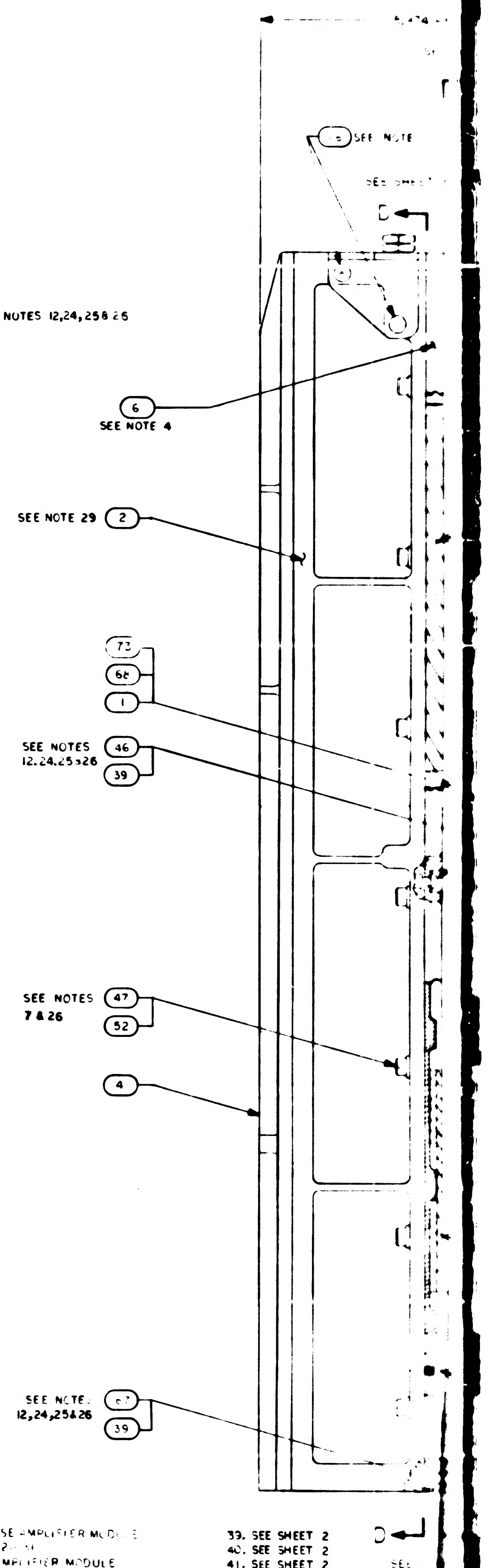

48
44 SEE NOTES 9,14 & 25

VIEW E-E


43
SEE NOTES 5 AND 16
2.30
2.70
1.016
.916
SURFACE A
SEE NOTE 17
1.29
1.33
58 REF
SURFACE C REF
SURFACE B REF
6 REF
B1
B2
B3
B4
B5
B6
45
72 REF
74
75

VIEW A-A


49 SEE NOTE 12
51
SEE NOTE 27
CONNECTOR
E
E
G
SEE SHEET 2
G
SEE SHEET 2
5 SEE NOTE 29

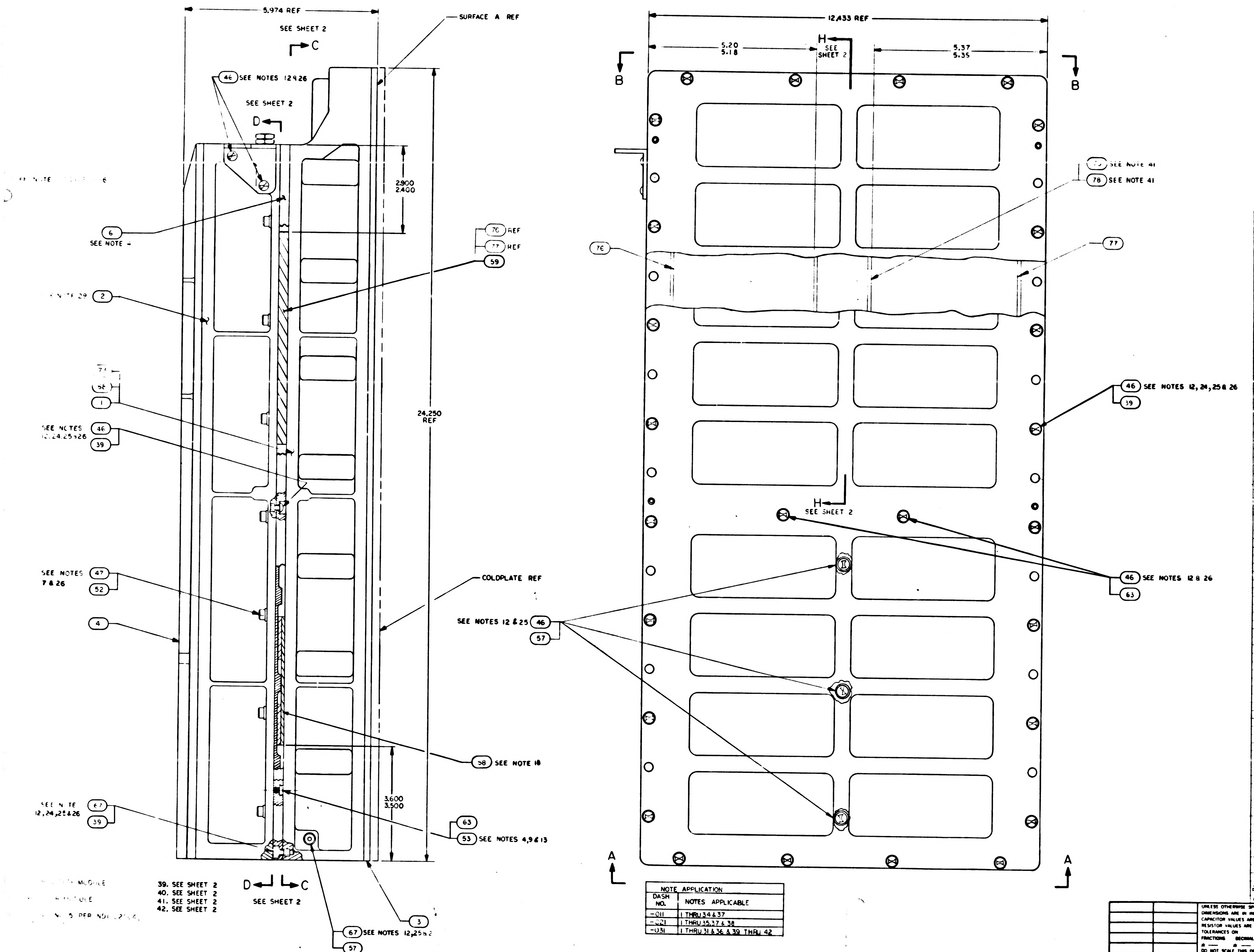

SEE NOTE
SEE SHEET
6
SEE NOTE 4
SEE NOTE 29 2
73
68
1
SEE NOTES 12,24,25&26 46
39
SEE NOTES 7 & 26 47
52
4
SEE NOTE 12,24,25&26 67
39

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. PHANTOM LINES DENOTE AGC COLDPLATE AND HANDLING FIXTURE TO BE SUPPLIED BY NORTH AMERICAN AVIATION, INC
3. ADD SILICONE COMPOUND 1006879 TO MODULE MATING METAL SURFACES AND TRAY MATING SURFACES
4. ASSEMBLE FIND NO. 53 AND FIND NO. 63 TO FIND NO. 6 AND FIND NO. 6 TO FIND NO. 2 PRIOR TO ASSEMBLY OF FIND NO. 2 TO FIND NO. 1 OR FIND NO. 68 OR FIND NO. 73
5. BOND FIND NO. 43 TO FIND NO. 1 OR FIND NO 68 OR FIND NO. 73 PER ND1002004 TYPE IV
6. UNLESS OTHERWISE SPECIFIED TORQUE ALL MODULE MOUNTING SCREWS 15/19 INCH POUNDS
7. TORQUE FIND NO. 47 TO 28/32 INCH POUNDS
8. FINISH IS REQUIRED TO SATISFY ICD GAEC 510-10001
9. APPLY SEALING COMPOUND MIL-S-22473 GRADE H TO FIND NO. 53, FIND NO. 56 AND FIND NO. 44
10. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2016007
11. TORQUE FOR FIND NO. 36 AND FIND NO 69 MOUNTING SCREWS TO BE 4/6 INCH POUNDS
12. TORQUE FOR FIND NO. 46, 49, 50 AND 67 TO BE 18/22 INCH POUNDS
13. TORQUE FOR FIND NO. 53 TO BE 4/6 INCH POUNDS
14. TORQUE FOR FIND NO. 44 AND FIND NO. 56 TO BE 137/157 INCH POUNDS
15. FIND NO. 40 SHALL BE SUPPLIED AS PART OF THIS ASSEMBLY
16. MARK COMPUTER ASSEMBLY AND RELATED PART NO., APPLICABLE DASH NO., SERIAL NO. AND CONTRACT NO. PER 1004260 AND SERIALIZE PER ND1002023
17. FINISH SURFACE $\boxed{-A-}$ PER ICD NAA MH01-01302-116 THIS ASSEMBLY MUST BE CAPABLE OF MEETING ELECTRICAL BONDING REQUIREMENTS OF ICD NAA MH01-01302-116
18. BOND FIND NO. 58 TO FIND NO. 6 IN POSITION SHOWN USING 1006338. CURE AT ROOM TEMP 24 HRS PRIOR TO ASSY.
19. REFERENCED MODULES MUST NOT BE REPLACED OR INTERCHANGED WITHOUT REPEATING NOMINAL SELECTION PROCEDURE PER NOTE 10
20. THE VALUE OF C1 TO BE DETERMINED AT ELECTRICAL TEST AND SELECTED FROM APPROPRIATE CHART
21. WHEN THE VALUE OF C1 IS ZERO NO COMPONENT SHALL BE USED
22. ENCAPSULATE AREA SHOWN AFTER SELECTION AND INSTALLATION OF C1 USING ND1002009 METHOD C OR D USING PRIMER PER SCD1012513
23. WELD PER ND1002005
24. ASSEMBLE HARDWARE WITH SMOOTH FACE OF FIND NO. 39 IN CONTACT WITH SCREW HEAD
25. FIND NO. 39, 48, 55 & 57 TO BE DISCARDED AND REPLACED WITH NEW PARTS EACH TIME THEY ARE DISASSEMBLED
26. SEAL EXPOSED HARDWARE ASSEMBLIES WITH .002 MIN THICK COATING OF FIND NO. 66. OVERALL COMPUTER ASSEMBLY DIMENSIONS SHALL NOT BE EXCEEDED. CURE AT ROOM TEMP 24 HRS
27. STENCILING SHOWN FOR ORIENTATION ONLY
28. KEEP ALL MATING THREADS OF SCREWS, TRAY AND MID SPACER INSERTS FREE OF SILICONE COMPOUND
29. FILL FEMALE INSULATORS OF B41 AND B42 CONNECTORS USING FIND NO. 70 PRIOR TO ASSEMBLY OF FIND NO. 5 TO FIND NO. 2
30. FIND NO. 12 ERASEABLE MEMORY, SENSE AMPLIFIER MODULE USE EITHER 2003982-021 OR 2003982-031
31. FIND NO. 64 FIXED MEMORY, SENSE AMPLIFIER MODULE USE EITHER 2003981-021 OR 2003981-031
32. BOND FIND NO. 72 [illegible] EDGES TO FIND NO. 5 PER ND1002004 TYPE IV PRIOR TO ASSEMBLY OF FIND NO. 6
33. SEE SHEET 2
34. SEE SHEET 2
35. SEE SHEET 2
36. SEE SHEET 2
37. SEE SHEET 2
38. SEE SHEET 2
39. SEE SHEET 2
40. SEE SHEET 2
41. SEE SHEET 2
42. SEE SHEET 2

2003993 H

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		INITIAL RELEASE TDRR 32558				
B		REVISED PER TDRR 32965				
C		REVISED PER TDRR 33[illegible]				
D		REVISED PER TDRR [illegible]				
E		[illegible]				
F		REVISED PER TDRR 33636				
G		REVISED PER TDRR 34265				
H		REVISED PER TDRR 34[illegible]5				


5.974 REF
SEE SHEET 2
C
46 SEE NOTES 12 & 26
SEE SHEET 2
D
SURFACE A REF
2.900
2.400
6 SEE NOTE
2 SEE NOTE 29
76 REF
77 REF
59
24.250 REF
58
1
SEE NOTES 12,24,25 & 26 46 39
SEE NOTES 7 & 26 47 52
4
COLDPLATE REF
58 SEE NOTE 18
SEE NOTE 12,24,25 & 26 67 39
3.600
3.500
63
53 SEE NOTES 4,9 & 13
67 SEE NOTES 12,25 & 2
57
3
D C
SEE SHEET 2
12.433 REF
5.20
5.18
H
SEE SHEET 2
5.37
5.35
B
B
79 SEE NOTE 41
78 SEE NOTE 41
76
77
46 SEE NOTES 12, 24, 25 & 26
59
H
SEE SHEET 2
46 SEE NOTES 12 & 26
63
SEE NOTES 12 & 25 46
57
A
A

39. SEE SHEET 2
40. SEE SHEET 2
41. SEE SHEET 2
42. SEE SHEET 2

NOTE APPLICATION	
DASH NO.	NOTES APPLICABLE
-011	1 THRU 34 & 37
-021	1 THRU 35, 37 & 38
-031	1 THRU 31 & 36 & 39 THRU 42

QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
1	—	—	2004691	SHIM VIBRATION DAMPENING	79
1	—	—	2004690	PAD VIBRATION DAMPENING	78
1	—	—	2004899-007	PAD VIBRATION	77
1	—	—	2004899-006	PAD VIBRATION	76
AR	—	—	2004895-002	SHIM AGC	75
AR	—	—	2004895-001	SHIM AGC	74
1	—	—	2003092-041	TRAY A WIRED ASSY	73
—	AR	AR	2010801	SHIM AGC	72
—	AR	AR	2010800-000	SHIM	71
			2005944	AGC WIRE LIST	REF
AR	AR	AR	MIL-S-8660	SILICONE COMPOUND	70
2	2	—	2003692-011	POWER SUPPLY MODULE A30-31	69
—	1	—	SEE NOTE 35	TRAY "A" WIRED ASSY	68
33	33	33	2004732-002	SCREW, COATED	67
AR	AR	AR	1006338-000	SEALING COMPOUND, SILICONE RUBBER	66
AR	AR	AR	1006776-22	INSULATION, SLEEVING ELECTRICAL	65
1	1	1	SEE NOTE 20	CAPACITOR	64
10	10	10	2004148-007	WASHER, FLAT	63
1	1	1	SEE NOTE 31	SENSE AMPLIFIER MODULE, FIXED MEMORY B14	62
—	~~AR~~	~~AR~~	~~2004895-002~~	~~SHIM AGC~~	~~61~~
—	~~AR~~	~~AR~~	~~2004895-001~~	~~SHIM AGC~~	~~60~~
—	1	1	2004899-001	PAD VIBRATION	59
1	1	1	2003970	VIBRATION PAD ASSY	58
4	4	4	NAS1598-D08N	WASHER, SEALING	57
1	1	1	2018773	VALVE PRESSURE ASSEMBLY	56
1	1	1	1000159-5	PACKING, PREFORMED "O" RING	55
2	2	2	2004984-001	WASHER, FLAT	54
8	8	8	2004130	PAD, THREADED	53
18	18	18	2004894-014	WASHER, FLAT	52
4	4	4	2004894-012	WASHER, FLAT	51
2	2	2	1000439-36	SCREW, HEX SOCKET HEAD	50
4	4	4	1004722-2	SCREW, CAPTIVE	49
1	1	1	1000159-7	PACKING, PREFORMED "O" RING	48
18	18	18	2004732-003	SCREW, COATED	47
33	33	33	2004732-001	SCREW, COATED	46
2	2	2	1006347	GASKET, PLATE	45
1	1	1	2004986	PLUG, MACHINE THREAD	44
1	1	1	1004260-19	NAME PLATE, TYPE I	43
1	1	1	2004113-001	BRACKET, CABLE	42
1	1	1	2003099-011	CONNECTOR ASSEMBLY	41
1	1	1	1006380	GASKET, RETAINED	40
58	58	58	2004707	WASHER, KNURLED	39
3	3	3	2003067-041	INTERFACE MODULE A27-29	38
2	2	2	2003070-031	INTERFACE MODULE A25-26	37
—	—	2	2003887-011	POWER SUPPLY MODULE A30-31	36
1	1	1	SEE NOTES 36 & 37	LOGIC MODULE A24	35
1	1	1		LOGIC MODULE A23	34
1	1	1		LOGIC MODULE A22	33
1	1	1		LOGIC MODULE A21	32
1	1	1		LOGIC MODULE A20	31
1	1	1		LOGIC MODULE A19	30
1	1	1		LOGIC MODULE A18	29
1	1	1		LOGIC MODULE A17	28
1	1	1		LOGIC MODULE A16	27
1	1	1		LOGIC MODULE A15	26
1	1	1		LOGIC MODULE A14	25
1	1	1		LOGIC MODULE A13	24
1	1	1		LOGIC MODULE A12	23
4	4	4		LOGIC MODULE A8-11	22
1	1	1		LOGIC MODULE A7	21
1	1	1		LOGIC MODULE A6	20
1	1	1		LOGIC MODULE A5	19
1	1	1		LOGIC MODULE A4	18
1	1	1		LOGIC MODULE A3	17
1	1	1		LOGIC MODULE A2	16
1	1	1	SEE NOTES 36 & 37	LOGIC MODULE A1	15
2	2	2	2003140-031	ROPE DRIVER MODULE B16-17	14
1	1	1	2003027-031	STRAND SELECT MODULE B15	13
1	1	1	SEE NOTE 30	SENSE AMPL MOD, ERASABLE MEMORY B13	12
1	1	1	2003111-021	ERASABLE MEMORY MODULE B12	11
1	1	1	2003026-031	CURRENT SWITCH MODULE B11	10
2	2	2	2003114-021	ERASABLE DRIVER MODULE B9-10	9
1	1	1	2003983-021	ALARM MODULE B8	8
1	1	1	2003036-031	OSCILLATOR MODULE B7	7
1	1	1	2003978-001	MID SPACER	6
1	1	1	2003059-021	INTERCONNECTION HEADER ASSEMBLY	5
1	1	1	2003976-011	TRAY B COVER	4
1	1	1	2003977-011	TRAY A COVER	3
1	1	1	2003093-021	TRAY B WIRED ASSEMBLY	2
—	—	1	2003092-031	TRAY A WIRED ASSEMBLY	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003991	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MPT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

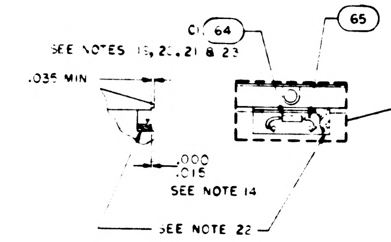
COMPUTER ASSEMBLY

CODE IDENT NO 80230
SIZE J
DRAWING NO 2003993
SCALE 1/1
SHEET 1 OF 2

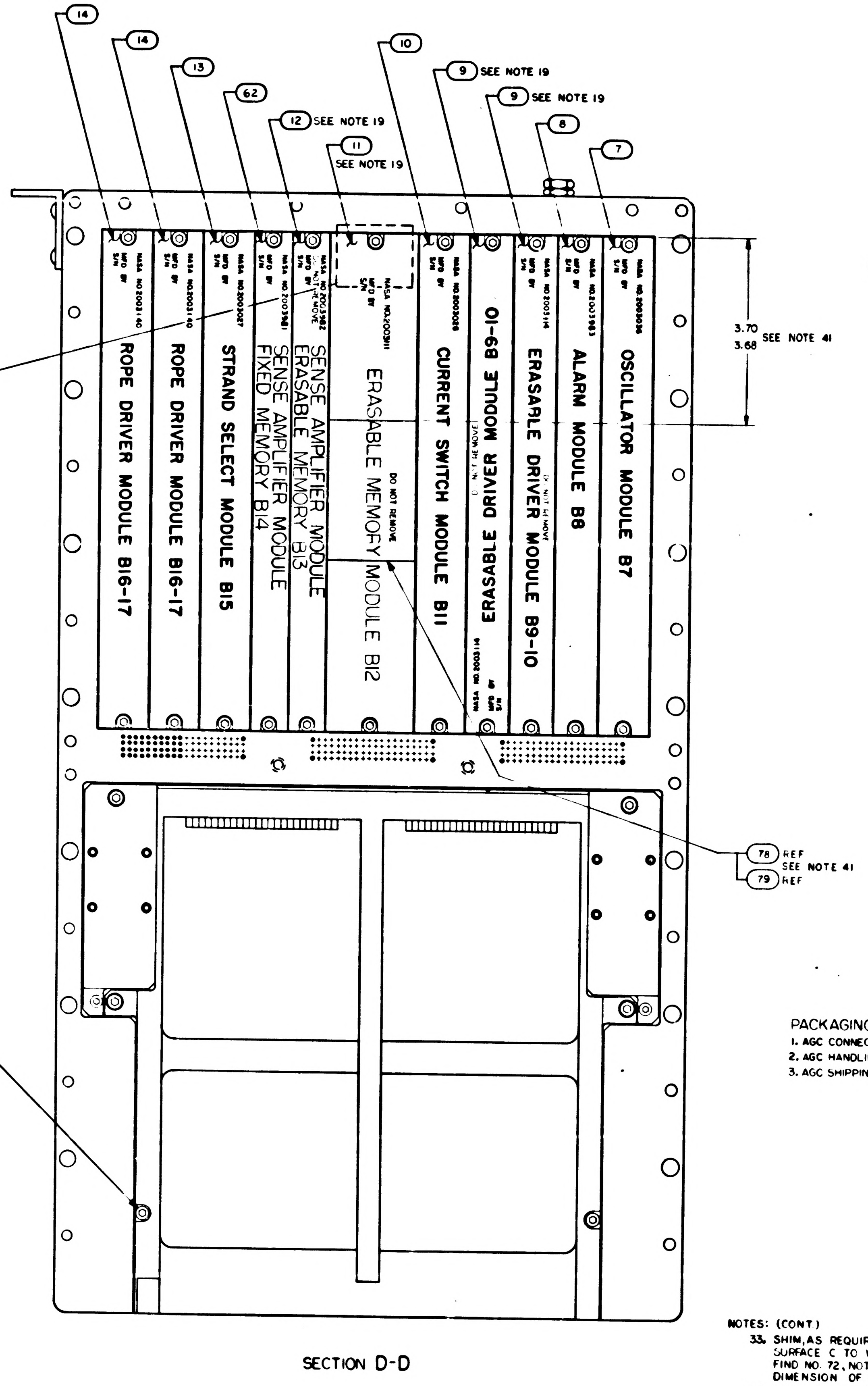
993 H

F2/32 2003993 H

C1	
PART NO.	VALUE UUF
1006777-1	10
-15	150
-18	330
-20	470
-22	680
1006777-23	820
SEE NOTE 21	0
1006777-6	220
1006777-17	270

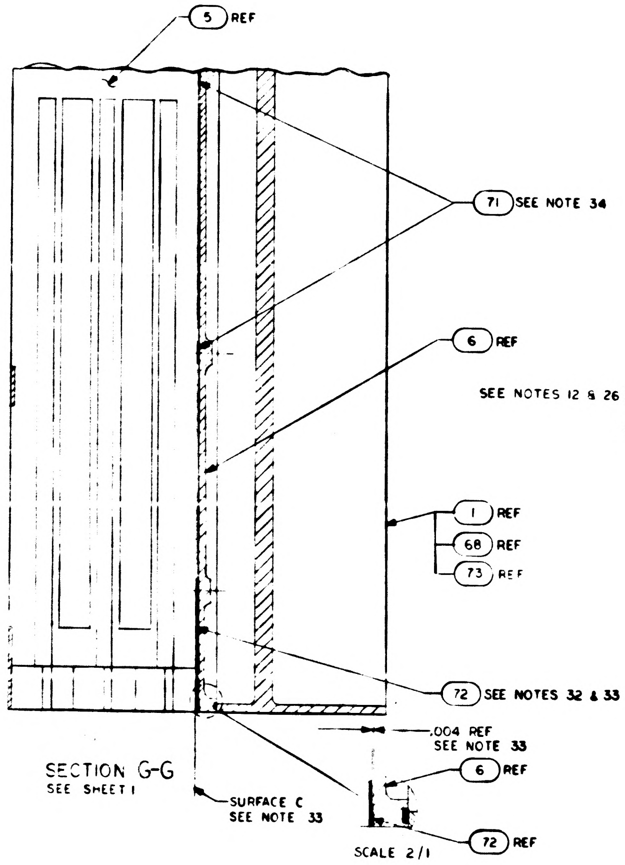


C1
64
65
SEE NOTES 15, 20, 21 & 23
.035 MIN
.000
.015
SEE NOTE 14
SEE NOTE 22



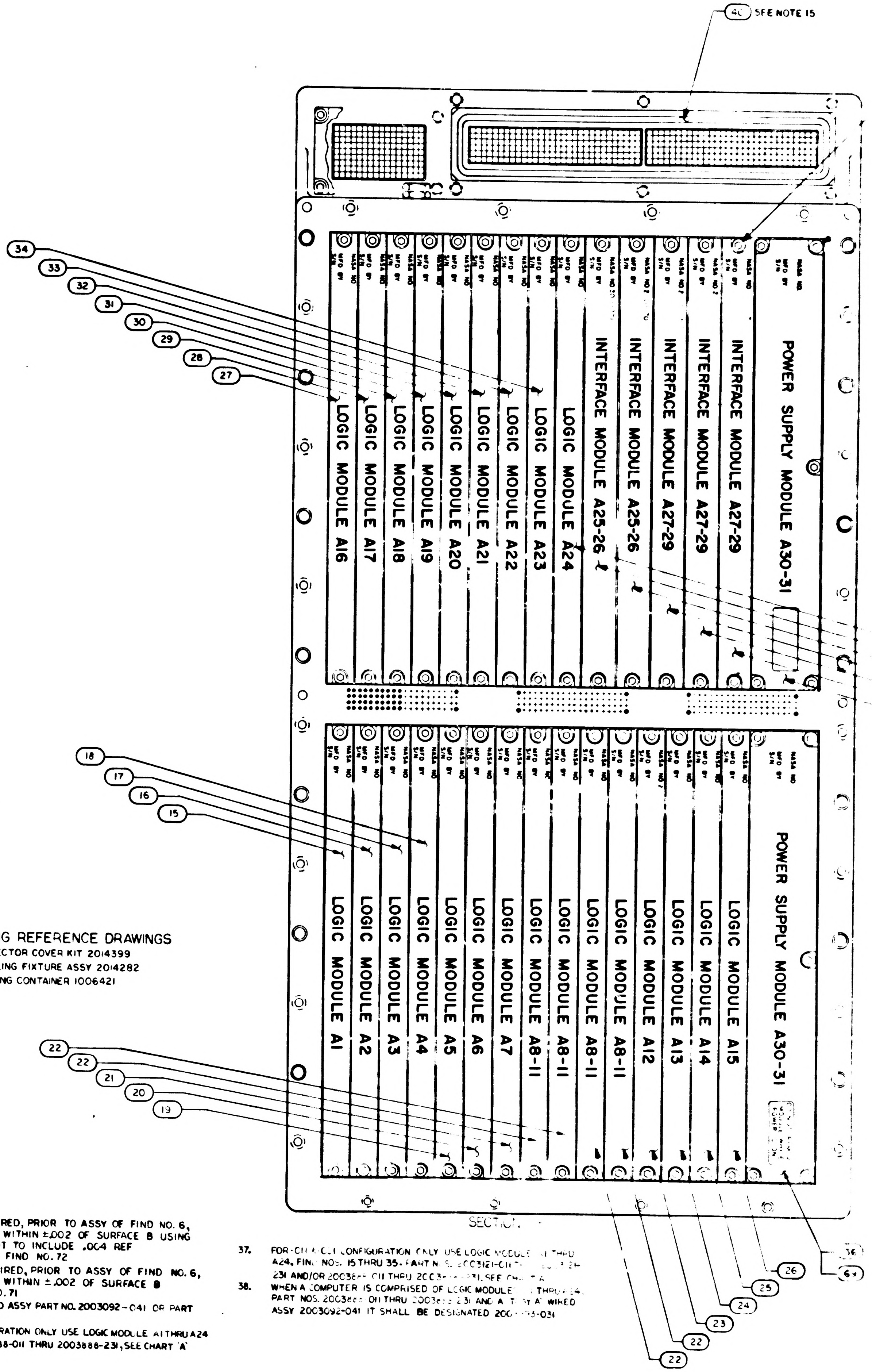
14
14
13
62
12 SEE NOTE 19
11
SEE NOTE 19
10
9 SEE NOTE 19
9 SEE NOTE 19
8
7
ROPE DRIVER MODULE B16-17
ROPE DRIVER MODULE B16-17
STRAND SELECT MODULE B15
SENSE AMPLIFIER MODULE FIXED MEMORY B14
SENSE AMPLIFIER MODULE ERASABLE MEMORY B13
ERASABLE MEMORY MODULE B12
DO NOT REMOVE
CURRENT SWITCH MODULE B11
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
ALARM MODULE B8
OSCILLATOR MODULE B7
3.70
3.68
SEE NOTE 41
78 REF
SEE NOTE 41
79 REF
SEE NOTES 12 & 26
50
54

SECTION D-D



5 REF
71 SEE NOTE 34
6 REF
1 REF
68 REF
73 REF
72 SEE NOTES 32 & 33
.004 REF
SEE NOTE 33
6 REF
SURFACE C
SEE NOTE 33
72 REF
SCALE 2/1

SECTION G-G
SEE SHEET 1



40 SEE NOTE 15
34
33
32
31
30
29
28
27
LOGIC MODULE A16
LOGIC MODULE A17
LOGIC MODULE A18
LOGIC MODULE A19
LOGIC MODULE A20
LOGIC MODULE A21
LOGIC MODULE A22
LOGIC MODULE A23
LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
18
17
16
15
LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
22
22
21
20
19
SECTION
26
25
24
23
22
22
36
64

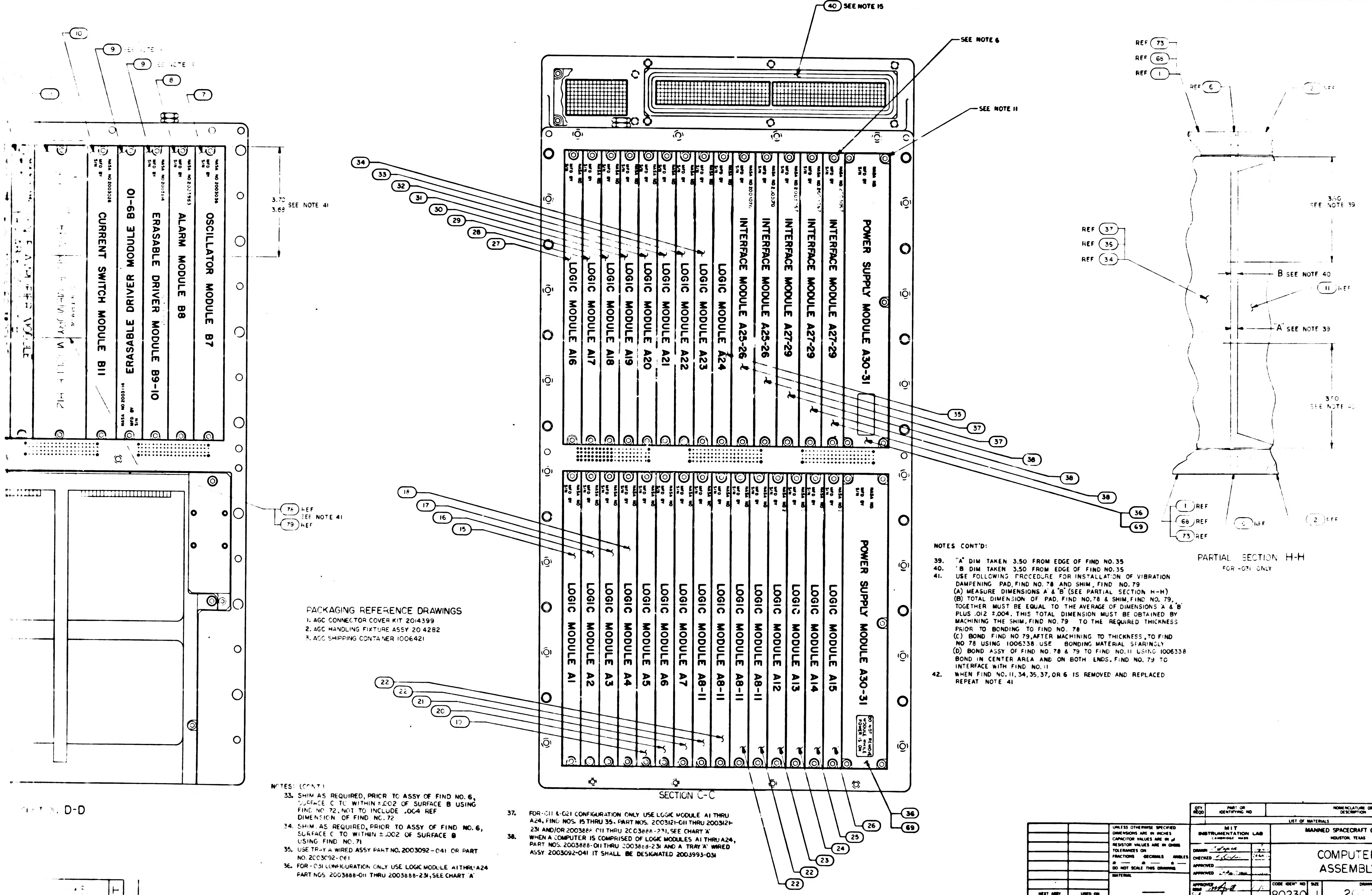
PACKAGING REFERENCE DRAWINGS
1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421

NOTES: (CONT.)

33. SHIM, AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 72, NOT TO INCLUDE .004 REF DIMENSION OF FIND NO. 72
34. SHIM, AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 71
35. USE TRAY A WIRED ASSY PART NO. 2003092-041 OR PART NO. 2003092-061
36. FOR -031 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24 PART NOS. 2003888-011 THRU 2003888-231, SEE CHART 'A'
37. FOR -011 & -021 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24, FIND NOS. 15 THRU 35. PART NOS. 2003121-011 THRU [illegible] 231 AND/OR 2003888-011 THRU 2003888-231, SEE CHART A
38. WHEN A COMPUTER IS COMPRISED OF LOGIC MODULE A1 THRU A24, PART NOS. 2003888-011 THRU 2003888-231 AND A TRAY A WIRED ASSY 2003092-041 IT SHALL BE DESIGNATED 200[illegible]3-031

2003993	H

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		[illegible] TDRR 32558				
B		RELEASED PER TDRR 32905				
C		[illegible]				
D		REVISED PER TDRR 333C6				
E		[illegible] 5				
F		REVISED PER TDRR 3363-				
G		REVISED PER TDRR 34265				
H		REVISED PER TDRR 34265				



40 SEE NOTE 15
SEE NOTE 6
SEE NOTE 11
10
9 SEE NOTE 1
9 SEE NOTE 1
8
7
OSCILLATOR MODULE B7
ALARM MODULE B8
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
CURRENT SWITCH MODULE B11
3.72
3.68 SEE NOTE 41
76 REF
SEE NOTE 41
79 REF
D-D
34
33
32
31
30
29
28
27
LOGIC MODULE A16
LOGIC MODULE A17
LOGIC MODULE A18
LOGIC MODULE A19
LOGIC MODULE A20
LOGIC MODULE A21
LOGIC MODULE A22
LOGIC MODULE A23
LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
35
37
37
38
38
38
36
69
18
17
16
15
LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
DO NOT REMOVE MODULE WHILE POWER IS ON
22
22
21
20
19
26
25
24
23
22
22
36
69
SECTION C-C
REF 73
REF 66
REF 1
REF 6
2 REF
3.50 SEE NOTE 39
REF 37
REF 35
REF 34
B SEE NOTE 40
11 REF
"A" SEE NOTE 39
3.50 SEE NOTE 40
1 REF
68 REF
73 REF
2 REF
2 REF
PARTIAL SECTION H-H
FOR -031 ONLY

PACKAGING REFERENCE DRAWINGS
1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 204282
3. AGC SHIPPING CONTAINER 1006421

NOTES: (CONT)

33. SHIM AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO 72, NOT TO INCLUDE .004 REF DIMENSION OF FIND NO. 72
34. SHIM AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 71
35. USE TRAY A WIRED ASSY PART NO. 2003092-041 OR PART NO. 2003092-061
36. FOR -031 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24 PART NOS 2003888-011 THRU 2003888-231, SEE CHART 'A'
37. FOR -011 & -021 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24, FIND NOS. 15 THRU 35. PART NOS. 2003121-011 THRU 2003121-231 AND/OR 2003888-011 THRU 2003888-231, SEE CHART 'A'
38. WHEN A COMPUTER IS COMPRISED OF LOGIC MODULES A1 THRU A24, PART NOS. 2003888-011 THRU 2003888-231 AND A TRAY 'A' WIRED ASSY 2003092-041 IT SHALL BE DESIGNATED 2003993-031

NOTES CONT'D:

39. "A" DIM TAKEN 3.50 FROM EDGE OF FIND NO. 35
40. "B" DIM TAKEN 3.50 FROM EDGE OF FIND NO. 35
41. USE FOLLOWING PROCEDURE FOR INSTALLATION OF VIBRATION DAMPENING PAD, FIND NO. 78 AND SHIM, FIND NO. 79
(A) MEASURE DIMENSIONS "A" & "B" (SEE PARTIAL SECTION H-H)
(B) TOTAL DIMENSION OF PAD, FIND NO. 78 & SHIM, FIND NO. 79, TOGETHER MUST BE EQUAL TO THE AVERAGE OF DIMENSIONS "A" & "B" PLUS .012 ±.004. THIS TOTAL DIMENSION MUST BE OBTAINED BY MACHINING THE SHIM, FIND NO. 79 TO THE REQUIRED THICKNESS PRIOR TO BONDING TO FIND NO. 78
(C) BOND FIND NO. 79, AFTER MACHINING TO THICKNESS, TO FIND NO 78 USING 1006338. USE BONDING MATERIAL SPARINGLY
(D) BOND ASSY OF FIND NO. 78 & 79 TO FIND NO. 11 USING 1006338 BOND IN CENTER AREA AND ON BOTH ENDS. FIND NO. 79 TO INTERFACE WITH FIND NO. 11
42. WHEN FIND NO. 11, 34, 35, 37, OR 6 IS REMOVED AND REPLACED REPEAT NOTE 41

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED NASA
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

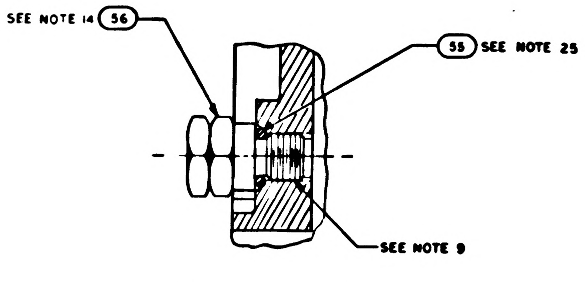
COMPUTER
ASSEMBLY

CODE IDENT NO	SIZE	DRAWING NO.
80230	J	2003993

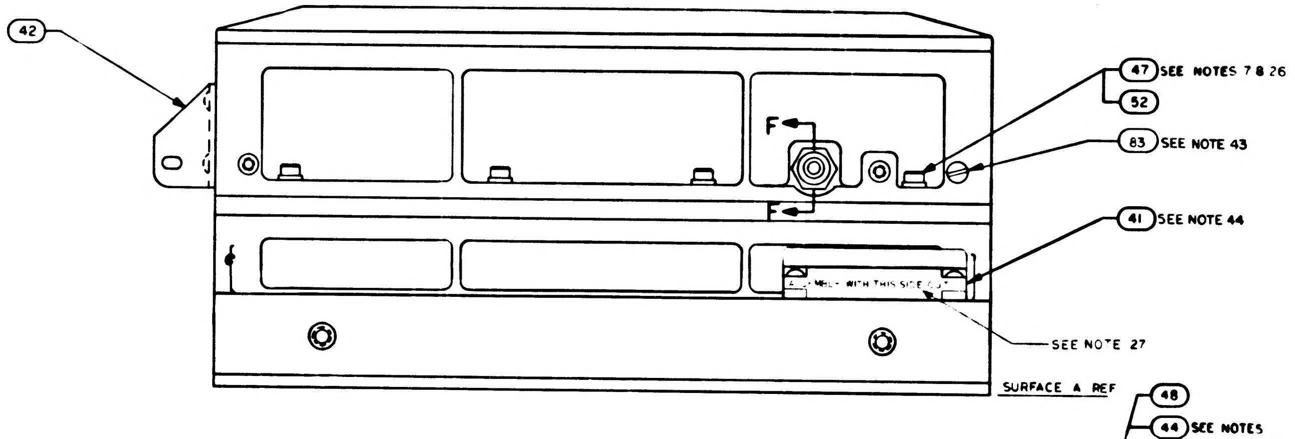
SCALE
SHEET 2 OF 2

E2/2 2003993 H

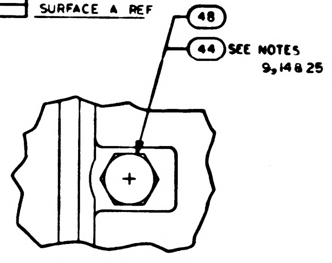
CHART A SEE NOTES 36 & 37				
PART NO. FOR -011 & -021 CONFIGURATION		PART NO. FOR -011-021 & -031 CONFIGURATION		MODULES
2003121	-011	2003888	-011	LOGIC MODULE A1
	-021		-021	A2
	-031		-031	A3
	-041		-041	A4
	-051		-051	A5
	-061		-061	A6
	-071		-071	A7
	-081		-081	A8-A11
	-091		-091	A12
	-111		-111	A13
	-121		-121	A14
	-131		-131	A15
	-141		-141	A16
	-151		-151	A17
	-161		-161	A18
	-171		-171	A19
	-181		-181	A20
	-191		-191	A21
	-211		-211	A22
	-221		-221	A23
2003121	-231	2003888	-231	LOGIC MODULE A24


SEE NOTE 14 (56)
(55) SEE NOTE 25
SEE NOTE 9

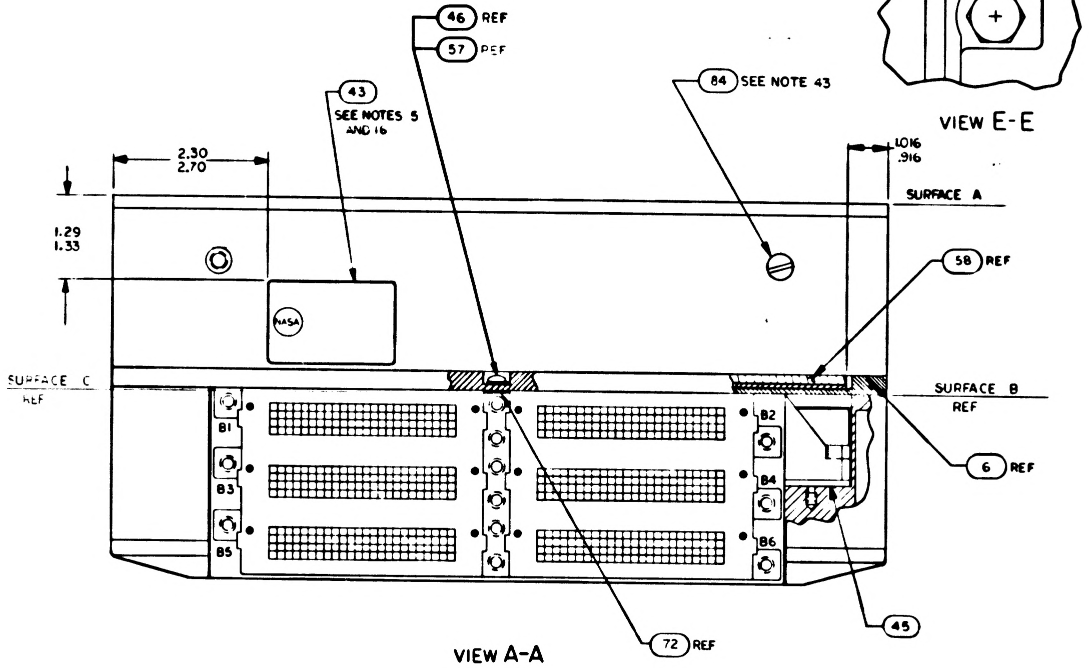
PARTIAL SECTION F F
SCALE: 2/1


(42)
F
F
(47) SEE NOTES 7 & 26
(52)
(83) SEE NOTE 43
(41) SEE NOTE 44
SEE NOTE 27
SURFACE A REF

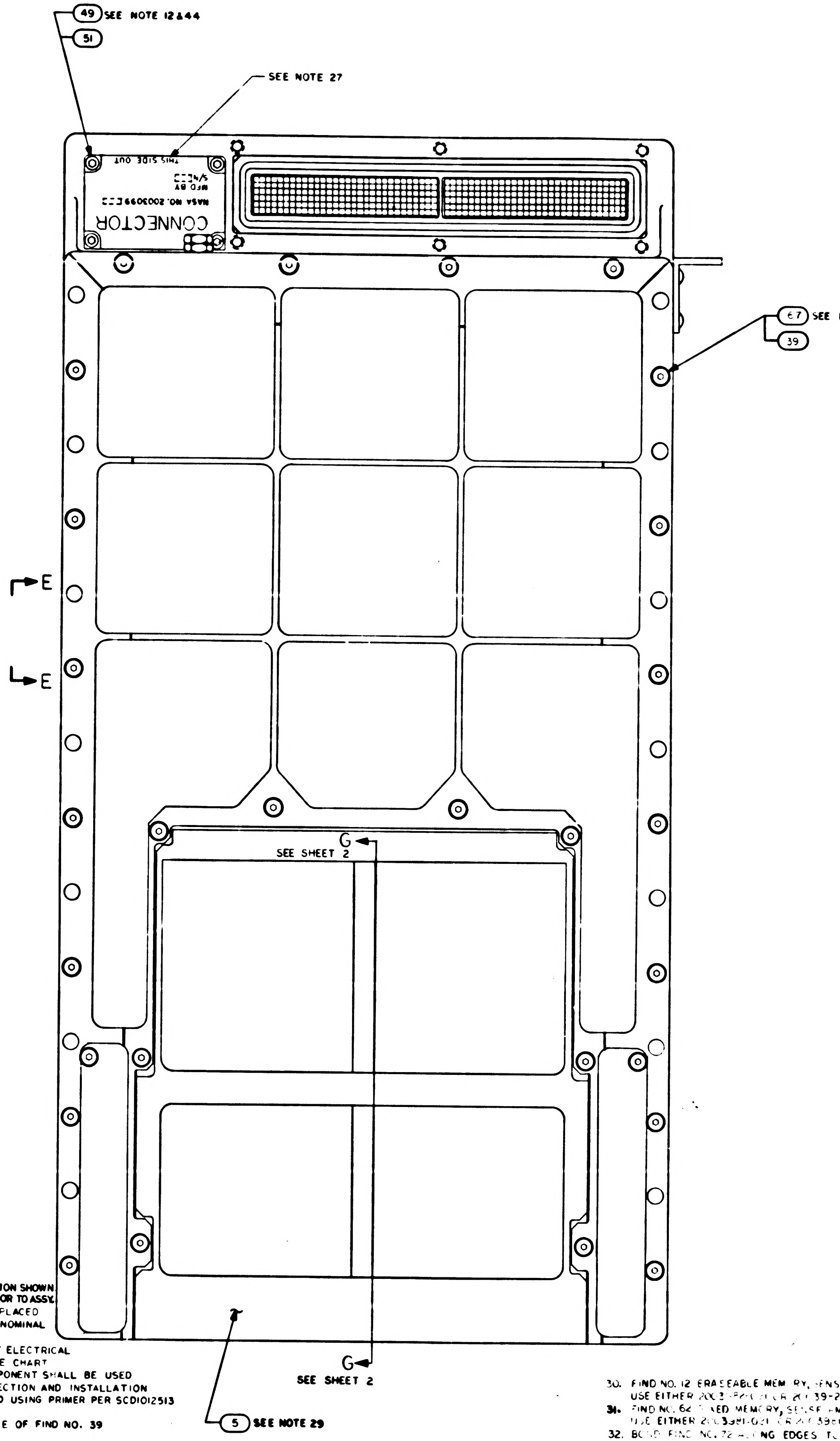
VIEW B-B

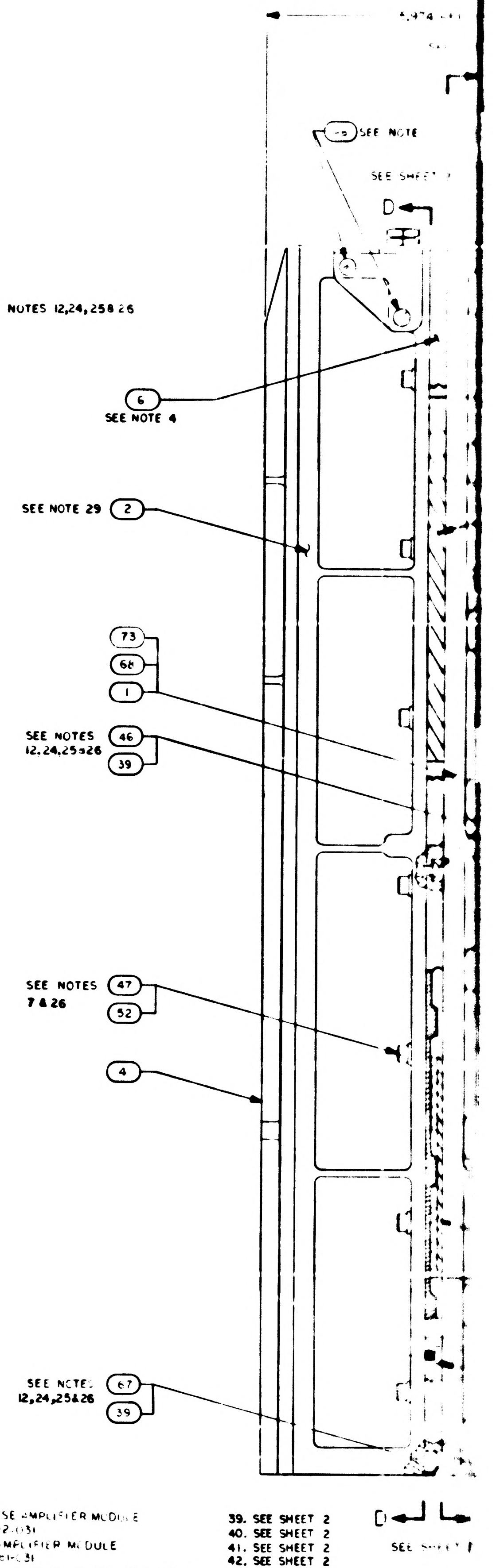

(48)
(44) SEE NOTES 9, 14 & 25

VIEW E-E


(46) REF
(57) REF
(43) SEE NOTES 5 AND 16
(84) SEE NOTE 43
2.30
2.70
1.016
.916
SURFACE A
1.29
1.33
NASA
(58) REF
SURFACE C REF
SURFACE B REF
(6) REF
B1
B2
B3
B4
B5
B6
(45)
(72) REF

VIEW A-A

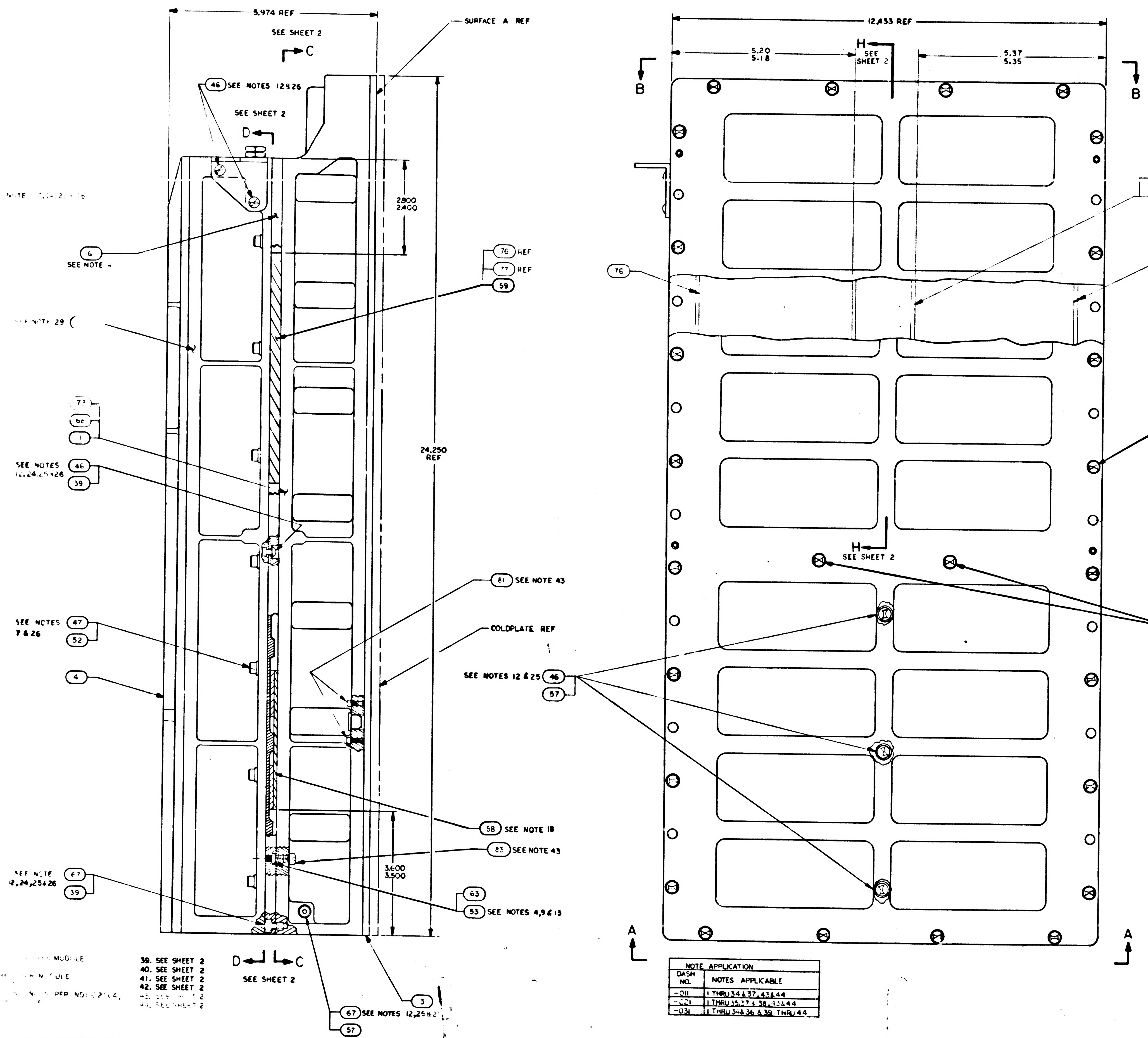

(49) SEE NOTE 12 & 44
(51)
SEE NOTE 27
CONNECTOR
NASA NO. 2003993-[illegible]
THIS SIDE OUT
(67) SEE NOTES 12, 24, 25 & 26
(39)
E
E
G
SEE SHEET 2
G
SEE SHEET 2
(5) SEE NOTE 29


SEE NOTE
SEE SHEET
D
(6) SEE NOTE 4
SEE NOTE 29 (2)
(73)
(68)
(1)
SEE NOTES 12, 24, 25 & 26 (46)
(39)
SEE NOTES 7 & 26 (47)
(52)
(4)
SEE NOTES 12, 24, 25 & 26 (67)
(39)
D
SEE

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. PHANTOM LINES DENOTE AGC COLDPLATE AND HANDLING FIXTURE TO BE SUPPLIED BY NORTH AMERICAN AVIATION, INC
3. ADD SILICONE COMPOUND 1006879 TO MODULE MATING METAL SURFACES AND TRAY MATING SURFACES
4. ASSEMBLE FIND NO. 53 AND FIND NO. 63 TO FIND NO. 6 AND FIND NO. 6 TO FIND NO. 2 PRIOR TO ASSEMBLY OF FIND NO. 2 TO FIND NO. 1 OR FIND NO. 68 OR FIND NO. 73
5. BOND FIND NO. 43 TO FIND NO. 1 OR FIND NO. 68 OR FIND NO. 73 PER ND1002219, METHOD II
6. UNLESS OTHERWISE SPECIFIED TORQUE ALL MODULE MOUNTING SCREWS 15/19 INCH POUNDS
7. TORQUE FIND NO. 47 TO 28/32 INCH POUNDS
8. ~~FINISH IS REQUIRED TO SATISFY ICD GAEC 510-10001~~
9. APPLY SEALING COMPOUND MIL-S-22473 GRADE H TO FIND NO. 53, FIND NO. 56 AND FIND NO. 44
10. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2016007
11. TORQUE FOR FIND NO. 36 AND FIND NO. 69 MOUNTING SCREWS TO BE 10/12 INCH POUNDS
12. TORQUE FOR FIND NO. 46, 49, 50 AND 67 TO BE 18/22 INCH POUNDS
13. TORQUE FOR FIND NO. 53 TO BE 4/6 INCH POUNDS
14. TORQUE FOR FIND NO. 44 AND FIND NO. 56 TO BE 137/157 INCH POUNDS
15. FIND NO. 40 SHALL BE SUPPLIED AS PART OF THIS ASSEMBLY
16. MARK COMPUTER ASSEMBLY AND RELATED PART NO., APPLICABLE DASH NO., SERIAL NO. AND CONTRACT NO. PER 1004260 AND SERIALIZE PER ND1002023
17. FINISH SURFACE $\boxed{-A-}$ ~~PER ICD NAA MH01-01302-116 THIS ASSEMBLY MUST BE CAPABLE OF MEETING~~ ELECTRICAL ~~BONDING REQUIREMENTS OF ICD NAA MH01-01302-116~~
18. BOND FIND NO. 58 TO FIND NO. 6 IN POSITION SHOWN USING 1006338. CURE AT ROOM TEMP 24 HRS PRIOR TO ASSY.
19. REFERENCED MODULES MUST NOT BE REPLACED OR INTERCHANGED WITHOUT REPEATING NOMINAL SELECTION PROCEDURE PER NOTE 10
20. THE VALUE OF C1 TO BE DETERMINED AT ELECTRICAL TEST AND SELECTED FROM APPROPRIATE CHART
21. WHEN THE VALUE OF C1 IS ZERO NO COMPONENT SHALL BE USED
22. ENCAPSULATE AREA SHOWN AFTER SELECTION AND INSTALLATION OF C1 USING ND1002009 METHOD C OR D USING PRIMER PER SCD1012513
23. WELD PER ND1002005
24. ASSEMBLE HARDWARE WITH SMOOTH FACE OF FIND NO. 39 IN CONTACT WITH SCREW HEAD
25. FIND NO. 39, 48, 55 & 57 TO BE DISCARDED AND REPLACED WITH NEW PARTS EACH TIME THEY ARE DISASSEMBLED
26. SEAL EXPOSED HARDWARE ASSEMBLIES WITH .002 MIN THICK COATING OF FIND NO. 80. OVERALL COMPUTER ASSEMBLY DIMENSIONS SHALL NOT BE EXCEEDED. CURE AT ROOM TEMP 24 HRS.
27. STENCILING SHOWN FOR ORIENTATION ONLY
28. KEEP ALL MATING THREADS OF SCREWS, TRAY AND MID SPACER INSERTS FREE OF SILICONE COMPOUND
29. FILL FEMALE INSULATORS OF B41 AND B42 CONNECTORS USING FIND NO. 70 PRIOR TO ASSEMBLY OF FIND NO. 5 TO FIND NO. 2
30. FIND NO. 12 ERASEABLE MEMORY, SENSE AMPLIFIER MODULE USE EITHER 2003[illegible] OR 20[illegible]39-2-031
31. FIND NO. 62 FIXED MEMORY, SENSE AMPLIFIER MODULE USE EITHER 2003981-021 OR 2003981-031
32. BOND FIND NO. 72 ALONG EDGES TO FIND NO. 5 PER ND1002004, TYPE II PRIOR TO ASSEMBLY OF FIND NO. 6
33. SEE SHEET 2
34. SEE SHEET 2
35. SEE SHEET 2
36. SEE SHEET 2
37. SEE SHEET 2
38. SEE SHEET 2
39. SEE SHEET 2
40. SEE SHEET 2
41. SEE SHEET 2
42. SEE SHEET 2

2003993	J

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
–		INITIAL RELEASE TDRR 32558				
B		REVISED PER TDRR 32965				
C		REVISED PER TDRR 333[illegible]				
D		REVISED PER TDRR [illegible]				
E		[illegible] 5				
F		REVISED PER TDRR 33636				
G		REVISED PER TDRR 34265	SA			
H		REVISED PER TDRR 34245				
J		REVISED PER TDRR 34359				



5.974 REF
SEE SHEET 2
C
SURFACE A REF
46 SEE NOTES 12 & 26
SEE SHEET 2
D
2.900
2.400
6 SEE NOTE
76 REF
77 REF
59
SEE NOTE 29
24.250 REF
73
60
1
SEE NOTES 46 12,24,25 & 26 39
81 SEE NOTE 43
COLDPLATE REF
SEE NOTES 47 7 & 26 52
4
58 SEE NOTE 18
83 SEE NOTE 43
3.600
3.500
SEE NOTE 67 12,24,25 & 26 39
63
53 SEE NOTES 4,9 & 13
3
67 SEE NOTES 12,25 & 26
57
D C
SEE SHEET 2
12.433 REF
5.20
5.18
H SEE SHEET 2
5.37
5.35
B
B
79 SEE NOTE 41
78 SEE NOTE 41
76
77
46 SEE NOTES 12, 24, 25 & 26
59
H SEE SHEET 2
46 SEE NOTES 12 & 26
63
SEE NOTES 12 & 25 46
57
A
A

39. SEE SHEET 2
40. SEE SHEET 2
41. SEE SHEET 2
42. SEE SHEET 2
43. SEE SHEET 2
44. SEE SHEET 2

MODULE

MODULE

PER ND1002204,

NOTE APPLICATION	
DASH NO.	NOTES APPLICABLE
-011	1 THRU 34 & 37, 43 & 44
-021	1 THRU 35, 37 & 38, 43 & 44
-031	1 THRU 34 & 36 & 39 THRU 44

QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
4	4	4	1010485-432	SCREW NYLON	84
11	11	11	1010485-332	SCREW, NYLON	83
6	6	6	1010485-235	SCREW, NYLON	82
28	28	28	1010485-100	SCREW NYLON	81
AR	AR	AR	1006338-003	SEALING COMPOUND SILICONE RUBBER	80
1	—	—	2004691	SHIM VIBRATION DAMPENING	79
1	—	—	2004690	PAD VIBRATION DAMPENING	78
1	—	—	2004899-007	PAD VIBRATION	77
1	—	—	2004899-006	PAD VIBRATION	76
~~AR~~	~~—~~	~~—~~	~~2004895-002~~	~~SHIM AGC~~	75
~~AR~~	~~—~~	~~—~~	~~2004895-001~~	~~SHIM AGC~~	74
1	—	—	2003092-041	TRAY A WIRED ASSY	73
AR	AR	AR	2010801	SHIM AGC	72
AR	AR	AR	2010800-000	SHIM	71
			2005944	AGC WIRE LIST	REF
AR	AR	AR	MIL-S-8660	SILICONE COMPOUND	70
2	2	—	2003892-011	POWER SUPPLY MODULE A30-31	69
—	1	—	SEE NOTE 35	TRAY "A" WIRED ASSY	68
33	33	33	2004732-002	SCREW, COATED	67
~~AR~~	~~AR~~	~~AR~~	~~1006338-000~~	~~SEALING COMPOUND, SILICONE RUBBER~~	66
AR	AR	AR	10067[illegible]-2	INSULATION, SLEEVING ELECTRICAL	65
1	1	1	SEE NOTE 20	CAPACITOR	64
10	10	10	2004148-007	WASHER, FLAT	63
1	1	1	SEE NOTE 31	SENSE AMPLIFIER MODULE, FIXED MEMORY B14	62
—	~~AR~~	~~AR~~	~~2004895-002~~	~~SHIM AGC~~	~~61~~
—	~~AR~~	~~AR~~	~~2004895-001~~	~~SHIM AGC~~	~~60~~
—	1	1	2004899-001	PAD VIBRATION	59
1	1	1	2003970	VIBRATION PAD ASSY	58
4	4	4	NAS1598-008N	WASHER, SEALING	57
1	1	1	2018773	VALVE PRESSURE ASSEMBLY	56
1	1	1	1000159-5	PACKING, PREFORMED "O" RING	55
2	2	2	2004984-001	WASHER, FLAT	54
8	8	8	2004130	PAD, THREADED	53
18	18	18	2004894-014	WASHER, FLAT	52
4	4	4	2004894-012	WASHER, FLAT	51
2	2	2	1[illegible]0489-36	SCREW, HEX SOCKET HEAD	50
4	4	4	1004722-2	SCREW, CAPTIVE	49
1	1	1	1000159-7	PACKING, PREFORMED "O" RING	48
18	18	18	2004732-003	SCREW, COATED	47
33	33	33	2004732-001	SCREW, COATED	46
2	2	2	1006347	GASKET, PLATE	45
1	1	1	2004986	PLUG, MACHINE THREAD	44
1	1	1	1004260-19	NAME PLATE, TYPE I	43
1	1	1	2004113-001	BRACKET, CABLE	42
1	1	1	2003099-011	CONNECTOR ASSEMBLY	41
1	1	1	1006380	GASKET, RETAINED	40
58	58	58	20047[illegible]7	WASHER, KNURLED	39
3	3	3	2003067-041	INTERFACE MODULE A27-29	38
2	2	2	2003070-031	INTERFACE MODULE A25-26	37
—	—	2	2003887-011	POWER SUPPLY MODULE A30-31	36
1	1	1	SEE NOTES 36 & 37	LOGIC MODULE A24	35
1	1	1		LOGIC MODULE A23	34
1	1	1		LOGIC MODULE A22	33
1	1	1		LOGIC MODULE A21	32
1	1	1		LOGIC MODULE A20	31
1	1	1		LOGIC MODULE A19	30
1	1	1		LOGIC MODULE A18	29
1	1	1		LOGIC MODULE A17	28
1	1	1		LOGIC MODULE A16	27
1	1	1		LOGIC MODULE A15	26
1	1	1		LOGIC MODULE A14	25
1	1	1		LOGIC MODULE A13	24
1	1	1		LOGIC MODULE A12	23
4	4	4		LOGIC MODULE A8-11	22
1	1	1		LOGIC MODULE A7	21
1	1	1		LOGIC MODULE A6	20
1	1	1		LOGIC MODULE A5	19
1	1	1		LOGIC MODULE A4	18
1	1	1		LOGIC MODULE A3	17
1	1	1		LOGIC MODULE A2	16
1	1	1	SEE NOTES 36 & 37	LOGIC MODULE A1	15
2	2	2	2003140-031	ROPE DRIVER MODULE B16-17	14
1	1	1	2003027-031	STRAND SELECT MODULE B15	13
1	1	1	SEE NOTE 30	SENSE AMPL MOD, ERASABLE MEMORY B13	12
1	1	1	2003111-021	ERASABLE MEMORY MODULE B12	11
1	1	1	2003026-031	CURRENT SWITCH MODULE B11	10
2	2	2	2003114-021	ERASABLE DRIVER MODULE B9-10	9
1	1	1	2003983-021	ALARM MODULE B8	8
1	1	1	2003036-031	OSCILLATOR MODULE B7	7
1	1	1	2003978-001	MID SPACER	6
1	1	1	2003059-021	INTERCONNECTION HEADER ASSEMBLY	5
1	1	1	2003976-011	TRAY B COVER	4
1	1	1	2003977-011	TRAY A COVER	3
1	1	1	2003093-021	TRAY B WIRED ASSEMBLY	2
—	—	1	2003092-031	TRAY A WIRED ASSEMBLY	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003[illegible]91	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

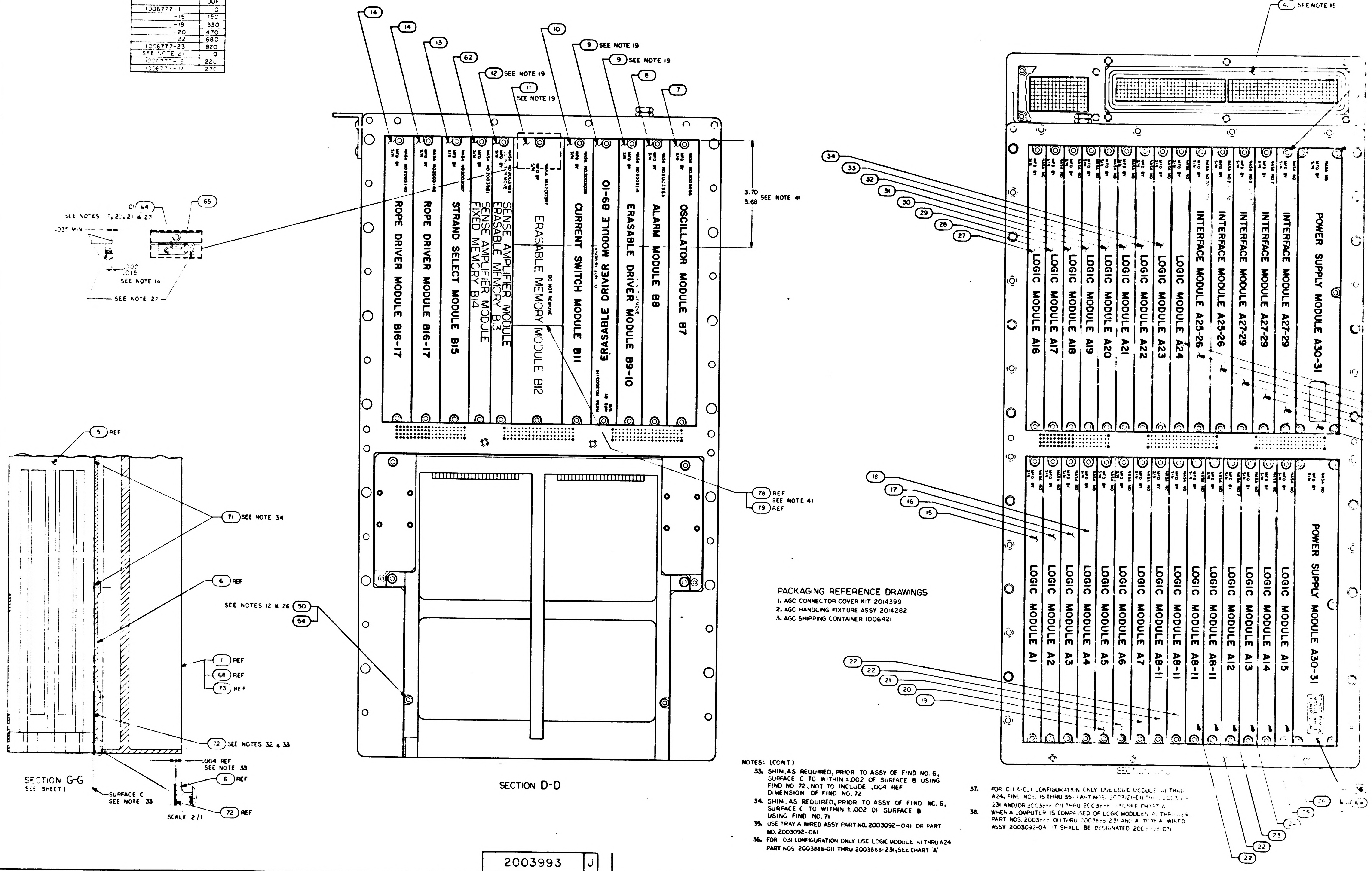
COMPUTER ASSEMBLY

CODE IDENT NO 80230
SIZE J
DRAWING NO 2003993
SCALE
SHEET 1 OF 2

993 | J

F2/2

CI	
PART NO.	VALUE UUF
1006777-1	0
-15	150
-18	330
-20	470
-22	680
1006777-23	820
SEE NOTE 21	0
1006777-16	220
1006777-17	270


6
5
4
3
D
C
B
A
14
14
13
62
12 SEE NOTE 19
11 SEE NOTE 19
10
9 SEE NOTE 19
9 SEE NOTE 19
8
7
ROPE DRIVER MODULE B16-17
ROPE DRIVER MODULE B16-17
STRAND SELECT MODULE B15
SENSE AMPLIFIER MODULE ERASABLE MEMORY B13
SENSE AMPLIFIER MODULE FIXED MEMORY B14
DO NOT REMOVE
ERASABLE MEMORY MODULE B12
CURRENT SWITCH MODULE B11
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
ALARM MODULE B8
OSCILLATOR MODULE B7
NASA NO.
MFD BY
S/N
3.70
3.68
SEE NOTE 41
64
65
SEE NOTES 13, 20, 21 & 23
.035 MIN
.020
.015
SEE NOTE 14
SEE NOTE 23
5 REF
71 SEE NOTE 34
6 REF
1 REF
68 REF
73 REF
72 SEE NOTES 32 & 33
.004 REF
SEE NOTE 33
6 REF
72 REF
SURFACE C
SEE NOTE 33
SCALE 2/1
SECTION G-G
SEE SHEET 1
SEE NOTES 12 & 26
50
54
78 REF
SEE NOTE 41
79 REF
SECTION D-D
40 SEE NOTE 15
34
33
32
31
30
29
28
27
LOGIC MODULE A16
LOGIC MODULE A17
LOGIC MODULE A18
LOGIC MODULE A19
LOGIC MODULE A20
LOGIC MODULE A21
LOGIC MODULE A22
LOGIC MODULE A23
LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
18
17
16
15
LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
22
22
21
20
19
26
25
24
23
22
22
SECTION F-F

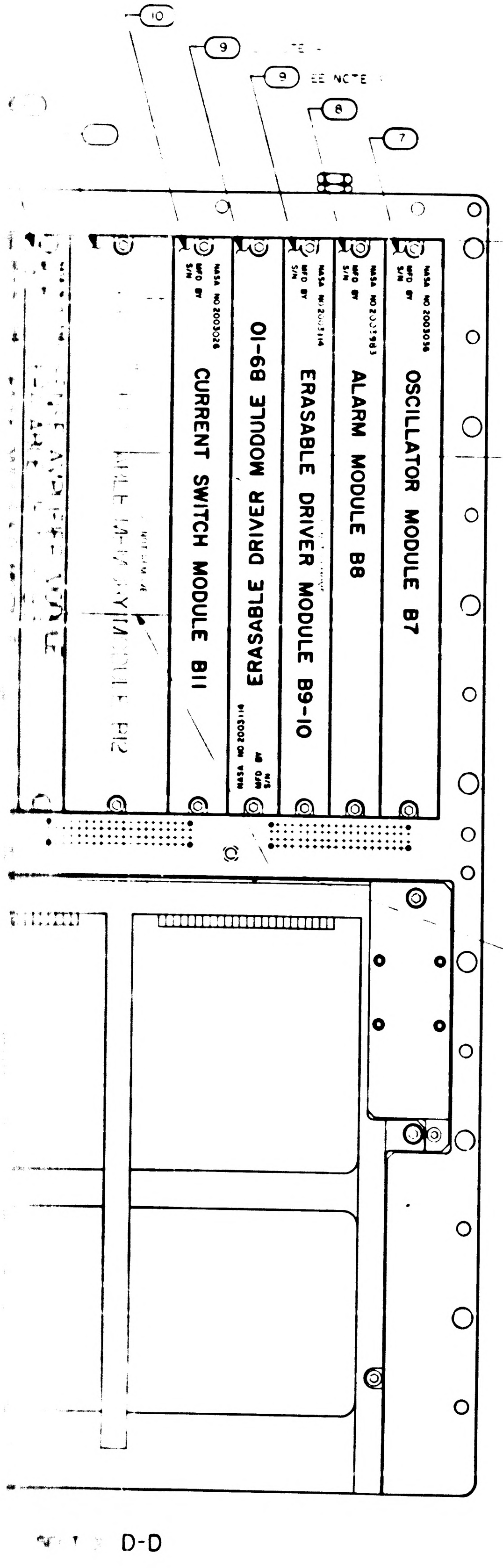
PACKAGING REFERENCE DRAWINGS
1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421

NOTES: (CONT.)

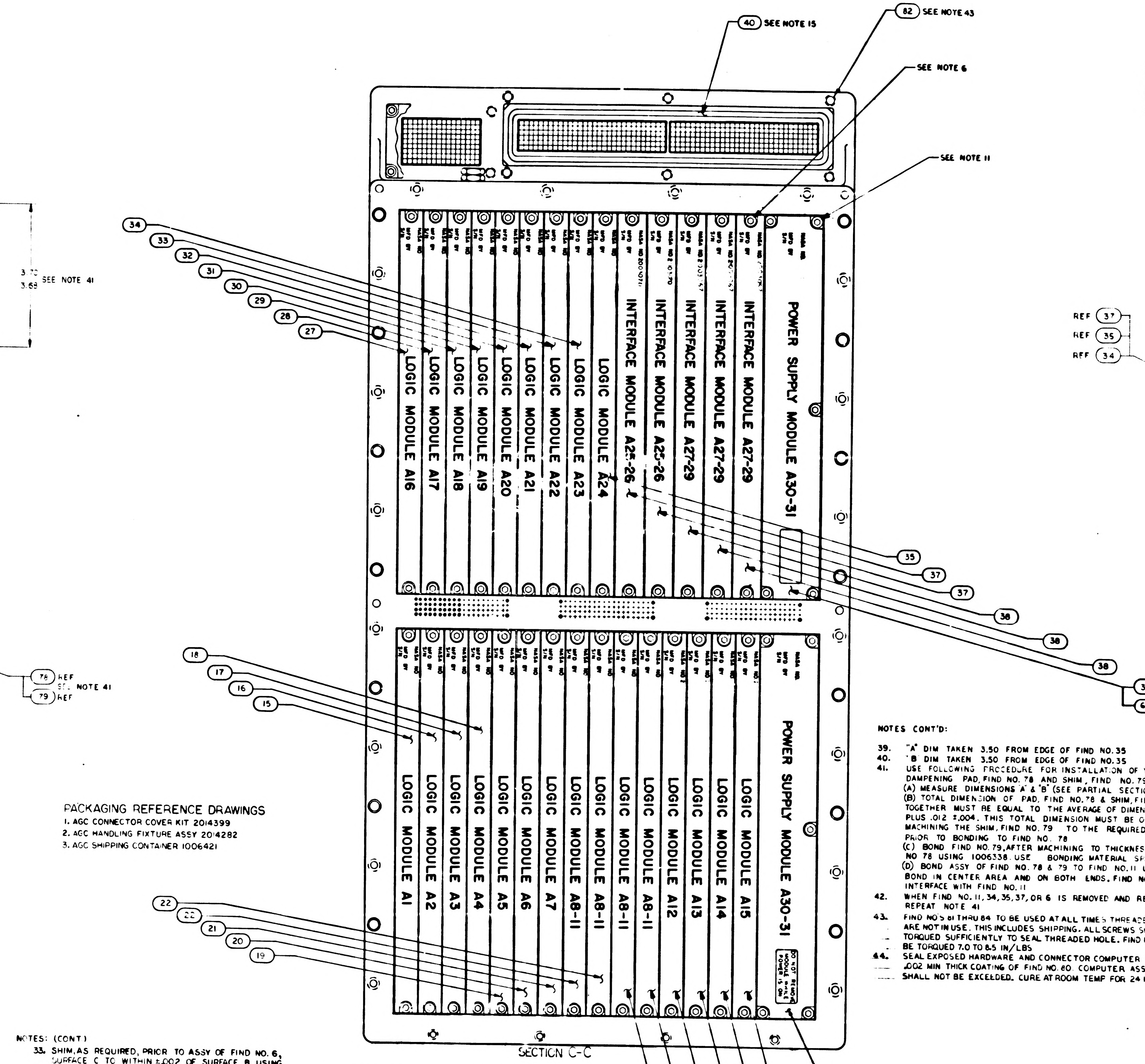
33. SHIM, AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 72, NOT TO INCLUDE .004 REF DIMENSION OF FIND NO. 72
34. SHIM, AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 71
35. USE TRAY A WIRED ASSY PART NO. 2003092-041 OR PART NO. 2003092-061
36. FOR -031 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24 PART NOS 2003888-011 THRU 2003888-231, SEE CHART 'A'
37. FOR -011 & -021 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24, FIND NOS. 15 THRU 35. PART NOS. 2003121-011 THRU 2003121-231 AND/OR 2003888-011 THRU 2003888-231, SEE CHART A
38. WHEN A COMPUTER IS COMPRISED OF LOGIC MODULES A1 THRU A24, PART NOS. 2003888-011 THRU 2003888-231 AND A TRAY A WIRED ASSY 2003092-041 IT SHALL BE DESIGNATED 2003993-031

2003993	J

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
REVISIONS						
		[illegible]				
B		RELEASED PER TDRR 32905				
		[illegible]				
		REVISED PER TDRR 33[illegible]				
E		[illegible]				
F		REVISED PER TDRR 33638				
G		REVISED PER TDRR 34265				
H		REVISED PER TDRR 34285				
J		REVISED PER TDRR 34359				



10
9
9 SEE NOTE
8
7
CURRENT SWITCH MODULE B11
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
ALARM MODULE B8
OSCILLATOR MODULE B7
NASA NO 2003026
NASA NO 2003116
NASA NO 2003085
MFD BY
S/N
3.70
3.69
SEE NOTE 41
78 REF
SEE NOTE 41
79 REF
D-D

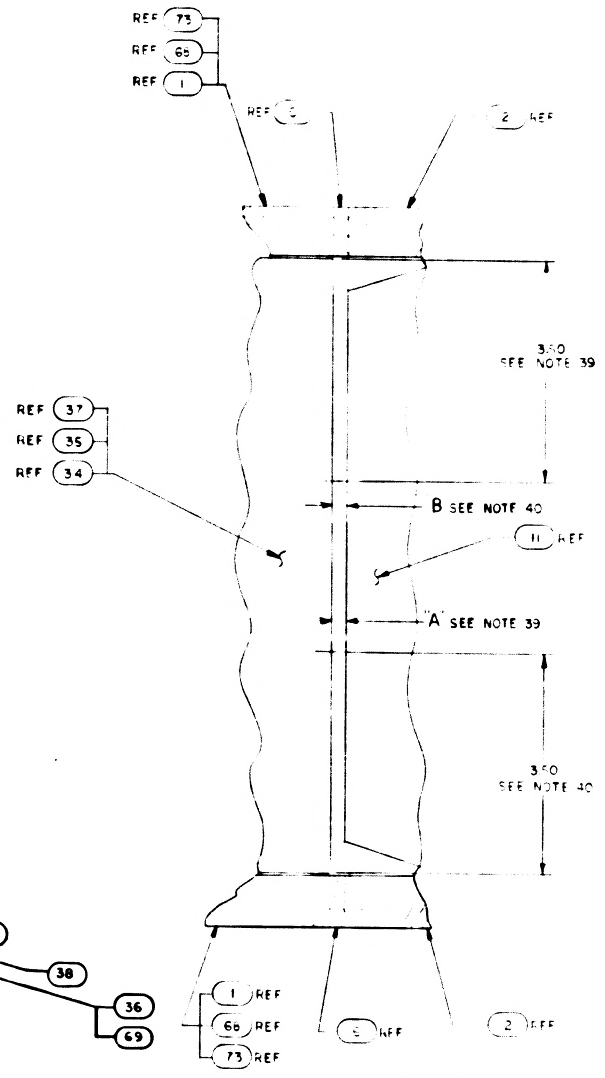


40 SEE NOTE 15
82 SEE NOTE 43
SEE NOTE 6
SEE NOTE 11
34
33
32
31
30
29
28
27
LOGIC MODULE A16
LOGIC MODULE A17
LOGIC MODULE A18
LOGIC MODULE A19
LOGIC MODULE A20
LOGIC MODULE A21
LOGIC MODULE A22
LOGIC MODULE A23
LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
35
37
37
38
38
38
36
69
18
17
16
15
LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
NASA NO
MFD BY
S/N
22
22
21
20
19
36
69
26
25 SEE NOTE 19
24
23
22
22

SECTION C-C

PACKAGING REFERENCE DRAWINGS

1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421



REF 73
REF 66
REF 1
REF
2 REF
3.50
SEE NOTE 39
REF 37
REF 35
REF 34
B SEE NOTE 40
11 REF
A SEE NOTE 39
3.50
SEE NOTE 40
1 REF
66 REF
73 REF
REF
2 REF

PARTIAL SECTION H-H

FOR -031 ONLY

NOTES: (CONT)

33. SHIM, AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 72, NOT TO INCLUDE .004 REF DIMENSION OF FIND NO. 72
34. SHIM, AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 71
35. USE TRAY A WIRED ASSY PART NO. 2003092-041 OR PART NO. 2003092-061
36. FOR -031 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24 PART NOS 2003888-011 THRU 2003888-231, SEE CHART 'A'
37. FOR -011 & -021 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24, FIND NOS. 15 THRU 35. PART NOS. 2003121-011 THRU 2003121-231 AND/OR 2003888-011 THRU 2003888-231, SEE CHART 'A'
38. WHEN A COMPUTER IS COMPRISED OF LOGIC MODULES A1 THRU A24, PART NOS. 2003888-011 THRU 2003888-231 AND A TRAY 'A' WIRED ASSY 2003092-041 IT SHALL BE DESIGNATED 2003993-031

NOTES CONT'D:

39. "A" DIM TAKEN 3.50 FROM EDGE OF FIND NO. 35
40. "B" DIM TAKEN 3.50 FROM EDGE OF FIND NO. 35
41. USE FOLLOWING PROCEDURE FOR INSTALLATION OF VIBRATION DAMPENING PAD, FIND NO. 78 AND SHIM, FIND NO. 79
    (A) MEASURE DIMENSIONS 'A' & 'B' (SEE PARTIAL SECTION H-H)
    (B) TOTAL DIMENSION OF PAD, FIND NO. 78 & SHIM, FIND NO. 79, TOGETHER MUST BE EQUAL TO THE AVERAGE OF DIMENSIONS 'A' & 'B' PLUS .012 ±.004. THIS TOTAL DIMENSION MUST BE OBTAINED BY MACHINING THE SHIM, FIND NO. 79 TO THE REQUIRED THICKNESS PRIOR TO BONDING TO FIND NO. 78
    (C) BOND FIND NO. 79, AFTER MACHINING TO THICKNESS, TO FIND NO 78 USING 1006338. USE BONDING MATERIAL SPARINGLY
    (D) BOND ASSY OF FIND NO. 78 & 79 TO FIND NO. 11 USING 1006338 BOND IN CENTER AREA AND ON BOTH ENDS. FIND NO. 79 TO INTERFACE WITH FIND NO. 11
42. WHEN FIND NO. 11, 34, 35, 37, OR 6 IS REMOVED AND REPLACED REPEAT NOTE 41
43. FIND NO'S 81 THRU 84 TO BE USED AT ALL TIMES THREADED HOLES ARE NOT IN USE. THIS INCLUDES SHIPPING. ALL SCREWS SHALL BE TORQUED SUFFICIENTLY TO SEAL THREADED HOLE. FIND NO. 83 TO BE TORQUED 7.0 TO 8.5 IN/LBS
44. SEAL EXPOSED HARDWARE AND CONNECTOR COMPUTER INTERFACE WITH .002 MIN THICK COATING OF FIND NO. 80. COMPUTER ASSY DIMENSION SHALL NOT BE EXCEEDED. CURE AT ROOM TEMP FOR 24 HOURS

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
		LIST OF MATERIALS	

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED NASA
APPROVED MSC
DATE

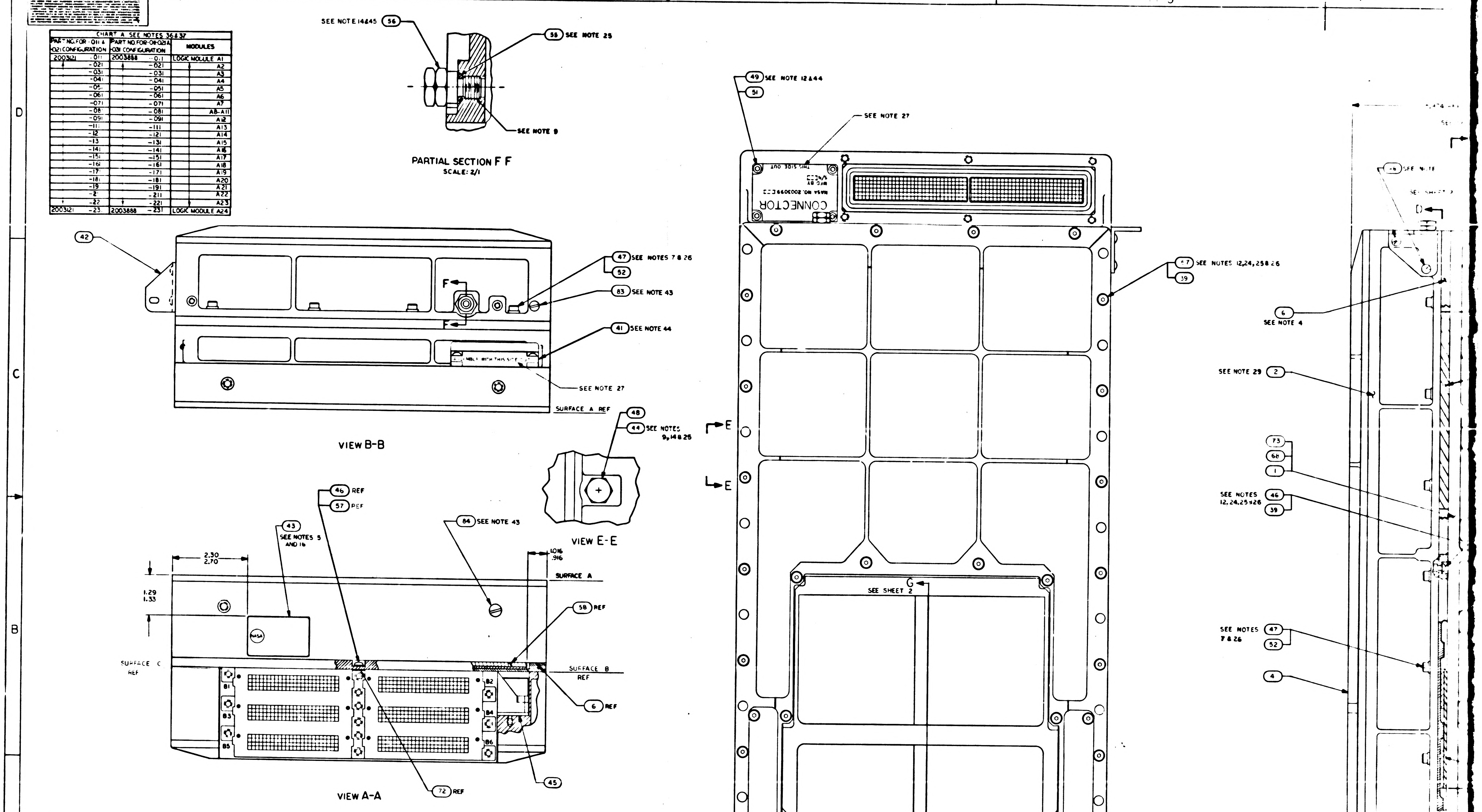
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER
ASSEMBLY

CODE IDENT NO: 80230
SIZE: J
DRAWING NO: 03993
SCALE 1/1
SHEET 2 OF 2

E 2/2

CHART A SEE NOTES 36&37					
PART NO. FOR -011 & -021 CONFIGURATION		PART NO. FOR -011-021 & -031 CONFIGURATION		MODULES	
2003121	-011	2003888	-011	LOGIC MODULE	A1
	-021		-021		A2
	-031		-031		A3
	-041		-041		A4
	-051		-051		A5
	-061		-061		A6
	-071		-071		A7
	-081		-081		A8-A11
	-091		-091		A12
	-111		-111		A13
	-121		-121		A14
	-131		-131		A15
	-141		-141		A16
	-151		-151		A17
	-161		-161		A18
	-171		-171		A19
	-181		-181		A20
	-191		-191		A21
	-211		-211		A22
	-221		-221		A23
2003121	-231	2003888	-231	LOGIC MODULE	A24


8
7
6
5
D
C
B
A
SEE NOTE 14&45
56
58 SEE NOTE 25
SEE NOTE 9
PARTIAL SECTION F F
SCALE: 2/1
42
F
47 SEE NOTES 7 & 26
52
83 SEE NOTE 43
41 SEE NOTE 44
SEE NOTE 27
SURFACE A REF
VIEW B-B
48
44 SEE NOTES 9,14 & 25
VIEW E-E
46 REF
57 REF
43 SEE NOTES 5 AND 16
84 SEE NOTE 43
2.30
2.70
1.29
1.33
1.016
.916
SURFACE A
NASA
58 REF
SURFACE C REF
SURFACE B REF
B1
B2
B3
B4
B5
B6
6 REF
72 REF
45
VIEW A-A
49 SEE NOTE 12&44
51
SEE NOTE 27
THIS SIDE OUT
CONNECTOR
NASA NO. 2003993
MFG BY
S/N
E
G
SEE SHEET 2
5 SEE NOTE 29
67 SEE NOTES 12,24,25&26
39
6 SEE NOTE 4
SEE NOTE 29 2
73
68
1
SEE NOTES 12,24,25&26 46
39
SEE NOTES 7&26 47
52
4
SEE NOTES 12,24,25&26 67
39
SEE SHEET 2
D
SEE SHEET 2

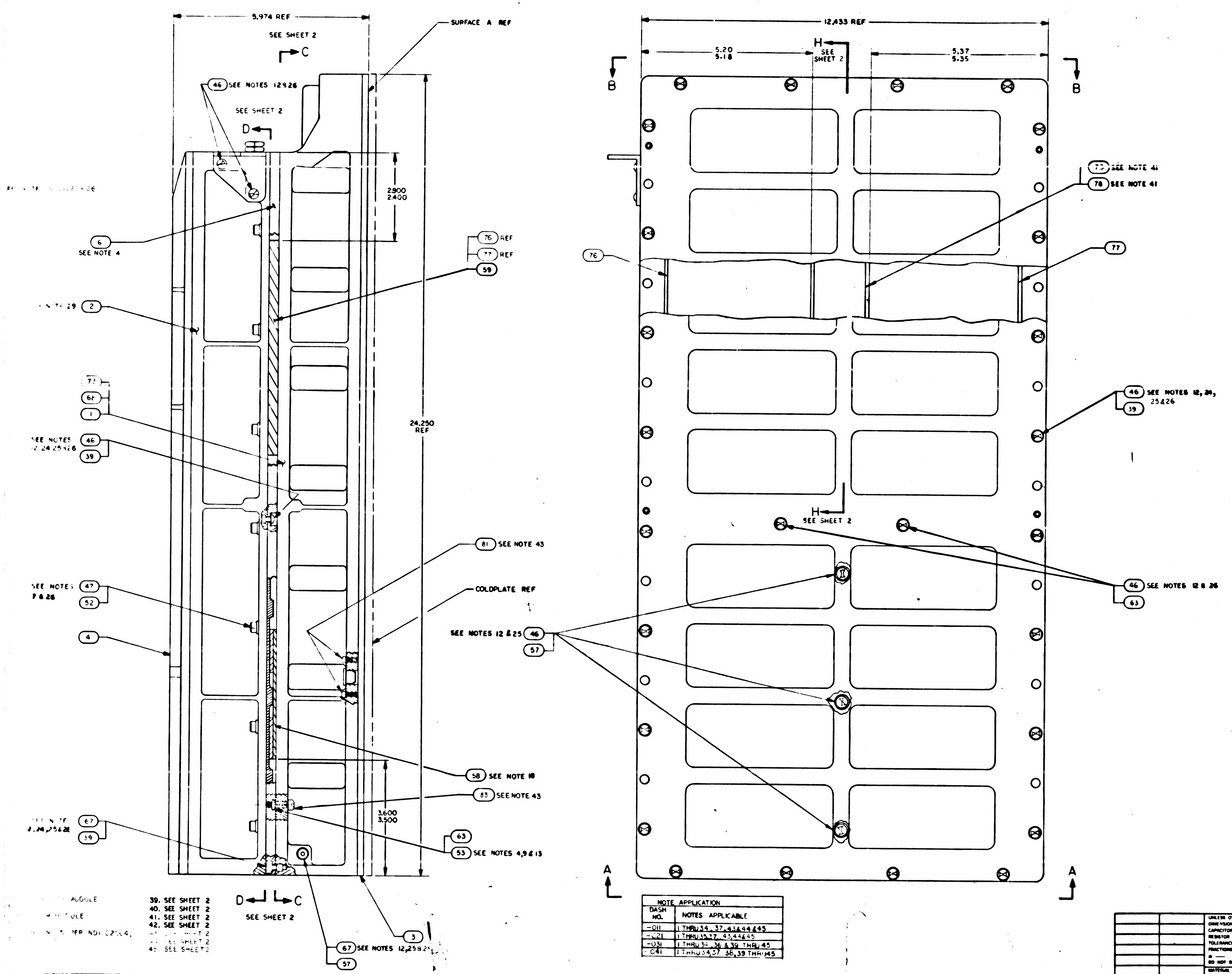
NOTES :

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. PHANTOM LINES DENOTE AGC COLDPLATE AND HANDLING FIXTURE TO BE SUPPLIED BY NORTH AMERICAN AVIATION, INC
3. ADD SILICONE COMPOUND 1006879 TO MODULE MATING METAL SURFACES AND TRAY MATING SURFACES
4. ASSEMBLE FIND NO. 53 AND FIND NO. 63 TO FIND NO. 6 AND FIND NO. 6 TO FIND NO. 2 PRIOR TO ASSEMBLY OF FIND NO. 2 TO FIND NO. 1 OR FIND NO. 68 OR FIND NO. 73
5. BOND FIND NO. 43 TO FIND NO. 1 OR FIND NO. 68 OR FIND NO. 73 PER ND1002219, METHOD II
6. UNLESS OTHERWISE SPECIFIED TORQUE ALL MODULE MOUNTING SCREWS 15/19 INCH POUNDS
7. TORQUE FIND NO. 47 TO 28/32 INCH POUNDS
8. ~~FINISH IS REQUIRED TO SATISFY ICD GAEC 510-10001~~
9. APPLY SEALING COMPOUND MIL-S-22473 GRADE H TO FIND NO. 53, FIND NO. 56 AND FIND NO. 44
10. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2016007
11. TORQUE FOR FIND NO. 36 AND FIND NO. 69 MOUNTING SCREWS TO BE 10/12 INCH POUNDS
12. TORQUE FOR FIND NO. 46, 49, 50 AND 67 TO BE 18/22 INCH POUNDS
13. TORQUE FOR FIND NO. 53 TO BE 4/6 INCH POUNDS
14. TORQUE FOR FIND NO. 44 AND FIND NO. 56 TO BE 137/157 INCH POUNDS
15. FIND NO. 40 SHALL BE SUPPLIED AS PART OF THIS ASSEMBLY
16. MARK COMPUTER ASSEMBLY AND RELATED PART NO., APPLICABLE DASH NO., SERIAL NO. AND CONTRACT NO. PER 1004260 AND SERIALIZE PER ND1002023
17. FINISH SURFACE [-A-] PER ICD NAA MH01-01302-116 ~~THIS ASSEMBLY MUST BE CAPABLE OF MEETING ELECTRICAL BONDING REQUIREMENTS OF ICD NAA MH01-01302-116~~
18. BOND FIND NO. 58 TO FIND NO. 6 IN POSITION SHOWN USING 1006338 CURE AT ROOM TEMP 24 HRS PRIOR TO ASSY.
19. REFERENCED MODULES MUST NOT BE REPLACED OR INTERCHANGED WITHOUT REPEATING NOMINAL SELECTION PROCEDURE PER NOTE 10
20. THE VALUE OF C1 TO BE DETERMINED AT ELECTRICAL TEST AND SELECTED FROM APPROPRIATE CHART
21. WHEN THE VALUE OF C1 IS ZERO NO COMPONENT SHALL BE USED
22. ENCAPSULATE AREA SHOWN AFTER SELECTION AND INSTALLATION OF C1 USING ND1002009 METHOD C OR D USING PRIMER PER SCD1012513
23. WELD PER ND1002005
24. ASSEMBLE HARDWARE WITH SMOOTH FACE OF FIND NO. 30 IN CONTACT WITH SCREW HEAD
25. FIND NO. 30, 48, 55 & 57 TO BE DISCARDED AND REPLACED WITH NEW PARTS EACH TIME THEY ARE DISASSEMBLED
26. SEAL EXPOSED HARDWARE ASSEMBLIES WITH .002 MIN THICK COATING OF FIND NO. 90. OVERALL COMPUTER ASSEMBLY DIMENSIONS SHALL NOT BE EXCEEDED. CURE AT ROOM TEMP 24 HRS
27. STENCILING SHOWN FOR ORIENTATION ONLY
28. KEEP ALL MATING THREADS OF SCREWS, TRAY AND MID SPACER INSERTS FREE OF SILICONE COMPOUND
29. FILL FEMALE INSULATORS OF B41 AND B42 CONNECTORS USING FIND NO. 70 PRIOR TO ASSEMBLY OF FIND NOS TO FIND NO. 2
30. FIND NO. 12 ERASEABLE MEMORY, SENSE AMPLIFIER MODULE USE EITHER 2003982-021 OR 2003982-031
31. FIND NO. 62 FIXED MEMORY, SENSE AMPLIFIER MODULE USE EITHER 2003981-021 OR 2003981-031
32. BOND FIND NO. 72 ALONG EDGES TO FIND NO. 5 PER ND1002004, TYPE V PRIOR TO ASSEMBLY OF FIND NO. 6
33. SEE SHEET 2
34. SEE SHEET 2
35. SEE SHEET 2
36. SEE SHEET 2
37. SEE SHEET 2
38. SEE SHEET 2
39. SEE SHEET 2
40. SEE SHEET 2
41. SEE SHEET 2
42. SEE SHEET 2
43. SEE SHEET 2
44. SEE SHEET 2
45. SEE SHEET 2

2003993 K

2003993 KF 1/2 SH 1/2

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		INITIAL RELEA[illegible] TDRR 32558				
B		REVISED PER TDRR 32965				
C		REVISED PER TDRR 333[illegible]				
D		REVISED PER TDRR [illegible]				
E		[illegible] 5				
F		REVISED PER TDRR 33636				
G		REVISED PER TDRR 34265	SA			
H		REVISED PER TDRR 34245				
J		REVISED PER TDRR 34329				
K		REVISED PER TDRR [illegible]322				


4
3
2
1
D
C
B
A
5.974 REF
SEE SHEET 2
C
SURFACE A REF
46 SEE NOTES 12,9,26
SEE SHEET 2
D
2.900
2.400
6
SEE NOTE 4
76 REF
77 REF
59
2
SEE NOTE 29
77
62
1
SEE NOTES 12,24,25&26
46
39
24.250 REF
81 SEE NOTE 43
COLDPLATE REF
SEE NOTES 7&26
47
52
4
58 SEE NOTE 18
83 SEE NOTE 43
3.600
3.500
63
53 SEE NOTES 4,9 & 13
SEE NOTE 12,24,25&26
67
39
3
67 SEE NOTES 12,25&26
57
D
C
SEE SHEET 2
12.433 REF
5.20
5.18
H
SEE SHEET 2
5.37
5.35
B
B
79 SEE NOTE 41
78 SEE NOTE 41
76
77
46 SEE NOTES 12, 24, 25&26
39
H
SEE SHEET 2
46 SEE NOTES 12 & 26
63
SEE NOTES 12 & 25 46
57
A
A

MODULE

MODULE

PER NDIC 2564,

39. SEE SHEET 2
40. SEE SHEET 2
41. SEE SHEET 2
42. SEE SHEET 2
43. SEE SHEET 2
44. SEE SHEET 2
45. SEE SHEET 2

NOTE APPLICATION	
DASH NO.	NOTES APPLICABLE
-011	1 THRU 34, 37, 43, 44 & 45
-021	1 THRU 35, 37, 43, 44 & 45
-031	1 THRU 34, 36 & 39 THRU 45
-041	1 THRU 34, 37, 38, 39 THRU 45

QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
4	4	4	4	1010485-432	SCREW NYLON	84
11	11	11	11	1010485-332	SCREW, NYLON	83
6	6	6	6	1010485-235	SCREW NYLON	82
29	28	28	28	1010485-100	SCREW NYLON	81
AR	AR	AR	AR	1006338-003	SEALING COMPOUND SILICONE RUBBER	80
1	1	—	—	2004691	SHIM VIBRATION DAMPENING	79
1	1	—	—	2004690	PAD VIBRATION DAMPENING	78
1	1	—	—	2004899-007	PAD VIBRATION	77
1	1	—	—	2004899 006	PAD VIBRATION	76
	~~AR~~			~~2004899-002~~	~~SHIM AGC~~	75
	~~AR~~			~~2004899-001~~	~~SHIM AGC~~	74
1	1	—	—	2003092 041	TRAY A WIRED ASSY	73
AR	AR	AR	AR	2010801	SHIM AGC	72
AR	AR	AR	AR	2010800-000	SHIM	71
				2005944	AGC WIRE LIST	REF
AR	AR	AR	AR	MIL-S-8660	SILICONE COMPOUND	70
2	2	2	—	2003892-011	POWER SUPPLY MODULE A30-31	69
—	—	1	—	SEE NOTE 35	TRAY A WIRED ASSY	68
33	33	33	33	2004732 002	SCREW, COATED	67
	~~AR~~	~~AR~~	~~AR~~	[illegible]	~~SEALING COMPOUND, SILICONE RUBBER~~	66
AR	AR	AR	AR	1006776 22	INSULATION, SLEEVING ELECTRICAL	65
1	1	1	1	SEE NOTE 30	CAPACITOR	64
10	10	10	10	2004148-007	WASHER, FLAT	63
1	1	1	1	SEE NOTE 31	SENSE AMPLIFIER MODULE, FIXED MEMORY B14	62
	—	~~AR~~	~~AR~~	~~2004895-002~~	~~SHIM AGC~~	61
		~~AR~~	~~AR~~	~~2004895-001~~	~~SHIM AGC~~	60
—	—	1	1	2004899-001	PAD VIBRATION	59
1	1	1	1	2003970	VIBRATION PAD ASSY	58
4	4	4	4	NAS1598-008N	WASHER, SEALING	57
1	1	1	1	2018773	VALVE PRESSURE ASSEMBLY	56
1	1	1	1	1000159-5	PACKING, PREFORMED "O" RING	55
2	2	2	2	2004984-001	WASHER, FLAT	54
8	8	8	8	2004130	PAD, THREADED	53
18	18	18	18	2004894-014	WASHER, FLAT	52
4	4	4	4	2004894-012	WASHER, FLAT	51
2	2	2	2	1000469-36	SCREW, HEX SOCKET HEAD	50
4	4	4	4	1004722-2	SCREW, CAPTIVE	49
1	1	1	1	1000159-7	PACKING, PREFORMED "O" RING	48
18	18	18	18	2004732 003	SCREW, COATED	47
33	33	33	33	2004732-001	SCREW, COATED	46
2	2	2	2	1006347	GASKET, PLATE	45
1	1	1	1	2004986	PLUG, MACHINE THREAD	44
1	1	1	1	1004260-19	NAME PLATE, TYPE I	43
1	1	1	1	2004113-001	BRACKET, CABLE	42
1	1	1	1	2003099-011	CONNECTOR ASSEMBLY	41
1	1	1	1	1006380	GASKET, RETAINED	40
58	58	58	58	20047[illegible]7	WASHER, KNURLED	39
3	3	3	3	2003067-041	INTERFACE MODULE A27-29	38
2	2	2	2	2003070-031	INTERFACE MODULE A25-26	37
—	—	—	2	2003887-011	POWER SUPPLY MODULE A30-31	36
1	1	1	1	SEE NOTES 36 & 37	LOGIC MODULE A24	35
1	1	1	1		LOGIC MODULE A23	34
1	1	1	1		LOGIC MODULE A22	33
1	1	1	1		LOGIC MODULE A21	32
1	1	1	1		LOGIC MODULE A20	31
1	1	1	1		LOGIC MODULE A19	30
1	1	1	1		LOGIC MODULE A18	29
1	1	1	1		LOGIC MODULE A17	28
1	1	1	1		LOGIC MODULE A16	27
1	1	1	1		LOGIC MODULE A15	26
1	1	1	1		LOGIC MODULE A14	25
1	1	1	1		LOGIC MODULE A13	24
1	1	1	1		LOGIC MODULE A12	23
4	4	4	4		LOGIC MODULE A8-11	2
1	1	1	1		LOGIC MODULE A7	21
1	1	1	1		LOGIC MODULE A6	20
1	1	1	1		LOGIC MODULE A5	19
1	1	1	1		LOGIC MODULE A4	18
1	1	1	1		LOGIC MODULE A3	17
1	1	1	1		LOGIC MODULE A2	16
1	1	1	1	SEE NOTES 36 & 37	LOGIC MODULE A1	15
2	2	2	2	2003140-031	ROPE DRIVER MODULE B16-17	14
1	1	1	1	2003027-031	STRAND SELECT MODULE B15	13
1	1	1	1	SEE NOTE 30	SENSE AMPL MOD, ERASABLE MEMORY B13	12
1	1	1	1	2003111 021	ERASABLE MEMORY MODULE B12	11
1	1	1	1	2003026-031	CURRENT SWITCH MODULE B11	10
2	2	2	2	2003114-021	ERASABLE DRIVER MODULE B9-10	9
1	1	1	1	2003983-021	ALARM MODULE B8	8
1	1	1	1	2003036-031	OSCILLATOR MODULE B7	7
1	1	1	1	2003978-001	MID SPACER	6
1	1	1	1	2003059 021	INTERCONNECTION HEADER ASSEMBLY	5
1	1	1	1	2003976 011	TRAY B COVER	4
1	1	1	1	2003977 011	TRAY A COVER	3
1	1	1	1	2003093-021	TRAY B WIRED ASSEMBLY	2
—	—	—	1	2003092-031	TRAY A WIRED ASSEMBLY	1

LIST OF MATERIALS

2003991		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES CAPACITOR VALUES ARE IN µf RESISTOR VALUES ARE IN OHMS TOLERANCES ON FRACTIONS DECIMALS ANGLES ± — ± — ± — DO NOT SCALE THIS DRAWING	MATERIAL —
NEXT ASSY	USED ON		
APPLICATION			

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER
ASSEMBLY

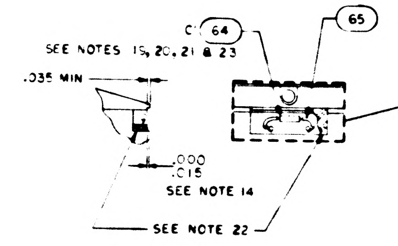
CODE IDENT NO	SIZE	DRAWING NO
80230	J	2003993

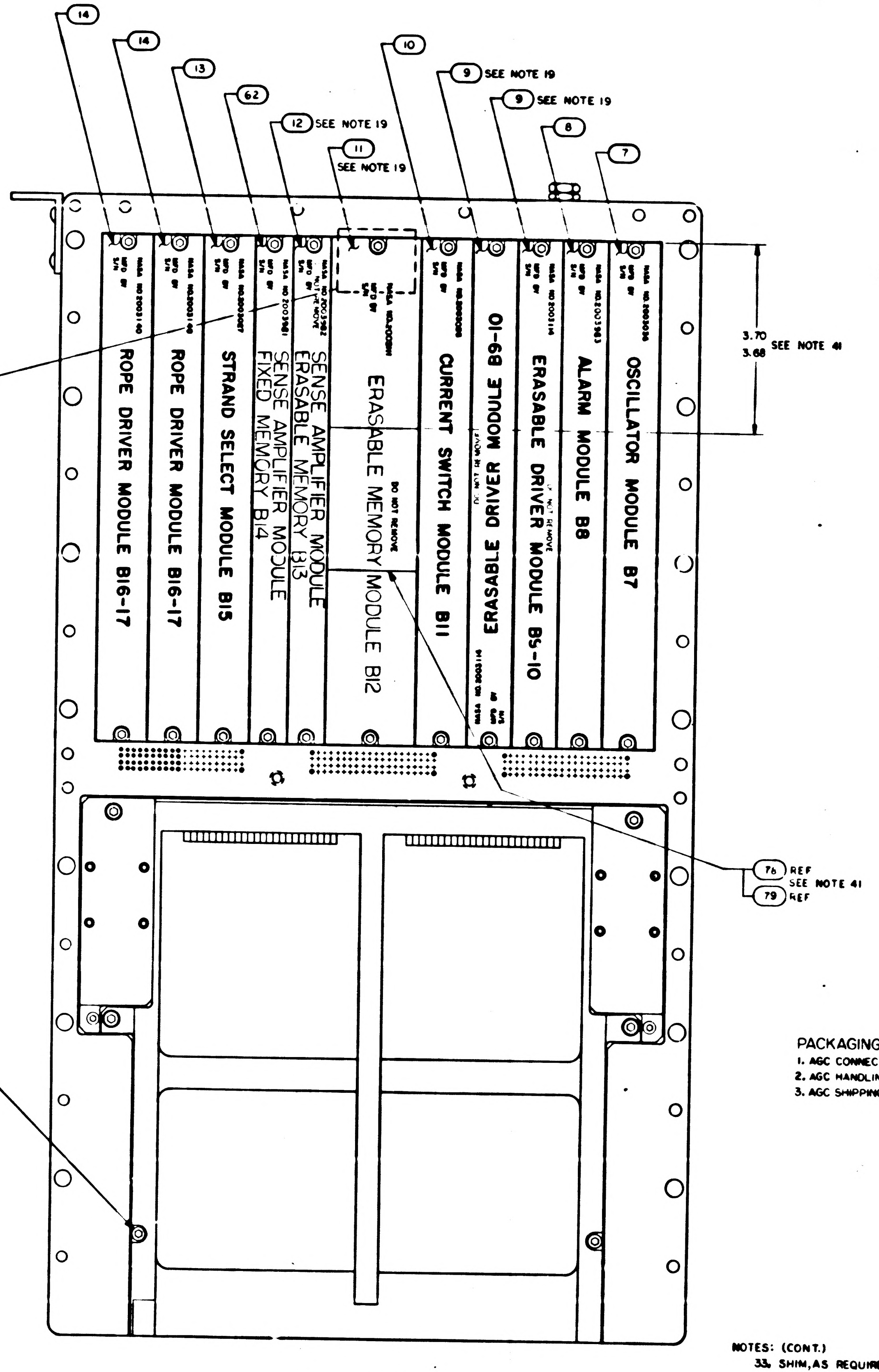
SCALE 1 — SHEET 1 OF 2

993 K

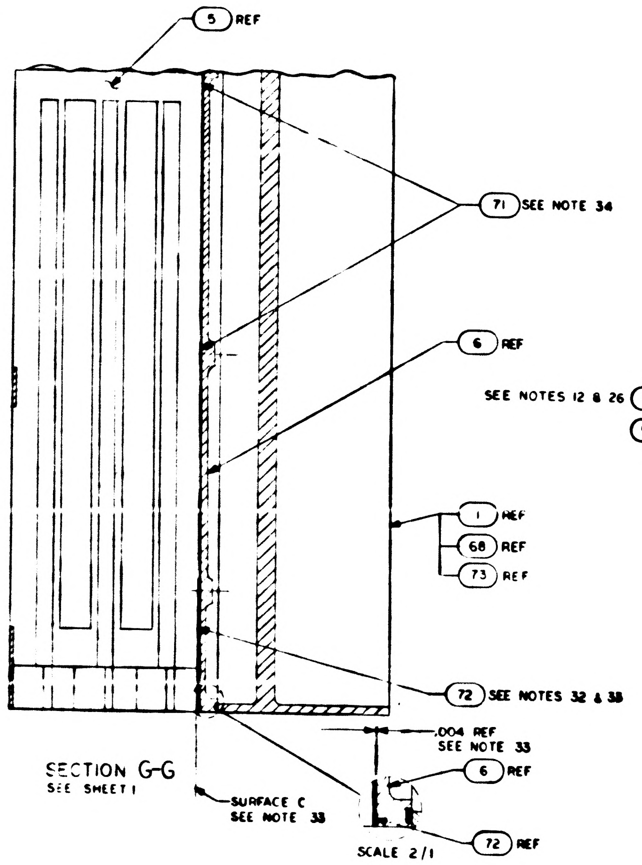
SH1/2 2003993 KF 2/2

C1	
PART NO.	VALUE UUF
1006777-1	10
-15	150
-18	330
-20	470
-22	680
1006777-23	820
SEE NOTE 21	0
1006777-6	220
1006777-17	270

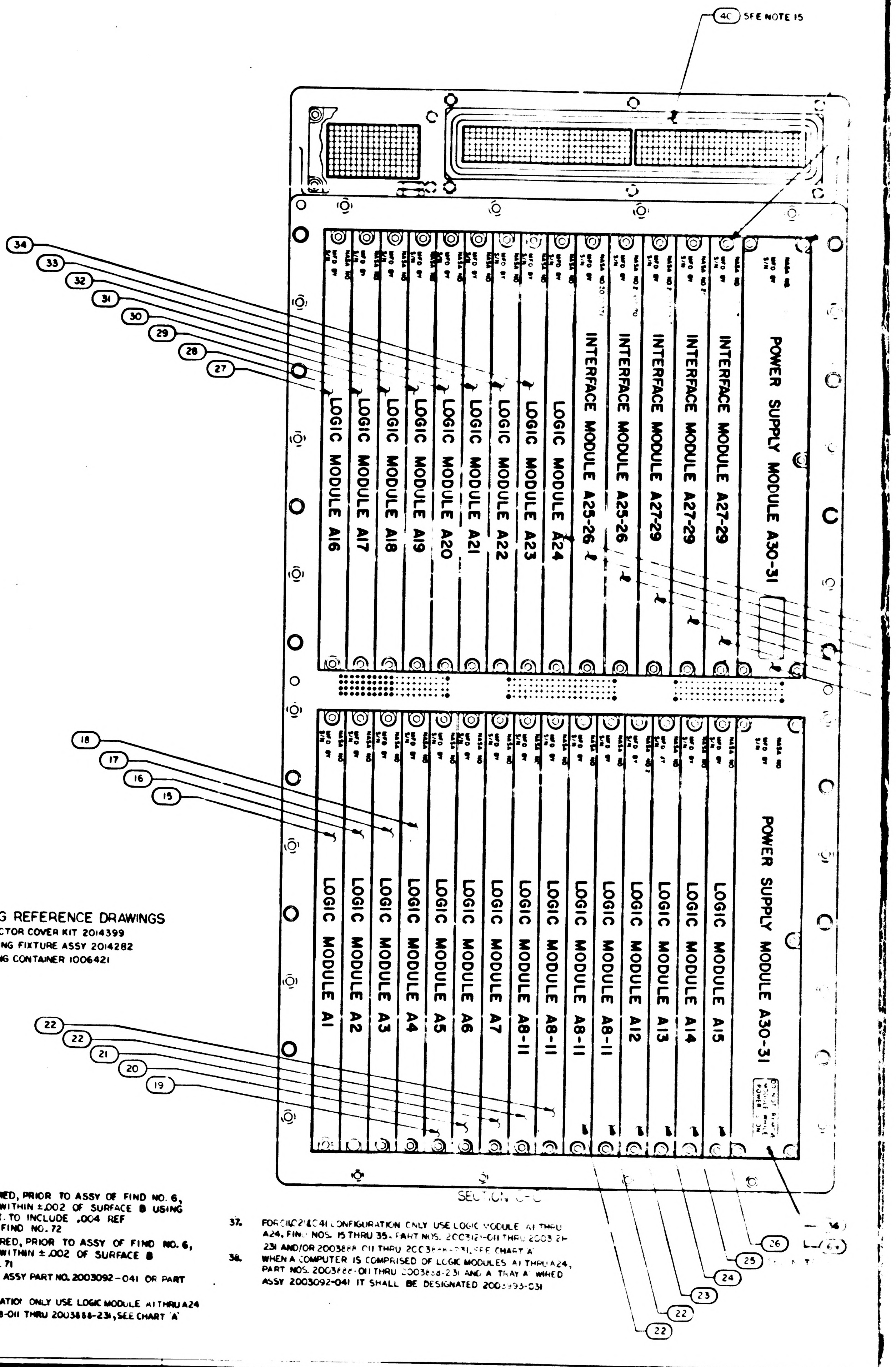

64
65
SEE NOTES 15, 20, 21 & 23
.035 MIN
.000
.015
SEE NOTE 14
SEE NOTE 22


14
14
13
62
12 SEE NOTE 19
11 SEE NOTE 19
10
9 SEE NOTE 19
9 SEE NOTE 19
8
7
ROPE DRIVER MODULE B16-17
ROPE DRIVER MODULE B16-17
STRAND SELECT MODULE B15
SENSE AMPLIFIER MODULE FIXED MEMORY B14
SENSE AMPLIFIER MODULE ERASABLE MEMORY B13
ERASABLE MEMORY MODULE B12
DO NOT REMOVE
CURRENT SWITCH MODULE B11
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B5-10
ALARM MODULE B8
OSCILLATOR MODULE B7
3.70
3.68
SEE NOTE 41
76 REF
SEE NOTE 41
79 REF
SEE NOTES 12 & 26
50
54

SECTION D-D


5 REF
71 SEE NOTE 34
6 REF
1 REF
68 REF
73 REF
72 SEE NOTES 32 & 33
.004 REF
SEE NOTE 33
6 REF
SURFACE C
SEE NOTE 33
72 REF
SCALE 2/1

SECTION G-G
SEE SHEET 1


40 SEE NOTE 15
34
33
32
31
30
29
28
27
POWER SUPPLY MODULE A30-31
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
LOGIC MODULE A24
LOGIC MODULE A23
LOGIC MODULE A22
LOGIC MODULE A21
LOGIC MODULE A20
LOGIC MODULE A19
LOGIC MODULE A18
LOGIC MODULE A17
LOGIC MODULE A16
18
17
16
15
POWER SUPPLY MODULE A30-31
LOGIC MODULE A15
LOGIC MODULE A14
LOGIC MODULE A13
LOGIC MODULE A12
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A7
LOGIC MODULE A6
LOGIC MODULE A5
LOGIC MODULE A4
LOGIC MODULE A3
LOGIC MODULE A2
LOGIC MODULE A1
22
22
21
20
19
26
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22
22

SECTION C-C

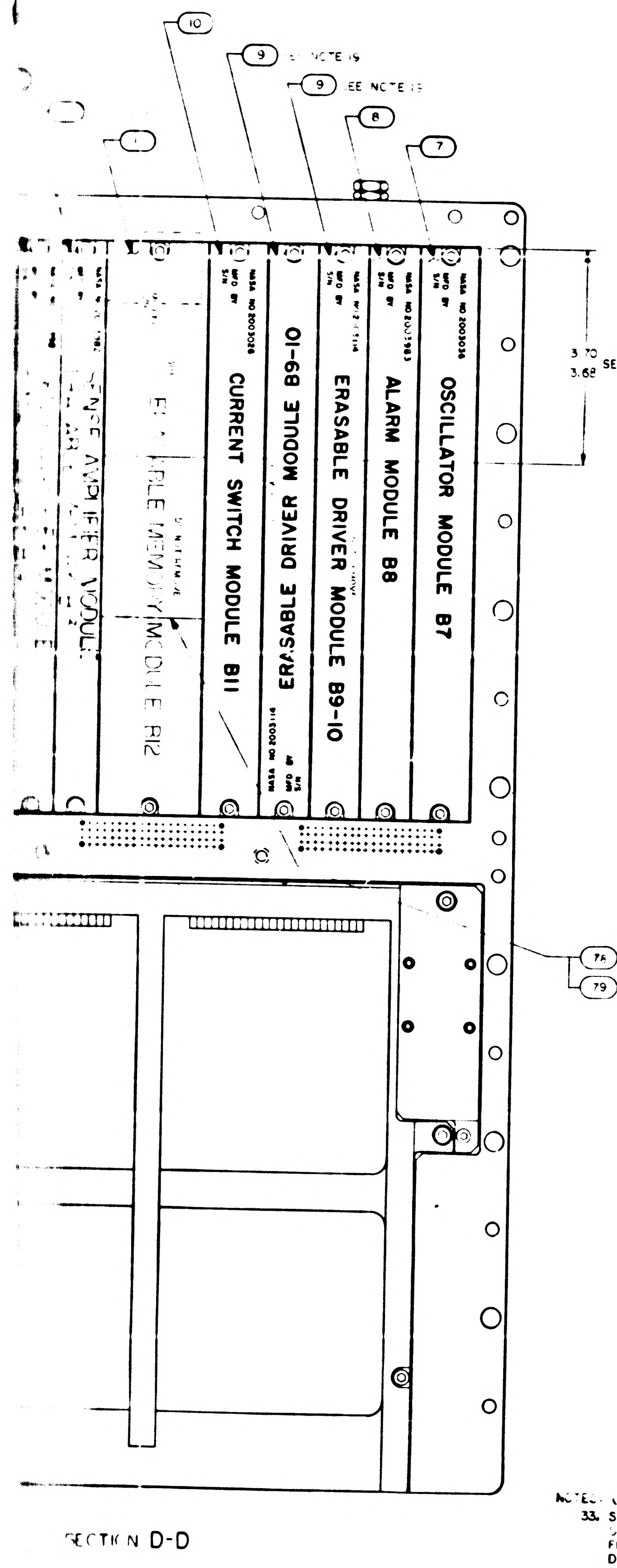
PACKAGING REFERENCE DRAWINGS
1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421

NOTES: (CONT.)

33. SHIM, AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 72, NOT TO INCLUDE .004 REF DIMENSION OF FIND NO. 72
34. SHIM, AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 71
35. USE TRAY A WIRED ASSY PART NO. 2003092-041 OR PART NO. 2003092-061
36. FOR -031 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24 PART NOS. 2003888-011 THRU 2003888-231, SEE CHART 'A'
37. FOR C1IC2 & C41 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24, FIND NOS. 15 THRU 35. PART NOS. 2003121-011 THRU 2003121-231 AND/OR 2003888-011 THRU 2003888-231, SEE CHART 'A'
38. WHEN A COMPUTER IS COMPRISED OF LOGIC MODULES A1 THRU A24, PART NOS. 2003888-011 THRU 2003888-231 AND A TRAY A WIRED ASSY 2003092-041 IT SHALL BE DESIGNATED 2003993-031

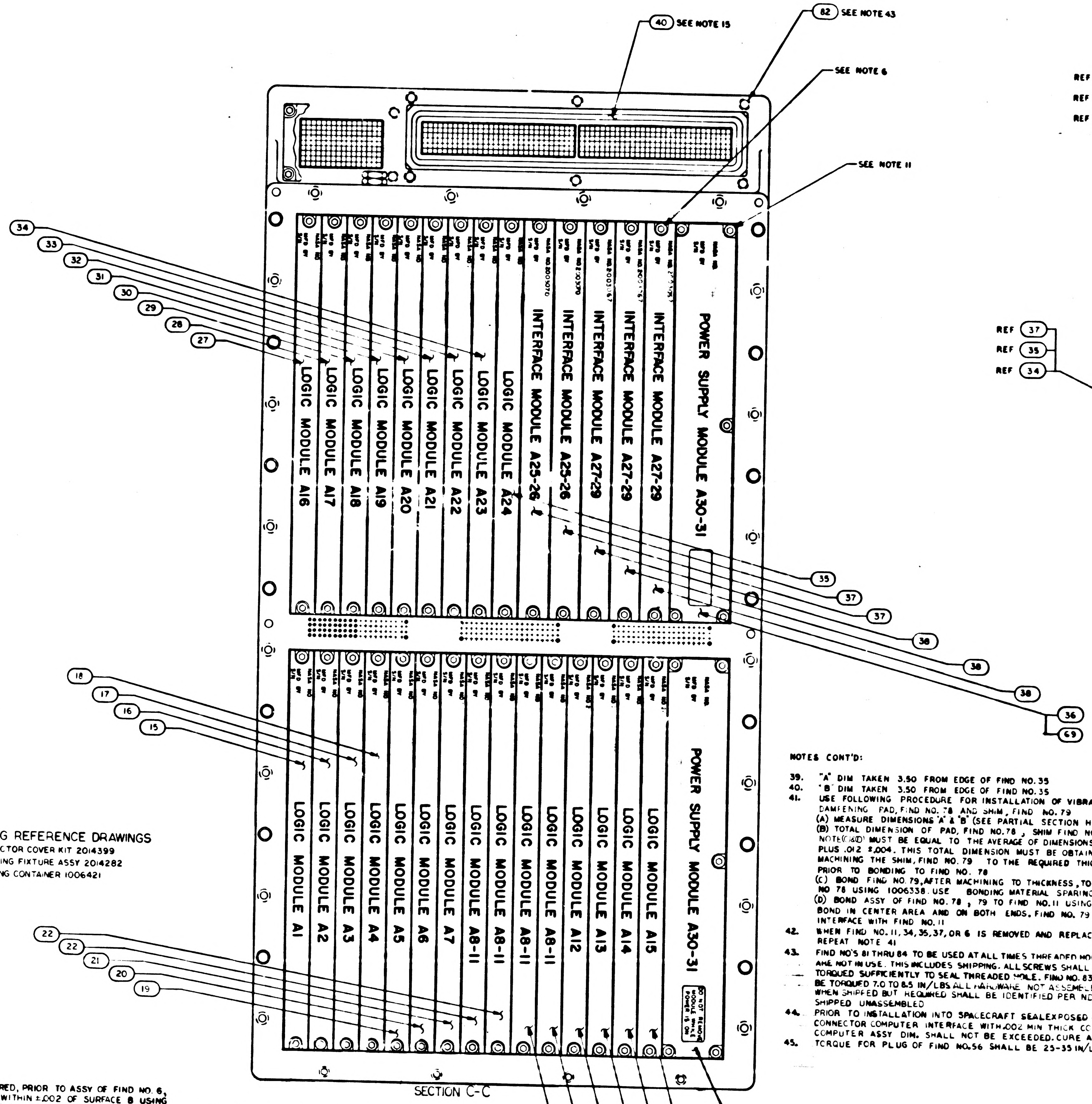
2003993	K

		REVISIONS				
		[illegible] A [illegible] 32548				
B		RELEASED PER TORR 32965				
		REVISED PER TORR 33106				
F		REVISED PER TORR 3363-				
G		REVISED PER TORR 34265				
H		REVISED PER TORR 34285				
J		REVISED PER TORR 34359				
		REVISED PER TORR [illegible]				

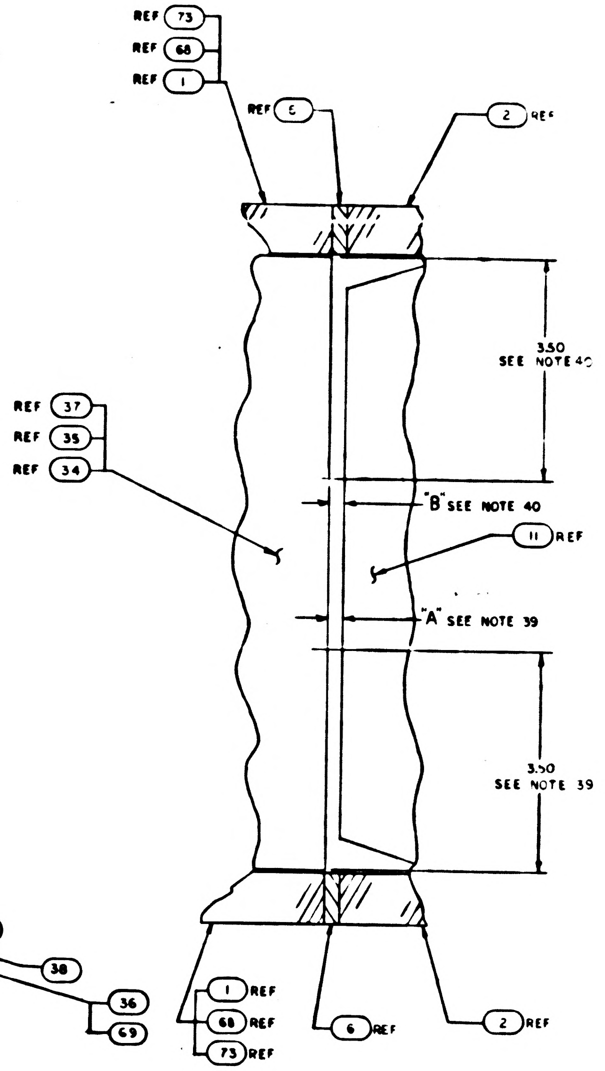


10
9 SEE NOTE 15
9 SEE NOTE 15
8
7
SENSE AMPLIFIER MODULE
ERASABLE MEMORY MODULE B12
CURRENT SWITCH MODULE B11
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
ALARM MODULE B8
OSCILLATOR MODULE B7
NASA NO 2003036
3.70
3.68 SEE NOTE 41
76 REF
SEE NOTE 41
79 REF
SECTION D-D

PACKAGING REFERENCE DRAWINGS
1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421



40 SEE NOTE 15
82 SEE NOTE 43
SEE NOTE 6
SEE NOTE 11
34
33
32
31
30
29
28
27
LOGIC MODULE A16
LOGIC MODULE A17
LOGIC MODULE A18
LOGIC MODULE A19
LOGIC MODULE A20
LOGIC MODULE A21
LOGIC MODULE A22
LOGIC MODULE A23
LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
35
37
37
38
38
38
36
69
18
17
16
15
LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
DO NOT REMOVE POWER IS ON
22
22
21
20
19
22
22
23
24
25 SEE NOTE 19
26
36
69
SECTION C-C



REF 73
REF 68
REF 1
REF 6
2 REF
3.50
SEE NOTE 40
REF 37
REF 35
REF 34
"B" SEE NOTE 40
11 REF
"A" SEE NOTE 39
3.50
SEE NOTE 39
1 REF
68 REF
73 REF
6 REF
2 REF

PARTIAL SECTION H-H
FOR -031&041

NOTES CONT'D:

39. "A" DIM TAKEN 3.50 FROM EDGE OF FIND NO. 35
40. "B" DIM TAKEN 3.50 FROM EDGE OF FIND NO. 35
41. USE FOLLOWING PROCEDURE FOR INSTALLATION OF VIBRATION DAMPENING PAD, FIND NO. 78 AND SHIM, FIND NO. 79
(A) MEASURE DIMENSIONS 'A' & 'B' (SEE PARTIAL SECTION H-H)
(B) TOTAL DIMENSION OF PAD, FIND NO. 78, SHIM FIND NO. 79, & BONDED MATERIAL PER NOTE (C)&(D) MUST BE EQUAL TO THE AVERAGE OF DIMENSIONS 'A' & 'B' PLUS .012 ±.004. THIS TOTAL DIMENSION MUST BE OBTAINED BY MACHINING THE SHIM, FIND NO. 79 TO THE REQUIRED THICKNESS PRIOR TO BONDING TO FIND NO. 78
(C) BOND FIND NO. 79, AFTER MACHINING TO THICKNESS, TO FIND NO 78 USING 1006338. USE BONDING MATERIAL SPARINGLY
(D) BOND ASSY OF FIND NO. 78, 79 TO FIND NO. 11 USING 1006338 BOND IN CENTER AREA AND ON BOTH ENDS. FIND NO. 79 TO INTERFACE WITH FIND NO. 11
42. WHEN FIND NO. 11, 34, 35, 37, OR 6 IS REMOVED AND REPLACED REPEAT NOTE 41
43. FIND NO'S 81 THRU 84 TO BE USED AT ALL TIMES THREADED HOLES ARE NOT IN USE. THIS INCLUDES SHIPPING. ALL SCREWS SHALL BE TORQUED SUFFICIENTLY TO SEAL THREADED HOLE. FIND NO. 83 TO BE TORQUED 7.0 TO 8.5 IN/LBS ALL HARDWARE NOT ASSEMBLED TO COMPUTER WHEN SHIPPED BUT REQUIRED SHALL BE IDENTIFIED PER ND 1002019 & SHIPPED UNASSEMBLED
44. PRIOR TO INSTALLATION INTO SPACECRAFT SEAL EXPOSED HARDWARE & CONNECTOR COMPUTER INTERFACE WITH .002 MIN THICK COATING OF FIND NO. 80 COMPUTER ASSY DIM. SHALL NOT BE EXCEEDED. CURE AT ROOM TEMP FOR 24 HOURS
45. TORQUE FOR PLUG OF FIND NO. 56 SHALL BE 25-35 IN/LBS

NOTES: (CONT)

33. SHIM, AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 72, NOT TO INCLUDE .004 REF DIMENSION OF FIND NO. 72
34. SHIM, AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 71
35. USE TRAY A WIRED ASSY PART NO. 2003092-041 OR PART NO 2003092-061
36. FOR -031 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24 PART NOS. 2003888-011 THRU 2003888-231, SEE CHART 'A'
37. FOR 011, 021 & 041 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24, FIND NOS. 15 THRU 35, PART NOS. 2003121-011 THRU 2003121-231 AND/OR 2003888-011 THRU 2003888-231, SEE CHART 'A'
38. WHEN A COMPUTER IS COMPRISED OF LOGIC MODULES A1 THRU A24, PART NOS. 2003888-011 THRU 2003888-231 AND A TRAY 'A' WIRED ASSY 2003092-041 IT SHALL BE DESIGNATED 2003993-031

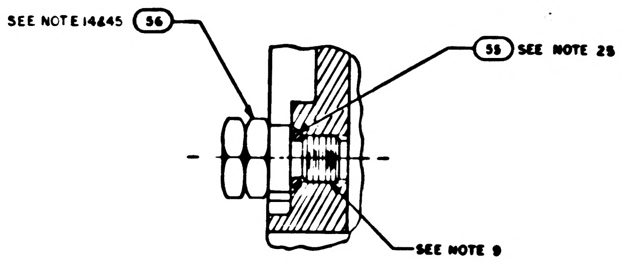
QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
		LIST OF MATERIALS	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES CAPACITOR VALUES ARE IN µf RESISTOR VALUES ARE IN OHMS TOLERANCES ON FRACTIONS DECIMALS ANGLES ± — ± — ± — DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB CAMBRIDGE MASS	MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
MATERIAL —	DRAWN CHECKED APPROVED APPROVED	COMPUTER ASSEMBLY	
NEXT ASSY / USED ON APPLICATION	APPROVED NASA APPROVED MSC DATE	CODE IDENT NO 80230	SIZE J	DRAWING NO 2003993
		SCALE	SHEET 2 OF 2

2003993 | K

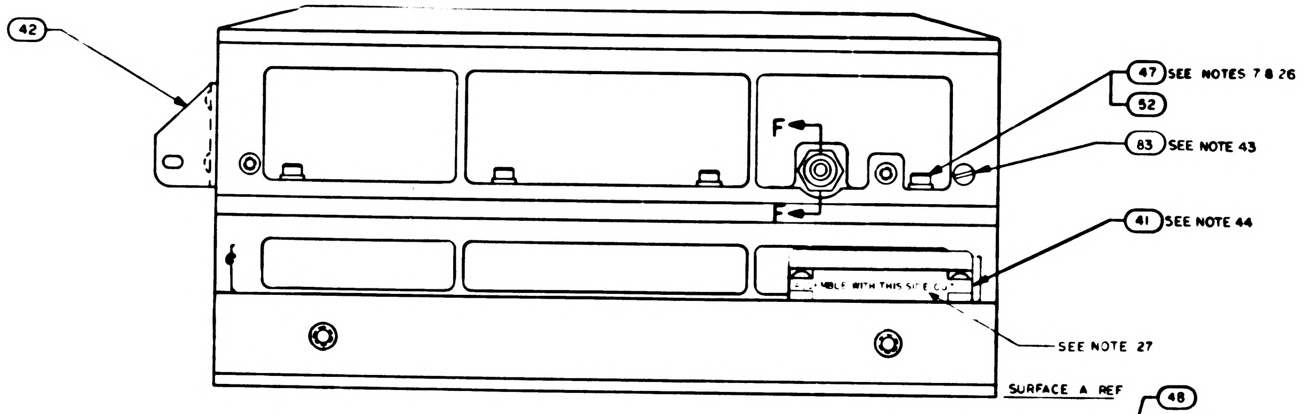
2003993 KF 2/2 SH 2/2

CHART A SEE NOTES 36&37				
PART NO. FOR -[illegible]		PART NO. FOR -011-021A		MODULES
2003121	-011	2003888	-011	LOGIC MODULE A1
	-021		-021	A2
	-031		-031	A3
	-04		-041	A4
	-05		-051	A5
	-061		-061	A6
	-071		-071	A7
	-081		-081	A8-A11
	-09		-091	A12
	-11		-111	A13
	-12		-121	A14
	-13		-131	A15
	-14		-141	A16
	-151		-151	A17
	-161		-161	A18
	-171		-171	A19
	-181		-181	A20
	-19		-191	A21
	-2		-211	A22
	-22		-221	A23
2003121	-23	2003888	-231	LOGIC MODULE A24



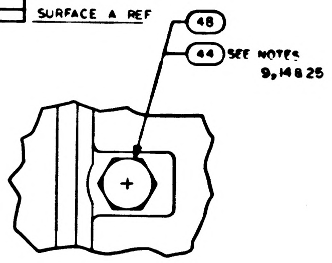
SEE NOTE 14&45
56
55 SEE NOTE 25
SEE NOTE 9

PARTIAL SECTION F F
SCALE: 2/1



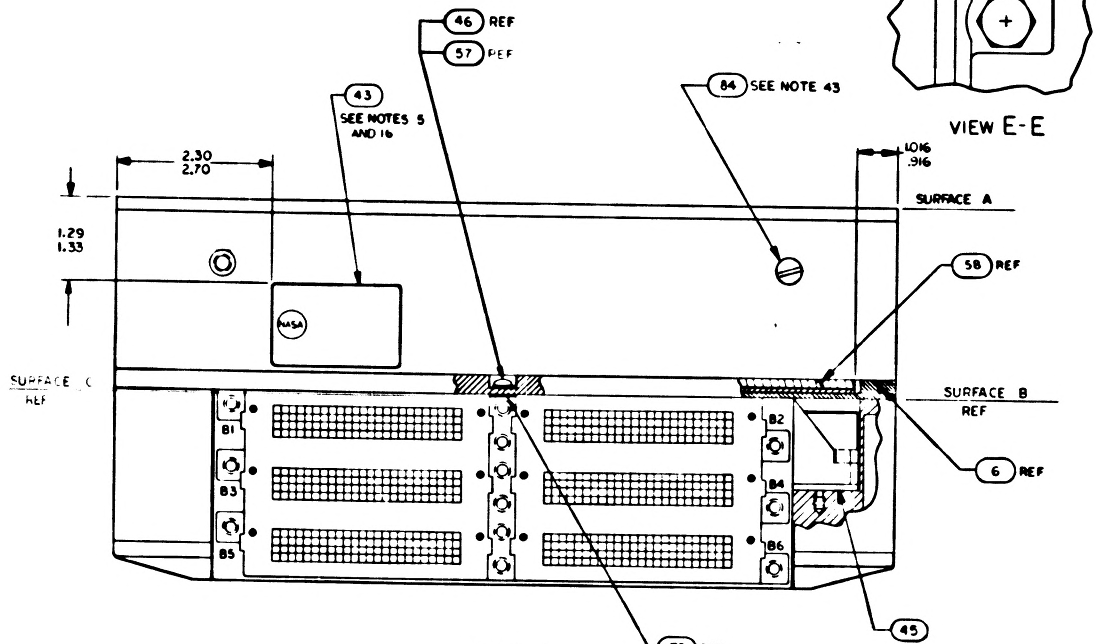
42
F
F
47 SEE NOTES 7 & 26
52
83 SEE NOTE 43
41 SEE NOTE 44
SEE NOTE 27
SURFACE A REF

VIEW B-B



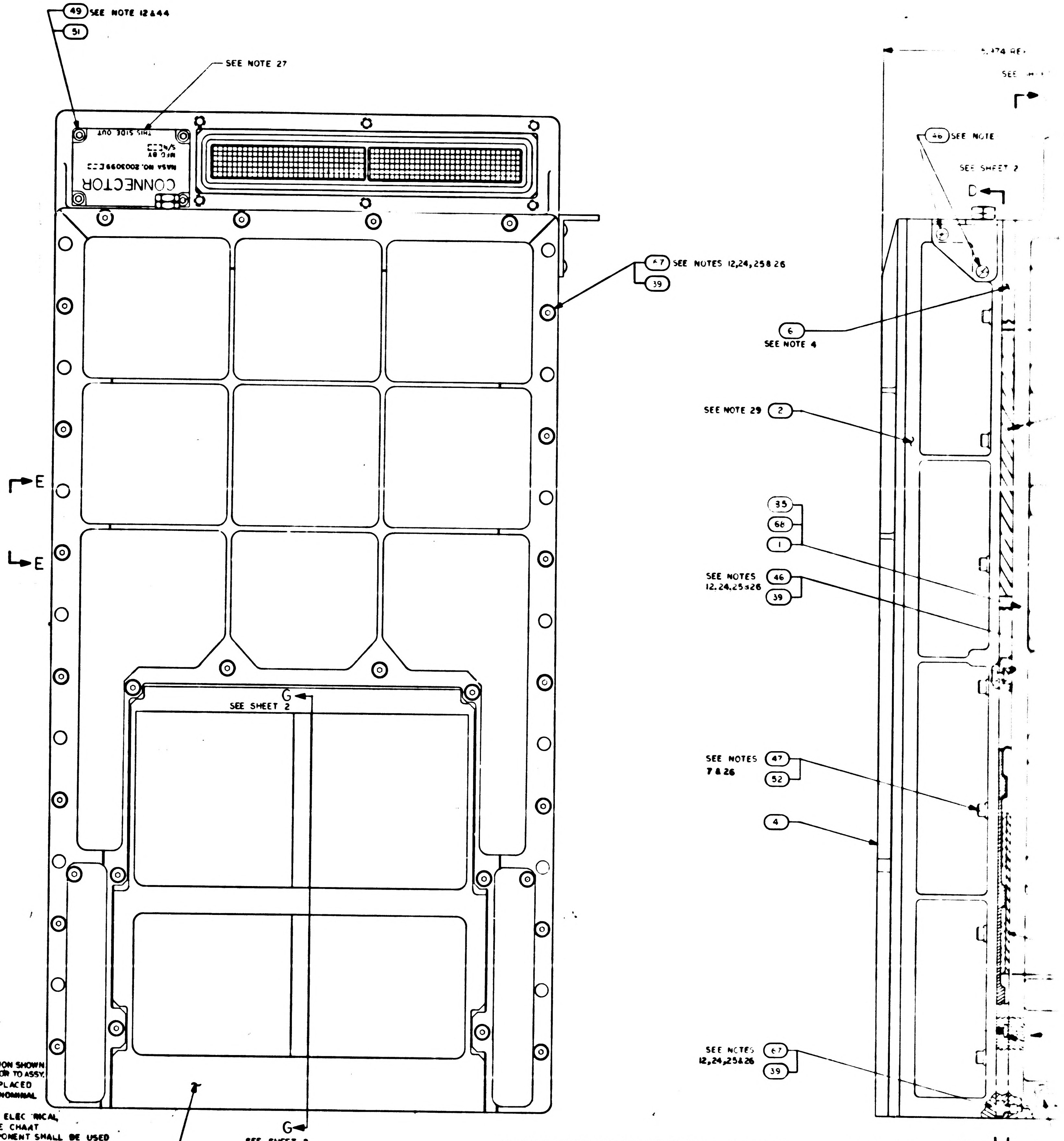
48
44 SEE NOTES 9,14 & 25

VIEW E-E



46 REF
57 REF
43 SEE NOTES 5 AND 16
84 SEE NOTE 43
2.30
2.70
1.016
.916
SURFACE A
1.29
1.33
NASA
58 REF
SURFACE C REF
SURFACE B REF
6 REF
B1
B2
B3
B4
B5
B6
45
72 REF

VIEW A-A



49 SEE NOTE 12&44
51
SEE NOTE 27
THIS SIDE OUT
NASA NO. 2003993
MFG BY
CONNECTOR
47 SEE NOTES 12,24,25&26
39
E
E
G
SEE SHEET 2
G
SEE SHEET 2
5 SEE NOTE 29
5.474 REF
SEE SHEET 2
46 SEE NOTE
SEE SHEET 2
D
6 SEE NOTE 4
SEE NOTE 29 2
35
68
1
SEE NOTES 12,24,25&26 46
39
SEE NOTES 7&26 47
52
4
SEE NOTES 12,24,25&26 67
39

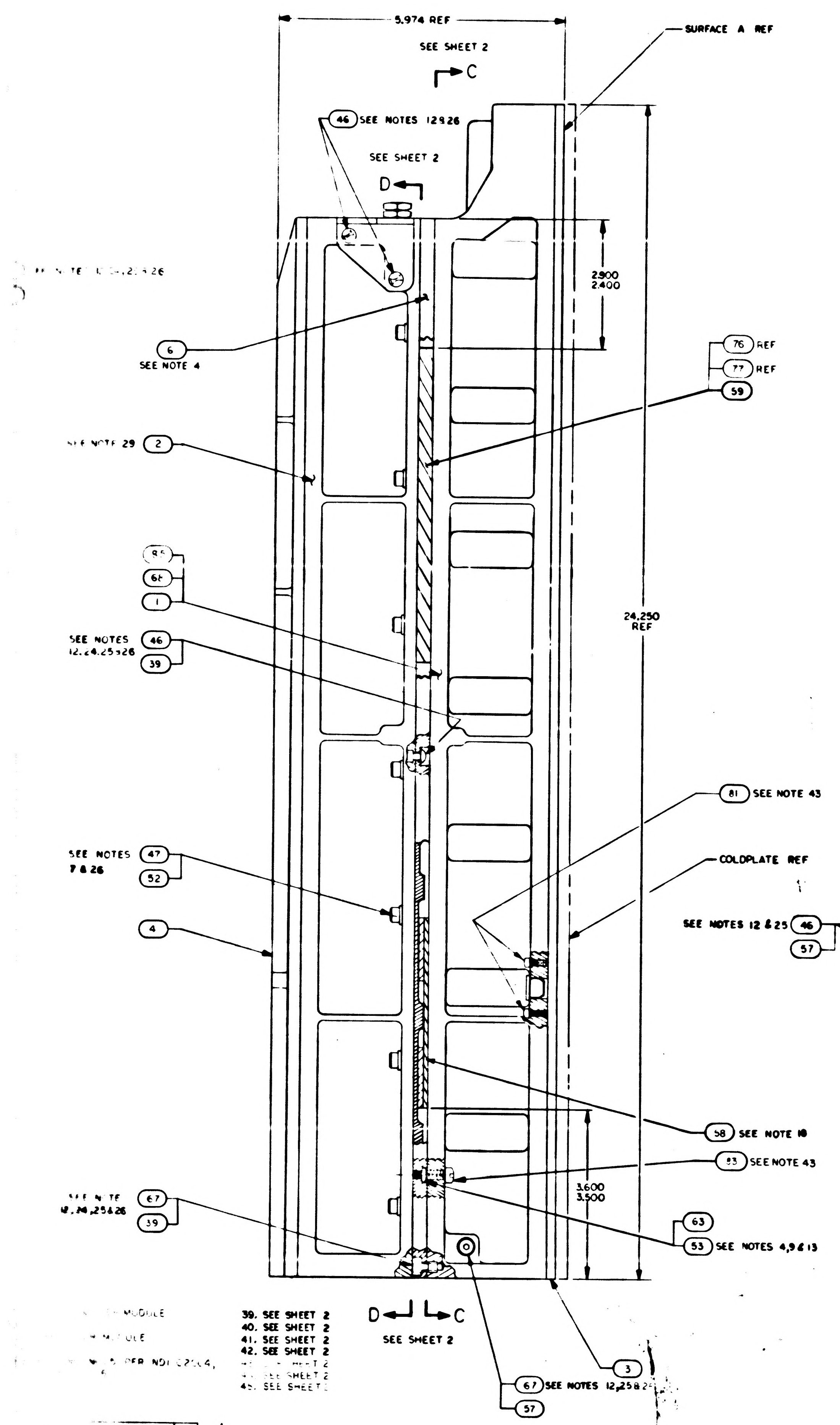
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. PHANTOM LINES DENOTE AGC COLDPLATE AND HANDLING FIXTURE TO BE SUPPLIED BY NORTH AMERICAN AVIATION, INC
3. ADD SILICONE COMPOUND 1006879 TO MODULE MATING METAL SURFACES AND TRAY MATING SURFACES
4. ASSEMBLE FIND NO. 53 AND FIND NO. 63 TO FIND NO. 6 AND FIND NO. 6 TO FIND NO. 2 PRIOR TO ASSEMBLY OF FIND NO. 2 TO FIND NO. 1 OR FIND NO. 68 OR FIND NO. 85
5. BOND FIND NO. 43 TO FIND NO. 1 OR FIND NO. 68 OR FIND NO. 85 PER ND1002219, METHOD II
6. UNLESS OTHERWISE SPECIFIED TORQUE ALL MODULE MOUNTING SCREWS 15/19 INCH POUNDS
7. TORQUE FIND NO. 47 TO 28/32 INCH POUNDS
8. ~~FINISH IS REQUIRED TO SATISFY ICD GAEC 510-10001~~
9. APPLY SEALING COMPOUND MIL-S-22473 GRADE H TO FIND NO. 53, FIND NO. 56 AND FIND NO. 44
10. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2016007
11. TORQUE FOR FIND NO. 36 AND FIND NO. 69 MOUNTING SCREWS TO BE 10/12 INCH POUNDS
12. TORQUE FOR FIND NO. 46, 49, 50 AND 67 TO BE 18/22 INCH POUNDS
13. TORQUE FOR FIND NO. 53 TO BE 4/6 INCH POUNDS
14. TORQUE FOR FIND NO. 44 AND FIND NO. 56 TO BE 137/157 INCH POUNDS
15. FIND NO. 40 SHALL BE SUPPLIED AS PART OF THIS ASSEMBLY
16. MARK COMPUTER ASSEMBLY AND RELATED PART NO., APPLICABLE DASH NO., SERIAL NO. AND CONTRACT NO. PER 1004260 AND SERIALIZE PER ND1002023
17. FINISH SURFACE -A- PER ICD NAA MH01-01302-116 ~~THIS ASSEMBLY MUST BE CAPABLE OF~~ MEETING ELECTRICAL ~~BONDING REQUIREMENTS OF ICD NAA MH01-01302-116~~
18. BOND FIND NO. 58 TO FIND NO. 6 IN POSITION SHOWN USING 1006338 CURE AT ROOM TEMP 24 HRS PRIOR TO ASSY.
19. REFERENCED MODULES MUST NOT BE REPLACED OR INTERCHANGED WITHOUT REPEATING NOMINAL SELECTION PROCEDURE PER NOTE 10
20. THE VALUE OF C1 TO BE DETERMINED AT ELECTRICAL TEST AND SELECTED FROM APPROPRIATE CHART
21. WHEN THE VALUE OF C1 IS ZERO NO COMPONENT SHALL BE USED
22. ENCAPSULATE AREA SHOWN AFTER SELECTION AND INSTALLATION OF C1 USING ND1002009 METHOD C OR D USING PRIMER PER SCD1012583
23. WELD PER ND1002005
24. ASSEMBLE HARDWARE WITH SMOOTH FACE OF FIND NO. 30 IN CONTACT WITH SCREW HEAD
25. FIND NO. 38, 48, 55 & 57 TO BE DISCARDED AND REPLACED WITH NEW PARTS EACH TIME THEY ARE DISASSEMBLED
26. SEAL EXPOSED HARDWARE ASSEMBLIES WITH .002 MIN THICK COATING OF FIND NO. 80 OVERALL COMPUTER ASSEMBLY DIMENSIONS SHALL NOT BE EXCEEDED CURE AT ROOM TEMP 24 HRS
27. STENCILING SHOWN FOR ORIENTATION ONLY
28. KEEP ALL MATING THREADS OF SCREWS, TRAY AND MID SPACER INSERTS FREE OF SILICONE COMPOUND
29. FILL FEMALE INSULATORS OF B41 AND B42 CONNECTORS USING FIND NO. 70 PRIOR TO ASSEMBLY OF FIND NOS 5 TO FIND NO. 2
30. FIND NO. 12 ERASEABLE MEMORY, SENSE AMPLIFIER MODULE USE EITHER 2003[illegible] OR 200[illegible]39[illegible]2-031
31. FIND NO. 62 FIXED MEMORY, SENSE AMPLIFIER MODULE USE EITHER 2003381-021 OR 2003981-031
32. BOND FIND NO. 72 ALONG EDGES TO FIND NO. 5 PER ND1002[illegible]4, TYPE V PRIOR TO ASSEMBLY OF FIND NO. 6
33. SEE SHEET 2
34. SEE SHEET 2
35. SEE SHEET 2
36. SEE SHEET 2
37. SEE SHEET 2
38. SEE SHEET 2
39. SEE SHEET 2
40. SEE SHEET 2
41. SEE SHEET 2
42. SEE SHEET 2
43. SEE SHEET 2
44. SEE SHEET 2
45. SEE SHEET 2

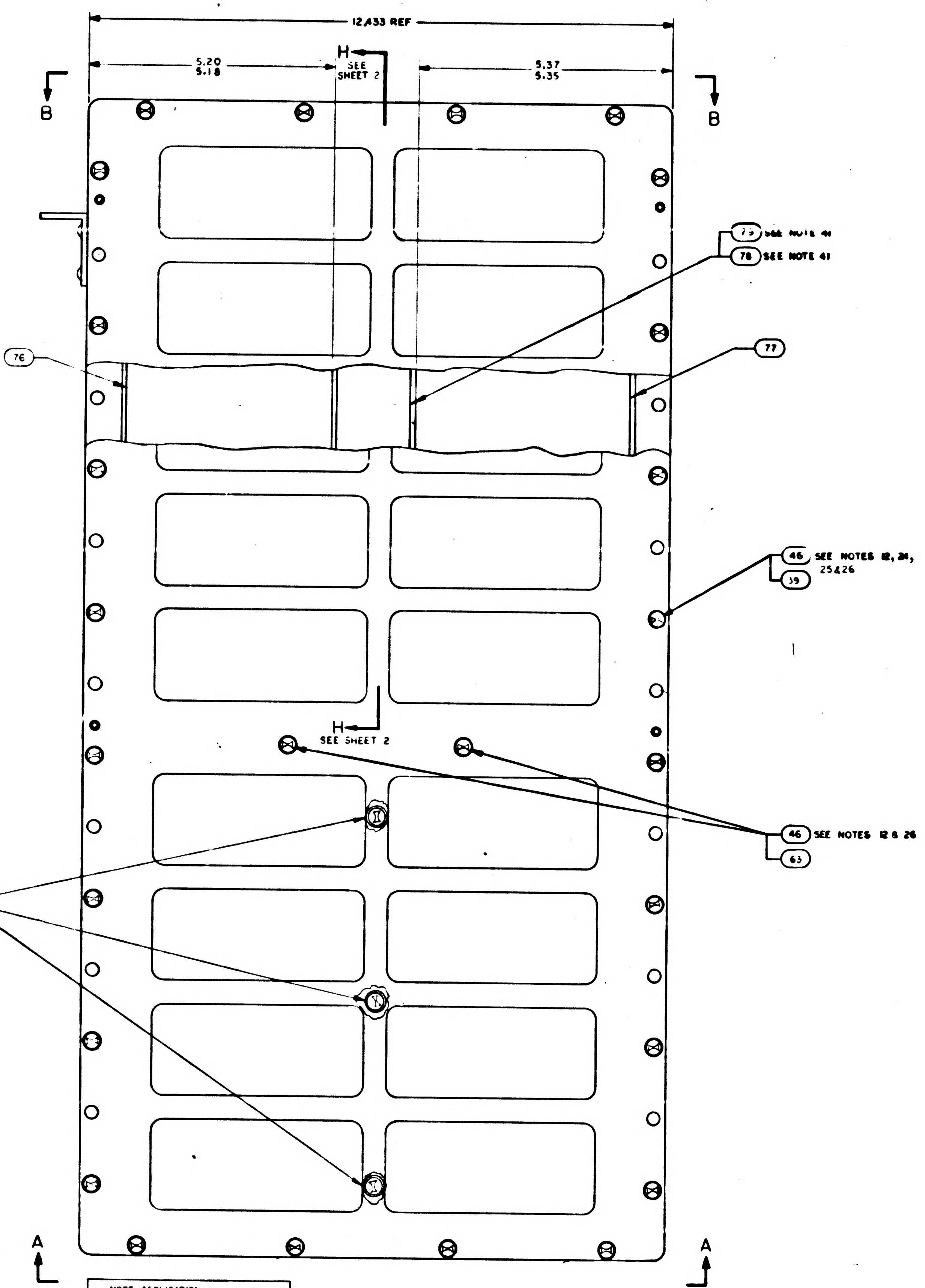
D C
SEE SHEET 2

2003993 L

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		INITIAL RELEASE TDRR 3[illegible]				
B		REVISED PER TDRR 3[illegible]969				
C		REVISED PER TDRR [illegible]				
D		REVISED PER TDRR [illegible]				
E		[illegible]				
F		REVISED PER TDRR 33636				
G		REVISED PER TDRR 34265				
H		REVISED PER TDRR [illegible]				
J		REVISED PER TDRR [illegible]				
K		REVISED PER [illegible]				
L		REVISED PER TDRR [illegible]				


5.974 REF
SURFACE A REF
SEE SHEET 2
C
46 SEE NOTES 12&26
SEE SHEET 2
D
2.900
2.400
6
SEE NOTE 4
76 REF
77 REF
59
SEE NOTE 29 2
1
SEE NOTES 12,24,25&26 46
39
24.250 REF
81 SEE NOTE 43
COLDPLATE REF
SEE NOTES 7&26 47
52
4
58 SEE NOTE 18
83 SEE NOTE 43
3.600
3.500
SEE NOTE 12,24,25&26 67
39
63
53 SEE NOTES 4,9&13
67 SEE NOTES 12,25&26
57
3
D C
SEE SHEET 2

39. SEE SHEET 2
40. SEE SHEET 2
41. SEE SHEET 2
42. SEE SHEET 2
43. SEE SHEET 2
44. SEE SHEET 2
45. SEE SHEET 2


12.433 REF
5.20
5.18
H
SEE SHEET 2
5.37
5.35
B
B
79 SEE NOTE 41
78 SEE NOTE 41
76
77
46 SEE NOTES 12, 24, 25&26
39
H
SEE SHEET 2
46 SEE NOTES 12&26
63
SEE NOTES 12&25 46
57
A
A

NOTE APPLICATION	
DASH NO.	NOTES APPLICABLE
-011	1 THRU 34, 37, 43&44&45
-021	1 THRU 35, 37, 43, 44&45
-031	1 THRU 34, 36 & 39 THRU 45
-041	1 THRU 35, 37 & 39 THRU 45

QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
—				2003092 [illegible]	TRAY [illegible]	[illegible]
4	4	4	4	1010485-432	SCREW NYLON	84
11	11	11	11	1010485-332	SCREW, NYLON	83
6	6	6	6	1010485-235	SCREW NYLON	82
28	28	28	28	1010485-100	SCREW NYLON	81
AR	AR	AR	AR	1006338-003	SEALING COMPOUND SILICONE RUBBER	80
1	1	—	—	2004691	SHIM VIBRATION DAMPENING	79
	1	—	—	2004690	PAD VIBRATION DAMPENING	78
1	1	—	—	2004899-007	PAD VIBRATION	77
1	1	—	—	2004899-006	PAD VIBRATION	76
	~~AR~~	~~—~~	~~—~~	~~2004899-002~~	~~SHIM AGC~~	75
	~~AR~~	~~—~~	—	~~2004899-001~~	~~SHIM AGC~~	74
~~1~~	~~1~~	~~—~~	~~—~~	~~2003092-041~~	~~TRAY A WIRED ASSY~~	73
AR	AR	AR	AR	2010801	SHIM AGC	72
AR	AR	AR	AR	2010800-000	SHIM	71
X	X	X	X	2005944	AGC WIRE LIST	REF
AR	AR	AR	AR	MIL-S-8660	SILICONE COMPOUND	70
2	2	2	—	2003832-011	POWER SUPPLY MODULE A30-31	69
1	—	1	—	SEE NOTE 35	TRAY A WIRED ASSY	68
33	33	33	33	2004732-002	SCREW COATED	67
	~~AR~~	~~AR~~	~~AR~~	[illegible]	SEALING COMPOUND SILICONE RUBBER	66
AR	AR	AR	--	1006776-22	INSULATION, SLEEVING ELECTRICAL	65
1	1	1	1	SEE NOTE [illegible]	CAPACITOR	64
10	10	10	10	2004148-007	WASHER, FLAT	63
1	1	1	1	SEE NOTE 31	SENSE AMPLIFIER MODULE, FIXED MEMORY B14	62
~~—~~	~~—~~	~~AR~~	~~AR~~	~~2004895-002~~	~~SHIM AGC~~	~~61~~
~~—~~	~~—~~	~~AR~~	~~AR~~	~~2004895-001~~	~~SHIM AGC~~	~~60~~
—	—	1	1	2004899-001	PAD VIBRATION	59
1	1	1	1	2003970	VIBRATION PAD ASSY	58
4	4	4	4	NAS1598-008N	WASHER, SEALING	57
1	1	1	1	2018773	VALVE PRESSURE ASSEMBLY	56
1	1	1	1	1000159-5	PACKING, PREFORMED "O" RING	55
2	2	2	2	2004984-001	WASHER, FLAT	54
8	8	8	8	2004130	PAD, THREADED	53
18	18	18	18	2004894-014	WASHER, FLAT	52
4	4	4	4	2004894-012	WASHER, FLAT	51
2	2	2	2	[illegible] 489-36	SCREW, HEX SOCKET HEAD	50
4	4	4	4	1004722-2	SCREW, CAPTIVE	49
1	1	1	1	1000159-7	PACKING, PREFORMED "O" RING	48
18	18	18	18	2004732-003	SCREW, COATED	47
33	33	33	33	2004732-001	SCREW, COATED	46
2	2	2	2	1006347	GASKET, PLATE	45
1	1	1	1	2004986	PLUG, MACHINE THREAD	44
1	1	1	1	1004260-19	NAME PLATE, TYPE I	43
1	1	1	1	2004113-001	BRACKET, CABLE	42
1	1	1	1	2003099-011	CONNECTOR ASSEMBLY	41
1	1	1	1	1006380	GASKET, RETAINED	40
58	58	58	58	20047[illegible]7	WASHER, KNURLED	39
3	3	3	3	2003067-041	INTERFACE MODULE A27-29	38
2	2	2	2	2003070-031	INTERFACE MODULE A25-26	37
—	—	—	2	2003887-011	POWER SUPPLY MODULE A30-31	36
1	1	1	1	SEE NOTES 36&37	LOGIC MODULE A24	35
1	1	1	1		LOGIC MODULE A23	34
1	1	1	1		LOGIC MODULE A22	33
1	1	1	1		LOGIC MODULE A21	32
1	1	1	1		LOGIC MODULE A20	31
1	1	1	1		LOGIC MODULE A19	30
1	1	1	1		LOGIC MODULE A18	29
1	1	1	1		LOGIC MODULE A17	28
1	1	1	1		LOGIC MODULE A16	27
1	1	1	1		LOGIC MODULE A15	26
1	1	1	1		LOGIC MODULE A14	25
1	1	1	1		LOGIC MODULE A13	24
	1	1	1		LOGIC MODULE A12	23
4	4	4	4		LOGIC MODULE A8-11	22
1	1	1	1		LOGIC MODULE A7	21
1	1	1	1		LOGIC MODULE A6	20
1	1	1	1		LOGIC MODULE A5	19
1	1	1	1		LOGIC MODULE A4	18
1	1	1	1		LOGIC MODULE A3	17
1	1	1	1		LOGIC MODULE A2	16
1	1	1	1	SEE NOTES 36&37	LOGIC MODULE A1	15
2	2	2	2	2003140-031	ROPE DRIVER MODULE B16-17	14
1	1	1	1	200302[illegible]-031	STRAND SELECT MODULE B15	13
1	1	1	1	SEE NOTE 30	SENSE AMPL MOD, ERASABLE MEMORY B13	12
1	1	1	1	2003111-021	ERASABLE MEMORY MODULE B12	11
	1	1	1	2003026-031	CURRENT SWITCH MODULE B11	10
2	2	2	2	2003114-021	ERASABLE DRIVER MODULE B9-10	9
	1	1	1	2003983-021	ALARM MODULE B8	8
	1	1	1	2003036-031	OSCILLATOR MODULE B7	7
1	1	1	1	2003978-001	MID SPACER	6
	1	1	1	2003059-021	INTERCONNECTION HEADER ASSEMBLY	5
	1	1	1	2003976-011	TRAY B COVER	4
1	1	1	1	2003977-011	TRAY A COVER	3
	1	1	1	2003093-021	TRAY B WIRED ASSEMBLY	2
	—	—	1	2003092-031	TRAY A WIRED ASSEMBLY	1

LIST OF MATERIALS

2003[illegible]31	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

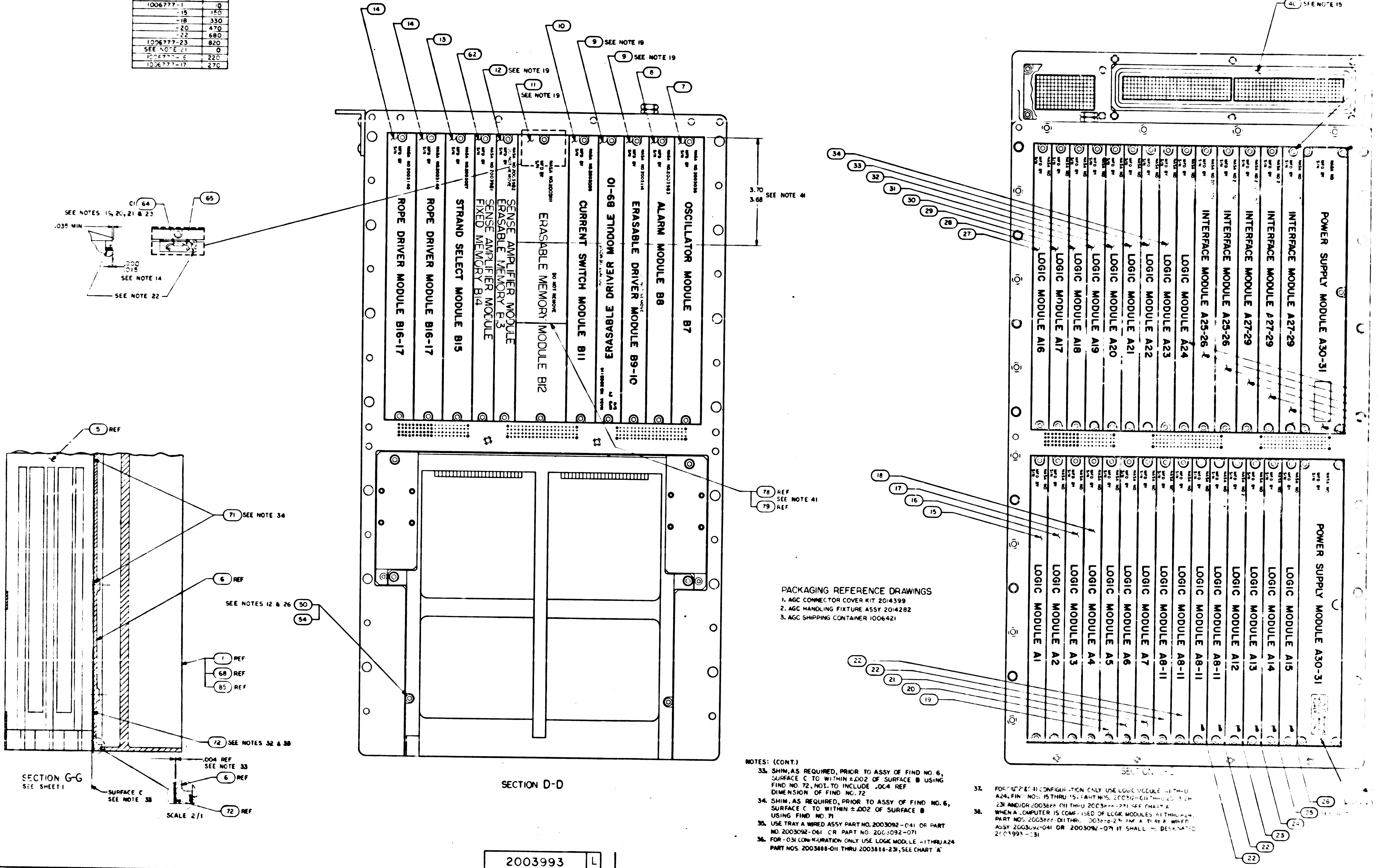
COMPUTER
ASSEMBLY

CODE IDENT NO	SIZE	DRAWING NO
80230	J	2003993
SCALE		SHEET 1 OF 2

993 L

SH1/2 2003993 LF2/2

CI	
PART NO.	VALUE UUF
1006777-1	10
-15	150
-18	330
-20	470
-22	680
1006777-23	820
SEE NOTE 21	0
1006777-6	220
1006777-17	270

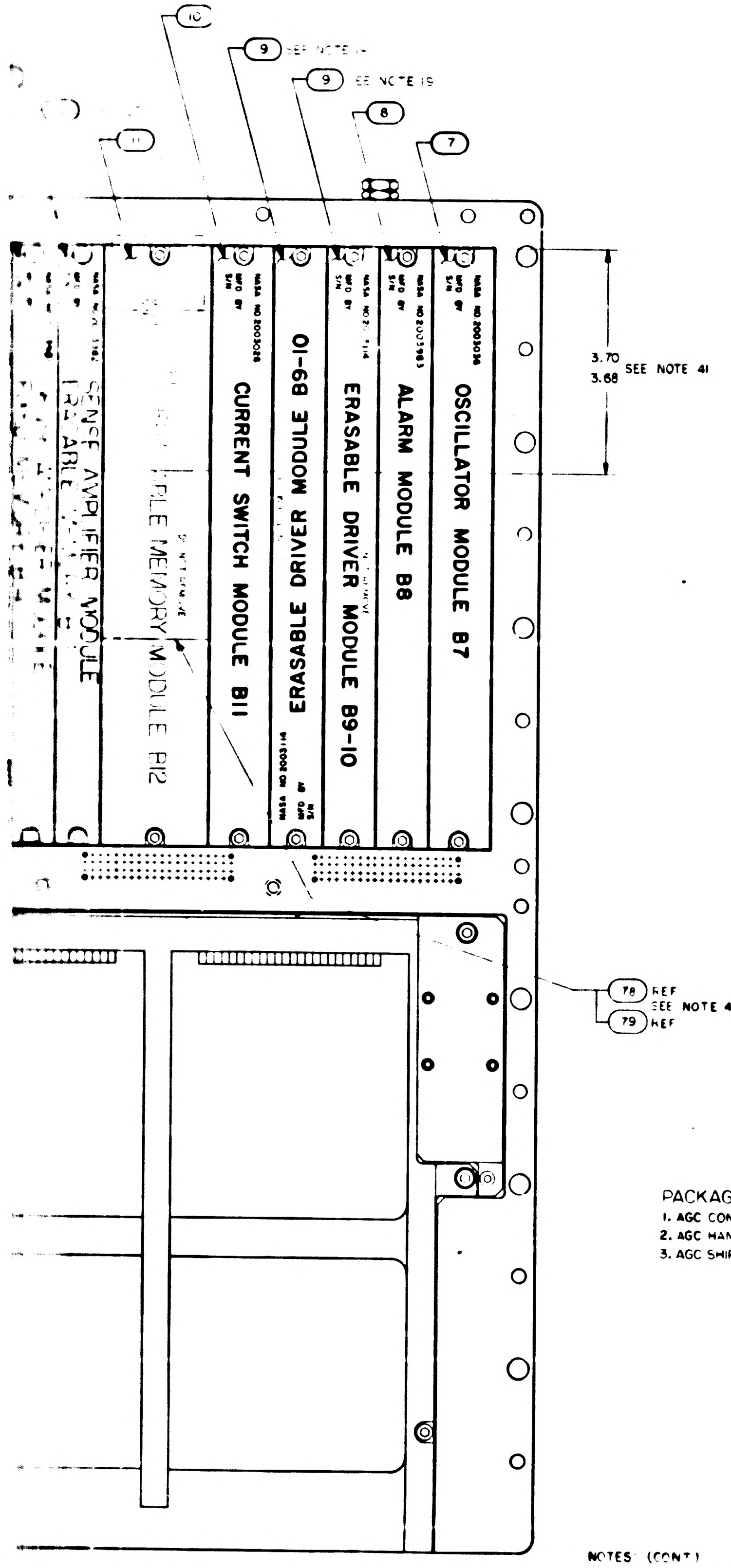

6
5
4
3
D
C
B
A
C1 64
65
SEE NOTES 19, 20, 21 & 23
.035 MIN
.000
.015
SEE NOTE 14
SEE NOTE 22
14
14
13
62
12 SEE NOTE 19
11 SEE NOTE 19
10
9 SEE NOTE 19
9 SEE NOTE 19
8
7
ROPE DRIVER MODULE B16-17
ROPE DRIVER MODULE B16-17
STRAND SELECT MODULE B15
SENSE AMPLIFIER MODULE FIXED MEMORY B14
SENSE AMPLIFIER MODULE ERASABLE MEMORY B13
ERASABLE MEMORY MODULE B12
DO NOT REMOVE
CURRENT SWITCH MODULE B11
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
ALARM MODULE B8
OSCILLATOR MODULE B7
NASA NO.
MFD BY
S/N
3.70
3.68
SEE NOTE 41
78 REF
SEE NOTE 41
79 REF
5 REF
71 SEE NOTE 34
6 REF
SEE NOTES 12 & 26
50
54
1 REF
68 REF
85 REF
72 SEE NOTES 32 & 38
.004 REF
SEE NOTE 33
6 REF
72 REF
SURFACE C
SEE NOTE 33
SCALE 2/1
SECTION G-G
SEE SHEET 1
SECTION D-D
40 SEE NOTE 15
34
33
32
31
30
29
28
27
LOGIC MODULE A16
LOGIC MODULE A17
LOGIC MODULE A18
LOGIC MODULE A19
LOGIC MODULE A20
LOGIC MODULE A21
LOGIC MODULE A22
LOGIC MODULE A23
LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
18
17
16
15
LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
22
22
21
20
19
SECTION C-C
26
25
24
23
22
22

PACKAGING REFERENCE DRAWINGS
1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421

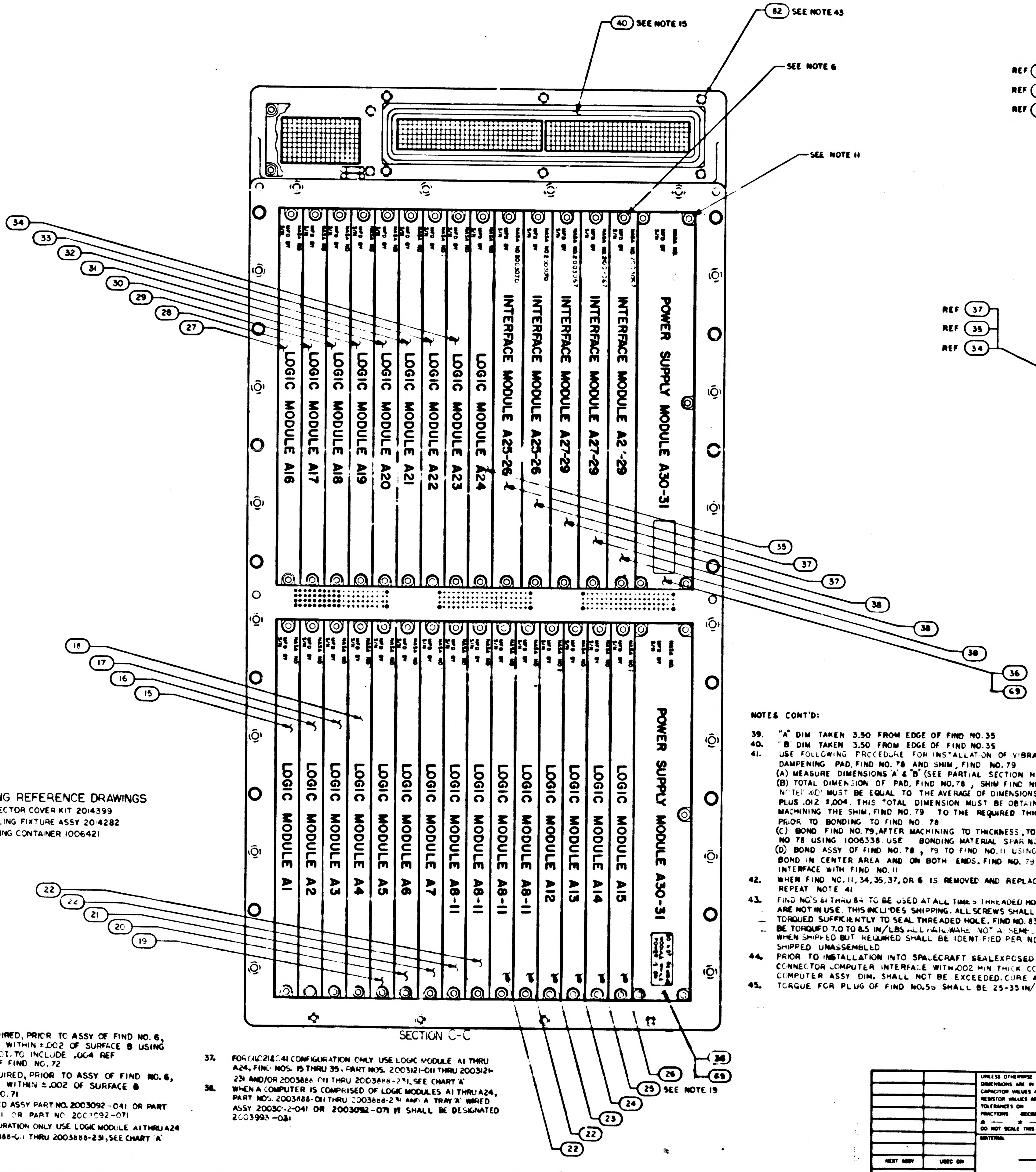
NOTES: (CONT.)

33. SHIM, AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 72, NOT TO INCLUDE .004 REF DIMENSION OF FIND NO. 72
34. SHIM, AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 71
35. USE TRAY A WIRED ASSY PART NO. 2003092-041 OR PART NO. 2003092-061 OR PART NO. 2003092-071
36. FOR -031 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24 PART NOS. 2003888-011 THRU 2003888-231, SEE CHART 'A'
37. FOR -011,-021 & -041 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24, FIND NOS. 15 THRU 35, PART NOS. 2003121-011 THRU 2003121-231 AND/OR 2003888-011 THRU 2003888-231, SEE CHART 'A'
38. WHEN A COMPUTER IS COMPRISED OF LOGIC MODULES A1 THRU A24, PART NOS. 2003888-011 THRU 2003888-231 AND A TRAY 'A' WIRED ASSY 2003092-041 OR 2003092-071 IT SHALL BE DESIGNATED 2003993-031

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		[illegible]				
B		RELEASED PER TDRR 32905				
C		[illegible]				
D		REVISED PER TDRR 33 6				
E		[illegible]				
F		REVISED PER TDRP 3363-				
G		REVISED PER TDRR 34265				
H		REVISED PER TDRR 34265				
J		REVISED PER TDRR 34369				
K		REVISED PER TDRR [illegible]				
L		REVISED PER TDRP 35325				

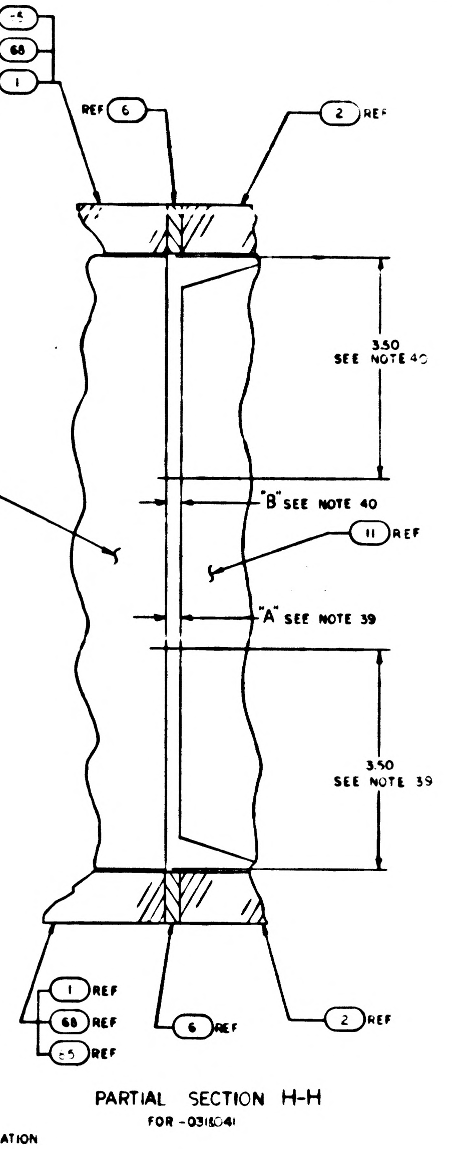

10
9 SEE NOTE 41
9 SEE NOTE 19
8
7
11
OSCILLATOR MODULE B7
ALARM MODULE B8
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
CURRENT SWITCH MODULE B11
ERASABLE MEMORY MODULE B12
SENSE AMPLIFIER MODULE
3.70
3.68 SEE NOTE 41
78 REF
SEE NOTE 41
79 REF

SECTION D-D


40 SEE NOTE 15
82 SEE NOTE 43
SEE NOTE 6
SEE NOTE 11
34
33
32
31
30
29
28
27
LOGIC MODULE A16
LOGIC MODULE A17
LOGIC MODULE A18
LOGIC MODULE A19
LOGIC MODULE A20
LOGIC MODULE A21
LOGIC MODULE A22
LOGIC MODULE A23
LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
35
37
37
38
38
38
36
69
18
17
16
15
LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
22
22
21
20
19
22
22
23
24
25 SEE NOTE 19
26
36
69

SECTION C-C

PACKAGING REFERENCE DRAWINGS
1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421


REF 65
REF 68
REF 1
REF 6
2 REF
3.50
SEE NOTE 40
REF 37
REF 35
REF 34
"B" SEE NOTE 40
11 REF
"A" SEE NOTE 39
3.50
SEE NOTE 39
1 REF
68 REF
65 REF
6 REF
2 REF

PARTIAL SECTION H-H
FOR -031&041

NOTES CONT'D:

39. "A" DIM TAKEN 3.50 FROM EDGE OF FIND NO. 35
40. "B" DIM TAKEN 3.50 FROM EDGE OF FIND NO. 35
41. USE FOLLOWING PROCEDURE FOR INSTALLATION OF VIBRATION DAMPENING PAD, FIND NO. 78 AND SHIM, FIND NO. 79
(A) MEASURE DIMENSIONS 'A' & 'B' (SEE PARTIAL SECTION H-H)
(B) TOTAL DIMENSION OF PAD, FIND NO. 78, SHIM FIND NO. 79, & BONDED MATERIAL PER NOTE (41D) MUST BE EQUAL TO THE AVERAGE OF DIMENSIONS 'A' & 'B' PLUS .012 ±.004. THIS TOTAL DIMENSION MUST BE OBTAINED BY MACHINING THE SHIM, FIND NO. 79 TO THE REQUIRED THICKNESS PRIOR TO BONDING TO FIND NO 78
(C) BOND FIND NO. 79, AFTER MACHINING TO THICKNESS, TO FIND NO 78 USING 1006338. USE BONDING MATERIAL SPARINGLY
(D) BOND ASSY OF FIND NO. 78, 79 TO FIND NO. 11 USING 1006338 BOND IN CENTER AREA AND ON BOTH ENDS. FIND NO. 79 TO INTERFACE WITH FIND NO. 11
42. WHEN FIND NO. 11, 34, 35, 37, OR 6 IS REMOVED AND REPLACED REPEAT NOTE 41
43. FIND NO'S 81 THRU 84 TO BE USED AT ALL TIMES THREADED HOLES ARE NOT IN USE. THIS INCLUDES SHIPPING. ALL SCREWS SHALL BE TORQUED SUFFICIENTLY TO SEAL THREADED HOLE. FIND NO. 83 TO BE TORQUED 7.0 TO 8.5 IN/LBS ALL HARDWARE NOT ASSEMBLED TO COMPUTER WHEN SHIPPED BUT REQUIRED SHALL BE IDENTIFIED PER ND C02019 & SHIPPED UNASSEMBLED
44. PRIOR TO INSTALLATION INTO SPACECRAFT SEAL EXPOSED HARDWARE & CONNECTOR COMPUTER INTERFACE WITH .002 MIN THICK COATING OF FIND NO. 80 COMPUTER ASSY DIM. SHALL NOT BE EXCEEDED. CURE AT ROOM TEMP FOR 24 HOURS
45. TORQUE FOR PLUG OF FIND NO. 56 SHALL BE 25-35 IN/LBS

NOTES (CONT)

33. SHIM AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO 72, NOT TO INCLUDE .004 REF DIMENSION OF FIND NO. 72
34. SHIM, AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 71
35. USE TRAY A WIRED ASSY PART NO. 2003092-041 OR PART NO. 2003092-061 OR PART NO. 2003092-071
36. FOR -031 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24 PART NOS 2003888-011 THRU 2003888-231, SEE CHART 'A'
37. FOR -011, -021 & -041 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24, FIND NOS. 15 THRU 35, PART NOS. 2003121-011 THRU 2003121-231 AND/OR 2003888-011 THRU 2003888-231, SEE CHART 'A'
38. WHEN A COMPUTER IS COMPRISED OF LOGIC MODULES A1 THRU A24, PART NOS. 2003888-011 THRU 2003888-231 AND A TRAY 'A' WIRED ASSY 2003092-041 OR 2003092-071 IT SHALL BE DESIGNATED 2003993-031

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
		LIST OF MATERIALS	

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

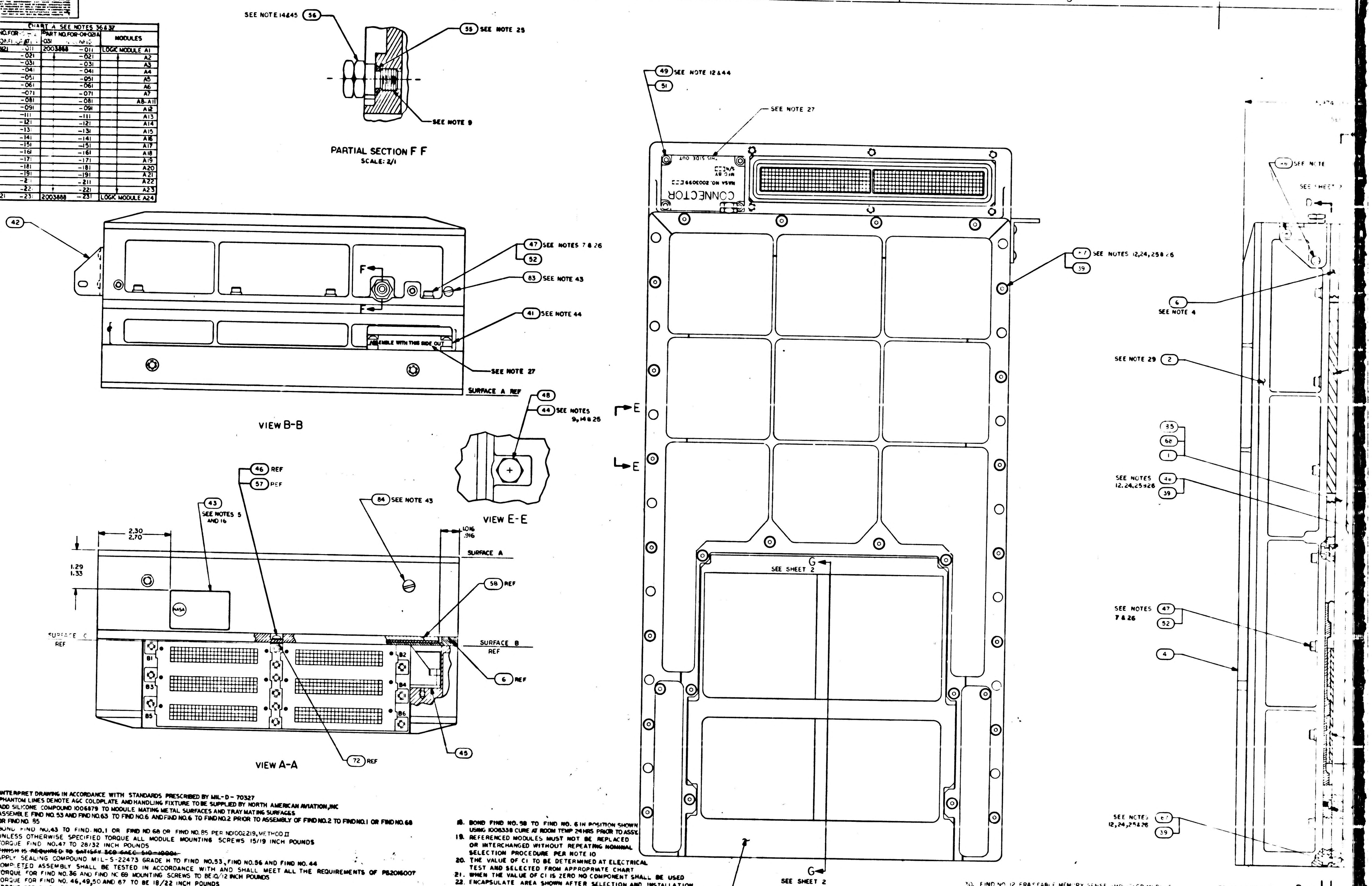
DRAWN
CHECKED
APPROVED
APPROVED
APPROVED
APPROVED
MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER
ASSEMBLY

CODE IDENT NO	SIZE	DRAWING NO
80230	J	2003993

SCALE SHEET 2 OF 2



SEE NOTE 14&45 (56)
(55) SEE NOTE 25
SEE NOTE 9
PARTIAL SECTION F F
SCALE: 2/1
(42)
(47) SEE NOTES 7 & 26
(52)
(83) SEE NOTE 43
(41) SEE NOTE 44
ASSEMBLE WITH THIS SIDE OUT
SEE NOTE 27
SURFACE A REF
VIEW B-B
(48)
(44) SEE NOTES 9,14 & 25
VIEW E-E
(46) REF
(57) REF
(43) SEE NOTES 5 AND 16
(84) SEE NOTE 43
2.30
2.70
1.016
.916
SURFACE A
1.29
1.33
NASA
(58) REF
SURFACE C REF
SURFACE B REF
(6) REF
B1 B2 B3 B4 B5 B6
(72) REF
(45)
VIEW A-A
(49) SEE NOTE 12&44
(51)
SEE NOTE 27
CONNECTOR
NASA NO. 2003993
(47) SEE NOTES 12,24,25 & 26
(39)
E
E
SEE SHEET 2
G
G
SEE SHEET 2
(5) SEE NOTE 29
(46) SEE NOTE
SEE SHEET 2
D
(6) SEE NOTE 4
SEE NOTE 29 (2)
(35)
(68)
(1)
SEE NOTES 12,24,25 & 26 (46)
(39)
SEE NOTES 7 & 26 (47)
(52)
(4)
SEE NOTES 12,24,25 & 26 (47)
(39)
D
SEE SHEET 2
8 7 6 5
D C B A

CHART A SEE NOTES 36 & 37				
PART NO. FOR -011-021 CONFIGURATION		PART NO. FOR -011-021 & -031 CONFIG		MODULES
2003121	-011	2003888	-011	LOGIC MODULE A1
	-021		-021	A2
	-031		-031	A3
	-041		-041	A4
	-051		-051	A5
	-061		-061	A6
	-071		-071	A7
	-081		-081	A8-A11
	-091		-091	A12
	-111		-111	A13
	-121		-121	A14
	-131		-131	A15
	-141		-141	A16
	-151		-151	A17
	-161		-161	A18
	-171		-171	A19
	-181		-181	A20
	-191		-191	A21
	-211		-211	A22
	-221		-221	A23
2003121	-231	2003888	-231	LOGIC MODULE A24

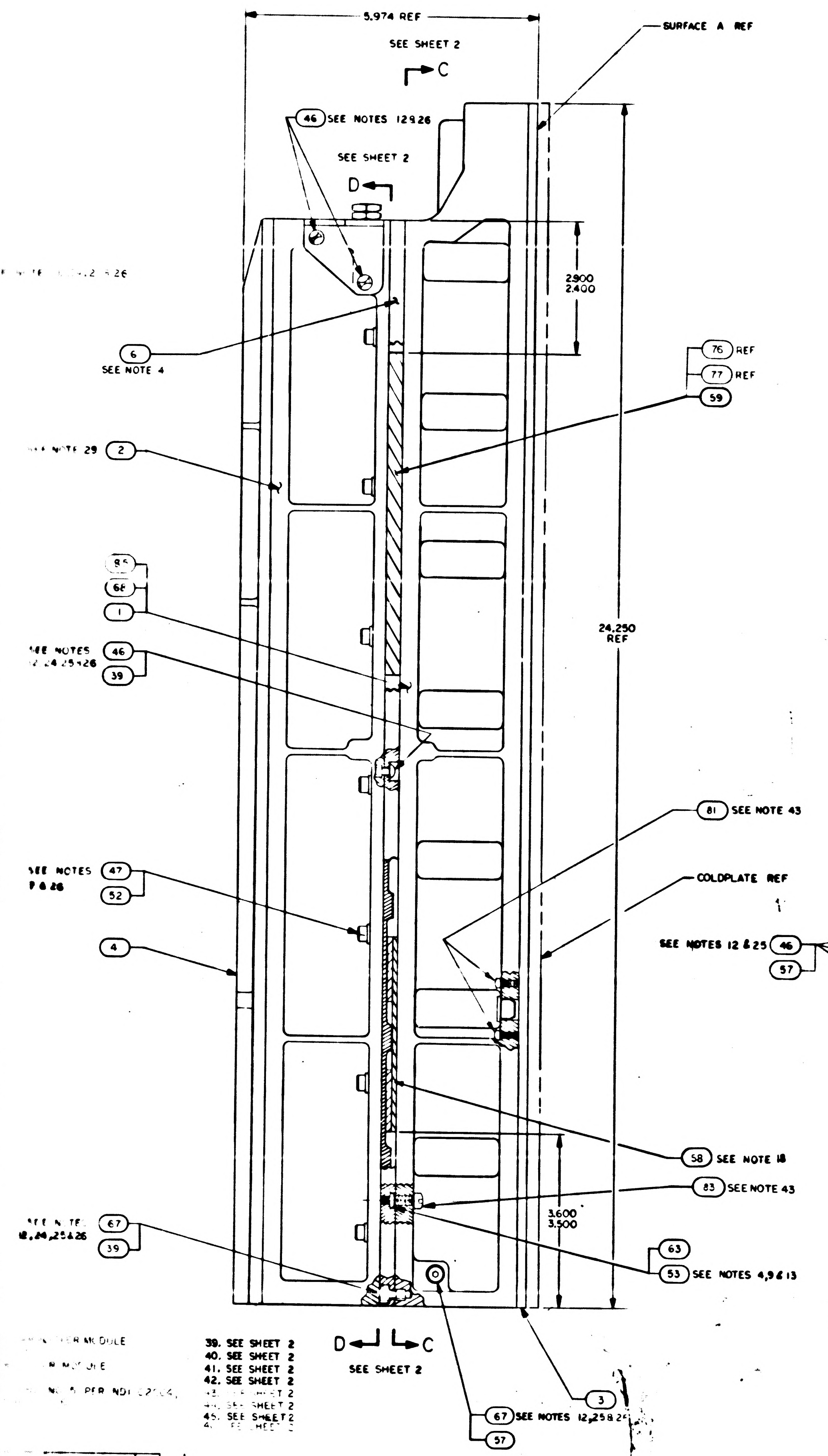
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. PHANTOM LINES DENOTE AGC COLDPLATE AND HANDLING FIXTURE TO BE SUPPLIED BY NORTH AMERICAN AVIATION, INC
3. ADD SILICONE COMPOUND 1006879 TO MODULE MATING METAL SURFACES AND TRAY MATING SURFACES
4. ASSEMBLE FIND NO. 53 AND FIND NO. 63 TO FIND NO. 6 AND FIND NO. 6 TO FIND NO. 2 PRIOR TO ASSEMBLY OF FIND NO. 2 TO FIND NO. 1 OR FIND NO. 68 OR FIND NO. 85
5. BOND FIND NO. 43 TO FIND NO. 1 OR FIND NO. 68 OR FIND NO. 85 PER ND1002219, METHOD II
6. UNLESS OTHERWISE SPECIFIED TORQUE ALL MODULE MOUNTING SCREWS 15/19 INCH POUNDS
7. TORQUE FIND NO. 47 TO 28/32 INCH POUNDS
8. ~~FINISH IS REQUIRED TO SATISFY ICD GAEC 510-10001~~
9. APPLY SEALING COMPOUND MIL-S-22473 GRADE H TO FIND NO. 53, FIND NO. 56 AND FIND NO. 44
10. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2016007
11. TORQUE FOR FIND NO. 36 AND FIND NO. 69 MOUNTING SCREWS TO BE 10/12 INCH POUNDS
12. TORQUE FOR FIND NO. 46, 49, 50 AND 67 TO BE 18/22 INCH POUNDS
13. TORQUE FOR FIND NO. 53 TO BE 4/6 INCH POUNDS
14. TORQUE FOR FIND NO. 44 AND FIND NO. 56 TO BE 137/157 INCH POUNDS
15. FIND NO. 40 SHALL BE SUPPLIED AS PART OF THIS ASSEMBLY
16. MARK COMPUTER ASSEMBLY AND RELATED PART NO., APPLICABLE DASH NO., SERIAL NO. AND CONTRACT NO. PER 1004260 AND SERIALIZE PER ND1002023
17. FINISH SURFACE -A- PER ICD NAA MH01-01302-116 ~~THIS ASSEMBLY MUST BE CAPABLE OF MEETING ELECTRICAL BONDING REQUIREMENTS OF ICD NAA MH01-01302-116~~
18. BOND FIND NO. 58 TO FIND NO. 6 IN POSITION SHOWN USING 1006338 CURE AT ROOM TEMP 24 HRS PRIOR TO ASSY.
19. REFERENCED MODULES MUST NOT BE REPLACED OR INTERCHANGED WITHOUT REPEATING NOMINAL SELECTION PROCEDURE PER NOTE 10
20. THE VALUE OF C1 TO BE DETERMINED AT ELECTRICAL TEST AND SELECTED FROM APPROPRIATE CHART
21. WHEN THE VALUE OF C1 IS ZERO NO COMPONENT SHALL BE USED
22. ENCAPSULATE AREA SHOWN AFTER SELECTION AND INSTALLATION OF C1 USING ND1002009 METHOD C OR D USING PRIMER PER SCD1012513
23. WELD PER ND1002005
24. ASSEMBLE HARDWARE WITH SMOOTH FACE OF FIND NO. 30 IN CONTACT WITH SCREW HEAD
25. FIND NO. 30, 48, 55 & 57 TO BE DISCARDED AND REPLACED WITH NEW PARTS EACH TIME THEY ARE DISASSEMBLED
26. SEAL EXPOSED HARDWARE ASSEMBLIES WITH .002 MIN THICK COATING OF FIND NO. 80. OVERALL COMPUTER ASSEMBLY DIMENSIONS SHALL NOT BE EXCEEDED. CURE AT ROOM TEMP 24 HRS
27. STENCILING SHOWN FOR ORIENTATION ONLY
28. KEEP ALL MATING THREADS OF SCREWS, TRAY AND MID SPACER INSERTS FREE OF SILICONE COMPOUND
29. FILL FEMALE INSULATORS OF B41 AND B42 CONNECTORS USING FIND NO. 70 PRIOR TO ASSEMBLY OF FIND NOS TO
30. FIND NO. 12 ERASEABLE MEMORY, SENSE AMPLIFIER MODULE USE EITHER 2003 [illegible] OR 2003 [illegible]
31. FIND NO. 62 FIXED MEMORY, SENSE AMPLIFIER MODULE USE EITHER 2003981-011 OR 2003981-031
32. BOND FIND NO. 72 [illegible] EDGES TO FIND NO. 5 PER ND1002[illegible] TYPE V PRIOR TO ASSEMBLY OF FIND NO. 6
33. SEE SHEET 2
34. SEE SHEET 2
35. SEE SHEET 2
36. SEE SHEET 2
37. SEE SHEET 2
38. SEE SHEET 2
39. SEE SHEET 2
40. SEE SHEET 2
41. SEE SHEET 2
42. SEE SHEET 2
43. SEE SHEET 2
44. SEE SHEET 2
45. SEE SHEET 2

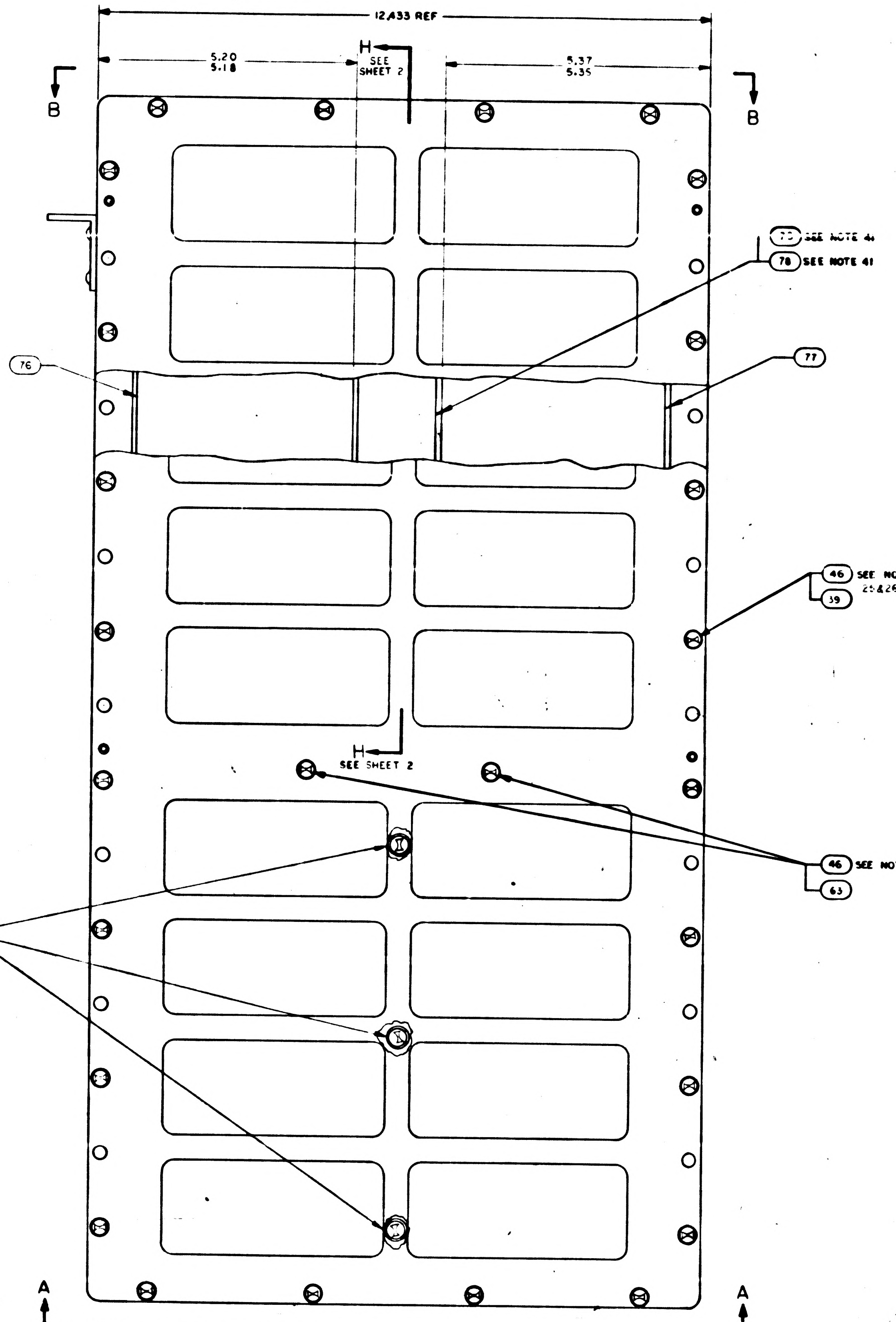
2003993

2003993 MF1/2 SH1/2

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		INITIAL RELEASE TDRR [illegible]				
B		REVISED PER TDRR [illegible]				
C		REVISED PER TDRR [illegible]				
D		REVISED PER [illegible]				
E		[illegible]				
F		REVISED PER TDRR 33638				
G		REVISED PER TDRR 34265				
H		REVISED PER TDRR 34285				
J		REVISED PER TDRR 34359				
K		REVISED PER TDRR [illegible]322				
L		[illegible]				
M		REVISED PER TDRR 35429				


5.974 REF
SEE SHEET 2
C
SURFACE A REF
46 SEE NOTES 12&26
SEE SHEET 2
D
2.900
2.400
6
SEE NOTE 4
76 REF
77 REF
59
SEE NOTE 29 2
24.250 REF
85
68
1
SEE NOTES 12,24,25&26 46
39
81 SEE NOTE 43
COLDPLATE REF
SEE NOTES 12&26 47
52
4
58 SEE NOTE 18
83 SEE NOTE 43
3.600
3.500
SEE NOTES 12,24,25&26 67
39
63
53 SEE NOTES 4,9&13
3
67 SEE NOTES 12,25&26
57
D
C
SEE SHEET 2

39. SEE SHEET 2
40. SEE SHEET 2
41. SEE SHEET 2
42. SEE SHEET 2
43. SEE SHEET 2
44. SEE SHEET 2
45. SEE SHEET 2
46. SEE SHEET 2


12.433 REF
H
5.20
5.18
SEE SHEET 2
5.37
5.35
B
B
78 SEE NOTE 41
79 SEE NOTE 41
76
77
46 SEE NOTES 12, 24, 25&26
39
H
SEE SHEET 2
46 SEE NOTES 12 & 26
63
SEE NOTES 12 & 25 46
57
A
A

NOTE APPLICATION	
DASH NO.	NOTES APPLICABLE
-011	1 THRU 34, 37, 43 & 44, 45 & 46
-021	1 THRU 35, 37, 43, 44 & 45 & 46
-031	1 THRU 34, 36 & 39 THRU 46
-041	1 THRU 35, 37 & [illegible] THRU 46

QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
1	1	1	1	2003111-081	ERASABLE MEMORY MODULE B12	86
—	1	—	—	2003092-071	TRAY "A" WIRED ASSY	85
4	4	4	4	1010485-432	SCREW NYLON	84
11	11	11	11	1010485-332	SCREW, NYLON	83
6	6	6	6	1010485-235	SCREW NYLON	82
28	28	28	28	1010485-100	SCREW NYLON	81
AR	AR	AR	AR	1006338-003	SEALING COMPOUND SILICONE RUBBER	80
1	1	—	—	2004691	SHIM VIBRATION DAMPENING	79
1	1	—	—	2004690	PAD VIBRATION DAMPENING	78
1	1	—	—	2004899-007	PAD VIBRATION	77
1	1	—	—	2004899-006	PAD VIBRATION	76
	~~AR~~	—	—	~~2004885-002~~	~~SHIM AGC~~	75
	~~AR~~	—	—	~~2004885-001~~	~~SHIM AGC~~	74
—	1	—	—	~~2003092-041~~	~~TRAY "A" WIRED ASSY~~	73
AR	AR	AR	AR	2010801	SHIM AGC	72
AR	AR	AR	AR	2010800-000	SHIM	71
				2005944	AGC WIRE LIST	REF
AR	AR	AR	AR	MIL-S-8660	SILICONE COMPOUND	70
2	2	2	—	2003892-011	POWER SUPPLY MODULE A30-31	69
1	—	1	—	SEE NOTE 38	TRAY "A" WIRED ASSY	68
33	33	33	33	2004732-002	SCREW, COATED	67
	AR	AR	AR	1006338-000	SEALING COMPOUND, SILICONE RUBBER	66
AR	AR	AR	AR	1006776-22	INSULATION, SLEEVING ELECTRICAL	65
1	1	1	1	SEE NOTE 20	CAPACITOR	64
10	10	10	10	2004148-007	WASHER, FLAT	63
1	1	1	1	SEE NOTE 31	SENSE AMPLIFIER MODULE, FIXED MEMORY B14	62
—	—	~~AR~~	~~AR~~	~~2004895-002~~	~~SHIM AGC~~	61
		~~AR~~	~~AR~~	~~2004895-001~~	~~SHIM AGC~~	60
—	—	1	1	2004899-001	PAD VIBRATION	59
1	1	1	1	2003970	VIBRATION PAD ASSY	58
4	4	4	4	NAS1598-008N	WASHER, SEALING	57
1	1	1	1	2018773	VALVE PRESSURE ASSEMBLY	56
1	1	1	1	1000159-5	PACKING, PREFORMED "O" RING	55
2	2	2	2	2004984-001	WASHER, FLAT	54
8	8	8	8	2004130	PAD, THREADED	53
18	18	18	18	2004894-014	WASHER, FLAT	52
4	4	4	4	2004894-012	WASHER, FLAT	51
2	2	2	2	1[illegible]469-36	SCREW, HEX SOCKET HEAD	50
4	4	4	4	1004722-2	SCREW, CAPTIVE	49
1	1	1	1	1000159-7	PACKING, PREFORMED "O" RING	48
18	18	18	16	2004732-003	SCREW, COATED	47
33	33	33	33	2004732-001	SCREW, COATED	46
2	2	2	2	1006347	GASKET, PLATE	45
1	1	1	1	2004986	PLUG, MACHINE THREAD	44
1	1	1	1	1004260-19	NAME PLATE, TYPE I	43
1	1	1	1	2004113-001	BRACKET, CABLE	42
1	1	1	1	2003099-011	CONNECTOR ASSEMBLY	41
1	1	1	1	1006380	GASKET, RETAINED	40
58	58	58	58	20047[illegible]7	WASHER, KNURLED	39
3	3	3	3	2003067-041	INTERFACE MODULE A27-29	38
2	2	2	2	2003070-031	INTERFACE MODULE A25-26	37
—	—	—	2	2003887-011	POWER SUPPLY MODULE A30-31	36
1	1	1	1	SEE NOTES 36&37	LOGIC MODULE A24	35
1	1	1	1		LOGIC MODULE A23	34
1	1	1	1		LOGIC MODULE A22	33
1	1	1	1		LOGIC MODULE A21	32
1	1	1	1		LOGIC MODULE A20	31
1	1	1	1		LOGIC MODULE A19	30
1	1	1	1		LOGIC MODULE A18	29
1	1	1	1		LOGIC MODULE A17	28
1	1	1	1		LOGIC MODULE A16	27
1	1	1	1		LOGIC MODULE A15	26
1	1	1	1		LOGIC MODULE A14	25
1	1	1	1		LOGIC MODULE A13	24
1	1	1	1		LOGIC MODULE A12	23
4	4	4	4		LOGIC MODULE A8-11	22
1	1	1	1		LOGIC MODULE A7	21
1	1	1	1		LOGIC MODULE A6	20
1	1	1	1		LOGIC MODULE A5	19
1	1	1	1		LOGIC MODULE A4	18
1	1	1	1		LOGIC MODULE A3	17
1	1	1	1		LOGIC MODULE A2	16
1	1	1	1	SEE NOTES 36&37	LOGIC MODULE A1	15
2	2	2	2	2003140-031	ROPE DRIVER MODULE B16-17	14
1	1	1	1	2003027-031	STRAND SELECT MODULE B15	13
1	1	1	1	SEE NOTE 30	SENSE AMPL MOD, ERASABLE MEMORY B13	12
~~1~~	~~1~~	~~1~~	~~1~~	~~2003111-[illegible]~~	~~ERASABLE MEMORY MODULE B12~~	11
1	1	1	1	2003026-031	CURRENT SWITCH MODULE B11	10
2	2	2	2	2003114-021	ERASABLE DRIVER MODULE B9-10	9
1	1	1	1	2003983-021	ALARM MODULE B8	8
1	1	1	1	2003036-031	OSCILLATOR MODULE B7	7
1	1	1	1	2003978-001	MID SPACER	6
1	1	1	1	2003059-021	INTERCONNECTION HEADER ASSEMBLY	5
1	1	1	1	2003976-011	TRAY B COVER	4
1	1	1	1	2003977-011	TRAY A COVER	3
1	1	1	1	2003093-021	TRAY B WIRED ASSEMBLY	2
—	—	—	1	2003092-031	TRAY A WIRED ASSEMBLY	1

LIST OF MATERIALS

2003991	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING
MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

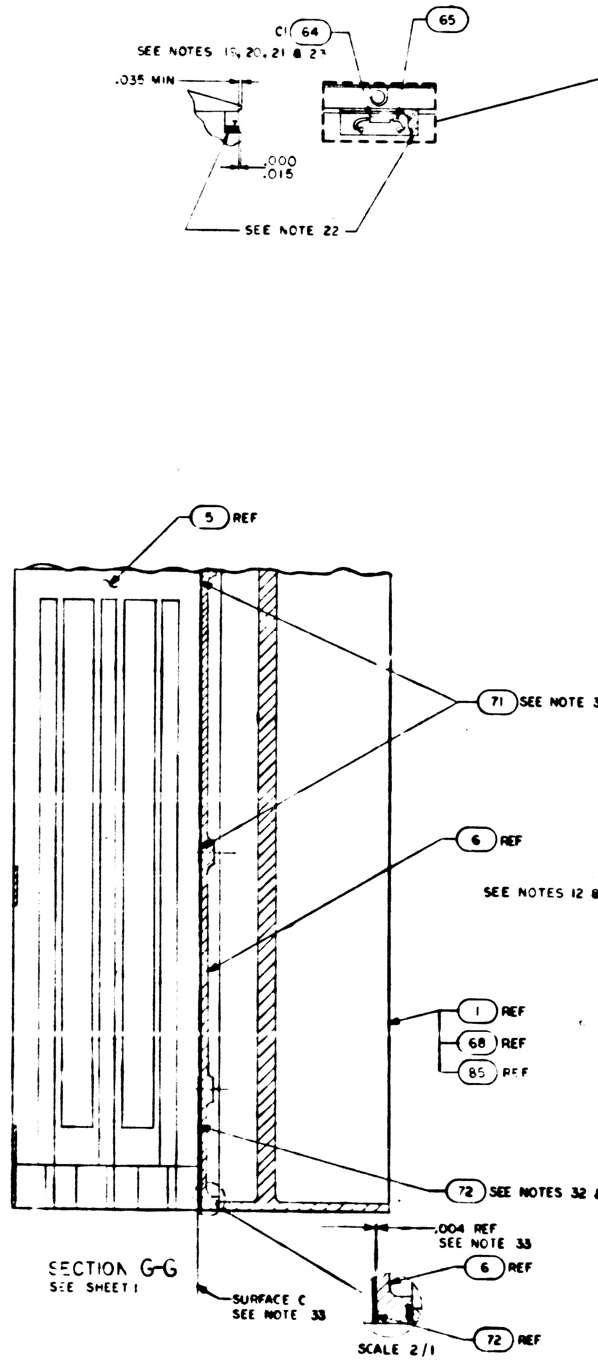
COMPUTER ASSEMBLY

CODE IDENT NO 80230 | SIZE J | DRAWING NO 2003993
SCALE / | SHEET 1 OF 2

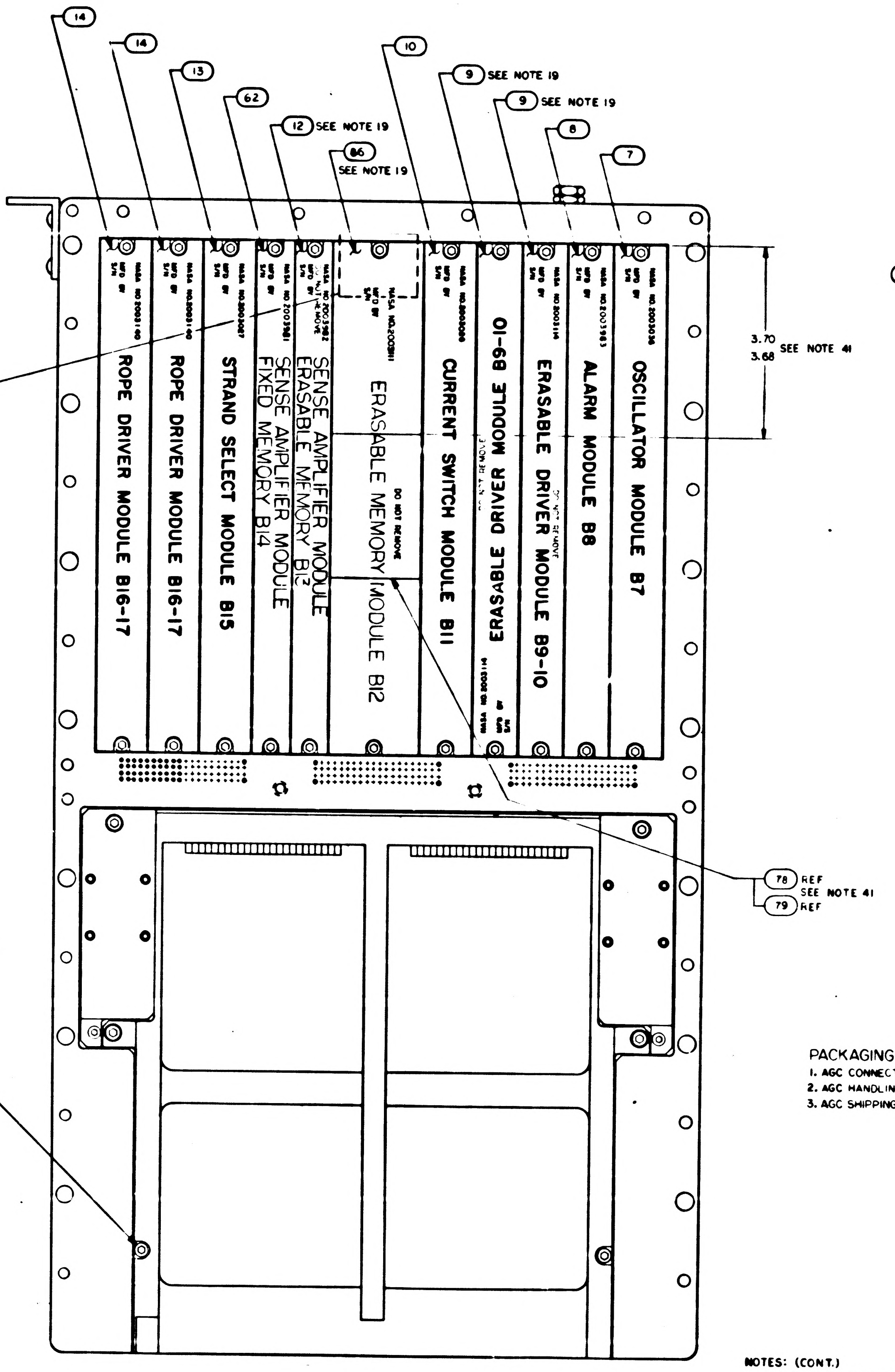
2003993 | M

SH1/2 2003993 MF2/2

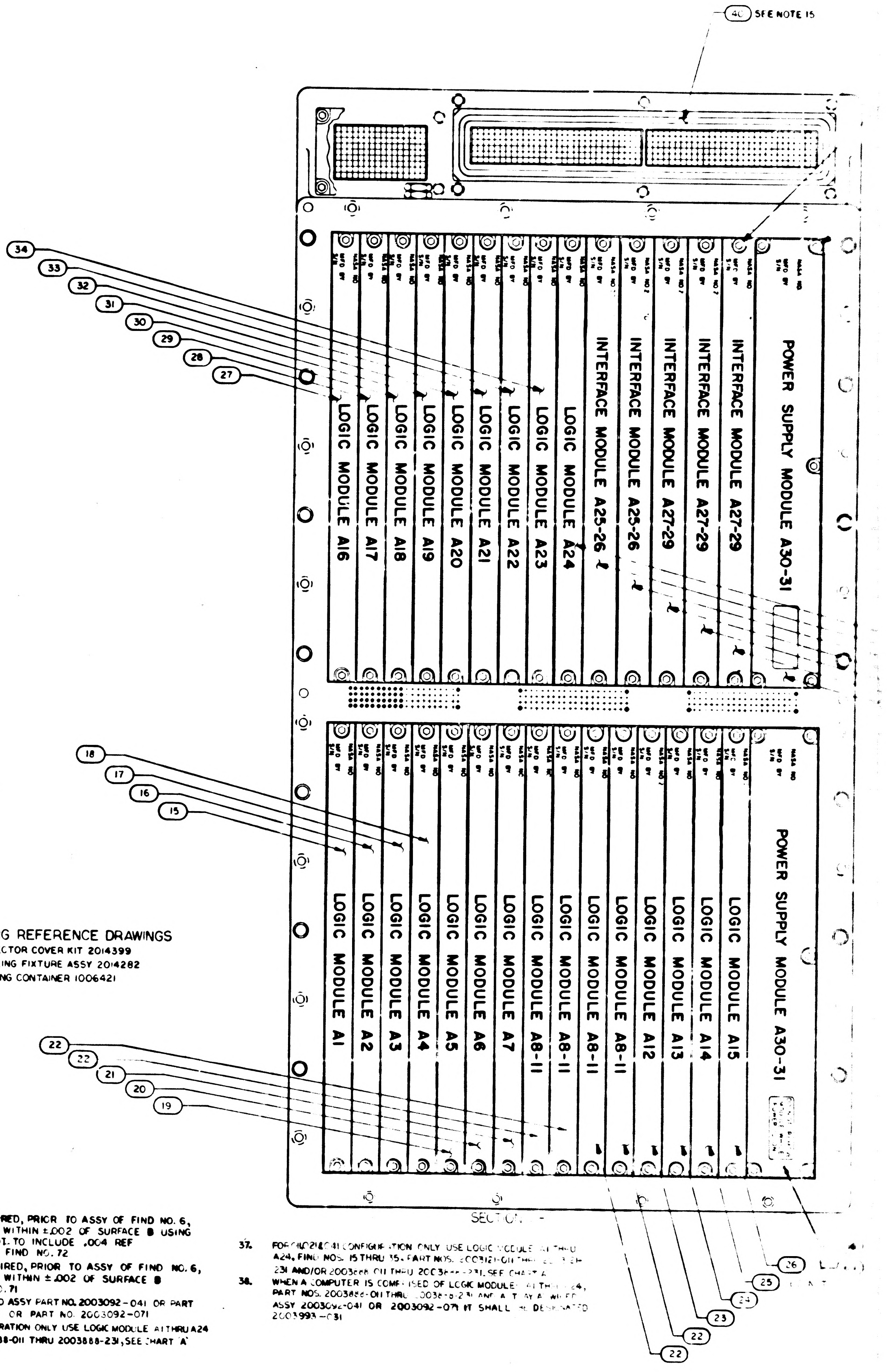
C1	
PART NO.	VALUE UUF
1006777-1	10
-15	150
-18	330
-20	470
-22	680
1006777-23	820
SEE NOTE 21	0
1006777-6	220
1006777-17	270


C1 64
65
SEE NOTES 19, 20, 21 & 23
.035 MIN
.000
.015
SEE NOTE 22
5 REF
71 SEE NOTE 34
6 REF
SEE NOTES 12 & 26 50
54
1 REF
68 REF
85 REF
72 SEE NOTES 32 & 33
.004 REF
SEE NOTE 33
6 REF
SURFACE C
SEE NOTE 33
72 REF
SCALE 2/1

SECTION G-G
SEE SHEET 1


14
14
13
62
12 SEE NOTE 19
86 SEE NOTE 19
10
9 SEE NOTE 19
9 SEE NOTE 19
8
7
ROPE DRIVER MODULE B16-17
ROPE DRIVER MODULE B16-17
STRAND SELECT MODULE B15
SENSE AMPLIFIER MODULE FIXED MEMORY B14
SENSE AMPLIFIER MODULE ERASABLE MEMORY B12
ERASABLE MEMORY MODULE B12
DO NOT REMOVE
CURRENT SWITCH MODULE B11
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
ALARM MODULE B8
OSCILLATOR MODULE B7
NASA NO. 2003100
NASA NO. 2003100
NASA NO. 2003007
NASA NO. 2003981
NASA NO. 2003982
NASA NO. 2003111
NASA NO. 2003080
NASA NO. 2003114
NASA NO. 2003114
NASA NO. 2003983
NASA NO. 2003036
MFD BY
S/N
3.70
3.68
SEE NOTE 41
78 REF
SEE NOTE 41
79 REF

SECTION D-D


40 SEE NOTE 15
34
33
32
31
30
29
28
27
LOGIC MODULE A16
LOGIC MODULE A17
LOGIC MODULE A18
LOGIC MODULE A19
LOGIC MODULE A20
LOGIC MODULE A21
LOGIC MODULE A22
LOGIC MODULE A23
LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
18
17
16
15
LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
22
22
21
20
19
26
25
24
23
22
22
SECTION

PACKAGING REFERENCE DRAWINGS

1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421

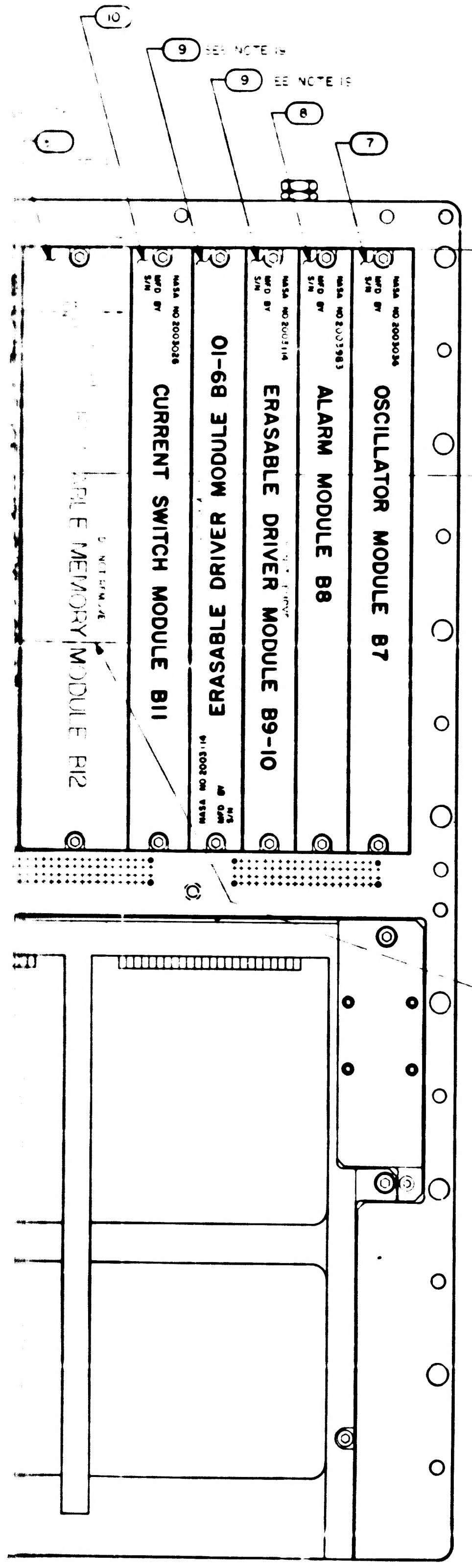
NOTES: (CONT.)

33. SHIM, AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 72, NOT TO INCLUDE .004 REF DIMENSION OF FIND NO. 72
34. SHIM, AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 71
35. USE TRAY A WIRED ASSY PART NO. 2003092-041 OR PART NO. 2003092-061 OR PART NO. 2003092-071
36. FOR -031 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24 PART NOS. 2003888-011 THRU 2003888-231, SEE CHART 'A'
37. FOR -011, -021 & -041 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24, FIND NOS. 15 THRU 35, PART NOS. 2003121-011 THRU 2003121-231 AND/OR 2003888-011 THRU 2003888-231, SEE CHART A
38. WHEN A COMPUTER IS COMPRISED OF LOGIC MODULES A1 THRU A24, PART NOS. 2003888-011 THRU 2003888-231 AND A TRAY A WIRED ASSY 2003092-041 OR 2003092-071 IT SHALL BE DESIGNATED 2003993-031

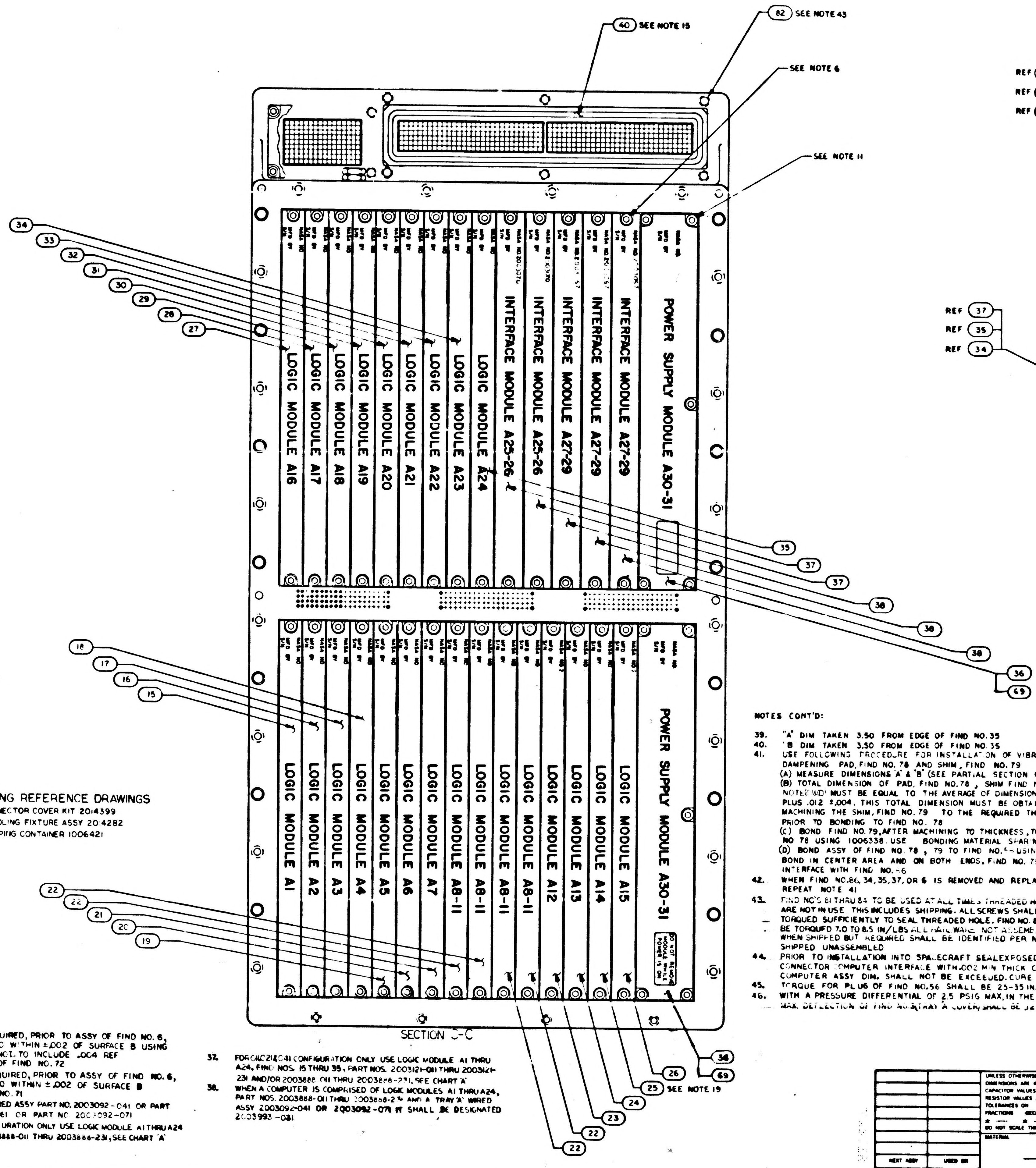
2003993	M

SH2/2 2003993 MF1/2

SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
A		[illegible]				
B		RELEASED PER TDRR 32965				
		[illegible]				
		REVISED PER TDRR 33?C6				
E		[illegible]				
F		REVISED PER TDRR 3363				
G		REVISED PER TDRR 34265				
H		REVISED PER TDRR 34265				
J		REVISED PER TDRR 34359				
K		REVISED PER TDRR [illegible]				
L		REVISED PER TDRR 3532?				
M		REVISED PER TDRR [illegible]				

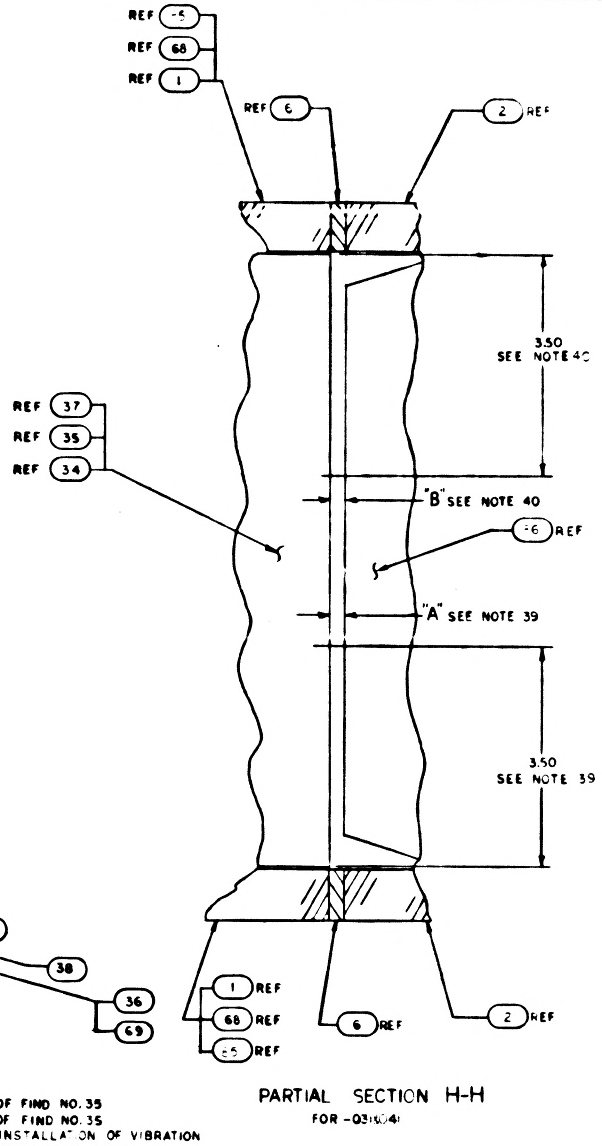

10
9 SEE NOTE 19
9 SEE NOTE 15
8
7
3.70
3.68 SEE NOTE 41
OSCILLATOR MODULE B7
ALARM MODULE B8
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
CURRENT SWITCH MODULE B11
ERASABLE MEMORY MODULE B12
78 REF
79 SEE NOTE 41 REF

ECTION D-D


40 SEE NOTE 15
82 SEE NOTE 43
SEE NOTE 6
SEE NOTE 11
34
33
32
31
30
29
28
27
LOGIC MODULE A16
LOGIC MODULE A17
LOGIC MODULE A18
LOGIC MODULE A19
LOGIC MODULE A20
LOGIC MODULE A21
LOGIC MODULE A22
LOGIC MODULE A23
LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
35
37
37
38
38
38
36
69
18
17
16
15
LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
DO NOT REMOVE MODULE WHILE POWER IS ON
22
22
21
20
19
36
69
26
25 SEE NOTE 19
24
23
22
22

SECTION C-C

PACKAGING REFERENCE DRAWINGS
1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421


REF 65
REF 68
REF 1
REF 6
2 REF
3.50 SEE NOTE 40
"B" SEE NOTE 40
66 REF
"A" SEE NOTE 39
3.50 SEE NOTE 39
REF 37
REF 35
REF 34
1 REF
68 REF
65 REF
6 REF
2 REF

PARTIAL SECTION H-H
FOR -031&041

NOTES (CONT)

33. SHIM AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 72, NOT TO INCLUDE .004 REF DIMENSION OF FIND NO. 72
34. SHIM, AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 71
35. USE TRAY A WIRED ASSY PART NO. 2003092-041 OR PART NO. 2003092-061 OR PART NO. 2003092-071
36. FOR -031 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24 PART NOS. 2003888-011 THRU 2003888-231, SEE CHART 'A'
37. FOR 011,021&041 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24, FIND NOS. 15 THRU 35, PART NOS. 2003121-011 THRU 2003121-231 AND/OR 2003888-011 THRU 2003888-231, SEE CHART 'A'
38. WHEN A COMPUTER IS COMPRISED OF LOGIC MODULES A1 THRU A24, PART NOS. 2003888-011 THRU 2003888-231 AND A TRAY 'A' WIRED ASSY 2003092-041 OR 2003092-071 IT SHALL BE DESIGNATED 2003993-031

NOTES CONT'D:

39. "A" DIM TAKEN 3.50 FROM EDGE OF FIND NO. 35
40. "B" DIM TAKEN 3.50 FROM EDGE OF FIND NO. 35
41. USE FOLLOWING PROCEDURE FOR INSTALLATION OF VIBRATION DAMPENING PAD, FIND NO. 78 AND SHIM, FIND NO. 79
    (A) MEASURE DIMENSIONS 'A' & 'B' (SEE PARTIAL SECTION H-H)
    (B) TOTAL DIMENSION OF PAD, FIND NO. 78, SHIM FIND NO. 79, & BONDED MATERIAL PER NOTE (C)&(D) MUST BE EQUAL TO THE AVERAGE OF DIMENSIONS 'A' & 'B' PLUS .012 ±.004. THIS TOTAL DIMENSION MUST BE OBTAINED BY MACHINING THE SHIM, FIND NO. 79 TO THE REQUIRED THICKNESS PRIOR TO BONDING TO FIND NO. 78
    (C) BOND FIND NO. 79, AFTER MACHINING TO THICKNESS, TO FIND NO 78 USING 1006338. USE BONDING MATERIAL SPARINGLY
    (D) BOND ASSY OF FIND NO. 78, 79 TO FIND NO. 55 USING 1006338 BOND IN CENTER AREA AND ON BOTH ENDS. FIND NO. 79 TO INTERFACE WITH FIND NO. 66
42. WHEN FIND NO. 86, 34, 35, 37, OR 6 IS REMOVED AND REPLACED REPEAT NOTE 41
43. FIND NO'S 81 THRU 84 TO BE USED AT ALL TIMES THREADED HOLES ARE NOT IN USE. THIS INCLUDES SHIPPING. ALL SCREWS SHALL BE TORQUED SUFFICIENTLY TO SEAL THREADED HOLE. FIND NO. 83 TO BE TORQUED 7.0 TO 8.5 IN/LBS ALL HARDWARE NOT ASSEMBLED TO COMPUTER WHEN SHIPPED BUT REQUIRED SHALL BE IDENTIFIED PER ND 1002019 & SHIPPED UNASSEMBLED
44. PRIOR TO INSTALLATION INTO SPACECRAFT SEAL EXPOSED HARDWARE & CONNECTOR COMPUTER INTERFACE WITH .002 MIN THICK COATING OF FIND NO. 80 COMPUTER ASSY DIM. SHALL NOT BE EXCEEDED. CURE AT ROOM TEMP FOR 24 HOURS
45. TORQUE FOR PLUG OF FIND NO. 56 SHALL BE 25-35 IN/LBS
46. WITH A PRESSURE DIFFERENTIAL OF 2.5 PSIG MAX, IN THE COMPUTER, THE MAX. DEFLECTION OF FIND NO. 3 (TRAY A COVER) SHALL BE .125

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED
APPROVED
DATE

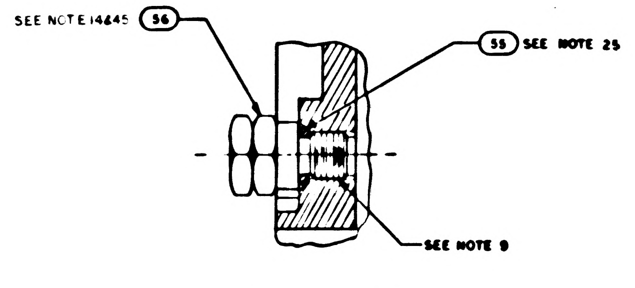
COMPUTER ASSEMBLY

CODE IDENT NO	SIZE	DRAWING NO
80230	J	2003993

SCALE
SHEET 2 OF 2

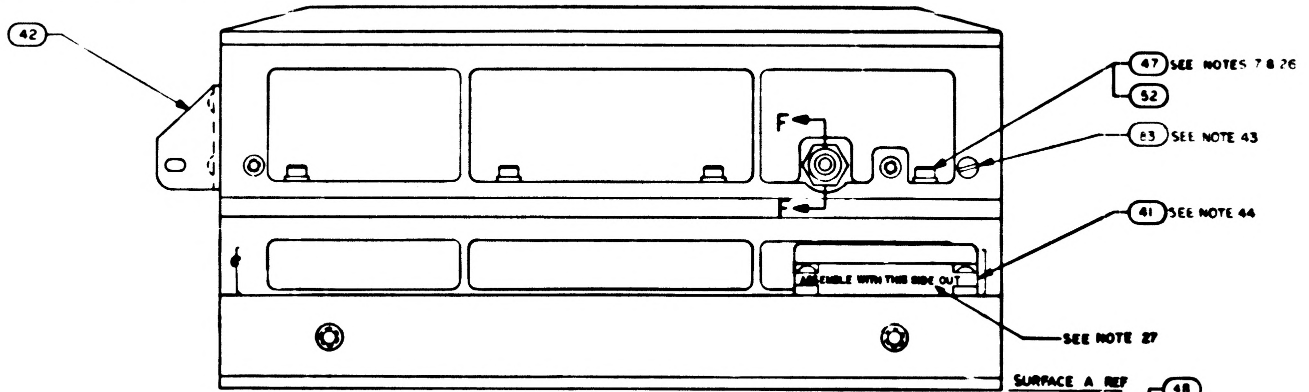
CHART A SEE NOTES 36&37

PART NC. FOR -011		PART NO. FOR-011-021& -031	NHS	MODULES	
2003121	-011	2003888	-011	LOGIC MODULE	A1
	-021		-021		A2
	-031		-031		A3
	-04		-041		A4
	-051		-051		A5
	-061		-061		A6
	-071		-071		A7
	-081		-081		A8-A11
	-091		-091		A12
	-11		-111		A13
	-12		-121		A14
	-13		-131		A15
	-141		-141		A16
	-151		-151		A17
	-161		-161		A18
	-171		-171		A19
	-18		-181		A20
	-19		-191		A21
	-2		-211		A22
	-22		-221		A23
2003121	-23	2003888	-231	LOGIC MODULE	A24



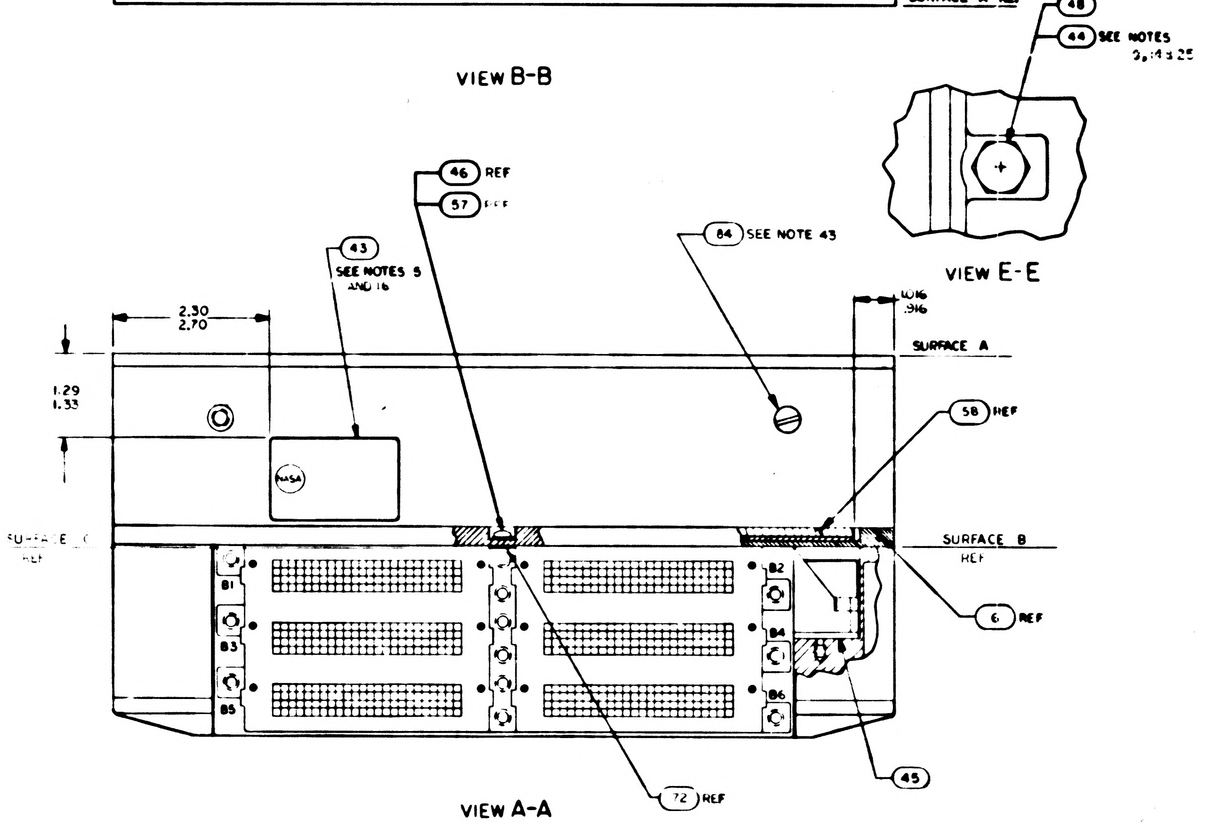
56 SEE NOTE 14&45
55 SEE NOTE 25
SEE NOTE 9

PARTIAL SECTION F F
SCALE: 2/1



42
F
F
47 SEE NOTES 7 & 26
52
83 SEE NOTE 43
41 SEE NOTE 44
ASSEMBLE WITH THIS SIDE OUT
SEE NOTE 27
SURFACE A REF

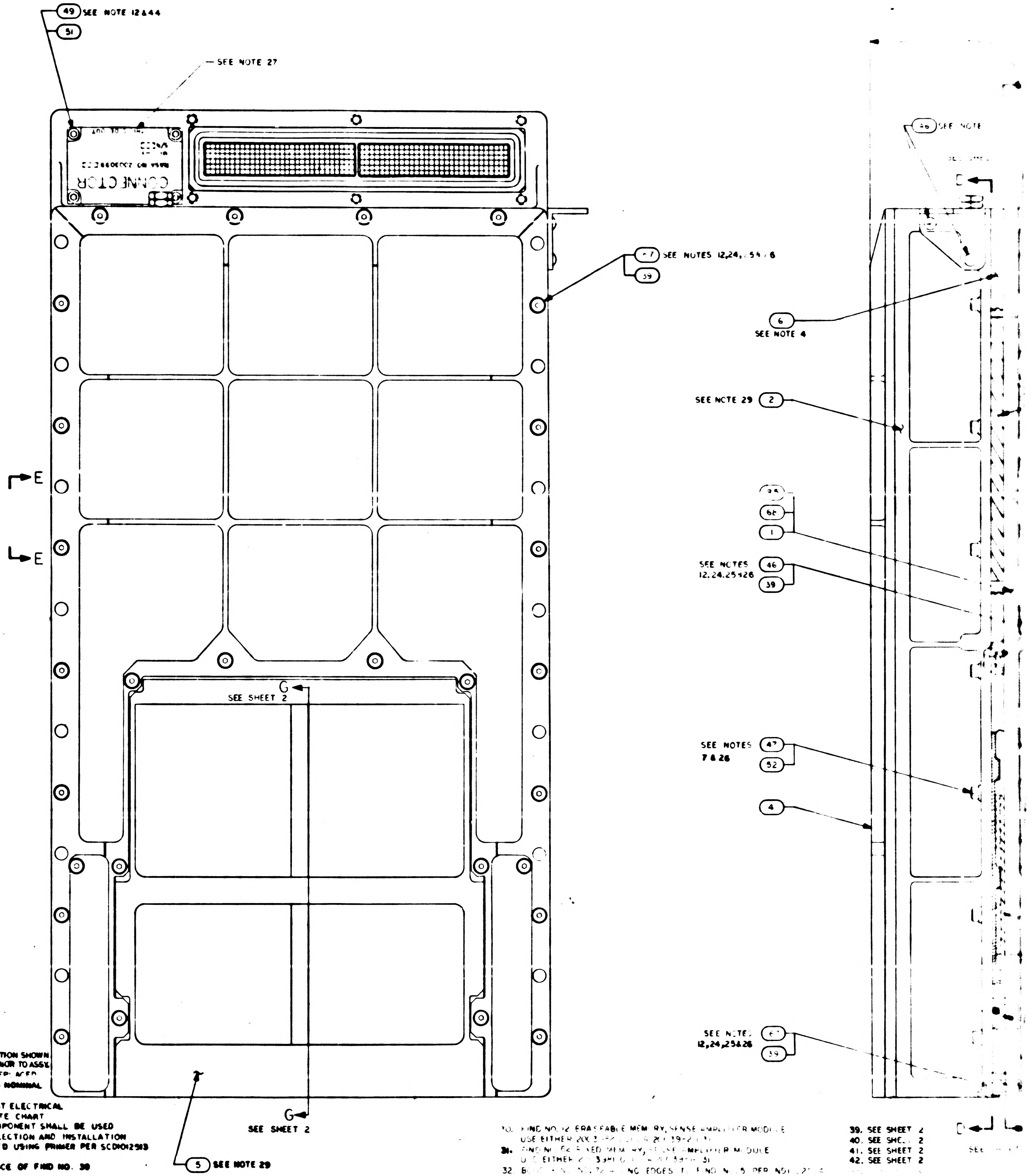
VIEW B-B



48
44 SEE NOTES 9,14 & 25
46 REF
57 REF
43 SEE NOTES 5 AND 16
84 SEE NOTE 43
2.30
2.70
1.016
.916
1.29
1.33
SURFACE A
NASA
58 REF
SURFACE C REF
SURFACE B REF
B1
B2
B3
B4
B5
B6
6 REF
72 REF
45

VIEW E-E

VIEW A-A



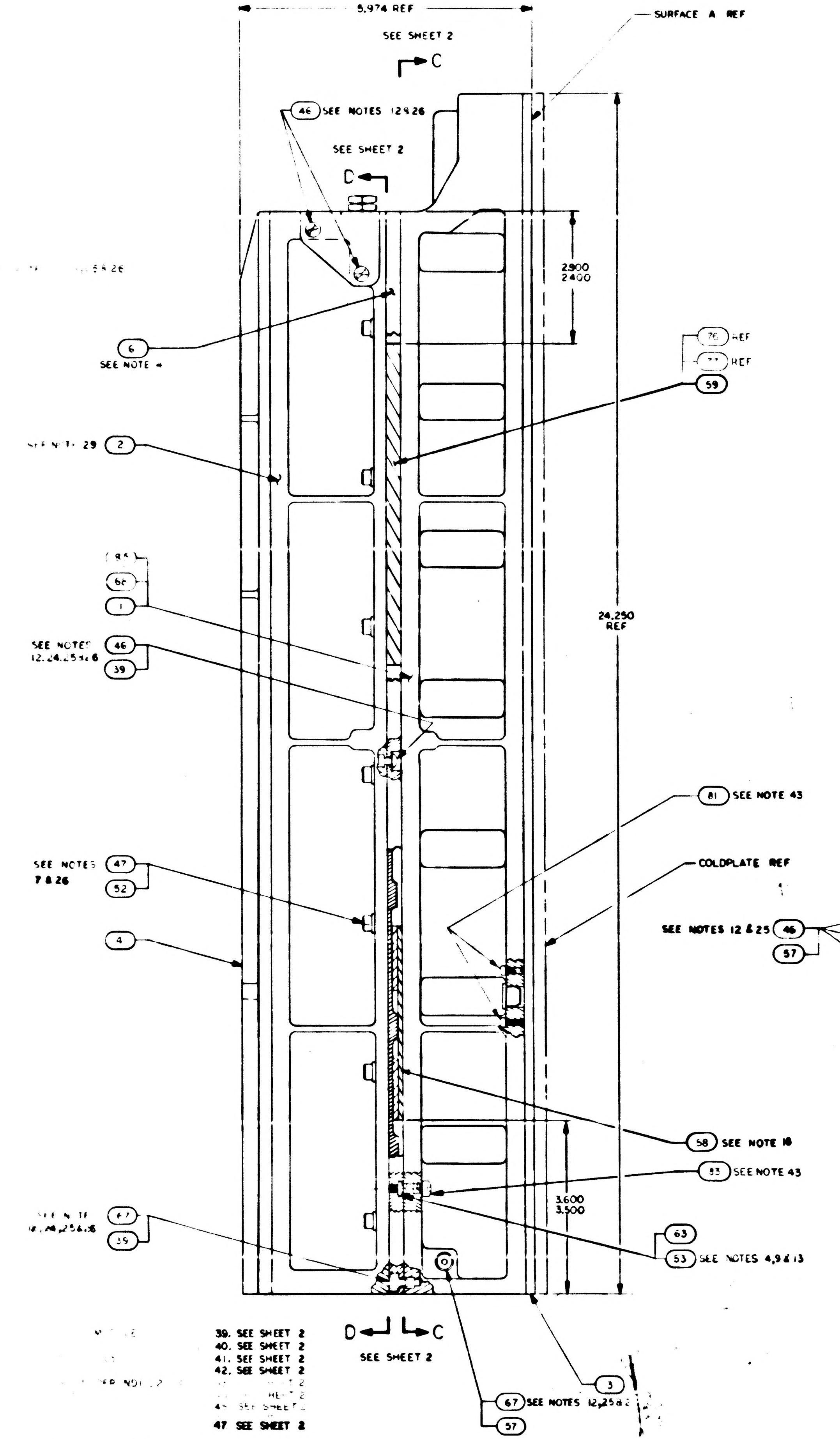
49 SEE NOTE 12&44
51
SEE NOTE 27
CONNECTOR
47 SEE NOTES 12,24,25&26
39
6 SEE NOTE 4
SEE NOTE 29 2
E
E
G
SEE SHEET 2
G
SEE SHEET 2
5 SEE NOTE 29
46 SEE NOTE
D
SEE NOTES 12,24,25&26 46
39
1
68
SEE NOTES 7&26 47
52
4
SEE NOTES 12,24,25&26 67
39
D

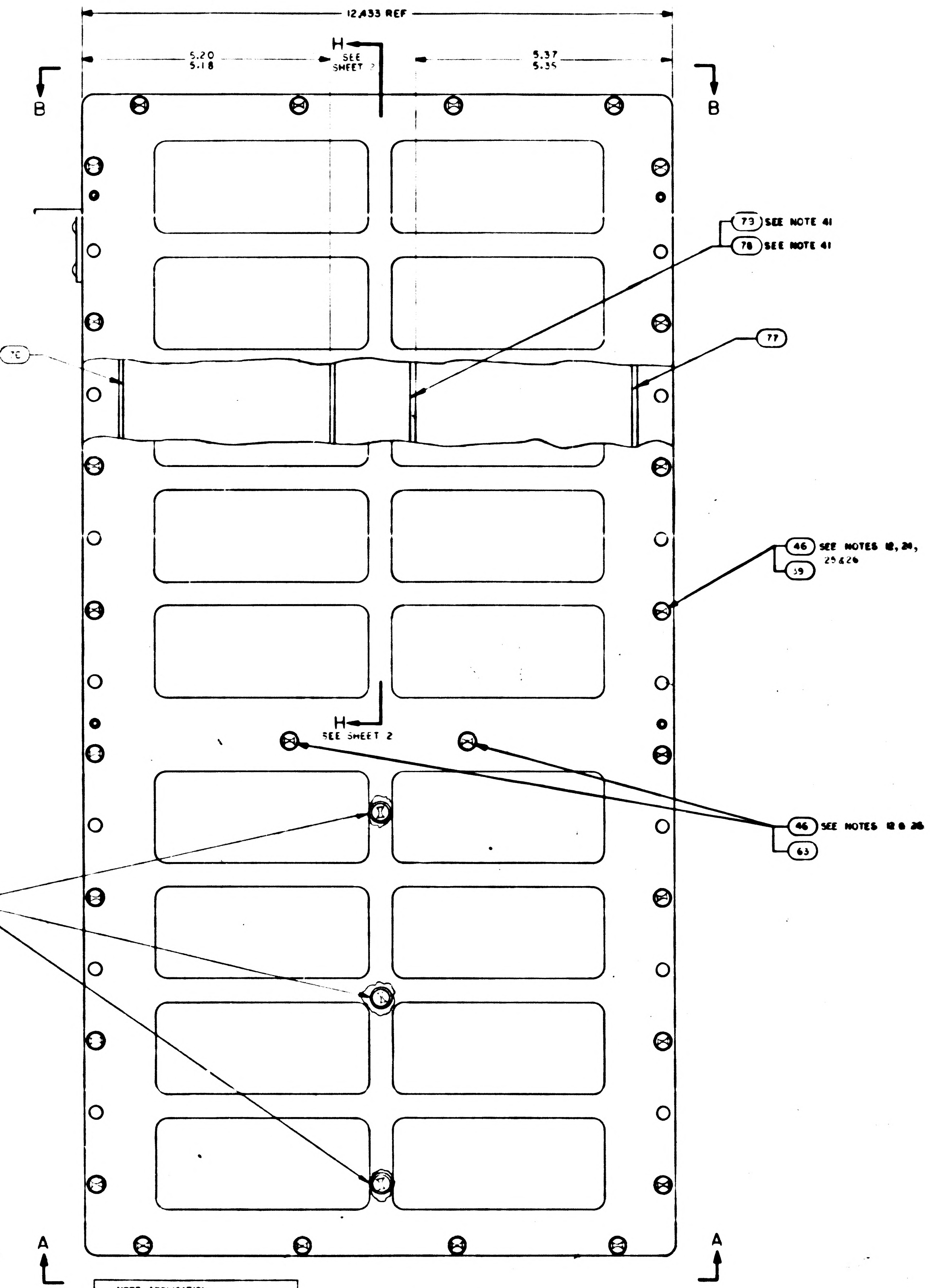
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. PHANTOM LINES DENOTE AGC COLDPLATE AND HANDLING FIXTURE TO BE SUPPLIED BY NORTH AMERICAN AVIATION, INC
3. ADD SILICONE COMPOUND 1006879 TO MODULE MATING METAL SURFACES AND TRAY MATING SURFACES
4. ASSEMBLE FIND NO. 53 AND FIND NO. 63 TO FIND NO. 6 AND FIND NO. 6 TO FIND NO. 2 PRIOR TO ASSEMBLY OF FIND NO. 2 TO FIND NO. 1 OR FIND NO. 68 OR FIND NO. 85
5. BOND FIND NO. 43 TO FIND NO. 1 OR FIND NO. 68 OR FIND NO. 85 PER ND1002219, METHOD II
6. UNLESS OTHERWISE SPECIFIED TORQUE ALL MODULE MOUNTING SCREWS 15/19 INCH POUNDS
7. TORQUE FIND NO. 47 TO 28/32 INCH POUNDS
8. ~~FINISH IS REQUIRED TO SATISFY ICD GAEC 510-10001~~
9. APPLY SEALING COMPOUND MIL-S 22473 GRADE H TO FIND NO. 53, FIND NO. 56 AND FIND NO. 44
10. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL REQUIREMENTS OF PS2016007 FOR-001 & PS2016020 FOR-081 & SUBSEQUENT
11. TORQUE FOR FIND NO. 36 AND FIND NO. 69 MOUNTING SCREWS TO BE 0/2 INCH POUNDS
12. TORQUE FOR FIND NO. 46, 49, 50 AND 67 TO BE 18/22 INCH POUNDS
13. TORQUE FOR FIND NO. 53 TO BE 4/6 INCH POUNDS
14. TORQUE FOR FIND NO. 44 AND FIND NO. 56 TO BE 137/157 INCH POUNDS
15. FIND NO. 40 SHALL BE SUPPLIED AS PART OF THIS ASSEMBLY
16. MARK COMPUTER ASSEMBLY AND RELATED PART NO., APPLICABLE DASH NO., SERIAL NO. AND CONTRACT NO. PER 1004260 AND SERIALIZE PER ND1002023
17. FINISH SURFACE [A] PER ICD NAA MH01-01302-116 ~~THIS ASSEMBLY MUST BE CAPABLE OF MEETING ELECTRICAL BONDING REQUIREMENTS OF ICD NAA MH01-01302-116~~
18. BOND FIND NO. 58 TO FIND NO. 6 IN POSITION SHOWN USING 1006338 CURE AT ROOM TEMP 24 HRS PRIOR TO ASSY.
19. REFERENCED MODULES MUST NOT BE REPLACED OR INTERCHANGED WITHOUT REPEATING NOMINAL SELECTION PROCEDURE PER NOTE 10
20. THE VALUE OF C1 TO BE DETERMINED AT ELECTRICAL TEST AND SELECTED FROM APPROPRIATE CHART
21. WHEN THE VALUE OF C1 IS ZERO NO COMPONENT SHALL BE USED
22. ENCAPSULATE AREA SHOWN AFTER SELECTION AND INSTALLATION OF C1 USING ND1002009 METHOD C OR D USING PRIMER PER SCD1012913
23. WELD PER ND1002005
24. ASSEMBLE HARDWARE WITH SMOOTH FACE OF FIND NO. 30 IN CONTACT WITH SCREW HEAD
25. FIND NO. 30, 44, 56 & 57 TO BE DISCARDED AND REPLACED WITH NEW PARTS EACH TIME THEY ARE DISASSEMBLED
26. SEAL EXPOSED HARDWARE ASSEMBLIES WITH .002 MIN THICK COATING OF FIND NO. 70 OVERALL COMPUTER ASSEMBLY DIMENSIONS SHALL NOT BE EXCEEDED CURE AT ROOM TEMP 24 HRS
27. STENCILING SHOWN FOR ORIENTATION ONLY
28. KEEP ALL MATING THREADS OF SCREWS, TRAY AND MID SPACER INSERTS FREE OF SILICONE COMPOUND
29. FILL FEMALE INSULATORS OF B41 AND B42 CONNECTORS USING FIND NO. 70 PRIOR TO ASSEMBLY OF FIND NO. 5 TO FIND NO. 2
30. FIND NO. 12 ERASEABLE MEMORY, SENSE AMPLIFIER MODULE USE EITHER 2003[illegible] OR 2003939-2[illegible]
31. FIND NO. 62 FIXED MEMORY, SENSE AMPLIFIER MODULE USE EITHER 2003[illegible] OR 2003939-31
32. BOND FIND NO. 72 [illegible] EDGES TO FIND NO. 5 PER ND1[illegible] TYPE II PRIOR TO ASSEMBLY OF FIND NO. 6
33. SEE SHEET 2
34. SEE SHEET 2
35. SEE SHEET 2
36. SEE SHEET 2
37. SEE SHEET 2
38. SEE SHEET 2
39. SEE SHEET 2
40. SEE SHEET 2
41. SEE SHEET 2
42. SEE SHEET 2
45. SEE SHEET 2
47. SEE SHEET 2

2003993 N

REVISIONS					
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
[illegible]		[illegible]				
[illegible]		REVISED PER TDRR [illegible]				
6		REVISED PER TDRR 34265	SA			
[illegible]		REVISED PER TDRR [illegible]				
[illegible]		REVISED PER TDRR 354[illegible]				
N		REVISED PER TDRR 36016				





39. SEE SHEET 2
40. SEE SHEET 2
41. SEE SHEET 2
42. SEE SHEET 2
[illegible] 2
[illegible] 2
45. SEE SHEET 2
47. SEE SHEET 2

NOTE APPLICATION	
DASH NO.	NOTES APPLICABLE
-011	1 THRU 34, 37, 43, 44, 45 & 46
-021	1 THRU 35, 37, 43, 44, 45 & 46
-031	1 THRU 34, 36 & 39 THRU 46
-041	1 THRU 35, 37 & [illegible] THRU 46

QTY REQD	QTY REQD	QTY REQD	QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
1	1	1	1	2003111-081	ERASABLE MEMORY MODULE B12	86
–	1	–	–	2003082 071	TRAY "A" WIRED ASSY	85
4	4	4	4	1010485 432	SCREW NYLON	84
11	11	11	11	1010485-332	SCREW NYLON	83
6	6	6	6	1010485-235	SCREW NYLON	82
28	28	28	28	1010485-100	SCREW NYLON	81
AR	AR	AR	AR	1006338-003	SEALING COMPOUND SILICONE RUBBER	80
1	1	–	–	2004691	SHIM VIBRATION DAMPENING	79
	1	–	–	2004690	PAD VIBRATION DAMPENING	78
1	1	–	–	2004819 007	PAD VIBRATION	77
1	1	–	–	2004819 006	PAD VIBRATION	76
	AR	–	–	2004885-002	SHIM AGC	75
	AR	–	–	2004885-001	SHIM AGC	74
–	1	–	–	2003092 041	TRAY "A" WIRED ASSY	73
AR	AR	AR	AR	2010801	SHIM AGC	72
AR	AR	AR	AR	2010800 000	SHIM	[illegible]
				SEE NOTE 47	AGC WIRE LIST	REF
AR	AR	AR	AR	1008954	SILICONE COMPOUND	70
2	2	2	–	2003092-011	POWER SUPPLY MODULE A30-31	69
1	–	1	–	SEE NOTE 38	TRAY "A" WIRED ASSY	68
33	33	33	33	2004732-002	SCREW, COATED	67
	AR	AR	AR	1006338 005	SEALING COMPOUND, SILICONE RUBBER	66
AR	AR	AR	AR	1006776-22	INSULATION, SLEEVING ELECTRICAL	65
1	1	1	1	SEE NOTE 20	CAPACITOR	64
10	10	10	10	2004148-007	WASHER, FLAT	63
	1	1		SEE NOTE 31	SENSE AMPLIFIER MODULE, FIXED MEMORY B14	62
	–	AR	[illegible]	2004835-002	SHIM AGC	61
		AR	AR	2004835-001	SHIM AGC	60
	–	1	1	2004899-001	PAD VIBRATION	59
1	1	1	1	2003970	VIBRATION PAD ASSY	58
4	4	4	4	NAS1598-008N	WASHER, SEALING	57
	1	1	1	2018773	VALVE PRESSURE ASSEMBLY	56
1	1	1	1	1000159-5	PACKING, PREFORMED "O" RING	55
2	2	2	2	2004984-001	WASHER, FLAT	54
8	8	8	8	2004 30	PAD, THREADED	53
18	18	18	18	2004994 014	WASHER, FLAT	52
4	4	4	4	2004894-012	WASHER, FLAT	51
2	2	2	2	[illegible] 439-36	SCREW, HEX SOCKET HEAD	50
4	4	4	4	1004722-2	SCREW, CAPTIVE	49
1	1	1	1	1000159-7	PACKING, PREFORMED "O" RING	48
18	18	18	18	2004732 003	SCREW, COATED	47
33	33	33	33	2004732 001	SCREW, COATED	46
2	2	2	2	1006347	GASKET, PLATE	45
1	1	1	1	2004986	PLUG, MACHINE THREAD	44
1	1	1	1	1004260-19	NAME PLATE, TYPE I	43
1	1	1	1	2004113 001	BRACKET, CABLE	42
1	1	1	1	2003099-011	CONNECTOR ASSEMBLY	41
1	1	1	1	1006380	GASKET, RETAINED	40
58	58	58	58	20047 7	WASHER, KNURLED	39
3	3	3	3	2003067-041	INTERFACE MODULE A27-29	38
2	2	2	2	2003070-031	INTERFACE MODULE A25-26	37
–	–	–	2	2003887-011	POWER SUPPLY MODULE A30-31	36
1	1	1	1	SEE NOTES 36 & 37	LOGIC MODULE A24	35
1	1	1	1		LOGIC MODULE A23	34
	1	1	1		LOGIC MODULE A22	33
	1	1	1		LOGIC MODULE A21	32
1	1	1	1		LOGIC MODULE A20	31
1	1	1	1		LOGIC MODULE A19	30
1	1	1	1		LOGIC MODULE A18	29
1	1	1	1		LOGIC MODULE A17	28
1	1	1	1		LOGIC MODULE A16	27
1	1	1	1		LOGIC MODULE A15	26
1	1	1	1		LOGIC MODULE A14	25
1	1	1	1		LOGIC MODULE A13	24
	1	1	1		LOGIC MODULE A12	23
4	4	4	4		LOGIC MODULE A8-11	22
	1	1	1		LOGIC MODULE A7	21
	1	1	1		LOGIC MODULE A6	20
1	1	1	1		LOGIC MODULE A5	19
	1	1	1		LOGIC MODULE A4	18
1	1	1	1		LOGIC MODULE A3	17
1	1	1	1		LOGIC MODULE A2	16
1	1	1	1	SEE NOTES 36 & 37	LOGIC MODULE A1	15
2	2	2	2	2003140-031	ROPE DRIVER MODULE B16-17	14
1	1	1	1	2003027-031	STRAND SELECT MODULE B15	13
	1	1	1	SEE NOTE 30	SENSE AMPL MOD, ERASABLE MEMORY B13	12
~~1~~	~~1~~	~~1~~	~~1~~	~~2003111-081~~	ERASABLE MEMORY MODULE B12	11
	1	1	1	2003026-031	CURRENT SWITCH MODULE B11	10
2	2	2	2	2003114-021	ERASABLE DRIVER MODULE B9-10	9
	1	1	1	2003063-021	ALARM MODULE B8	8
	1	1	1	2003036-031	OSCILLATOR MODULE B7	7
1	1	1	1	2003978-001	MID SPACER	6
1	1	1	1	2003059 021	INTERCONNECTION HEADER ASSEMBLY	5
	1	1	1	2003976 011	TRAY B COVER	4
1	1	1	1	2003977 011	TRAY A COVER	3
1	1	1	1	2003093-021	TRAY B WIRED ASSEMBLY	2
	–	–	1	2003092-031	TRAY A WIRED ASSEMBLY	1
[illegible]	[illegible]	-021	-011	LIST OF MATERIALS		

2003991	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING
MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER
ASSEMBLY

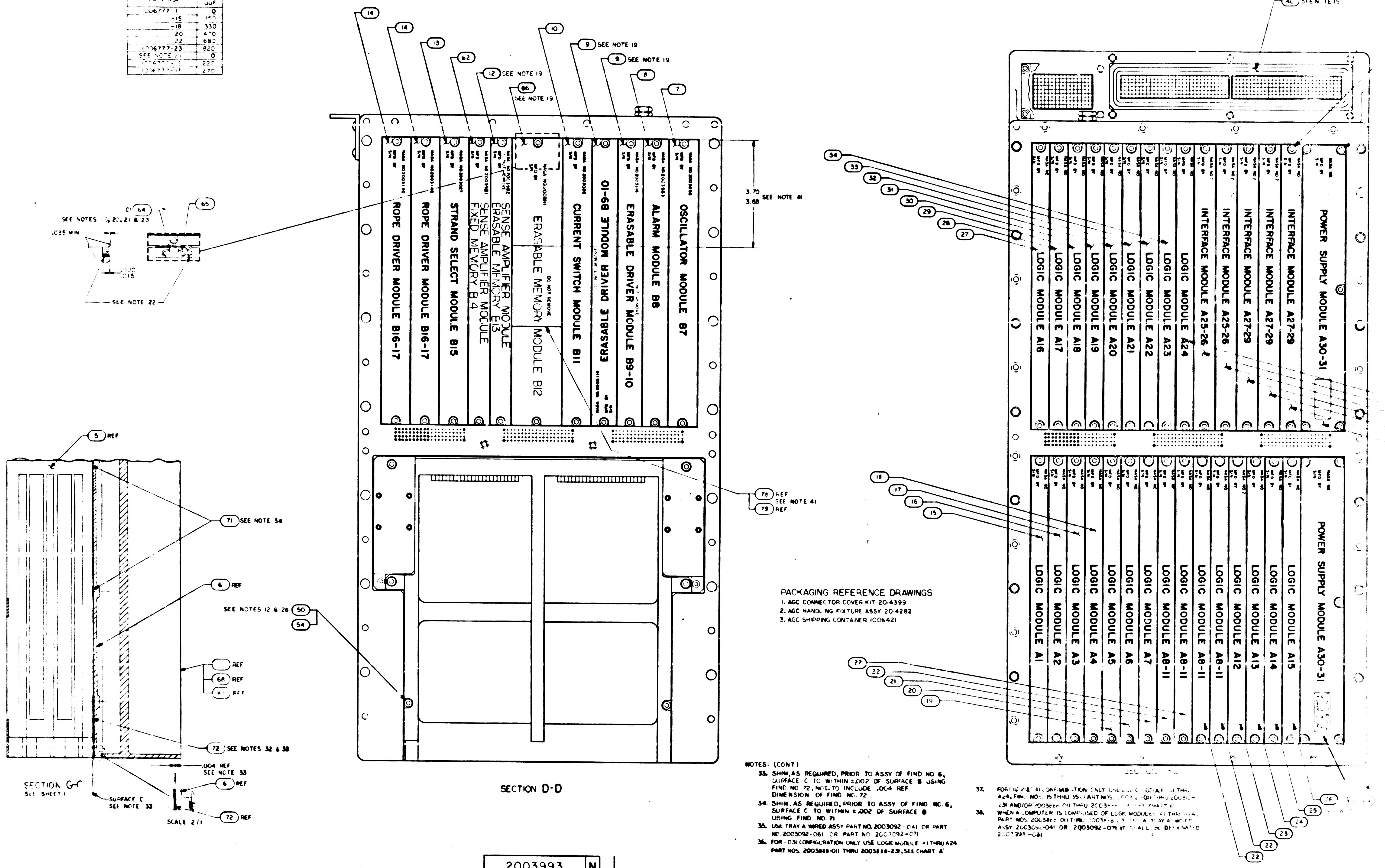
CODE IDENT NO	SIZE	DRAWING NO
80230	J	2003993

SCALE 1 — SHEET 1 OF 2

1993 N

SH1/2 2003993NF2/2

C1	
PART NO.	VALUE UUF
1006777-1	0
-15	150
-18	330
-20	470
-22	680
1006777-23	820
SEE NOTE 21	0
1006777-[illegible]	220
1006777-17	270


6
5
4
3
D
C
B
A
14
14
13
62
12 SEE NOTE 19
86 SEE NOTE 19
10
9 SEE NOTE 19
9 SEE NOTE 19
8
7
C1 64
65
SEE NOTES 19, 20, 21 & 23
.035 MIN
.000
.015
SEE NOTE 22
ROPE DRIVER MODULE B16-17
ROPE DRIVER MODULE B16-17
STRAND SELECT MODULE B15
SENSE AMPLIFIER MODULE FIXED MEMORY B14
SENSE AMPLIFIER MODULE ERASABLE MEMORY E13
ERASABLE MEMORY MODULE B12
DO NOT REMOVE
CURRENT SWITCH MODULE B11
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
ALARM MODULE B8
OSCILLATOR MODULE B7
NASA NO. 2003140
NASA NO. 2003140
NASA NO. 2003067
NASA NO. 2003981
NASA NO. 2003982
NASA NO. 2003911
NASA NO. 2003008
NASA NO. 2003114
NASA NO. 2003983
NASA NO. 2003036
MFD BY
S/N
3.70
3.68
SEE NOTE 41
78 REF
SEE NOTE 41
79 REF
5 REF
71 SEE NOTE 34
6 REF
SEE NOTES 12 & 26 50
54
REF
68 REF
REF
72 SEE NOTES 32 & 38
.004 REF
SEE NOTE 33
6 REF
72 REF
SURFACE C
SEE NOTE 33
SCALE 2/1
SECTION G-G
SEE SHEET 1
SECTION D-D
40 SEE NOTE 15
34
33
32
31
30
29
28
27
POWER SUPPLY MODULE A30-31
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
LOGIC MODULE A24
LOGIC MODULE A23
LOGIC MODULE A22
LOGIC MODULE A21
LOGIC MODULE A20
LOGIC MODULE A19
LOGIC MODULE A18
LOGIC MODULE A17
LOGIC MODULE A16
18
17
16
15
POWER SUPPLY MODULE A30-31
LOGIC MODULE A15
LOGIC MODULE A14
LOGIC MODULE A13
LOGIC MODULE A12
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A7
LOGIC MODULE A6
LOGIC MODULE A5
LOGIC MODULE A4
LOGIC MODULE A3
LOGIC MODULE A2
LOGIC MODULE A1
22
22
21
20
19
26
25
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23
22
22
SECTION G-G

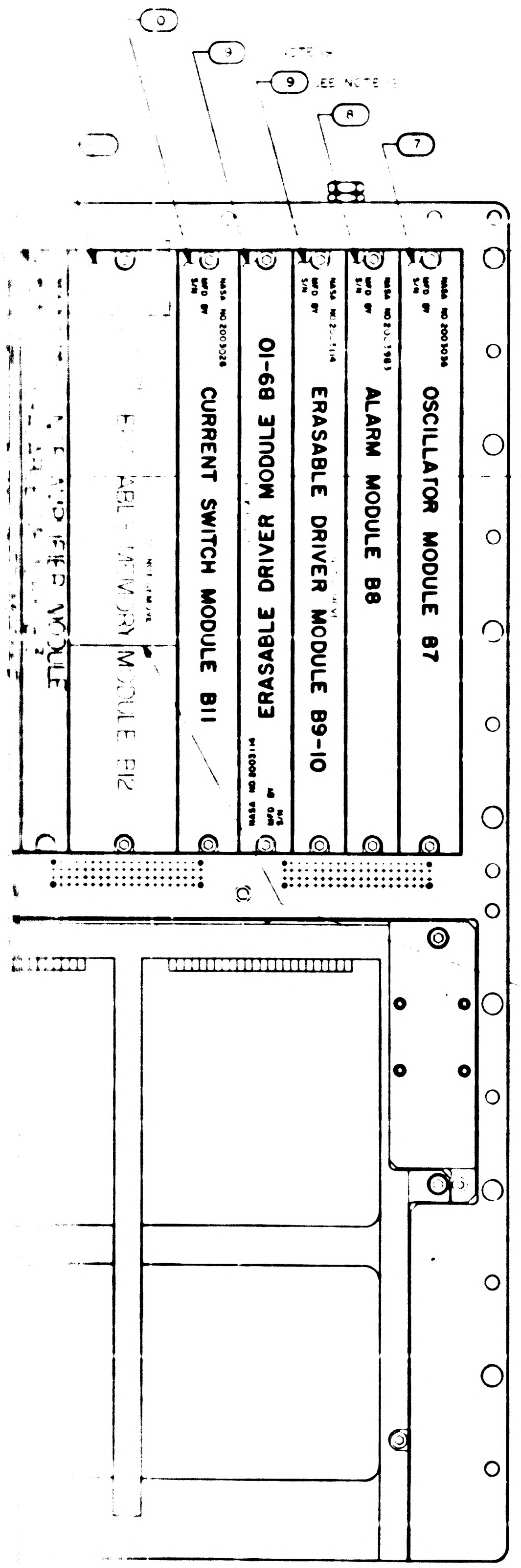
PACKAGING REFERENCE DRAWINGS
1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421

NOTES: (CONT.)

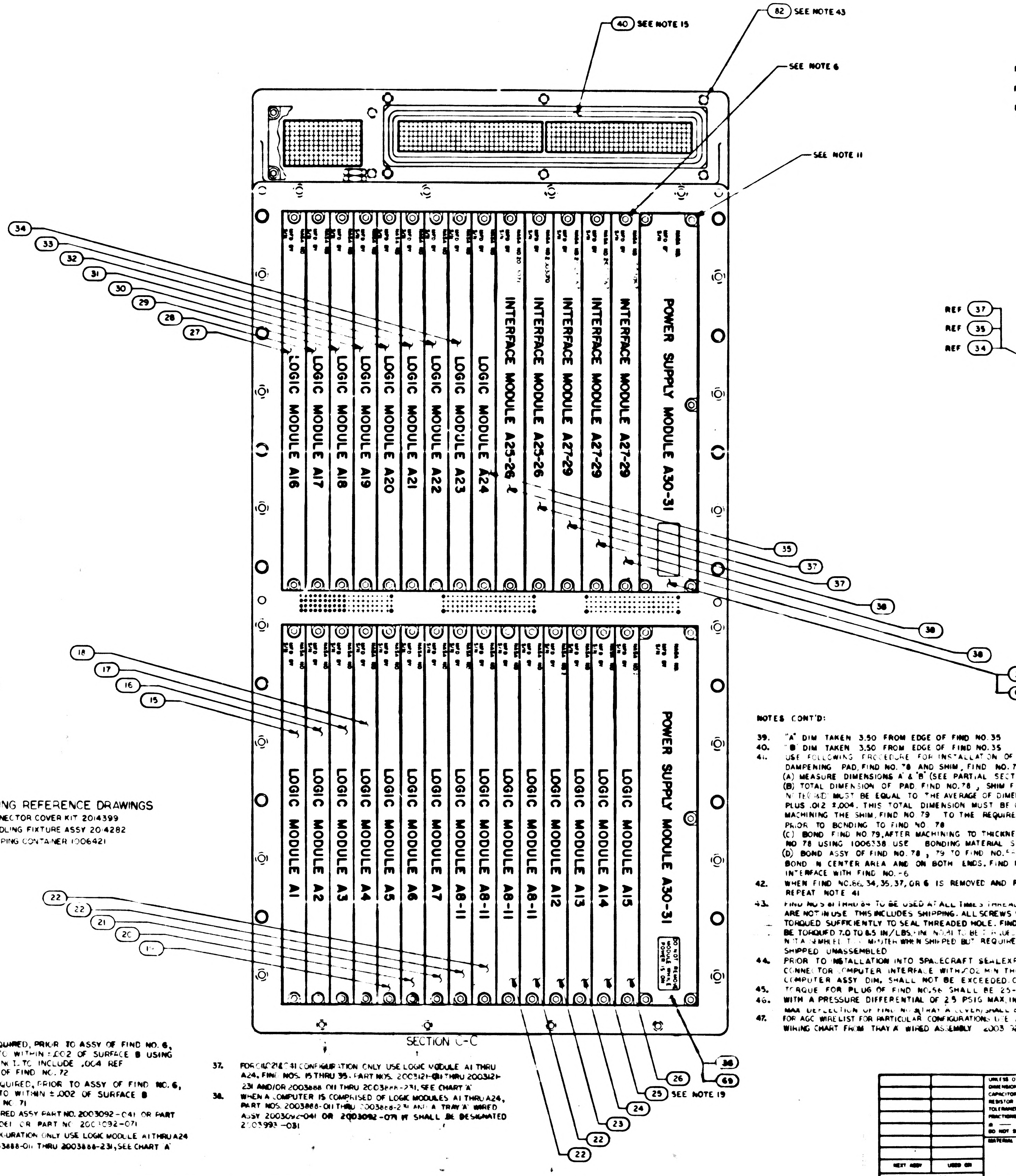
33. SHIM, AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 72, NOT TO INCLUDE .004 REF DIMENSION OF FIND NO. 72
34. SHIM, AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 71
35. USE TRAY A WIRED ASSY PART NO. 2003092-041 OR PART NO. 2003092-061 OR PART NO 2003092-071
36. FOR -031 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24 PART NOS. 2003888-011 THRU 2003888-231, SEE CHART 'A'
37. FOR -011, -021 & -041 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24, FIND NOS. 15 THRU 35. PART NOS. [illegible]-011 THRU 2003[illegible]-231 AND/OR 2003[illegible]-011 THRU 2003[illegible] SEE CHART 'A'
38. WHEN A COMPUTER IS COMPRISED OF LOGIC MODULES A1 THRU A24, PART NOS. 2003888-011 THRU 2003888-[illegible] AND A TRAY A WIRED ASSY 2003092-041 OR 2003092-071 IT SHALL BE DESIGNATED 2003993-031

2003993	N

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		[illegible]				
B		RELEASED PER TDRR 32965				
		REVISED PER TDRR [illegible]06				
F		REVISED PER TDRR 3363-				
G		REVISED PER TDRR 34265				
H		REVISED PER TDRR 34265				
J		REVISED PER TDRR 34359				
K		REVISED [illegible]				
L		REVISED [illegible]				
M		REVISED PER TDRR [illegible]429				
N		REVISED PER TDRR [illegible]				



10
9
9 SEE NOTE
8
7
OSCILLATOR MODULE B7
ALARM MODULE B8
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
CURRENT SWITCH MODULE B11
MODULE B12
3.70
3.68
SEE NOTE 41
76 REF
SEE NOTE 41
79 REF
C-D



40 SEE NOTE 15
82 SEE NOTE 43
SEE NOTE 6
SEE NOTE 11
34
33
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LOGIC MODULE A16
LOGIC MODULE A17
LOGIC MODULE A18
LOGIC MODULE A19
LOGIC MODULE A20
LOGIC MODULE A21
LOGIC MODULE A22
LOGIC MODULE A23
LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
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LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
22
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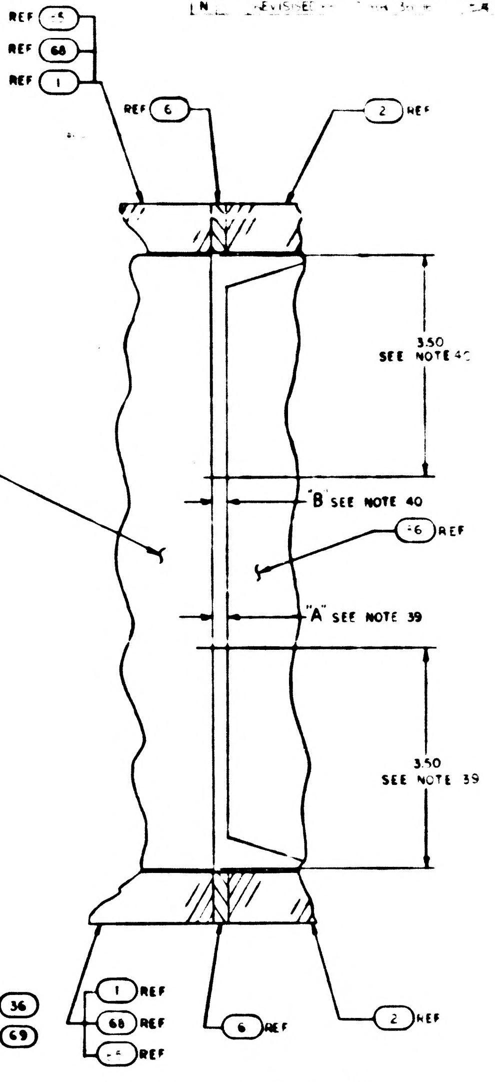
25 SEE NOTE 19
24
23
22
22

SECTION C-C



REF 65
REF 68
REF 1
REF 6
2 REF
3.50
SEE NOTE 40
REF 37
REF 35
REF 34
'B' SEE NOTE 40
66 REF
'A' SEE NOTE 39
3.50
SEE NOTE 39
1 REF
68 REF
65 REF
6 REF
2 REF

PARTIAL SECTION H-H

FOR -031&041

PACKAGING REFERENCE DRAWINGS

1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421

NOTES (CONT)

33. SHIM AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO 72. NOT TO INCLUDE .004 REF DIMENSION OF FIND NO. 72
34. SHIM AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 71
35. USE TRAY A WIRED ASSY PART NO. 2003092-041 OR PART NO. 2003092-061 OR PART NO. 2003092-071
36. FOR -031 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24 PART NOS. 2003888-011 THRU 2003888-231, SEE CHART 'A'
37. FOR 011, 021 & 041 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24, FIND NOS. 15 THRU 35. PART NOS. 2003121-011 THRU 2003121-231 AND/OR 2003888 011 THRU 2003888-231, SEE CHART 'A'
38. WHEN A COMPUTER IS COMPRISED OF LOGIC MODULES A1 THRU A24, PART NOS. 2003888-011 THRU 2003888-231 AND A TRAY 'A' WIRED ASSY 2003092-041 OR 2003092-071 IT SHALL BE DESIGNATED 2003993-031

NOTES CONT'D:

39. "A" DIM TAKEN 3.50 FROM EDGE OF FIND NO. 35
40. "B" DIM TAKEN 3.50 FROM EDGE OF FIND NO. 35
41. USE FOLLOWING PROCEDURE FOR INSTALLATION OF VIBRATION DAMPENING PAD, FIND NO. 78 AND SHIM, FIND NO. 79
    (A) MEASURE DIMENSIONS 'A' & 'B' (SEE PARTIAL SECTION H-H)
    (B) TOTAL DIMENSION OF PAD, FIND NO. 78, SHIM FIND NO. 79, & BONDED MATERIAL PER NOTE (C) & (D) MUST BE EQUAL TO THE AVERAGE OF DIMENSIONS 'A' & 'B' PLUS .012 ±.004. THIS TOTAL DIMENSION MUST BE OBTAINED BY MACHINING THE SHIM, FIND NO. 79 TO THE REQUIRED THICKNESS PRIOR TO BONDING TO FIND NO. 78
    (C) BOND FIND NO. 79, AFTER MACHINING TO THICKNESS, TO FIND NO 78 USING 1006338. USE BONDING MATERIAL SPARINGLY
    (D) BOND ASSY OF FIND NO. 78, 79 TO FIND NO. 66 USING 1006338 BOND IN CENTER AREA AND ON BOTH ENDS. FIND NO. 79 TO INTERFACE WITH FIND NO. -6
42. WHEN FIND NO. 66, 34, 35, 37, OR 6 IS REMOVED AND REPLACED REPEAT NOTE 41
43. FIND NO'S 81 THRU 84 TO BE USED AT ALL TIMES THREADED HOLES ARE NOT IN USE. THIS INCLUDES SHIPPING. ALL SCREWS SHALL BE TORQUED SUFFICIENTLY TO SEAL THREADED HOLE. FIND NO. 83 TO BE TORQUED 7.0 TO 8.5 IN/LBS. FIND NO. 81 TO BE TORQUED [illegible] TO 16 INCH-OUNCES. ALL HARDWARE NOT ASSEMBLED TO COMPUTER WHEN SHIPPED BUT REQUIRED SHALL BE IDENTIFIED PER ND 1002019 & SHIPPED UNASSEMBLED
44. PRIOR TO INSTALLATION INTO SPACECRAFT SEAL EXPOSED HARDWARE & CONNECTOR COMPUTER INTERFACE WITH .002 MIN THICK COATING OF FIND NO. 80 COMPUTER ASSY DIM. SHALL NOT BE EXCEEDED. CURE AT ROOM TEMP FOR 24 HOURS
45. TORQUE FOR PLUG OF FIND NO. 56 SHALL BE 25-35 IN/LBS
46. WITH A PRESSURE DIFFERENTIAL OF 2.5 PSIG MAX, IN THE COMPUTER, THE MAX DEFLECTION OF FIND NO. 3 (TRAY A COVER) SHALL BE .125
47. FOR AGC WIRELIST FOR PARTICULAR CONFIGURATIONS USE 2005036 AND THE APPLICABLE WIRING CHART FROM TRAY A WIRED ASSEMBLY 2003092

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
		LIST OF MATERIALS	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
—

NEXT ASSY | USED ON
APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

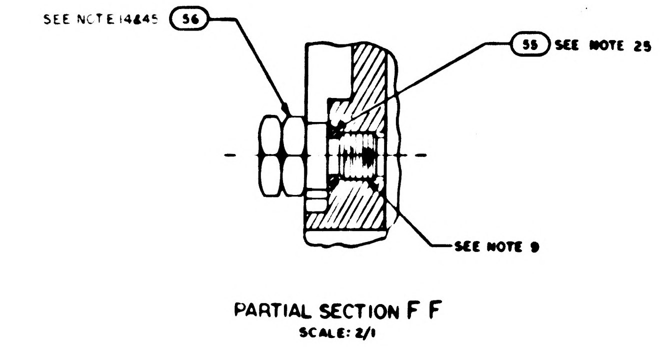
DRAWN
CHECKED
APPROVED
APPROVED
APPROVED NASA
APPROVED MSC
DATE

COMPUTER
ASSEMBLY

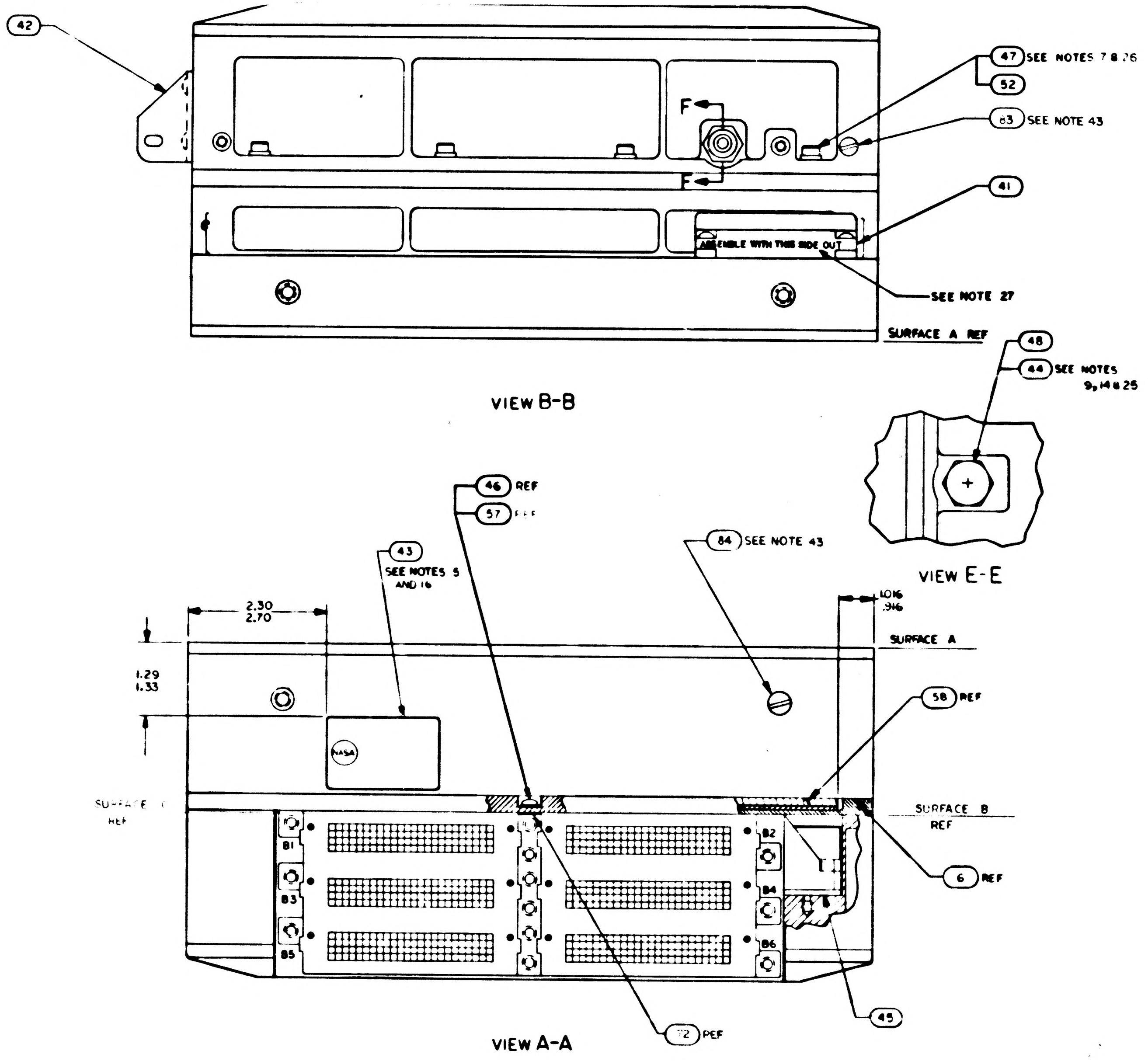
CODE IDENT NO 80230
SIZE J
DRAWING NO 2003993
SCALE
SHEET 2 OF 2

2003993NF2/2

CHART A SEE NOTES 36 & 37				
PART NO. FOR		PART NO. FOR -011-021 & -031		MODULES
200312[illegible]	-011	2003888	-011	LOGIC MODULE A1
	-021		-021	A2
	-031		-031	A3
	-041		-041	A4
	-051		-051	A5
	-061		-061	A6
	-071		-071	A7
	-081		-081	A8-A11
	-091		-091	A12
	-111		-111	A13
	-12		-121	A14
	-13		-131	A15
	-14		-141	A16
	-151		-151	A17
	-161		-161	A18
	-17		-171	A19
	-181		-181	A20
	-191		-191	A21
	-21		-211	A22
	-22		-221	A23
2003121	-23	2003888	-231	LOGIC MODULE A24


SEE NOTE 14&45 (56)
(55) SEE NOTE 25
SEE NOTE 9

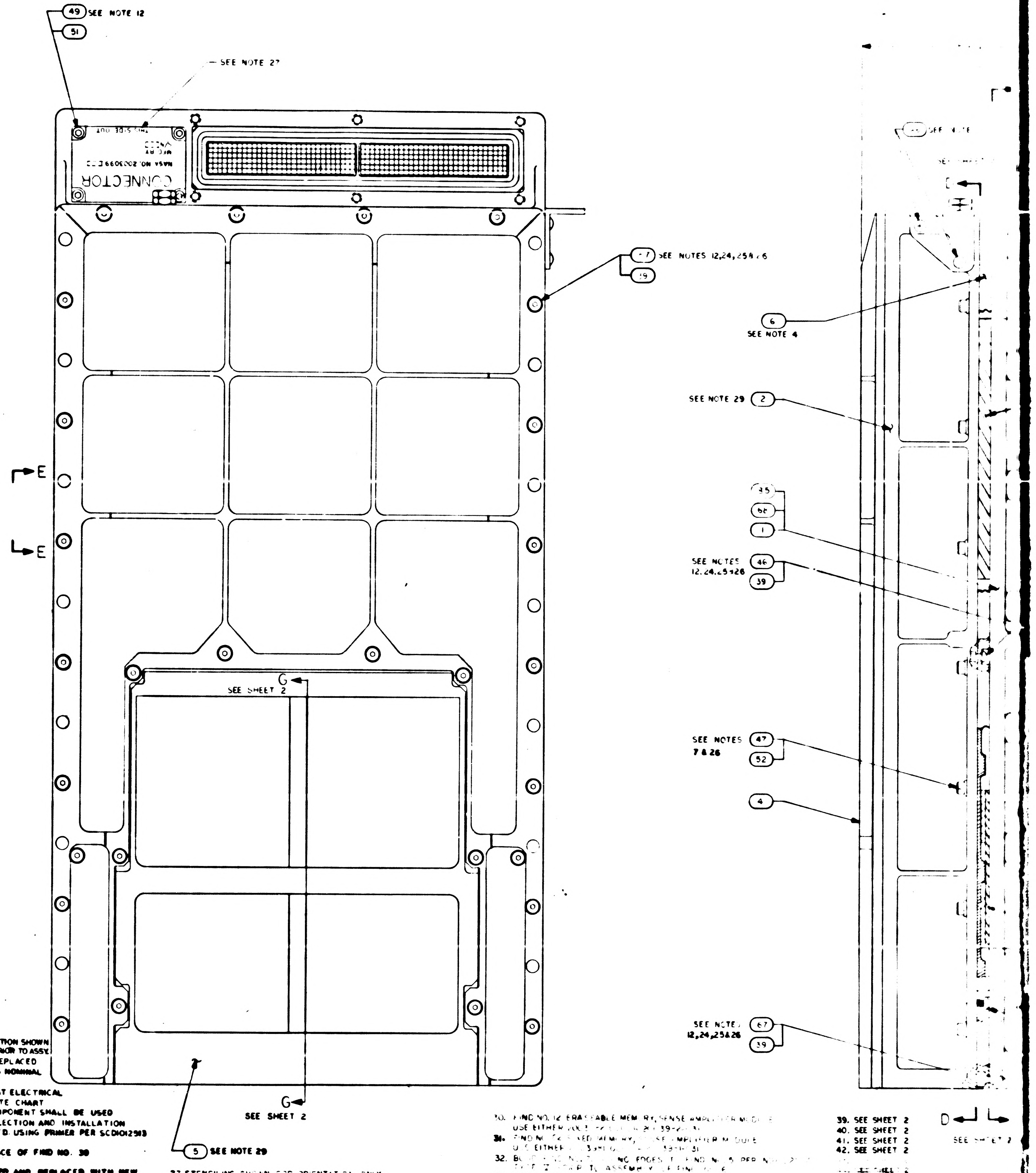
PARTIAL SECTION F F
SCALE: 2/1


(42)
F
F
(47) SEE NOTES 7 & 26
(52)
(63) SEE NOTE 43
(41)
ASSEMBLE WITH THIS SIDE OUT
SEE NOTE 27
SURFACE A REF
(48)
(44) SEE NOTES 9, 14 & 25
(46) REF
(57) REF
(43) SEE NOTES 5 AND 16
(84) SEE NOTE 43
2.30
2.70
1.016
.916
1.29
1.33
SURFACE A
NASA
(58) REF
SURFACE C REF
SURFACE B REF
(6) REF
B1 B2 B3 B4 B5 B6
(72) REF
(45)

VIEW B-B

VIEW E-E

VIEW A-A

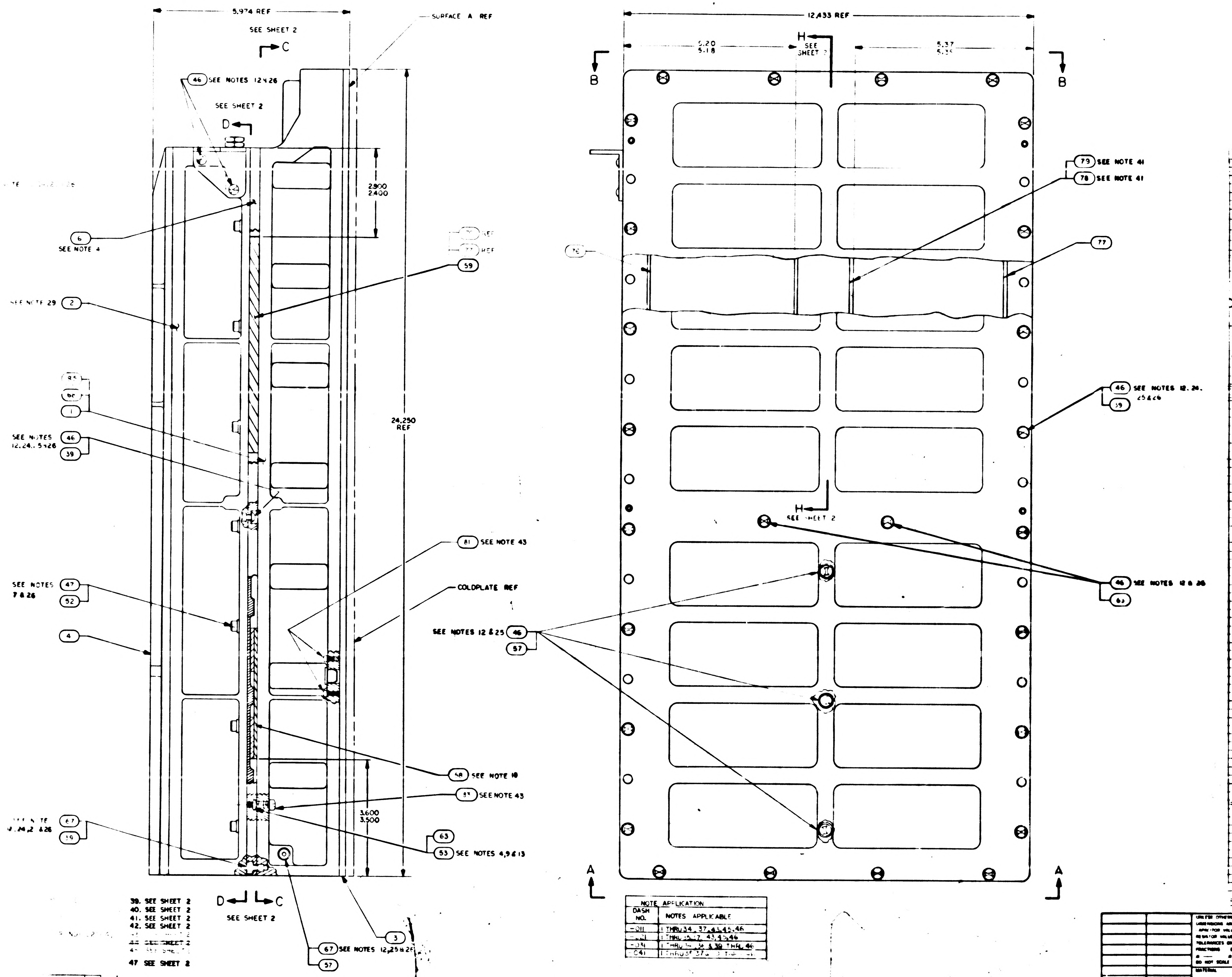

(49) SEE NOTE 12
(51)
SEE NOTE 27
CONNECTOR
(17) SEE NOTES 12,24,25 & 26
(39)
(6) SEE NOTE 4
SEE NOTE 29 (2)
E
E
G
SEE SHEET 2
(35)
(62)
(1)
SEE NOTES 12,24,25 & 26 (46)
(39)
SEE NOTES 7 & 26 (47)
(52)
(4)
SEE NOTES 12,24,25 & 26 (67)
(39)
G
SEE SHEET 2
(5) SEE NOTE 29
D
SEE SHEET 2

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. PHANTOM LINES DENOTE AGC COLDPLATE AND HANDLING FIXTURE TO BE SUPPLIED BY NORTH AMERICAN AVIATION, INC
3. ADD SILICONE COMPOUND 1006879 TO MODULE MATING METAL SURFACES AND TRAY MATING SURFACES
4. ASSEMBLE FIND NO. 53 AND FIND NO. 63 TO FIND NO. 6 AND FIND NO. 6 TO FIND NO. 2 PRIOR TO ASSEMBLY OF FIND NO. 2 TO FIND NO. 1 OR FIND NO. 68 OR FIND NO. 85
5. BOND FIND NO. 43 TO FIND NO. 1 OR FIND NO. 68 OR FIND NO. 85 PER ND1002219, METHOD II
6. UNLESS OTHERWISE SPECIFIED TORQUE ALL MODULE MOUNTING SCREWS 15/19 INCH POUNDS
7. TORQUE FIND NO. 47 TO 28/32 INCH POUNDS
8. ~~FINISH IS REQUIRED TO SATISFY ICD SAEC 510-1000~~
9. APPLY SEALING COMPOUND MIL-S-22473 GRADE H TO FIND NO. 53, FIND NO. 56 AND FIND NO. 44
10. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL REQRIREMENTS OF PS2016007 FOR-001 & PS2016080 FOR-021 & SUBSEQUENT
11. TORQUE FOR FIND NO. 36 AND FIND NO. 69 MOUNTING SCREWS TO BE [illegible] INCH POUNDS
12. TORQUE FOR FIND NO. 46, 49, 50 AND 67 TO BE 18/22 INCH POUNDS
13. TORQUE FOR FIND NO. 53 TO BE 4/6 INCH POUNDS
14. TORQUE FOR FIND NO. 44 AND FIND NO. 56 TO BE 137/157 INCH POUNDS
15. FIND NO. 40 SHALL BE SUPPLIED AS PART OF THIS ASSEMBLY
16. MARK COMPUTER ASSEMBLY AND RELATED PART NO., APPLICABLE DASH NO., SERIAL NO. AND CONTRACT NO. PER 1004260 AND SERIALIZE PER ND1002023
17. FINISH SURFACE $\boxed{A}$ PER ICD NAA MH01-01302-116 ~~THIS ASSEMBLY MUST BE CAPABLE OF MEETING ELECTRICAL BONDING REQUIREMENTS OF ICD NAA MH01-01302-116~~
18. BOND FIND NO. 58 TO FIND NO. 6 IN POSITION SHOWN USING 1006338 CURE AT ROOM TEMP 24 HRS PRIOR TO ASSY.
19. REFERENCED MODULES MUST NOT BE REPLACED OR INTERCHANGED WITHOUT REPEATING NOMINAL SELECTION PROCEDURE PER NOTE 10
20. THE VALUE OF C1 TO BE DETERMINED AT ELECTRICAL TEST AND SELECTED FROM APPROPRIATE CHART
21. WHEN THE VALUE OF C1 IS ZERO NO COMPONENT SHALL BE USED
22. ENCAPSULATE AREA SHOWN AFTER SELECTION AND INSTALLATION OF C1 USING ND1002009 METHOD C OR D USING PRIMER PER SCD1012513
23. WELD PER ND1002005
24. ASSEMBLE HARDWARE WITH SMOOTH FACE OF FIND NO. 30 IN CONTACT WITH SCREW HEAD
25. FIND NO. 30, 48, 55 & 57 TO BE DISCARDED AND REPLACED WITH NEW PARTS EACH TIME THEY ARE DISASSEMBLED
26. SEAL EXPOSED HARDWARE ASSEMBLIES WITH .002 MIN THICK COATING OF FIND NO. 90 OVERALL COMPUTER ASSEMBLY DIMENSIONS SHALL NOT BE EXCEEDED. CURE AT ROOM TEMP 24 HRS
27. STENCILING SHOWN FOR ORIENTATION ONLY
28. KEEP ALL MATING THREADS OF SCREWS, TRAY AND MID SPACER INSERTS FREE OF SILICONE COMPOUND
29. FILL FEMALE INSULATORS OF B41 AND B42 CONNECTORS USING FIND NO. 70 PRIOR TO ASSEMBLY OF FIND NO. 5 TO FIND NO. 2
30. FIND NO. 12 ERASABLE MEMORY, SENSE AMPLIFIER MODULE USE EITHER 2003[illegible] OR 20039-2[illegible]31
31. FIND NO. [illegible] FIXED MEMORY, SENSE AMPLIFIER MODULE USE EITHER [illegible] OR [illegible]39-[illegible]31
32. BOND [illegible] EDGES TO FIND NO. 5 PER ND[illegible] TYPE [illegible] PRIOR TO ASSEMBLY OF FIND NO. 6
33. SEE SHEET 2
34. SEE SHEET 2
35. SEE SHEET 2
36. SEE SHEET 2
37. SEE SHEET 2
38. SEE SHEET 2
39. SEE SHEET 2
40. SEE SHEET 2
41. SEE SHEET 2
42. SEE SHEET 2
43. SEE SHEET 2
44. SEE SHEET 2
45. SEE SHEET 2
47. SEE SHEET 2

2003993 F

SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
—		INITIAL RELEASE				
F		REVISED PER TDRR				
6		REVISED PER TDRR 34265	S.A.			
H		REVISED PER				
J		REVISED PER				
M		REVISED PER TDRR				
N		REVISED PER TDRR 36016				
P		REVISED PER TDRR				



39. SEE SHEET 2
40. SEE SHEET 2
41. SEE SHEET 2
42. SEE SHEET 2
43. SEE SHEET 2
~~44. SEE SHEET 2~~
45. SEE SHEET 2

47. SEE SHEET 2

NOTE APPLICATION	
DASH NO.	NOTES APPLICABLE
-011	1 THRU 34, 37, 43, 45, 46
-021	1 THRU 35, 37, 43, 45, 46
-031	1 THRU 34, 36 & 39 THRU 46
-041	1 THRU 35, 37 & 39 THRU 46

QTY REQD	QTY REQD	QTY REQD	QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
1	1	1	1	2003111-081	ERASABLE MEMORY MODULE B12	86
—	1	—	—	2003092-071	TRAY "A" WIRED ASSY	85
4	4	4	4	1010485-432	SCREW NYLON	84
11	11	11	11	1010485-332	SCREW NYLON	83
6	6	6	6	1010485-235	SCREW NYLON	82
28	28	28	28	1010485-100	SCREW NYLON	81
AR	AR	AR	AR	1006338-003	SEALING COMPOUND SILICONE RUBBER	80
1	1	—	—	2004691	SHIM VIBRATION DAMPENING	79
	1	—	—	2004690	PAD VIBRATION DAMPENING	78
1	1	—	—	2004689-007	PAD VIBRATION	77
	1	—	—	2004689-006	PAD VIBRATION	76
—	AR	—	—	2004895-002	SHIM AGC	75
	AR	—	—	2004895-001	SHIM AGC	74
—	1	—	—	2003092-041	TRAY "A" WIRED ASSY	73
AR	AR	AR	AR	2010801	SHIM AGC	72
AR	AR	AR	AR	2010800-000	SHIM	71
				SEE NOTE 47	AGC WIRE LIST	REF
AR	AR	AR	AR	1008954	SILICONE COMPOUND	70
2	2	2	—	2003892-011	POWER SUPPLY MODULE A30-31	69
1	—	1	—	SEE NOTE 38	TRAY "A" WIRED ASSY	68
33	33	33	33	2004732-002	SCREW, COATED	67
	AR	AR	AR	1006338-008	SEALING COMPOUND, SILICONE RUBBER	66
AR	AR	AR	AR	1006776-22	INSULATION, SLEEVING ELECTRICAL	65
1	1	1	1	SEE NOTE 20	CAPACITOR	64
10	10	10	10	2004148-007	WASHER, FLAT	63
1	1	1	1	SEE NOTE 31	SENSE AMPLIFIER MODULE, FIXED MEMORY B14	62
~~—~~	~~—~~	~~AR~~	~~AR~~	~~2004895-002~~	~~SHIM AGC~~	61
~~—~~	~~—~~	~~AR~~	~~AR~~	~~2004895-001~~	~~SHIM AGC~~	60
	—	1	1	2004899-001	PAD VIBRATION	59
	1	1	1	2003970	VIBRATION PAD ASSY	58
4	4	4	4	NAS1598-008N	WASHER, SEALING	57
	1	1	1	2018773	VALVE PRESSURE ASSEMBLY	56
	1	1	1	1000159-5	PACKING, PREFORMED "O" RING	55
2	2	2	2	2004984-001	WASHER, FLAT	54
8	8	8	8	2004130	PAD, THREADED	53
18	18	18	18	2004894-014	WASHER, FLAT	52
4	4	4	4	2004894-012	WASHER, FLAT	51
2	2	2	2	1000439-36	SCREW, HEX SOCKET HEAD	50
4	4	4	4	1004722-2	SCREW, CAPTIVE	49
1	1	1	1	1000159-7	PACKING, PREFORMED "O" RING	48
18	18	18	18	2004732-003	SCREW, COATED	47
33	33	33	33	2004732-001	SCREW, COATED	46
2	2	2	2	1006347	GASKET, PLATE	45
1	1	1	1	2004986	PLUG, MACHINE THREAD	44
1	1	1	1	1004260-19	NAME PLATE, TYPE I	43
	1	1	1	2004113-001	BRACKET, CABLE	42
1	1	1	1	2003099-011	CONNECTOR ASSEMBLY	41
1	1	1	1	1006380	GASKET, RETAINED	40
58	58	58	58	2004717	WASHER, KNURLED	39
3	3	3	3	2003067-041	INTERFACE MODULE A27-29	38
2	2	2	2	2003070-031	INTERFACE MODULE A25 26	37
—	—	—	2	2003887-011	POWER SUPPLY MODULE A30-31	36
	1	1	1	SEE NOTES 36 & 37	LOGIC MODULE A24	35
1	1	1	1		LOGIC MODULE A23	34
	1	1	1		LOGIC MODULE A22	33
	1	1	1		LOGIC MODULE A21	32
1	1	1	1		LOGIC MODULE A20	31
1	1	1	1		LOGIC MODULE A19	30
	1	1	1		LOGIC MODULE A18	29
	1	1	1		LOGIC MODULE A17	28
	1	1	1		LOGIC MODULE A16	27
	1	1	1		LOGIC MODULE A15	26
	1	1	1		LOGIC MODULE A14	25
	1	1	1		LOGIC MODULE A13	24
	1	1	1		LOGIC MODULE A12	23
4	4	4	4		LOGIC MODULE A8-11	22
	1	1	1		LOGIC MODULE A7	21
	1	1	1		LOGIC MODULE A6	20
	1	1	1		LOGIC MODULE A5	19
	1	1	1		LOGIC MODULE A4	18
1	1	1	1		LOGIC MODULE A3	17
	1	1	1		LOGIC MODULE A2	16
1	1	1	1	SEE NOTES 36 & 37	LOGIC MODULE A1	15
2	2	2	2	2003140-031	ROPE DRIVER MODULE B16-17	14
1	1	1	1	2003027-031	STRAND SELECT MODULE B15	13
	1	1	1	SEE NOTE 30	SENSE AMPL MOD, ERASABLE MEMORY B13	12
~~1~~	~~1~~	~~1~~	~~1~~	~~2003111~~	~~ERASABLE MEMORY MODULE B12~~	11
	1	1	1	2003026-031	CURRENT SWITCH MODULE B11	10
2	2	2	2	2003114-021	ERASABLE DRIVER MODULE B9-10	9
	1	1	1	2003983-021	ALARM MODULE B8	8
	1	1	1	2003036-031	OSCILLATOR MODULE B7	7
	1	1	1	2003978-001	MID SPACER	6
	1	1	1	2003059-021	INTERCONNECTION HEADER ASSEMBLY	5
	1	1	1	2003976-011	TRAY B COVER	4
1	1	1	1	2003977-011	TRAY A COVER	3
	1	1	1	2003093-021	TRAY B WIRED ASSEMBLY	2
	—	—	1	2003092-031	TRAY A WIRED ASSEMBLY	1
-041	-031	-021	-011			

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING
MATERIAL

NEXT ASSY	USED ON
2003991	

APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

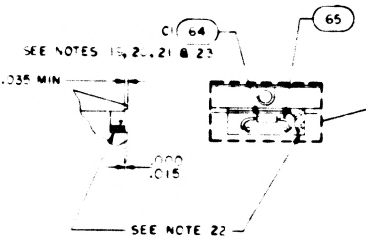
COMPUTER
ASSEMBLY

CODE IDENT NO 80230
SIZE J
DRAWING NO 2003993
SCALE
SHEET 1 OF 2

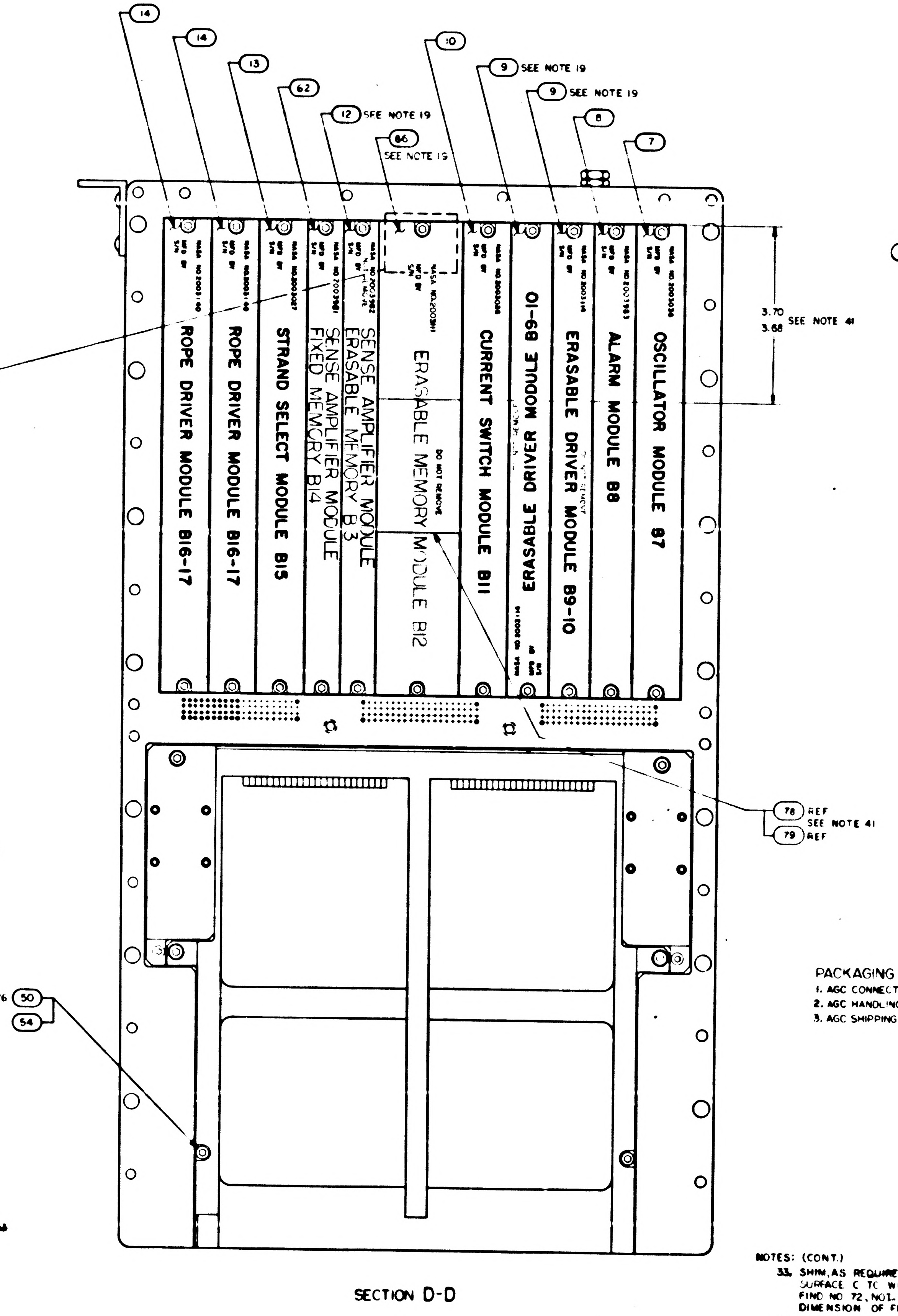
2003993 F

2003993 PF2/2 SH1/2

C1	
PART NO.	VALUE UUF
1006777-1	0
-15	150
-18	330
-20	470
-22	680
1006777-23	820
SEE NOTE 21	0
1006777-16	220
1006777-17	270

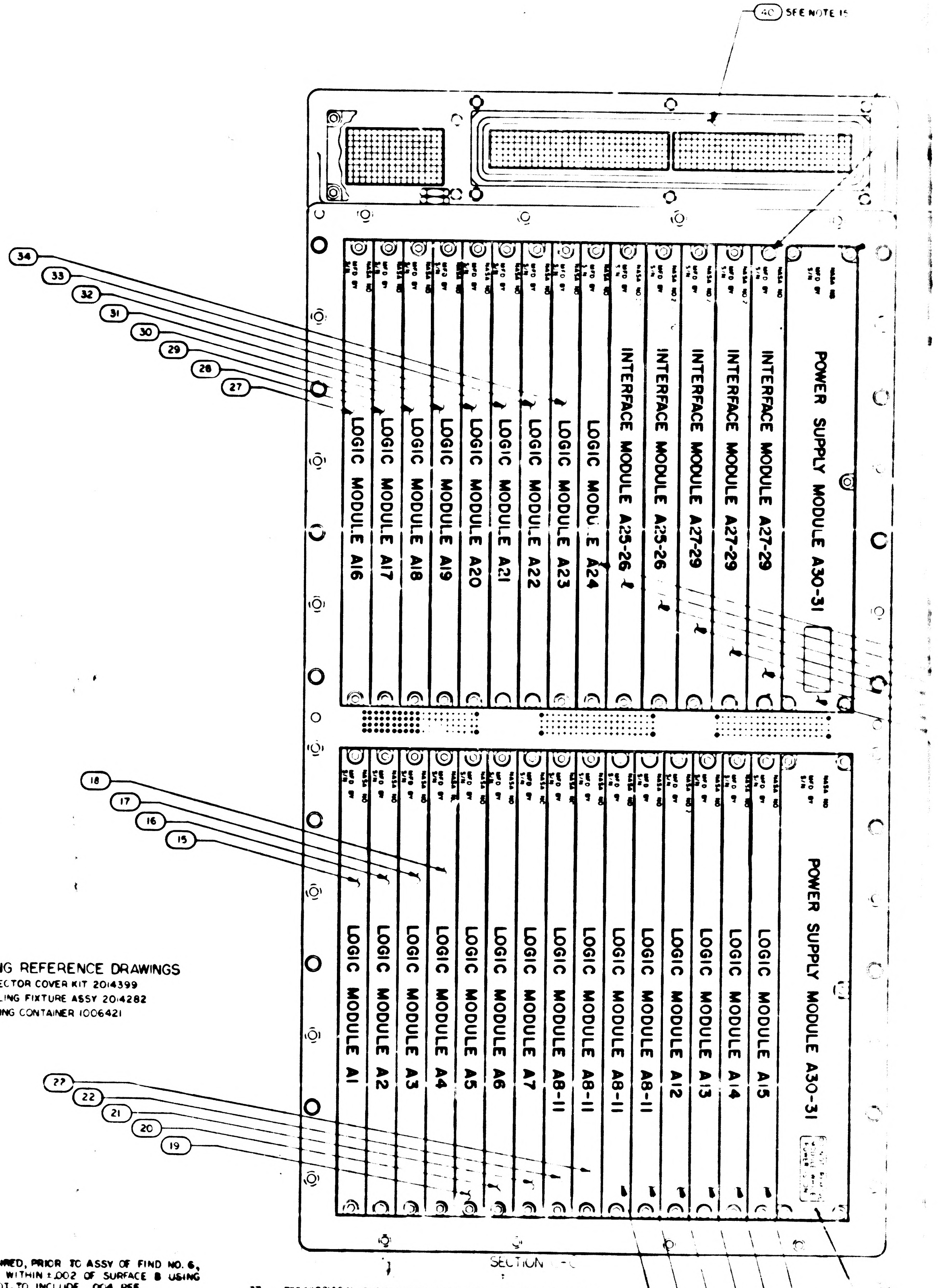


C1 64
65
SEE NOTES 15, 20, 21 & 23
.035 MIN
.000
.015
SEE NOTE 22



14
14
13
62
12 SEE NOTE 19
86 SEE NOTE 19
10
9 SEE NOTE 19
9 SEE NOTE 19
8
7
ROPE DRIVER MODULE B16-17
ROPE DRIVER MODULE B16-17
STRAND SELECT MODULE B15
SENSE AMPLIFIER MODULE ERASABLE MEMORY B13
SENSE AMPLIFIER MODULE FIXED MEMORY B14
DO NOT REMOVE
ERASABLE MEMORY MODULE B12
CURRENT SWITCH MODULE B11
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
ALARM MODULE B8
OSCILLATOR MODULE B7
3.70
3.68
SEE NOTE 41
78 REF
SEE NOTE 41
79 REF
SEE NOTES 12 & 26
50
54

SECTION D-D



40 SEE NOTE 15
34
33
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31
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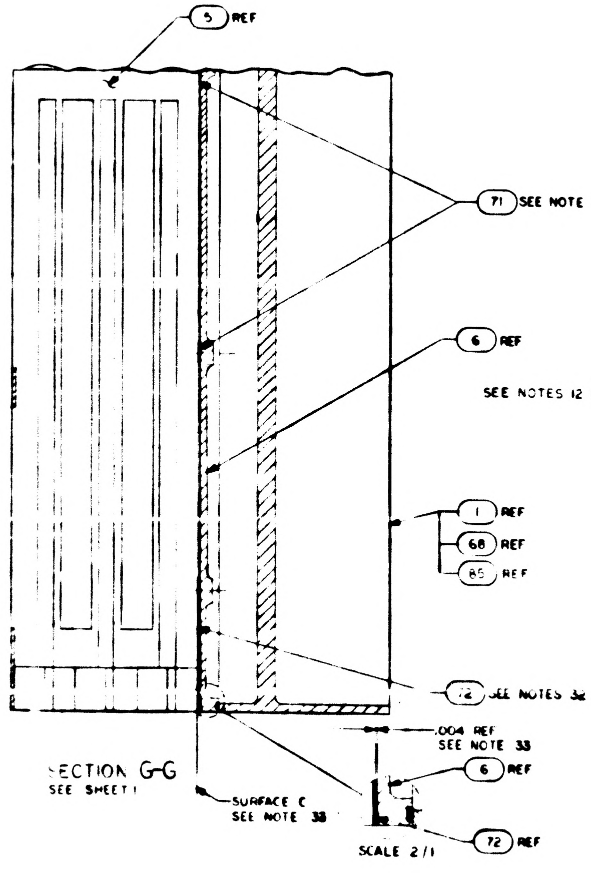
27
LOGIC MODULE A16
LOGIC MODULE A17
LOGIC MODULE A18
LOGIC MODULE A19
LOGIC MODULE A20
LOGIC MODULE A21
LOGIC MODULE A22
LOGIC MODULE A23
LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
18
17
16
15
LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
22
22
21
20
19
SECTION C-C
26
25
24
23
22
22

PACKAGING REFERENCE DRAWINGS

1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421



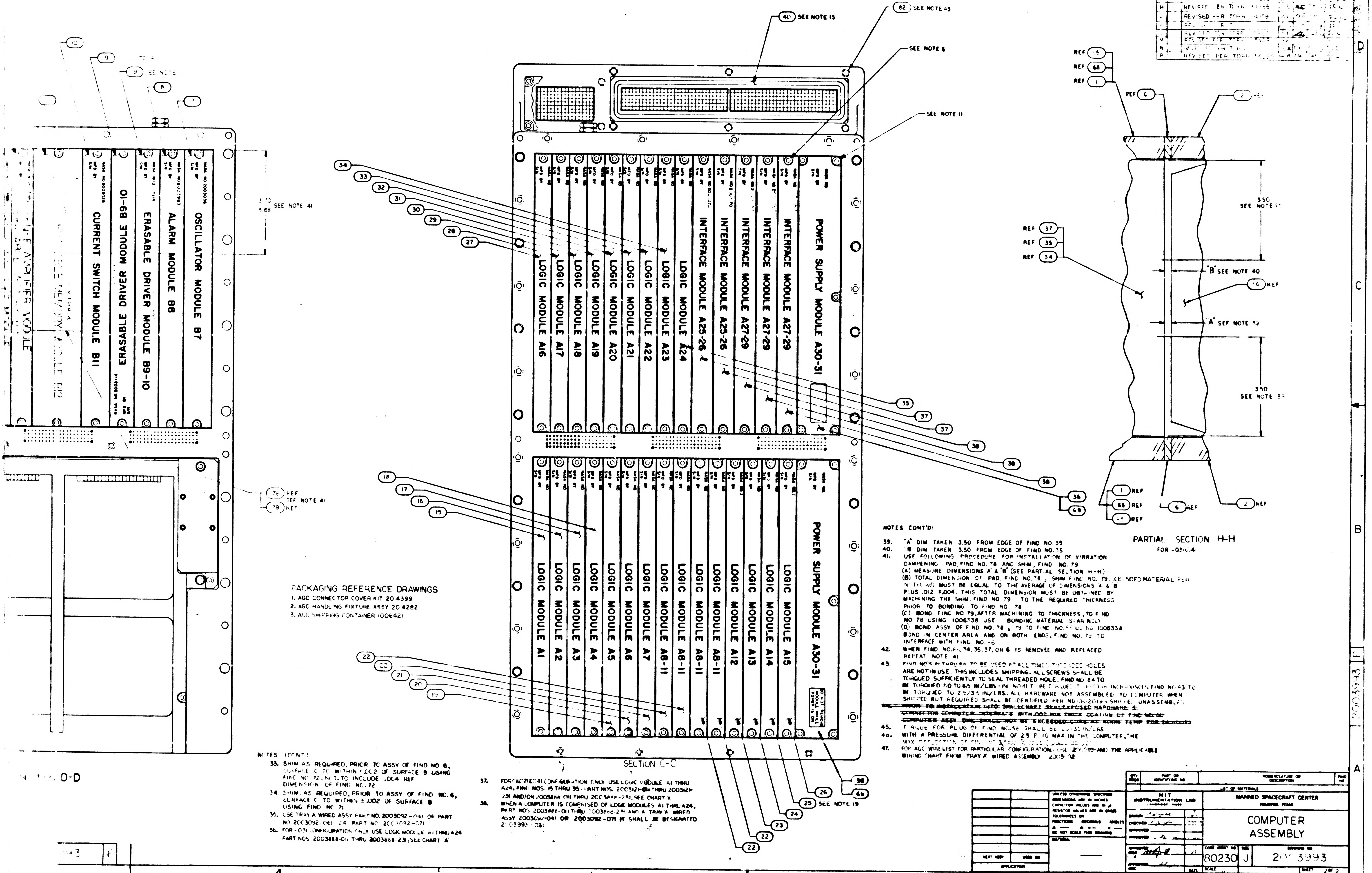
5 REF
71 SEE NOTE 34
6 REF
1 REF
68 REF
85 REF
12 SEE NOTES 32 & 33
.004 REF
SEE NOTE 33
6 REF
SURFACE C
SEE NOTE 38
72 REF
SCALE 2/1

SECTION G-G
SEE SHEET 1

NOTES: (CONT.)

33. SHIM, AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO 72, NOT TO INCLUDE .004 REF DIMENSION OF FIND NO. 72
34. SHIM, AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 71
35. USE TRAY A WIRED ASSY PART NO. 2003092-041 OR PART NO. 2003092-061 OR PART NO. 2003092-071
36. FOR -031 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24 PART NOS. 2003888-011 THRU 2003888-231, SEE CHART 'A'
37. FOR -021 & -041 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24, FIND NOS. 15 THRU 35. PART NOS. 2003121-011 THRU 2003121-231 AND/OR 2003888-011 THRU 2003888-231, SEE CHART A
38. WHEN A COMPUTER IS COMPRISED OF LOGIC MODULES A1 THRU A24, PART NOS. 2003888-011 THRU 2003888-231 AND A TRAY A WIRED ASSY 2003092-041 OR 2003092-071 IT SHALL BE DESIGNATED 2003993-081

REVISIONS						
SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
B		RELEASED PER TDRR 32963				
		REVISED PER TDRR [illegible]6				
F		REVISED PER TDRR 3363[illegible]				
G		REVISED PER TDRR [illegible]				
H		REVISED PER TDRR [illegible]5				
J		REVISED PER TDRR [illegible]4[illegible]9				
		REVISED PER TDRR [illegible]				
		REVISED PER TDRR [illegible]				
M		REVISED PER TDRR [illegible]				
N		REVISED PER TDRR [illegible]				
P		REVISED PER TDRR [illegible]				



SEE NOTE 15
SEE NOTE 43
SEE NOTE 6
SEE NOTE 11
SEE NOTE 41
SEE NOTE 19
OSCILLATOR MODULE B7
ALARM MODULE B8
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
CURRENT SWITCH MODULE B11
ERASABLE MEMORY MODULE B12
POWER SUPPLY MODULE A30-31
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
LOGIC MODULE A24
LOGIC MODULE A23
LOGIC MODULE A22
LOGIC MODULE A21
LOGIC MODULE A20
LOGIC MODULE A19
LOGIC MODULE A18
LOGIC MODULE A17
LOGIC MODULE A16
LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
DO NOT REMOVE POWER IS ON
SECTION C-C
VIEW D-D
PARTIAL SECTION H-H
FOR -031(-041)
3.50 SEE NOTE 40
3.50 SEE NOTE 39
"B" SEE NOTE 40
"A" SEE NOTE 39
REF

PACKAGING REFERENCE DRAWINGS
1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421

NOTES (CONT)

33. SHIM AS REQUIRED, PRIOR TO ASSY OF FIND NO 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO 72. NOT TO INCLUDE .004 REF DIMENSION OF FIND NO. 72
34. SHIM AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 71
35. USE TRAY A WIRED ASSY PART NO. 2003092-041 OR PART NO. 2003092-061 OR PART NO 2003092-071
36. FOR -031 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24 PART NOS 2003888-011 THRU 2003888-231, SEE CHART 'A'
37. FOR -021 & -041 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24, FIND NOS. 15 THRU 35. PART NOS. 2003121-011 THRU 2003121-231 AND/OR 2003888-011 THRU 2003888-231, SEE CHART A
38. WHEN A COMPUTER IS COMPRISED OF LOGIC MODULES A1 THRU A24, PART NOS. 2003888-011 THRU 2003888-231 AND A TRAY 'A' WIRED ASSY 2003092-041 OR 2003092-071 IT SHALL BE DESIGNATED 2003993-031

NOTES CONT'D:

39. "A" DIM TAKEN 3.50 FROM EDGE OF FIND NO. 35
40. "B" DIM TAKEN 3.50 FROM EDGE OF FIND NO. 35
41. USE FOLLOWING PROCEDURE FOR INSTALLATION OF VIBRATION DAMPENING PAD, FIND NO. 78 AND SHIM, FIND NO. 79
(A) MEASURE DIMENSIONS A & B (SEE PARTIAL SECTION H-H)
(B) TOTAL DIMENSION OF PAD, FIND NO. 78, SHIM FIND NO. 79, & BONDED MATERIAL PER NOTE 41(D) MUST BE EQUAL TO THE AVERAGE OF DIMENSIONS A & B PLUS .012 ±.004. THIS TOTAL DIMENSION MUST BE OBTAINED BY MACHINING THE SHIM, FIND NO. 79 TO THE REQUIRED THICKNESS PRIOR TO BONDING TO FIND NO. 78
(C) BOND FIND NO. 79, AFTER MACHINING TO THICKNESS, TO FIND NO 78 USING 1006338. USE BONDING MATERIAL SPARINGLY
(D) BOND ASSY OF FIND NO. 78, 79 TO FIND NO. [illegible] USING 1006338 BOND IN CENTER AREA AND ON BOTH ENDS. FIND NO. 79 TO INTERFACE WITH FIND NO. [illegible]6
42. WHEN FIND NO. [illegible], 34, 35, 37, OR 6 IS REMOVED AND REPLACED REPEAT NOTE 41
43. FIND NO'S 81 THRU 84 TO BE USED AT ALL TIMES THREADED HOLES ARE NOT IN USE. THIS INCLUDES SHIPPING. ALL SCREWS SHALL BE TORQUED SUFFICIENTLY TO SEAL THREADED HOLE. FIND NO 84 TO BE TORQUED 7.0 TO 8.5 IN/LBS. FIND NO. 81 TO BE TORQUED [illegible] TO 16 INCH-OUNCES. FIND NO. 83 TO BE TORQUED TO 2.5/3.5 IN./LBS. ALL HARDWARE NOT ASSEMBLED TO COMPUTER WHEN SHIPPED BUT REQUIRED SHALL BE IDENTIFIED PER ND1002019 & SHIPPED UNASSEMBLED.
~~44. PRIOR TO INSTALLATION INTO SPACECRAFT SEAL EXPOSED HARDWARE & CONNECTOR COMPUTER INTERFACE WITH .002 MIN THICK COATING OF FIND NO. 80 COMPUTER ASSY DWG. SHALL NOT BE EXCEEDED CURE AT ROOM TEMP FOR 24 HOURS~~
45. TORQUE FOR PLUG OF FIND NO. 56 SHALL BE 25-35 IN/LBS
46. WITH A PRESSURE DIFFERENTIAL OF 2.5 PSIG MAX IN THE COMPUTER, THE MAX DEFLECTION OF FIND NO 3 TRAY A COVER SHALL BE [illegible]
47. FOR AGC WIRELIST FOR PARTICULAR CONFIGURATION USE 20[illegible]509 AND THE APPLICABLE WIRING CHART FROM TRAY A WIRED ASSEMBLY 2003[illegible]92

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED NASA
APPROVED MSC
DATE

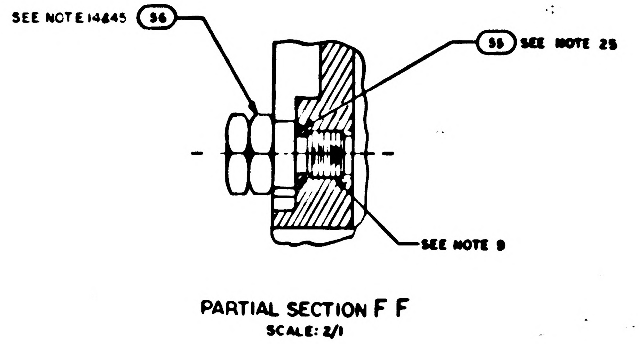
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER
ASSEMBLY

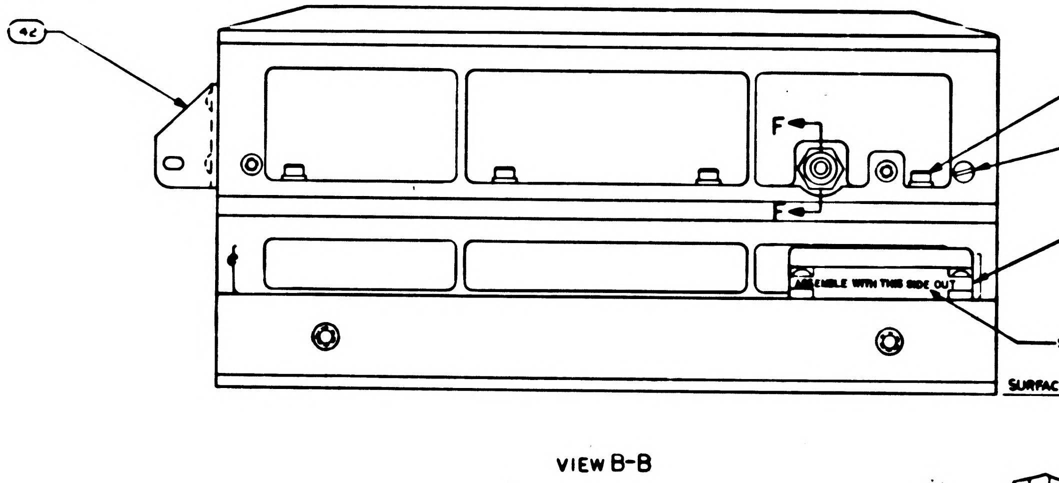
CODE IDENT NO 80230
SIZE J
DRAWING NO 2003993
SCALE
SHEET 2 OF 2

2003993 PF2/2 SH2/2

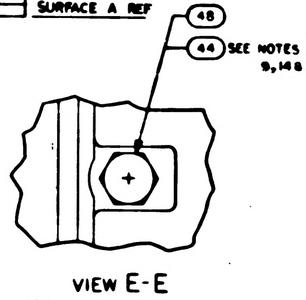
CHART A SEE NOTES 36 & 37					
PART NO. FOR -011 [illegible] CONFIGURATION		PART NO. FOR -011-021 & -031 [illegible] CONFIG		MODULES	
2003121	-011	2003888	-011	LOGIC MODULE	A1
	-021		-021		A2
	-031		-031		A3
	-041		-041		A4
	-051		-051		A5
	-061		-061		A6
	-071		-071		A7
	-081		-081		A8-A11
	-091		-091		A12
	-111		-111		A13
	-121		-121		A14
	-131		-131		A15
	-141		-141		A16
	-151		-151		A17
	-161		-161		A18
	-171		-171		A19
	-181		-181		A20
	-191		-191		A21
	-211		-211		A22
	-221		-221		A23
2003121	-231	2003888	-231	LOGIC MODULE	A24


SEE NOTE 14 & 45
56
55 SEE NOTE 25
SEE NOTE 9

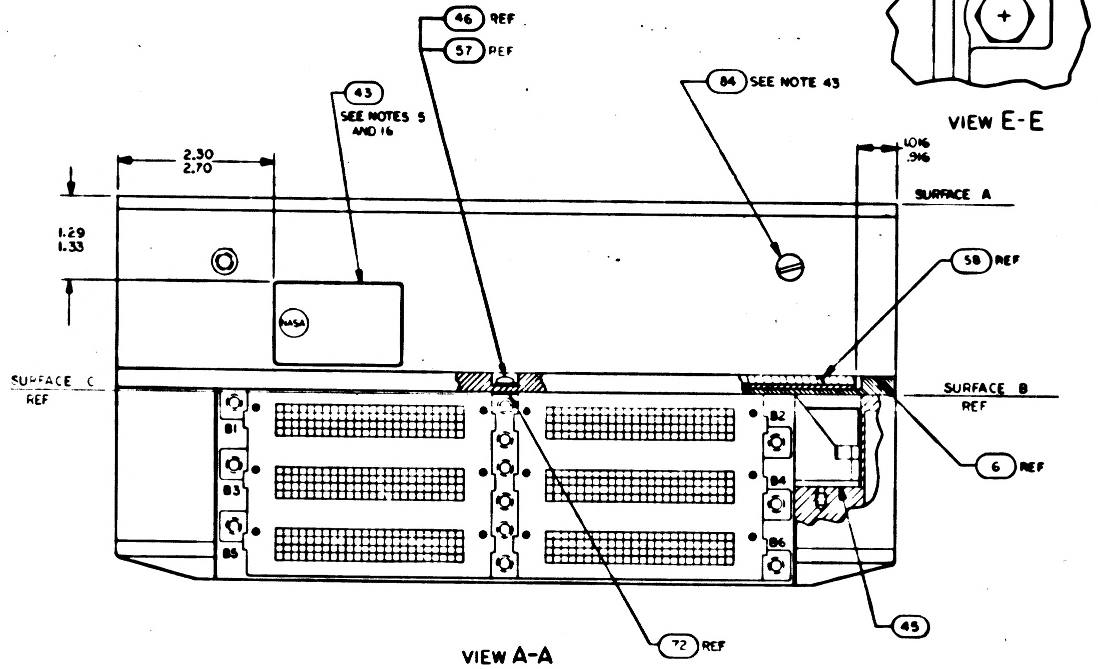
PARTIAL SECTION F F
SCALE: 2/1


42
F
47 SEE NOTES 7 & 26
52
83 SEE NOTE 43
41
ASSEMBLE WITH THIS SIDE OUT
SEE NOTE 27
SURFACE A REF

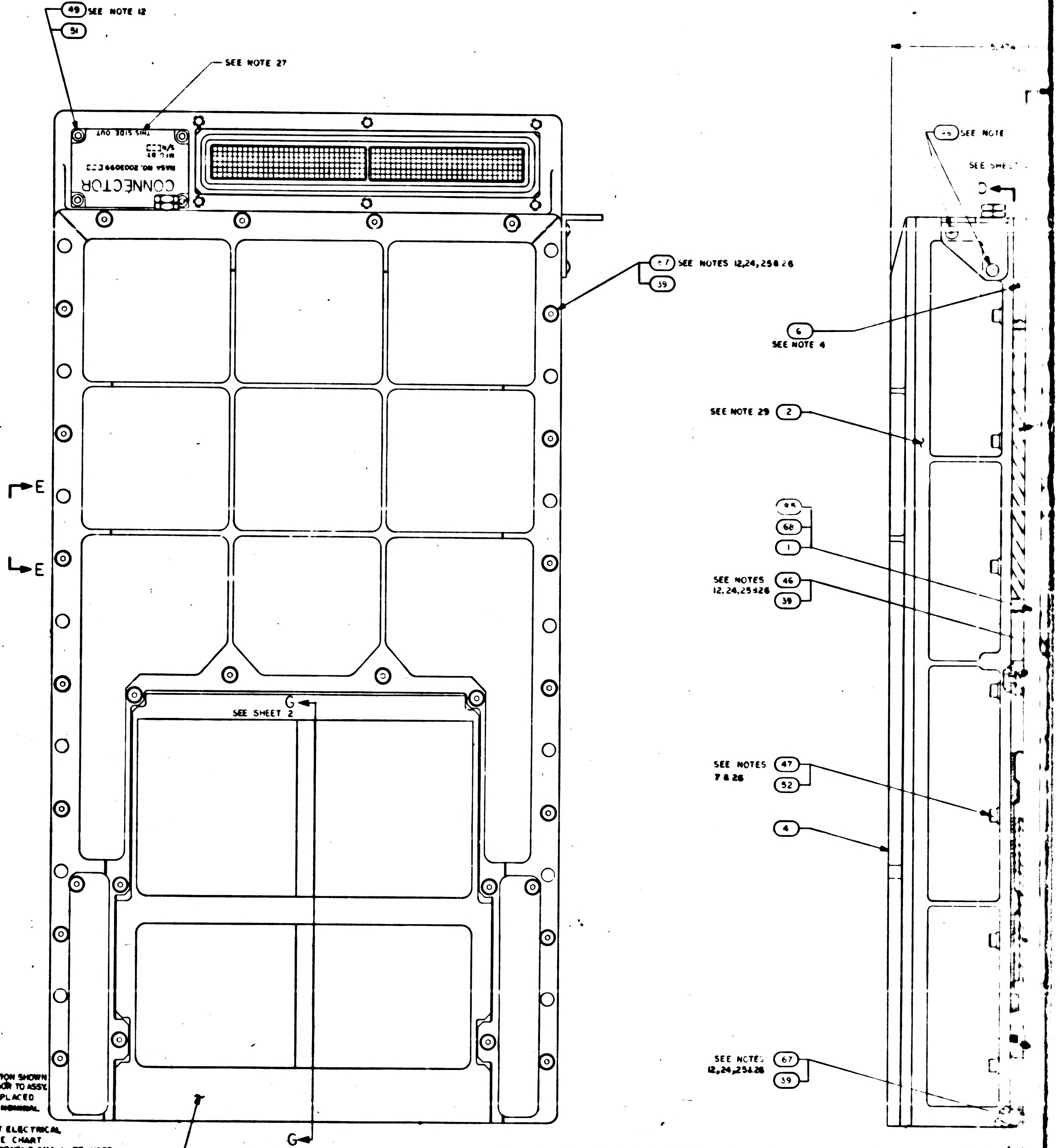
VIEW B-B


48
44 SEE NOTES 9,14 & 25

VIEW E-E


46 REF
57 REF
43 SEE NOTES 5 AND 16
84 SEE NOTE 43
2.30
2.70
.1016
.916
SURFACE A
1.29
1.33
NASA
58 REF
SURFACE C REF
SURFACE B REF
B1
B2
B3
B4
B5
B6
6 REF
72 REF
45

VIEW A-A


49 SEE NOTE 12
51
SEE NOTE 27
THIS SIDE OUT
CONNECTOR
NASA NO. 2003099
67 SEE NOTES 12,24,25 & 26
39
E
E
6 SEE NOTE 4
SEE NOTE 29 2
SEE SHEET 2
G
68
1
SEE NOTES 12,24,25 & 26 46
39
SEE NOTES 7 & 26 47
52
4
SEE NOTES 12,24,25 & 26 67
39
SEE NOTE
SEE SHEET
C
D
SEE SHEET 2
5 SEE NOTE 29

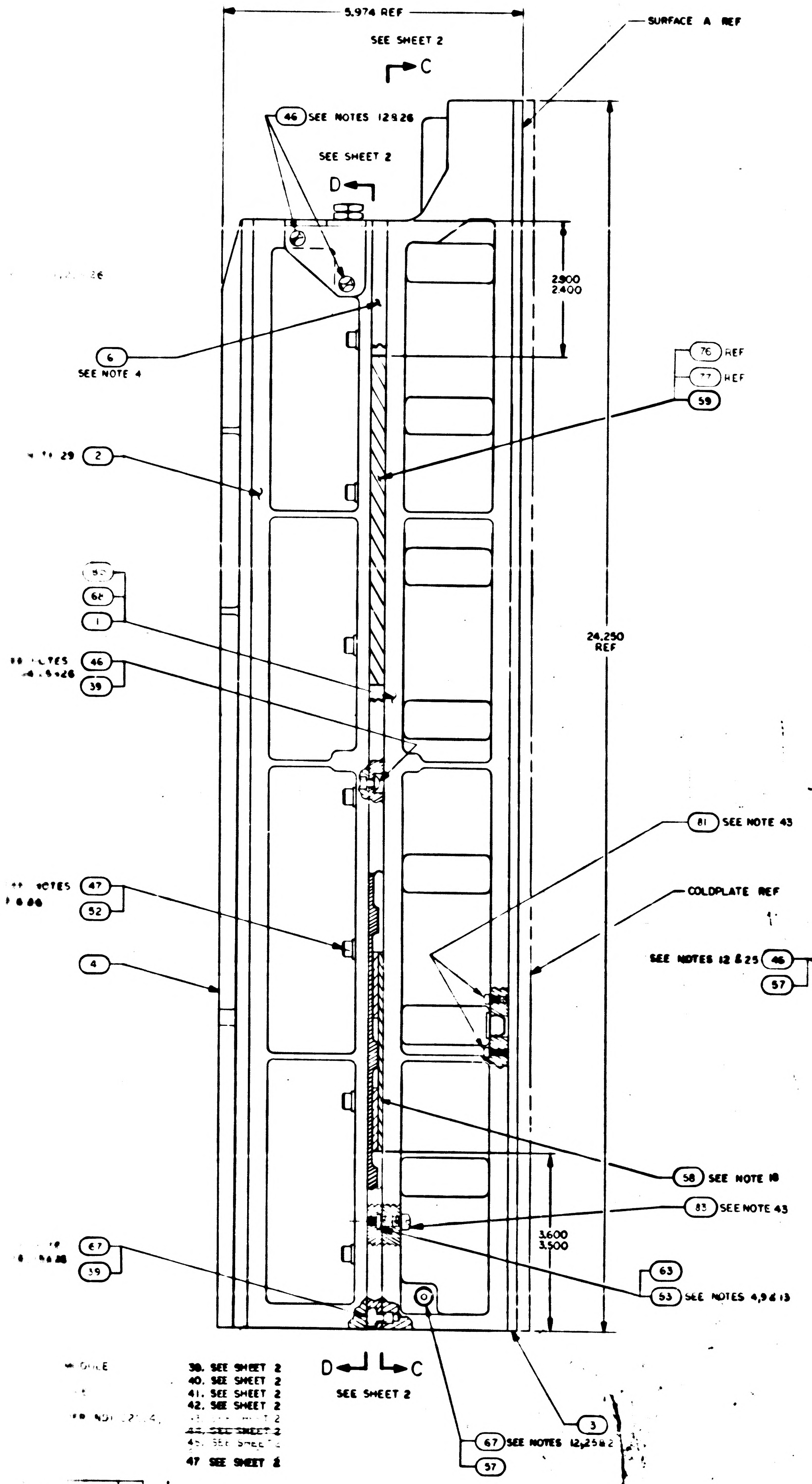
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. PHANTOM LINES DENOTE AGC COLDPLATE AND HANDLING FIXTURE TO BE SUPPLIED BY NORTH AMERICAN AVIATION, INC
3. ADD SILICONE COMPOUND 1006879 TO MODULE MATING METAL SURFACES AND TRAY MATING SURFACES
4. ASSEMBLE FIND NO. 53 AND FIND NO. 63 TO FIND NO. 6 AND FIND NO. 6 TO FIND NO. 2 PRIOR TO ASSEMBLY OF FIND NO. 2 TO FIND NO. 1 OR FIND NO. 68 OR FIND NO. 85
5. BOND FIND NO. 43 TO FIND NO. 1 OR FIND NO. 66 OR FIND NO. 85 PER ND1002219, METHOD II
6. UNLESS OTHERWISE SPECIFIED TORQUE ALL MODULE MOUNTING SCREWS 15/19 INCH POUNDS
7. TORQUE FIND NO. 47 TO 28/32 INCH POUNDS
8. ~~FINISH IS REQUIRED TO SATISFY SCD 6466 510-10001~~
9. APPLY SEALING COMPOUND MIL-S-22473 GRADE H TO FIND NO. 53, FIND NO. 56 AND FIND NO. 44
10. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL REQUIREMENTS OF PS2016007 FOR -011 & PS2016050 FOR -021 & SUBSEQUENT
11. TORQUE FOR FIND NO. 36 AND FIND NO. 69 MOUNTING SCREWS TO BE 10/12 INCH POUNDS
12. TORQUE FOR FIND NO. 46, 49, 50 AND 67 TO BE 18/22 INCH POUNDS
13. TORQUE FOR FIND NO. 53 TO BE 4/6 INCH POUNDS
14. TORQUE FOR FIND NO. 44 AND FIND NO. 56 TO BE 137/157 INCH POUNDS
15. FIND NO. 40 SHALL BE SUPPLIED AS PART OF THIS ASSEMBLY
16. MARK COMPUTER ASSEMBLY AND RELATED PART NO., APPLICABLE DASH NO., SERIAL NO. AND CONTRACT NO. PER 1004260 AND SERIALIZE PER ND1002023
17. FINISH SURFACE -A- PER ICD NAA MH01-01302-116 ~~THIS ASSEMBLY MUST BE CAPABLE OF MEETING ELECTRICAL BONDING REQUIREMENTS OF ICD NAA MH01-01302-116~~
18. BOND FIND NO. 58 TO FIND NO. 6 IN POSITION SHOWN USING 1006338 CURE AT ROOM TEMP 24 HRS PRIOR TO ASSY
19. REFERENCED MODULES MUST NOT BE REPLACED OR INTERCHANGED WITHOUT REPEATING NOMINAL SELECTION PROCEDURE PER NOTE 10
20. THE VALUE OF C1 TO BE DETERMINED AT ELECTRICAL TEST AND SELECTED FROM APPROPRIATE CHART
21. WHEN THE VALUE OF C1 IS ZERO NO COMPONENT SHALL BE USED
22. ENCAPSULATE AREA SHOWN AFTER SELECTION AND INSTALLATION OF C1 USING ND1002009 METHOD C OR D. USING PRIMER PER SCD1012913
23. WELD PER ND1002005
24. ASSEMBLE HARDWARE WITH SMOOTH FACE OF FIND NO. 30 IN CONTACT WITH SCREW HEAD
25. FIND NO. 20, 48, 52 & 57 TO BE DISCARDED AND REPLACED WITH NEW PARTS EACH TIME THEY ARE DISASSEMBLED
26. SEAL EXPOSED HARDWARE ASSEMBLIES WITH .002 MIN THICK COATING OF FIND NO. 50. OVERALL COMPUTER ASSEMBLY DIMENSIONS SHALL NOT BE EXCEEDED. CURE AT ROOM TEMP 24 HRS
27. STENCILING SHOWN FOR ORIENTATION ONLY
28. KEEP ALL MATING THREADS OF SCREWS, TRAY AND MID SPACER INSERTS FREE OF SILICONE COMPOUND
29. FILL FEMALE INSULATORS OF B41 AND B42 CONNECTORS USING FIND NO. 70 PRIOR TO ASSEMBLY OF FIND NOS TO FIND NO. 2
30. FIND NO. 12 ERASEABLE MEMORY, SENSE AMPLIFIER MODULE USE EITHER 2003982-021 OR 2003982-031
31. FIND NO. 62 FIXED MEMORY, SENSE AMPLIFIER MODULE USE EITHER 2003381-021 OR 2003981-031
32. BOND FIND NO. 72 ALONG EDGES TO FIND NO. 5 PER ND1002004, TYPE II PRIOR TO ASSEMBLY OF FIND NO. 6
33. SEE SHEET 2
34. SEE SHEET 2
35. SEE SHEET 2
36. SEE SHEET 2
37. SEE SHEET 2
38. SEE SHEET 2
39. SEE SHEET 2
40. SEE SHEET 2
41. SEE SHEET 2
42. SEE SHEET 2
43. [illegible]
44. ~~SEE SHEET 2~~
45. SEE SHEET 2
47. SEE SHEET 2

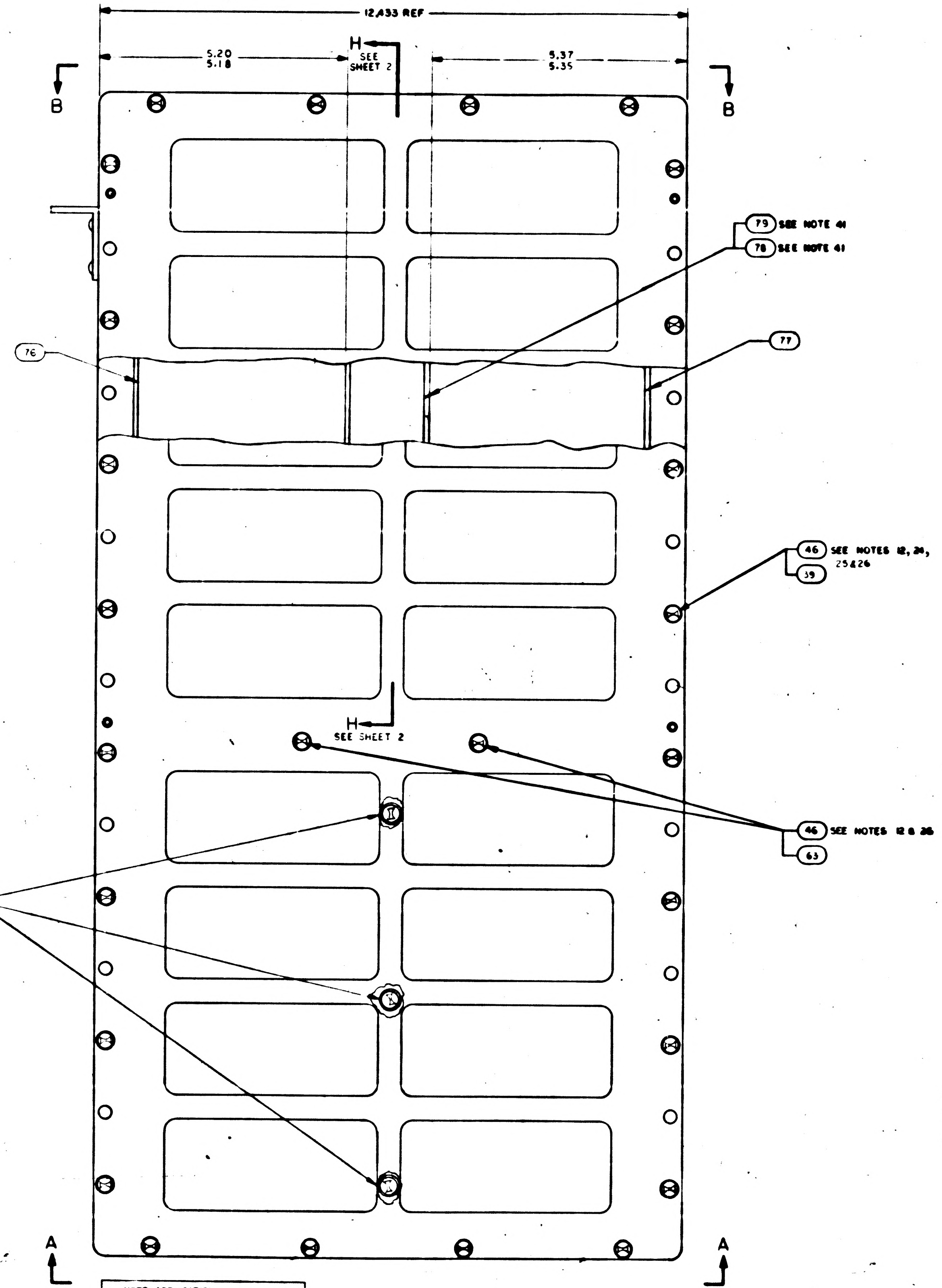
2003993

2003993 RF1/2 SH1/2

REV	ZONE	DESCRIPTION	BY	CHKD	DATE	APPROVED
A		INITIAL RELEASE TDRR 32552				
B		REVISED PER TDRR 33965				
C		REVISED PER TDRR 33302				
D		REVISED PER TDRR [illegible]				
E		REVISED PER TDRR [illegible]5				
F		REVISED PER TDRR 33636				
G		REVISED PER TDRR 34266				
H		REVISED PER TDRR 34295				
J		REVISED PER TDRR 343[illegible]				
K		REVISED PER TDRR [illegible]				
L		REVISED PER TDRR [illegible]				
M		REVISED PER TDRR [illegible]9				
N		REVISED PER TDRR 36016				
P		REVISED PER TDRR 3622[illegible]				
R		REVISED PER TDRR 36[illegible]				



39. SEE SHEET 2
40. SEE SHEET 2
41. SEE SHEET 2
42. SEE SHEET 2
43. SEE SHEET 2
~~44. SEE SHEET 2~~
45. SEE SHEET 2
47 SEE SHEET 2



NOTE APPLICATION	
DASH NO.	NOTES APPLICABLE
-011	1 THRU 34, 37, 43, 45, 46
-021	1 THRU 35, 37, 43, 45, 46
-031	1 THRU 34, 36 & 39 THRU 46
-041	1 THRU 35, 37 & 39 THRU 46

QTY REQD	QTY REQD	QTY REQD	QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
1	1	1	1	2003111-081	ERASABLE MEMORY MODULE B12	86
—	1	—	—	2003082 071	TRAY "A" WIRED ASSY	85
4	4	4	4	1010485-432	SCREW NYLON	84
11	11	11	11	1010485-332	SCREW NYLON	83
6	6	6	6	1010485-235	SCREW NYLON	82
28	28	28	28	1010485-100	SCREW NYLON	81
AR	AR	AR	AR	1006338-003	SEALING COMPOUND SILICONE RUBBER	80
1	1	—	—	2004691	SHIM VIBRATION DAMPENING	79
	1	—	—	2004690	PAD VIBRATION DAMPENING	78
1	1	—	—	2004899 007	PAD VIBRATION	77
	1	—	—	2004899 006	PAD VIBRATION	76
	~~AR~~	—	—	~~2004885-002~~	~~SHIM AGC~~	75
	~~AR~~	—	—	~~2004885-001~~	~~SHIM AGC~~	74
	~~1~~	—	—	~~2003092 041~~	~~TRAY "A" WIRED ASSY~~	73
AR	AR	AR	AR	2010801	SHIM AGC	72
AR	AR	AR	AR	2010800 000	SHIM	[illegible]
				SEE NOTE 47	AGC WIRE LIST	REF
AR	AR	AR	AR	1008954	SILICONE COMPOUND	70
2	2	2	—	2003882-011	POWER SUPPLY MODULE A30-31	69
1	—	1	—	SEE NOTE 38	TRAY "A" WIRED ASSY	68
33	33	33	33	2004732-002	SCREW, COATED	67
	~~AR~~	~~AR~~	~~AR~~	~~1006338 000~~	~~SEALING COMPOUND, SILICONE RUBBER~~	66
AR	AR	AR	AR	1006776-22	INSULATION, SLEEVING ELECTRICAL	65
1	1	1	1	SEE NOTE 20	CAPACITOR	64
0	10	10	10	2004148-007	WASHER, FLAT	63
1	1	1	1	SEE NOTE 31	SENSE AMPLIFIER MODULE, FIXED MEMORY B14	62
	~~—~~	~~AR~~	~~AR~~	~~2004885-002~~	~~SHIM AGC~~	61
		~~AR~~	~~AR~~	~~2004885-001~~	~~SHIM AGC~~	60
—	—	1	1	2004899-001	PAD VIBRATION	59
1	1	1	1	2003970	VIBRATION PAD ASSY	58
4	4	4	4	NAS1598-008N	WASHER, SEALING	57
1	1	1	1	2018773	VALVE PRESSURE ASSEMBLY	56
1	1	1	1	1000159-5	PACKING, PREFORMED "O" RING	55
2	2	2	2	2004984-001	WASHER, FLAT	54
8	8	8	8	2004130	PAD, THREADED	53
18	18	18	18	2004894-014	WASHER, FLAT	52
4	4	4	4	2004894-012	WASHER, FLAT	51
2	2	2	2	[illegible]489-36	SCREW, HEX SOCKET HEAD	50
4	4	4	4	1004722-2	SCREW, CAPTIVE	49
1	1	1	1	1000159-7	PACKING, PREFORMED "O" RING	48
18	18	18	18	2004732-003	SCREW, COATED	47
33	33	33	33	2004732-001	SCREW, COATED	46
2	2	2	2	1006347	GASKET, PLATE	45
1	1	1	1	2004986	PLUG, MACHINE THREAD	44
1	1	1	1	1004260-19	NAME PLATE, TYPE I	43
1	1	1	1	2004113 001	BRACKET, CABLE	42
1	1	1	1	2005099-011	CONNECTOR ASSEMBLY	41
1	1	1	1	1006380	GASKET, RETAINED	40
58	58	58	58	20047[illegible]7	WASHER, KNURLED	39
3	3	3	3	2003067-041	INTERFACE MODULE A27-29	38
2	2	2	2	2003070-031	INTERFACE MODULE A25-26	37
—	—	—	2	2003887-011	POWER SUPPLY MODULE A30-31	36
1	1	1	1	SEE NOTES 36 & 37	LOGIC MODULE A24	35
1	1	1	1		LOGIC MODULE A23	34
	1	1	1		LOGIC MODULE A22	33
1	1	1	1		LOGIC MODULE A21	32
1	1	1	1		LOGIC MODULE A20	31
1	1	1	1		LOGIC MODULE A19	30
1	1	1	1		LOGIC MODULE A18	29
1	1	1	1		LOGIC MODULE A17	28
1	1	1	1		LOGIC MODULE A16	27
1	1	1	1		LOGIC MODULE A15	26
1	1	1	1		LOGIC MODULE A14	25
1	1	1	1		LOGIC MODULE A13	24
1	1	1	1		LOGIC MODULE A12	23
4	4	4	4		LOGIC MODULE A8-11	22
	1	1	1		LOGIC MODULE A7	21
	1	1	1		LOGIC MODULE A6	20
1	1	1	1		LOGIC MODULE A5	19
	1	1	1		LOGIC MODULE A4	18
1	1	1	1		LOGIC MODULE A3	17
1	1	1	1		LOGIC MODULE A2	16
1	1	1	1	SEE NOTES 36 & 37	LOGIC MODULE A1	15
2	2	2	2	2003140-031	ROPE DRIVER MODULE B16-17	14
1	1	1	1	2003027-031	STRAND SELECT MODULE B15	13
	1	1	1	SEE NOTE 30	SENSE AMPL MOD, ERASABLE MEMORY B13	12
~~1~~	~~1~~	~~1~~	~~1~~	~~2003111~~	~~ERASABLE MEMORY MODULE B12~~	11
	1	1	1	2003026-031	CURRENT SWITCH MODULE B11	10
2	2	2	2	2003114-021	ERASABLE DRIVER MODULE B9-10	9
	1	1	1	2003983-021	ALARM MODULE B8	8
	1	1	1	2003036-031	OSCILLATOR MODULE B7	7
1	1	1	1	2003978 001	MID SPACER	6
	1	1	1	2003059-021	INTERCONNECTION HEADER ASSEMBLY	5
	1	1	1	2003976 011	TRAY B COVER	4
1	1	1	1	2003977 011	TRAY A COVER	3
1	1	1	1	2003093-021	TRAY B WIRED ASSEMBLY	2
	—	—	1	2003092-031	TRAY A WIRED ASSEMBLY	1
-041	-031	[illegible]	-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003991	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED NASA
APPROVED MSC
DATE

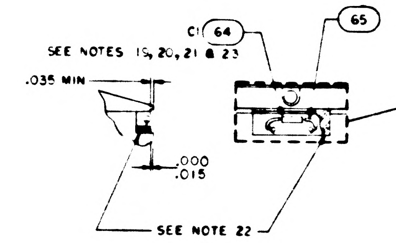
MANNED SPACECRAFT CENTER
HOUSTON TEXAS

COMPUTER
ASSEMBLY

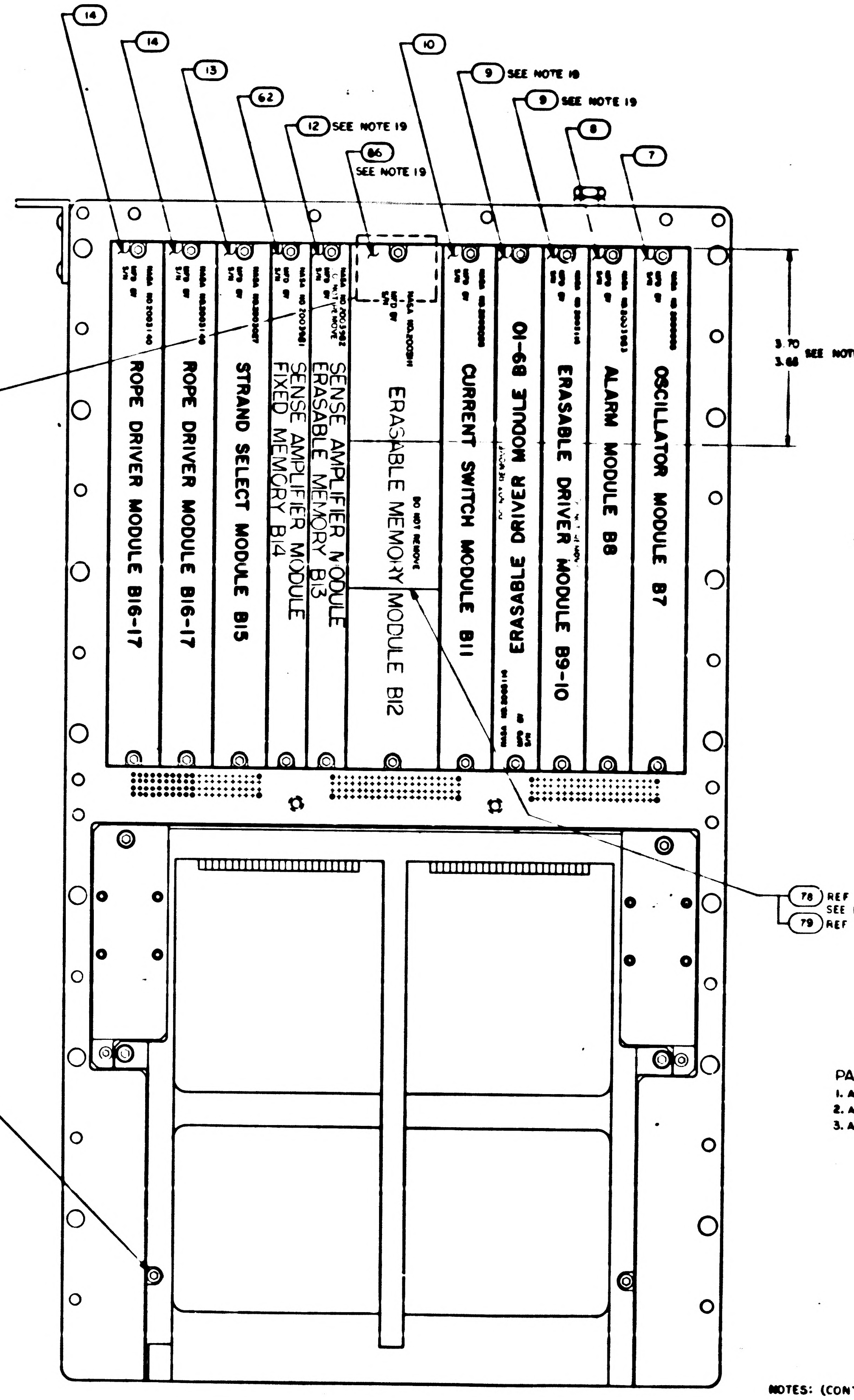
CODE IDENT NO 80230 | SIZE J | DRAWING NO 2003993
SCALE | SHEET 1 OF 2

SH1/2 2003993 RF2/2

C1	
PART NO.	VALUE UUF
1006777-1	0
-15	150
-18	330
-20	470
-22	680
1006777-23	820
SEE NOTE 21	0
1006777-6	220
1006777-17	270

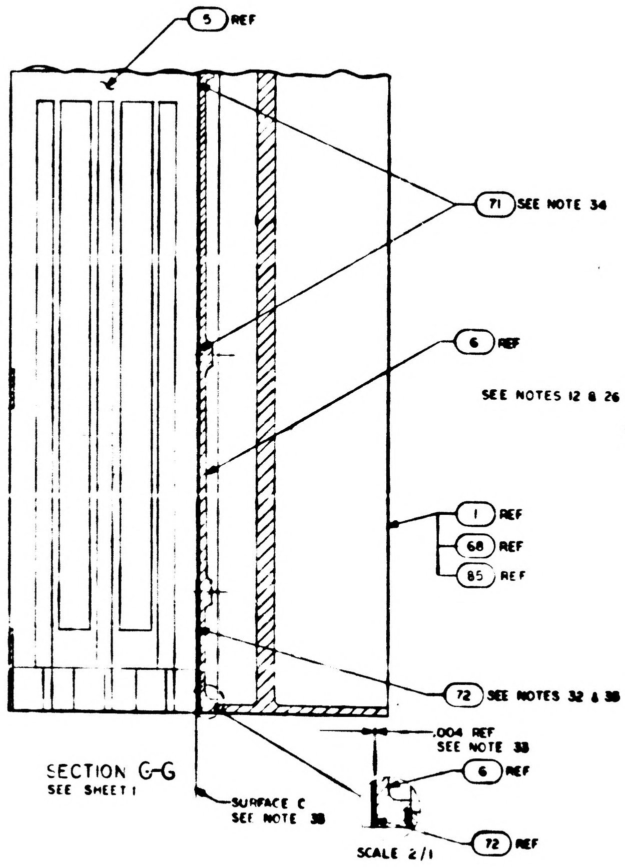


C1 64
SEE NOTES 15, 20, 21 & 23
65
.035 MIN
.000
.015
SEE NOTE 22



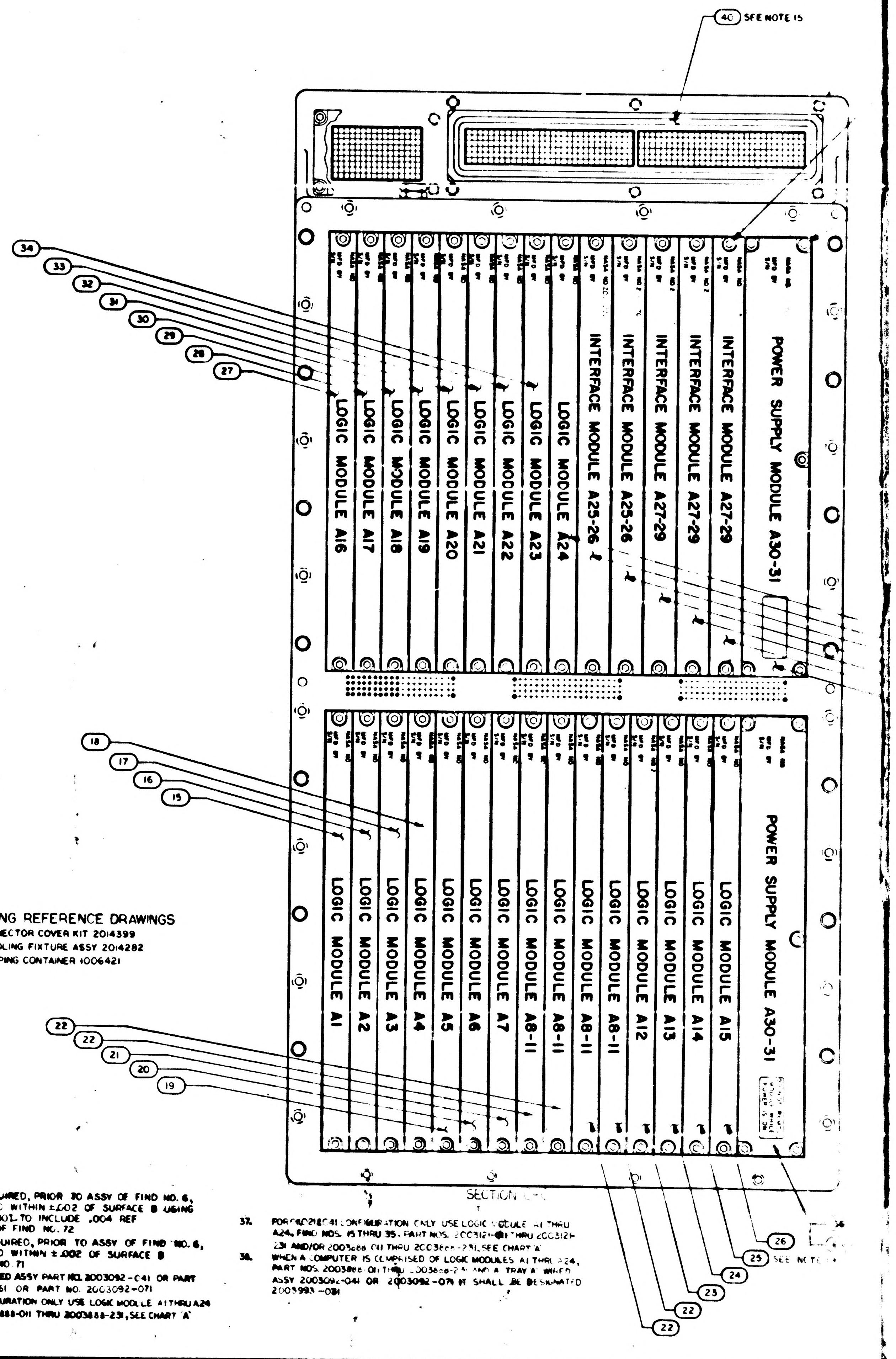
14
14
13
62
12 SEE NOTE 19
86 SEE NOTE 19
10
9 SEE NOTE 19
9 SEE NOTE 19
8
7
ROPE DRIVER MODULE B16-17
ROPE DRIVER MODULE B16-17
STRAND SELECT MODULE B15
SENSE AMPLIFIER MODULE ERASABLE MEMORY B13
SENSE AMPLIFIER MODULE FIXED MEMORY B14
DO NOT REMOVE
ERASABLE MEMORY MODULE B12
CURRENT SWITCH MODULE B11
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
ALARM MODULE B8
OSCILLATOR MODULE B7
3.70
3.66
SEE NOTE 41
78 REF
SEE NOTE 41
79 REF
SEE NOTES 12 & 26 50
54

SECTION D-D



5 REF
71 SEE NOTE 34
6 REF
1 REF
68 REF
85 REF
72 SEE NOTES 32 & 38
.004 REF
SEE NOTE 33
6 REF
SURFACE C
SEE NOTE 38
72 REF
SCALE 2/1

SECTION G-G
SEE SHEET 1



40 SEE NOTE 15
34
33
32
31
30
29
28
27
LOGIC MODULE A16
LOGIC MODULE A17
LOGIC MODULE A18
LOGIC MODULE A19
LOGIC MODULE A20
LOGIC MODULE A21
LOGIC MODULE A22
LOGIC MODULE A23
LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
18
17
16
15
LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
22
22
21
20
19
26
25 SEE NOTE
24
23
22
22
SECTION

PACKAGING REFERENCE DRAWINGS

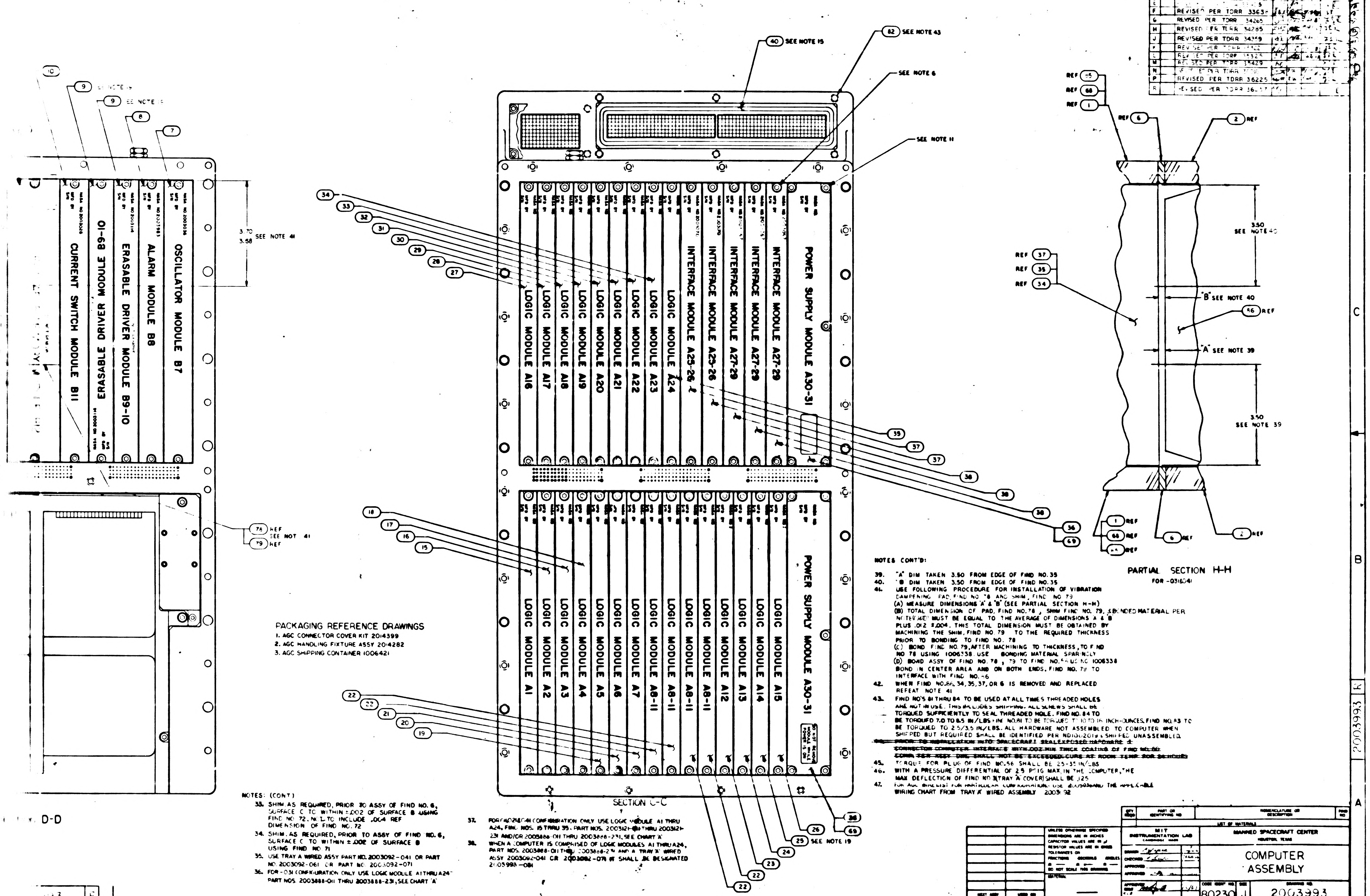
1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421

NOTES: (CONT.)

33. SHIM, AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 72, NOT TO INCLUDE .004 REF DIMENSION OF FIND NO. 72
34. SHIM, AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 71
35. USE TRAY A WIRED ASSY PART NO. 2003092-041 OR PART NO. 2003092-061 OR PART NO. 2003092-071
36. FOR -031 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24 PART NOS. 2003888-011 THRU 2003888-231, SEE CHART 'A'
37. FOR -021 & -041 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24, FIND NOS. 15 THRU 35. PART NOS. 2003121-011 THRU 2003121-231 AND/OR 2003888-011 THRU 2003888-231, SEE CHART 'A'
38. WHEN A COMPUTER IS COMPRISED OF LOGIC MODULES A1 THRU A24, PART NOS. 2003888-011 THRU 2003888-231 AND A TRAY A WIRED ASSY 2003092-041 OR 2003092-071 IT SHALL BE DESIGNATED 2003993-031

2003993 R

A		[illegible]				
B		RELEASED PER TDRR 32965				
C		REVISED PER TDRR [illegible]				
D		REVISED PER TDRR 33306				
E		[illegible]				
F		REVISED PER TDRR 33636				
G		REVISED PER TDRR 34265				
H		REVISED PER TDRR 34285				
J		REVISED PER TDRR 34359				
K		REVISED PER TDRR [illegible]22				
L		REVISED PER TDRR 35325				
M		REVISED PER TDRR 35429				
N		REVISED PER TDRR [illegible]				
P		REVISED PER TDRR 36225				
R		REVISED PER TDRR 36[illegible]				


4
3
2
C
B
A
D-D
SECTION C-C
PARTIAL SECTION H-H
FOR -031&041
CURRENT SWITCH MODULE B11
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
ALARM MODULE B8
OSCILLATOR MODULE B7
LOGIC MODULE A16
LOGIC MODULE A17
LOGIC MODULE A18
LOGIC MODULE A19
LOGIC MODULE A20
LOGIC MODULE A21
LOGIC MODULE A22
LOGIC MODULE A23
LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
40 SEE NOTE 15
82 SEE NOTE 43
SEE NOTE 6
SEE NOTE H
9 SEE NOTE 19
9 SEE NOTE 19
8
7
3.70 / 3.58 SEE NOTE 41
78 REF
SEE NOTE 41
79 REF
34
33
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19
26
25 SEE NOTE 19
24
23
22
22
36
69
REF 55
REF 68
REF 1
REF 6
2 REF
3.50 SEE NOTE 40
"B" SEE NOTE 40
REF 37
REF 35
REF 34
56 REF
"A" SEE NOTE 39
3.50 SEE NOTE 39
1 REF
68 REF
55 REF
6 REF
2 REF

PACKAGING REFERENCE DRAWINGS
1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421

NOTES: (CONT)

33. SHIM AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO 72, NOT TO INCLUDE .004 REF DIMENSION OF FIND NO. 72
34. SHIM AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO 71
35. USE TRAY A WIRED ASSY PART NO. 2003092-041 OR PART NO. 2003092-061 OR PART NO. 2003092-071
36. FOR -031 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24 PART NOS. 2003888-011 THRU 2003888-231, SEE CHART 'A'
37. FOR -021&-041 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24, FIND NOS. 15 THRU 35. PART NOS. 2003121-011 THRU 2003121-231 AND/OR 2003888-011 THRU 2003888-231, SEE CHART 'A'
38. WHEN A COMPUTER IS COMPRISED OF LOGIC MODULES A1 THRU A24, PART NOS. 2003888-011 THRU 2003888-231 AND A TRAY 'A' WIRED ASSY 2003092-041 OR 2003092-071 IT SHALL BE DESIGNATED 2003993-081

NOTES CONT'D:

39. "A" DIM TAKEN 3.50 FROM EDGE OF FIND NO. 35
40. "B" DIM TAKEN 3.50 FROM EDGE OF FIND NO. 35
41. USE FOLLOWING PROCEDURE FOR INSTALLATION OF VIBRATION DAMPENING PAD, FIND NO 78 AND SHIM, FIND NO 79
    (A) MEASURE DIMENSIONS 'A' & 'B' (SEE PARTIAL SECTION H-H)
    (B) TOTAL DIMENSION OF PAD, FIND NO. 78, SHIM FIND NO. 79, & BONDED MATERIAL PER NOTE (C)&(D) MUST BE EQUAL TO THE AVERAGE OF DIMENSIONS 'A' & 'B' PLUS .012 ±.004. THIS TOTAL DIMENSION MUST BE OBTAINED BY MACHINING THE SHIM, FIND NO. 79 TO THE REQUIRED THICKNESS PRIOR TO BONDING TO FIND NO. 78
    (C) BOND FIND NO. 79, AFTER MACHINING TO THICKNESS, TO FIND NO 78 USING 1006338. USE BONDING MATERIAL SPARINGLY
    (D) BOND ASSY OF FIND NO. 78, 79 TO FIND NO. 56 USING 1006338 BOND IN CENTER AREA AND ON BOTH ENDS. FIND NO. 79 TO INTERFACE WITH FIND NO. 56
42. WHEN FIND NO. 86, 34, 35, 37, OR 6 IS REMOVED AND REPLACED REPEAT NOTE 41
43. FIND NO'S 81 THRU 84 TO BE USED AT ALL TIMES THREADED HOLES ARE NOT IN USE. THIS INCLUDES SHIPPING. ALL SCREWS SHALL BE TORQUED SUFFICIENTLY TO SEAL THREADED HOLE. FIND NO. 84 TO BE TORQUED 7.0 TO 8.5 IN/LBS FIND NO. 81 TO BE TORQUED TO 10 TO 16 INCH-OUNCES. FIND NO. 83 TO BE TORQUED TO 2.5/3.5 IN/LBS. ALL HARDWARE NOT ASSEMBLED TO COMPUTER WHEN SHIPPED BUT REQUIRED SHALL BE IDENTIFIED PER ND1002019 & SHIPPED UNASSEMBLED.
~~44. PRIOR TO INSTALLATION INTO SPACECRAFT SEAL EXPOSED HARDWARE & CONNECTOR COMPUTER INTERFACE WITH .002 MIN THICK COATING OF FIND NO. 80 CONN. PER ASSY DWG SHALL NOT BE EXCEEDED. CURE AT ROOM TEMP FOR 24 HOURS~~
45. TORQUE FOR PLUG OF FIND NO. 56 SHALL BE 25-35 IN/LBS
46. WITH A PRESSURE DIFFERENTIAL OF 2.5 PSIG MAX, IN THE COMPUTER, THE MAX DEFLECTION OF FIND NO 3 (TRAY 'A' COVER) SHALL BE .125
47. FOR AGC WIRELIST FOR PARTICULAR CONFIGURATIONS USE 2005036 AND THE APPLICABLE WIRING CHART FROM TRAY 'A' WIRED ASSEMBLY 2003092

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

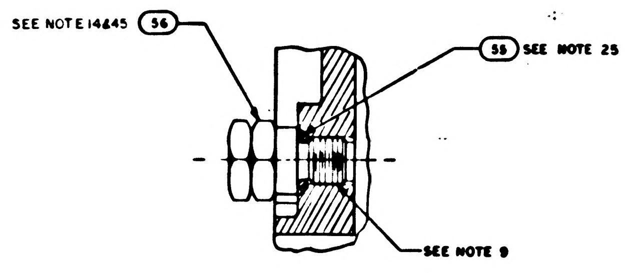
DRAWN
CHECKED
APPROVED
APPROVED
APPROVED
APPROVED NASA

COMPUTER ASSEMBLY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2003993
SCALE 1/1
SHEET 2 OF 2

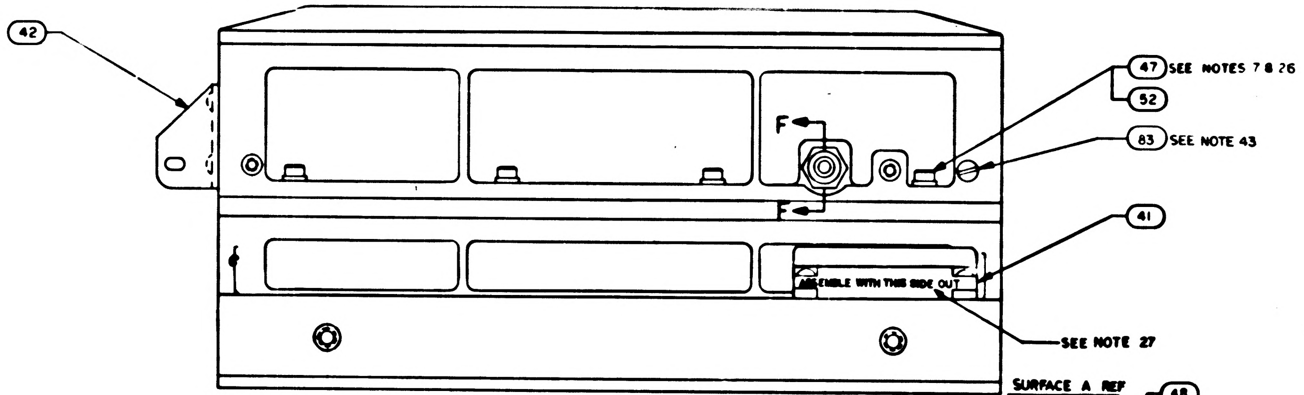
2003993

CHART A SEE NOTES 36 & 37				
PART NO. FOR -0[illegible] CONFIGURATION		PART NO. FOR -011-021 & -031 [illegible] CONFIG.		MODULES
2003121	-011	2003888	-011	LOGIC MODULE A1
	-021		-021	A2
	-031		-031	A3
	-041		-041	A4
	-051		-051	A5
	-061		-061	A6
	-071		-071	A7
	-081		-081	A8-A11
	-091		-091	A12
	-11		-111	A13
	-121		-121	A14
	-13		-131	A15
	-141		-141	A16
	-151		-151	A17
	-161		-161	A18
	-171		-171	A19
	-181		-181	A20
	-191		-191	A21
	-2		-211	A22
	-22		-221	A23
2003121	-231	2003888	-231	LOGIC MODULE A24



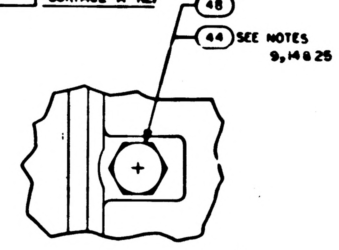
SEE NOTE 14&45
56
58 SEE NOTE 25
SEE NOTE 9

PARTIAL SECTION F F
SCALE: 2/1



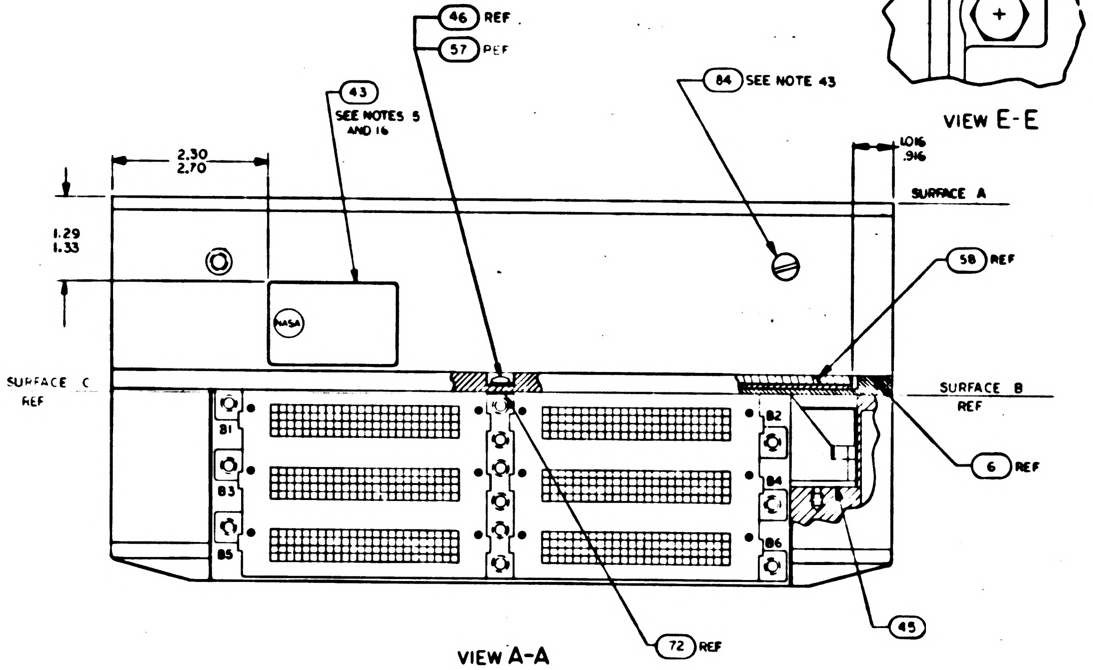
42
47 SEE NOTES 7 & 26
52
F
83 SEE NOTE 43
41
ASSEMBLE WITH THIS SIDE OUT
SEE NOTE 27
SURFACE A REF

VIEW B-B



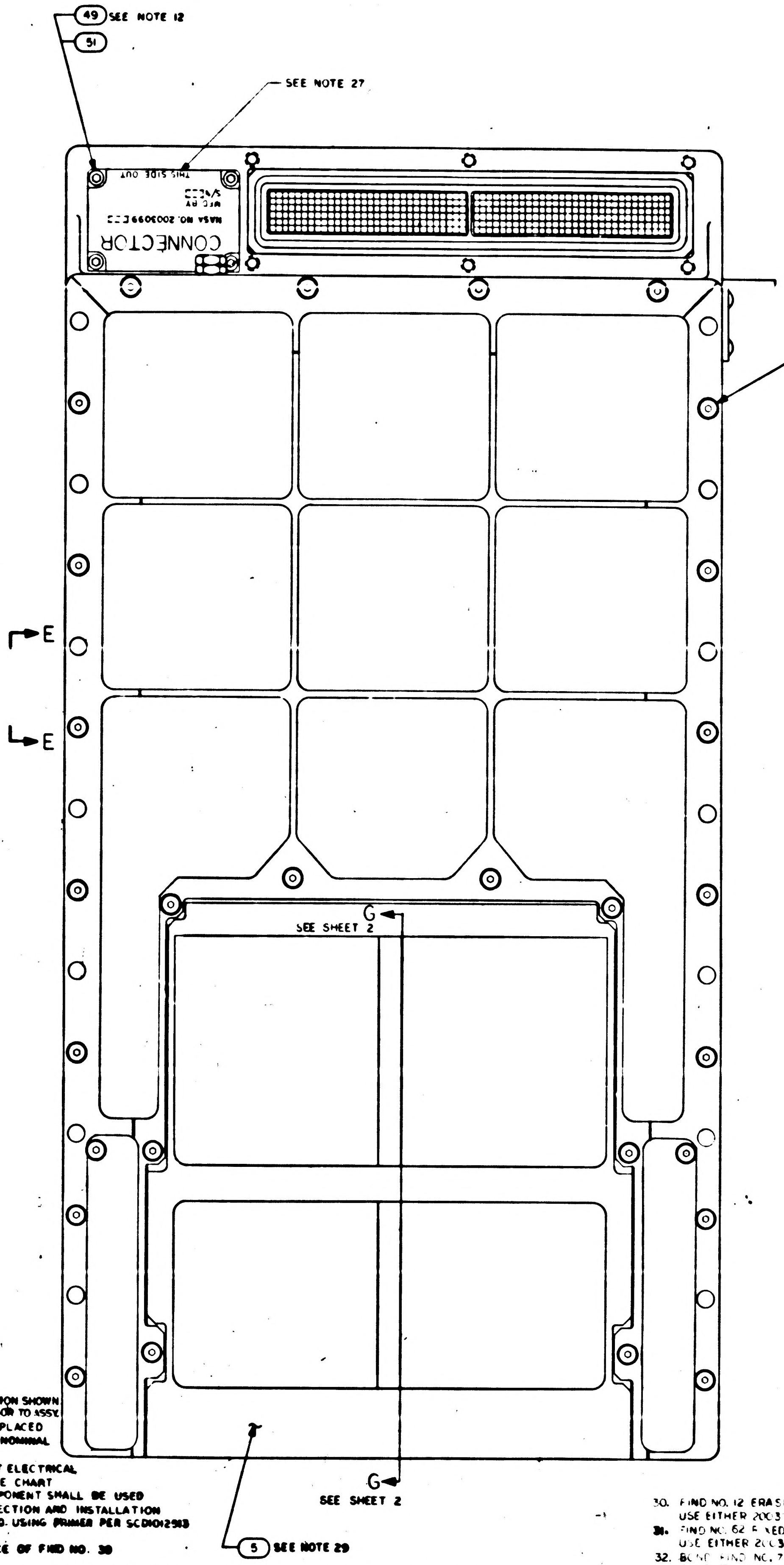
48
44 SEE NOTES 9, 14 & 25

VIEW E-E

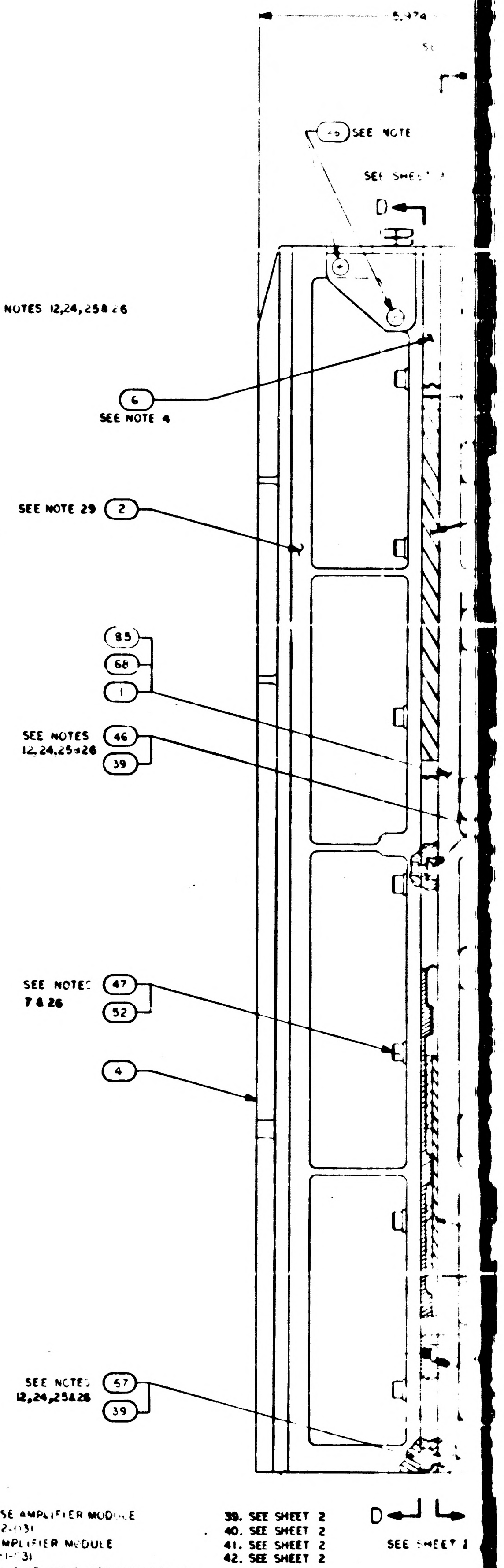


46 REF
57 REF
43 SEE NOTES 5 AND 16
84 SEE NOTE 43
2.30
2.70
.016
.046
SURFACE A
1.29
1.33
58 REF
SURFACE C REF
SURFACE B REF
6 REF
B1
B2
B3
B4
B5
B6
72 REF
45

VIEW A-A



49 SEE NOTE 12
51
SEE NOTE 27
CONNECTOR
NASA NO. 2003993
THIS SIDE OUT
57 SEE NOTES 12, 24, 25 & 26
39
E
E
G
SEE SHEET 2
G
SEE SHEET 2
5 SEE NOTE 29



SEE NOTE
SEE SHEET 2
D
6
SEE NOTE 4
SEE NOTE 29
2
85
68
1
SEE NOTES 12, 24, 25 & 26
46
39
SEE NOTES 7 & 26
47
52
4
SEE NOTES 12, 24, 25 & 26
57
39
D
SEE SHEET 2

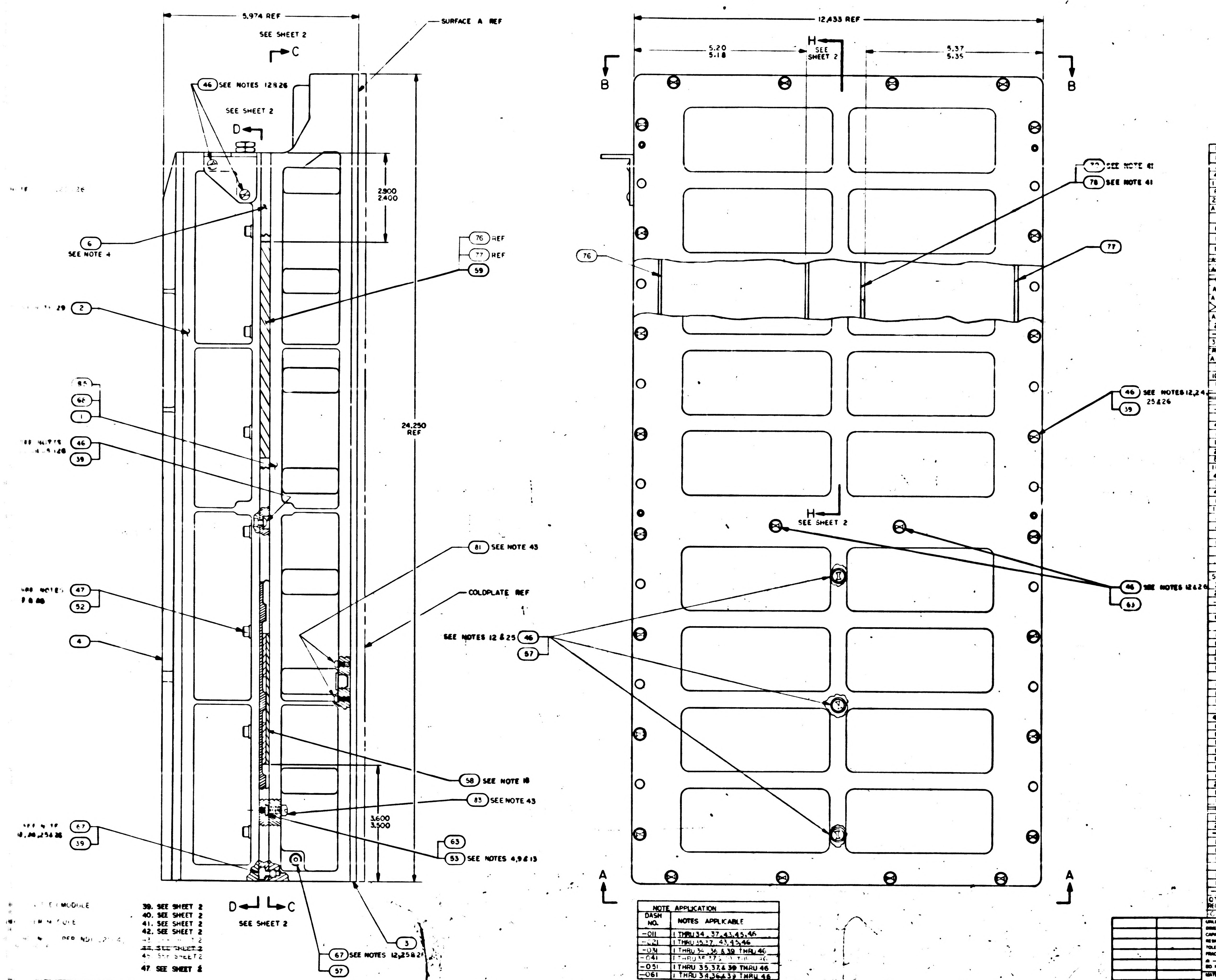
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. PHANTOM LINES DENOTE AGC COLDPLATE AND HANDLING FIXTURE TO BE SUPPLIED BY NORTH AMERICAN AVIATION, INC
3. ADD SILICONE COMPOUND 1006879 TO MODULE MATING METAL SURFACES AND TRAY MATING SURFACES
4. ASSEMBLE FIND NO. 53 AND FIND NO. 63 TO FIND NO. 6 AND FIND NO. 6 TO FIND NO. 2 PRIOR TO ASSEMBLY OF FIND NO. 2 TO FIND NO. 1 OR FIND NO. 68 OR FIND NO. 85
5. BOND FIND NO. 43 TO FIND NO. 1 OR FIND NO. 68 OR FIND NO. 85 PER ND1002219, METHOD II
6. UNLESS OTHERWISE SPECIFIED TORQUE ALL MODULE MOUNTING SCREWS 15/19 INCH POUNDS
7. TORQUE FIND NO. 47 TO 28/32 INCH POUNDS
8. ~~FINISH IS REQUIRED TO SATISFY ICD GAEC 510-10001~~
9. APPLY SEALING COMPOUND MIL-S-22473 GRADE H TO FIND NO. 53, FIND NO. 56 AND FIND NO. 44
10. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL REQUIREMENTS OF PS2016007 FOR-011 & PS2016030 FOR-021-031 & -041 AND PS2016032 FOR-051 & -061
11. TORQUE FOR FIND NO. 36 AND FIND NO. 69 MOUNTING SCREWS TO BE 10/12 INCH POUNDS
12. TORQUE FOR FIND NO. 46, 49, 50 AND 67 TO BE 18/22 INCH POUNDS
13. TORQUE FOR FIND NO. 53 TO BE 4/6 INCH POUNDS
14. TORQUE FOR FIND NO. 44 AND FIND NO. 56 TO BE 137/157 INCH POUNDS
15. FIND NO. 40 SHALL BE SUPPLIED AS PART OF THIS ASSEMBLY
16. MARK COMPUTER ASSEMBLY AND RELATED PART NO., APPLICABLE DASH NO., SERIAL NO. AND CONTRACT NO. PER 1004260 AND SERIALIZE PER ND1002023
17. FINISH SURFACE $\boxed{-A-}$ PER ICD NAA MH01-01302-116 ~~THIS ASSEMBLY MUST BE CAPABLE OF MEETING~~ ELECTRICAL ~~BONDING REQUIREMENTS OF ICD NAA MH01-01302-116~~
18. BOND FIND NO. 58 TO FIND NO. 6 IN POSITION SHOWN USING 1006338 CURE AT ROOM TEMP 24 HRS PRIOR TO ASSY.
19. REFERENCED MODULES MUST NOT BE REPLACED OR INTERCHANGED WITHOUT REPEATING NOMINAL SELECTION PROCEDURE PER NOTE 10
20. THE VALUE OF C1 TO BE DETERMINED AT ELECTRICAL TEST AND SELECTED FROM APPROPRIATE CHART
21. WHEN THE VALUE OF C1 IS ZERO NO COMPONENT SHALL BE USED
22. ENCAPSULATE AREA SHOWN AFTER SELECTION AND INSTALLATION OF C1 USING ND1002009 METHOD C OR D. USING PRIMER PER SCD1012913
23. WELD PER ND1002005
24. ASSEMBLE HARDWARE WITH SMOOTH FACE OF FIND NO. 39 IN CONTACT WITH SCREW HEAD
25. FIND NO. 39, 48, 55 & 57 TO BE DISCARDED AND REPLACED WITH NEW PARTS EACH TIME THEY ARE DISASSEMBLED
26. SEAL EXPOSED HARDWARE ASSEMBLIES WITH .002 MIN THICK COATING OF FIND NO. 50. OVERALL COMPUTER ASSEMBLY DIMENSIONS SHALL NOT BE EXCEEDED. CURE AT ROOM TEMP 24 HRS
27. STENCILING SHOWN FOR ORIENTATION ONLY
28. KEEP ALL MATING THREADS OF SCREWS, TRAY AND MID SPACER INSERTS FREE OF SILICONE COMPOUND
29. FILL FEMALE INSULATORS OF B41 AND B42 CONNECTORS USING FIND NO. 70 PRIOR TO ASSEMBLY OF FIND NOS. TO FIND NO. 2
30. FIND NO. 12 ERASEABLE MEMORY, SENSE AMPLIFIER MODULE USE EITHER 2003[illegible] OR 20[illegible]39-2-031
31. FIND NO. 62 FIXED MEMORY, SENSE AMPLIFIER MODULE USE EITHER 2003981-0[illegible] OR 2003981-031
32. BOND FIND NO. 72 ALONG EDGES TO FIND NO. 5 PER ND1002004, TYPE II PRIOR TO ASSEMBLY OF FIND NO. 5
33. SEE SHEET 2
34. SEE SHEET 2
35. SEE SHEET 2
36. SEE SHEET 2
37. SEE SHEET 2
38. SEE SHEET 2
39. SEE SHEET 2
40. SEE SHEET 2
41. SEE SHEET 2
42. SEE SHEET 2
43. [illegible]
44. ~~SEE SHEET 2~~
45. SEE SHEET 2
47. SEE SHEET 2

2003993	S

2003993 SF1/2 SH1/2

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		INITIAL RELEASE TDRR [illegible]				
B		REVISED PER TDRR [illegible]				
C		REVISED PER TDRR [illegible]				
D		REVISED PER TDRR [illegible]				
E		[illegible]				
F		REVISED PER TDRR [illegible]				
G		REVISED PER TDRR 34265				
H		REVISED PER TDRR 34285				
J		REVISED PER TDRR 34359				
K		REVISED PER TDRR [illegible]				
L		REVISED PER TDRR [illegible]				
M		REVISED PER TDRR 35429				
N		REVISED PER TDRR 36016				
P		REVISED PER TDRR 36225				
R		REVISED PER TDRR 36257				
S		REVISED PER TDRR 36258				



39. SEE SHEET 2
40. SEE SHEET 2
41. SEE SHEET 2
42. SEE SHEET 2
43. SEE SHEET 2
~~44. SEE SHEET 2~~
45. SEE SHEET 2
47. SEE SHEET 2

NOTE APPLICATION	
DASH NO.	NOTES APPLICABLE
-011	1 THRU 34, 37, 43, 45, 46
-021	1 THRU 35, 37, 43, 45, 46
-031	1 THRU 34, 36 & 39 THRU 46
-041	1 THRU 35, 37 & 39 THRU 46
-051	1 THRU 35, 37 & 39 THRU 46
-061	1 THRU 34, 36 & 39 THRU 46

QTY REQD -061	QTY REQD -051	QTY REQD -041	QTY REQD -031	QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
1	1	—	—	—	—	2003983-041	ALARM MODULE B8	87
1	1	1	1	1	1	2003111-081	ERASABLE MEMORY MODULE B12	86
~~1~~		~~—~~	~~1~~	~~—~~	~~—~~	[illegible]	~~TRAY A WIRED ASSY~~	85
4	4	4	4	4	4	1010485-432	SCREW NYLON	84
11	11	11	11	11	11	1010485-332	SCREW, NYLON	83
6	6	6	6	6	6	1010485-235	SCREW NYLON	82
28	28	28	28	28	28	1010485-100	SCREW NYLON	81
AR	AR	AR	AR	AR	AR	1006338-003	SEALING COMPOUND SILICONE RUBBER	80
1	1	1	1	—	—	2004691	SHIM VIBRATION DAMPENING	79
1	1	1	1	—	—	2004690	PAD VIBRATION DAMPENING	78
1	1	1	1	—	—	2004899-007	PAD VIBRATION	77
1	1	1	1	—	—	2004899-006	PAD VIBRATION	76
~~AR~~			~~AR~~	~~—~~	~~—~~	~~2004886-002~~	~~SHIM AGC~~	75
~~AR~~			~~AR~~	~~—~~	~~—~~	~~2004886-001~~	~~SHIM AGC~~	74
				~~—~~	~~—~~	~~2003092-041~~	~~TRAY A WIRED ASSY~~	73
AR	AR	AR	AR	AR	AR	2010801	SHIM AGC	72
AR	AR	AR	AR	AR	AR	2010800-000	SHIM	71
						SEE NOTE 47	AGC WIRE LIST	REF
AR	AR	AR	AR	AR	AR	1008954	SILICONE COMPOUND	70
2	2	2	2	2	—	2003092-011	POWER SUPPLY MODULE A30-31	69
—	1	1	—	1	—	SEE NOTE 38	TRAY "A" WIRED ASSY	68
33	33	33	33	33	33	2004732-002	SCREW, COATED	67
~~AR~~			~~AR~~	~~AR~~	~~AR~~	~~1006338-000~~	~~SEALING COMPOUND, SILICONE RUBBER~~	66
AR	AR	AR	AR	AR	AR	1006776-22	INSULATION, SLEEVING ELECTRICAL	65
1	1	1	1	1	1	SEE NOTE 20	CAPACITOR	64
10	10	10	10	10	10	2004148-007	WASHER, FLAT	63
1	1	1	1	1	1	SEE NOTE 31	SENSE AMPLIFIER MODULE, FIXED MEMORY B14	62
				~~AR~~	~~AR~~	~~2004895-002~~	~~SHIM AGC~~	61
				~~AR~~	~~AR~~	~~2004893-001~~	~~SHIM AGC~~	60
—	—		—	1	1	2004699-001	PAD VIBRATION	59
1	1	1	1	1	1	2003970	VIBRATION PAD ASSY	58
4	4	4	4	4	4	NAS1598-D08N	WASHER, SEALING	57
1	1	1	1	1	1	2018773	VALVE PRESSURE ASSEMBLY	56
1	1	1	1	1	1	1000159-5	PACKING, PREFORMED "O" RING	55
2	2	2	2	2	2	2004984-001	WASHER, FLAT	54
8	8	8	8	8	8	2004130	PAD, THREADED	53
18	18	18	18	18	18	2004894-014	WASHER, FLAT	52
4	4	4	4	4	4	2004894-012	WASHER, FLAT	51
2	2	2	2	2	2	1010489-36	SCREW, HEX SOCKET HEAD	50
4	4	4	4	4	4	1004722-2	SCREW, CAPTIVE	49
1	1	1	1	1	1	1000159-7	PACKING, PREFORMED "O" RING	48
19	18	18	18	18	18	2004732-003	SCREW, COATED	47
33	33	33	33	33	33	2004732-001	SCREW, COATED	46
2	2	2	2	2	2	1006347	GASKET, PLATE	45
1	1	1	1	1	1	2004986	PLUG, MACHINE THREAD	44
1	1	1	1	1	1	1004260-19	NAME PLATE, TYPE I	43
1	1		1	1	1	2004113-001	BRACKET, CABLE	42
1	1	1	1	1	1	2003099-011	CONNECTOR ASSEMBLY	41
1	1		1	1	1	1006380	GASKET, RETAINED	40
58	58	58	58	58	58	2004717	WASHER, KNURLED	39
3	3	3	3	3	3	2003067-041	INTERFACE MODULE A27-29	38
2	2	2	2	2	2	2003070-031	INTERFACE MODULE A25-26	37
—	—	—	—	—	2	2003087-011	POWER SUPPLY MODULE A30-31	36
1	1	1	1	1	1	SEE NOTES 36 & 37	LOGIC MODULE A24	35
1	1	1	1	1	1		LOGIC MODULE A23	34
1	1	1	1	1	1		LOGIC MODULE A22	33
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1	1	1	1	1	1		LOGIC MODULE A14	25
1	1	1	1	1	1		LOGIC MODULE A13	24
1	1	1	1	1	1		LOGIC MODULE A12	23
4	4	4	4	4	4		LOGIC MODULE A8-11	22
1	1		1	1	1		LOGIC MODULE A7	21
1	1	1	1	1	1		LOGIC MODULE A6	20
1	1	1	1	1	1		LOGIC MODULE A5	19
1	1	1	1	1	1		LOGIC MODULE A4	18
1	1	1	1	1	1		LOGIC MODULE A3	17
1	1	1	1	1	1		LOGIC MODULE A2	16
1	1	1	1	1	1	SEE NOTES 36 & 37	LOGIC MODULE A1	15
2	2	2	2	2	2	2003140-031	ROPE DRIVER MODULE B16-17	14
1	1	1	1	1	1	2003027-031	STRAND SELECT MODULE B15	13
1	1	1	1	1	1	SEE NOTE 30	SENSE AMPL MOD, ERASABLE MEMORY B13	12
~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~2003111-0[illegible]~~	~~ERASABLE MEMORY MODULE B12~~	11
1	1	1	1	1	1	2003026-031	CURRENT SWITCH MODULE B11	10
2	2	2	2	2	2	2003114-021	ERASABLE DRIVER MODULE B9-10	9
—	—		1	1	1	2003983-021	ALARM MODULE B8	8
1	1		1	1	1	2003036-031	OSCILLATOR MODULE B7	7
1	1	1	1	1	1	2003978-001	MID SPACER	6
1	1	1	1	1	1	2003059-021	INTERCONNECTION HEADER ASSEMBLY	5
1	1		1	1	1	2003976-011	TRAY B COVER	4
1	1		1	1	1	2003977-011	TRAY A COVER	3
1	1	1	1	1	1	2003093-021	TRAY B WIRED ASSEMBLY	2
—	—	—	—	—	1	2003092-031	TRAY A WIRED ASSEMBLY	1

LIST OF MATERIALS

2003991	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

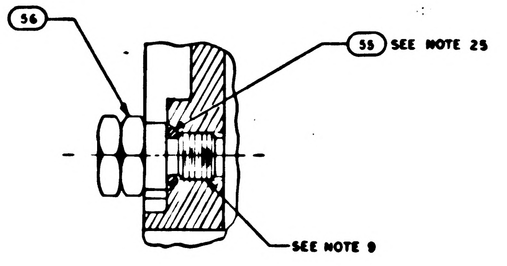
COMPUTER
ASSEMBLY

CODE IDENT NO	SIZE	DRAWING NO.
80230	J	2003993
SCALE		SHEET 1 OF 2

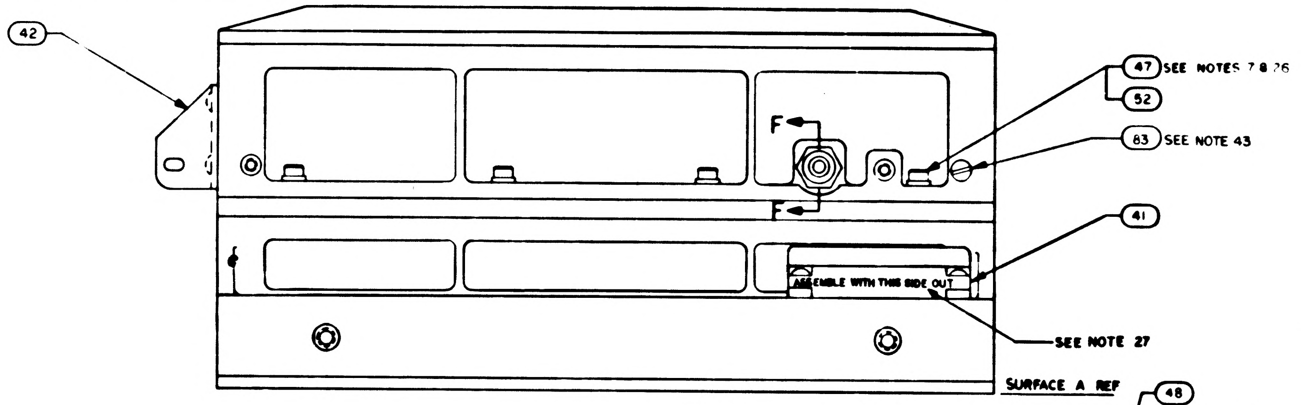
2003993 S

2003993 SF2/2 SH1/2

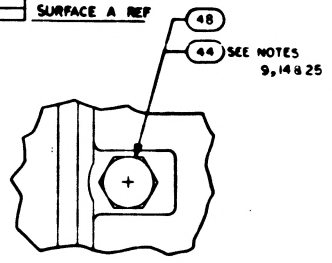
CHART A SEE NOTES 36 & 37				
PART NO. FOR [illegible]		PART NO. FOR -011-021& -031	NHC	MODULES
2003121	-011	2003888	-011	LOGIC MODULE A1
	-021		-021	A2
	-031		-031	A3
	-041		-041	A4
	-051		-051	A5
	-061		-061	A6
	-071		-071	A7
	-081		-081	A8-A11
	-091		-091	A12
	-111		-111	A13
	-121		-121	A14
	-131		-131	A15
	-141		-141	A16
	-151		-151	A17
	-161		-161	A18
	-171		-171	A19
	-181		-181	A20
	-191		-191	A21
	-211		-211	A22
	-221		-221	A23
2003121	-231	2003888	-231	LOGIC MODULE A24


SEE NOTE 14 & 45
56
55 SEE NOTE 25
SEE NOTE 9

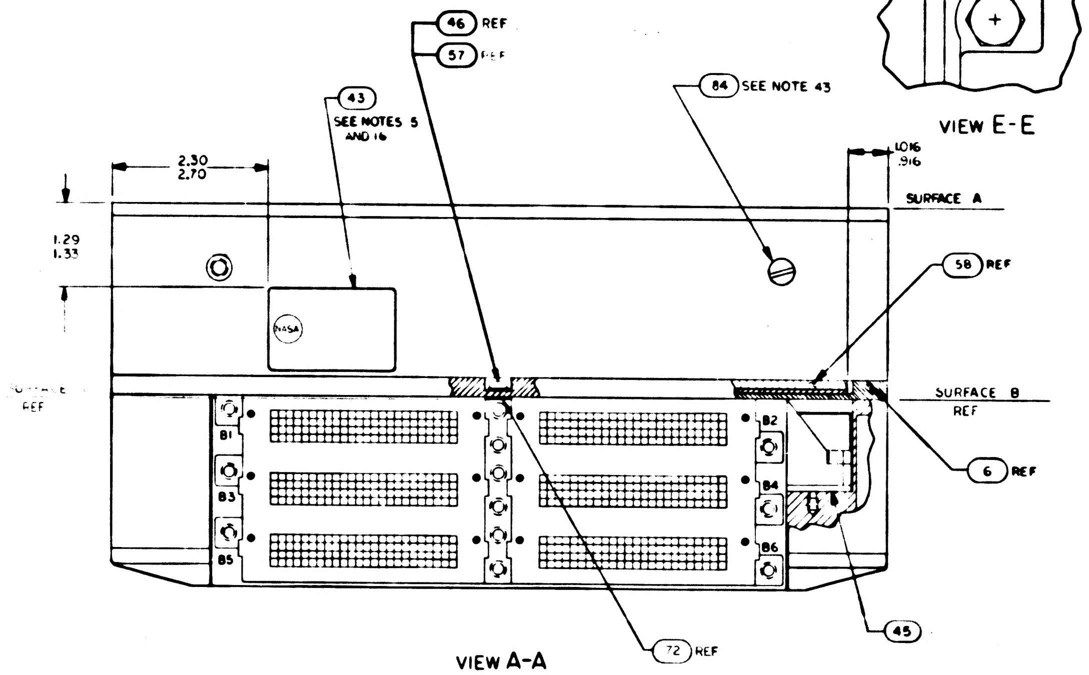
PARTIAL SECTION F F
SCALE: 2/1


42
F
F
47 SEE NOTES 7 & 26
52
83 SEE NOTE 43
41
ASSEMBLE WITH THIS SIDE OUT
SEE NOTE 27
SURFACE A REF

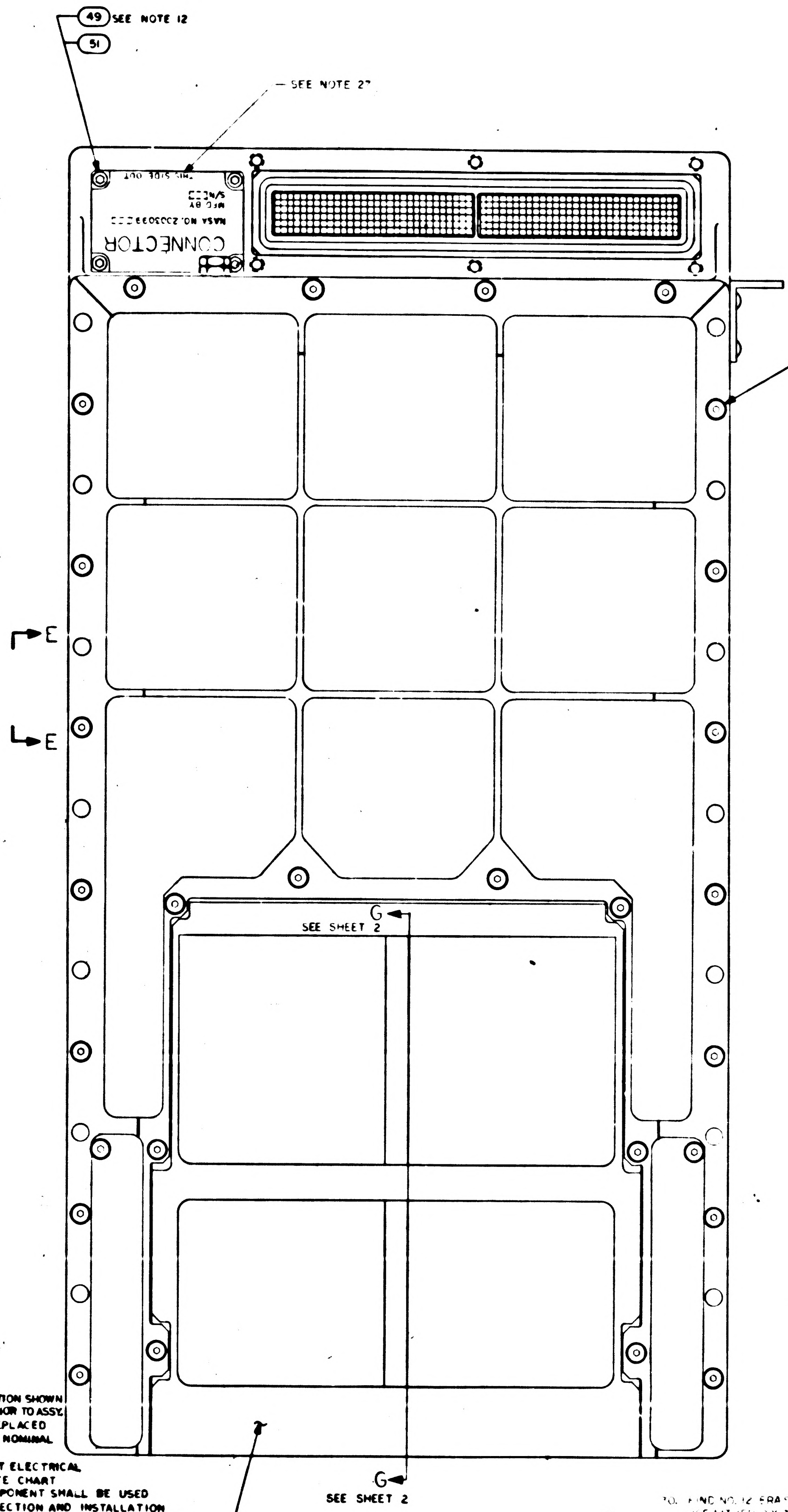
VIEW B-B

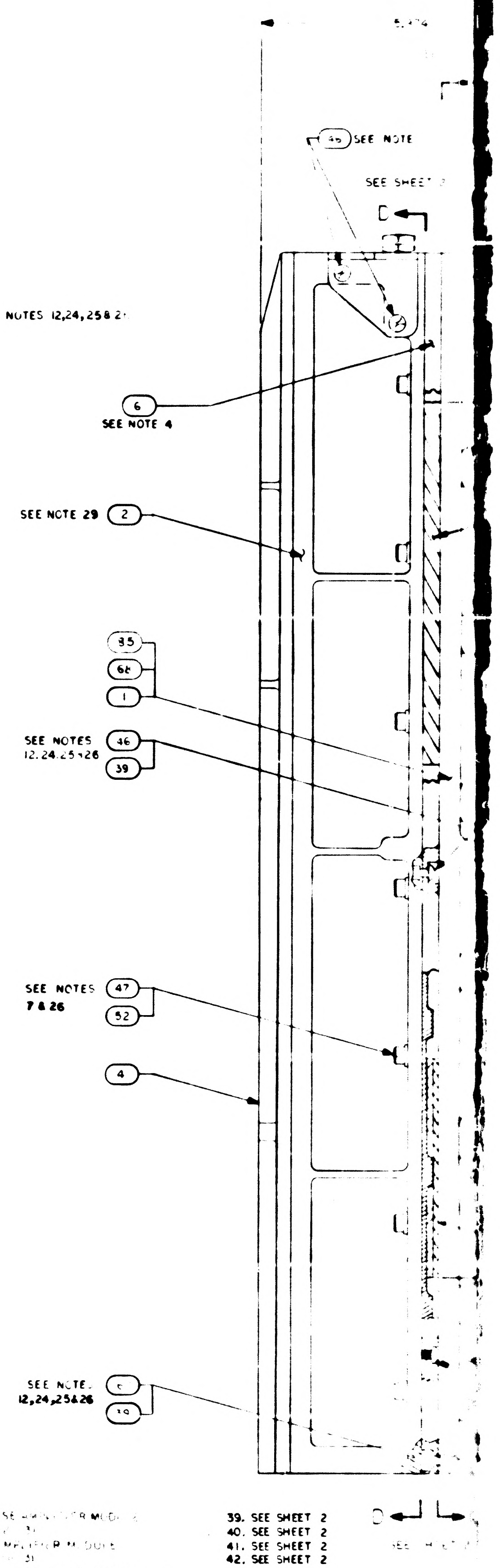

48
44 SEE NOTES 9, 14 & 25

VIEW E-E


46 REF
57 REF
43 SEE NOTES 5 AND 16
84 SEE NOTE 43
2.30
2.70
1.016
.916
SURFACE A
1.29
1.33
NASA
58 REF
SURFACE B REF
REF
B1
B2
B3
B4
B5
B6
6 REF
72 REF
45

VIEW A-A


49 SEE NOTE 12
51
SEE NOTE 27
CONNECTOR
NASA NO. 2003993
SEE NOTES 12, 24, 25 & 26
39
E
E
G
SEE SHEET 2
G
SEE SHEET 2
5 SEE NOTE 29


SEE NOTE
SEE SHEET 2
D
6
SEE NOTE 4
SEE NOTE 29 2
35
62
1
SEE NOTES 12, 24, 25 & 26 46
39
SEE NOTES 7 & 26 47
52
4
SEE NOTE 12, 24, 25 & 26
39
D

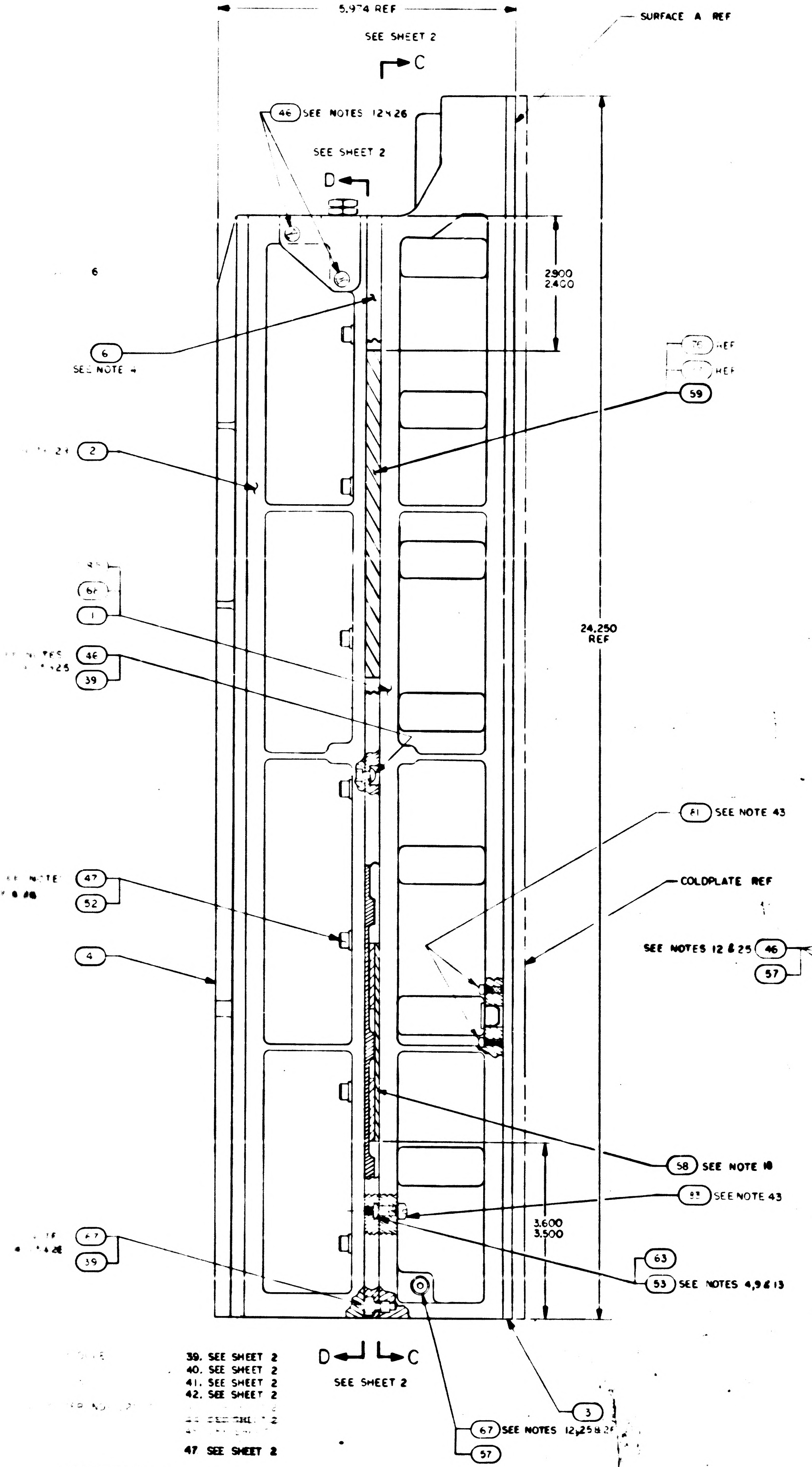
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. PHANTOM LINES DENOTE AGC COLDPLATE AND HANDLING FIXTURE TO BE SUPPLIED BY NORTH AMERICAN AVIATION, INC
3. ADD SILICONE COMPOUND 1006879 TO MODULE MATING METAL SURFACES AND TRAY MATING SURFACES
4. ASSEMBLE FIND NO. 53 AND FIND NO. 63 TO FIND NO. 6 AND FIND NO. 6 TO FIND NO. 2 PRIOR TO ASSEMBLY OF FIND NO. 2 TO FIND NO. 1 OR FIND NO. 68 OR FIND NO. 85
5. BOND FIND NO. 43 TO FIND NO. 1 OR FIND NO 68 OR FIND NO. 85 PER ND1002219, METHOD II
6. UNLESS OTHERWISE SPECIFIED TORQUE ALL MODULE MOUNTING SCREWS 15/19 INCH POUNDS
7. TORQUE FIND NO. 47 TO 28/32 INCH POUNDS
8. ~~FINISH IS REQUIRED TO SATISFY ICD GAEC 510-10001~~
9. APPLY SEALING COMPOUND MIL-S-22473 GRADE H TO FIND NO. 53, FIND NO. 56 AND FIND NO. 44
10. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL REQUIREMENTS OF PS2016007 FOR-011 & PS2016030 FOR-021-031-041 AND PS2016032 FOR-051 & -061
11. TORQUE FOR FIND NO. 36 AND FIND NO. 69 MOUNTING SCREWS TO BE 8/12 INCH POUNDS
12. TORQUE FOR FIND NO. 46, 49, 50 AND 67 TO BE 18/22 INCH POUNDS
13. TORQUE FOR FIND NO. 53 TO BE 4/6 INCH POUNDS
14. TORQUE FOR FIND NO. 44 AND FIND NO. 56 TO BE 137/157 INCH POUNDS
15. FIND NO. 40 SHALL BE SUPPLIED AS PART OF THIS ASSEMBLY
16. MARK COMPUTER ASSEMBLY AND RELATED PART NO., APPLICABLE DASH NO., SERIAL NO. AND CONTRACT NO. PER 1004260 AND SERIALIZE PER ND1002023
17. FINISH SURFACE $\boxed{A}$ PER ICD NAA MH01-01302-116 ~~THIS ASSEMBLY MUST BE CAPABLE OF MEETING ELECTRICAL BONDING REQUIREMENTS OF ICD NAA MH01-01302-116~~
18. BOND FIND NO. 58 TO FIND NO. 6 IN POSITION SHOWN USING 1006338 CURE AT ROOM TEMP 24 HRS PRIOR TO ASSY.
19. REFERENCED MODULES MUST NOT BE REPLACED OR INTERCHANGED WITHOUT REPEATING NOMINAL SELECTION PROCEDURE PER NOTE 10
20. THE VALUE OF C1 TO BE DETERMINED AT ELECTRICAL TEST AND SELECTED FROM APPROPRIATE CHART
21. WHEN THE VALUE OF C1 IS ZERO NO COMPONENT SHALL BE USED
22. ENCAPSULATE AREA SHOWN AFTER SELECTION AND INSTALLATION OF C1 USING ND1002009 METHOD C OR D. USING PRIMER PER SCD1012513
23. WELD PER ND1002005
24. ASSEMBLE HARDWARE WITH SMOOTH FACE OF FIND NO. 30 IN CONTACT WITH SCREW HEAD
25. FIND NO. 30, 48, 55 & 57 TO BE DISCARDED AND REPLACED WITH NEW PARTS EACH TIME THEY ARE DISASSEMBLED
26. SEAL EXPOSED HARDWARE ASSEMBLIES WITH .002 MIN THICK COATING OF FIND NO. 80. OVERALL COMPUTER ASSEMBLY DIMENSIONS SHALL NOT BE EXCEEDED. CURE AT ROOM TEMP 24 HRS
27. STENCILING SHOWN FOR ORIENTATION ONLY
28. KEEP ALL MATING THREADS OF SCREWS, TRAY AND MID SPACER INSERTS FREE OF SILICONE COMPOUND
29. FILL FEMALE INSULATORS OF B41 AND B42 CONNECTORS USING FIND NO. 70 PRIOR TO ASSEMBLY OF FIND NO. 5 TO FIND NO. 2
30. FIND NO. 12 ERASABLE MEMORY, SENSE AMPLIFIER MODULE USE EITHER 2003 [illegible]
31. FIND NO. 62 FIXED MEMORY, SENSE AMPLIFIER MODULE USE EITHER 2003 [illegible]
32. BOND [illegible] NG EDGES [illegible] FIND NO. 5 PER [illegible] TYPE [illegible] TO ASSEMBLY OF FIND [illegible] 6
33. SEE SHEET 2
34. SEE SHEET 2
35. SEE SHEET 2
36. SEE SHEET 2
37. SEE SHEET 2
38. SEE SHEET 2
39. SEE SHEET 2
40. SEE SHEET 2
41. SEE SHEET 2
42. SEE SHEET 2
43. [illegible]
44. [illegible]
47. SEE SHEET 2

2003993

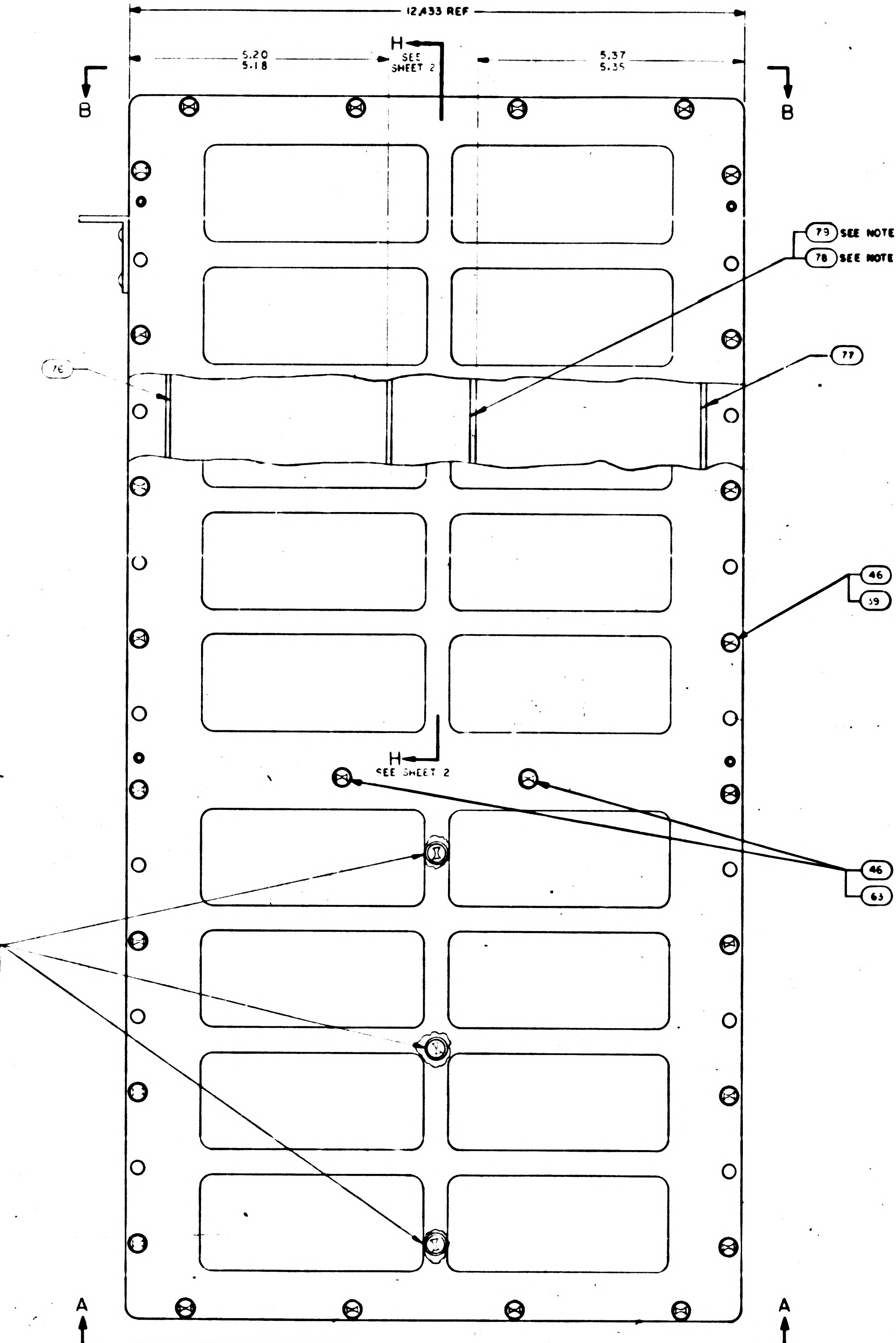
2003993 IF1/2 SH1/2

SYM	ZONE	DESCRIPTION	BR	CHK	DATE	APPROVED
6		REVISED PER TDRR 34265				
J		REVISED PER				
N		REVISED PER TDRR 36016				
R		REVISED PER				
S		REVISED PER				



39. SEE SHEET 2
40. SEE SHEET 2
41. SEE SHEET 2
42. SEE SHEET 2

47 SEE SHEET 2



NOTE APPLICATION	
DASH NO.	NOTES APPLICABLE
-011	1 THRU 34, 37, 43, 45, 46
-021	1 THRU 35, 37, 43, 45, 46
-031	1 THRU 34, 36 & 39 THRU 46
-041	[illegible]
-051	1 THRU 35, 37 & 39 THRU 46
-061	1 THRU 34, 36 & 39 THRU 46

QTY REQD	QTY REQD	QTY REQD	QTY REQD	QTY REQD	QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
1	1	—	—	—	—	2003983-041	ALARM MODULE B8	[illegible]
1	1	1	1	1	1	2003111-031	ERASABLE MEMORY MODULE B12	86
1	—	—	1	—	—	2003092-071	TRAY "A" WIRED ASSY	85
4	4	4	4	4	4	1010485-432	SCREW NYLON	84
11	11	11	11	11	11	1010485-332	SCREW NYLON	83
6	6	6	6	6	6	1010485-235	SCREW NYLON	82
28	28	28	28	28	28	1010485-100	SCREW NYLON	81
AR	AR	AR	AR	AR	AR	1006338-003	SEALING COMPOUND SILICONE RUBBER	80
1	1	1	1	—	—	2004691	SHIM VIBRATION DAMPENING	79
1	1		1	—	—	2004690	PAD VIBRATION DAMPENING	78
1	1	1	1	—	—	2004899-007	PAD VIBRATION	77
1	1		1	—	—	2004899-006	PAD VIBRATION	76
~~AR~~			~~AR~~	—	—	~~2004895-002~~	~~SHIM AGC~~	75
~~AR~~			~~AR~~	—	—	~~2004895-001~~	~~SHIM AGC~~	74
~~1~~		~~1~~	~~1~~	—	—	~~2003092-041~~	~~TRAY "A" WIRED ASSY~~	73
AR	AR	AR	AR	AR	AR	2010801	SHIM AGC	72
AR	AR	AR	AR	AR	AR	2010800-000	SHIM	[illegible]
						SEE NOTE 47	AGC WIRE LIST	REF
AR	AR	AR	AR	AR	AR	1008954	SILICONE COMPOUND	70
2	2	2	2	2	—	2003892-011	POWER SUPPLY MODULE A30-31	69
—	1	1	—	1	—	SEE NOTE 38	TRAY "A" WIRED ASSY	68
33	33	33	33	33	33	2004732-002	SCREW, COATED	67
~~AR~~			AR	AR	AR	1006338-000	SEALING COMPOUND, SILICONE RUBBER	66
AR	AR	AR	AR	AR	AR	1006776-22	INSULATION, SLEEVING ELECTRICAL	65
1	1	1	1	1	1	SEE NOTE 20	CAPACITOR	64
10	10	10	10	10	10	2004148-007	WASHER, FLAT	63
1	1	1	1	1	1	SEE NOTE 31	SENSE AMPLIFIER MODULE, FIXED MEMORY B14	62
			—	~~AR~~	~~AR~~	~~2004895-002~~	SHIM AGC	61
				~~AR~~	~~AR~~	~~2004895-001~~	SHIM AGC	60
—	—		—	1	1	2004899-001	PAD VIBRATION	59
1	1	1	1	1	1	2003970	VIBRATION PAD ASSY	58
4	4	4	4	4	4	NAS1598-008N	WASHER, SEALING	57
1	1		1	1	1	2018773	VALVE PRESSURE ASSEMBLY	56
1	1		1	1	1	1000159-5	PACKING, PREFORMED "O" RING	55
2	2	2	[illegible]	2	2	2004984-001	WASHER, FLAT	54
8	8			8	8	2004[illegible]30	PAD, THREADED	53
18	15	18	16	18	18	2004894-014	WASHER, FLAT	52
4	4	4	4	4	4	2004894-012	WASHER, FLAT	51
2	2	2	2	2	2	100[illegible]469-36	SCREW, HEX SOCKET HEAD	50
4	4	4	4	4	4	1004722-2	SCREW, CAPTIVE	49
		1	1	1	1	1000159-7	PACKING, PREFORMED "O" RING	48
19	18	18	18	18	18	2004732-003	SCREW, COATED	47
33	33	33	33	33	33	2004732-001	SCREW, COATED	46
2	2	2	2	2	2	1006347	GASKET, PLATE	45
1	1	1	1	1	1	2004986	PLUG, MACHINE THREAD	44
1	1	1	1	1	1	1004260-19	NAME PLATE, TYPE I	43
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1	1	1	1	1	1	2003099-011	CONNECTOR ASSEMBLY	41
1	1	1	1	1	1	1006380	GASKET, RETAINED	40
58	58	58	58	[illegible]	58	20047[illegible]7	WASHER, KNURLED	39
3	3	3	3	3	3	2003067-041	INTERFACE MODULE A27-29	38
2	2	2	2	2	2	2003070-031	INTERFACE MODULE A25-26	37
—	—	—	—	—	2	2003887-011	POWER SUPPLY MODULE A30-31	36
1	1		1	1	1	SEE NOTES 36 & 37	LOGIC MODULE A24	35
1	1	1	1	1	1		LOGIC MODULE A23	34
1	1		1	1	1		LOGIC MODULE A22	33
1	1	1	1	1	1		LOGIC MODULE A21	32
1	1		1	1	1		LOGIC MODULE A20	[illegible]
1	1	1	1	1	1		LOGIC MODULE A19	30
1			1	1	1		LOGIC MODULE A18	29
1			1	1	1		LOGIC MODULE A17	28
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1	1		1	1	1		LOGIC MODULE A12	23
4	4	4	4	4	4		LOGIC MODULE A8-11	22
1	1		1	1	1		LOGIC MODULE A7	21
1	1		1	1	1		LOGIC MODULE A6	20
1	1		1	1	1		LOGIC MODULE A5	19
1	1		1	1	1		LOGIC MODULE A4	18
1	1	1	1	1	1		LOGIC MODULE A3	17
1	1	1	1	1	1		LOGIC MODULE A2	16
1	1		1	1	1	SEE NOTES 36 & 37	LOGIC MODULE A1	15
2	2	2	2	2	2	2003140-031	ROPE DRIVER MODULE B16-17	14
1	1	1	1	1	1	2003027-031	STRAND SELECT MODULE B15	13
1	1		1	1	1	SEE NOTE 30	SENSE AMPL MOD, ERASABLE MEMORY B13	12
~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~1~~	~~2003111-021~~	ERASABLE MEMORY MODULE B12	11
1	1		1	1	1	2003026-031	CURRENT SWITCH MODULE B11	10
2	2	2	2	2	2	2003114-021	ERASABLE DRIVER MODULE B9-10	9
—	—		1	1	1	2003983-021	ALARM MODULE B8	8
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1	1		1	1	1	2003059-021	INTERCONNECTION HEADER ASSEMBLY	5
1	1		1	1	1	2003976-011	TRAY B COVER	4
1	1	1	1	1	1	2003977-011	TRAY A COVER	3
1	1	1	1	1	1	2003093-021	TRAY B WIRED ASSEMBLY	2
—	—		—	—	1	2003092-031	TRAY A WIRED ASSEMBLY	1
-061	-051	-041	-031	-021	-011	LIST OF MATERIALS		

2003991	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

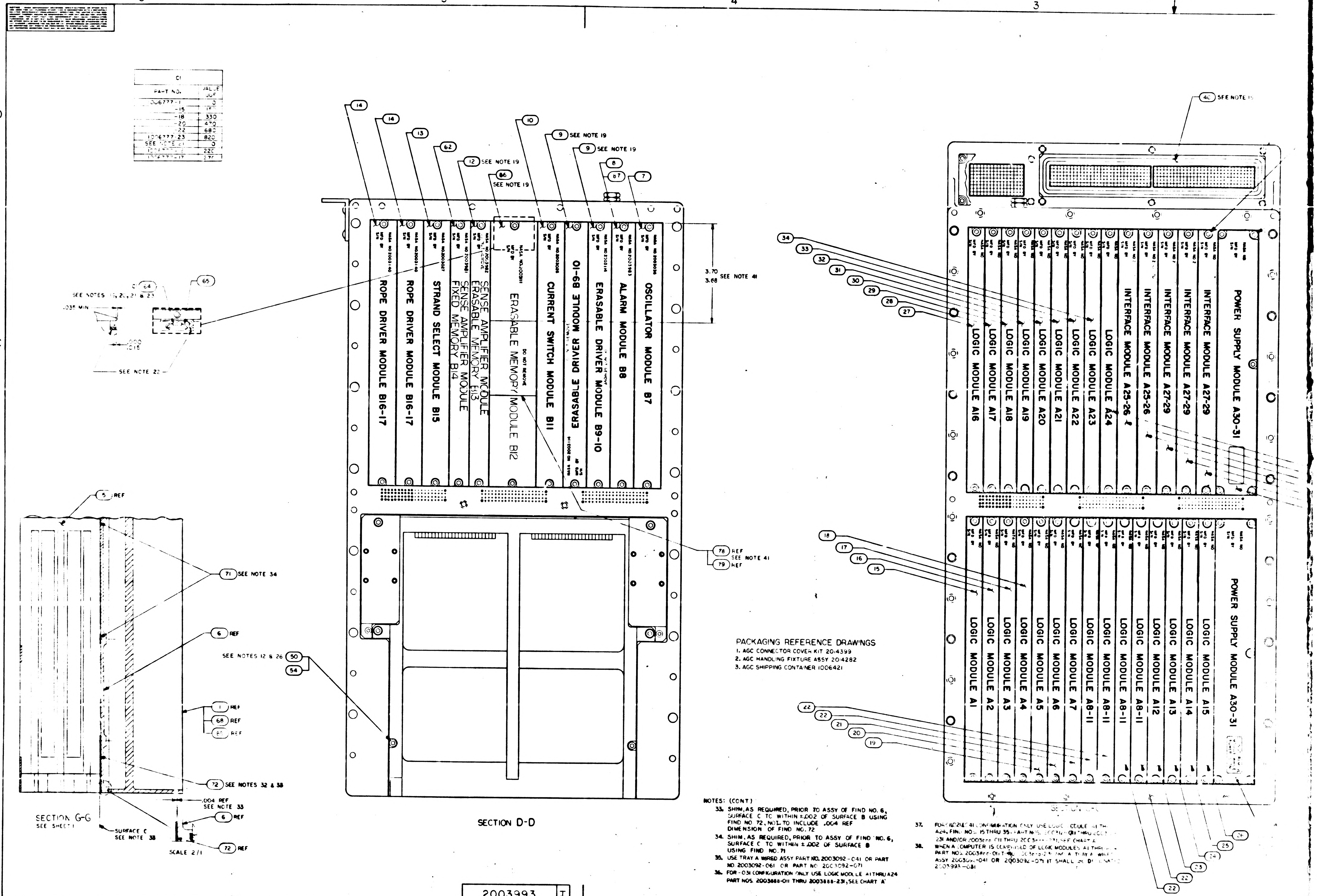
DRAWN
CHECKED
APPROVED
APPROVED
APPROVED
APPROVED
MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPUTER
ASSEMBLY

CODE IDENT NO 80230
SIZE J
DRAWING NO 2003993
SCALE 1
SHEET 1 OF 2

SH1/2 2003993 TF2/2


6
5
4
3
D
C
B
A
14
13
62
12 SEE NOTE 19
86 SEE NOTE 19
10
9 SEE NOTE 19
8
67
7
ROPE DRIVER MODULE B16-17
ROPE DRIVER MODULE B16-17
STRAND SELECT MODULE B15
SENSE AMPLIFIER MODULE ERASABLE MEMORY B13
SENSE AMPLIFIER MODULE FIXED MEMORY B14
ERASABLE MEMORY MODULE B12
DO NOT REMOVE
CURRENT SWITCH MODULE B11
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
ALARM MODULE B8
OSCILLATOR MODULE B7
3.70
3.68
SEE NOTE 41
64
65
SEE NOTES 13, 20, 21 & 23
.035 MIN
SEE NOTE 22
78 REF
SEE NOTE 41
79 REF
SEE NOTES 12 & 26
50
54
SECTION D-D
5 REF
71 SEE NOTE 34
6 REF
1 REF
68 REF
REF
72 SEE NOTES 32 & 38
.004 REF
SEE NOTE 33
6 REF
72 REF
SECTION G-G
SEE SHEET 1
SURFACE C
SEE NOTE 38
SCALE 2/1
40 SEE NOTE 15
34
33
32
31
30
29
28
27
POWER SUPPLY MODULE A30-31
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
LOGIC MODULE A24
LOGIC MODULE A23
LOGIC MODULE A22
LOGIC MODULE A21
LOGIC MODULE A20
LOGIC MODULE A19
LOGIC MODULE A18
LOGIC MODULE A17
LOGIC MODULE A16
18
17
16
15
POWER SUPPLY MODULE A30-31
LOGIC MODULE A15
LOGIC MODULE A14
LOGIC MODULE A13
LOGIC MODULE A12
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A7
LOGIC MODULE A6
LOGIC MODULE A5
LOGIC MODULE A4
LOGIC MODULE A3
LOGIC MODULE A2
LOGIC MODULE A1
22
22
21
20
19
26
25
24
23
22
22

C1	
PART NO.	VALUE UUF
1006777-1	0
-15	150
-18	330
-20	470
-22	680
1006777-23	820
SEE NOTE 21	0
1006777-[illegible]	220
1006777-17	270

PACKAGING REFERENCE DRAWINGS

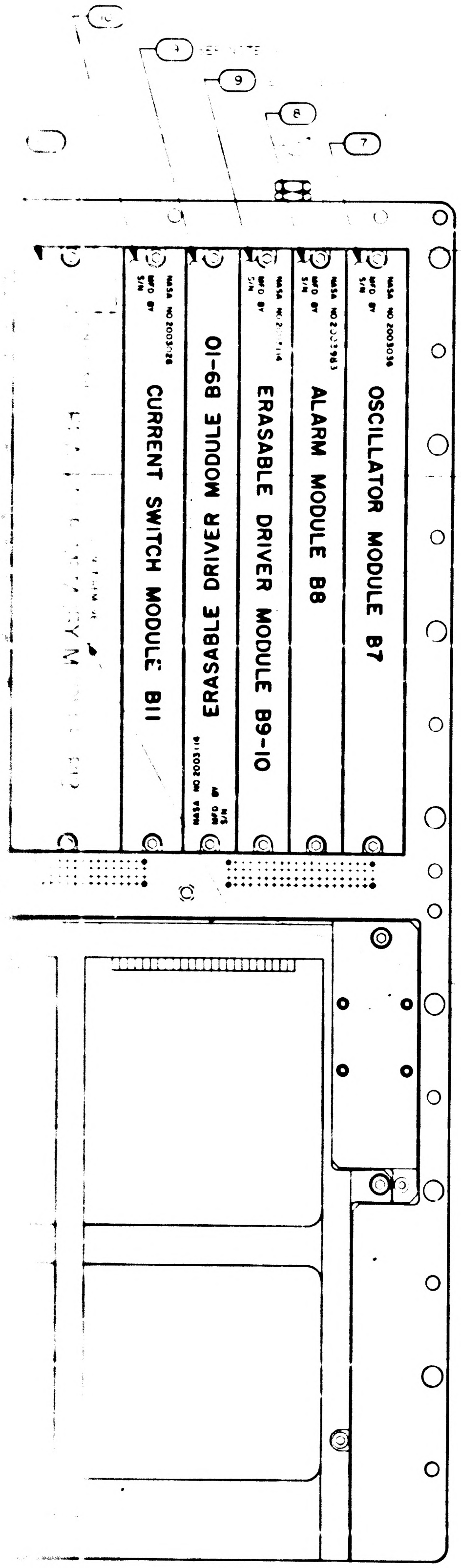
1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421

NOTES: (CONT.)

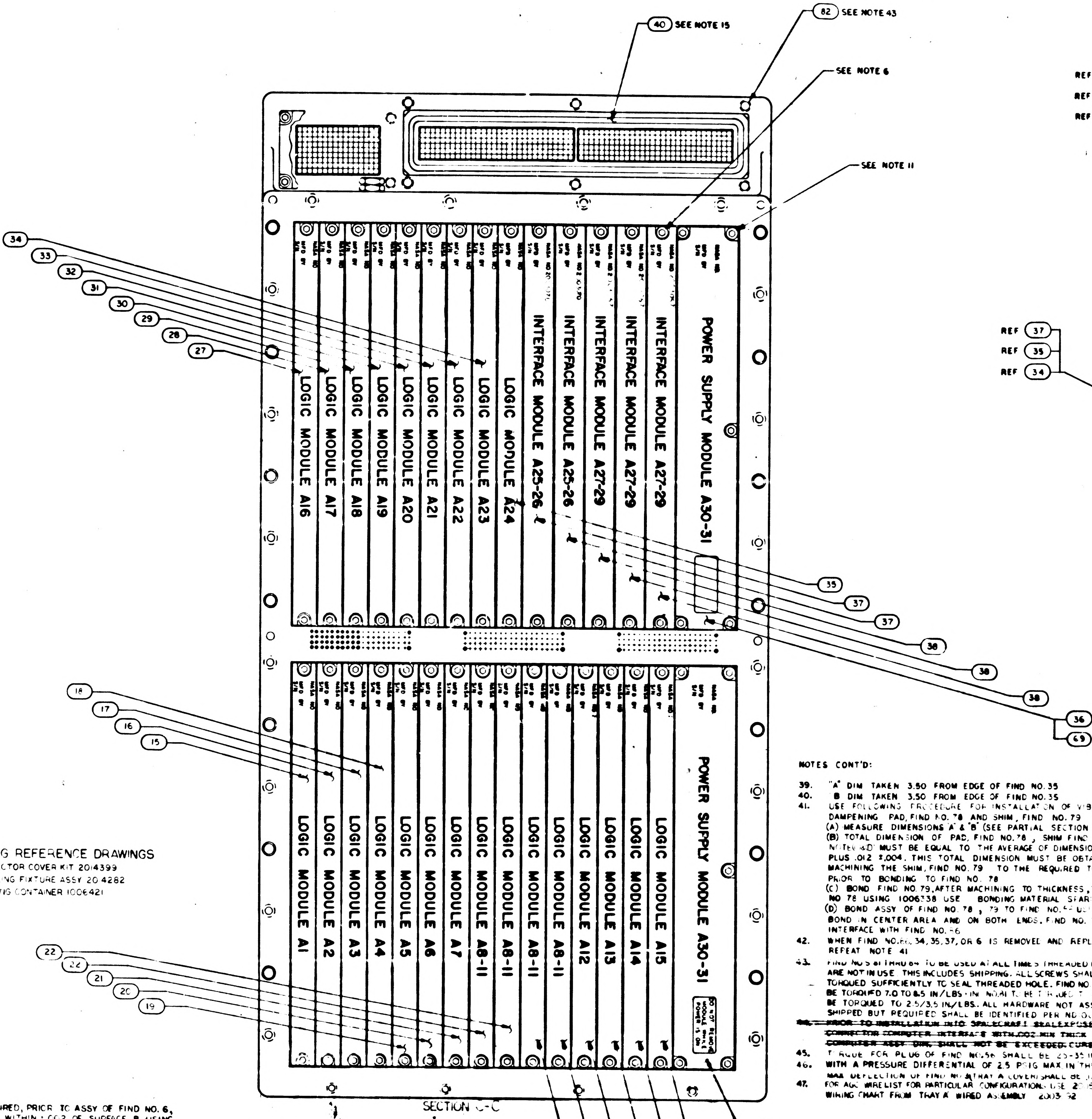
33. SHIM, AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 72, NOT TO INCLUDE .004 REF DIMENSION OF FIND NO. 72
34. SHIM, AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 71
35. USE TRAY A WIRED ASSY PART NO. 2003092-041 OR PART NO. 2003092-061 OR PART NO. 2003092-071
36. FOR -031 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24 PART NOS. 2003888-011 THRU 2003888-231, SEE CHART 'A'
37. FOR -011, -021 & -041 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24, FIND NOS. 15 THRU 35, PART NOS. 2003[illegible]-011 THRU 2003[illegible]-231 AND/OR 2003[illegible]-011 THRU 2003[illegible]-231, SEE CHART A
38. WHEN A COMPUTER IS COMPRISED OF LOGIC MODULES A1 THRU A24 PART NOS. 2003[illegible]-011 THRU 2003[illegible]-231 AND A TRAY A WIRED ASSY 2003092-041 OR 2003092-071 IT SHALL BE DESIGNATED 2003993-081

2003993 | T

SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
B		RELEASED PER TDRR 32965				
		REVISED PER TDRR [illegible]				
F		REVISED PER TDRR 33[illegible]				
G		REVISED PER TDRR [illegible]				
H		REVISED PER TDRR 34[illegible]55				
J		REVISED PER TDRR 34[illegible]				
		REVISED PER TDRR [illegible]				
		REVISED PER TDRR 36[illegible]				
M		REVISED PER TDRR [illegible]				
N		REVISED PER TDRR 3[illegible]				
P		REVISED PER TDRR 3622				
		REVISED PER TDRR 362[illegible]				
S		REVISED PER TDRR 36266				
T		REVISED PER TDRR [illegible]35[illegible]				

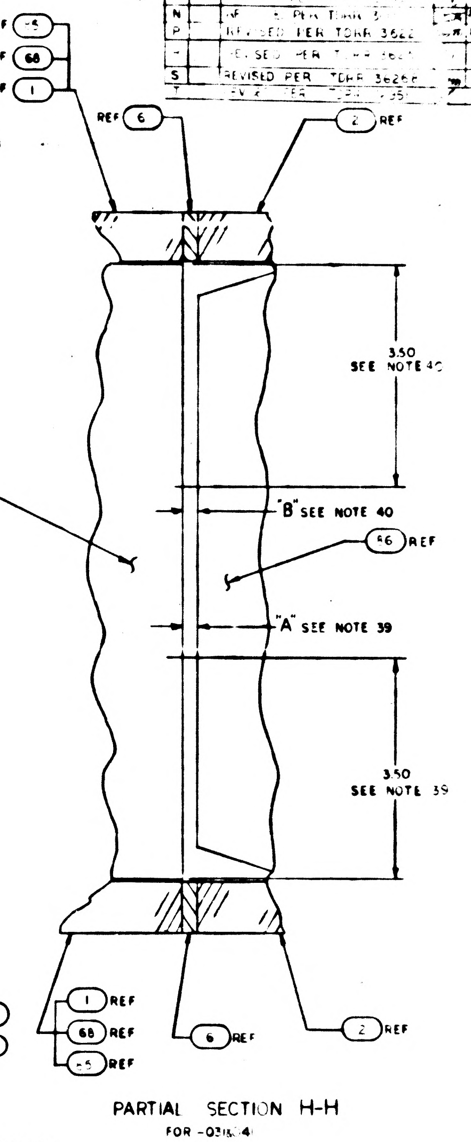


4
9
8
7
OSCILLATOR MODULE B7
ALARM MODULE B8
ERASABLE DRIVER MODULE B9-10
ERASABLE DRIVER MODULE B9-10
CURRENT SWITCH MODULE B11
NASA NO 2003036
NASA NO 2003985
NASA NO 2003114
NASA NO 2003128
MFD BY
S/N
3.70
3.65
SEE NOTE 41
76 REF
SEE NOTE 41
79 REF



40 SEE NOTE 15
82 SEE NOTE 43
SEE NOTE 6
SEE NOTE 11
34
33
32
31
30
29
28
27
LOGIC MODULE A16
LOGIC MODULE A17
LOGIC MODULE A18
LOGIC MODULE A19
LOGIC MODULE A20
LOGIC MODULE A21
LOGIC MODULE A22
LOGIC MODULE A23
LOGIC MODULE A24
INTERFACE MODULE A25-26
INTERFACE MODULE A25-26
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
INTERFACE MODULE A27-29
POWER SUPPLY MODULE A30-31
35
37
37
38
38
38
36
69
18
17
16
15
LOGIC MODULE A1
LOGIC MODULE A2
LOGIC MODULE A3
LOGIC MODULE A4
LOGIC MODULE A5
LOGIC MODULE A6
LOGIC MODULE A7
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A8-11
LOGIC MODULE A12
LOGIC MODULE A13
LOGIC MODULE A14
LOGIC MODULE A15
POWER SUPPLY MODULE A30-31
22
22
21
20
19
NASA NO
MFD BY
S/N
36
69
26
25 SEE NOTE 19
24
23
22
22

SECTION C-C



REF 65
REF 68
REF 1
REF 6
2 REF
3.50
SEE NOTE 40
REF 37
REF 35
REF 34
"B" SEE NOTE 40
66 REF
"A" SEE NOTE 39
3.50
SEE NOTE 39
1 REF
68 REF
65 REF
6 REF
2 REF

PARTIAL SECTION H-H

FOR -031&041

PACKAGING REFERENCE DRAWINGS

1. AGC CONNECTOR COVER KIT 2014399
2. AGC HANDLING FIXTURE ASSY 2014282
3. AGC SHIPPING CONTAINER 1006421

NOTES CONT'D:

39. "A" DIM TAKEN 3.50 FROM EDGE OF FIND NO. 35
40. "B" DIM TAKEN 3.50 FROM EDGE OF FIND NO. 35
41. USE FOLLOWING PROCEDURE FOR INSTALLATION OF VIBRATION DAMPENING PAD, FIND NO. 78 AND SHIM, FIND NO. 79
   (A) MEASURE DIMENSIONS "A" & "B" (SEE PARTIAL SECTION H-H)
   (B) TOTAL DIMENSION OF PAD, FIND NO. 78, SHIM FIND NO. 79, & BONDED MATERIAL PER NOTE (41D) MUST BE EQUAL TO THE AVERAGE OF DIMENSIONS A & B PLUS .012 ±.004. THIS TOTAL DIMENSION MUST BE OBTAINED BY MACHINING THE SHIM, FIND NO. 79 TO THE REQUIRED THICKNESS PRIOR TO BONDING TO FIND NO. 78
   (C) BOND FIND NO. 79, AFTER MACHINING TO THICKNESS, TO FIND NO 78 USING 1006338 USE BONDING MATERIAL SPARINGLY
   (D) BOND ASSY OF FIND NO. 78, 79 TO FIND NO. 44 USING 1006338 BOND IN CENTER AREA AND ON BOTH ENDS. FIND NO. 79 TO INTERFACE WITH FIND NO. 66
42. WHEN FIND NO. 66, 34, 35, 37, OR 6 IS REMOVED AND REPLACED REPEAT NOTE 41
43. FIND NO'S 81 THRU 84 TO BE USED AT ALL TIMES THREADED HOLES ARE NOT IN USE. THIS INCLUDES SHIPPING. ALL SCREWS SHALL BE TORQUED SUFFICIENTLY TO SEAL THREADED HOLE. FIND NO. 84 TO BE TORQUED 7.0 TO 8.5 IN/LBS. FIND NO. 81 TO BE TORQUED TO [illegible] INCH-OUNCES. FIND NO. 83 TO BE TORQUED TO 2.5/3.5 IN/LBS. ALL HARDWARE NOT ASSEMBLED TO COMPUTER WHEN SHIPPED BUT REQUIRED SHALL BE IDENTIFIED PER ND 1002019 & SHIPPED UNASSEMBLED.
~~44. PRIOR TO INSTALLATION INTO SPACECRAFT SEAL EXPOSED HARDWARE & CONNECTOR COMPUTER INTERFACE WITH .002 MIN THICK COATING OF FIND NO. 80 COMPUTER ASSY DIM. SHALL NOT BE EXCEEDED. CURE AT ROOM TEMP FOR 24 HOURS~~
45. TORQUE FOR PLUG OF FIND NO. 56 SHALL BE 25-35 IN/LBS
46. WITH A PRESSURE DIFFERENTIAL OF 2.5 PSIG MAX IN THE COMPUTER, THE MAX DEFLECTION OF FIND NO. 3 TRAY A COVER SHALL BE .125
47. FOR AGC WIRELIST FOR PARTICULAR CONFIGURATIONS USE 2005036 AND THE APPLICABLE WIRING CHART FROM TRAY A WIRED ASSEMBLY 2003092

NOTES: (CONT)

33. SHIM AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 72. NOT TO INCLUDE .004 REF DIMENSION OF FIND NO. 72
34. SHIM AS REQUIRED, PRIOR TO ASSY OF FIND NO. 6, SURFACE C TO WITHIN ±.002 OF SURFACE B USING FIND NO. 71
35. USE TRAY A WIRED ASSY PART NO. 2003092-041 OR PART NO 2003092-061 OR PART NO 2003092-071
36. FOR -031 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24 PART NOS 2003888-011 THRU 2003888-231, SEE CHART 'A'
37. FOR -021 & -041 CONFIGURATION ONLY USE LOGIC MODULE A1 THRU A24, FIND NOS. 15 THRU 35. PART NOS. 2003121-011 THRU 2003121-231 AND/OR 2003888-011 THRU 2003888-231, SEE CHART 'A'
38. WHEN A COMPUTER IS COMPRISED OF LOGIC MODULES A1 THRU A24, PART NOS. 2003888-011 THRU 2003888-231 AND A TRAY 'A' WIRED ASSY 2003092-041 OR 2003092-071 IT SHALL BE DESIGNATED 2003993-031

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN [illegible]
CHECKED [illegible]
APPROVED
APPROVED [illegible]
APPROVED NASA [illegible]
APPROVED MSC [illegible]
DATE

COMPUTER ASSEMBLY

CODE IDENT NO	SIZE	DRAWING NO
80230	J	2003993

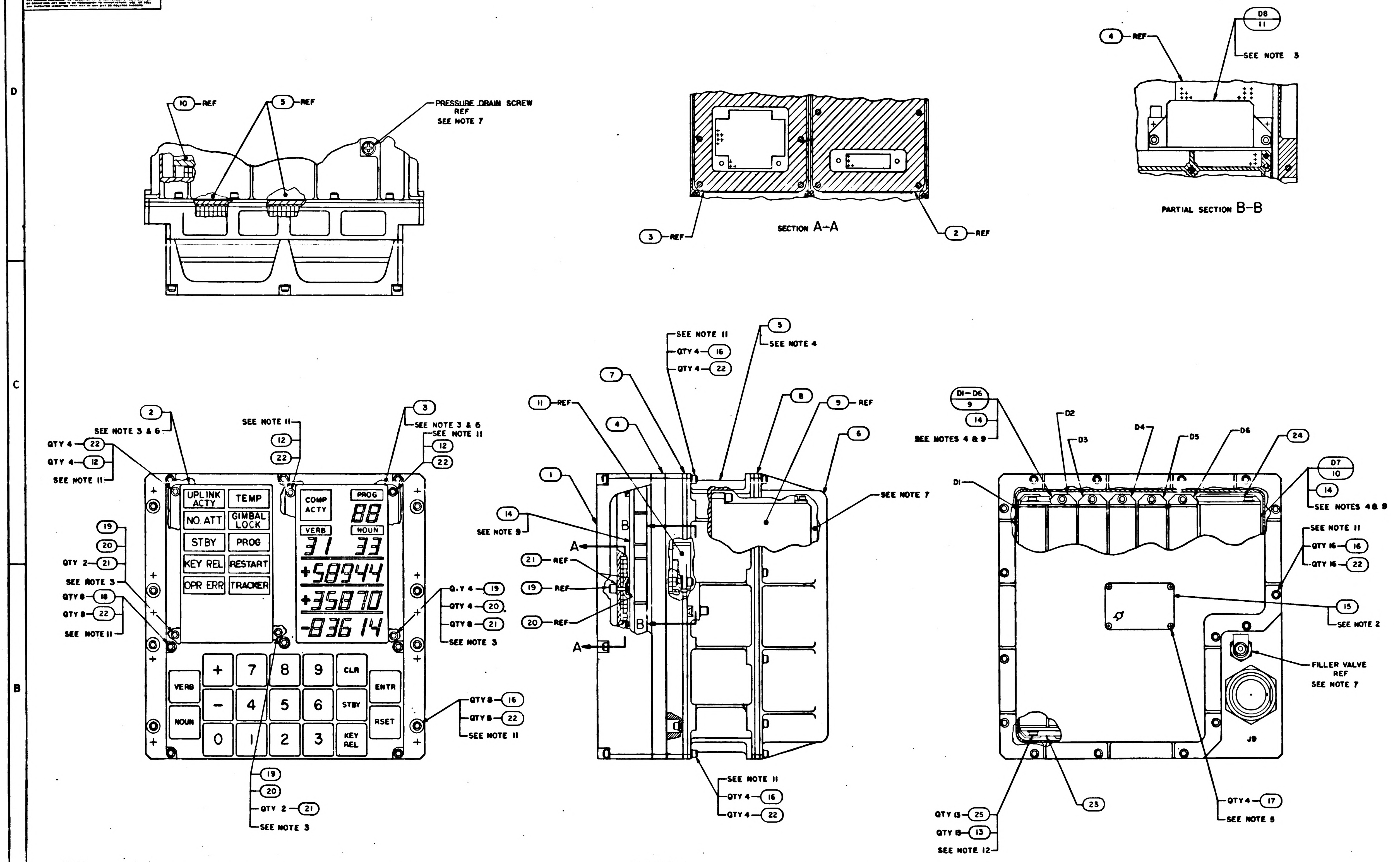
SCALE 1/1
SHEET 2 OF 2

2003993 TF2/2 SH2/2

2003994 A

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
-	INITIAL RELEASE		



10 REF
5 REF
PRESSURE DRAIN SCREW REF SEE NOTE 7
SECTION A-A
3 REF
2 REF
4 REF
D8 11
SEE NOTE 3
PARTIAL SECTION B-B
2
SEE NOTE 3 & 6
QTY 4 22
QTY 4 12
SEE NOTE 11
SEE NOTE 11
12
22
3
SEE NOTE 3 & 6
SEE NOTE 11
12
22
UPLINK ACTY
TEMP
NO ATT
GIMBAL LOCK
STBY
PROG
KEY REL
RESTART
OPR ERR
TRACKER
COMP ACTY
PROG
88
VERB
NOUN
31 33
+58944
+35870
-83614
19
20
QTY 2 21
SEE NOTE 3
QTY 8 18
QTY 8 22
SEE NOTE 11
QTY 4 19
QTY 4 20
QTY 8 21
SEE NOTE 3
VERB
NOUN
+
-
7 8 9
4 5 6
0 1 2 3
CLR
STBY
KEY REL
ENTR
RSET
QTY 8 16
QTY 8 22
SEE NOTE 11
19
20
QTY 2 21
SEE NOTE 3
SEE NOTE 11
QTY 4 16
QTY 4 22
5
SEE NOTE 4
7
11 REF
4
1
8
9 REF
6
14
SEE NOTE 9
21 REF
19 REF
20 REF
A
B
SEE NOTE 7
SEE NOTE 11
QTY 4 16
QTY 4 22
D1-D6
9
14
SEE NOTES 4 & 9
D1
D2
D3
D4
D5
D6
24
D7
10
14
SEE NOTES 4 & 9
SEE NOTE 11
QTY 16 16
QTY 16 22
15
SEE NOTE 2
FILLER VALVE REF SEE NOTE 7
J9
QTY 13 25
QTY 13 13
SEE NOTE 12
23
QTY 4 17
SEE NOTE 5

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK "AGC DSKY ASSEMBLY" AND ITS RESPECTIVE PART NO., SERIAL NO., AND CONTRACT NO. MARKING TO BE PER ND1002019 AND SERIALIZE PER ND1002023
3. MOUNTING TORQUE FOR FIND NO. 19 AND JACK SCREWS OF FIND NO. 11 TO BE 8.5-9.5 INCH POUNDS
4. MOUNTING TORQUE FOR JACK SCREWS OF FIND NO. 5, 9 & 10 TO BE 15-19 INCH POUNDS
5. APPLY SEALING COMPOUND MIL-S-22473 GRADE HV TO FIND NO. 17
6. FIND NO. 2 AND 3 TO BE ASSEMBLED TO HEIGHT OF BONDED RUBBER OF FIND NO. 4 USING FIND NO. 19. BEFORE INSTALLING FIND NO. 12. ASSEMBLE IN AN ENVIRONMENT HAVING A TEMPERATURE OF 72° ±5° AND A RELATIVE HUMIDITY OF 50% OR LESS
7. FILL WITH A MINIMUM OF 87% NITROGEN AND 8.7% HELIUM AND A MAXIMUM OF 4.3% AIR TO 1.05/1.10 ATMOSPHERES. DO NOT EXCEED 2 ATMOSPHERES DURING PRESSURIZATION
8. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003994
9. APPLY FIND NO. 14 TO INTERFACE SURFACES OF THE FOLLOWING FIND NO'S: 4 & 2, 4 & 3, 5 & 9 AND 5 & 10. DO NOT APPLY FIND NO. 14 TO BONDED RUBBER SURFACES
10. AR DENOTES AS REQUIRED
11. MOUNTING TORQUE FOR FIND NO. 16, 18 AND 12 TO BE 8-9 INCH POUNDS
12. MOUNTING TORQUE FOR FIND NO. 13 TO BE 3.5-4.5 INCH POUNDS

REF. DWG'S

1.	UNIVERSAL DSKY SHIPPING CONTAINER	1006422
2.	DSKY CONNECTOR COVER	1006425-14
3	UNIVERSAL DSKY HANDLING FIXTURE	2014013

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
☒	2003956	OUTLINE DRAWING
☒	2005957	SIGNAL PIN ASSIGNMENT
☒	2005954	INTERCONNECTING DIAGRAM
☒	2005918	SIGNAL FLOW DIAGRAM
13	NAS620C4	WASHER, FLAT
1	2004958	BRACKET, MODULE
1	2004959	BRACKET, MODULE
46	NAS620C6	WASHER, FLAT
12	1004546-4	WASHER, FLAT
6	MS16633-4014	RING, RETAINING
6	2004932-001	SCREW, JACKING
8	1001489-59	SCREW, HEX SOCKET HEAD
4	MS35216-1	SCREW, PAN HEAD, CROSS RECESSED
32	MS16995-18	SCREW, HEX, SOCKET HEAD
1	1004260-20	NAMEPLATE
AR	1006879	SILICONE COMPOUND
13	MS16995-10	SCREW, HEX SOCKET HEAD
6	MS16995-20	SCREW, HEX, SOCKET HEAD
1	2003909-031	KEYBOARD MODULE ASSY D8
1	2003901-031	POWER SUPPLY ASSY MODULE D7
6	2003952-031	INDICATOR DRIVER MODULE D1-D6
1	1006349	GASKET, BONDED, RUBBER
1	1006350	GASKET, BONDED, RUBBER
1	2004900	COVER, REAR
1	2003885-011	MAIN HOUSING ASSY
1	2003949-021	FRONT HOUSING ASSY
1	1006315-001	INDICATOR, DIGITAL
1	1006387-002	INDICATOR, ALARM
1	2004929-021	COVER, FRONT

011 LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN B J Papia DATE 9 Aug 66
CHECKED W Taylor 9 AUG 66
APPROVAL
APPROVAL Eldon C Hall
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC DSKY ASSEMBLY

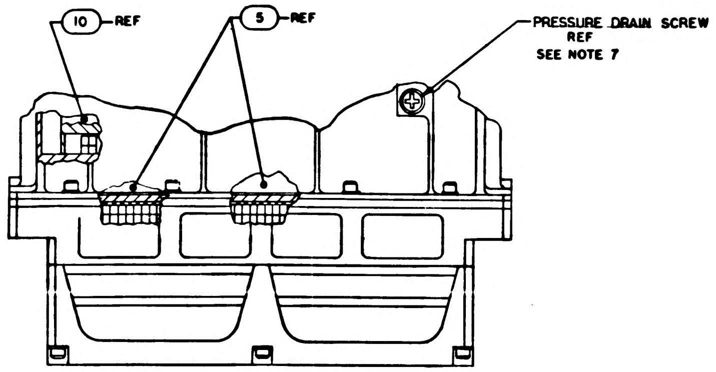
CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO 2003994
SCALE 1/1
WT
SHEET 1

2003994 A

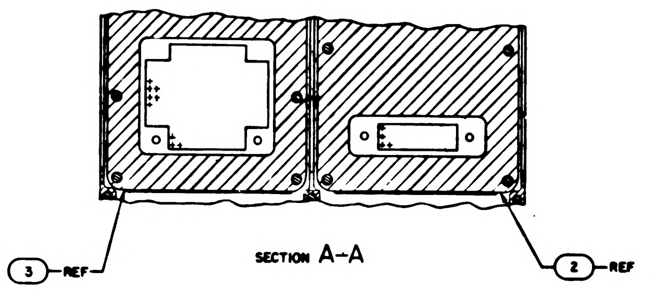
2003994

1/2003994

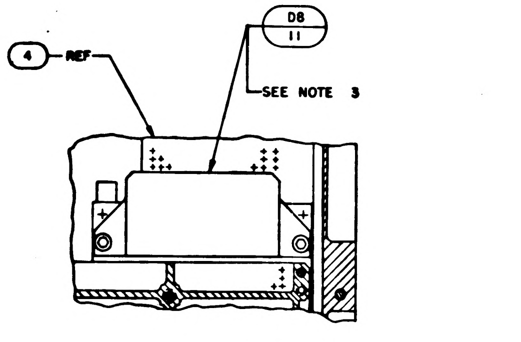
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	INITIAL RELEASE TDRR32572	[illegible]	[illegible]



10 REF
5 REF
PRESSURE DRAIN SCREW
REF
SEE NOTE 7

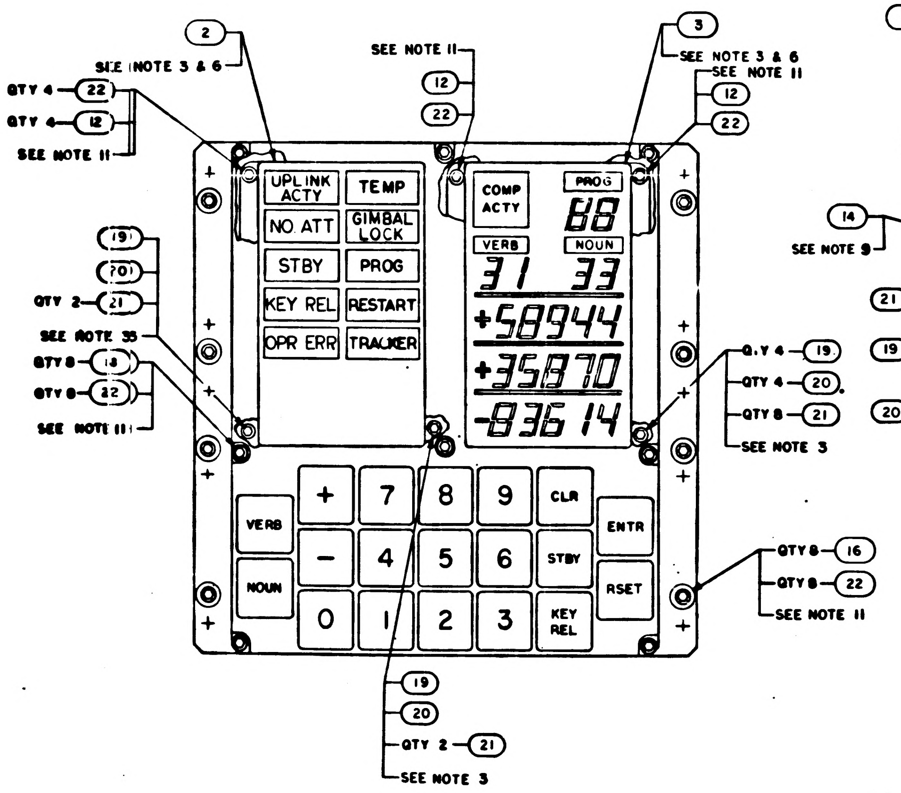


SECTION A-A



4 REF
D8
11
SEE NOTE 3

PARTIAL SECTION B-B



2
SEE NOTE 3 & 6
QTY 4 22
QTY 4 12
SEE NOTE 11
SEE NOTE 11
12
22
3
SEE NOTE 3 & 6
SEE NOTE 11
12
22
UPLINK ACTY
TEMP
NO ATT
GIMBAL LOCK
STBY
PROG
KEY REL
RESTART
OPR ERR
TRACKER
COMP ACTY
PROG
88
VERB
NOUN
31
33
+58944
+35870
-83614
VERB
NOUN
+
-
0
7
4
1
8
5
2
9
6
3
CLR
STBY
KEY REL
ENTR
RSET
19
20
QTY 2 21
SEE NOTE 3S
QTY 8 18
QTY 8 22
SEE NOTE 11
QTY 4 19
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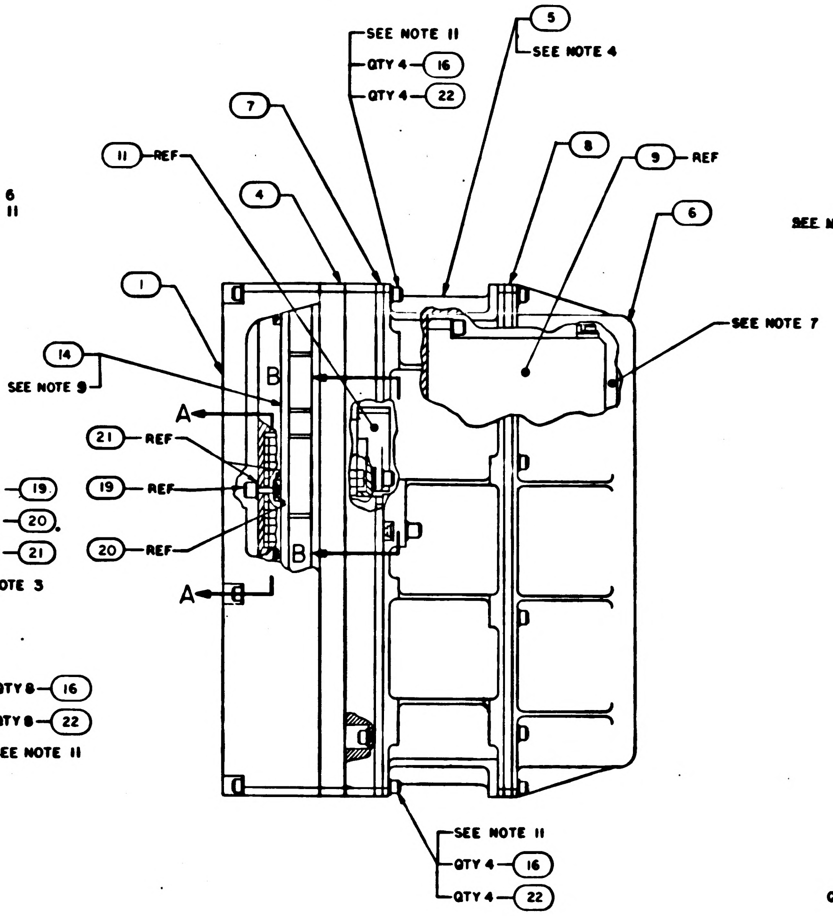
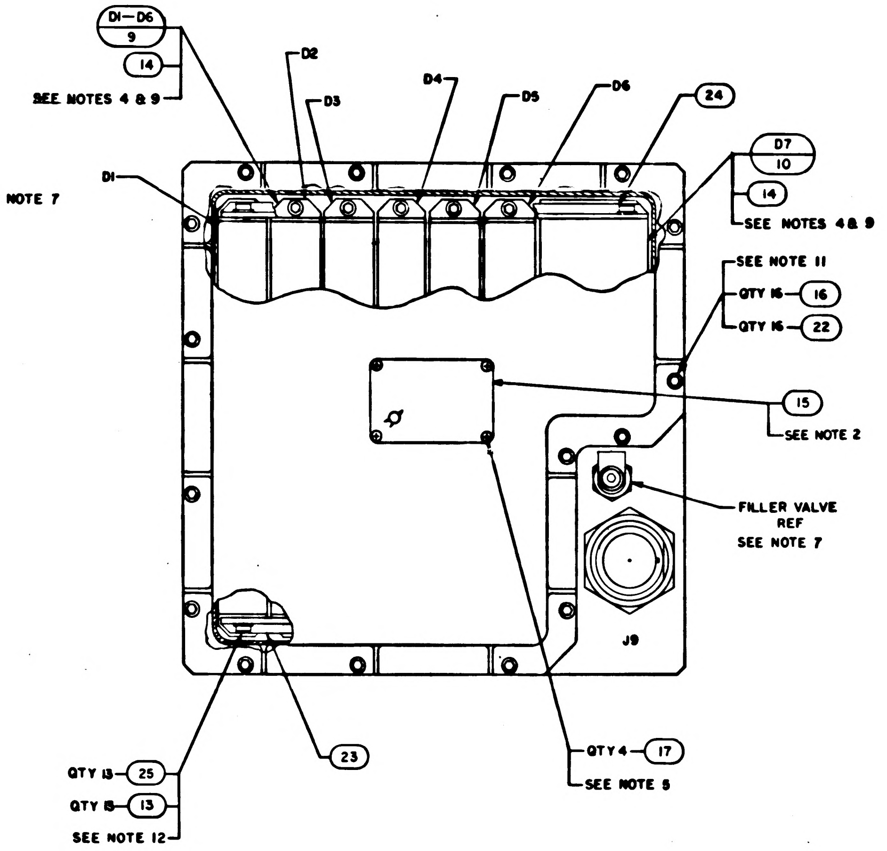
QTY 8 21
SEE NOTE 3
QTY 8 16
QTY 8 22
SEE NOTE 11
19
20
QTY 2 21
SEE NOTE 3



SEE NOTE 11
QTY 4 16
QTY 4 22
5
SEE NOTE 4
7
8
9 REF
11 REF
4
6
1
14
SEE NOTE 9
21 REF
19 REF
20 REF
A
B
B
A
SEE NOTE 7
SEE NOTE 11
QTY 4 16
QTY 4 22



D1-D6
9
14
SEE NOTES 4 & 9
D1
D2
D3
D4
D5
D6
24
D7
10
14
SEE NOTES 4 & 9
SEE NOTE 11
QTY 16 16
QTY 16 22
15
SEE NOTE 2
FILLER VALVE
REF
SEE NOTE 7
J9
QTY 13 25
QTY 13 13
SEE NOTE 12
23
QTY 4 17
SEE NOTE 5

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK "AGC DSKY ASSEMBLY" AND ITS RESPECTIVE PART NO., SERIAL NO., AND CONTRACT NO. MARKING TO BE PER ND1002019 AND SERIALIZE PER ND1002023
3. MOUNTING TORQUE FOR FIND NO. 19 AND JACK SCREWS OF FIND NO. 11 TO BE 8.5-9.5 INCH POUNDS
4. MOUNTING TORQUE FOR JACK SCREWS OF FIND NO. 5, 9 & 10 TO BE 15-19 INCH POUNDS
5. APPLY SEALING COMPOUND MIL-S-22473 GRADE HV TO FIND NO. 17
6. FIND NO. 2 AND 3 TO BE ASSEMBLED TO HEIGHT OF BONDED RUBBER OF FIND NO. 4 USING FIND NO. 19. BEFORE INSTALLING FIND NO. 12. ASSEMBLE IN AN ENVIRONMENT HAVING A TEMPERATURE OF 72° ±5° AND A RELATIVE HUMIDITY OF 50% OR LESS
7. FILL WITH A MINIMUM OF 87% NITROGEN AND 8.7% HELIUM AND A MAXIMUM OF 4.3% AIR TO 1.05/1.10 ATMOSPHERES. DO NOT EXCEED 2 ATMOSPHERES DURING PRESSURIZATION
8. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003994
9. APPLY FIND NO. 14 TO INTERFACE SURFACES OF THE FOLLOWING FIND NO'S: 4 & 2, 4 & 3, 5 & 9 AND 5 & 10. DO NOT APPLY FIND NO. 14 TO BONDED RUBBER SURFACES
10. AR DENOTES AS REQUIRED
11. MOUNTING TORQUE FOR FIND NO. 16, 18 AND 12 TO BE 8-9 INCH POUNDS
12. MOUNTING TORQUE FOR FIND NO. 13 TO BE 3.5-4.5 INCH POUNDS

REF. DWG'S

1.	UNIVERSAL DSKY SHIPPING CONTAINER	1006422
2.	DSKY CONNECTOR COVER	1006425-14
3	UNIVERSAL DSKY HANDLING FIXTURE	2014013

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
☒	2003956	OUTLINE DRAWING	REF
☒	2005957	SIGNAL PIN ASSIGNMENT	REF
☒	2005954	INTERCONNECTING DIAGRAM	REF
☒	2005918	SIGNAL FLOW DIAGRAM	REF
13	NAS620C4	WASHER, FLAT	25
1	2004958	BRACKET, MODULE	24
1	2004959	BRACKET, MODULE	23
46	NAS620C6	WASHER, FLAT	22
12	1004546-4	WASHER, FLAT	21
6	MS16633-4014	RING, RETAINING	20
6	2004932-001	SCREW, JACKING	19
8	1001489-59	SCREW, HEX SOCKET HEAD	18
4	MS35216-1	SCREW, PAN HEAD, CROSS RECESSED	17
32	MS16995-18	SCREW, HEX, SOCKET HEAD	16
1	1004260-20	NAMEPLATE	15
AR	1006879	SILICONE COMPOUND	14
13	MS16995-10	SCREW, HEX SOCKET HEAD	13
6	MS16995-20	SCREW, HEX, SOCKET HEAD	12
1	2003909-031	KEYBOARD MODULE ASSY D8	11
1	2003901-031	POWER SUPPLY ASSY MODULE D7	10
6	2003952-031	INDICATOR DRIVER MODULE D1-D6	9
1	1006349	GASKET, BONDED, RUBBER	8
1	1006350	GASKET, BONDED, RUBBER	7
1	2004900	COVER, REAR	6
1	2003885-011	MAIN HOUSING ASSY	5
1	2003949-021	FRONT HOUSING ASSY	4
1	1006315-001	INDICATOR, DIGITAL	3
1	1006387-002	INDICATOR, ALARM	2
1	2004929-021	COVER, FRONT	1
011	LIST OF MATERIALS		

NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN B J Papia DATE 9 Aug 66
CHECKED A Kaplan 9 AUG 66
APPROVAL
APPROVAL Eldon C Hall [illegible]
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC DSKY ASSEMBLY

CODE IDENT NO. 80230 | SIZE J | NASA DRAWING NO. 2003994
SCALE 1/1 | WT | SHEET 1 OF 1

3.1.11.1 Logic Zero Input. With a logic "zero" applied to an input pin of J9 as specified in Table 3-2, contact closure shall exist between pins of J9 as specified in Table 3-2.

3.1.11.2 Logic One and Zero. The logic "ones" and "zeros" referenced in this section shall be as specified in sections 3.1.7.1 and 3.1.7.2.

3.1.12 Isolated Relay Indicators. When programmed for RLYWD 12, and a logic "one" applied to an input pin of J9 as specified in Table 3-3, the corresponding isolated relay indicator shall be illuminated at 15 ± 3 Foot-Lamberts. Also contact closure shall exist between pins of J9 as specified in Table 3-3.

3.1.12.1 Logic Zero Input. With a logic "zero" applied to an input pin of J9 specified in Table 3-3, a contact closure shall exist between pins of J9 as specified in Table 3-3.

TABLE 3-3

Logic Input	J9 Input Pin	Indicator Illuminated	Contact Closure Between Pins
1	41	NO ATT	
1	3	GIMBAL LOCK	57 and 31
1	10		17 and 34
1	23	TRACKER	57 and 31
1	42	PROG	57 and 31
0	10		6 and 34

3.1.12.2 Logic One and Zero. The logic "ones" and "zeros" referenced in this section shall be as specified in sections 3.1.7.1 and 3.1.7.2.

3.1.12.3 RLYWD 12 Input. The RLYWD 12 input shall be applied at the same time the indicator input pins receive a logic input signal. RLYWD 12 shall be a combination of logic "ones" and "zeros" (ref. section 3.1.13.2) applied to the pins of J9 as listed below:

Pins of J9	68	43	24	11
Logic Input	1	1	0	0

4.3.1.3 Low Marginal Voltages/High Temperature. Set the input supply voltage and the ambient temperature to the limits specified in paragraph 3.1.14.3. Verify that the module shall perform in accordance with paragraph 3.1.14.3.

4.3.1.4 High Marginal Voltages/High Temperature. Set the input supply voltage and the ambient temperature to the limits specified in paragraph 3.1.14.4. Verify that the module shall perform in accordance with paragraph 3.1.14.4.

The DSKY shall be subjected to the designated temperatures for one-half hour prior to performing any electrical tests.

This test may be performed with a set of test display indicators. Original assembly indicators will be reinstalled in the DSKY after completion of this test.

4.3.2 Vibration. Subject the assembly to the vibration specified in paragraph 3.1.15. Verify that the assembly performs in accordance with paragraph 3.1.15.

4.3.2.1 Switch Chatter. Verify that there is no keyboard switch chatter as specified in paragraph 3.1.15.1.

4.3.3 Leak Rate. Pressurize the assembly to 2 psig at 25°C ± 10C° using the mixture specified in paragraph 3.1.16. After pressurization place assembly in a vacuum, and verify that the leak rate does not exceed that specified in paragraph 3.1.16 when measured at 25°C ± 10C°.

4.3.4 Weight. Weigh the assembly to the nearest .01 pound. Verify that the weight is in accordance with paragraph 3.2.2.

5. PREPARATION FOR DELIVERY

5.1 GENERAL. Preparation for delivery shall be in accordance with Specification ND 1002214. The assembly shall be pressurized to .7 to 1.5 psig.

6. NOTES: None.

1. SCOPE

1.1 This specification establishes the detail requirements for complete identification and acceptance of the Display and Keyboard Assembly Part No. 2003994-011.

2. APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein.

2.1 Effective Issues. Unless otherwise specified herein, Military and Government Standards and specifications shall be the issue in effect on the date of request for proposal or invitation to bid.

SPECIFICATIONS

APOLLO G&N

ND 1002214	General Specification for Preservation, Packaging, Packing and Container Marking of APOLLO Guidance and Navigation Major Assemblies, Assemblies, Subassemblies, Parts and Associated Ground Support Equipment.

DRAWINGS

APOLLO G&N

2003994	DISPLAY AND KEYBOARD ASSEMBLY

(Copies of Specifications, Standards, Drawings, Bulletins and Publications required by suppliers in connection with specific procurement functions should be obtained from the Procuring Activity or as directed by the Contracting Officer).

2.2 Conflicting Requirements. In the event of conflict between the requirements of the contract, this Specification and the documents listed in this section, the following order of precedence shall apply and the contractor shall notify MIT Apollo Management of the conflict as soon as it is determined.

a. The contract

b. This Specification

c. Documents listed in this section

3. REQUIREMENTS

3.1 PERFORMANCE. The Display and Keyboard Assembly has the capability to store, display, and transfer binary information as required by the Apollo Guidance Computer. The assembly is comprised of a Keyboard Module, Power Supply Module and six Indicator Driver Modules.

3.1.1 Continuity. The resistance between pin 39 of J9 and chassis shall be 0.5 ohms maximum.

3.1.2 Insulation Resistance. The insulation resistance between pin 39 of J9, and all other pins connected together shall be 100 megohms minimum.

3.1.3 Input Requirements. The assembly shall perform as specified herein when supplied with the following inputs:

3.1.3.1 Pins 8 and 39 of J9 shall be connected to ground (0 VDC).

3.1.3.2 DC Voltage. The following DC voltage shall be applied to the assembly:

a. 14.0 ± 0.1 VDC

b. 28.0 ± 0.1 VDC

c. 5.0 ± 0.1 VDC

3.1.3.3 AC Voltage. The AC voltage supplied to the assembly shall be 75 VRMS at 400 ± 8 cps single phase controlled to an accuracy of ± 2%, be variable up to 115 ± 5 VRMS, and be capable of being turned OFF.

3.1.3.4 Input Sync Pulse. The input sync pulse supplied to the assembly shall be generated from a source having the following characteristics:

a.	High Level	680K ohms ± 5% to ground (0 VDC)
b.	Low Level	2K ohms ± 5% returned to not more than 0.5V
c.	Frequency	800 ± 16 cps

3.1.4 Legend Illumination. With a 10K ohm potentiometer, connected between pins 4 and 5 of J9, varied from minimum to maximum resistance the brightness of the legends (Noun, Verb, Program, and the horizontal bars above each register) shall vary from OFF to 10-18 Foot-Lamberts.

3.1.5 Keyboard Illumination. With the 115 VRMS supply set to 115 ± 5 VRMS for one minute and then reduced to 75.0 ± 1.5 VRMS, the Keyboard keys shall be illuminated at 0.5 ± 0.3 Foot-Lamberts.

3.1.6 Keyboard Outputs. With each Keyboard key depressed individually, the outputs monitored at the output pins listed in Table 3-1 shall be logic "ones" and "zeros" as indicated in Table 3-1.

3.1.6.1 Logic One. A logic one shall be the equivalent of the 28 VDC supply applied thru a 1.0K ohm series resistance and a series diode.

3.1.6.2 Logic Zero. A logic zero shall be equivalent to an open circuit (no output).

3.1.7 Incandescent Indicators. To insure that the incandescent indicators and their associated latching relays are OFF, a logic input as specified below shall be applied to the pins of J9 as listed below:

Pins of J9	68	43	24	11	12	67	42	23	10	3	66	41	22	9	2
Logic Input	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0

3.1.7.1 Logic One. A logic one shall be generated from a source of 4K ohms ± 5% returned to not more than 0.4 Volts for $15.0^{+0}_{-1.5}$ msec.

3.1.7.2 Logic Zero. A logic zero shall be generated from a source of 680K ohms ± 5% to ground (0 VDC).

3.1.8 Flashing Alarm Characters. With the flashing timing pulse applied to pins 46 and 72 of J9, the alarm indicators KEY REL and OPR ERR shall flash.

3.1.8.1 Flasher Timing Pulse. The Flasher Timing Pulse applied to the assembly shall be generated from a source having the following characteristics:

a. High Level	680K ohms ± 5% to ground (0 VDC)
b. Low Level	4K ohms ± 5% returned to not more than 0.4V
c. Frequency	1.5 ± 0.3 cps
d. Duty Cycle	approximately 50% (for reference only)

3.1.9 Flashing Noun Characters. With the Flasher Timing Pulse specified in paragraph 3.1.8.1 applied to pin 70 of J9 and the Noun numerical characters programmed for 8's (ref. Tables 3-4 and 3-5), the numerical characters shall flash.

3.1.10 Flashing Verb Characters. With the Flasher Timing Pulse specified in paragraph 3.1.8.1 applied to pin 70 of J9 and the Verb numerical characters programmed for 8's (ref. Tables 3-4 and 3-5), the numerical characters shall flash.

TABLE 3-1

KEY DEPRESSED	OUTPUT PINS							
	79	76	77	78	51	49	48	28
KEY REL	1	1	0	0	1	0	0	0
VERB	1	0	0	0	1	0	0	0
NOUN	1	1	1	1	1	0	0	0
ENTR	1	1	1	0	0	0	0	0
CLR	1	1	1	1	0	0	0	0
+	1	1	0	1	0	0	0	0
-	1	1	0	1	1	0	0	0
0	1	0	0	0	0	0	0	0
1	0	0	0	0	1	0	0	0
2	0	0	0	1	0	0	0	0
3	0	0	0	1	1	0	0	0
4	0	0	1	0	0	0	0	0
5	0	0	1	0	1	0	0	0
6	0	0	1	1	0	0	0	0
7	0	0	1	1	1	0	0	0
8	0	1	0	0	0	0	0	0
9	0	1	0	0	1	0	0	0
RSET	1	0	0	1	0	0	1	0
STBY	0	0	0	0	0	1	0	1

NOTE: The figures one and zero used in Table 3-1 represent the logic "one" and "zero" levels specified in paragraphs 3.1.6.1 and 3.1.6.2.

3.1.11 Status and Caution Indicators. With a logic "one" applied to an input pin of J9 as specified in Table 3-2 and the input voltage set to 5.0 ± 0.1 VDC the corresponding status or caution indicator shall be illuminated at 15 ± 3 Foot-Lamberts. The exception shall be the COMP ACTY indicator, which shall be illuminated at 10 -18 Foot-Lamberts with the 10K ohm potentiometer (ref. paragraph 3.1.4) set to maximum resistance. Also a contact closure shall exist between pins of J9 as specified in Table 3-2.

TABLE 3-2

Logic Input	J9 Input Pin	Indicator Illuminated	Indicator Color (reference only)	Contact Closure Between pins of J9
1	47	UPLINK ACTY	White	
1	25	STBY	White	58 and 35
1	71	TEMP	Yellow	57 and 31
1	44	RESTART	Yellow	57 and 31
1	26	COMP ACTY	Green*	
1	69			37 and 61
1	46	KEY REL	White	
1	18			36 and 60
1	45			55 and 84
1	45			15 and 32
1	27			80 and 81
1	27			57 and 83
1	66			33 and 56
1	72	OPR ERR	White	
0	66			16 and 56
0	44			31 and 53
0	18			36 and 85
0	45			57 and 84
0	45			14 and 32
0	69			19 and 37
0	27			54 and 83
0	27			82 and 81
0	25			59 and 35

*Electroluminescent indicator.

3.1.13 Numerical Electroluminescent Indicators. With the 10K potentiometer (ref. paragraph 3.1.4) set to maximum resistance, and the appropriate RLYWD and RLYBT combinations of logic "ones" and "zeros" applied as specified in Tables 3-4 and 3-5, the corresponding Noun, Verb, and Program legend numerical characters and the numerical characters of all registers shall be illuminated at 10-18 Foot-Lamberts.

TABLE 3-4

RLYWD				RLYBT										
Word Bits				Sign Bit	Character 2 Bits					Character 1 Bits				
16	14	13	12	11	10	9	8	7	6	5	4	3	2	1
DSKY INPUT PINS														
68	43	24	11	12	67	42	23	10	3	66	41	22	9	2
1	0	1	1		←PROGRAM CHAR 2→					←PROGRAM CHAR 1→				
1	0	1	0		←VERB CHAR 2→					←VERB CHAR 1→				
1	0	0	1		←NOUN CHAR 2→					←NOUN CHAR 1→				
1	0	0	0							←REG 1 CHAR 5→				
0	1	1	1	R1(+)	←REG 1 CHAR 4→					←REG 1 CHAR 3→				
0	1	1	0	R1(-)	←REG 1 CHAR 2→					←REG 1 CHAR 1→				
0	1	0	1	R2(+)	←REG 2 CHAR 5→					←REG 2 CHAR 4→				
0	1	0	0	R2(-)	←REG 2 CHAR 3→					←REG 2 CHAR 2→				
0	0	1	1		←REG 2 CHAR 1→					←REG 3 CHAR 5→				
0	0	1	0	R3(+)	←REG 3 CHAR 4→					←REG 3 CHAR 3→				
0	0	0	1	R3(-)	←REG 3 CHAR 2→					←REG 3 CHAR 1→				

3.1.13.1 With the numerical electroluminescent characters programmed for 8's (ref. Tables 3-4 and 3-5) and the 10K ohm potentiometer set to minimum resistance all numerical electroluminescent indicators shall be OFF.

TABLE 3-5

Numerical Displays	Character Bits				
	10 or 5	9 or 4	8 or 3	7 or 2	6 or 1
Blank	0	0	0	0	0
0	1	0	1	0	1
1	0	0	0	1	1
2	1	1	0	0	1
3	1	1	0	1	1
4	0	1	1	1	1
5	1	1	1	1	0
6	1	1	1	0	0
7	1	0	0	1	1
8	1	1	1	0	1
9	1	1	1	1	1

3.1.13.2 For clarification, an example in the use of Tables 3-4 and 3-5 is given below:

EXAMPLE:

Problem: Program the numeral 1 into Character 2 of the Program legend.

Explanation: The appropriate RLYWD and its input pins Character 2 input pins are obtained from Table 3-4. The numerical logic input is obtained from Table 3-5. The input pins and logic input are as follows:

RLYWD				RLYBT				
Word Bits				Character Bits				
16	14	13	12	10	9	8	7	6
J9 Input Pins								
68	43	23	11	67	42	23	10	3
Logic Input								
1	0	1	1	0	0	0	1	1

3.1.13.3 Logic One and Zero. The logic "ones" and "zeros" referenced in this section shall be as specified in paragraphs 3.1.7.1 and 3.1.7.2.

3.1.14 Thermal Cycle Extremes and Marginal Voltages:

3.1.14.1 Thermal Cycle. The assembly shall be subjected to the thermal cycle specified below. Dynamic tests shall be performed during the last two thermal extremes as specified in paragraphs 3.1.14.2 thru 3.1.14.4.

a. Set ambient temperature to $0^{\circ}C\ ^{+0C^{\circ}}_{-2.8C^{\circ}}$ for 8 ± 1 hours.

b. Increase the ambient temperature to $65^{\circ}C\ ^{+2.8C^{\circ}}_{-0C^{\circ}}$ in not less than 40 minutes. This temperature shall be maintained for 3 hours.

c. Decrease the ambient temperature to $0^{\circ}C\ ^{+0C^{\circ}}_{-2.8C^{\circ}}$ in not less than 40 minutes. This temperature shall be maintained for 1.5 hours.

d. Increase the ambient temperature to $65^{\circ}C\ ^{+2.8C^{\circ}}_{-0C^{\circ}}$ in not less than 40 minutes. This temperature shall be maintained for 1.5 hours.

e. Decrease the ambient temperature to $0^{\circ}C\ ^{+0C^{\circ}}_{-2.8C^{\circ}}$ in not less than 40 minutes. This temperature shall be maintained for 1.5 hours.

f. Increase the ambient temperature to $65^{\circ}C\ ^{+2.8C^{\circ}}_{-0C^{\circ}}$ in not less than 40 minutes. This temperature shall be maintained for 1.5 hours.

3.1.14.2 Low Marginal Voltages/Low Temperature. The assembly shall perform as specified in paragraphs 3.1.4 and 3.1.6 thru 3.1.13 when the 28.0V supply is set to 20.0 ± 0.1 VDC, and the 14V supply is set to 12.2 ± 0.1 VDC, while the ambient temperature is maintained at $0^{\circ}C\ ^{+0C^{\circ}}_{-2.8C^{\circ}}$.

3.1.14.3 Low Marginal Voltages/High Temperature. The assembly shall perform as specified in paragraphs 3.1.4 and 3.1.6 thru 3.1.13 when the 28V supply is set to 20.0 ± 0.1 VDC, and the 14V supply is set to 12.2 ± 0.1 VDC, while the ambient temperature is maintained at 65°C
+2.8C°
-0C°.

3.1.14.4 High Marginal Voltages/High Temperature. The assembly shall perform as specified in paragraphs 3.1.4 and 3.1.6 thru 3.1.13 when the 28.0V supply is set to 32.0 ± 0.1 VDC, and the 14V supply is set to 10.0 ± 0.1 VDC, while the ambient temperature is maintained at 65°C +2.8C°
-0C°.

During marginal voltage and thermal extremes, no light intensity limits shall apply. Visual indication will insure system operation. The Keyboard shall not be energized at high thermal limits.

3.1.15 Vibration. The assembly shall perform as specified in paragraph 3.1.4 thru 3.1.13 after being subjected to the vibration limits specified below:

a.	Frequency Range	10 to 2000 to 10 cps
b.	Frequency Sweep Rate	at a logarithmic rate of one minute per octave
c.	Velocity	1.83 ± 10% inches per second in the frequency range of 10 to 100 cps
d.	Acceleration	3 g's ± 10% peak in the frequency range of 100 to 2000 cps
e.	Planes	each of the three mutually perpendicular axes.

3.1.15.1 Switch Chatter. During vibration there shall be no evidence of Keyboard switch chatter as specified below:

Key Lines - No contact closures of more than 50 usec duration.

Key Reset - No contact opens of more than 50 usec duration.

3.1.16 Leak Rate. With the assembly pressurized to 2 psig at 70°F using a mixture of 90% nitrogen and 10% helium, the leak rate shall not exceed 1.0×10^{-4} cc/atm/sec.

3.2 PRODUCT CONFIGURATION

3.2.1 Drawings. The configuration of the assembly shall be in accordance with Apollo G&N Drawing 2003994 and all drawings and engineering data referenced thereon.

3.2.2 Weight. The assembly shall weigh not more than 17.5 pounds.

4. QUALITY ASSURANCE PROVISIONS

4.1 GENERAL. The contractor responsible for the manufacture of the assembly shall be responsible for the accomplishment of each test required herein. See Table 4-1, Product Performance and Configuration Requirement/Quality Verification Cross Reference Index.

TABLE 4-1

Requirement	Verification	Requirement	Verification
3.1.1	4.2.2	3.1.11	4.2.14
3.1.2	4.2.3	3.1.11.1	4.2.14.1
3.1.3.2	4.2.4.1	3.1.12	4.2.15
3.1.3.2	4.2.4.2	3.1.12.1	4.2.15.1
3.1.3.2	4.2.4.3	3.1.13	4.2.16
3.1.3.3	4.2.5	3.1.13.1	4.2.16.1
3.1.3.4	4.2.4.4	3.1.14.1	4.3.1.1
3.1.4	4.2.7	3.1.14.2	4.3.1.2
3.1.5	4.2.8	3.1.14.3	4.3.1.3
3.1.6	4.2.9	3.1.14.4	4.3.1.4
3.1.7	4.2.10	3.1.15	4.3.2
3.1.8	4.2.11	3.1.15.1	4.3.2.1
3.1.9	4.2.12	3.1.16	4.3.3
3.1.10	4.2.13	3.2.2	4.3.4

4.1.1 Test Conditions

4.1.1.1 Environmental. **The assembly shall be tested under the following ambient conditions:**

a. Temperature: 25° ± 10°C

b. Relative Humidity: 90% max

c. Barometric Pressure: 28 to 32 inches of Hg

4.1.1.2 Assembly Case Ground. The dynamic tests specified in paragraphs 4.2.6 and 4.2.16 shall be conducted with pins 8 and 39 of J9 connected to ground (0 VDC).

4.1.2 Nonconforming Units. Failure of the unit to pass any examination or test of this specification shall automatically classify the unit as nonconforming. Each nonconforming unit corrected by the contractor shall be reinspected. Reinspection may be limited to the test or examination which defined the nonconformance, or, when directed by the cognizant inspector, a complete retest and re-examination may be required. Nonconforming units which have not been corrected will be considered for acceptance only upon formal application by the contractor to the cognizant NASA representative.

4.2 TESTS

4.2.1 Drawing Compliance. The assembly shall be visually examined for compliance to the requirements of APOLLO G&N Drawing 2003994. Particular attention shall be given to inspection for damage to surfaces, structure, and equipment, including contaminants, pin misalignment, and legibility and appearance of marking.

4.2.2 Continuity. Verify that the resistance between pin 39 of J9 and the assembly housing is in accordance with paragraph 3.1.1.

4.2.3 Insulation Resistance. Remove all lights and modules except Keyboard from assembly. Using test equipment with a test potential of 50 VDC limited to a short circuit current of 50 microamperes, measure the resistance between pin 39 of J9 and all other pins of J9 connected together. Verify that the resistance complies with that specified in paragraph 3.1.2.

4.2.4 Input Requirements. All tests shall be performed with the input requirements specified in paragraph 3.1.3 applied, when required to the pins of J9 as detailed below:

4.2.4.1 14V Supply. The 14 VDC Supply shall be applied to pin 1 with pin 8 used as the DC return.

4.2.4.2 28V Supply. The 28 VDC Supply shall be applied to pins 21 and 30 with pin 8 used as the DC return.

4.2.4.3 5V Supply. The 5 VDC Supply shall be applied to pins 62 and 64 with pins 63 and 65 used as the DC return.

4.2.4.4 Input Sync Pulse. The Input Sync Pulse specified in paragraph 3.1.3.4 shall be applied to pin 7.

4.2.5 115V Supply. The 115 VRM Supply shall be applied to pin 38 with pin 40 used as the AC return.

4.2.6 Intensity Measurements. Display indicator intensity measurements shall be calculated in the following manner:

a. Electroluminescent Displays - intensity measurements shall be the average of six sample locations.

b. Incandescent Displays - intensity measurements shall be the average of six sample locations at least 1/8 inch in from the illuminated segment border.

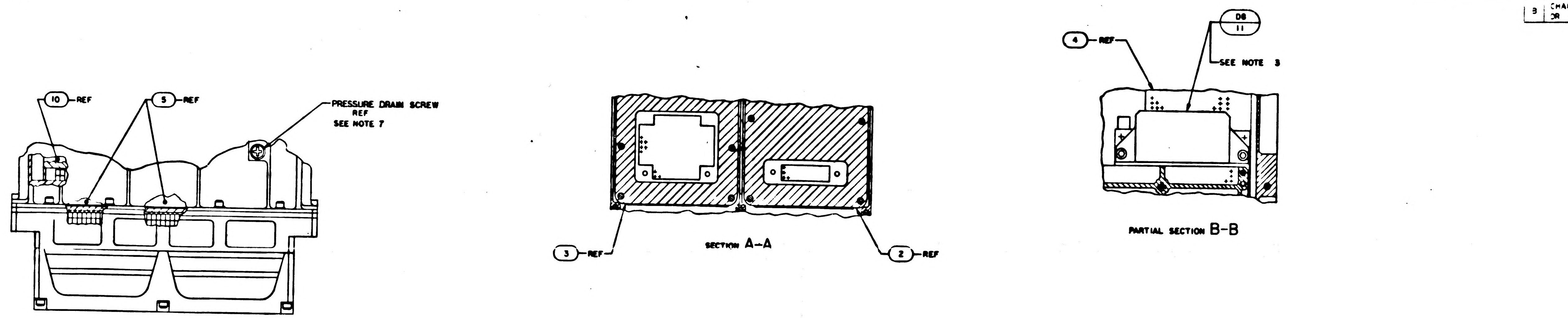
c. Push Switches - intensity measurements shall be the average of a single centrally located reading for each of the push switches.

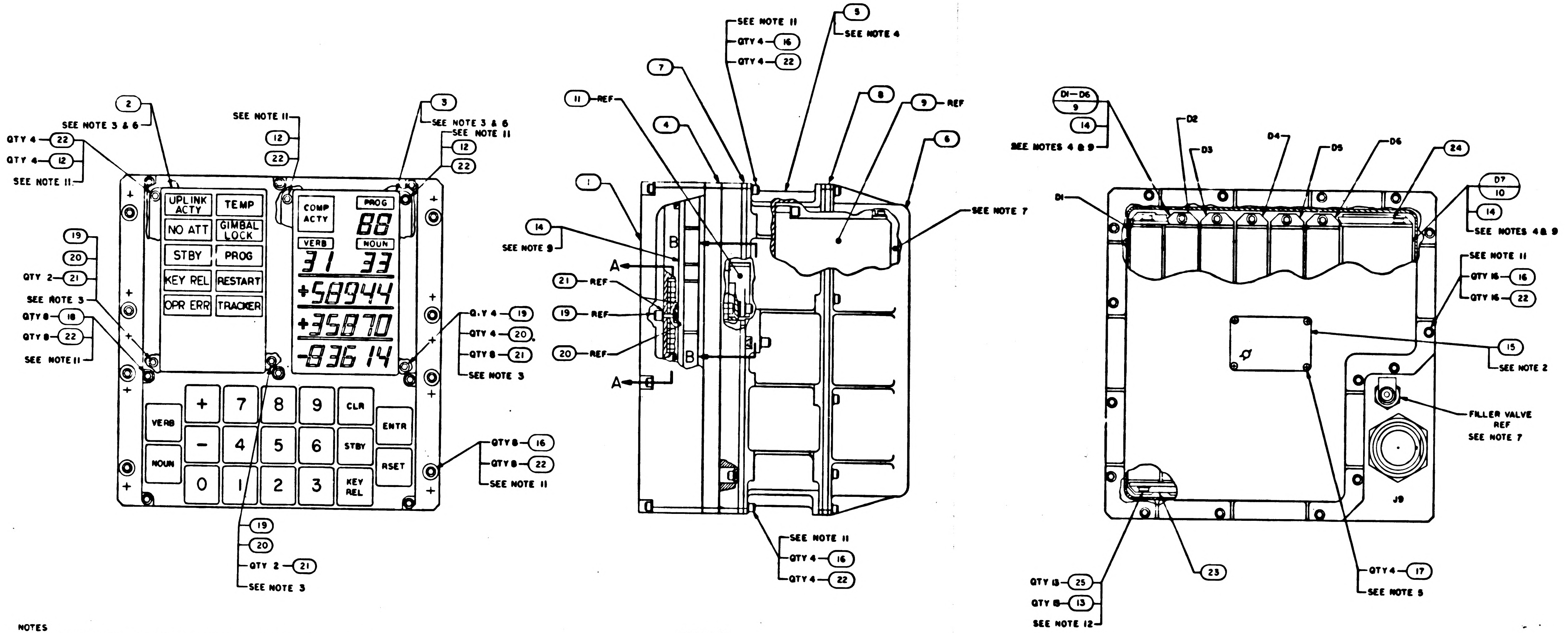
Display indicators shall be visually inspected for abnormal dark spots and light intensity variations.

4.2.7 Legend Illumination. Apply all inputs specified in paragraph 4.2.4. Vary the 10K ohm potentiometer from minimum to maximum resistance and verify that the brightness of the legends shall be as specified in paragraph 3.1.4.

2003994 E

REV	DESCRIPTION	DATE	APPROVAL
	REVISIONS		
B	CHANGED PER TDRR 33-45 DR CHK		


10 REF
5 REF
PRESSURE DRAIN SCREW
REF
SEE NOTE 7
3 REF
SECTION A-A
2 REF
4 REF
D8
11
SEE NOTE 3
PARTIAL SECTION B-B


2
SEE NOTE 3 & 6
QTY 4 22
QTY 4 12
SEE NOTE 11
SEE NOTE 11
12
22
3
SEE NOTE 3 & 6
SEE NOTE 11
12
22
UPLINK ACTY
TEMP
NO ATT
GIMBAL LOCK
STBY
PROG
KEY REL
RESTART
OPR ERR
TRACKER
COMP ACTY
PROG
88
VERB
NOUN
31 33
+58944
+35870
-83614
VERB
NOUN
+
-
0
1
2
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4
5
6
7
8
9
CLR
ENTR
STBY
RSET
KEY REL
19
20
QTY 2 21
SEE NOTE 3
QTY 8 18
QTY 8 22
SEE NOTE 11
QTY 4 19
QTY 4 20
QTY 8 21
SEE NOTE 3
QTY 8 16
QTY 8 22
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19
20
QTY 2 21
SEE NOTE 3
SEE NOTE 11
QTY 4 16
QTY 4 22
5
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7
8
9 REF
11 REF
4
6
1
SEE NOTE 7
14
SEE NOTE 9
A
B
21 REF
19 REF
20 REF
B
A
SEE NOTE 11
QTY 4 16
QTY 4 22
D1-D6
9
14
SEE NOTES 4 & 9
D2
D3
D4
D5
D6
24
D1
D7
10
14
SEE NOTES 4 & 9
SEE NOTE 11
QTY 16 16
QTY 16 22
15
SEE NOTE 2
FILLER VALVE
REF
SEE NOTE 7
J9
QTY 13 25
QTY 13 13
SEE NOTE 12
23
QTY 4 17
SEE NOTE 5

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK "AGC DSKY ASSEMBLY" AND ITS RESPECTIVE PART NO., SERIAL NO., AND CONTRACT NO. MARKING TO BE PER ND1002019 AND SERIALIZE PER ND1002023
3. MOUNTING TORQUE FOR FIND NO. 19 AND JACK SCREWS OF FIND NO. 11 TO BE 8.5-9.5 INCH POUNDS
4. MOUNTING TORQUE FOR JACK SCREWS OF FIND NO. 5, 9 & 10 TO BE 15-19 INCH POUNDS
5. APPLY SEALING COMPOUND MIL-S-22473 GRADE HV TO FIND NO. 17
6. FIND NO. 2 AND 3 TO BE ASSEMBLED TO HEIGHT OF BONDED RUBBER OF FIND NO. 4 USING FIND NO. 19. BEFORE INSTALLING FIND NO. 12. ASSEMBLE IN AN ENVIRONMENT HAVING A TEMPERATURE OF 72° ±5° AND A RELATIVE HUMIDITY OF 50% OR LESS
7. FILL WITH A MINIMUM OF 87% NITROGEN AND 8.7% HELIUM AND A MAXIMUM OF 4.3% AIR TO 1.05/1.10 ATMOSPHERES. DO NOT EXCEED 2 ATMOSPHERES DURING PRESSURIZATION
8. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003994
9. APPLY FIND NO. 14 TO INTERFACE SURFACES OF THE FOLLOWING FIND NO'S: 4 & 2, 4 & 3, 5 & 9 AND 5 & 10. DO NOT APPLY FIND NO. 14 TO BONDED RUBBER SURFACES, TAPPED HOLES, OR MOUNTING HARDWARE.
10. AR DENOTES AS REQUIRED
11. MOUNTING TORQUE FOR FIND NO. 16, 18 AND 12 TO BE 8-9 INCH POUNDS
12. MOUNTING TORQUE FOR FIND NO. 13 TO BE 3.5-4.5 INCH POUNDS
13. FIND NO. 2 TO BE EITHER 1006387-002 OR 1006387-003

REF. DWG'S

1. UNIVERSAL DSKY SHIPPING CONTAINER 1006422
2. DSKY CONNECTOR COVER 1006425-14
3. UNIVERSAL DSKY HANDLING FIXTURE 2014013

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
☒	2003956	OUTLINE DRAWING	REF
☒	2005957	SIGNAL PIN ASSIGNMENT	REF
☒	2005954	INTERCONNECTING DIAGRAM	REF
☒	2005918	SIGNAL FLOW DIAGRAM	REF
13	NAS620C4	WASHER, FLAT	25
1	2004958	BRACKET, MODULE	24
1	2004959	BRACKET, MODULE	23
46	NAS620C6	WASHER, FLAT	22
12	1004546-4	WASHER, FLAT	21
6	MS16633-4014	RING, RETAINING	20
6	2004932-001	SCREW, JACKING	19
8	1001489-59	SCREW, HEX SOCKET HEAD	18
4	MS35216-1	SCREW, PAN HEAD, CROSS RECESSED	17
32	MS16995-18	SCREW, HEX SOCKET HEAD	16
1	1004260-20	NAMEPLATE	15
AR	1006879	SILICONE COMPOUND	14
13	MS16995-10	SCREW, HEX SOCKET HEAD	13
6	MS16995-20	SCREW, HEX, SOCKET HEAD	12
1	2003909-031	KEYBOARD MODULE ASSY D8	11
1	2003901-031	POWER SUPPLY ASSY MODULE D7	10
6	2003952-031	INDICATOR DRIVER MODULE D1-D6	9
1	1006349	GASKET, BONDED, RUBBER	8
1	1006350	GASKET, BONDED, RUBBER	7
1	2004900	COVER, REAR	6
1	2003 5-011	MAIN HOUSING ASSY	5
1	2003949-021	FRONT HOUSING ASSY	4
1	1006315-001	INDICATOR, DIGITAL	3
1	SEE NOTE 13	INDICATOR, ALARM	2
1	2004929-021	COVER, FRONT	1
011	LIST OF MATERIALS		

2003994

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

AGC DSKY ASSEMBLY

CODE IDENT NO	SIZE	NASA DRAWING NO
80230	J	2003994
SCALE 1/1	WT	SHEET OF 1

2003994 E

APOLLO G&N Specification
PS 2003994 Rev B
Original Issue Date: 6 JAN 67
Release Authority: TDRR 32579
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

DISPLAY AND KEYBOARD ASSEMBLY

DRAWING NO. 2003994

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
Ⓜ 4 JAN 67	A	32579	Initial Release		
Ⓜ 7 APR 67	B	33947	1, 13, & 18	DMS FH	DMS FH

This specification consists of pages 1 to 18 inclusive.

APPROVALS	NASA/MSC	EC Hall 12/8/66	W Stameris 8 Dec 66 MIT/IL	10/10/66 N.G. Burke RAY

3.1.16 __Leak Rate__. With the assembly pressurized to 2 psig at 25°C ± 2°C using a mixture of 90% nitrogen and 10% helium, the leak rate shall not exceed 1.0 x 10^{-4} cc/sec/atm.

3.2 PRODUCT CONFIGURATION

3.2.1 __Drawings__. The configuration of the assembly shall be in accordance with Apollo G&N Drawing 2003994 and all drawings and engineering data referenced thereon.

3.2.2 __Weight__. The assembly weight shall be recorded.

4. QUALITY ASSURANCE PROVISIONS

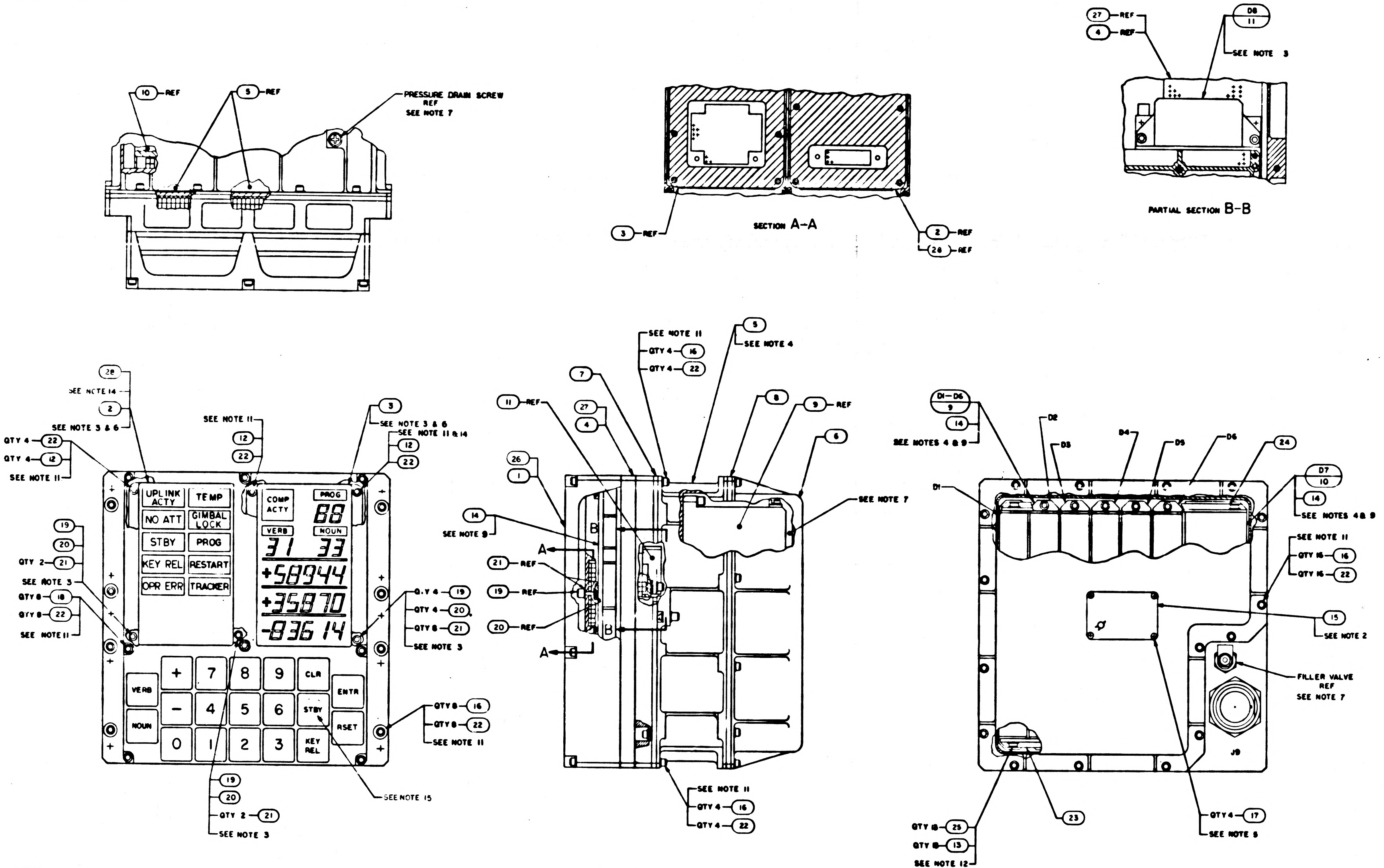
4.1 GENERAL. The contractor responsible for the manufacture of the assembly shall be responsible for the accomplishment of each test required herein. See Table 4-1, Product Performance and Configuration Requirement/Quality Verification Cross Reference Index.

TABLE 4-1

Requirement	Verification	Requirement	Verification
3.1.1	4.2.2	3.1.11	4.2.14
3.1.2	4.2.3	3.1.11.1	4.2.14.1
3.1.3.2	4.2.4.1	3.1.12	4.2.15
3.1.3.2	4.2.4.2	3.1.12.1	4.2.15.1
3.1.3.2	4.2.4.3	3.1.13	4.2.16
3.1.3.3	4.2.5	3.1.13.1	4.2.16.1
3.1.3.4	4.2.4.4	3.1.14.1	4.3.1.1
3.1.4	4.2.7	3.1.14.2	4.3.1.2
3.1.5	4.2.8	3.1.14.3	4.3.1.3
3.1.6	4.2.9	3.1.14.4	4.3.1.4
3.1.7	4.2.10	3.1.15	4.3.2
3.1.8	4.2.11	3.1.15.1	4.3.2.1
3.1.9	4.2.12	3.1.16	4.3.3
3.1.10	4.2.13	3.2.2	4.3.4

	REVISIONS		
A	INITIAL RELEASE ...		
B	CHANGED PER TORR 33445 DR ... CHK ...		
C	REVISED PER TORR 35065 DR ... CHK ...		

2003994 C


10 REF
5 REF
PRESSURE DRAIN SCREW REF SEE NOTE 7
3 REF
SECTION A-A
2 REF
28 REF
27 REF
4 REF
D8 11
SEE NOTE 3
PARTIAL SECTION B-B
28
SEE NOTE 14
2
SEE NOTE 3 & 6
QTY 4 22
QTY 4 12
SEE NOTE 11
SEE NOTE 11
12
22
3
SEE NOTE 3 & 6
SEE NOTE 11 & 14
12
22
UPLINK ACTY
TEMP
NO ATT
GIMBAL LOCK
STBY
PROG
KEY REL
RESTART
OPR ERR
TRACKER
COMP ACTY
PROG
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VERB
NOUN
31
33
+58944
+35870
-83614
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QTY 2 21
SEE NOTE 3
QTY 8 18
QTY 8 22
SEE NOTE 11
QTY 4 19
QTY 4 20
QTY 8 21
SEE NOTE 3
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QTY 8 16
QTY 8 22
SEE NOTE 11
19
20
QTY 2 21
SEE NOTE 3
SEE NOTE 15
SEE NOTE 11
QTY 4 16
QTY 4 22
5
SEE NOTE 4
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27
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11 REF
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1
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9 REF
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SEE NOTE 7
14
SEE NOTE 9
A
B
21 REF
19 REF
20 REF
A
B
SEE NOTE 11
QTY 4 16
QTY 4 22
D1-D6
9
14
SEE NOTES 4 & 9
D1
D2
D3
D4
D5
D6
24
D7
10
14
SEE NOTES 4 & 9
SEE NOTE 11
QTY 16 16
QTY 16 22
15
SEE NOTE 2
FILLER VALVE REF SEE NOTE 7
J9
QTY 16 25
QTY 16 13
SEE NOTE 12
23
QTY 4 17
SEE NOTE 5

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK "AGC DSKY ASSEMBLY" AND ITS RESPECTIVE PART NO., SERIAL NO., AND CONTRACT NO. MARKING TO BE PER ND1002019 AND SERIALIZE PER ND1002023
3. MOUNTING TORQUE FOR FIND NO. 19 AND JACK SCREWS OF FIND NO. 11 & 28 TO BE 8.5-9.5 INCH POUNDS
4. MOUNTING TORQUE FOR JACK SCREWS OF FIND NO. 5, 9 & 10 TO BE 15-19 INCH POUNDS
5. APPLY SEALING COMPOUND MIL-S-22473 GRADE HV TO FIND NO. 17
6. FIND NO. 2 AND 3 TO BE ASSEMBLED TO HEIGHT OF BONDED RUBBER OF FIND NO. 4 USING FIND NO. 19. BEFORE INSTALLING FIND NO. 12. ASSEMBLE IN AN ENVIRONMENT HAVING A TEMPERATURE OF 72° ±5° AND A RELATIVE HUMIDITY OF 50% OR LESS
7. FILL WITH A MINIMUM OF 87% NITROGEN AND 8.7% HELIUM AND A MAXIMUM OF 4.3% AIR TO 1.05/1.10 ATMOSPHERES. DO NOT EXCEED 2 ATMOSPHERES DURING PRESSURIZATION
8. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2003994
9. APPLY FIND NO. 14 TO INTERFACE SURFACES OF THE FOLLOWING FIND NO'S: 4 OR 27 & 2 OR 28, 4 OR 27 & 3, 5 & 9, AND 5 & 10 DO NOT APPLY FIND NO. 14 TO BONDED RUBBER SURFACES, TAPPED HOLES, OR MOUNTING HARDWARE.
10. AR DENOTES AS REQUIRED
11. MOUNTING TORQUE FOR FIND NO. 16, 18 AND 12 TO BE 8-9 INCH POUNDS
12. MOUNTING TORQUE FOR FIND NO. 13 TO BE 3.5-4.5 INCH POUNDS
13. FIND NO. 2 TO BE EITHER 1006387-002 OR 1006387-003
14. FIND NO. 3 TO BE ASSEMBLED TO HEIGHT OF BONDED RUBBER OF FIND NO. 27 USING FIND NO. 19 BEFORE INSTALLING FIND NO. 12. FIND NO. 28 TO BE ASSEMBLED USING EXISTING JACKING SCREWS. ASSEMBLE IN AN ENVIRONMENT HAVING A TEMPERATURE OF 72°±5°F AND A RELATIVE HUMIDITY OF 50% OR LESS.
15. THE-011 CONFIGURATION SHALL REFLECT A NOMENCLATURE AS SHOWN, THE-021 CONFIGURATION SHALL REFLECT "PRO" IN KEY POSITION INDICATED.

REF. DWG'S

1.	UNIVERSAL DSKY SHIPPING CONTAINER	1006422
2.	DSKY CONNECTOR COVER	1006425-14
3	UNIVERSAL DSKY HANDLING FIXTURE	2014013

DASH NO.	APPLICABLE NOTES
-021	1 THRU 5, 7 THRU 12, 14 & 15
-011	1 THRU 13 & 15

NOTE APPLICATION

QTY REQD	QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
╳	╳	2003956	OUTLINE DRAWING	REF
╳	╳	2005957	SIGNAL PIN ASSIGNMENT	REF
╳	╳	2005954	INTERCONNECTING DIAGRAM	REF
╳	╳	2005918	SIGNAL FLOW DIAGRAM	REF
1	—	2003993-011	INDICATOR ALARM & COVER ASSY	28
1	—	2003949-041	FRONT HOUSING ASSY	27
1	—	2004739	COVER, FRONT	26
13	13	NAS620C4	WASHER, FLAT	25
1	1	2004958	BRACKET, MODULE	24
1	1	2004959	BRACKET, MODULE	23
42	46	NAS620C6	WASHER, FLAT	22
8	12	1004546-4	WASHER, FLAT	21
4	6	MS16633-4014	RING, RETAINING	20
4	6	2004932-001	SCREW, JACKING	19
8	8	1001489-59	SCREW, HEX SOCKET HEAD	18
4	4	MS35216-1	SCREW, PAN HEAD, CROSS RECESSED	17
32	32	MS16995-18	SCREW, HEX SOCKET HEAD	16
1	1	1004260-20	NAMEPLATE	15
AR	AR	1006879	SILICONE COMPOUND	14
3	13	MS16995-10	SCREW, HEX SOCKET HEAD	13
2	6	MS16995-20	SCREW, HEX. SOCKET HEAD	12
1	1	2003909-031	KEYBOARD MODULE ASSY D8	11
1	1	2003901-031	POWER SUPPLY ASSY MODULE D7	10
6	6	2003952-031	INDICATOR DRIVER MODULE D1-D6	9
1	1	1006349	GASKET, BONDED, RUBBER	8
1	1	1006350	GASKET, BONDED, RUBBER	7
1	1	2004900	COVER, REAR	6
1	1	2003685-011	MAIN HOUSING ASSY	5
—	1	2003949-021	FRONT HOUSING ASSY	4
1	1	1006315-001	INDICATOR, DIGITAL	3
—	1	SEE NOTE 13	INDICATOR, ALARM	2
—	1	2004929-021	COVER, FRONT	1
C21	011	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN DATE
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APPROVAL
NASA APPROVAL
APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

AGC DSKY ASSEMBLY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO 2003994
SCALE 1/1
WT
SHEET 1 OF 1

2003994 C

APOLLO G&N Specification
PS 2003994 Rev C
Original Issue Date: 6 JAN 67
Release Authority: TDRR 32579
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

DISPLAY AND KEYBOARD ASSEMBLY

DRAWING NO. 2003994

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
6 JAN 67	A	32579	Initial Release		
7 APR 67	B	33497	1, 13, & 18	DMS FH	DMS FH
7/13/	C	34125	1,11,12,13,14,15	DMS FH	DMS FH

This specification consists of pages 1 to 15 inclusive.

APPROVALS	NASA/MSC	EC Hall 12/8/66 W Stameris 8 Dec 66 MIT/IL	E S McFadden 10/10/66 A.G. Parkar RAY

3.1.13.3 Logic One and Zero. The logic "ones" and "zeros" referenced in this section shall be as specified in paragraphs 3.1.7.1 and 3.1.7.2.

3.2 PRODUCT CONFIGURATION

3.2.1 Drawings. The configuration of the assembly shall be in accordance with Apollo G&N Drawing 2003994 and all drawings and engineering data referenced thereon.

4. QUALITY ASSURANCE PROVISIONS

4.1 GENERAL. The contractor responsible for the manufacture of the assembly shall be responsible for the accomplishment of each test required herein. See Table 4-1, Product Performance and Configuration Requirement/Quality Verification Cross Reference Index.

TABLE 4-1

Requirement	Verification	Requirement	Verification
3.1.1	4.2.2	3.1.11	4.2.14
3.1.2	4.2.3	3.1.11.1	4.2.14.1
3.1.3.2	4.2.4.1	3.1.12	4.2.15
3.1.3.2	4.2.4.2	3.1.12.1	4.2.15.1
3.1.3.2	4.2.4.3	3.1.13	4.2.16
3.1.3.3	4.2.5	3.1.13.1	4.2.16.1
3.1.3.4	4.2.4.4		
3.1.4	4.2.7		
3.1.5	4.2.8		
3.1.6	4.2.9		
3.1.7	4.2.10		
3.1.8	4.2.11		
3.1.9	4.2.12		
3.1.10	4.2.13		

4.1.1 Test Conditions

4.1.1.1 Environmental. The assembly shall be tested under the following ambient conditions:

a. Temperature: 25° ± 10°C
b. Relative Humidity: 90% max
c. Barometric Pressure: 28 to 32 inches of Hg

4.1.1.2 Assembly Case Ground. The dynamic tests specified in paragraphs 4.2.6 and 4.2.16 shall be conducted with pins 8 and 39 of J9 connected to ground (0 VDC).

4.1.2 Nonconforming Units. Failure of the unit to pass any examination or test of this specification shall automatically classify the unit as nonconforming. Each nonconforming unit corrected by the contractor shall be reinspected. Reinspection may be limited to the test or examination which defined the nonconformance, or, when directed by the cognizant inspector, a complete retest and re-examination may be required. Nonconforming units which have not been corrected will be considered for acceptance only upon formal application by the contractor to the cognizant NASA representative.

4.2 TESTS

4.2.1 Drawing Compliance. The assembly shall be visually examined for compliance to the requirements of APOLLO G&N Drawing 2003994. Particular attention shall be given to inspection for damage to surfaces, structure, and equipment, including contaminants, pin misalignment, and legibility and appearance of marking.

4.2.2 Continuity. Verify that the resistance between pin 39 of J9 and the assembly housing is in accordance with paragraph 3.1.1.

4.2.3 Insulation Resistance. Remove all lights and modules except Keyboard from assembly. Using test equipment with a test potential of 50 VDC limited to a short circuit current of 50 microamperes, measure the resistance between pin 39 of J9 and all other pins of J9 connected together. Verify that the resistance complies with that specified in paragraph 3.1.2.

4.2.4 Input Requirements. All tests shall be performed with the input requirements specified in paragraph 3.1.3 applied, when required to the pins of J9 as detailed below:

4.2.4.1 14V Supply. The 14 VDC Supply shall be applied to pin 1 with pin 8 used as the DC return.

4.2.4.2 28V Supply. The 28 VDC Supply shall be applied to pins 21 and 30 with pin 8 used as the DC return.

4.2.4.3 5V Supply. The 5 VDC Supply shall be applied to pins 62 and 64 with pins 63 and 65 used as the DC return.

4.2.4.4 Input Sync Pulse. The Input Sync Pulse specified in paragraph 3.1.3.4 shall be applied to pin 7.

4.2.5 115V Supply. The 115 VRM Supply shall be applied to pin 38 with pin 40 used as the AC return.

4.2.6 Intensity Measurements. Display indicator intensity measurements shall be calculated in the following manner:

a. Electroluminescent Displays - intensity measurements shall be the average of six sample locations.

b. Incandescent Displays - intensity measurements shall be the average of six sample locations at least 1/8 inch in from the illuminated segment border.

c. Push Switches - intensity measurements shall be the average of a single centrally located reading for each of the push switches.

Display indicators shall be visually inspected for abnormal dark spots and light intensity variations.

4.2.7 Legend Illumination. Apply all inputs specified in paragraph 4.2.4. Vary the 10K ohm potentiometer from minimum to maximum resistance and verify that the brightness of the legends shall be as specified in paragraph 3.1.4.

4.2.8 Keyboard Illumination. Apply the voltage specified in paragraph 4.2.5, and set the 115V Supply as described in paragraph 3.1.5. Verify that the Keyboard keys are illuminated as specified in paragraph 3.1.5.

4.2.9 Keyboard Outputs. Apply all inputs specified in section 4.2.4. Depress each Keyboard key individually and verify that the outputs, monitored at the output pins, are as specified in paragraph 3.1.6.

4.2.9.1 Keyboard Loads. Each Keyboard output pin listed in Table 3-1 shall be loaded with a 20K ohm ± 5% resistance to ground (0 VDC).

4.2.10 Incandescent Indicators. Apply all inputs specified in paragraph 4.2.4. Apply the logic input as specified in paragraph 3.1.7 and verify that all incandescent indicators are OFF.

4.2.11 Flashing Alarm Characters. Apply all inputs specified in paragraph 4.2.4. Apply the Flasher Timing Pulse as specified in paragraph 3.1.8 and verify that the alarm indicators KEY REL and OPR ERR flash in accordance with paragraph 3.1.8.

4.2.12 Flashing Noun Characters. Apply all inputs specified in paragraph 4.2.4. Apply the Flasher Timing Pulse and logic inputs specified in paragraph 3.1.9. Verify that the Noun numerical characters flash in accordance with paragraph 3.1.9.

4.2.13 Flashing Verb Characters. Apply all inputs specified in paragraph 4.2.4. Apply the Flasher Timing Pulse and logic inputs specified in paragraph 3.1.10. Verify that the Verb numerical characters flash in accordance with paragraph 3.1.10.

4.2.14 Status and Caution Indicators. Apply all inputs specified in paragraph 4.2.4. Apply logic "ones" (ref. para. 3.1.11.2) as specified in paragraph 3.1.11. Verify that the contact closures between the pins listed in Table 3-2, and the status and caution indicators are illuminated in accordance with paragraph 3.1.11.

4.2.14.1 Logic Zero Input. Apply all inputs specified in paragraph 4.2.4. Apply logic "zeros" (ref. para. 3.1.11.2) as specified in paragraph 3.1.11.1. Verify that the contact closures between the pins listed in Table 3-2 are in accordance with paragraph 3.1.11.1.

4.2.14.2 Logic Input. Only one logic input shall be applied at any one time.

4.2.15 Isolated Relay Indicators. Apply all inputs specified in paragraph 4.2.2. Apply RLYWD 12 (ref. para. 3.1.12.3) and logic "ones" (ref. para. 3.1.12.2) as specified in paragraph 3.1.12. Verify that the contact closures between the pins listed in Table 3-3, and the isolated relay indicators are illuminated in accordance with paragraph 3.1.12.

4.2.15.1 Logic Zero Input. Apply all inputs specified in paragraph 4.2.4. Apply logic "zeros" (ref. para. 3.1.12.3) as specified in paragraph 3.1.12.1. Verify that the contact closures between the pins listed in Table 3-3 are in accordance with paragraph 3.1.12.1.

4.2.15.2 Logic Inputs. Only one logic input shall be applied at any one time.

4.2.16 Numerical Electroluminescent Indicators. Apply all inputs specified in section 4.2.4. Set the 10K ohm potentiometer for maximum resistance. Apply the appropriate RLYWD and RLYBT combinations specified in Table 3-4 and 3-5, and verify that the specified numerical electroluminescent indicators are illuminated in accordance with paragraph 3.1.13.

4.2.16.1 Apply all inputs specified in paragraph 4.2.4. Set the 10K ohm potentiometer to minimum resistance. Program numerical electroluminescent indicators as specified in paragraph 3.1.13.1. Verify that the numerical electroluminescent indicators shall be OFF.

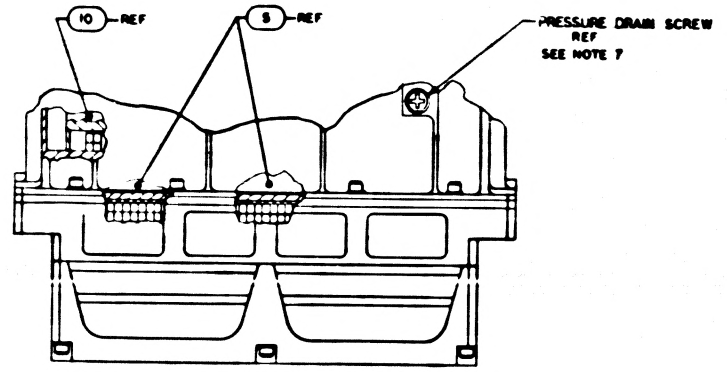
5. PREPARATION FOR DELIVERY

5.1 GENERAL. Preparation for delivery shall be in accordance with Specification ND 1002214. The assembly shall be pressurized to .7 to 1.5 psig.

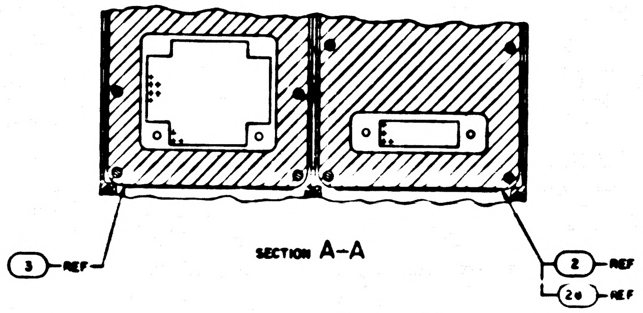
6. NOTES: None.

2003994 D

SYM	DESCRIPTION	DATE	APPROVAL
B	CHANGED PER TDRR 34445 DR CHK		
C	REVISED PER TDRR 35065 DR CHK		
D	REVISED PER TDRR 36256 DR		

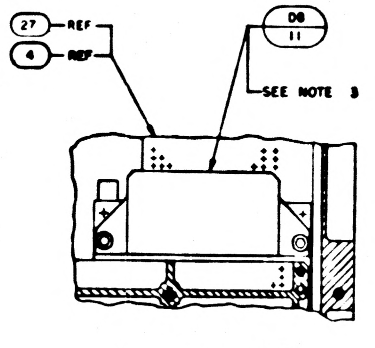


10 REF
5 REF
PRESSURE DRAIN SCREW REF SEE NOTE 7



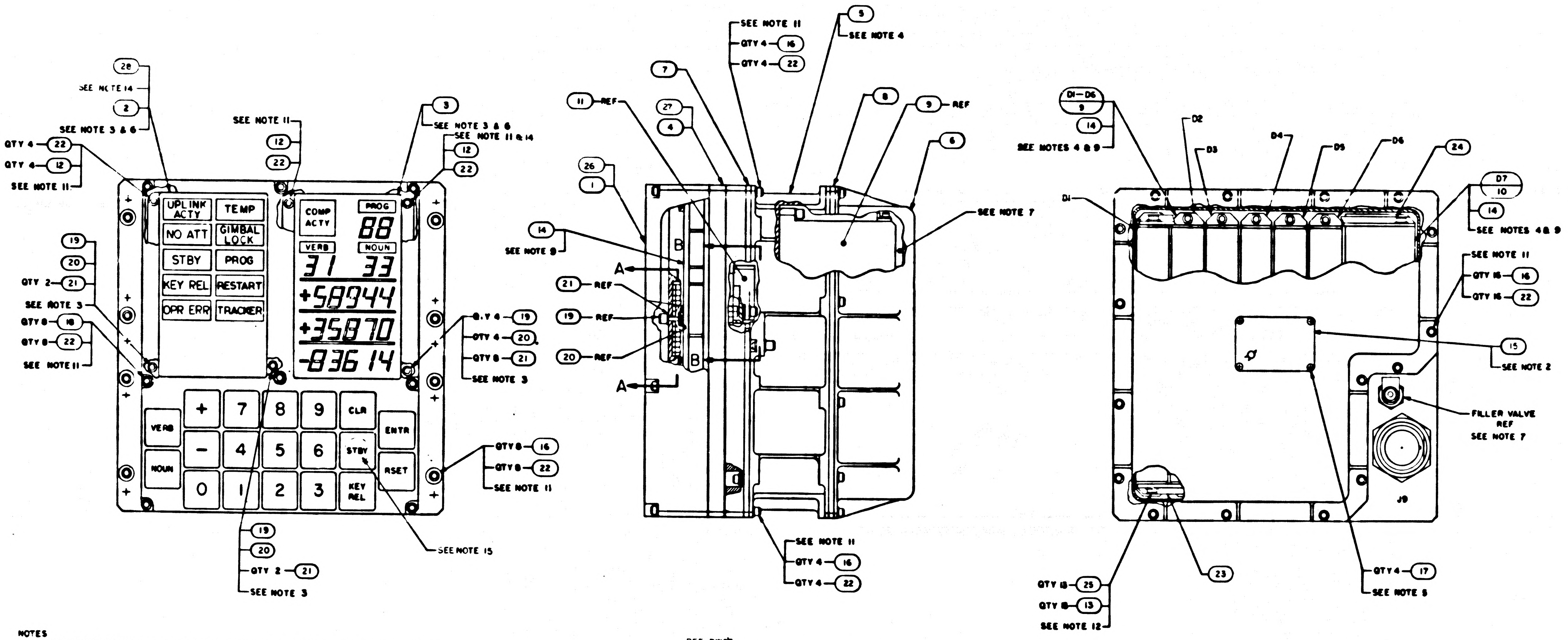
3 REF
2 REF
28 REF

SECTION A-A



27 REF
4 REF
D8
11
SEE NOTE 3

PARTIAL SECTION B-B



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SEE NOTE 14
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SEE NOTE 3 & 6
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QTY 4 12
SEE NOTE 11
SEE NOTE 11
12
22
3
SEE NOTE 3 & 6
SEE NOTE 11 & 14
12
22
19
20
QTY 2 21
SEE NOTE 3
QTY 8 18
QTY 8 22
SEE NOTE 11
UPLINK ACTY
TEMP
NO ATT
GIMBAL LOCK
STBY
PROG
KEY REL
RESTART
OPR ERR
TRACKER
COMP ACTY
PROG
88
VERB
NOUN
31 33
+58944
+35870
-83614
QTY 4 19
QTY 4 20
QTY 8 21
SEE NOTE 3
VERB
NOUN
+
-
7
8
9
4
5
6
0
1
2
3
CLR
ENTR
STBY
RSET
KEY REL
QTY 8 16
QTY 8 22
SEE NOTE 11
19
20
QTY 2 21
SEE NOTE 3
SEE NOTE 15
SEE NOTE 11
QTY 4 16
QTY 4 22
5
SEE NOTE 4
7
27
4
26
1
11 REF
8
9 REF
6
SEE NOTE 7
14
SEE NOTE 8
A
B
21 REF
19 REF
20 REF
A
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SEE NOTE 11
QTY 4 16
QTY 4 22
D1-D6
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SEE NOTES 4 & 9
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D3
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D6
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D1
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SEE NOTES 4 & 9
SEE NOTE 11
QTY 16 16
QTY 16 22
15
SEE NOTE 2
FILLER VALVE REF SEE NOTE 7
J9
QTY 13 25
QTY 8 13
SEE NOTE 12
23
QTY 4 17
SEE NOTE 5

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MARK "AGC DSKY ASSEMBLY" AND ITS RESPECTIVE PART NO., SERIAL NO., AND CONTRACT NO. MARKING TO BE PER ND1002019 AND SERIALIZE PER ND1002023
3. MOUNTING TORQUE FOR FIND NO. 19 AND JACK SCREWS OF FIND NO. 11 & 28 TO BE [illegible] 9.5 INCH POUNDS
4. MOUNTING TORQUE FOR JACK SCREWS OF FIND NO. 5, 9 & 10 TO BE 15-19 INCH POUNDS
5. APPLY SEALING COMPOUND MIL-S-22473 GRADE HV TO FIND NO. 17
6. FIND NO. 2 AND 3 TO BE ASSEMBLED TO HEIGHT OF BONDED RUBBER OF FIND NO. 4 USING FIND NO. 19. BEFORE INSTALLING FIND NO. 12. ASSEMBLE IN AN ENVIRONMENT HAVING A TEMPERATURE OF 72° ±5° AND A RELATIVE HUMIDITY OF 50% OR LESS
7. FILL WITH A MINIMUM OF 87% NITROGEN AND 8.7% HELIUM AND A MAXIMUM OF 4.3% AIR TO 1.05/1.10 ATMOSPHERES. DO NOT EXCEED 2 ATMOSPHERES DURING PRESSURIZATION
8. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2016030 OR PS2016031
9. APPLY FIND NO. 14 TO INTERFACE SURFACES OF THE FOLLOWING FIND NO'S: 4 OR 27 & 2 OR 28, 4 OR 27 & 3, 5 & 9, AND 5 & 10 DO NOT APPLY FIND NO 14 TO BONDED RUBBER SURFACES, TAPPED HOLES, OR MOUNTING HARDWARE.
10. AR DENOTES AS REQUIRED
11. MOUNTING TORQUE FOR FIND NO. 16, 18 AND 12 TO BE 8-9 INCH POUNDS
12. MOUNTING TORQUE FOR FIND NO. 13 TO BE 3.5-4.5 INCH POUNDS
13. FIND NO. 2 TO BE EITHER 1006387-002 OR 1006387-003
14. FIND NO. 3 TO BE ASSEMBLED TO HEIGHT OF BONDED RUBBER OF FIND NO. 27 USING FIND NO. 19 BEFORE INSTALLING FIND NO. 12. FIND NO. 28 TO BE ASSEMBLED USING EXISTING JACKING SCREWS. ASSEMBLE IN AN ENVIRONMENT HAVING A TEMPERATURE OF 72°±5°F AND A RELATIVE HUMIDITY OF 50% OR LESS.
15. THE -011 CONFIGURATION SHALL REFLECT A NOMENCLATURE AS SHOWN, THE -021 CONFIGURATION SHALL REFLECT "PRO" IN KEY POSITION INDICATED.

REF. DWG'S

1. UNIVERSAL DSKY SHIPPING CONTAINER 1006422
2. DSKY CONNECTOR COVER 1006425-14
3. UNIVERSAL DSKY HANDLING FIXTURE 2014013

DASH NO.	APPLICABLE NOTES
-021	1 THRU 5, 7 THRU 12, 14 & 15
-011	1 THRU 13 & 15

NOTE APPLICATION

QTY REQD -021	QTY REQD -011	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
		2003956	OUTLINE DRAWING	REF
		2005957	SIGNAL PIN ASSIGNMENT	REF
		2005954	INTERCONNECTING DIAGRAM	REF
		2005918	SIGNAL FLOW DIAGRAM	REF
1	—	2003899-011	INDICATOR ALARM & COVER ASSY	28
1	—	[illegible]-41	FRONT HOUSING ASSY	27
1		2[illegible]473[illegible]	[illegible]	26
13	13	NAS620C4	WASHER, FLAT	25
1	1	2004958	BRACKET, MODULE	24
1	1	2004959	BRACKET, MODULE	23
42	46	NAS620C6	WASHER, FLAT	22
9	12	1004546-4	WASHER, FLAT	21
4	6	MS16633-4014	RING, RETAINING	20
4	6	2004932-001	SCREW, JACKING	19
8	8	1001489-59	SCREW, HEX SOCKET HEAD	18
4	4	MS35216-1	SCREW, PAN HEAD, CROSS RECESSED	17
32	32	MS16995-18	SCREW, HEX SOCKET HEAD	16
1	1	1004260-20	NAMEPLATE	15
AR	AR	1006879	SILICONE COMPOUND	14
13	13	MS16995-10	SCREW, HEX SOCKET HEAD	13
2	6	MS16995-20	SCREW, HEX SOCKET HEAD	12
1	1	2003909-031	KEYBOARD MODULE ASSY D8	11
1	1	2003901-031	POWER SUPPLY ASSY MODULE D7	10
6	6	2003952-031	INDICATOR DRIVER MODULE D1-D6	9
	1	1006349	GASKET, BONDED, RUBBER	8
1	1	1006350	GASKET, BONDED, RUBBER	7
1	1	2004900	COVER, REAR	6
1	1	2003685-011	MAIN HOUSING ASSY	5
	1	2003949-021	FRONT HOUSING ASSY	4
1	1	1006315-001	INDICATOR, DIGITAL	3
—	1	SEE NOTE 13	INDICATOR, ALARM	2
—	1	2004929-021	COVER, FRONT	1

LIST OF MATERIALS

NEXT ASSY	USED ON	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES ± ± ± DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB CAMBRIDGE MASS
APPLICATION		MATERIAL	DRAWN DATE
		HEAT TREATMENT	CHECKED
		FINAL FINISH	APPROVAL APPROVAL NASA APPROVAL MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC DSKY ASSEMBLY

CODE IDENT NO	SIZE	NASA DRAWING NO
80230	J	2003994

SCALE 1/1 WT SHEET 1 OF 1

2003994 D

3.1.11.1 Logic Zero Input. With a logic "zero" applied to an input pin of J9 as specified in Table 3-2, contact closure shall exist between pins of J9 as specified in Table 3-2.

3.1.11.2 Logic One and Zero. The logic "ones" and "zeros" referenced in this section shall be as specified in sections 3.1.7.1 and 3.1.7.2

3.1.12 Isolated Relay Indicators. When programmed for RLYWD 12, and a logic "one" applied to an input pin of J9 as specified in Table 3-3, the corresponding isolated relay indicator shall be illuminated. The average intensity of the incandescent display shall be 15 ± 3 Foot-Lamberts. Also contact closure shall exist between pins of J9 as specified in Table 3-3.

3.1.12.1 Logic Zero Input. With a logic "zero" applied to an input pin of J9 specified in Table 3-3, a contact closure shall exist between pins of J9 as specified in Table 3-3.

TABLE 3-3

Logic Input	J9 Input Pin	Indicator Illuminated	Contact Closure Between Pins
1	41	NO ATT	
1	3	GIMBAL LOCK	57 and 31
1	10		17 and 34
1	23	TRACKER	57 and 31
1	42	PROG	57 and 31
0	10		6 and 34

3.1.12.2 Logic One and Zero. The logic "ones" and "zeros" referenced in this section shall be as specified in sections 3.1.7.1 and 3.1.7.2.

3.1.12.3 RLYWD 12 Input. The RLYWD 12 input shall be applied at the same time the indicator input pins receive a logic input signal. RLYWD 12 shall be a combination of logic "ones" and "zeros" (ref. section 3.1.13.2) applied to the pins of J9 as listed below:

Pins of J9	68	43	24	11
Logic Input	1	1	0	0

APOLLO G&N Specification
PS 2003994 Rev ~~C~~ D
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Release Authority: TDRR 32579
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

DISPLAY AND KEYBOARD ASSEMBLY

DRAWING NO. 2003994

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
(M) 6 JAN 67	A	32579	Initial Release		
(M) 7 APR 67	B	33497	1, 13, & 18	DMS FH	DMS FH
7/13/[illegible]	C	[illegible]4129	1,11,1[illegible],1[illegible],14,15	DMS FH	DMS FH
8/29/67	D	3[illegible]	1,[illegible],11,13,1[illegible],15	[illegible] FH	[illegible] FH
			Pages 2,3,5,6,10,12		
			Retyped		

This specification consists of pages 1 to 15 inclusive.

APPROVALS	NASA/MSC	EC Hall 12/8/66 W Stameris 8 Dec 66 MIT/IL	10/10/66 A.G. [illegible] RAY

1. SCOPE

1.1 This specification establishes the detail requirements for complete identification and acceptance of the Display and Keyboard Assembly Part No. 2003994-011.

2. APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein.

2.1 Effective Issues. Unless otherwise specified herein, Military and Government Standards and specifications shall be the issue in effect on the date of request for proposal or invitation to bid.

SPECIFICATIONS

APOLLO G&N

ND 1002214	General Specification for Preservation, Packaging, Packing and Container Marking of APOLLO Guidance and Navigation Major Assemblies, Assemblies, Subassemblies, Parts and Associated Ground Support Equipment.

DRAWINGS

APOLLO G&N

2003994	DISPLAY AND KEYBOARD ASSEMBLY

(Copies of Specifications, Standards, Drawings, Bulletins and Publications required by suppliers in connection with specific procurement functions should be obtained from the Procuring Activity or as directed by the Contracting Officer).

3.1.7.1 Logic One. A logic one shall be generated from a source of 4K ohms ± 5% returned to not more than 0.4 Volts for $15.0^{+0}_{-1.5}$ msec.

3.1.7.2 Logic Zero. A logic zero shall be generated from a source of 680K ohms ± 5% to ground (0 VDC).

3.1.8 Flashing Alarm Characters. With the flashing timing pulse applied to pins 46 and 72 of J9, the alarm indicators KEY REL and OPR ERR shall flash.

3.1.8.1 Flasher Timing Pulse. The Flasher Timing Pulse applied to the assembly shall be generated from a source having the following characteristics:

a. High Level	680K ohms ± 5% to ground (0 VDC)
b. Low Level	4K ohms ± 5% returned to not more than 0.4V
c. Frequency	1.5 ± 0.3 cps
d. Duty Cycle	approximately 50% (for reference (only)

3.1.9 Flashing Noun Characters. With the Flasher Timing Pulse specified in paragraph 3.1.8.1 applied to pin 70 of J9 and the Noun numerical characters programmed for 8's (ref. Tables 3-4 and 3-5), the numerical characters shall flash.

3.1.10 Flashing Verb Characters. With the Flasher Timing Pulse specified in paragraph 3.1.8.1 applied to pin 70 of J9 and the Verb numerical characters programmed for 8's (ref. Tables 3-4 and 3-5), the numerical characters shall flash.

TABLE 3-1

KEY DEPRESSED	OUTPUT PINS							
	79	76	77	78	51	49	48	28
KEY REL	1	1	0	0	1	0	0	0
VERB	1	0	0	0	1	0	0	0
NOUN	1	1	1	1	1	0	0	0
ENTR	1	1	1	0	0	0	0	0
CLR	1	1	1	1	0	0	0	0
+	1	1	0	1	0	0	0	0
-	1	1	0	1	1	0	0	0
0	1	0	0	0	0	0	0	0
1	0	0	0	0	1	0	0	0
2	0	0	0	1	0	0	0	0
3	0	0	0	1	1	0	0	0
4	0	0	1	0	0	0	0	0
5	0	0	1	0	1	0	0	0
6	0	0	1	1	0	0	0	0
7	0	0	1	1	1	0	0	0
8	0	1	0	0	0	0	0	0
9	0	1	0	0	1	0	0	0
RSET	1	0	0	1	0	0	1	0
STBY	0	0	0	0	0	1	0	1

NOTE: The figures one and zero used in Table 3-1 represent the logic "one" and "zero" levels specified in paragrahs 3.1.6.1 and 3.1.6.2.

3.1.11 Status and Caution Indicators. With a logic "one" applied to an input pin of J9 as specified in Table 3-2 and the input voltage set to 5.0 ± 0.1 VDC the corresponding status or caution indicator shall be illuminated. The average intensity of the incandescent display shall be 15 ± 3 Foot-Lamberts. The exception shall be the COMP ACTY indicator, which shall be illuminated at an average intensity of 10-24 Foot-Lamberts with the 10K ohm potentiometer (ref. paragraph 3.1.4) set to maximum resistance. Also a contact closure shall exist between pins of J9 as specified in Table 3-2.

TABLE 3-2

Logic Input	J9 Input Pin	Indicator Illuminated	Indicator Color (reference only)	Contact Closure Between pins of J9
1	47	UPLINK ACTY	White	
1	25	STBY	White	58 and 35
1	71	TEMP	Yellow	57 and 31
1	44	RESTART	Yellow	57 and 31
1	26	COMP ACTY	Green*	
1	69			37 and 61
1	46	KEY RFL	White	
1	18			36 and 60
1	45			55 and 84
1	45			15 and 32
1	27			80 and 81
1	27			57 and 83
1	66			33 and 56
1	72	OPR ERR	White	
0	66			16 and 56
0	44			31 and 53
0	18			36 and 85
0	45			57 and 84
0	45			14 and 32
0	69			19 and 37
0	27			54 and 83
0	27			82 and 81
0	25			59 and 35

*Electroluminescent indicator.

4.2.4 Input Requirements. All tests shall be performed with the input requirements specified in paragraph 3.1.3 applied, when required to the pins of J9 as detailed below:

4.2.4.1 14V Supply. The 14 VDC Supply shall be applied to pin 1 with pin 8 used as the DC return.

4.2.4.2 28V Supply. The 28 VDC Supply shall be applied to pins 21 and 30 with pin 8 used as the DC return.

4.2.4.3 5V Supply. The 5 VDC Supply shall be applied to pins 62 and 64 with pins 63 and 65 used as the DC return.

4.2.4.4 Input Sync Pulse. The Input Sync Pulse specified in paragraph 3.1.3.4 shall be applied to pin 7.

4.2.5 115V Supply. The 115 VRM Supply shall be applied to pin 38 with pin 40 used as the AC return.

4.2.6 Intensity Measurements. Display indicator intensity measurements shall be calculated in the following manner, with no individual readings greater than 25% from the spec limit for the average.

a. Electroluminescent Displays - intensity measurements shall be the average of six sample segments, with the exception of COMP ACTY which is to be measured and recorded as an individual segment. See paragraph 4.2.7, 4.2.14 and 4.2.16.

b. Incandescent Displays - intensity measurements shall be the average of six sample legends at least 1/8 inch in from the illuminated legend border. See paragraphs 4.2.14 and 4.2.15.

c. Push Switches - intensity measurements shall be the average of a single centrally located reading for each of the push switches. See paragraph 4.2.8

Display indicators shall be visually inspected for abnormal dark spots and light intensity variations.

4.2.7 Legend Illumination. Apply all inputs specified in paragraph 4.2.4. Vary the 10K ohm potentiometer from minimum to maximum resistance and verify the intensity of the segments as specified in paragraph 3.1.4. See paragraph 4.2.6.a.

4.2.14.2 Logic Input. Only one logic input shall be applied at any one time.

4.2.15 Isolated Relay Indicators. Apply all inputs specified in paragraph 4.2.2. Apply RLYWD 12 (ref. para. 3.1.12.3) and logic "ones" (ref. para. 3.1.12.2) as specified in paragraph 3.1.12. Verify that the contact closures between the pins listed in Table 3-3, and the isolated relay indicators are illuminated in accordance with paragraph 3.1.12. See paragraph 4.2.6b.

4.2.15.1 Logic Zero Input. Apply all inputs specified in paragraph 4.2.4. Apply logic "zeros" (ref. para. 3.1.12.3) as specified in paragraph 3.1.12.1. Verify that the contact closures between the pins listed in Table 3-3 are in accordance with paragraph 3.1.12.1.

4.2.15.2 Logic Inputs. Only one logic input shall be applied at any one time.

4.2.16 Numerical Electroluminescent Indicators. Apply all inputs specified in section 4.2.4. Set the 10K ohm potentiometer for maximum resistance. Apply the appropriate RLYWD and RLYBT combinations specified in Table 3-4 and 3-5, and verify that the specified numerical electroluminescent indicators are illuminated in accordance with paragraph 3.1.13. See paragraph 4.2.6a.

4.2.16.1 Apply all inputs specified in paragraph 4.2.4. Set the 10K ohm potentiometer to minimum resistance. Program numerical electroluminescent indicators as specified in paragraph 3.1.13.1. Verify that the numerical electroluminescent indicators shall be OFF.

5. PREPARATION FOR DELIVERY

5.1 GENERAL. Preparation for delivery shall be in accordance with Specification ND 1002214. The assembly shall be pressurized to .7 to 1.5 psig.

6. NOTES: None.

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PS 2003994 Rev E
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6 JAN 67	A	32579	Initial Release		
7 APR 67	B	33497	1, 13, & 18	DMS FH	DMS FH
7/1[illegible]	C	[illegible]	[illegible],11,1[illegible],1[illegible],14,15	DMS FH	DMS FH
8/29/67	D	3[illegible]765	1,4,7,8,[illegible],11,13,14,15	FH	FH
			Pages 2,3,5,6,10,12		
			Retyped		
11-16-67	E	35011	1, 2	FH	FH

This specification consists of pages 1 to 15 inclusive.

APPROVALS	NASA/MSC	EC Hall 12/8/66 W Stameris 8 Dec 66 MIT/IL	E J McFadden 10/12/66 A.G. [illegible] RAY

APOLLO G&N Specification
PS 2003994 Rev ~~C~~ F
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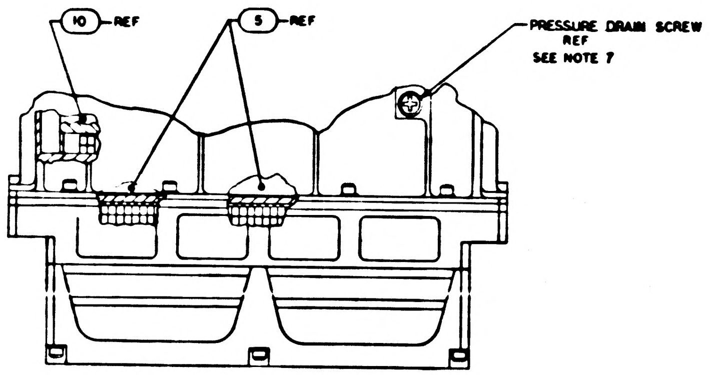
7 APR 67	B	33497	1, 13, & 18	DMS FH	DMS FH
7/13/67	C	34125	1,11,12,13,14,15	DMS FH	DMS FH
8/29/67	D	34765	1,4,7,8,9,11,13,14,15	FH	FH
			Pages 2,3,5,6,10,12		
			Retyped		
11-16-67	E	35071	1, 2	FH	FH
3-7-68	F	35839	1,13	FH	FH

This specification consists of pages 1 to 15 inclusive.

APPROVALS	NASA/MSC	EC Hall 12/8/66	W Stameris 8 Dec 66 MIT/IL	E S McFadden 10/10/66 N.G. Burke RAY

2003994 F

SYM	DESCRIPTION	DATE	APPROVAL
[illegible]	[illegible]		
B	CHANGED PER TDRR [illegible]445 DR [illegible] CHK [illegible]	[illegible]	[illegible]
C	REVISED PER TDRR 35065 DR [illegible] CHK [illegible]	[illegible]	[illegible]
D	REVISED PER TDRR [illegible] DR [illegible] CHK [illegible]	[illegible]	[illegible]
E	REVISED PER TDRR [illegible]459 DR [illegible] CHK [illegible]	[illegible]	[illegible]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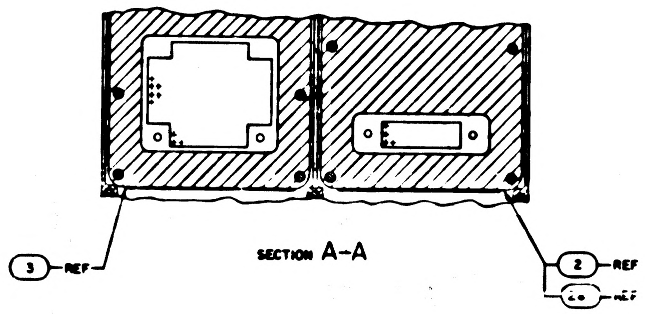
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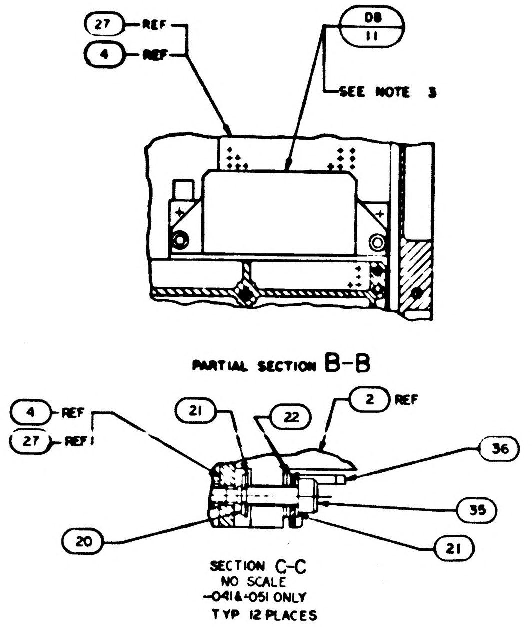
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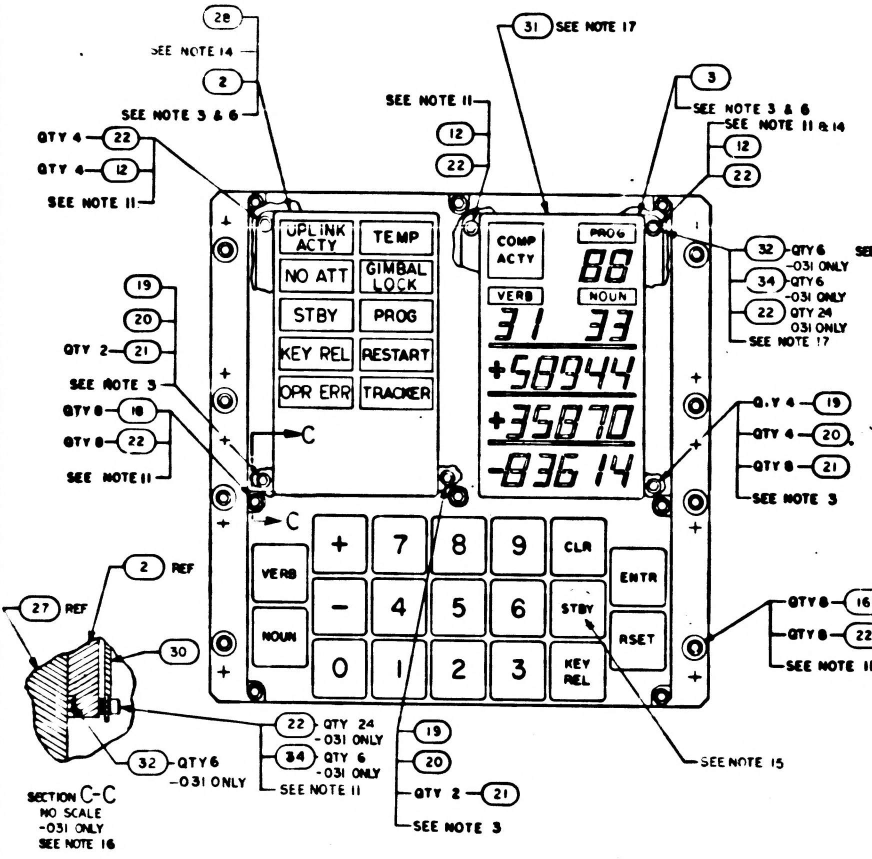
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UPLINK ACTY
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GIMBAL LOCK
STBY
PROG
KEY REL
RESTART
OPR ERR
TRACKER
COMP ACTY
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+35870
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34 QTY 6 -031 ONLY
22 QTY 24 -031 ONLY
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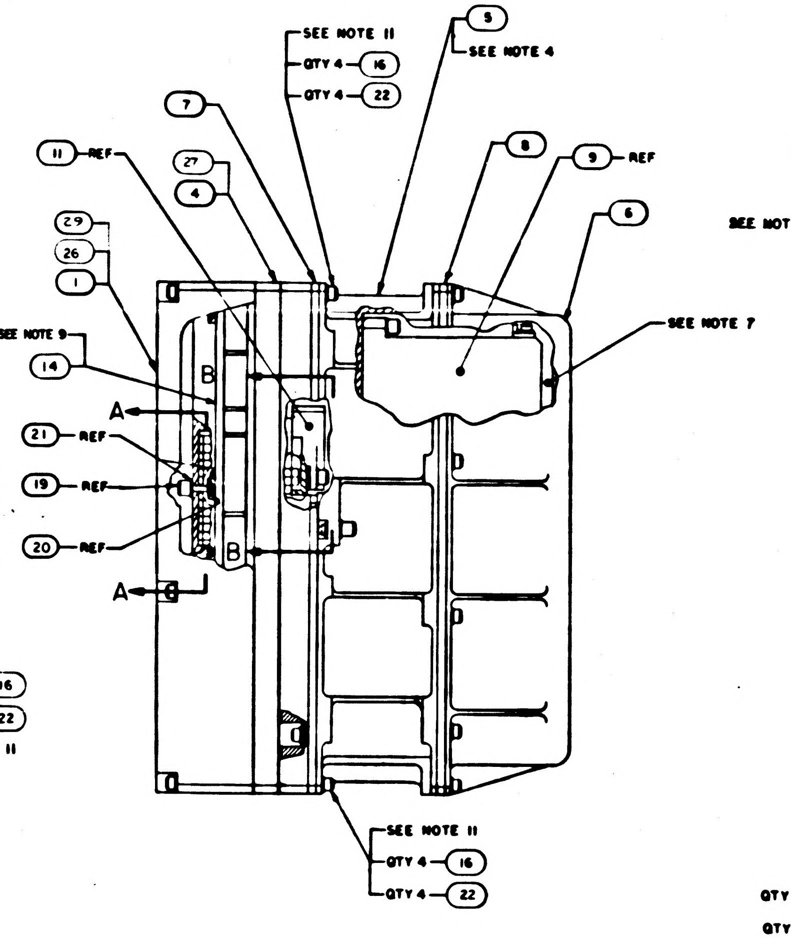
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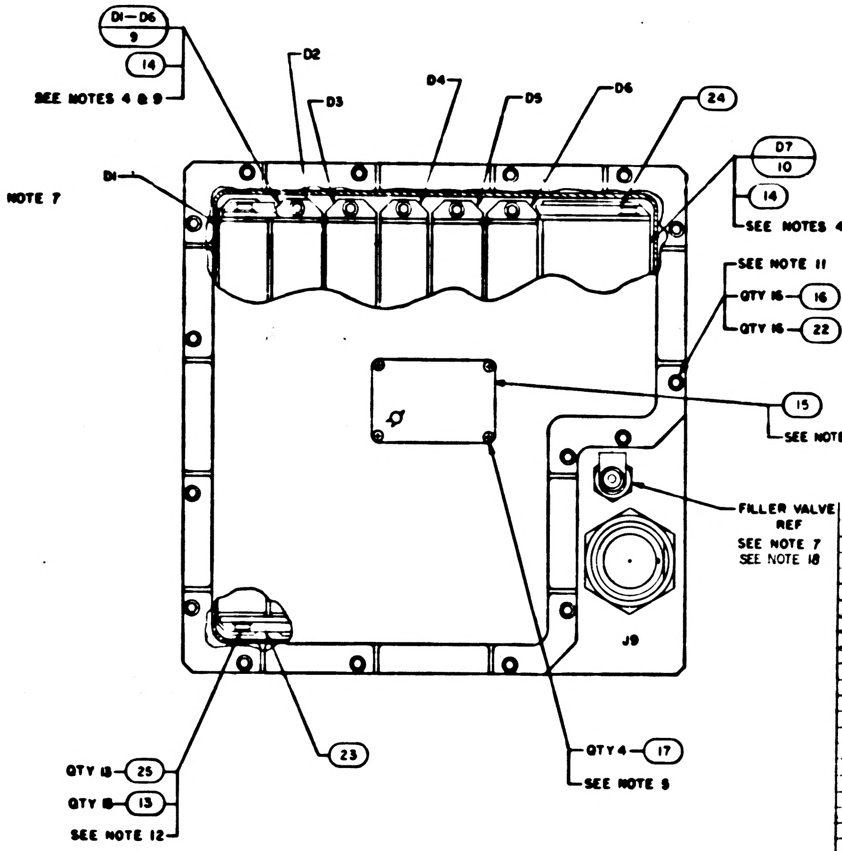
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SEE NOTE 11
QTY 16 16
QTY 16 22
15
SEE NOTE 2
FILLER VALVE REF
SEE NOTE 7
SEE NOTE 18
J9
QTY 13 25
QTY 13 13
SEE NOTE 12
23
QTY 4 17
SEE NOTE 5

NOTES

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4. MOUNTING TORQUE FOR JACK SCREWS OF FIND NO. 5, 9 & 10 TO BE 15-19 INCH POUNDS
5. APPLY SEALING COMPOUND MIL-S-22473 GRADE HV TO FIND NO. 17
6. FIND NO. 2 AND 3 TO BE ASSEMBLED TO HEIGHT OF BONDED RUBBER OF FIND NO. 4 USING FIND NO. 19. BEFORE INSTALLING FIND NO. 12. ASSEMBLE IN AN ENVIRONMENT HAVING A TEMPERATURE OF 72° ±5° AND A RELATIVE HUMIDITY OF 50% OR LESS
7. FILL WITH A MINIMUM OF 87% NITROGEN AND 8.7% HELIUM AND A MAXIMUM OF 4.3% AIR TO 1.05/1.10 ATMOSPHERES. DO NOT EXCEED 2 ATMOSPHERES DURING PRESSURIZATION
8. COMPLETED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS OF PS2016030 OR [illegible]
9. APPLY FIND NO. 14 TO INTERFACE SURFACES OF THE FOLLOWING FIND NO'S: 4 OR 27 & 2 OR 28, 4 OR 27 & 3, 5 & 9, AND 5 & 10 DO NOT APPLY [illegible] BONDED RUBBER SURFACES, TAPPED HOLES, OR MOUNTING HARDWARE.
10. AR DENOTES AS REQUIRED
11. MOUNTING TORQUE FOR FIND NO. 16, 18 12 AND 34 TO BE 8-9 INCH POUNDS
12. MOUNTING TORQUE FOR FIND NO. 13 TO BE 3.5-4.5 INCH POUNDS
13. FIND NO. 2 TO BE EITHER 1006387-002 OR 1006387-003
14. FIND NO. 3 TO BE ASSEMBLED TO HEIGHT OF BONDED RUBBER OF FIND NO. 27 USING FIND NO. 19 BEFORE INSTALLING FIND NO. 12. FIND NO. 28 TO BE ASSEMBLED USING EXISTING JACKING SCREWS. ASSEMBLE IN AN ENVIRONMENT HAVING A TEMPERATURE OF 72°±5°F AND A RELATIVE HUMIDITY OF 50% OR LESS.
15. THE -011 & 041 CONFIGURATION SHALL REFLECT A NOMENCLATURE AS SHOWN. THE -021-031&-051 CONFIGURATION SHALL REFLECT "PRO" IN KEY POSITION INDICATED.
16. ASSEMBLE FIND NO. 30 TO FIND NO. 2 USING FIND NO. 34. USE FIND NO. 22 QTY 3 PER SCREW AS SHIMS, BETWEEN FIND NO. 30 AND FIND NO. 2. USE FIND NO. 22 QTY 1 PER SCREW UNDER EACH SCREW HEAD. USE FIND NO. 32 QTY 1 PER SCREW ON THE THREADED PORTION OF EACH SCREW TO ACT AS A RETAINING RING DURING ASSEMBLY OF FRAME & LIGHT ONTO THE DSKY. CAUTION SHOULD BE EXERCISED PRIOR TO ASSEMBLY TO DSKY AS IT IS DIFFICULT TO REMOVE FIND NO. 2 AFTER ASSEMBLY WITHOUT JACKING HARDWARE.

REF. DWG'S

1.	UNIVERSAL DSKY SHIPPING CONTAINER	1006422
2.	DSKY CONNECTOR COVER	1006425-14
3	UNIVERSAL DSKY HANDLING FIXTURE	2014013

NOTES:

17. ASSEMBLE FIND NO. 31 TO FIND NO. 3 USING FIND NO. 34. USE FIND NO. 22, QTY 3 PER SCREW AS SHIMS BETWEEN FIND NO 31 AND FIND NO 3. USE FIND NO. 22, QTY 1 PER SCREW UNDER EACH SCREW HEAD. USE FIND NO. 32 ON THE THREADED PORTION OF EACH SCREW TO ACT AS A RETAINING RING DURING ASSEMBLY OF FRAME & LIGHT ONTO DSKY. CAUTION SHOULD BE EXERCISED PRIOR TO ASSEMBLY TO DSKY AS IT IS EXTREMELY DIFFICULT TO REMOVE FIND NO. 3 AFTER ASSEMBLY WITHOUT JACKING HARDWARE.
18. PRIOR TO ASSEMBLY OF FIND NO. 2 AND FIND NO. 3 TO FIND NO. 27 FILL FEMALE INSULATORS OF FIND NO. 27 OR FIND NO. 4 WITH FIND NO. 33

DASH NO.	APPLICABLE NOTES
-051	1 THRU 13 15 16
-041	1 THRU 13 15 18
-031	1 THRU 5,7,9,10,11,12,13,15,16,17,18
-021	1 THRU 5,7 THRU 12, 14 & 15
-011	1 THRU 13 & 15

NOTE APPLICATION

QTY REQD	QTY REQD	QTY REQD	QTY REQD	QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
2	2	—	—	—	[illegible]	[illegible]	[illegible]
12	12	—	—	—	[illegible]	[illegible]	[illegible]
	—	12	—	—	1001489-26	SCREW HEX SOCKET HEAD	34
AR	AR	AR	—	—	MIL-S-8660	SILICONE COMPOUND	[illegible]
		12	—	—	MS28775-006	O RING	[illegible]
		1	—	—	[illegible]-031	E/L COVER ASSY	[illegible]
					2003956	OUTLINE DRAWING	REF
					2005957	SIGNAL PIN ASSIGNMENT	REF
					2005954	INTERCONNECTING DIAGRAM	REF
					2005918	SIGNAL FLOW DIAGRAM	REF
—	—	1	—	—	[illegible]-021	I/L COVER ASSY	30
		1	—		2004739-001	COVER FRONT	29
—	—	—	1	—	[illegible]-011	INDICATOR ALARM & COVER ASSY	[illegible]
1	—	1	1	—	[illegible]	FRONT HOUSING ASSY	[illegible]
—	—	—	1		[illegible]	[illegible]	[illegible]
13	13	13	13	13	NAS620C4	WASHER, FLAT	25
1	1	1	1	1	2004958	BRACKET, MODULE	24
1	1	1	1	1	2004959	BRACKET, MODULE	23
[illegible]	[illegible]	80	42	46	NAS620C6	WASHER, FLAT	22
[illegible]	[illegible]	—	[illegible]	12	1004546-4	WASHER, FLAT	21
[illegible]	[illegible]	—	4	6	MS16633-4014	RING, RETAINING	20
—	—	—	4	6	2004932-001	SCREW, JACKING	19
		8	8	8	1001489-59	SCREW, HEX SOCKET HEAD	18
4	4	4	4	4	MS35216-1	SCREW, PAN HEAD, CROSS RECESSED	17
[illegible]	[illegible]	32	32	32	MS16995-18	SCREW, HEX SOCKET HEAD	16
	1	1	1	1	1004260-20	NAMEPLATE	15
AR	AR	AR	AR	AR	1006879	SILICONE COMPOUND	14
13	13	13	3	13	MS16995-10	SCREW, HEX SOCKET HEAD	13
—	—	—	2	6	MS16995-20	SCREW HEX, SOCKET HEAD	12
1	1	1	1	1	2003909-031	KEYBOARD MODULE ASSY D6	
1	1	1	1	1	2003901-031	POWER SUPPLY ASSY MODULE D7	10
[illegible]	[illegible]	6	6	6	2003952-031	INDICATOR DRIVER MODULE D1-D6	9
1	1	1		1	1006349	GASKET, BONDED, RUBBER	8
1	1	1	1	1	1006350	GASKET, BONDED, RUBBER	7
1	1	1		1	2004900	COVER, REAR	6
1	1	1	1	1	2003685-011	MAIN HOUSING ASSY	5
—	1	—	—	1	2003949-021	FRONT HOUSING ASSY	4
1	1	1	1	1	1006315-001	INDICATOR, DIGITAL	3
1	1	1		1	SEE NOTE 13	INDICATOR, ALARM	2
—	—	—	—	1	2004929-021	COVER, FRONT	
[illegible]	[illegible]	031	021	011	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN [illegible] DATE [illegible]
CHECKED [illegible]
APPROVAL
APPROVAL [illegible]
NASA APPROVAL
[illegible] APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON TEXAS

AGC DSKY ASSEMBLY

CODE IDENT NO 80230
SIZE J
NASA DRAWING NO 2003994
SCALE 1/1
WT
SHEET 1 OF 1

2003994 G

3.1.11.1 Logic Zero Input. With a logic "zero" applied to an input pin of J9 as specified in Table 3-2, contact closure shall exist between pins of J9 as specified in Table 3-2.

3.1.11.2 Logic One and Zero. The logic "ones" and "zeros" referenced in this section shall be as specified in sections 3.1.7.1 and 3.1.7.2

3.1.12 Isolated Relay Indicators. When programmed for RLYWD 12, and a logic "one" applied to an input pin of J9 as specified in Table 3-3, the corresponding isolated relay indicator shall be illuminated. The average intensity of the incandescent display shall be 15 +3 −4 ~~Foot-Lamberts~~. Also contact closure shall exist between pins of J9 as specified in Table 3-3.

3.1.12.1 Logic Zero Input. With a logic "zero" applied to an input pin of J9 specified in Table 3-3, a contact closure shall exist between pins of J9 as specified in Table 3-3.

TABLE 3-3

Logic Input	J9 Input Pin	Indicator Illuminated	Contact Closure Between Pins
1	41	NO ATT	
1	3	GIMBAL LOCK	57 and 31
1	10		17 and 34
1	23	TRACKER	57 and 31
1	42	PROG	57 and 31
0	10		6 and 34

3.1.12.2 Logic One and Zero. The logic "ones" and "zeros" referenced in this section shall be as specified in sections 3.1.7.1 and 3.1.7.2.

3.1.12.3 RLYWD 12 Input. The RLYWD 12 input shall be applied at the same time the indicator input pins receive a logic input signal. RLYWD 12 shall be a combination of logic "ones" and "zeros" (ref. section 3.1.13.2) applied to the pins of J9 as listed below:

Pins of J9	68	43	24	11
Logic Input	1	1	0	0

APOLLO G&N Specification
PS 2003994 Rev ~~[illegible]~~ G
Original Issue Date: 6 JAN 67
Release Authority: TDRR 32579
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

DISPLAY AND KEYBOARD ASSEMBLY

DRAWING NO. 2003994

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
6 JAN 67	A	32579	Initial Release		
7 APR 67	B	33497	1, 13, & 18	FH	FH
7/13/[illegible]	[illegible]	[illegible]	1,[illegible],[illegible],[illegible],14,15	FH	FH
8/29/67	D	3[illegible]765	1,4,7,8,[illegible],11,13,14,15	FH	FH
			Pages 2,3,5,6,10,12		
			Retyped		
11-16-67	E	350[illegible]	1, 2	FH	FH
2-7-68	F	[illegible]39	1,13	FH	FH
3-12-68	G	35918	1,[illegible],[illegible],8	FH	FH

This specification consists of pages 1 to 15 inclusive.

APPROVALS	NASA/MSC	EC Hall 12/8/66	W Stameris 8 Dec 66 MIT/IL	E J McFadden 10/10/66 [illegible] A.G. [illegible] [illegible] RAY

3.1.11 Status and Caution Indicators. With a logic "one" applied to an input pin of J9 as specified in Table 3-2 and the input voltage set to 5.0 ± 0.1 VDC the corresponding status or caution indicator shall be illuminated. The average intensity of the incandescent display shall be 15 +3 -4 Foot-Lamberts.The exception shall be the COMP ACTY indicator, which shall be illuminated at an average intensity of 10-24 Foot-Lamberts with the 10K ohm potentiometer (ref. paragraph 3.1.4) set to maximum resistance. Also a contact closure shall exist between pins of J9 as specified in Table 3-2.

TABLE 3-2

Logic Input	J9 Input Pin	Indicator Illuminated	Indicator Color (reference only)	Contact Closure Between pins of J9
1	47	UPLINK ACTY	White	
1	25	STBY	White	58 and 35
1	71	TEMP	Yellow	57 and 31
1	44	RESTART	Yellow	57 and 31
1	26	COMP ACTY	Green*	
1	69			37 and 61
1	46	KEY REL	White	
1	18			36 and 60
1	45			55 and 84
1	45			15 and 32
1	27			80 and 81
1	27			57 and 83
1	66			33 and 56
1	72	OPR ERR	White	
0	66			16 and 56
0	44			31 and 53
0	18			36 and 85
0	45			57 and 84
0	45			14 and 32
0	69			19 and 37
0	27			54 and 83
0	27			82 and 81
0	25			59 and 35

*Electroluminescent indicator.

APOLLO G&N Specification
PS 2003994 Rev ~~[illegible]~~ **-H**
Original Issue Date: 6 Jan 67
Release Authority: TDRR 32579
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

DISPLAY AND KEYBOARD ASSEMBLY

DRAWING NO. 2003994

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
Ⓜ 6 Jan 67	A	32579	Initial Release		
Ⓜ 7 Apr 67	B	33497	1, 13, & 18	FH	FH
7/13/[illegible]	C	34125	1,11,12,13,14,15	FH	FH
8/29/67	D	3[illegible]765	1,4,7,8,9,11,13,14,15	FH	FH
			Pages 2,3,5,6,10,12		
			Retyped		
Ⓜ 11-16-67	E	35071	1, 2	FH	FH
2-7-68	F	35839	1,13	FH	FH
3-22-68	G	35918	1,5,6,8	FH	FH
4/26/68	H	36118	1, 6	FH	FH

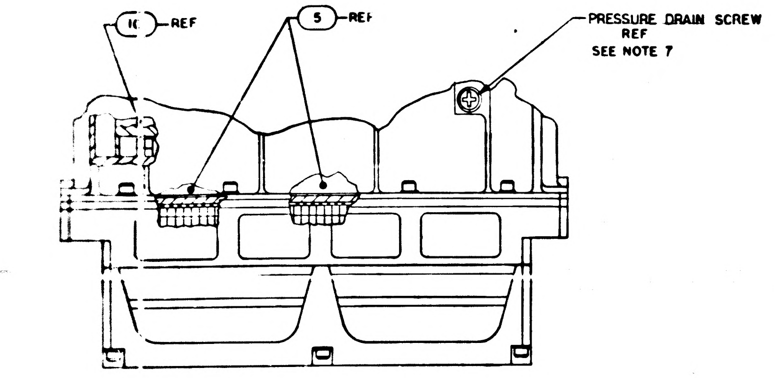
This specification consists of pages 1 to 15 inclusive.

APPROVALS	NASA/MSC	EC Hall 12/8/66 W Stameris 8 Dec 66 MIT/IL	12/12/66 A.G. [illegible] RAY

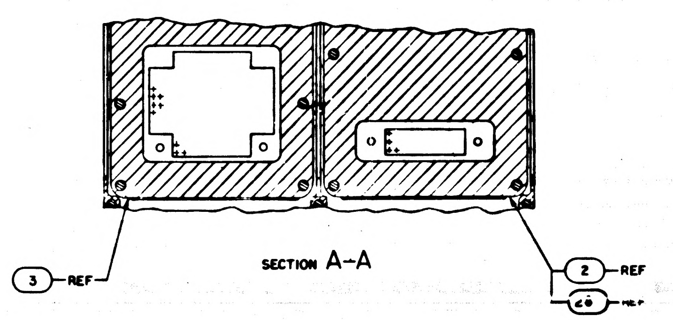
2003994 J

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
	INITIAL RELEASE TDRR 32572	[illegible]	[illegible]
B	CHANGED PER TDRR 33445 DR [illegible] CHK [illegible]	[illegible]	[illegible]
C	REVISED PER TDRR 35065 DR [illegible] CHK [illegible]	[illegible]	[illegible]
D	REVISED PER TDRR 36256 DR [illegible] CHK E Urban	[illegible]	[illegible]
E	REVISED PER TDRR 36459 DR Tom Smith CHK E Urban	[illegible]	[illegible]
F	REVISED PER TDRR 36487 DR [illegible] CHK E Urban	[illegible]	[illegible]
G	REVISED PER TDRR 36656 DR [illegible] CHK [illegible]	[illegible]	[illegible]
H	REVISED PER TDRR 37188 DR Tom Smith CHK [illegible]	[illegible]	[illegible]
J	REVISED PER TDRR 37318 DR [illegible] CHK E Urban	[illegible]	[illegible]

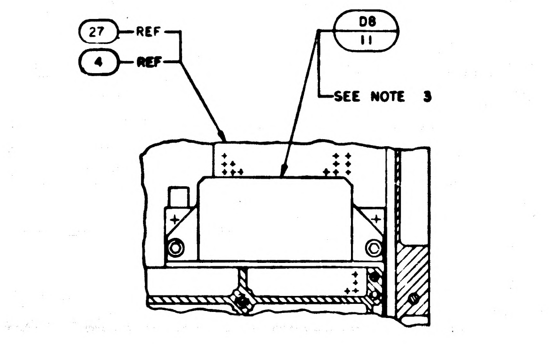


10 REF
5 REF
PRESSURE DRAIN SCREW
REF
SEE NOTE 7



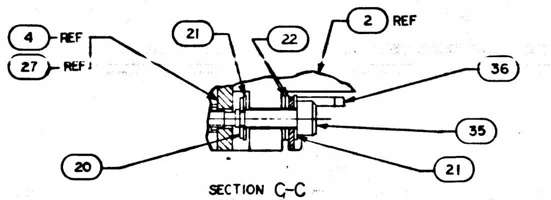
3 REF
2 REF
29 REF

SECTION A-A



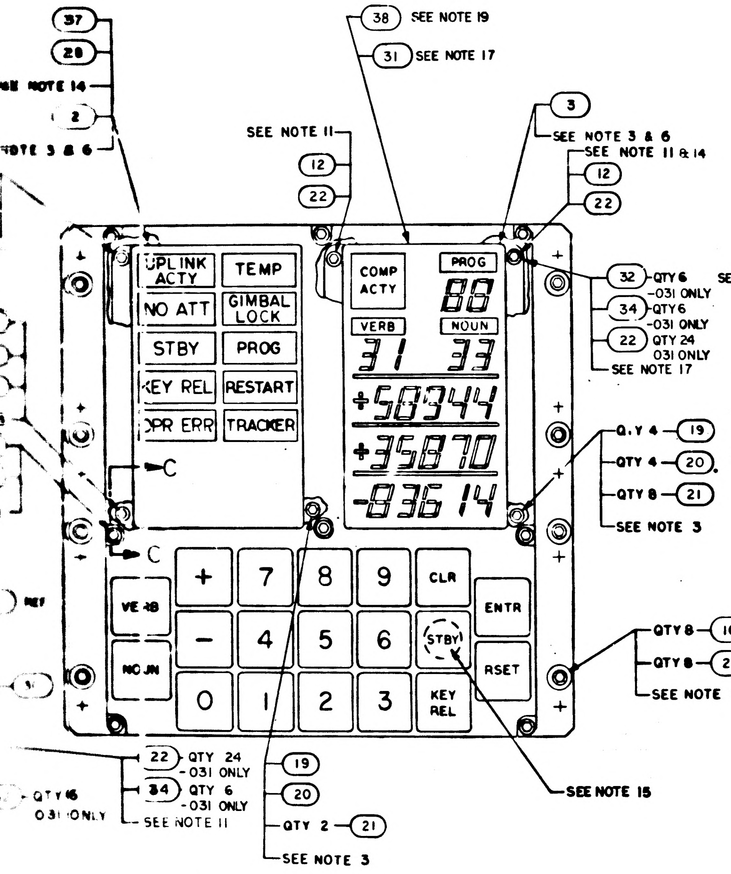
27 REF
4 REF
D8
11
SEE NOTE 3

PARTIAL SECTION B-B

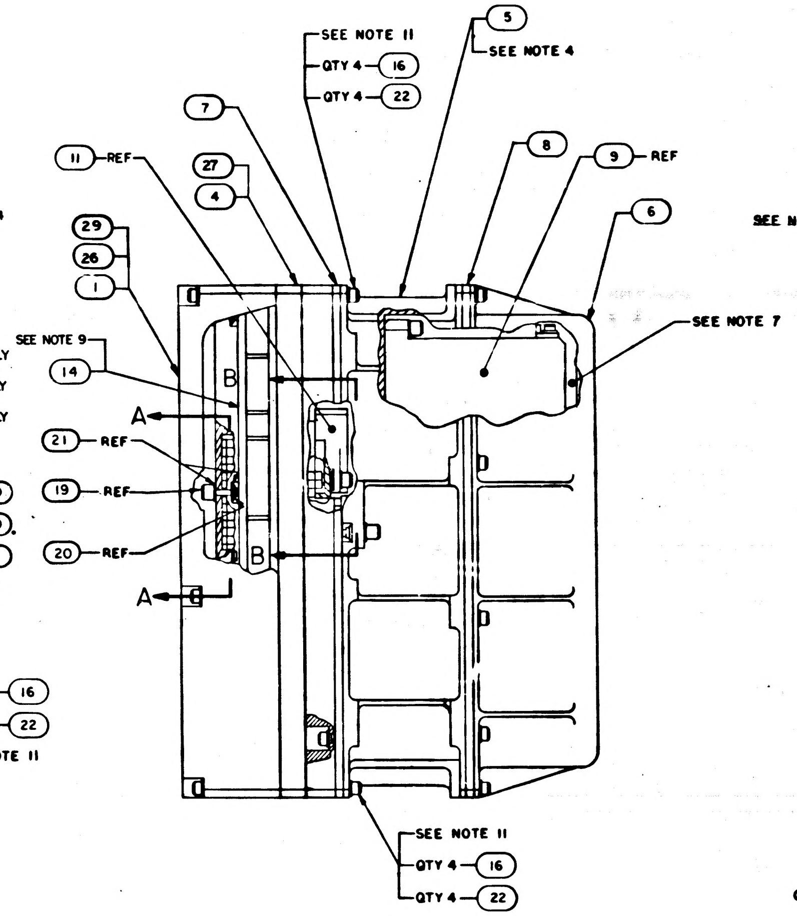


4 REF
27 REF
21
22
2 REF
36
35
20
21

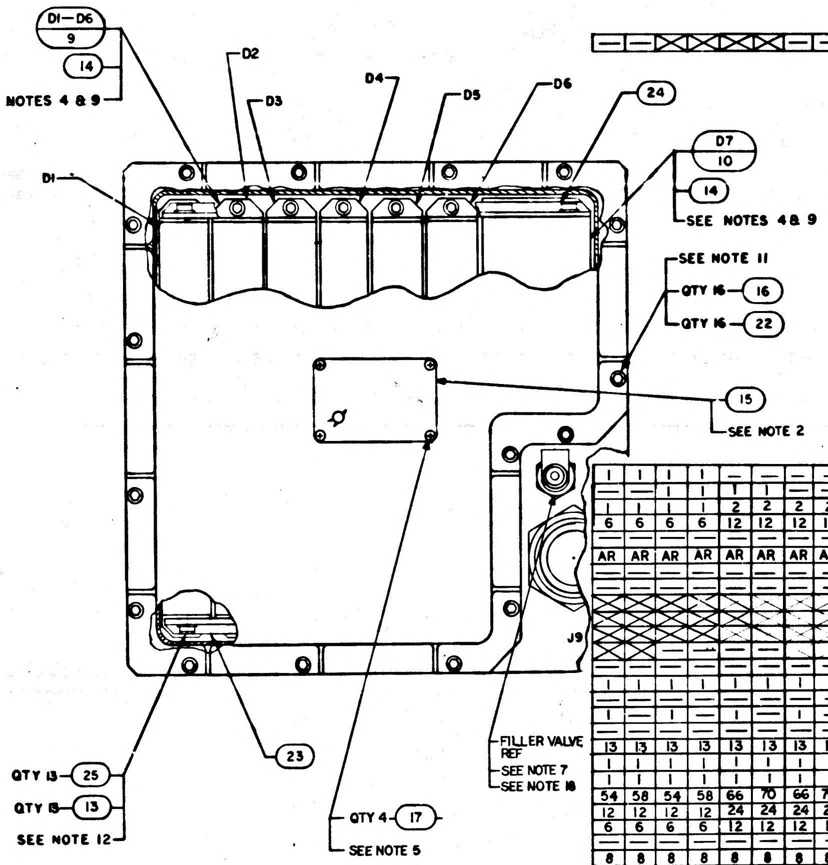
SECTION C-C
NO SCALE
-041, -051, -061 & -071
TYP 12 PLACES
FOR -081, -091, -111 & -121
TYP 6 PLACES



37
28
SEE NOTE 14
2
SEE NOTE 3 & 6
38 SEE NOTE 19
31 SEE NOTE 17
SEE NOTE 11
12
22
3
SEE NOTE 3 & 6
SEE NOTE 11 & 14
12
22
UPLINK ACTY
TEMP
NO ATT
GIMBAL LOCK
STBY
PROG
KEY REL
RESTART
OPR ERR
TRACKER
COMP ACTY
PROG
88
VERB
NOUN
31 33
+58344
+35870
-83614
32 QTY 6 -031 ONLY
34 QTY 6 -031 ONLY
22 QTY 24 031 ONLY
SEE NOTE 17
QTY 4 19
QTY 4 20
QTY 8 21
SEE NOTE 3
C
C
VERB
NOUN
+
-
0
7
8
9
4
5
6
1
2
3
CLR
ENTR
STBY
RSET
KEY REL
QTY 8 16
QTY 8 22
SEE NOTE 11
SEE NOTE 15
22 QTY 24 -031 ONLY
34 QTY 6 -031 ONLY
QTY 16 -031 ONLY
SEE NOTE 11
19
20
QTY 2 21
SEE NOTE 3



SEE NOTE 11
QTY 4 16
QTY 4 22
5
SEE NOTE 4
7
8
9 REF
11 REF
27
4
6
29
26
1
SEE NOTE 9
14
SEE NOTE 7
A
B
21 REF
19 REF
20 REF
B
A
SEE NOTE 11
QTY 4 16
QTY 4 22



D1-D6
9
14
SEE NOTES 4 & 9
D2
D3
D4
D5
D6
24
D1
D7
10
14
SEE NOTES 4 & 9
SEE NOTE 11
QTY 16 16
QTY 16 22
15
SEE NOTE 2
J9
FILLER VALVE REF
SEE NOTE 7
SEE NOTE 18
23
QTY 13 25
QTY 13 13
SEE NOTE 12
QTY 4 17
SEE NOTE 5

—	—	⊠	⊠	⊠	⊠	—	—	—	—	—	2005977	SIGNAL FLOW DIAGRAM	REF

QTY REQD	QTY REQD	QTY REQD	QTY REQD	QTY REQD	QTY REQD	QTY REQD	QTY REQD	QTY REQD	QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
121	111	091	081	071	061	051	041	031	021	011		LIST OF MATERIALS	
1	1	1	1	—	—	—	—	—	—	—	SEE NOTE 20	E/L & COVER ASSY	38
—	—	1	1	1	1	—	—	—	—	—	1005025 001	INDICATOR STATUS/CAUTION	37
1	1	1	1	2	2	2	2	—	—	—	2003897-041	COVER ASSY	36
6	6	6	6	12	12	12	12	—	—	—	2004932-004	SCREW JACKING	35
—	—	—	—	—	—	—	—	12	—	—	1001489-26	SCREW HEX SOCKET HEAD	34
AR	AR	AR	AR	AR	AR	AR	AR	AR	—	—	1008954	SILICONE COMPOUND	33
—	—	—	—	—	—	—	—	12	—	—	MS28775-006	"O" RING	32
—	—	—	—	—	—	—	—	1	—	—	2003897-031	E/L COVER ASSY	31
⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	2003956	OUTLINE DRAWING	REF
⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	2005957	SIGNAL PIN ASSIGNMENT	REF
⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	⊠	2005954	INTERCONNECTING DIAGRAM	REF
⊠	⊠	—	—	—	—	⊠	⊠	⊠	⊠	⊠	2005918	SIGNAL FLOW DIAGRAM	REF
—	—	—	—	—	—	—	—	1	—	—	2003897-021	I/L COVER ASSY	30
1	1	1	1	1	1	1	1	1	—	—	2004739 001	COVER FRONT	29
—	—	—	—	—	—	—	—	—	1	—	2003899-011	INDICATOR ALARM & COVER ASSY	28
1	—	1	—	1	—	1	—	1	1	—	2003949 041	FRONT HOUSING ASSY	27
—	—	—	—	—	—	—	—	—	1	—	2004739-000	COVER FRONT	26
13	13	13	13	13	13	13	13	13	13	13	NAS620C4	WASHER, FLAT	25
1	1	1	1	1	1	1	1	1	1	1	2004958	BRACKET, MODULE	24
1	1	1	1	1	1	1	1	1	1	1	2004959	BRACKET, MODULE	23
54	58	54	58	66	70	66	70	88	42	46	NAS620C6	WASHER, FLAT	22
12	12	12	12	24	24	24	24	—	8	12	1004546-4	WASHER, FLAT	21
6	6	6	6	12	12	12	12	—	4	6	MS16633-4014	RING, RETAINING	20
—	—	—	—	—	—	—	—	—	4	6	2004932-001	SCREW, JACKING	19
8	8	8	8	8	8	8	8	8	8	8	1001489-59	SCREW, HEX SOCKET HEAD	18
4	4	4	4	4	4	4	4	4	4	4	MS35216-1	SCREW, PAN HEAD, CROSS RECESSED	17
32	32	32	32	32	32	32	32	32	32	32	MS16995-18	SCREW, HEX, SOCKET HEAD	16
1	1	1	1	1	1	1	1	1	1	1	1004260-20	NAMEPLATE	15
AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	AR	1006879	SILICONE COMPOUND	14
13	13	13	13	13	13	13	13	13	13	13	MS16995-10	SCREW, HEX SOCKET HEAD	13
—	—	—	—	—	—	—	—	—	2	6	MS16995-20	SCREW, HEX, SOCKET HEAD	12
1	1	1	1	1	1	1	1	1	1	1	2003909-031	KEYBOARD MODULE ASSY D8	11
1	1	1	1	1	1	1	1	1	1	1	2003901-031	POWER SUPPLY ASSY MODULE D7	10
6	6	6	6	6	6	6	6	6	6	6	2003952-031	INDICATOR DRIVER MODULE D1-D6	9
1	1	1	1	1	1	1	1	1	1	1	1006349	GASKET, BONDED, RUBBER	8
1	1	1	1	1	1	1	1	1	1	1	1006350	GASKET, BONDED, RUBBER	7
1	1	1	1	1	1	1	1	1	1	1	2004900	COVER, REAR	6
1	1	1	1	1	1	1	1	1	1	1	2003685-011	MAIN HOUSING ASSY	5
—	1	—	1	—	1	—	1	—	—	1	2003949-021	FRONT HOUSING ASSY	4
1	1	—	—	1	1	1	1	1	1	1	1006315 001	INDICATOR, DIGITAL	3
1	1	—	—	—	—	1	1	1	—	1	SEE NOTE 13	INDICATOR, ALARM	2
—	—	—	—	—	—	—	—	—	—	1	2004929-021	COVER, FRONT	1

...PRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
...'AGC DSKY ASSEMBLY' AND ITS RESPECTIVE PART NO., SERIAL NO., AND CONTRACT NO.
...TO BE PER ND1002019 AND SERIALIZE PER ND1002023
...ING TORQUE FOR FIND NO 19 & NO 35 AND JACK SCREWS OF FIND NO. 11 & 28 TO BE 8.5-9.5 INCH POUNDS
...ING TORQUE FOR JACK SCREWS OF FIND NO. 5, 9 & 10 TO BE 15-19 INCH POUNDS
...SEALING COMPOUND PER 1008953-003 TO FIND NO.17
...NO. 2 AND 3 TO BE ASSEMBLED TO HEIGHT OF BONDED RUBBER OF FIND NO. 4 USING
NO. 19 BEFORE INSTALLING FIND NO. 12. ASSEMBLE IN AN ENVIRONMENT HAVING A
...ERATURE OF 72 ±5° AND A RELATIVE HUMIDITY OF 50% OR LESS
...WITH A MINIMUM OF 87% NITROGEN AND 8.7% HELIUM AND A MAXIMUM
...% AIR TO 1.05 ... O ATMOSPHERES. DO NOT EXCEED 2 ATMOSPHERES DURING PRESSURIZATION
...TED ASSEMBLY SHALL BE TESTED IN ACCORDANCE WITH AND SHALL MEET ALL THE REQUIREMENTS
... PS2 ... USE PS ... 041 FOR -061, -071, -081, -091.
...FIND NO. 14 TO INTERFACE SURFACES OF THE FOLLOWING FIND NO S: 4 OR 27 & 2 OR 28, 4 OR 27 & 3, 5 & 9, AND 5 & 10
APPLY FIND NO 1... TO BONDED RUBBER SURFACES, TAPPED HOLES, OR MOUNTING HARDWARE.
...OTES AS REQUIRED
...TORQUE FOR FIND NO. 16, 18 12 AND 34 TO BE 8-9 INCH POUNDS
...TORQUE FOR FIND NO. 13 TO BE 3.5-4.5 INCH POUNDS
...2 TO BE EITHER 1006387-002 OR 1006387-003
...3 TO BE ASSEMBLED TO HEIGHT OF BONDED RUBBER OF FIND NO 27 USING FIND NO.19 BEFORE INSTALLING FIND NO.12.
...O 28 TO BE ASSEMBLED USING EXISTING JACKING SCREWS. ASSEMBLE IN AN ENVIRONMENT HAVING A TEMPERATURE OF 72°±5°F
RELATIVE HUMIDITY OF 50% OR LESS.
-041, -061, -081, -111 CONFIGURATION SHALL REFLECT A NOM AS SHOWN. THE -021, -031, -051, -071, -091 & -121 CONFIGURATION SHALL
...HOWN IN KEY POSITION INDICATED
...FIND NO 30 TO FIND NO.2 USING FIND NO.34. USE FIND NO.22 QTY 3 PER SCREW AS SHIMS, BETWEEN FIND NO. 30 AND FIND NO. 2. USE FIND
... PER SCREW UNDER EACH SCREW HEAD. USE FIND NO. 32 QTY 1 PER SCREW ON THE THREADED PORTION OF EACH SCREW TO ACT AS A RETAINING
...RING ASSEMBLY OF FRAME & LIGHT ONTO THE DSKY. CAUTION SHOULD BE EXERCISED PRIOR TO ASSEMBLY TO DSKY AS IT IS DIFFICULT TO REMOVE
...AFTER ASSEMBLY WITHOUT JACKING HARDWARE.

REF DWG'S

1.	UNIVERSAL DSKY SHIPPING CONTAINER	1006422
2.	DSKY CONNECTOR COVER	1006425-14
3.	UNIVERSAL DSKY HANDLING FIXTURE	2014013

NOTES:

17. ASSEMBLE FIND NO. 31 TO FIND NO. 3 USING FIND NO. 34. USE FIND NO 22, QTY 3 PER SCREW AS SHIMS BETWEEN FIND NO 31 AND FIND NO 3. USE FIND NO. 22, QTY 1 PER SCREW UNDER EACH SCREW HEAD. USE FIND NO. 32 ON THE THREADED PORTION OF EACH SCREW TO ACT AS A RETAINING RING DURING ASSEMBLY OF FRAME & LIGHT ONTO DSKY. CAUTION SHOULD BE EXERCISED PRIOR TO ASSEMBLY TO DSKY AS IT IS EXTREMELY DIFFICULT TO REMOVE FIND NO. 3 AFTER ASSEMBLY WITHOUT JACKING HARDWARE.
18. PRIOR TO ASSEMBLY OF FIND NO. 2 AND FIND NO. 3 OR FIND NO.38 TO FIND NO.27 OR FIND NO.4 FILL FEMALE INSULATORS OF FIND NO.27 OR FIND NO.4 WITH FIND NO.33

NOTE APPLICATION

DASH NO.	APPLICABLE NOTES
-071	1 THRU 12, 15, 18
-061	1 THRU 12, 15, 18
-051	1 THRU 13, 15, 18
-041	1 THRU 13, 15, 18
-031	1 THRU 5, 7, 9, 10, 11, 12, 13, 15, 16, 17, 18
-021	1 THRU 5, 7 THRU 12, 14 & 15
-011	1 THRU 13 & 15

NOTE APPLICATION

DASH NO	APPLICABLE NOTES
-121	1 THRU 13, 15, 18, 19, 20
-111	1 THRU 13, 15, 18, 19, 20
-091	1 THRU 12, 15, 18, 19, 20
-081	1 THRU 12, 15, 18, 19, 20

19. TORQUE JACKING HARDWARE FOR FIND NO.38 TO 8.5-9.5 INCH POUNDS
20. FOR FIND NO.38 USE 2003988-011 OR 2003988-021

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
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MIT
INSTRUMENTATION LAB
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DWG NO CONTRACT
DRAWN [illegible] DATE [illegible]
CHECKED [illegible]
APPROVAL
APPROVAL [illegible]
NASA APPROVAL
MIT APPROVAL [illegible]

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AGC DSKY ASSEMBLY

CODE IDENT NO 80230 SIZE J NASA DRAWING NO 2003994
SCALE 1/1 WT SHEET 1 OF 1

2003994 J

2003994 J

2003994

2003994 JF2/2

3.1.11.1 Logic Zero Input. With a logic "zero" applied to an input pin of J9 as specified in Table 3-2, contact closure shall exist between pins of J9 as specified in Table 3-2.

3.1.11.2 Logic One and Zero. The logic "ones" and "zeros" referenced in this section shall be as specified in sections 3.1.7.1 and 3.1.7.2.

3.1.12 Isolated Relay Indicators. When programmed for RLYWD 12, and a logic "one" applied to an input pin of J9 as specified in Table 3-3, the corresponding isolated relay indicator shall be illuminated. The intensity of the Status/Caution Legends and Current measurements shall be as specified in Paragraph 3.1.11. Also contact closure shall exist between pins of J9 as specified in Table 3-3.

3.1.12.1 Logic Zero Input. With a logic "zero" applied to an input pin of J9 specified in Table 3-3, a contact closure shall exist between pins of J9 as specified in Table 3-3.

TABLE 3-3

Logic Input	J9 Input Pin	Indicator Illuminated	Contact Closure Between Pins
1	41	NO ATT	
1	3	GIMBAL LOCK	57 and 31
1	10		17 and 34
1	23	TRACKER	57 and 31
1	42	PROG	57 and 31
0	10		6 and 34

3.1.12.2 Logic One and Zero. The logic "ones" and "zeros" referenced in this section shall be as specified in sections 3.1.7.1 and 3.1.7.2.

3.1.12.3 RLYWD 12 Input. The RLYWD 12 input shall be applied at the same time the indicator input pins receive a logic input signal. RLYWD 12 shall be a combination of logic "ones" and "zeros" (ref. section 3.1.13.2) applied to the pins of J9 as listed below:

Pins of J9	68	43	24	11
Logic Input	1	1	0	0

APOLLO G&N Specification
PS 2003994 Rev J
Original Issue Date: 6 Jan 67
Release Authority: TDRR 32579
Class A Release

PROCUREMENT SPECIFICATION

PRODUCT CONFIGURATION AND ACCEPTANCE TEST REQUIREMENTS

DISPLAY AND KEYBOARD ASSEMBLY

DRAWING NO. 2003994

Record of Revisions

Date	Revision Letter	TDRR No.	Pages Revised	Approvals	
				MIT	NASA
6 Jan 67	A	32579	Initial Release	[illegible]	
7 Apr 67	B	33497	1, 13, & 18	[illegible] FH	[illegible] FH
7/13/[illegible]	C	[illegible]4125	1,11,1[illegible],1[illegible],14,15	[illegible] FH	[illegible] FH
8/29/67	D	3[illegible]765	1,4,7,8,[illegible],11,13,14,15	[illegible] FH	[illegible] FH
			Pages 2,3,5,6,10,12		
			Retyped		
11-16-67	E	35070	1, 2	FH	FH
2-7-68	F	35[illegible]39	1,13	[illegible] FH	[illegible] FH
2-22-68	G	35918	1,5,7,8	[illegible] FH	[illegible] FH
4/26/68	H	36118	1, 6	[illegible] FH	[illegible] FH
9/11/68	J	36815	1,2,7,8,11,13	[illegible] FH	[illegible] FH

This specification consists of pages 1 to 15 inclusive.

APPROVALS	NASA/MSC	EC Hall 12/8/66 W Stameris 8 Dec 66 MIT/IL	A.G. [illegible] RAY

1. SCOPE

1.1 This specification establishes the detail requirements for complete identification and acceptance of the Display and Keyboard Assembly Part No. 2003994, [illegible].

2. APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein.

2.1 Effective Issues. Unless otherwise specified herein, Military and Government Standards and specifications shall be the issue in effect on the date of request for proposal or invitation to bid.

SPECIFICATIONS

APOLLO G&N

ND 1002214	General Specification for Preservation, Packaging, Packing and Container Marking of APOLLO Guidance and Navigation Major Assemblies, Assemblies, Subassemblies, Parts and Associated Ground Support Equipment.

DRAWINGS

APOLLO G&N

2003994	DISPLAY AND KEYBOARD ASSEMBLY

(Copies of Specifications, Standards, Drawings, Bulletins and Publications required by suppliers in connection with specific procurement functions should be obtained from the Procuring Activity or as directed by the Contracting Officer).

3.1.11 Status and Caution Indicators. With a logic "one" applied to an input pin of J9 as specified in Table 3-2 and the input voltage set to 5.0 ± 0.1 VDC the corresponding status or caution indicator shall be illuminated. The current shall be monitored for each indicator. White shall be 225 ma ± 20%, yellow shall be 180 ma ± 20%. The intensity limit for the Status (white) indicators shall be 8-28 foot-lamberts and the maximum legend intensity shall not exceed the minimum by more than a ratio of 2:1 in a given panel. The intensity for the Caution (yellow) indicators shall be 8-28 foot-lamberts and the maximum legend intensity shall not exceed the minimum by more than a ratio of 2:1 in a given panel. The exception shall be the COMP ACTY Indicator, which shall be illuminated at an average intensity of 10-24 foot-lamberts with the 10K ohm potentiometer (ref. Para. 3.1.4) set to maximum resistance. Also a contact closure shall exist between pins of J9 as specified in Table 3-2.

TABLE 3-2

Logic Input	J9 Input Pin	Indicator Illuminated	Indicator Color (reference only)	Contact Closure Between pins of J9
1	47	UPLINK ACTY	White	
1	25	STBY	White	58 and 35
1	71	TEMP	Yellow	57 and 31
1	44	RESTART	Yellow	57 and 31
1	26	COMP ACTY	Green*	
1	69			37 and 61
1	46	KEY REL	White	
1	18			36 and 60
1	45			55 and 84
1	45			15 and 32
1	27			80 and 81
1	27			57 and 83
1	66			33 and 56
1	72	OPR ERR	White	
0	66			16 and 56
0	44			31 and 53
0	18			36 and 85
0	45			57 and 84
0	45			14 and 32
0	69			19 and 37
0	27			54 and 83
0	27			82 and 81
0	25			59 and 35

*Electroluminescent indicator.

3.1.13.3 Logic One and Zero. The logic "ones" and "zeros" referenced in this section shall be as specified in paragraphs 3.1.7.1 and 3.1.7.2.

3.2 PRODUCT CONFIGURATION

3.2.1 Drawings. The configuration of the assembly shall be in accordance with Apollo G&N Drawing 2003994 and all drawings and engineering data referenced thereon.

4. QUALITY ASSURANCE PROVISIONS

4.1 GENERAL. The contractor responsible for the manufacture of the assembly shall be responsible for the accomplishment of each test required herein. See Table 4-1, Product Performance and Configuration Requirement/Quality Verification Cross Reference Index.

TABLE 4-1

Requirement	Verification	Requirement	Verification
3.1.1	4.2.2	3.1.11	4.2.14,4.2.6, 4.2.4.3
3.1.2	4.2.3	3.1.11.1	4.2.14.1
3.1.3.2	4.2.4.1	3.1.12	4.2.15,4.2.6, 4.2.4.3
3.1.3.2	4.2.4.2	3.1.12.1	4.2.15.1
3.1.3.2	4.2.4.3	3.1.13	4.2.16,4.2.6
3.1.3.3	4.2.5	3.1.13.1	4.2.16.1
3.1.3.4	4.2.4.4		
3.1.4	4.2.7,4.2.6		
3.1.5	4.2.8,4.2.6		
3.1.6	4.2.9		
3.1.7	4.2.10		
3.1.8	4.2.11		
3.1.9	4.2.12		
3.1.10	4.2.13		

4.2.4 Input Requirements. All tests shall be performed with the input requirements specified in paragraph 3.1.3 applied, when required to the pins of J9 as detailed below:

4.2.4.1 14V Supply. The 14 VDC Supply shall be applied to pin 1 with pin 8 used as the DC return.

4.2.4.2 28V Supply. The 28 VDC Supply shall be applied to pins 21 and 30 with pin 8 used as the DC return.

4.2.4.3 5V Supply. The 5 VDC Supply shall be applied to pins 62 and 64 with pins 63 and 65 used as the DC return. Current shall be measured as specified in Paragraphs 3.1.11 and 3.1.12.

4.2.4.4 Input Sync Pulse. The Input Sync Pulse specified in paragraph 3.1.3.4 shall be applied to pin 7.

4.2.5 115V Supply. The 115 VRM Supply shall be applied to pin 38 with pin 40 used as the AC return.

4.2.6 Intensity Measurements. Display indicator intensity measurements shall be calculated in the following manner, with no individual readings greater than 25% from the spec limit for the average of the electroluminescent displays and push switches.

a. Electroluminescent Displays - intensity measurements shall be the average of six sample segments, with the exception of COMP ACTY which is to be measured and recorded as an individual segment. See paragraphs 4.2.7, 4.2.14 and 4.2.16.

b. Incandescent Displays - intensity measurements shall be made on all legends at least 1/8 inch in from the illuminated legend border. See paragraphs 4.2.14 and 4.2.15.

c. Push Switches - intensity measurements shall be the average of a single centrally located reading for each of the push switches. See paragraph 4.2.8.

Display indicators shall be visually inspected for abnormal dark spots and light intensity variations.

4.2.7 Legend Illumination. Apply all inputs specified in paragraph 4.2.4. Vary the 10K ohm potentiometer from minimum to maximum resistance and verify the intensity of the segments as specified in paragraph 3.1.4. See paragraph 4.2.6a.

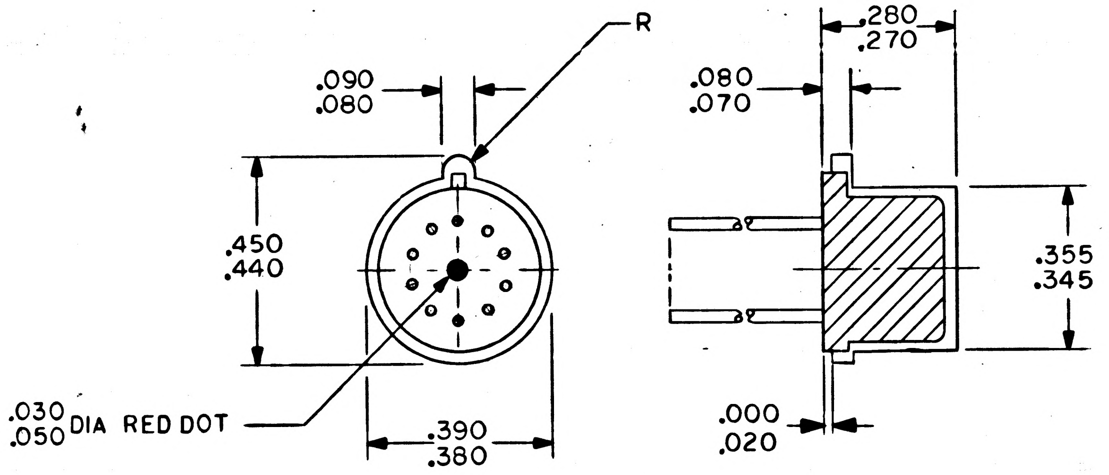
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004003 A

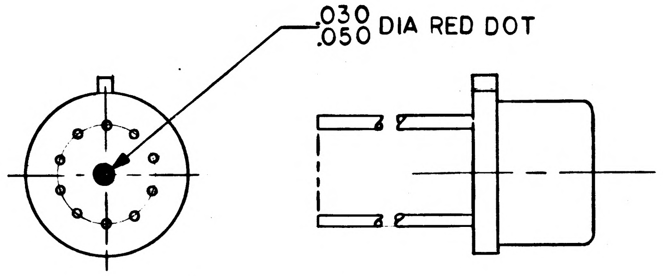
REVISIONS 18731

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 19680	27 Nov 65	JFW B WZM

PART NO.	TSTR NO.		MARKING INK
2004003-001	1006769	POTTED	1006271-8
2004003-002	1006769	UNPOTTED	1006271-8



POTTED



UNPOTTED

GENERAL REQUIREMENTS:

UPON COMPLETION OF ALL REQUIREMENTS AS SPECIFIED IN ND 1002265 ONLY THOSE SENSE AMPLIFIERS FROM LOTS WHICH QUALIFY FOR FLIGHT HARDWARE UNDER THE PROVISIONS OF ND 1002265 SHALL BE MARKED IN RED AS INDICATED IN THIS DOCUMENT

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ELECTRICAL REQUIREMENTS:
   A. ALL SENSE AMPLIFIERS, AFTER ENCAPSULATION, SHALL HAVE THEIR ELECTRICAL ACCEPTANCE REQUIREMENTS WITHIN THE LIMITS SET BY THE ORIGINAL SCD
3. CONSTRUCTION REQUIREMENTS:
   A. ENCAPSULATE PER ND 1002183
   B. ALL LEADS AND HEADER ARE TO BE FREE OF POTTING MATERIAL AND THEY SHALL NOT SHOW ANY DEFECT DUE TO THE POTTING PROCESS, SUCH AS BENDS, KINKS, PLATING DAMAGE ETC
4. THERE SHALL BE A MINIMUM ENCAPSULATION THICKNESS OF .003
5. IDENTIFY WITH DRAWING NO. AND REVISION PER ND 1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
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CONTRACT

DRAWN Mahoney DATE 12 FEB 64
CC/RL 21 APR 65
CHECKED 17 Apr 64
APPROVAL L D Hanley 27 APR 65
APPROVAL Eldon C Hall 27 Ap 65
NASA APPROVAL W J Rhine 5-4-65
MIT APPROVAL W Kupfer 27 Apr 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INTEGRATED SENSE AMPLIFIER
(FLIGHT QUALIFIED)

CODE IDENT NO. 80230
SIZE C
NASA DRAWING NO. 2004003
SCALE 4/1
WT —
SHEET 1 OF 1

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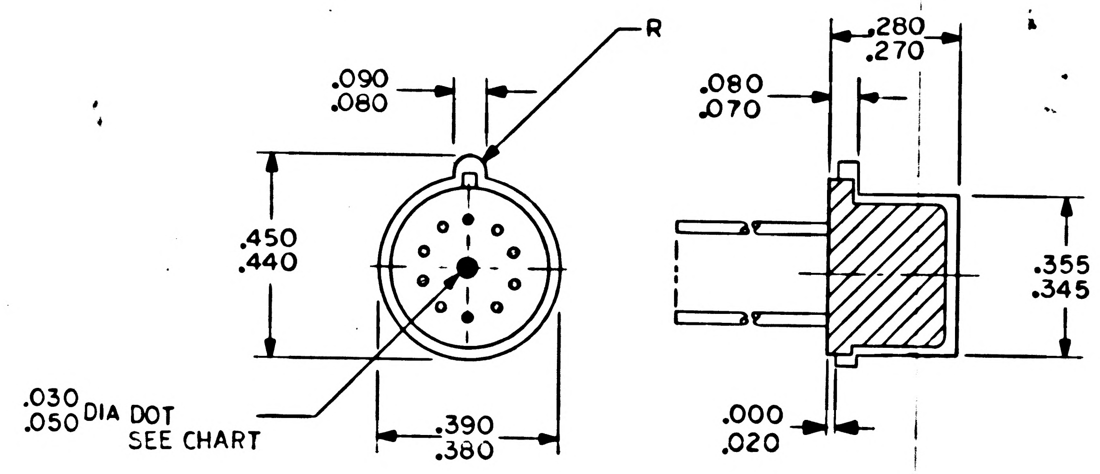
2004003 B

REVISIONS 18731			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 19680	27 Aug 65	
B	REVISED PER TDRR 33429	2 MAY 67	

PART NO.	SCD NO.		MARKING INK	
2004003-001	1006769	POTTED	1006271-8	SEE NOTE 6
2004003-002	1006769	UNPOTTED	1006271-8	SEE NOTE 6
2004003-003	1006769	POTTED	1006271-11	



POTTED

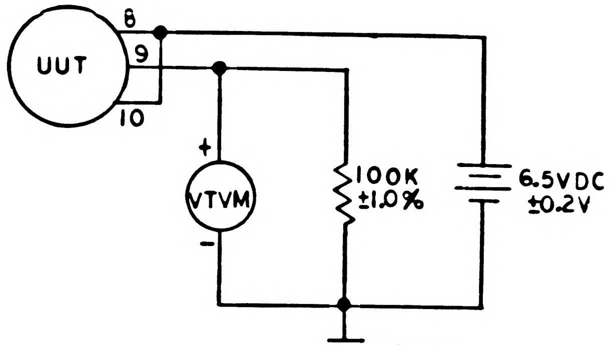


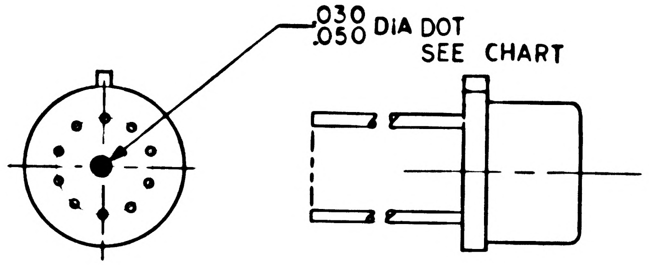
FIG 1

GENERAL REQUIREMENTS:

UPON COMPLETION OF ALL REQUIREMENTS AS SPECIFIED IN ND 1002265 ONLY THOSE SENSE AMPLIFIERS FROM LOTS WHICH QUALIFY FOR FLIGHT HARDWARE UNDER THE PROVISIONS OF ND 1002265 SHALL BE MARKED AS INDICATED IN THIS DOCUMENT

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ELECTRICAL REQUIREMENTS:
   - A. ALL SENSE AMPLIFIERS, AFTER ENCAPSULATION, SHALL HAVE THEIR ELECTRICAL ACCEPTANCE REQUIREMENTS WITHIN THE LIMITS SET BY THE ORIGINAL SCD
3. CONSTRUCTION REQUIREMENTS:
   - A. ENCAPSULATE PER ND 1002183
   - B. ALL LEADS AND HEADER ARE TO BE FREE OF POTTING MATERIAL AND THEY SHALL NOT SHOW ANY DEFECT DUE TO THE POTTING PROCESS, SUCH AS BENDS, KINKS, PLATING DAMAGE ETC
4. THERE SHALL BE A MINIMUM ENCAPSULATION THICKNESS OF .003
5. IDENTIFY WITH DRAWING NO. AND REVISION PER ND 1002019
6. 2004003-001 AND -002 UNITS SHALL EXHIBIT A LEAKAGE CURRENT OF NMT 10 MICROAMPERES WHEN TESTED AS SHOWN IN FIG. 1



UNPOTTED

2004003 B

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN Mahoney DATE 12 FEB 64
CHECKED 17 Mar 64
APPROVAL 27 APR 65
APPROVAL 27 Apr 65
NASA APPROVAL 5-4-65
MIT APPROVAL W Kupfer 27 Apr 65

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HOUSTON, TEXAS

INTEGRATED SENSE AMPLIFIER (FLIGHT QUALIFIED)

CODE IDENT NO. 80230
SIZE C
NASA DRAWING NO. 2004003
SCALE 4/1
WT
SHEET 1 OF 1

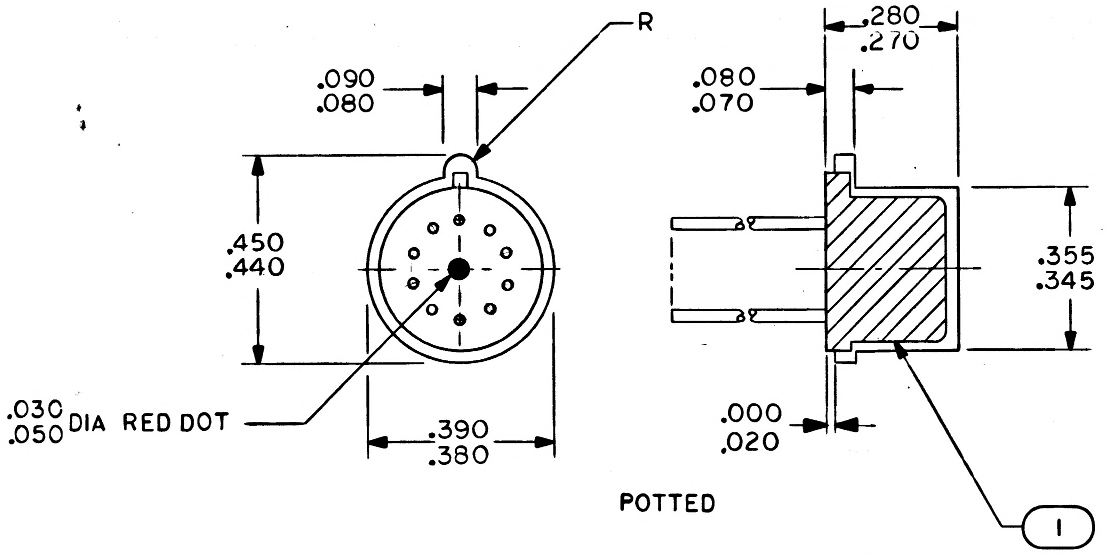
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004003

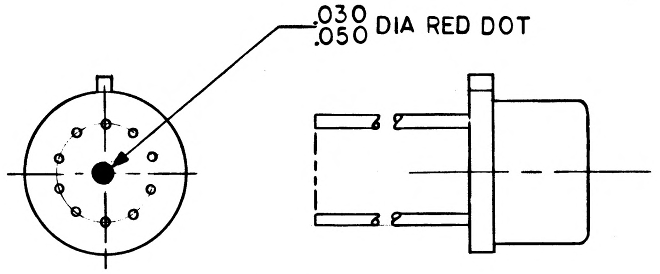
REVISIONS 18731

SYM	DESCRIPTION	DATE	APPROVAL

PART NO.	FIND NO.1	
2004003-001	1006769	POTTED
2004003-002	1006769	UNPOTTED



POTTED



UNPOTTED

GENERAL REQUIREMENTS:
UPON COMPLETION OF ALL REQUIREMENTS AS SPECIFIED IN ND 1002265 ONLY THOSE SENSE AMPLIFIERS FROM LOTS WHICH QUALIFY FOR FLIGHT HARDWARE UNDER THE PROVISIONS OF ND 1002265 SHALL BE MARKED IN RED AS INDICATED IN THIS DOCUEMENT

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ELECTRICAL REQUIREMENTS:
   A. ALL SENSE AMPLIFIERS, AFTER ENCAPSULATION, SHALL HAVE THEIR ELECTRICAL ACCEPTANCE REQUIREMENTS WITHIN THE LIMITS SET BY THE ORIGINAL SCD
3. CONSTRUCTION REQUIREMENTS:
   A. ENCAPSULATE PER ND 1002117
   B. ALL LEADS AND HEADER ARE TO BE FREE OF POTTING MATERIAL AND THEY SHALL NOT SHOW ANY DEFECT DUE TO THE POTTING PROCESS, SUCH AS BENDS, KINKS, PLATING DAMAGE ETC
4. THERE SHALL BE A MINIMUM ENCAPSULATION THICKNESS OF .003
5 IDENTIFY WITH DRAWING NO. AND REVISION PER ND 1002019

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1006769	INTEGRATED SENSE AMPLIFIER	1

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT

DRAWN Mahoney DATE 12FEB64 CC/RC 21APR65
CHECKED [illegible] 7Apr264
APPROVAL L. D. Hanley 27APR65
APPROVAL Eldon C Hall 27Ap65
NASA APPROVAL W. J. Rhine 5-4-65
MIT APPROVAL W Kupfer 27Apr65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INTEGRATED SENSE AMPLIFIER
(FLIGHT QUALIFIED)

CODE IDENT NO. 80230
SIZE C
NASA DRAWING NO. 2004003
SCALE 4/1
WT —
SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

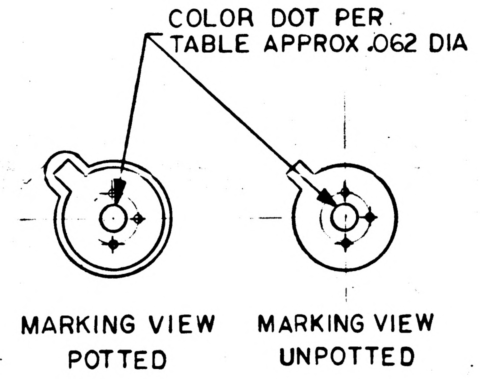
2004004 A

REVISIONS 18731			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 19683	28 MAY 65	KCH B MGM

PART NO.	TRANSISTOR NO.	DOT COLOR		MARKING INK	
2004004-001	1006323	YELLOW	POTTED	1006271-4	
2004004-002	1006310	GREEN	POTTED	1006271-5	
2004004-003	1006323	YELLOW	UNPOTTED	1006271-4	
2004004-004	1006310	GREEN	UNPOTTED	1006271-5	
2004004-005	1006323	RED	UNPOTTED	1006271-8	SEE CHART A

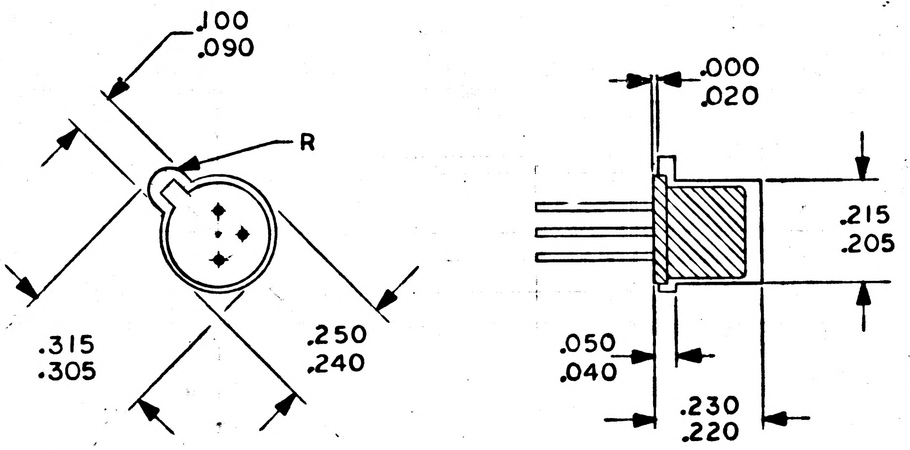
GENERAL REQUIREMENT:

UPON COMPLETION OF ALL REQUIREMENTS AS SPECIFIED IN ND 1002266 ONLY THOSE TRANSISTORS FROM LOTS WHICH QUALIFY FOR FLIGHT HARDWARE UNDER THE PROVISIONS OF ND 1002266 SHALL BE MARKED AS INDICATED IN THIS DOCUMENT



NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ELECTRICAL REQUIREMENTS UNLESS OTHERWISE SPECIFIED
   - A. ALL TRANSISTORS, AFTER ENCAPSULATION, SHALL HAVE THEIR ELECTRICAL ACCEPTANCE REQUIREMENTS WITHIN THE LIMITS SET BY THE ORIGINAL SCD
3. CONSTRUCTION REQUIREMENTS:
   - A. ENCAPSULATE PER 1002183
   - B. ALL LEADS AND HEADER ARE TO BE FREE OF POTTING MATERIAL AND THEY SHALL NOT SHOW ANY DEFECT DUE TO THE POTTING, SUCH AS; BENDS, KINKS, PLATING DAMAGE, ETC
   - C. THERE SHALL BE A MINIMUM ENCAPSULATION THICKNESS OF .003
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND 1002019



POTTED VIEWS

CHART A					
TEST	CONDITIONS	SYM	LIMITS MIN	LIMITS MAX	UNITS
D.C. CURRENT GAIN	$I_C = 0.1$ mA, $V_{CE} = 1.0V$	h_{FE}	25	—	—
COLLECTOR TO BASE CUTOFF CURRENT	$V_{CB} = 8V$ $I_E = 0$	I_{CBO}	—	10	nA
COLLECTOR TO EMITTER SATURATION VOLTAGE	$I_C = 1.6$ MA, $I_B = 0.5$ MA	(SAT) V_{CE}	—	0.2	V

MASTER

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± ——— DECIMALS ± ——— ANGLES ± ———
DO NOT SCALE THIS DRAWING
MATERIAL ———
HEAT TREATMENT ———
FINAL FINISH ———

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT

DRAWN R.D. Glenn DATE 14APR64 21APR65
CHECKED R.P. Kn[illegible] 13Apr65
APPROVAL L.D. Hinkle 27APR65
APPROVAL Eldon C Hall 27Apr65
NASA APPROVAL W. J. Rhine 5-4-65
MIT APPROVAL W Kupfer 27Apr65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRANSISTOR, SILICON
(FLIGHT QUALIFIED)

CODE IDENT NO. 80230
SIZE C
NASA DRAWING NO. 2004004
SCALE 4/1
WT ———
SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004004 B

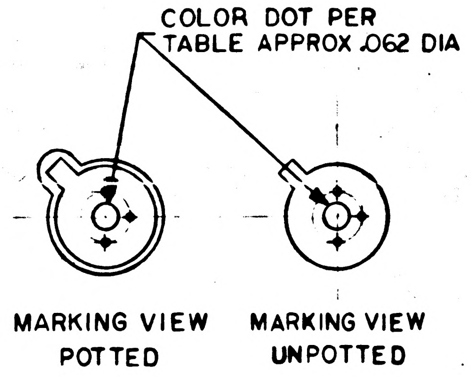
REVISIONS 18731

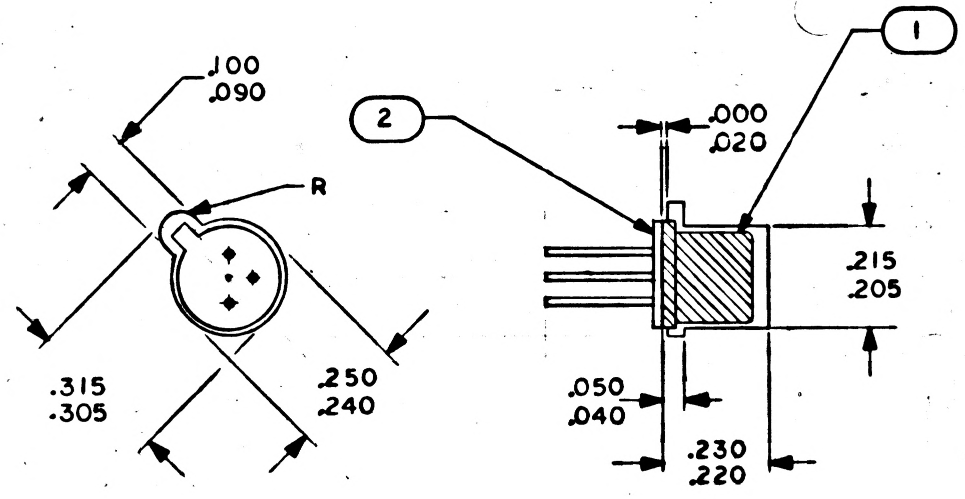
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 19683	28 May 65	KCH MDm
B	REVISED PER TDRR 23630 DR A.J. Green CHK APPD RE	11/11/65	

PART NO.	FIND NO. 1 TRANSISTOR NO.	DOT COLOR		MARKING INK	
2004004-001	1006323	YELLOW	POTTED	1006271-4	
2004004-002	1006310	GREEN	POTTED	1006271-5	
2004004-003	1006323	YELLOW	UNPOTTED	1006271-4	
2004004-004	1006310	GREEN	UNPOTTED	1006271-5	
2004004-005	1006323	RED	UNPOTTED	1006271-8	SEE CHART A

GENERAL REQUIREMENT:

UPON COMPLETION OF ALL REQUIREMENTS AS SPECIFIED IN ND 1002266 ONLY THOSE TRANSISTORS FROM LOTS WHICH QUALIFY FOR FLIGHT HARDWARE UNDER THE PROVISIONS OF ND 1002266 SHALL BE MARKED AS INDICATED IN THIS DOCUMENT





POTTED VIEWS

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ELECTRICAL REQUIREMENTS UNLESS OTHERWISE SPECIFIED
   - A. ALL TRANSISTORS, AFTER ENCAPSULATION, SHALL HAVE THEIR ELECTRICAL ACCEPTANCE REQUIREMENTS WITHIN THE LIMITS SET BY THE ORIGINAL SCD
3. CONSTRUCTION REQUIREMENTS:
   - A. ENCAPSULATE PER 1002183
   - B. ALL LEADS AND HEADER ARE TO BE FREE OF POTTING MATERIAL AND THEY SHALL NOT SHOW ANY DEFECT DUE TO THE POTTING, SUCH AS; BENDS, KINKS, PLATING DAMAGE, ETC
   - C. THERE SHALL BE A MINIMUM ENCAPSULATION THICKNESS OF .003
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND 1002019
5. BOND FIND NO. 2 TO FIND NO. 1 USING 100 PARTS BY WEIGHT OF 1006356, 10 PARTS BY WEIGHT OF TT-T-548, 26.5 PARTS BY WEIGHT OF 1006355 AND CURE AT 160° ±5°F FOR 16 HOURS MINIMUM

CHART A

TEST	CONDITIONS	SYM	LIMITS MIN	LIMITS MAX	UNITS
D.C. CURRENT GAIN	$I_C = 0.1$ mA, $V_{CE} = 1.0$V	h_{FE}	25	—	—
COLLECTOR TO BASE CUTOFF CURRENT	$V_{CB} = 8$V $I_E = 0$	I_{CBO}	—	10	nA
COLLECTOR TO EMITTER SATURATION VOLTAGE	$I_C = 1.6$ MA, $I_B = 0.5$ MA	(SAT) V_{CE}	—	0.2	V

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	2004165	INSULATOR, TRANSISTOR	2
1	SEE CHART	TRANSISTOR SILICON (FLIGHT QUALIFIED)	1

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN R.D. DATE 14 APR 64
CHECKED 13 Jan 65
APPROVAL APR 65
APPROVAL Ellen C Hall 2 April
NASA APPROVAL 5-4-65
MIT APPROVAL 27 Apr 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRANSISTOR, SILICON
(FLIGHT QUALIFIED)

CODE IDENT NO. 80230
SIZE C
NASA DRAWING NO. 2004004
SCALE 4/1
WT
SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004004 C

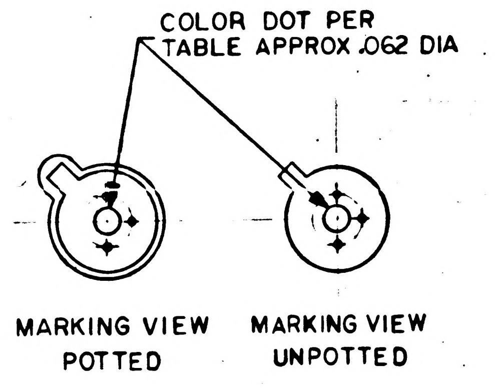
REVISIONS 18731

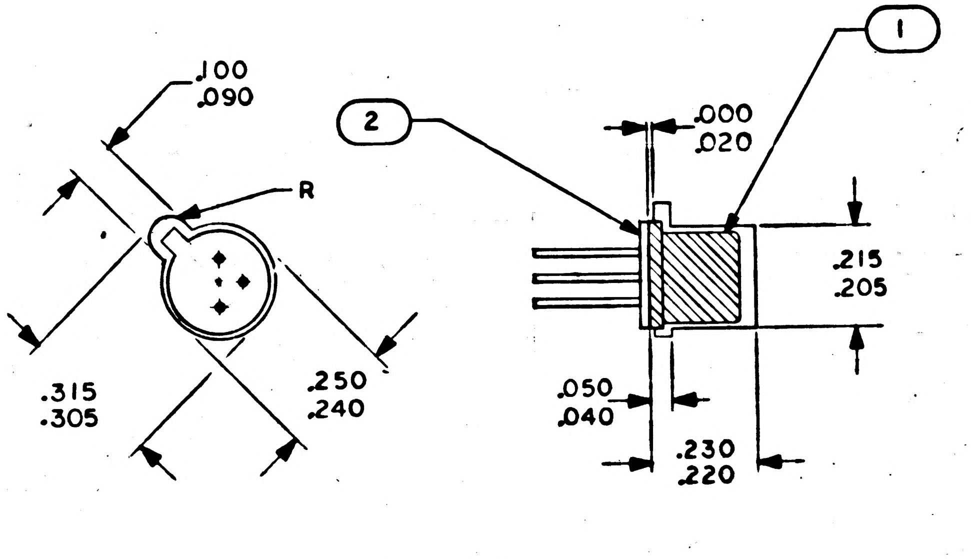
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 19683	28 May 65	KCH
B	REVISED PER TDRR 23630 DR A.J. Green CHK APPD	11/11/65	
C	REVISED PER TDRR 24200 DR E. Uhring CHK APPD	12/7/65	

PART NO.	FIND NO. 1 TRANSISTOR NO.	DOT COLOR		MARKING INK	
2004004-001	1006323	YELLOW	POTTED	1006271-4	
2004004-002	1006310	GREEN	POTTED	1006271-5	
2004004-003	1006323	YELLOW	UNPOTTED	1006271-4	
2004004-004	1006310	GREEN	UNPOTTED	1006271-5	
2004004-005	1006323	RED	UNPOTTED	1006271-8	SEE CHART A

GENERAL REQUIREMENT:

UPON COMPLETION OF ALL REQUIREMENTS AS SPECIFIED IN ND 1002266 ONLY THOSE TRANSISTORS FROM LOTS WHICH QUALIFY FOR FLIGHT HARDWARE UNDER THE PROVISIONS OF ND 1002266 SHALL BE MARKED AS INDICATED IN THIS DOCUMENT





POTTED VIEWS

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ELECTRICAL REQUIREMENTS UNLESS OTHERWISE SPECIFIED
   - A. ALL TRANSISTORS, AFTER ENCAPSULATION, SHALL HAVE THEIR ELECTRICAL ACCEPTANCE REQUIREMENTS WITHIN THE LIMITS SET BY THE ORIGINAL SCD
3. CONSTRUCTION REQUIREMENTS:
   - A. ENCAPSULATE PER 1002183
   - B. ALL LEADS AND HEADER ARE TO BE FREE OF POTTING MATERIAL AND THEY SHALL NOT SHOW ANY DEFECT DUE TO THE POTTING, SUCH AS; BENDS, KINKS, PLATING DAMAGE, ETC
   - C. THERE SHALL BE A MINIMUM ENCAPSULATION THICKNESS OF .003
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND 1002019
5. BOND FIND NO. 2 TO FIND NO. 1 USING 100 PARTS BY WEIGHT OF 1006356, 10 PARTS BY WEIGHT OF TT-T-548, 26.5 PARTS BY WEIGHT OF 1006355 AND CURE AT 160° ±5°F FOR 16 HOURS MINIMUM

CHART A

TEST	CONDITIONS	SYM	LIMITS		UNITS
			MIN	MAX	
D.C. CURRENT GAIN	$I_C = 0.1$ mA, $V_{CE} = 1.0V$	h_{FE}	25	—	—
COLLECTOR TO BASE CUTOFF CURRENT	$V_{CB} = 8V$ $I_E = 0$	I_{CBO}	—	25	nA
COLLECTOR TO EMITTER SATURATION VOLTAGE	$I_C = 1.6$ MA, $I_B = 0.5$ MA	(SAT) V_{CE}	—	0.2	V

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	2004165	INSULATOR, TRANSISTOR	2
1	SEE CHART	TRANSISTOR SILICON (FLIGHT QUALIFIED)	1

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN R.D. DATE 14APR65
CHECKED 13 Apr 65
APPROVAL 27 APR 65
APPROVAL Eldon C. Hall 27 Apr 65
NASA APPROVAL 5-4-65
MIT APPROVAL 27 Apr 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRANSISTOR, SILICON (FLIGHT QUALIFIED)

CODE IDENT NO. 80230
SIZE C
NASA DRAWING NO. 2004004
SCALE 4/1
WT —
SHEET 1 OF 1

2004004 C

2004004 D

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 18731

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 19683	28 MAY 65	RCH
B	REVISED PER TDRR 23630 DR A.J. Green CHK APPD	11/16/65	
C	REVISED PER TDRR 24200 DR E. Uphing CHK APPD	12/7/65	
D	REVISED PER TDRR 24669 DR J.Q. Clermont CHK APPD	12/22/65	

PART NO.	FIND NO. 1 TRANSISTOR NO.	DOT COLOR		MARKING INK	FIND NO. 2	
2004004-001	1006323	YELLOW	POTTED	1006271-4	——	
2004004-002	1006310	GREEN	POTTED	1006271-5	——	
2004004-003	1006323	YELLOW	UNPOTTED	1006271-4	2004165	
2004004-004	1006310	GREEN	UNPOTTED	1006271-5	2004165	
2004004-005	1006323	RED	UNPOTTED	1006271-8	2004165	SEE CHART A

GENERAL REQUIREMENT:

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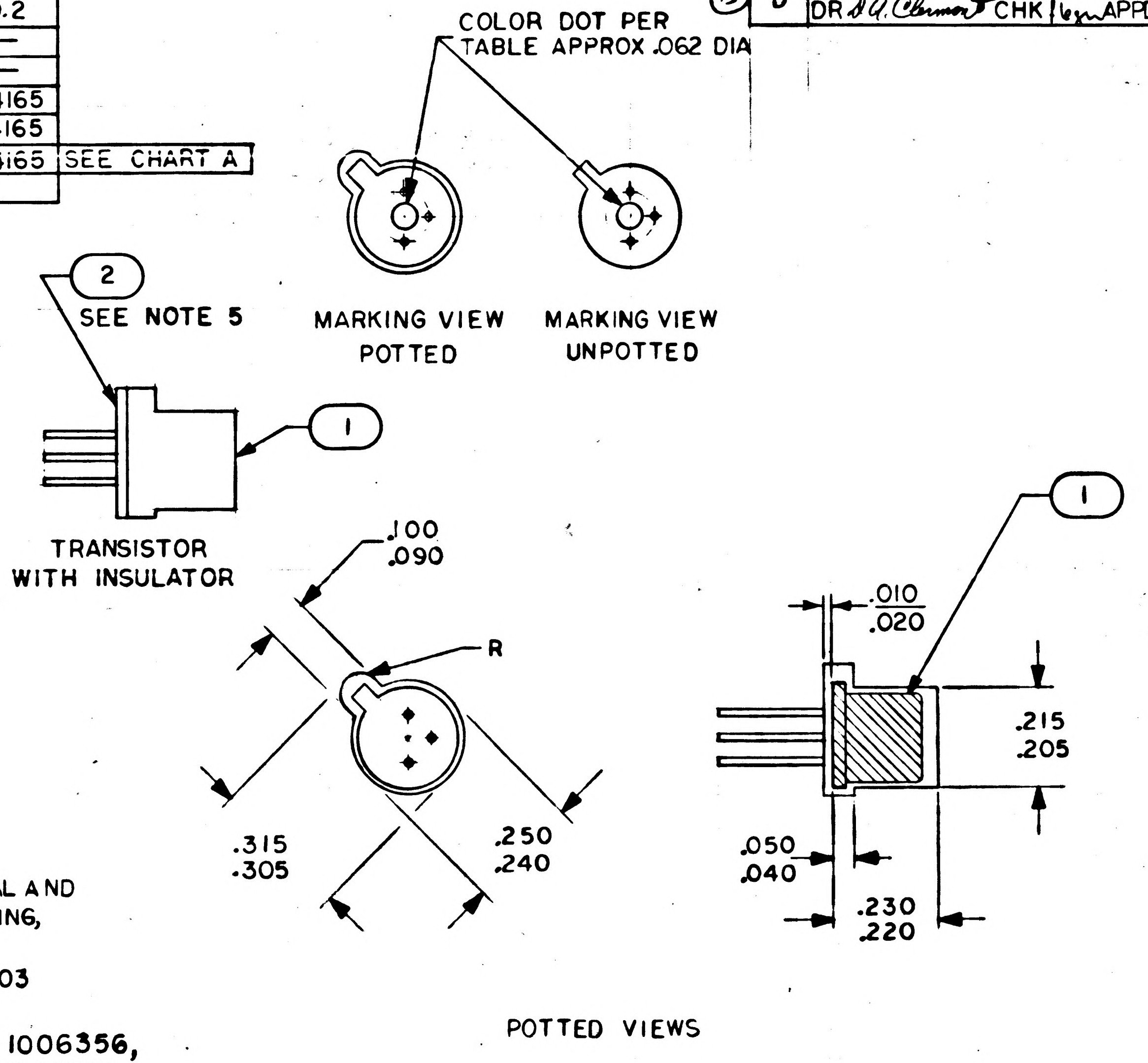

NOTES:

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   - A. ALL TRANSISTORS, AFTER ENCAPSULATION, SHALL HAVE THEIR ELECTRICAL ACCEPTANCE REQUIREMENTS WITHIN THE LIMITS SET BY THE ORIGINAL SCD
3. CONSTRUCTION REQUIREMENTS:
   - A. ENCAPSULATE PER 1002183
   - B. ALL LEADS AND HEADER ARE TO BE FREE OF POTTING MATERIAL AND THEY SHALL NOT SHOW ANY DEFECT DUE TO THE POTTING, SUCH AS; BENDS, KINKS, PLATING DAMAGE, ETC
   - C. THERE SHALL BE A MINIMUM ENCAPSULATION THICKNESS OF .003
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND 1002019
5. BOND FIND NO. 2 TO FIND NO. 1 USING 100 PARTS BY WEIGHT OF 1006356, 10 PARTS BY WEIGHT OF TT-T-548, 26.5 PARTS BY WEIGHT OF 1006355 AND CURE AT 160° ±5°F FOR 16 HOURS MINIMUM

CHART A

TEST	CONDITIONS	SYM	LIMITS MIN	LIMITS MAX	UNITS
D.C. CURRENT GAIN	$I_C = 0.1$ mA, $V_{CE} = 1.0V$	h_{FE}	25	—	—
COLLECTOR TO BASE CUTOFF CURRENT	$V_{CB} = 8V$ $I_E = 0$	I_{CBO}	—	25	nA
COLLECTOR TO EMITTER SATURATION VOLTAGE	$I_C = 1.6$ MA, $I_B = 0.5$ MA	(SAT) V_{CE}	—	0.2	V

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	SEE CHART	INSULATOR, TRANSISTOR	2
1	SEE CHART	TRANSISTOR SILICON (FLIGHT QUALIFIED)	1

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN R.D. Olney DATE 14 APR 64
CHECKED 13 APR 65
APPROVAL 27 APR 65
APPROVAL Eldon C Hall 27 Apr 65
NASA APPROVAL 5-4-65
MIT APPROVAL 27 Apr 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRANSISTOR, SILICON (FLIGHT QUALIFIED)

CODE IDENT NO. 80230
SIZE C
NASA DRAWING NO. 2004004
SCALE 4/1
WT ——
SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004004 E

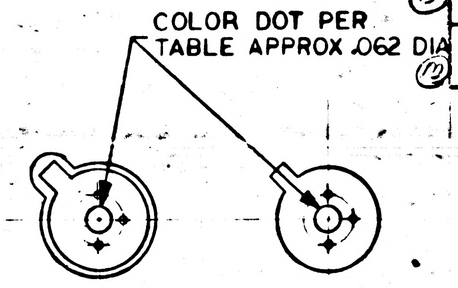
REVISIONS 18731

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 19683	28 May 65	KCH
B	REVISED PER TDRR 23630 DR A.J. Green CHK Hagen APPD R.E.	11/11/65	
C	REVISED PER TDRR 24200 DR E. Uhring CHK Hagen APPD	12/7/65	
D	REVISED PER TDRR 24669 DR A.Q. Clement CHK Hagen APPD	12/22/65	
E	REVISED PER TDRR 27742 DR J.P. Leonard CHK R.H.E. APPD	14 April	

PART NO.	FIND NO. 1 TRANSISTOR NO.	DOT COLOR		MARKING INK	~~FIND NO. 2~~	
2004004-001	1006323	YELLOW	POTTED	1006271-4		
2004004-002	1006310	GREEN	POTTED	1006271-5		
2004004-003	1006323	YELLOW	UNPOTTED	1006271-4	~~2004165~~	
2004004-004	1006310	GREEN	UNPOTTED	1006271-5	~~2004165~~	
2004004-005	1006323	RED	UNPOTTED	1006271-8	~~2004165~~	SEE CHART A

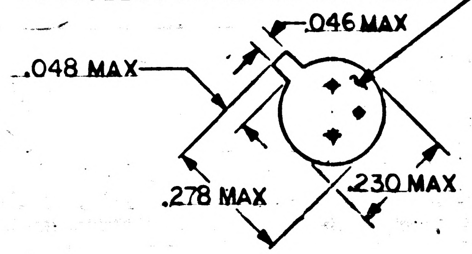
GENERAL REQUIREMENT:

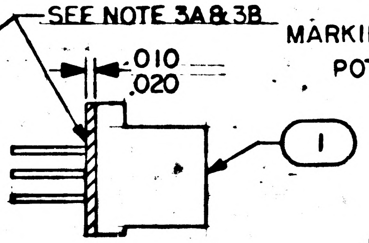
UPON COMPLETION OF ALL REQUIREMENTS AS SPECIFIED IN ND 1002266 ONLY THOSE TRANSISTORS FROM LOTS WHICH QUALIFY FOR FLIGHT HARDWARE UNDER THE PROVISIONS OF ND 1002266 SHALL BE MARKED AS INDICATED IN THIS DOCUMENT



MARKING VIEW POTTED

MARKING VIEW UNPOTTED

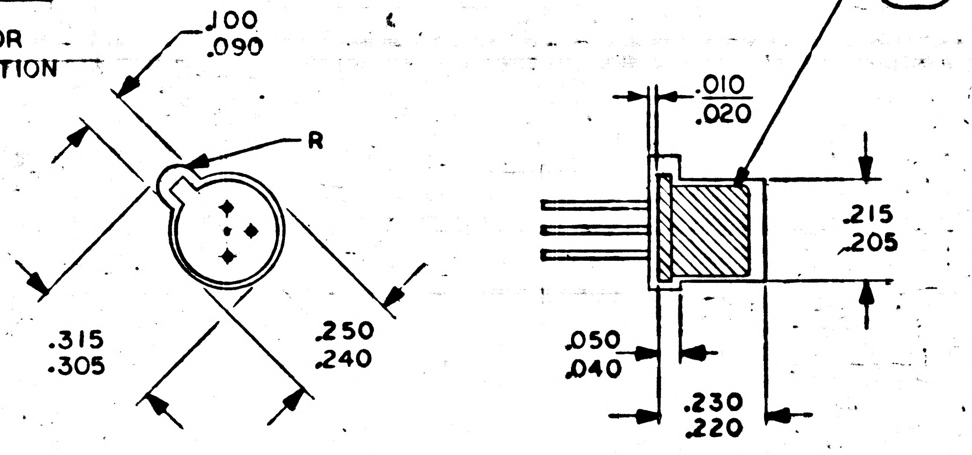




TRANSISTOR WITH INSULATION

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ELECTRICAL REQUIREMENTS UNLESS OTHERWISE SPECIFIED
   - A. ALL TRANSISTORS, AFTER ENCAPSULATION, SHALL HAVE THEIR ELECTRICAL ACCEPTANCE REQUIREMENTS WITHIN THE LIMITS SET BY THE ORIGINAL SCD
3. CONSTRUCTION REQUIREMENTS:
   - A. ENCAPSULATE PER ND1002183 TYPE II
   - B. ALL LEADS AND HEADER ARE TO BE FREE OF POTTING MATERIAL AND THEY SHALL NOT SHOW ANY DEFECT DUE TO THE POTTING, SUCH AS; BENDS, KINKS, PLATING DAMAGE, ETC
   - C. THERE SHALL BE A MINIMUM ENCAPSULATION THICKNESS OF .003
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND 1002019
5. ~~BOND FIND NO. 2 TO FIND NO. 1 USING 100 PARTS BY WEIGHT OF 1006356, 10 PARTS BY WEIGHT OF TT-T-548, 26.5 PARTS BY WEIGHT OF 1006356 AND CURE AT 160° ± 5°F FOR 16 HOURS MINIMUM~~



POTTED VIEWS

CHART A

TEST	CONDITIONS	SYM	LIMITS		UNITS
			MIN	MAX	
D.C. CURRENT GAIN	$I_C = 0.1$ mA, $V_{CE} = 1.0$V	h_{FE}	25	—	—
COLLECTOR TO BASE CUTOFF CURRENT	$V_{CB} = 8$V $I_E = 0$	I_{CBO}	—	25	nA
COLLECTOR TO EMITTER SATURATION VOLTAGE	$I_C = 1.6$ MA, $I_B = 0.5$ MA	(SAT) V_{CE}	—	0.2	V

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
~~1~~	~~SEE CHART~~	~~INSULATOR, TRANSISTOR~~	~~2~~
1	SEE CHART	TRANSISTOR SILICON (FLIGHT QUALIFIED)	1

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT

DRAWN R.D. [illegible] DATE 14 APR 64
CHECKED 13 APR 65
APPROVAL 27 APR 65
APPROVAL Eldon C. Hall 27 April
NASA APPROVAL 5-4-65
MIT APPROVAL 27 April 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRANSISTOR, SILICON
(FLIGHT QUALIFIED)

CODE IDENT NO. 80230
SIZE C
NASA DRAWING NO. 2004004
SCALE 4/1
WT
SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004004

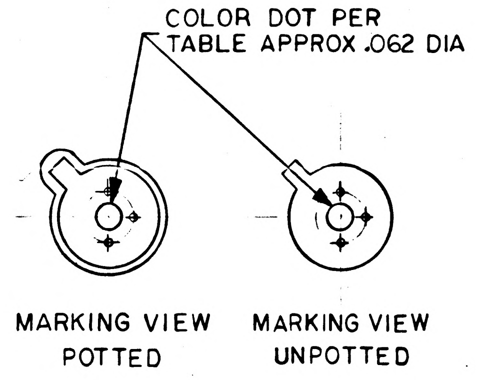
REVISIONS 18731

SYM	DESCRIPTION	DATE	APPROVAL

PART NO.	FIND NO. I TRANSISTOR NO.	DOT COLOR	
2004004-001	1006323	YELLOW	POTTED
2004004-002	1006310	GREEN	POTTED
2004004-003	1006323	YELLOW	UNPOTTED
2004004-004	1006310	GREEN	UNPOTTED

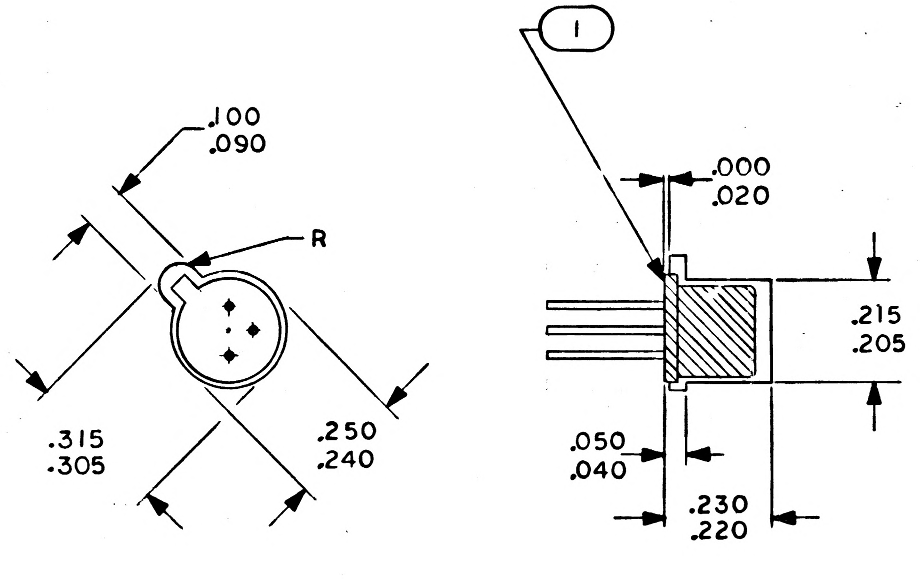
GENERAL REQUIREMENT:

UPON COMPLETION OF ALL REQUIREMENTS AS SPECIFIED IN ND 1002266 ONLY THOSE TRANSISTORS FROM LOTS WHICH QUALIFY FOR FLIGHT HARDWARE UNDER THE PROVISIONS OF ND 1002266 SHALL BE MARKED AS INDICATED IN THIS DOCUMENT



NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ELECTRICAL REQUIREMENTS:
   - A. ALL TRANSISTORS, AFTER ENCAPSULATION, SHALL HAVE THEIR ELECTRICAL ACCEPTANCE REQUIREMENTS WITHIN THE LIMITS SET BY THE ORIGINAL SCD
3. CONSTRUCTION REQUIREMENTS:
   - A. ENCAPSULATE PER ND1002117
   - B. ALL LEADS AND HEADER ARE TO BE FREE OF POTTING MATERIAL AND THEY SHALL NOT SHOW ANY DEFECT DUE TO THE POTTING, SUCH AS; BENDS, KINKS, PLATING DAMAGE, ETC
   - C. THERE SHALL BE A MINIMUM ENCAPSULATION THICKNESS OF .003
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND 1002019



POTTED VIEWS

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	SEE TABLE	TRANSISTOR (TO 18)	1

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —— DECIMALS ± —— ANGLES ± ——
DO NOT SCALE THIS DRAWING
MATERIAL ——
HEAT TREATMENT ——
FINAL FINISH ——

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT

DRAWN R D [illegible] DATE 14APR64 [illegible] 21APR65
CHECKED [illegible] 13APR65
APPROVAL [illegible] 27APR 65
APPROVAL Eldon C Hall 27Apr65
NASA APPROVAL W J Rhine 5-4-65
MIT APPROVAL W Kupfer 27Apr65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

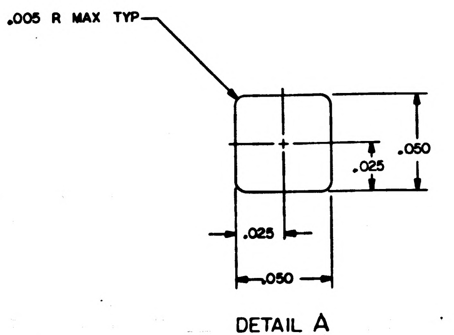
TRANSISTOR, SILICON
(FLIGHT QUALIFIED)

CODE IDENT NO. 80230
SIZE C
NASA DRAWING NO. 2004004
SCALE 4/1
WT ——
SHEET 1 OF 1

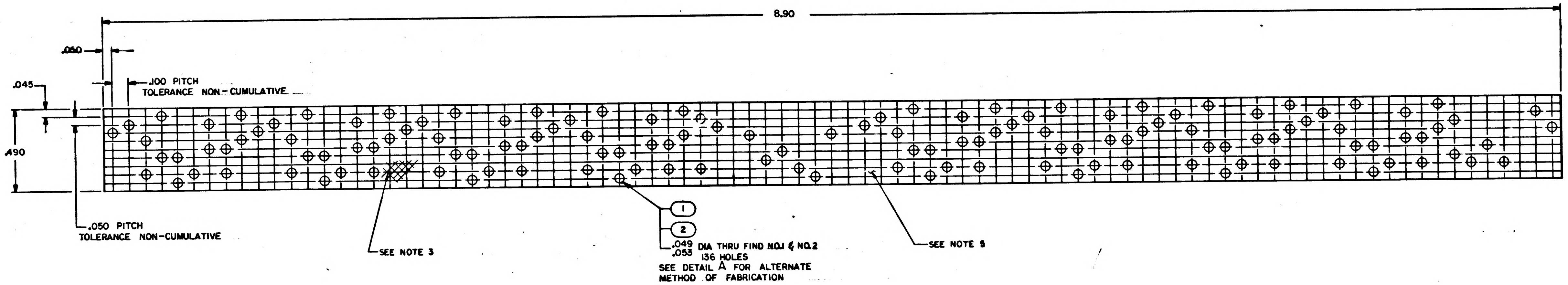
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19215

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20042				


.005 R MAX TYP
.050
.025
.025
.050

DETAIL A
SCALE 30/1


8.90
.050
.100 PITCH
TOLERANCE NON-CUMULATIVE
.045
.490
.050 PITCH
TOLERANCE NON-CUMULATIVE
SEE NOTE 3
1
2
.049
.053 DIA THRU FIND NO.1 & NO.2
136 HOLES
SEE DETAIL A FOR ALTERNATE
METHOD OF FABRICATION
SEE NOTE 5

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: PLASTIC SHEET .006/.009 THK PER MIL-P-15035, TYPE FBI
3. THREADS IN PLASTIC SHEET TO RUN DIAGONALLY
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND 1002019
5. APPLY FIND NO.2 TO NEARSIDE OF FIND NO.1
6. AR DENOTES AS REQUIRED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006318	ADHESIVE, TAPE	2
1	2004088-001	INSULATOR	

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003005	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS XX ±.01 XXX ±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Duval 15APR65
CHECKED Lindsay 10MAY65
APPROVED M. McKinly 13May65
APPROVED Eldon C. Hall 17May65
APPROVED MIT M G Murley
APPROVED MSC 9/14/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSULATOR, MATRIX
SENSE AMPLIFIER MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2004008

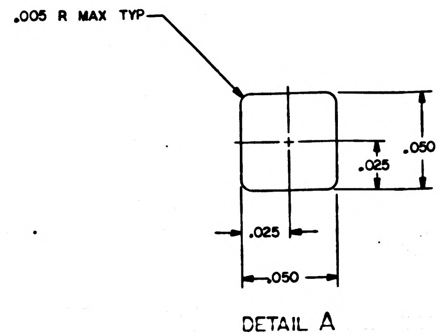
SCALE 4/1 SHEET 1 OF 1

MASTER

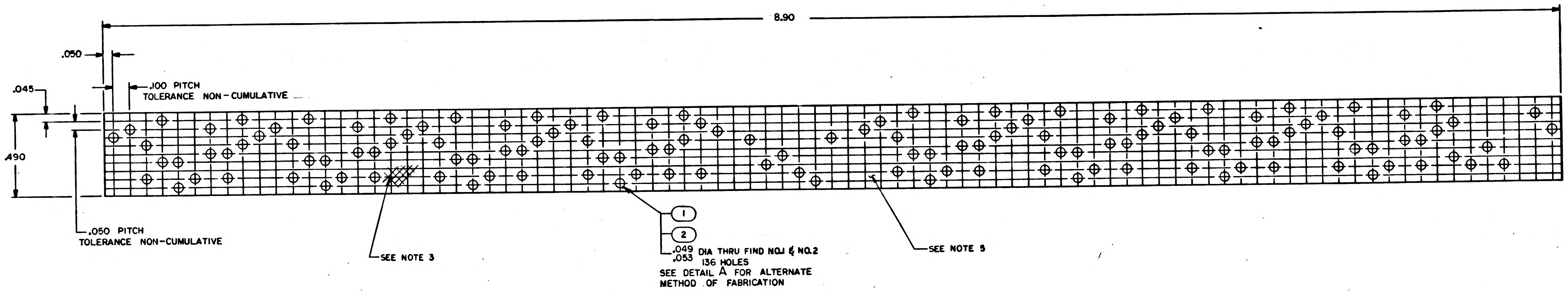
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19215

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20042				
B		REVISED PER TDRR 22465	EWJ		9/15 65	


.005 R MAX TYP
.050
.025
.025
.050

DETAIL A
SCALE 30/1


8.90
.050
.100 PITCH
TOLERANCE NON-CUMULATIVE
.045
.490
.050 PITCH
TOLERANCE NON-CUMULATIVE
SEE NOTE 3
1
2
.049
.053 DIA THRU FIND NO.1 & NO.2
136 HOLES
SEE DETAIL A FOR ALTERNATE
METHOD OF FABRICATION
SEE NOTE 5

NOTES:
1. INTEPPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: PLASTIC SHEET .006/.009 THK PER MIL-P-15035, TYPE FBI
3. THREADS IN PLASTIC SHEET TO RUN DIAGONALLY
4. IDENTIFY WITH PART NO. PER ND1002019
5. APPLY FIND NO.2 TO NEARSIDE OF FIND NO.1
6. AR DENOTES AS REQUIRED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006806-28	INSULATION TAPE	2
1	2004088-001	INSULATOR	
011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003005	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XX ± .01 .XXX ± .005 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED
APPROVED
APPROVED Ellen C Hall 17 May 65
APPROVED MIT
APPROVED MSC 9/10/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSULATOR, MATRIX
SENSE AMPLIFIER MODULE

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2004008
SCALE 4/1
SHEET 1 OF 1

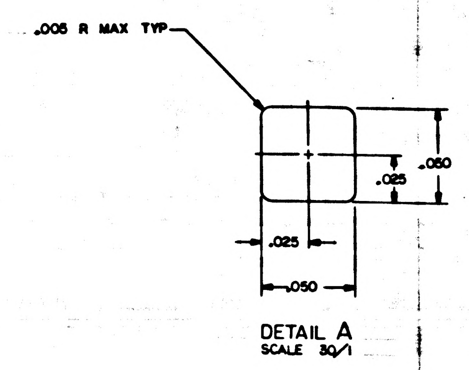
MASTER

2004008 B

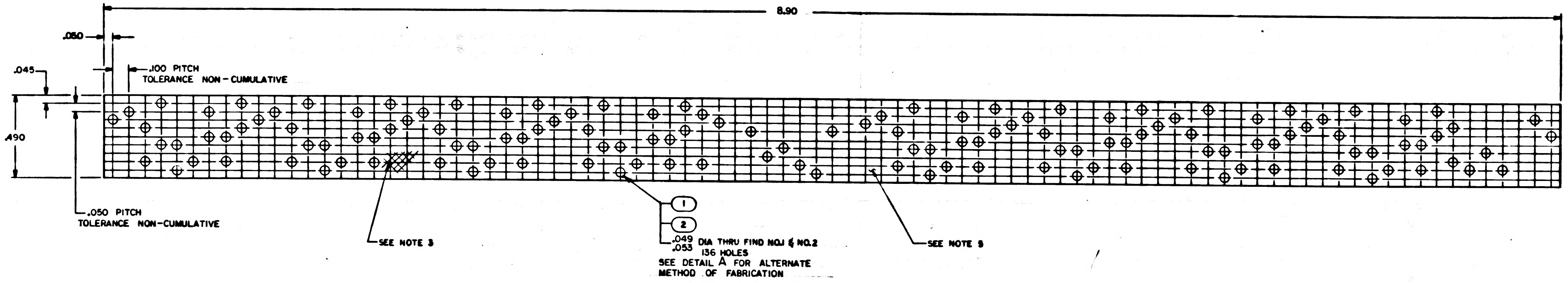
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19215

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20042				
B		REVISED PER TDRR 22465				
C		REVISED PER TDRR 33441				



DETAIL A
SCALE 30/1



.049/.053 DIA THRU FIND NO.1 & NO.2
136 HOLES
SEE DETAIL A FOR ALTERNATE
METHOD OF FABRICATION

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: PLASTIC SHEET .006/.009 THK PER MIL-P-15035, TYPE FBI
3. THREADS IN PLASTIC SHEET TO RUN DIAGONALLY
4. IDENTIFY WITH PART NO. PER ND1002019
5. APPLY FIND NO.2 TO NEARSIDE OF FIND NO.1
6. AR DENOTES AS REQUIRED

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
AR	1006806-28	INSULATION TAPE	2
1	2004008-001	INSULATOR	

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003005	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XX ± .01 .XXX ± .005 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN		
CHECKED		
APPROVED		13 Aug 65
APPROVED		
APPROVED MIT		
APPROVED MSC		
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSULATOR, MATRIX
SENSE AMPLIFIER MODULE

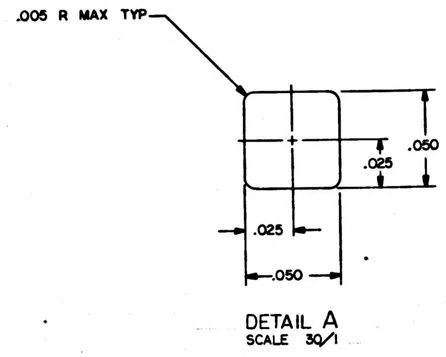
CODE IDENT NO	SIZE	DRAWING NO.
80230	E	2004008

SCALE 4/1 SHEET 1 OF 1

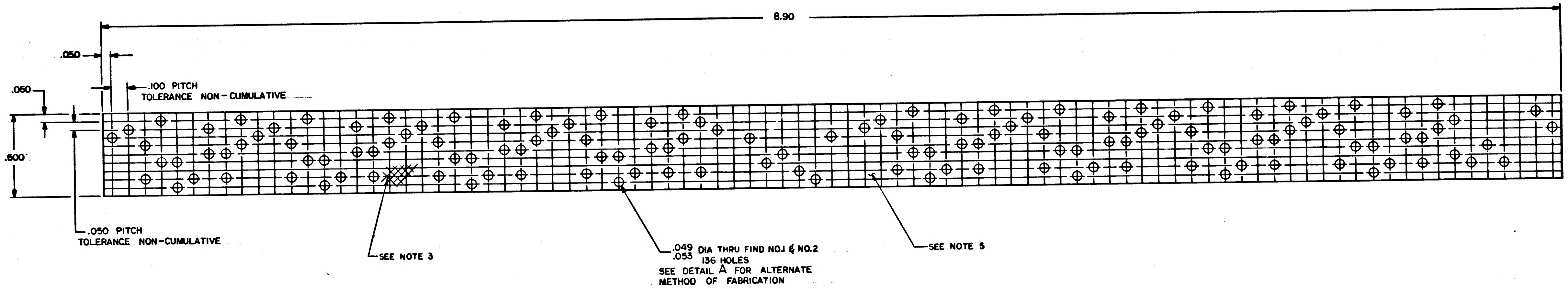
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 1921 5

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



.005 R MAX TYP
.050
.025
.025
.050
DETAIL A
SCALE 30/1



8.90
.050
.100 PITCH
TOLERANCE NON-CUMULATIVE
.050
.600
.050 PITCH
TOLERANCE NON-CUMULATIVE
SEE NOTE 3
.049
.053 DIA THRU FIND NO.1 & NO.2
136 HOLES
SEE DETAIL A FOR ALTERNATE METHOD OF FABRICATION
SEE NOTE 5

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: PLASTIC SHEET .006/.009 THK PER MIL-P-15035, TYPE FBI
3. THREADS IN PLASTIC SHEET TO RUN DIAGONALLY
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND 1002019
5. APPLY FIND NO.2 TO FARSIDE OF FIND NO.1
6. AR DENOTES AS REQUIRED

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006318	ADHESIVE, TAPE	2
1	2004077-001	INSULATOR	1
011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003005	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XX ±.01 .XXX ±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN T. N. Duval 11 MAY 65
CHECKED R. Lindquist 12 MAY 65
APPROVED M. McKinley 13 May 65
APPROVED Eldon C. Hall 17 May 65
APPROVED MIT M. McKinley 17 May 65
APPROVED MSC 9/18/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSULATOR, MATRIX
SENSE AMPLIFIER MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2004008

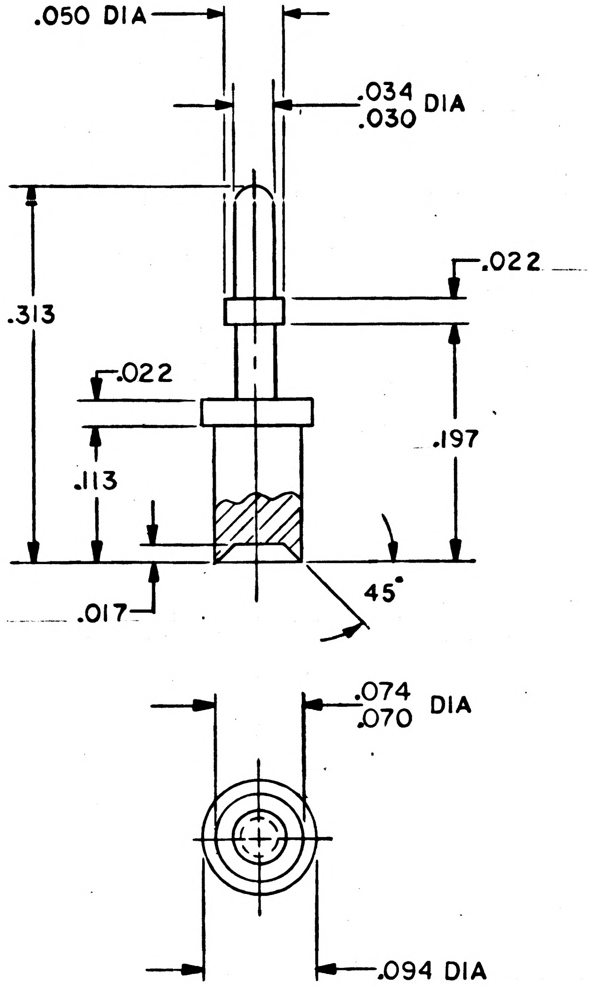
SCALE 4/1 SHEET 1 OF 1

2004008

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004012

REVISIONS 18684			
SYM	DESCRIPTION	DATE	APPROVAL



NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: NICKEL PER MIL-N-46026
3. REMOVE BURRS AND BREAK SHARP EDGES .005/.015
4. UNLESS OTHERWISE SPECIFIED 125✓ ALL OVER
5. FINISH: GOLD PLATE IN ACCORDANCE WITH MIL-G-45204, TYPE II, CLASS I (COPPER STRIKE)
6. IDENTIFY PER ND 1002019

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MASTER

2003008	
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —   DECIMALS ±.005   ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL: SEE NOTE 2

HEAT TREATMENT: —

FINAL FINISH: SEE NOTE 5

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO.   CONTRACT

DRAWN L Pollini DATE 28 ...
CHECKED ... 19 ... 64
APPROVAL ... 23 Apr. 64
APPROVAL Eldon C Hall 23 Apr 65

NASA APPROVAL W J ... 4-27-65

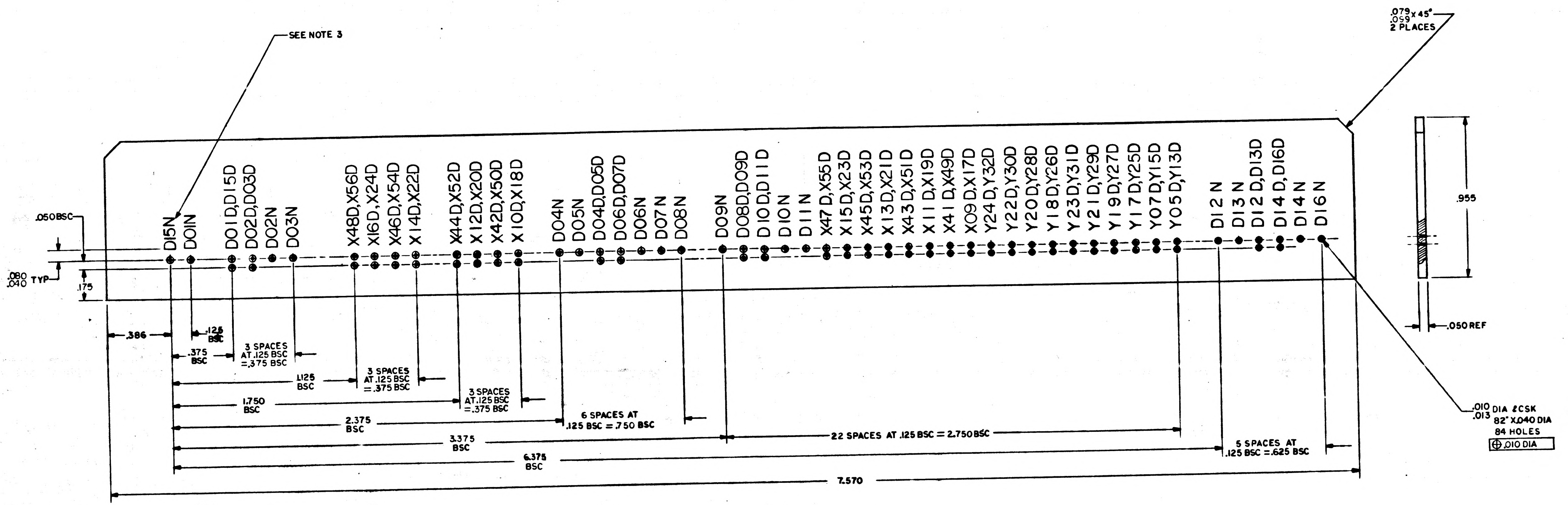
MIT APPROVAL ... 27 Apr 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TERMINAL
ERASABLE MEMORY

CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	C	2004012

SCALE 10/1   WT ——   SHEET 1 OF 1


SEE NOTE 3
.079 x 45°
.059
2 PLACES
.050 BSC
.080
.040 TYP
.175
D15N
D01N
D01D,D15D
D02D,D03D
D02N
D03N
X48D,X56D
X16D,X24D
X46D,X54D
X14D,X22D
X44D,X52D
X12D,X20D
X42D,X50D
X10D,X18D
D04N
D05N
D04D,D05D
D06D,D07D
D06N
D07N
D08N
D09N
D08D,D09D
D10D,D11D
D10N
D11N
X47D,X55D
X15D,X23D
X45D,X53D
X13D,X21D
X43D,X51D
X11D,X19D
X41D,X49D
X09D,X17D
Y24D,Y32D
Y22D,Y30D
Y20D,Y28D
Y18D,Y26D
Y23D,Y31D
Y21D,Y29D
Y19D,Y27D
Y17D,Y25D
Y07D,Y15D
Y05D,Y13D
D12N
D13N
D12D,D13D
D14D,D16D
D14N
D16N
.955
.050 REF
.386
.125 BSC
.375 BSC
3 SPACES AT .125 BSC =.375 BSC
1.125 BSC
3 SPACES AT .125 BSC =.375 BSC
1.750 BSC
3 SPACES AT .125 BSC =.375 BSC
2.375 BSC
6 SPACES AT .125 BSC = .750 BSC
3.375 BSC
22 SPACES AT .125 BSC = 2.750 BSC
6.375 BSC
5 SPACES AT .125 BSC = .625 BSC
7.570
.010
.013 DIA & CSK
82° X .040 DIA
84 HOLES
⊕ .010 DIA

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: PLASTIC SHEET, .050 THICK LAMINATED PER MIL-P-18177 TYPE GEE
3. MARK .10/.08 HIGH WHITE CHARACTERS PER ND1002122 TYPE II CLASS I & PER ND1002019 USING INK 1006271—1
4. IDENTIFY WITH DRAWING NUMBER & REVISION PER ND1002019
5. REMOVE ALL BURRS AND BREAK SHARP EDGES .005/.015

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003009	
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL
SEE NOTE 2
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

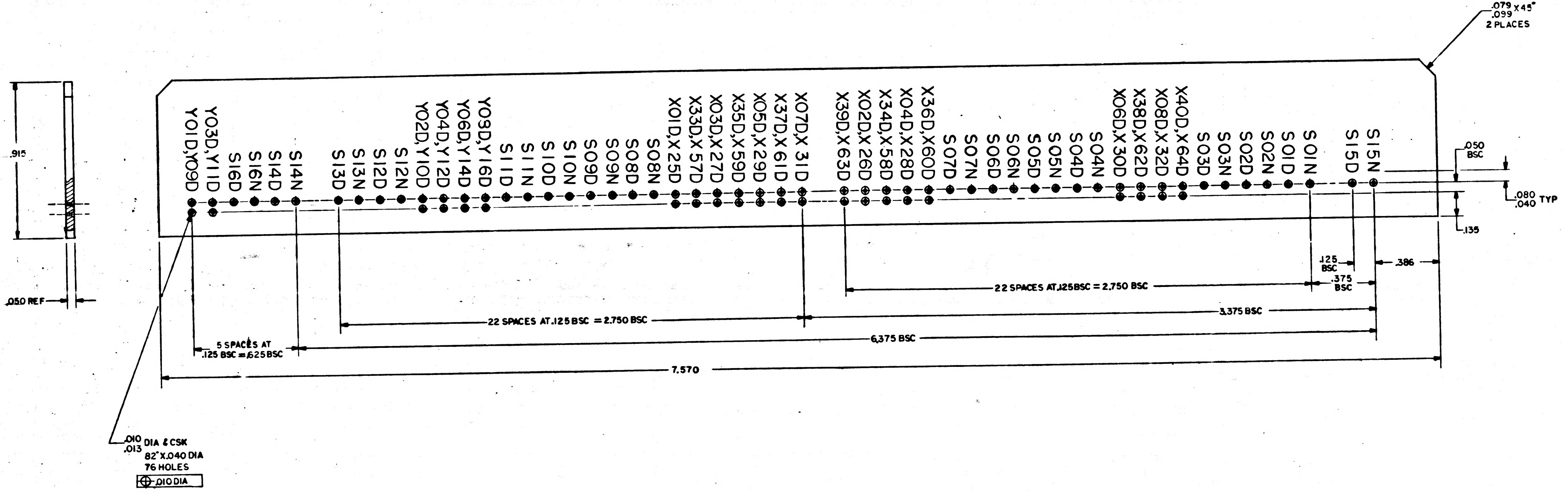
SIDE PLATE A
ERASABLE MEMORY

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 2004014
SCALE 4/1
WT
SHEET 1 OF 1

MASTER

REVISIONS

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


.915
.050 REF
.079/.099 X 45° 2 PLACES
Y01D,Y09D
Y03D,Y11D
S16D
S16N
S14D
S14N
S13D
S13N
S12D
S12N
Y02D,Y10D
Y04D,Y12D
Y06D,Y14D
Y08D,Y16D
S11D
S11N
S10D
S10N
S09D
S09N
S08D
S08N
X01D,X25D
X33D,X57D
X03D,X27D
X35D,X59D
X05D,X29D
X37D,X61D
X07D,X31D
X39D,X63D
X02D,X26D
X34D,X58D
X04D,X28D
X36D,X60D
S07D
S07N
S06D
S06N
S05D
S05N
S04D
S04N
X06D,X30D
X38D,X62D
X08D,X32D
X40D,X64D
S03D
S03N
S02D
S02N
S01D
S01N
S15D
S15N
.050 BSC
.080/.040 TYP
.135
.125 BSC
.375 BSC
.386
22 SPACES AT .125 BSC = 2.750 BSC
3.375 BSC
22 SPACES AT .125 BSC = 2.750 BSC
6.375 BSC
5 SPACES AT .125 BSC = .625 BSC
7.570
.010/.013 DIA & CSK 82° X .040 DIA 76 HOLES
⊕ .010 DIA

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: PLASTIC SHEET, .050 THICK LAMINATED PER MIL-P-18177 TYPE GEE
3. MARK .10/.08 HIGH WHITE CHARACTERS PER ND 1002122 TYPE II CLASS I & PER ND1002019 USING INK 1006271-1
4. IDENTIFY WITH DRAWING NUMBER & REVISION PER ND1002019
5. REMOVE ALL BURRS AND BREAK SHARP EDGES .005/.015

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

NEXT ASSY	USED ON
2003009	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 2
HEAT TREATMENT —
FINAL FINISH —

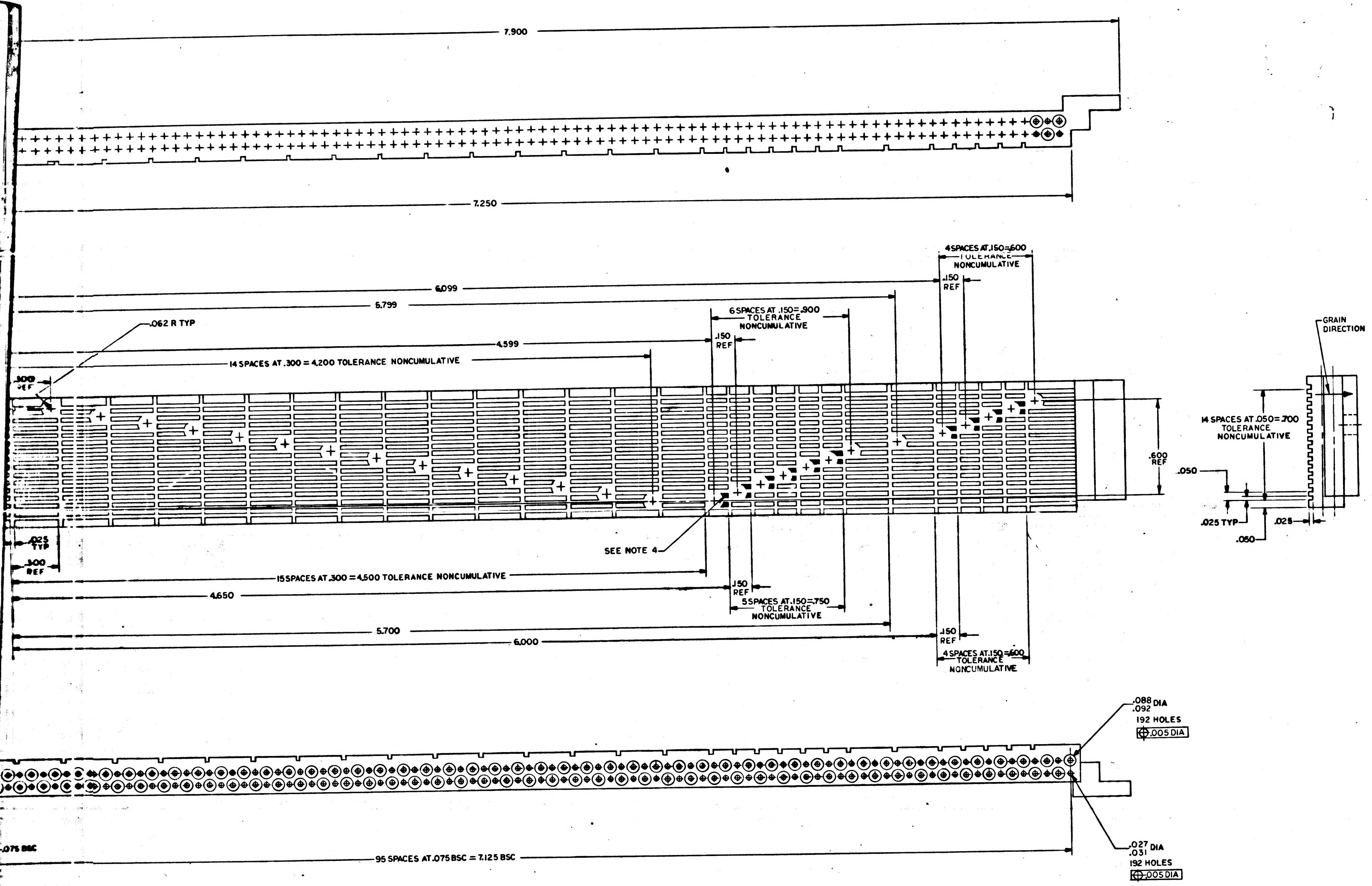
MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN L. Pellini DATE 5 May 64
CHECKED
APPROVAL 23 Jun 65
APPROVAL Eldon C. Hall 23 Jun 65
NASA APPROVAL
MIT APPROVAL 23 Jun 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SIDE PLATE B
ERASABLE MEMORY

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 2004015
SCALE 4/1
WT —
SHEET 1 OF 1

A REVISED PER TDRR 19685



7.900
7.250
4 SPACES AT .150 = .600 TOLERANCE NONCUMULATIVE
.150 REF
6.099
5.799
6 SPACES AT .150 = .900 TOLERANCE NONCUMULATIVE
.062 R TYP
4.599
.150 REF
14 SPACES AT .300 = 4.200 TOLERANCE NONCUMULATIVE
.300 REF
GRAIN DIRECTION
14 SPACES AT .050 = .700 TOLERANCE NONCUMULATIVE
.600 REF
.050
.025 TYP
.025
.050
.025 TYP
.300 REF
SEE NOTE 4
15 SPACES AT .300 = 4.500 TOLERANCE NONCUMULATIVE
.150 REF
4.650
5 SPACES AT .150 = .750 TOLERANCE NONCUMULATIVE
5.700
.150 REF
6.000
4 SPACES AT .150 = .600 TOLERANCE NONCUMULATIVE
.088 .092 DIA
192 HOLES
⌖ .005 DIA
.075 BSC
95 SPACES AT .075 BSC = 7.125 BSC
.027 .031 DIA
192 HOLES
⌖ .005 DIA

D

C

B

A

2004016 A

(24)

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —— DECIMALS ±.005 ANGLES ± 5°
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 2
HEAT TREATMENT
FINAL FINISH

NEXT ASSY	USED ON
2003012	

APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN L. Pelkin DATE 21 May 64
CHECKED
APPROVAL
APPROVAL Eldon C Hall 8 May 65
NASA APPROVAL W J Rhine 4-27-65
MIT APPROVAL 27 Apr 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DIODE BLOCK
ERASABLE MEMORY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2004016
SCALE 4/1
WT ——
SHEET 1 OF 1

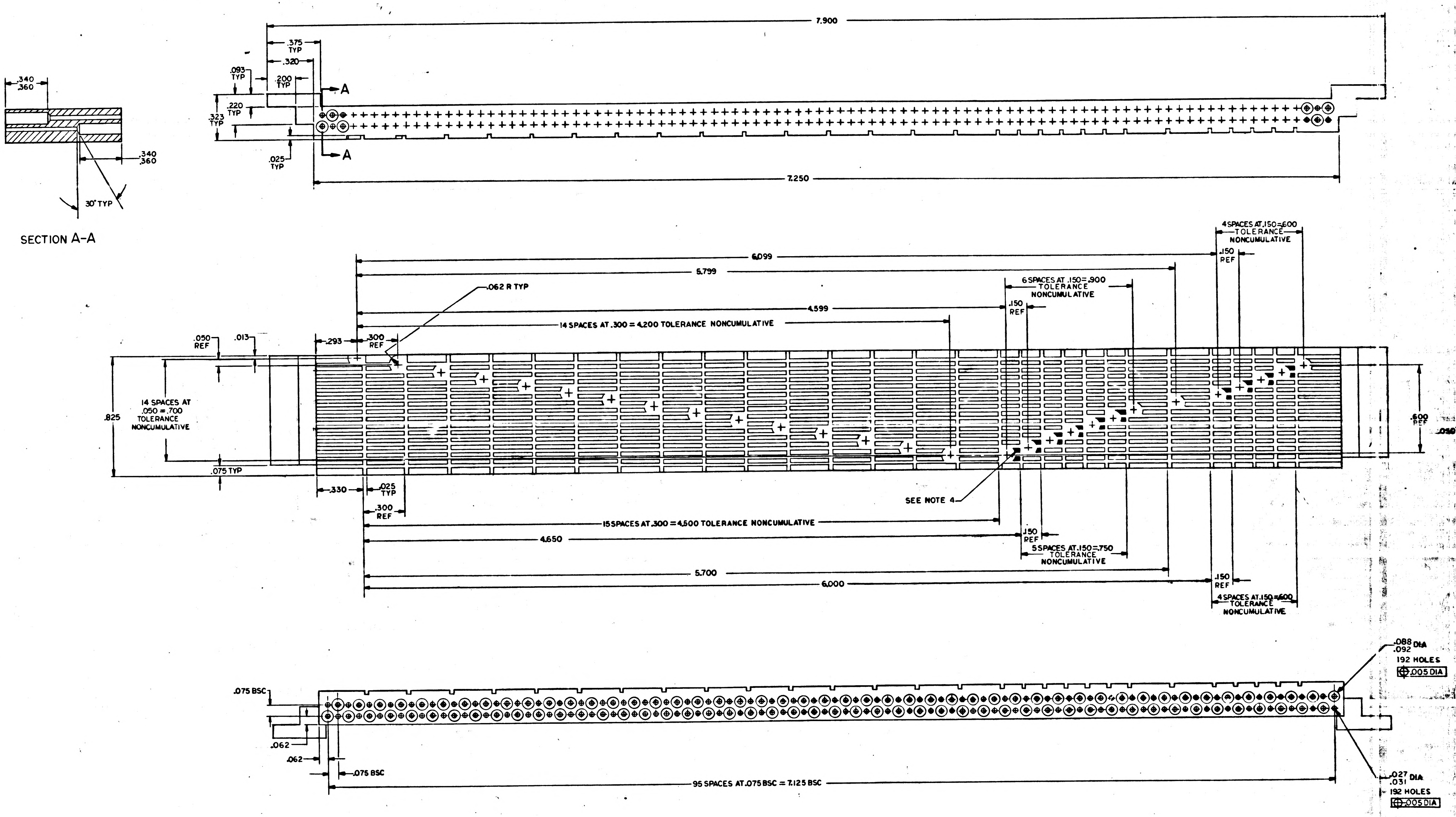
MASTER

2004016 A

4 3 2 1

E2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

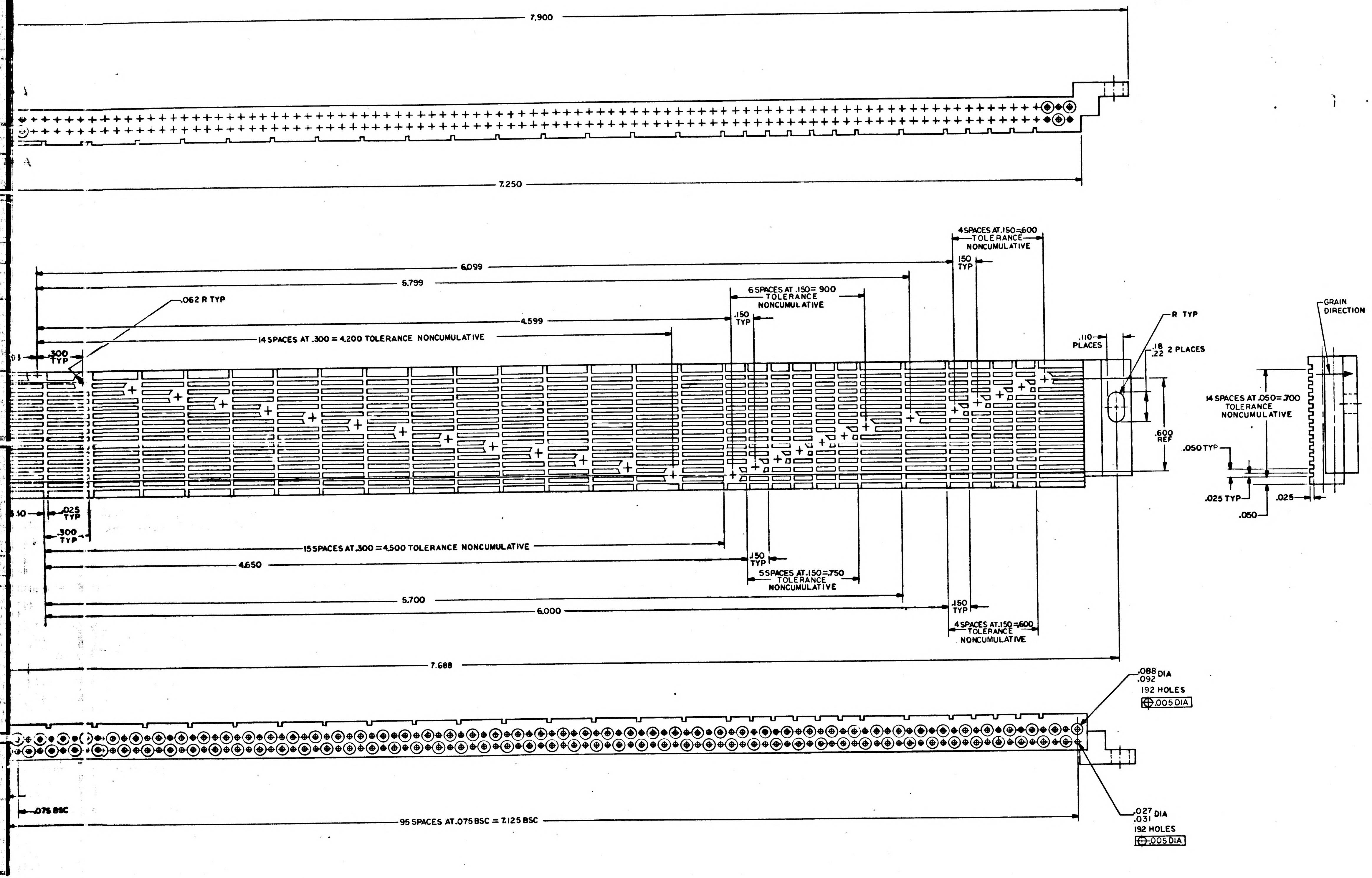

D
C
B
A
7.900
.375 TYP
.320
.093 TYP
.200 TYP
.220 TYP
.323 TYP
.025 TYP
A
A
7.250
.340
.360
.340
.360
30° TYP
SECTION A-A
6.099
5.799
.062 R TYP
4.599
14 SPACES AT .300 = 4.200 TOLERANCE NONCUMULATIVE
6 SPACES AT .150 = .900 TOLERANCE NONCUMULATIVE
.150 REF
4 SPACES AT .150 = .600 TOLERANCE NONCUMULATIVE
.150 REF
.050 REF
.013
.293
.300 REF
14 SPACES AT .050 = .700 TOLERANCE NONCUMULATIVE
.825
.075 TYP
.330
.025 TYP
.300 REF
SEE NOTE 4
.600 REF
.050
15 SPACES AT .300 = 4.500 TOLERANCE NONCUMULATIVE
4.650
.150 REF
5 SPACES AT .150 = .750 TOLERANCE NONCUMULATIVE
5.700
6.000
.150 REF
4 SPACES AT .150 = .600 TOLERANCE NONCUMULATIVE
.075 BSC
.062
.062
.075 BSC
95 SPACES AT .075 BSC = 7.125 BSC
.088 .092 DIA
192 HOLES
⌖ .005 DIA
.027 .031 DIA
192 HOLES
⌖ .005 DIA

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: PLASTIC SHEET, LAMINATED PER MIL-P-18177, TYPE GEE
3. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
4. DARKENED AREAS DENOTE AREAS WHERE BREAKOFFS ARE PERMISSIBLE

REVISIONS 12684

SYM	DESCRIPTION	DATE	APPROVAL


7.900
7.250
4 SPACES AT .150=.600 TOLERANCE NONCUMULATIVE
.150 TYP
6.099
5.799
6 SPACES AT .150=.900 TOLERANCE NONCUMULATIVE
.062 R TYP
.150 TYP
4.599
14 SPACES AT .300 = 4.200 TOLERANCE NONCUMULATIVE
.300 TYP
.110 PLACES
R TYP
.18
.22 2 PLACES
GRAIN DIRECTION
14 SPACES AT .050=.700 TOLERANCE NONCUMULATIVE
.600 REF
.050 TYP
.025 TYP
.050
.025
.025 TYP
.300 TYP
15 SPACES AT .300 = 4.500 TOLERANCE NONCUMULATIVE
4.650
.150 TYP
5 SPACES AT .150=.750 TOLERANCE NONCUMULATIVE
5.700
.150 TYP
6.000
4 SPACES AT .150=.600 TOLERANCE NONCUMULATIVE
7.688
.088
.092 DIA
192 HOLES
.005 DIA
.075 BSC
95 SPACES AT .075 BSC = 7.125 BSC
.027
.031 DIA
192 HOLES
.005 DIA

D

C

B

2004016

A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON
FRACTIONS ± —— DECIMALS ±.005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 2
HEAT TREATMENT ——
FINAL FINISH ——

2003012	
NEXT ASSY	USED ON
APPLICATION	

MIT INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN L. Pelkey DATE May 64
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL W.J. Rhine 4-27-65
MIT APPROVAL W. Kupfer 27 Apr 65

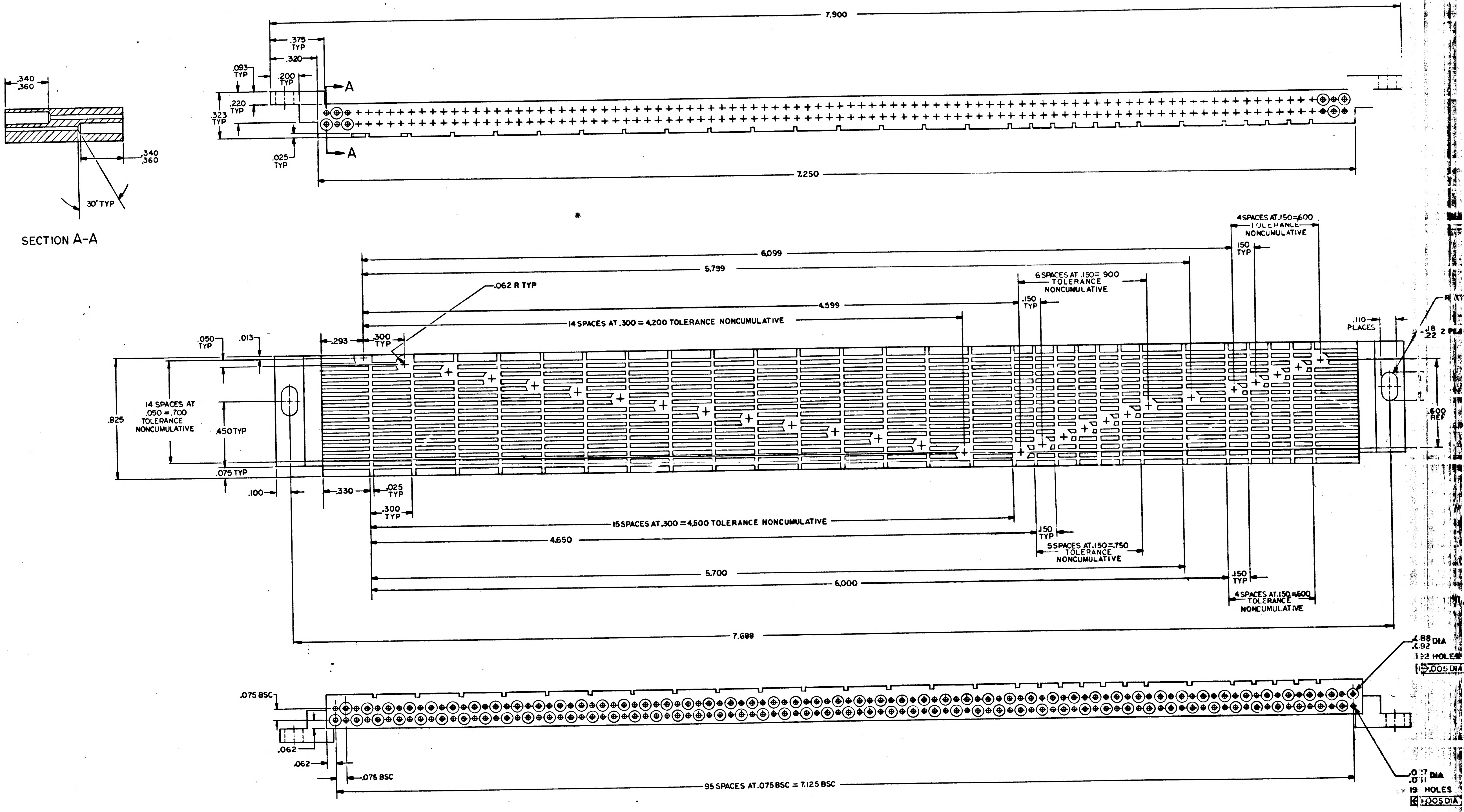
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DIODE BLOCK
ERASABLE MEMORY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2004016
SCALE 4/1
WT ——
SHEET 1 OF 1

MASTER

NOTICE [illegible] ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

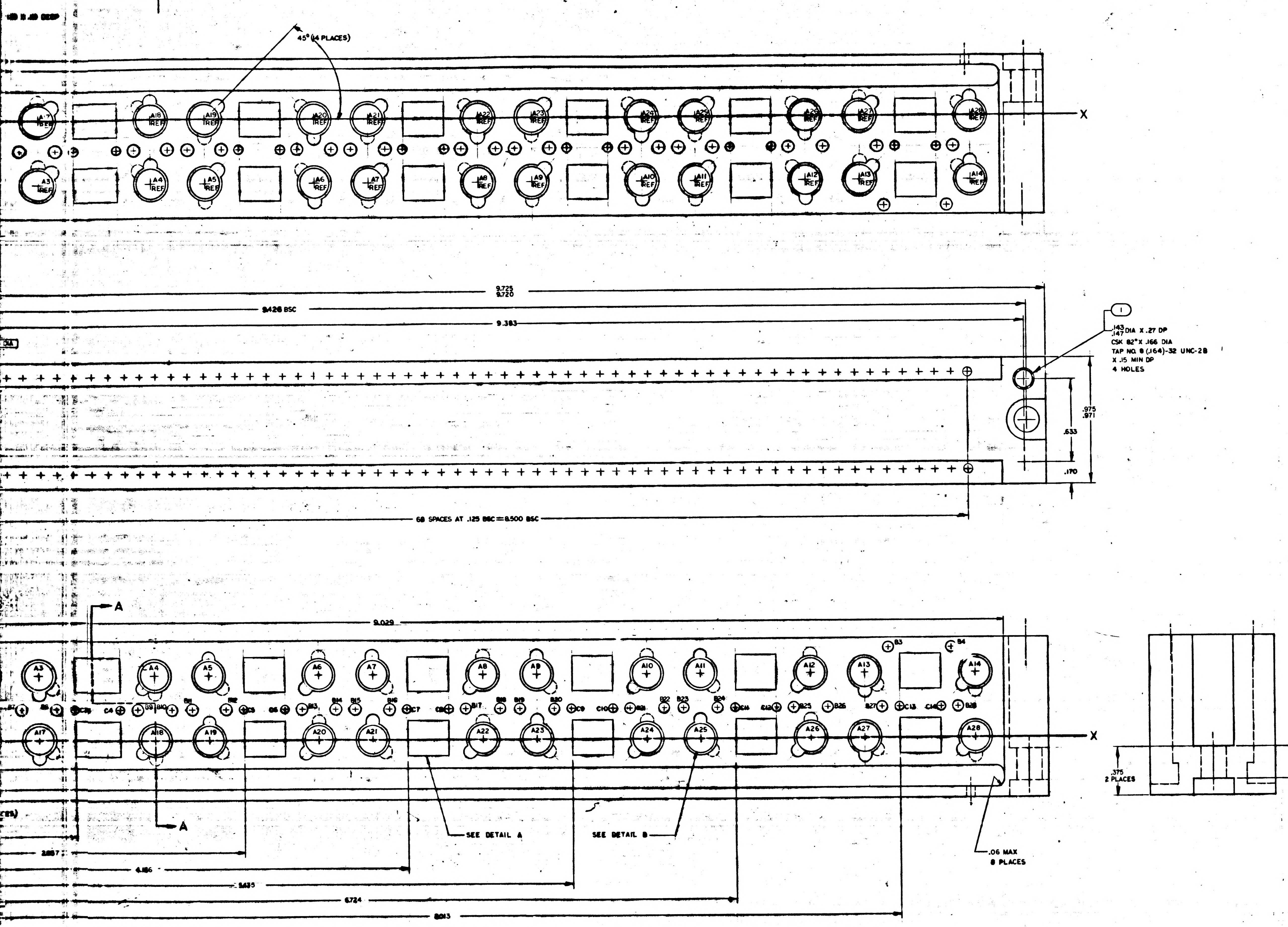

SECTION A-A
.340
.360
.340
.360
30° TYP
7.900
.375 TYP
.320
.093 TYP
.200 TYP
.220 TYP
.323 TYP
.025 TYP
A
A
7.250
6.099
5.799
4.599
.062 R TYP
14 SPACES AT .300 = 4,200 TOLERANCE NONCUMULATIVE
6 SPACES AT .150 = .900 TOLERANCE NONCUMULATIVE
.150 TYP
4 SPACES AT .150 = .600 TOLERANCE NONCUMULATIVE
.150 TYP
.110 PLACES
.18
.22 2 PL
R
.600 REF
.050 TYP
.013
.293
.300 TYP
14 SPACES AT .050 = .700 TOLERANCE NONCUMULATIVE
.825
.450 TYP
.075 TYP
.100
.330
.025 TYP
.300 TYP
15 SPACES AT .300 = 4,500 TOLERANCE NONCUMULATIVE
4.650
.150 TYP
5 SPACES AT .150 = .750 TOLERANCE NONCUMULATIVE
5.700
6.000
.150 TYP
4 SPACES AT .150 = .600 TOLERANCE NONCUMULATIVE
7.688
.088
.092 DIA
192 HOLES
.005 DIA
.075 BSC
.062
.062
.075 BSC
95 SPACES AT .075 BSC = 7.125 BSC
.017
.011 DIA
19 HOLES
.005 DIA

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: PLASTIC SHEET, LAMINATED PER MIL-P-18177, TYPE GEE
3. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

24

REVISIONS 17905			
SYM	DESCRIPTION	DATE	APPROVAL


45° (4 PLACES)
A16 REF
A19 REF
A20 REF
A21 REF
A22 REF
A23 REF
A24 REF
A25 REF
A26 REF
A27 REF
A28 REF
A3 REF
A4 REF
A5 REF
A6 REF
A7 REF
A8 REF
A9 REF
A10 REF
A11 REF
A12 REF
A13 REF
A14 REF
X
9.725
9.720
9.426 BSC
9.383
1
.143
.147 DIA X .27 DP
CSK 82° X .166 DIA
TAP NO. 8 (.164)-32 UNC-2B
X .15 MIN DP
4 HOLES
.975
.971
.633
.170
68 SPACES AT .125 BSC = 8.500 BSC
A
9.029
B3
B4
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
A13
A14
C4
B9
B10
B11
B12
C5
C6
B13
B14
B15
B16
C7
C8
B17
B18
B19
B20
C9
C10
B22
B23
B24
C11
C12
B25
B26
B27
C13
C14
B28
A17
A18
A19
A20
A21
A22
A23
A24
A25
A26
A27
A28
X
A
SEE DETAIL A
SEE DETAIL B
.06 MAX
8 PLACES
2.887
4.186
5.435
6.724
8.013
.375
2 PLACES
.258
.254 2 PLACES

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
4	1000115-1	INSERT THREADED SELF LOCKING	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003033	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS .XX ± .02 .XXX ± .005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

HEAT TREATMENT

FINAL FINISH
SEE NOTE 3

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN E W DATE 23
CHECKED
APPROVAL
APPROVAL

NASA APPROVAL W G
1-1-65
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

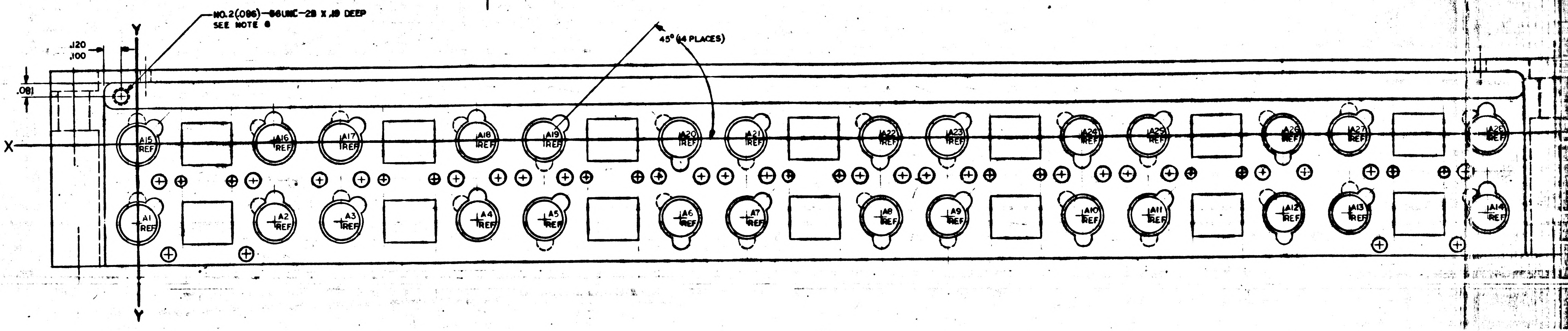
HEADER HOUSING
CURRENT SWITCH MODULE

CODE IDENT NO. —
SIZE J
NASA DRAWING NO. 2004020
SCALE 4/1
WT —
SHEET 1 OF 1

2004020

MASTER

3H


NO.2(.086)-56UNC-2B X .19 DEEP
SEE NOTE 6
45° (14 PLACES)
.120
.100
.081
X
Y
A15 REF
A16 REF
A17 REF
A18 REF
A19 REF
A20 REF
A21 REF
A22 REF
A23 REF
A24 REF
A25 REF
A26 REF
A27 REF
A28 REF
A1 REF
A2 REF
A3 REF
A4 REF
A5 REF
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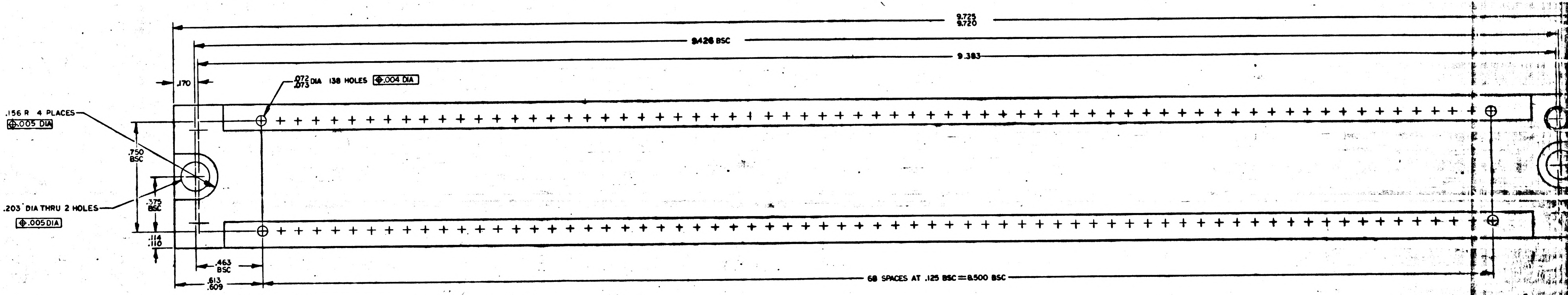
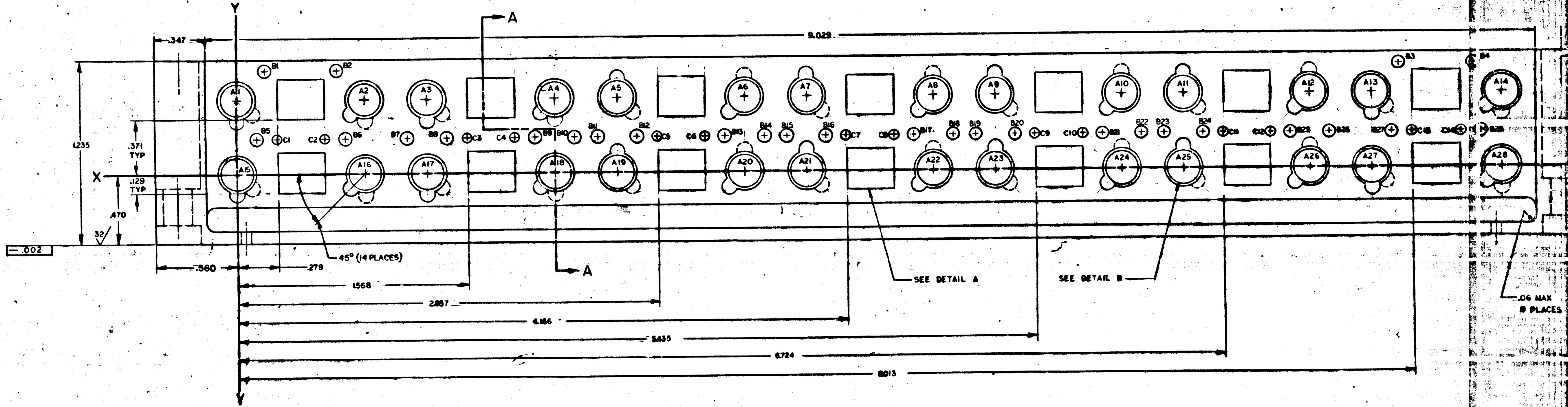
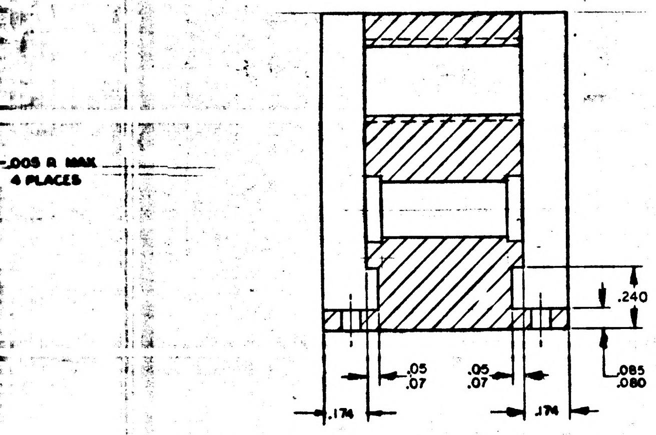
A11 REF
A12 REF
A13 REF
A14 REF


9.725
9.720
9.426 BSC
9.383
.170
.072
.073 DIA 138 HOLES ⊕.004 DIA
.156 R 4 PLACES
⊕.005 DIA
.750
BSC
.375
BSC
.203 DIA THRU 2 HOLES
⊕.005 DIA
.114
.110
.463
BSC
.613
.609
68 SPACES AT .125 BSC = 8.500 BSC

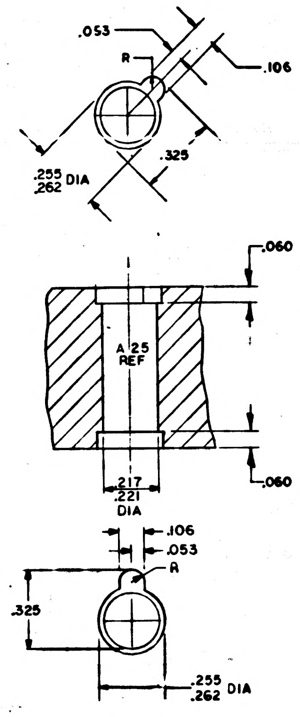

Y
X
A
A
.347
9.029
1.235
.371
TYP
.129
TYP
.470
32
— .002
.560
.279
45° (14 PLACES)
1.568
2.857
4.186
5.435
6.724
8.013
SEE DETAIL A
SEE DETAIL B
.06 MAX
8 PLACES
A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13 A14
A15 A16 A17 A18 A19 A20 A21 A22 A23 A24 A25 A26 A27 A28
B1 B2 B3 B4 B5 B6 B7 B8 B9 B10 B11 B12 B13 B14 B15 B16 B17 B18 B19 B20 B21 B22 B23 B24 B25 B26 B27 B28
C1 C2 C3 C4 C5 C6 C7 C8 C9 C10 C11 C12 C13 C14


.005 R MAX
4 PLACES
.240
.085
.080
.05
.07
.05
.07
.174
.174

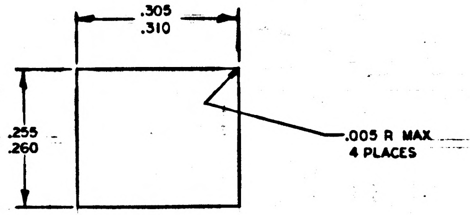
SECTION A-A

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

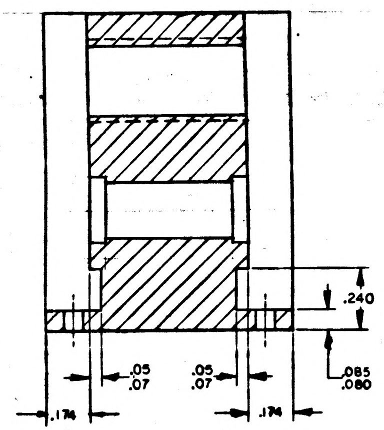
HOLE IDENT	X DIM	Y DIM	HOLE DIA	QTY
A1	.000	.500	SEE DETAIL B	28
A2	.866			
A3	1.289			
A4	2,155			
A5	2.578			
A6	3.444			
A7	3.867			
A8	4.733			
A9	5.156			
A10	6.022			
A11	6.445			
A12	7.311			
A13	7.734			
A14	8.600	.500		
A15	.000	.000		
A16	.866			
A17	1.289			
A18	2.155			
A19	2.578			
A20	3.444			
A21	3.867			
A22	4.733			
A23	5.156			
A24	6.022			
A25	6.445			
A26	7.311			
A27	7.734			
A28	8.600	.000		
B1	.187	.695	.088 .092	28
B2	.679	.695		
B3	7.921	.695		
B4	8.413	.695		
B5	.134	.235		
B6	.732			
B7	.1.155			
B8	1.423			
B9	2.021			
B10	2.289			
B11	2.444			
B12	2.712			
B13	3.310			
B14	3.578			
B15	3.733			
B16	4.001			
B17	4.599			
B18	4.867			
B19	5.022			
B20	5.290			
B21	5.888			
B22	6.156			
B23	6.311			
B24	6.579			
B25	7.177			
B26	7.445			
B27	7.868			
B28	8.466	.235		
C1	.270	.235	.058 .062	14
C2	.596			
C3	1.559			
C4	1.885			
C5	2.848			
C6	3.174			
C7	4.137			
C8	4.463			
C9	5.426			
C10	5.752			
C11	6.715			
C12	7.041			
C13	8.004			
C14	8.330	.235		


.053
R
.106
.255
.262 DIA
.325
.060
A25
REF
.060
.217
.221
DIA
.106
.053
R
.325
.255
.262 DIA

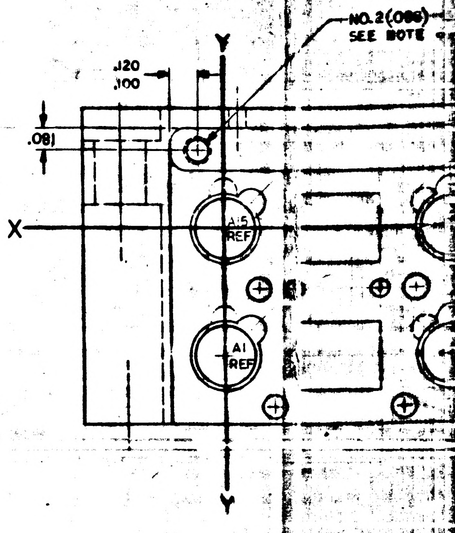
DETAIL B

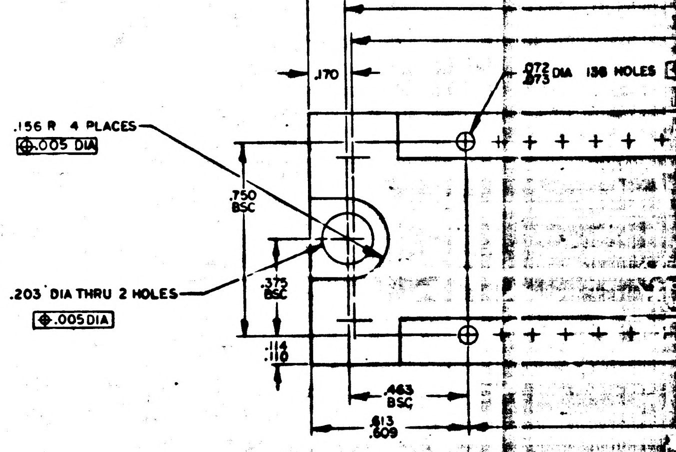

.305
.310
.255
.260
.005 R MAX
4 PLACES

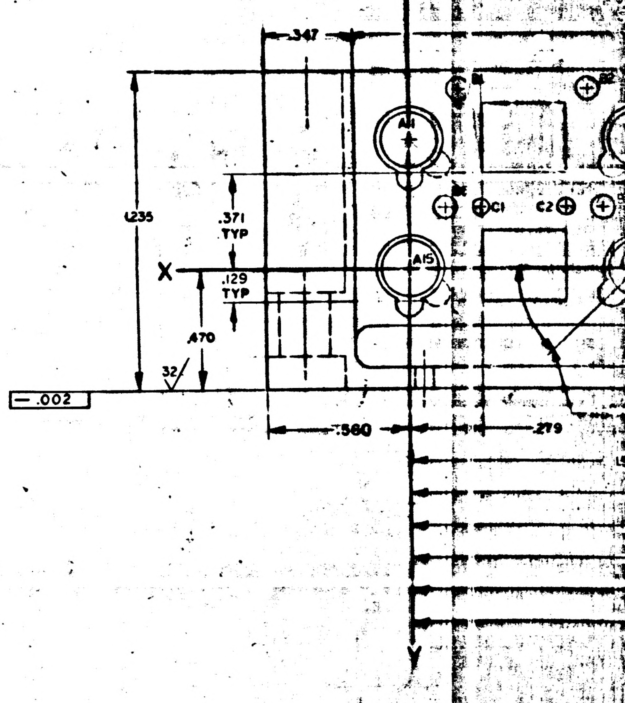
DETAIL A
SCALE 8-1
14 PLACES


.240
.05
.07
.05
.07
.085
.080
.174
.174

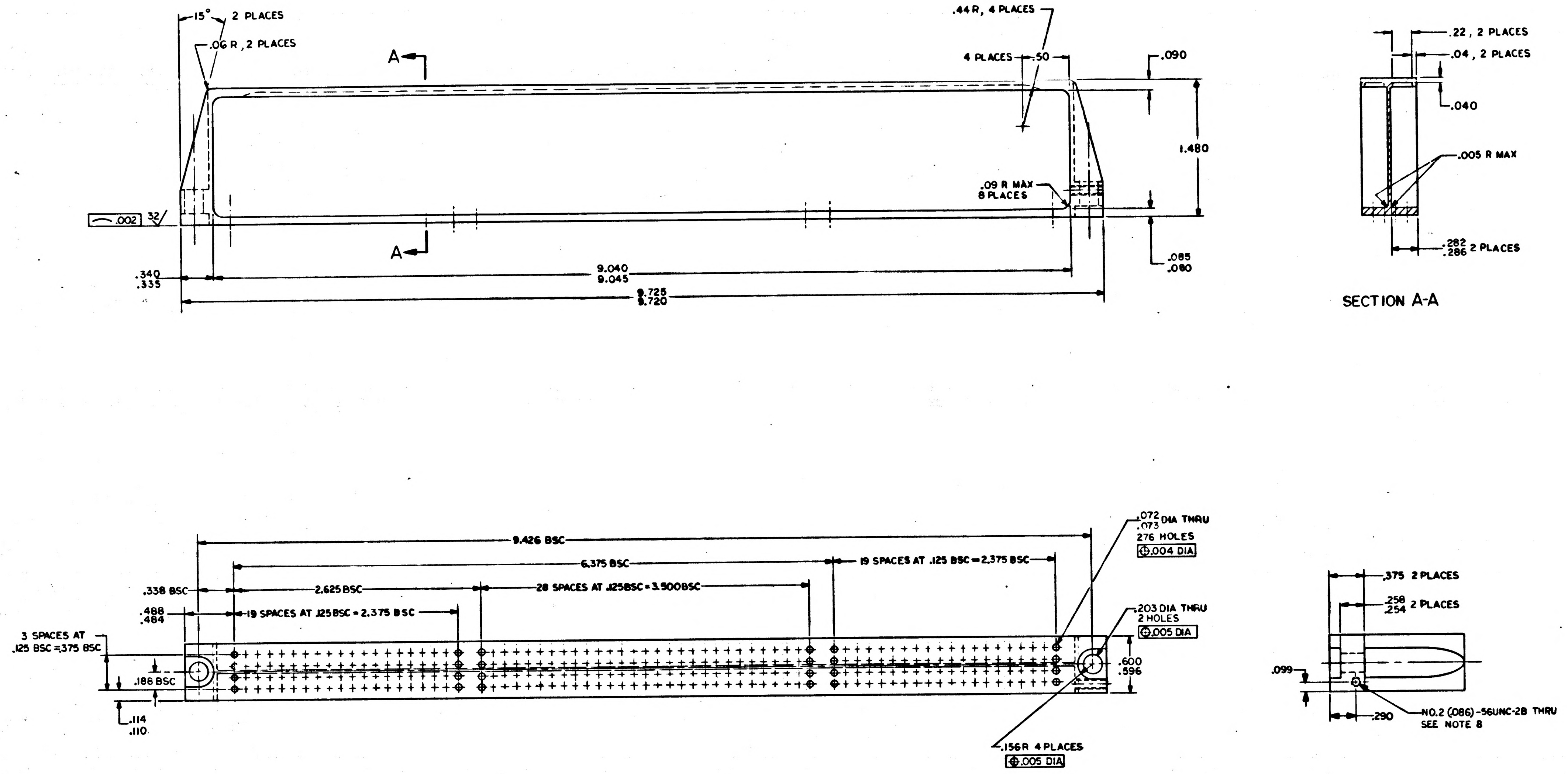
SECTION A-A


NO.2(.086)
SEE NOTE
.120
.100
.081
Y
X
A15
REF
A1
REF
Y


.170
.072
.073 DIA 138 HOLES
.156 R 4 PLACES
.005 DIA
.750
BSC
.375
BSC
.203 DIA THRU 2 HOLES
.005 DIA
.114
.110
.463
BSC
.813
.609


Y
.347
A11
C1
C2
1.235
.371
TYP
X
A15
.129
TYP
.470
32
— .002
.560
.279

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: MAGNESIUM ZK60A-T5 PER QQ-M-31, TEMP 5
3. FINISH: ANODIZE PER MIL-M-45202 TYPE I, CLASS C
4. ALL SURFACES 125 UNLESS OTHERWISE SPECIFIED
5. REMOVE BURRS AND SHARP EDGES .005/.015
6. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .020 MAX
7. INSTALL FIND NO.1 PER ND 1002121
8. TAP HOLE AFTER ANODIZE. COAT PER ND1002040
9. COAT THREADS OF FIND NO.1 WITH MIL-P-8585, COLOR YELLOW
10 IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019


15°, 2 PLACES
.06 R, 2 PLACES
A
.44 R, 4 PLACES
4 PLACES .50
.090
1.480
.09 R MAX 8 PLACES
.002 32
.085 .080
.340 .335
9.040 9.045
9.725 9.720
.22, 2 PLACES
.04, 2 PLACES
.040
.005 R MAX
.282 .286 2 PLACES
SECTION A-A
9.426 BSC
6.375 BSC
19 SPACES AT .125 BSC = 2.375 BSC
.072 .073 DIA THRU
276 HOLES
.004 DIA
.338 BSC
2.625 BSC
28 SPACES AT .125 BSC = 3.500 BSC
.488 .484
19 SPACES AT .125 BSC = 2.375 BSC
.203 DIA THRU 2 HOLES
.005 DIA
3 SPACES AT .125 BSC = .375 BSC
.188 BSC
.600 .596
.114 .110
.156 R 4 PLACES
.005 DIA
.375 2 PLACES
.258 .254 2 PLACES
.099
.290
NO.2 (.086)-56UNC-2B THRU
SEE NOTE 8

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MATERIAL: MAG ALLOY ZK60A-T5 PER QQ-M-31
3. FINISH: ANODIZE PER MIL-M-45202 TYPE I, CLASS C
4. ALL SURFACES 125√ UNLESS OTHERWISE SPECIFIED
5. ALL INSIDE RADII .015/.005 UNLESS OTHERWISE SPECIFIED
6. REMOVE ALL BURRS AND BREAK SHARP EDGES .005/.015
7. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
8. TAP HOLE AFTER ANODIZE, COAT PER ND1002040

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003000	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS .XXX ± .005 .XX ± .01 ANGLES ± 0°30'
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 2
HEAT TREATMENT —
FINAL FINISH SEE NOTE 3

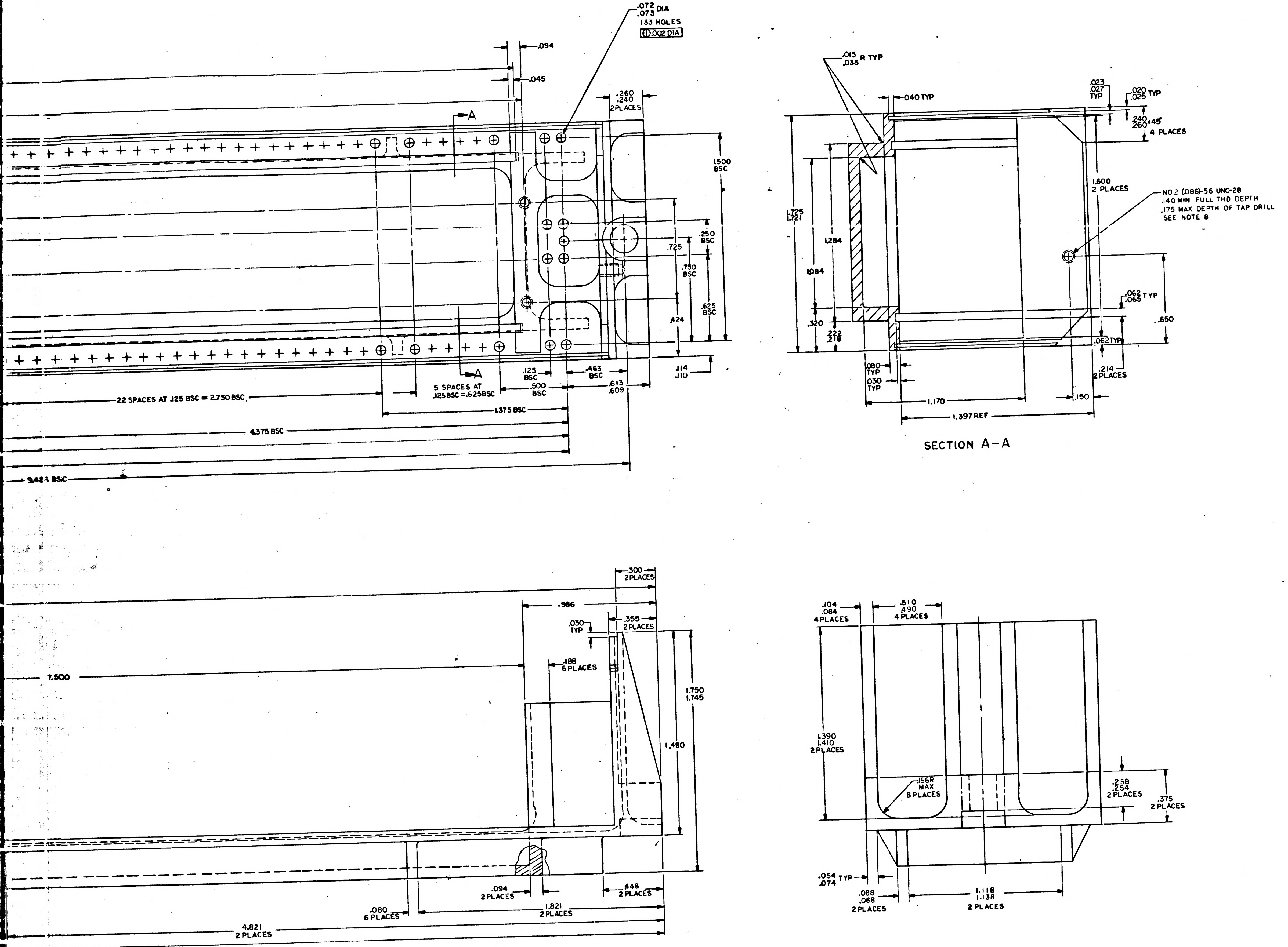
MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN [illegible] DATE 7/10/64
CHECKED [illegible] 20 Oct 64
APPROVAL [illegible] 3/5/65
APPROVAL [illegible] 3/5/65
Elbe Hall 3/5/65
NASA APPROVAL [illegible] 3/8/65
MIT APPROVAL [illegible] 1965

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HEADER
LOGIC MODULE

CODE IDENT NO. —
SIZE E
NASA DRAWING NO. 2004025
SCALE 2/1
WT —
SHEET 1 OF 1

MASTER


.072 DIA
.073
133 HOLES
⊕ .002 DIA
.094
.045
.260
.240
2 PLACES
A
A
1.500 BSC
.725
.250 BSC
.750 BSC
.625 BSC
.424
.114
.110
.125 BSC
.500 BSC
.463 BSC
.613
.609
5 SPACES AT .125 BSC = .625 BSC
22 SPACES AT .125 BSC = 2.750 BSC
1.375 BSC
4.375 BSC
9.423 BSC
.015
.035 R TYP
.040 TYP
.023
.027
TYP
.020
.025 TYP
.240
.260 x 45°
4 PLACES
1.600
2 PLACES
NO.2 (.086)-56 UNC-2B
.140 MIN FULL THD DEPTH
.175 MAX DEPTH OF TAP DRILL
SEE NOTE 8
1.725
1.721
1.284
1.084
.320
.222
.218
.062
.065 TYP
.650
.062 TYP
.214
2 PLACES
.080 TYP
.030 TYP
1.170
.150
1.397 REF
SECTION A-A
.300
2 PLACES
.986
.030 TYP
.355
2 PLACES
.188
6 PLACES
7.500
1.750
1.745
1.480
.094
2 PLACES
.448
2 PLACES
.080
6 PLACES
1.821
2 PLACES
4.821
2 PLACES
.104
.084
4 PLACES
.510
.490
4 PLACES
1.390
1.410
2 PLACES
.156 R
MAX
8 PLACES
.258
.254
2 PLACES
.375
2 PLACES
.054
.074 TYP
.088
.068
2 PLACES
1.118
1.138
2 PLACES

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
2003010	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 2
HEAT TREATMENT —
FINAL FINISH SEE NOTE 3

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG. NO. CONTRACT
DRAWN Tony Bell DATE 2/19/65
CHECKED
APPROVAL 23 Ap 65
APPROVAL Eldon C. Hall 23 Ap 65
NASA APPROVAL 4-27-65
MIT APPROVAL 4/27/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

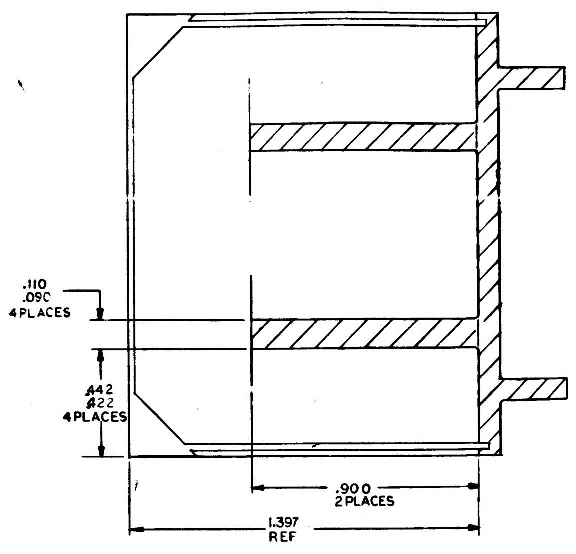
HEADER HOUSING
ERASABLE MEMORY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO 2004026
SCALE 4/1
WT —
SHEET 1 OF 1

MASTER

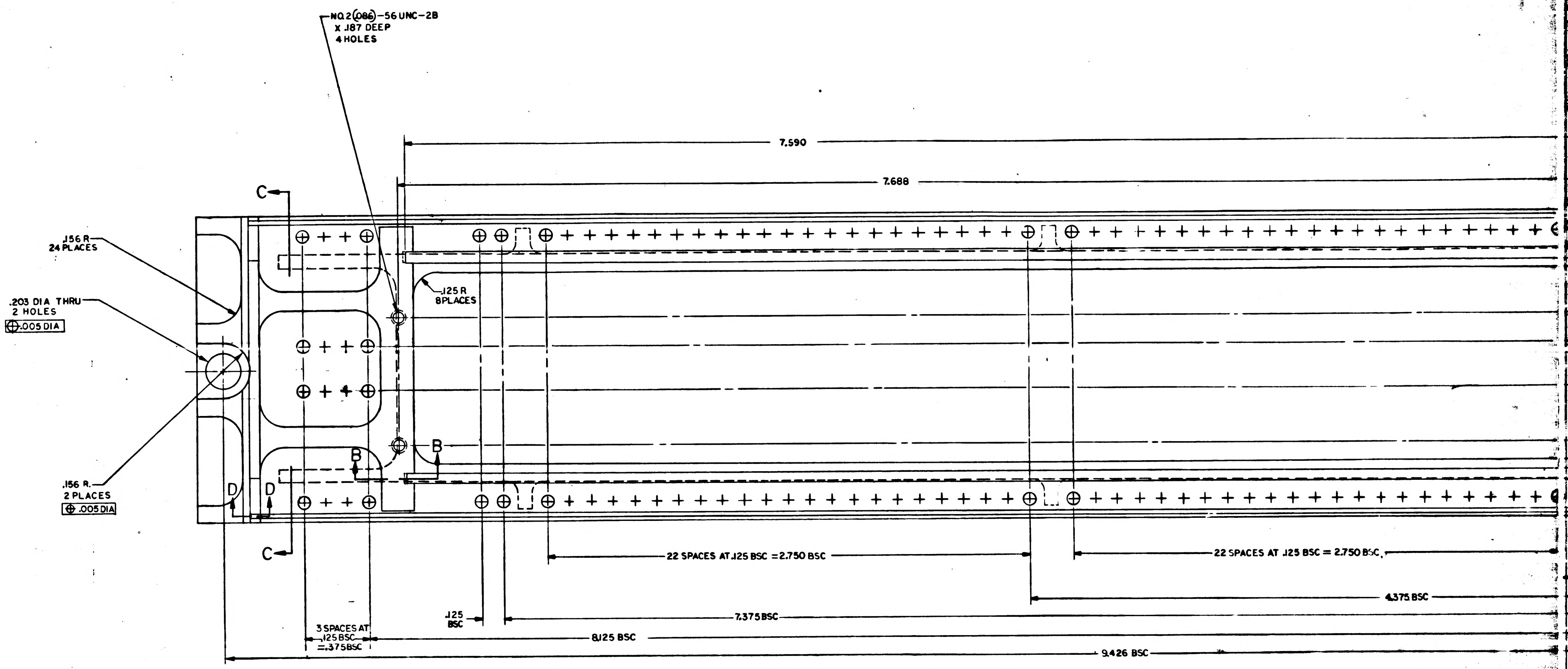
2004026

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

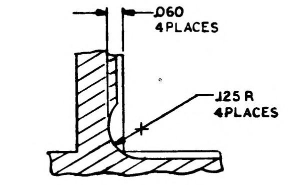


.110
.090
4 PLACES
.442
.422
4 PLACES
.900
2 PLACES
1.397
REF

SECTION C-C

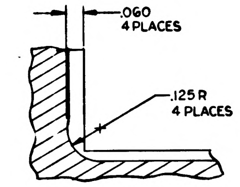


NO.2(.086)-56 UNC-2B
X .187 DEEP
4 HOLES
7.590
7.688
C
.156 R
24 PLACES
.203 DIA THRU
2 HOLES
⊕ .005 DIA
.125 R
8 PLACES
B
B
D
D
.156 R
2 PLACES
⊕ .005 DIA
C
22 SPACES AT .125 BSC = 2.750 BSC
22 SPACES AT .125 BSC = 2.750 BSC
4.375 BSC
.125
BSC
7.375 BSC
3 SPACES AT
.125 BSC
=.375 BSC
8.125 BSC
9.426 BSC



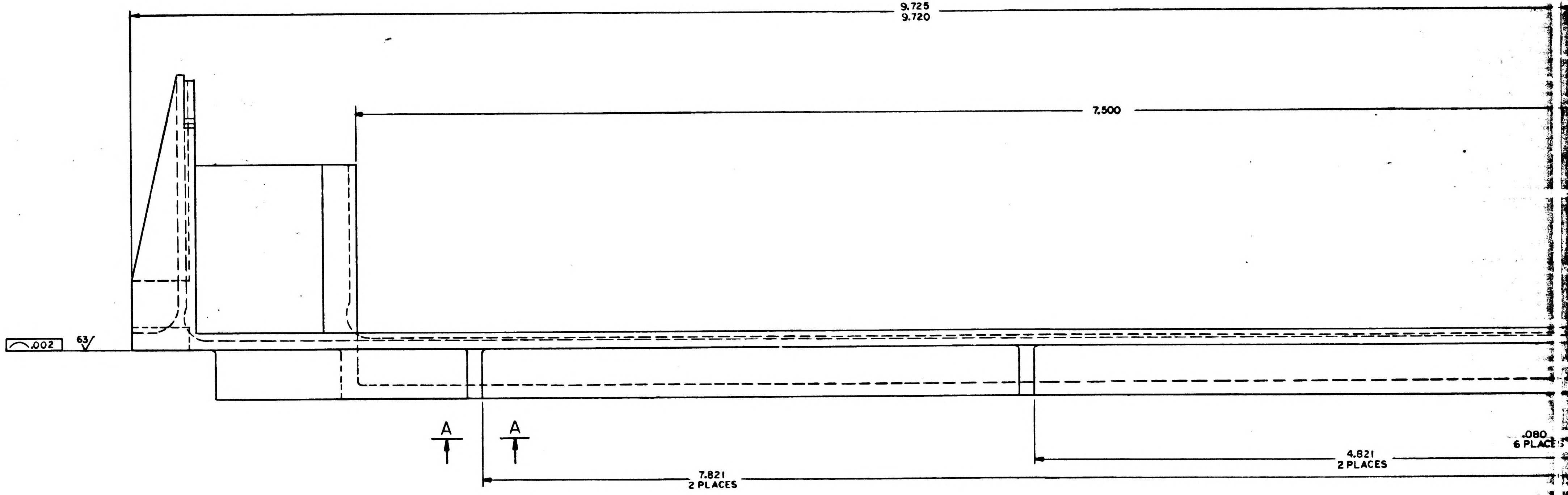
.060
4 PLACES
.125 R
4 PLACES

PARTIAL SECTION B-B



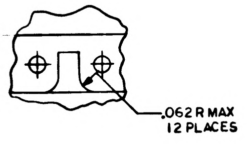
.060
4 PLACES
.125 R
4 PLACES

PARTIAL SECTION D-D



9.725
9.720
7.500
.002
63
A
A
.080
6 PLACES
4.821
2 PLACES
7.821
2 PLACES

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDANDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: MAG ALLOY ZK60A-T5 PER QQ-M-31
3. FINISH: ANODIZE PER MIL-M-45202, TYPE I, CLASS C
4. ALL SURFACES 125 UNLESS OTHERWISE SPECIFIED
5. REMOVE ALL BURRS AND BREAK SHARP EDGES .005 -.015
6. UNLESS OTHERWISE SPECIF'ED ALL FILLETS AND RADII TO BE .010 MAX
7. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
8. THREADED HOLE TO BE FREE OF ANODIZE

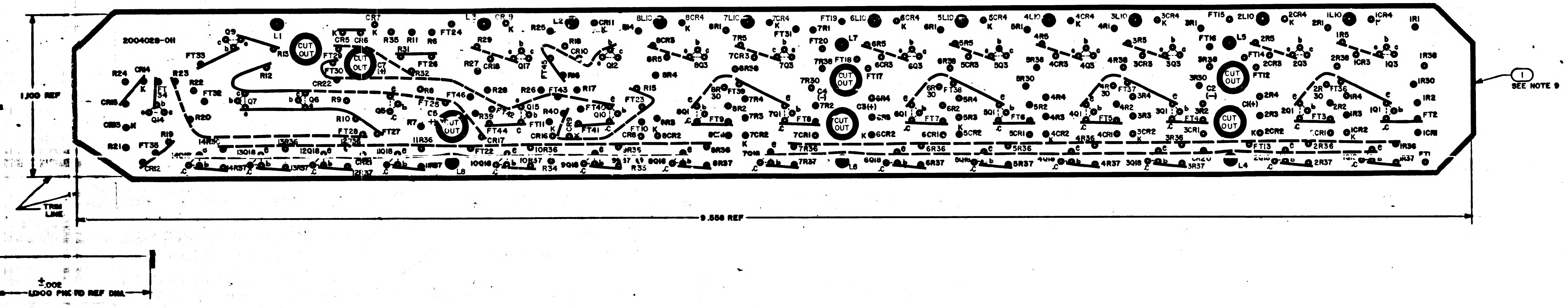


.062 R MAX
12 PLACES

PARTIAL VIEW A-A

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17744	APR 66	WK

REVISIONS 7205



2004028-011
1.100 REF
9.558 REF
TRIM LINE
±.002
1.000 PHOTO REF DIM
CUT OUT
SEE NOTE 9
1
L1
Q9
R13
FT33
R24
CR14
CR15
CR13
R21
FT35
CR12
FT34
Q14
R23
R22
FT32
R20
R19
R12
Q7
Q6
R9
R10
FT28
FT27
CR22
FT29
FT30
CR5
CR6
C7
R35
R11
R6
R31
R32
FT26
FT24
FT25
FT46
C5
R7
R8
R39
FT44
CR17
FT22
R34
R33
L8
CR7
L3
CR9
R25
R29
R27
CR18
Q17
FT45
R28
R26
Q15
FT42
FT11
R40
CR16
FT43
R17
R16
L2
CR11
CR10
Q12
Q10
FT40
FT41
FT23
R15
FT10
CR8
R14
8L10
8CR4
8R1
8CR3
8Q3
8R5
8R4
8R2
8R3
8Q1
FT9
8CR2
8CR1
8R36
8R37
8Q18
7L10
7CR4
7R1
7R5
7CR3
7Q3
FT31
7R30
7R2
7R3
7R4
7Q1
FT8
7CR2
7CR1
7R36
7R37
7Q18
FT19
6L10
FT20
L7
FT18
FT17
7R38
C4
C3(+)
FT16
6CR4
6R1
6R5
6CR3
6Q3
6R4
6R2
6R3
6Q1
FT7
6CR2
6CR1
6R36
6R37
6Q18
L6
5L10
5CR4
5R1
5R5
5CR3
5Q3
5R4
5R2
5R3
5Q1
FT38
FT6
5CR2
5CR1
5R36
5R37
4L10
4CR4
4R1
4R5
4CR3
4Q3
4R4
4R2
4R3
4Q1
FT37
FT5
4CR2
4CR1
4R36
4R37
4Q18
3L10
3CR4
3R1
3R5
3CR3
3Q3
3R4
3R2
3R3
3Q1
FT4
3CR2
3CR1
3R36
3R37
3Q18
FT15
2L10
L5
FT14
FT12
FT13
C2 (−)
C1(+)
2CR4
2R1
2R5
2CR3
2Q3
2R4
2R2
2R3
2Q1
FT3
FT36
2CR2
2CR1
2R36
2R37
L4
1L10
1CR4
1R1
1R5
1CR3
1Q3
1R4
1R2
1R3
1Q1
FT2
FT1
1CR2
1CR1
1R36
1R37
1R30
c
b
e
K

ANDARDS PRESCRIBED

N MADE BY A PROCESS
STABILITY.

TO DIMENSIONS SHOWN
F-340 TYPE IB, CLASS 2, STYLE IA

AR	1006318	ADHESIVE	2
1	2004028-001	INSULATOR	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

2003014	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 5
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN HORGAN DATE MAY 64
CHECKED C P King Jan 19 Feb 65
APPROVAL 3/18/65
APPROVAL 5 Mar 1965
NASA APPROVAL
MIT APPROVAL M W Maher 1965

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSULATOR (A) PHOTOGRAPHIC MASTER
ERASABLE DRIVER MODULE

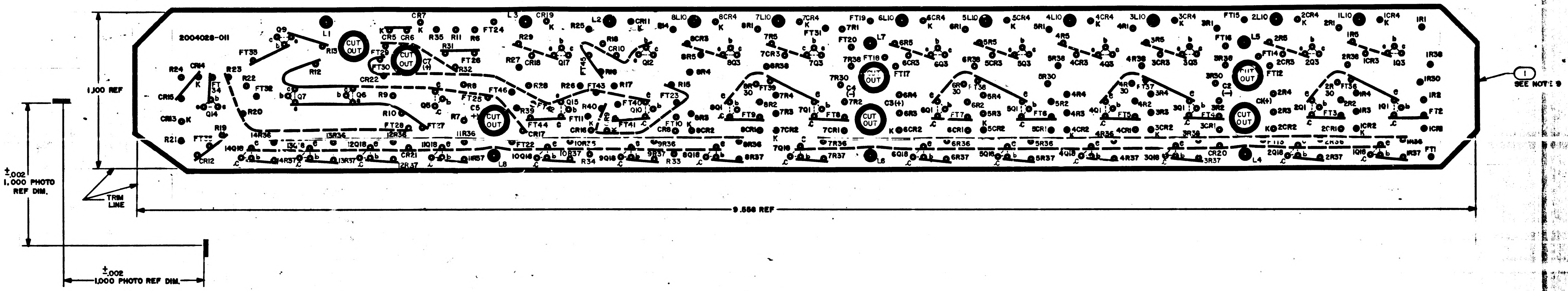
CODE IDENT NO.
SIZE J
NASA DRAWING NO. 2004028
SCALE 4/1
WT —
SHEET 1 OF 1

MASTER

2004028 A

2004028

2H



NOTES:
1. INTERPRET DRAWING ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY.
3. CUT TO WITHIN .010 OF TRIM LINE
4. MAKE MASTER PATTERN POSITIVE FILM TO DIMENSIONS SHOWN
5. MATERIAL: FILM .006/.008 THICK PER L-F-340 TYPE IB, CLASS 2, STYLE IA
6. ● .040/.050 DIA HOLE
7. ● .077/.087 DIA HOLE
8. BROKEN LINE DENOTES SLEEVING
9. APPLY FIND NO. 2 TO FAR SIDE OF FIND NO. 1

AR	1006318	ADHESIVE
1	2004028-001	INSULATOR
QTY REQD	PART OR IDENTIFYING NO.	
-011		LIST OF MATERIALS

2003014	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 5
HEAT TREATMENT —
FINAL FINISH —

MIT INSTRUMENTATION LAB CAMBRIDGE, MASS
DRAWN MORGAN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

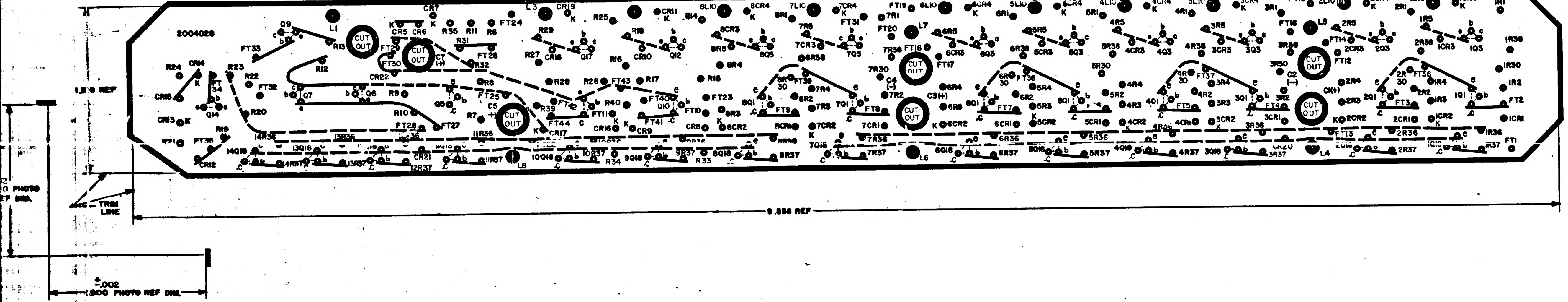
MANNED
INSU
PHOTOGR
ERASABLE
SIZE J

2004028

MASTER

REVISED PER

SYM	REVISIONS DESCRIPTION	DATE	APPROVAL


2004028
CUT OUT
1.210 REF
9.588 REF
TRIM LINE
±.002
.900 PHOTO REF DIM.
0 PHOTO
EF DIM.
FT33
R24
CR14
R23
R22
CR16
FT 34
Q14
CR13
K
R19
R21
FT35
CR12
14Q18
14R36
L1
Q9
R13
R12
Q7
Q6
CR7
CR5
CR6
R35
R11
R6
FT24
FT29
FT30
CR22
R31
FT26
R32
R9
R10
R7
C5
FT25
FT28
FT27
11R36
L3
CR19
R25
CR11
R29
R27
CR18
Q17
R18
R16
CR10
Q12
R28
R26
FT43
R17
R39
FT44
FT11
R40
FT40
Q10
FT41
CR9
FT10
R15
FT23
R34
R33
L8
L7
L6
L5
L4
FT19
FT20
FT18
FT17
FT16
FT15
FT14
FT12
FT13
FT1
FT2
C2 (−)
C3 (+)
C4 (−)
C1 (+)
IR1
IR36
IR30
IR2
ICR1
IR37

WITH STANDARDS PRESCRIBED

RODUCTION MADE BY A PROCESS
SIONAL STABILITY

FILM TO DIMENSIONS SHOWN
PER L-F-340 TYPE II, CLASS 2, STYLE IA

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003014	
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL SEE NOTE 5

HEAT TREATMENT —

FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN HORGAN DATE

CHECKED

APPROVAL 3/12/65

APPROVAL

NASA APPROVAL

MIT APPROVAL

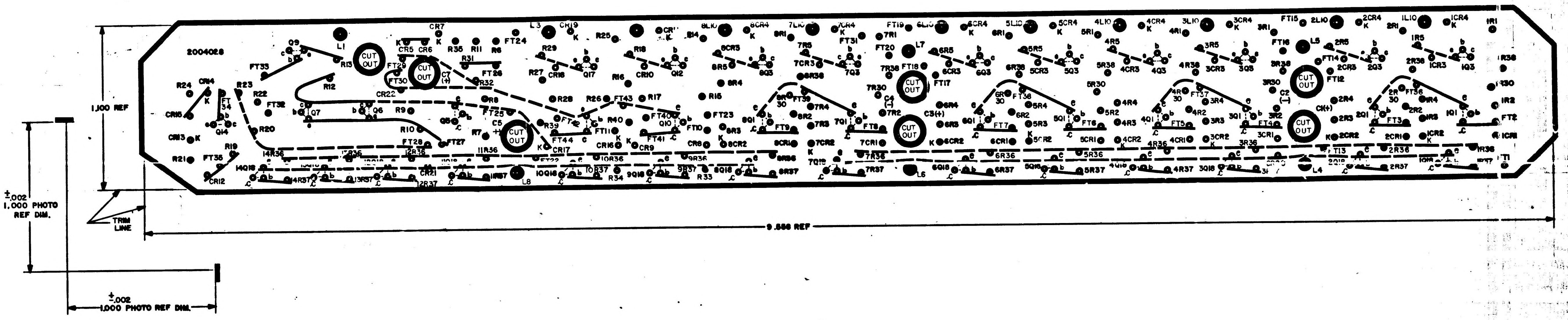
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSULATOR (A)
PHOTOGRAPHIC MASTER
ERASABLE DRIVER MODULE

CODE IDENT NO.
SIZE J
NASA DRAWING NO. 2004028
SCALE 4/1
WT —
SHEET 1 OF 1

2004028

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


2004028
CUT OUT
CUT OUT
CUT OUT
CUT OUT
CUT OUT
CUT OUT
CUT OUT
1.100 REF
±.002
1.000 PHOTO
REF DIM.
TRIM LINE
9.886 REF
±.002
1.000 PHOTO REF DIM.
L1
Q9
R13
FT33
R24
CR14
R23
FT 34
R22
FT32
R12
CR15
CR13
Q14
R20
R21
FT35
R19
CR12
14R36
14Q18
14R37
CR7
CR5
CR6
FT29
FT30
C7 (+)
CR22
Q7
Q6
R9
R10
FT28
FT27
12R36
CR21
12R37
R35
R11
R6
R31
FT26
R32
R8
Q5
R7
C5 (+)
FT25
11R36
L3
FT24
CR19
R25
R29
R27
CR18
Q17
R28
FT44
CR17
L8
10Q18
10R36
10R37
R34
R18
R16
CR10
Q12
R26
FT43
R17
R40
CR16
FT11
CR9
FT40
Q10
FT41
FT10
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9R36
9Q18
9R37
R33
8L10
14
8CR4
8R1
8CR3
8R5
8Q3
8R4
R15
FT23
8R3
8CR2
8R36
8Q18
8R37
7L10
7CR4
7R5
7CR3
FT31
7Q3
8R38
FT39
8R2
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7R4
7R3
7Q1
FT8
7CR2
7CR1
7R36
7Q18
7R37
FT19
6L10
7R1
FT20
L7
FT18
7R38
FT17
7R30
C4 (-)
7R2
C3(+)
6R4
6R3
6CR2
L6
6Q18
6CR4
6R1
6R5
6CR3
6Q3
6R38
FT36
6R2
6Q1
FT7
6CR1
6R36
6R37
5L10
5CR4
5R1
5R5
5CR3
5Q3
5R38
5R30
5R4
5R3
5R2
5Q1
FT6
5CR2
5CR1
5R36
5R37
4L10
4CR4
4R1
4R5
4CR3
4Q3
4R4
4R38
4R2
4R3
4Q1
FT37
FT5
4CR2
4CR1
4R36
4R37
3L10
3CR4
3R1
3R5
3CR3
3Q3
3R38
3R4
3R2
3R3
3Q1
FT4
3CR2
3CR1
3R36
3R37
FT15
2L10
FT16
L5
FT14
FT12
3R30
C2 (−)
C1(+)
L4
2CR4
2R1
2R5
2CR3
2Q3
2R4
2R3
2Q1
2CR2
FT3
2CR1
2R36
2R37
FT13
1L10
1CR4
1R5
2R38
1CR3
1Q3
1R4
1R3
1Q1
1CR2
1CR1
1R36
1R37
1R1
1R38
1R30
1R2
FT2
1CR1
T1
K
c
b
e

NOTES:

1. INTERPRET DRAWING ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY.
3. CUT TO WITHIN .010 OF TRIM LINE
4. MAKE MASTER PATTERN POSITIVE FILM TO DIMENSIONS SHOWN
5. MATERIAL: FILM .006/.008 THICK PER L-F-340 TYPE IB, CLASS 2, STYLE IA
6. ● .040/.050 DIA HOLE
7. ● .077/.087 DIA HOLE
8. BROKEN LINE DENOTES SLEEVING

gH

2003014	
NEXT ASSY	USED ON
APPLICATION	

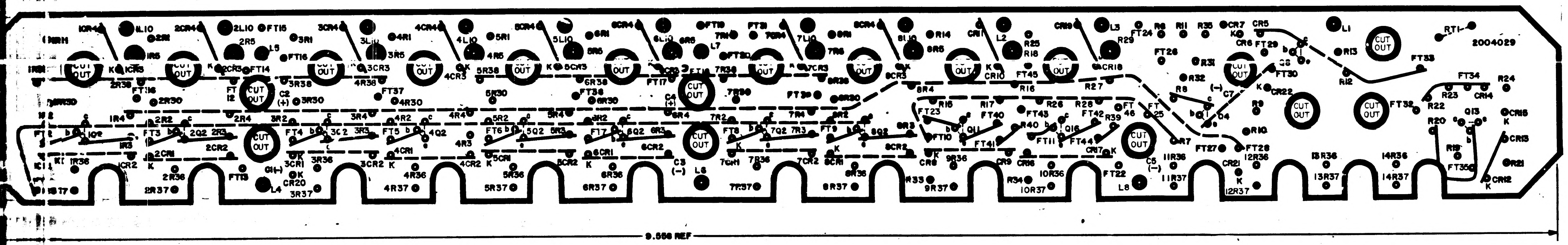
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
SEE NOTE 5
HEAT TREATMENT —
FINAL FINISH —

QTY REQD

DRAWN MORGAN
CHECKED
APPROVAL
APPROVAL

2004028

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17744	1APR65	4K



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2CR4
2L10
FT15
2R5
L5
FT16
2CR3
FT14
FT12
CUT OUT
C2 (+)
3R30
3R1
3R38
2R2
2Q2
2R3
FT3
2CR1
2CR2
2R4
2R36
2R37
FT13
C1(-)
L4
CR20
3R37
3CR4
3L10
3R5
3CR3
4R1
4CR4
4L10
4R5
4CR3
4R38
FT37
4R30
3R2
3Q2
3R3
3R4
FT4
3CR1
3R36
3CR2
4R2
4Q2
4R3
4R4
FT5
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4CR2
4R36
4R37
5CR4
5L10
5R1
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5CR3
5R38
5R30
5R2
5Q2
5R3
5R4
FT6
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6R1
6L10
6R5
6CR3
6R38
FT38
6R30
6R2
6Q2
6R3
6R4
FT7
6CR1
6CR2
6R36
6R37
FT17
FT18
C4 (+)
C3 (-)
L6
FT19
7R1
L7
FT20
FT21
7CR4
7L10
7R5
7CR3
7R38
7R30
7R2
7Q2
7R3
7R4
FT8
7CR1
7CR2
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8CR2
8R36
8R37
R14
CR11
L2
R25
R18
CR10
FT45
R16
R15
R17
FT23
FT10
Q11
FT40
FT41
CR8
9R36
9R37
R33
CR9
R34
CR16
10R36
10R37
FT43
R40
FT11
Q16
FT44
R26
R28
FT42
R39
CR17
K
CR19
L3
R29
CR18
R27
FT24
FT26
R6
R11
R35
CR7
CR5
CR6
FT29
Q8
FT30
R31
R32
R8
Q4
C7 (-)
CR22
R9
R10
R7
FT46
FT25
C5 (-)
L8
FT22
11R36
11R37
FT27
FT28
CR21
12R36
12R37
L1
R13
R12
FT33
RT1
2004029
FT34
R24
R23
CR14
R22
FT32
Q13
R20
CR15
CR13
R19
FT35
R21
CR12
13R36
13R37
14R36
14R37
b
c
e
K
CUT OUT
9.558 REF

REF DIM

PRESEN REQD

BY A PROCESS

IONS IN 7WH

ED, CLASS 2, STYLE IA

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± — DECIMALS ± — ANGLES ± —	MIT INSTRUMENTATION LAB CAMBRIDGE, MASS. DWG NO. CONTRACT	MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
DO NOT SCALE THIS DRAWING	DRAWN Louis A. Lang DATE Mar 1965 CHECKED APPROVAL 3/8/65 APPROVAL	**INSULATOR (B)** **PHOTOGRAPHIC MASTER** **ERASABLE DRIVER MODULE**	
MATERIAL SEE NOTES			
HEAT TREATMENT —	NASA APPROVAL 3/5/65	CODE IDENT NO. —	SIZE J
FINAL FINISH —	MIT APPROVAL McMahon 3-9-65	SCALE 4/1	WT —

NASA DRAWING NO. 2004029

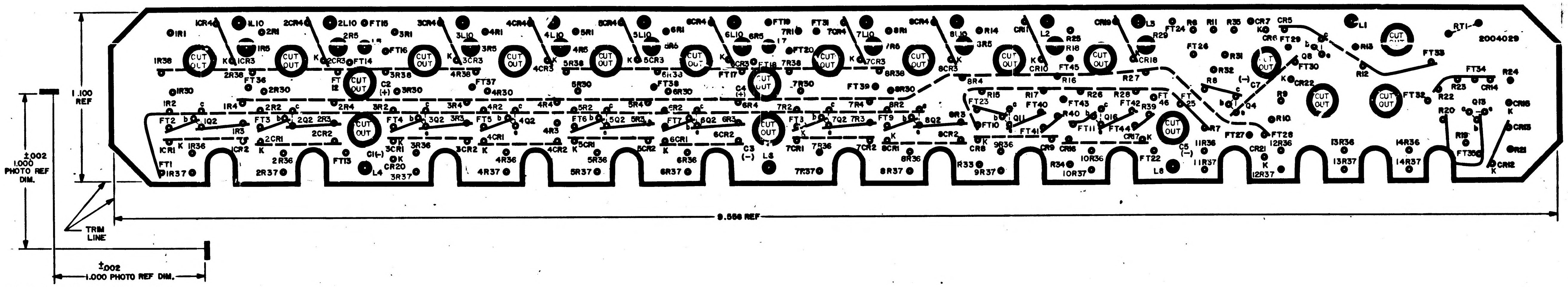
SHEET 1 OF 1

NEXT ASSY	USED ON
2003014	

APPLICATION

2004029 A

2004029


2004029
1.100 REF
9.556 REF
±.002
1.000 PHOTO REF DIM.
TRIM LINE
±.002
1.000 PHOTO REF DIM.
CUT OUT
C2 (+)
C4 (+)
C1 (-)
C3 (-)
C5 (-)
L1
L2
L3
L4
L5
L6
RT1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY.
3. CUT TO WITHIN .010 OF TRIM LINE
4. MAKE MASTER PATTERN POSITIVE FILM TO DIMENSIONS SHOWN
5. MATERIAL: FILM .006/.008 THICK PER L-F-340 TYPE IB, CLASS 2, STYLE IA
6. ● .040/.050 DIA HOLE
7. ● .077/.087 DIA HOLE
8. ● .120/.130 DIA HOLE
9. BROKEN LINE DENOTES SLEEVING

2003014	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± ___ DECIMALS ± ___ ANGLES ± ___
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTES

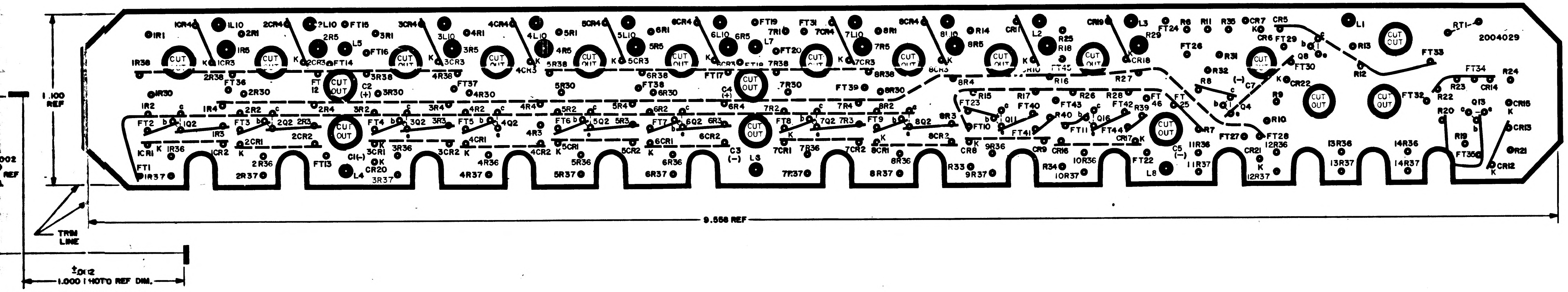
HEAT TREATMENT
———

FINAL FINISH
———

QTY REQD

2004029

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17744	1APR65	LK
B	REVISED PER TDRR 18682	3MAY65	LK



2004029
CUT OUT
1.100 REF
.002 REF
9.556 REF
TRIM LINE
±.012
1.000 PHOTO REF DIM.
IR1
IR38
ICR3
IR5
FT1
FT2
FT3
FT36
FT37
FT38
FT17
FT13
FT14
FT15
FT16
FT19
FT20
FT22
FT23
FT24
FT25
FT26
FT27
FT28
FT29
FT30
FT31
FT32
FT33
FT34
FT35
FT39
FT40
FT41
FT42
FT43
FT44
C1(+)
C2 (+)
C3 (−)
C4 (+)
C5 (−)
C7
L1
L2
L3
L4
L5
L7
L8
Q8
Q11
Q13
Q16
RT1

CANCE WITH STANDARDS PRESCRIBED

REPRODUCTION MADE BY A PROCESS
DIMENSIONAL STABILITY.

NE
SITIVE FILM TO DIMENSIONS SHOWN
ICK, SENSITIZED, DIMENSIONALLY STABLE PER L-F-340, TYPE IB, CLASS 2, STYLE IA

G

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

2003014	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 5
HEAT TREATMENT —
FINAL FINISH —

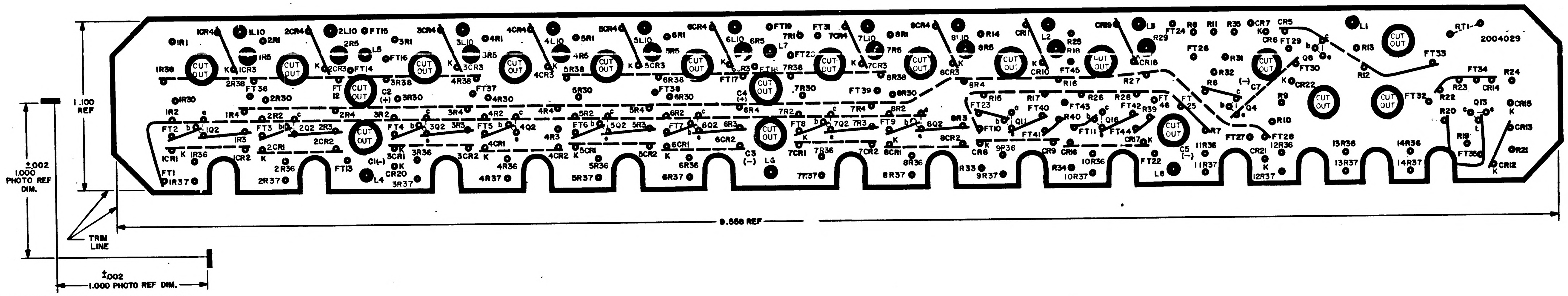
MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN Louis A. Lang DATE Nov 29 64
CHECKED 19 Feb 65
APPROVAL 3/4/65
APPROVAL 8 March 65
NASA APPROVAL 3/5/65
MIT APPROVAL McMinn 3-7-65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSULATOR (B) PHOTOGRAPHIC MASTER
ERASABLE DRIVER MODULE

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO 2004029
SCALE 4/1
WT —
SHEET 1 OF 1

F-2



NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY.
3. CUT TO WITHIN .010 OF TRIMLINE
4. MAKE MASTER PATTERN POSITIVE FILM TO DIMENSIONS SHOWN
5. MATERIAL: FILM .006/.008 THICK, SENSITIZED, DIMENSIONALLY STABLE PER L-F-340, TYPE IB, CLASS 2, STYLE IA
6. ○ .010/.050 DIA HOLE
7. ● .077/.067 DIA HOLE
8. ● .120/.130 DIA HOLE
9. BROKEN LINE DENOTES SLEEVING
10. ALL CUTOUT TO BE .22/.20 DIA

QTY REQD	PART OR IDENTIFYING NO.

LIST OF MATE

2003014	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 5
HEAT TREATMENT —
FINAL FINISH —

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN Louis A. Long DATE
CHECKED
APPROVAL 2/11/65
APPROVAL
NASA APPROVAL
MIT APPROVAL 2-9-65

MANN

INSU
PHOTOG
ERASAB

CODE IDENT NO
80230
SCALE 4/1

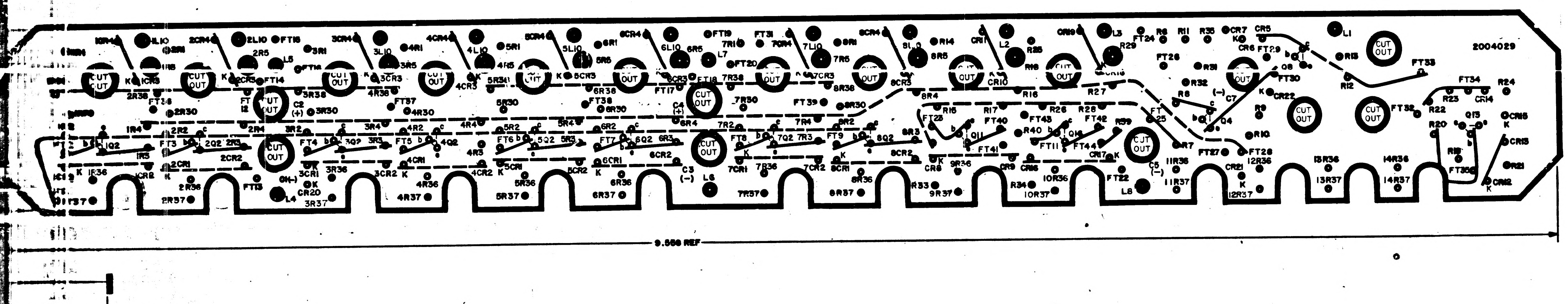
2004029

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL

D

C


2004029
CUT OUT
9.500 REF
FT33
FT34
R24
CR15
CR13
CR12
R21
L1
R13
R12
CR5
CR7
R35
R11
R6
L3
FT24
FT26
R29
R27
R16
L2
CR11
R14
FT19
FT31
FT20
C4 (+)
C3 (-)
C5 (-)
C2 (+)
L4
L5
L6
L8
2LIO
3LIO
4LIO
5LIO
6LIO
7LIO
8LIO
IR36
2R36
3R36
4R36
5R36
6R36
7R36
8R36
9R36
10R36
11R36
12R36
13R36
14R36
2R37
3R37
4R37
5R37
6R37
7R37
8R37
9R37
10R37
11R37
12R37
13R37
14R37

...S REF 1.84

...ED PERFORATED

...N BY A PROCESS

...ENSIONS SHOWN

...3, CL 153 2, STYLE B

2004029

B

A

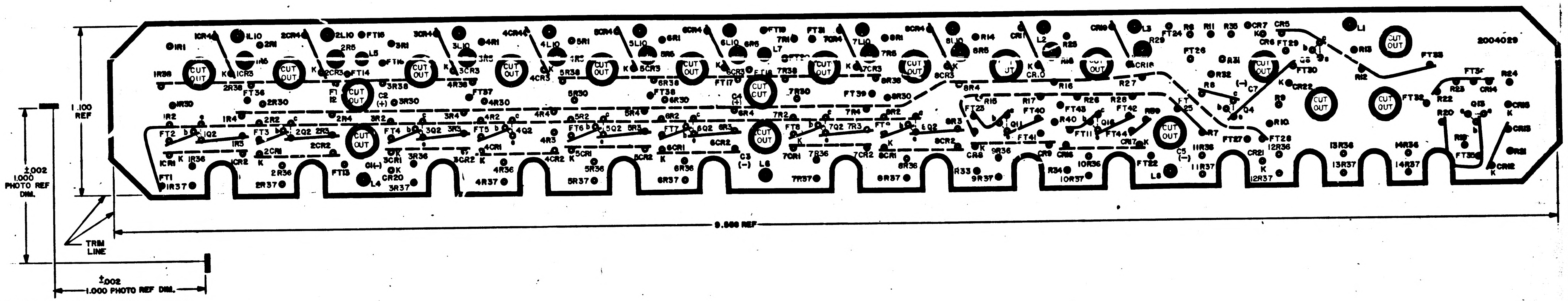
MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003014		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± — DECIMALS ± — ANGLES ± — DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB CAMBRIDGE, MASS DRAWN Louis A. Lang DATE CHECKED APPROVAL 3/8/65 APPROVAL	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
NEXT ASSY	USED ON	MATERIAL SEE NOTES		INSULATOR (B) PHOTOGRAPHIC MASTER ERASABLE DRIVER MODULE
APPLICATION		HEAT TREATMENT —	NASA APPROVAL 3/8/65	CODE IDENT NO. — SIZE J NASA DRAWING NO. 2004029
		FINAL FINISH —	MIT APPROVAL McMinley 3-9-65	SCALE 4/1 WT — SHEET 1 OF 1

F-2


2004029
CUT OUT
1.100 REF
±.002
1.000 PHOTO REF DIM.
TRIM LINE
9.900 REF
±.002
1.000 PHOTO REF DIM.
FT1
FT2
1R37
1R36
1CR1
1Q2
1R5
1R4
1R2
1R30
1R38
1R1
1CR4
1L10
1CR3
2R38
FT36
2R30
2R1
2CR4
2L10
2R5
2CR3
2R2
2Q2
2R3
2R4
2CR1
2CR2
2R36
2R37
L5
FT14
FT15
FT16
C2 (+)
C1(-)
CR20
L4
3R1
3CR4
3L10
3R5
3CR3
3R38
3R30
3R2
3Q2
3R3
3R4
3CR1
3CR2
3R36
3R37
FT37
4R1
4CR4
4L10
4CR3
4R38
4R30
4R2
4Q2
4R3
4R4
4CR1
4CR2
4R36
4R37
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5CR4
5L10
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5CR3
5R38
5R30
5R2
5Q2
5R3
5R4
5CR1
5CR2
5R36
5R37
FT38
6R1
6CR4
6L10
6R5
6CR3
6R38
6R30
6R2
6Q2
6R3
6R4
6CR1
6CR2
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6R37
FT17
C4 (+)
C3 (-)
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FT19
7R1
7CR4
7L10
7R5
7CR3
7R38
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7R2
7Q2
7R3
7R4
7CR1
7CR2
7R36
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FT31
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8CR2
8R36
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R25
CR18
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FT44
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Q11
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CR17
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9R37
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R10
R9
R8
C7
Q4
R32
R31
FT26
FT24
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R11
R35
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CR5
CR6
FT29
FT30
CR22
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R29
L1
R13
R12
FT33
FT32
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13R37
14R36
14R37
FT34
R23
CR4
R24
R22
Q15
R20
CR15
CR13
CR12
CR11
FT35
K

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY.
3. CUT TO WITHIN .010 OF TRIM LINE
4. MAKE MASTER PATTERN POSITIVE FILM TO DIMENSIONS SHOWN
5. MATERIAL: FILM .006/.008 THICK PER L-F-340 TYPE IB, CLASS 2, STYLE IA
6. ● .040/.060 DIA HOLE
7. ● .077/.087 DIA HOLE
8. ● .120/.130 DIA HOLE
9. BROKEN LINE DENOTES SLEEVING

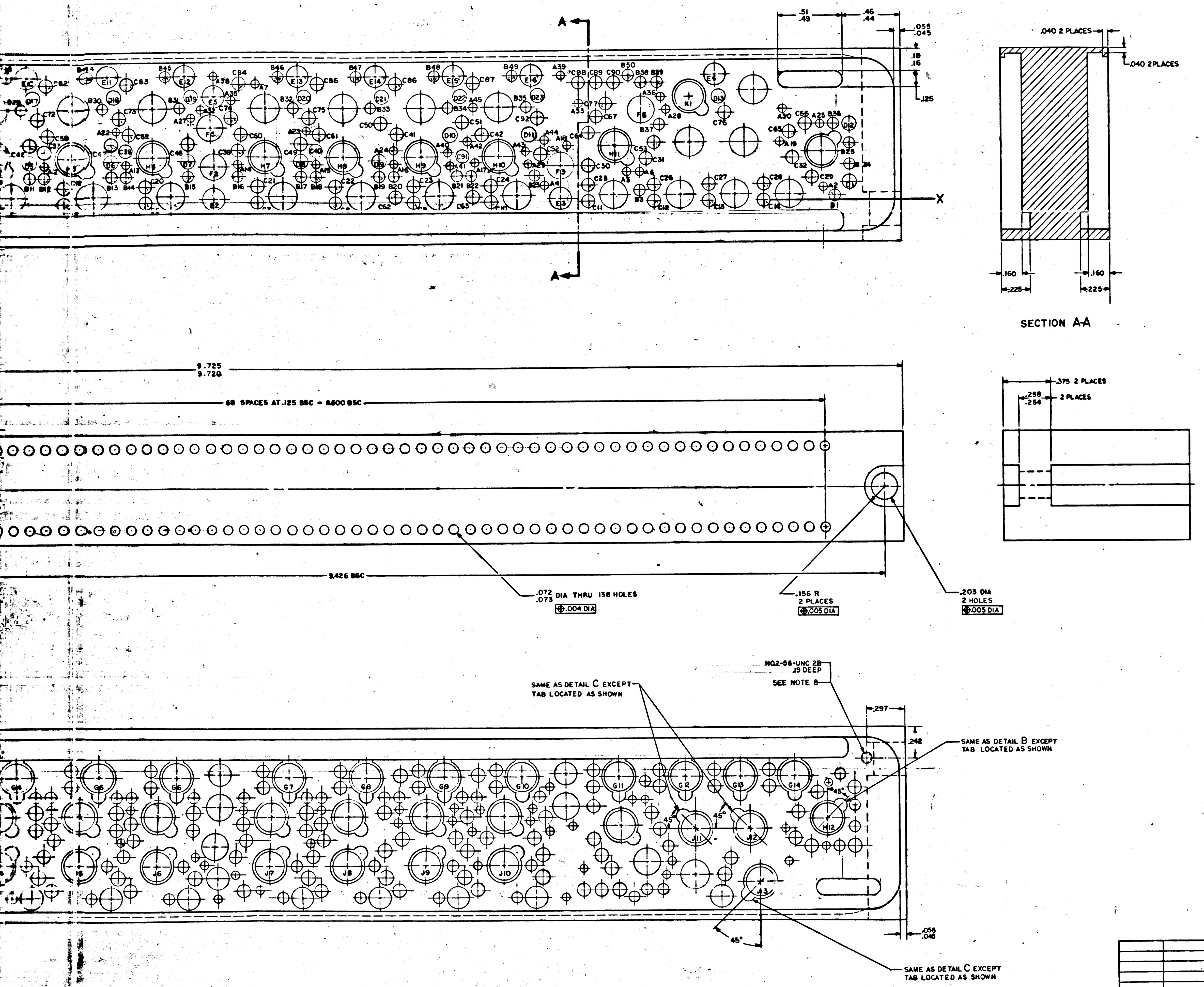
2003014	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL
SEE NOTES

2004029

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17744	1APR65	

REVISIONS 17262



A
A
X
.51 .49
.46 .44
.055 .045
.18 .16
.125
.040 2 PLACES
.040 2 PLACES
.160
.225
SECTION A-A
9.725 9.720
68 SPACES AT .125 BSC = 8.500 BSC
.375 2 PLACES
.258 .254 2 PLACES
8.426 BSC
.072 .073 DIA THRU 138 HOLES ⊕ .004 DIA
.156 R 2 PLACES ⊕ .005 DIA
.203 DIA 2 HOLES ⊕ .005 DIA
NO.2-56-UNC 2B .19 DEEP SEE NOTE 8
SAME AS DETAIL C EXCEPT TAB LOCATED AS SHOWN
SAME AS DETAIL B EXCEPT TAB LOCATED AS SHOWN
.297
.242
45°
.055 .045
SAME AS DETAIL C EXCEPT TAB LOCATED AS SHOWN

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003015	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS — ± DECIMALS XXX±.005 XX±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 2
HEAT TREATMENT —
FINAL FINISH SEE NOTE 7

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO. CONTRACT
DRAWN D. Bagg DATE
CHECKED
APPROVAL 3/8/65
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

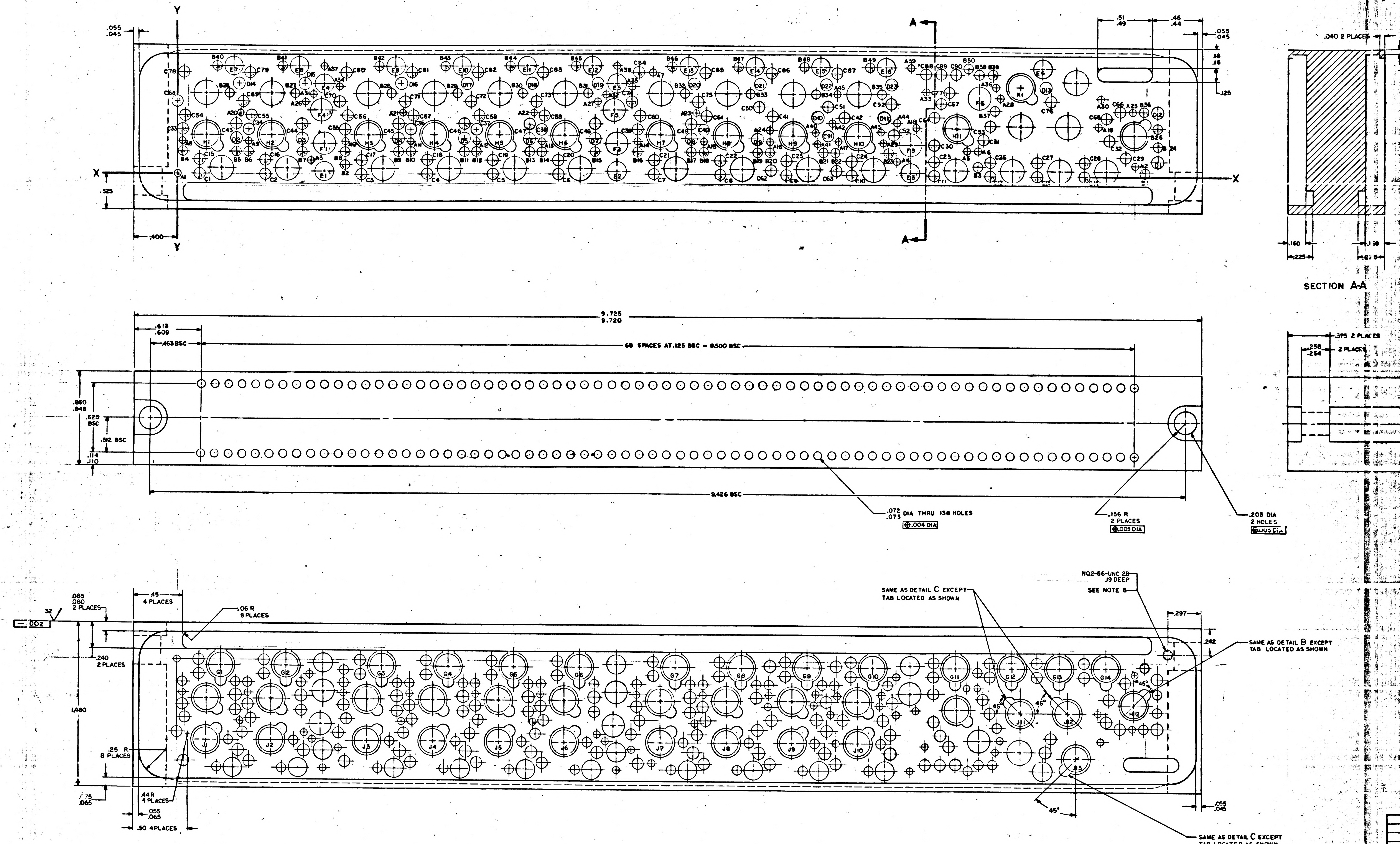
HEADER HOUSING
ERASABLE DRIVER MODULE

CODE IDENT NO. —
SIZE J
NASA DRAWING NO. 2004030
SCALE 4/1
WT
SHEET 1 OF 1

2004030 A

3A

2004030 SH OF



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Y
X
A
A-A
.055
.045
.325
.400
.51
.49
.46
.44
.18
.16
.125
A1
H1
H2
H3
H4
H5
H6
H7
H8
H9
H10
H11
K1
F1
F2
F3
E1
E2
E3
SECTION A-A
.040 2 PLACES
.060
.160
.225
.150
.275
9.725
9.720
.613
.609
.463 BSC
68 SPACES AT .125 BSC = 8.500 BSC
.850
.846
.625 BSC
.312 BSC
.114
.110
9.426 BSC
.072
.073 DIA THRU 138 HOLES
⊕ .004 DIA
.156 R
2 PLACES
⊕ .005 DIA
.203 DIA
2 HOLES
⊕ .005 DIA
.375 2 PLACES
.258
.254
2 PLACES
.085
.080
2 PLACES
32
— .002
.45
4 PLACES
.06 R
8 PLACES
.240
2 PLACES
1.480
.25 R
8 PLACES
.075
.065
.44 R
4 PLACES
.055
.065
.50 4 PLACES
G1
G2
G3
G4
G5
G6
G7
G8
G9
G10
G11
G12
G13
G14
J1
J2
J3
J4
J5
J6
J7
J8
J9
J10
J11
J12
J13
H12
SAME AS DETAIL C EXCEPT TAB LOCATED AS SHOWN
NO.2-56-UNC 2B
.19 DEEP
SEE NOTE 8
.297
.242
SAME AS DETAIL B EXCEPT TAB LOCATED AS SHOWN
45°
.055
.045
SAME AS DETAIL C EXCEPT TAB LOCATED AS SHOWN

2004030 SH1 OF

MASTER

[illegible] ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

HOLE IDENT	X DIM.	Y DIM.	HOLE DIA	QTY
A1	.000	.000	.058 .062	45
A2	8.725	.100		
A3	1.212	.125		
A4	6.562	.125		
A5	7.200	.217		
A6	7.300	.217		
A7	4.337	.912		
A8	.050	.295		
A9	.650			
A10	1.525			
A11	2.125			
A12	2.725			
A13	3.325			
A14	4.200			
A15	4.800			
A16	5.400	.295		
A17	6.025	.300		
A18	6.737	.430		
A19	8.387	.450		
A20	.575	.550		
A21	2.050	.550		
A22	3.250	.550		
A23	4.725	.550		
A24	5.400	.395		
A25	8.700	.587		
A26	1.162	.655		
A27	3.837	.655		
A28	7.507	.700		
A29	6.435	.285		
A30	8.412	.700		
A31	1.237	.712		
A32	3.912	.712		
A33	6.825	.750		
A34	1.475	.787		
A35	4.150	.787		
A36	7.462	.800		
A37	1.337	.970		
A38	4.012	.970		
A39	6.687	.970		
A40	5.820	.380		
A41	5.835	.280		
A42	5.970	.460		
A43	6.420	.380		
A44	6.562	.468		
A45	6.012	.725		
B1	8.812	.037	.088 .092	34
B2	1.525	.080		
B3	7.300	.085		
B4	.050	.195		
B5	.537			
B6	.650			
B7	1.137			
B8	1.525			
B9	2.012			
B10	2.125			
B11	2.612			
B12	2.725			
B13	3.212			
B14	3.325			
B15	3.812			
B16	4.200			
B17	4.687			
B18	4.800			
B19	5.287			
B20	5.400			
B21	5.887			
B22	6.000			
B23	6.487	.195		
B24	8.925	.275		
B25	8.925	.437		
B26	.472	.725		
B27	1.072			
B28	1.947			
B29	2.547			
B30	3.147			
B31	3.747			
B32	4.622			
B33	5.222			
B34	5.822	.725		

HOLE IDENT	X DIM.	Y DIM.	HOLE DIA	QTY
B35	6.425	.750	.088 .092	16
B36	8.800	.587		
B37	7.475	.587		
B38	7.312	.912		
B39	7.437	.912		
B40	.357	.980		
B41	.957			
B42	1.832			
B43	2.432			
B44	3.032			
B45	3.632			
B46	4.510			
B47	5.110			
B48	5.710			
B49	6.310			
B50	7.212	.980		
C1	.200	.000	.100 .104	57
C2	.800			
C3	1.675			
C4	2.275			
C5	2.875			
C6	3.475			
C7	4.350			
C8	4.950			
C9	5.550			
C10	6.150			
C11	6.900			
C12	7.412			
C13	7.837			
C14	8.262	.000		
C15	.200	.125		
C16	.800			
C17	1.675			
C18	2.275			
C19	2.875			
C20	3.475			
C21	4.350			
C22	4.950			
C23	5.550			
C24	6.150			
C25	6.900			
C26	7.412			
C27	7.837			
C28	8.262	.125		
C29	8.637	.175		
C30	6.900	.275		
C31	7.350	.325		
C32	8.487	.325		
C33	.050	.400		
C34	.650			
C35	1.525			
C36	2.125			
C37	2.725			
C38	3.325			
C39	4.200			
C40	4.800			
C41	5.425	.525		
C42	6.080	.510		
C43	.537	.450		
C44	1.137			
C45	2.012			
C46	2.612			
C47	3.212			
C48	3.812			
C49	4.687	.450		
C50	5.300	.610		
C51	5.930	.610		
C52	6.535	.360		
C53	7.412	.450		
C54	.075	.525		
C55	.675	.525		
C56	1.550	.525		
C57	2.150	.525		

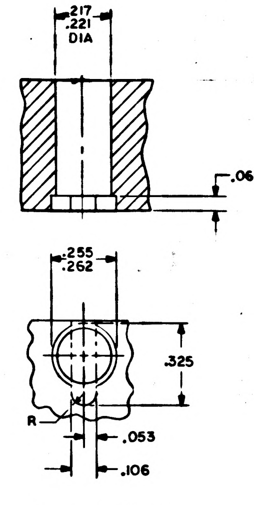
HOLE IDENT	X DIM.	Y DIM.	HOLE DIA	QTY
C58	2.750	.525	.100 .104	35
C59	3.350	.525		
C60	4.225	.525		
C61	4.825	.525		
C62	5.410	.040		
C63	6.010	.040		
C64	6.900	.525		
C65	8.462	.525		
C66	8.587	.587		
C67	6.962	.650		
C68	.000	.654		
C69	.600			
C70	1.475			
C71	2.075			
C72	2.675			
C73	3.275			
C74	4.150			
C75	4.750	.654		
C76	7.962	.675		
C77	7.037	.750		
C78	.062	.912		
C79	.662			
C80	1.537			
C81	2.137			
C82	2.737			
C83	3.337			
C84	4.212			
C85	4.812			
C86	5.412			
C87	6.012			
C88	6.825			
C89	6.962			
C90	7.100	.912		
C91	5.930	.350		
C92	6.510	.635		
D1	8.925	.137	.108 .112	23
D2	.537	.320		
D3	1.137			
D4	2.012			
D5	2.612			
D6	3.212			
D7	3.812			
D8	4.687			
D9	5.287	320		
D10	5.840	.515		
D11	6.445	.515		
D12	8.925	.587		
D13	7.912	.800		
D14	.562	.812		
D15	1.162			
D16	2.037			
D17	2.637			
D18	3.237			
D19	3.837			
D20	4.712			
D21	5.312			
D22	5.912			
D23	6.512	.812		
E1	1.337	.025	.168 .172	10
E2	4.012	.025		
E3	6.687	.025		
E4	1.337	.812		
E5	4.012	.812		
E6	7.887	970		
E7	.512	.970		
E8	1.112	.970		
E9	1.987	.970		
E10	2.587	.970		

HOLE IDENT	X DIM.	Y DIM.	HOLE DIA	QTY
E11	3.187	.970	.168 .172	6
E12	3.787			
E13	4.662			
E14	5.262			
E15	5.862			
E16	6.462	.970		
F1	1.337	.275	.202 .206	6
F2	4.012	.275		
F3	6.687	.275		
F4	1.312	.575		
F5	3.987	.575		
F6	7.312	.700		
G1	.400	.050	SEE DETAIL A	14
G2	1.000			
G3	1.875			
G4	2.475			
G5	3.075			
G6	3.675			
G7	4.550			
G8	5.150			
G9	5.750			
G10	6.350			
G11	7.100			
G12	7.612			
G13	8.037			
G14	8.462	.050		
H1	.262	.350	SEE DETAIL B	12
H2	.862			
H3	1.737			
H4	2.337			
H5	2.937			
H6	3.537			
H7	4.412			
H8	5.012			
H9	5.612			
H10	6.212	.350		
H11	7.112	.435		
H12	8.712	.375		
J1	.262	.725	SEE DETAIL C	13
J2	.862			
J3	1.737			
J4	2.337			
J5	2.937			
J6	3.537			
J7	4.412			
J8	5.012			
J9	5.612			
J10	6.212	.725		
J11	7.687	.450		
J12	8.112	.450		
J13	8.187	.850		
K1	7.687	.800	SEE DETAIL D	1

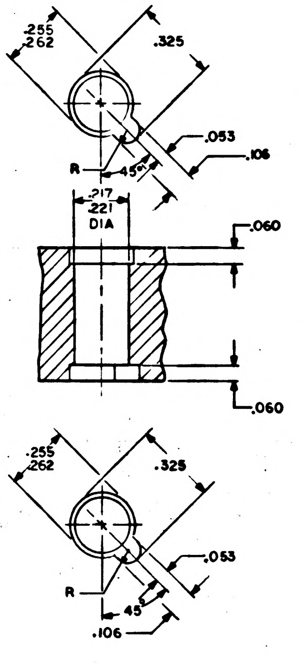
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL : MAGNESIUM ALLOY ZK-60A-T5 PER QQ-M-31, TEMP 5
3. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII .010 MAX
4. UNLESS OTHERWISE SPECIFIED 125√ ALL OVER
5. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
6. REMOVE ALL BURRS AND BREAK SHARP EDGES .005-.015
7. FINISH: ANODIZE PER MIL-M-45202 TYPE I, CLASS C
8. TAP HOLE AFTER ANODIZE. COAT PER ND1002040

2H


.217
.221
DIA
.060
.255
.262
.325
R
.053
.106

DETAIL A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R
45°
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.221
DIA
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.060
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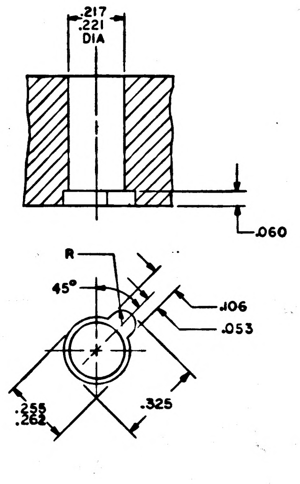
.325
.053
R
45
.106

DETAIL B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R
45°
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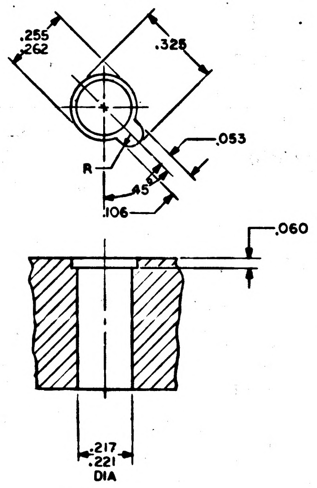
DETAIL C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R
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45
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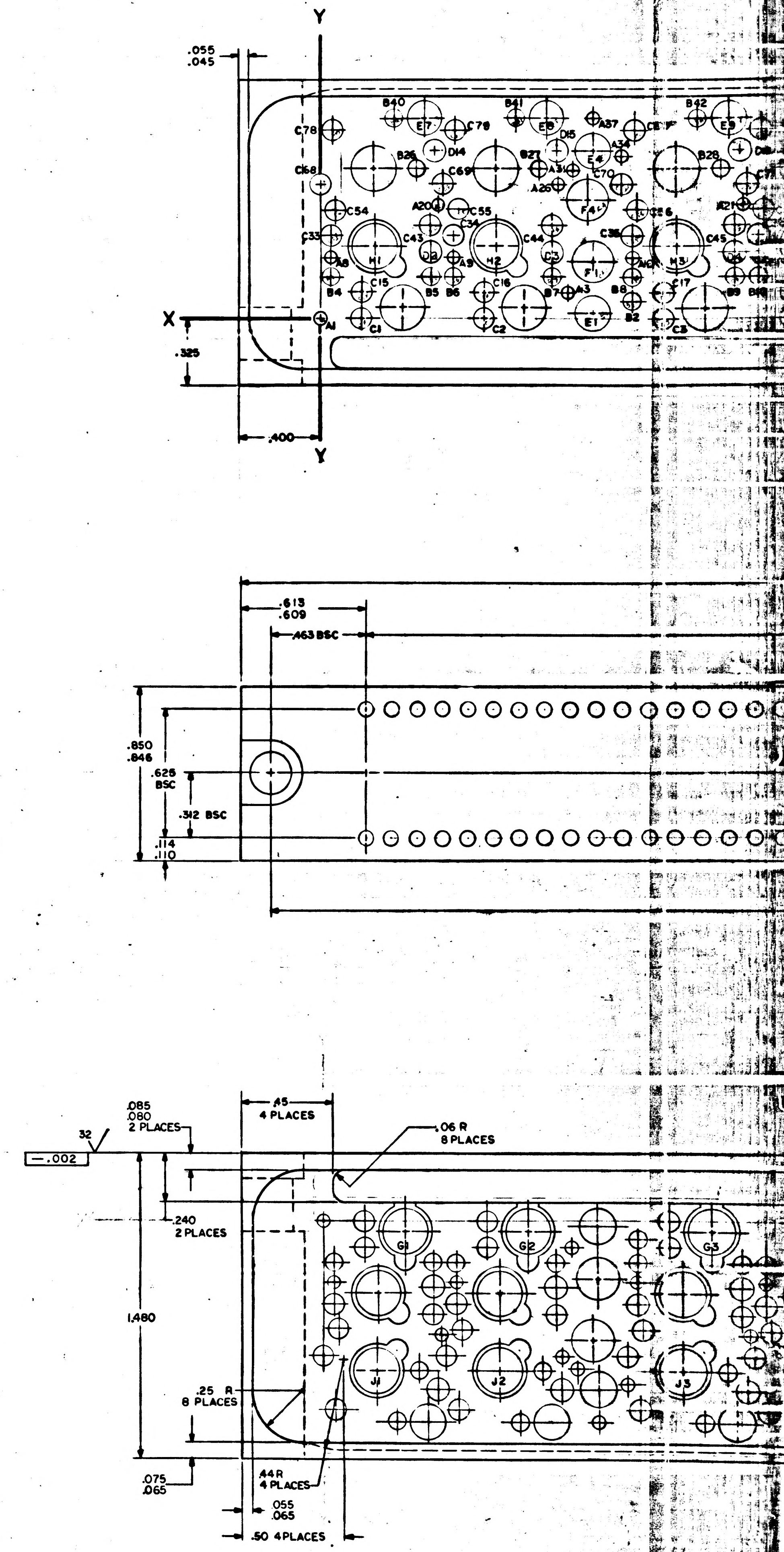
DIA

DETAIL D


Y
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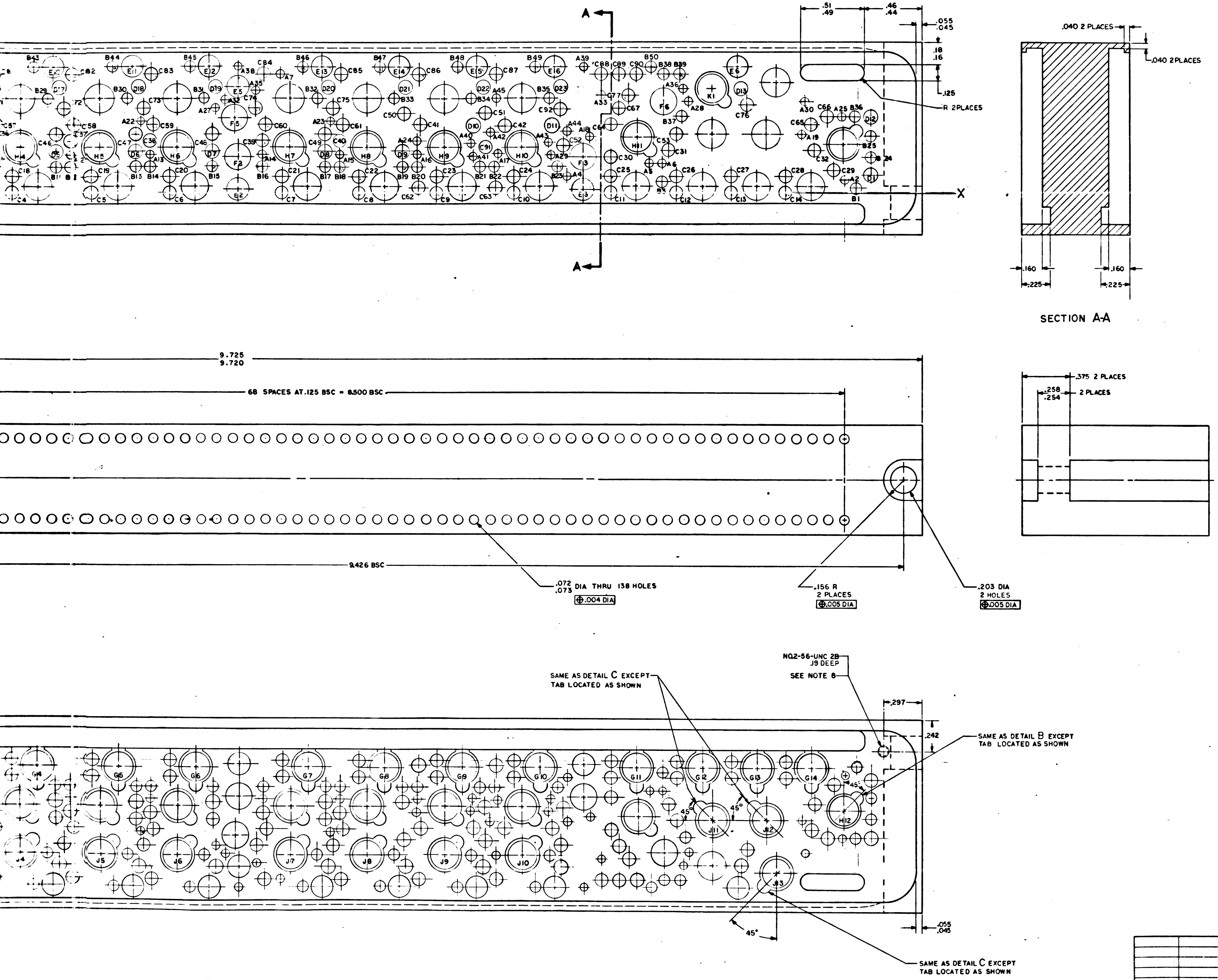
.045
X
.325
.400
Y
B40
B41
B42
C78
E7
C79
E8
D15
A37
E9
C68
D14
B26
A31
E4
C70
B29
B21
A26
A20
C69
C54
C55
F4
C33
C43
H1
C44
H2
C38
C45
A8
A9
F1
H3
B4
C15
C16
B5
B6
A3
B7
B8
B9
A1
C1
C2
E1
B2
C3
.613
.609
.463 BSC
.850
.846
.625
BSC
.312 BSC
.114
.110
.085
.080
2 PLACES
32
—.002
.45
4 PLACES
.06 R
8 PLACES
.240
2 PLACES
1.480
G1
G2
G3
J1
J2
J3
.25 R
8 PLACES
.075
.065
.44R
4 PLACES
.055
.065
.50 4 PLACES

2004030

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17744	APR65	
B	REVISED PER TDRR 18662	3MAY65	

REVISIONS 7262


A
A
X
.51
.49
.46
.44
.055
.045
.18
.16
.125
R 2PLACES
.040 2 PLACES
.040 2PLACES
.160
.225
.160
.225
SECTION A-A
9.725
9.720
68 SPACES AT .125 BSC = 8.500 BSC
.375 2 PLACES
.258
.254
2 PLACES
9.426 BSC
.072
.073 DIA THRU 138 HOLES
⊕ .004 DIA
.156 R
2 PLACES
⊕ .005 DIA
.203 DIA
2 HOLES
⊕ .005 DIA
NO.2-56-UNC 2B
.19 DEEP
SEE NOTE 8
SAME AS DETAIL C EXCEPT
TAB LOCATED AS SHOWN
.297
.242
SAME AS DETAIL B EXCEPT
TAB LOCATED AS SHOWN
45°
45°
45°
45°
.055
.045
SAME AS DETAIL C EXCEPT
TAB LOCATED AS SHOWN
K1
H5
H6
H7
H8
H9
H10
H11
G6
G7
G8
G9
G10
G11
G12
G13
G14
H12
J5
J6
J7
J8
J9
J10
J11
J12
J13

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

2003015	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS — ± DECIMALS XXX±.005 XX±.02 ANGLES ±1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

HEAT TREATMENT
—

FINAL FINISH
SEE NOTE 7

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN Gage DATE
CHECKED
APPROVAL 3/1/65
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

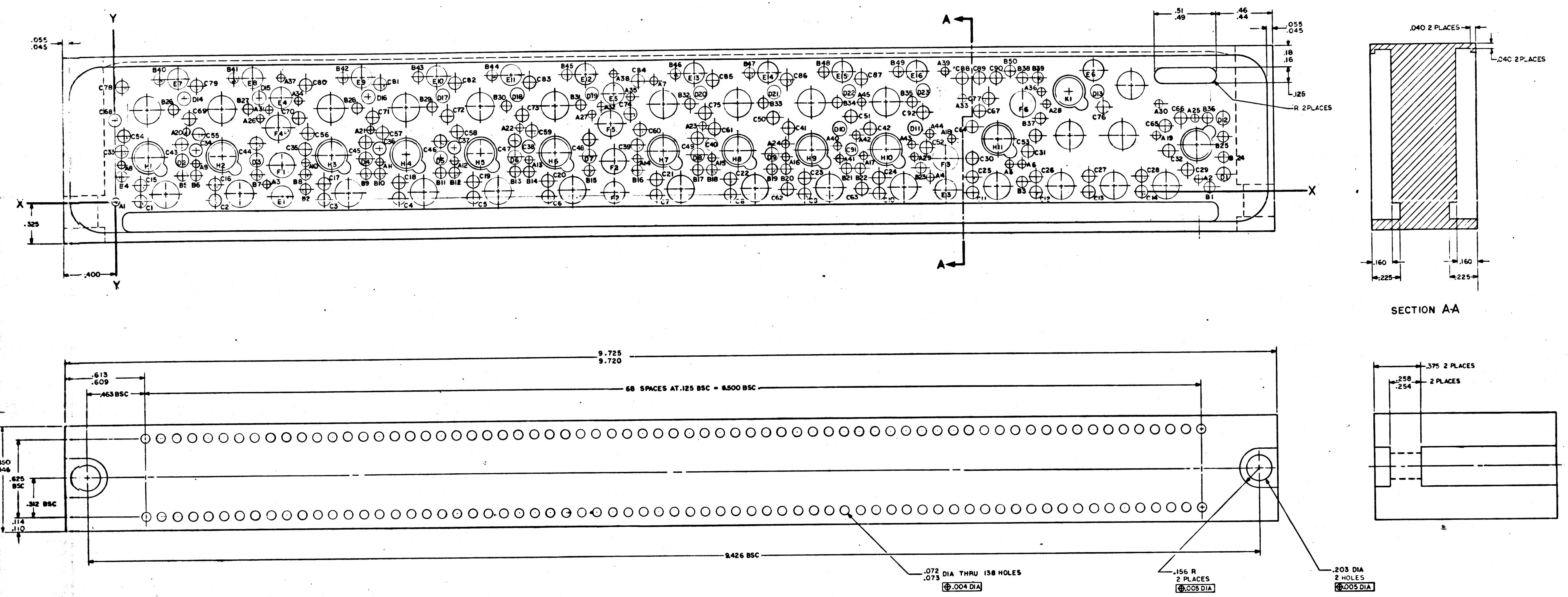
HEADER HOUSING
ERASABLE DRIVER MODULE

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2004030
SCALE 4/1
WT
SHEET 1 OF 1

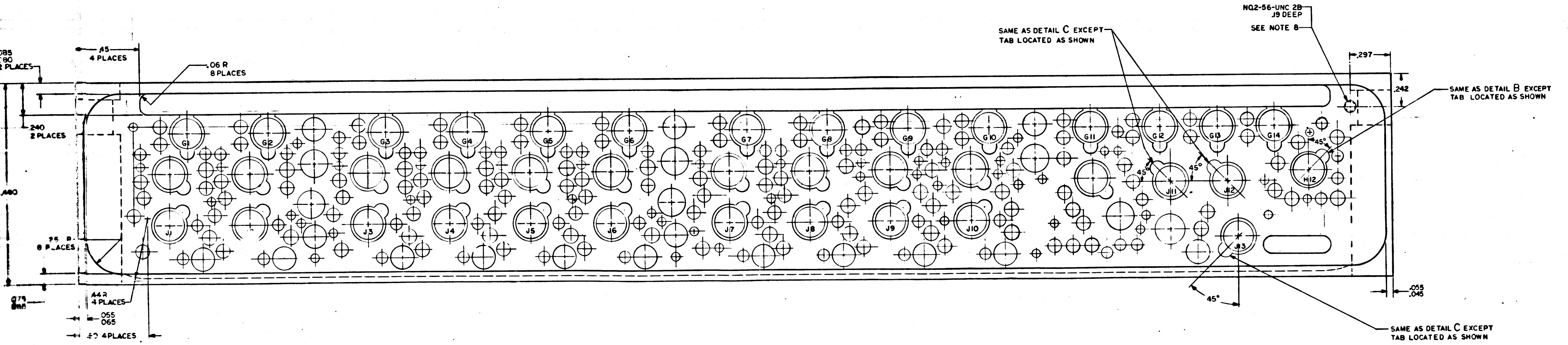
2004030 SHT OF

2004030 B

3H



A
A
X
X
Y
Y
.055
.045
.325
.400
.51
.49
.46
.44
.055
.045
.18
.16
.125
R 2 PLACES
.040 2 PLACES
.040 2 PLACES
.160
.160
.225
.225
SECTION A-A
9.725
9.720
.613
.609
.463 BSC
68 SPACES AT .125 BSC = 8.500 BSC
.625 BSC
.312 BSC
.114
.110
9.426 BSC
.072 .073 DIA THRU 138 HOLES
⊕ .004 DIA
.156 R 2 PLACES
⊕ .005 DIA
.203 DIA 2 HOLES
⊕ .005 DIA
.375 2 PLACES
.258 .254 2 PLACES



.45 4 PLACES
.06 R 8 PLACES
.240 2 PLACES
.25 R 8 PLACES
.44 R 4 PLACES
.055 .065
.50 4 PLACES
SAME AS DETAIL C EXCEPT TAB LOCATED AS SHOWN
NO.2-56-UNC 2B .19 DEEP
SEE NOTE 8
.297
.242
SAME AS DETAIL B EXCEPT TAB LOCATED AS SHOWN
45°
.055 .045
SAME AS DETAIL C EXCEPT TAB LOCATED AS SHOWN

2003015	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
— ± XXX±.005 ±1°
XX±.02
DO NOT SCALE THIS DRAWING
MATERIAL
SEE NOTE 2
HEAT TREATMENT
—
FINAL FINISH
SEE NOTE 7

MASTER

2004030 SHT OF

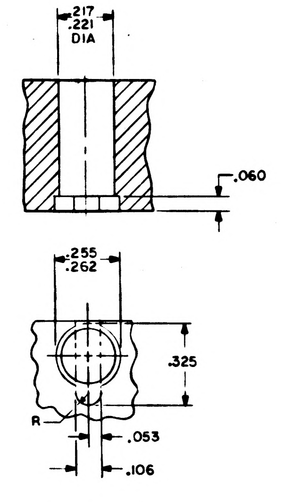
E-2

WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

HOLE IDENT	X DIM.	Y DIM.	HOLE DIA	QTY
A1	.000	.000	.058 .062	45
A2	8.725	.100		
A3	1.212	.125		
A4	6.562	.125		
A5	7.200	.217		
A6	7.300	.217		
A7	4.337	.912		
A8	.050	.295		
A9	.650			
A10	1.525			
A11	2.125			
A12	2.725			
A13	3.325			
A14	4.200			
A15	4.800			
A16	5.400	.295		
A17	6.025	.300		
A18	6.737	.430		
A19	8.387	.450		
A20	.575	.550		
A21	2.050	.550		
A22	3.250	.550		
A23	4.725	.550		
A24	5.400	.395		
A25	8.700	.587		
A26	1.162	.655		
A27	3.837	.655		
A28	7.507	.700		
A29	6.435	.285		
A30	8.412	.700		
A31	1.237	.712		
A32	3.912	.712		
A33	6.825	.750		
A34	1.475	.787		
A35	4.150	.787		
A36	7.462	.800		
A37	1.337	.970		
A38	4.012	.970		
A39	6.687	.970		
A40	5.820	.380		
A41	5.835	.280		
A42	5.970	.460		
A43	6.420	.380		
A44	6.562	.468		
A45	6.012	.725		
B1	8.812	.037	.088 .092	34
B2	1.525	.080		
B3	7.300	.085		
B4	.050	.195		
B5	.537			
B6	.650			
B7	1.137			
B8	1.525			
B9	2.012			
B10	2.125			
B11	2.612			
B12	2.725			
B13	3.212			
B14	3.325			
B15	3.812			
B16	4.200			
B17	4.687			
B18	4.800			
B19	5.287			
B20	5.400			
B21	5.887			
B22	6.000			
B23	6.487	.195		
B24	8.925	.275		
B25	8.925	.437		
B26	.472	.725		
B27	1.072			
B28	1.947			
B29	2.547			
B30	3.147			
B31	3.747			
B32	4.622			
B33	5.222			
B34	5.822	.725		
B35	6.425	.750	.088 .092	16
B36	8.800	.587		
B37	7.475	.587		
B38	7.312	.912		
B39	7.437	.912		
B40	.357	.980		
B41	.957			
B42	1.832			
B43	2.432			
B44	3.032			
B45	3.632			
B46	4.510			
B47	5.110			
B48	5.710			
B49	6.310			
B50	7.212	.980		
C1	.200	.000	.100 .104	57
C2	.800			
C3	1.675			
C4	2.275			
C5	2.875			
C6	3.475			
C7	4.350			
C8	4.950			
C9	5.550			
C10	6.150			
C11	6.900			
C12	7.412			
C13	7.837			
C14	8.262	.000		
C15	.200	.125		
C16	.800			
C17	1.675			
C18	2.275			
C19	2.875			
C20	3.475			
C21	4.350			
C22	4.950			
C23	5.550			
C24	6.150			
C25	6.900			
C26	7.412			
C27	7.837			
C28	8.262	.125		
C29	8.637	.175		
C30	6.900	.275		
C31	7.350	.325		
C32	8.487	.325		
C33	.050	.400		
C34	.650			
C35	1.525			
C36	2.125			
C37	2.725			
C38	3.325			
C39	4.200			
C40	4.800	.400		
C41	5.425	.525		
C42	6.080	.510		
C43	.537	.450		
C44	1.137			
C45	2.012			
C46	2.612			
C47	3.212			
C48	3.812			
C49	4.687	.450		
C50	5.300	.610		
C51	5.930	.610		
C52	6.535	.360		
C53	7.412	.450		
C54	.075	.525		
C55	.675	.525		
C56	1.550	.525		
C57	2.150	.525		
C58	2.750	.525	.100 .104	35
C59	3.350	.525		
C60	4.225	.525		
C61	4.825	.525		
C62	5.410	.040		
C63	6.010	.040		
C64	6.900	.525		
C65	8.462	.525		
C66	8.587	.587		
C67	6.962	.650		
C68	.000	.654		
C69	.600			
C70	1.475			
C71	2.075			
C72	2.675			
C73	3.275			
C74	4.150			
C75	4.750	.654		
C76	7.962	.675		
C77	7.037	.750		
C78	.062	.912		
C79	.662			
C80	1.537			
C81	2.137			
C82	2.737			
C83	3.337			
C84	4.212			
C85	4.812			
C86	5.412			
C87	6.012			
C88	6.825			
C89	6.962			
C90	7.100	.912		
C91	5.930	.350		
C92	6.510	.635		
D1	8.925	.137	.108 .112	23
D2	.537	.320		
D3	1.137			
D4	2.012			
D5	2.612			
D6	3.212			
D7	3.812			
D8	4.687			
D9	5.287	320		
D10	5.840	.515		
D11	6.445	.515		
D12	8.925	.587		
D13	7.912	.800		
D14	.562	.812		
D15	1.162			
D16	2.037			
D17	2.637			
D18	3.237			
D19	3.837			
D20	4.712			
D21	5.312			
D22	5.912			
D23	6.512	.812		
E1	1.337	.025	.168 .172	10
E2	4.012	.025		
E3	6.687	.025		
E4	1.337	.812		
E5	4.012	.812		
E6	7.887	970		
E7	.512	.970		
E8	1.112	.970		
E9	1.987	.970		
E10	2.587	.970		
E11	3.187	.970	.168 .172	6
E12	3.787			
E13	4.662			
E14	5.262			
E15	5.862			
E16	6.462	.970		
F1	1.337	.275	.202 .206	6
F2	4.012	.275		
F3	6.687	.275		
F4	1.312	.575		
F5	3.987	.575		
F6	7.312	.700		
G1	.400	.050	SEE DETAIL A	14
G2	1.000			
G3	1.875			
G4	2.475			
G5	3.075			
G6	3.675			
G7	4.550			
G8	5.150			
G9	5.750			
G10	6.350			
G11	7.100			
G12	7.612			
G13	8.037			
G14	8.462	.050		
H1	.262	.350	SEE DETAIL B	12
H2	.862			
H3	1.737			
H4	2.337			
H5	2.937			
H6	3.537			
H7	4.412			
H8	5.012			
H9	5.612			
H10	6.212	.350		
H11	7.112	.435		
H12	8.712	.375		
J1	.262	.725	SEE DETAIL C	13
J2	.862			
J3	1.737			
J4	2.337			
J5	2.937			
J6	3.537			
J7	4.412			
J8	5.012			
J9	5.612			
J10	6.212	.725		
J11	7.687	.450		
J12	8.112	.450		
J13	8.187	.850		
K1	7.687	.800	SEE DETAIL D	1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: MAGNESIUM ALLOY ZK-60A-T5 PER QQ-M-31, TEMP 5
3. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII .010 MAX
4. UNLESS OTHERWISE SPECIFIED 125√ ALL OVER
5. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
6. REMOVE ALL BURRS AND BREAK SHARP EDGES .005-.015
7. FINISH: ANODIZE PER MIL-M-45202 TYPE I, CLASS C
8. TAP HOLE AFTER ANODIZE. COAT PER ND1002040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R
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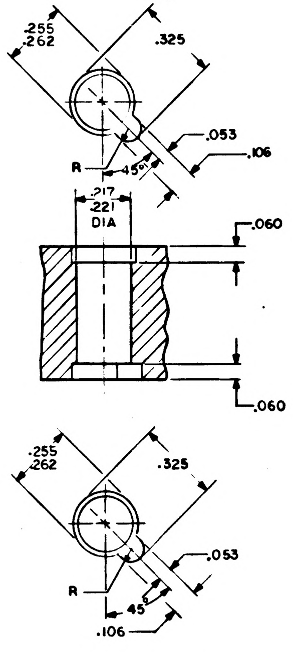
.106

DETAIL A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R
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DIA
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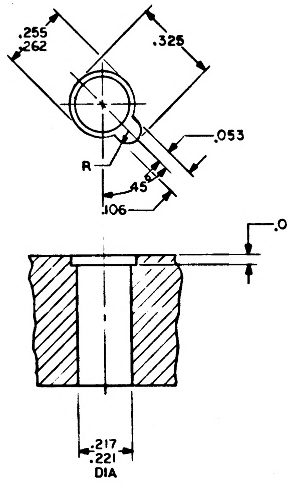
.053
R
45
.106

DETAIL B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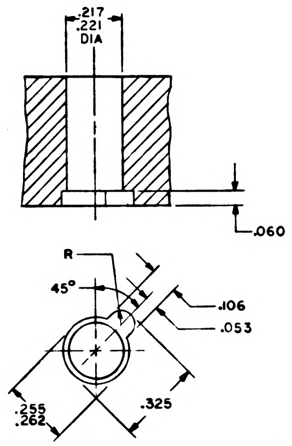
DIA

DETAIL D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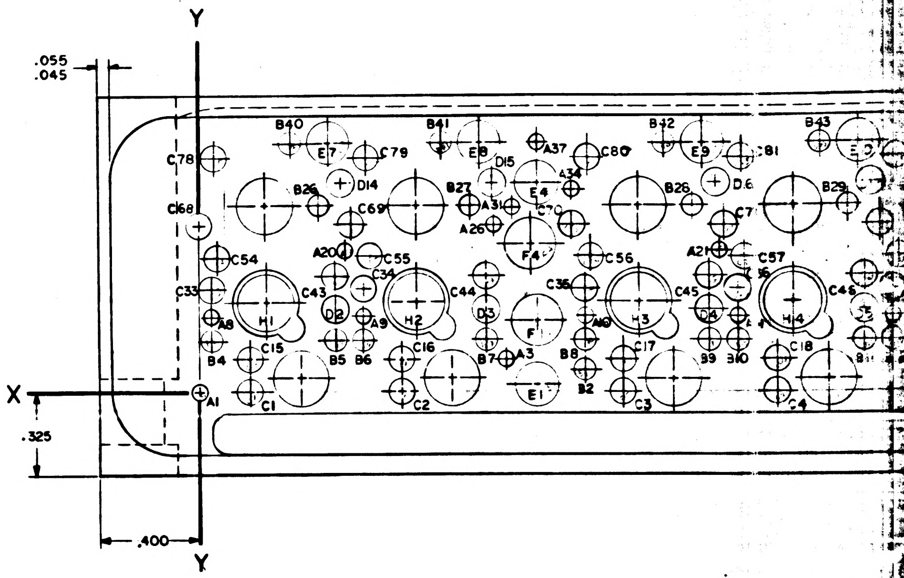
DETAIL C


Y
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.045
C78
C68
B40
E7
C79
B41
E8
D15
A37
C80
B42
E9
B43
B26
D14
C69
B27
A31
A26
E4
C70
B26
D6
C7
B29
C54
A20
C55
C34
C44
C36
C56
A21
C57
C45
C33
H1
C43
D2
A9
H2
D3
F1
H3
H4
A8
B4
C15
B5
B6
C16
B7
A3
B8
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B10
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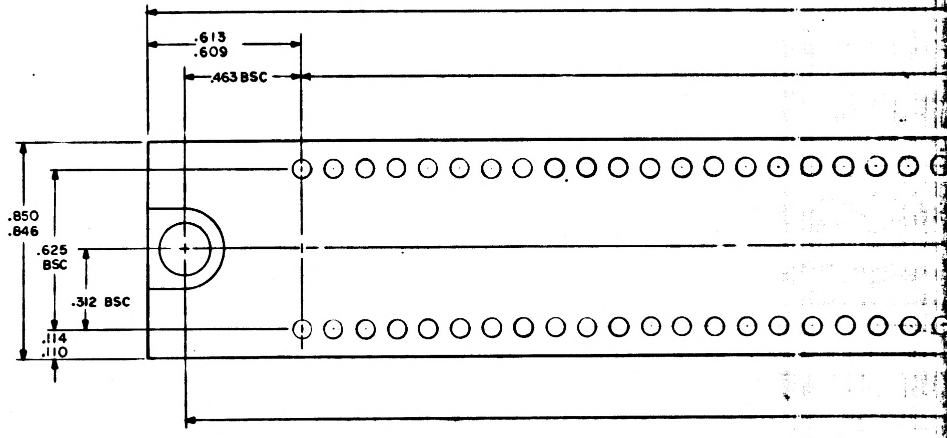
A1
C2
E1
C3
C4
.325
.400
Y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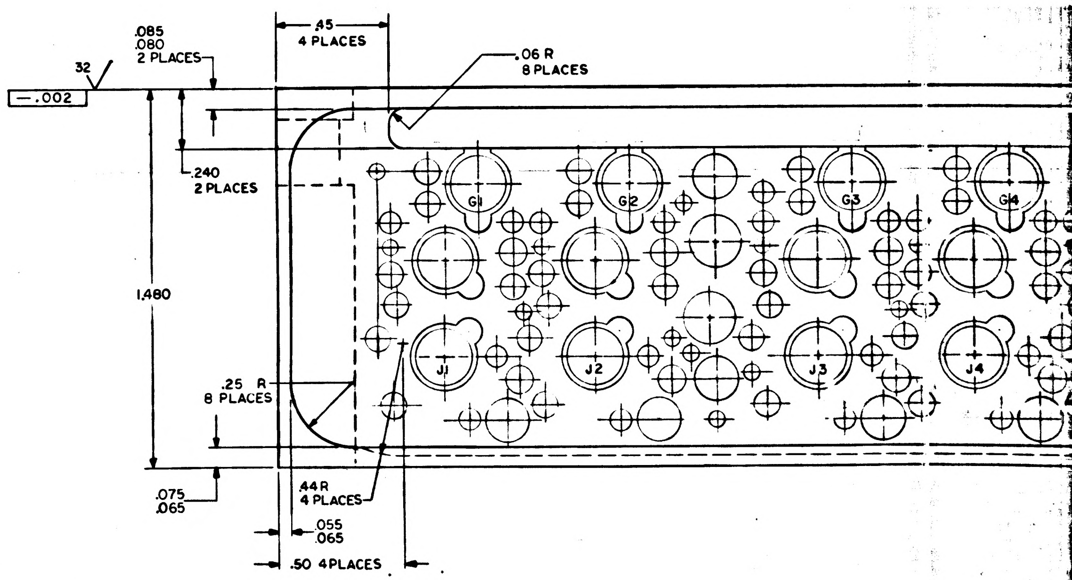
.609
.463 BSC
.850
.846
.625
BSC
.312 BSC
.114
.110


.085
.080
2 PLACES
.45
4 PLACES
.06 R
8 PLACES
32
.002
.240
2 PLACES
1.480
G1
G2
G3
G14
J1
J2
J3
J4
.25 R
8 PLACES
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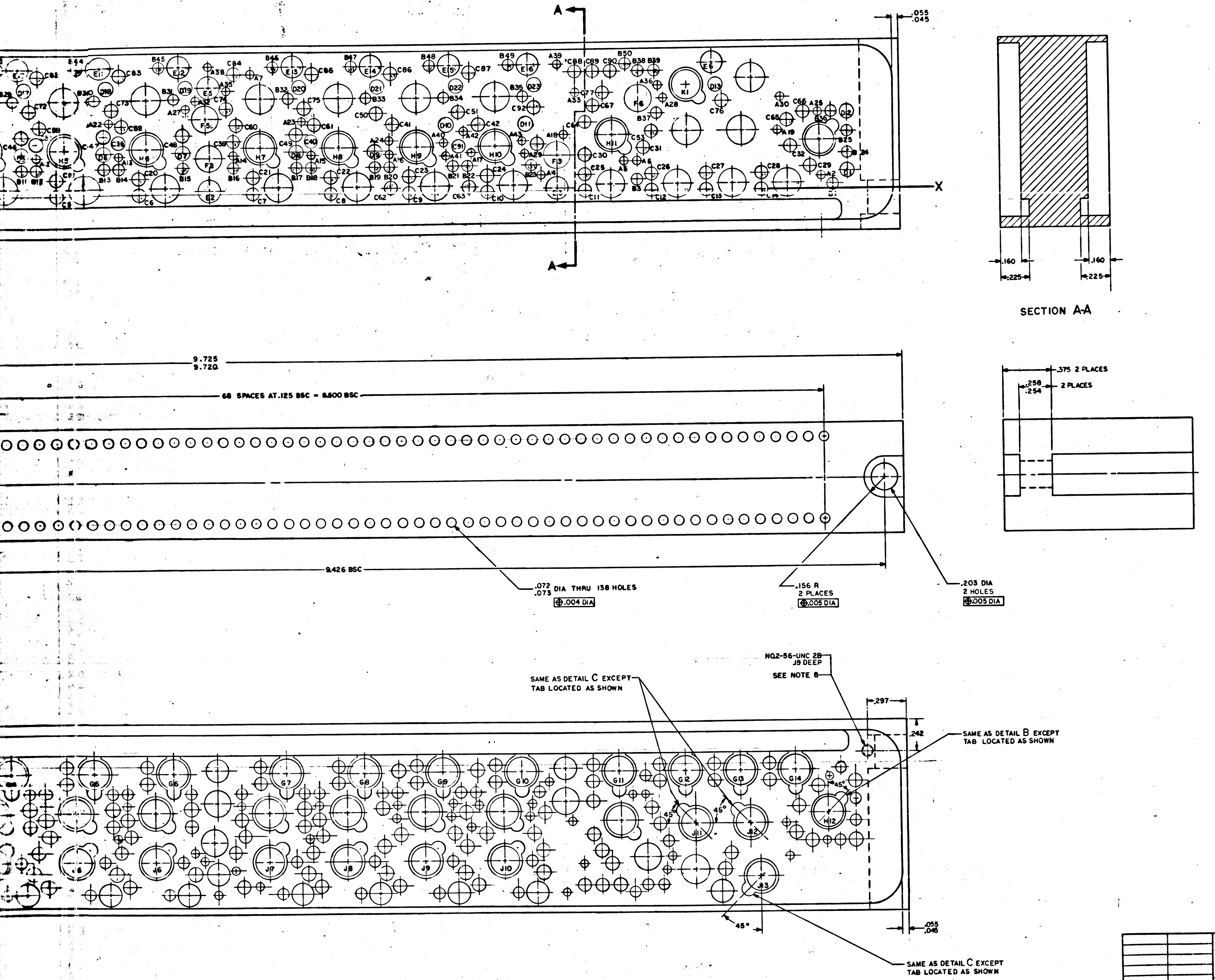
.065
.44R
4 PLACES
.055
.065
.50 4 PLACES

SYM	REVISIONS 17222 DESCRIPTION	DATE	APPROVAL



A
A
X
.055
.045
SECTION A-A
.160
.225
.160
.225
9.725
9.720
68 SPACES AT .125 BSC = 8.500 BSC
9.426 BSC
.072
.073 DIA THRU 138 HOLES
⊕ .004 DIA
.156 R
2 PLACES
⊕ .005 DIA
.203 DIA
2 HOLES
⊕ .005 DIA
.375 2 PLACES
.258
.254 2 PLACES
NO2-56-UNC 2B
.19 DEEP
SEE NOTE 6
SAME AS DETAIL C EXCEPT TAB LOCATED AS SHOWN
.297
.242
SAME AS DETAIL B EXCEPT TAB LOCATED AS SHOWN
45°
.055
.045
SAME AS DETAIL C EXCEPT TAB LOCATED AS SHOWN

3,4

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS — ± DECIMALS XXX±.005 ANGLES ±½°
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 2
HEAT TREATMENT —
FINAL FINISH SEE NOTE 7

NEXT ASSY	USED ON
2003015	

APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

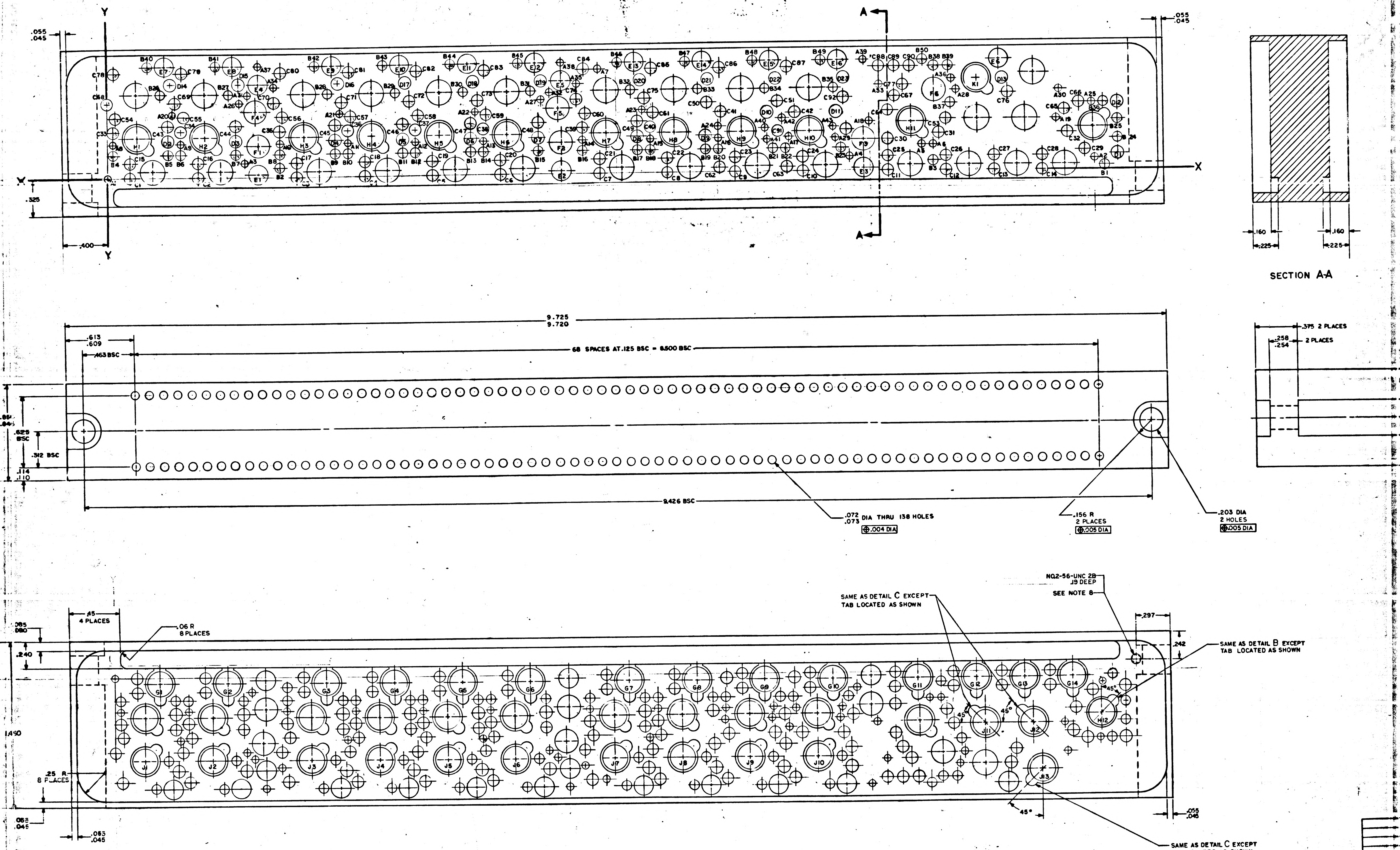
DRAWN D. Bagg DATE 1 Feb 65
CHECKED
APPROVAL 3/8/65
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HEADER HOUSING
ERASABLE DRIVER MODULE

CODE IDENT NO. — SIZE J NASA DRAWING NO. 2004030
SCALE 4/1 WT SHEET 1 OF 1

2004030


Y
X
A
.055
.045
.325
.400
SECTION A-A
.160
.225
9.725
9.720
.613
.609
68 SPACES AT .125 BSC = 8.500 BSC
.463 BSC
.625 BSC
.312 BSC
.114
.110
9.426 BSC
.072
.073 DIA THRU 138 HOLES
⌖ .004 DIA
.156 R
2 PLACES
⌖ .005 DIA
.203 DIA
2 HOLES
⌖ .005 DIA
.375 2 PLACES
.258
.254 2 PLACES
NO.2-56-UNC 2B
.19 DEEP
SEE NOTE 8
SAME AS DETAIL C EXCEPT
TAB LOCATED AS SHOWN
.297
.242
SAME AS DETAIL B EXCEPT
TAB LOCATED AS SHOWN
.45
4 PLACES
.06 R
8 PLACES
.085
.080
.240
.002
1.490
.25 R
8 PLACES
.053
.045
45°
SAME AS DETAIL C EXCEPT
TAB LOCATED AS SHOWN

2004030

MASTER

2003019

NEXT ASSY

USED ON

APPLICATION

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

HOLE IDENT	X DIM	Y DIM	HOLE DIA	QTY
A1	.000	.000	.058 .062	43
A2	8.725	.100		
A3	1.212	.125		
A4	6.562	.125		
A5	7.200	.225		
A6	7.300	.225		
A7	4.337	.912		
A8	.050	.295		
A9	.650			
A10	1.525			
A11	2.125			
A12	2.725			
A13	3.325			
A14	4.200			
A15	4.800			
A16	5.400	.295		
A17	6.025	.300		
A18	6.737	.430		
A19	8.387	.450		
A20	.575	.550		
A21	2.050	.550		
A22	3.250	.550		
A23	4.725	.550		
A24	5.400	.395		
A25	8.700	.587		
A26	1.162	.655		
A27	3.837	.655		
A28	7.507	.700		
A29	6.435	.285		
A30	8.412	.700		
A31	1.237	.712		
A32	3.912	.712		
A33	6.825	.750		
A34	1.475	.787		
A35	4.150	.787		
A36	7.462	.800		
A37	1.337	.970		
A38	4.012	.970		
A39	6.687	.970		
A40	5.820	.380		
A41	5.835	.280		
A42	5.970	.460		
A43	6.420	.380		
B1	8.812	.037	.088 .092	34
B2	1.525	.080		
B3	7.300	.085		
B4	.050	.195		
B5	.537			
B6	.650			
B7	1.137			
B8	1.525			
B9	2.012			
B10	2.125			
B11	2.612			
B12	2.725			
B13	3.212			
B14	3.325			
B15	3.812			
B16	4.200			
B17	4.687			
B18	4.800			
B19	5.287			
B20	5.400			
B21	5.887			
B22	6.000			
B23	6.487	.195		
B24	8.925	.275		
B25	8.925	.437		
B26	.472	.725		
B27	1.072			
B28	1.947			
B29	2.547			
B30	3.147			
B31	3.747			
B32	4.622			
B33	5.222			
B34	5.822	.725		

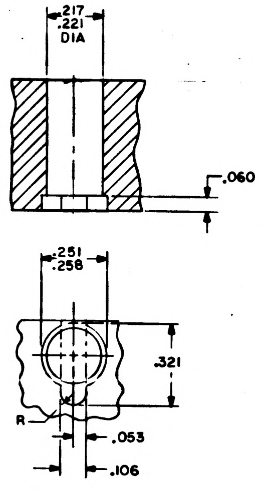
HOLE IDENT	X DIM	Y DIM	HOLE DIA	QTY
B35	6.425	.750	.088 .092	16
B36	8.800	.587		
B37	7.475	.587		
B38	7.312	.912		
B39	7.437	.912		
B40	.357	.980		
B41	.957			
B42	1.832			
B43	2.432			
B44	3.032			
B45	3.632			
B46	4.510			
B47	5.110			
B48	5.710			
B49	6.310			
B50	7.212	.980		
C1	.200	.000	.100 .104	57
C2	.800			
C3	1.675			
C4	2.275			
C5	2.875			
C6	3.475			
C7	4.350			
C8	4.950			
C9	5.550			
C10	6.150			
C11	6.900			
C12	7.412			
C13	7.837			
C14	8.262	.000		
C15	.200	.125		
C16	.800			
C17	1.675			
C18	2.275			
C19	2.875			
C20	3.475			
C21	4.350			
C22	4.950			
C23	5.550			
C24	6.150			
C25	6.900			
C26	7.412			
C27	7.837			
C28	8.262	.125		
C29	8.637	.175		
C30	6.900	.275		
C31	7.350	.325		
C32	8.487	.325		
C33	.050	.400		
C34	.650			
C35	1.525			
C36	2.125			
C37	2.725			
C38	3.325			
C39	4.200			
C40	4.800			
C41	5.425	.525		
C42	6.080	.510		
C43	.537	.450		
C44	1.137			
C45	2.012			
C46	2.612			
C47	3.212			
C48	3.812			
C49	4.687	.450		
C50	5.300	.610		
C51	5.930	.610		
C52	6.535	.360		
C53	7.412	.450		
C54	.075	.525		
C55	.675	.525		
C56	1.550	.525		
C57	2.150	.525		

HOLE IDENT	X DIM	Y DIM	HOLE DIA	QTY
C58	2.750	.525	.100 .104	35
C59	3.350	.525		
C60	4.225	.525		
C61	4.825	.525		
C62	5.410	.040		
C63	6.010	.040		
C64	6.900	.525		
C65	8.462	.525		
C66	8.587	.587		
C67	6.962	.650		
C68	.000	.654		
C69	.600			
C70	1.475			
C71	2.075			
C72	2.675			
C73	3.275			
C74	4.150			
C75	4.750	.654		
C76	7.962	.675		
C77	7.037	.750		
C78	.062	.912		
C79	.662			
C80	1.537			
C81	2.137			
C82	2.737			
C83	3.337			
C84	4.212			
C85	4.812			
C86	5.412			
C87	6.012			
C88	6.825			
C89	6.962			
C90	7.100	.912		
C91	5.930	.350		
C92	6.510	.635		
D1	8.925	.137	.108 .112	23
D2	.537	.320		
D3	1.137			
D4	2.012			
D5	2.612			
D6	3.212			
D7	3.812			
D8	4.687			
D9	5.287	320		
D10	5.840	.515		
D11	6.445	.515		
D12	8.925	.587		
D13	7.912	.800		
D14	.562	.812		
D15	1.162			
D16	2.037			
D17	2.637			
D18	3.237			
D19	3.837			
D20	4.712			
D21	5.312			
D22	5.912			
D23	6.512	.812		
E1	1.337	.025	.168 .172	10
E2	4.012	.025		
E3	6.687	.025		
E4	1.337	.812		
E5	4.012	.812		
E6	7.887	970		
E7	.512	.970		
E8	1.112	.970		
E9	1.987	.970		
E10	2.487	.970		

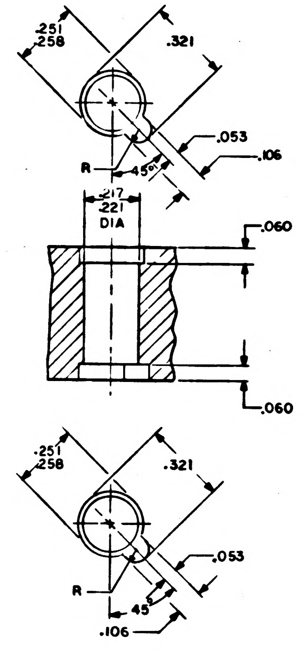
HOLE IDENT	X DIM	Y DIM	HOLE DIA	QTY
E11	3.187	.970	.168 .172	6
E12	3.787			
E13	4.662			
E14	5.262			
E15	5.862			
E16	6.462	.970		
F1	1.337	.275	.202 .206	6
F2	4.012	.275		
F3	6.687	.275		
F4	1.312	.575		
F5	3.987	.575		
F6	7.312	.700		
G1	.400	.050	SEE DETAIL A	14
G2	1.000			
G3	1.875			
G4	2.475			
G5	3.075			
G6	3.675			
G7	4.550			
G8	5.150			
G9	5.750			
G10	6.350			
G11	7.100			
G12	7.612			
G13	8.037			
G14	8.462	.050		
H1	.262	.350	SEE DETAIL B	12
H2	.862			
H3	1.737			
H4	2.337			
H5	2.937			
H6	3.537			
H7	4.412			
H8	5.012			
H9	5.612			
H10	6.212	.350		
H11	7.112	.435		
H12	8.712	.375		
J1	.262	.725	SEE DETAIL C	13
J2	.862			
J3	1.737			
J4	2.337			
J5	2.937			
J6	3.537			
J7	4.412			
J8	5.012			
J9	5.612			
J10	6.212	.725		
J11	7.687	.450		
J12	8.112	.450		
J13	8.187	.850		
K1	7.687	.800	SEE DETAIL D	1

NOTES:

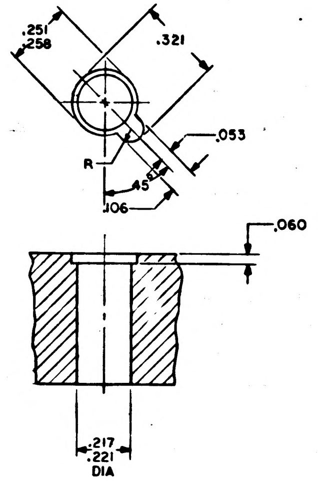
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: MAGNESIUM ALLOY ZK-60A-T5 PER QQ-M-31
3. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII .010 MAX
4. UNLESS OTHERWISE SPECIFIED 125√ ALL OVER
5. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
6. REMOVE ALL BURRS AND BREAK SHARP EDGES .005-.015
7. FINISH: ANODIZE PER MIL-M-45202 TYPE I, CLASS C
8. TAP HOLE AFTER ANODIZE. COAT PER ND1002040



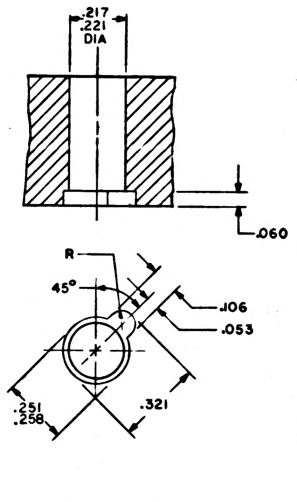
DETAIL A



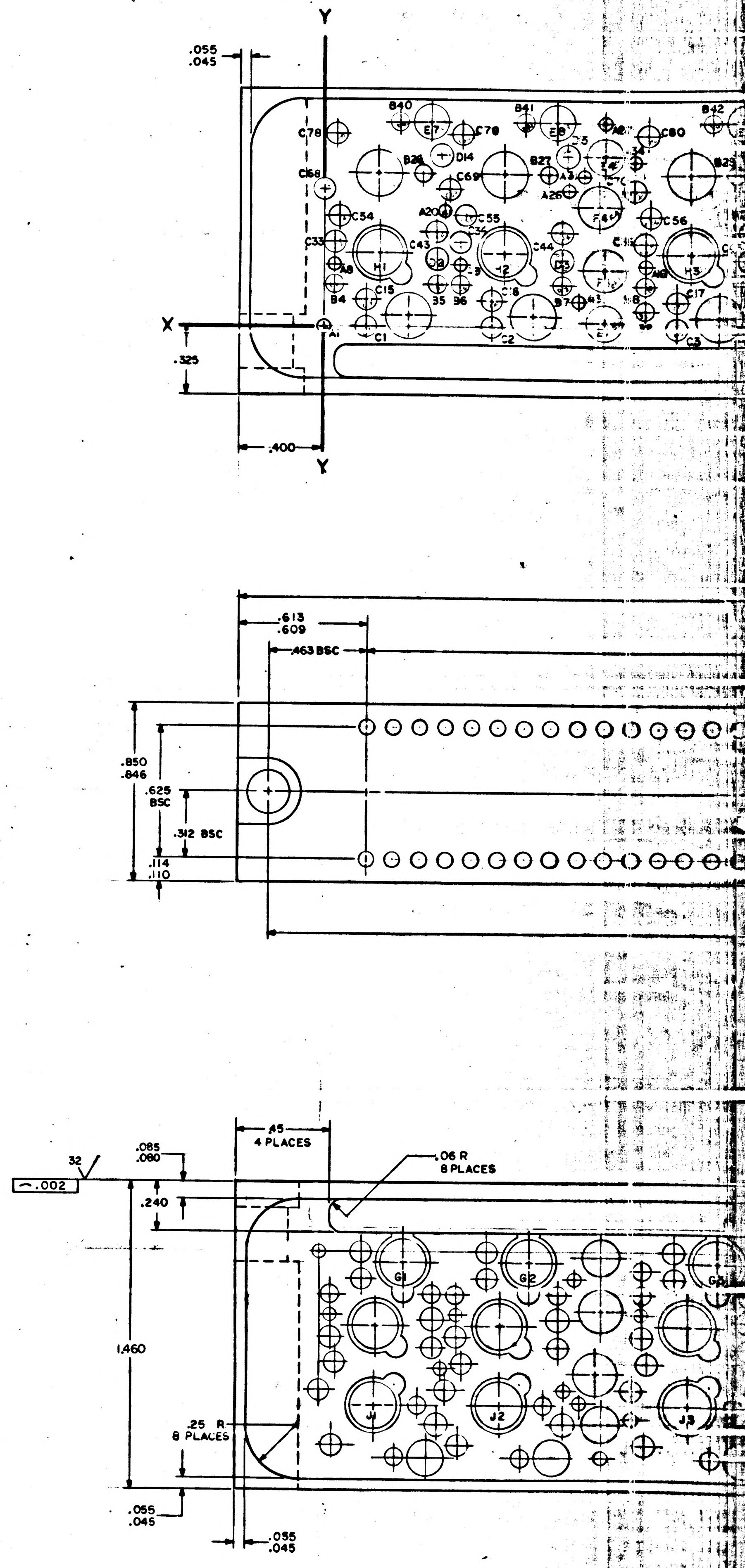
DETAIL B



DETAIL D



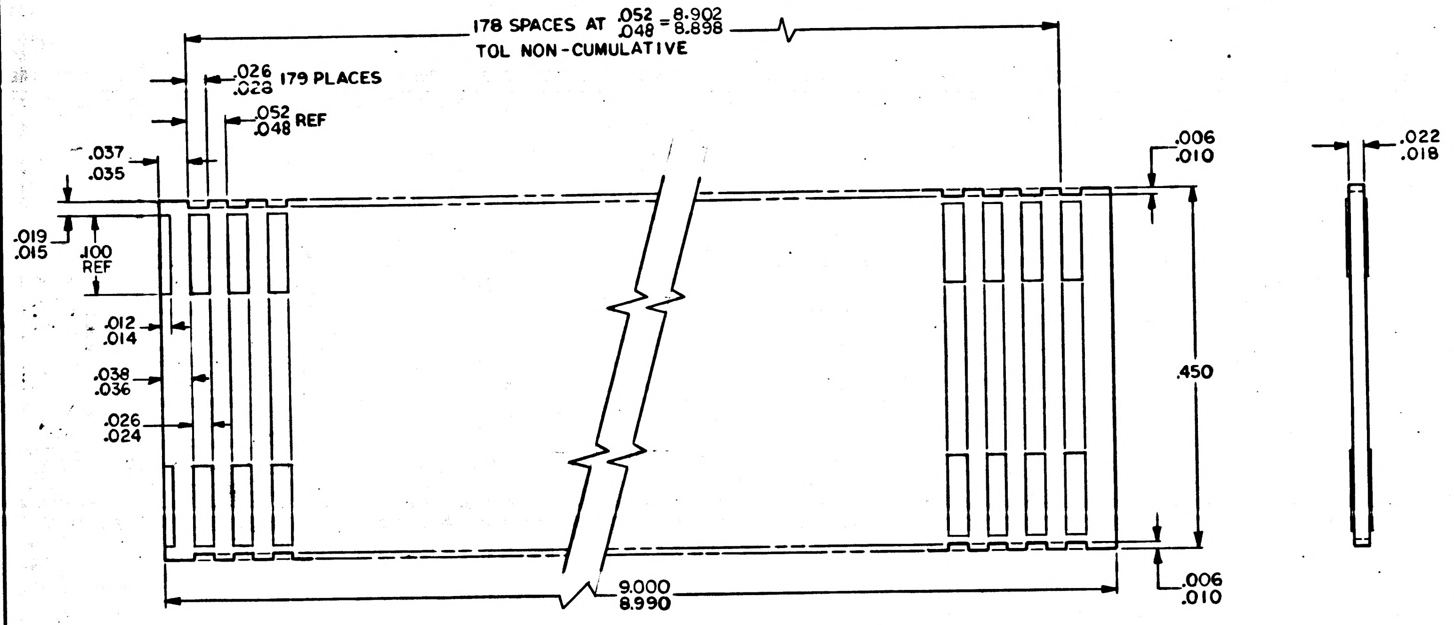
DETAIL C



3H

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17261			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 18732	6MAY65	



NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. REMOVE BURRS AND BREAK SHARP EDGES
3. MATERIAL: PLASTIC SHEET, LAMINATED, BOTH SIDES ALNIFER CLAD .003 THICK PER PS
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

REF DWG
FOR PHOTOMASTER. SEE 2004126

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2007072	
2007071	
2007070	
2003025	
2003024	
2003023	
2003022	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS XXX±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL: SEE NOTE 3
HEAT TREATMENT: —
FINAL FINISH: —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO.
CONTRACT

DRAWN L Krahn DATE 15 DEC 64
CHECKED A. Singleton 22 Jan 65
APPROVAL 3/5/65
APPROVAL 3/5/65
3/5/65
NASA APPROVAL
MIT APPROVAL 3-9-65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BOARD,
MATRIX SUPPORT

CODE IDENT NO. 80230
SIZE D
NASA DRAWING NO. 2004031
SCALE 10/1
WT —
SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 172/61

SYM	DESCRIPTION	DATE	APPROVAL
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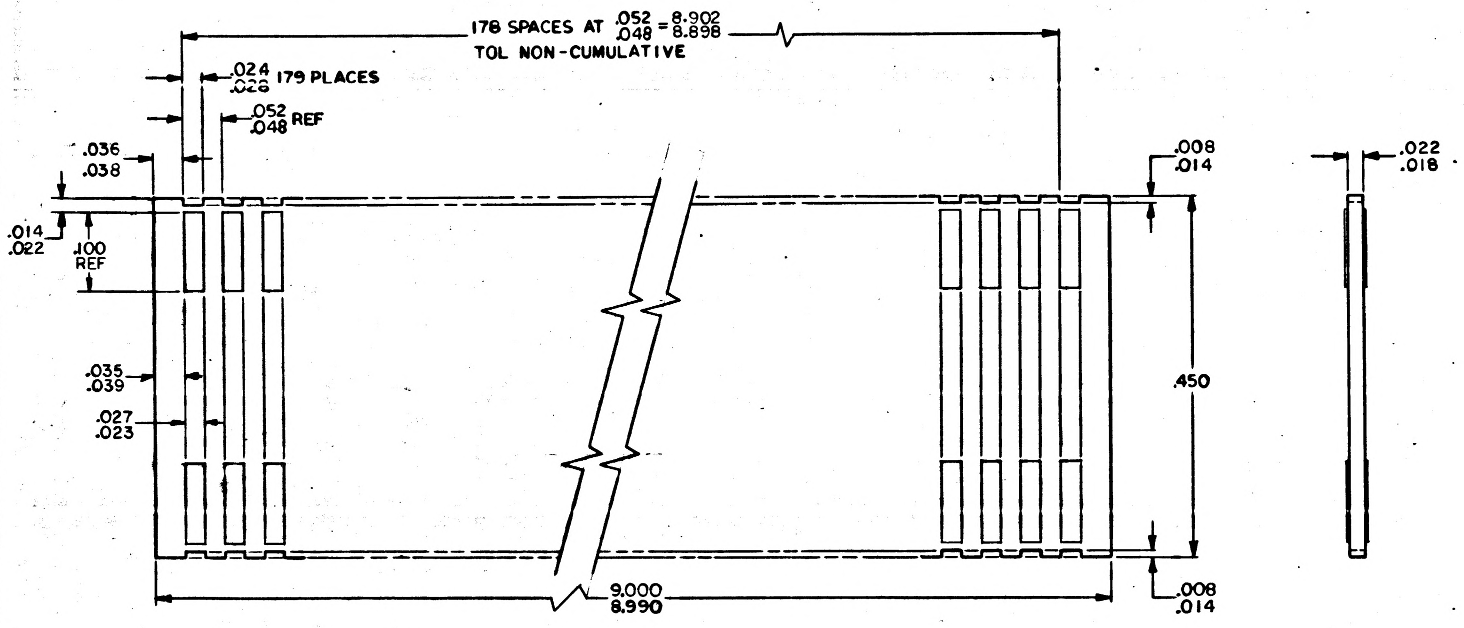
B	REVISED PER TDRR 21343		



NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. REMOVE BURRS AND BREAK SHARP EDGES
3. MATERIAL: PLASTIC SHEET, LAMINATED, BOTH SIDES ALNIFER CLAD .003 THICK PER PS
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

REF DWG
FOR PHOTOMASTER. SEE 2004126

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2007072	
2007071	
2007070	
2003025	
2003024	
2003023	
2003022	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS XXX±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
SEE NOTE 3
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. N: CONTRACT
DRAWN L Krahn DATE 15 DEC 64
CHECKED 22 Jan 65
APPROVAL 3/5/65
APPROVAL 3/5/65
3/5/69
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BOARD,
MATRIX SUPPORT

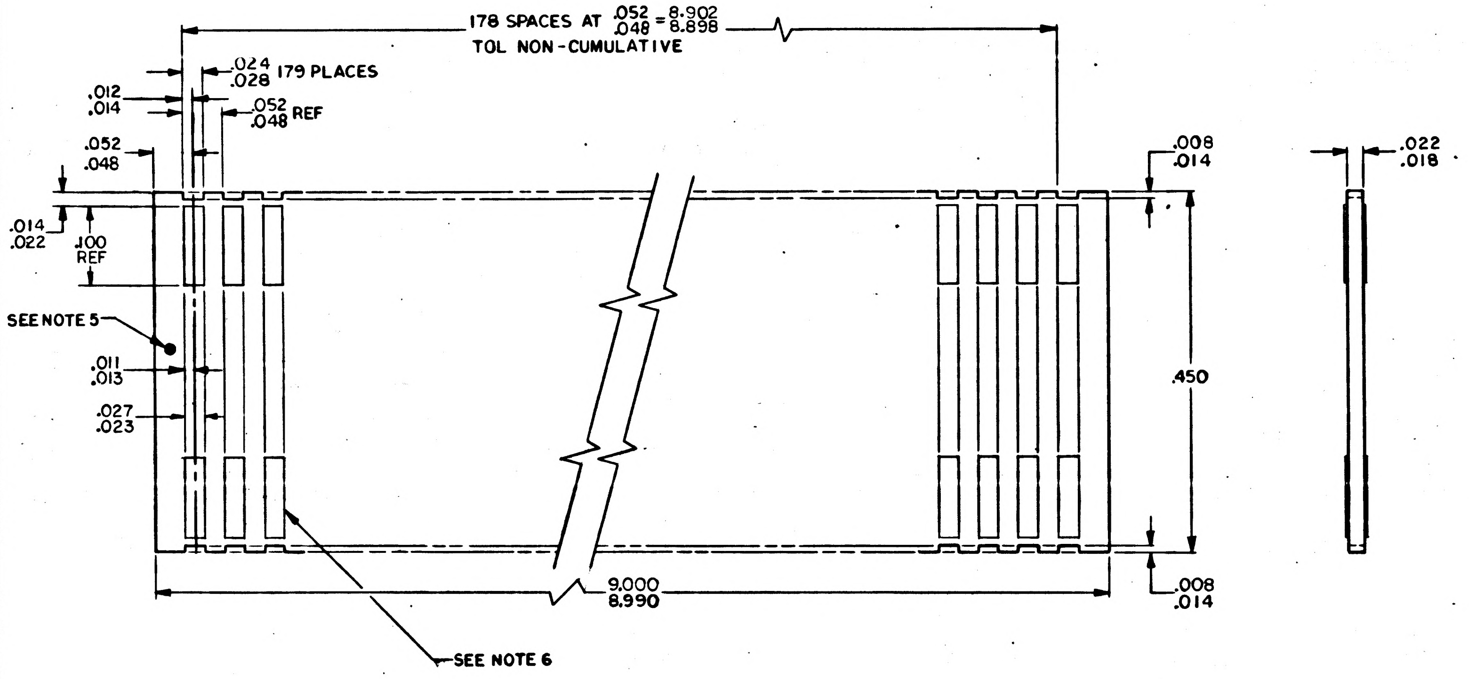
CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	D	2004031

SCALE 10/1 WT — SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17261

SYM	DESCRIPTION	DATE	APPROVAL
	REVISED PER TDRR 18732	6 MAY 65	WK
	REVISED PER TDRR 21343		
	REVISED PER TDRR 22260	13 Sep 65	



NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. REMOVE BURRS AND BREAK SHARP EDGES
3. MATERIAL: PLASTIC SHEET, LAMINATED, BOTH SIDES ALNIFER CLAD .003 THICK PER 1006362
4. IDENTIFY WITH PART NO. PER ND1002019
5. MARK .030/.040 WHITE DOT USING MARKING INK 1006271-1 APPROXIMATELY. WHERE SHOWN
6. FRONT TO BACK REGISTRATION OF PADS TO BE ±.002
7. THE MINIMUM BREAKDOWN VOLTAGE BETWEEN ADJACENT ALNIFER PADS SHALL BE 500 VOLT DC A MAX LEAKAGE OF 1 MILLIAMP WHEN TESTED PER MIL STD-202 METHOD 301

REF DWG
FOR PHOTOMASTER. SEE 2004126

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2007072	
2007071	
2007070	
2003025	
2003024	
2003023	
2003022	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS XXX±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL
SEE NOTE 3
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN L. Krahn DATE 15 DEC 64
CHECKED 22 Jan 65
APPROVAL 3/5/65
APPROVAL 3/5/65
3/5/65
NASA APPROVAL
MIT APPROVAL

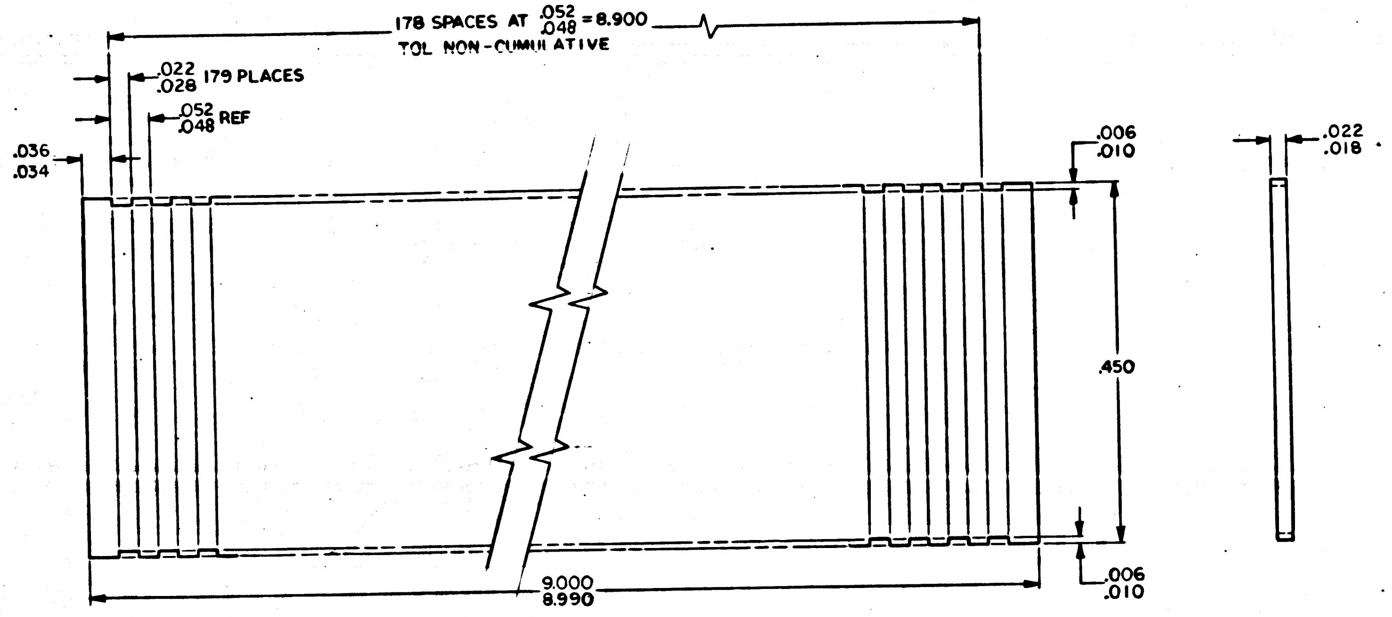
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BOARD,
MATRIX SUPPORT

CODE IDENT NO. 80230
SIZE D
NASA DRAWING NO. 2004031
SCALE 10/1
WT —
SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17261			
SYM	DESCRIPTION	DATE	APPROVAL



NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. REMOVE BURRS AND BREAK SHARP EDGES
3. MATERIAL: PLASTIC SHEET PER MIL-P-18177 TYPE GEE
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2007072	
2007071	
2007070	
2003025	
2003024	
2003023	
2003022	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ±— DECIMALS XXX±.005 ANGLES ±—
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 3
HEAT TREATMENT —
FINAL FINISH —

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN L Krahn DATE 15 DEC 64
CHECKED A. Lindstrom 22 Jan 65
APPROVAL 3/5/65
APPROVAL D Dugan 3/5/65
3/5/65
NASA APPROVAL 3/8/65
MIT APPROVAL M G Mulry 3-9-65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BOARD,
MATRIX SUPPORT

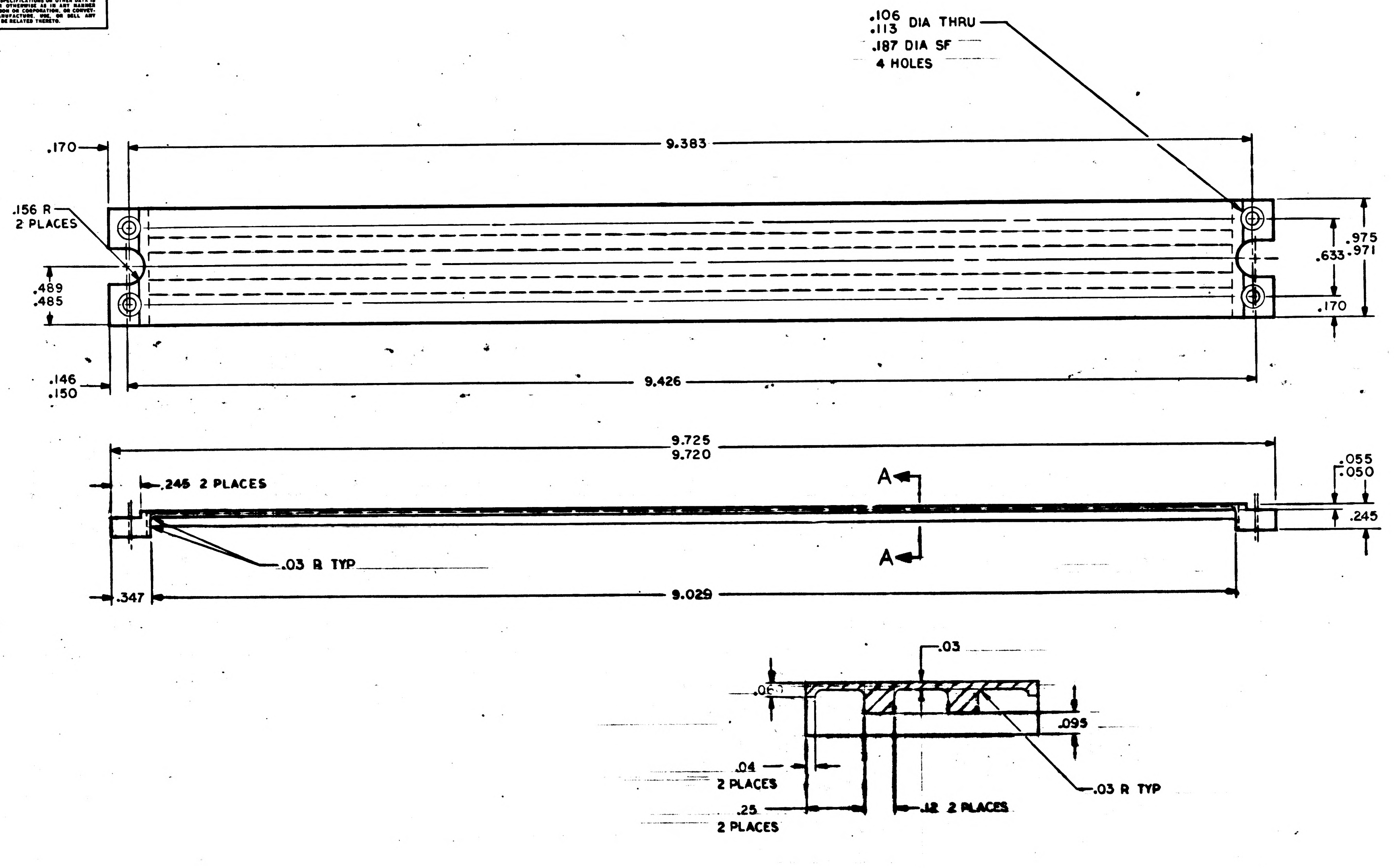
CODE IDENT NO. —
SIZE D
NASA DRAWING NO. 2004031
SCALE 10/1
WT —
SHEET 1 OF 1

2004031

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19704

SYM	DESCRIPTION	DATE	APPROVAL



SECTION A-A
SCALE 4/1

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: MAGNESIUM ZK60A-T5 PER QQ-M-31, TEMP 5
3. FINISH: ANODIZE PER MIL-M-45202, TYPE I, CLASS C
4. ALL SURFACES 125✓ UNLESS OTHERWISE SPECIFIED
5. REMOVE BURRS AND SHARP EDGES .005/.015
6. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .020 MAX
7. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003026	
2003040	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS XXX ±.005 XX .01 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL SEE NOTE 2
HEAT TREATMENT ——
FINAL FINISH SEE NOTE 3

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT

DRAWN Terry Bell DATE 4/6/65
CHECKED C.P. Kangas 29 Mar 65
APPROVAL M. McSherry 29 Mar 65
APPROVAL Edw C Hall 29 Mar 65
NASA APPROVAL W J Rhine 4-1-65
MIT APPROVAL [illegible] Apr 65

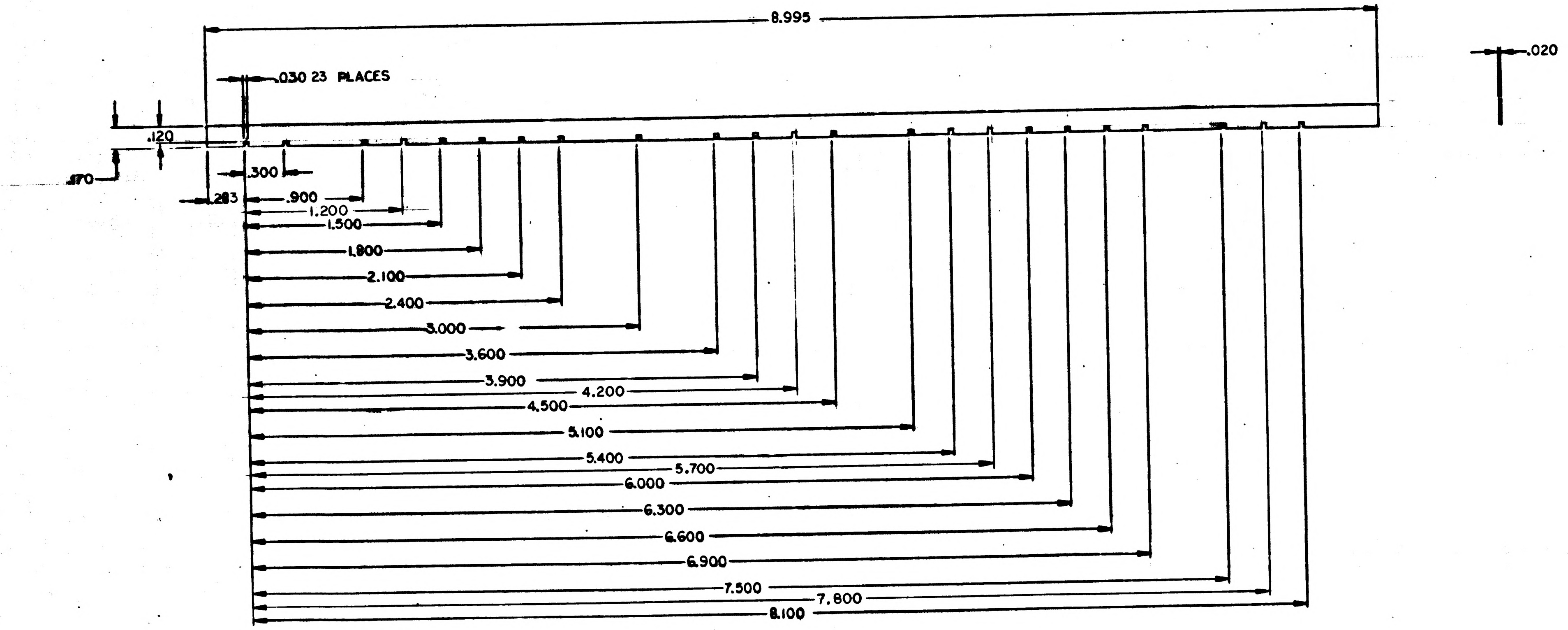
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COVER

CODE IDENT NO. —
SIZE D
NASA DRAWING NO. 2004032
SCALE 2/1
WT ——
SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 172(?)			
SYM	DESCRIPTION	DATE	APPROVAL



NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: PLASTIC SHEET PER MIL-P-18177, TYPE GEE
3. REMOVE BURRS AND BREAK SHARP EDGES
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND 1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2007141	
2007140	
2007139	
2003020	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS XXX .005 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL SEE NOTE 2
HEAT TREATMENT —
FINAL FINISH —

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT

DRAWN Ed Powers DATE 13 Jan 64
CHECKED A. Lindstrom 22 Jan 65
APPROVAL WDO 3/5/65
APPROVAL D. Dopp 3/5/65
3/5/65
NASA APPROVAL 3/5/65
MIT APPROVAL 3-5-65

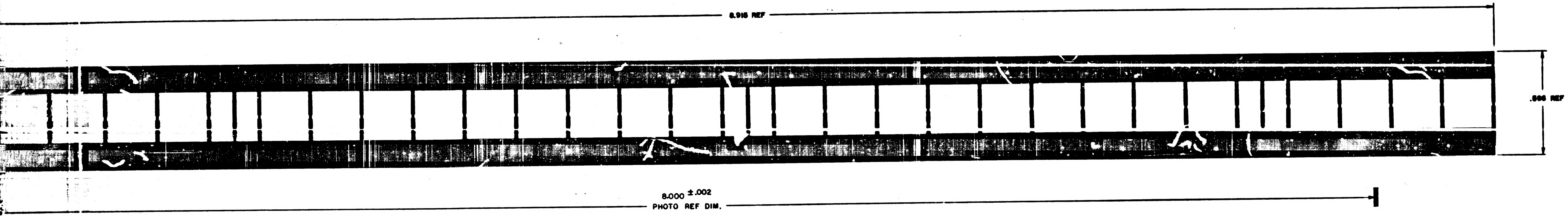
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SEPARATOR, QUADRANT

CODE IDENT NO.	SIZE	NASA DRAWING NO.
—	D	2004034

SCALE 2/1 WT — SHEET 1 OF 1

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL



REF:
DWG NO. 2003021 FOR GROUND BUS

…S STANDARDS PRESCRIBED BY MIL-D-70327
…DUCTION MADE BY A PROCESS OR METHOD

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN Ed Powers DATE 1965
CHECKED 2/5/65
APPROVAL 3/5/65
APPROVAL 3/5/65
3/5/65
NASA APPROVAL 3/5/65
MIT APPROVAL 3-9-65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PHOTOGRAPHIC MASTER
GROUND BUS
LOGIC MODULE

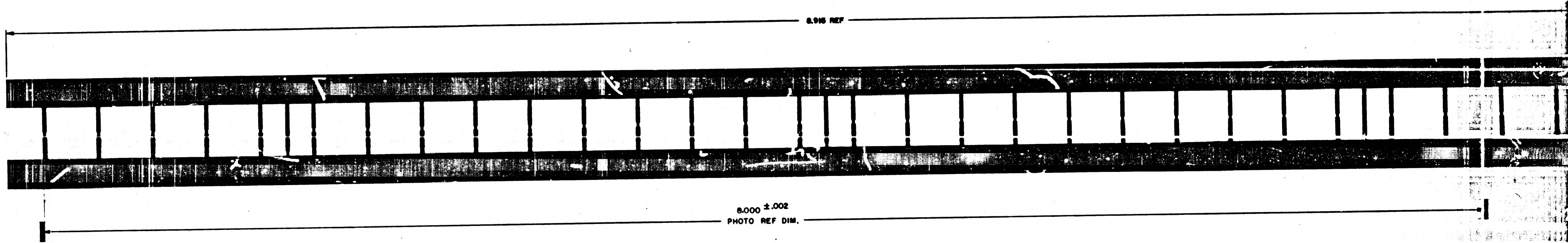
CODE IDENT NO. —— SIZE J NASA DRAWING NO. 2004038
SCALE 5/1 WT —— SHEET 1 OF 1

2004038

2004038

F-2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.



REF DWG NO. 2003021 FOR GROUND

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY.

MASTER

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

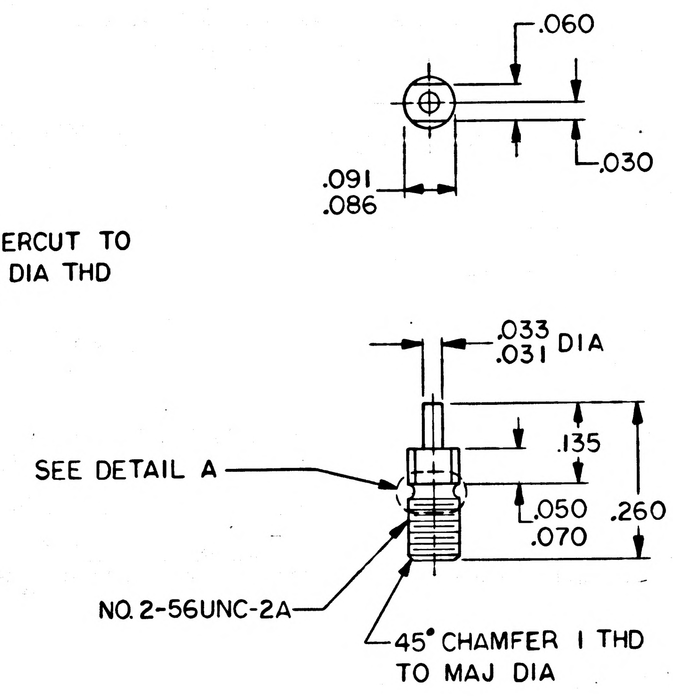
QTY REQD

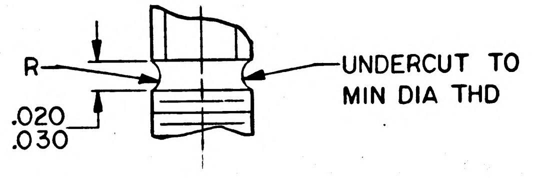
MIT
INSTRUMENTATION
DRAWN
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 15730

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED





DETAIL A
SCALE 10/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: UNPLATED NICKEL IN ACCORDANCE WITH PS 1015400
3. SURFACE QUALITY: 125$\surd$ ALL OVER
4. REMOVE ALL BURRS AND BREAK SHARP EDGES .005/.015
5. IDENTIFY PER ND 1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON

FRACTIONS	DECIMALS	ANGLES
±—	±.005	±—

DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

		DATE
DRAWN	L Krahn	14 JAN 65
CHECKED	R Burke	15 Jan 65
APPROVED	W. McKinley	15 JAN 65
APPROVED	Eldon C Hall	22 Jan 65
APPROVED MIT	W Kupfer	26 Jan 65
APPROVED MSC		1/26/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TERMINAL, THREADED

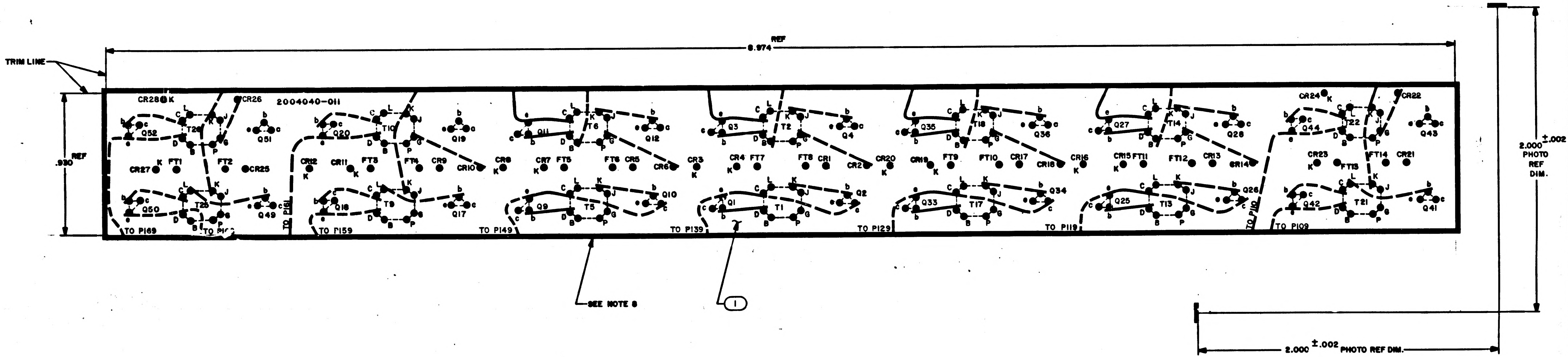
CODE IDENT NO.	SIZE	DRAWING NO.
—	C	2004039

SCALE 5/1 — SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17904

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



TRIM LINE
8.974 REF
.930 REF
2004040-011
CR28 K
CR26
Q52
T26
Q51
Q20
T10
Q19
Q11
T6
Q12
Q3
T2
Q4
Q35
T18
Q36
Q27
T14
Q28
CR24 K
CR22
Q44
T22
Q43
CR27 K
FT1
FT2
CR25
CR12 K
CR11 K
FT3
FT4
CR9
CR10
CR8 K
CR7 K
FT5
FT6
CR5
CR6
CR3 K
CR4 K
FT7
FT8
CR1
CR2
CR20 K
CR19 K
FT9
FT10
CR17
CR18
CR16 K
CR15 K
FT11
FT12
CR13
CR14
CR23 K
FT13
FT14
CR21
Q50
T25
Q49
Q18
T9
Q17
Q9
T5
Q10
Q1
T1
Q2
Q33
T17
Q34
Q25
T13
Q26
Q42
T21
Q41
b
c
e
C
L
K
J
D
B
P
G
TO P169
TO P162
TO P161
TO P159
TO P149
TO P139
TO P129
TO P119
TO P110
TO P109
SEE NOTE 8
1
2.000 ±.002 PHOTO REF DIM.
2.000 ±.002 PHOTO REF DIM.

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: FILM .006/.008 THK SENSITIZED DIMENSIONALLY STABLE PER L-F-340, TYPE IB, CLASS 2, STYLE 1A
3. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
4. MAKE MASTER PATTERN POSITIVE FILMS TO DIMENSIONS SHOWN
5. CUT TO WITHIN .010 OF TRIM LINE
6. ● .040/.050 DIA HOLE
7. BROKEN LINE DFNOTES SLEEVING
8. APPLY FIND NO. 2 TO FAR SIDE OF FIND NO. 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006318	ADHESIVF.	2
1	2004040-001	INSULATOR A	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003026	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN W. H. Tracy 5 Feb 65
CHECKED
APPROVED
APPROVED
APPROVED MIT W Kaplan
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSULATOR A ASSY
PHOTOGRAPHIC MASTER
CURRENT SWITCH MODULE

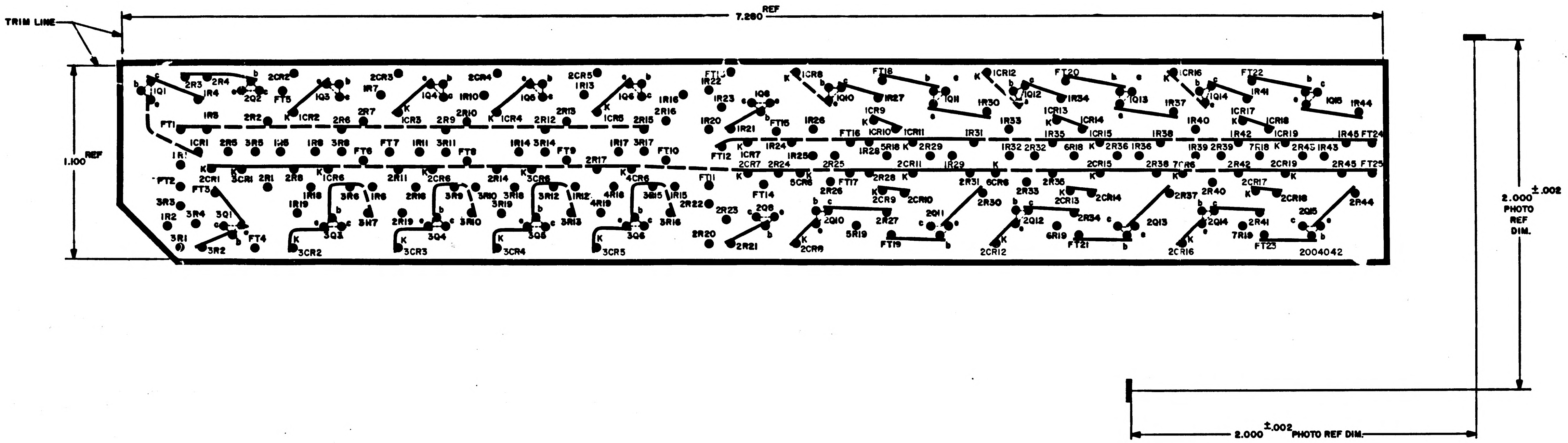
CODE IDENT NO.	SIZE	DRAWING NO.
—	E	2004040

SCALE 4/1
SHEET 1 OF 1

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17263

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



TRIM LINE
7.260 REF
1.100 REF
2.000 ±.002 PHOTO REF DIM.
2.000 ±.002 PHOTO REF DIM.
1Q1
2R3
2R4
1R4
2Q2
2CR2
FT5
1Q3
2CR3
1R7
1Q4
1R10
2CR4
1Q5
2CR5
1R13
1Q6
1R16
FT13
1R22
1R23
1Q8
1R5
2R2
1CR2
2R6
2R7
1CR3
2R9
2R10
1CR4
2R12
2R13
1CR5
2R15
2R16
1R20
1R21
FT15
FT1
1CR1
2R5
3R5
1R6
1R8
3R8
FT6
FT7
1R11
3R11
FT8
1R14
3R14
FT9
2R17
1R17
3R17
FT10
FT12
1CR7
2CR7
1R24
2R24
1R25
1R1
2CR1
3CR1
2R1
2R8
1CR6
2R11
2CR6
2R14
3CR6
4CR6
FT11
FT2
FT3
3R3
1R2
3R4
3Q1
3R1
3R2
FT4
1R18
1R19
3R6
1R9
3R7
3Q3
3CR2
2R18
2R19
3R9
3R10
3R18
3R19
3Q4
3CR3
3R12
1R12
3R13
4R18
4R19
3Q5
3CR4
3R15
1R15
3R16
3Q6
3CR5
2R22
2R23
2Q8
2R20
2R21
FT14
1CR8
1Q10
1R27
FT18
1Q11
1R30
1CR12
1Q12
1R34
FT20
1Q13
1R37
1CR16
1Q14
1R41
FT22
1Q15
1R44
1R26
1CR9
1CR10
1CR11
FT16
1R28
5R18
2R29
1R31
1R33
1CR13
1CR14
1R35
1CR15
1R32
2R32
6R18
2R36
1R36
1R38
1R40
1CR17
1CR18
1R42
1CR19
1R45
FT24
1R39
2R39
7R18
2R43
1R43
2R25
2CR11
1R29
2CR15
2R38
7CR6
2R42
2CR19
2R45
FT25
5CR6
FT17
2R26
2R28
2CR9
2CR10
2R31
6CR6
2R33
2R35
2CR13
2CR14
2R37
2R40
2CR17
2CR18
2R44
2Q10
2R27
2Q11
2R30
2Q12
2R34
2Q13
2Q14
2R41
2Q15
5R19
FT19
6R19
FT21
7R19
FT23
2CR8
2CR12
2CR16
2004042
K
b
c
e

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: FILM .006/.008 THICK PER L-F-340, TYPE IB, CLASS 2, STYLE IA
3. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY.
4. BROKEN LINE DENOTES SLEEVING
5. MAKE MASTER PATTERN POSITIVE FILM TO DIMENSIONS SHOWN
6. CUT TO WITHIN .010 OF TRIM LINE
7. ● .040/.050 DIA HOLE

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003027	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	W.F.Tracy	1/28/65
CHECKED		
APPROVED		3/8/65
APPROVED	Edwin C. Hall	
APPROVED MIT		3-7-65
APPROVED MSC		3/9/65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSULATOR A
PHOTOGRAPHIC MASTER
STRAND SELECT MODULE

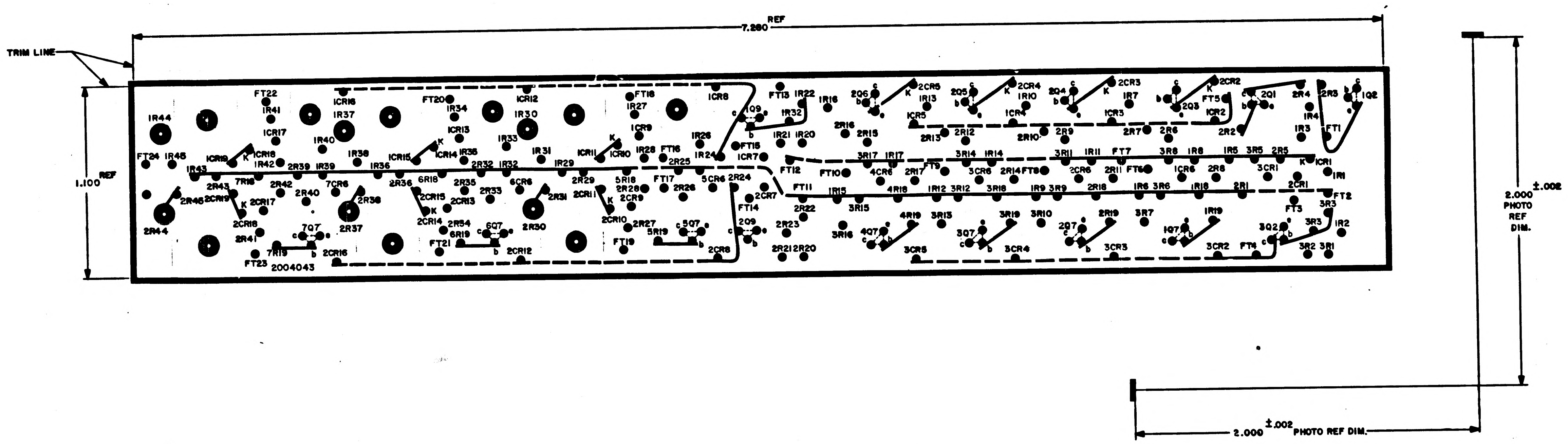
CODE IDENT NO.	SIZE	DRAWING NO.
—	E	2004042
SCALE 4/1	—	SHEET 1 OF 1

2004042

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17263

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: FILM .006/.008 THICK PER L-F-340, TYPE IB, CLASS 2, STYLE IA
3. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY.
4. MAKE MASTER PATTERN POSITIVE FILM TO DIMENSIONS SHOWN
5. CUT TO WITHIN .010 OF TRIM LINE
6. BROKEN LINE DENOTES SLEEVING
7. ● .040/.050 DIA HOLE
8. ● .111/.121 DIA HOLE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003027	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN W. P. Tracy 1/27/65
CHECKED 2/16/65
APPROVED 3/2/65
APPROVED
APPROVED MIT 3-9-65
APPROVED MSC 3/5/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

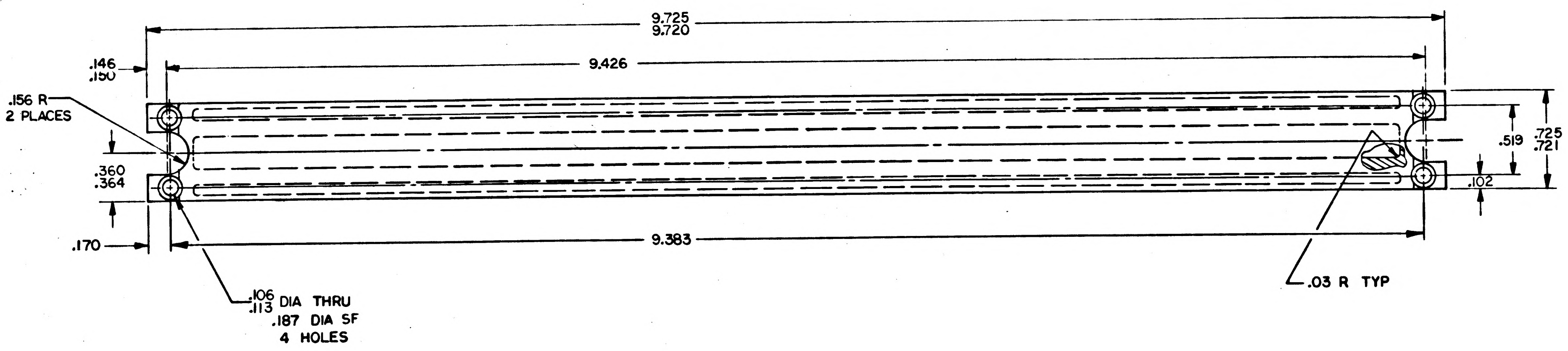
INSULATOR B
PHOTOGRAPHIC MASTER
STRAND SELECT MODULE

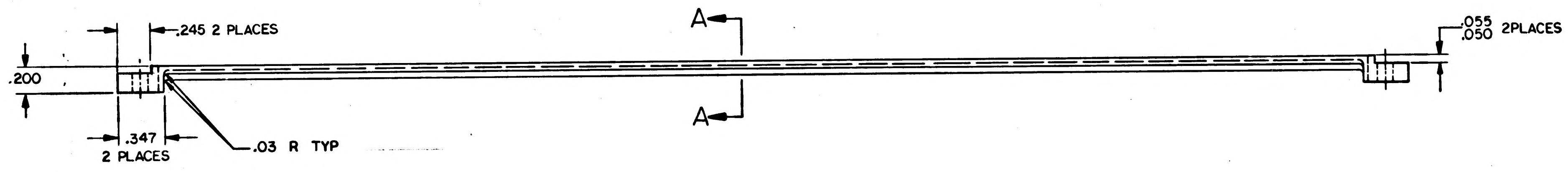
CODE IDENT NO. —
SIZE E
DRAWING NO. 2004043
SCALE 4/1
SHEET 1 OF 1

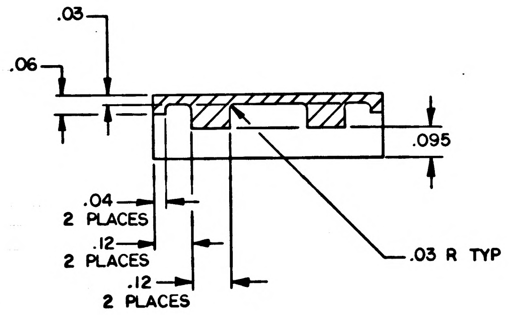
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19215

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED


9.725
9.720
9.426
.146
.150
.156 R
2 PLACES
.360
.364
.170
9.383
.519
.725
.721
.102
.106
.113 DIA THRU
.187 DIA SF
4 HOLES
.03 R TYP


.245 2 PLACES
A
A
.055
.050 2PLACES
.200
.347
2 PLACES
.03 R TYP


.03
.06
.095
.04
2 PLACES
.12
2 PLACES
.12
2 PLACES
.03 R TYP

SECTION A-A
SCALE 4/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: MAGNESIUM ZK60A-T5 PER QQ-M-31, TEMP 5
3. FINISH: ANODIZE PER MIL-M-45202, TYPE I, CLASS C
4. REMOVE BURRS AND SHARP EDGES .005/.015
5. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .020 MAX
6. ALL SURFACES 125√ UNLESS OTHERWISE SPECIFIED
7. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003043	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS XX±.01 XXX±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	B Papia	9 Feb 65
CHECKED	CC/RL	10 MAY 65
APPROVED	J.W. McGivney	13 MAY 65
APPROVED	Eldon C. Hall	17 May 65
APPROVED MIT	M.G. Mauley	18 May 65
APPROVED MSC		5/18/65
		DATE

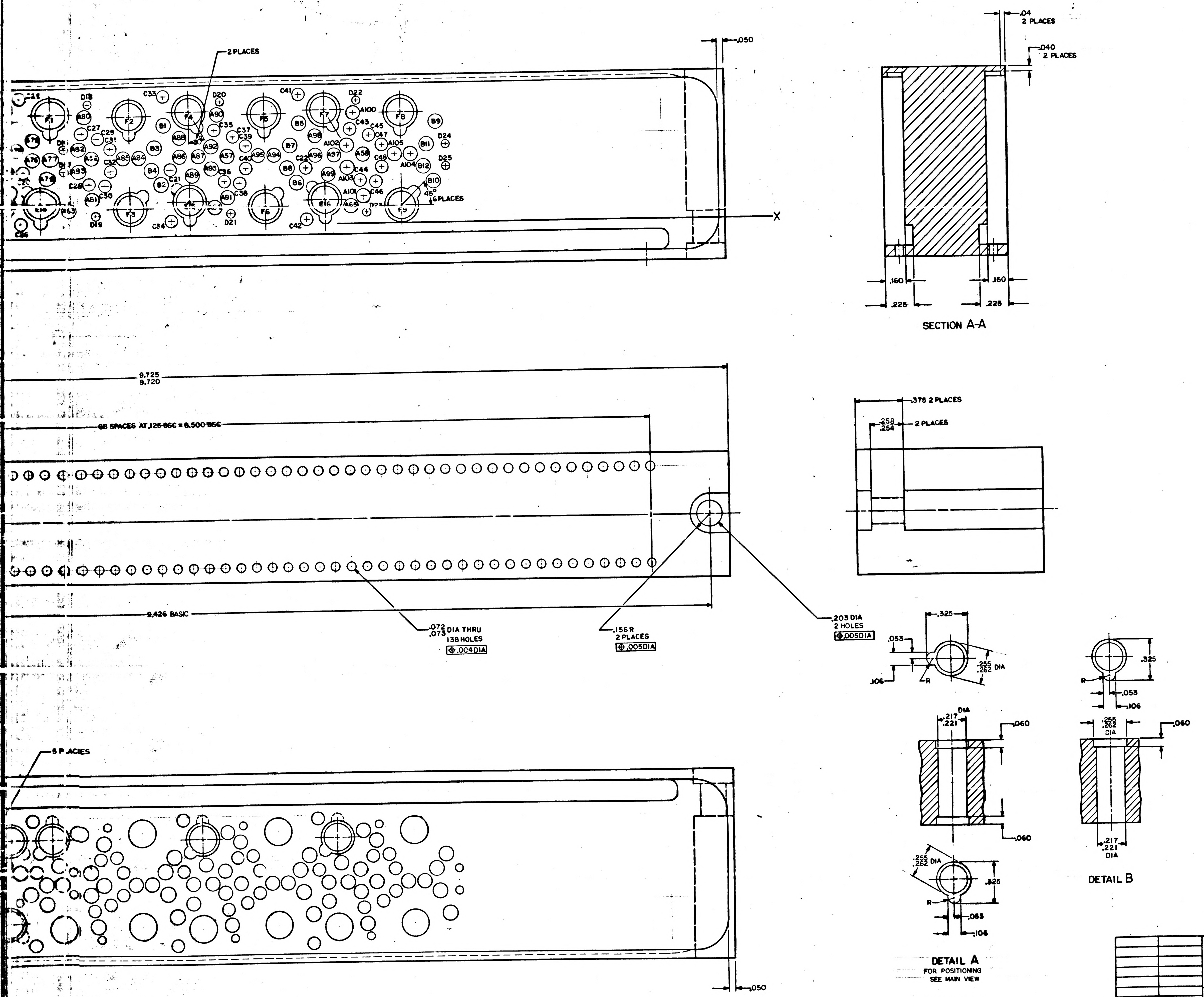
COVER
SENSE AMPLIFIER MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2004044

SCALE 2/1 SHEET 1 OF 1

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 17745		RL	26MAR68	WK

REVISIONS 17263



4
3
2
1
D
C
B
A
2 PLACES
.050
C33
D18
D20
C41
D22
A100
F1
F2
F4
F5
F7
F8
B9
A80
C27
C25
C31
B1
A88
A90
C35
C37
C39
B5
A98
C43
C45
C47
D24
A78
A82
B3
A86
A87
A92
A57
A95
A94
B7
A102
A105
B11
A76
A77
A54
C32
A85
A84
B4
C40
B8
A96
A97
A56
C48
A104
B12
D25
A79
A83
C21
A89
A93
C36
C22
C44
B2
B6
A99
A103
B10
C28
A81
C30
F3
F6
E16
C38
A91
A101
C46
45°
6 PLACES
D19
C34
D21
C42
A65
D23
F9
X
.04
2 PLACES
.040
2 PLACES
.160
.160
.225
.225
SECTION A-A
9.725
9.720
68 SPACES AT .125 BSC = 8.500 BSC
9.426 BASIC
.072
.075 DIA THRU
138 HOLES
⊕ .004 DIA
.156 R
2 PLACES
⊕ .005 DIA
.203 DIA
2 HOLES
⊕ .005 DIA
.375 2 PLACES
.256
.254
2 PLACES
.325
.053
.255
.262 DIA
.106
R
.325
R
.053
.106
DIA
.217
.221
.060
.060
.255
.262
DIA
.060
.217
.221
DIA
DETAIL B
.255
.262 DIA
.325
R
.053
.106
DETAIL A
FOR POSITIONING
SEE MAIN VIEW
5 PLACES
.050
MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003028	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XXX ±.005 .XX ±.02 ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN W.F. Tracy 3/10/65
CHECKED
APPROVED 3/1/65
APPROVED
APPROVED MIT 3-9-65
APPROVED MSC 3/8/65
DATE

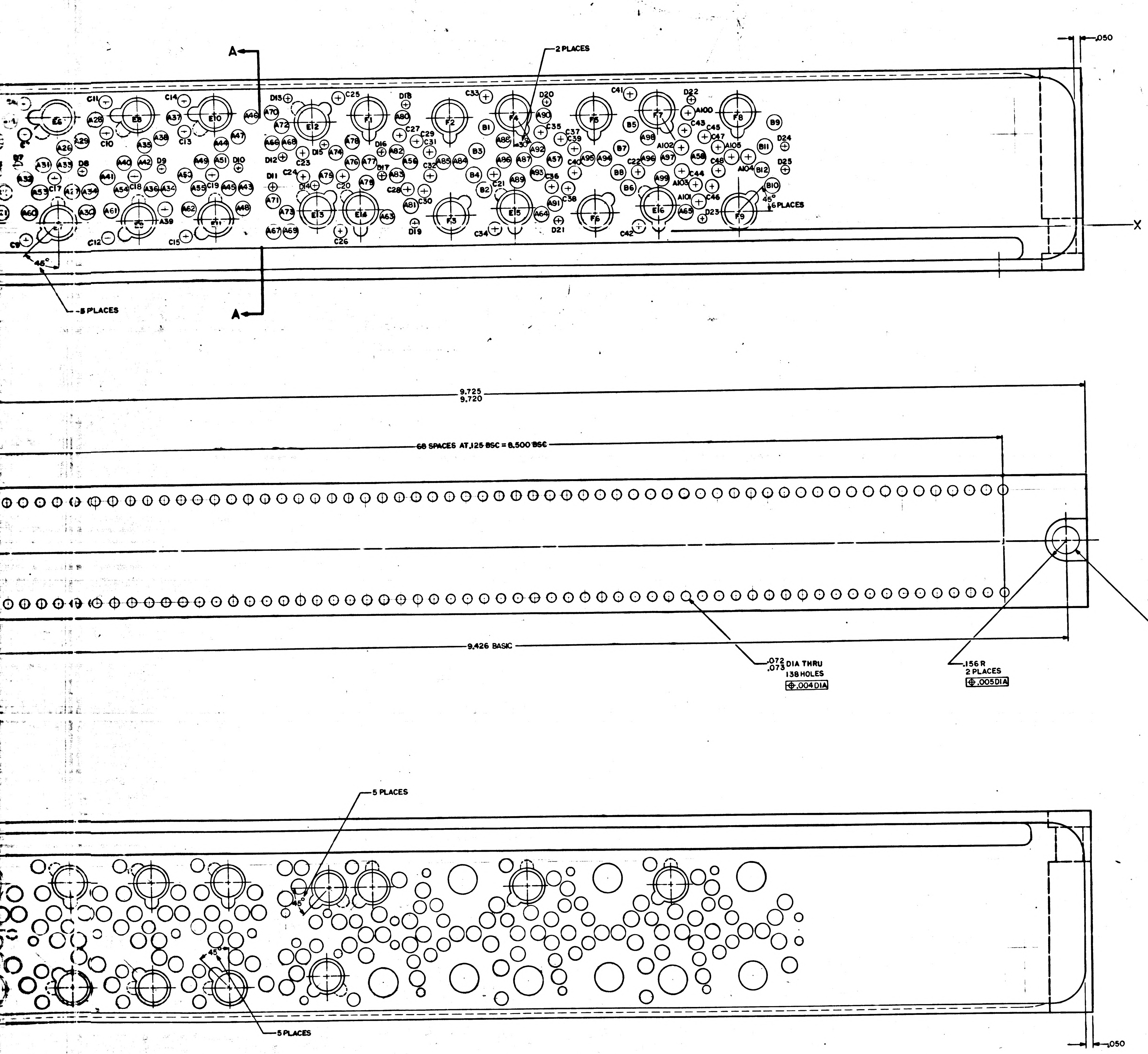
HEADER HOUSING
STRAND SELECT MODULE

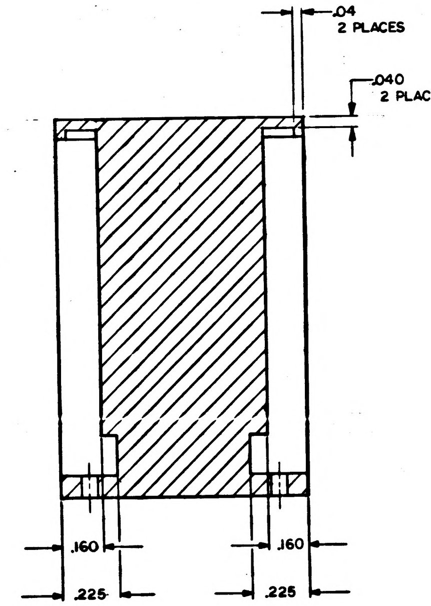
CODE IDENT NO. ——
SIZE J
DRAWING NO. 2004045
SCALE 4/1
SHEET OF

2004045 A

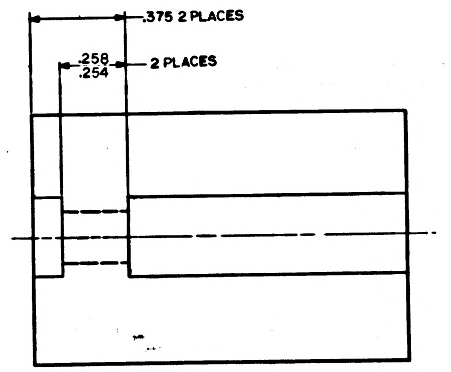
2004045 A

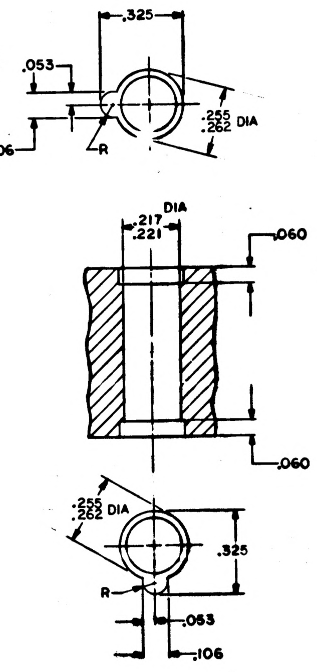
REVISED


A
A
2 PLACES
.050
X
45°
-8 PLACES
6 PLACES
9.725
9.720
68 SPACES AT .125 BSC = 8.500 BSC
9.426 BASIC
.072
.073 DIA THRU
138 HOLES
⊕ .004 DIA
.156 R
2 PLACES
⊕ .005 DIA
.203 DIA
2 HOLES
⊕ .005 DIA
5 PLACES
5 PLACES
45°
.050
E6 E8 E10 E12 F1 F2 F4 F5 F7 F8
E9 E11 E13 E14 F3 E15 F6 E16 F9

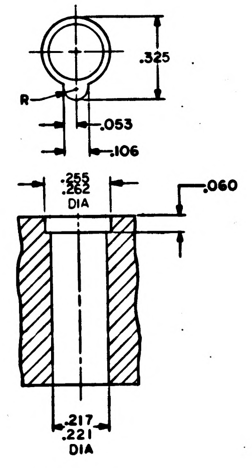

.04
2 PLACES
.040
2 PLACES
.160
.160
.225
.225

SECTION A-A


.375 2 PLACES
.258
.254 2 PLACES


.325
.053
.106
R
.255
.262 DIA
DIA
.217
.221
.060
.060
.255
.262 DIA
.325
R
.053
.106

DETAIL A
FOR POSITIONING
SEE MAIN VIEW


.325
R
.053
.106
.255
.262
DIA
.060
.217
.221
DIA

DETAIL B

MASTER

QTY REQD	PART OR IDENTIFYING NO.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — XXX ± .005 XX ± .02 ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

2003028	
NEXT ASSY	USED ON
APPLICATION	

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN	W.F. Tony	3/10/65
CHECKED		
APPROVED		
APPROVED		
APPROVED MIT		3-2-65
APPROVED NBC		
		DATE

CODE
SCALE

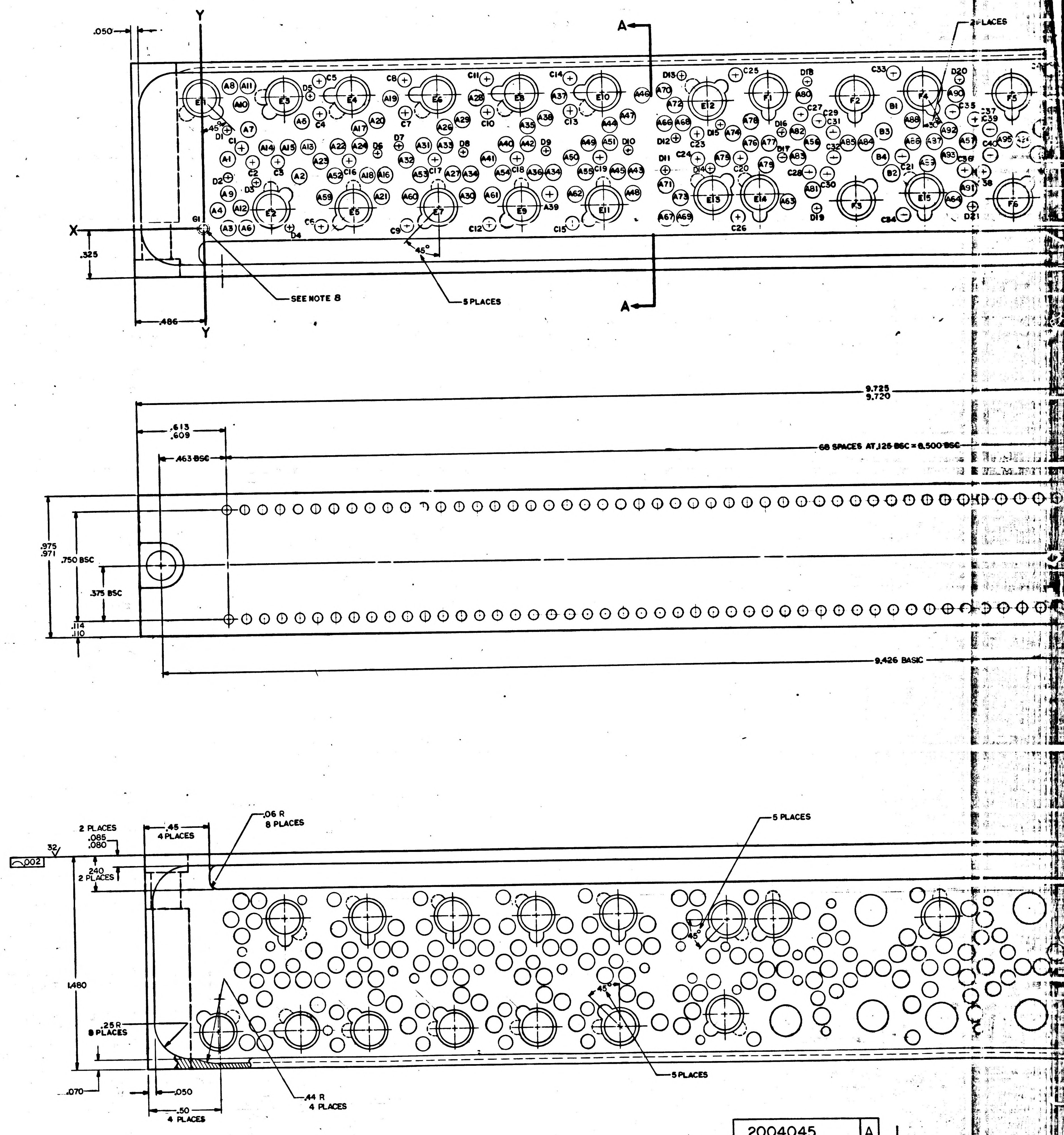
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

HOLE IDENT	X DIM	Y DIM	HOLE DIA	QTY
A1	.175	.475	.100 .104	96
A2	.675	.350		
A3	.175	.000		
A4	.100	.125		
A5	.695	.725		
A6	.300	.000		
A7	.325	.675		
A8	.200	.975		
A9	.175	.237		
A10	.275	.650		
A11	.325	.975		
A12	.262	.137		
A13	.735	.550		
A14	.450	.550		
A15	.600	.550		
A16	1.275	.350		
A17	1.100	.675		
A18	1.150	.350		
A19	1.325	.875		
A20	1.225	.725		
A21	1.250	.200		
A22	.950	.550		
A23	.825	.450		
A24	1.100	.550		
A25	1.875	.350		
A26	1.700	.675		
A27	1.750	.350		
A28	1.925	.875		
A29	1.825	.725		
A30	1.850	.200		
A31	1.550	.550		
A32	1.425	.450		
A33	1.700	.550		
A34	2.450	.350		
A35	2.275	.675		
A36	2.325	.350		
A37	2.500	.875		
A38	2.400	.725		
A39	2.425	.200		
A40	2.125	.550		
A41	2.000	.450		
A42	2.275	.550		
A43	3.025	.350		
A44	2.850	.675		
A45	2.900	.350		
A46	3.075	.875		
A47	2.975	.725		
A48	3.000	.200		
A49	2.700	.550		
A50	2.575	.450		
A51	2.850	.550		
A52	.925	.350		
A53	1.525	.350		
A54	2.100	.350		
A55	2.675	.350		
A56	4.250	.525		
A57	5.325	.525		
A58	6.400	.525		
A59	.850	.200		
A60	1.450	.200		
A61	2.025	.200		
A62	2.600	.200		
A63	4.075	.125		
A64	5.225	.125		
A65	6.300	.125		
A66	3.225	.675		
A67	3.225	.025		
A68	3.350	.675		
A69	3.350	.025		
A70	3.225	.900		
A71	3.225	.250		
A72	3.300	.800		
A73	3.325	.162		
A74	3.700	.600		
A75	3.625	.425		
A76	3.825	.525		
A77	3.950	.525		
A78	3.825	.675		
A79	3.925	.375		
A80	4.200	.850		
A81	4.250	.200		
A82	4.150	.600		
A83	4.150	.425		
A84	4.625	.525		
A85	4.500	.525		
A86	4.950	.525		
A87	5.100	.525		
A88	4.950	.675		
A89	5.050	.375		
A90	5.250	.850		
A91	5.325	.200		
A92	5.200	.600		
A93	5.200	.425		
A94	5.700	.525		
A95	5.575	.525		
A96	6.025	.525		

HOLE IDENT	X DIM	Y DIM	HOLE DIA	QTY
A97	6.175	.525	.100 .104	9
A98	6.025	.675		
A99	6.125	.375		
A100	6.325	.850		
A101	6.400	.200		
A102	6.275	.600		
A103	6.275	.425		
A104	6.775	.525		
A105	6.650	.525		
B1	4.825	.775	.108 .112	12
B2	4.800	.312		
B3	4.750	.600		
B4	4.725	.425		
B5	5.900	.775		
B6	5.875	.312		
B7	5.825	.600		
B8	[illegible]	.425		
B9	6.975	.775		
B10	6.950	.312		
B11	6.900	.600		
B12	6.875	.425		
C1	.275	.550	.088 .092	48
C2	.350	.450		
C3	.525	.450		
C4	.825	.775		
C5	.825	1.000		
C6	.825	.000		
C7	1.425	.775		
C8	1.425	1.000		
C9	1.425	.000		
C10	2.000	.775		
C11	2.000	1.000		
C12	2.000	.000		
C13	2.575	.775		
C14	2.575	1.000		
C15	2.575	.000		
C16	1.025	.450		
C17	1.625	.450		
C18	2.200	.450		
C19	2.775	.450		
C20	3.750	.425		
C21	4.875	.425		
C22	5.950	.425		
C23	3.450	.600		
C24	3.450	.425		
C25	3.725	1.000		
C26	3.725	.025		
C27	4.175	.725		
C28	4.225	.325		
C29	4.300	.675		
C30	4.350	.312		
C31	4.400	.600		
C32	4.400	.425		
C33	4.825	1.000		
C34	4.875	.025		
C35	5.225	.725		
C36	5.300	.325		
C37	5.375	.675		
C38	5.425	.312		
C39	5.475	.600		
C40	5.475	.425		
C41	5.900	1.000		
C42	5.950	.025		
C43	6.300	.725		
C44	6.375	.325		
C45	6.450	.675		
C46	6.500	.312		
C47	6.550	.600		
C48	6.550	.425		
D1	.175	.675	.058 .062	15
D2	.175	.350		
D3	.375	.312		
D4	.600	.000		
D5	.762	.900		
D6	1.225	.500		
D7	1.375	.550		
D8	1.825	.500		
D9	2.400	.500		
D10	2.975	.500		
D11	3.225	.355		
D12	3.300	.575		
D13	3.350	1.000		
D14	3.537	.362		
D15	3.612	.662		

HOLE IDENT	X DIM	Y DIM	HOLE DIA	QTY
D16	4.037	.600	.058 .062	10
D17	4.037	.425		
D18	4.225	.950		
D19	4.275	.075		
D20	5.275	.950		
D21	5.350	.075		
D22	6.350	.950		
D23	6.425	.075		
D24	7.050	.600		
D25	7.050	.425		
E1	.000	.900	SEE DETAIL A	16
E2	.475	.125		
E3	.575	.900		
E4	1.050	.900		
E5	1.050	.125		
E6	1.650	.900		
E7	1.650	.125		
E8	2.225	.900		
E9	2.225	.125		
E10	2.800	.900		
E11	2.800	.125		
E12	3.525	.825		
E13	3.550	.175		
E14	3.875	.175		
E15	5.025	.175		
E16	6.100	.175		
F1	3.950	.875	SEE DETAIL B	9
F2	4.550	.850		
F3	4.550	.125		
F4	5.025	.875		
F5	5.625	.850		
F6	5.625	.125		
F7	6.100	.875		
F8	6.700	.850		
F9	6.700	.125		
G1	.000	.000	NO.2-56 UNC-2B .19 DP	1

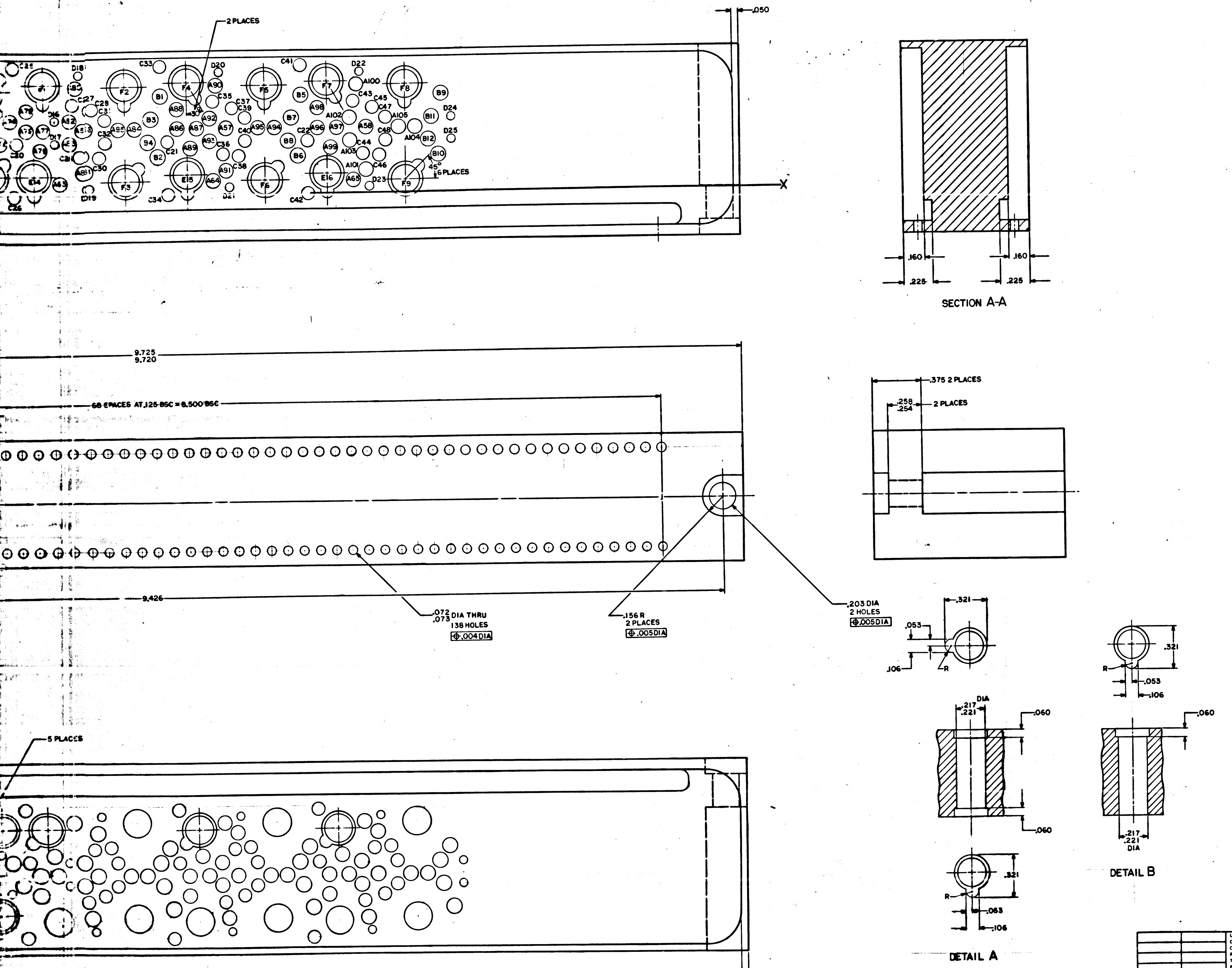
NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: MAGNESIUM ALLOY ZK-60A-T5 PER QQ-M-31 TEMP 5
3. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII .010 MAX
4. UNLESS OTHERWISE SPECIFIED $\overset{125}{\vee}$ ALL OVER
5. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
6. REMOVE ALL BURRS AND BREAK SHARP EDGES .005-.015
7. FINISH: ANODIZE PER MIL-M-45202 TYPE I, CLASS C
8. TAP HOLE AFTER ANODIZE. COAT PER ND1002040



2004045 A

REVISIONS 17263

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



2 PLACES
.050
X
6 PLACES
45°
30°
F1
F2
F3
F4
F5
F6
F7
F8
F9
E14
E15
E16
SECTION A-A
.160
.225
9.725
9.720
68 SPACES AT .125 BSC = 8.500 BSC
9.426
.072
.075 DIA THRU
138 HOLES
⊕ .004 DIA
.156 R
2 PLACES
⊕ .005 DIA
.203 DIA
2 HOLES
⊕ .005 DIA
.375 2 PLACES
.258
.254 2 PLACES
.321
.053
.106
R
DIA
.217
.221
.060
5 PLACES
DETAIL A
DETAIL B

MASTER

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± ——
DECIMALS ±.005
ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

NEXT ASSY	USED ON
2003028	

APPLICATION

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN W.F. Tracy 8/10/65
CHECKED [illegible]
APPROVED [illegible]
APPROVED [illegible]
APPROVED MIT [illegible] 3-9-65
APPROVED MSC [illegible] 3/8/65
DATE

HEADER HOUSING
STRAND SELECT MODULE

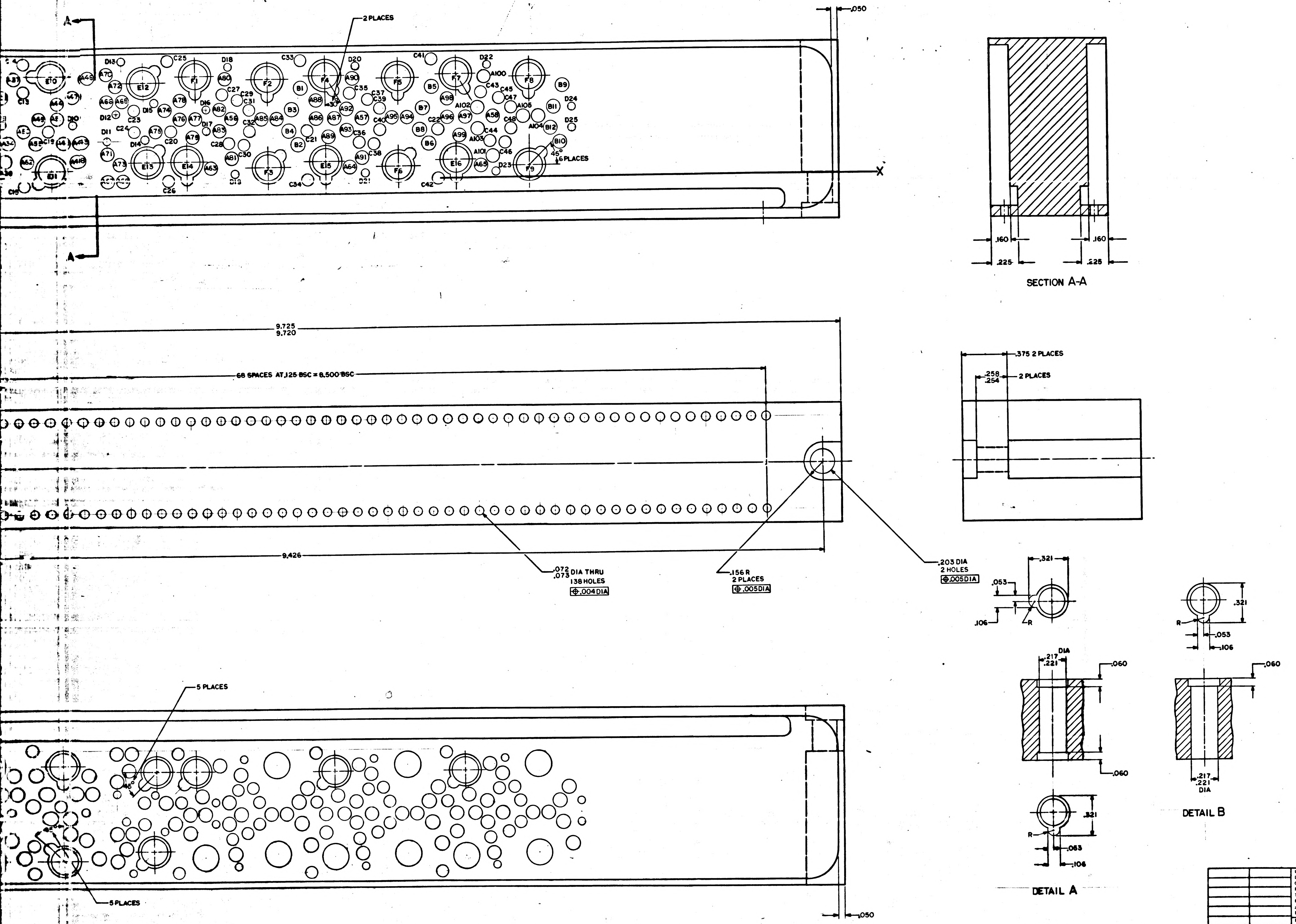
CODE IDENT NO. ——
SIZE J
DRAWING NO. 2004045
SCALE 4/1
SHEET 1 OF 1

2004045

3H

F-3

SYM	ZONE	REVISIONS DESCRIPTION	BY	CHK	DATE	APPROVED



A
A
2 PLACES
.050
X
E10
E11
E12
E13
E14
E15
E16
F1
F2
F3
F4
F5
F6
F7
F8
F9
45°
6 PLACES
.160
.225
SECTION A-A
9.725
9.720
68 SPACES AT .125 BSC = 8.500 BSC
9.426
.072
.073 DIA THRU
138 HOLES
⌖ .004 DIA
.156 R
2 PLACES
⌖ .005 DIA
.203 DIA
2 HOLES
⌖ .005 DIA
.375 2 PLACES
.258
.254 2 PLACES
.321
.053
.106
R
DIA
.217
.221
.060
DETAIL A
DETAIL B
5 PLACES
5 PLACES
.050

2004045

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003028	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ±.005 ANGLES ±1/2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	W.F. Troy	2/10/65
CHECKED		2/5/65
APPROVED		3/2/65
APPROVED		3 March 65
APPROVED MIT		3-9-65
APPROVED MSC		4/8/65

HEADER HOUSING
STRAND SELECT MODULE

CODE IDENT NO. ——
SIZE J
DRAWING NO. 2004045
SCALE 4/1
SHEET OF

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

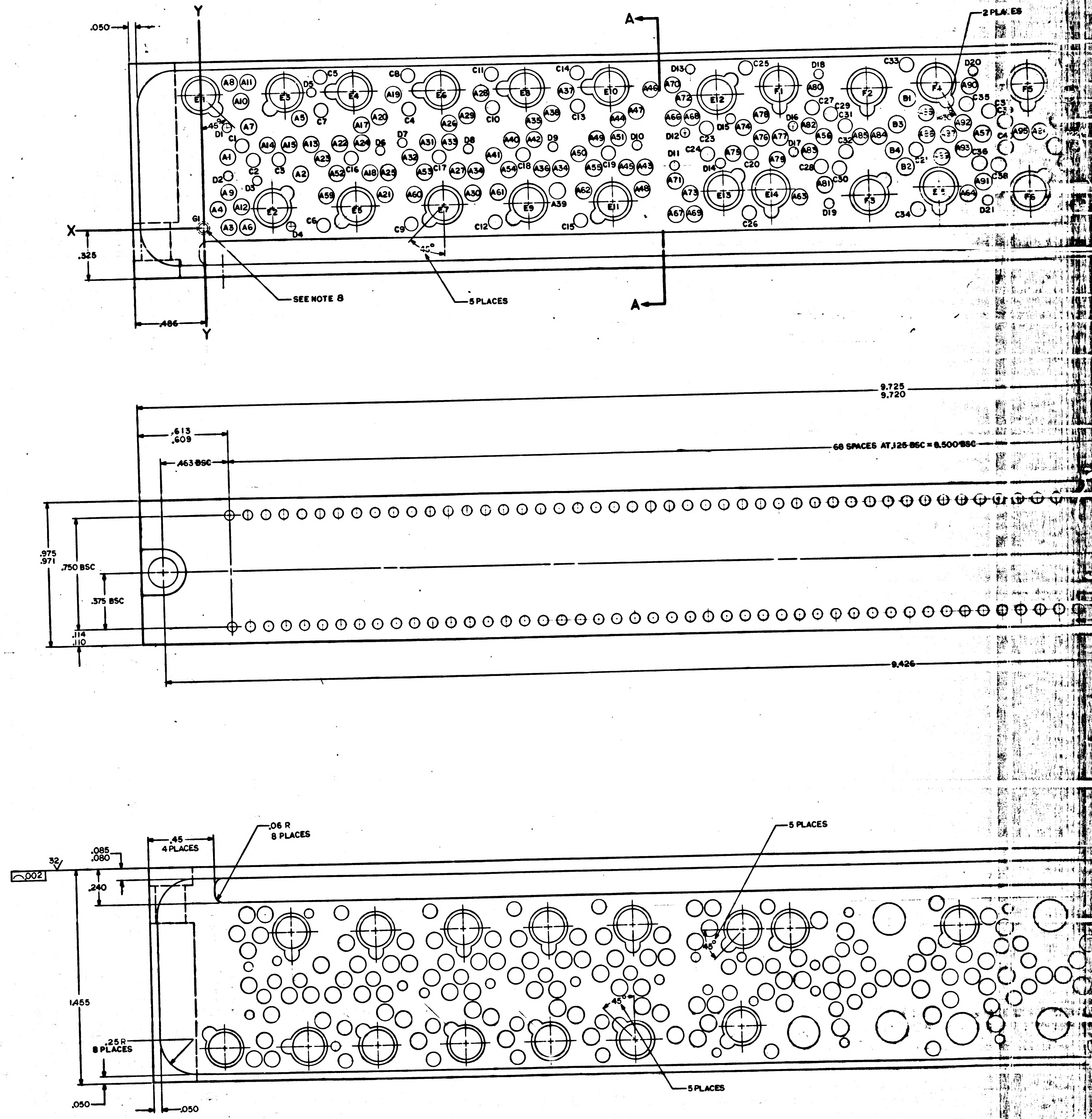
HOLE IDENT	X DIM	Y DIM	HOLE DIA	QTY
A1	.175	.475	.100 .104	96
A2	.675	.350		
A3	.175	.000		
A4	.100	.125		
A5	.675	.725		
A6	.300	.000		
A7	.325	.675		
A8	.200	.975		
A9	.175	.237		
A10	.275	.850		
A11	.325	.975		
A12	.262	.137		
A13	.750	.550		
A14	.450	.550		
A15	.600	.550		
A16	1.275	.350		
A17	1.100	.675		
A18	1.150	.350		
A19	1.325	.875		
A20	1.225	.725		
A21	1.250	.200		
A22	.950	.550		
A23	.825	.450		
A24	1.100	.550		
A25	1.875	.350		
A26	1.700	.675		
A27	1.750	.350		
A28	1.925	.875		
A29	1.825	.725		
A30	1.850	.200		
A31	1.550	.550		
A32	1.425	.450		
A33	1.700	.550		
A34	2.450	.350		
A35	2.275	.675		
A36	2.325	.350		
A37	2.500	.875		
A38	2.400	.725		
A39	2.425	.200		
A40	2.125	.550		
A41	2.000	.450		
A42	2.275	.550		
A43	3.025	.350		
A44	2.850	.675		
A45	2.900	.350		
A46	3.075	.875		
A47	2.975	.725		
A48	3.000	.200		
A49	2.700	.550		
A50	2.575	.450		
A51	2.850	.550		
A52	.925	.350		
A53	1.525	.350		
A54	2.100	.350		
A55	2.675	.350		
A56	4.250	.525		
A57	5.325	.525		
A58	6.400	.525		
A59	.850	.200		
A60	1.450	.200		
A61	2.025	.200		
A62	2.600	.200		
A63	4.075	.125		
A64	5.225	.125		
A65	6.300	.125		
A66	3.225	.675		
A67	3.225	.025		
A68	3.350	.675		
A69	3.350	.025		
A70	3.225	.900		
A71	3.225	.250		
A72	3.300	.800		
A73	3.325	.162		
A74	3.700	.600		
A75	3.625	.425		
A76	3.825	.525		
A77	3.950	.525		
A78	3.825	.675		
A79	3.925	.375		
A80	4.200	.850		
A81	4.250	.200		
A82	4.150	.600		
A83	4.150	.425		
A84	4.625	.525		
A85	4.500	.525		
A86	4.950	.525		
A87	5.100	.525		
A88	4.950	.675		
A89	5.050	.375		
A90	5.250	.850		
A91	5.325	.200		
A92	5.200	.600		
A93	5.200	.425		
A94	5.700	.525		
A95	5.575	.525		
A96	6.025	.525		

HOLE IDENT	X DIM	Y DIM	HOLE DIA	QTY
A97	6.175	.525	.100 .104	9
A98	6.025	.675		
A99	6.125	.375		
A100	6.325	.850		
A101	6.400	.200		
A102	6.275	.600		
A103	6.275	.425		
A104	6.775	.525		
A105	6.650	.525		
B1	4.825	.775	.108 .112	12
B2	4.800	.312		
B3	4.750	.600		
B4	4.725	.425		
B5	5.900	.775		
B6	5.875	.312		
B7	5.825	.600		
B8	5.800	.425		
B9	6.975	.775		
B10	6.950	.312		
B11	6.900	.600		
B12	6.875	.425		
C1	.275	.550	.068 .092	48
C2	.350	.450		
C3	.525	.450		
C4	.825	.775		
C5	.825	1.000		
C6	.825	.000		
C7	1.425	.775		
C8	1.425	1.000		
C9	1.425	.000		
C10	2.000	.775		
C11	2.000	1.000		
C12	2.000	.000		
C13	2.575	.775		
C14	2.575	1.000		
C15	2.575	.000		
C16	1.025	.450		
C17	1.625	.450		
C18	2.200	.450		
C19	2.775	.450		
C20	3.750	.425		
C21	4.875	.425		
C22	5.950	.425		
C23	3.450	.600		
C24	3.450	.425		
C25	3.725	1.000		
C26	3.725	.025		
C27	4.175	.725		
C28	4.225	.325		
C29	4.300	.675		
C30	4.350	.312		
C31	4.400	.600		
C32	4.400	.425		
C33	4.825	1.000		
C34	4.875	.025		
C35	5.225	.725		
C36	5.300	.325		
C37	5.375	.675		
C38	5.425	.312		
C39	5.475	.600		
C40	5.475	.425		
C41	5.900	1.000		
C42	5.950	.025		
C43	6.300	.725		
C44	6.375	.325		
C45	6.450	.675		
C46	6.500	.312		
C47	6.550	.600		
C48	6.550	.425		
D1	.175	.675	.058 .062	15
D2	.175	.350		
D3	.375	.312		
D4	.600	.000		
D5	.762	.900		
D6	1.225	.500		
D7	1.375	.550		
D8	1.825	.500		
D9	2.400	.500		
D10	2.975	.500		
D11	3.225	.355		
D12	3.300	.575		
D13	3.350	1.000		
D14	3.537	.362		
D15	3.612	.662		

HOLE IDENT	X DIM	Y DIM	HOLE DIA	QTY
D16	4.037	.600	.058 .062	10
D17	4.037	.425		
D18	4.225	.950		
D19	4.275	.075		
D20	5.275	.950		
D21	5.350	.075		
D22	6.350	.950		
D23	6.425	.075		
D24	7.050	.600		
D25	7.050	.425		
E1	.000	.900	SEE DETAIL A	14
E2	.475	.125		
E3	.575	.900		
E4	1.050	.900		
E5	1.050	.125		
E6	1.650	.900		
E7	1.650	.125		
E8	2.225	.900		
E9	2.225	.125		
E10	2.800	.900		
E11	2.800	.125		
E12	3.525	.825		
E13	3.550	.175		
E14	3.875	.175		
E15	5.025	.175		
E16	6.100	.175		
F1	3.950	.875	SEE DETAIL B	9
F2	4.550	.850		
F3	4.550	.125		
F4	5.025	.875		
F5	5.625	.850		
F6	5.625	.125		
F7	6.100	.875		
F8	6.700	.850		
F9	6.700	.125		
G1	.000	.000	NO 2-56 UNC-2B .19 DP	1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: MAGNESIUM ALLOY ZK-60A-T5 PER QQ-M-31
3. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII .010 MAX
4. UNLESS OTHERWISE SPECIFIED $\overset{125}{\vee}$ ALL OVER
5. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
6. REMOVE ALL BURRS AND BREAK SHARP EDGES .005-.015
7. FINISH: ANODIZE PER MIL-M-45202 TYPE I, CLASS C
8. TAP HOLE AFTER ANODIZE. COAT PER ND1002040

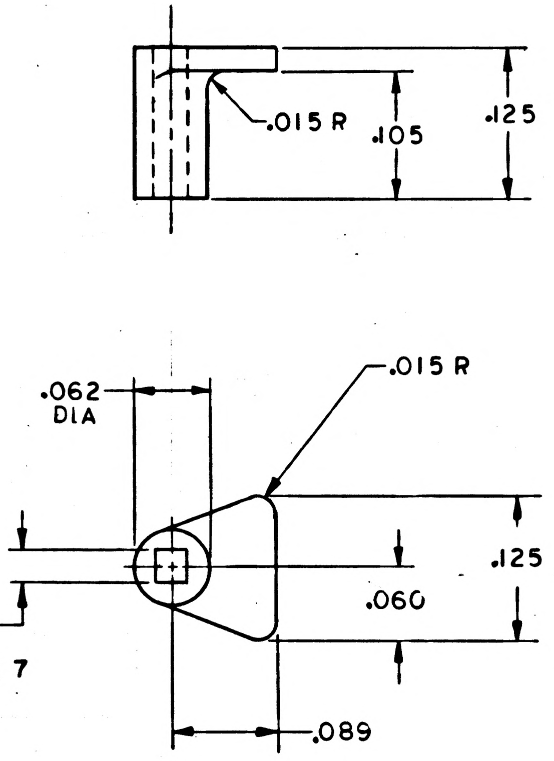


2004045

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATL ABS THERMO PLASTIC (GENERAL PURPOSE MOLDING GRADE) COLOR-YELLOW PER MIL-M-22544 TYPE I
3. ALL SURFACES 63/ UNLESS OTHERWISE SPECIFIED
4. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .005 MAX
5. REMOVE BURRS AND SHARP EDGES .005 MAX
6. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
7. SQUARE SHAFT OF DWG NO. 2004066 TO MATCH SQUARE HOLE (LIGHT INTERFERENCE FIT .0000/.0006) IN DWG NO. 2004047

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003049	
2003040	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	J. Q. Zaffini	14MAY65
CHECKED		21MAY65
APPROVED		27MAY65
APPROVED	Eldon C Hall	2Jun65
APPROVED MIT		Jun65
APPROVED MSC		6/8/65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

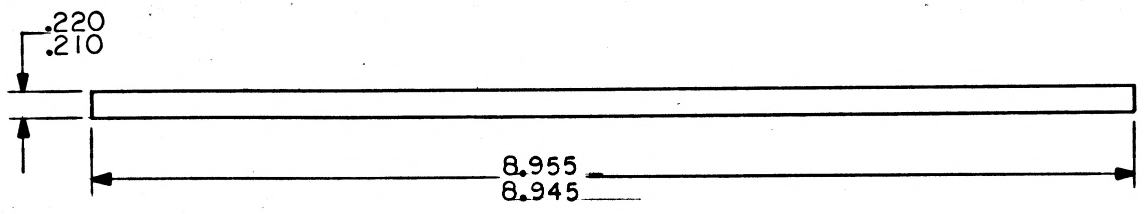
FINGER WRAPOST, FEMALE
FIXED MEMORY MODULE

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004047
SCALE 10/1
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17475

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: PER ND (PRE-PREG)
3. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003030	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Ed Mahoney 17FEB65
CHECKED 15Mar65
APPROVED 15Mar65
APPROVED Eldon C Hall 17Mar65
3/17/65
APPROVED MIT W Kupfer
APPROVED MSC 3/18/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

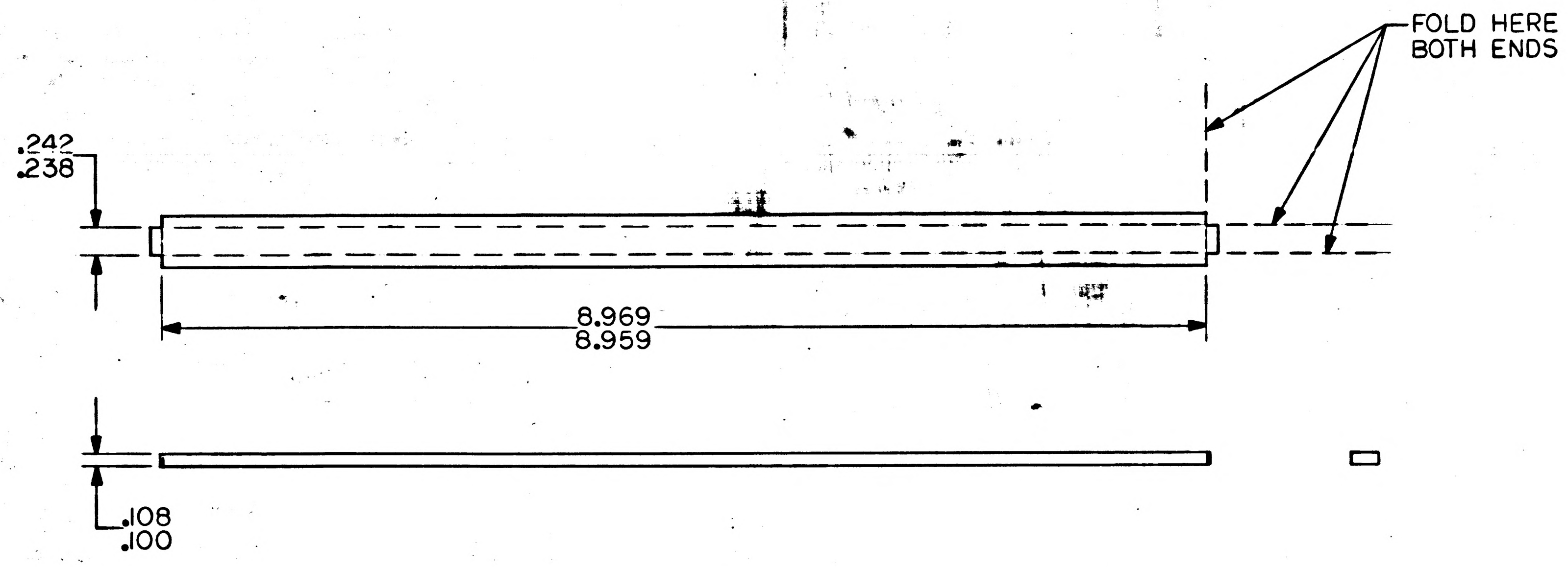
SHIM
MATRIX ASSEMBLY

CODE IENT NO. ——
SIZE C
DRAWING NO. 2004049
SCALE 1/1
SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17475

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: PER ND (PRE-PREG)
3. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003030	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

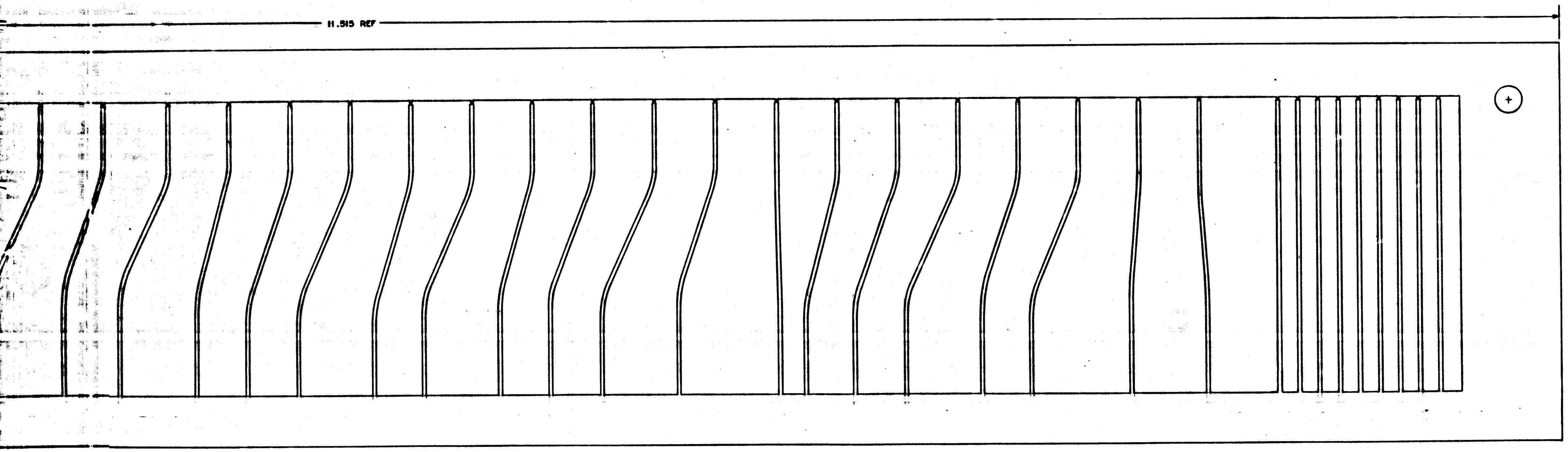
DRAWN H. Mahoney 17FEB65
CHECKED 15MAR65
APPROVED 15Mar65
APPROVED Eldon C Hall 17Mar65
3/17/65
APPROVED MIT 17Mar65
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

ENVELOPE
MATRIX ASSEMBLY

CODE IDENT NO. —
SIZE C
DRAWING NO. 2004050
SCALE 1/1
SHEET 1 OF 1

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 17743	JM		3-24-66	



REF:
DWG NO. 2004006 FOR PHOTOGRAPHIC MASTER

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003016	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN Ed Powers 23Feb65
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC 3/9/65
DATE

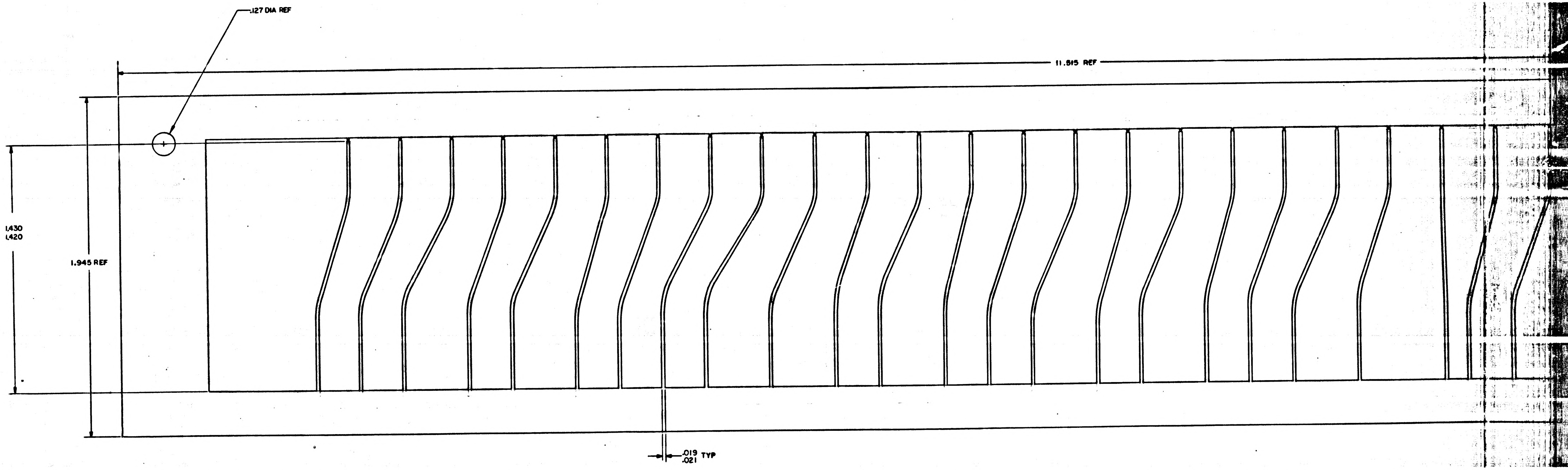
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CONNECTOR A
LOGIC MODULE

CODE IDENT NO. —
SIZE J
NASA DRAWING NO. 2004051
SCALE 5/1
SHEET 1 OF 1

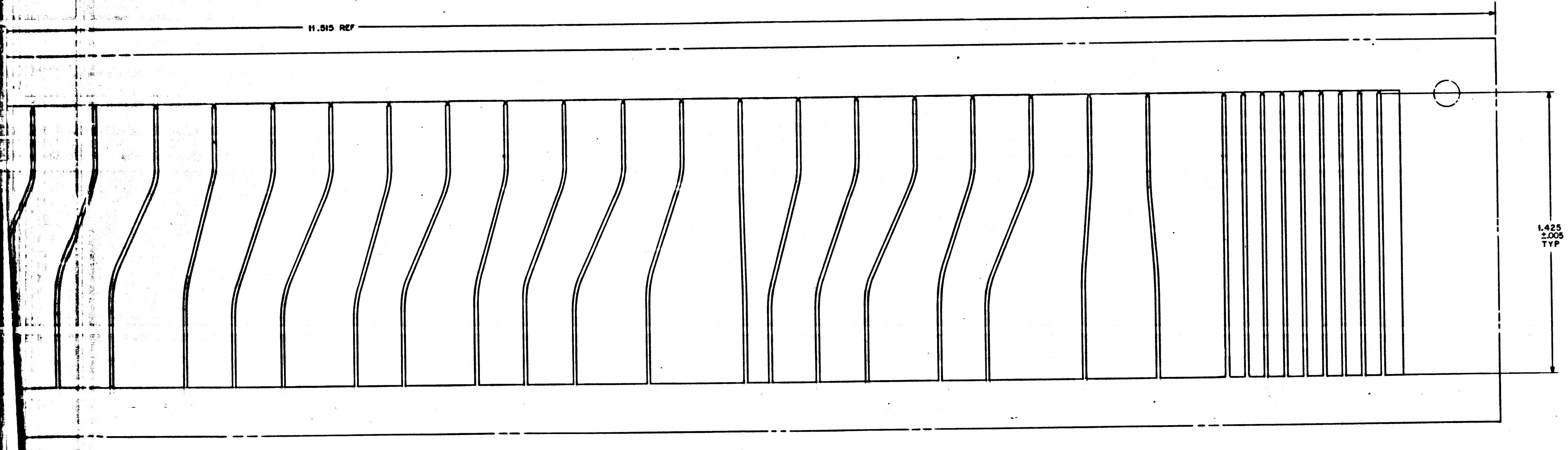
2004051 A

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.



NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL:.003 THICK NICKEL PER MIL-N-46209
3. ETCH PART AS SHOWN PER ND
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND 1002019

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



REF:
DWG NO. 2004006 FOR PHOTOGRAPHIC MASTER

2H

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003016	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN	Ed. Parsons	23Feb65
CHECKED	[illegible]	[illegible]
APPROVED	[illegible]	[illegible]
APPROVED	[illegible]	[illegible]
APPROVED MIT	McWheeler	3-9-65
APPROVED MSC	[illegible]	3/9/65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

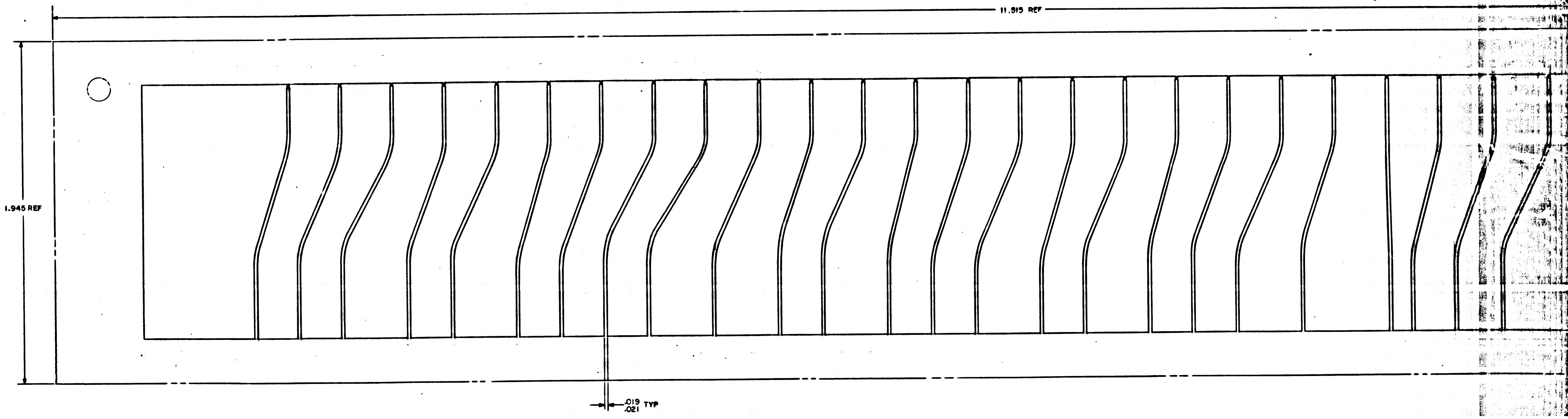
CONNECTOR A
LOGIC MODULE

CODE IDENT NO.	SIZE	NASA DRAWING NO.
—	J	2004051

SCALE 5/1 SHEET OF

MASTER

2004051

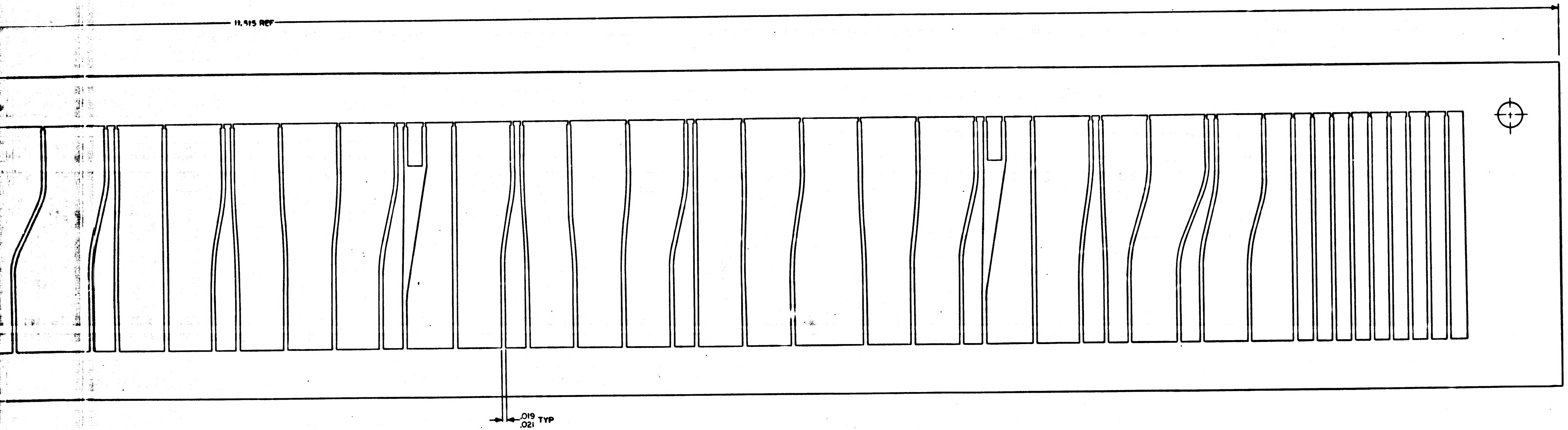

11.515 REF
1.945 REF
.019
.021 TYP

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL:.003 THICK NICKEL PER PS 1015400
3. ETCH PART AS SHOWN PER ND
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND 1002019

2004051

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 17743	JM		3-24-65	



REF:
DWG NO. 2004035 FOR PHOTOGRAPHIC MASTER

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

NEXT ASSY	USED ON
2003017	
APPLICATION	

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED
APPROVED 8 Mar 65
APPROVED
APPROVED MIT 3-9-65
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CONNECTOR B
LOGIC MODULE

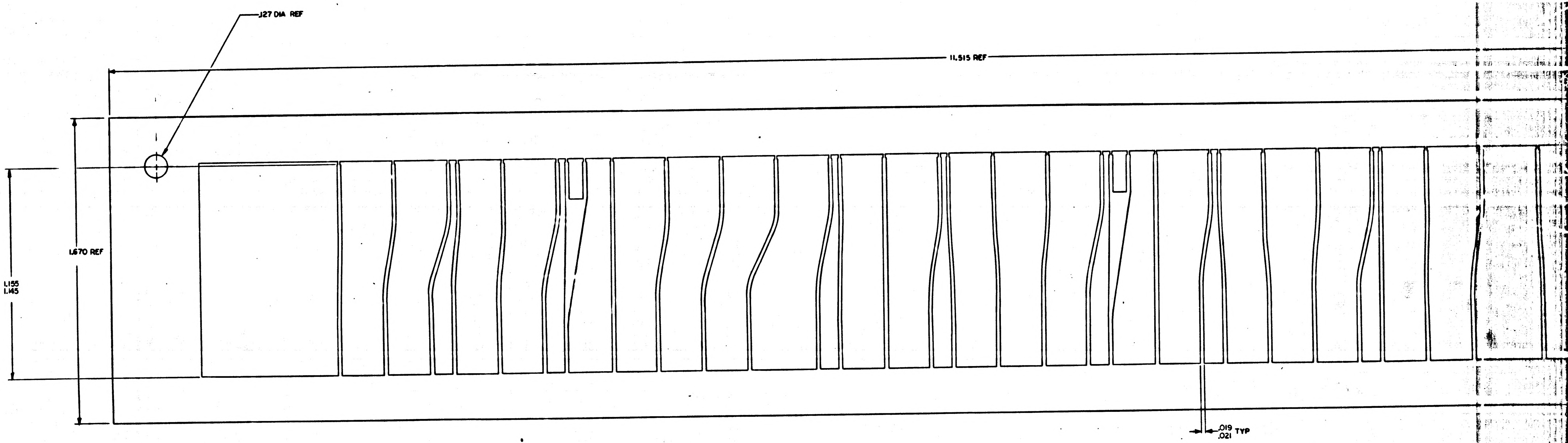
CODE IDENT NO. ——
SIZE J
DRAWING NO. 2004052
SCALE 5/1
SHEET 1 OF 1

2004052 A

3A

F-2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

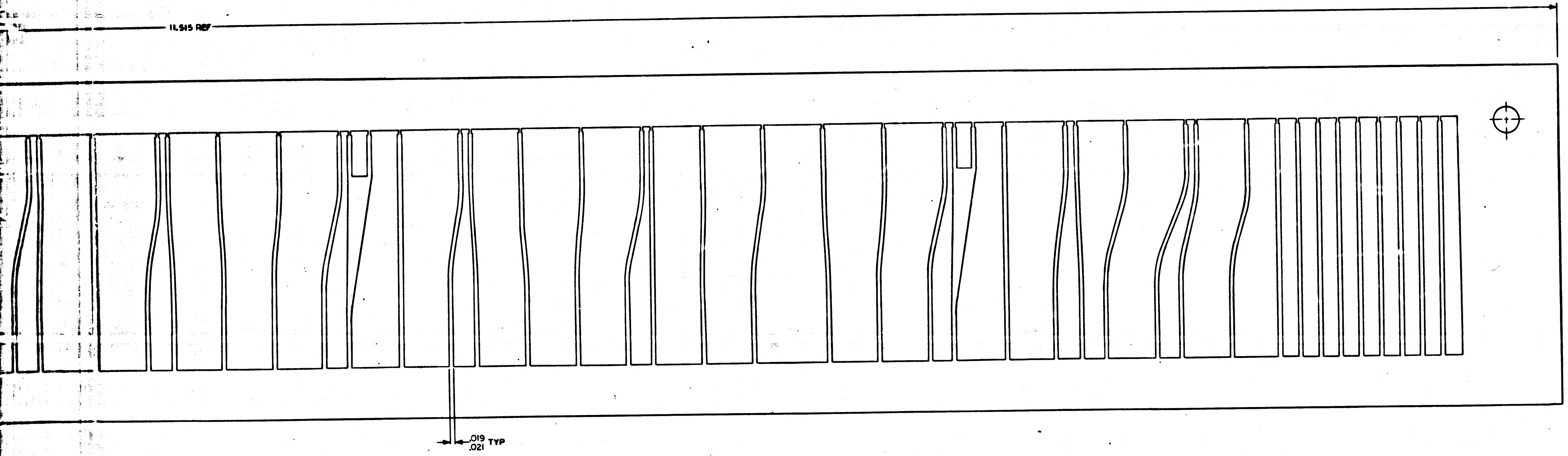


NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: .003 THICK NICKEL PER MIL-N-46025
3. ETCH PART AS SHOWN PER ND
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

JH

2004052	A

REVISIONS 1726						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



REF:
DWG NO.2004035 FOR PHOTOGRAPHIC MASTER

A 2A

2004052

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003017	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± —— ± —— ± ——
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN		10 FEB 65
CHECKED		4 Mar 65
APPROVED		7 Mr 65
APPROVED		7 March 65
APPROVED MIT		3-9-65
APPROVED NSC		3/5/65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

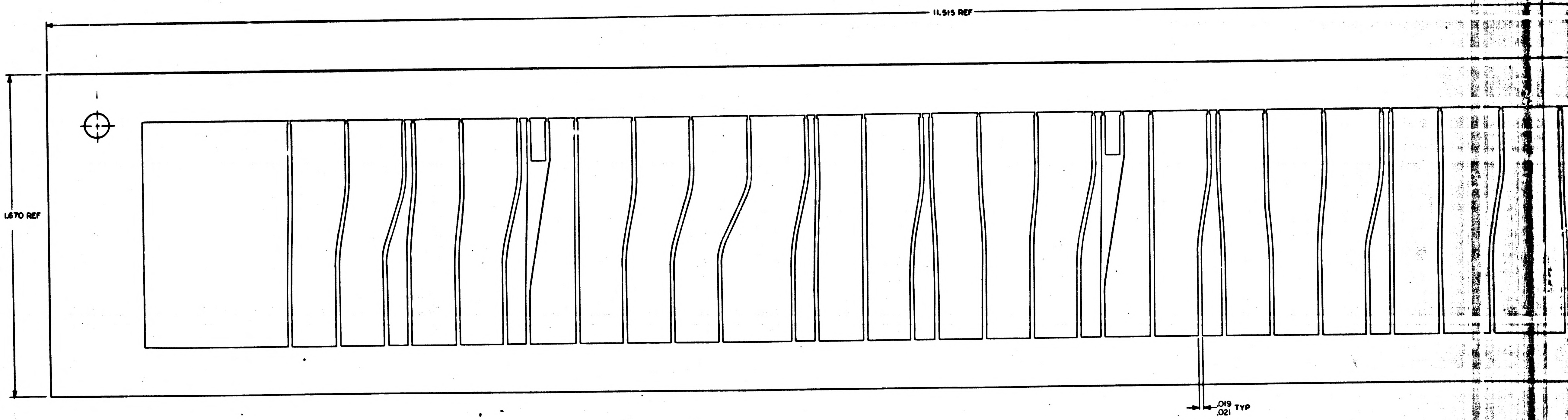
CONNECTOR B
LOGIC MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
——	J	2004052
SCALE 5/1		SHEET 1 OF 1

2004052

F-2

NOTICE -- WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

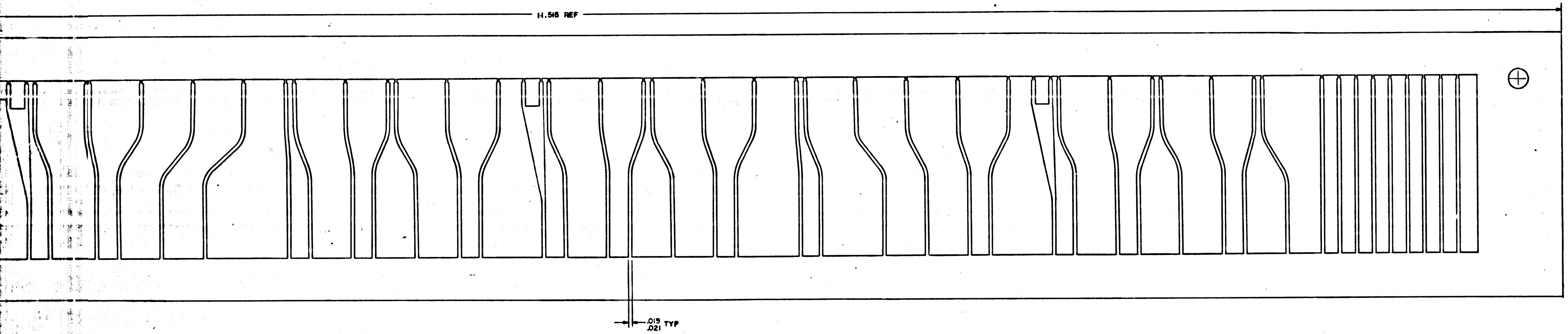


NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: .003 THICK NICKEL PER PS 1015400
3. ETCH PART AS SHOWN PER ND
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

3H

2004052

REVISIONS 17261						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 17743	JM		32465	



REF:
DWG NO. 2004036 FOR PHOTOGRAPHIC MASTER

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003018	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

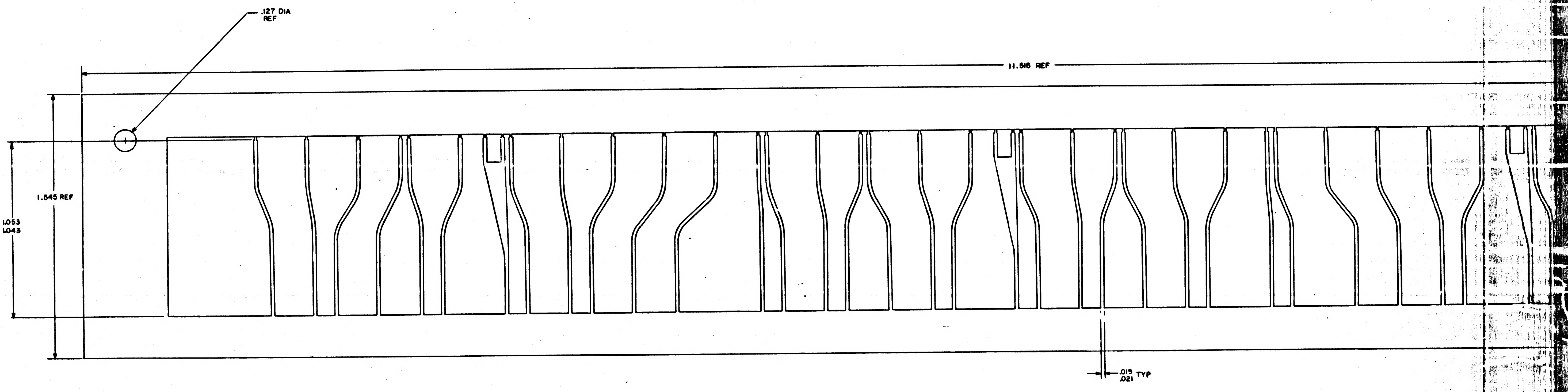
DRAWN
CHECKED
APPROVED
APPROVED Elden C Hall
APPROVED MIT 3-9-65
APPROVED MSC
DATE

CONNECTOR C
LOGIC MODULE

CODE IDENT NO. —
SIZE J
NASA DRAWING NO. 2004053
SCALE 5/1
SHEET OF

2004053 A

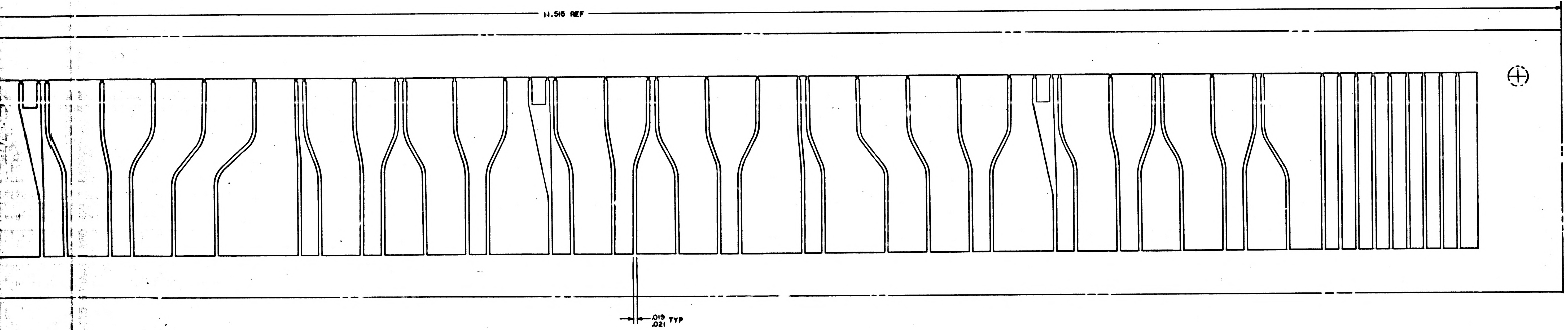
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.



NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL–D–70327
2. MATERIAL: .003 THICK NICKEL PER MIL-N-46025
3. ETCH PART AS SHOWN PER ND
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED



REF:
DWG NO. 2004036 FOR PHOTOGRAPHIC MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003018	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN
CHECKED
APPROVED
APPROVED Eldon C Hall
APPROVED MIT 3-9-65
APPROVED MSC
DATE

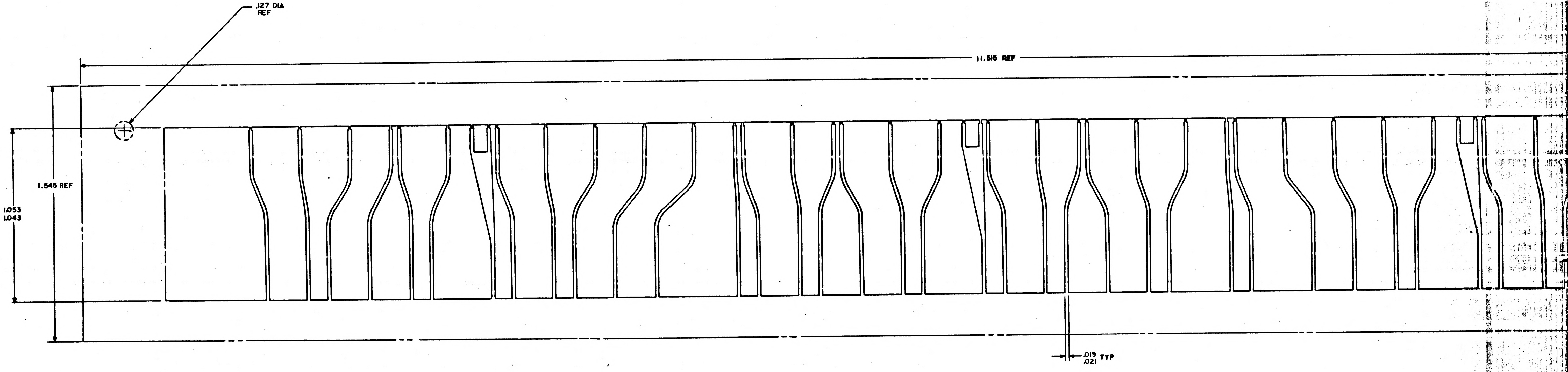
CONNECTOR C
LOGIC MODULE

CODE IDENT NO. —
SIZE J
NASA DRAWING NO. 2004053
SCALE 5/1
SHEET 1 OF 1

MASTER

2004053

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.



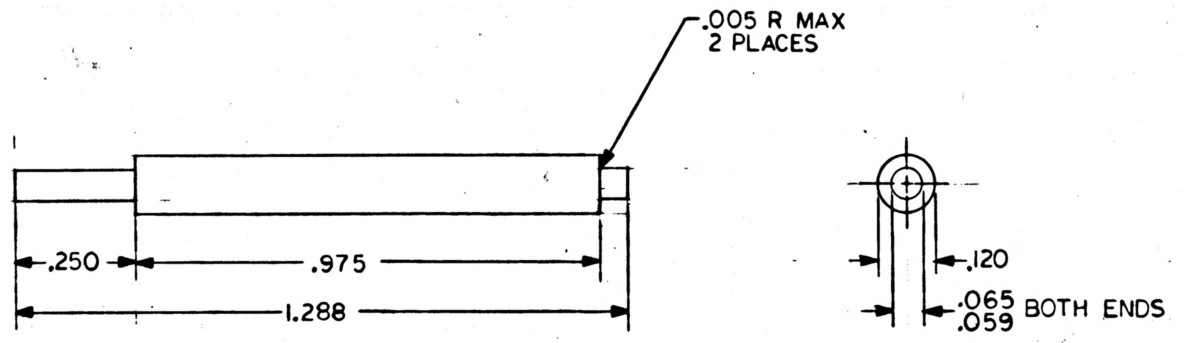
NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL–D–70327
2. MATERIAL: .003 THICK NICKEL PER PS 1015400
3. ETCH PART AS SHOWN PER ND
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004054

REVISIONS 19758

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: ROD GLASS EPOXY PER 1010692-5 TYPE GEE
3. IDENTIFY PER ND1002019
4. BREAK SHARP EDGES

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003029	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

		DATE
DRAWN	Louis S. Hood	25 Feb. 65
CHECKED		25 Feb 65
APPROVED	M. McKinley	25 Feb 65
APPROVED	Ellen C Hall	1 June 65
APPROVED MIT	M.G. Murley	6-2-65
APPROVED MSC		6-2-65

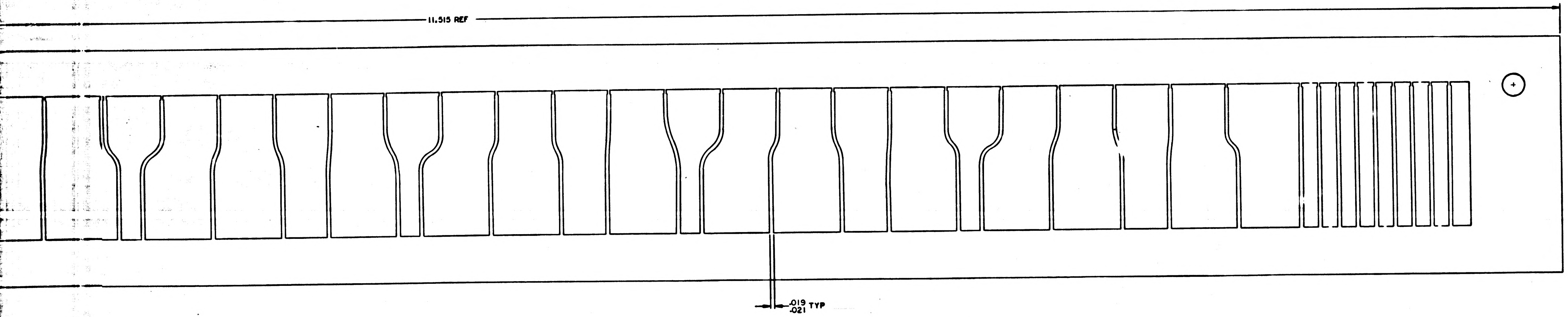
SPACER, INSULATED
AGC POWER SUPPLY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004054

SCALE 4/1 SHEET 1 OF 1

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 17743	JM		32464	



REF:
DWG NO. 2004037 FOR PHOTOGRAPHIC MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003019	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ± —— ANGLES ± ——
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
CHECKED
APPROVED
APPROVED Eldon C Hall
APPROVED MIT 3-9-65
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

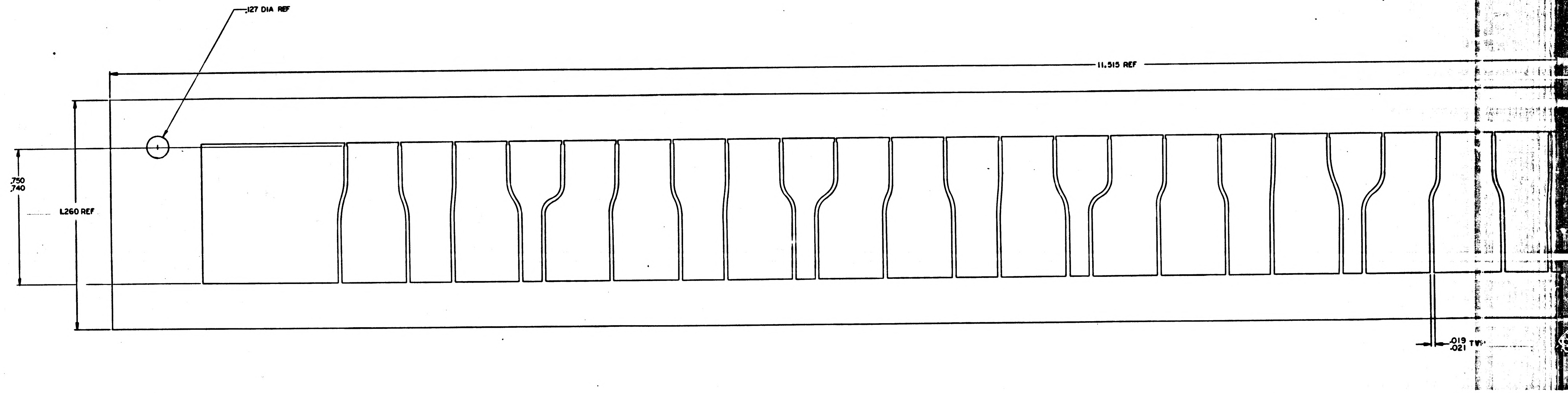
CONNECTOR D
LOGIC MODULE

CODE IDENT NO.	SIZE	NASA DRAWING NO.
——	J	2004055

SCALE 5/1
SHEET 1

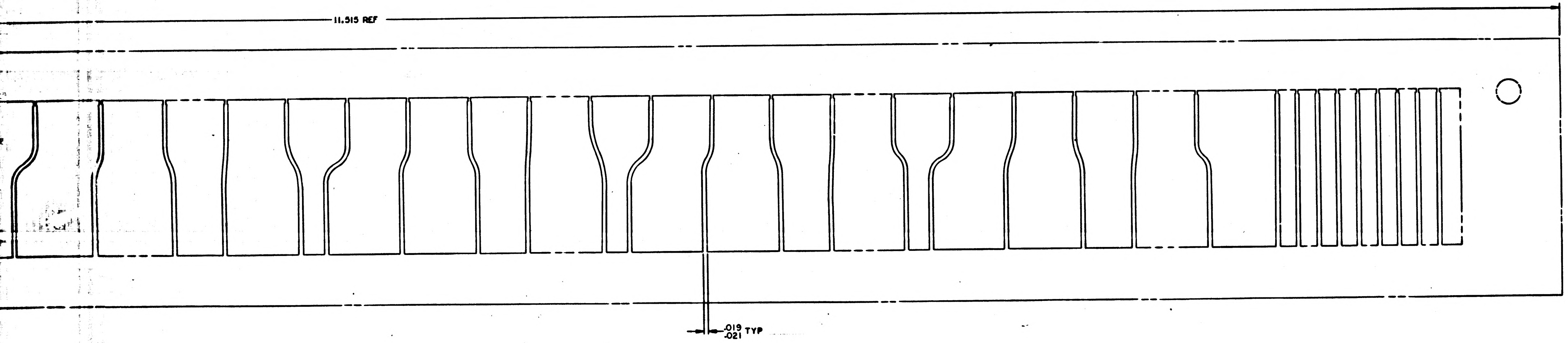
2004055 A

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.



NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: .003 THICK NICKEL PER MIL-N-46025
3. ETCH PART AS SHOWN PER ND
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND 1002019

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



REF:
DWG NO. 2004037 FOR PHOTOGRAPHIC MASTER

2004055

2M

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003019	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

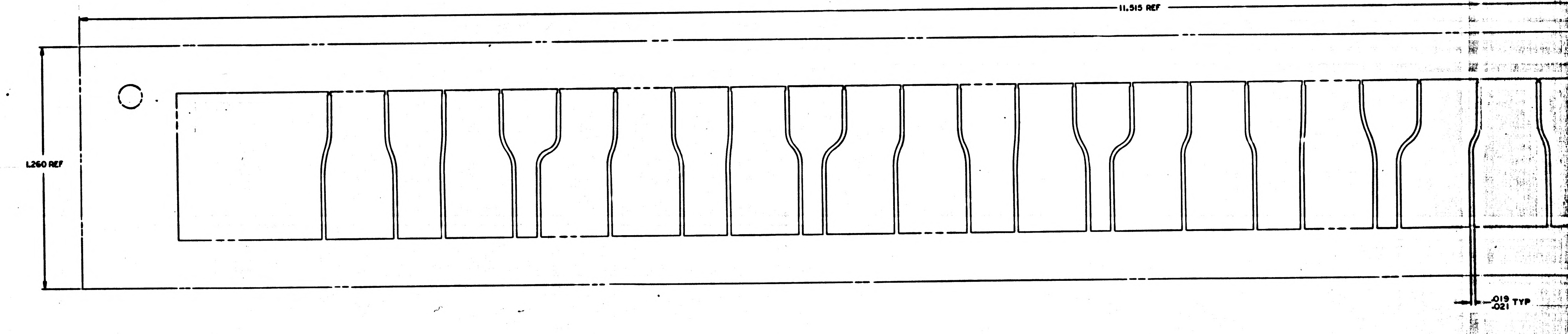
DRAWN		25 FEB 65
CHECKED		1 Mar 65
APPROVED		8 Mar 65
APPROVED	Eldon C. Hall	
APPROVED MIT		3-9-65
APPROVED MSC		
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CONNECTOR D
LOGIC MODULE

CODE IDENT NO.	SIZE	NASA DRAWING NO.
—	J	2004055
SCALE 5/1		SHEET 1 OF 1

NOTICE – [illegible]

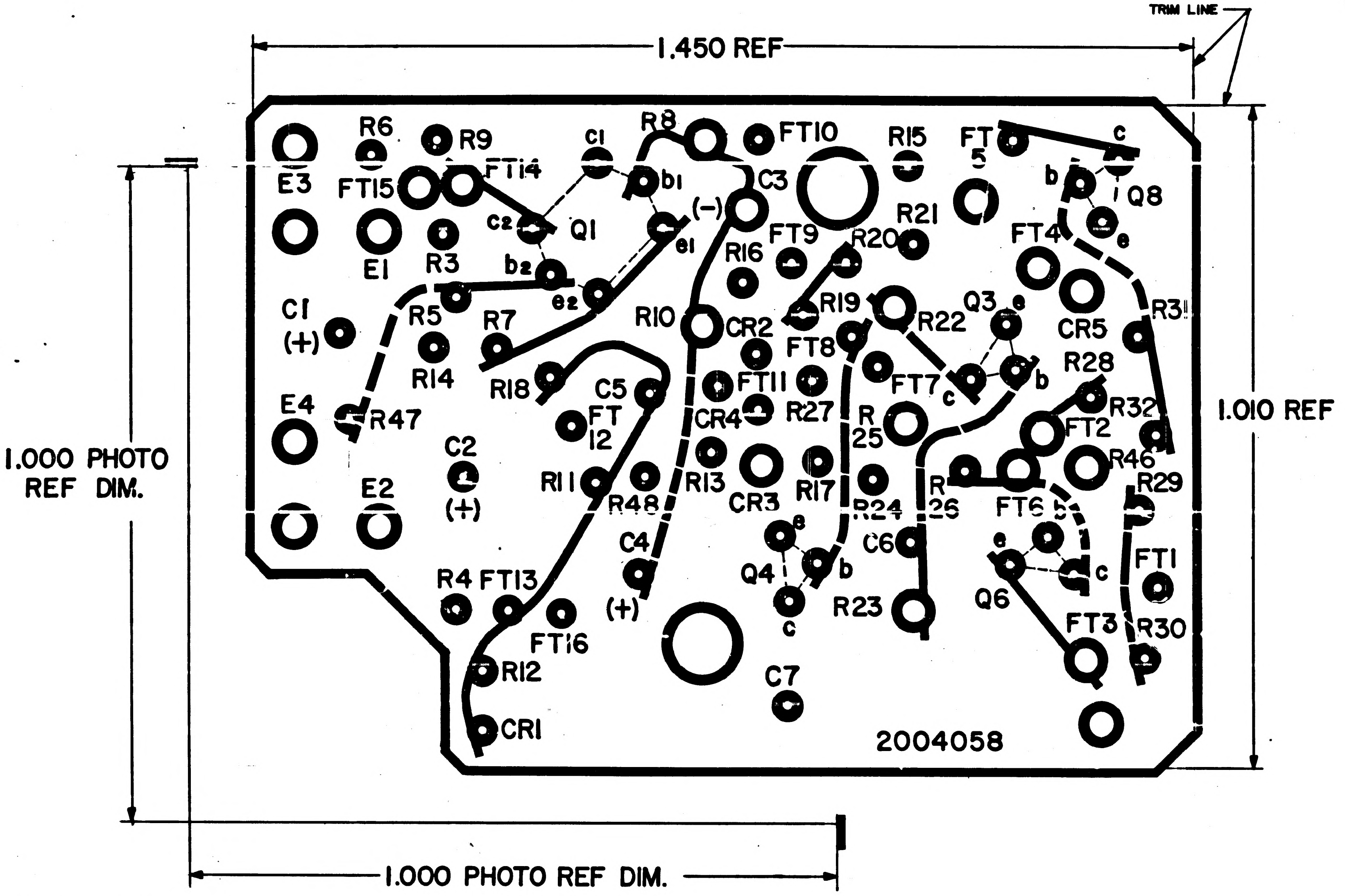

11.515 REF
1.260 REF
.019
.021 TYP

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: .003 THICK NICKEL PER PS 1015400
3. ETCH PART AS SHOWN PER ND
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND 1002019

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OPLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19758

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20951	KCH	DDK	9 AUG 65	


TRIM LINE
1.450 REF
1.010 REF
1.000 PHOTO REF DIM.
1.000 PHOTO REF DIM.
E3
R6
R9
FT14
C1
R8
FT10
C3
R15
FT 5
c
b
Q8
e
FT15
b1
Q1
c2
(–)
e1
b2
e2
E1
R3
R16
FT9
R20
R21
FT4
C1 (+)
R5
R7
R10
CR2
R19
R22
Q3
e
CR5
R31
R14
R18
FT11
FT8
FT7
c
b
R28
E4
R47
C5
FT 12
CR4
R27
R 25
R32
FT2
C2 (+)
R11
R48
R13
CR3
R17
R24
R 26
R46
R29
E2
FT6
b
e
c
C4 (+)
e
C6
b
Q4
c
Q6
FT1
R4
FT13
FT16
R23
FT3
R30
R12
C7
CR1
2004058

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
3. MAKE MASTER PATTERN POSITIVE FILM TO DIMENSIONS SHOWN
4. CUT TO WITHIN .010 OF TRIM LINE

MASTER

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN Louis A Case
CHECKED A. Lindstrom 26 May 65
APPROVED J. M. McGinty 26 MAY 65
APPROVED Ellen C. Hall 1 June 65
APPROVED MIT 6-2-65
APPROVED MSC 6-2-65
DATE

PHOTOGRAPHIC MASTER WIRING BOARD (TOP)
CONTROL CIRCUIT

CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2004056

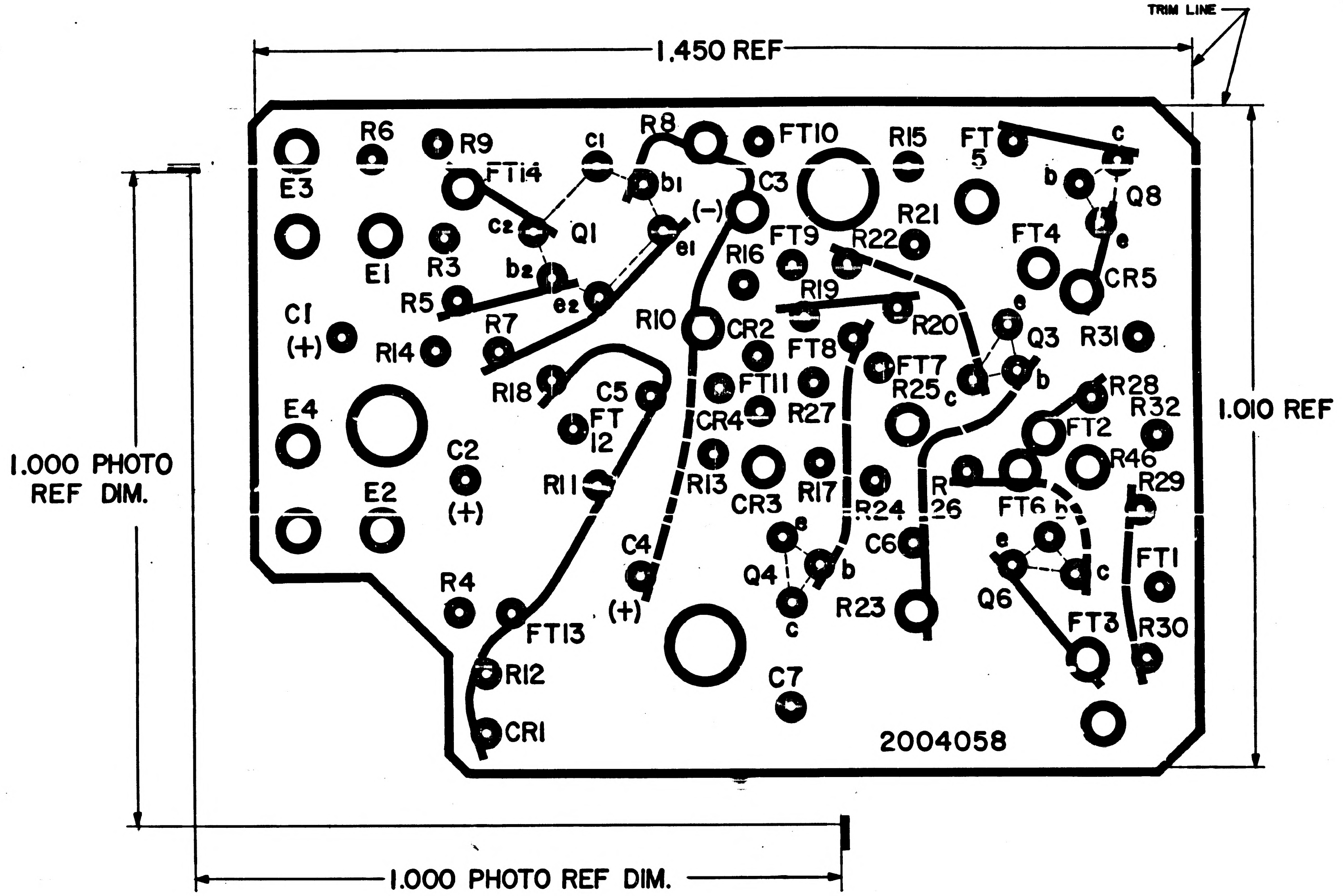
SCALE 10/1 —— SHEET 1 OF 1

2004056 A

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19758

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED


TRIM LINE
1.450 REF
1.010 REF
1.000 PHOTO REF DIM.
1.000 PHOTO REF DIM.
E3
R6
R9
FT14
c1
R8
FT10
R15
FT 5
c
b
Q8
e
b1
C3
(–)
c2
Q1
e1
R21
E1
R3
b2
FT9
R22
FT4
R16
CR5
R5
e2
R19
R10
R20
e
Q3
R31
C1 (+)
R14
R7
CR2
FT8
FT7
R25
c
b
R28
R32
R18
C5
FT11
E4
FT 12
CR4
R27
FT2
R46
C2 (+)
R11
R13
CR3
R17
R24
R 26
FT6
b
R29
E2
e
e
C4 (+)
Q4
b
C6
c
Q6
FT1
R4
c
R23
FT3
R30
FT13
R12
C7
CR1
2004058

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
3. MAKE MASTER PATTERN POSITIVE FILM TO DIMENSIONS SHOWN
4. CUT TO WITHIN .010 OF TRIM LINE

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Lois A Cone Apr 1 65
CHECKED A. Lindstrom 26 May 65
APPROVED J.W. McGinty 26 May 65
APPROVED Ellen C Hall 1 June 65
APPROVED MIT M.G. Murley 6-2-65
APPROVED MSC 6-2-65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

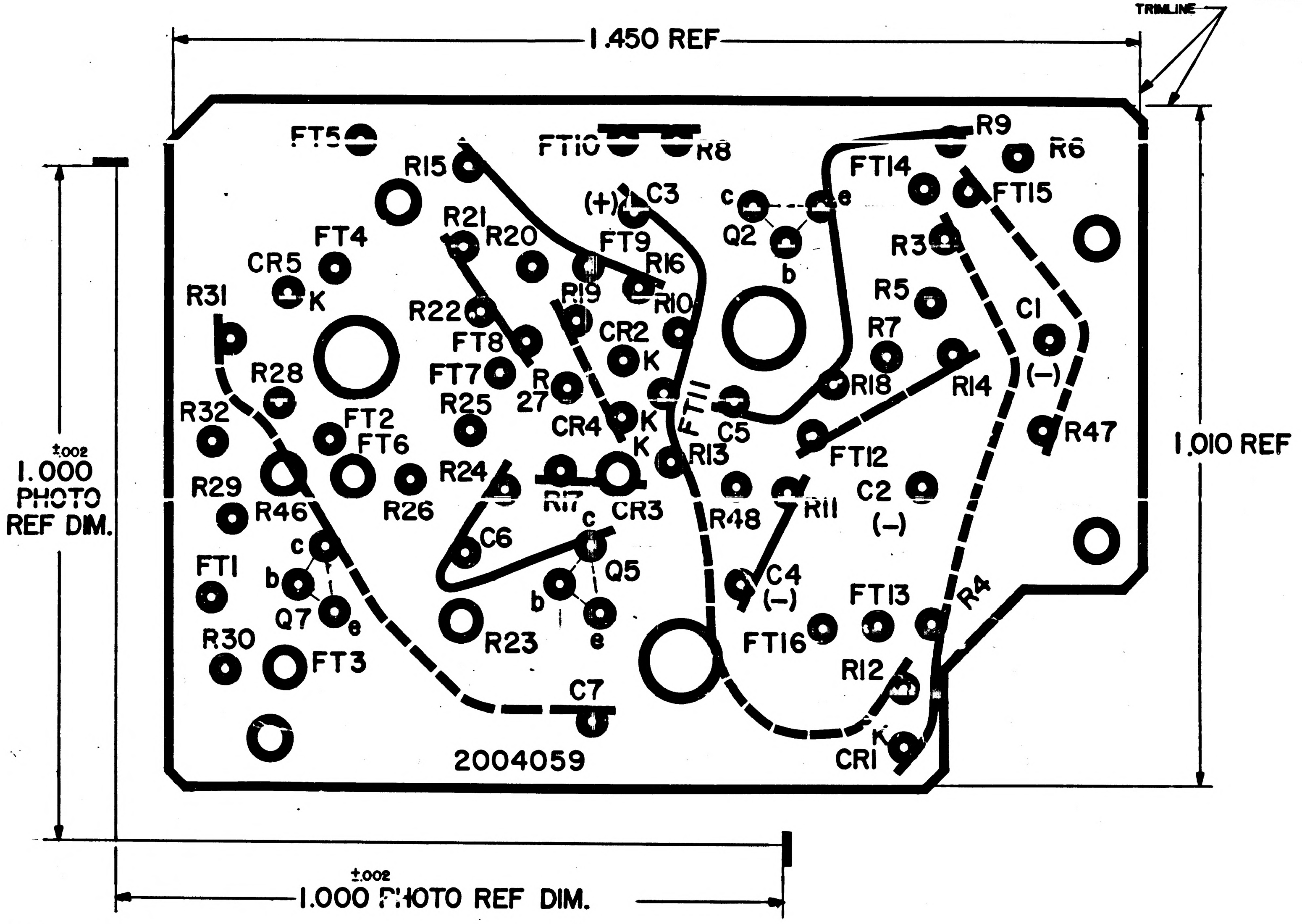
PHOTOGRAPHIC MASTER
WIRING BOARD (TOP)
CONTROL CIRCUIT

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2004056
SCALE 10/1
SHEET 1 OF 1

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19758

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20951	KCH	EPK	9/4/65	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1.450 REF
1.010 REF
±.002
1.000
PHOTO
REF DIM.
±.002
1.000 PHOTO REF DIM.
FT5
FT10
R8
R15
(+)
C3
c
e
Q2
b
R9
R6
FT14
FT15
R21
R20
FT9
R16
FT4
CR5
K
R31
R22
R19
R10
CR2
K
R3
R5
R7
C1
(–)
FT8
FT7
R
27
R18
R14
R28
R25
CR4
K
K
FT11
C5
R32
FT2
FT6
R13
FT12
R47
R29
R46
R26
R24
R17
c
CR3
R48
R11
C2
(–)
FT1
c
b
Q7
e
C6
Q5
b
e
C4
(–)
FT13
R4
R30
FT3
R23
FT16
R12
C7
K
CR1
2004059

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
3. MAKE MASTER PATTERN POSITIVE FILM TO DIMENSIONS SHOWN
4. CUT TO WITH IN .010 OF TRIMLINE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	Lois A Lee	[illegible]
CHECKED	A. Lindstrom	26 May 65
APPROVED	[illegible]	26 A [illegible]
APPROVED	[illegible]	1 June 65
APPROVED MIT	[illegible]	6-2-65
APPROVED MSC	[illegible]	6-2-65
		DATE

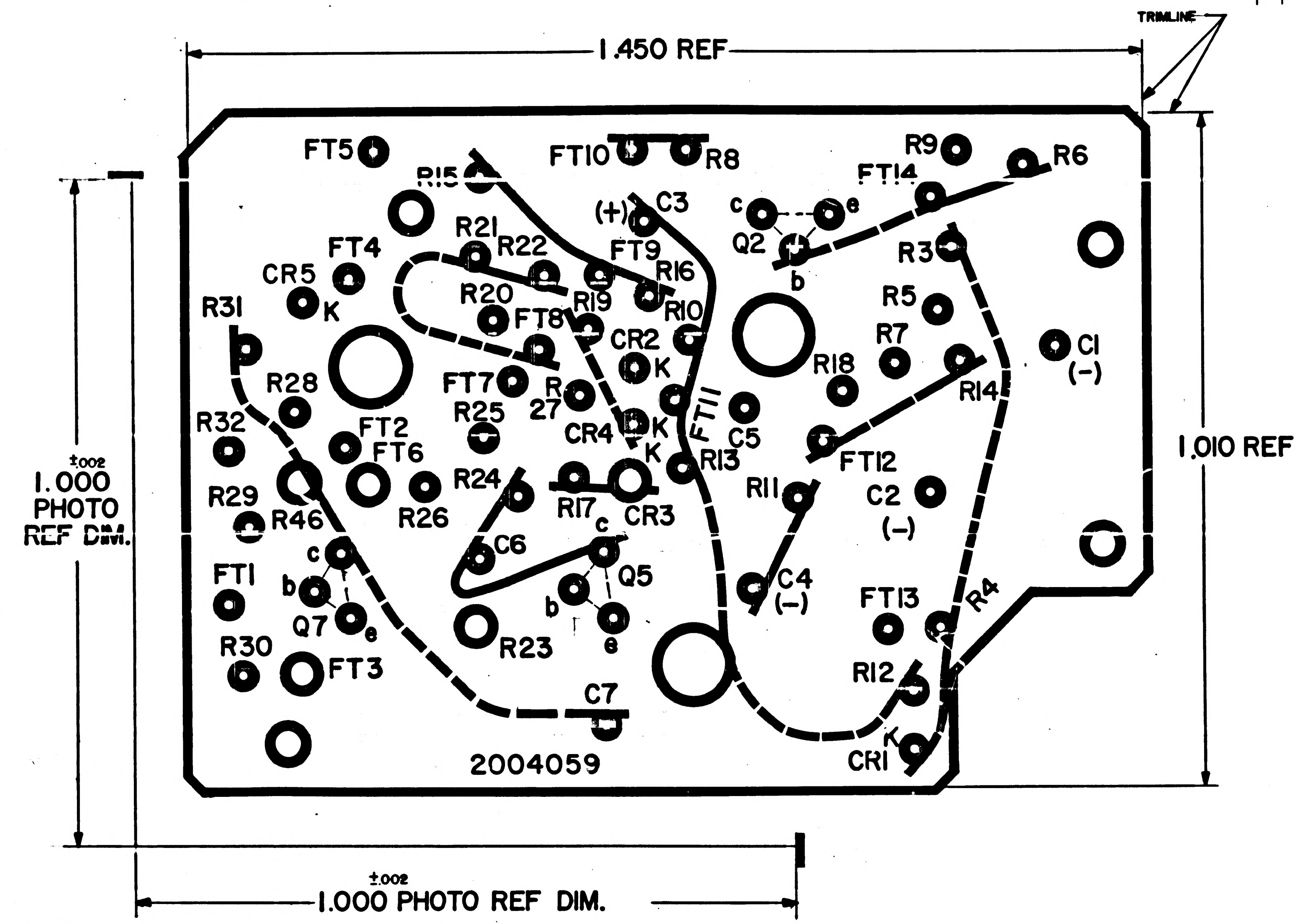
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PHOTOGRAPHIC MASTER
WIRING BOARD BOTTOM
CONTROL CIRCUIT

CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2004057
SCALE 10/1		SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19758						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



TRIMLINE
1.450 REF
1.010 REF
±.002 1.000 PHOTO REF DIM.
±.002 1.000 PHOTO REF DIM.
FT5
R15
FT10
R8
R9
R6
FT14
(+)
C3
c
Q2
e
b
R3
FT4
R21
R22
FT9
R16
CR5
K
R20
R19
R10
R5
R31
FT8
CR2
K
R7
C1
(–)
R28
FT7
R
27
R18
R14
R25
CR4
K
FT11
C5
R32
FT2
FT6
K
R13
FT12
R29
R46
R26
R24
R17
c
CR3
R11
C2
(–)
c
C6
Q5
FT1
b
b
C4
(–)
FT13
R4
Q7
e
R23
e
R30
FT3
R12
C7
K
2004059
CR1

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
3. MAKE MASTER PATTERN POSITIVE FILM TO DIMENSIONS SHOWN
4. CUT TO WITH IN .010 OF TRIMLINE

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	Lois A Lee	
CHECKED	A. Lindstrom	26 May 65
APPROVED		26 May 65
APPROVED		1 June 65
APPROVED MIT		6-2-65
APPROVED MSC		6-2-65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

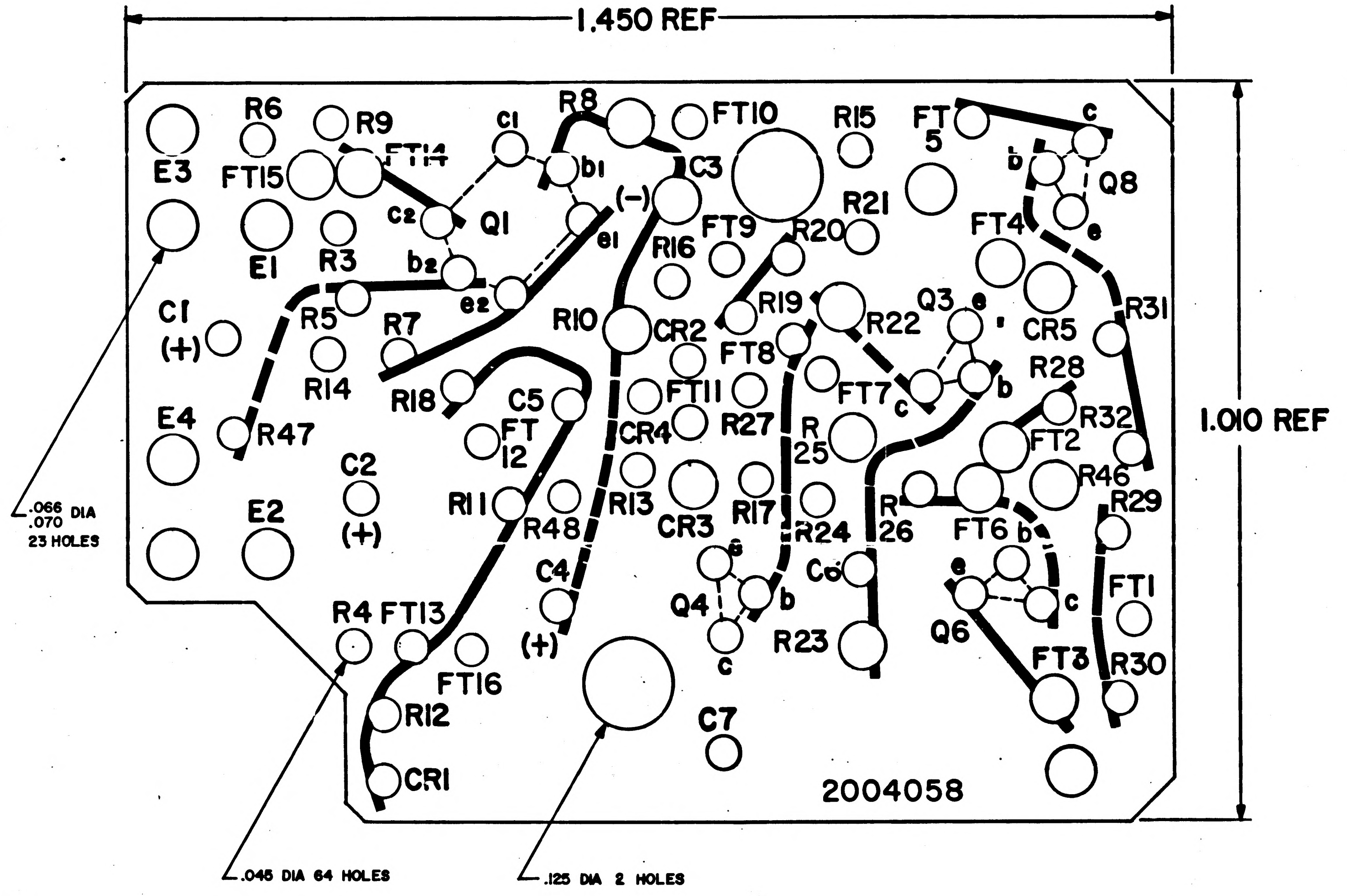
PHOTOGRAPHIC MASTER
WIRING BOARD BOTTOM
CONTROL CIRCUIT

CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2004057
SCALE 10/1		SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19758

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20951	KCH	RPK	9 Aug 65	


1.450 REF
1.010 REF
.066 DIA
.070
23 HOLES
.045 DIA 64 HOLES
.125 DIA 2 HOLES
2004058
E3
E1
E4
E2
R6
R9
FT14
FT15
C1
c2
b2
e2
b1
e1
Q1
R3
R5
R7
R14
R47
C1 (+)
C2 (+)
R8
C3
(–)
FT10
R15
FT 5
c
b
e
Q8
R21
FT9
R20
R16
R19
R10
CR2
FT8
R22
Q3
FT4
CR5
R31
R28
R18
C5
FT 12
FT11
CR4
R27
FT7
R 25
R32
FT2
R46
R11
R48
R13
CR3
R17
R24
C6
R 26
FT6
R29
C4 (+)
Q4
R23
Q6
FT1
FT3
R30
R4
FT13
FT16
R12
CR1
C7

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: PLASTIC SHEET .062 THK PER MIL-P-18177 TYPE GEE
3. PREPARE BOARD FOR PHOTOGRAPHY PER ND1002133
4. MARK BLACK CHARACTERS PER ND1002019
5. BROKEN LINE DENOTES SLEEVING

REF:
PHOTOGRAPHIC MASTER DWG NO. 2004056

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003029	

APPLICATION

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

		DATE
DRAWN	Lois A Coe	
CHECKED	A Lindstrom	26 May 65
APPROVED	J. M. McGinty	26 May 65
APPROVED	Eldon C. Hall	1 June 65
APPROVED MIT		6-2-65
APPROVED MSC		6-2-65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING BOARD TOP
CONTROL CIRCUIT

CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2004058

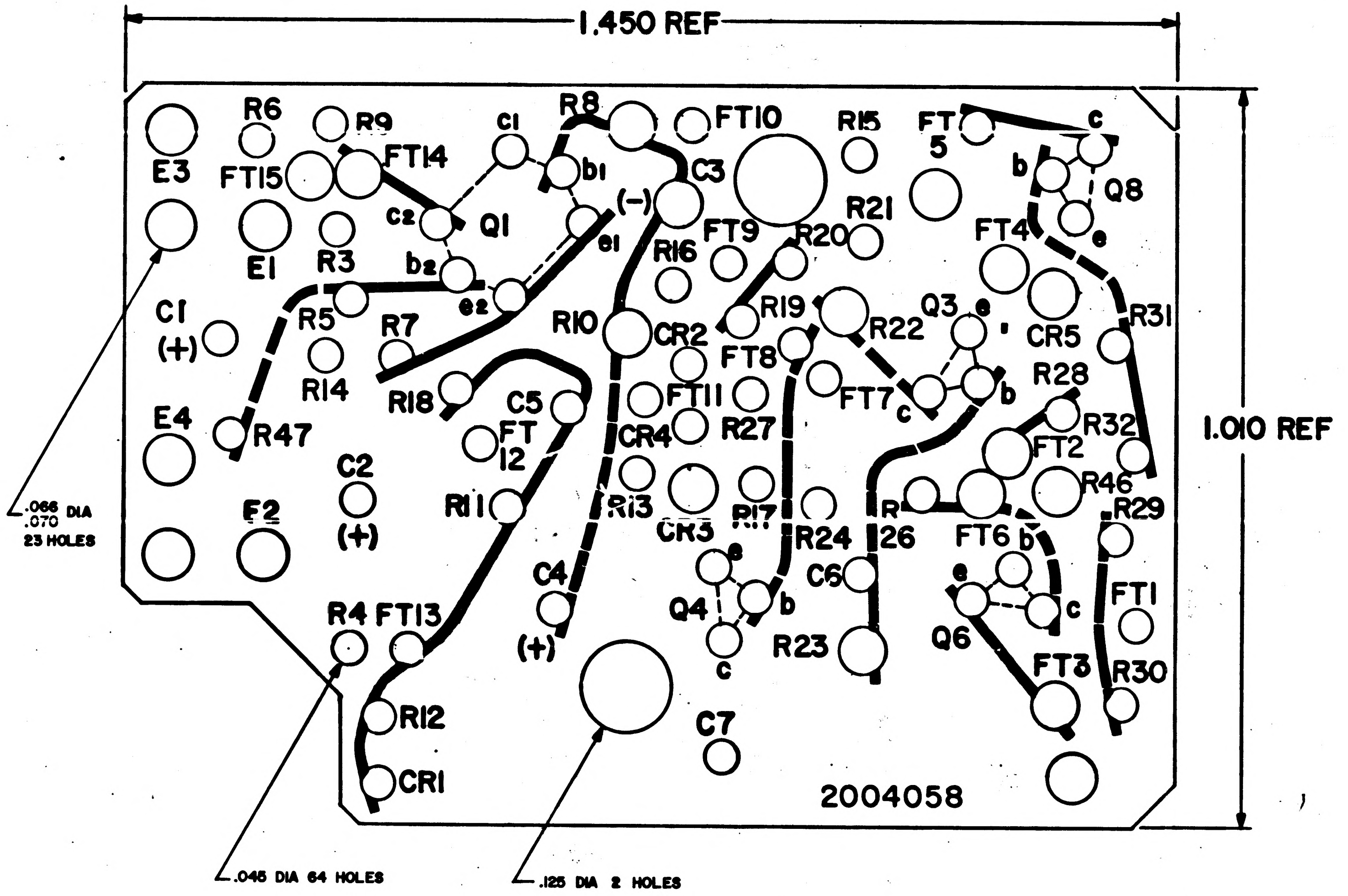
SCALE 10/1 SHEET 1 OF 1

2004058 A

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19758

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20951	RCH	RPK	9 Aug 65	
B		REVISED PER TDRR 22564	FoP.		30 Sept 65	


1.450 REF
1.010 REF
.066 DIA
.070
23 HOLES
.045 DIA 64 HOLES
.125 DIA 2 HOLES
E3
E1
E4
E2
R6
R9
FT15
FT14
C1
R8
FT10
R15
FT
5
c
b
Q8
e
b1
C3
(−)
c2
Q1
e1
R21
R3
b2
e2
R16
FT9
R20
FT4
C1
(+)
R5
R7
R10
CR2
R19
R22
Q3
e
CR5
R31
R14
R18
C5
FT11
FT8
FT7
c
b
R28
E4
R47
FT
12
CR4
R27
R32
FT2
C2
(+)
R11
R13
R17
R46
R24
R
26
FT6
R29
CR3
e
b
C6
C4
Q4
b
e
c
FT1
R4
FT13
(+)
c
R23
Q6
FT3
R30
R12
C7
CR1
2004058

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: PLASTIC SHEET .031 THK PER MIL-P-18177 TYPE GEE
3. PREPARE BOARD FOR PHOTOGRAPHY PER ND1002133
4. MARK BLACK CHARACTERS PER ND1002019
5. BROKEN LINE DENOTES SLEEVING

REF:
PHOTOGRAPHIC MASTER DWG NO. 2004056

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003029	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

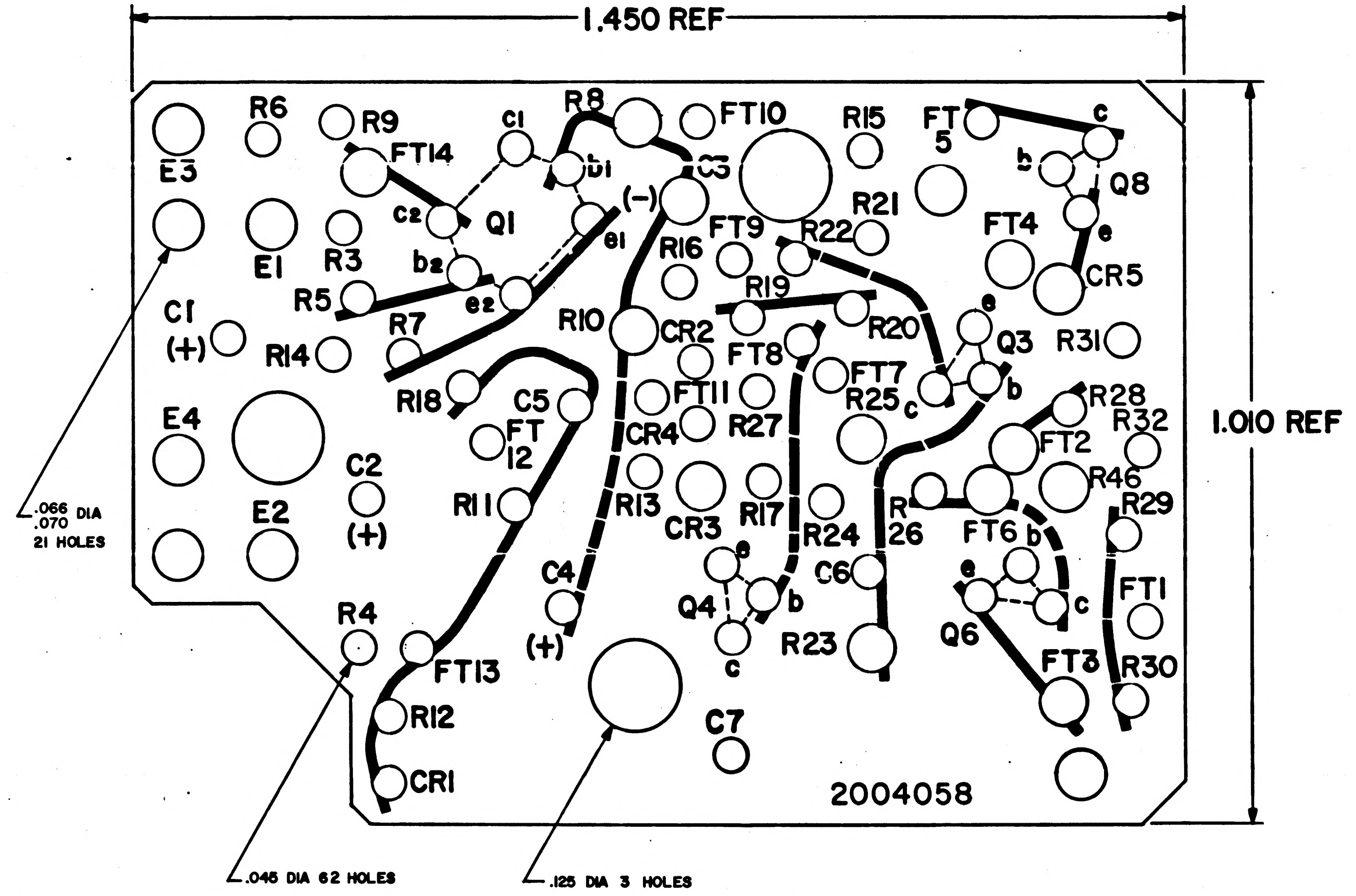
DRAWN	Lois A Cave	
CHECKED	A Lindstrom	26 May 65
APPROVED		26 MAY 65
APPROVED		
APPROVED MIT		6-2-65
APPROVED MSC		6-6-65
		DATE

WIRING BOARD TOP
CONTROL CIRCUIT

CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2004058
SCALE 10/1		SHEET 1 OF 1

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19758						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED


1.450 REF
1.010 REF
E3
R6
R9
FT14
C1
R8
b1
FT10
C3
R15
FT 5
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b
Q8
c2
Q1
(-)
e1
R16
FT9
R22
R21
FT4
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E1
R3
b2
CR5
R5
e2
R7
R19
C1 (+)
R10
CR2
R20
e
Q3
R31
R14
FT8
FT7
R25
c
b
R28
R18
C5
FT11
FT 12
CR4
R27
FT2
R32
E4
C2
E2
R11
R13
CR3
R17
R24
R 26
FT6
b
R46
R29
(+)
e
e
C6
Q4
b
c
FT1
R4
C4
(+)
R23
Q6
FT3
R30
FT13
c
R12
C7
CR1
2004058
.066 .070 DIA 21 HOLES
.045 DIA 62 HOLES
.125 DIA 3 HOLES

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: PLASTIC SHEET .062 THK PER MIL-P-18177 TYPE GEE
3. PREPARE BOARD FOR PHOTOGRAPHY PER ND1002133
4. MARK BLACK CHARACTERS PER ND1002019
5. BROKEN LINE DENOTES SLEEVING

REF:
PHOTOGRAPHIC MASTER DWG NO. 2004056

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003029	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Lois A Case
CHECKED A. Lindstrom 26 May 65
APPROVED W. M' Ginty 26 MAY 65
APPROVED
APPROVED MIT 6-2-65
APPROVED MSC 6-6-65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING BOARD TOP
CONTROL CIRCUIT

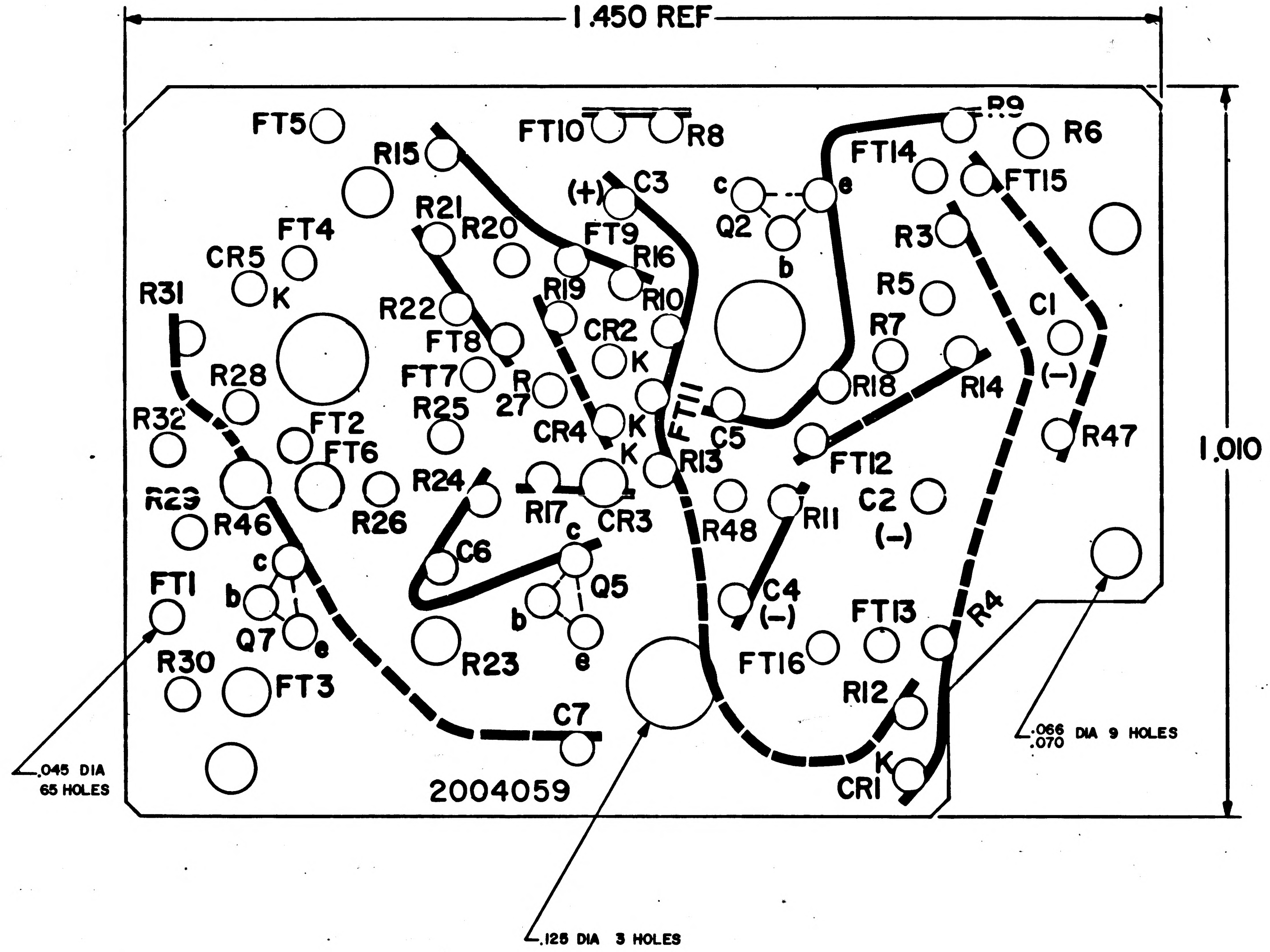
CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2004058

SCALE 10/1 SHEET 1 OF 1

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19758

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20951	KCH		9 Aug 65	


1.450 REF
1.010 REF
FT5
R15
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R9
R6
FT14
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C3
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Q2
b
R21
R20
FT9
R16
FT4
CR5
K
R31
R19
R10
R3
R5
C1
(-)
R22
FT8
CR2
K
R7
R18
R14
R28
FT7
R
27
R25
FT11
C5
R32
FT2
FT6
CR4
K
K
R13
FT12
R47
R24
R17
c
CR3
R48
R11
C2
(-)
R29
R46
R26
C6
c
Q5
C4
(-)
FT1
b
Q7
e
b
e
FT13
R4
R30
FT3
R23
FT16
R12
C7
K
CR1
2004059
.045 DIA
65 HOLES
.125 DIA 3 HOLES
.066
.070 DIA 9 HOLES

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: PLASTIC SHEET .062 THK PER MIL-P-18177 TYPE GEE
3. PREPARE BOARD FOR PHOTOGRAPHY PER ND1002133
4. MARK BLACK CHARACTERS PER ND1002019
5. BROKEN LINE DENOTES SLEEVING

REF:
PHOTOGRAPHIC MASTER DWG NO. 2004057

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003029	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Lois A. Lee
CHECKED 26 May 65
APPROVED
APPROVED
APPROVED MIT 6-2-65
APPROVED MSC 1-2-65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

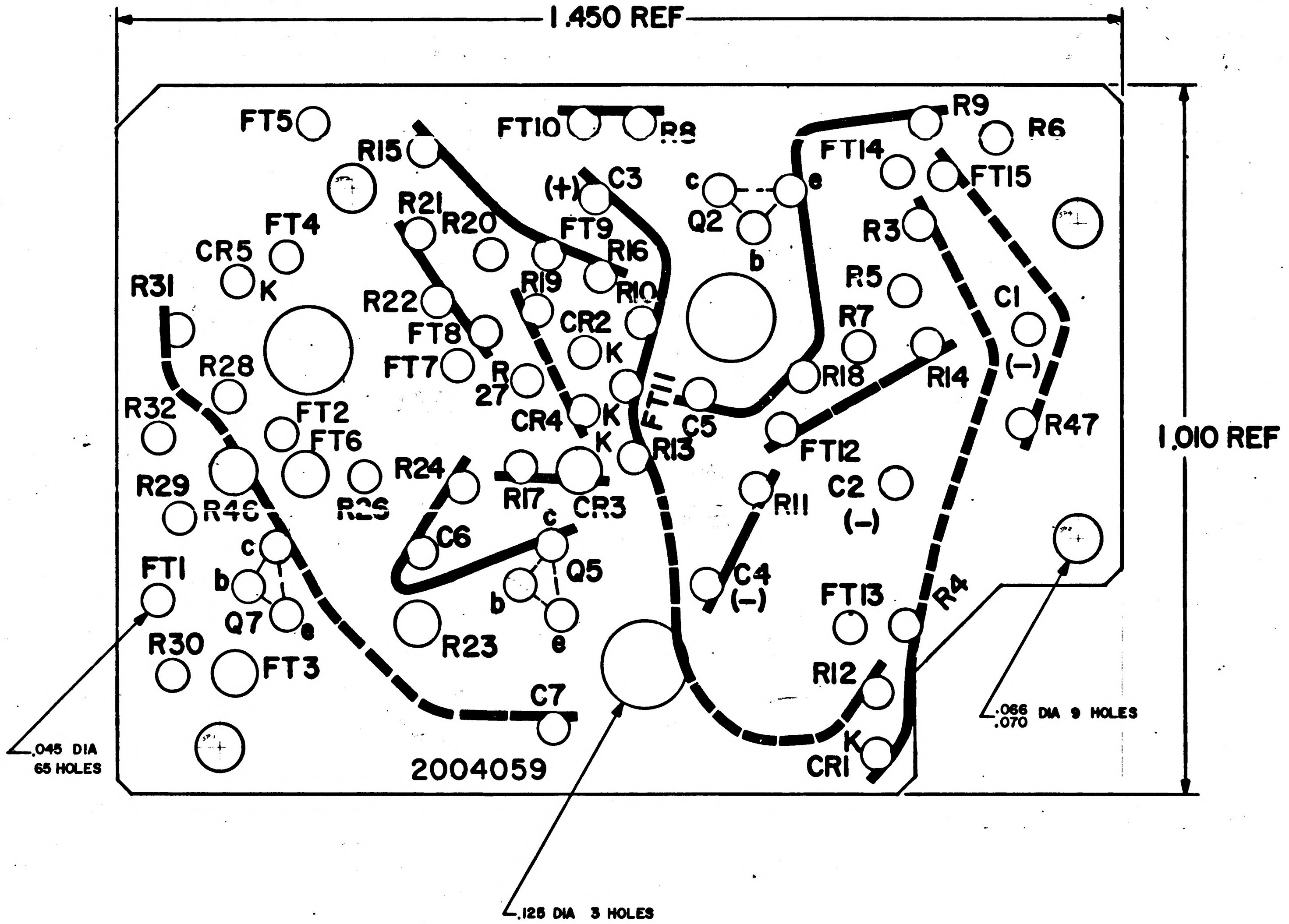
WIRING BOARD BOTTOM
CONTROL CIRCUIT

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2004059
LE 10/1
SHEET 1 OF 1

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19758

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20951	KCH		9 Aug 65	
B		REVISED PER TDRR 22564				


1.450 REF
1.010 REF
FT5
R15
FT10
R8
(+)
C3
c
Q2
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b
FT14
R9
R6
FT15
FT4
R21
R20
FT9
R16
R3
CR5
K
R19
R10
R5
C1
(–)
R31
R22
FT8
CR2
K
R7
R14
R28
FT7
R
27
FT11
R18
R47
R32
FT2
FT6
CR4
K
C5
K
R13
FT12
R24
R17
CR3
R29
R46
R26
C6
c
R11
C2
(–)
c
b
Q7
e
Q5
b
e
C4
(–)
FT1
R23
FT13
R4
R30
FT3
R12
C7
2004059
K
CR1
.045 DIA
65 HOLES
.125 DIA 3 HOLES
.066
.070 DIA 9 HOLES

REF: PHOTOGRAPHIC MASTER DWG NO. 2004057

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: PLASTIC SHEET .031 THK PER MIL-P-18177 TYPE GEE
3. PREPARE BOARD FOR PHOTOGRAPHY PER ND1002133
4. MARK BLACK CHARACTERS PER ND1002019
5. BROKEN LINE DENOTES SLEEVING

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003029	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Lois A. Lap
CHECKED A. Lindstrom 26 May 65
APPROVED J. M. McKenny 26 May 65
APPROVED
APPROVED MIT W. J. Murphy 6-2-65
APPROVED MSC 1-2-65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

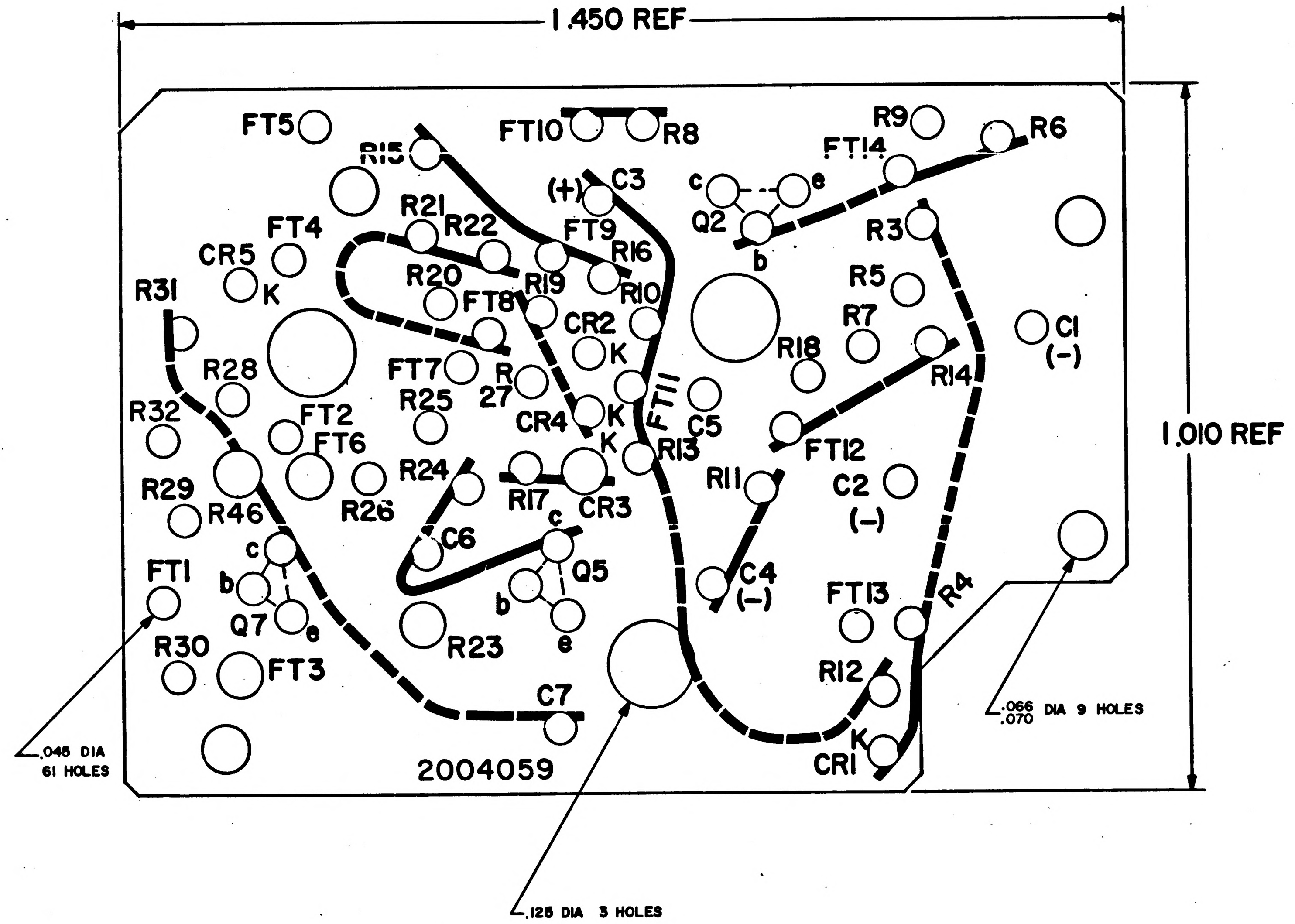
WIRING BOARD BOTTOM
CONTROL CIRCUIT

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2004059
SCALE 10/1
SHEET 1 OF 1

NOTICE · WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19758

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED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1.010 REF
FT5
R15
FT10
R8
R9
FT14
R6
(+)
C3
c
e
Q2
b
R3
R21
R22
FT9
R16
FT4
CR5
K
R31
R20
FT8
R19
R10
CR2
K
R5
R7
R18
C1
(−)
R14
R28
FT7
R
27
R25
CR4
K
K
FT11
C5
R13
R32
FT2
FT6
R26
R24
R17
c
CR3
R11
FT12
C2
(−)
R29
R46
c
b
Q7
e
C6
b
Q5
e
C4
(−)
FT13
R4
FT1
R30
FT3
R23
C7
R12
K
CR1
2004059
.045 DIA
61 HOLES
.066
.070 DIA 9 HOLES
.125 DIA 3 HOLES

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: PLASTIC SHEET .062 THK PER MIL-P-18177 TYPE GEE
3. PREPARE BOARD FOR PHOTOGRAPHY PER ND1002133
4. MARK BLACK CHARACTERS PER ND1002019
5. BROKEN LINE DENOTES SLEEVING

REF:
PHOTOGRAPHIC MASTER DWG NO. 2004057

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003029	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Lois A Lap
CHECKED A Lindstrom 26 May 65
APPROVED 26 May 65
APPROVED Eldon C Hall 17 Jun 65
APPROVED MIT 6-2-65
APPROVED MSC 1-2-65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

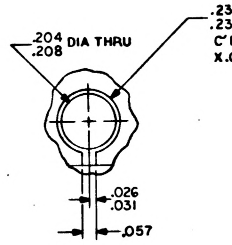
WIRING BOARD BOTTOM
CONTROL CIRCUIT

CODE IDENT NO. 80230
SIZE D
DRAWING NO 2004059
SCALE 10/1
SHEET 1 OF 1

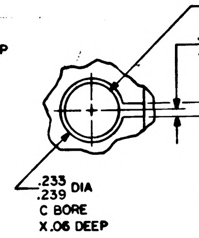
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 18683						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 19684	WM			

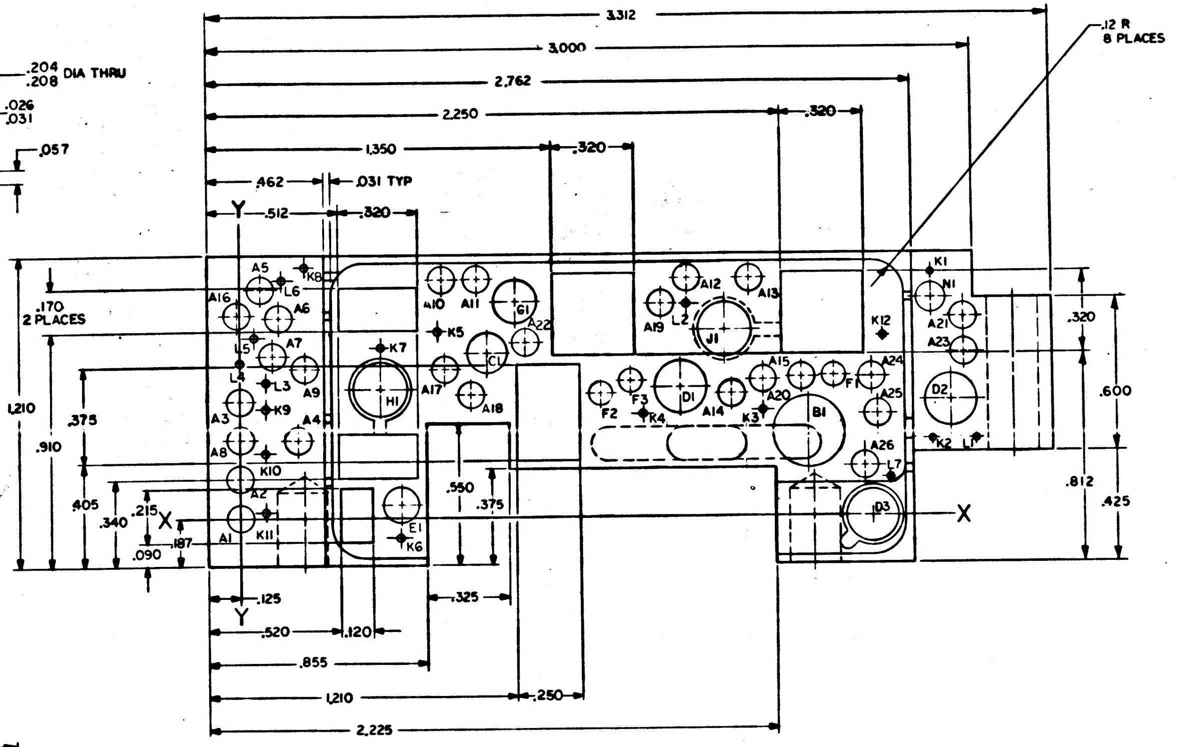
HOLE IDENT	X DIM.	Y DIM.	HOLE DIA	QTY
A1	.000	.000	.100 .104	26
A2	.000	.150		
A3	.000	.450		
A4	.225	.300		
A5	.075	.887		
A6	.150	.775		
A7	.125	.625		
A8	.000	.300		
A9	.250	.575		
A10	.787	.925		
A11	.925	.925		
A12	1.750	.925		
A13	2.000	.925		
A14	1.925	.475		
A15	2.200	.537		
A16	−.012	.787		
A17	.800	.575		
A18	.900	.475		
A19	1.650	.825		
A20	2.050	.525		
A21	2.837	.775		
A22	1.112	.675		
A23	2.837	.637		
A24	2.475	.537		
A25	2.500	.400		
A26	2.450	.200		
B1	2.225	.325	.274 .282 X .28 DP	1
C1	.962	.637	.153 .157	1
D1	1.725	.500	.202 .206	2
D2	2.787	.450		
D3	2.475	.000	SEE DET C	1
E1	.625	.050	.135 .139	1
F1	2.325	.537	.088 .092	3
F2	1.412	.475		
F3	1.525	.525		
G1	1.075	.837	.168 .172	1
H1	.550	.500	SEE DET A	1
J1	1.900	.725	SEE DET B	1
K1	2.712	.950	.023 .027	12
K2	2.712	.300		
K3	2.050	.412		
K4	1.575	.400		
K5	.775	.725		
K6	.625	−.075		
K7	.550	.662		
K8	.250	.975		
K9	.100	.425		
K10	.100	.250		
K11	.100	.025		
K12	2.525	.700		
L1	2.887	.300	.023 .027 X .15 DP	–
L2	1.750	.825		
L3	.100	.525		
L4	.000	.600		
L5	.050	.700		
L6	.162	.925		
L7	2.550	.150		
M1	.250	.850	.023 .027 X .15 DP FAR SIDE	6
M2	.250	.775		
M3	.250	.700		
M4	−.075	.875		
M5	−.075	.550		
M6	.100	.125		
N1	2.712	.850	.108 .112	1

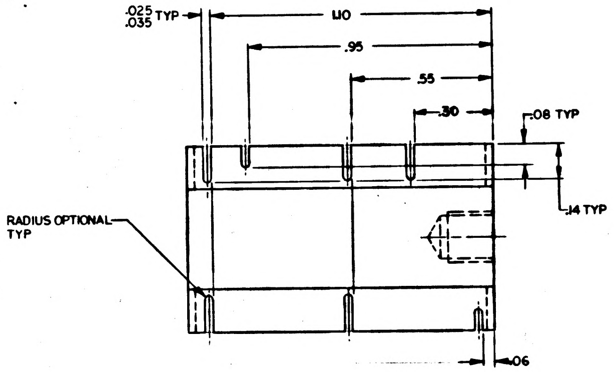

.204
.208 DIA THRU
.233
.239 DIA
C' BORE
X .06 DEEP
.026
.031
.057

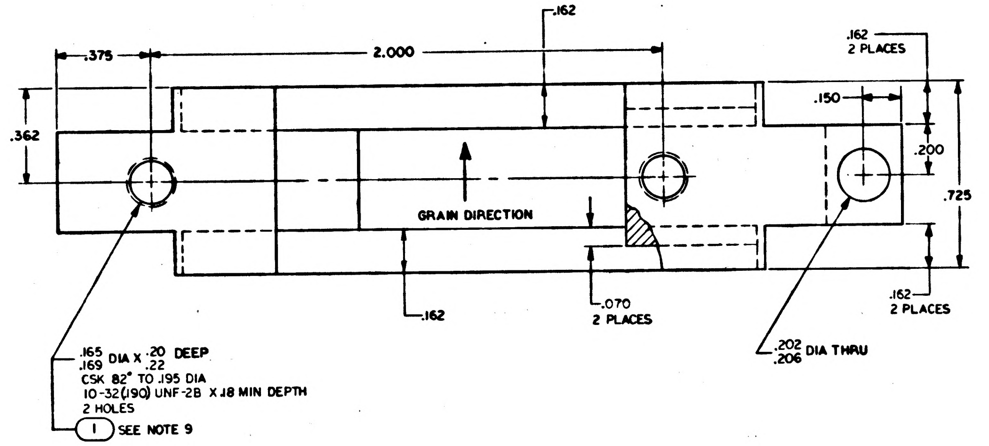
DETAIL A

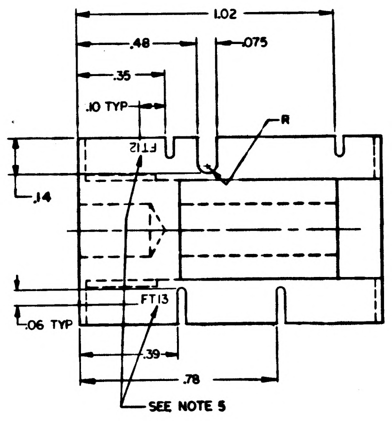

.204
.208 DIA THRU
.026
.031
.057
.233
.239 DIA
C BORE
X .06 DEEP

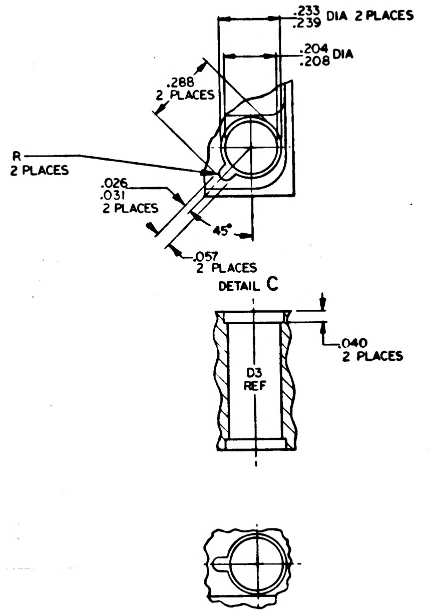
DETAIL B


3.312
3.000
2.762
2.250
.320
1.350
.320
.462
.031 TYP
.512
.320
.12 R
8 PLACES
.170
2 PLACES
1.210
.910
.375
.405
.340
.215
.090
.187
.125
.520
.120
.855
.325
1.210
.250
2.225
.550
.375
.320
.600
.812
.425
X
Y
A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13 A14 A15 A16 A17 A18 A19 A20 A21 A22 A23 A24 A25 A26
B1 C1 D1 D2 D3 E1 F1 F2 F3 G1 H1 J1
K1 K2 K3 K4 K5 K6 K7 K8 K9 K10 K11 K12
L1 L2 L3 L4 L5 L6 L7 N1

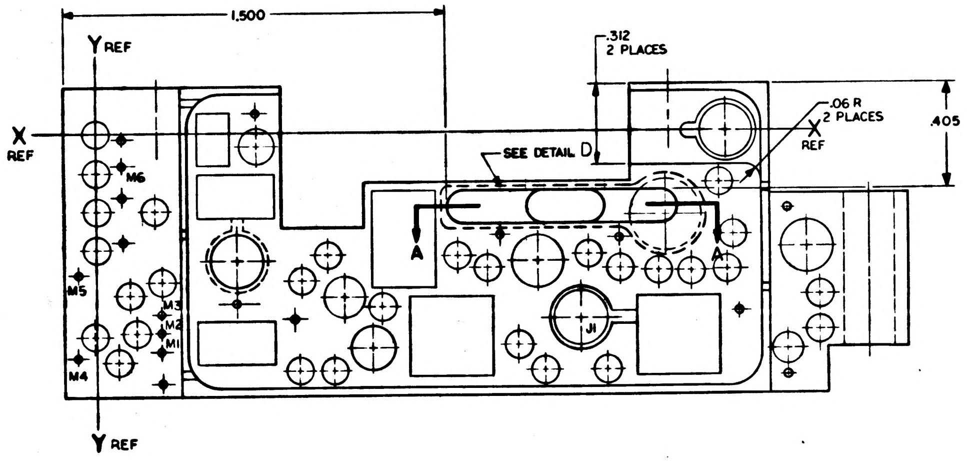

.025
.035 TYP
1.10
.95
.55
.30
.08 TYP
.14 TYP
.06
RADIUS OPTIONAL TYP

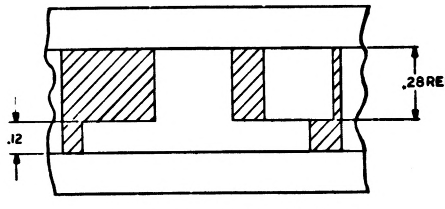

.375
2.000
.162
.162
2 PLACES
.150
.362
.200
.725
GRAIN DIRECTION
.162
.070
2 PLACES
.162
2 PLACES
.165
.169 DIA X .20
.22 DEEP
CSK 82° TO .195 DIA
10-32(.190) UNF-2B X .18 MIN DEPTH
2 HOLES
1 SEE NOTE 9
.202
.206 DIA THRU


1.02
.48
.075
.35
.10 TYP
R
.14
.06 TYP
.39
.78
SEE NOTE 5

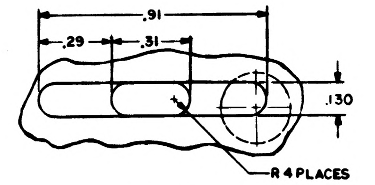

.233
.239 DIA 2 PLACES
.204
.208 DIA
.288
2 PLACES
R
2 PLACES
.026
.031
2 PLACES
45°
.057
2 PLACES
.040
2 PLACES
D3 REF

DETAIL C


1.500
.312
2 PLACES
.06 R
2 PLACES
REF
.405
Y REF
X
REF
SEE DETAIL D
A
A
M1 M2 M3 M4 M5 M6
J1
Y REF



PARTIAL SECTION A-A


.91
.29
.31
.130
R 4 PLACES

DETAIL D

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: PLASTIC SHEET PER MIL-P-18177 TYPE GEE
3.
4.
5. MARK .06/.04 HIGH WHITE CHARACTERS PER ND 1002019 AND ND 1002122 TYPE II CLASS 2 USING INK 1006271-1
6. REMOVE BURRS AND BREAK SHARP EDGES .005/.015
7. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII .010 MAX
8. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
9. INSTALL FIND NO. 1 .005/.020 BELOW FIND NO. 2 PER ND1002121

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
2	1006702-2	INSERT, THREADED	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003035	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS .XX ± .02 .XXX ± .005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J. Crowley
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPONENT HOLDER
AGC OSCILLATOR MODULE NO. B7

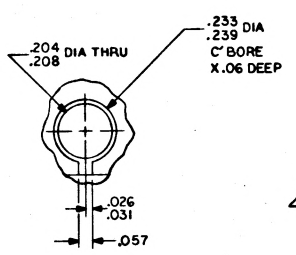
CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2004060
SCALE 4/1
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

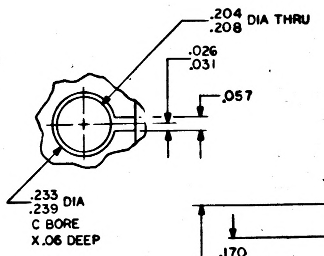
REVISIONS 86F3

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 19684	WM		2 Jun 65	WK
B		REVISED PER TDRR 20864	W.T.		Jul 65	WK

HOLE IDENT	X DIM.	Y DIM.	HOLE DIA	QTY
A1	.000	.000	.100 .104	26
A2	.000	.150		
A3	.000	.450		
A4	.225	.300		
A5	.075	.887		
A6	.150	.775		
A7	.125	.625		
A8	.000	.300		
A9	.250	.575		
A10	.787	.925		
A11	.925	.925		
A12	1.750	.925		
A13	2.000	.925		
A14	1.925	.475		
A15	2.200	.537		
A16	-.012	.787		
A17	.800	.575		
A18	.900	.475		
A19	1.650	.825		
A20	2.050	.525		
A21	2.837	.775		
A22	1.112	.675		
A23	2.837	.637		
A24	2.475	.537		
A25	2.500	.400		
A26	2.450	.200		
B1	2.225	.325	.274 .282 X .28 DP	1
C1	.962	.637	.153 .157	1
D1	1.725	.500	.202 .206	2
D2	2.787	.450		
D3	2.475	.000	SEE DET C	1
E1	.625	.050	.135 .139	1
F1	2.325	.537	.088 .092	3
F2	1.412	.475		
F3	1.525	.525		
G1	1.075	.837	.168 .172	1
H1	.550	.500	SEE DET A	1
J1	1.900	.725	SEE DET B	1
K1	2.712	.950	.023 .027	12
K2	2.712	.300		
K3	2.050	.412		
K4	1.575	.400		
K5	.775	.725		
K6	.625	-.075		
K7	.550	.662		
K8	.250	.975		
K9	.100	.425		
K10	.100	.250		
K11	.100	.025		
K12	2.525	.700		
L1	2.887	.300	.023 .027 X .15 DP	7
L2	1.750	.825		
L3	.100	.525		
L4	.000	.600		
L5	.050	.700		
L6	.162	.925		
L7	2.550	.150		
M1	.250	.850	.023 .027 X .15 DP	6
M2	.250	.775		
M3	.250	.700		
M4	-.075	.875		
M5	-.075	.550		
M6	.100	.125		
N1	2.712	.850	.108 .112	1


.204 .208 DIA THRU
.233 .239 DIA
C'BORE X.06 DEEP
.026 .031
.057

DETAIL A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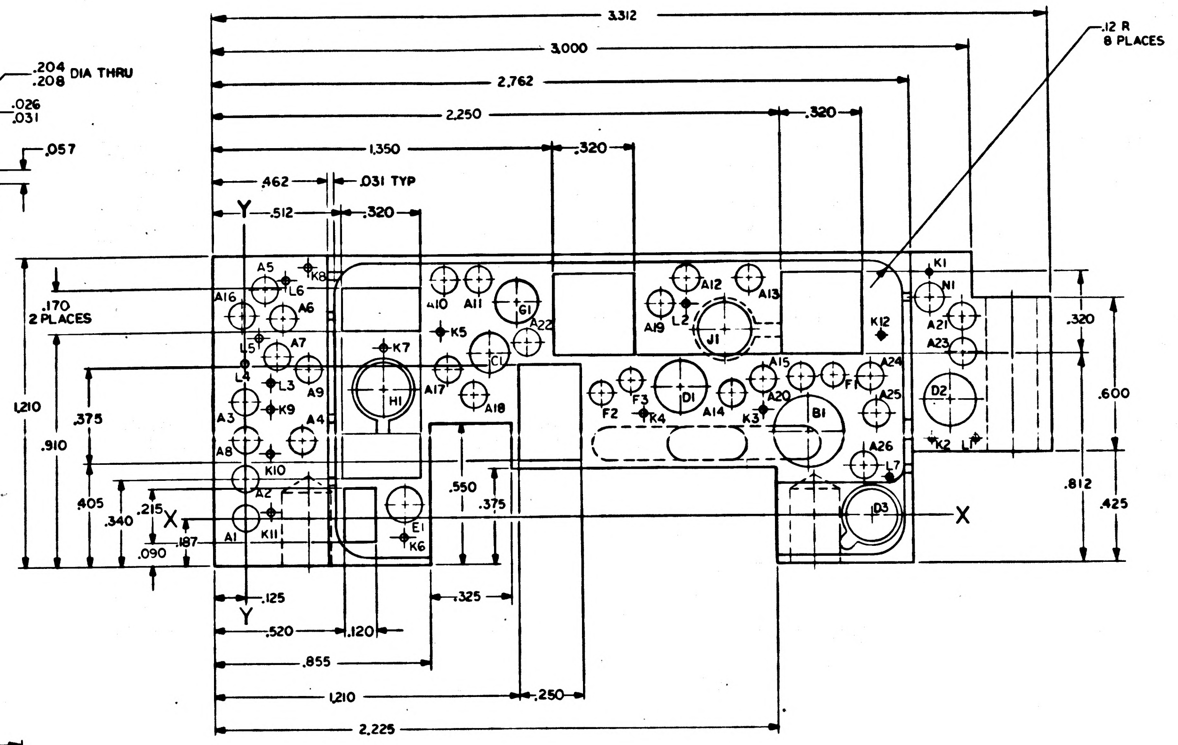
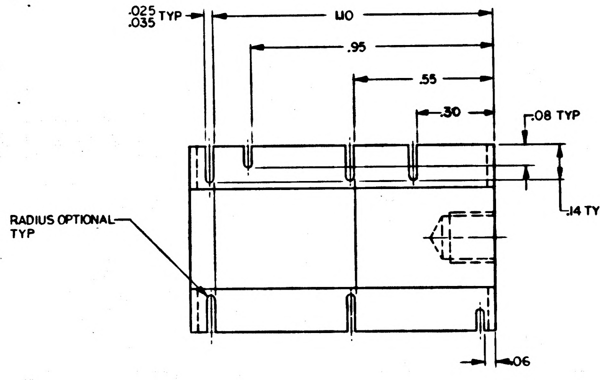
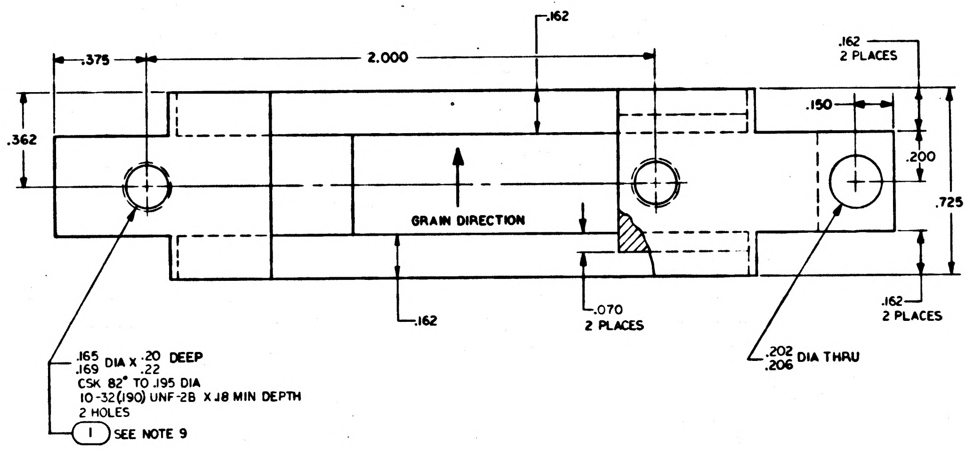
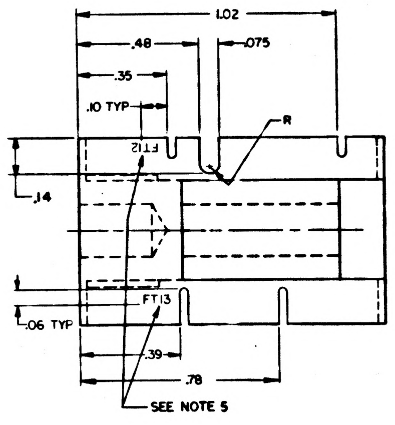
.026 .031
.057
.233 .239 DIA
C BORE X.06 DEEP

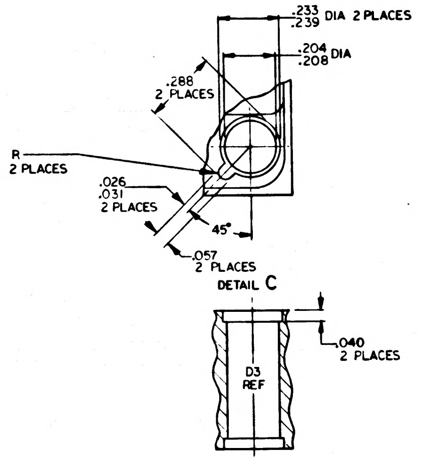
DETAIL B


3.312
3.000
2.762
2.250
.320
1.350
.320
.462
.031 TYP
.512
.320
.12 R 8 PLACES
.170 2 PLACES
1.210
.375
.910
.405
.340
.215
.187
.090
.125
.520
.120
.855
1.210
.250
2.225
.550
.375
.325
.320
.600
.812
.425
X
Y
A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13 A14 A15 A16 A17 A18 A19 A20 A21 A22 A23 A24 A25 A26
B1 C1 D1 D2 D3 E1 F1 F2 F3 G1 H1 J1
K1 K2 K3 K4 K5 K6 K7 K8 K9 K10 K11 K12
L1 L2 L3 L4 L5 L6 L7 N1

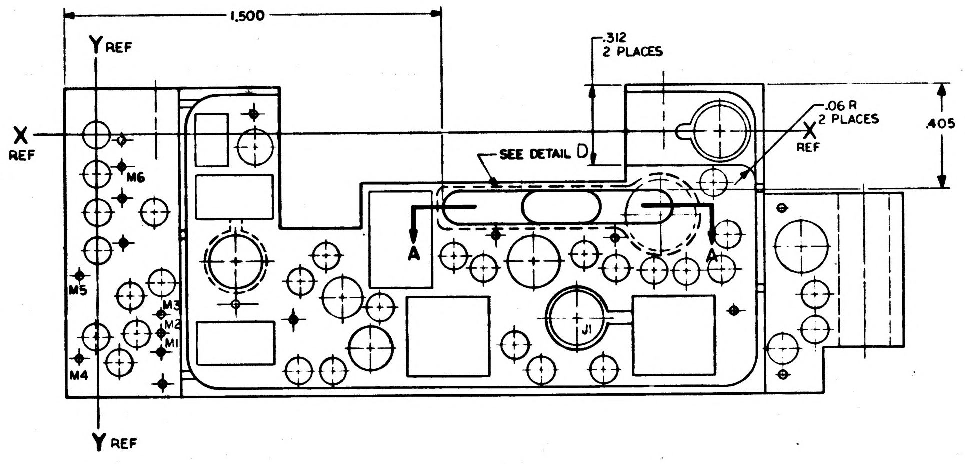

.025 .035 TYP
1.10
.95
.55
.30
.08 TYP
.14 TYP
.06
RADIUS OPTIONAL TYP


.375
2.000
.162
.162 2 PLACES
.150
.362
.200
.725
GRAIN DIRECTION
.162
.070 2 PLACES
.162 2 PLACES
.165 .169 DIA X .20 .22 DEEP
CSK 82° TO .195 DIA
10-32(.190) UNF-2B X.18 MIN DEPTH
2 HOLES
1 SEE NOTE 9
.202 .206 DIA THRU


1.02
.48
.075
.35
.10 TYP
R
.14
.06 TYP
.39
.78
SEE NOTE 5


.233 .239 DIA 2 PLACES
.204 .208 DIA
.288 2 PLACES
R 2 PLACES
.026 .031 2 PLACES
45°
.057 2 PLACES
.040 2 PLACES
D3 REF

DETAIL C


1.500
Y REF
X REF
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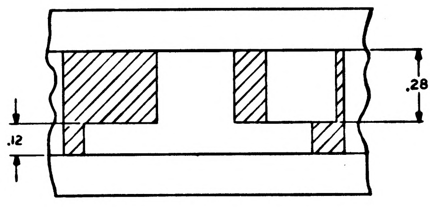
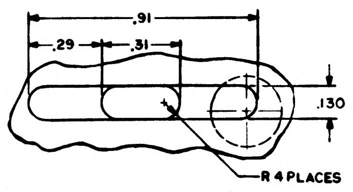
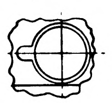
.06 R 2 PLACES
X REF
.405
SEE DETAIL D
A
A
M1 M2 M3 M4 M5 M6
J1
Y REF



PARTIAL SECTION A-A


.91
.29
.31
.130
R 4 PLACES

DETAIL D



NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: PLASTIC SHEET PER MIL-P-18177 TYPE GEE
3.
4.
5. MARK .06/.04 HIGH WHITE CHARACTERS PER ND 1002019 AND ND 1002122 TYPE II CLASS 2 USING INK 1006271-1
6. REMOVE BURRS AND BREAK SHARP EDGES .005/.015
7. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII .010 MAX
8. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
9. INSTALL FIND NO. 1 .005/.020 BELOW FIND NO. 2 PER ND1002121

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
2	1006702-2	INSERT, THREADED	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003035	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS .XX ± .02 .XXX ± .005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J. Crowley 1 ... 63
CHECKED
APPROVED
APPROVED Edwin C. Hall
APPROVED MIT W Kupfer 27 Apr 65
APPROVED MSC 4-27-65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPONENT HOLDER
AGC OSCILLATOR MODULE NO. B7

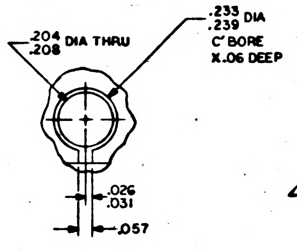
CODE IDENT NO 80230
SIZE E
DRAWING NO. 2004060
SCALE 4/1
SHEET 1 OF 1

2004060 B

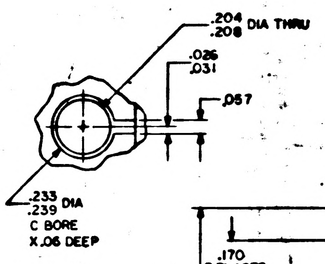
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 18683						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 19684	WM			
B		REVISED PER TDRR 20864				
C		REVISED PER TDRR 23956				

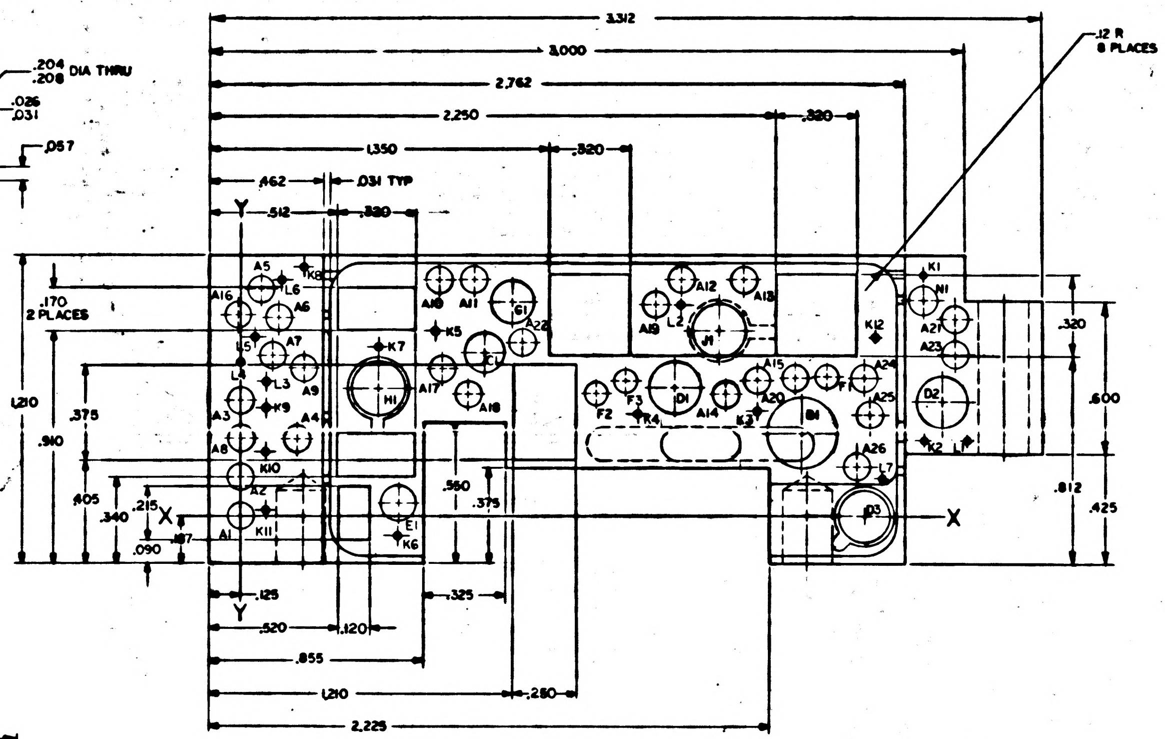
HOLE IDENT	X DIM.	Y DIM.	HOLE DIA	QTY
A1	.000	.000	.100 .104	26
A2	.000	.150		
A3	.000	.450		
A4	.225	.300		
A5	.075	.887		
A6	.150	.775		
A7	.125	.625		
A8	.000	.300		
A9	.250	.575		
A10	.787	.925		
A11	.925	.925		
A12	1.750	.925		
A13	2.000	.925		
A14	1.925	.475		
A15	2.200	.537		
A16	-.012	.787		
A17	.800	.575		
A18	.900	.475		
A19	1.650	.825		
A20	2.050	.525		
A21	2.837	.775		
A22	1.112	.675		
A23	2.837	.637		
A24	2.475	.537		
A25	2.500	.400		
A26	2.450	.200		
B1	2.225	.325	.274 .282 X .28 DP	1
C1	.962	.637	.153 .157	1
D1	1.725	.500	.202 .206	2
D2	2.787	.450		
D3	2.475	.000	SEE DET C	
E1	.625	.050	.135 .139	1
F1	2.325	.537	.088 .092	3
F2	1.412	.475		
F3	1.525	.525		
G1	1.075	.837	.168 .172	1
H1	.550	.500	SEE DET A	1
J1	1.900	.725	SEE DET B	1
K1	2.712	.950	.023 .027	12
K2	2.712	.300		
K3	2.050	.412		
K4	1.575	.400		
K5	.775	.725		
K6	.625	-.075		
K7	.550	.662		
K8	.250	.975		
K9	.100	.425		
K10	.100	.250		
K11	.100	.025		
K12	2.525	.700		
L1	2.887	.300	.023 .027 X .15 DP	7
L2	1.750	.825		
L3	.100	.525		
L4	.000	.600		
L5	.050	.700		
L6	.162	.925		
L7	2.550	.150		
M1	.250	.850	.023 .027 X .15 DP	6
M2	.250	.775		
M3	.250	.700		
M4	-.075	.875		
M5	-.075	.550		
M6	.100	.125		
N1	2.712	.850	.108 .112	1

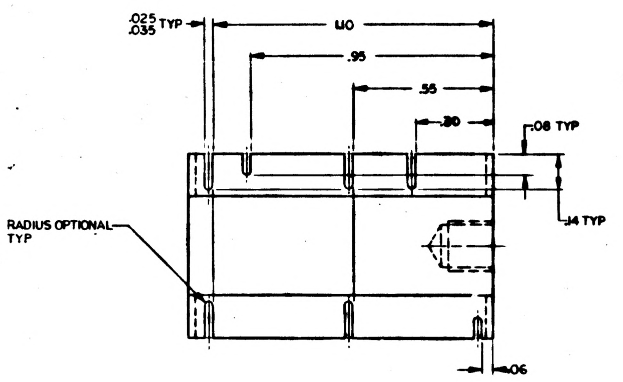

.204
.208 DIA THRU
.233
.239 DIA
C' BORE
X .06 DEEP
.026
.031
.057

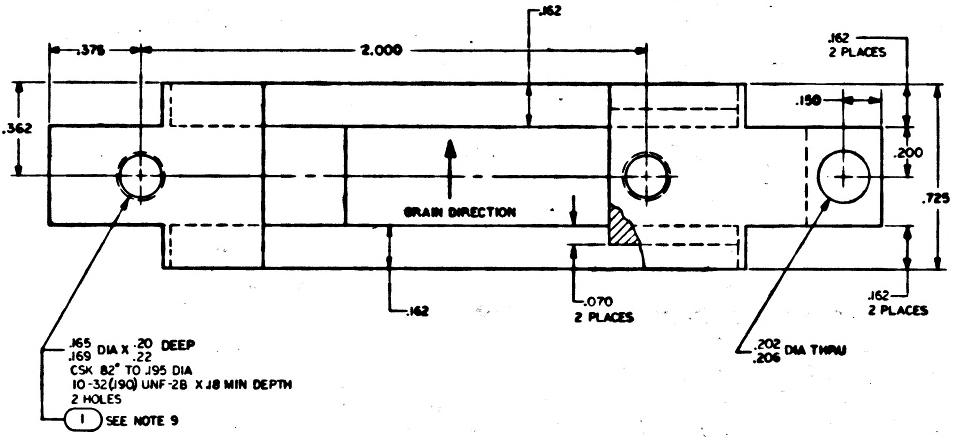
DETAIL A

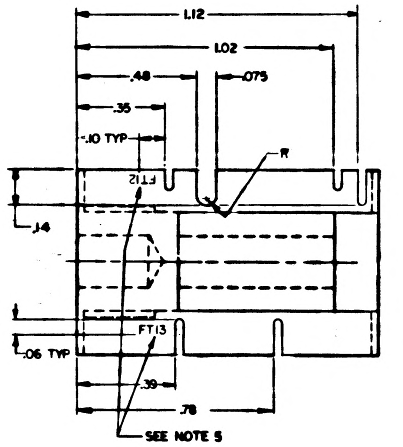

.204
.208 DIA THRU
.026
.031
.057
.233
.239 DIA
C' BORE
X .06 DEEP

DETAIL B


3.312
3.000
2.762
2.250
1.350
.320
.320
.462
.031 TYP
.512
.330
.12 R
8 PLACES
.170
2 PLACES
1.210
.910
.375
.405
.215
.340
.090
.187
.560
.375
.320
.600
.812
.425
.125
.520
.120
.325
.855
1.210
.280
2.225
X
Y
A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13 A14 A15 A16 A17 A18 A19 A20 A21 A22 A23 A24 A25 A26
B1 C1 D1 D2 D3 E1 F2 F3 G1 H1 J1
K1 K2 K3 K4 K5 K6 K7 K8 K9 K10 K11 K12
L1 L2 L3 L5 L6 L7 N1


.025
.035 TYP
1.10
.95
.55
.30
.08 TYP
.14 TYP
RADIUS OPTIONAL
TYP
.06


.375
2.000
.162
.162
2 PLACES
.150
.362
.200
.725
GRAIN DIRECTION
.162
.070
2 PLACES
.162
2 PLACES
.165
.169 DIA X .20
.22 DEEP
CSK 82° TO .195 DIA
10-32(.190) UNF-2B X .18 MIN DEPTH
2 HOLES
1
SEE NOTE 9
.202
.206 DIA THRU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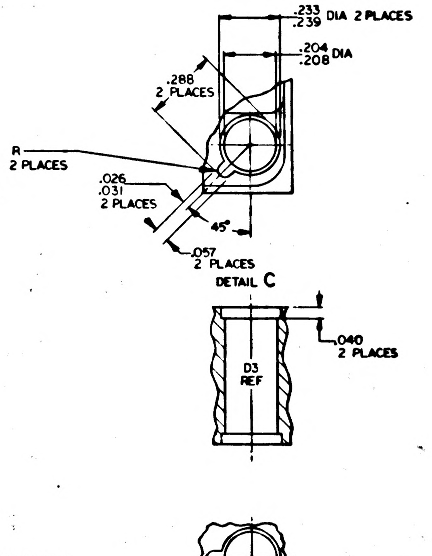
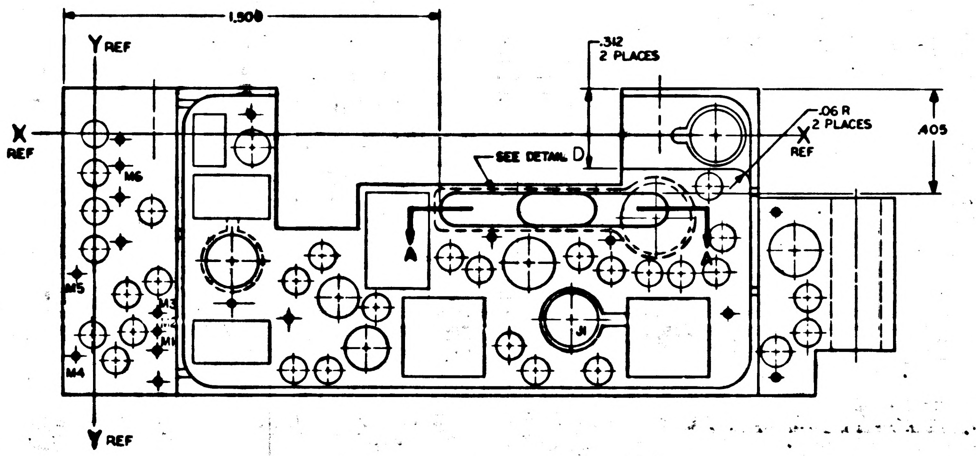
1.02
.48
.075
.35
.10 TYP
R
.14
.06 TYP
.39
.78
SEE NOTE 5


.233
.239 DIA 2 PLACES
.204
.208 DIA
.288
2 PLACES
R
2 PLACES
.026
.031
2 PLACES
45°
.057
2 PLACES
.040
2 PLACES
D3
REF

DETAIL C


1.908
Y REF
X
REF
.312
2 PLACES
SEE DETAIL D
.06 R
2 PLACES
X
REF
.405
A
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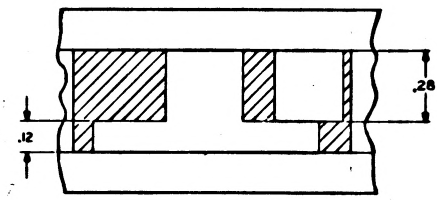
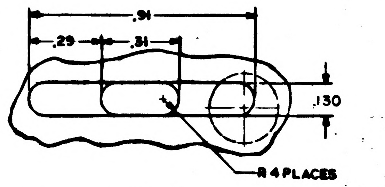
M6
M5
M4
J1
Y REF



PARTIAL SECTION A-A


.91
.29
.31
.130
R 4 PLACES

DETAIL D

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: PLASTIC SHEET PER MIL-P-18177 TYPE GEE
3.
4.
5. MARK .06/.04 HIGH WHITE CHARACTERS PER ND 1002019 AND ND 1002122 TYPE II CLASS 2 USING INK 1006271-1
6. REMOVE BURRS AND BREAK SHARP EDGES .005/.015
7. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII .010 MAX
8. IDENTIFY WITH PART NO. PER ND1002019
9. INSTALL FIND NO. 1 .005/.020 BELOW FIND NO. 2 PER ND1002121

2	1006702-2	INSERT, THREADED	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003035	
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS .XX ± .02 .XXX ± .005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPONENT HOLDER
AGC OSCILLATOR MODULE NO. B7

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2004060

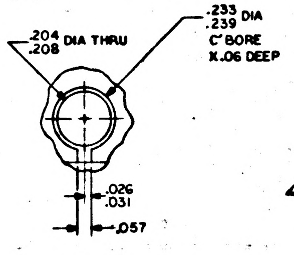
SCALE 4/1 SHEET 1 OF 1

MASTER

2004060

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

HOLE IDENT	X DIM.	Y DIM.	HOLE DIA	QTY
A1	.000	.000	.100 .104	26
A2	.000	.150		
A3	.000	.450		
A4	.225	.300		
A5	.075	.887		
A6	.150	.775		
A7	.125	.625		
A8	.000	.300		
A9	.250	.575		
A10	.787	.925		
A11	.925	.925		
A12	1.750	.925		
A13	2.000	.925		
A14	.925	.475		
A15	2.200	.537		
A16	-.012	.787		
A17	.800	.575		
A18	.900	.475		
A19	1.650	.825		
A20	2.050	.525		
A21	2.837	.775		
A22	1.112	.675		
A23	2.837	.637		
A24	2.475	.537		
A25	2.500	.400		
A26	2.450	.200		
B1	2.225	.325	.274 .282 X .28 DP	1
C1	.962	.637	.153 .157	1
D1	1.725	.500	.202 .206	2
D2	2.787	.450		
D3	2.475	.000	SEE DET C	1
E1	.625	.050	.135 .139	1
F1	2.325	.537	.088 .092	3
F2	1.412	.475		
F3	1.525	.525		
G1	1.075	.837	.168 .172	1
H1	.550	.500	SEE DET A	1
J1	1.900	.725	SEE DET B	1
K1	2.712	.950	.023 .027	12
K2	2.712	.300		
K3	2.050	.412		
K4	1.575	.400		
K5	.775	.725		
K6	.625	-.075		
K7	.550	.662		
K8	.250	.975		
K9	.100	.425		
K10	.100	.250		
K11	.100	.025		
K12	2.525	.700		
L1	2.887	.300	.023 .027 X .15 DP	7
L2	1.750	.825		
L3	.100	.525		
L4	.000	.600		
L5	.050	.700		
L6	.162	.925		
L7	2.550	.150		
M1	.250	.850	.023 .027 X .15 DP	6
M2	.250	.775		
M3	.250	.700		
M4	-.075	.875		
M5	-.075	.550		
M6	.100	.125		
N1	2.712	.850	.108 .112	1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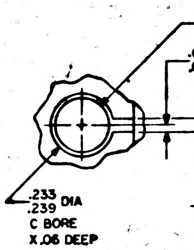
.208 DIA THRU
.233 DIA
.239
C' BORE
X .06 DEEP
.026
.031
.057

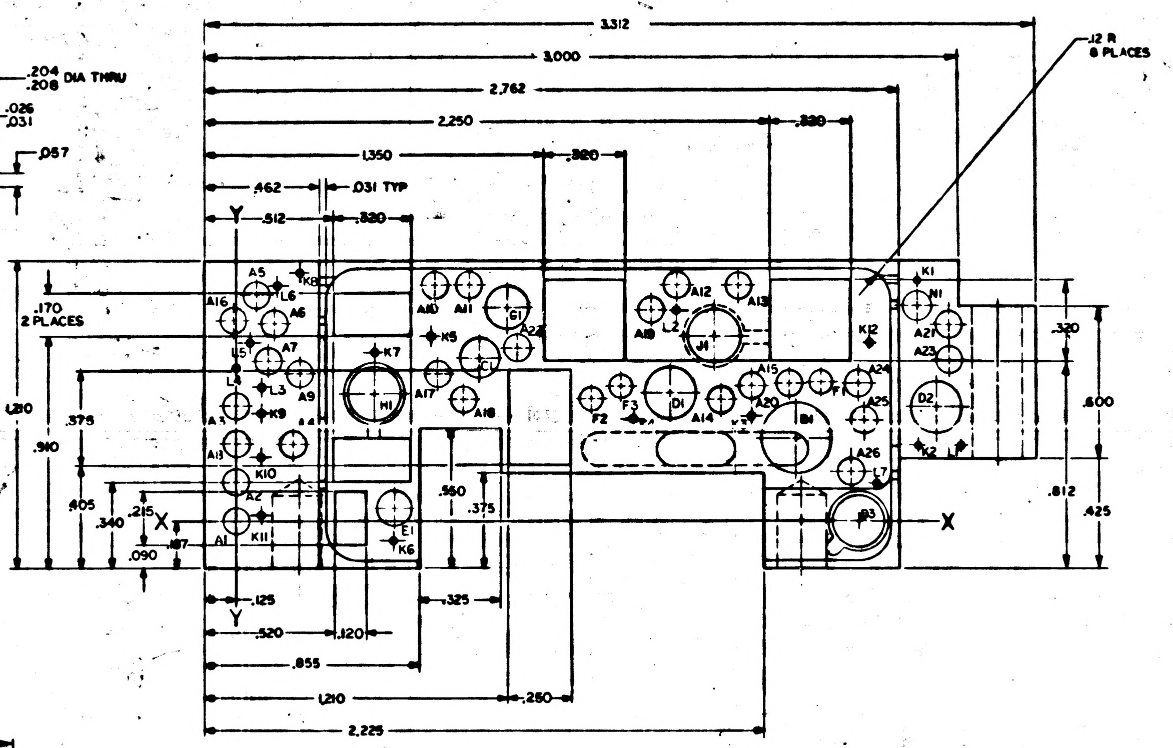
DETAIL A


.204
.208 DIA THRU
.026
.031
.057
.233 DIA
.239
C BORE
X .06 DEEP

DETAIL B

REVISIONS 18683

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 19684	WM			
B		REVISED PER TDRR 20864				
C		REVISED PER TDRR 23956				
D		REVISED PER TDRR 26551			2/2/66	


3.312
3.000
2.762
2.250
.320
1.350
.320
.462
.031 TYP
.512
.320
Y
.12 R
8 PLACES
.170
2 PLACES
A5 A16 L6 K8 A6 A7 L5 L4 L3 K9 A9 A3 A8 A13 K10 A2 A4 K11 A1
A10 A11 K7 K5 H1 G1 A22 C1 A17 A18 E1 K6
A12 A13 A19 J1 L2 A15 A24 F2 F3 D1 A14 K3 A20 B1 K4 A25 A26 L7 D3 K12
K1 N1 A21 A23 D2 K2 L1
.320
.600
1.110
.375
.910
.805
.340
.215
.090
.187
X
.560
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.425
X
.125
Y
.520
.120
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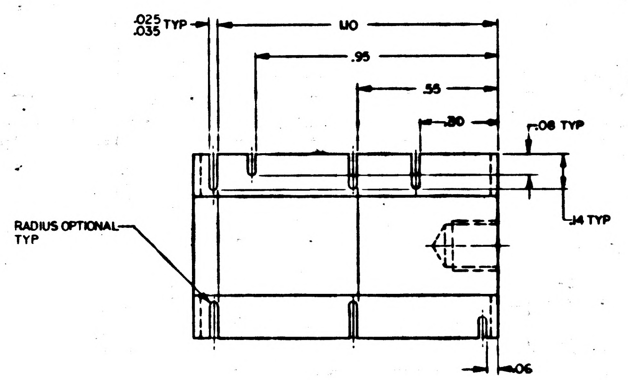
.855
1.210
.250
2.225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1.10
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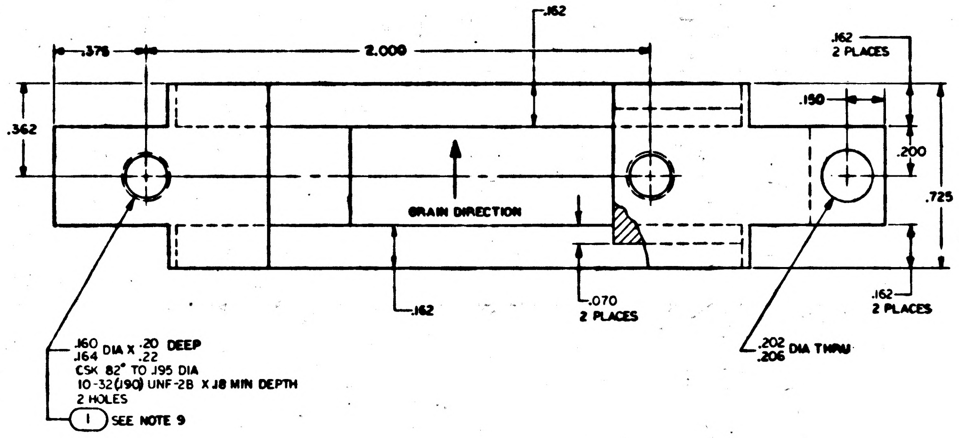
.30
.08 TYP
.14 TYP
RADIUS OPTIONAL
TYP
.06


.162
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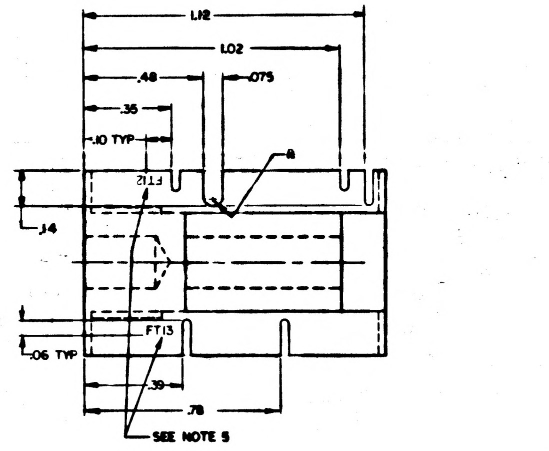
.162
2 PLACES
.150
.362
.200
.725
GRAIN DIRECTION
.162
.070
2 PLACES
.162
2 PLACES
.160
.164 DIA X .20 .22 DEEP
CSK 82° TO .195 DIA
10-32(.190) UNF-2B X .18 MIN DEPTH
2 HOLES
1 SEE NOTE 9
.202
.206 DIA THRU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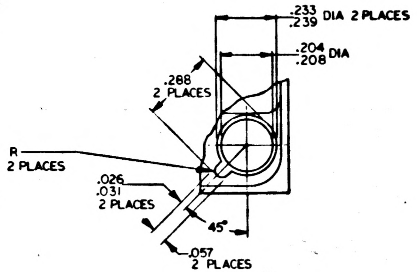
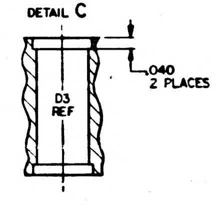
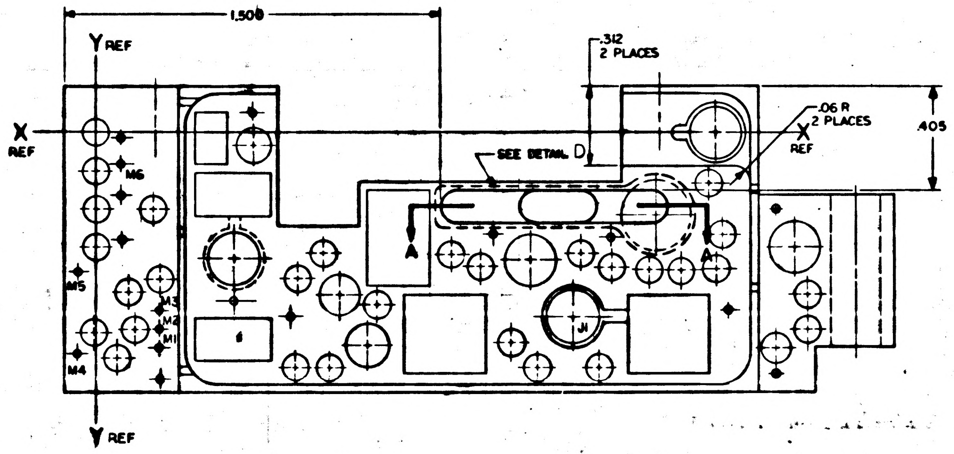
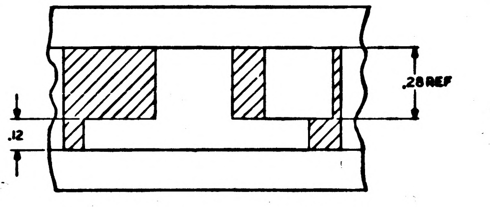
.075
.35
.10 TYP
2113
.14
FT13
.06 TYP
.39
.78
SEE NOTE 5


.233 DIA 2 PLACES
.239
.204 DIA
.208
.288
2 PLACES
R
2 PLACES
.026
.031
2 PLACES
45°
.057
2 PLACES

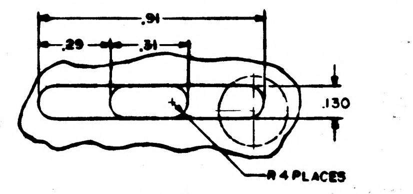
DETAIL C


D3
REF
.040
2 PLACES

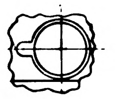

1.500
Y REF
X REF
.312
2 PLACES
.06 R
2 PLACES
X REF
.405
SEE DETAIL D
A
A
M6
M5
M3
M2
M1
M4
J1
Y REF



PARTIAL SECTION A-A


.91
.29
.31
.130
R 4 PLACES

DETAIL D



NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: PLASTIC SHEET PER MIL-P-18177 TYPE GEE
3.
4.
5. MARK .06/.04 HIGH WHITE CHARACTERS PER ND 1002019 AND ND 1002122 TYPE II CLASS 2 USING INK 1006271-1
6. REMOVE BURRS AND BREAK SHARP EDGES .005/.015
7. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII .010 MAX
8. IDENTIFY WITH PART NO. PER ND1002019
9. INSTALL FIND NO. 1 .005/.020 BELOW FIND NO. 2 PER ND1002121

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
2	1006702-2	INSERT, THREADED	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003035	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XX ±.02 .XXX ±.005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J. Crosby
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPONENT HOLDER
AGC OSCILLATOR MODULE NO. B7

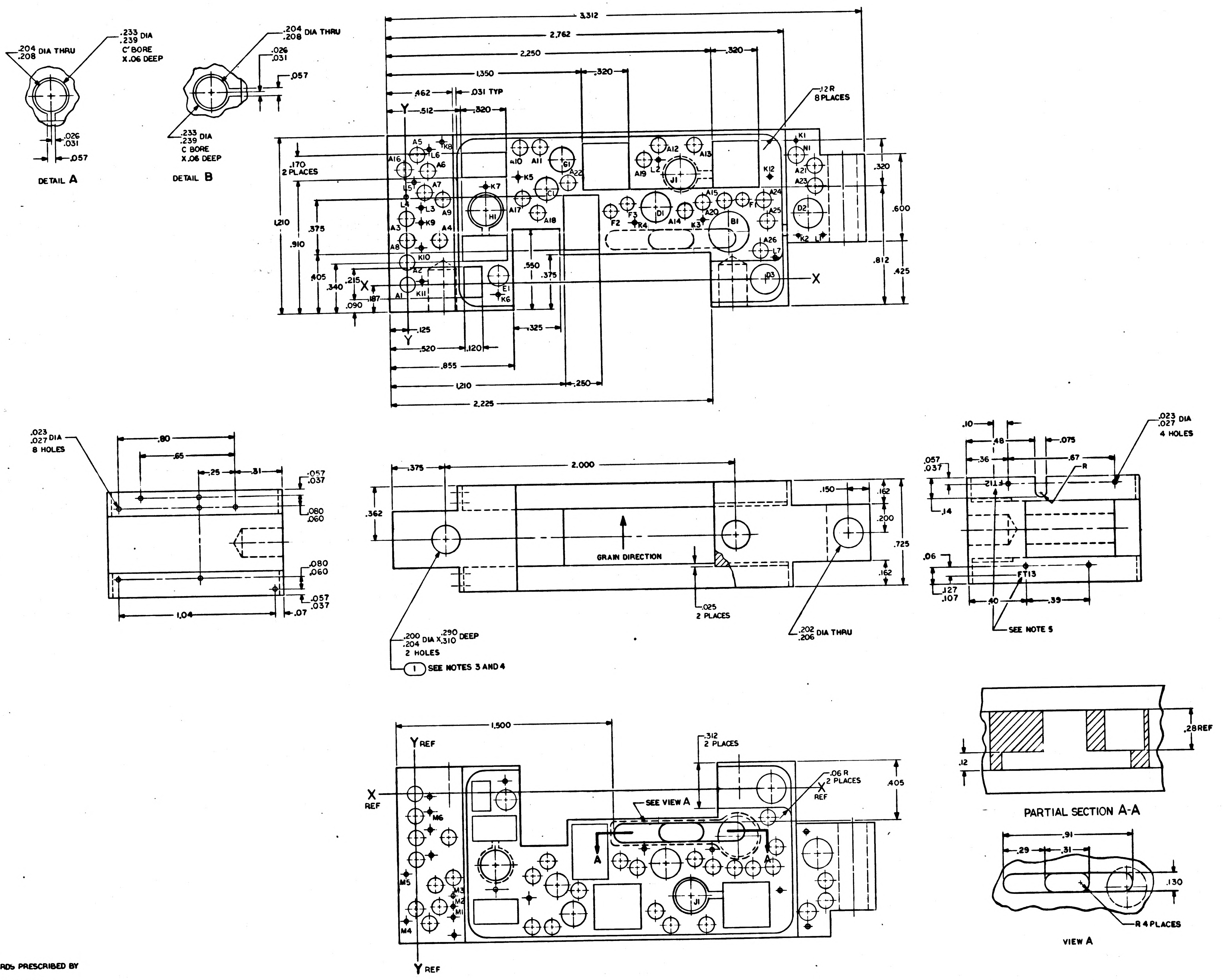
CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2004060
SCALE 4/1
SHEET 1 OF 1

MASTER

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 12683						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

HOLE IDENT	X DIM	Y DIM	HOLE DIA	QTY
A1	.000	.000	.100 .104	26
A2	.000	.150		
A3	.000	.450		
A4	.225	.300		
A5	.075	.887		
A6	.150	.775		
A7	.125	.625		
A8	.000	.300		
A9	.250	.575		
A10	.787	.925		
A11	.925	.925		
A12	1.750	.925		
A13	2.000	.925		
A14	1.925	.475		
A15	2.200	.537		
A16	-.012	.787		
A17	.800	.575		
A18	.900	.475		
A19	1.650	.825		
A20	2.050	.525		
A21	2.837	.775		
A22	1.112	.675		
A23	2.837	.637		
A24	2.475	.537		
A25	2.500	.400		
A26	2.450	.200		
B1	2.225	.325	.274 .282 X .28 DP	1
C1	.962	.637	.153 .157	1
D1	1.725	.500	.202 .206	3
D2	2.787	.450		
D3	2.475	.000		
E1	.625	.050	.135 .139	1
F1	2.325	.537	.088 .092	3
F2	1.412	.475		
F3	1.525	.525		
G1	1.075	.837	.168 .172	1
H1	.550	.500	SEE DET A	1
J1	1.900	.725	SEE DET B	1
K1	2.712	.950	.023 .027	12
K2	2.712	.300		
K3	2.050	.412		
K4	1.575	.400		
K5	.775	.725		
K6	.625	-.075		
K7	.550	.662		
K8	.250	.975		
K9	.100	.425		
K10	.100	.250		
K11	.100	.025		
K12	2.525	.700		
L1	2.887	.300	.023 .027 X .15 DP	7
L2	1.750	.825		
L3	.100	.525		
L4	.000	.600		
L5	.050	.700		
L6	.162	.925		
L7	2.550	.150		
M1	.250	-.850	.023 .027 X .15 DP FAR SIDE	6
M2	.250	-.775		
M3	.250	-.700		
M4	-.075	-.875		
M5	-.075	-.550		
M6	.100	-.125		
N1	2.712	.850	.108 .112	1



.204 .208 DIA THRU
.233 .239 DIA C'BORE X.06 DEEP
.026 .031
.057
DETAIL A
.204 .208 DIA THRU
.026 .031
.057
.233 .239 DIA C BORE X.06 DEEP
DETAIL B
3.312
2.762
2.250
.320
1.350
.320
.462
.031 TYP
.512
.320
.12 R 8 PLACES
.170 2 PLACES
1.210
.375
.910
.405
.215
.340
.090
.187
.550
.375
.125
.520
.120
.325
.855
1.210
.250
2.225
.320
.600
.812
.425
X
Y
.023 .027 DIA 8 HOLES
.80
.65
.25
.31
.057 .037
.080 .060
.080 .060
.057 .037
1.04
.07
.375
2.000
.150
.162
.362
.200
.725
.162
GRAIN DIRECTION
.025 2 PLACES
.200 .204 DIA X .290 .310 DEEP 2 HOLES
1 SEE NOTES 3 AND 4
.202 .206 DIA THRU
.10
.48
.075
.023 .027 DIA 4 HOLES
.057 .037
.36
.67
R
.14
.06
FT13
.127 .107
.40
.39
SEE NOTE 5
1.500
.312 2 PLACES
.06 R 2 PLACES
.405
Y REF
X REF
SEE VIEW A
A
A
M1
M2
M3
M4
M5
M6
J1
Y REF
.28 REF
.12
PARTIAL SECTION A-A
.91
.29
.31
.130
R 4 PLACES
VIEW A

NOTES:

1. INTERPRET DRAWINGS IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: PLASTIC SHEET PER MIL-P-18177 TYPE GEE
3. BOND FIND NO.1 PER ND1002126 METHOD 1
4. FIND NO.1 TO BE .005 MINIMUM BELOW SURFACE
5. MARK .06/.04 HIGH WHITE CHARACTERS PER ND 1002019 AND ND 1002122 TYPE II CLASS 2 USING INK 1006271-1
6. REMOVE BURRS AND BREAK SHARP EDGES .005/.015
7. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII .010 MAX
8. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
2	1006331-002	INSERT, THREADED	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003035	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XX ± .02 .XXX ± .005 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J. Crowley
CHECKED
APPROVED
APPROVED Elden C. Hall
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

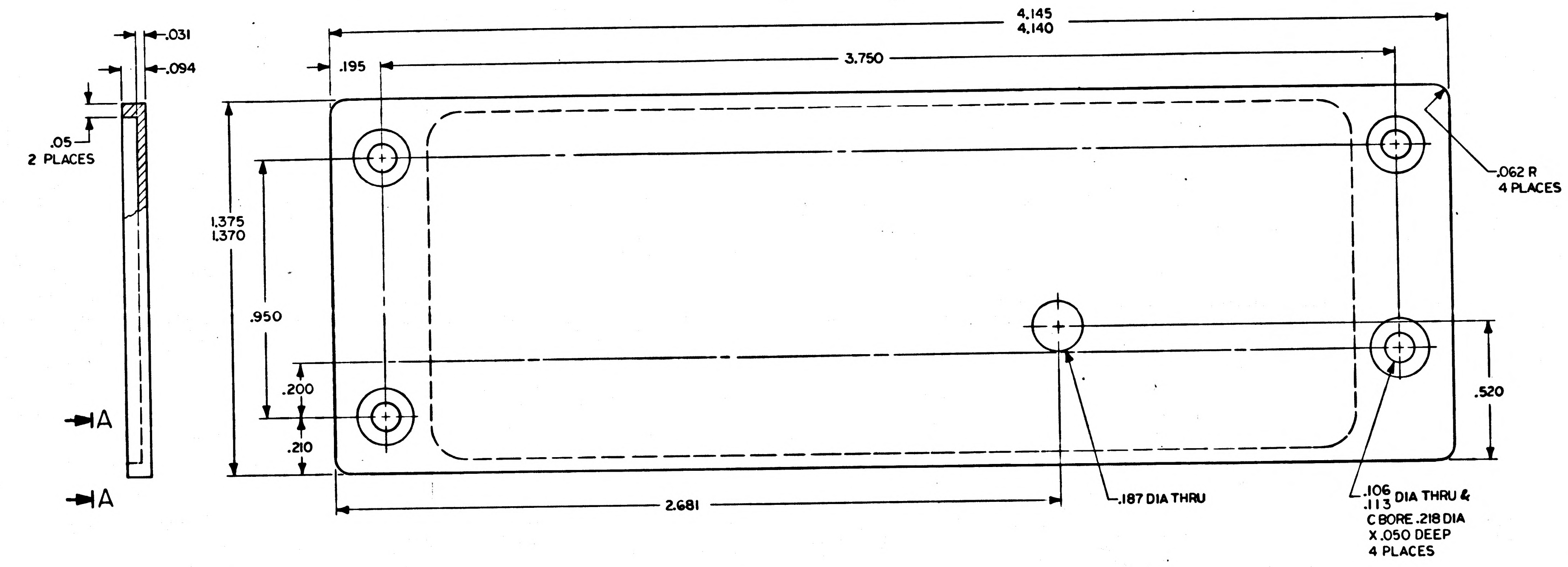
COMPONENT HOLDER
AGC OSCILLATOR MODULE NO.B7

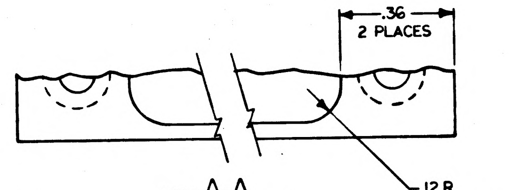
CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2004060
SCALE 4/1
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 18683

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED





VIEW A-A

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: MAGNESIUM ZK60A-T5 PER MIL-M-31 TEMP 5
3. REMOVE BURRS AND SHARP EDGES .005/.015
4. FINISH: ANODIZE PER MIL-M-45202, TYPE I, CLASS C
5. ALL SURFACES 125√
6. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADIOS TO BE .010 MAX
7. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003036	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XXX ± .005 .XX ± .01 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	Tom Hillson	9 MAR 65
CHECKED	R.P. Kingsbury	25 MAR 65
APPROVED	[illegible]	3-19-65
APPROVED	[illegible]	23 Apr 65
APPROVED MIT	W Kupfer	27 Apr 65
APPROVED MSC	[illegible]	4-27-65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COVER A
OSCILLATOR MODULE

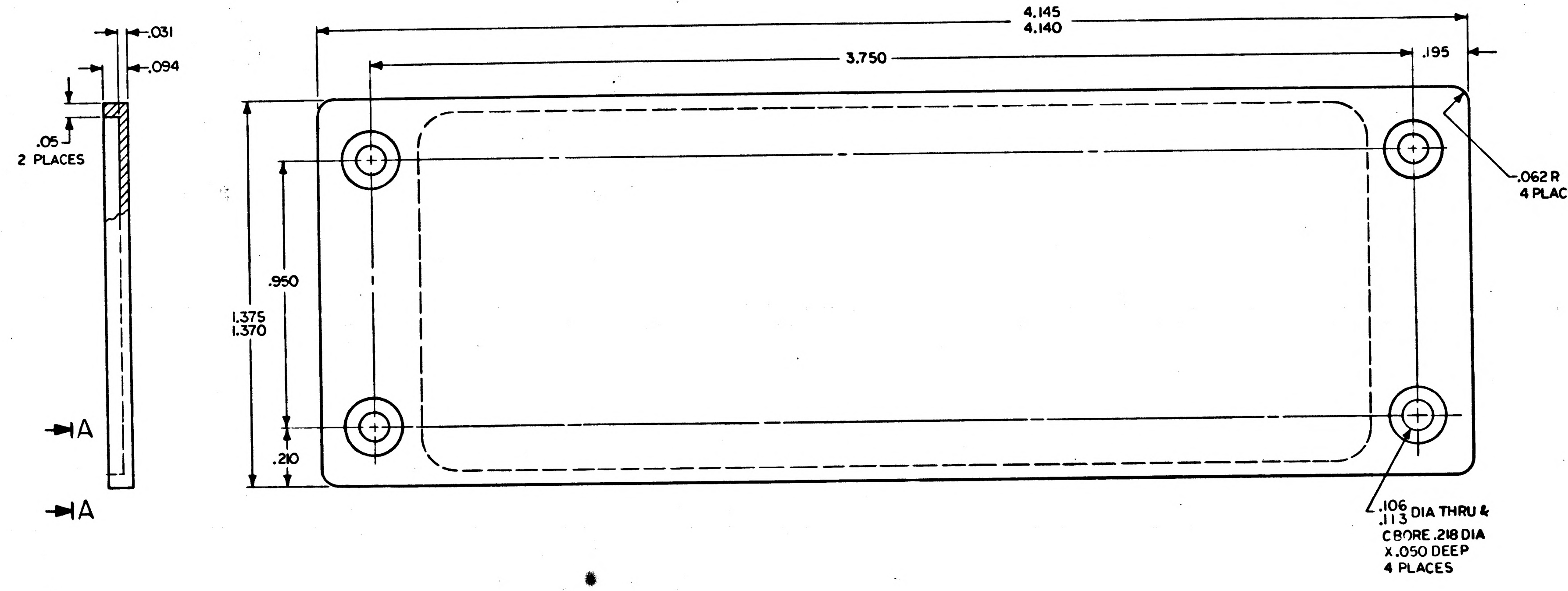
CODE IDENT NO.	SIZE	DRAWING NO.
—	D	2004061

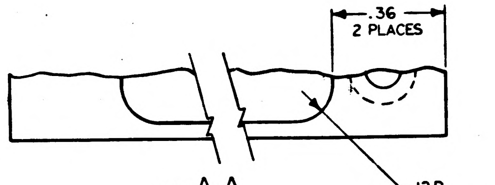
SCALE 4/1 SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 18683

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED





VIEW A-A

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: MAGNESIUM ZK60A-T5 PER MIL-M-31 TEMP 5
3. REMOVE BURRS AND SHARP EDGES .005/.015
4. FINISH: ANODIZE PER MIL-M-45202, TYPE I, CLASS C
5. ALL SURFACES 125/
6. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .010 MAX
7. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MASTER

NEXT ASSY	USED ON
2003036	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS XXX ± .005 XX ± .01 ANGLES ± ——
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

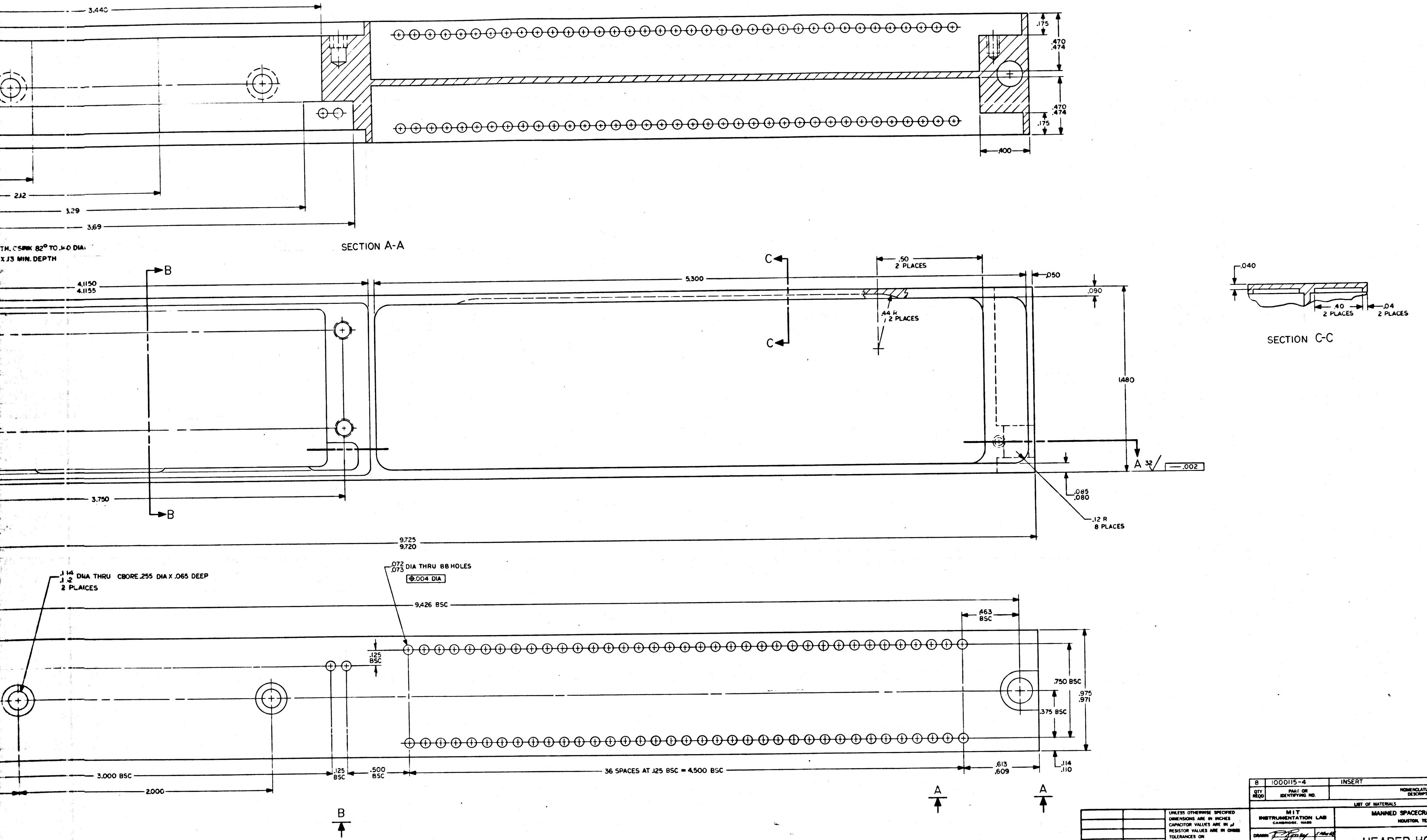
DRAWN	Tom Dillon	9MAR65
CHECKED	R.P. [illegible]	25MAR65
APPROVED	[illegible]	3-19-65
APPROVED	Eldon C. Hall	23 Apr 65
APPROVED MIT	W. Kupfer	27 Apr 65
APPROVED MSC	[illegible]	4-27-65
		DATE

COVER B
OSCILLATOR MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
——	D	2004062

SCALE 4/1 SHEET 1 OF 1

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		REVISIONS 18683				



3.440
.175
.470
.474
.470
.474
.175
.400
2.12
3.29
3.69
TH, CSINK 82° TO .140 DIA
X .13 MIN. DEPTH
SECTION A-A
B
B
C
C
4.1150
4.1155
5.300
.50
2 PLACES
.050
.090
.44 R
2 PLACES
1.480
A
32
.002
.085
.080
.12 R
8 PLACES
3.750
9.725
9.720
.040
.40
2 PLACES
.04
2 PLACES
SECTION C-C
.114
.112 DIA THRU CBORE .255 DIA X .065 DEEP
2 PLACES
.072
.073 DIA THRU 88 HOLES
.004 DIA
9.426 BSC
.463
BSC
.125
BSC
.750 BSC
.975
.971
.375 BSC
3.000 BSC
2.000
.125
BSC
.500
BSC
36 SPACES AT .125 BSC = 4.500 BSC
.613
.609
.114
.110
A
A
B

8	1000115-4	INSERT	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003037	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XXX ±.005 .XX ±.02 ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

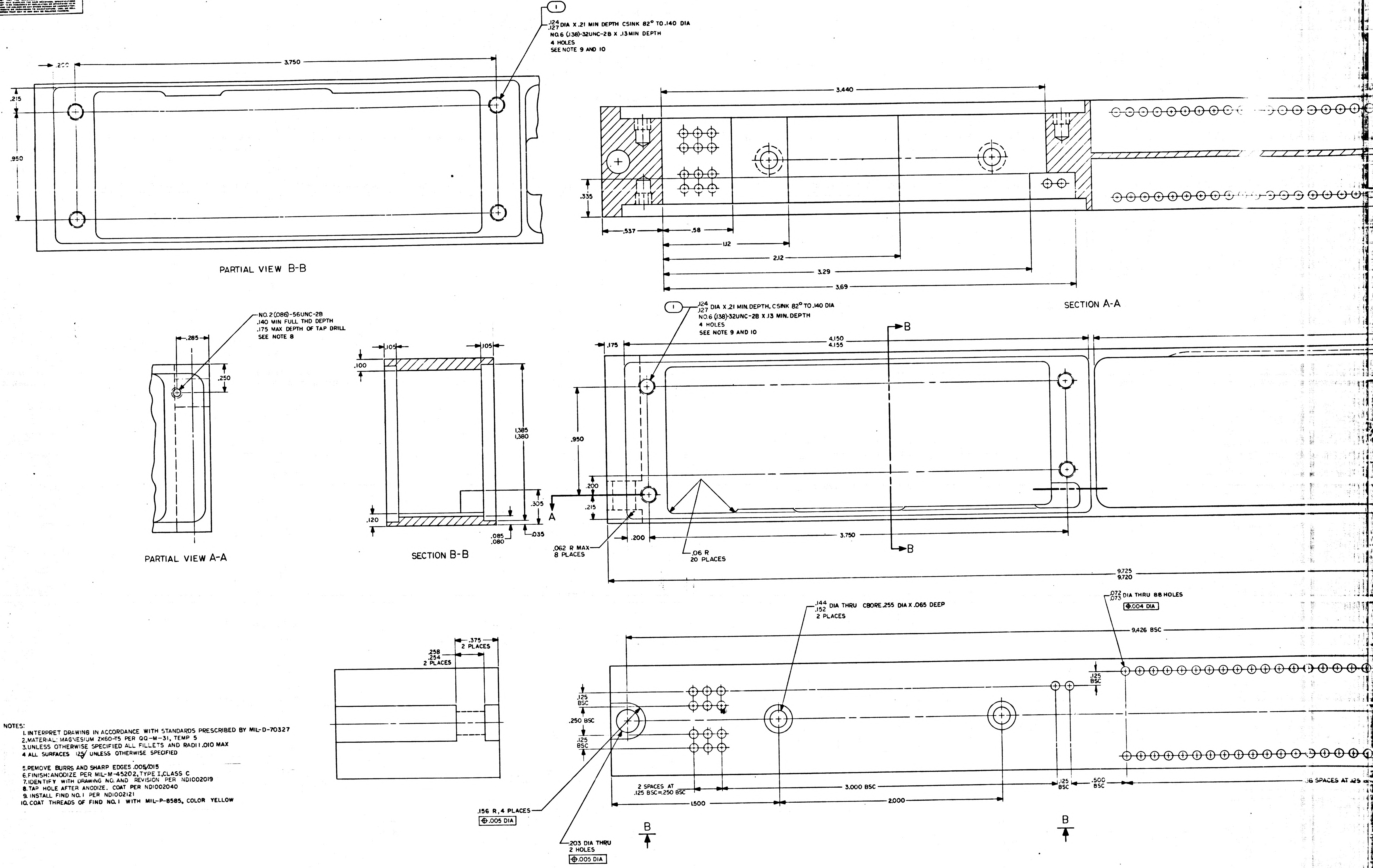
DRAWN		5 Mar 65
CHECKED		25 Mar 65
APPROVED		3-19-65
APPROVED	Eldon C. Hall	23 Apr 65
APPROVED MIT		27 Apr 65
APPROVED MSC		4-27-65
		DATE

HEADER HOUSING
OSCILLATOR MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2004063
SCALE 4/1		SHEET 1 OF 1

MASTER

2004063


.124 .127 DIA X .21 MIN DEPTH CSINK 82° TO .140 DIA
NO.6 (.138)-32UNC-2B X .13 MIN DEPTH
4 HOLES
SEE NOTE 9 AND 10
PARTIAL VIEW B-B
SECTION A-A
3.750
.200
.215
.950
3.440
.335
.537
.58
1.12
2.12
3.29
3.69
NO. 2 (.086)-56UNC-2B
.140 MIN FULL THD DEPTH
.175 MAX DEPTH OF TAP DRILL
SEE NOTE 8
.285
.250
PARTIAL VIEW A-A
.105
.100
1.385 1.380
.305
.120
.085 .080
.035
SECTION B-B
.175
4.150 4.155
.062 R MAX 8 PLACES
.06 R 20 PLACES
9.725 9.720
A
B
.144 .152 DIA THRU CBORE .255 DIA X .065 DEEP
2 PLACES
.072 .075 DIA THRU 88 HOLES
.004 DIA
9.426 BSC
.375 2 PLACES
.258 .254 2 PLACES
.125 BSC
.250 BSC
2 SPACES AT .125 BSC=.250 BSC
3.000 BSC
1.500
2.000
.500 BSC
36 SPACES AT .125
.156 R, 4 PLACES
.005 DIA
.203 DIA THRU 2 HOLES
.005 DIA

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: MAGNESIUM ZK60-T5 PER QQ-M-31, TEMP 5
3. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII .010 MAX
4. ALL SURFACES 125√ UNLESS OTHERWISE SPECIFIED
5. REMOVE BURRS AND SHARP EDGES .005/.015
6. FINISH: ANODIZE PER MIL-M-45202, TYPE I, CLASS C
7. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
8. TAP HOLE AFTER ANODIZE. COAT PER ND1002040
9. INSTALL FIND NO. 1 PER ND1002121
10. COAT THREADS OF FIND NO. 1 WITH MIL-P-8585, COLOR YELLOW

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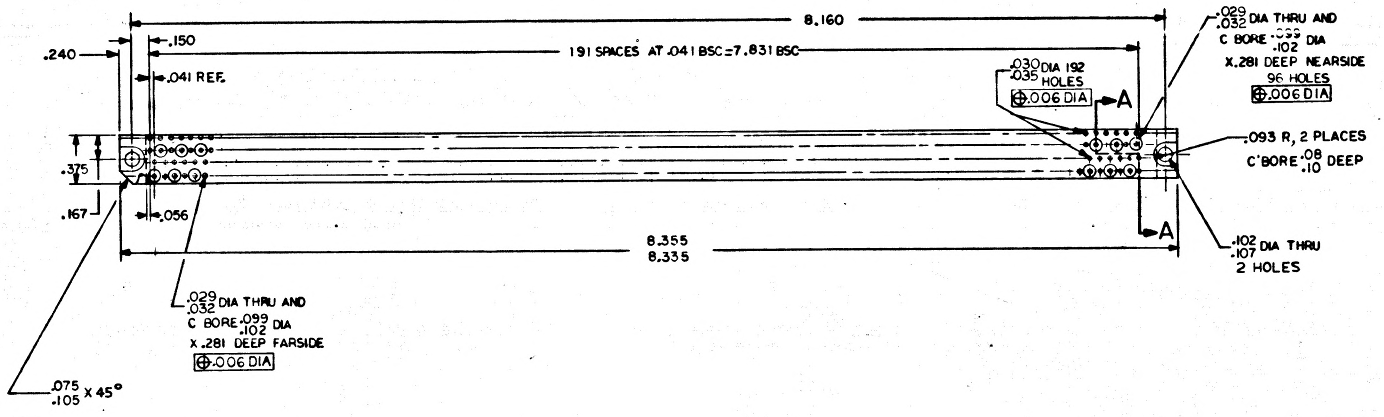
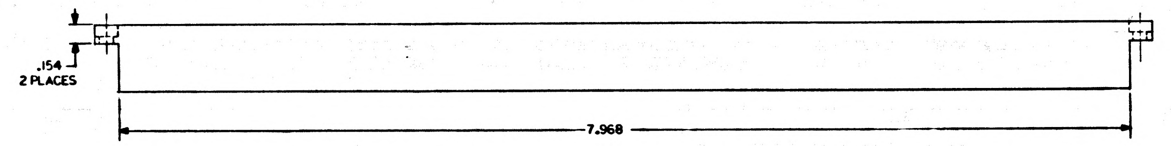
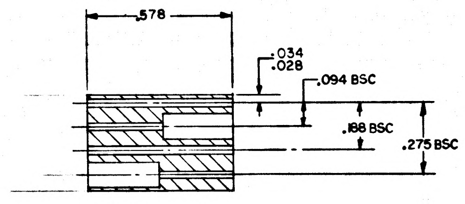
REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20950	WH	BCK	3 Aug	WK


8.160
.150
.240
191 SPACES AT .041 BSC=7.831 BSC
.041 REF.
.030 .035 DIA 192 HOLES
⊕.006 DIA
A
.029 .032 DIA THRU AND C BORE .099 .102 DIA X.281 DEEP NEARSIDE 96 HOLES
⊕.006 DIA
.375
.167
.056
.093 R, 2 PLACES C'BORE .08 .10 DEEP
8.355 8.335
A
.102 .107 DIA THRU 2 HOLES
.029 .032 DIA THRU AND C BORE .099 .102 DIA X.281 DEEP FARSIDE
⊕.006 DIA
.075 .105 X 45°


.154 2 PLACES
7.968


.578
.034 .028
.094 BSC
.188 BSC
.275 BSC

SECTION A-A
SCALE:4/1

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL:PLASTIC SHEET PER MIL-P-18177 TYPE GEE
3. REMOVE BURRS AND SHARP EDGES .005/.015
4 ALL SURFACES 125/√
5. IDENTIFY WITH DRAWING NO. AND REVISION PER ND 1002019

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003052	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 5°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN Louis A Carre 7 Aug 65
CHECKED [illegible]
APPROVED [illegible]
APPROVED [illegible]
APPROVED MIT W Kupfer
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COMPONENT BLOCK,
RESISTOR
FIXED MEMORY MODULE

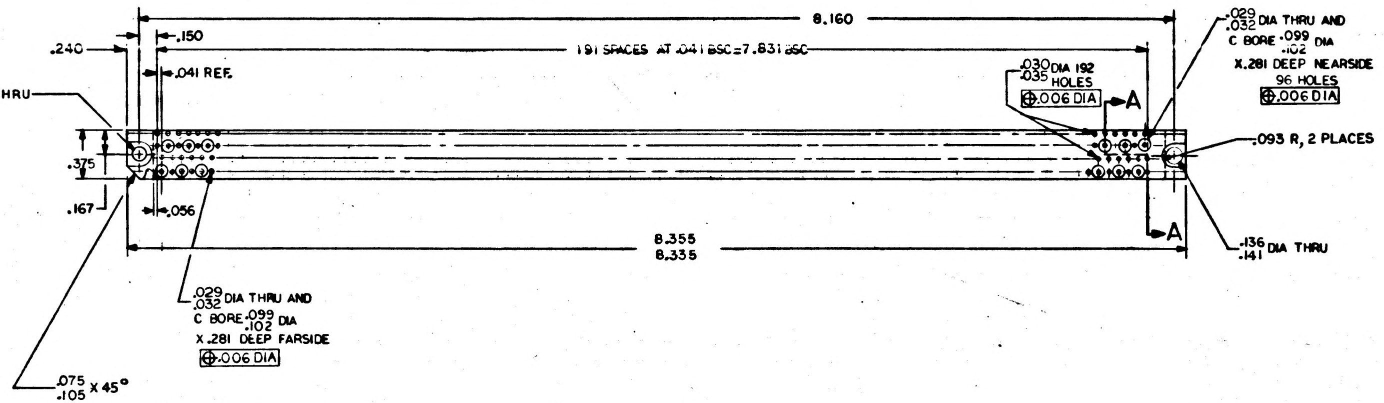
CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2004064

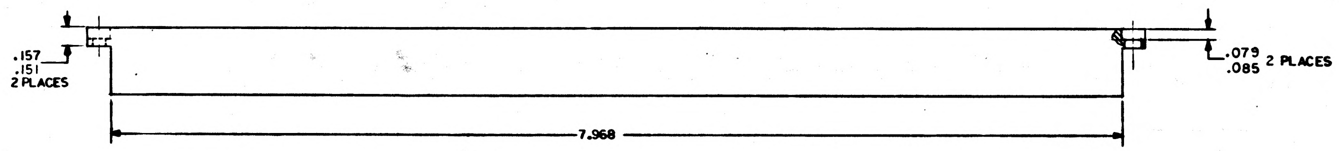
SCALE 2/1
SHEET 1 OF 1

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

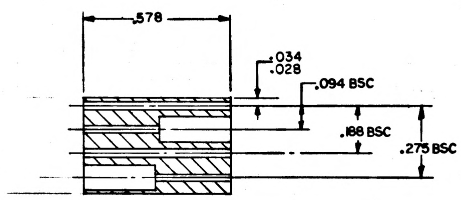
REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20950	WH	BOK	3Aug[illegible]	WK
B		REVISED PER TDRR 22263	+B	[illegible]	[illegible]	[illegible]


8.160
.240
.150
191 SPACES AT .041 BSC=7.831 BSC
.041 REF.
.102
.107 DIA THRU
.030
.035 DIA 192 HOLES
⊕.006 DIA
A
.029
.032 DIA THRU AND
C BORE .099
.102 DIA
X.281 DEEP NEARSIDE
96 HOLES
⊕.006 DIA
.093 R, 2 PLACES
.375
.167
.056
8.355
8.335
A
.136
.141 DIA THRU
.029
.032 DIA THRU AND
C BORE .099
.102 DIA
X.281 DEEP FARSIDE
⊕.006 DIA
.075
.105 X 45°


.157
.151
2 PLACES
.079
.085 2 PLACES
7.968

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: PLASTIC SHEET PER MIL-P-18177 TYPE GEE
3. REMOVE BURRS AND SHARP EDGES .005/.015
4. ALL SURFACES 125√
5. IDENTIFY WITH PART NO PER ND 1002019


.578
.034
.028
.094 BSC
.188 BSC
.275 BSC

SECTION A-A
SCALE:4/1

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003052	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 5°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

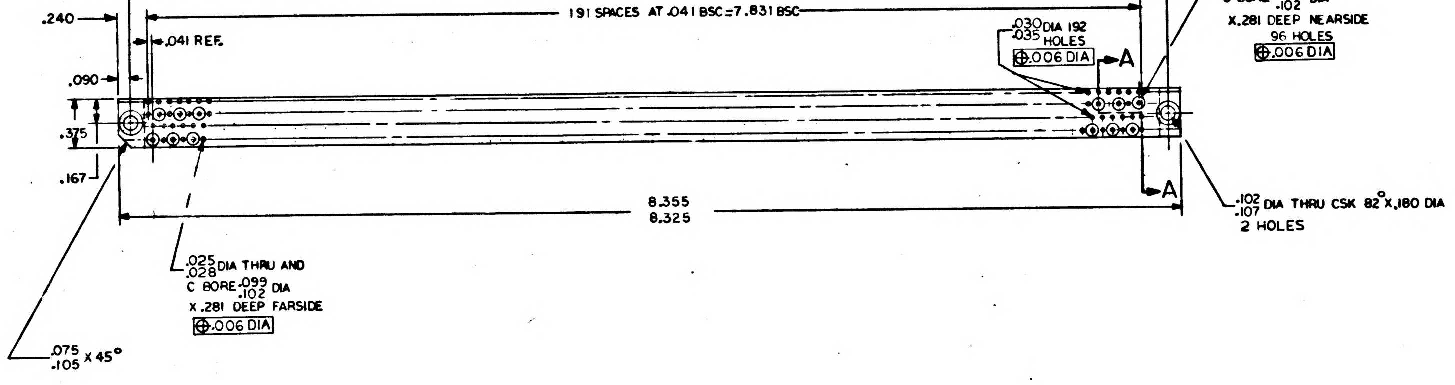
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

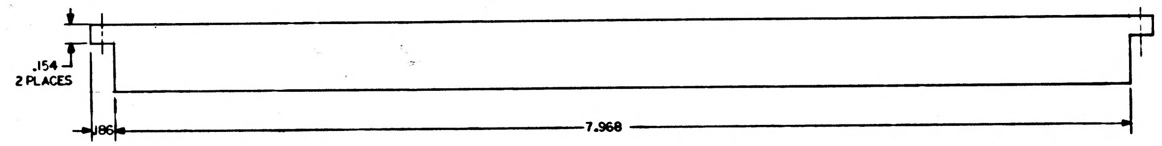
COMPONENT BLOCK,
RESISTOR
FIXED MEMORY MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2004064
SCALE 2/1		SHEET 1 OF 1

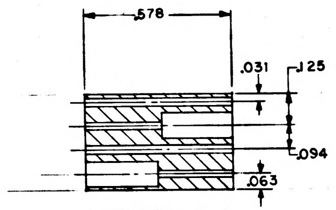
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 200[illegible]						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED


8.160
191 SPACES AT .041 BSC=7.831 BSC
.240
.041 REF.
.090
.375
.167
.030/.035 DIA 192 HOLES
⊕.006 DIA
A
.025/.028 DIA THRU AND C BORE .099/.102 DIA X.281 DEEP NEARSIDE 96 HOLES
⊕.006 DIA
A
.102/.107 DIA THRU CSK 82° X.180 DIA 2 HOLES
8.355
8.325
.025/.028 DIA THRU AND C BORE .099/.102 DIA X.281 DEEP FARSIDE
⊕.006 DIA
.075/.105 X 45°


.154
2 PLACES
.186
7.968

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: PLASTIC SHEET PER MIL-P-18177 TYPE GEE
3. REMOVE BURRS AND SHARP EDGES .005/.015
4 ALL SURFACES 125√
5. IDENTIFY WITH DRAWING NO. AND REVISION PER ND 1002019


.578
.031
.125
.094
.063

SECTION A-A
SCALE: 4/1

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003052	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 5°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	Lois A. Lore	7 Mar 65
CHECKED	[illegible]	[illegible]
APPROVED	[illegible]	[illegible]
APPROVED	Eldon C. Hall	3 [illegible] 65
APPROVED MIT	W. Kupfer	9 Jun 65
APPROVED MSC	[illegible]	[illegible]
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

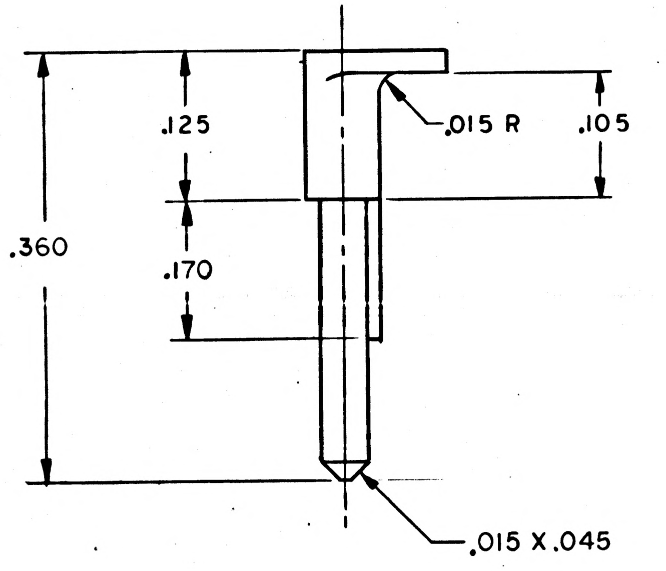
COMPONENT BLOCK, RESISTOR
FIXED MEMORY MODULE

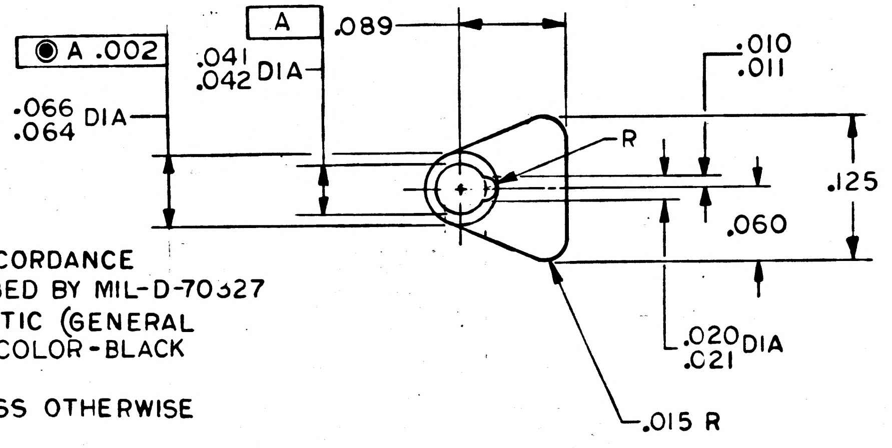
CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2004064
SCALE 2/1		SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20950	WFH	EPK	3Aug65	





NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATL: ABS THERMO PLASTIC (GENERAL PURPOSE MOLDING GRADE) COLOR-BLACK PER MIL-M-22544 TYPE II
3. ALL SURFACES 63/ UNLESS OTHERWISE SPECIFIED
4. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .005 MAX
5. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
6. REMOVE BURRS AND SHARP EDGES .005 MAX

MASTER

NEXT ASSY	USED ON
2003049	
2003040	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± .005 ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J. A. Zaffini 18MAY65
CHECKED 21MAY65
APPROVED F. J. London 27MAY65
APPROVED Eldon C Hall 3Jun65
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

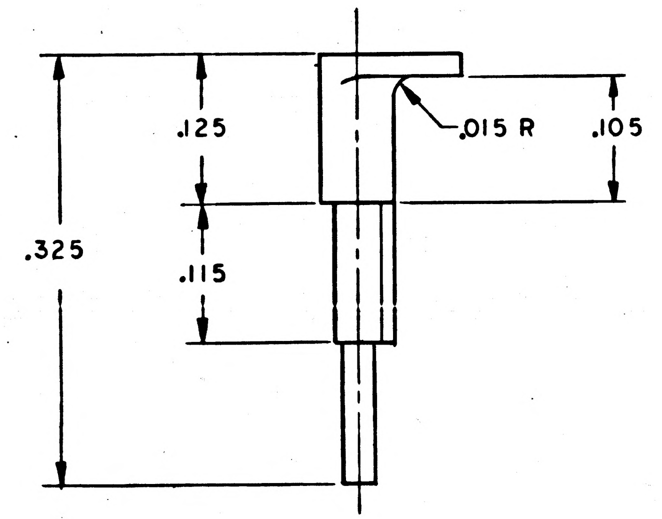
FINGER WRAPOST, MALE
FIXED MEMORY MODULE

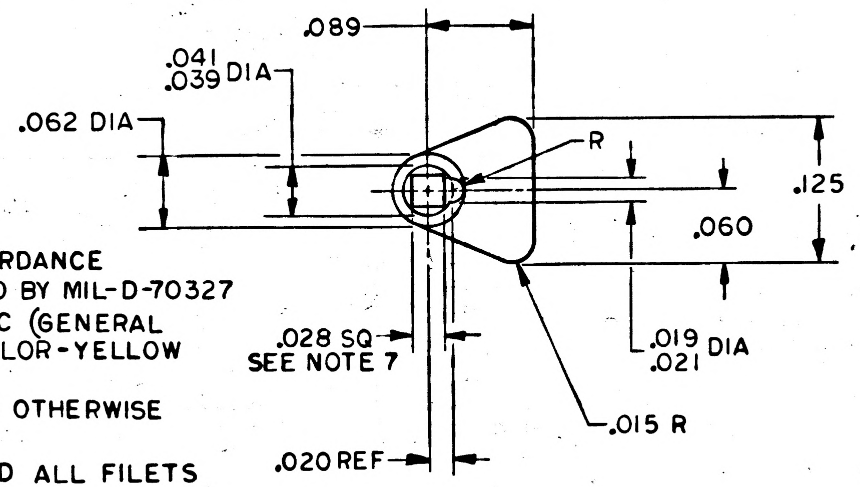
CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004066
SCALE 10/1
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED





NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATL: ABS THERMO PLASTIC (GENERAL PURPOSE MOLDING GRADE), COLOR-YELLOW PER MIL-M-22544
3. ALL SURFACES 63/ UNLESS OTHERWISE SPECIFIED
4. UNLESS OTHERWISE SPECIFIED ALL FILETS AND RADII TO BE .005 MAX
5. IDENTIFY WITH DRAWING NO AND REVISION PER ND1002019
6. REMOVE BURRS AND SHARP EDGES .005 MAX
7. SQUARE SHAFT OF DWG NO.2004066 TO MATCH SQUARE HOLE (LIGHT INTERFERENCE FIT .0000/.0006) IN DWG NO.2004047

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003049	
2003040	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN J. A. Zaffini 18 MAY 65
CHECKED R. R. Kingsbury 21 MAY 65
APPROVED F. J. Londino 27 MAY 65
APPROVED Eldon C Hall 3 Jun 65
APPROVED MIT 4 Jun 65
APPROVED MSC 6/1/65
DATE

FINGER WRAPOST, MALE
FIXED MEMORY MODULE

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004066
SCALE 10/1
SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
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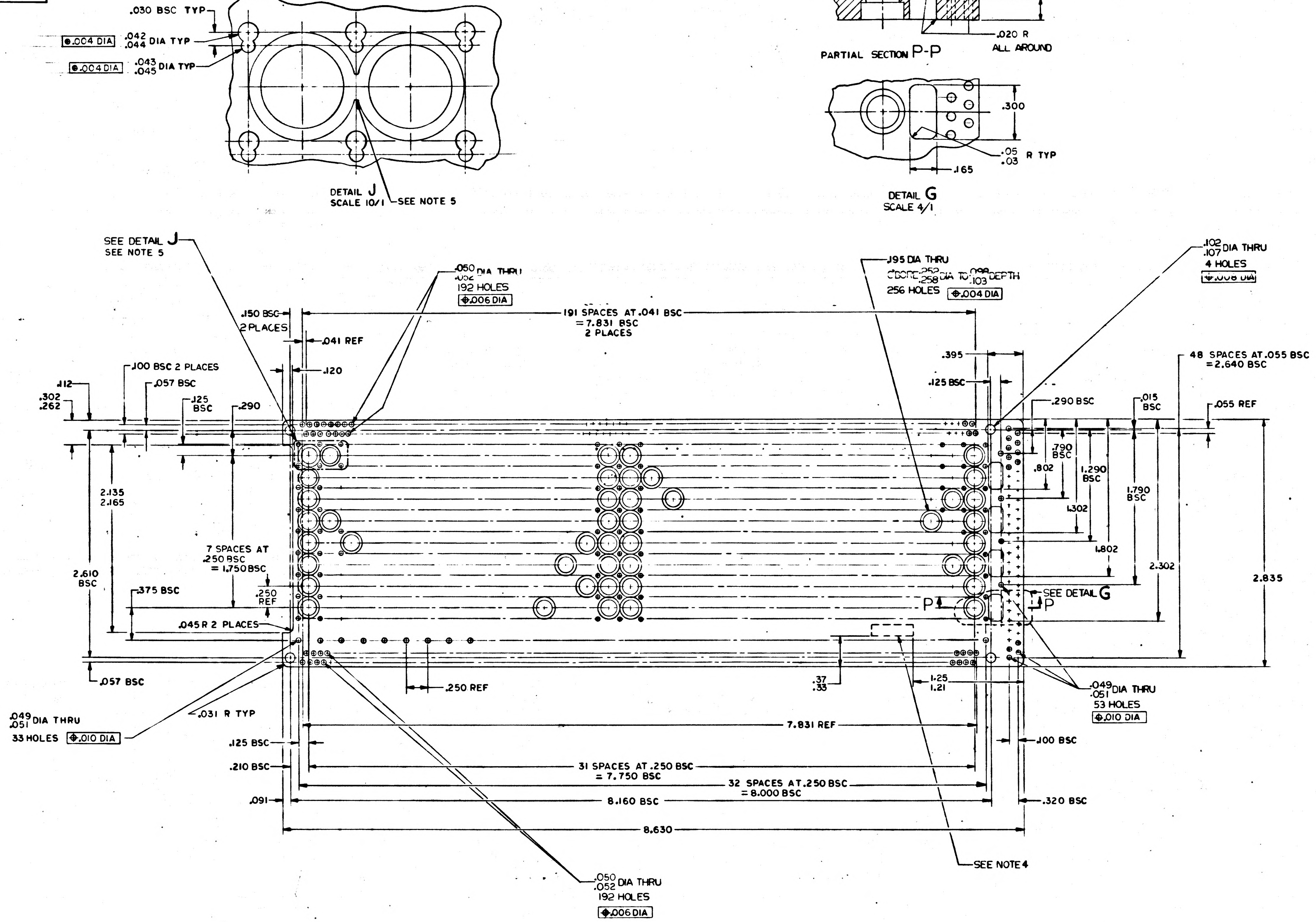


.030 BSC TYP
⊕.004 DIA
.042 .044 DIA TYP
⊕.004 DIA
.043 .045 DIA TYP
DETAIL J
SCALE 10/1
SEE NOTE 5
RAD REF
SEE NOTE 3
.125
.020 R
ALL AROUND
PARTIAL SECTION P-P
.300
.05 .03 R TYP
.165
DETAIL G
SCALE 4/1
SEE DETAIL J
SEE NOTE 5
.050 .052 DIA THRU
192 HOLES
⊕.006 DIA
.150 BSC
2 PLACES
.041 REF
.120
191 SPACES AT .041 BSC
= 7.831 BSC
2 PLACES
.195 DIA THRU
C'BORE .252 .258 DIA TO .098 .103 DEPTH
256 HOLES
⊕.004 DIA
.102 .107 DIA THRU
4 HOLES
⊕.008 DIA
.100 BSC 2 PLACES
.057 BSC
.112
.302 .262
.125 BSC
.290
2.135 2.165
7 SPACES AT .250 BSC = 1.750 BSC
2.610 BSC
.375 BSC
.250 REF
.045 R 2 PLACES
.057 BSC
.395
.125 BSC
.290 BSC
.015 BSC
.055 REF
48 SPACES AT .055 BSC
= 2.640 BSC
.790 BSC
.802
1.290 BSC
1.302
1.790 BSC
1.802
2.302
2.835
SEE DETAIL G
P
P
.049 .051 DIA THRU
33 HOLES
⊕.010 DIA
.031 R TYP
.250 REF
.37 .33
1.25 1.21
.049 .051 DIA THRU
53 HOLES
⊕.010 DIA
7.831 REF
.125 BSC
.100 BSC
.210 BSC
31 SPACES AT .250 BSC
= 7.750 BSC
32 SPACES AT .250 BSC
= 8.000 BSC
.091
8.160 BSC
.320 BSC
8.630
SEE NOTE 4
.050 .052 DIA THRU
192 HOLES
⊕.006 DIA

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATL: PLASTIC SHEET PER MIL-P-18177 TYPE GEE
3. REMOVE BURRS AND SHARP EDGES .005/.015
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
5. BREAK THRU PERMISSIBLE BETWEEN .252/.258 DIA C'BORE HOLES

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003049	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN R.W. Cayton 16 MAR 65
CHECKED 21 MAY 65
APPROVED 27 MAY 65
APPROVED Eldon C Hall 3 June
APPROVED MIT W Kupfer
APPROVED MSC
DATE

CORE HOLDER
FIXED MEMORY MODULE

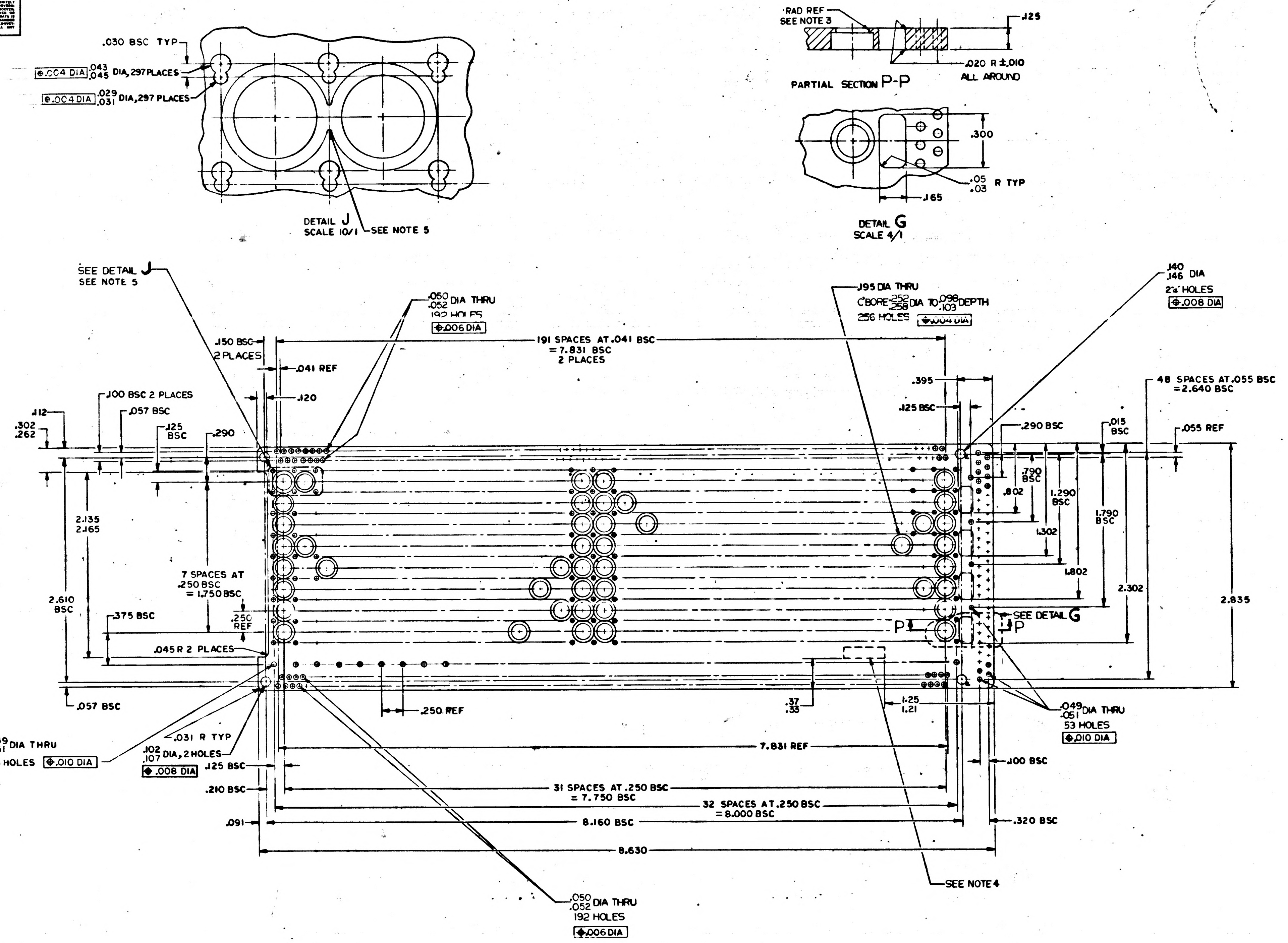
CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2004067
SCALE 2/1
SHEET 1 OF 1

2004067 A

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20950	WFH	KPE		WK
B		REVISED PER TDRR 22267				



.030 BSC TYP
⊕ .004 DIA .043/.045 DIA, 297 PLACES
⊕ .004 DIA .029/.031 DIA, 297 PLACES
DETAIL J
SCALE 10/1
SEE NOTE 5
RAD REF SEE NOTE 3
.125
.020 R ±.010 ALL AROUND
PARTIAL SECTION P-P
.300
.05/.03 R TYP
.165
DETAIL G
SCALE 4/1
SEE DETAIL J
SEE NOTE 5
.050/.052 DIA THRU 192 HOLES ⊕ .006 DIA
.150 BSC 2 PLACES
191 SPACES AT .041 BSC = 7.831 BSC 2 PLACES
.041 REF
.120
.100 BSC 2 PLACES
.057 BSC
.125 BSC
.290
.112
.302/.262
.195 DIA THRU C'BORE .252/.258 DIA TO .098/.103 DEPTH 256 HOLES ⊕ .004 DIA
.140/.146 DIA 2 HOLES ⊕ .008 DIA
.395
.125 BSC
48 SPACES AT .055 BSC = 2.640 BSC
.290 BSC
.015 BSC
.055 REF
.790 BSC
.802
1.290 BSC
1.302
1.790 BSC
1.802
2.302
2.835
2.135/2.165
7 SPACES AT .250 BSC = 1.750 BSC
2.610 BSC
.375 BSC
.250 REF
.045 R 2 PLACES
SEE DETAIL G
P
.057 BSC
.250 REF
.37/.33
1.25/1.21
.049/.051 DIA THRU 53 HOLES ⊕ .010 DIA
.049/.051 DIA THRU 33 HOLES ⊕ .010 DIA
.031 R TYP
.102/.107 DIA, 2 HOLES ⊕ .008 DIA
.125 BSC
.210 BSC
7.831 REF
.100 BSC
31 SPACES AT .250 BSC = 7.750 BSC
32 SPACES AT .250 BSC = 8.000 BSC
.320 BSC
.091
8.160 BSC
8.630
SEE NOTE 4
.050/.052 DIA THRU 192 HOLES ⊕ .006 DIA

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATL: PLASTIC SHEET PER MIL-P-18177 TYPE GEE
3. REMOVE BURRS AND SHARP EDGES .005/.015
4. IDENTIFY WITH PART NO. PER ND 1002019
5. BREAK THRU PERMISSIBLE BETWEEN .252/.258 DIA C'BORE HOLES

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003049	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN R.W. Cayton
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

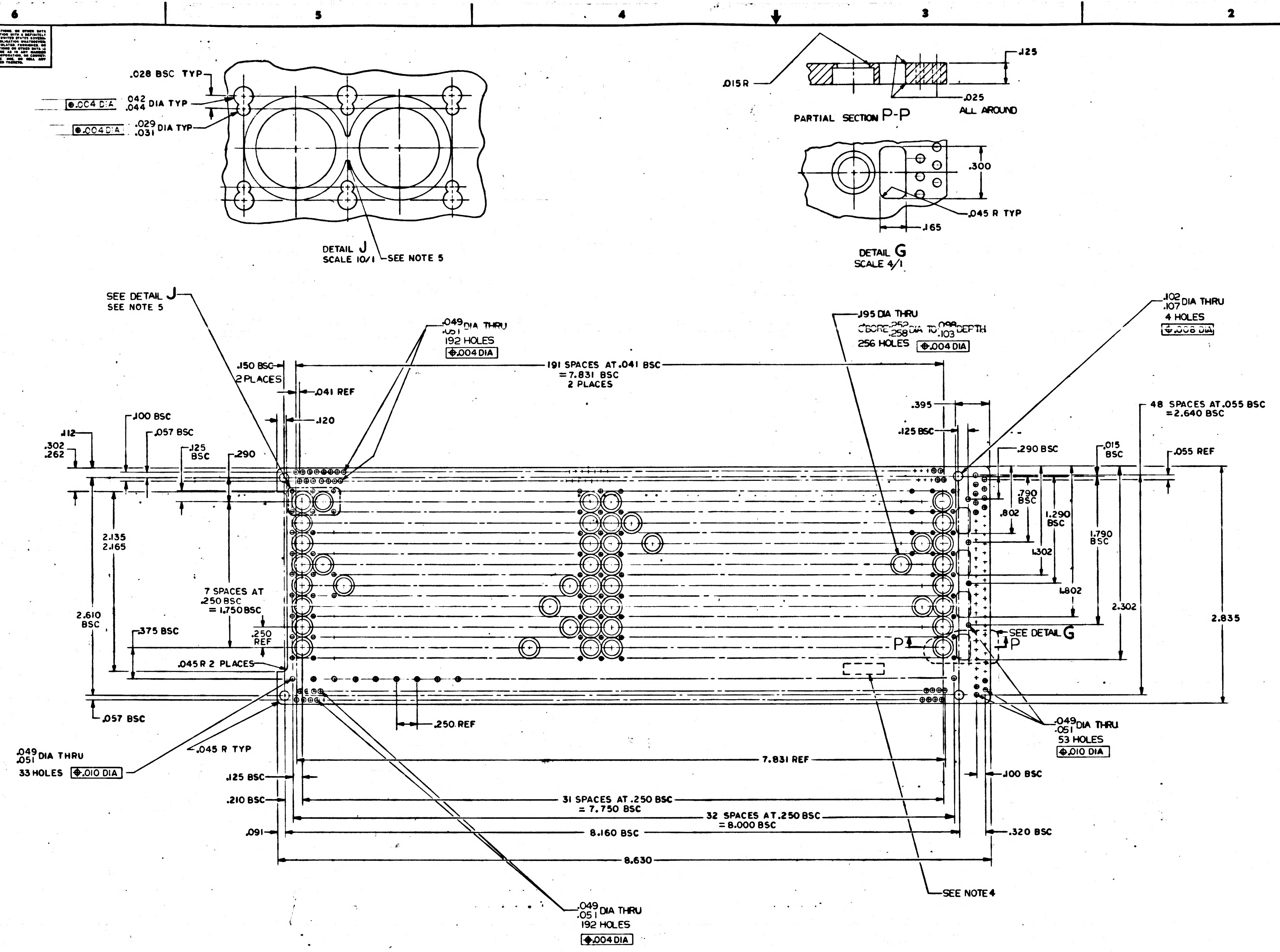
CORE HOLDER
FIXED MEMORY MODULE

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2004067
SCALE 2/1
SHEET 1 OF 1

2004067 B

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED


.028 BSC TYP
⊕.004 DIA
.042 .044 DIA TYP
⊕.004 DIA
.029 .031 DIA TYP
DETAIL J
SCALE 10/1
SEE NOTE 5
.015 R
.125
.025 ALL AROUND
PARTIAL SECTION P-P
.300
.045 R TYP
.165
DETAIL G
SCALE 4/1
SEE DETAIL J
SEE NOTE 5
.049 .051 DIA THRU
192 HOLES
⊕.004 DIA
.150 BSC 2 PLACES
.041 REF
.120
191 SPACES AT .041 BSC = 7.831 BSC 2 PLACES
.195 DIA THRU
C'BORE .252 .258 DIA TO .098 .103 DEPTH
256 HOLES ⊕.004 DIA
.102 .107 DIA THRU
4 HOLES
⊕.008 DIA
.395
.125 BSC
48 SPACES AT .055 BSC = 2.640 BSC
.112
.302 .262
.100 BSC
.057 BSC
.125 BSC
.290
.290 BSC
.015 BSC
.055 REF
.790 BSC
.802
1.290 BSC
1.302
1.790 BSC
1.802
2.302
2.835
2.135 2.165
7 SPACES AT .250 BSC = 1.750 BSC
2.610 BSC
.375 BSC
.250 REF
SEE DETAIL G
P
P
.045 R 2 PLACES
.057 BSC
.250 REF
.049 .051 DIA THRU
33 HOLES ⊕.010 DIA
.045 R TYP
.049 .051 DIA THRU
53 HOLES
⊕.010 DIA
7.831 REF
.125 BSC
.100 BSC
.210 BSC
31 SPACES AT .250 BSC = 7.750 BSC
32 SPACES AT .250 BSC = 8.000 BSC
.091
8.160 BSC
.320 BSC
8.630
SEE NOTE 4
.049 .051 DIA THRU
192 HOLES
⊕.004 DIA

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATL: PLASTIC SHEET PER MIL-P-18177 TYPE GEE
3. REMOVE BURRS AND SHARP EDGES .005/.015
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
5. BREAK THRU PERMISSIBLE BETWEEN .252/.258 DIA C'BORE HOLES

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS				

NEXT ASSY	USED ON
2003049	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	R.W. Cazting	16 MAR 65
CHECKED	R. P. Bungalow	21 MAY 65
APPROVED	F. J. Londhe	27 MAY 65
APPROVED	Eldon C Hall	3 June 65
APPROVED MIT	WKaffer	6/65
APPROVED MSC		6/4/65
		DATE

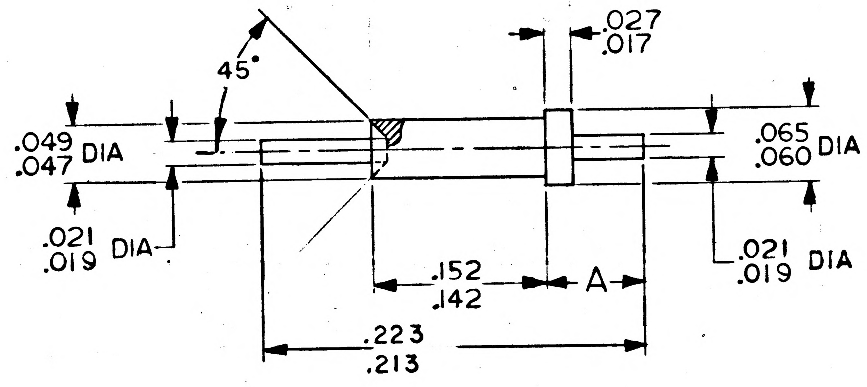
CORE HOLDER
FIXED MEMORY MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2004067
SCALE 2/1		SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 21340	31 Aug 65	WK



PART NO.	DIM A ±.005
2004069-001	.060
2004069-002	.093

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: NICKEL PER MIL-N-46026 TEMP AS DRAWN
3. FINISH: GOLD PLATE PER MIL-G-45204, TYPE II CLASS I
4. REMOVE BURRS AND SHARP EDGES .005 MAX
5. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .005 MAX
6. ALL SURFACES 63√
7. IDENTIFY WITH DRAWING NO. AND REVISION PER ND 1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003049	
2003040	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± 5°
DO NOT SCALE THIS DRAWING

MATERIAL SEE NOTE 2
HEAT TREATMENT
FINAL FINISH SEE NOTE 3

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT

DRAWN Richard Jones DATE 10 MAR 65
CHECKED 21 May 65
APPROVAL 27 MAY 65
APPROVAL Ellen C Hall 2 June 65
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

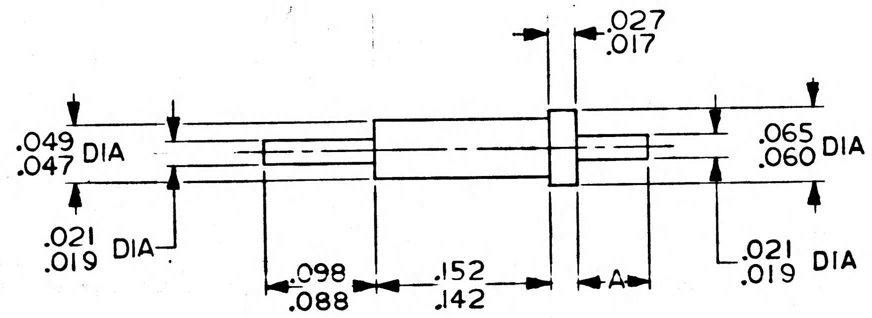
TERMINAL, TURRET
FIXED MEMORY MODULE

CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	C	2004069

SCALE 10/1 WT SHEET 1 OF 1

REVISIONS 20043			
SYM	DESCRIPTION	DATE	APPROVAL

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.



PART NO.	DIM A ±.005
2004069-001	.060
2004069-002	.093

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: NICKEL PER PS1015400
3. FINISH: GOLD PLATE PER MIL-G-45204, TYPE II CLASS I
4. REMOVE BURRS AND SHARP EDGES .005 MAX
5. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .005 MAX
6. ALL SURFACES 63 $\surd$
7. IDENTIFY WITH DRAWING NO. AND REVISION PER ND 1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003049	
2003040	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 2
HEAT TREATMENT
FINAL FINISH SEE NOTE 3

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN Richard Jones DATE 10 MAR 65
CHECKED 21 May 65
APPROVAL 27 May 65
APPROVAL Ellen C Hall 2 June 65
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

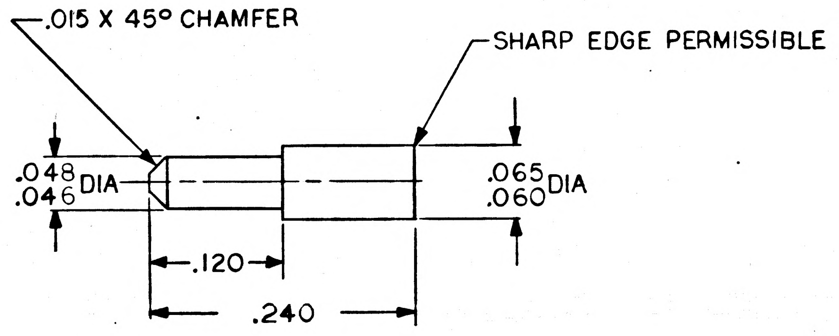
TERMINAL, TURRET
FIXED MEMORY MODULE

CODE IDENT NO. 80230
SIZE C
NASA DRAWING NO. 2004069
SCALE 10/1
WT
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20950	EJ		7/29/65	



NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: ABS THERMO PLASTIC (GENERAL PURPOSE MOLDING GRADE) COLOR-BLACK PER MIL-M-22544 TYPE II
3. REMOVE BURRS AND SHARP EDGES .005/.015
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND 1002019

2004070 A

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003049	
2003050	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ±.005 ANGLES ± ——
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN D. Black 10 MAR 65
CHECKED 21 May 65
APPROVED 27 May 65
APPROVED Eldon C Hall 3 June 65
APPROVED MIT 7 Jun 65
APPROVED MSC 6/8/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

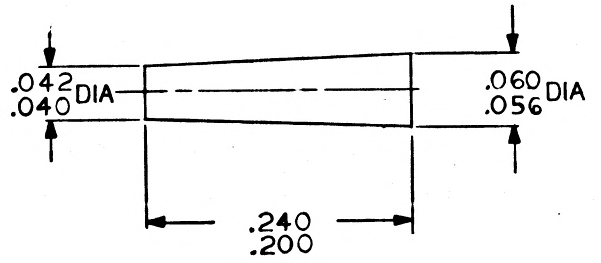
PIN, WRAP
FIXED MEMORY MODULE

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004070
SCALE 10/1
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: ABS THERMO PLASTIC (GENERAL PURPOSE MOLDING GRADE) COLOR-BLACK PER MIL-M-22544 TYPE I
3. REMOVE BURRS AND SHARP EDGES 005/015
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND 1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003049	
2003040	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	D Black	10 MAR 65
CHECKED		21 May 65
APPROVED		27 May 65
APPROVED	Eldon C Hall	3 June 65
APPROVED MIT		Jun 65
APPROVED MSC		6/8/65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PIN, WRAP
FIXED MEMORY MODULE

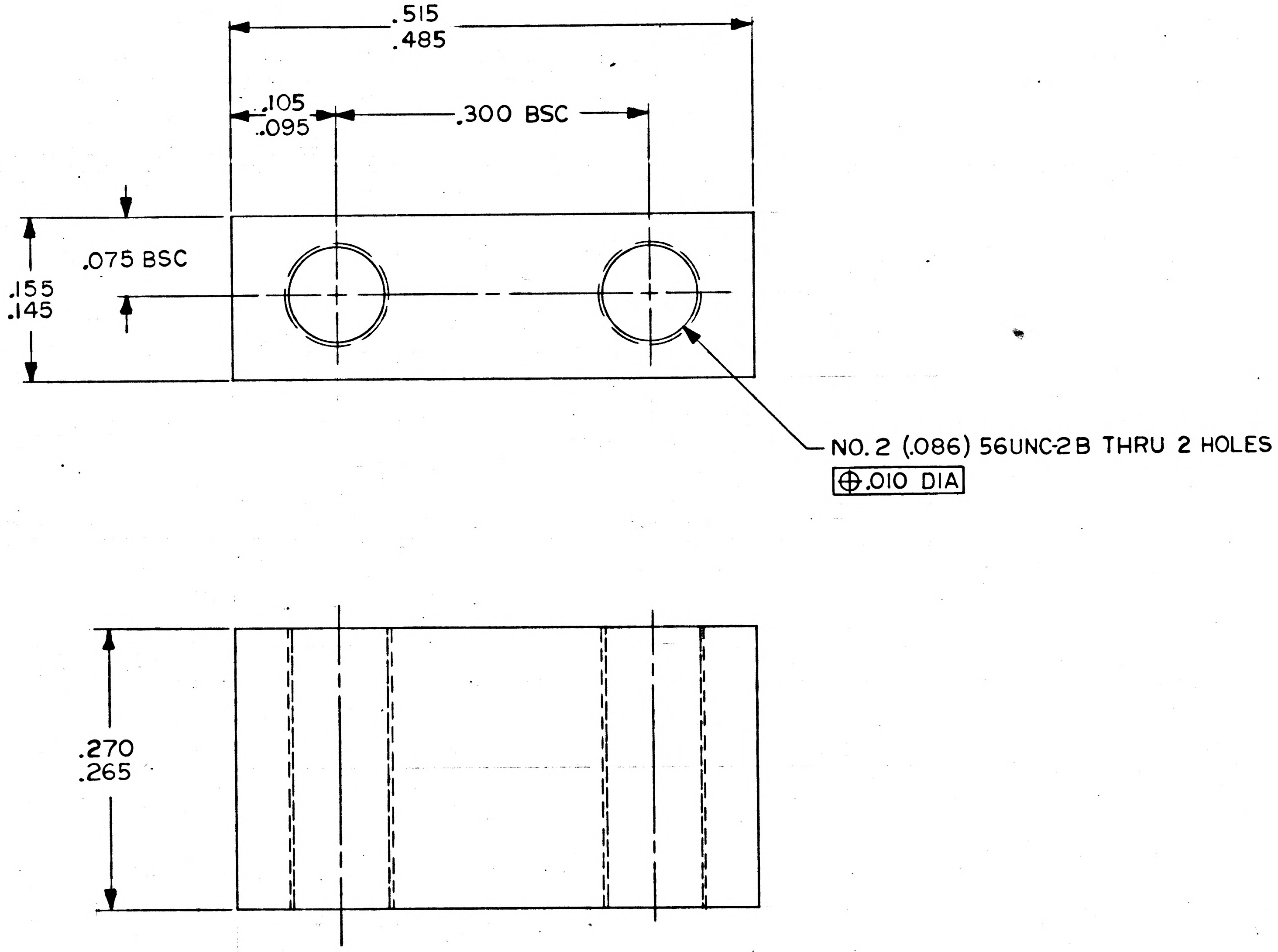
CODE IDENT NO. 80230 | SIZE C | DRAWING NO. 2004070

SCALE 10/1 | SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. MATERIAL: 6061-T6-AL PER QQ-A-250/11, TEMP 6
3. FINISH: ANODIZE PER MIL-A-8625 TYPE II CLEAR
4. REMOVE BURRS AND SHARP EDGES .005/.015
5. ALL SURFACES 125
6. IDENTIFY WITH DRAWING NO AND REVISION PER ND 1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003053	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN 16MAR65
CHECKED 21MAY65
APPROVED 27MAY65
APPROVED Eldon C Hall 3 June 65
APPROVED MIT 8 Jun 65
APPROVED MSC 6/8/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

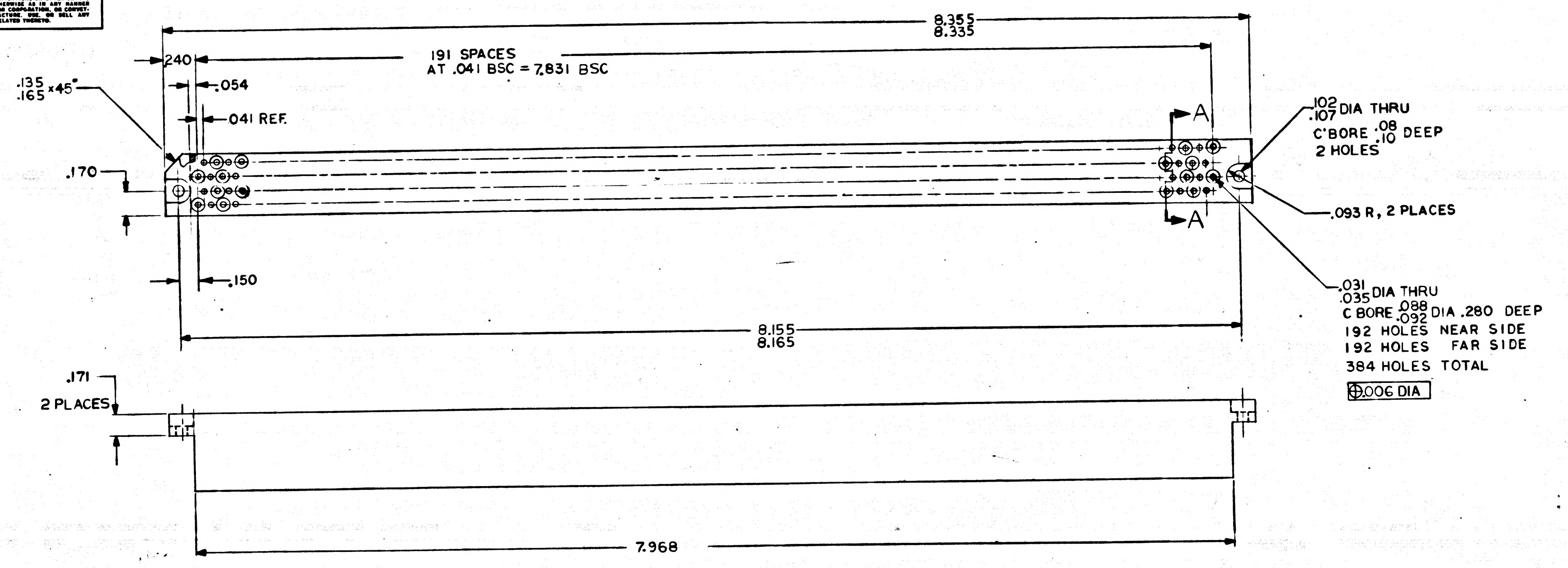
STANDOFF
FIXED MEMORY MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004071
SCALE 10/1		SHEET 1 OF 1

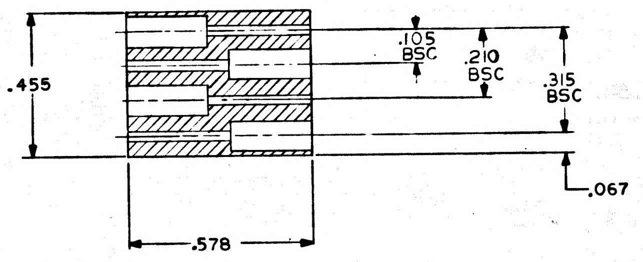
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 20950	2AUG65	WK



8.355
8.335
.240
191 SPACES
AT .041 BSC = 7.831 BSC
.135
.165 x45°
.054
.041 REF.
A
A
.170
.150
8.155
8.165
.102
.107 DIA THRU
C'BORE .08
.10 DEEP
2 HOLES
.093 R, 2 PLACES
.031
.035 DIA THRU
C BORE .088
.092 DIA .280 DEEP
192 HOLES NEAR SIDE
192 HOLES FAR SIDE
384 HOLES TOTAL
⊕.006 DIA
.171
2 PLACES
7.968



.455
.105
BSC
.210
BSC
.315
BSC
.067
.578

SECTION A-A
SCALE 4/1

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MAT'L: PLASTIC SHEET PER MIL-P-18177, TYPE GEE
3. REMOVE BURRS AND SHARP EDGES .005/.015
4. ALL SURFACES 125√
5. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .010 MAX.
6. IDENTIFY WITH DRAWING NO AND REVISION PER ND 1002019

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003045	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —— DECIMALS ±.005 ANGLES ±5°
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 2
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT

DRAWN D Black DATE 16 MAR 65
CHECKED R.P. Kingsbury 21 May 65
APPROVAL 27 May 65
APPROVAL Eldon C Hall 1 June 65
NASA APPROVAL
MIT APPROVAL W Kupfer 8 June 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BLOCK, COMPONENT DIODE
FIXED MEMORY MODULE

CODE IDENT NO. 80230
SIZE D
NASA DRAWING NO. 2004072
SCALE 2/1
WT
SHEET 1 OF 1

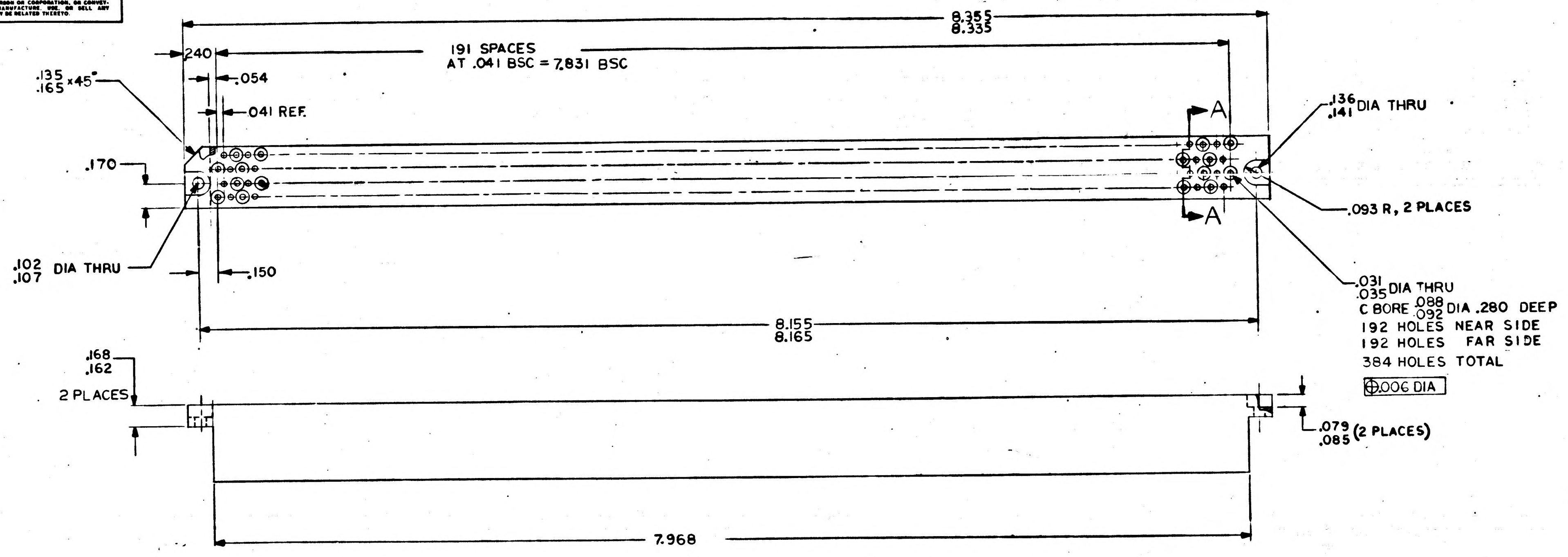
2004072 A

MASTER

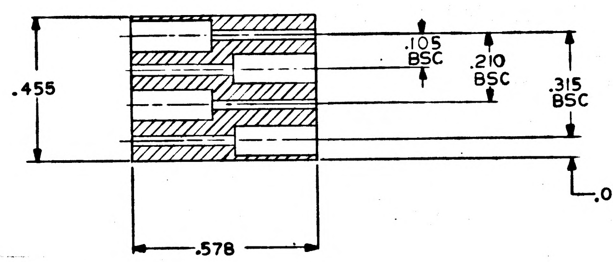
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 20950	2AUG65	WK
B	REVISED PER TDRR 22263	[illegible]65	[illegible]



8.355
8.335
.240
191 SPACES
AT .041 BSC = 7.831 BSC
.054
.041 REF.
.135
.165 ×45°
.170
.102
.107 DIA THRU
.150
A
A
.136
.141 DIA THRU
.093 R, 2 PLACES
.031
.035 DIA THRU
C BORE .088
.092 DIA .280 DEEP
192 HOLES NEAR SIDE
192 HOLES FAR SIDE
384 HOLES TOTAL
⊕ .006 DIA
8.155
8.165
.168
.162
2 PLACES
.079
.085 (2 PLACES)
7.968



.455
.105
BSC
.210
BSC
.315
BSC
.067
.578

SECTION A-A
SCALE 4/1

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MAT'L: PLASTIC SHEET PER MIL-P-18177, TYPE GEE
3. REMOVE BURRS AND SHARP EDGES .005/.015
4. ALL SURFACES 125√
5. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .010 MAX.
6. IDENTIFY WITH PART NO. PER ND 1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003045	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ±5°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

HEAT TREATMENT

FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT

DRAWN D Black DATE 16MAR65
CHECKED [illegible] 21MAY65
APPROVAL [illegible] 27MAY65
APPROVAL Eldon C Hall 1 Jun 65
NASA APPROVAL [illegible] 6/4/65
MIT APPROVAL W Kupfer 8 Jun 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

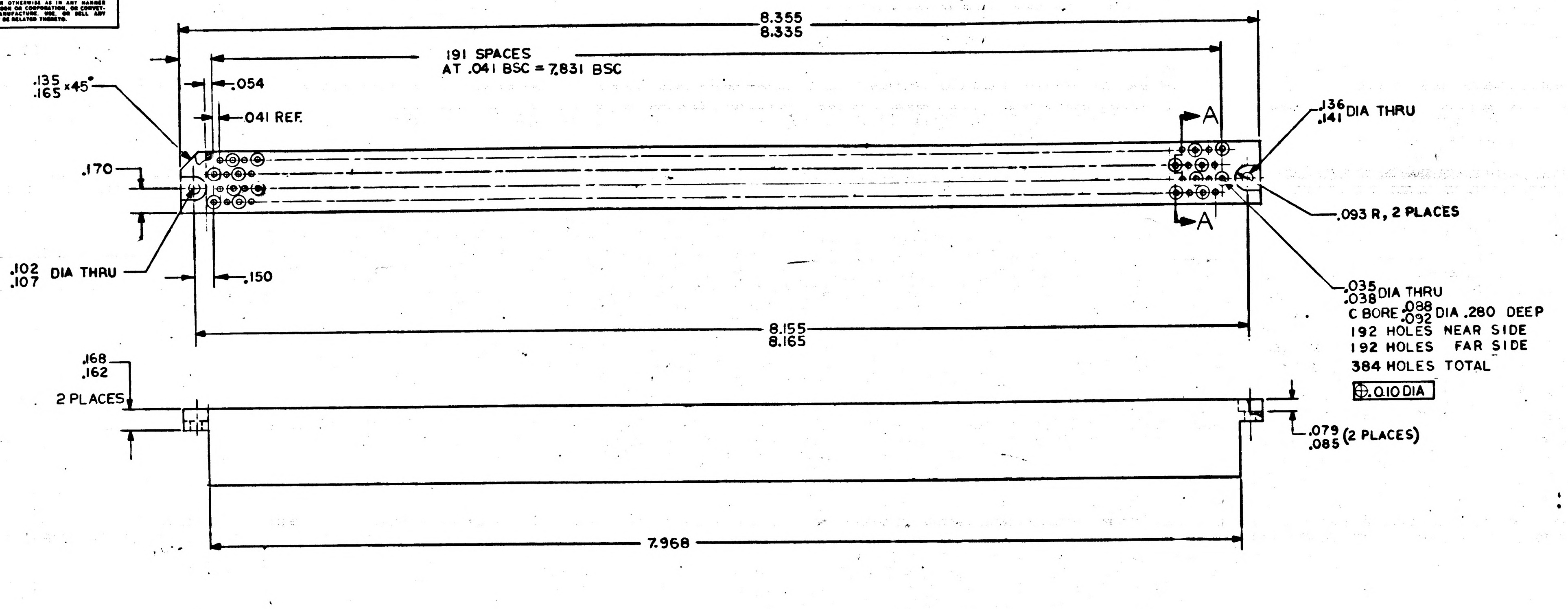
BLOCK, COMPONENT DIODE
FIXED MEMORY MODULE

CODE IDENT NO. 80230
SIZE D
NASA DRAWING NO. 2004072
SCALE 2/1
WT
SHEET 1 OF 1

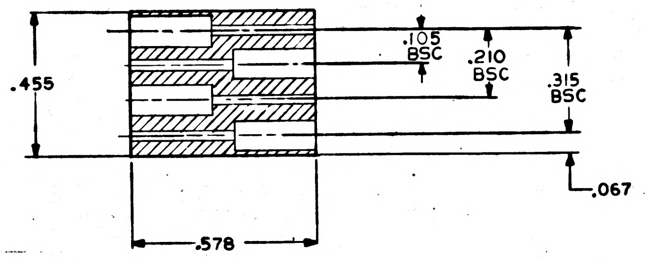
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 20950	2AUG65	WR
B	REVISED PER TDRR 22263	[illegible]65	[illegible]
C	REVISED PER TDRR 22555	22[illegible]65	WR



8.355
8.335
191 SPACES
AT .041 BSC = 7.831 BSC
.135
.165 x45°
.054
.041 REF.
A
A
.136
.141 DIA THRU
.170
.093 R, 2 PLACES
.102
.107 DIA THRU
.150
.035
.038 DIA THRU
C BORE .088
.092 DIA .280 DEEP
192 HOLES NEAR SIDE
192 HOLES FAR SIDE
384 HOLES TOTAL
⊕ .010 DIA
8.155
8.165
.168
.162
2 PLACES
.079
.085 (2 PLACES)
7.968



.455
.105
BSC
.210
BSC
.315
BSC
.067
.578

SECTION A-A
SCALE 4/1

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MAT'L: PLASTIC SHEET PER MIL-P-18177, TYPE GEE
3. REMOVE BURRS AND SHARP EDGES .005/.015
4. ALL SURFACES 125√
5. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .010 MAX.
6. IDENTIFY WITH PART NO. PER ND 1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003045	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ±5°
DO NOT SCALE THIS DRAWING
MATERIAL
SEE NOTE 2
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO.
CONTRACT
DRAWN D. Black DATE 16MAR65
CHECKED [illegible] 21MAY65
APPROVAL [illegible] 27MAY65
APPROVAL Elliot C. Hall 1June65
NASA APPROVAL [illegible]
MIT APPROVAL W Kupfer 8June65

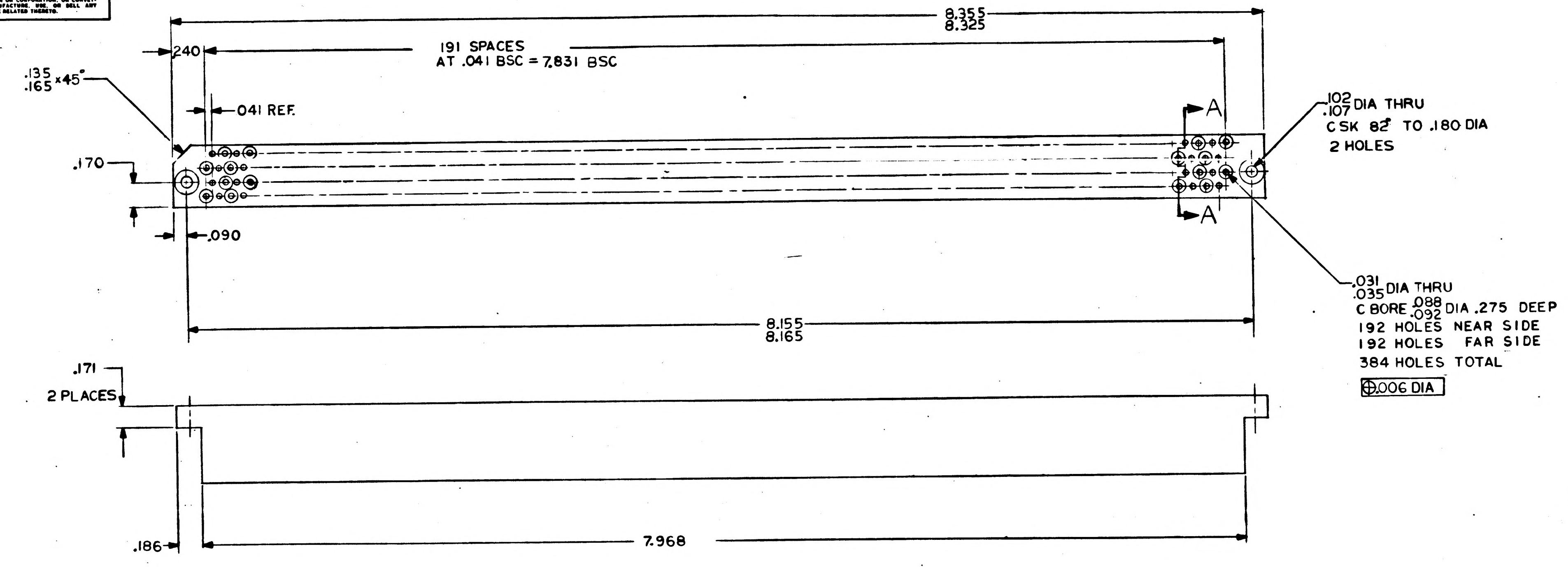
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

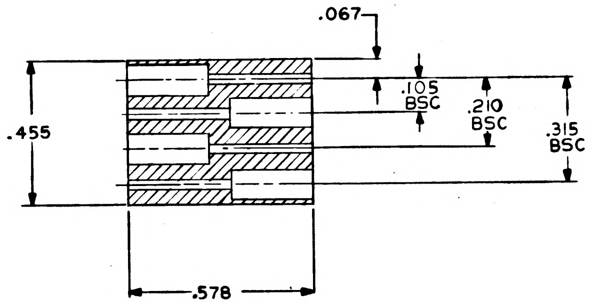
BLOCK, COMPONENT DIODE
FIXED MEMORY MODULE

CODE IDENT NO. 80230
SIZE D
NASA DRAWING NO. 2004072
SCALE 2/1
WT
SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043			
SYM	DESCRIPTION	DATE	APPROVAL


8.355
8.325
.240
191 SPACES
AT .041 BSC = 7.831 BSC
.135
.165 ×45°
.041 REF.
A
A
.102
.107 DIA THRU
CSK 82° TO .180 DIA
2 HOLES
.170
.090
.031
.035 DIA THRU
C BORE .088
.092 DIA .275 DEEP
192 HOLES NEAR SIDE
192 HOLES FAR SIDE
384 HOLES TOTAL
⊕ .006 DIA
8.155
8.165
.171
2 PLACES
.186
7.968


.067
.105
BSC
.210
BSC
.315
BSC
.455
.578

SECTION A-A
SCALE 4/1

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MAT'L: PLASTIC SHEET PER MIL-P-18177, TYPE GEE
3. REMOVE BURRS AND SHARP EDGES .005/.015
4. ALL SURFACES 125√
5. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .010 MAX.
6. IDENTIFY WITH DRAWING NO AND REVISION PER ND 1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003045	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ±5°
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 2
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN D Black DATE 16 MAR 65
CHECKED R.P. Kingsbury 21 May 65
APPROVAL 27 MAY 65
APPROVAL Eldon C Hall 1 June 65
NASA APPROVAL 6/4/65
MIT APPROVAL 8 June 65

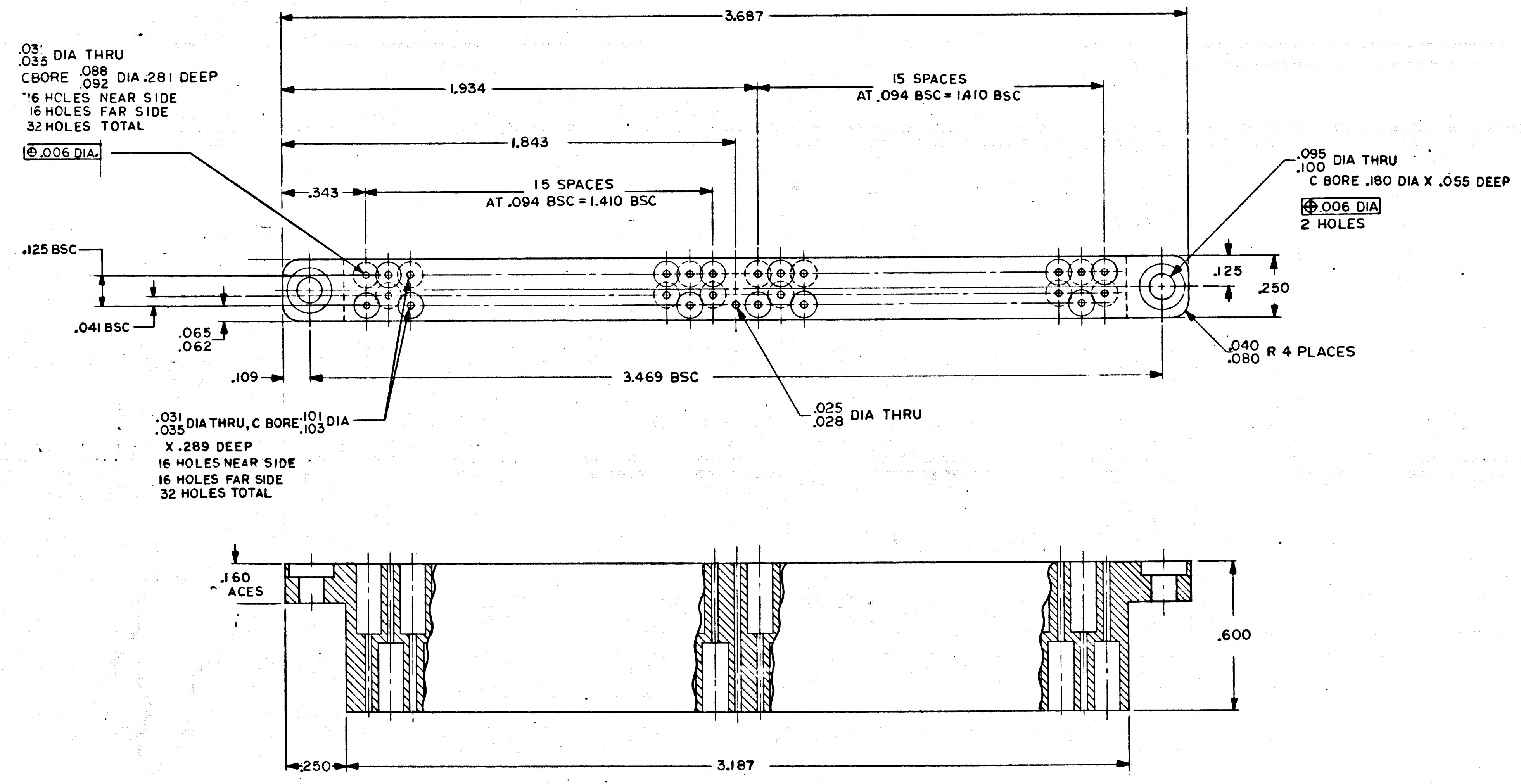
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BLOCK, COMPONENT DIODE
FIXED MEMORY MODULE

CODE IDENT NO. 80230
SIZE D
NASA DRAWING NO. 2004072
SCALE 2/1
WT
SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 20950	7AUG65	WK



.031 .035 DIA THRU
CBORE .088 .092 DIA .281 DEEP
16 HOLES NEAR SIDE
16 HOLES FAR SIDE
32 HOLES TOTAL
⊕ .006 DIA.
3.687
1.934
15 SPACES AT .094 BSC = 1.410 BSC
1.843
.343
15 SPACES AT .094 BSC = 1.410 BSC
.095 .100 DIA THRU
C BORE .180 DIA X .055 DEEP
⊕ .006 DIA
2 HOLES
.125 BSC
.125
.250
.041 BSC
.065 .062
.040 .080 R 4 PLACES
.109
3.469 BSC
.031 .035 DIA THRU, C BORE .101 .103 DIA
X .289 DEEP
16 HOLES NEAR SIDE
16 HOLES FAR SIDE
32 HOLES TOTAL
.025 .028 DIA THRU
.160
ACES
.600
.250
3.187

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. REMOVE BURRS AND SHARP EDGES .005/.015
3. MATERIAL: PLASTIC SHEET PER MIL P18177 TYPE GEE
4. ALL SURFACES $\sqrt{125}$
5. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .010 MAX.
6. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
2003048	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 3.
HEAT TREATMENT ——
FINAL FINISH ——

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN Richard Jones DATE 12 MAR 65
CHECKED 21 MAY 65
APPROVAL 27 MAY 65
APPROVAL Hall 2 June 65
NASA APPROVAL 4/4/65
MIT APPROVAL 2 June 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

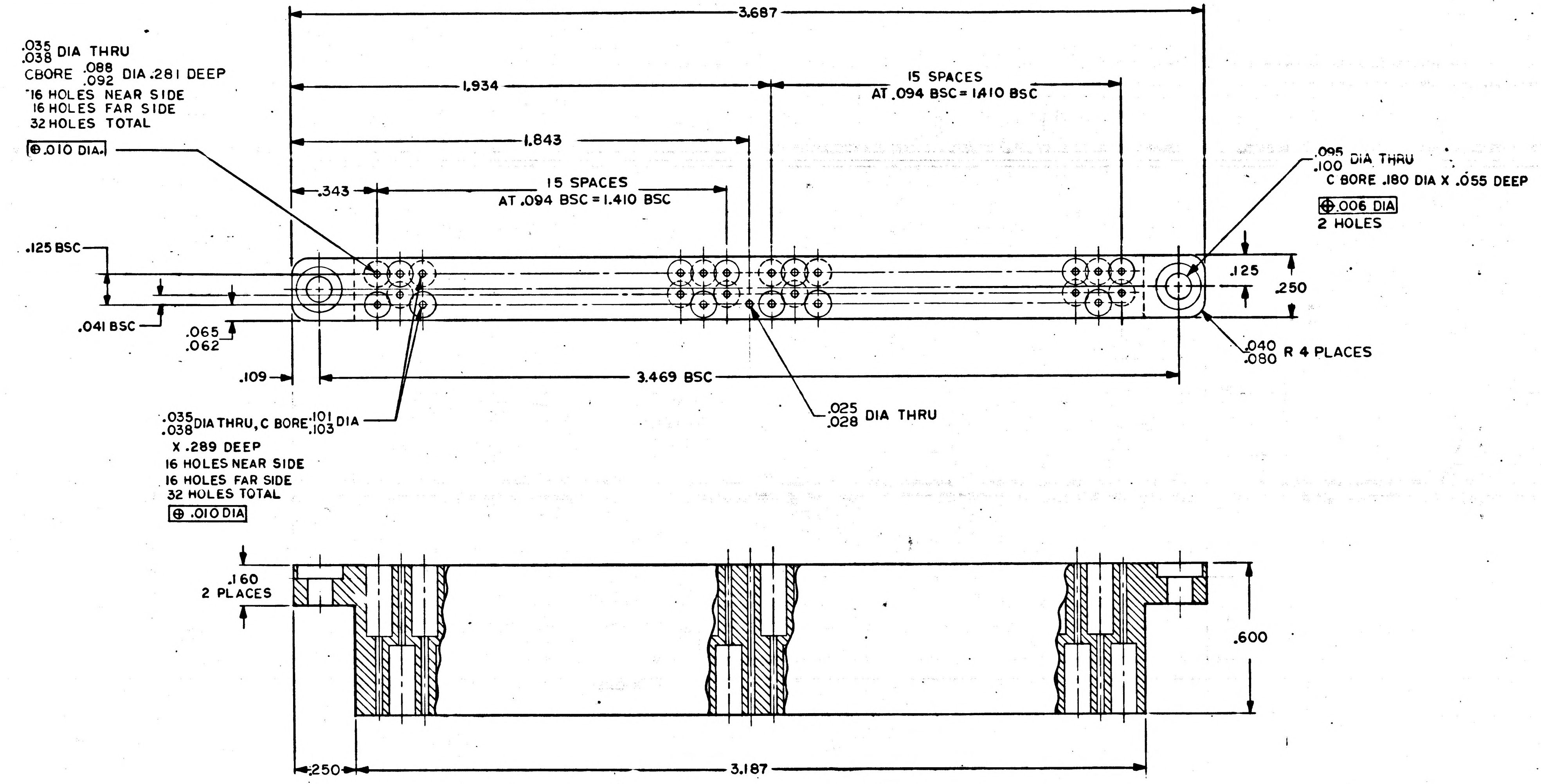
BLOCK, RESISTOR-DIODE
FIXED MEMORY MODULE

CODE IDENT NO. 80230
SIZE D
NASA DRAWING NO. 2004073
SCALE 4/1
WT
SHEET 1 OF 1

2004073 A

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 20950	2 AUG 65	WK
B	REVISED PER TDRR 22561		WK



.035/.038 DIA THRU
CBORE .088/.092 DIA .281 DEEP
16 HOLES NEAR SIDE
16 HOLES FAR SIDE
32 HOLES TOTAL
⊕ .010 DIA.
3.687
1.934
15 SPACES AT .094 BSC = 1.410 BSC
1.843
.343
15 SPACES AT .094 BSC = 1.410 BSC
.095/.100 DIA THRU
C BORE .180 DIA X .055 DEEP
⊕ .006 DIA
2 HOLES
.125 BSC
.125
.250
.041 BSC
.065/.062
.040/.080 R 4 PLACES
.109
3.469 BSC
.025/.028 DIA THRU
.035/.038 DIA THRU, C BORE .101/.103 DIA
X .289 DEEP
16 HOLES NEAR SIDE
16 HOLES FAR SIDE
32 HOLES TOTAL
⊕ .010 DIA
.160
2 PLACES
.600
.250
3.187

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. REMOVE BURRS AND SHARP EDGES .005/.015
3. MATERIAL: PLASTIC SHEET PER MIL P 18177 TYPE GEE
4. ALL SURFACES √125
5. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .010 MAX.
6. IDENTIFY WITH PART NO. PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003048	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 3
HEAT TREATMENT —
FINAL FINISH —

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN DATE 12 MAR 65
CHECKED 21 MAY 65
APPROVAL 27 MAY 65
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

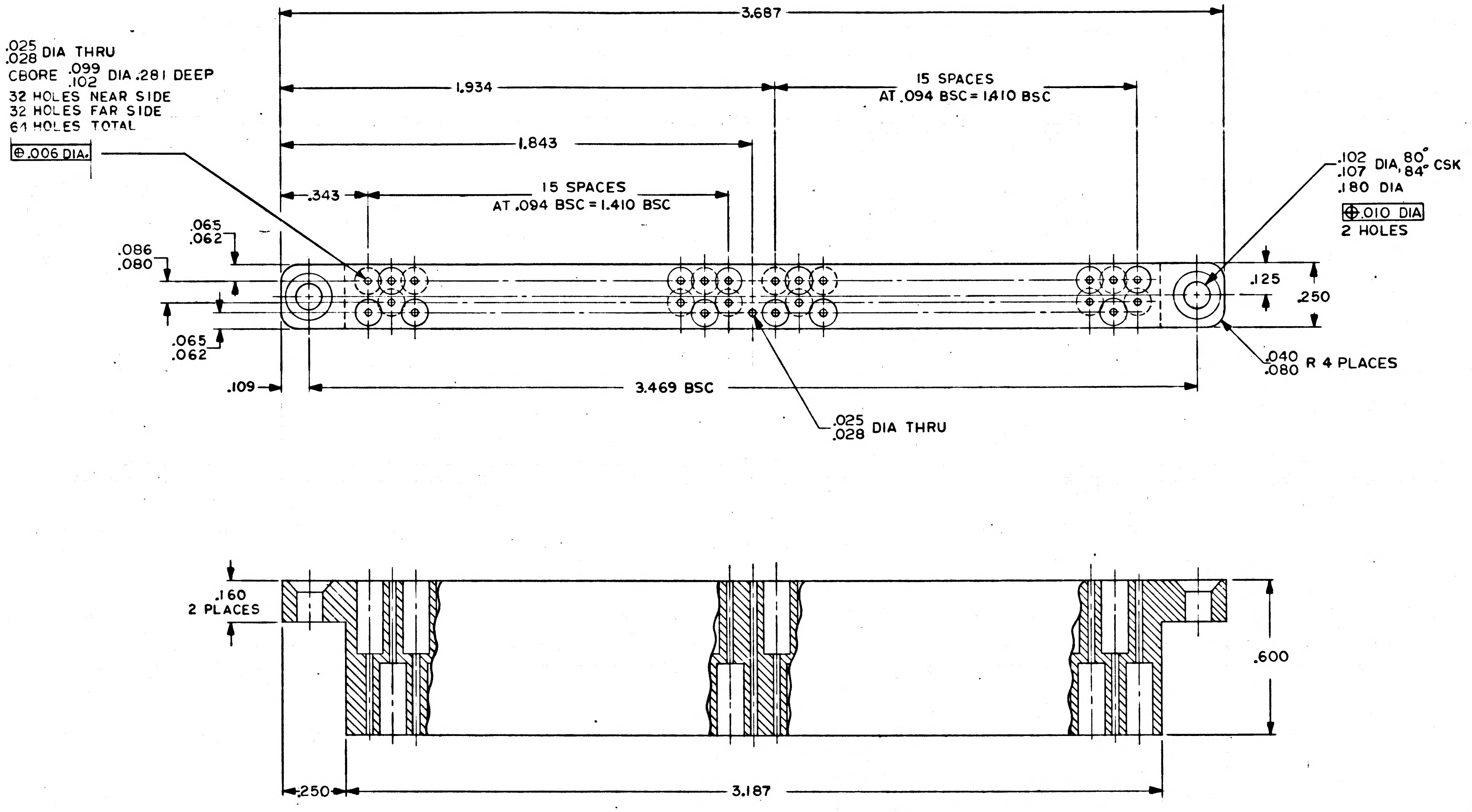
BLOCK, RESISTOR-DIODE
FIXED MEMORY MODULE

CODE IDENT NO. 80230
SIZE D
NASA DRAWING NO. 2004073
SCALE 4/1
WT
SHEET 1 OF 1

2C04073 B

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043			
SYM	DESCRIPTION	DATE	APPROVAL



.025 .028 DIA THRU
CBORE .099 .102 DIA .281 DEEP
32 HOLES NEAR SIDE
32 HOLES FAR SIDE
61 HOLES TOTAL
⊕ .006 DIA.
3.687
1.934
15 SPACES AT .094 BSC = 1.410 BSC
1.843
.343
15 SPACES AT .094 BSC = 1.410 BSC
.102 .107 DIA, 80° 84° CSK
.180 DIA
⊕ .010 DIA
2 HOLES
.065 .062
.086 .080
.065 .062
.125
.250
.040 .080 R 4 PLACES
.109
3.469 BSC
.025 .028 DIA THRU
.160 2 PLACES
.600
.250
3.187

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. REMOVE BURRS AND SHARP EDGES .005/.015
3. MATERIAL: PLASTIC SHEET PER MIL P 18177 TYPE GEE
4. ALL SURFACES √125
5. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .010 MAX.
6. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003048	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 3
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN DATE 12 MAR 65
CHECKED 21 MAY 65
APPROVAL 27 MAY 65
APPROVAL 8 June 65
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BLOCK, RESISTOR-DIODE
FIXED MEMORY MODULE

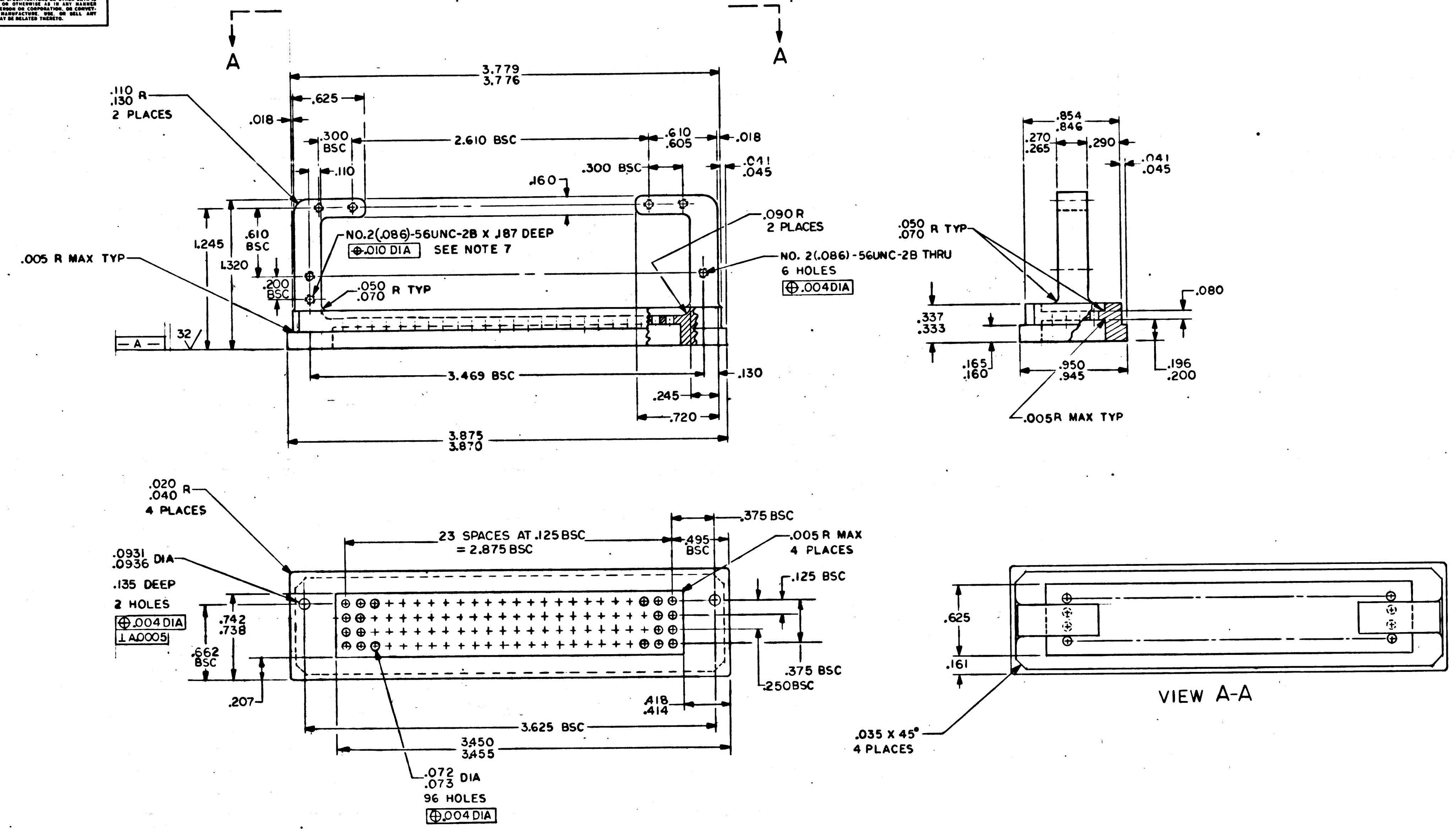
CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	D	2004073

SCALE 4/1 WT SHEET 1 OF 1

2004073

REVISIONS 2004?			
SYM	DESCRIPTION	DATE	APPROVAL

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


A
A
3.779
3.776
.110
.130 R
2 PLACES
.625
.018
.300
BSC
.110
2.610 BSC
.610
.605
.018
.041
.045
.300 BSC
.160
.090 R
2 PLACES
NO. 2(.086)-56UNC-2B X .187 DEEP
⊕ .010 DIA
SEE NOTE 7
NO. 2(.086)-56UNC-2B THRU
6 HOLES
⊕ .004 DIA
1.245
.610
BSC
1.320
.200
BSC
.050
.070 R TYP
.005 R MAX TYP
A
32
3.469 BSC
.130
.245
.720
3.875
3.870
.854
.846
.270
.265
.290
.041
.045
.050
.070 R TYP
.080
.337
.333
.165
.160
.950
.945
.196
.200
.005R MAX TYP
.020
.040 R
4 PLACES
.0931
.0936 DIA
.135 DEEP
2 HOLES
⊕ .004 DIA
⊥ A .0005
23 SPACES AT .125 BSC
= 2.875 BSC
.495
BSC
.375 BSC
.005 R MAX
4 PLACES
.125 BSC
.742
.738
.662
BSC
.207
.375 BSC
.250 BSC
.418
.414
3.625 BSC
3.450
3.455
.072
.073 DIA
96 HOLES
⊕ .004 DIA
.625
.161
.035 X 45°
4 PLACES

VIEW A-A

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: 6061-T6-AL PER QQ-A-250/11 TEMP 6
3. ALL SURFACES $\sqrt{}^{125}$ UNLESS OTHERWISE SPECIFIED
4. REMOVE BURRS AND SHARP EDGES .005/.015
5. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
6. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
7. TAP HOLE AFTER CHROMATE FINISH

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

2003046	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —— DECIMALS ±.005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 2
HEAT TREATMENT ——
FINAL FINISH SEE NOTE 5

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO.
CONTRACT

DRAWN J. Falzone DATE 7 May 65
CHECKED R. P. Kompleyny 21 May 65
APPROVAL F. O. [illegible] 27 May 65
APPROVAL Eldon C. Hall 1 June 65
NASA APPROVAL [illegible]
MIT APPROVAL W. [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

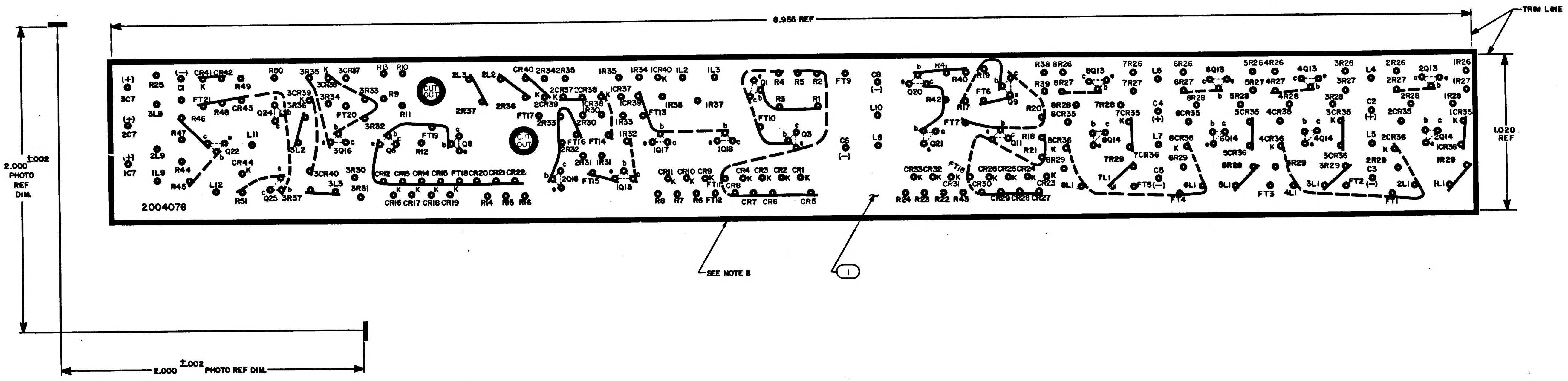
CONNECTOR PLATE
FIXED MEMORY MODULE

CODE IDENT NO. 80230
SIZE D
NASA DRAWING NO. 2004075
SCALE 2/1
WT
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 192 G

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: FILM .006/.008 THICK SENSITIZED DIMENSIONALLY STABLE PER L-F-340 TYPE IB, CLASS 2, STYLE IA
3. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
4. MAKE MASTER PATTERN POSITIVE FILM TO DIMENSIONS SHOWN
5. CUT TO WITHIN .010 OF TRIM LINE
6. BROKEN LINE DENOTES SLEEVING
7. ● .040/.050 DIA HOLE

8. APPLY FIND NO.2 TO FAR SIDE OF FIND NO.1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
AR	1006318	ADHESIVE
1	2004076-001	INSULATOR B
-011	LIST OF MATERIALS	

NEXT ASSY	USED ON
2003040	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

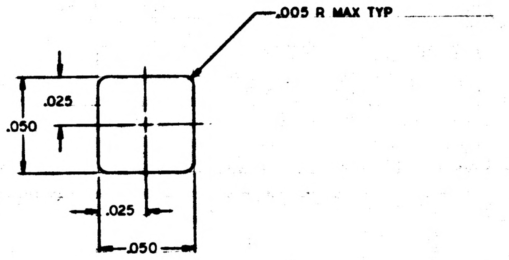
		DATE
DRAWN	W. F. Troy	10 MAR 65
CHECKED	A. Lindstrom	3 May 65
APPROVED		13 May 65
APPROVED	Eldon C. Hall	17 May 65
APPROVED MIT	M. G. Murley	17 May 65
APPROVED MSC		10 K-

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

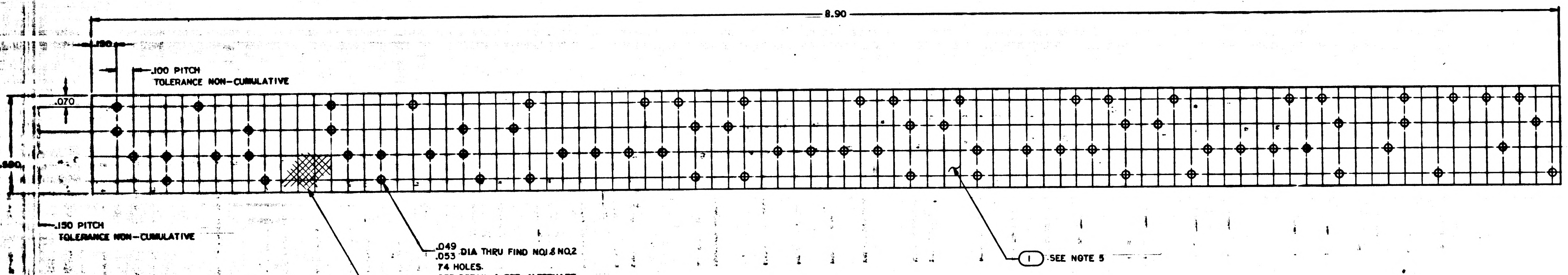
INSULATOR B ASSY PHOTOGRAPHIC MASTER
ROPE DRIVER MODULE

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2004076
SCALE 4/1
SHEET 1 OF 1

REVISIONS 1-7934						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 18734	CR	CAP	6MAY68	WR


.005 R MAX TYP
.025
.050
.025
.050

DETAIL A
SCALE 30/1


8.90
.130
.100 PITCH
TOLERANCE NON-CUMULATIVE
.070
.590
.150 PITCH
TOLERANCE NON-CUMULATIVE
1
SEE NOTE 5

.049
.053 DIA THRU FIND NO.1 & NO.2
74 HOLES.
SEE DETAIL A FOR ALTERNATE
METHOD OF FABRICATION

SEE NOTE 3

WITH STANDARDS PRESCRIBED BY MIL-D-70327
THK PER MIL-P-55035, TYPE FBI
DIAGONALLY
[illegible] 2A PER MS [illegible]
FIND NO.1

AR	1006318	ADHESIVE, TAPE		2
1	2004077-001	INSULATOR		1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION		FIND NO.
011	LIST OF MATERIALS			

2003031	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS .XXX ±.005 .XX ±.01 ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN Ed Romano
CHECKED
APPROVED
APPROVED
APPROVED MIT W Kupfer
APPROVED MSC
DATE

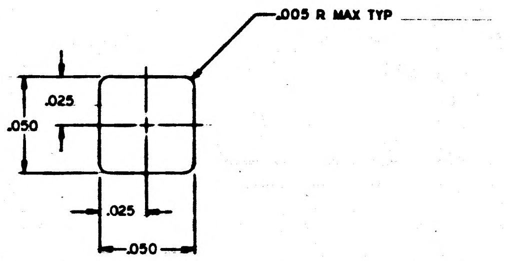
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSULATOR - MATRIX
CURRENT SWITCH MODULE

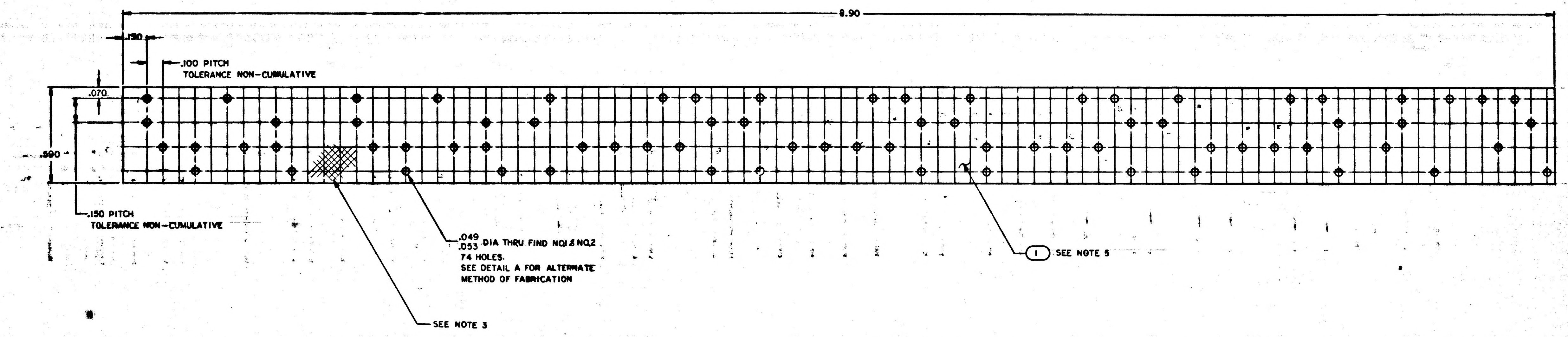
CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004077
SCALE 4/1
SHEET 1 OF 1

2004077 A

MASTER


.005 R MAX TYP
.025
.050
.025
.050

DETAIL A
SCALE 30/1


8.90
.150
.100 PITCH
TOLERANCE NON-CUMULATIVE
.070
.590
.150 PITCH
TOLERANCE NON-CUMULATIVE
.049
.053 DIA THRU FIND NO.1 & NO.2
74 HOLES.
SEE DETAIL A FOR ALTERNATE
METHOD OF FABRICATION
SEE NOTE 3
1 SEE NOTE 5

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: PLASTIC SHEET .006/.009 THK PER MIL-P-15035, TYPE FBI
3. THREADS IN PLASTIC SHEET TO RUN DIAGONALLY
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND 1002019
5. APPLY FIND NO.2 TO FARSIDE OF FIND NO.1
6. AR DENOTES AS REQUIRED

2004077 A

MASTER

2003031	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± .XXX ± .005 ±
.XX ± .01
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

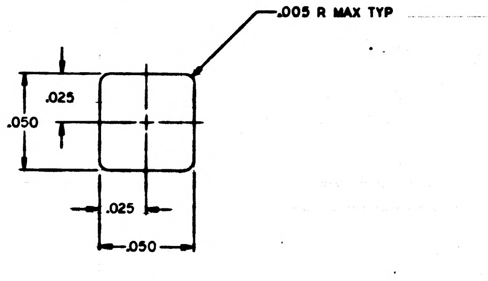
006318
2004077-

QTY REQD

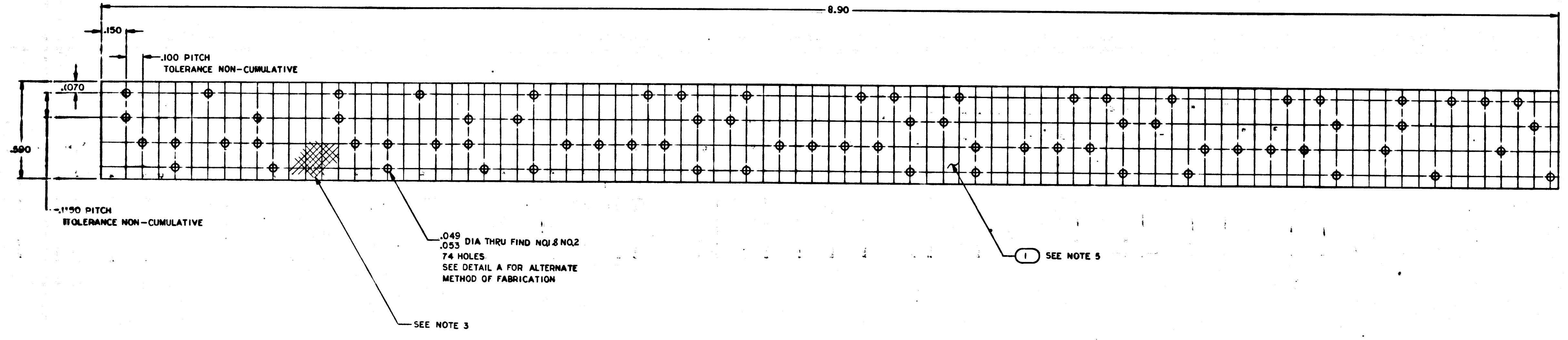
MIT
INSTRUMENTATION
CAMBRIDGE

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED NSC

REVISIONS 1 904						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 10774	CR	CAP	6 MAY 65	WK
B		REVISED PER TDRR 22465	EAJ	EAK	9/15/65	WK


.005 R MAX TYP
.025
.050
.025
.050

DETAIL A
SCALE 30/1


8.90
.150
.100 PITCH
TOLERANCE NON-CUMULATIVE
.070
.590
.150 PITCH
TOLERANCE NON-CUMULATIVE
.049
.053 DIA THRU FIND NO.1 & NO.2
74 HOLES
SEE DETAIL A FOR ALTERNATE
METHOD OF FABRICATION
SEE NOTE 3
1 SEE NOTE 5

ITH STANDARDS PRESCRIBED BY MIL-D-70327
THK PER MIL-P-130355, TYPE FBI
IAGONALLY
2019

AR	1006806-27	INSULATION TAPE	2
1	2004077-001	INSULATOR	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
011	LIST OF MATERIALS		

2003031	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS XXX ± .005 XX ± .01 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN Ed Powers
CHECKED
APPROVED
APPROVED
APPROVED MIT W Kupfer
APPROVED MSC

INSULATOR, MATRIX
CURRENT SWITCH MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2004077

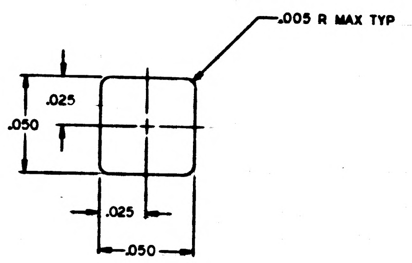
SCALE 4/1
SHEET 1 OF 1

B
2004077

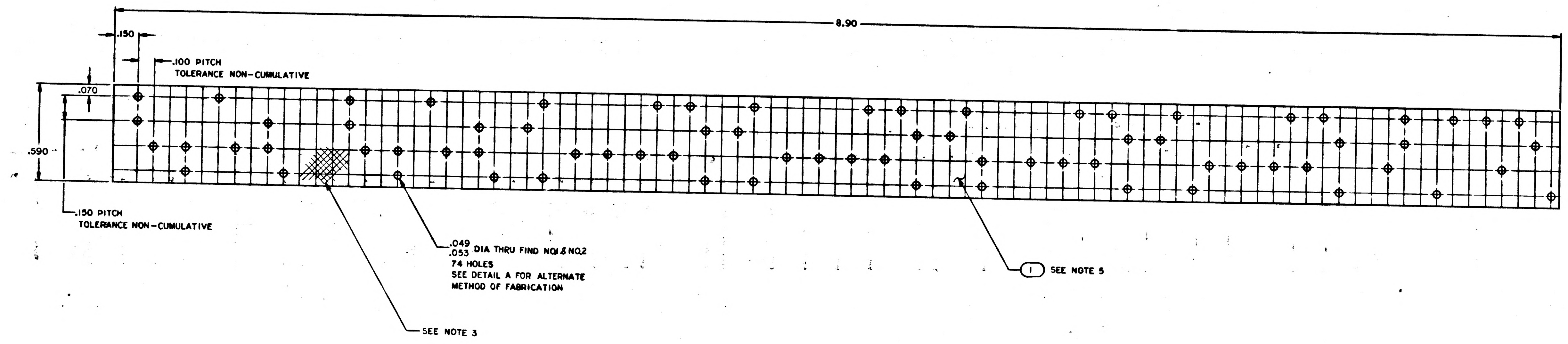
MASTER

Q 1077 A

F-2


.005 R MAX TYP
.025
.050
.025
.050

DETAIL A
SCALE 30/1


8.90
.150
.100 PITCH
TOLERANCE NON-CUMULATIVE
.070
.590
.150 PITCH
TOLERANCE NON-CUMULATIVE
.049 .053 DIA THRU FIND NO.1 & NO.2
74 HOLES
SEE DETAIL A FOR ALTERNATE METHOD OF FABRICATION
SEE NOTE 3
1 SEE NOTE 5

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: PLASTIC SHEET .006/.009 THK PER MIL-P-15035, TYPE FBI
3. THREADS IN PLASTIC SHEET TO RUN DIAGONALLY
4. IDENTIFY WITH PART NO. PER ND1002019
5. APPLY FIND NO.2 TO FARSIDE OF FIND NO.1
6. AR DENOTES AS REQUIRED

MASTER

2003031	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± .XXX ± .005 ±
.XX ± .01
DO NOT SCALE THIS DRAWING
MATERIAL
SEE NOTE 2

AR 2003C6-27
2004077-00

QTY REQD
PART OR IDENTIFYING NO

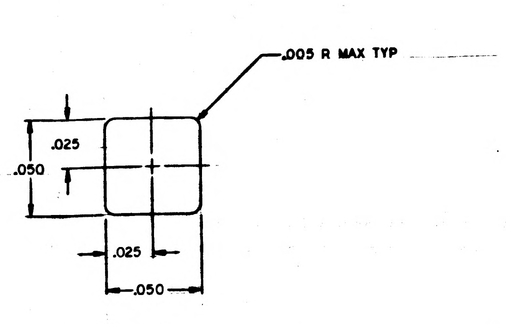
MIT
INSTRUMENTATION
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED NASA

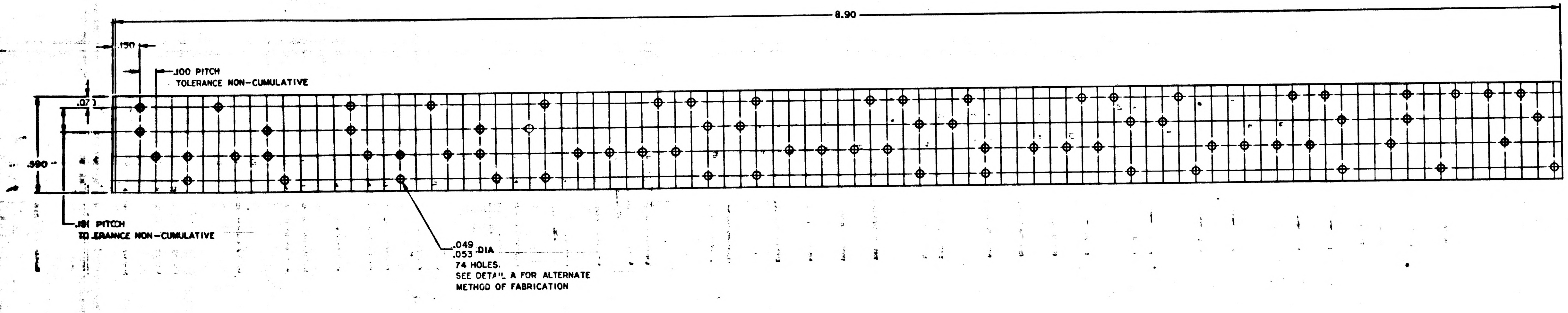
2004077 A

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED


.005 R MAX TYP
.025
.050
.025
.050

DETAIL A
SCALE 30/1


8.90
.150
.100 PITCH
TOLERANCE NON-CUMULATIVE
.073
.390
.181 PITCH
TOLERANCE NON-CUMULATIVE
.049
.053 DIA
74 HOLES
SEE DETAIL A FOR ALTERNATE
METHOD OF FABRICATION

STANDARDS PRESCRIBED BY MIL-D-70327
PER MIL-P-15035, TYPE FBI
TRALLY
PER ND 1002019

MASTER

2003031	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS .XXX ±.005 .XX ±.01 ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

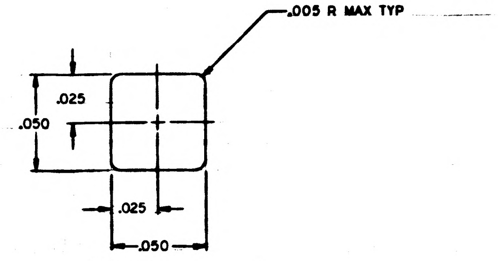
DRAWN Ed Powers 30 Mar 65
CHECKED R. L. Kuenzburg
APPROVED
APPROVED
APPROVED MIT W. Kupfer
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSULATOR - MATRIX
CURRENT SWITCH MODULE

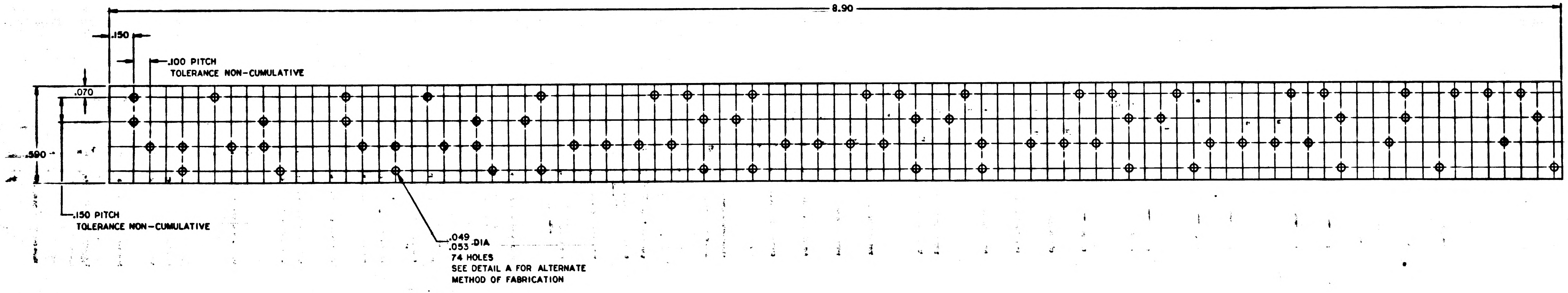
CODE IDENT NO. ——
SIZE J
DRAWING NO. 2004077
SCALE 4/1
SHEET OF

2004077



.005 R MAX TYP
.025
.050
.025
.050

DETAIL A
SCALE 30/1



8.90
.150
.100 PITCH
TOLERANCE NON-CUMULATIVE
.070
.590
.150 PITCH
TOLERANCE NON-CUMULATIVE
.049
.053 DIA
74 HOLES
SEE DETAIL A FOR ALTERNATE
METHOD OF FABRICATION

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: PLASTIC SHEET .006/.009 THK PER MIL-P-15035, TYPE FBI
3. THREADS IN PLASTIC SHEET TO RUN DIAGONALLY
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND 1002019

MASTER

2003031	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS XXX ±.005 XX ±.01 ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

QTY REQD | PART OR IDENTIFYING NO.

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN Ed. Parsons
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC

INSU
CURR

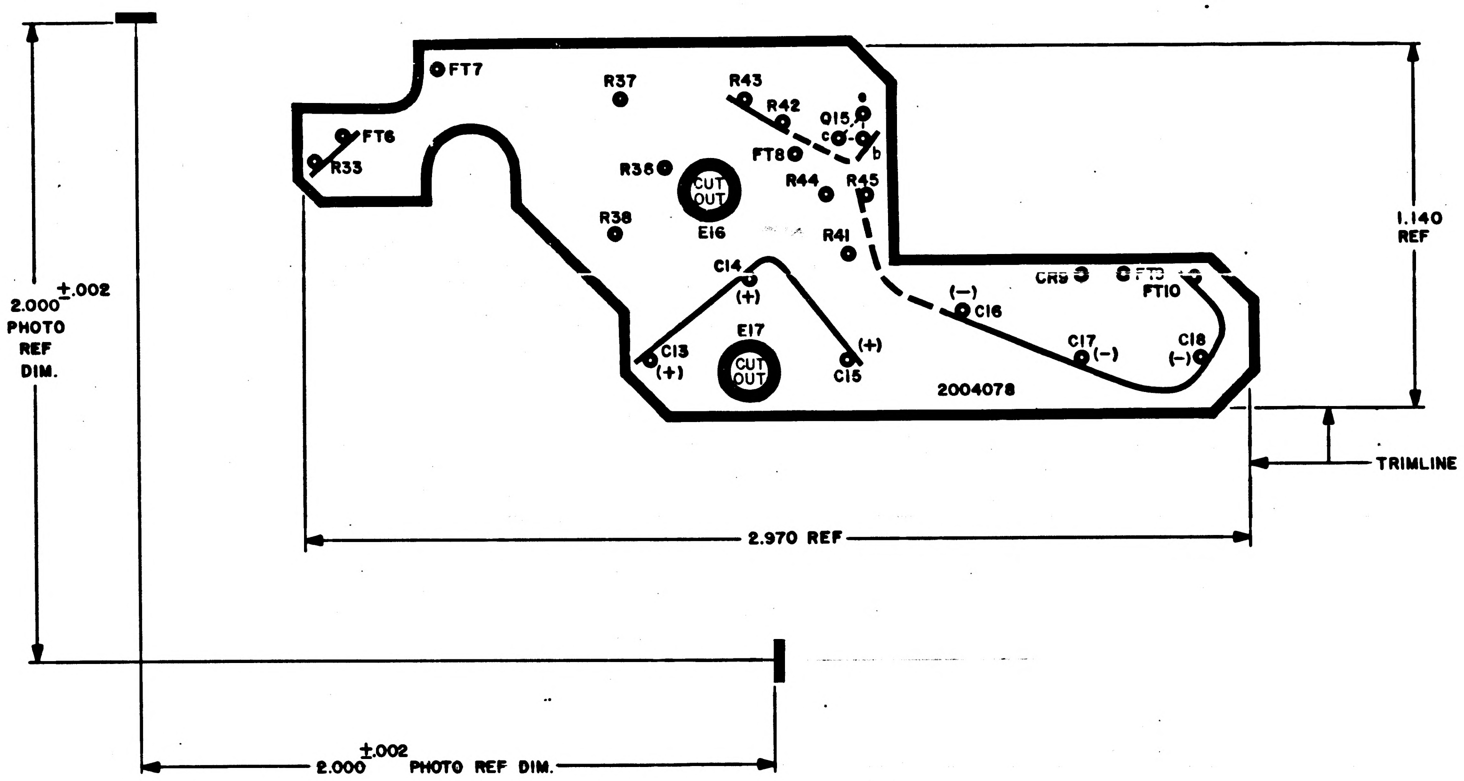
CODE IDENT NO.
SCALE 4/

2004077

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19758

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20951	KCH		10 Aug 65	



NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
3. CUT TO WITHIN .010 OF TRIMLINE
4. MAKE MASTER PATTERN POSITIVE FILM TO DIMENSIONS SHOWN
5. MATERIAL: FILM .006/.008 THK SENSITIZED DIMENSIONALLY STABLE PER L-F-340, TYPE IB, CLASS 2, STYLE IA
6. ⊙ .040/.050 DIA HOLE
7. BROKEN LINE DENOTES SLEEVING
8. ◯ .20/.22 DIA HOLE

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003056	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 5

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Ed Powers 23 Ap 65
CHECKED A. Lindstrom 26 May 65
APPROVED J. McGinty 26 May 65
APPROVED
APPROVED MIT 6-2-65
APPROVED MSC 6-2-65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

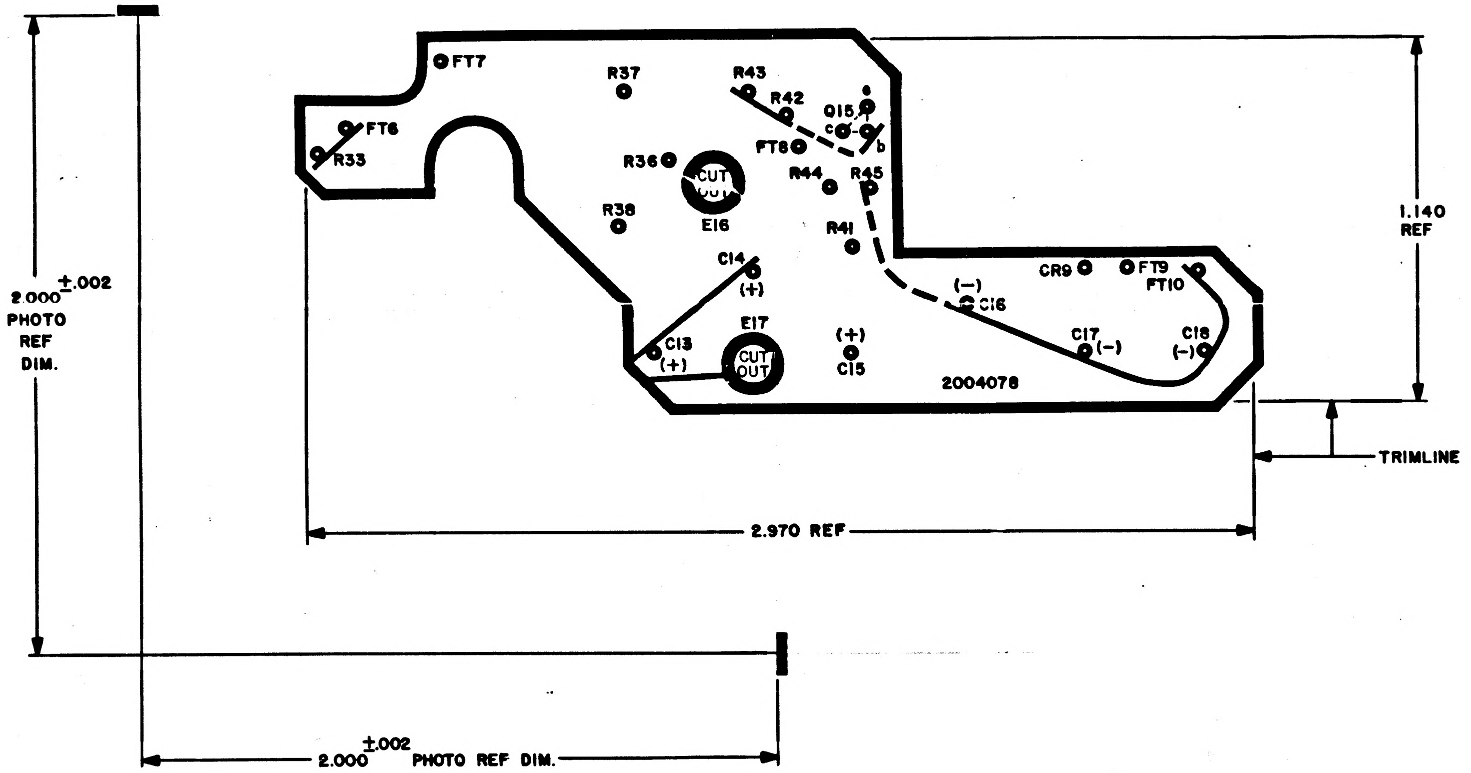
INSULATOR C
PHOTOGRAPHIC MASTER
POWER SUPPLY

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2004078
SCALE 4/1
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19758

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
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5. MATERIAL: FILM .006/.008 THK SENSITIZED DIMENSIONALLY STABLE PER L-F-340, TYPE IB, CLASS 2, STYLE IA
6. ⊙ .040/.050 DIA HOLE
7. BROKEN LINE DENOTES SLEEVING

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003056	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 5

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	Ed Powers	23 Apr 65
CHECKED	A. Lindstrom	26 May 65
APPROVED	Jn McGinty	26 May 65
APPROVED	Eldon Hall	1 Jun 65
APPROVED MIT	M P Murley	6-2-65
APPROVED MSC		6-2-65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSULATOR C
PHOTOGRAPHIC MASTER
POWER SUPPLY

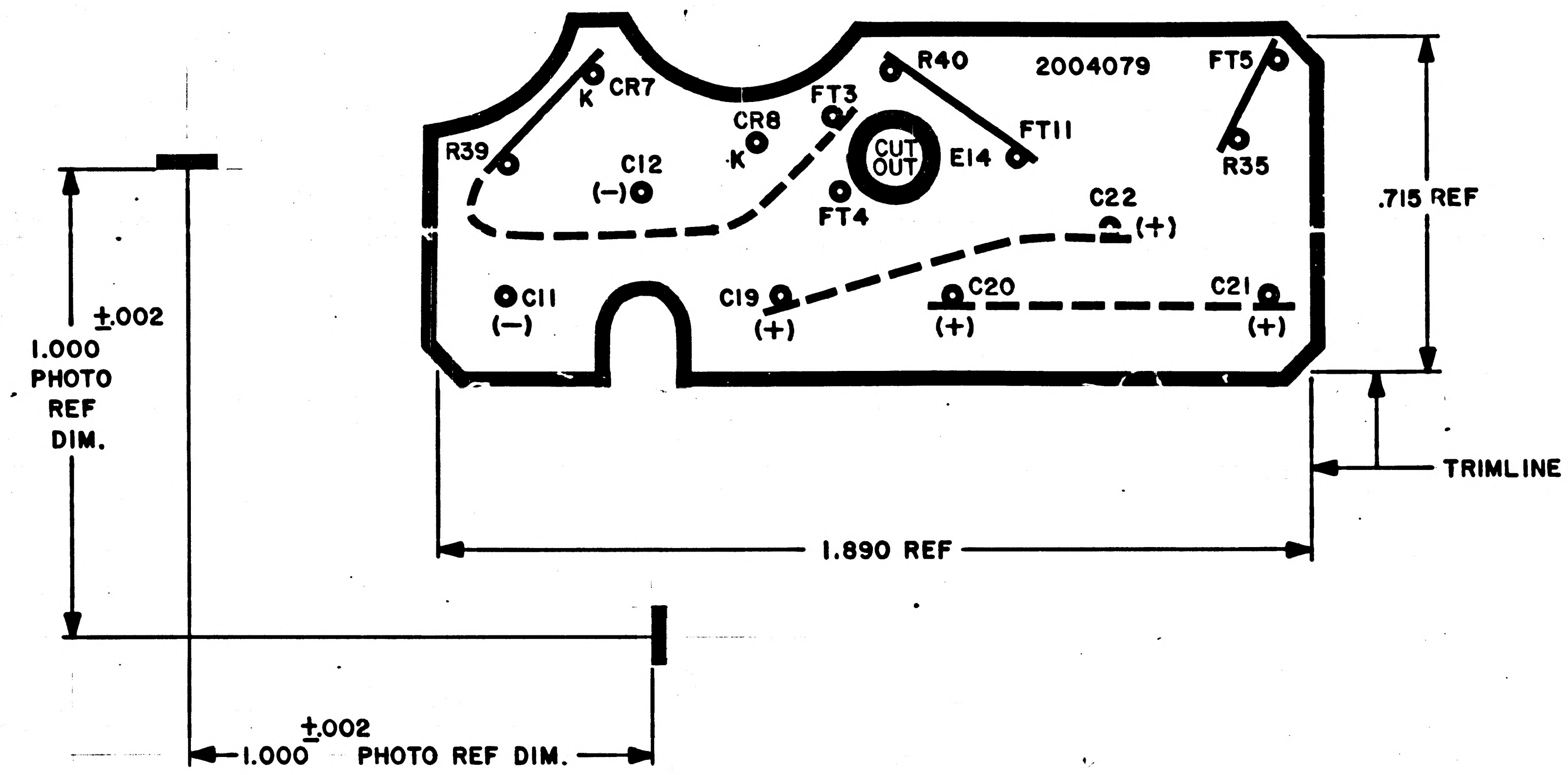
CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2004078

SCALE 4/1 SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19758

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20951	EP	EPK	10 AUG 65	



NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
3. CUT TO WITHIN .010 OF TRIMLINE
4. MAKE MASTER PATTERN POSITIVE FILM TO DIMENSIONS SHOWN
5. BROKEN LINE DENOTES SLEEVING
6. MATERIAL: FILM .006/.008 THK SENSITIZED DIMENSIONALLY STABLE PER L-F-340, TYPE IB, CLASS 2, STYLE IA
7. ○ .040/.050 DIA HOLE
8. ◯ .20/.22 DIA HOLE

NEXT ASSY	USED ON
2003056	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 6

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

		DATE
DRAWN	Ed Powers	22 Apr 65
CHECKED	A. Lindstrom	26 May 65
APPROVED	J.M. McGinty	26 May 65
APPROVED	Ellen C Hall	1 June 65
APPROVED MIT	M Murley	6-2-65
APPROVED MSC	B Milnick	6-2-65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSULATOR D PHOTOGRAPHIC MASTER
POWER SUPPLY

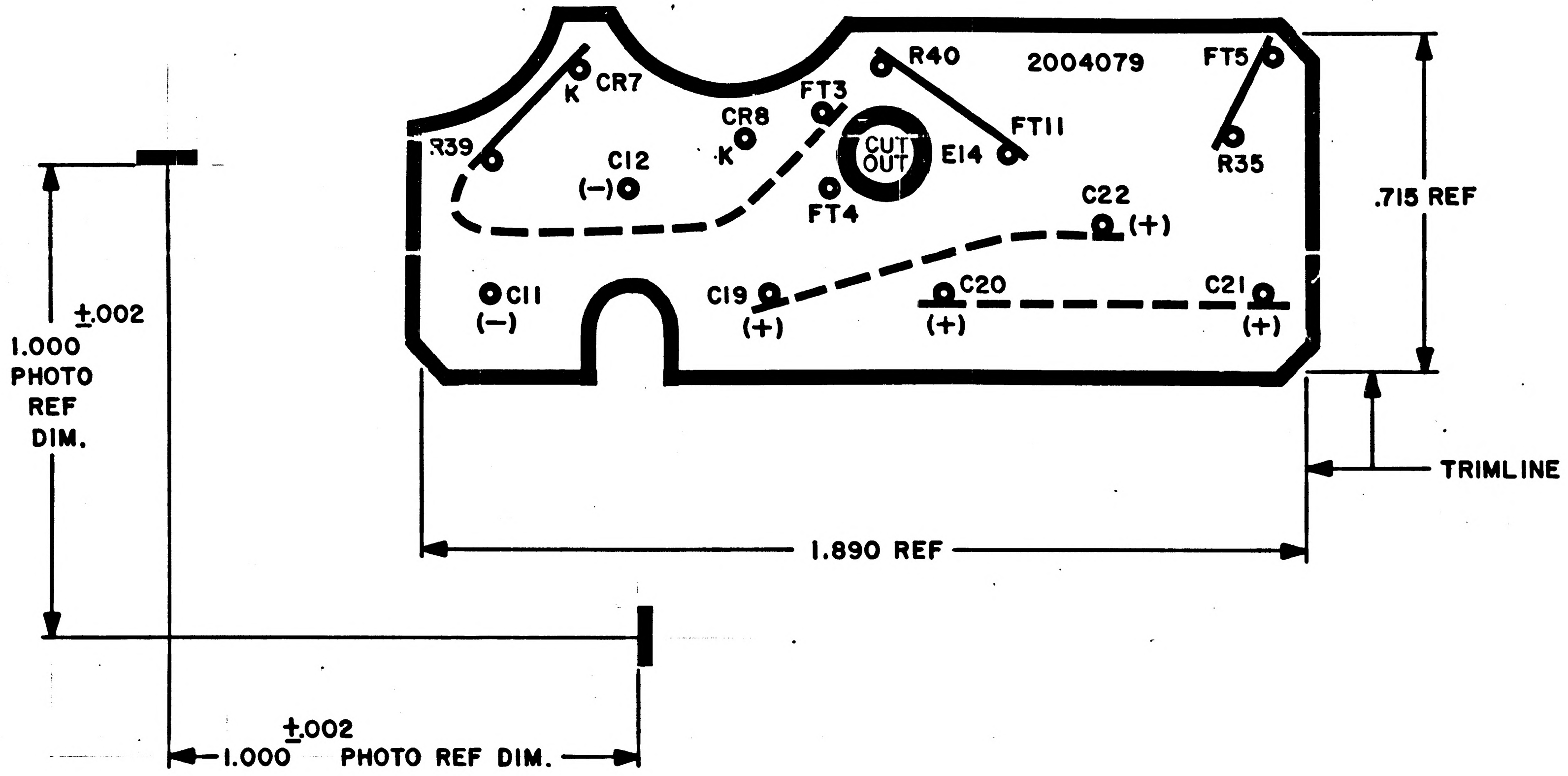
CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004079

SCALE 4/1
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19758

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
3. CUT TO WITHIN .010 OF TRIMLINE
4. MAKE MASTER PATTERN POSITIVE FILM TO DIMENSIONS SHOWN
5. BROKEN LINE DENOTES SLEEVING
6. MATERIAL: FILM .006/.008 THK SENSITIZED DIMENSIONALLY STABLE PER L-F-340, TYPE IB, CLASS 2, STYLE IA
7. ⊙ .040/.050 DIA HOLE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003056	
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 6

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	Ed Powers	22 Ap 65
CHECKED	A. Lindstrom	26 May '65
APPROVED	J. M. McGinty	26 May 65
APPROVED	Ellen C Hall	1 June 65
APPROVED MIT	M. T. Murley	6-2-65
APPROVED MSC	B. Milack	6-2-65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSULATOR D
PHOTOGRAPHIC MASTER
POWER SUPPLY

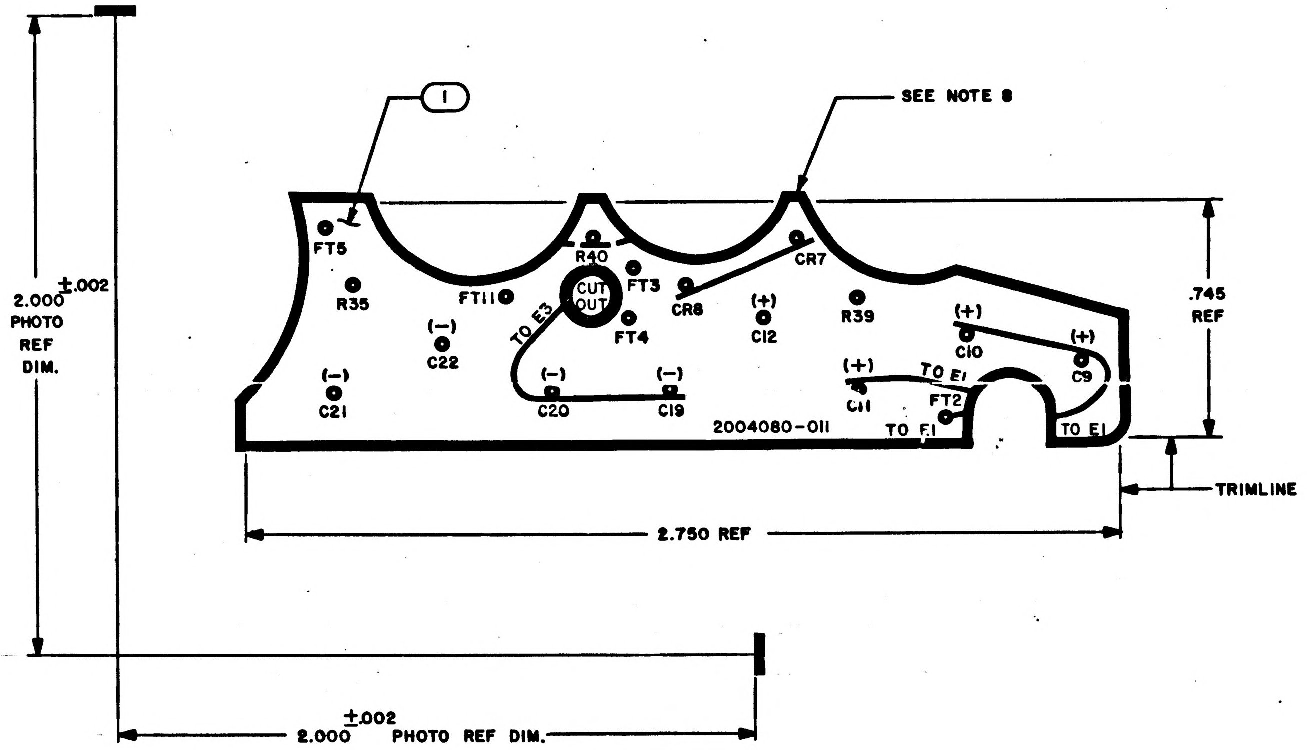
CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004079

SCALE 4/1 SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19758

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20951	KCH	EPK	9 Aug 65	



NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
3. CUT TO WITHIN .010 OF TRIMLINE
4. MAKE MASTER PATTERN POSITIVE FILM TO DIMENSIONS SHOWN
5. MATERIAL: FILM .006/.008 THK SENSITIZED DIMENSIONALLY STABLE PER L-F-340, TYPE IB, CLASS 2, STYLE IA
6. ◉ .040/.050 DIA HOLE
7. BROKEN LINE DENOTES SLEEVING
8. APPLY FIND NO.2 TO FAR SIDE OF FIND NO.1
9. ◯ .20/.22 DIA HOLE
10. AR DENOTES AS REQUIRED

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006318	ADHESIVE	2
1	2004080-001	INSULATOR A	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003056	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 5

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	Ed Powers	26 Apr 65
CHECKED	A. Lindstrom	26 May 65
APPROVED	J.W. McGinty	26 May 65
APPROVED		1 Jun 65
APPROVED MIT		6-2-65
APPROVED MSC		6-2-65
		DATE

INSULATOR A PHOTOGRAPHIC MASTER
POWER SUPPLY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2004080

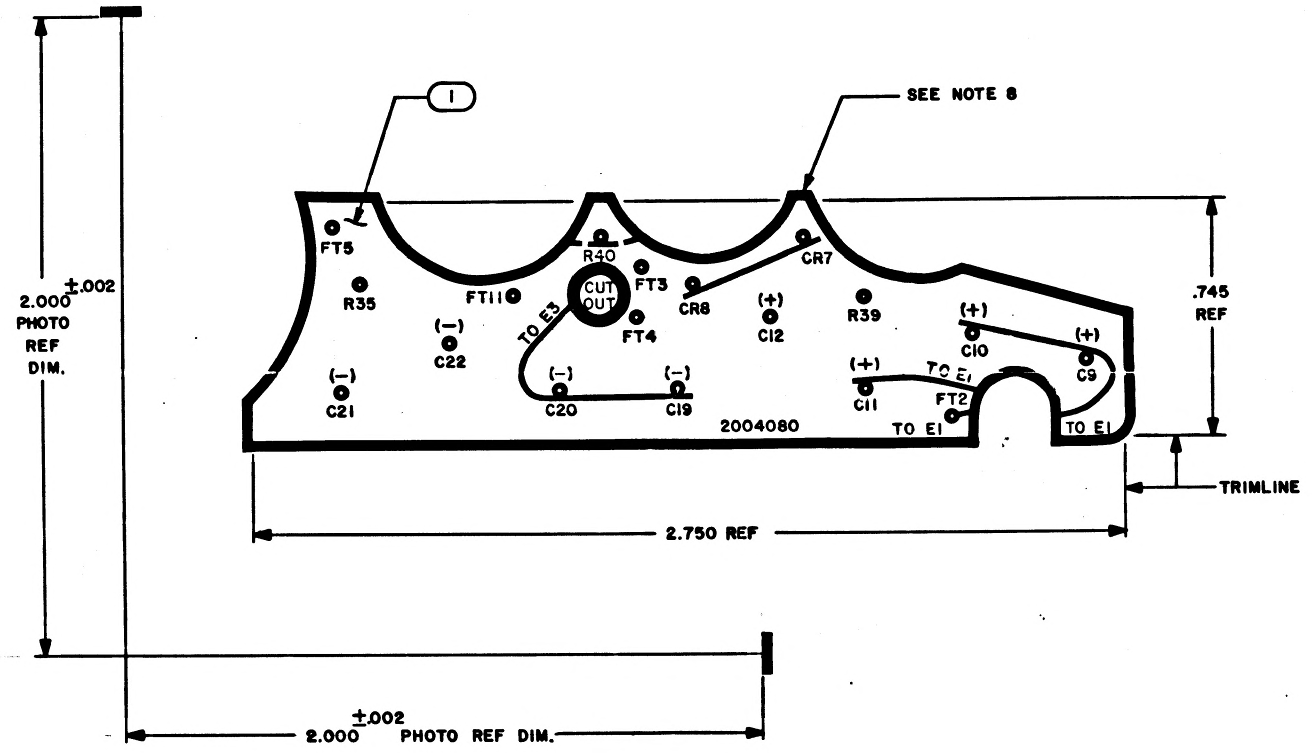
SCALE 4/1 SHEET 1 OF 1

2004080 A

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19758

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
3. CUT TO WITHIN .010 OF TRIMLINE
4. MAKE MASTER PATTERN POSITIVE FILM TO DIMENSIONS SHOWN
5. MATERIAL: FILM .006 /.008 THK SENSITIZED DIMENSIONALLY STABLE PER L-F-340, TYPE IB, CLASS 2, STYLE IA
6. ● .040 /.050 DIA HOLE
7. BROKEN LINE DENOTES SLEEVING
8. APPLY FIND NO.2 TO FAR SIDE OF FIND NO.1

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
AR	1006318	ADHESIVE	2
1	2004080-001	INSULATOR A	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003056	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 5

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	Ed Powers	26 Ap 65
CHECKED	A. Lindstrom	26 May 65
APPROVED	J W McGuinty	26 May 65
APPROVED	Eldon C Hall	1 June 65
APPROVED MIT		6-2-65
APPROVED MSC		6-2-65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSULATOR A
PHOTOGRAPHIC MASTER
POWER SUPPLY

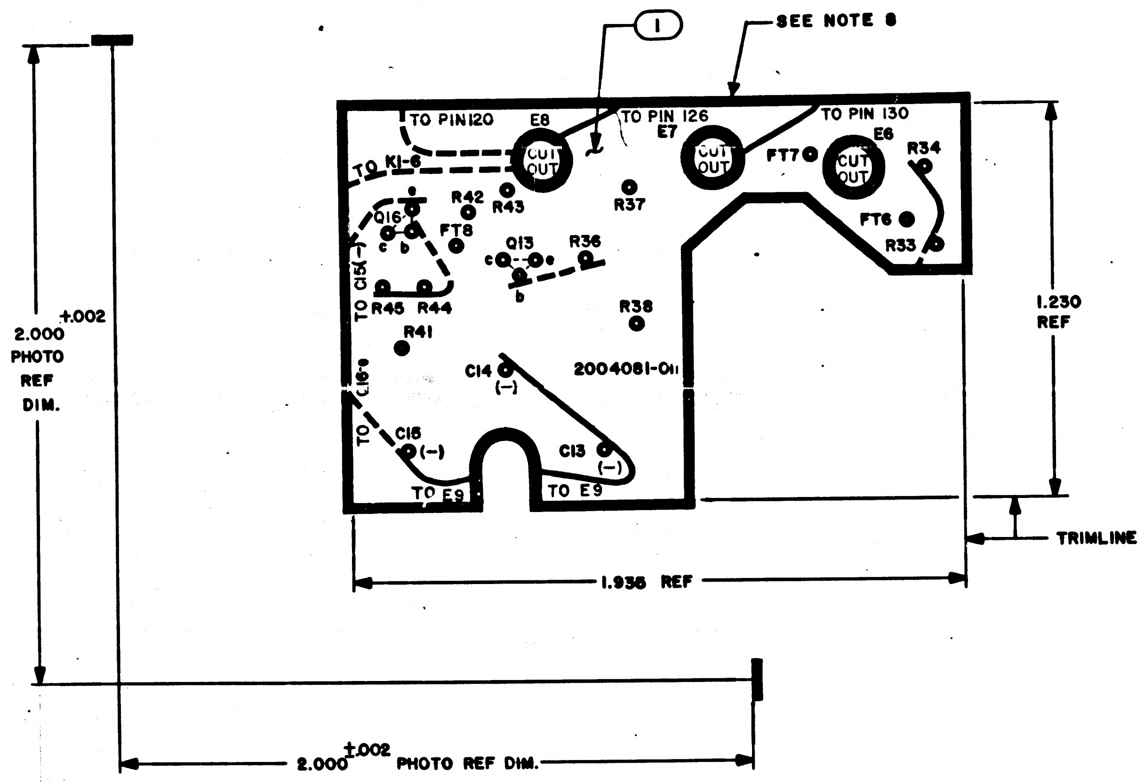
CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2004080

SCALE 4/1 SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19758

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20951	KCH	RPR	10 Aug 65	


SEE NOTE 8
1
TO PIN120
E8
TO PIN 126
E7
TO PIN 130
E6
CUT OUT
CUT OUT
CUT OUT
FT7
R34
TO K1-6
R42
R43
R37
Q16
e
c
b
FT8
Q13
c
e
b
R36
FT6
R33
TO C15(-)
R45
R44
R41
R38
C14
(-)
2004081-011
TO C16-e
C15
(-)
C13
(-)
TO E9
TO E9
1.230 REF
TRIMLINE
1.938 REF
2.000 ±.002 PHOTO REF DIM.
2.000 ±.002 PHOTO REF DIM.

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
3. CUT TO WITHIN .010 OF TRIMLINE
4. BROKEN LINE DENOTES SLEEVING
5. MAKE MASTER PATTERN POSITIVE FILM TO DIMENSIONS SHOWN
6. MATERIAL: .006/.008 THK SENSITIZED DIMENSIONALLY STABLE PER L-F-340, TYPE IB, CLASS 2, STYLE IA
7. ● .040/.050 DIA HOLE
8. APPLY FIND NO. 2 TO FAR SIDE OF FIND NO. 1
9. ○ .20/.22 DIA HOLE
10. AR DENOTES AS REQUIRED

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006318	ADHESIVE	2
1	2004081-001	INSULATOR B	1

-011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003056	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± ——— DECIMALS ± ——— ANGLES ± ———
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 6

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Ed Powers 23 Apr 65
CHECKED A. Lindstrom 26 May 65
APPROVED J. M. Ginty 26 May 65
APPROVED Eldon C. Hall 1 Jun 65
APPROVED MIT 6-2-65
APPROVED MSC 6-2-65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSULATOR B
PHOTOGRAPHIC MASTER
POWER SUPPLY

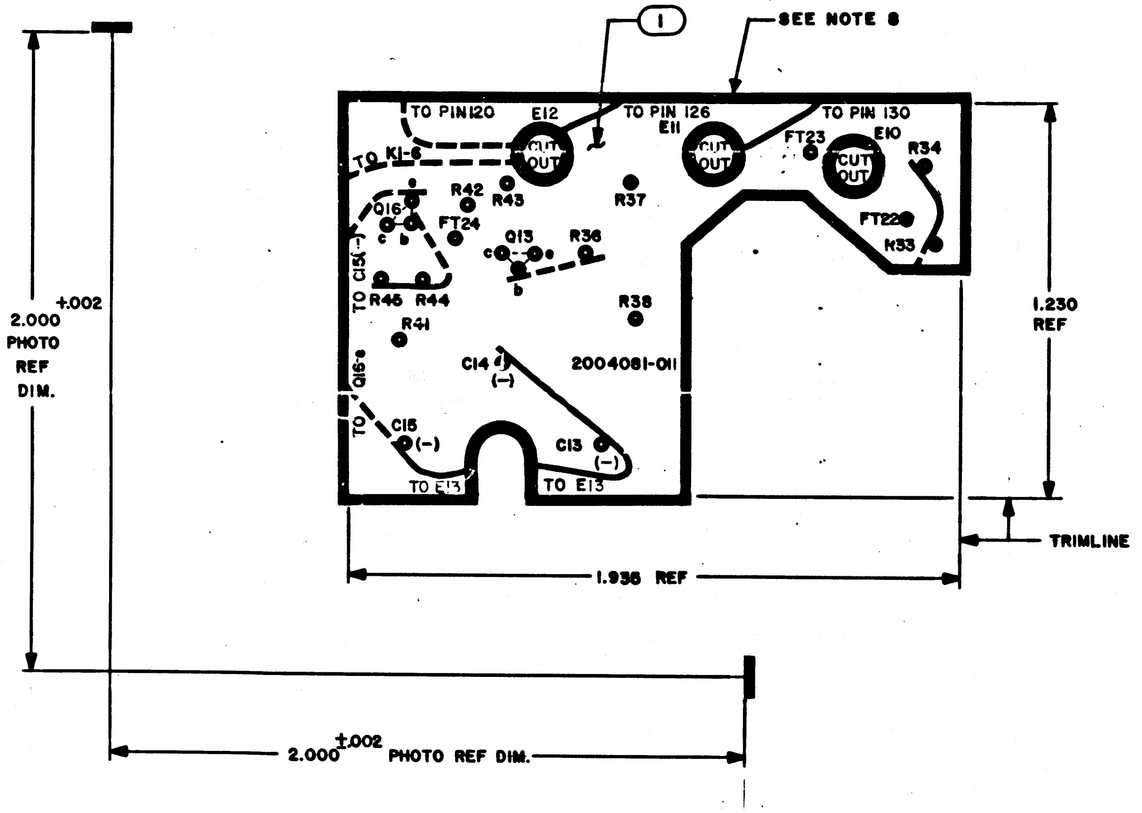
CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2004081
SCALE 4/1
SHEET 1 OF 1

2004081 A

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19758

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20951	KCH	RPK	10 Aug 65	MCM
B		REVISED PER TDRR 22564	WFN	RPK		W.S.



1
SEE NOTE 8
TO PIN 120
E12
TO PIN 126
E11
TO PIN 130
E10
FT23
CUT OUT
CUT OUT
CUT OUT
TO K1-6
R34
R42
R43
R37
Q16
e
c
b
FT24
Q13
c
e
b
R36
FT22
R33
TO C15(-)
R45
R44
R38
R41
TO Q15-e
C14
(-)
2004081-011
C15
(-)
C13
(-)
TO E13
TO E13
1.230 REF
TRIMLINE
1.936 REF
2.000 ±.002 PHOTO REF DIM.
2.000 ±.002 PHOTO REF DIM.

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
3. CUT TO WITHIN .010 OF TRIMLINE
4. BROKEN LINE DENOTES SLEEVING
5. MAKE MASTER PATTERN POSITIVE FILM TO DIMENSIONS SHOWN
6. MATERIAL: .006/.008 THK SENSITIZED DIMENSIONALLY STABLE PER L-F-340, TYPE IB, CLASS 2, STYLE IA
7. ● .040/.050 DIA HOLE
8. APPLY FIND NO.2 TO FAR SIDE OF FIND NO.1
9. ○ .20/.22 DIA HOLE
10. AR DENOTES AS REQUIRED

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006318	ADHESIVE	2
1	2004081-001	INSULATOR B	1

-011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003056	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL SEE NOTE 6

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Ed Powers 28 Apr 65
CHECKED R. Lindstrom 26 Apr 65
APPROVED J.M. McGinty 26 Apr 65
APPROVED Ellen C. Hall 13 Jun 65
APPROVED MIT W.S. Marley 6-2-65
APPROVED MSC 6-2-65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

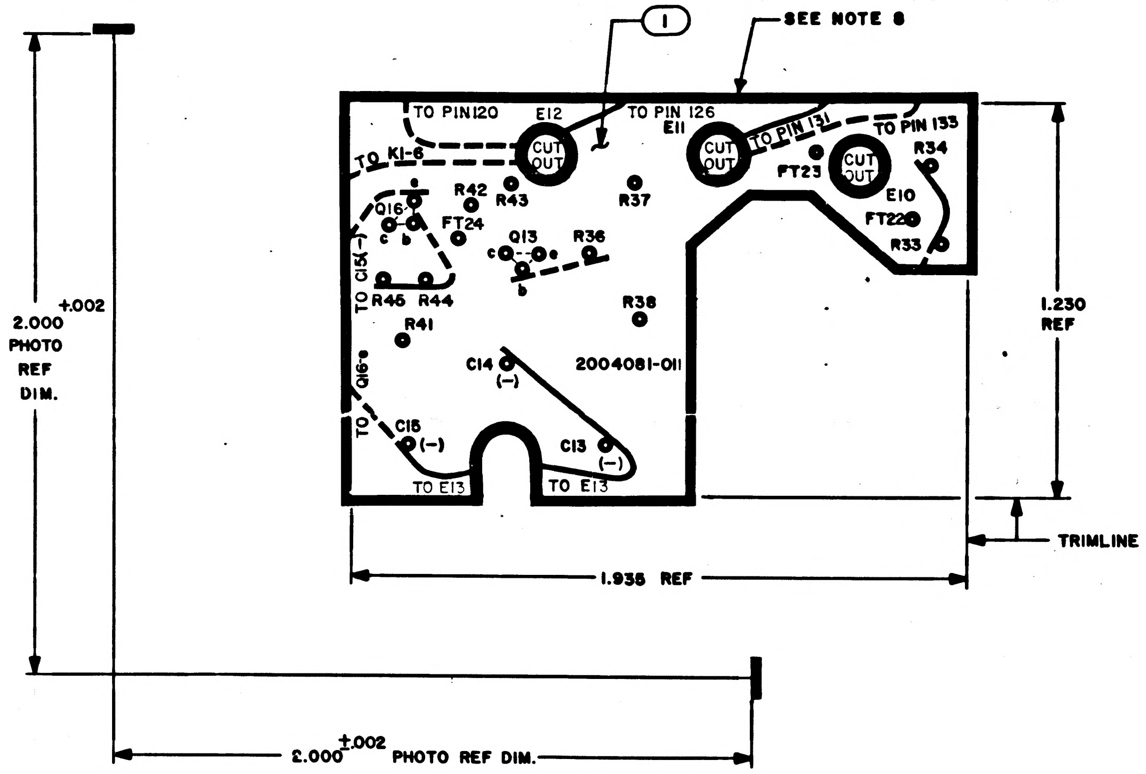
INSULATOR B
PHOTOGRAPHIC MASTER
POWER SUPPLY

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2004081
SCALE 4/1
SHEET 1 OF 1

NOTICE -- WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19758

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20951	KCH	RPK	10 Aug 65	
B		REVISED PER TDRR 22564	WFH	RPK		
C		REVISED PER TDRR 24192		RPK	22 Nov 65	



1
SEE NOTE 8
TO PIN120
E12
CUT OUT
TO PIN 126
E11
CUT OUT
TO PIN 131
TO PIN 133
CUT OUT
FT23
R34
E10
FT22
R33
TO K1-6
Q16
e
c
b
R42
R43
R37
FT24
Q13
c
e
b
R36
TO C15(-)
R45
R44
R41
R38
C14
(-)
2004081-011
TO Q16-e
C15
(-)
C13
(-)
TO E13
TO E13
1.230 REF
TRIMLINE
1.935 REF
2.000 +.002 PHOTO REF DIM.
2.000 ±.002 PHOTO REF DIM.

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
3. CUT TO WITHIN .010 OF TRIMLINE
4. BROKEN LINE DENOTES SLEEVING
5. MAKE MASTER PATTERN POSITIVE FILM TO DIMENSIONS SHOWN
6. MATERIAL: .006/.008 THK SENSITIZED DIMENSIONALLY STABLE PER L-F-340, TYPE IB, CLASS 2, STYLE IA
7. ◉ .040/.050 DIA HOLE
8. APPLY FIND NO. 2 TO FAR SIDE OF FIND NO. 1
9. ◯ .20/.22 DIA HOLE
10. AR DENOTES AS REQUIRED

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006318	ADHESIVE	2
1	2004081-001	INSULATOR B	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003056	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 6

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN Ed Powers 23 Apr 65
CHECKED A. Lindstrom 26 May 65
APPROVED M. M. Ginty 26 May 65
APPROVED Ellen C. Hall 1 June 65
APPROVED MIT 6-2-65
APPROVED MSC 6-2-65
DATE

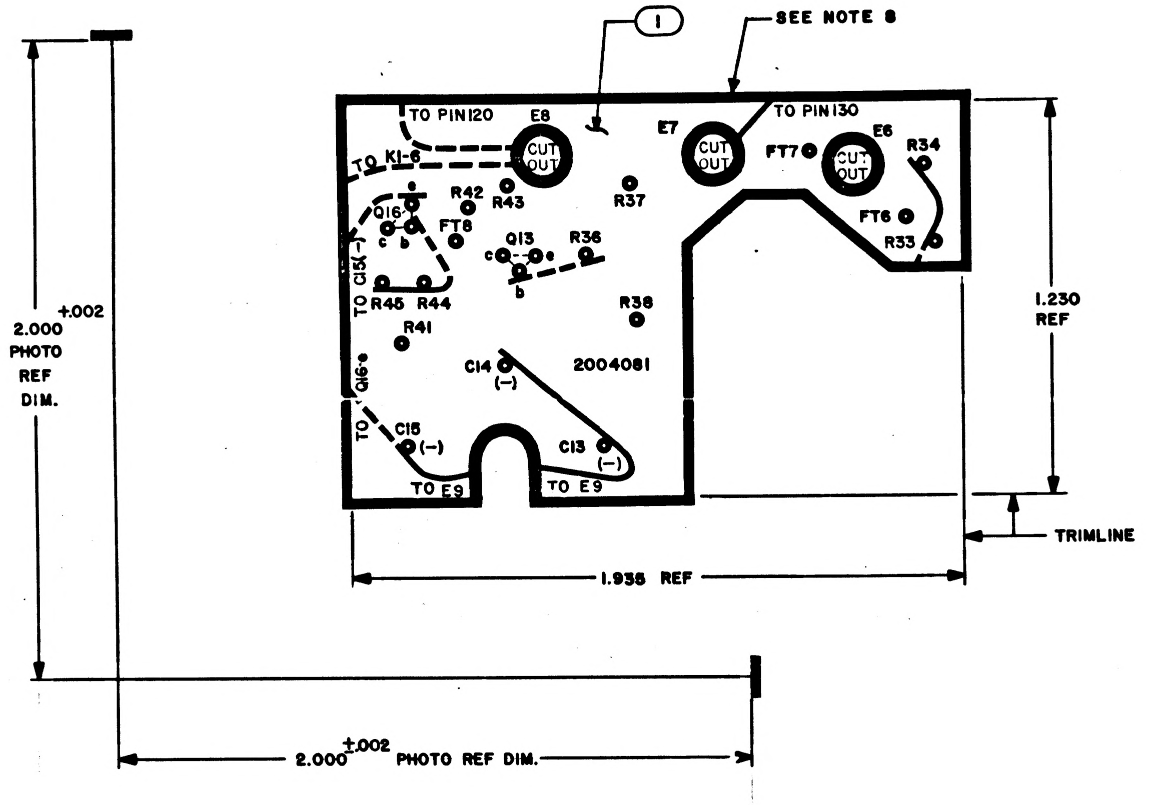
INSULATOR B PHOTOGRAPHIC MASTER
POWER SUPPLY

CODE IDENT NO 80230
SIZE D
DRAWING NO. 2004081
SCALE 4/1
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19758

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



①
SEE NOTE 8
TO PIN120
E8
CUT OUT
E7
CUT OUT
TO PIN130
FT7
E6
CUT OUT
R34
TO K1-6
e
Q16
c
b
R42
R43
R37
FT8
Q13
c
e
b
R36
FT6
R33
TO C15(–)
R45
R44
R41
R38
C14 (–)
2004081
TO Q16-e
C15 (–)
C13 (–)
TO E9
TO E9
1.230 REF
TRIMLINE
1.938 REF
2.000 ±.002 PHOTO REF DIM.
2.000 ±.002 PHOTO REF DIM.

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
3. CUT TO WITHIN .010 OF TRIMLINE
4. BROKEN LINE DENOTES SLEEVING
5. MAKE MASTER PATTERN POSITIVE FILM TO DIMENSIONS SHOWN
6. MATERIAL: .006/.008 THK SENSITIZED DIMENSIONALLY STABLE PER L-F-340, TYPE IB, CLASS 2, STYLE IA
7. ◎ .040/.050 DIA HOLE
8. APPLY FIND NO. 2 TO FAR SIDE OF FIND NO. 1

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006318	ADHESIVE	2
1	2004081-001	INSULATOR B	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003056	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 6

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	Ed Powers	23 Apr 65
CHECKED	A. Lindstrom	26 May 65
APPROVED		
APPROVED		
APPROVED MIT		6-2-65
APPROVED MSC		6-2-65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

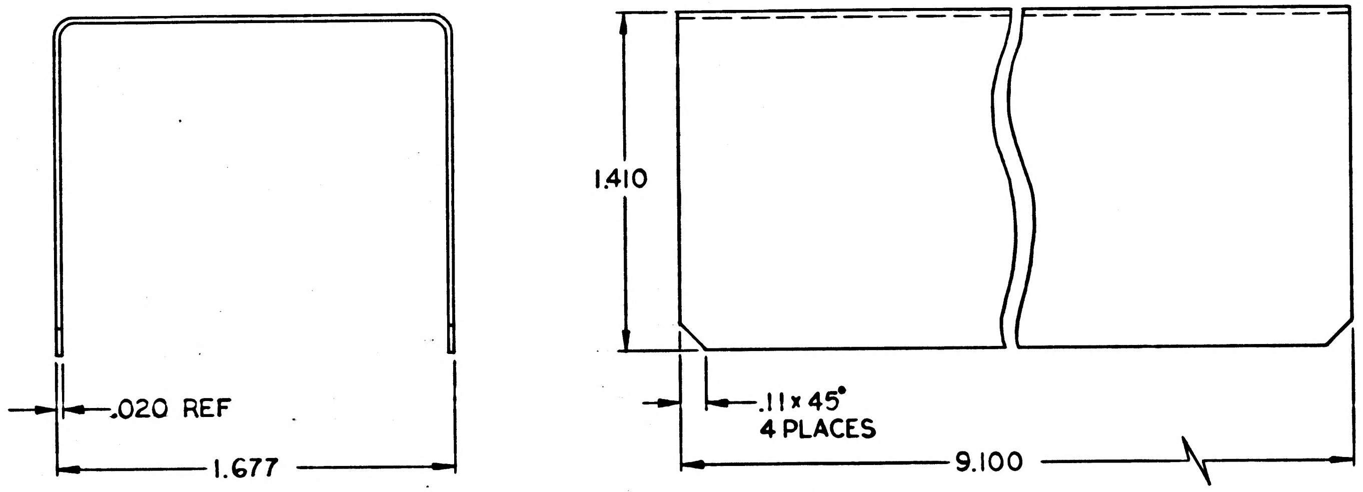
INSULATOR B
PHOTOGRAPHIC MASTER
POWER SUPPLY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2004081

SCALE 4/1 SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 18684						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATL: .020 THK 6061-T6 AL PER QQ-A-250/11, TEMPER T6
3. ALL SURFACES 125/ UNLESS OTHERWISE SPECIFIED
4. ALL INSIDE BEND RADII TO BE .07
5. REMOVE BURRS & SHARP EDGES .005/.015
6. ANODIZE PER MIL-A-8625, TYPE II DYED BLACK
7. IDENTIFY WITH DRAWING NUMBER & REVISION PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
2003011	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XXX ± .005 .XX ± .010 ANGLES ± 2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

		DATE
DRAWN	C.A. Austin	31MAR65
CHECKED	A. Lindstrom	12 Apr 65
APPROVED	[illegible]	23 Apr '65
APPROVED	Eldon C Hall	23 Apr 65
APPROVED MIT	W [illegible]	[illegible] 65
APPROVED MSC	[illegible]	4-27-65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

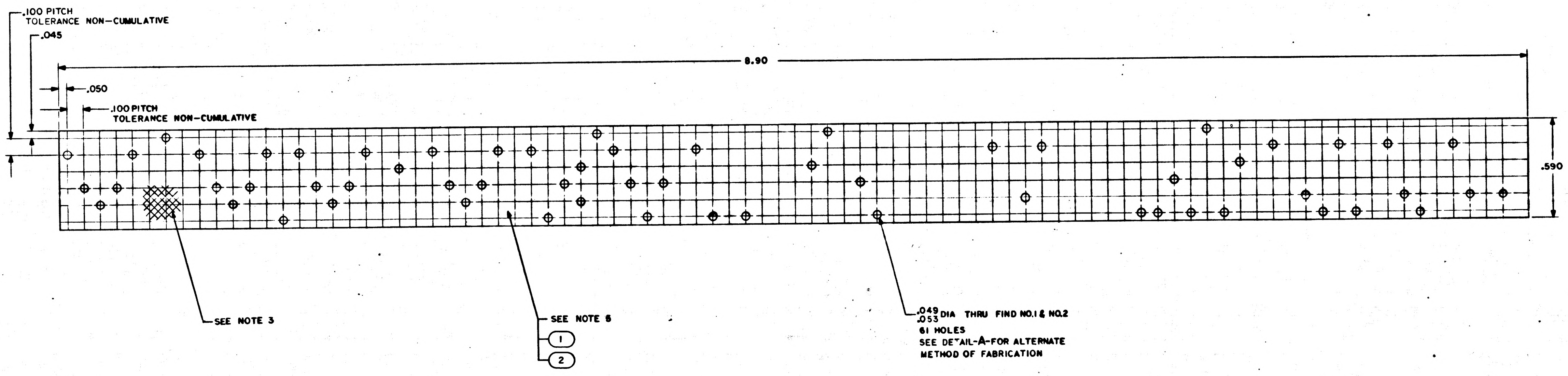
COVER
ERASABLE MEMORY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004083
SCALE 2/1		SHEET 1 OF 1

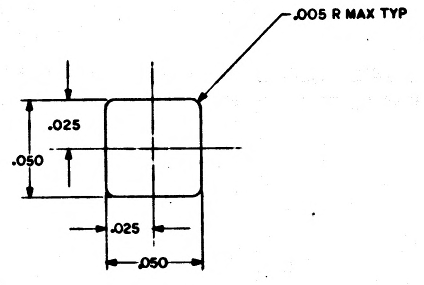
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19216

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 22465	E.A.J.		9/15/65	WK



.049/.053 DIA THRU FIND NO.1 & NO.2
61 HOLES
SEE DETAIL-A-FOR ALTERNATE METHOD OF FABRICATION



DETAIL A
SCALE 30/1

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: PLASTIC SHEET .006/.009 THK PER MIL-P-15035, TYPE FBI
3. THREADS IN PLASTIC SHEET TO RUN DIAGONALLY
4. IDENTIFY WITH PART NO. PER ND1002019
5. APPLY FIND NO.2 TO FAR SIDE OF FIND NO.1
6 AR DENOTES AS REQUIRED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006806-27	INSULATION TAPE	2
1	2004087-001	INSULATOR	1
-011		LIST OF MATERIALS	

NEXT ASSY	USED ON
2003042	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XX ±.01 .XXX ±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN 5 APR 65
CHECKED
APPROVED 13 May 65
APPROVED
APPROVED MIT
APPROVED MSC 5/13/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSULATOR, MATRIX
ROPE DRIVER MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2004087

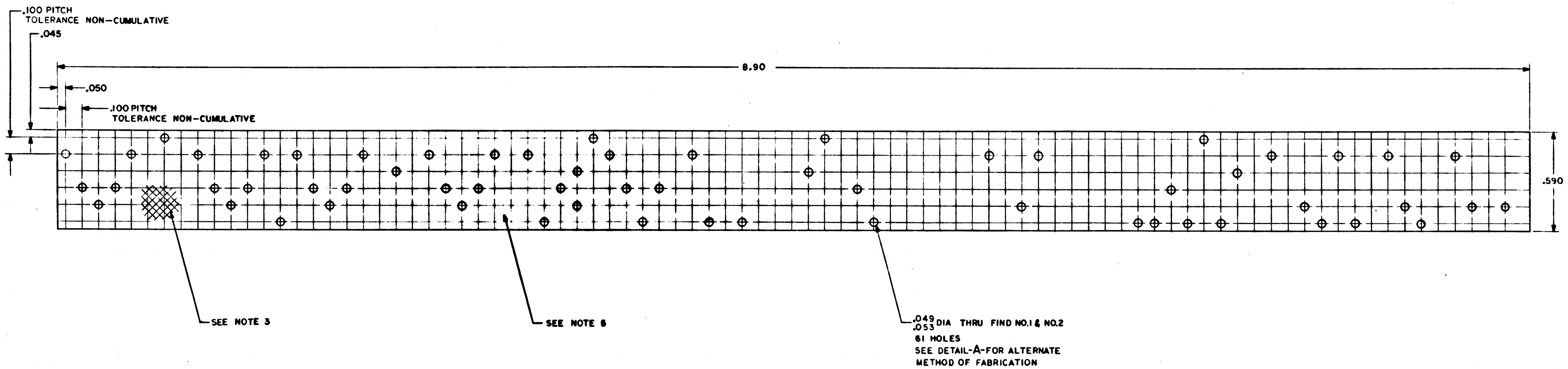
SCALE 4/1 SHEET 1 OF 1

MASTER

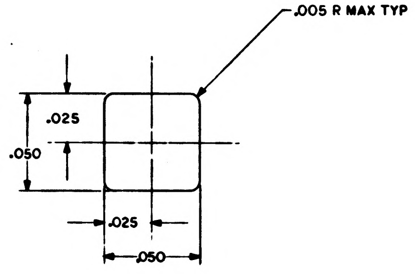
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19216

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



.100 PITCH
TOLERANCE NON-CUMULATIVE
.045
8.90
.050
.100 PITCH
TOLERANCE NON-CUMULATIVE
.590
SEE NOTE 3
SEE NOTE 5
.049
.053 DIA THRU FIND NO.1 & NO.2
61 HOLES
SEE DETAIL-A-FOR ALTERNATE
METHOD OF FABRICATION



.005 R MAX TYP
.025
.050
.025
.050

DETAIL A
SCALE 30/1

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: PLASTIC SHEET .006/.009 THK PER MIL-P-15035, TYPE FBI
3. THREADS IN PLASTIC SHEET TO RUN DIAGONALLY
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND 1002019
5. APPLY FIND NO.2 TO FAR SIDE OF FIND NO.1
6 AR DENOTES AS REQUIRED

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006318	ADHESIVE TAPE	2
1	2004087-001	INSULATOR	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003042	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XXX ±.005 .XX ±.01 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN		5 APR 65
CHECKED		23 Apr 65
APPROVED		13 May 65
APPROVED	Eldon C Hall	12 May 65
APPROVED MIT		14 May 65
APPROVED MSC		5/17/65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

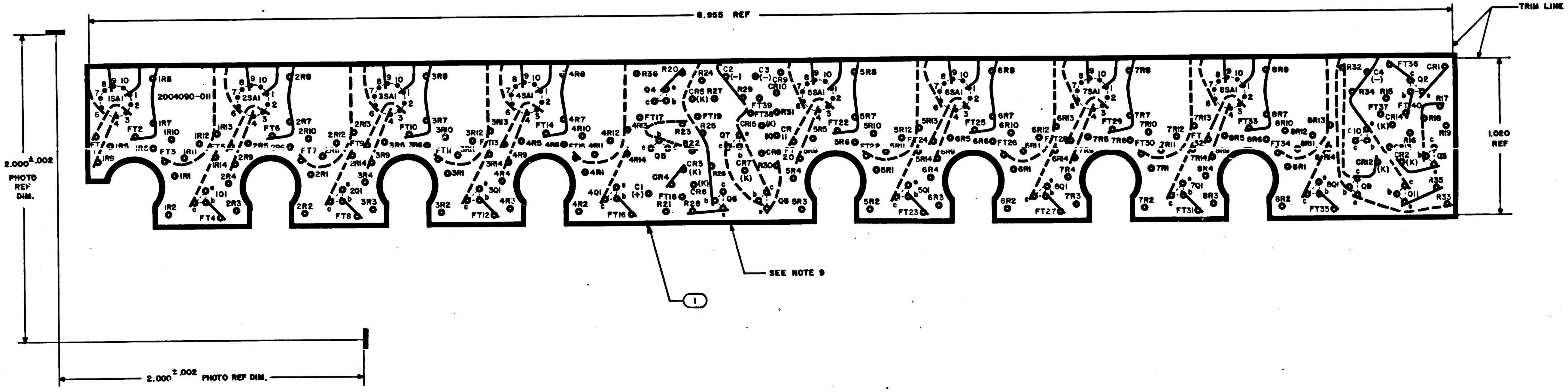
INSULATOR, MATRIX
ROPE DRIVER MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2004087
SCALE 4/1		SHEET 1 OF 1

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19215

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20042			11 Jan '65	



NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: FILM .006/.008 THICK SENSITIZED DIMENSIONALLY STABLE PER L-F-340 TYPE IB, CLASS 2, STYLE IA
3. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
4. MAKE MASTER PATTERN POSITIVE FILMS TO DIMENSIONS SHOWN
5. CUT TO WITHIN .010 OF TRIMLINE
6. BROKEN LINE DENOTES SLEEVING
7. ⦿ .040/.050 DIA HOLE
8. ● .030/.035 DIA HOLE (ISAI THRU 8SAI ONLY)
9. APPLY FIND NO.2 TO FAR SIDE OF FIND NO.1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006318	ADHESIVE	2
1	2004090-001	INSULATOR A	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003043	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	J Brigham	4/7/6
CHECKED	R L Glenn	10 MAY 65
APPROVED	M McGinty	11 MAY 65
APPROVED	Eldon C Hall	17 May 65
APPROVED MIT	M G Manley	
APPROVED MSC		5/1/6
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSULATOR A, ASSY
PHOTOGRAPHIC MASTER
SENSE AMPLIFIER MODULE

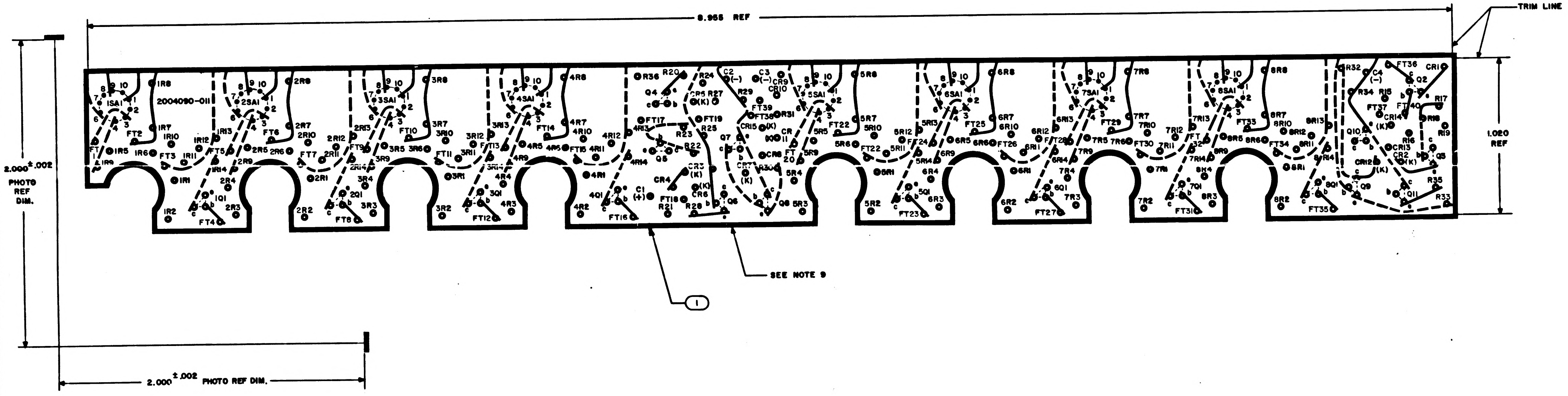
CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2004090

SCALE 4/1 SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19215

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED


8.965 REF
TRIM LINE
1.020 REF
2.000 ±.002 PHOTO REF DIM.
2.000 ±.002 PHOTO REF DIM.
2004090-011
SEE NOTE 9
1
1SA1
2SA1
3SA1
4SA1
5SA1
6SA1
7SA1
8SA1
FT1
FT2
FT3
FT4
FT5
FT6
FT7
FT8
FT9
FT10
FT11
FT12
FT13
FT14
FT15
FT16
FT17
FT18
FT19
FT20
FT22
FT23
FT24
FT25
FT26
FT27
FT28
FT29
FT30
FT31
FT32
FT33
FT34
FT35
FT36
FT37
FT38
FT39
FT40
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
C1 (+)
C2 (–)
C3 (–)
C4 (–)
CR1
CR2
CR3
CR4
CR5
CR6
CR7
CR8
CR9
CR10
CR11
CR12
CR13
CR14
CR15
R17
R18
R19
R20
R21
R22
R23
R24
R25
R27
R28
R29
R30
R31
R32
R33
R34
R35
R36

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: FILM .006/.008 THICK SENSITIZED DIMENSIONALLY STABLE PER L-F-340 TYPE IB, CLASS 2, STYLE IA
3. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
4. MAKE MASTER PATTERN POSITIVE FILMS TO DIMENSIONS SHOWN
5. CUT TO WITHIN .010 OF TRIMLINE
6. BROKEN LINE DENOTES SLEEVING
7. ● .040/.050 DIA HOLE
8. • .030/.035 DIA HOLE (1SA1 THRU 8SA1 ONLY)
9. APPLY FIND NO.2 TO FAR SIDE OF FIND NO.1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006318	ADHESIVE	2
1	2004090-001	INSULATOR A	1
-011		LIST OF MATERIALS	

NEXT ASSY	USED ON
2003043	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

		DATE
DRAWN	J Brigham	4/7/6
CHECKED		10MAY65
APPROVED	M McGinty	11MAY65
APPROVED	Elton C Hall	17 May 65
APPROVED MIT	M.G. Morley	10 May 65
APPROVED MSC		5/16/65

INSULATOR A, ASSY PHOTOGRAPHIC MASTER
SENSE AMPLIFIER MODULE

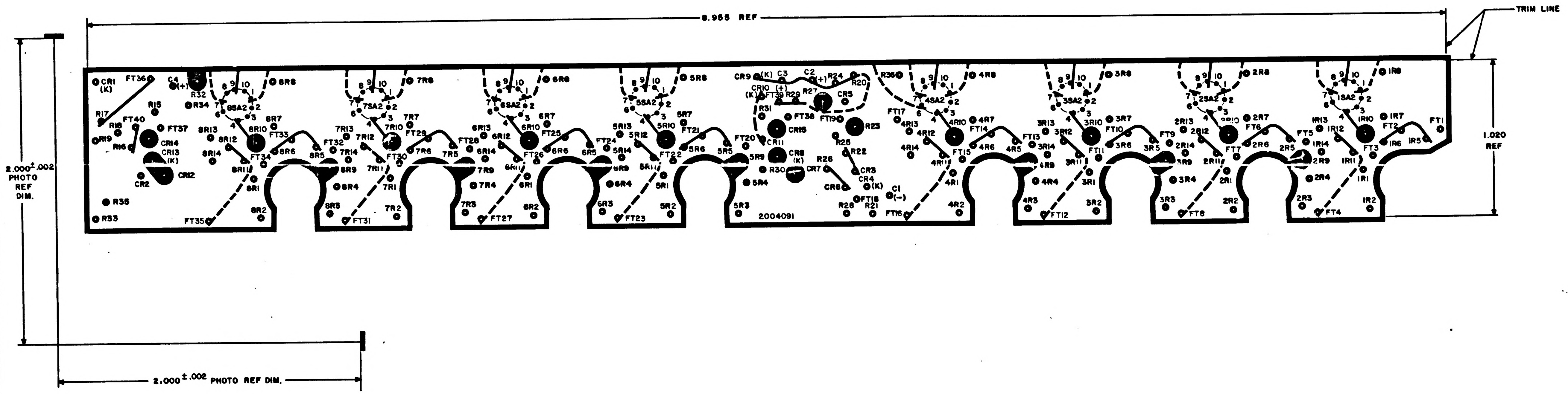
CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2004090

SCALE 4/1
SHEET 1 OF 1

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 1921-5

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED


8.955 REF
TRIM LINE
1.020 REF
2.000 ± .002 PHOTO REF DIM.
2.000 ± .002 PHOTO REF DIM.
2004091
CR1 (K)
FT36
C4 (+)
R32
R34
R17
R15
R18
FT40
FT37
R19
R16
CR14
CR13 (K)
CR12
CR2
R35
R33
FT35
8SA2
8R8
8R7
8R13
8R12
8R10
FT33
8R14
FT34
8R6
8R11
8R1
8R2
8R5
8R9
8R4
8R3
7SA2
7R8
7R7
7R13
7R12
7R10
FT32
7R14
FT29
FT30
7R11
7R1
7R2
FT31
7R6
7R5
7R9
7R4
7R3
6SA2
6R8
6R7
FT28
6R13
6R12
6R10
FT25
6R14
FT26
6R11
6R1
6R2
FT27
6R6
6R5
6R9
6R4
6R3
5SA2
5R8
5R7
FT24
5R13
5R12
5R10
FT21
5R14
FT22
5R11
5R1
5R2
FT23
5R6
5R5
5R9
5R4
5R3
CR9 (K)
C3
C2 (+)
R24
R20
CR10 (+) (K)
FT39
R29
R27
CR5
R31
FT38
FT19
R23
CR15
FT20
CR11
CR8 (K)
R25
R22
R26
R30
CR7
CR3
CR4 (K)
CR6
C1 (−)
FT18
R28
R21
FT16
R36
4SA2
4R8
4R7
FT17
4R13
4R12
4R10
FT14
4R14
FT15
4R11
4R1
4R2
4R6
4R5
4R9
4R4
4R3
3SA2
3R8
3R7
FT13
3R13
3R12
3R10
FT10
3R14
FT11
3R11
3R1
3R2
FT12
3R6
3R5
3R9
3R4
3R3
2SA2
2R8
2R7
FT9
2R13
2R12
2R10
FT6
2R14
FT7
2R11
2R1
2R2
FT8
2R6
2R5
2R9
2R4
2R3
1SA2
1R8
1R7
FT5
1R13
1R12
1R10
FT2
1R14
FT3
1R11
1R1
1R2
FT4
1R6
1R5
FT1
1
2
3
4
6
7
8
9
10

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: FILM .006/.008 THICK SENSITIZED DIMENSIONALLY STABLE PER L-F-340 TYPE IB, CLASS 2, STYLE IA
3. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
4. MAKE MASTER PATTERN POSITIVE FILMS TO DIMENSIONS SHOWN
5. CUT TO WITHIN .010 OF TRIMLINE
6. BROKEN LINE DENOTES SLEEVING
7. ◉ .040/.050 DIA HOLE
8. ● .030/.035 DIA HOLE (1SA2 THRU 8SA2 ONLY)
9. ● .120/.130 DIA HOLE (14 PLACES)

QTY RQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003043	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	[illegible]	4/8/5
CHECKED	[illegible]	[illegible]
APPROVED	[illegible]	[illegible]
APPROVED	Eldon C Hall	12 May
APPROVED MIT	[illegible]	18 May
APPROVED MSC	[illegible]	5/18/65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSULATOR B
PHOTOGRAPHIC MASTER
SENSE AMPLIFIER MODULE

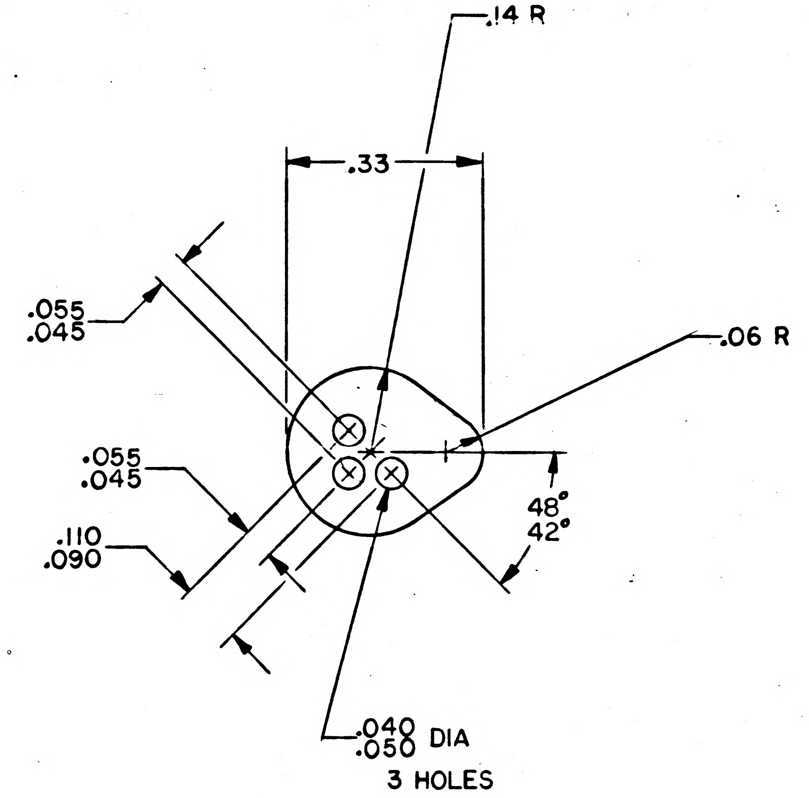
CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2004091
SCALE 4/1		SHEET 1 OF 1

2004091

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19687

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL–D–70327
2. MATERIAL: FILM, .006/.008 THICK, POLYETHYLENE TEREPHTHALATE PER L–P–00519, TYPE II, CLASS I
3. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIN NO

LIST OF MATERIALS

2003035	
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.01 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

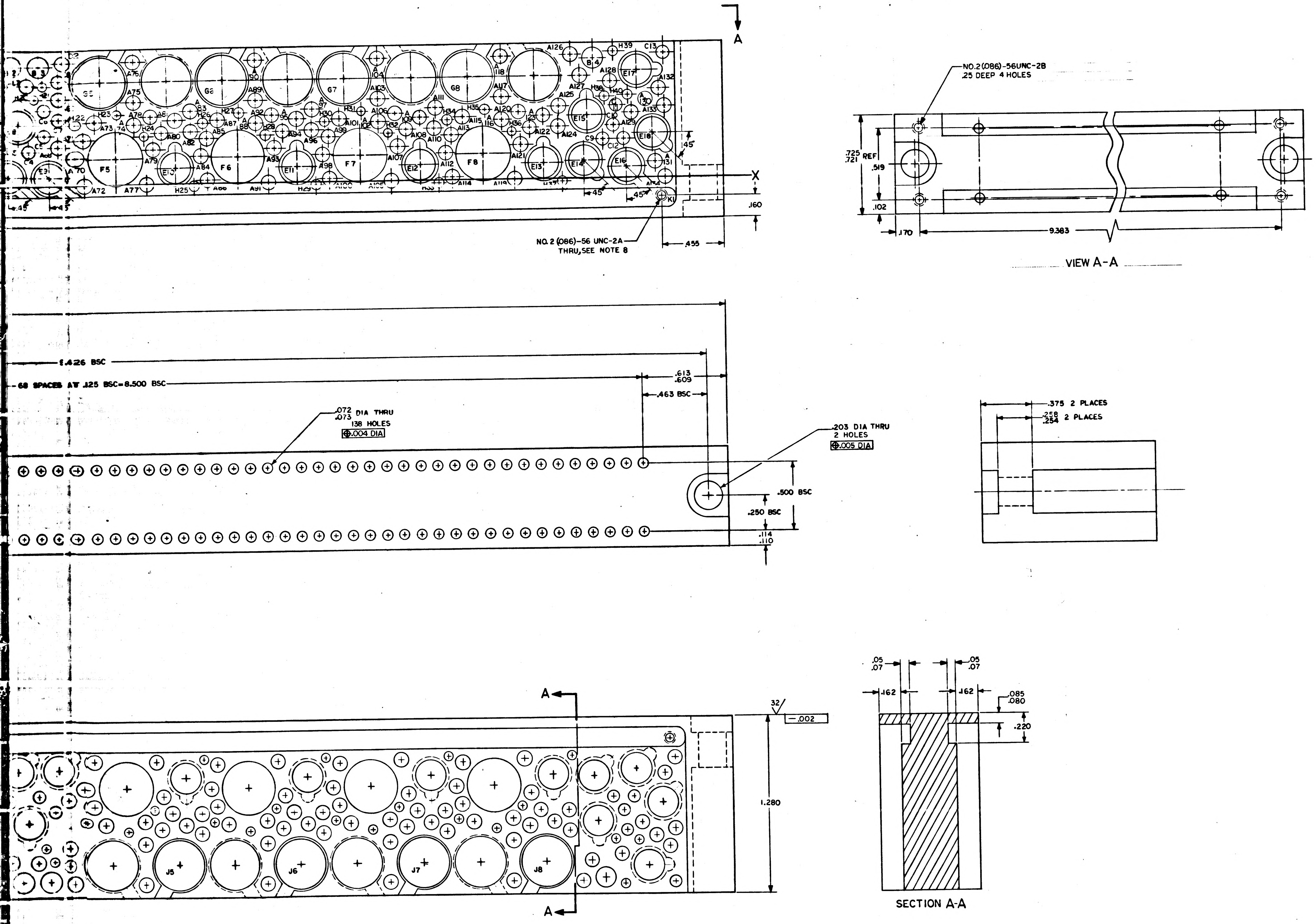
DRAWN A J Papia 13 Apr 65
CHECKED R. L. Kingsbury 21 Apr 65
APPROVED 21 Apr 65
APPROVED Eldon C Hall 24 May 65
APPROVED MIT 26 May 65
APPROVED MSC 5/26/65
DATE

INSULATOR

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004092

SCALE 5/1 SHEET 1 OF 1

REVISIONS 19215						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



A
X
NO. 2 (086)-56 UNC-2A THRU, SEE NOTE 8
.45
.160
.455
45°
NO.2 (086)-56UNC-2B .25 DEEP 4 HOLES
.725
.721 REF
.519
.102
.170
9.383
VIEW A-A
1.426 BSC
68 SPACES AT .125 BSC=8.500 BSC
.613
.609
.463 BSC
.072
.073 DIA THRU 138 HOLES
⊕.004 DIA
.203 DIA THRU 2 HOLES
⊕.005 DIA
.500 BSC
.250 BSC
.114
.110
.375 2 PLACES
.258
.254 2 PLACES
A
A
32
—.002
1.280
J5
J6
J7
J8
.05
.07
.162
.085
.080
.220
SECTION A-A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003043	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XX ±.02 .XXX ±.005 — ANGLES ± 2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE. 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN J.F. Walsh 14 May 65
CHECKED 10 May 65
APPROVED 13 May 65
APPROVED 17 May 65
APPROVED MIT 18 May 65
APPROVED MSC 7/10/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HEADER HOUSING
SENSE AMPLIFIER MODULE

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004094
SCALE 4/1
SHEET 1 OF 1

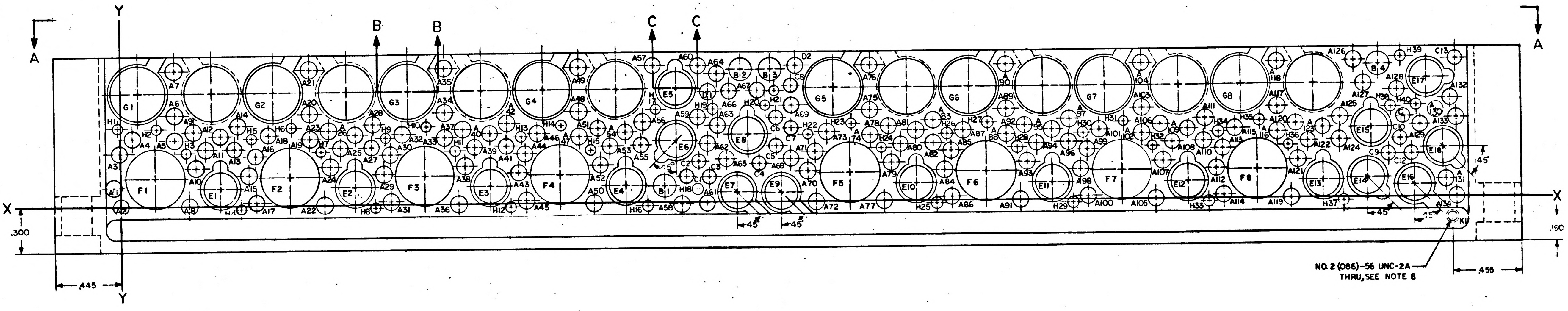
MASTER

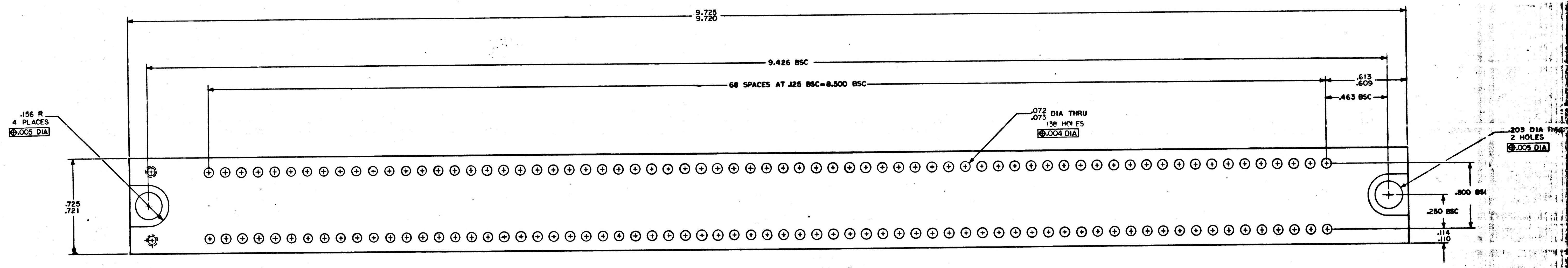
2004094

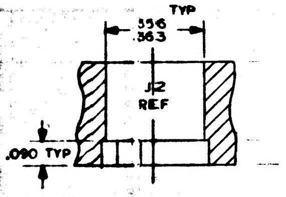
2004094

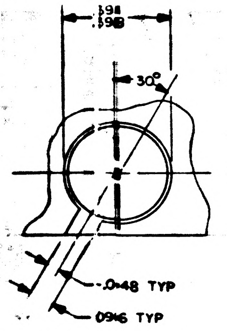
3H

F3

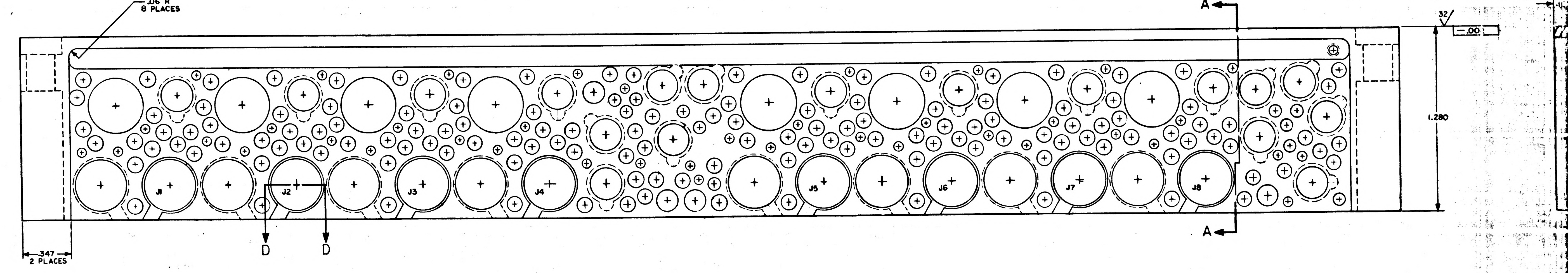

A
A
Y
Y
B
B
C
C
X
X
G1
G2
G3
G4
G5
G6
G7
G8
F1
F2
F3
F4
F5
F6
F7
F8
E1
E2
E3
E4
E5
E6
E7
E8
E9
E10
E11
E12
E13
E14
E15
E16
E17
E18
.300
.445
.190
.455
45°
.45
NO. 2 (.086)-56 UNC-2A
THRU, SEE NOTE 8


9.725
9.720
9.426 BSC
68 SPACES AT .125 BSC=8.500 BSC
.613
.609
.463 BSC
.156 R
4 PLACES
.005 DIA
.072
.073 DIA THRU
138 HOLES
.004 DIA
.203 DIA
2 HOLES
.005 DIA
.725
.721
.500 BSC
.250 BSC
.114
.110


TYP
.356
.363
.12
REF
.090 TYP


.394
.398
30°
.048 TYP
.096 TYP

SECTION D-D


.06 R
8 PLACES
A
A
D
D
J1
J2
J3
J4
J5
J6
J7
J8
1.280
32
.347
2 PLACES

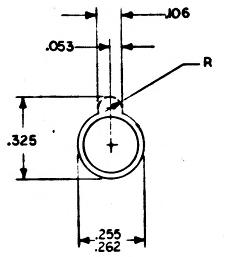
2004094

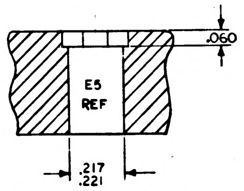
F-2

HOLE IDENT	X DIM.	Y DIM.	HOLE DIA	QTY
A1	−.045	.126	.100 .104	100
A2	.000	.000		
A3	−.005	.347		
A4	.075	.448		
A5	.357	.432		
A6	.357	.595		
A7	.357	.887		
A8	.450	.000		
A9	.480	.487		
A10	.495	.253		
A11	.560	.371		
A12	.660	.458		
A13	.767	.371		
A14	.775	.522		
A15	.848	.200		
A16	.891	.325		
A17	.897	.021		
A18	.977	.458		
A19	1.254	.432		
A20	1.254	.595		
A21	1.254	.887		
A22	1.350	.000		
A23	1.377	.487		
A24	1.392	.253		
A25	1.457	.371		
A26	1.557	.458		
A27	1.664	.371		
A28	1.672	.522		
A29	1.745	.200		
A30	1.788	.325		
A31	1.794	.021		
A32	1.869	.458		
A33	2.151	.432		
A34	2.151	.595		
A35	2.151	.887		
A36	2.244	.000		
A37	2.274	.487		
A38	2.289	.253		
A39	2.354	.371		
A40	2.454	.458		
A41	2.561	.371		
A42	2.569	.522		
A43	2.642	.200		
A44	2.685	.325		
A45	2.691	.021		
A46	2.766	.458		
A47	3.048	.432		
A48	3.048	.595		
A49	3.048	.887		
A50	3.141	.000		
A51	3.171	.487		
A52	3.186	.253		
A53	3.251	.371		
A54	3.351	.458		
A55	3.458	.371		
A56	3.466	.522		
A57	3.537	.892		
A58	3.720	−.010		
A59	3.831	.555		
A60	3.836	.892		
A61	3.893	.007		
A62	3.897	.386		
A63	3.961	.501		
A64	3.961	.842		
A65	4.021	.282		
A66	4.041	.725		
A67	4.228	.727		
A68	4.451	.282		
A69	4.451	.630		
A70	4.557	.200		
A71	4.606	.325		
A72	4.612	.000		
A73	4.687	.458		
A74	4.969	.432		
A75	4.969	.595		
A76	4.969	.887		
A77	5.062	.000		
A78	5.092	.487		
A79	5.107	.253		
A80	5.172	.371		
A81	5.272	.458		
A82	5.389	.371		
A83	5.387	.522		
A84	5.460	.200		
A85	5.503	.325		
A86	5.509	.021		
A87	5.584	.458		
A88	5.866	.432		
A89	5.866	.595		
A90	5.866	.887		
A91	5.959	.000		
A92	5.989	.487		
A93	6.004	.253		
A94	6.069	.371		
A95	6.169	.458		
A96	6.276	.371		
A97	6.284	.522		
A98	6.357	.200		
A99	6.400	.325		
A100	6.406	.021		

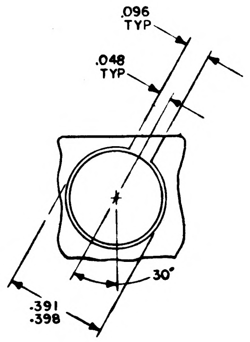
HOLE IDENT	X DIM.	Y DIM.	HOLE DIA	QTY
A101	6.481	.458	.100 .104	34
A102	6.763	.432		
A103	6.763	.595		
A104	6.763	.887		
A105	6.856	.000		
A106	6.886	.487		
A107	6.901	.253		
A108	6.966	.371		
A109	7.066	.458		
A110	7.173	.371		
A111	7.181	.522		
A112	7.254	.200		
A113	7.297	.325		
A114	7.303	.021		
A115	7.378	.458		
A116	7.660	.432		
A117	7.660	.595		
A118	7.660	.887		
A119	7.753	.000		
A120	7.783	.487		
A121	7.798	.253		
A122	7.863	.371		
A123	7.963	.458		
A124	8.070	.371		
A125	8.078	.522		
A126	8.168	.895		
A127	8.232	.742		
A128	8.452	.697		
A129	8.610	.467		
A130	8.701	.562		
A131	8.777	.112		
A132	8.810	.642		
A133	8.850	.513		
A134	8.850	.000		
B1	3.610	.107	.153 .157	4
B2	4.118	.867		
B3	4.312	.867		
B4	8.330	.867		
C1	3.757	.167	.088 .092	13
C2	3.836	.262		
C3	3.901	.162		
C4	4.240	.253		
C5	4.352	.367		
C6	4.352	.550		
C7	4.451	.481		
C8	4.451	.760		
C9	8.395	.282		
C10	8.476	.376		
C11	8.495	.522		
C12	8.552	.282		
C13	8.842	.900		
			.108 .112	2
D1	3.897	.720		
D2	4.480	.892		
E1	.660	.112	SEE SECT C-C	18
E2	1.557	.112		
E3	2.454	.112		
E4	3.351	.112		
E5	3.685	.740		
E6	3.685	.402		
E7	4.092	.066		
E8	4.162	.441		
E9	4.382	.061		
E10	5.272	.112		
E11	6.169	.112		
E12	7.066	.112		
E13	7.963	.112		
E14	8.260	.126		
E15	8.283	.455		
E16	8.570	.077		
E17	8.647	.780		
E18	8.762	.320		
F1	.225	.180	.384 .391	8
F2	1.122			
F3	2.019			
F4	2.916			
F5	4.837			
F6	5.734			
F7	6.631			
F8	7.528	.180		
G1	.115	.740	SEE SECT B-B	8
G2	1.012			
G3	1.909			
G4	2.806			
G5	4.727			
G6	5.624			
G7	6.521			
G8	7.418	.740		

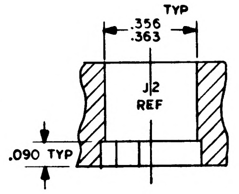
HOLE IDENT	X DIM.	Y DIM.	HOLE DIA	QTY
H1	−.017	.512	.058 .062	40
H2	.237	.507		
H3	.430	.347		
H4	.797	−.022		
H5	.866	.437		
H6	1.134	.507		
H7	1.327	.347		
H8	1.694	−.022		
H9	1.763	.437		
H10	2.031	.507		
H11	2.224	.347		
H12	2.591	−.022		
H13	2.660	.437		
H14	2.928	.507		
H15	3.121	.347		
H16	3.497	−.022		
H17	3.555	.603		
H18	3.827	.085		
H19	3.930	.607		
H20	4.280	.630		
H21	4.340	.725		
H22	4.557	.437		
H23	4.849	.507		
H24	5.042	.347		
H25	5.409	−.022		
H26	5.478	.437		
H27	5.746	.507		
H28	5.939	.347		
H29	6.306	−.022		
H30	6.375	.437		
H31	6.643	.507		
H32	6.836	.347		
H33	7.203	−.022		
H34	7.272	.437		
H35	7.540	.507		
H36	7.733	.347		
H37	8.100	−.022		
H38	8.416	.595		
H39	8.476	.915		
H40	8.583	.600		
J1	.600	.740	SEE SECT D-D	8
J2	1.497			
J3	2.394			
J4	3.291			
J5	5.212			
J6	6.109			
J7	7.006			
J8	7.903	.740		

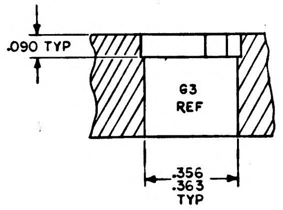




SECTION C-C







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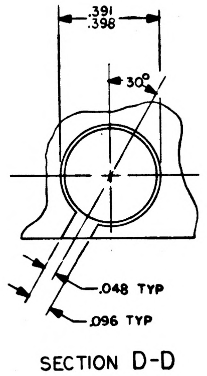
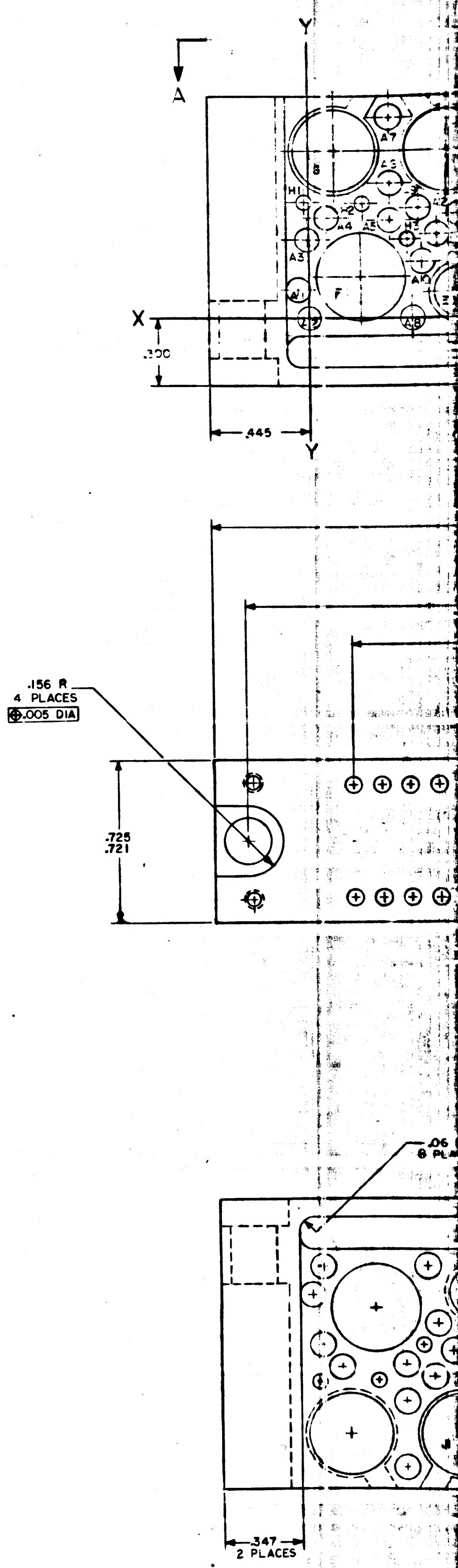


SECTION D-D



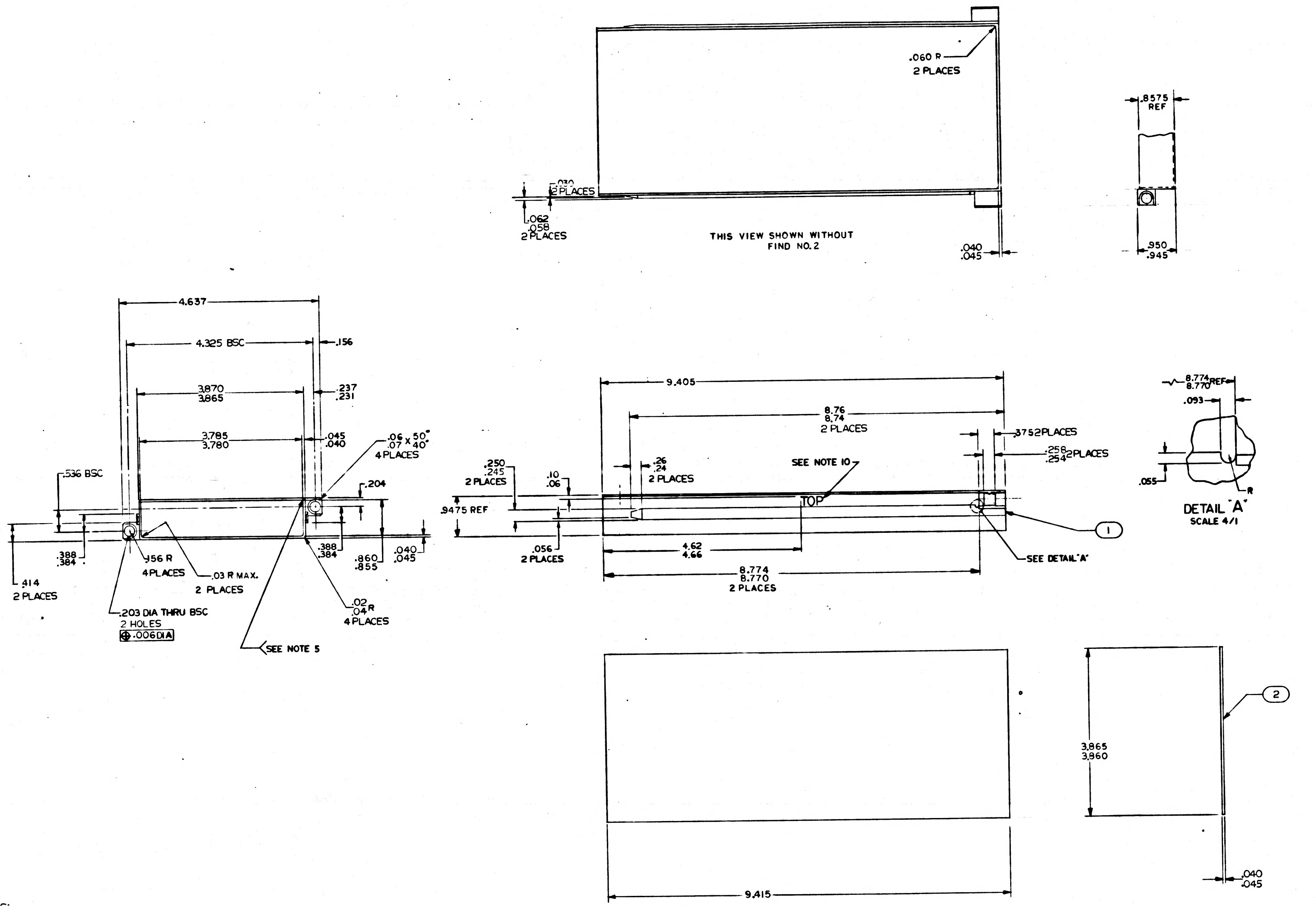
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: MAGNESIUM ZK60A-T5 PER QQ-M-31, TEMP 5
3. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII .020 MAX.
4. ALL SURFACES $\sqrt{125}$ UNLESS OTHERWISE SPECIFIED
5. IDENTIFY WITH DRAWING NO. AND REVISION PER ND 1002019
6. REMOVE BURRS AND SHARP EDGES .005/.015
7. FINISH: ANODIZE PER MIL-M-45202, TYPE I, CLASS C
8. TAP HOLE (K1) AFTER ANODIZE. COAT PER ND1002040

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20617	RTS			



.060 R
2 PLACES
.030
2 PLACES
.062
.058
2 PLACES
THIS VIEW SHOWN WITHOUT FIND NO. 2
.040
.045
.8575
REF
.950
.945
4.637
4.325 BSC
.156
3.870
3.865
.237
.231
3.785
3.780
.045
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.06 x 50°
.07 x 40°
4 PLACES
.536 BSC
.204
.388
.384
.414
2 PLACES
.156 R
4 PLACES
.03 R MAX.
2 PLACES
.388
.384
.860
.855
.040
.045
.02
.04 R
4 PLACES
.203 DIA THRU BSC
2 HOLES
⊕ .006 DIA
SEE NOTE 5
9.405
8.76
8.74
2 PLACES
.375 2 PLACES
.256
.254 2 PLACES
.250
.245
2 PLACES
.10
.06
.26
.24
2 PLACES
SEE NOTE 10
TOP
.9475 REF
.056
2 PLACES
4.62
4.66
8.774
8.770
2 PLACES
1
SEE DETAIL "A"
8.774
8.770 REF
.093
.055
R
DETAIL "A"
SCALE 4/1
2
3.865
3.860
9.415
.040
.045

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: 6061—T6 AL PER QQ-A-250/11 TEMP 6
3. REMOVE BURRS AND SHARP EDGES .005/.015
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
5. DIP BRAZE PER ND 1002073
6. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
7. FINISH MACHINE AFTER WELDING
8. ALL SURFACES 125 UNLESS OTHERWISE SPECIFIED
9. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .005 MAX
10. MARK .08/.01 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122 TYPE II, CLASS 2 USING INK 1006271-10

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	2004100-002		HOUSING TOP PLATE	2
1	2004100-001		HOUSING	1
-011	LIST OF MATERIALS			

NEXT ASSY	USED ON
2003053	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

		DATE
DRAWN	R. Fontant	10 APR 65
CHECKED		
APPROVED		
APPROVED	Ellen Cdhall	
APPROVED MIT		
APPROVED MSC		

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HOUSING
FIXED MEMORY MODULE

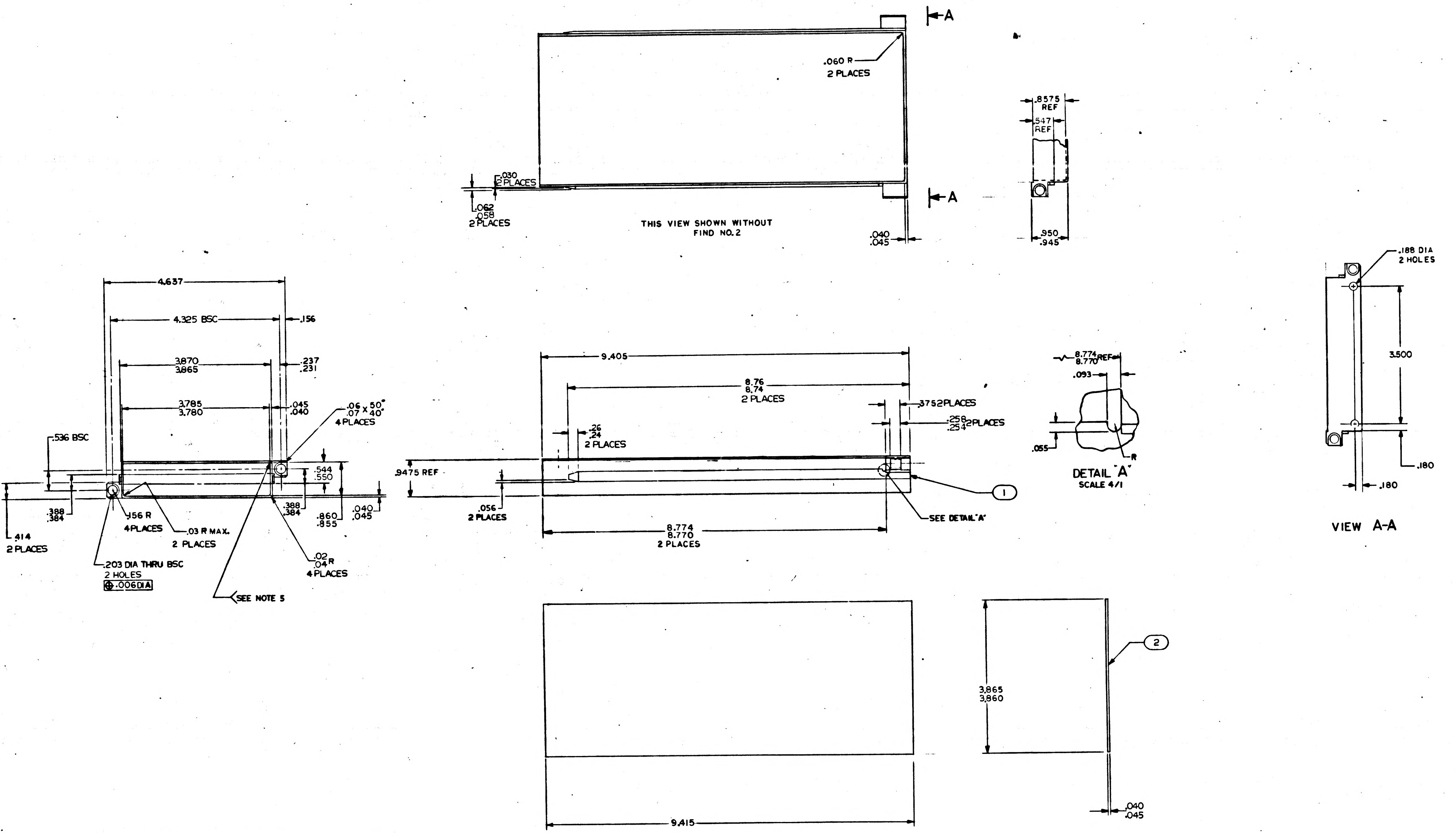
CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2004100

SCALE 1/1 SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20617	RTS			WK
B		REVISED PEP TDRR 21340	GB		4Aug65	WK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2 PLACES
A
A
.030
2 PLACES
.062
.058
2 PLACES
THIS VIEW SHOWN WITHOUT
FIND NO. 2
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.045
.8575
REF
.547
REF
.950
.945
.188 DIA
2 HOLES
3.500
.180
.180
VIEW A-A
4.637
4.325 BSC
.156
3.870
3.865
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.231
3.785
3.780
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.06 × 50°
.07 × 40°
4 PLACES
.536 BSC
.544
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.9475 REF
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.860
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.040
.045
.414
2 PLACES
.156 R
4 PLACES
.03 R MAX.
2 PLACES
.203 DIA THRU BSC
2 HOLES
⌖ .006 DIA
.02
.04 R
4 PLACES
SEE NOTE 5
9.405
8.76
8.74
2 PLACES
.375 2 PLACES
.258
.254 2 PLACES
.26
.24
2 PLACES
.056
2 PLACES
8.774
8.770
2 PLACES
1
SEE DETAIL "A"
8.774
8.770 REF
.093
.055
R
DETAIL "A"
SCALE 4/1
2
3.865
3.860
9.415
.040
.045

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: 6061—T6 AL PER QQ-A-250/11 TEMP 6
3. REMOVE BURRS AND SHARP EDGES .005/.015
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
5. DIP BRAZE PER ND 1002073
6. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
7. FINISH MACHINE AFTER WELDING
8. ALL SURFACES 125 UNLESS OTHERWISE SPECIFIED
9. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .005 MAX

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	2004100-002		HOUSING TOP PLATE	2
1	2004100-001		HOUSING	1

-011 LIST OF MATERIALS

2003053	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN R. Contant 10 Apr 65
CHECKED 21 Apr 65
APPROVED 27 Apr 65
APPROVED Ellen Hall 3 Jun 65
APPROVED MIT 6/4/65
APPROVED MSC 6/4/65
DATE

HOUSING
FIXED MEMORY MODULE

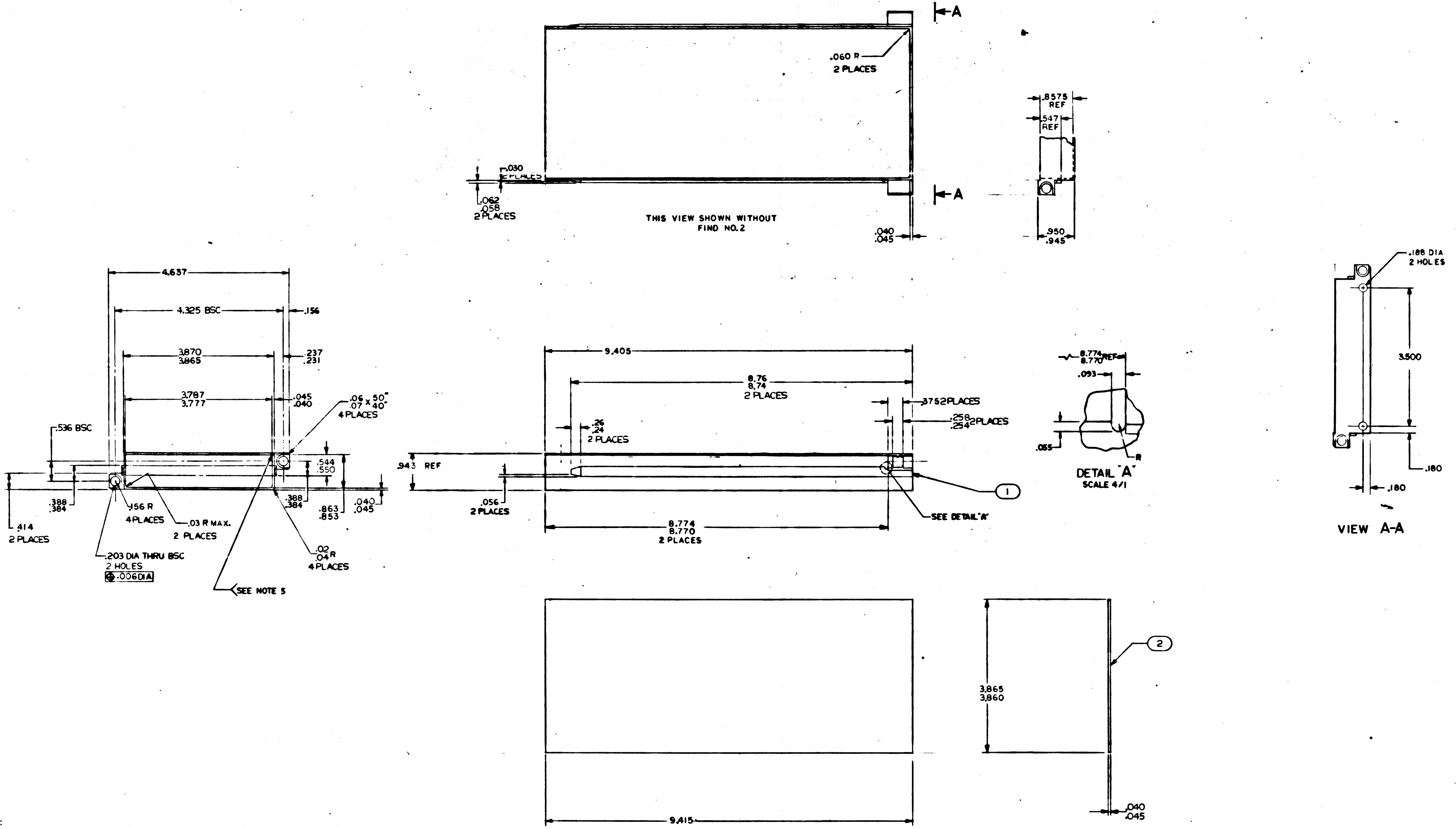
CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2004100
SCALE 1/1
SHEET 1 OF 1

2004100 B

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20617	RB			WK
B		REVISED PEP TDRR 21340	GB			WK
C		REVISED PER TDRR 24670	R.G.	J.J.		



A
A
.060 R
2 PLACES
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2 PLACES
.062
.058
2 PLACES
THIS VIEW SHOWN WITHOUT
FIND NO. 2
.040
.045
.8575
REF
.547
REF
.950
.945
4.637
4.325 BSC
.156
3.870
3.865
.237
.231
3.787
3.777
.045
.040
.06 x 50°
.07 x 40°
4 PLACES
.536 BSC
.544
.550
.943 REF
.388
.384
.156 R
4 PLACES
.03 R MAX.
2 PLACES
.388
.384
.863
.853
.040
.045
.414
2 PLACES
.203 DIA THRU BSC
2 HOLES
⊕ .006 DIA
.02
.04 R
4 PLACES
SEE NOTE 5
9.405
8.76
8.74
2 PLACES
.375 2 PLACES
.258
.254 2 PLACES
.26
.24
2 PLACES
.056
2 PLACES
8.774
8.770
2 PLACES
1
SEE DETAIL "A"
8.774
8.770 REF
.093
.055
R
DETAIL "A"
SCALE 4/1
.188 DIA
2 HOLES
3.500
.180
.180
VIEW A-A
3.865
3.860
2
.040
.045
9.415

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: 6061—T6 AL PER QQ-A-250/11 TEMP 6
3. REMOVE BURRS AND SHARP EDGES .005/.015
4. IDENTIFY WITH PART NO. PER ND1002019
5. DIP BRAZE PER ND 1002073
6. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
7. FINISH MACHINE AFTER WELDING
8. ALL SURFACES 125 UNLESS OTHERWISE SPECIFIED
9. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .020 MAX

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	2004100-002		HOUSING TOP PLATE	2
1	2004100-001		HOUSING	1

LIST OF MATERIALS

2003053	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN R. [illegible] 10 Apr 65
CHECKED [illegible]
APPROVED [illegible]
APPROVED [illegible] 3 Jun 65
APPROVED MIT [illegible]
APPROVED MSC [illegible] 4/8/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

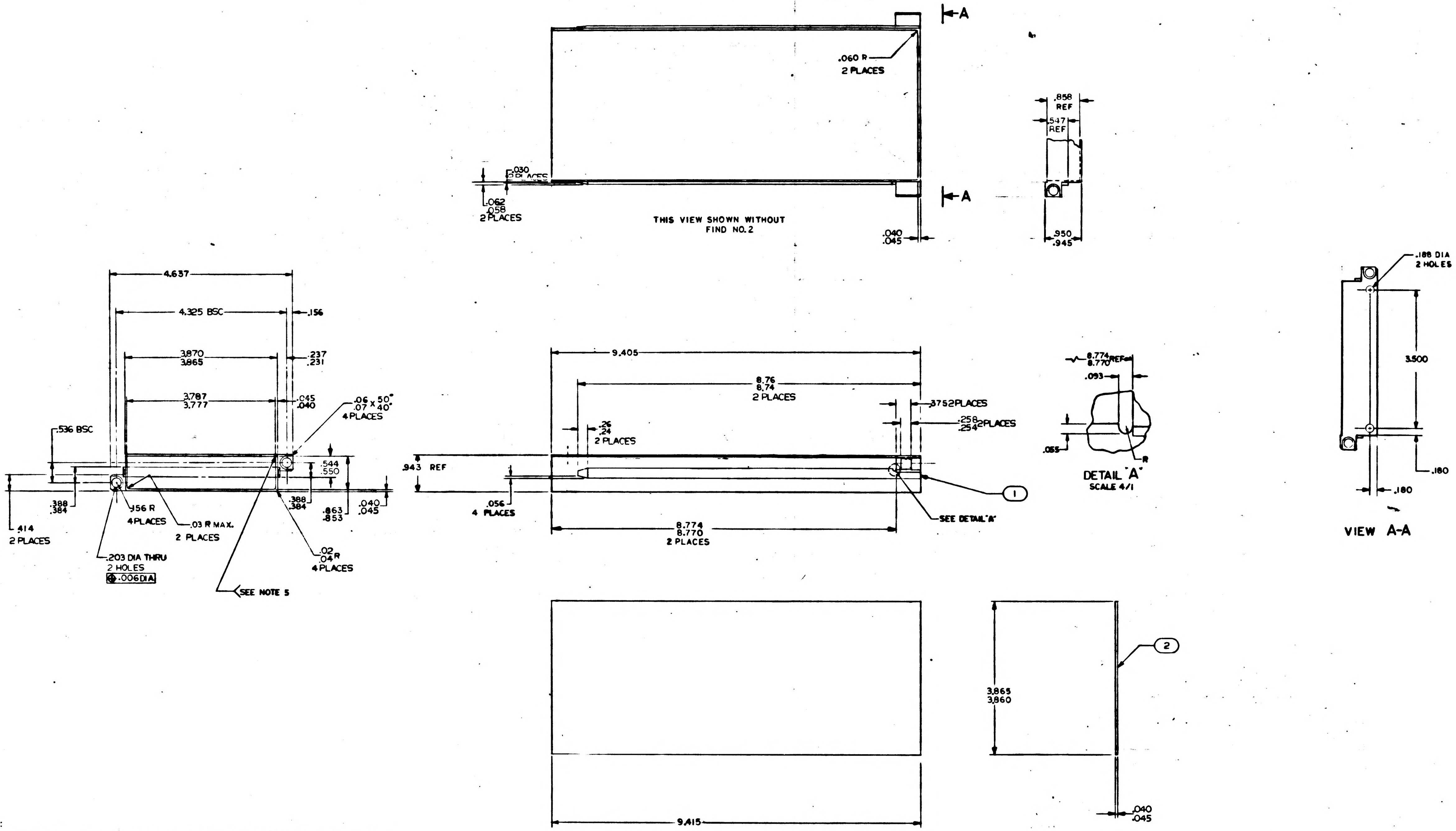
HOUSING
FIXED MEMORY MODULE

CODE IDENT NO 80230
SIZE E
DRAWING NO. 2004100
SCALE 1/1
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20617	[illegible]			WK
B		REVISED PEP TDRR 21340	[illegible]	[illegible]	[illegible]	WK
C		REVISED PER TDRR 24670	R.S.	[illegible]	[illegible]	[illegible]
D		REVISED PER TDRR 25774	[illegible]	[illegible]	[illegible]	[illegible]



-A
-A
.060 R
2 PLACES
.858
REF
.547
REF
.030
2 PLACES
.062
.058
2 PLACES
THIS VIEW SHOWN WITHOUT
FIND NO.2
.040
.045
.950
.945
.188 DIA
2 HOLES
3.500
.180
.180
VIEW A-A
4.637
4.325 BSC
.156
3.870
3.865
.237
.231
3.787
3.777
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.06 x 50°
.07 x 40°
4 PLACES
.536 BSC
.544
.550
.943 REF
.388
.384
.156 R
4 PLACES
.03 R MAX.
2 PLACES
.388
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2 PLACES
.203 DIA THRU
2 HOLES
.006 DIA
SEE NOTE 5
.02
.04 R
4 PLACES
9.405
8.76
8.74
2 PLACES
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2 PLACES
.375 2 PLACES
.258
.254 2 PLACES
.056
4 PLACES
8.774
8.770
2 PLACES
1
SEE DETAIL "A"
8.774
8.770 REF
.093
.055
R
DETAIL "A"
SCALE 4/1
2
3.865
3.860
9.415
.040
.045

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: 6061—T6 AL PER QQ-A-250/11 TEMP 6
3. REMOVE BURRS AND SHARP EDGES .005/.015
4. IDENTIFY WITH PART NO. PER ND1002019
5. DIP BRAZE PER ND 1002073
6. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
7. FINISH MACHINE AFTER BRAZING
8. ALL SURFACES 125 UNLESS OTHERWISE SPECIFIED
9. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .020 MAX

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	2004100-002		HOUSING TOP PLATE	2
1	2004100-001		HOUSING	

LIST OF MATERIALS

NEXT ASSY	USED ON
2003053	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	R. [illegible]	10 Apr 65
CHECKED	[illegible]	[illegible]
APPROVED	[illegible]	[illegible]
APPROVED	[illegible]	[illegible]
APPROVED MIT	[illegible]	[illegible]
APPROVED MSC	[illegible]	4/8/65
		DATE

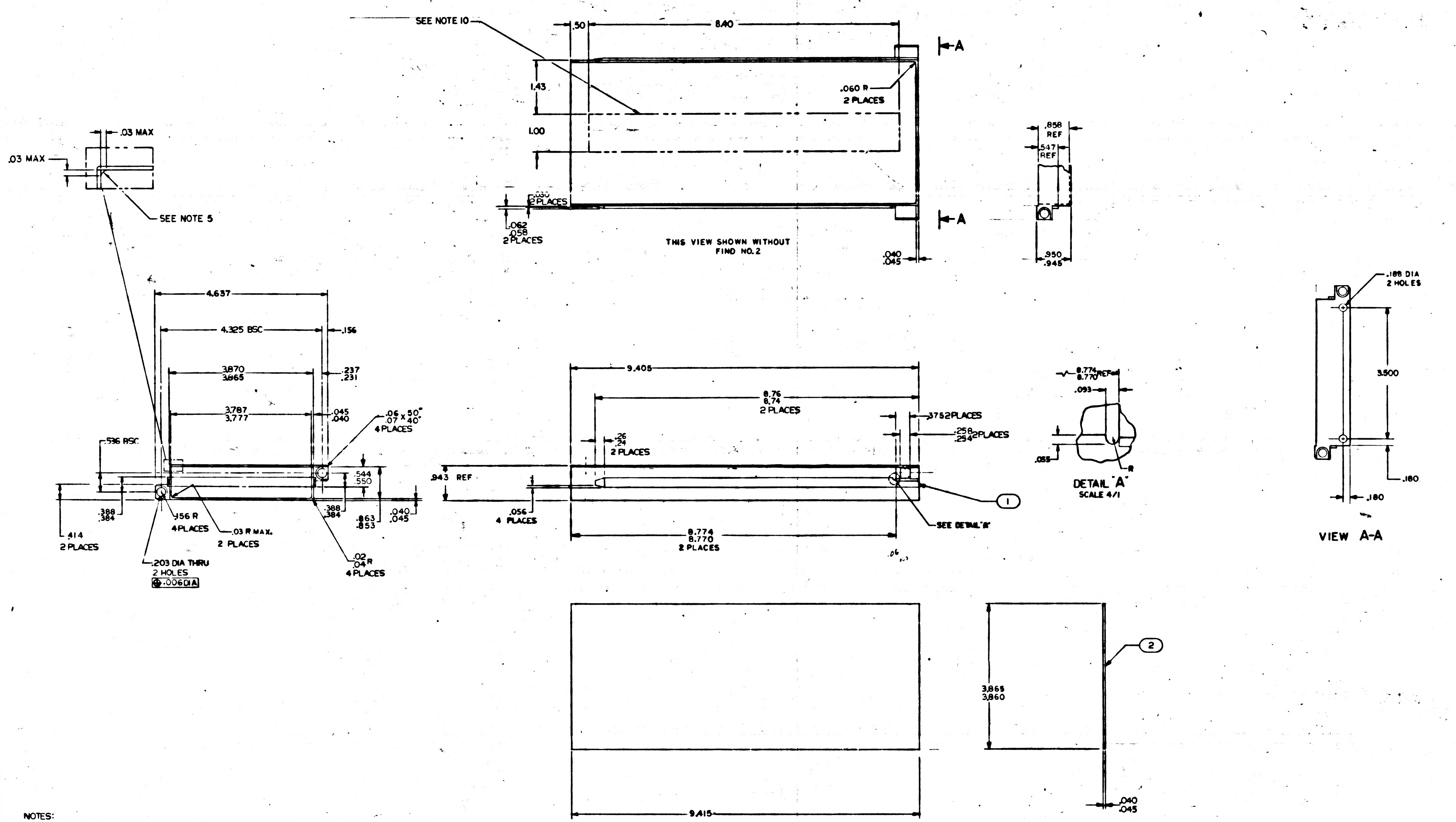
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HOUSING
FIXED MEMORY MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2004100

SCALE 1/1 SHEET 1 OF 1

REVISIONS 20043						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20617				WK
B		REVISED PEP TDRR 21340				WK
C		REVISED PER TDRR 24670	R.S.			
D		REVISED PER TDRR 25774				
E		REVISED PER TDRR 30650	A.C.			E.B.B.



SEE NOTE 10
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A
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1.00
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2 PLACES
.062
.058
2 PLACES
THIS VIEW SHOWN WITHOUT
FIND NO. 2
.040
.045
.858
REF
.547
REF
.950
.945
.03 MAX
.03 MAX
SEE NOTE 5
4.637
4.325 BSC
.156
3.870
3.865
.237
.231
3.787
3.777
.045
.040
.06 x 50°
.07 x 40°
4 PLACES
.536 BSC
.544
.550
.388
.384
.156 R
4 PLACES
.03 R MAX.
2 PLACES
.388
.384
.863
.853
.040
.045
.414
2 PLACES
.203 DIA THRU
2 HOLES
.006 DIA
.02
.04 R
4 PLACES
9.405
8.76
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2 PLACES
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2 PLACES
.375 2 PLACES
.258
.254 2 PLACES
.943 REF
.056
4 PLACES
1
SEE DETAIL "A"
8.774
8.770
2 PLACES
8.774
8.770 REF
.093
.055
R
DETAIL "A"
SCALE 4/1
.188 DIA
2 HOLES
3.500
.180
.180
VIEW A-A
2
3.865
3.860
.040
.045
9.415

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: 6061—T6 AL PER QQ-A-250/11 TEMP 6
3. REMOVE BURRS AND SHARP EDGES .005/.015
4. IDENTIFY WITH PART NO. PER ND1002019
5. DIP BRAZE PER ND 1002073, EXCEPT "C" AND "D" OF PARAGRAPH 4.2.1
6. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
7. FINISH MACHINE AFTER BRAZING
8. ALL SURFACES 125 UNLESS OTHERWISE SPECIFIED
9. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .020 MAX
10. UNITS SHALL BE SUBJECTED TO A 5 ± 1 PSIA AIR PRESSURE TEST IMMERSED IN WATER FOR A MINIMUM OF 2 MINUTES WITH NO VISIBLE AIR BUBLES RESTRAIN BOTH SIDES IN AREA SHOWN

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	2004100-002		HOUSING TOP PLATE	2
1	2004100-001		HOUSING	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003053	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.03 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

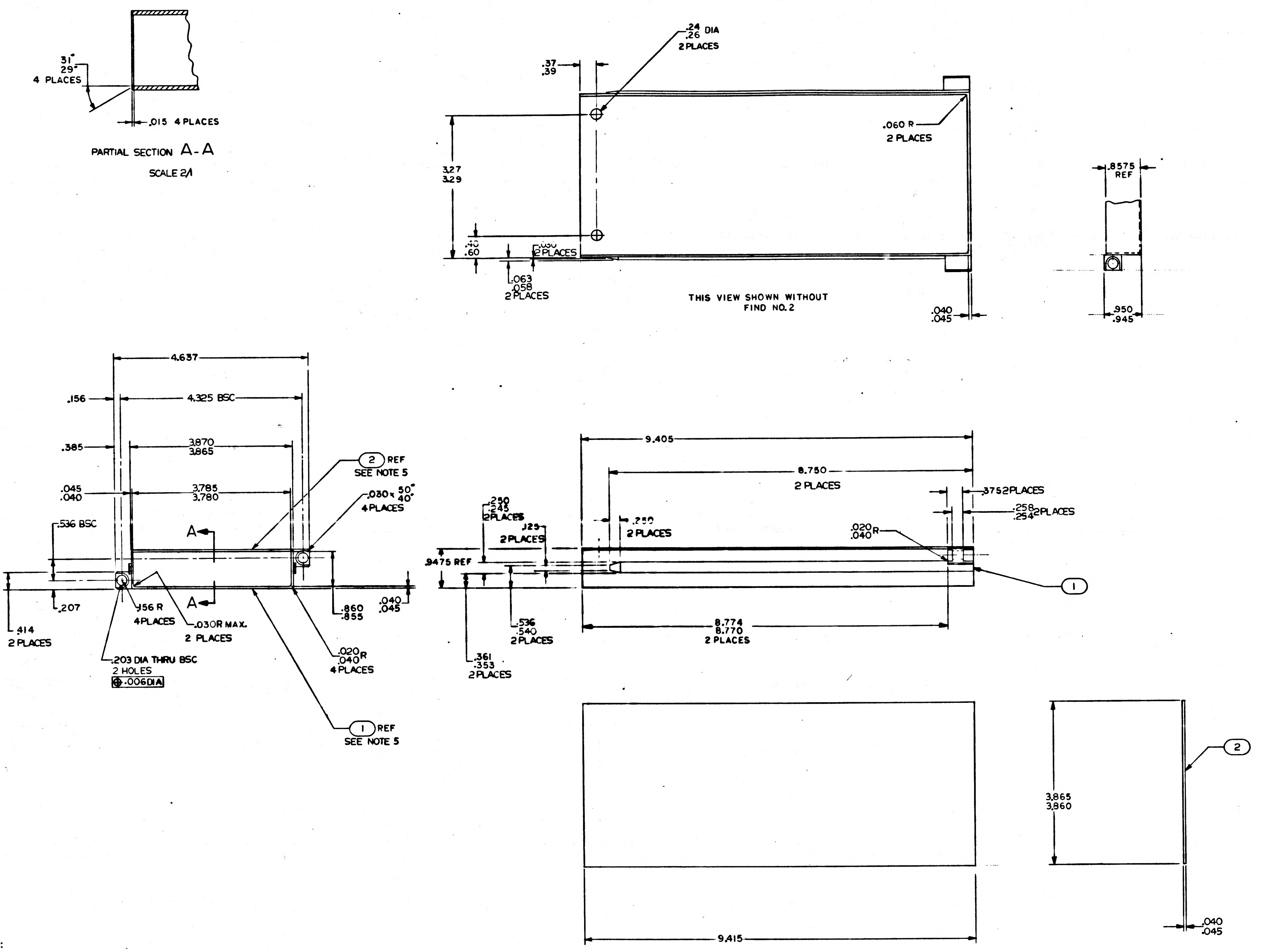
HOUSING
FIXED MEMORY MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2004100

SCALE 1/1
SHEET 1 OF 1

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



31°
29°
4 PLACES
.015 4 PLACES
PARTIAL SECTION A-A
SCALE 2/1
.24 DIA
.26
2 PLACES
.37
.39
3.27
3.29
.060 R
2 PLACES
.40
.60
.030
2 PLACES
.063
.058
2 PLACES
THIS VIEW SHOWN WITHOUT
FIND NO. 2
.040
.045
.8575
REF
.950
.945
4.637
.156
4.325 BSC
.385
3.870
3.865
.045
.040
3.785
3.780
2 REF
SEE NOTE 5
.030 x 50° 40°
4 PLACES
.536 BSC
A
.207
.414
2 PLACES
.156 R
4 PLACES
.030R MAX.
2 PLACES
.860
.855
.040
.045
.020
.040 R
4 PLACES
.203 DIA THRU BSC
2 HOLES
⊕ .006DIA
1 REF
SEE NOTE 5
9.405
8.750
2 PLACES
.375 2 PLACES
.258
.254 2 PLACES
.250
.245
2 PLACES
.125
2 PLACES
.250
2 PLACES
.020
.040 R
.9475 REF
1
.536
.540
2 PLACES
8.774
8.770
2 PLACES
.361
.353
2 PLACES
3.865
3.860
2
9.415
.040
.045

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: 6061—T6 AL PER QQ-A-250/11 TEMP 6
3. REMOVE BURRS AND SHARP EDGES .005/.015
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
5. WELD FIND NO.1 TO FIND NO. 2 PER MIL-W-45205 CLASS A
6. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
7. FINISH MACHINE AFTER WELDING
8. ALL SURFACES 125 UNLESS OTHERWISE SPECIFIED
9. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .005 MAX

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	2004100-002		HOUSING TOP PLATE	2
1	2004100-001		HOUSING	1
-011	LIST OF MATERIALS			

MASTER

2003053	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN R. Contant 10 APR 65
CHECKED [illegible] [illegible]
APPROVED [illegible] 27 MAY 65
APPROVED Eldon C. Hall 3 Jun 65
APPROVED MIT [illegible] 6/-/65
APPROVED MSC [illegible] 6/8/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HOUSING
FIXED MEMORY MODULE

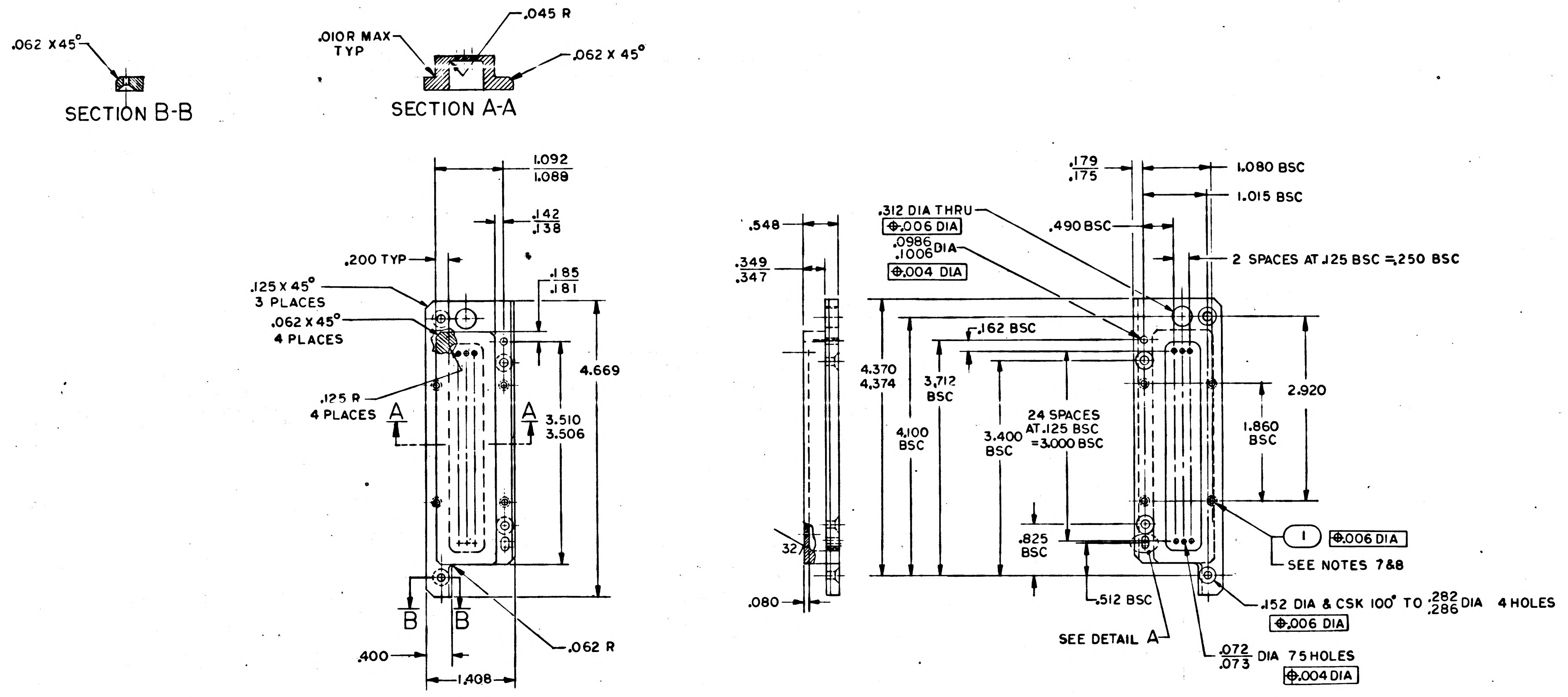
CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2004100
SCALE 1/1
SHEET 1 OF 1

2004100

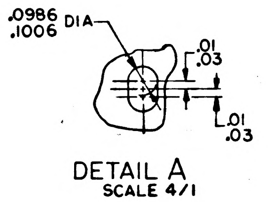
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



.062 X 45°
SECTION B-B
.010R MAX TYP
.045 R
.062 X 45°
SECTION A-A
1.092
1.088
.142
.138
.200 TYP
.185
.181
.125 X 45° 3 PLACES
.062 X 45° 4 PLACES
4.669
.125 R 4 PLACES
A
A
3.510
3.506
B
B
.400
1.408
.062 R
.548
.349
.347
32
.080
.179
.175
1.080 BSC
1.015 BSC
.312 DIA THRU
⊕.006 DIA
.490 BSC
.0986
.1006 DIA
⊕.004 DIA
2 SPACES AT .125 BSC =.250 BSC
.162 BSC
4.370
4.374
3.712 BSC
4.100 BSC
3.400 BSC
24 SPACES AT .125 BSC =3.000 BSC
1.860 BSC
2.920
.825 BSC
1
⊕.006 DIA
SEE NOTES 7&8
.512 BSC
SEE DETAIL A
.152 DIA & CSK 100° TO .282/.286 DIA 4 HOLES
⊕.006 DIA
.072/.073 DIA 75 HOLES
⊕.004 DIA



.0986
.1006 DIA
.01
.03
.01
.03
DETAIL A
SCALE 4/1

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. REMOVE BURRS AND SHARP EDGES .005/.015
3. ALL SURFACES 125√ UNLESS OTHERWISE SPECIFIED
4. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP 6
5. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
6. UNLESS OTHERWISE SPECIFIED ALL FILLETS & RADII TO BE .010 MAX
7. INSTALL FIND NO.1 PER MS 33646
8. COAT THREADS OF FIND NO. 1 WITH MIL-P-8585, COLOR YELLOW
9. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
4	MS 21209-C0415	INSERT, THREADED	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003065	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 4

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

		DATE
DRAWN	J. A. Zaffini	14 APR 65
CHECKED		
APPROVED		28 MAY 65
APPROVED	Eldon C Hall	
APPROVED MIT		
APPROVED MSC		

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

CONNECTOR B41
FIXED MEMORY

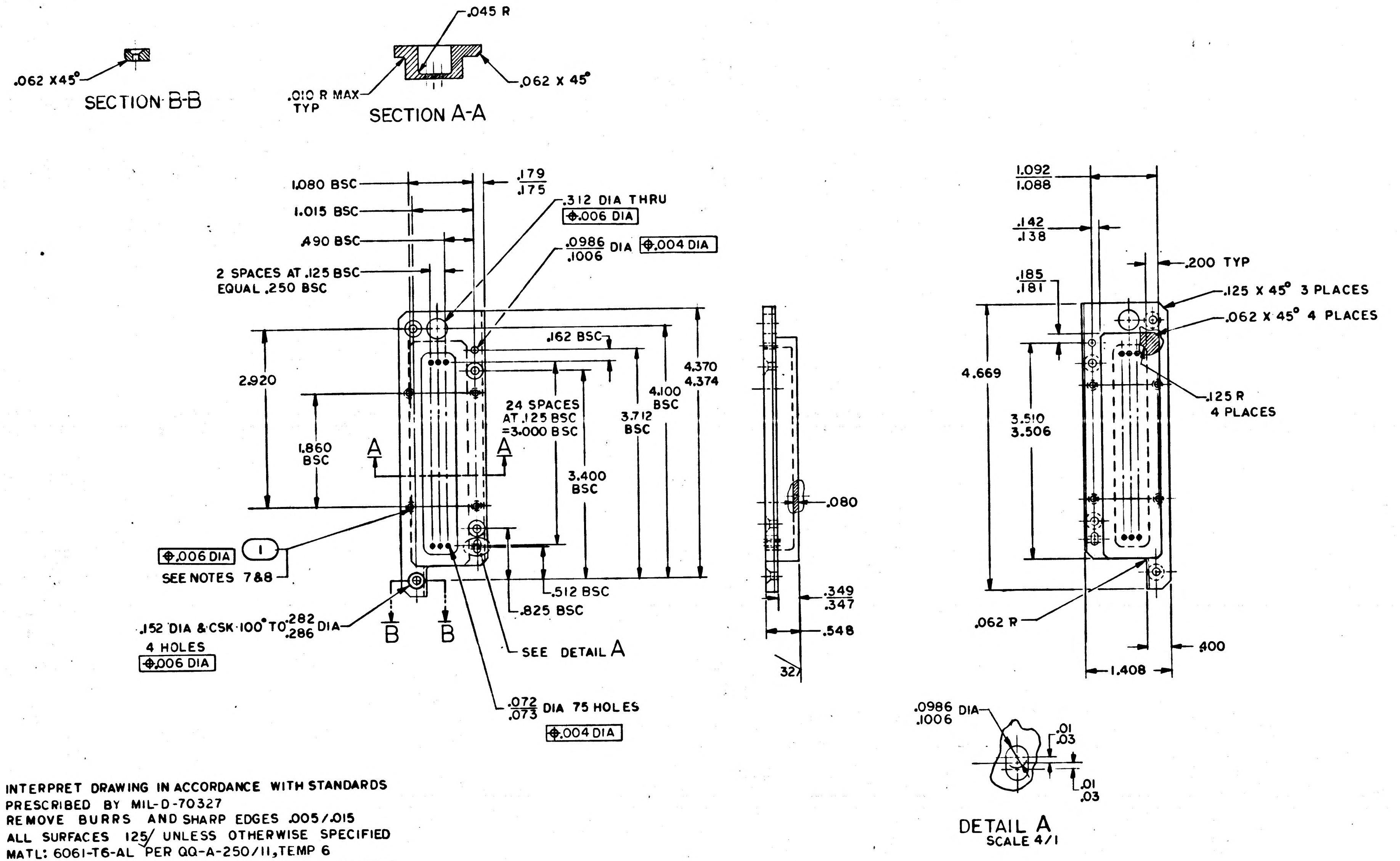
CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2004101

SCALE 1/1
SHEET 1 OF 1

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


.062 X45°
SECTION B-B
.045 R
.010 R MAX TYP
.062 X 45°
SECTION A-A
1.080 BSC
1.015 BSC
.490 BSC
2 SPACES AT .125 BSC =EQUAL .250 BSC
.179
.175
.312 DIA THRU
⌖.006 DIA
.0986
.1006 DIA
⌖.004 DIA
.162 BSC
2.920
1.860 BSC
A
A
24 SPACES AT .125 BSC =3.000 BSC
3.712 BSC
4.100 BSC
4.370
4.374
3.400 BSC
⌖.006 DIA
1
SEE NOTES 7&8
.512 BSC
.825 BSC
.152 DIA & CSK 100° TO .282 .286 DIA
4 HOLES
⌖.006 DIA
B
B
SEE DETAIL A
.072
.073 DIA 75 HOLES
⌖.004 DIA
.080
.349
.347
.548
32
1.092
1.088
.142
.138
.200 TYP
.185
.181
.125 X 45° 3 PLACES
.062 X 45° 4 PLACES
4.669
3.510
3.506
.125 R
4 PLACES
.062 R
1.408
.400
.0986
.1006 DIA
.01
.03
.01
.03
DETAIL A
SCALE 4/1

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. REMOVE BURRS AND SHARP EDGES .005/.015
3. ALL SURFACES 125/ UNLESS OTHERWISE SPECIFIED
4. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP 6
5. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
6. UNLESS OTHERWISE SPECIFIED ALL FILLETS & RADII TO BE .010 MAX
7. INSTALL FIND NO.1 PER MS 33646
8. COAT THREADS OF FIND NO. 1 WITH MIL-P-8585, COLOR YELLOW
9. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
4	MS 21209-C0415	INSERT, THREADED	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003064	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 4

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

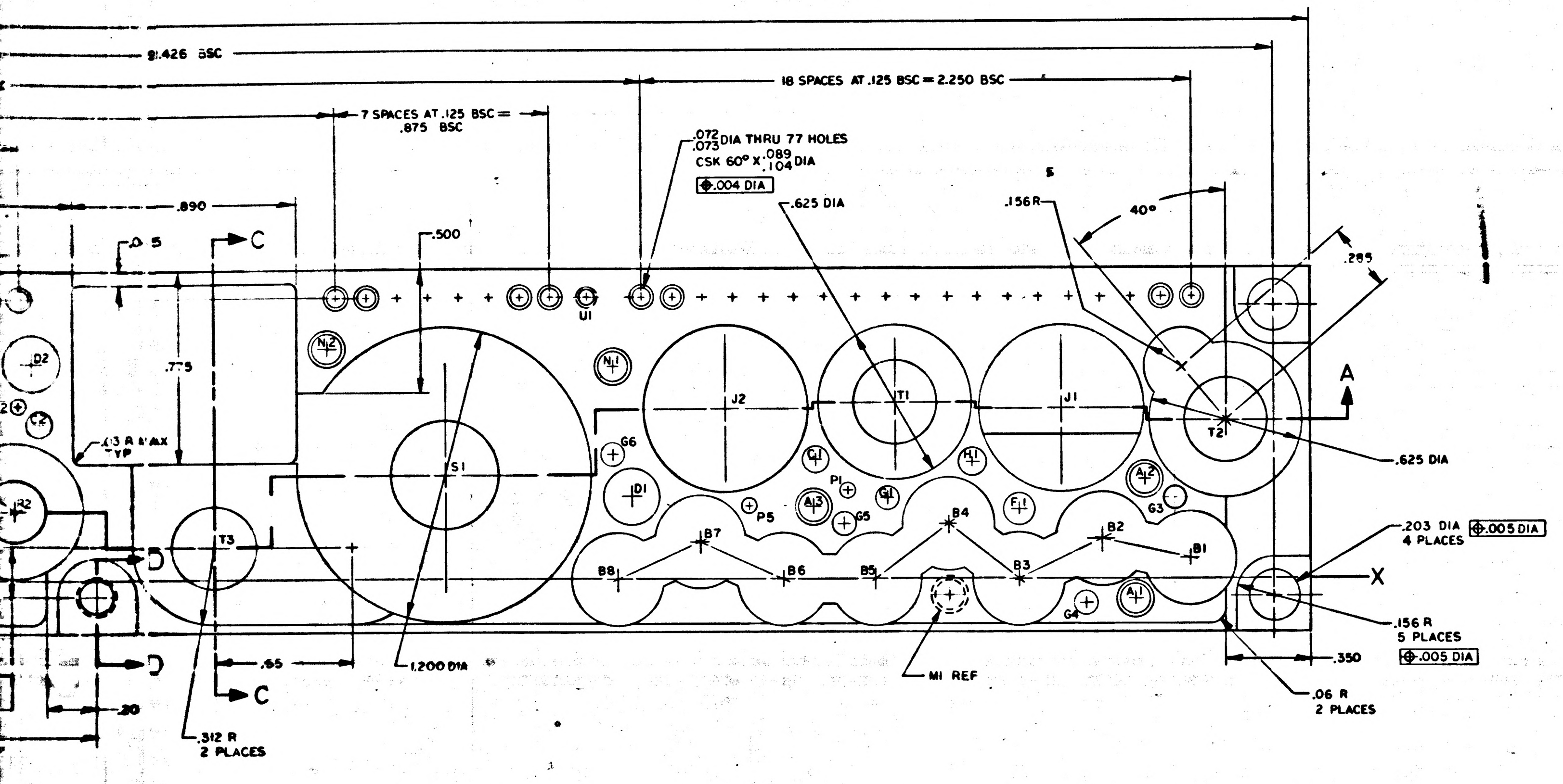
DRAWN J.A. Zaffini 16 APR 65
CHECKED 27 APR 65
APPROVED 28 APR 65
APPROVED Eldon C Hall 1 June 65
APPROVED MIT
APPROVED MSC 6/2/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

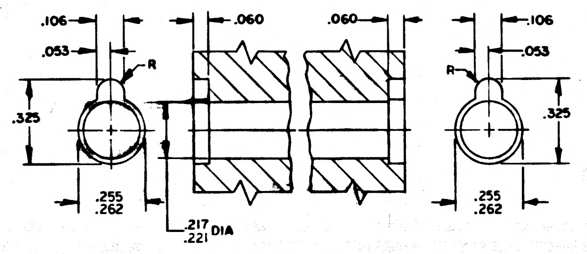
CONNECTOR B42
FIXED MEMORY

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2004102
SCALE 1/1
SHEET 1 OF 1

REVISIONS 19758						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20951	KCH		2 Aug 65	

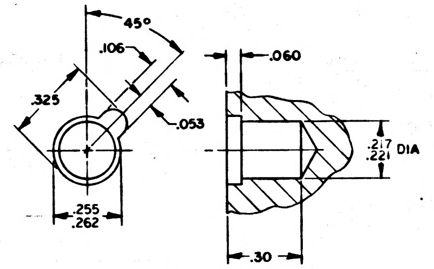


8.426 BSC
18 SPACES AT .125 BSC = 2.250 BSC
7 SPACES AT .125 BSC = .875 BSC
.072/.073 DIA THRU 77 HOLES
CSK 60° X .089/.104 DIA
⊕ .004 DIA
.625 DIA
.156R
40°
.285
.890
.500
.775
.13 R MAX TYP
C
D
A
X
U1
N2
N1
D2
C2
G6
D1
J2
T1
J1
T2
S1
T3
C1
H1
A3
E1
A2
G5
G3
G1
P1
P5
B7
B4
B2
B1
B8
B6
B5
B3
A1
G4
M1 REF
.625 DIA
.203 DIA 4 PLACES
⊕ .005 DIA
.156 R 5 PLACES
⊕ .005 DIA
.350
.06 R 2 PLACES
1.200 DIA
.65
.30
.312 R 2 PLACES



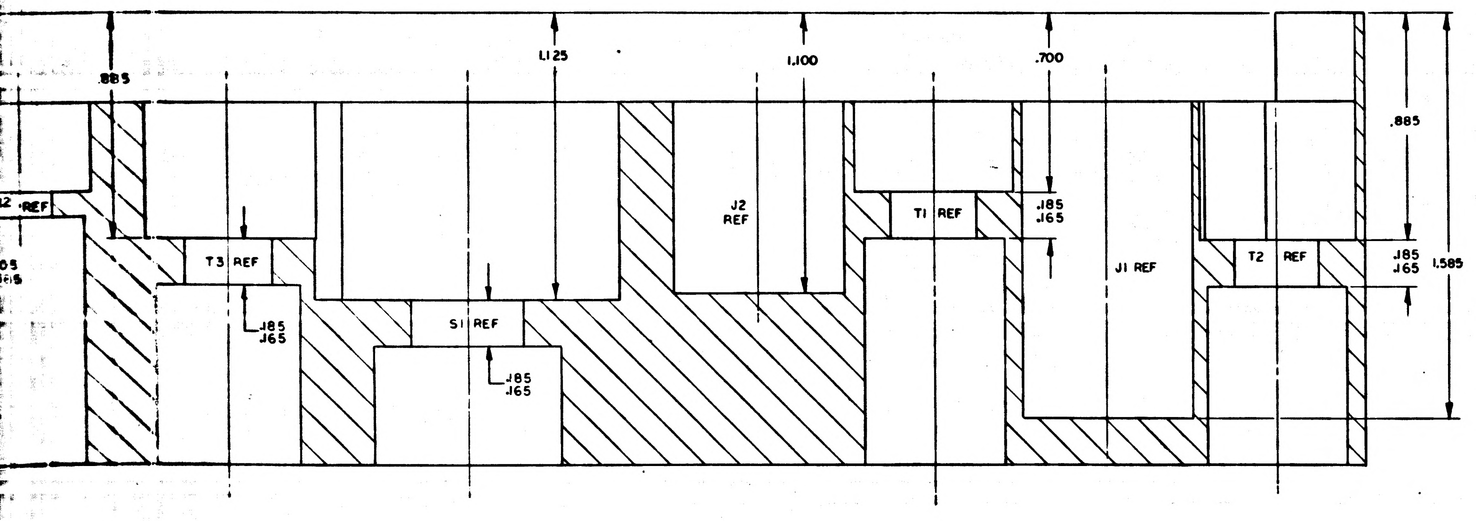
.106
.053
R
.325
.255
.262
.217
.221 DIA
.060
.060
.106
.053
R
.325
.255
.262

DETAIL A



45°
.106
.325
.053
.255
.262
.060
.217
.221 DIA
.30

DETAIL B



.885
1.125
1.100
.700
.885
J2 REF
T1 REF
J1 REF
T3 REF
T2 REF
S1 REF
REF
.185
.165
.185
.165
.185
.165
.185
.165
1.585

SECTION A-A

4H

MASTER

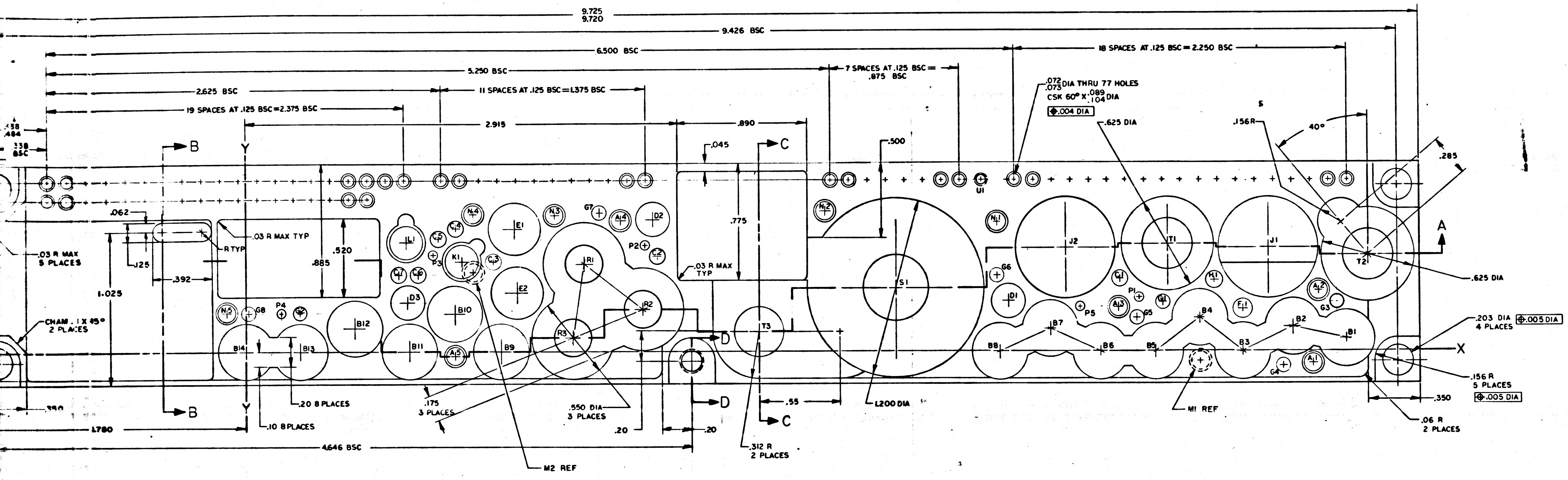
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

2003057		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES CAPACITOR VALUES ARE IN μf RESISTOR VALUES ARE IN OHMS TOLERANCES ON FRACTIONS ± — DECIMALS .XX ± .01 .XXX ± .005 ANGLES ± 2° DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB CAMBRIDGE, MASS	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
NEXT ASSY	USED ON	MATERIAL	DRAWN E W Johnson 20 Apr 65 CHECKED 25 May 65 APPROVED W McKinley 26 May 65 APPROVED 13 June 65	HEADER HOUSING POWER SUPPLY
APPLICATION			APPROVED MIT 6-2-65 APPROVED MSC 6-2-65 DATE	CODE IDENT NO. 80230 SIZE J DRAWING NO. 2004105 SCALE 4/1 SHEET 1 OF 1

2004105 A

2004105 A

F-4


9.725
9.720
9.426 BSC
6.500 BSC
18 SPACES AT .125 BSC = 2.250 BSC
5.250 BSC
7 SPACES AT .125 BSC = .875 BSC
2.625 BSC
11 SPACES AT .125 BSC = 1.375 BSC
19 SPACES AT .125 BSC = 2.375 BSC
2.915
.890
.072
.073 DIA THRU 77 HOLES
CSK 60° X .089
.104 DIA
.004 DIA
.625 DIA
.156R
40°
.285
.045
.500
.775
.885
.520
.03 R MAX TYP
R TYP
.062
.125
.392
1.025
.03 R MAX 5 PLACES
CHAM .1 X 45° 2 PLACES
.03 R MAX TYP
B
C
D
A
X
Y
.625 DIA
.203 DIA 4 PLACES
.005 DIA
.156 R 5 PLACES
.005 DIA
.350
.06 R 2 PLACES
.55
L200 DIA
M1 REF
M2 REF
.175 3 PLACES
.550 DIA 3 PLACES
.20
.20
.312 R 2 PLACES
4.646 BSC
1.780
.20 8 PLACES
.10 8 PLACES
S1
T1
T2
T3
J1
J2
R1
R2
R3
E1
E2
D1
D2
D3
B1
B2
B3
B4
B5
B6
B7
B8
B9
B10
B11
B12
B13
B14
K1
L1
U1
N1
N2
N3
N4
N5
P1
P2
P3
P4
P5
G1
G2
G3
G4
G5
G6
G7
G8
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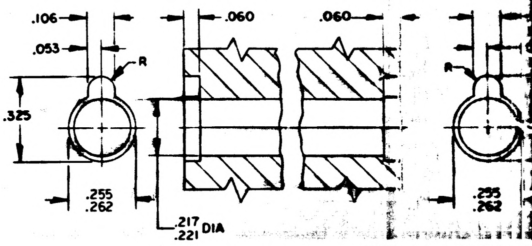
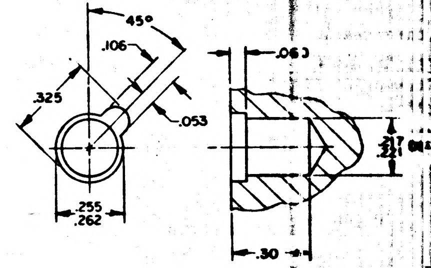
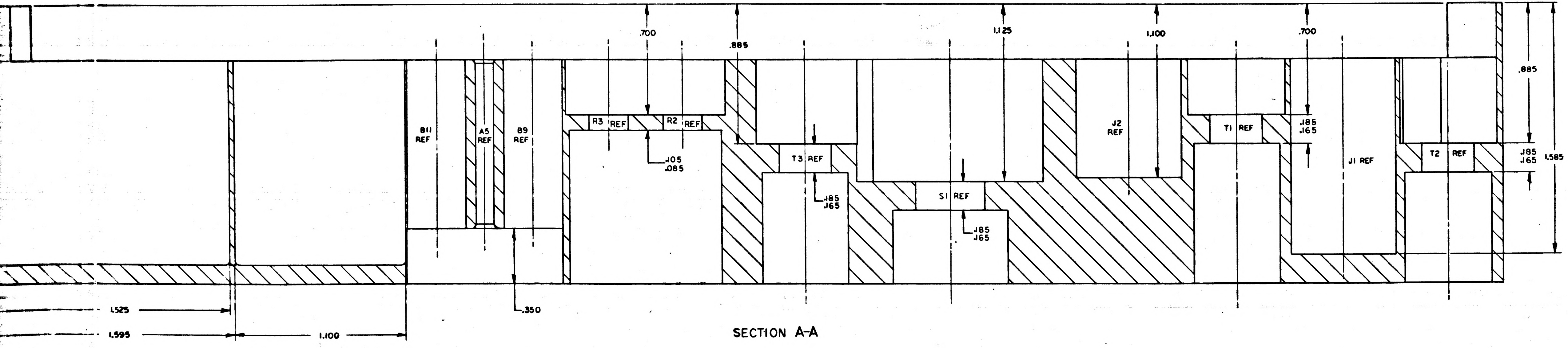
A2
A3
A4
A5
C1
C2
C3
C4
C5
C6
C7
F1


.106
.053
.060
.060
R
.325
.255
.262
.217 DIA
.221

DETAIL A


45°
.106
.063
.325
.053
.255
.262
.30

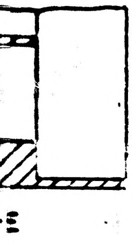
DETAIL B

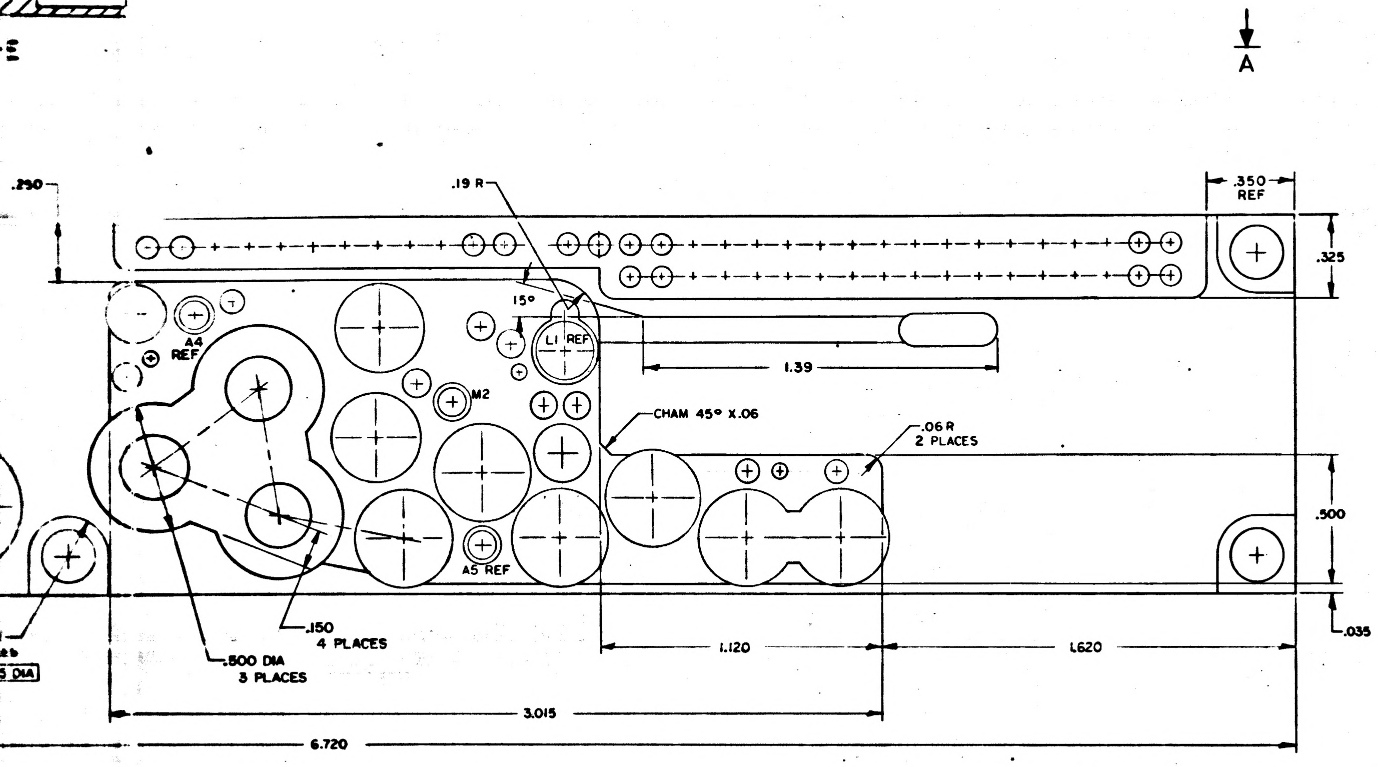

.700
.885
1.125
1.100
.700
.885
1.585
B11 REF
A5 REF
B9 REF
R3 REF
R2 REF
.105
.085
T3 REF
.185
.165
S1 REF
.185
.165
J2 REF
T1 REF
.185
.165
J1 REF
T2 REF
.185
.165
.350
1.525
1.595
1.100

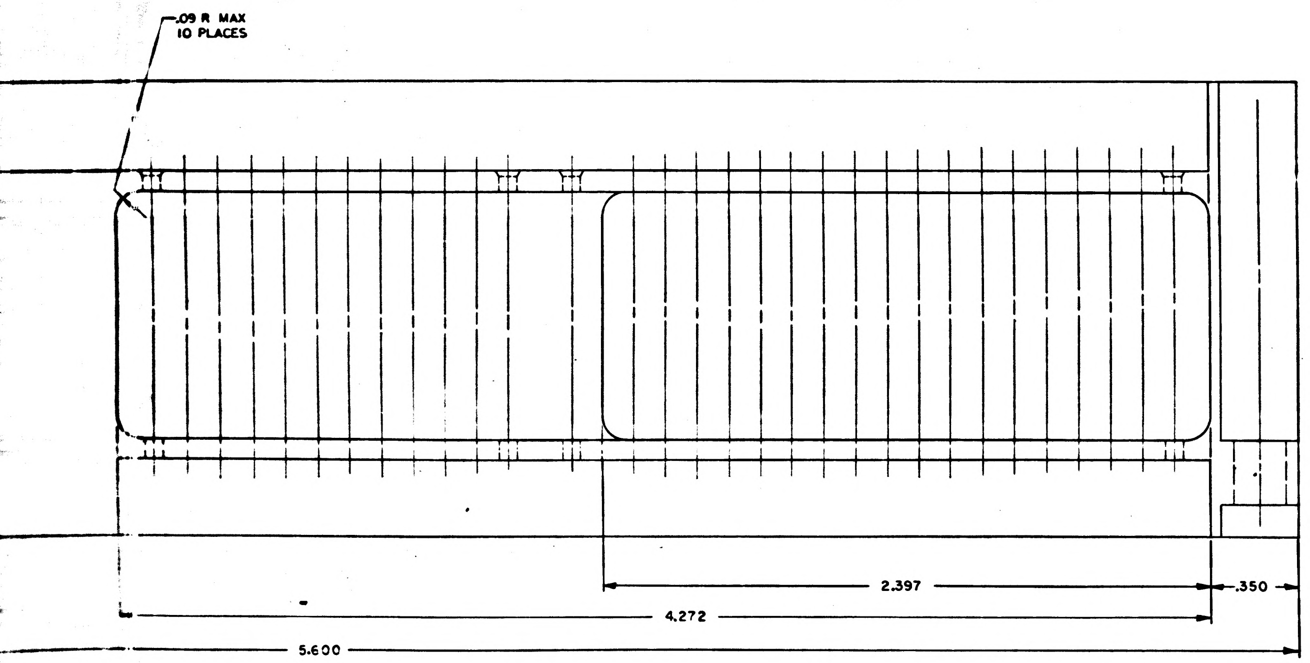
SECTION A-A

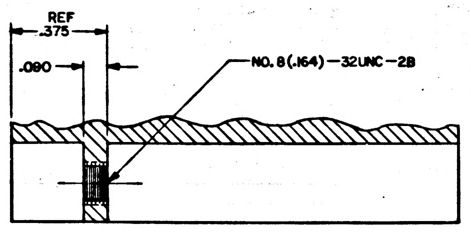
MASTER

E3

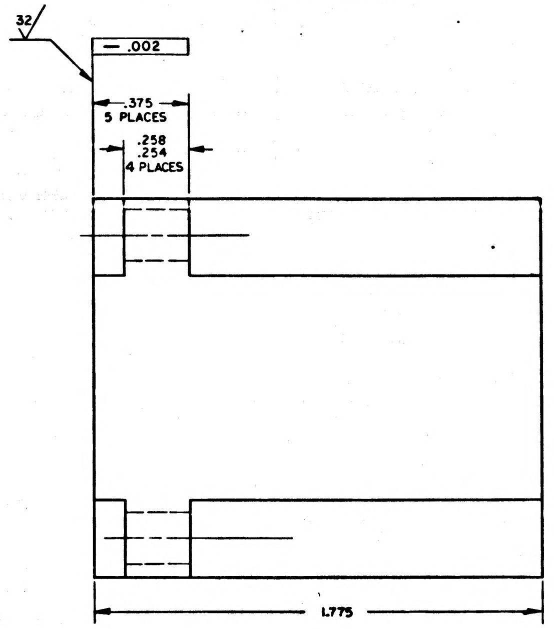


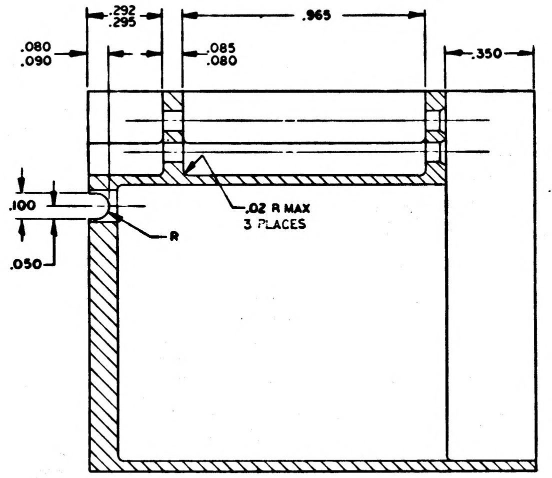

A
.290
.19 R
15°
.350
REF
.325
A4
REF
L1 REF
M2
1.39
CHAM 45° X.06
.06 R
2 PLACES
.500
A5 REF
.035
.150
4 PLACES
.500 DIA
3 PLACES
1.120
1.620
3.015
6.720


.09 R MAX
10 PLACES
2.397
.350
4.272
5.600

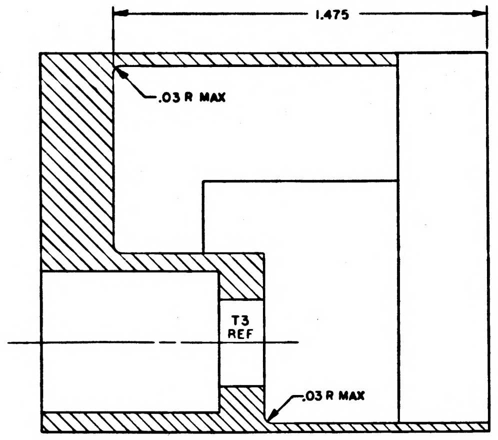

REF
.375
.090
NO. 8(.164)-32UNC-2B

SECTION D-D

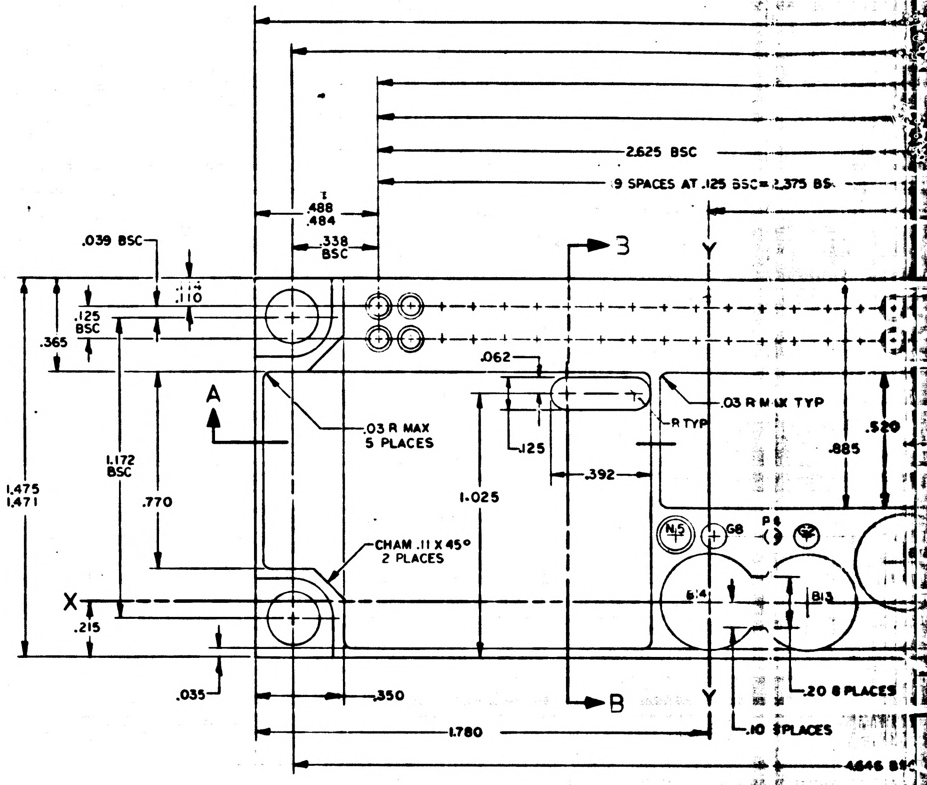

32
.002
.375
5 PLACES
.258
.254
4 PLACES
1.775

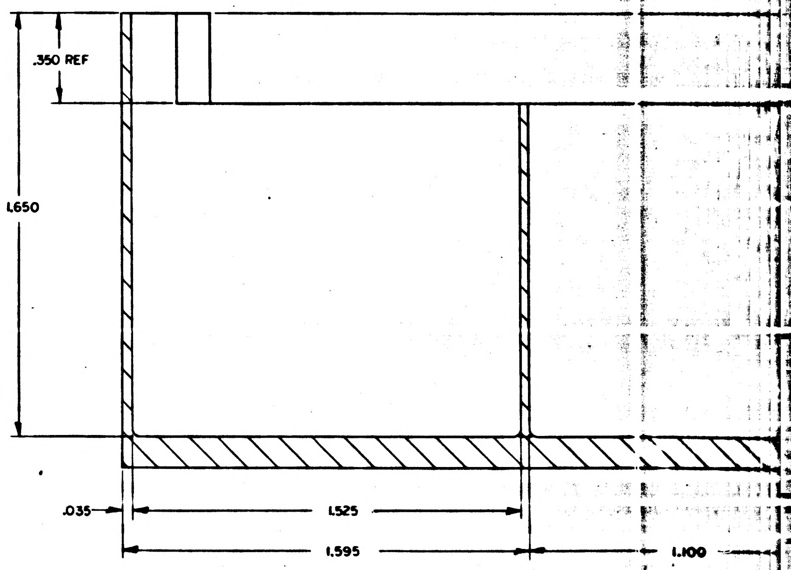

.292
.295
.965
.080
.090
.085
.080
.350
.100
R
.050
.02 R MAX
3 PLACES

SECTION B-B


1.475
.03 R MAX
T3
REF
.03 R MAX

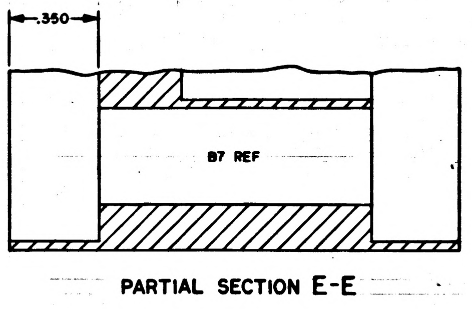
SECTION C-C


2.625 BSC
9 SPACES AT .125 BSC=2.375 BS
.488
.484
.338
BSC
.039 BSC
.110
.125
BSC
.365
B
Y
.062
.03 R MAX TYP
A
.03 R MAX
5 PLACES
R TYP
.520
.125
.885
1.172
BSC
.392
1.475
1.471
.770
1.025
CHAM .11 X 45°
2 PLACES
G8
X
.215
.035
.350
B
Y
.20 8 PLACES
.10 8 PLACES
1.780
4.646 BS

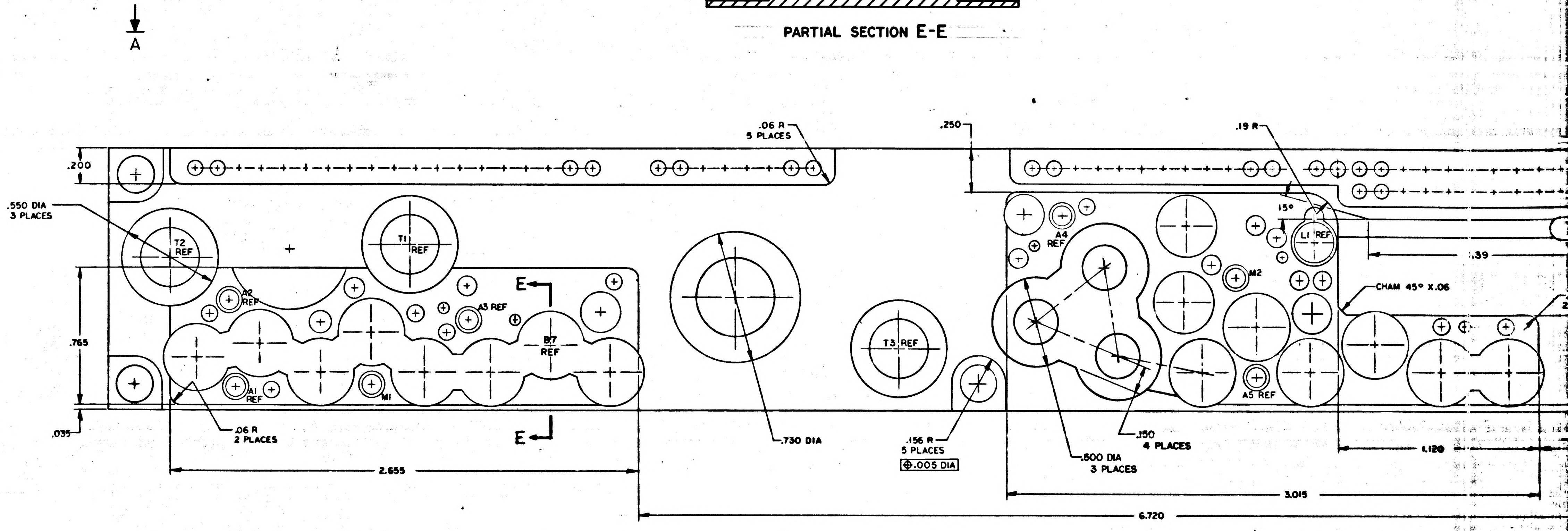

.350 REF
1.650
.035
1.525
1.595
1.100

HOLE	X DIM.	Y DIM.	DIA	QTY
A1	7.220	−.080	.115 .119 DIA THRU CSK BOTH SIDES 60° X.155 DIA	5
A2	7.260	.405		
A3	5.905	.295		
A4	2.535	.875		
A5	1.420	−.030		
B1	7.445	.085	.368 .375	14
B2	7.085	.165		
B3	6.745	.000		
B4	6.450	.225		
B5	6.155	.000		
B6	5.780	.000		
B7	5.440	.150		
B8	5.100	.000		
B9	1.730	.000		
B10	1.420	.255		
B11	1.115	.000		
B12	.745	.155		
B13	.375	.000		
B14	.000	.000		
C1	3.915	.485	.100 .104	7
C2	2.785	.635		
C3	1.680	.600		
C4	1.430	.820		
C5	1.310	.755		
C6	1.170	.515		
C7	1.040	.515		
D1	5.160	.335	.227 .231	3
D2	2.755	.880		
D3	1.100	.330		
E1	1.825	.820	.346 .353	2
E2	1.840	.395		
F1	6.745	.285	.127 .131	1
G1	6.205	.350	.088 .092	4
G2	.370	.260		
G3	7.375	.330		
G4	7.020	−.095		

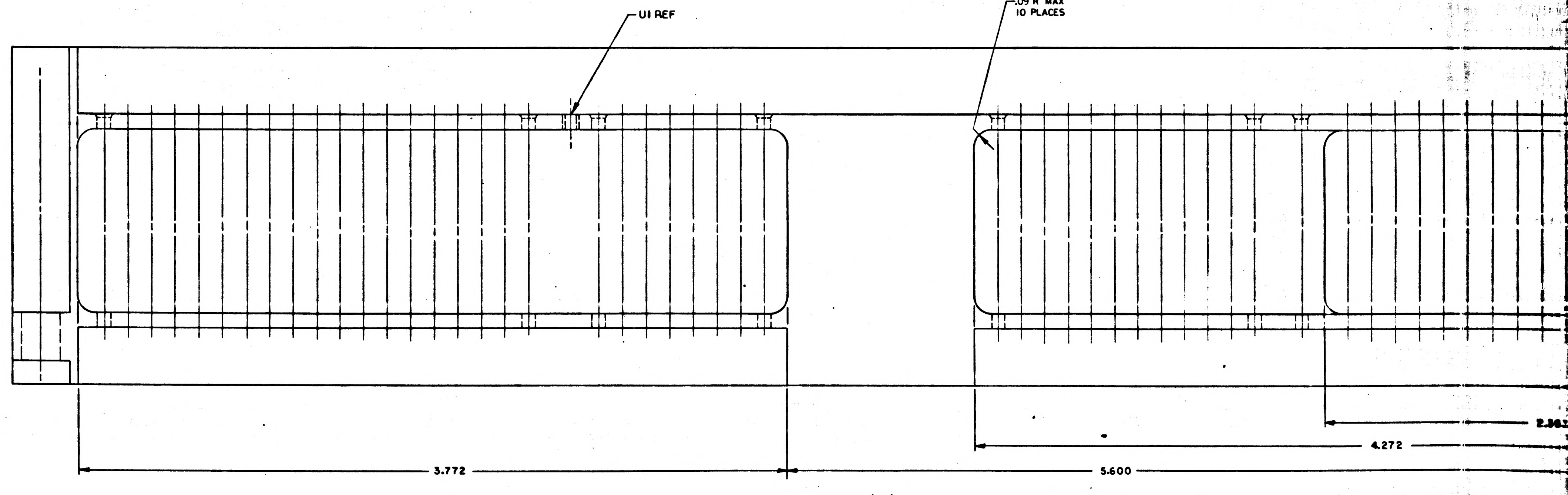
HOLE	X DIM.	Y DIM.	DIA	QTY
G5	6.030	.225	.088 .092	4
G6	5.080	.505		
G7	2.395	.925		
G8	.020	.260		
H1	6.555	.475	.108 .112	1
J1	6.920	.690	.669 .676 SEE SECT A-A	2
J2	5.545	.690		
K1	1.470	.600	SEE DETAIL B	1
L1	1.095	.730	SEE DETAIL A	1
M1	6.450	−.070	.115 .119 DIA X.30 DP FS & CSK 60° X.155 DIA	2
M2	1.540	.530		
N1	5.075	.865	.115 .119 DIA X.30 DP & CSK 60° X.155 DIA	5
N2	3.920	.935		
N3	2.090	.910		
N4	1.545	.920		
N5	−.130	.265		
P1	6.045	.360	.058 .062	5
P2	2.695	.710		
P3	1.275	.645		
P4	.240	.260		
P5	5.640	.295		
R1	2.290	.585	.255 .262	3
R2	2.685	.280		
R3	2.215	.090		
S1	4.400	.420	.435 .442	1
T1	6.240	.715	.321 .328	3
T2	7.595	.645		
T3	3.470	.130		
U1	4.981	1.146	NO.2(.086)-56NC-2B SEE NOTE 6	1



PARTIAL SECTION E-E



A
.200
.550 DIA
3 PLACES
T2 REF
T1 REF
A2 REF
A3 REF
A1 REF
M1
B7 REF
E
E
.765
.035
.06 R
2 PLACES
2.655
.06 R
5 PLACES
.730 DIA
T3 REF
.156 R
5 PLACES
.005 DIA
.250
A4 REF
M2
.19 R
15°
L1 REF
CHAM 45° X.06
.39
A5 REF
.500 DIA
3 PLACES
.150
4 PLACES
1.120
3.015
6.720



U1 REF
.09 R MAX
10 PLACES
3.772
5.600
4.272

VIEW A-A

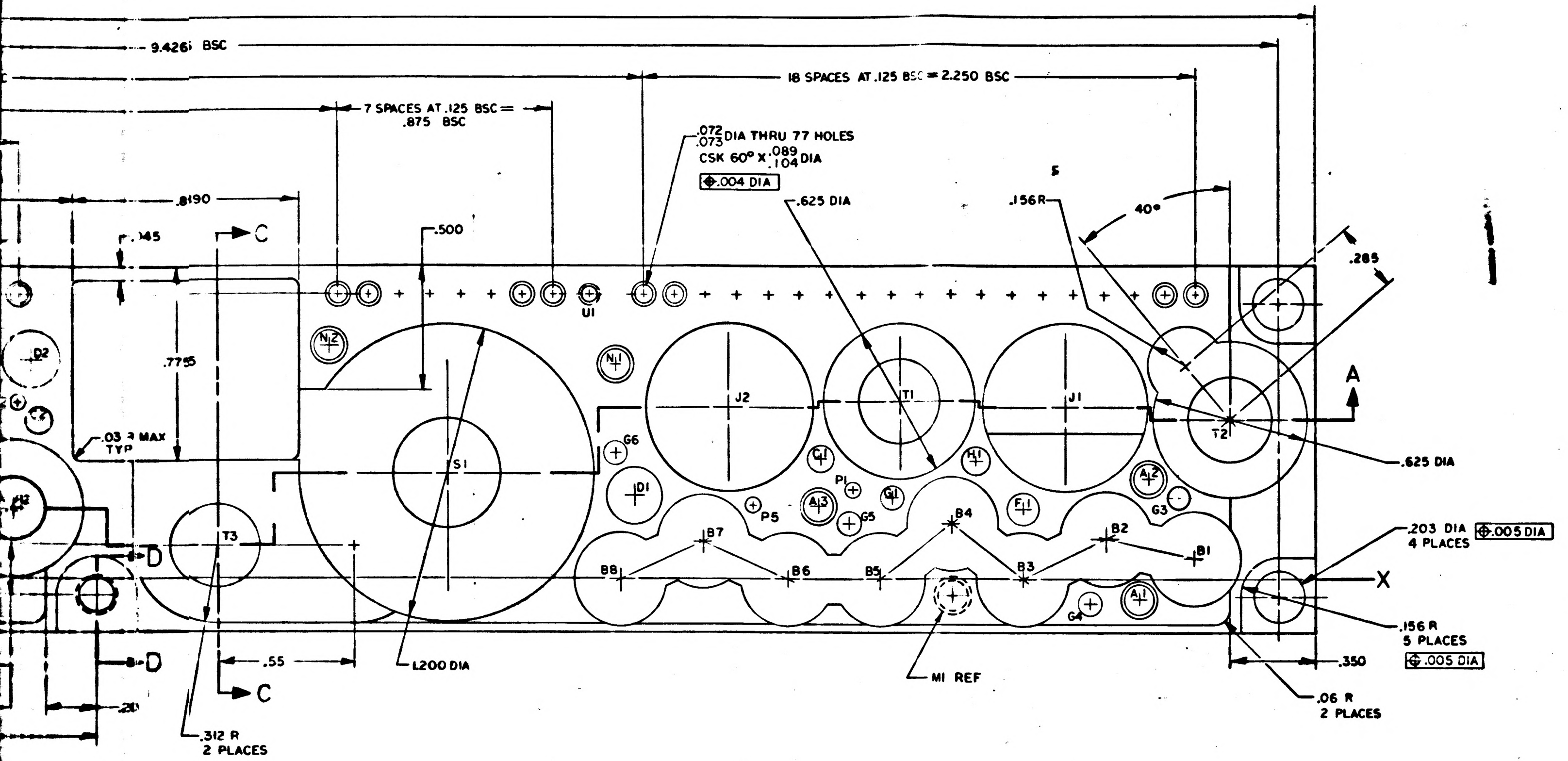
NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. REMOVE BURRS AND SHARP EDGES .005/.015
3. MATERIAL: MAGNESIUM ZK60A-T5 PER QQ-M-31, TEMP T5
4. ANODIZE PER MIL-M-45202, TYPE I, CLASS C
5. ALL SURFACES 125√ UNLESS OTHERWISE SPECIFIED
6. TAP HOLE AFTER ANODIZE. COAT PER ND1002040
7. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .02 MAX
8. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

4H

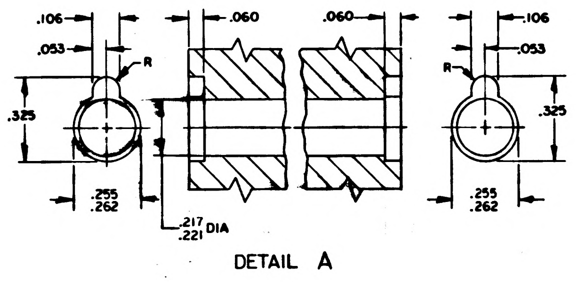
D C B A

2004105 A

REVISIONS 19758						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20951	KCH	DNL	2 Aug 65	DDM
B		REVISED PER TDRR 22564	WFH	DK	1 Oct 65	WK

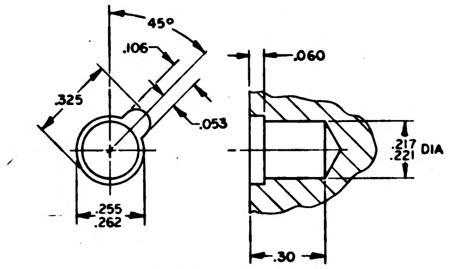


9.426 BSC
18 SPACES AT .125 BSC = 2.250 BSC
7 SPACES AT .125 BSC = .875 BSC
.072 .073 DIA THRU 77 HOLES
CSK 60° X .089 .104 DIA
.004 DIA
.625 DIA
.156R
40°
.285
.8190
.145
.500
C
.7755
.03 R MAX TYP
U1
N2
N1
D2
J2
T1
J1
T2
A
S1
G6
D1
C1
H1
A2
G3
P1
A3
G5
G2
F1
P5
T3
B7
B4
B2
B1
B8
B6
B5
B3
G4
A1
.625 DIA
.203 DIA 4 PLACES
.005 DIA
X
.156 R 5 PLACES
.005 DIA
.350
.06 R 2 PLACES
D
D
C
.55
.20
1.200 DIA
M1 REF
.312 R 2 PLACES



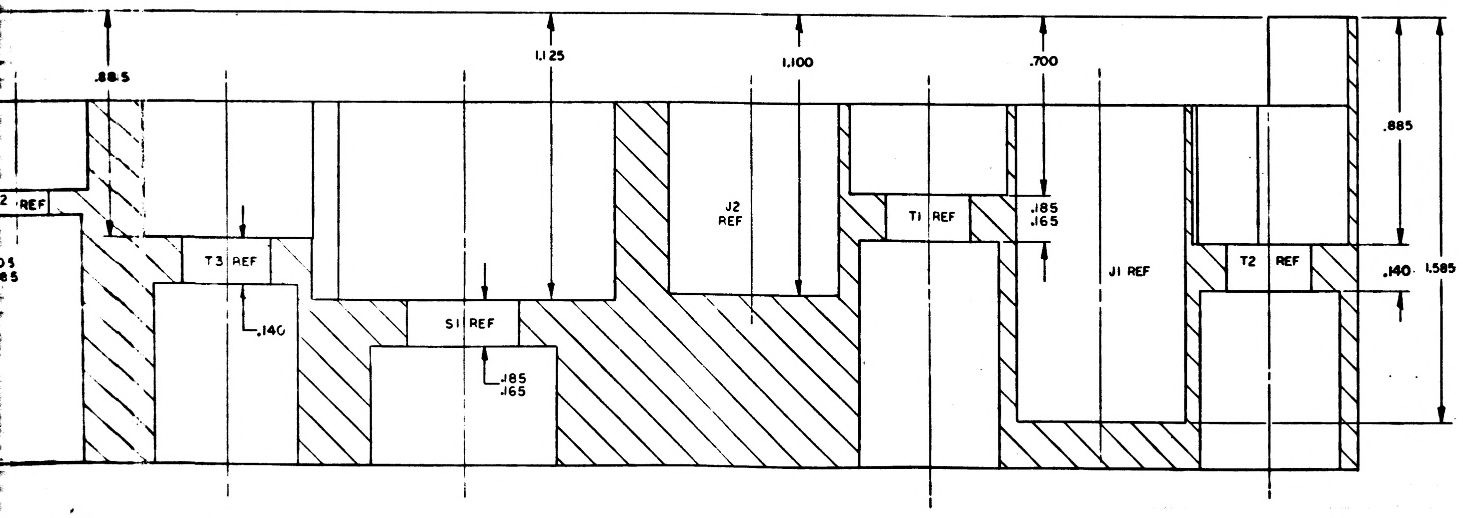
.106
.053
R
.325
.060
.060
R
.106
.053
.325
.255 .262
.217 .221 DIA
.255 .262

DETAIL A



45°
.106
.325
.060
.053
.217 .221 DIA
.255 .262
.30

DETAIL B



.885
1.125
1.100
.700
.885
REF
J2 REF
T1 REF
.185 .165
T3 REF
J1 REF
T2 REF
.140
1.585
.140
S1 REF
.185 .165

SECTION A-A

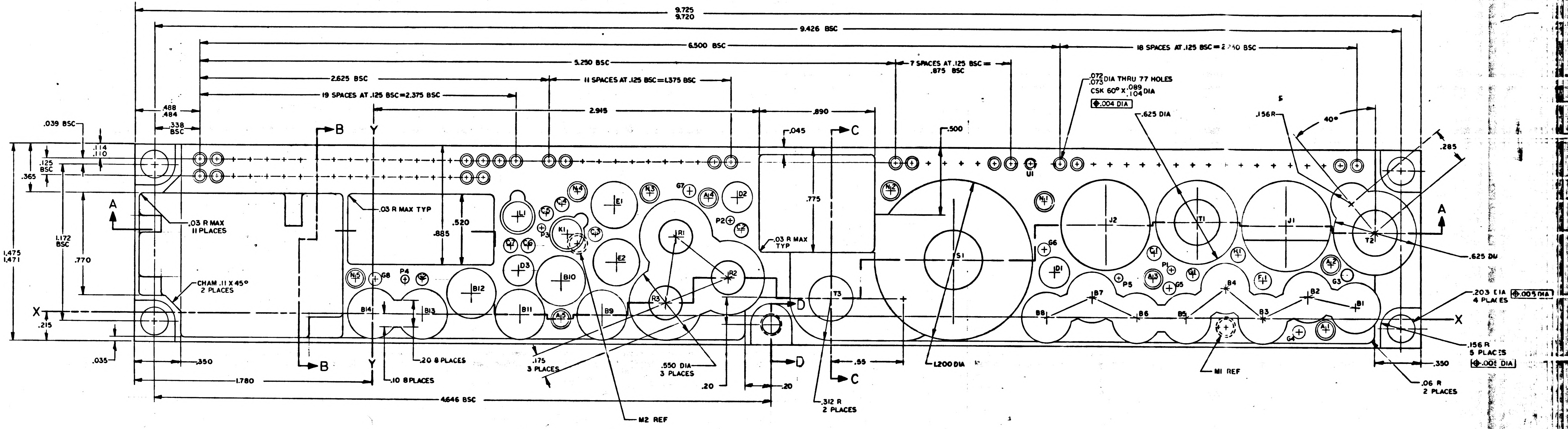
MASTER

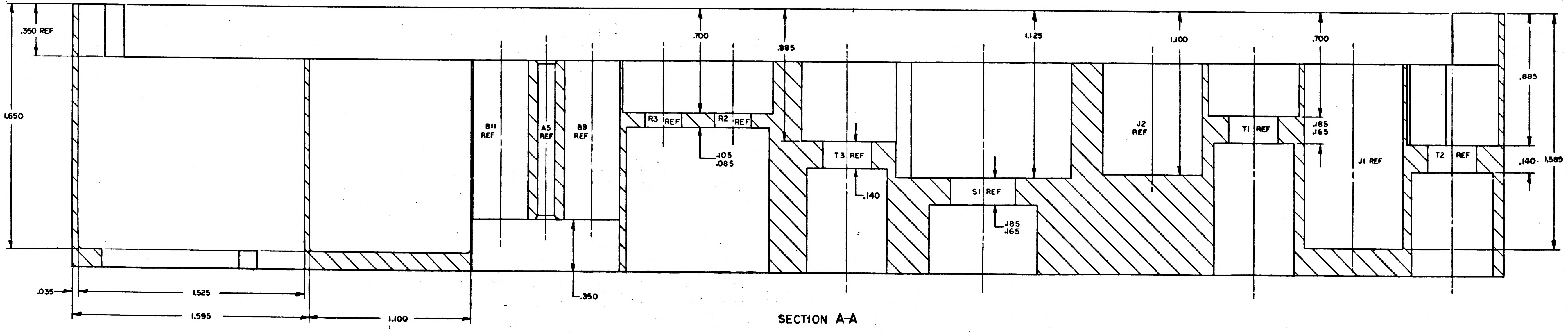
4H

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES CAPACITOR VALUES ARE IN µf RESISTOR VALUES ARE IN OHMS TOLERANCES ON FRACTIONS ± — DECIMALS XX ± .01 XXX ± .005 ANGLES ± 2° DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB CAMBRIDGE, MASS	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
2003057		MATERIAL	DRAWN E W Johnson 30 Apr 65 CHECKED A. Lindstrom 25 May 65 APPROVED M. McKinty 26 May 65 APPROVED Ed C Hall 1 June 65	HEADER HOUSING POWER SUPPLY
NEXT ASSY	USED ON		APPROVED MIT McKinley 6-2-65 APPROVED MSC 6-2-65	CODE IDENT NO. 80230 SIZE J DRAWING NO. 2004105
APPLICATION			DATE	SCALE 4/1 SHEET OF

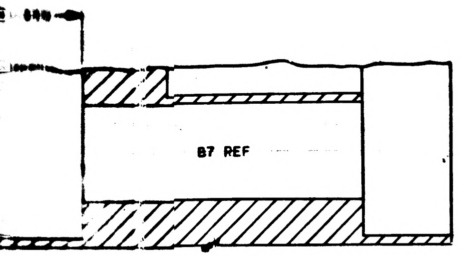
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

2004105 B

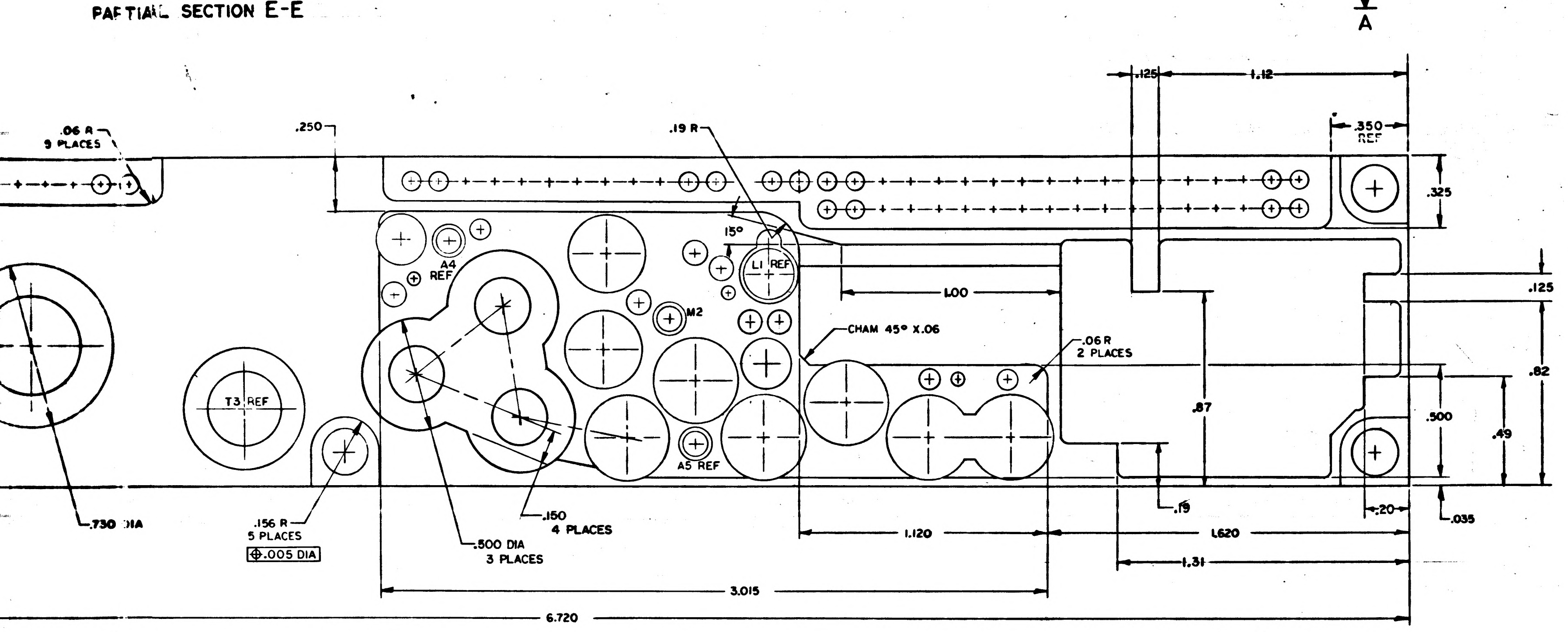

9.725
9.720
9.426 BSC
6.500 BSC
5.250 BSC
2.625 BSC
19 SPACES AT .125 BSC=2.375 BSC
11 SPACES AT .125 BSC=1.375 BSC
7 SPACES AT .125 BSC= .875 BSC
18 SPACES AT .125 BSC=2.250 BSC
.072
.073 DIA THRU 77 HOLES
CSK 60° X .089
.104 DIA
.004 DIA
.625 DIA
.156R
40°
.285
2.915
.890
.045
.500
.488
.484
.338
BSC
.039 BSC
.114
.110
.125
BSC
.365
1.475
1.471
1.172
BSC
.770
.215
.035
.350
1.780
4.646 BSC
.03 R MAX
11 PLACES
.03 R MAX TYP
.520
.885
.775
.03 R MAX
TYP
CHAM .11 X 45°
2 PLACES
.20 8 PLACES
.10 8 PLACES
.175
3 PLACES
.550 DIA
3 PLACES
.20
.20
.55
.312 R
2 PLACES
1.200 DIA
M2 REF
M1 REF
.625 DIA
.203 DIA
4 PLACES
.005 DIA
.156 R
5 PLACES
.005 DIA
.06 R
2 PLACES
.350
A
A
B
B
C
C
D
D
X
X
Y
Y
L1
K1
E1
E2
R1
R2
R3
S1
T1
T2
T3
J1
J2
B1
B2
B3
B4
B5
B6
B7
B8
B9
B10
B11
B12
B13
B14
D1
D2
D3
P1
P2
P3
P4
P5
G3
G4
G5
G6
G7
G8
U1
F1


.350 REF
1.650
.035
1.525
1.595
1.100
B11
REF
A5
REF
B9
REF
.350
.700
R3 REF
R2 REF
.105
.085
.885
T3 REF
.140
1.125
S1 REF
.185
.165
1.100
J2
REF
T1 REF
.700
.185
.165
J1 REF
T2 REF
.885
.140
1.585

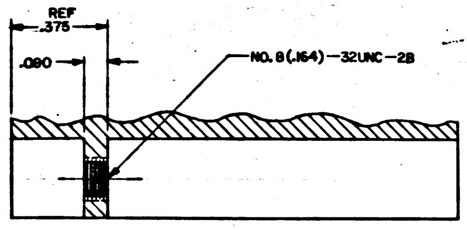
SECTION A-A



PARTIAL SECTION E-E

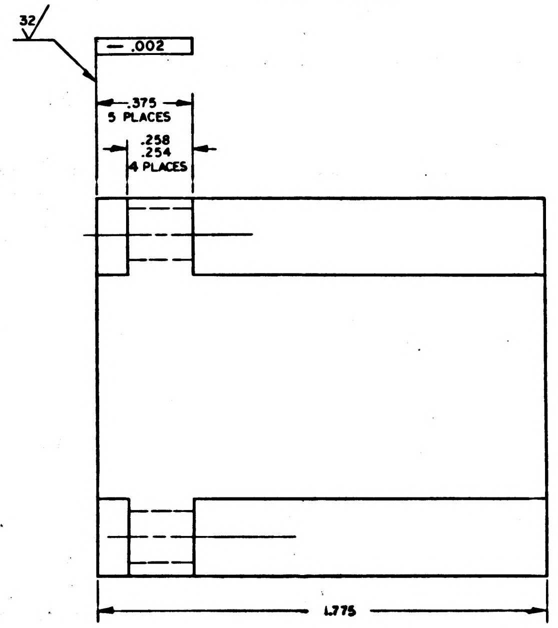


A
.125
1.12
.350 REF
.325
.06 R 9 PLACES
.250
.19 R
15°
L1 REF
A4 REF
M2
A5 REF
T3 REF
1.00
CHAM 45° X.06
.06 R 2 PLACES
.125
.82
.87
.500
.49
.19
.20
.035
.730 DIA
.156 R 5 PLACES
⊕.005 DIA
.500 DIA 3 PLACES
.150 4 PLACES
1.120
1.620
1.31
3.015
6.720

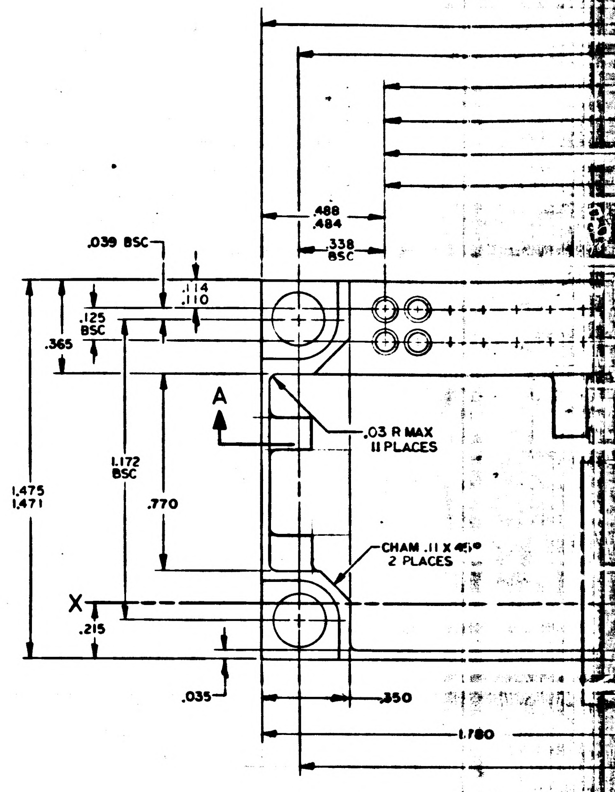


REF .375
.090
NO. 8(.164)—32UNC—2B

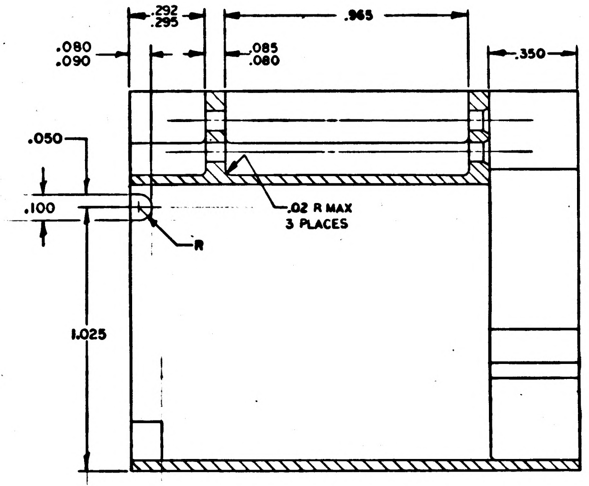
SECTION D-D



32
— .002
.375 5 PLACES
.258 .254 4 PLACES
1.775

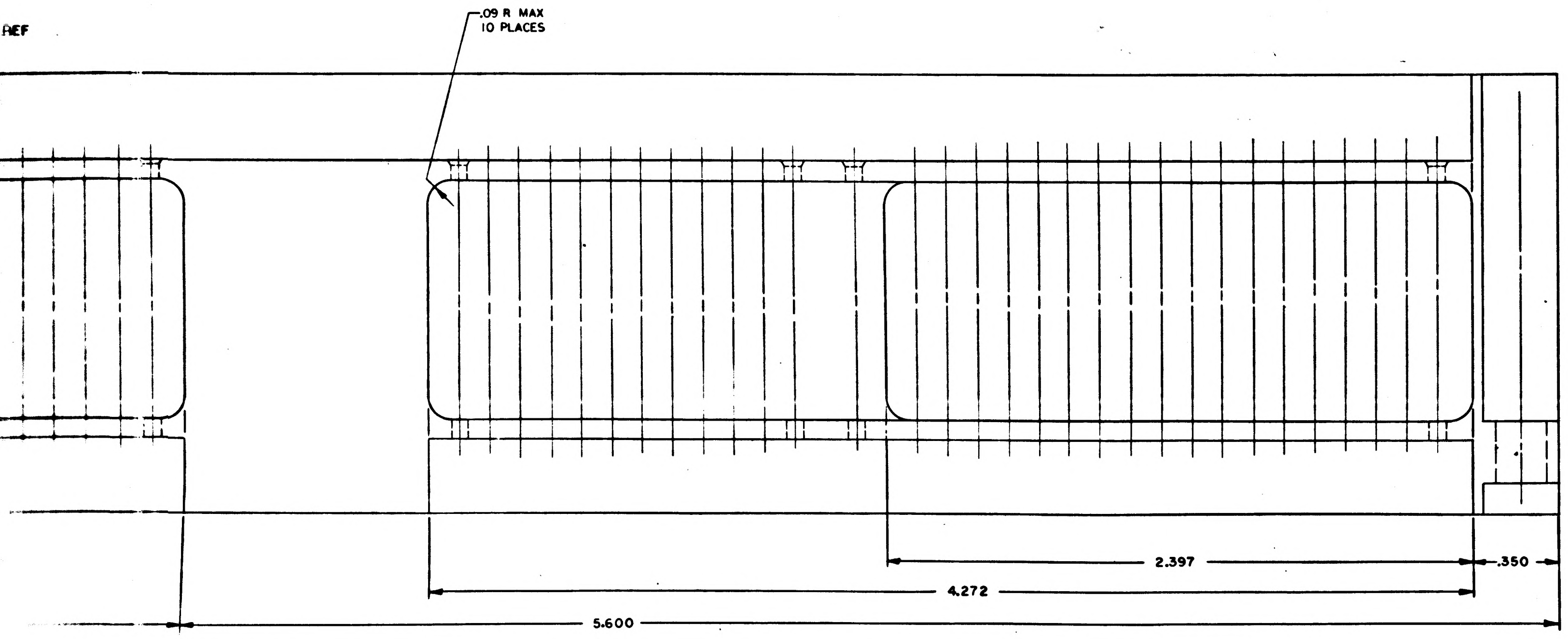


.488 .484
.338 BSC
.039 BSC
.114 .110
.125 BSC
.365
1.475 1.471
1.172 BSC
.770
A
.03 R MAX 11 PLACES
CHAM .11 X 45° 2 PLACES
X
.215
.035
.350
1.780



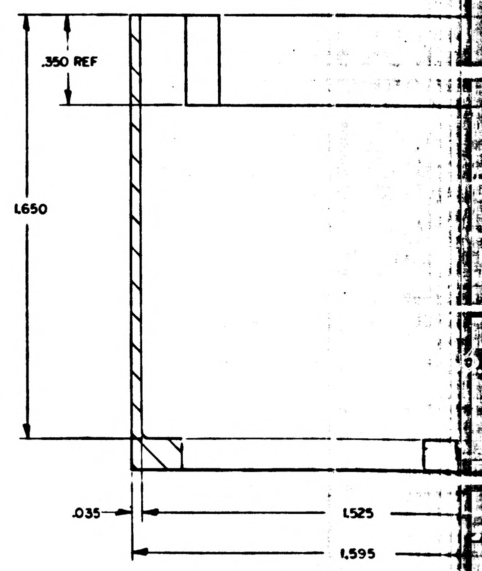
.292 .295
.965
.080 .090
.085 .080
.350
.050
.100
R
.02 R MAX 3 PLACES
1.025

SECTION B-B

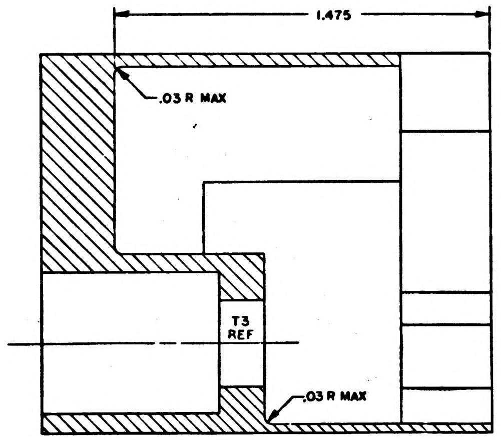


REF
.09 R MAX 10 PLACES
2.397
.350
4.272
5.600

VIEW A-A



.350 REF
1.650
.035
1.525
1.595



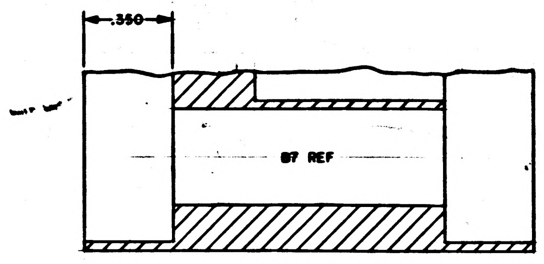
1.475
.03 R MAX
T3 REF
.03 R MAX

SECTION C-C

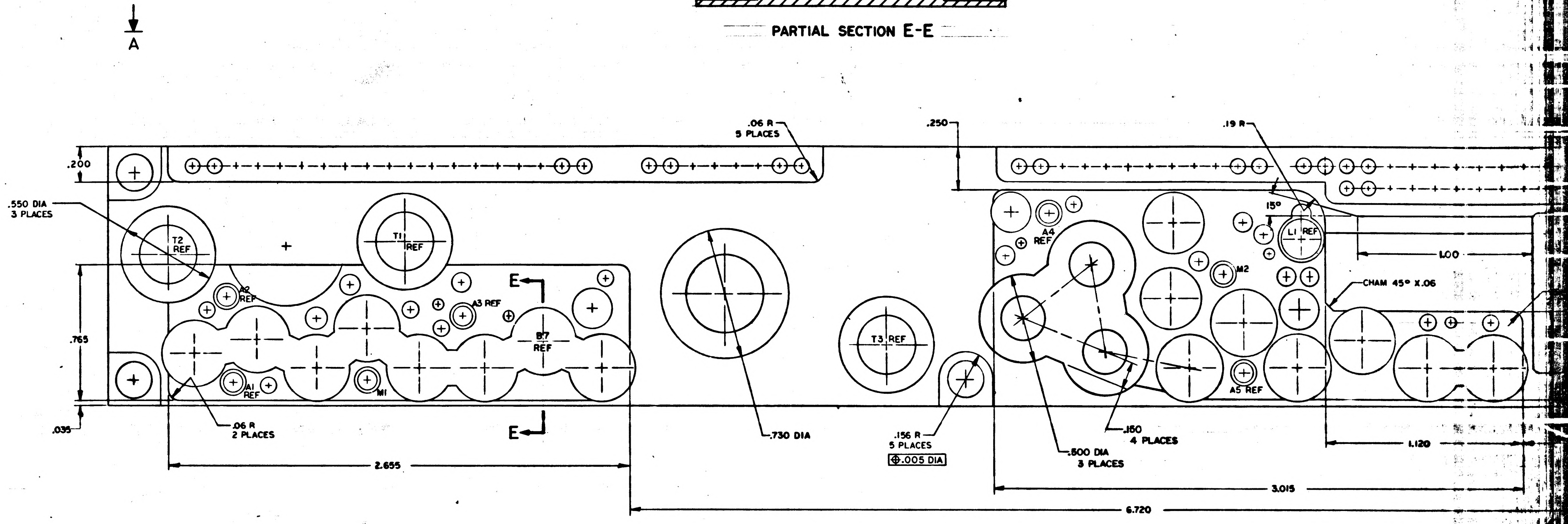
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

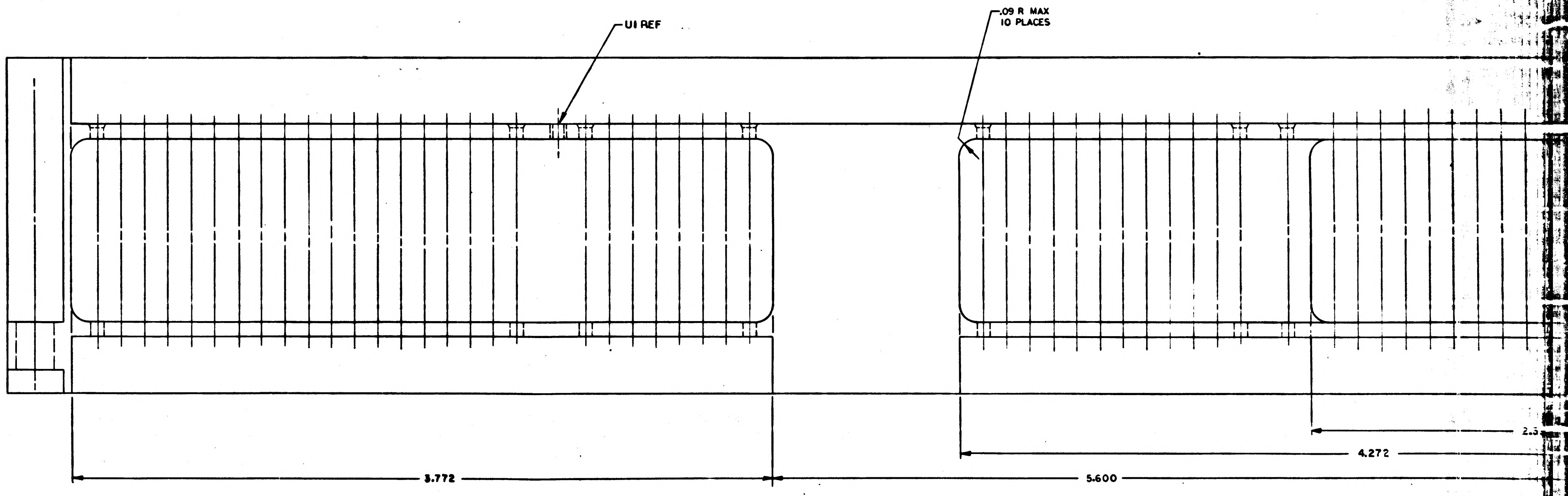
HOLE	X DIM.	Y DIM.	DIA	QTY
A1	7.220	−.080	.115 .119 DIA THRU CSK BOTH SIDES 60° X.155 DIA	5
A2	7.260	.405		
A3	5.905	.295		
A4	2.535	.875		
A5	1.420	−.030		
B1	7.445	.085	.368 .375	14
B2	7.085	.165		
B3	6.745	.000		
B4	6.450	.225		
B5	6.155	.000		
B6	5.780	.000		
B7	5.440	.150		
B8	5.100	.000		
B9	1.730	.000		
B10	1.420	.255		
B11	1.115	.000		
B12	.745	.155		
B13	.375	.000		
B14	.000	.000		
C1	5.915	.485	.100 .104	7
C2	2.785	.635		
C3	1.680	.600		
C4	1.430	.820		
C5	1.310	.755		
C6	1.170	.515		
C7	1.040	.515		
D1	5.160	.335	.227 .231	3
D2	2.755	.880		
D3	1.100	.330		
E1	1.825	.820	.346 .353	2
E2	1.840	.395		
F1	6.745	.285	.127 .131	1
G1	6.205	.350	.088 .092	4
G2	.370	.260		
G3	7.375	.330		
G4	7.020	−.095		

HOLE	X DIM.	Y DIM.	DIA	QTY
G5	6.030	.225	.088 .092	4
G6	5080	.505		
G7	2.395	.925		
G8	.020	.260		
H1	6.555	.475	.108 .112	1
J1	6.920	.690	.669 .676 SEE SECT A-A	2
J2	5.545	.690		
K1	1.470	.600	SEE DETAIL B	1
L1	1.095	.730	SEE DETAIL A	1
M1	6.450	−.070	.115 .119 DIA X.30 DP FS & CSK 60° X.155 DIA	2
M2	1.540	.530		
N1	5.075	.865	.115 .119 DIA X.30 DP & CSK 60° X.155 DIA	5
N2	3.920	.935		
N3	2.090	.910		
N4	1.545	.920		
N5	−.130	.265		
P1	6.045	.360	.058 .062	5
P2	2.695	.710		
P3	1.275	.645		
P4	.240	.260		
P5	5.640	.295		
R1	2.290	.585	.255 .262	3
R2	2.685	.280		
R3	2.215	.090		
S1	4.400	.420	.435 .442	1
T1	6.240	.715	.321 .328	3
T2	7.595	.645		
T3	3.470	.130		
U1	4.981	1.146	NO.2(.086)-56NC-2B SEE NOTE 6	1



PARTIAL SECTION E-E


A
.200
.550 DIA
3 PLACES
.765
.035
T2 REF
T1 REF
A2 REF
A3 REF
A1 REF
M1
B7 REF
E
E
.06 R
2 PLACES
2.655
.06 R
5 PLACES
.730 DIA
T3 REF
.156 R
5 PLACES
⊕ .005 DIA
.250
.19 R
15°
L1 REF
A4 REF
M2
A5 REF
.500 DIA
3 PLACES
.160
4 PLACES
1.00
CHAM 45° X.06
1.120
3.015
6.720


U1 REF
.09 R MAX
10 PLACES
3.772
5.600
4.272
2.3

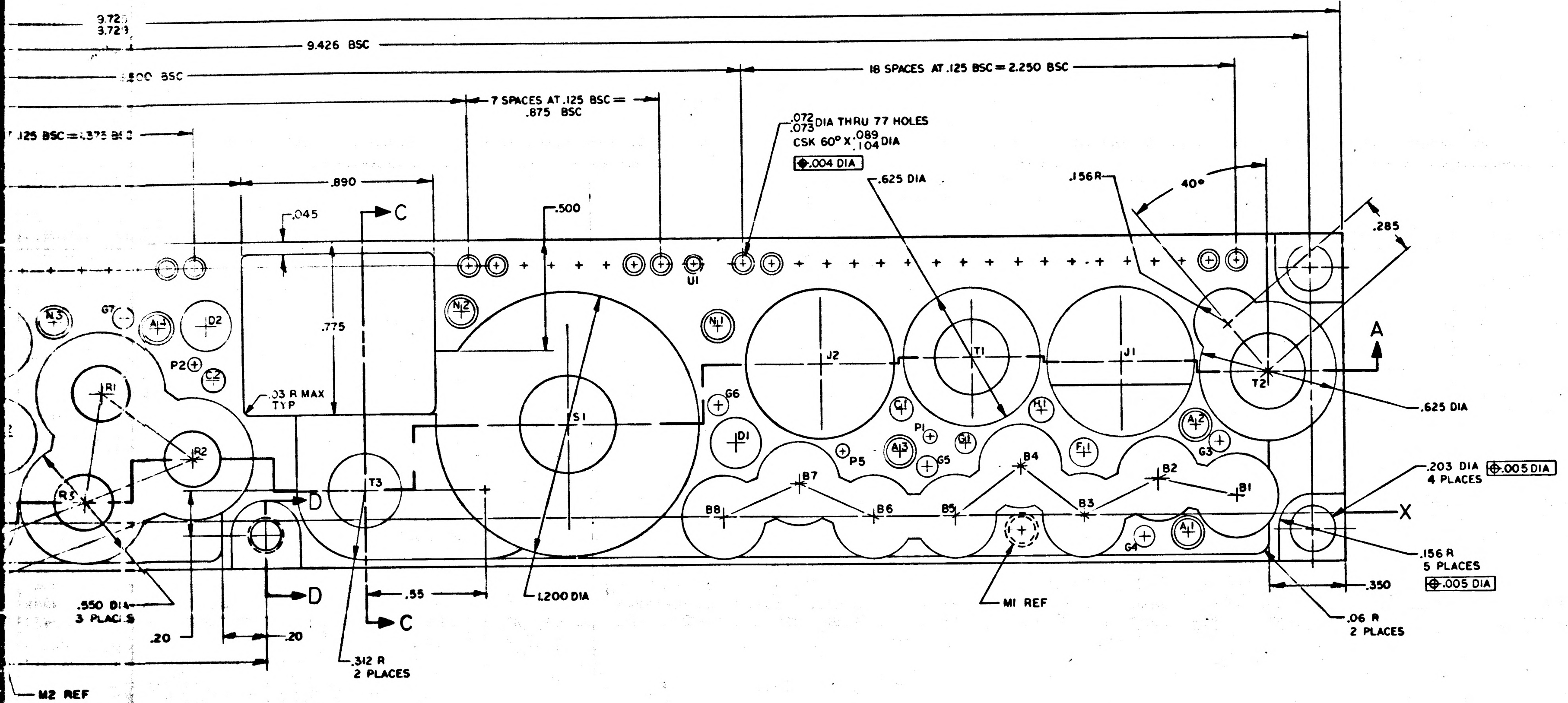
VIEW A-A

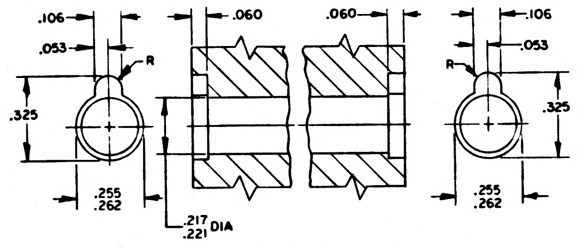
NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. REMOVE BURRS AND SHARP EDGES .005/.015
3. MATERIAL: MAGNESIUM ZK60A-T5 PER QQ-M-31, TEMP T5
4. ANODIZE PER MIL-M-45202, TYPE I, CLASS C
5. ALL SURFACES 125√ UNLESS OTHERWISE SPECIFIED
6. TAP HOLE AFTER ANODIZE. COAT PER ND1002040
7. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .02 MAX
8. IDENTIFY WITH PART NO. PER ND1002019

4H

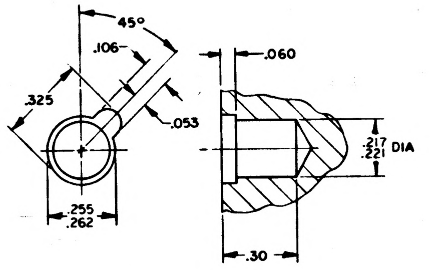
SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED

REVISIONS 19758

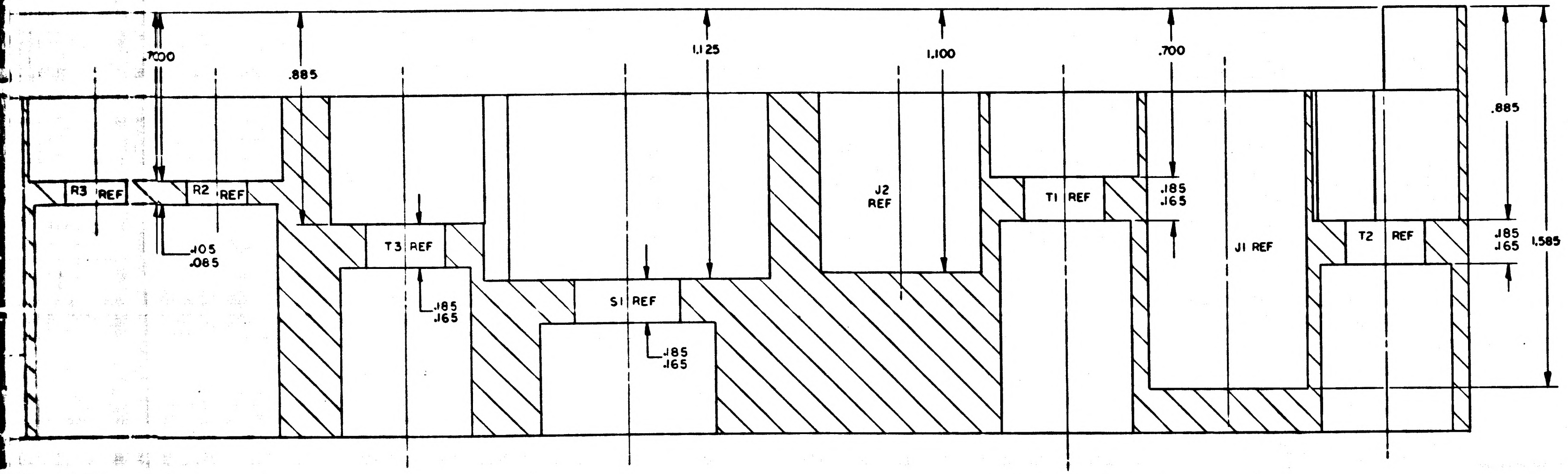

9.72?
9.426 BSC
.800 BSC
18 SPACES AT .125 BSC = 2.250 BSC
7 SPACES AT .125 BSC = .875 BSC
.125 BSC = .375 BSC
.072 .073 DIA THRU 77 HOLES
CSK 60° X .089 .104 DIA
.004 DIA
.625 DIA
.156R
40°
.285
.890
.045
C
.500
.775
.03 R MAX TYP
U1
N3
G7
A13
D2
N2
N1
P2
C2
R1
R2
R3
J2
T1
J1
T2
A
S1
G6
D1
C1
P1
P5
A3
G5
G1
B4
H1
F1
A2
G3
B7
B8
B6
B5
B3
B2
B1
T3
D
.625 DIA
.203 DIA 4 PLACES
.005 DIA
X
.156 R 5 PLACES
.005 DIA
.350
.06 R 2 PLACES
A1
G4
M1 REF
1.200 DIA
.55
.550 DIA 3 PLACES
.20
.20
.312 R 2 PLACES
M2 REF


.106
.053
R
.325
.255 .262
.060
.060
.217 .221 DIA
.106
.053
R
.325
.255 .262

DETAIL A


45°
.106
.325
.053
.255 .262
.060
.217 .221 DIA
.30

DETAIL B


.700
.885
1.125
1.100
.700
.885
R3 REF
R2 REF
.105 .085
T3 REF
.185 .165
S1 REF
.185 .165
J2 REF
T1 REF
.185 .165
J1 REF
T2 REF
.185 .165
1.585

SECTION A-A

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003057	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XX ± .01 .XXX ± .005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN E.W. Shannon 20 Apr '65
CHECKED A. Lindstrom 23 May '65
APPROVED M. McGinty
APPROVED Ellen C. Hall 17 June 65
APPROVED MIT McMurphy 6-2-65
APPROVED MSC 6-2-65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HEADER HOUSING
POWER SUPPLY

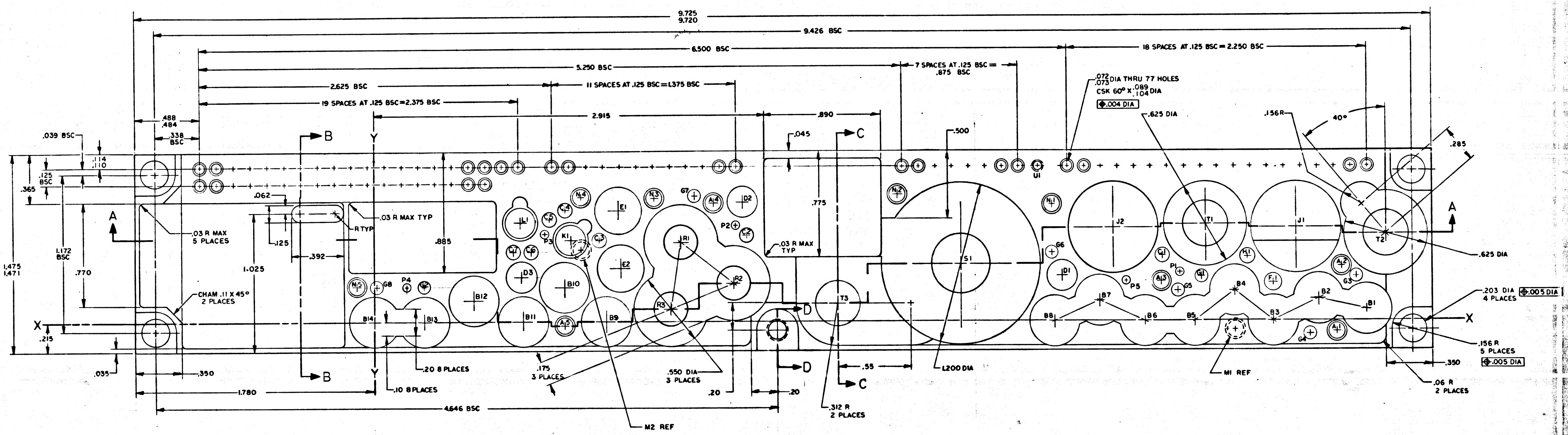
CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2004105
SCALE 4/1		SHEET 1

2004105

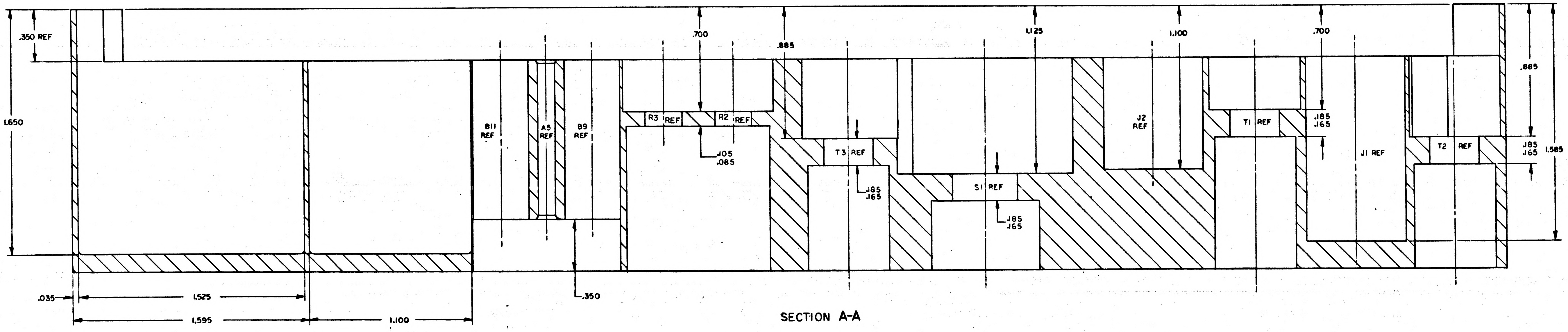
2004105

4H

E4

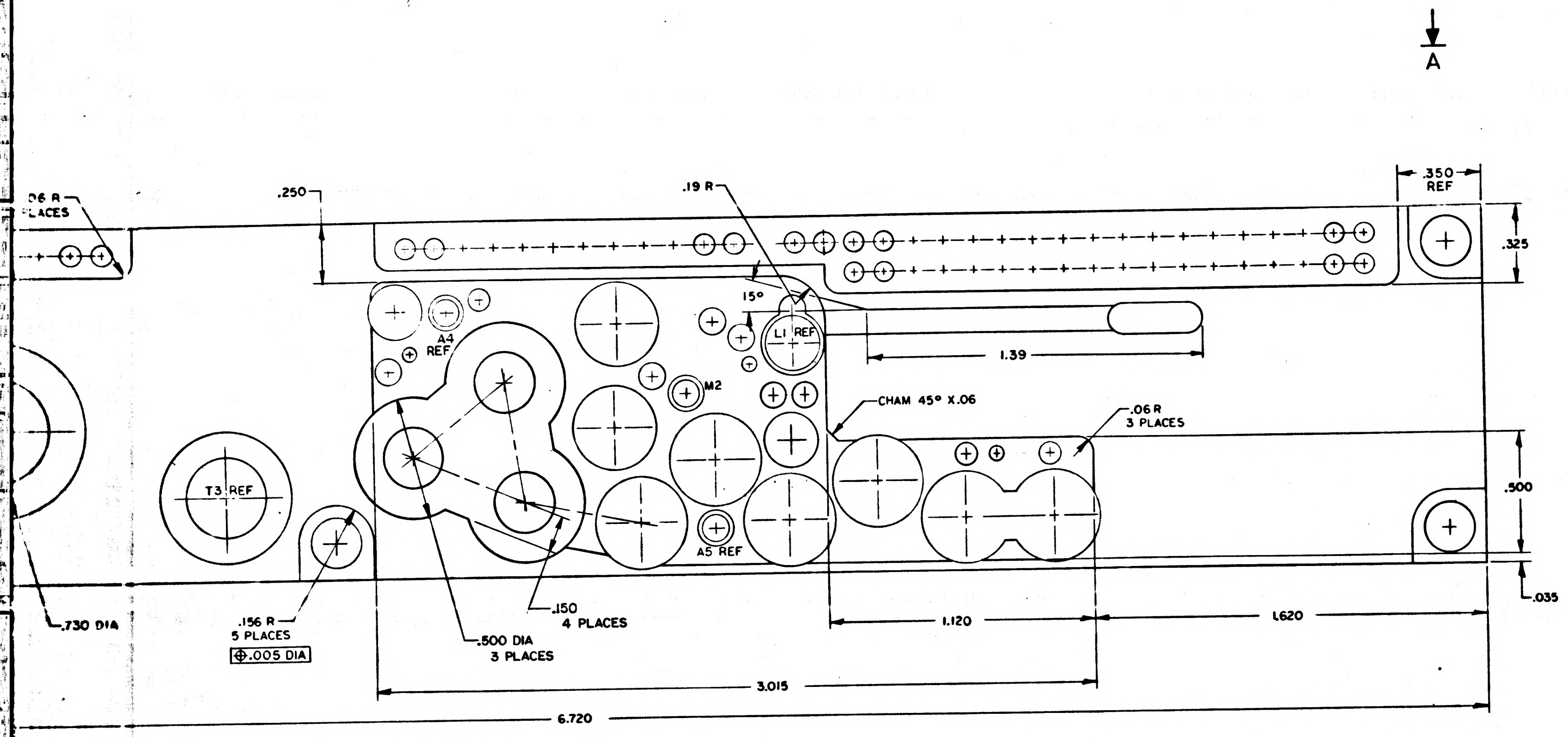


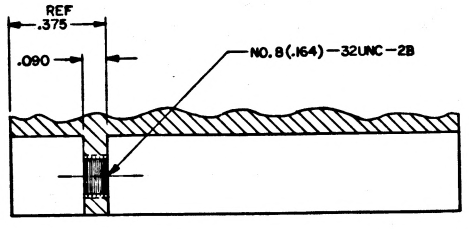
9.725
9.720
9.426 BSC
6.500 BSC
18 SPACES AT .125 BSC = 2.250 BSC
5.250 BSC
7 SPACES AT .125 BSC = .875 BSC
2.625 BSC
11 SPACES AT .125 BSC = 1.375 BSC
19 SPACES AT .125 BSC = 2.375 BSC
.072 .075 DIA THRU 77 HOLES
CSK 60° X .089 .104 DIA
.004 DIA
2.915
.890
.625 DIA
.156R
40°
.285
.500
.045
.488 .484
.338 BSC
.039 BSC
.114 .110
.125 BSC
.365
.062
.03 R MAX TYP
R TYP
.03 R MAX 5 PLACES
.125
.392
.885
1.172 BSC
1.475 1.471
.770
1.025
CHAM .11 X 45° 2 PLACES
.215
.035
.350
1.780
4.646 BSC
.20 8 PLACES
.10 8 PLACES
.175 3 PLACES
.550 DIA 3 PLACES
.20
.20
M2 REF
.03 R MAX TYP
.775
.55
.312 R 2 PLACES
L200 DIA
M1 REF
.625 DIA
.203 DIA 4 PLACES
.005 DIA
.156 R 5 PLACES
.005 DIA
.350
.06 R 2 PLACES
A
B
C
D
X
Y
L1 K1 E1 E2 D1 D2 D3 R1 R2 R3 T1 T2 T3 S1 J1 J2 U1
B1 B2 B3 B4 B5 B6 B7 B8 B9 B10 B11 B12 B13 B14
P1 P2 P3 P4 P5 G3 G4 G5 G6 G7 G8
N1 N2 N3 N4 N5 C1 C2 C3 C4 C5 C6 C7 C8 A1 A2 A3 A4 A5 F1 M1



.350 REF
1.650
.700
.885
1.125
1.100
.700
.885
1.585
B11 REF
A5 REF
B9 REF
R3 REF
R2 REF
.105 .085
T3 REF
.185 .165
S1 REF
.185 .165
J2 REF
T1 REF
.185 .165
J1 REF
T2 REF
.185 .165
.035
1.525
1.595
1.100
.350

SECTION A-A


A
.06 R
PLACES
.250
.19 R
.350
REF
.325
15°
A4
REF
L1 REF
M2
1.39
CHAM 45° X.06
.06 R
3 PLACES
T3 REF
A5 REF
.500
.035
.730 DIA
.156 R
5 PLACES
⊕ .005 DIA
.500 DIA
3 PLACES
.150
4 PLACES
1.120
1.620
3.015
6.720


REF
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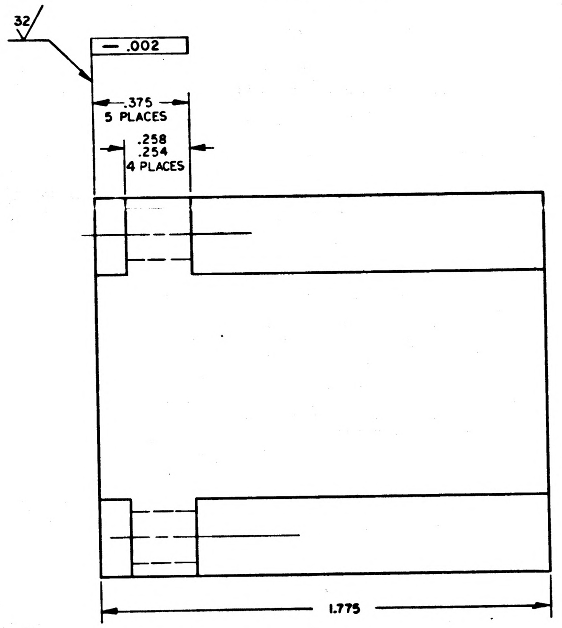
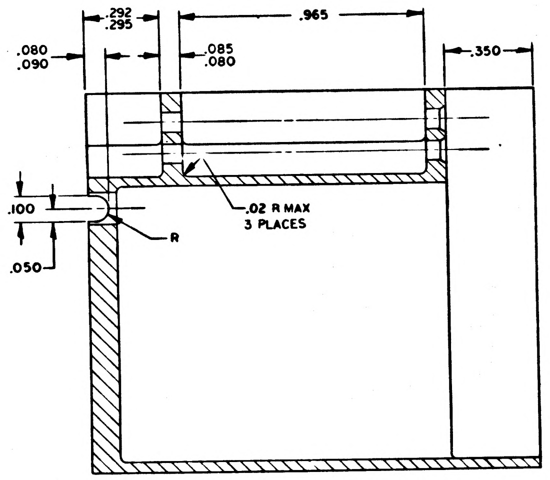
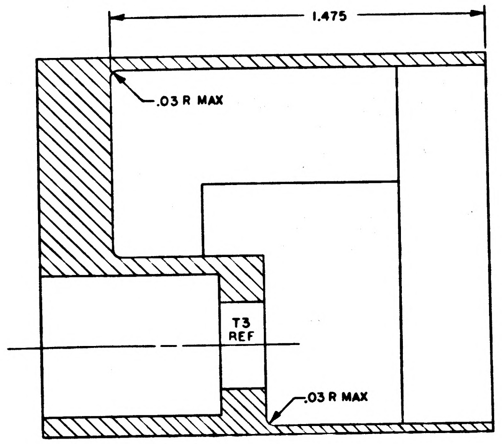
.090
NO. 8 (.164)—32UNC—2B

SECTION D-D

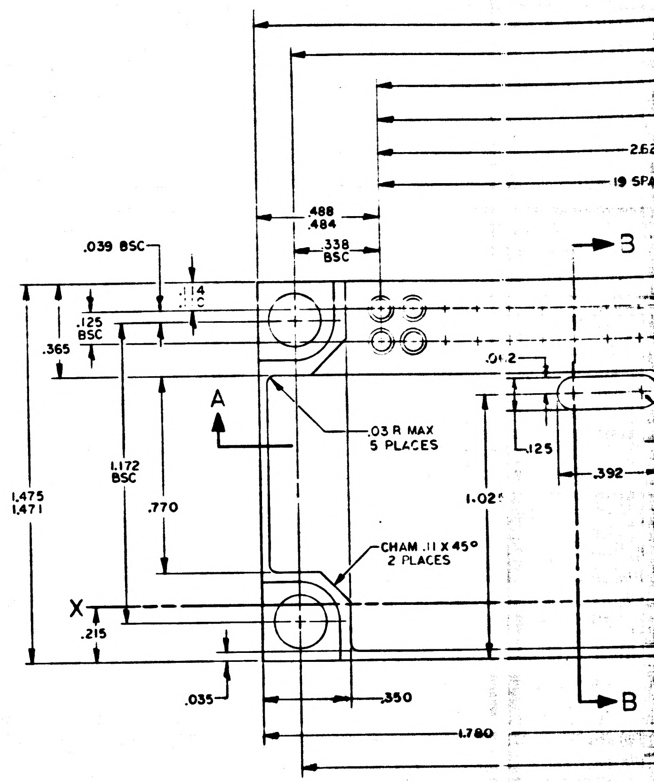

32
— .002
.375
5 PLACES
.258
.254
4 PLACES
1.775

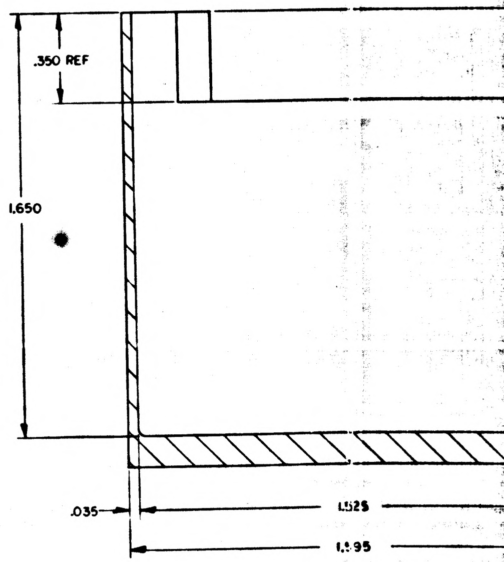

.292
.295
.965
.080
.090
.085
.080
.350
.100
R
.02 R MAX
3 PLACES
.050

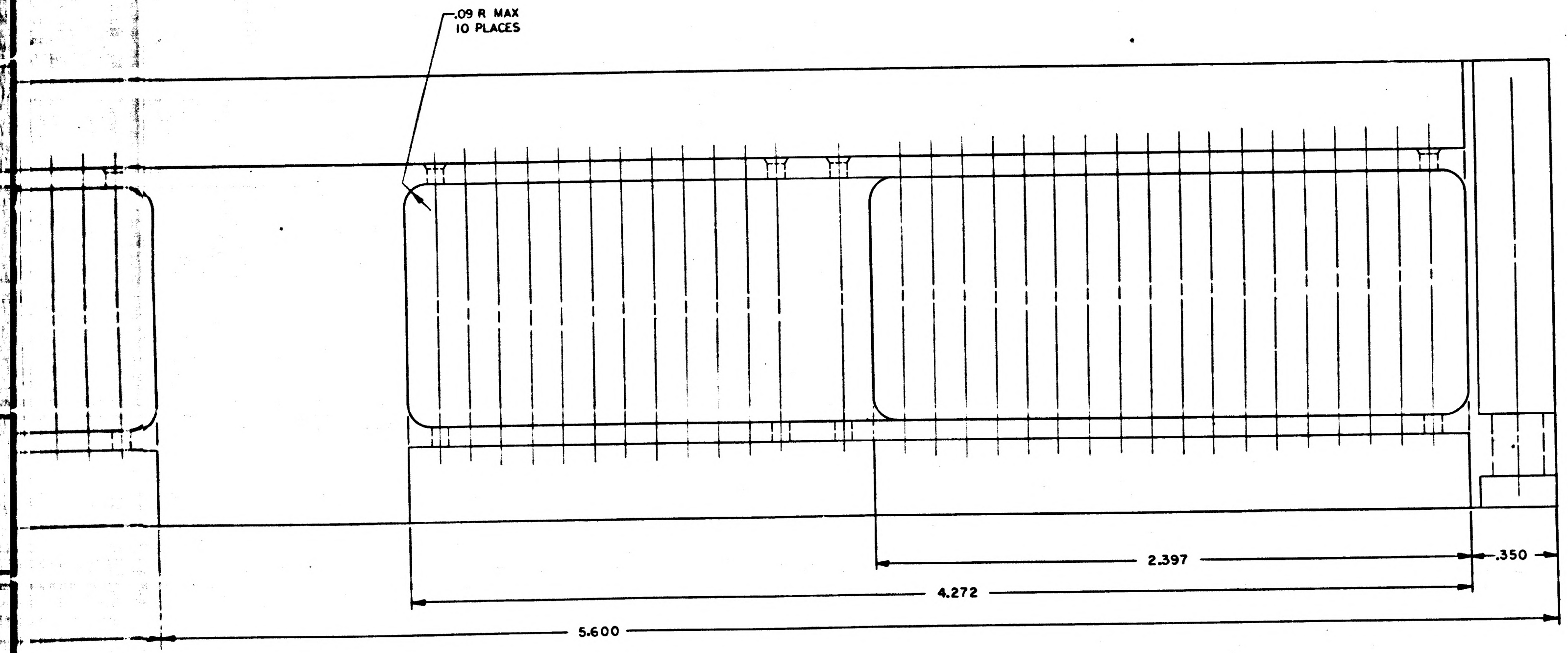
SECTION B-B


1.475
.03 R MAX
T3
REF
.03 R MAX

SECTION C-C


2.62
19 SPA
.488
.484
.338
BSC
.039 BSC
.114
B
.125
BSC
.365
.012
A
.03 R MAX
5 PLACES
.125
.392
1.475
1.471
1.172
BSC
.770
1.02
CHAM .11 X 45°
2 PLACES
X
.215
.035
.350
1.780
B


.350 REF
1.650
.035
1.525
1.595


.09 R MAX
10 PLACES
2.397
.350
4.272
5.600

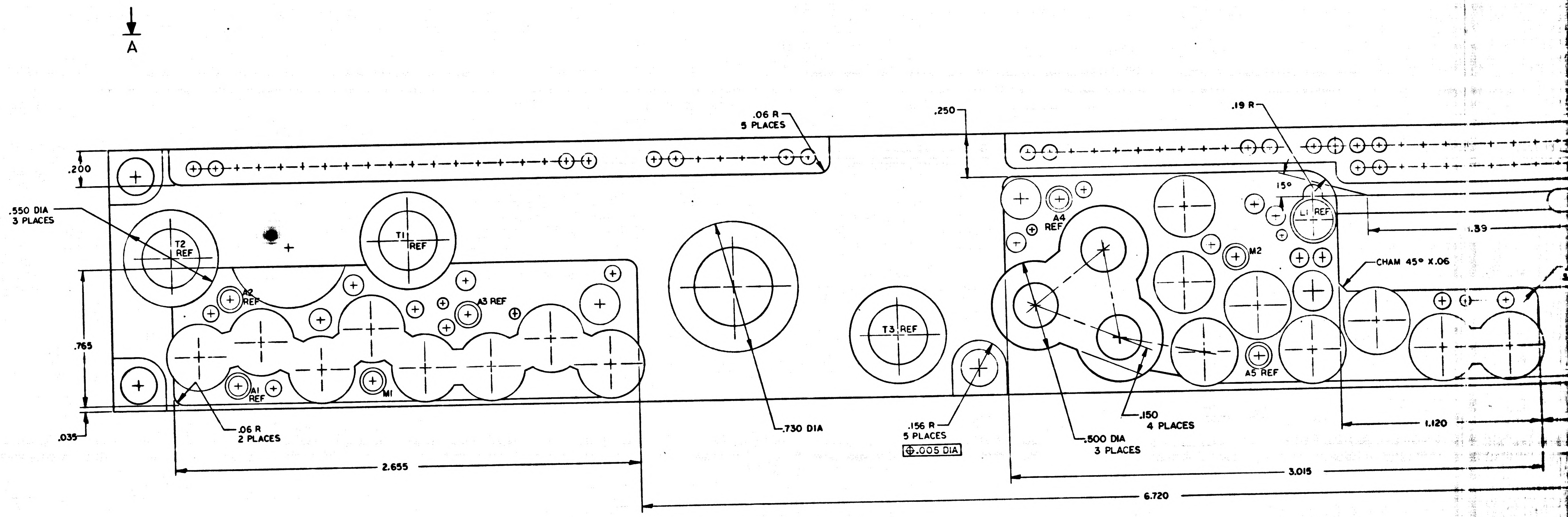
VIEW A-A

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

D

HOLE	X DIM.	Y DIM.	DIA	QTY
A1	7.220	−.080	.115 .119 DIA THRU CSK BOTH SIDES 60° X.155 DIA	5
A2	7.260	.405		
A3	5.905	.295		
A4	2.535	.875		
A5	1.420	−.030		
B1	7.445	.085	.368 .375	14
B2	7.085	.65		
B3	6.745	.000		
B4	6.450	.225		
B5	6.155	.000		
B6	5.780	.000		
B7	5.440	.150		
B8	5.100	.000		
B9	1.730	.000		
B10	1.420	.255		
B11	1.115	.000		
B12	.745	.155		
B13	.375	.000		
B14	.000	.000		
C1	5.915	.485	.100 .104	7
C2	2.785	.635		
C3	1.680	.600		
C4	1.430	.820		
C5	1.310	.755		
C6	1.170	.515		
C7	1.040	.515		
D1	5.160	.335	.227 .231	3
D2	2.755	.880		
D3	1.100	.330		
E1	1.825	.820	.346 .353	2
E2	1.840	.395		
F1	6.745	.285	.127 .131	1
G1	6.205	.350	.088 .092	4
G2	.370	.260		
G3	7.370	.330		
G4	7.020	−.095		

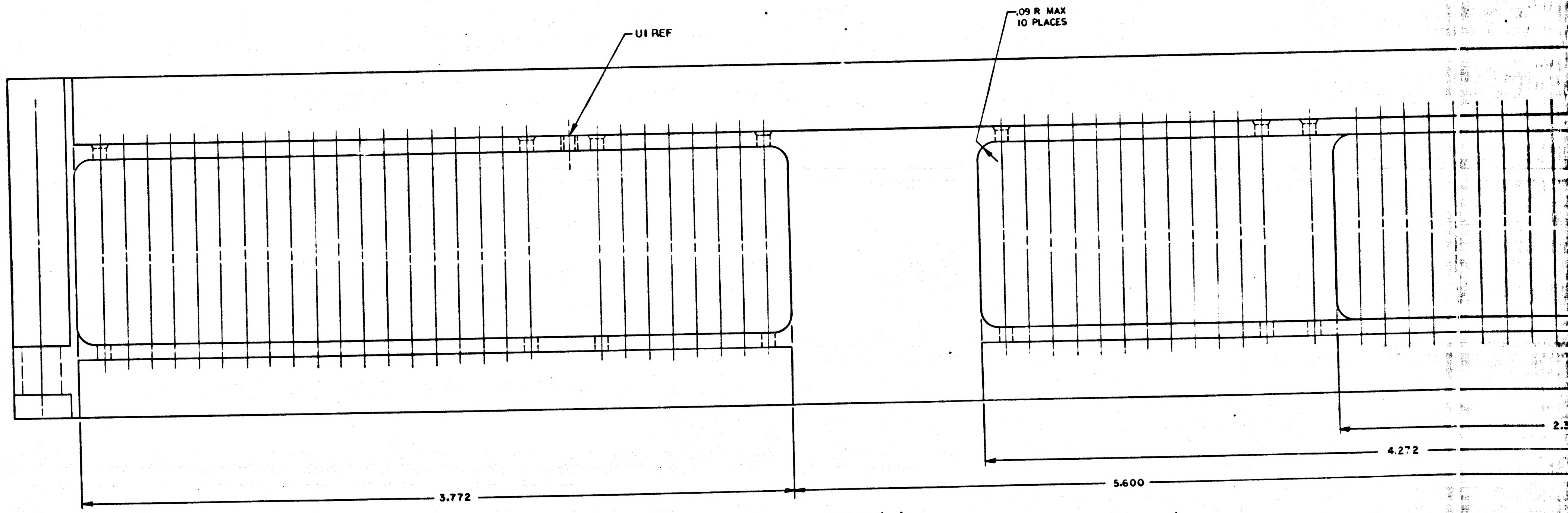
HOLE	X DIM.	Y DIM.	DIA	QTY
G5	6.030	.225	.088 .092	4
G6	5.080	.505		
G7	2.395	.925		
G8	.020	.260		
H1	6.555	.475	.108 .112	1
J1	6.920	.690	.669 .676 SEE SECT A-A	2
J2	5.545	.690		
K1	1.470	.600	SEE DETAIL B	1
L1	1.095	.730	SEE DETAIL A	1
M1	6.450	−.070	.115 .119 DIA X.30 DP FS & CSK 60° X.155 DIA	2
M2	1.540	.530		
N1	5.075	.865	.115 .119 DIA X.30 DP & CSK 60° X.155 DIA	5
N2	3.920	.935		
N3	2.090	.910		
N4	1.545	.920		
N5	−.130	.265		
P1	6.045	.360	.058 .062	5
P2	2.695	.710		
P3	1.275	.645		
P4	.240	.260		
P5	5.640	.295		
R1	2.290	.585	.255 .262	3
R2	2.685	.280		
R3	2.215	.090		
S1	4.400	.420	.435 .442	1
T1	6.240	.715	.321 .328	3
T2	7.595	.645		
T3	3.470	.130		
U1	4.981	1.146	NO.2(.086)-56NC-2B SEE NOTE 6	1


A
.250
.19 R
.06 R
5 PLACES
.200
.550 DIA
3 PLACES
T2
REF
T1
REF
A2
REF
A3 REF
A1
REF
M1
.765
.035
.06 R
2 PLACES
2.655
.730 DIA
T3 REF
.156 R
5 PLACES
⊕.005 DIA
A4
REF
M2
15°
L1 REF
.39
CHAM 45° X.06
A5 REF
.150
4 PLACES
.500 DIA
3 PLACES
1.120
3.015
6.720

C

B

4H


U1 REF
.09 R MAX
10 PLACES
3.772
5.600
4.272
2.3

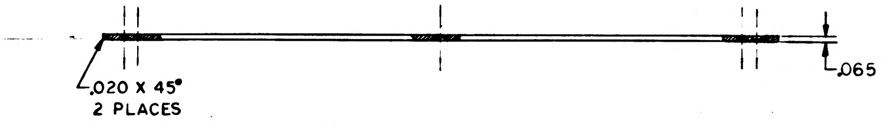
VIEW A-A

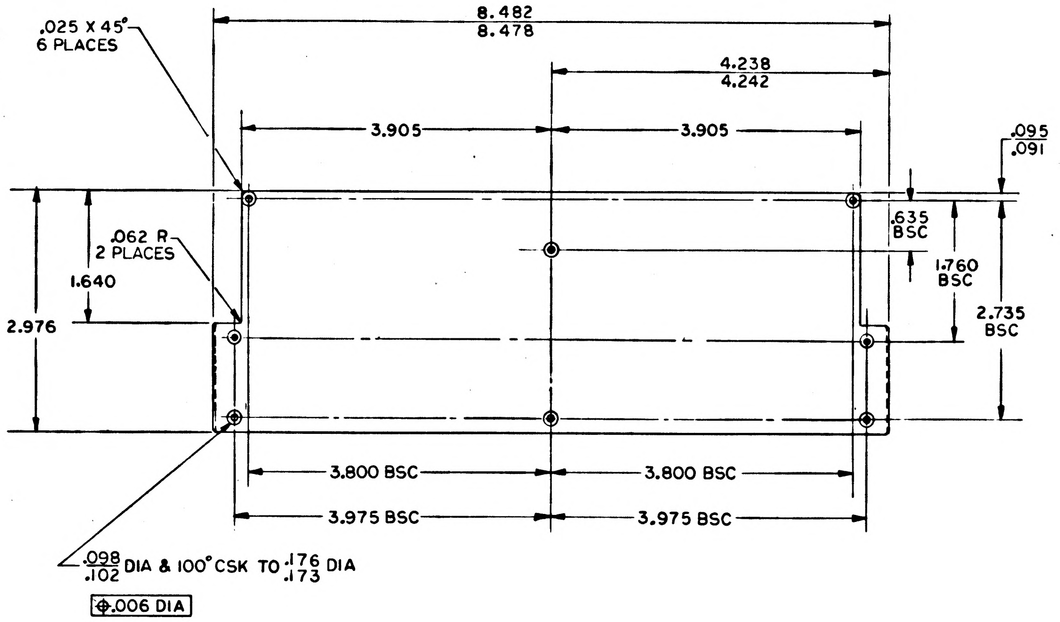
NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. REMOVE BURRS AND SHARP EDGES .005/.015
3. MATERIAL: MAGNESIUM ZK60A-T5 PER QQ-M-31, TEMP 5
4. ANODIZE PER MIL-M-45202, TYPE I, CLASS C
5. ALL SURFACES 125✓ UNLESS OTHERWISE SPECIFIED
6. TAP HOLE AFTER ANODIZE. COAT PER ND1002040
7. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .02 MAX
8. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

A

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED


.020 X 45°
2 PLACES
.065


.025 X 45°
6 PLACES
8.482
8.478
4.238
4.242
3.905
3.905
.095
.091
.062 R
2 PLACES
1.640
2.976
.635
BSC
1.760
BSC
2.735
BSC
3.800 BSC
3.800 BSC
3.975 BSC
3.975 BSC
.098
.102 DIA & 100° CSK TO .176
.173 DIA
⌖.006 DIA

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. REMOVE BURRS AND SHARP EDGES .005/.015
3. ALL SURFACES 125√
4. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP 6
5. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
6. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .010 MAX
7. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003059	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON

FRACTIONS	DECIMALS	ANGLES
±	±.005	± 1°

DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 4

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	J. A. Zaffini	21 APR 65
CHECKED	[illegible]	27 MAY 65
APPROVED	[illegible]	28 MAY 65
APPROVED	Eldon C. Hall	1 June 65
APPROVED MIT	W Kupfer	Jun 65
APPROVED MSC	[illegible]	6/8/65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

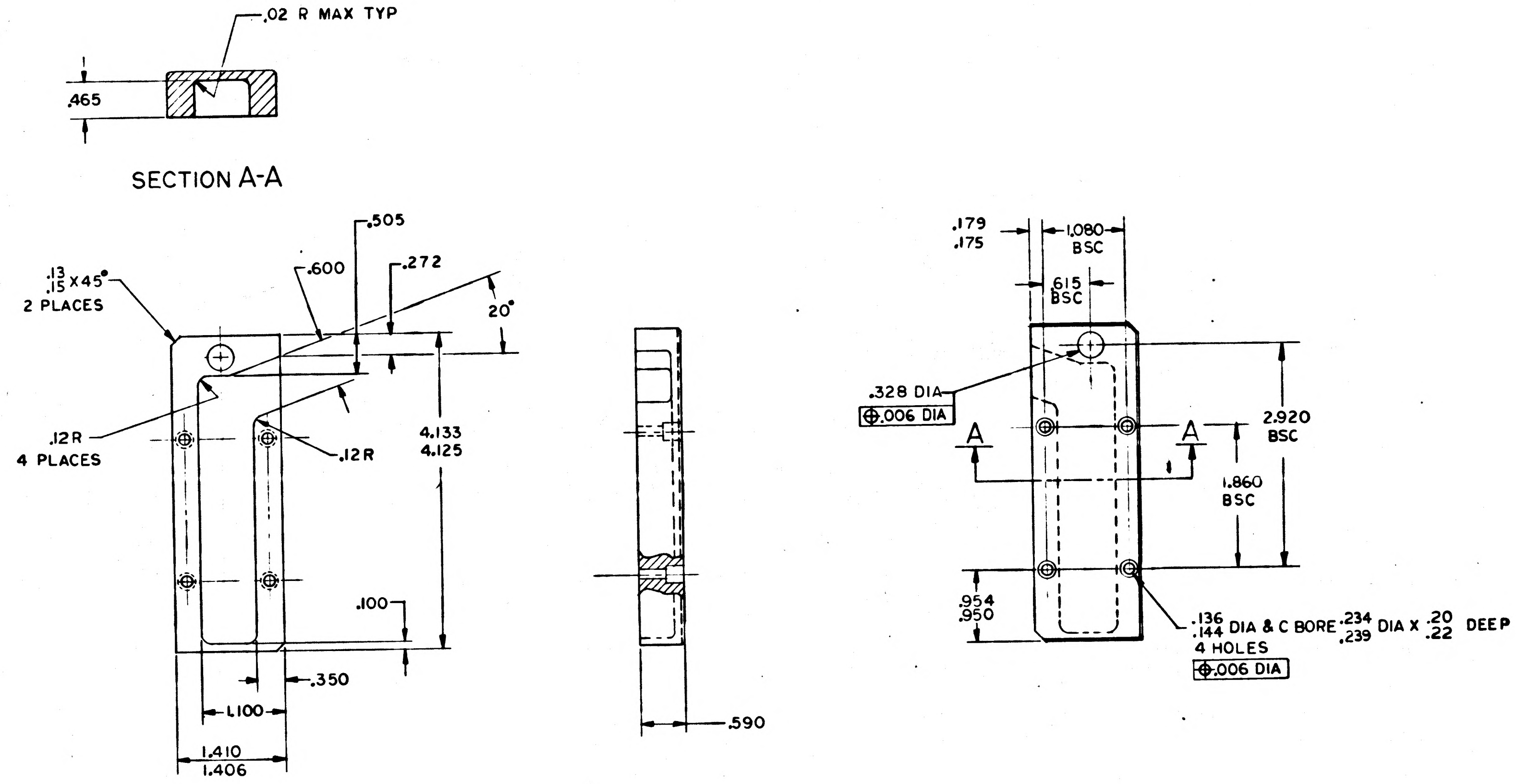
COVER
INTERCONNECTION HEADER
FIXED MEMORY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2004107
SCALE 1/1		SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20617	LJS			



.02 R MAX TYP
.465
SECTION A-A
.505
.600
.272
20°
.13
.15 X 45°
2 PLACES
.12R
4 PLACES
.12R
4.133
4.125
.100
.350
1.100
1.410
1.406
.590
.179
.175
1.080
BSC
.615
BSC
.328 DIA
⊕.006 DIA
A
A
2.920
BSC
1.860
BSC
.954
.950
.136
.144 DIA & C BORE .234
.239 DIA X .20
.22 DEEP
4 HOLES
⊕.006 DIA

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. REMOVE BURRS AND SHARP EDGES .005/.015
3. ALL SURFACES 125√
4. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP 6
5. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
6. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .010 MAX
7. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003059	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS .XX ± .01 .XXX ± .005 ANGLES ± 5°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 4

MASTER

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	J. a. Zaffini	21APR65
CHECKED		27APR65
APPROVED		MAY65
APPROVED	Eldon C Hall	1 June 65
APPROVED MIT		
APPROVED MSC		
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COVER
CONNECTOR B41
FIXED MEMORY

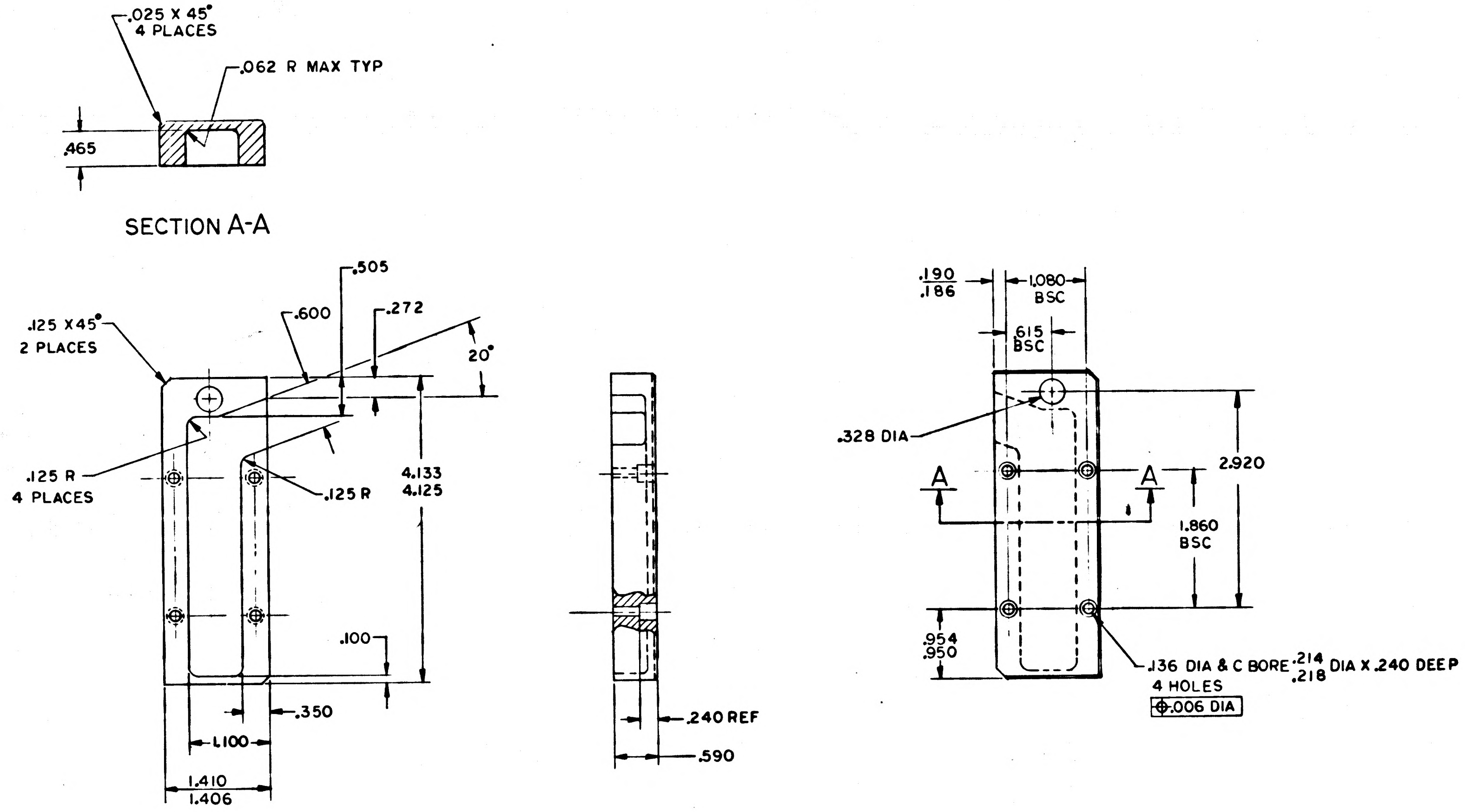
CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2004108

SCALE 1/1 SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED


.025 X 45°
4 PLACES
.062 R MAX TYP
.465
SECTION A-A
.505
.600
.272
20°
.125 X45°
2 PLACES
.125 R
4 PLACES
.125 R
4.133
4.125
.100
.350
1.100
1.410
1.406
.240 REF
.590
.190
.186
1.080
BSC
.615
BSC
.328 DIA
A
A
2.920
1.860
BSC
.954
.950
.136 DIA & C BORE .214 .218 DIA X .240 DEEP
4 HOLES
⌖ .006 DIA

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. REMOVE BURRS AND SHARP EDGES .005/.015
3. ALL SURFACES 125
4. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP 6
5. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
6. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .010 MAX
7. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003059	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 4

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J. a. Zaffini 21APR65
CHECKED
APPROVED
APPROVED Eldon C Hall
APPROVED MIT W Kupfer
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

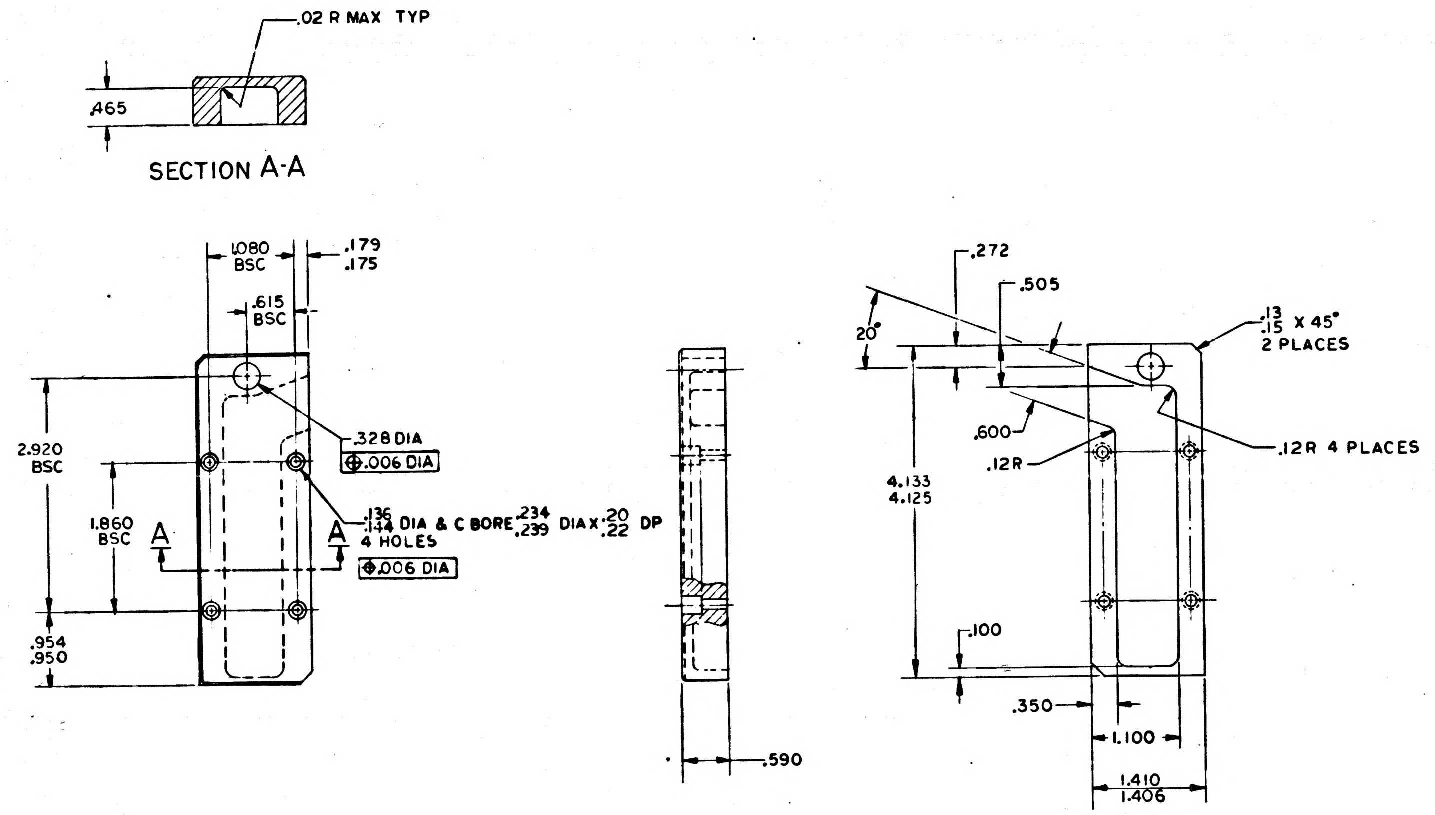
COVER
CONNECTOR B41
FIXED MEMORY

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2004108
SCALE 1/1
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20617	RTS.			WK


.02 R MAX TYP
.465
SECTION A-A
1.080 BSC
.179 .175
.615 BSC
2.920 BSC
1.860 BSC
.954 .950
A
A
.328 DIA
⌖.006 DIA
.136 .144 DIA & C BORE .234 .239 DIA X .20 .22 DP
4 HOLES
⌖.006 DIA
.590
.272
.505
20°
.13 .15 X 45°
2 PLACES
.600
.12R
.12R 4 PLACES
4.133 4.125
.100
.350
1.100
1.410 1.406

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. REMOVE BURRS AND SHARP EDGES .005/.015
3. ALL SURFACES 125√
4. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP 6
5. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
6. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .010 MAX
7. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
2003059	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —
DECIMALS XX ±.01 XXX ±.005
ANGLES ± 5°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 4

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

		DATE
DRAWN	J.A. Zaffini	21 APR 65
CHECKED		
APPROVED	Z.O.	
APPROVED	Eldon C Hall	
APPROVED MIT		
APPROVED MSC		6/8/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COVER
CONNECTOR B42
FIXED MEMORY

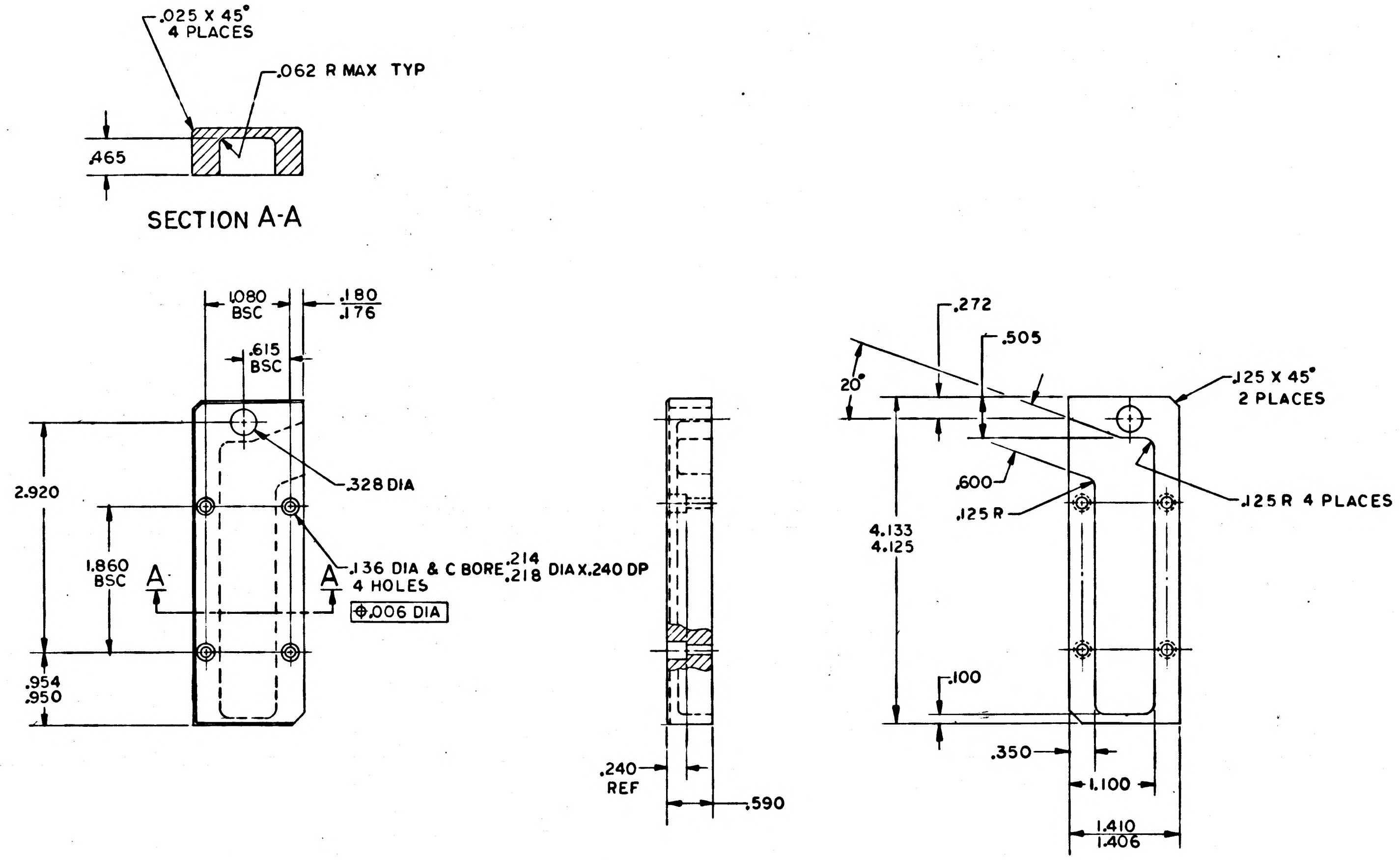
CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2004109

SCALE 1/1
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED


.025 X 45°
4 PLACES
.062 R MAX TYP
.465
SECTION A-A
1.080
BSC
.180
.176
.615
BSC
2.920
.328 DIA
1.860
BSC
A
A
.136 DIA & C BORE .214/.218 DIA X .240 DP
4 HOLES
⊕.006 DIA
.954
.950
.240
REF
.590
.272
.505
20°
.125 X 45°
2 PLACES
.600
.125 R
.125 R 4 PLACES
4.133
4.125
.100
.350
1.100
1.410
1.406

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. REMOVE BURRS AND SHARP EDGES .005/.015
3. ALL SURFACES 125/
4. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP 6
5. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
6. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .010 MAX
7. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003059	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 4

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J.A. Zaffini 21 APR 65
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC 6/8/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

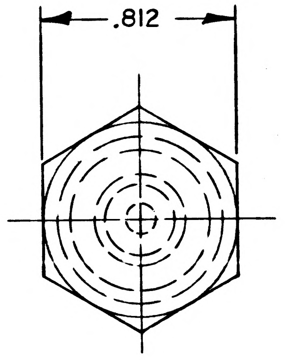
COVER
CONNECTOR B42
FIXED MEMORY

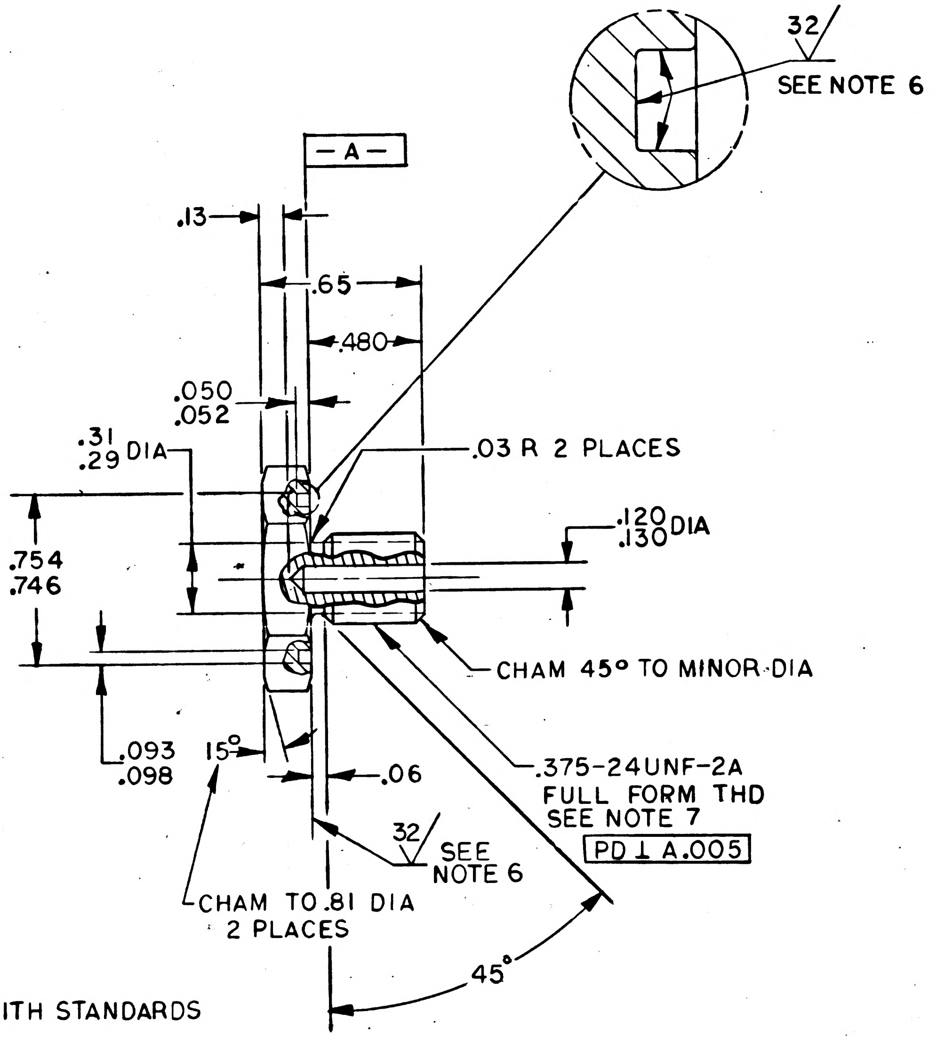
CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2004109
SCALE 1/1
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 21166

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED





NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: CRES PER QQ-S-763, CLASS 303, COND A
3. PASSIVATE PER MIL-F-14072, FINISH E300 TYPE II
4. REMOVE BURRS AND SHARP EDGES .005/.015
5. ALL SURFACES 125√, UNLESS OTHERWISE SPECIFIED
6. SURFACES SHALL BE FREE FROM LONGITUDINAL AND SPIRAL TOOL MARKS
7. THREADS SHALL CONFORM TO MIL-S-7742

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003100	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XX ± .01 .XXX ± .005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	E W Johnson	4/22/65
CHECKED	A. Lindstrom	8 July 65
APPROVED		
APPROVED	Eldon C Hall	20 July 65
APPROVED MIT		27 July 65
APPROVED MSC		7/7/6
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PLUG
MACHINE THREAD

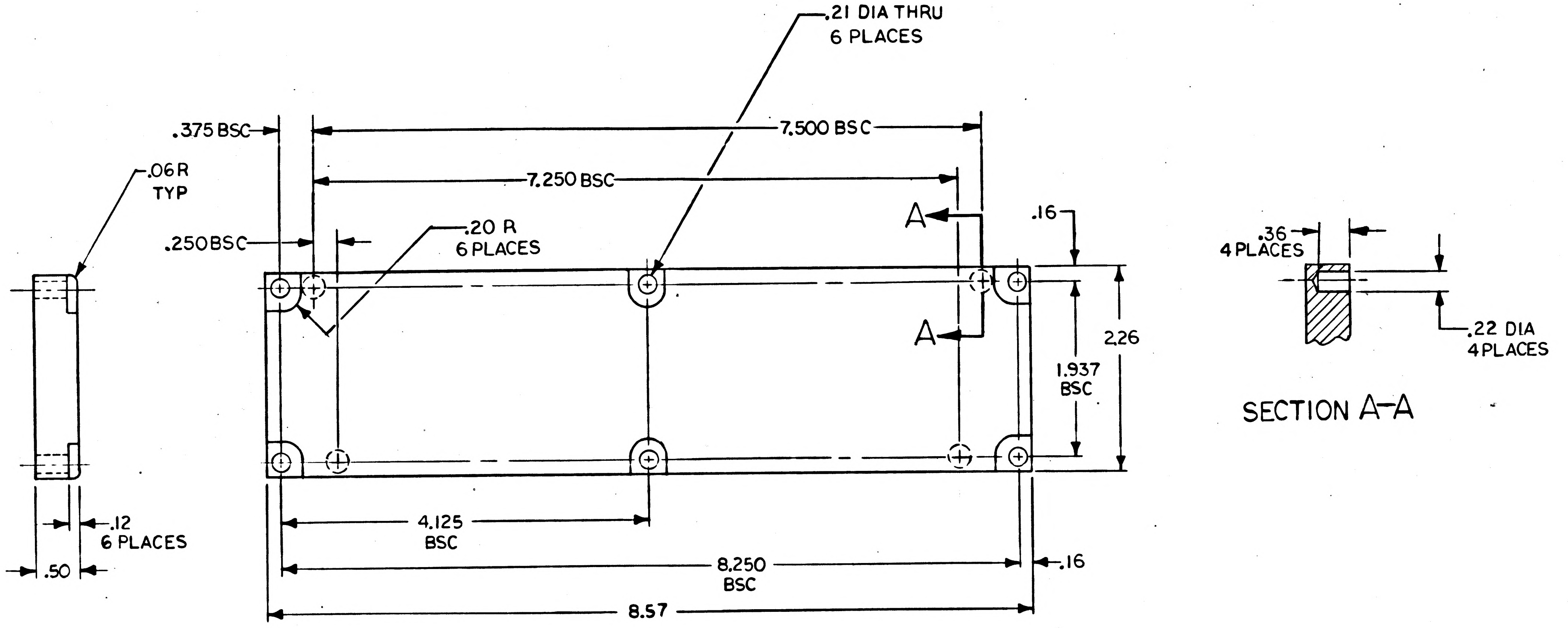
CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004110
SCALE 2/1		SHEET 1 OF 1

2004110

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 2/1/66

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: NYLON PER MIL-P-17091

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003100	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS XXX ±.005 XX ±.01 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN 23 APR 65
CHECKED 12 July 65
APPROVED
APPROVED Eldon C Hall 20 July 65
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COVER, GASKET
TRAY A

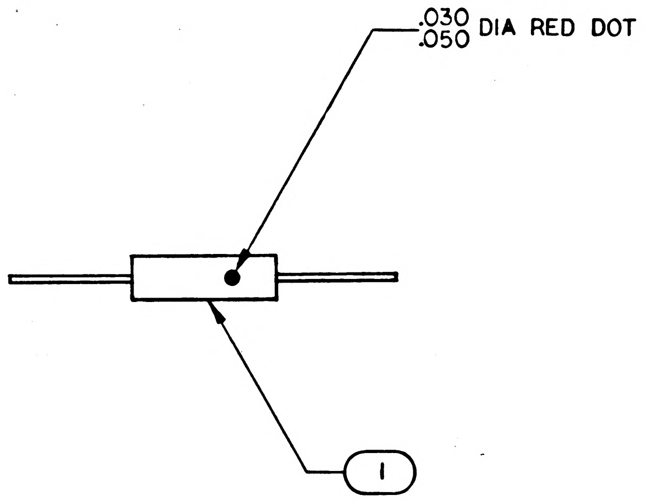
CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004111
SCALE 1/1
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19208

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

PART NO.	FIND NO. 1	MARKING INK
2004112-001	1006290	1006271-8
2004112-002	1006838	1006271-8



GENERAL REQUIREMENT:

UPON COMPLETION OF ALL REQUIREMENTS AS SPECIFIED IN ND1002267 ONLY THOSE DIODES FROM LOTS WHICH QUALIFY FOR FLIGHT HARDWARE UNDER THE PROVISIONS OF ND1002267 SHALL BE MARKED IN RED AS INDICATED IN THIS DOCUMENT

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

MASTER

1	SEE CHART	DIODE, ZENER	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ± —— ANGLES ± ——
DO NOT SCALE THIS DRAWING

MATERIAL
——

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	W. Munson	26 APR 65
CHECKED	R. Liedons	12 MAY 65
APPROVED	L D Hanley	18 May 65
APPROVED	Eldon C Hall	18 May 65
APPROVED MIT	M G Murley	18 May 65
APPROVED MSC	W Michael	5/18/65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DIODE, ZENER
(FLIGHT QUALIFIED)

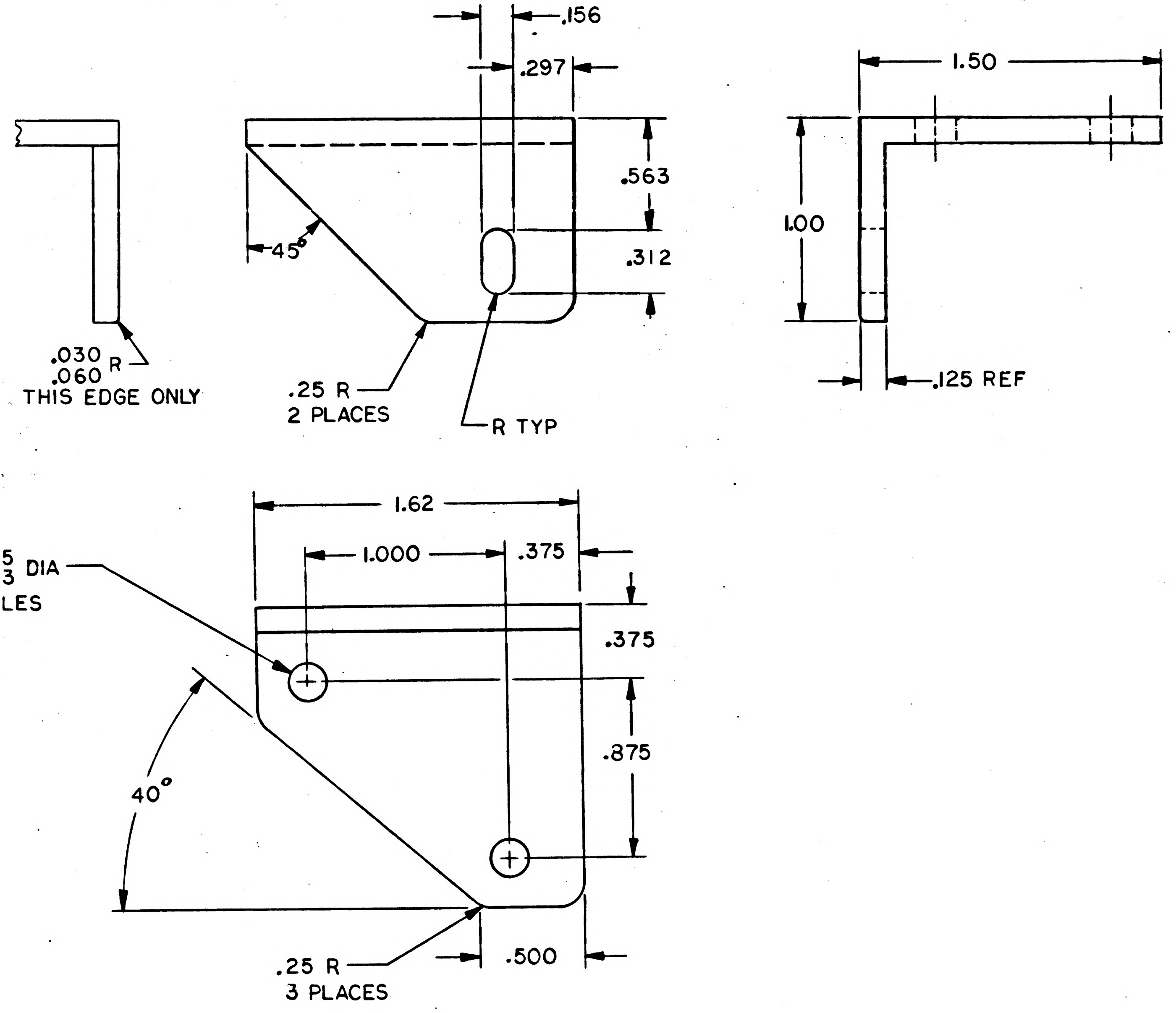
CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004112
SCALE NONE	——	SHEET 1 OF 1

2004112

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 21166

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL–D–70327
2. MATERIAL: .125 THK 6063-T5 ALUMINUM ALLOY, EXTRUDED ANGLE PER QQ–A–274
3. REMOVE BURRS AND BREAK SHARP EDGES .005/.015
4. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
5. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003100		
NEXT ASSY	USED ON	
APPLICATION		

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ±— DECIMALS .XXX ±.005 .XX ±.01 ANGLES ± 2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	Papia	26 Jun 65
CHECKED	A. Lindstrom	8 July 65
APPROVED		
APPROVED	Eldon C Hall	30 July 65
APPROVED MIT		27/7/65
APPROVED MSC		1/21/6
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BRACKET CABLE
AGC

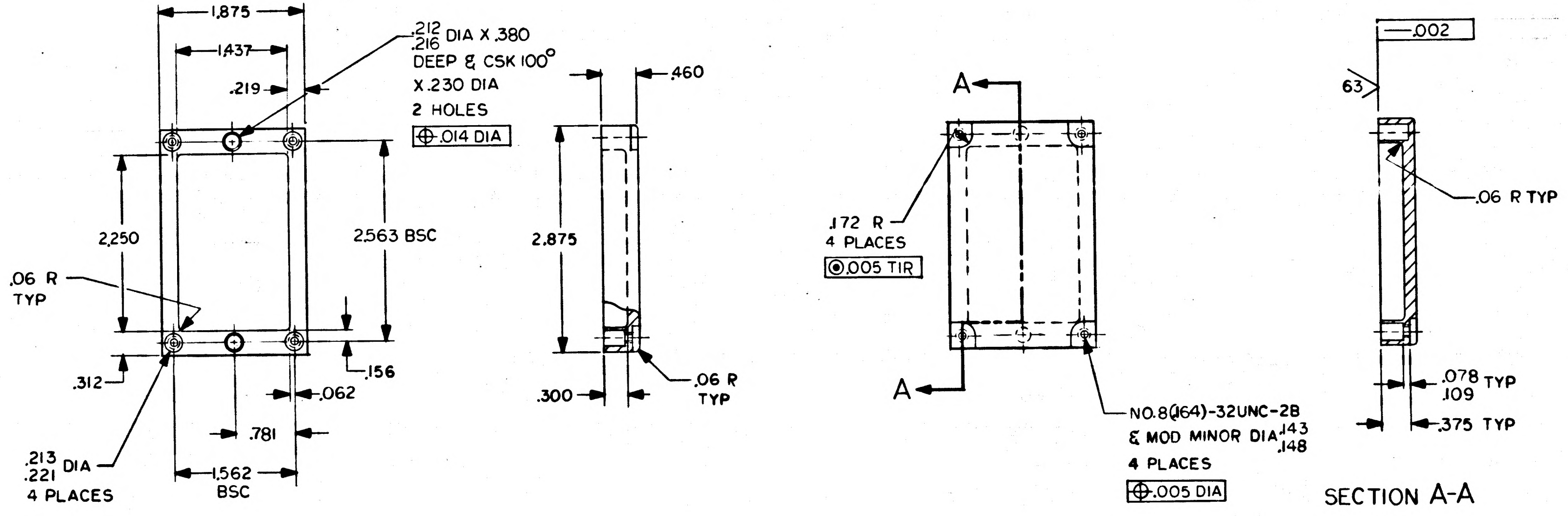
CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004113

SCALE 2/1 SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 21166

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED


1.875
1.437
.219
.212 .216 DIA X .380
DEEP & CSK 100°
X .230 DIA
2 HOLES
⊕ .014 DIA
2.250
2.563 BSC
.06 R TYP
.312
.156
.062
.781
1.562 BSC
.213 .221 DIA
4 PLACES
.460
2.875
.300
.06 R TYP
A
.172 R
4 PLACES
◎ .005 TIR
A
NO.8(.164)-32UNC-2B
& MOD MINOR DIA .143 .148
4 PLACES
⊕ .005 DIA
.002
63
.06 R TYP
.078 .109 TYP
.375 TYP
SECTION A-A

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: MAGNESIUM ALLOY ZK60A-T5 PER QQ-M-31, TEMP 5
3. FINISH: ANODIZE MIL-M-45202, TYPE I, CLASS C
4. REMOVE BURRS AND BREAK SHARP EDGES .005/.015
5. ALL SURFACES 125√ UNLESS OTHERWISE SPECIFIED

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2004115	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XXX ± .005 .XX ± .01 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	R. Romey	25 Jun 65
CHECKED	A. Lindstrom	12 Jul 65
APPROVED		
APPROVED	Eldon C Hall	29 July 65
APPROVED MIT	W Kupfer	27 Jul 65
APPROVED MSC		
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COVER, TEST CONNECTOR
AGC

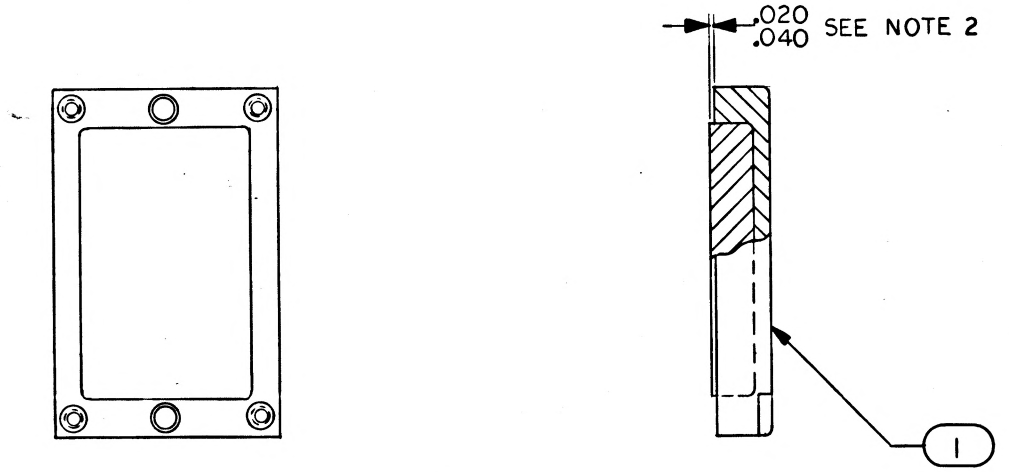
CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2004114

SCALE 1/1 SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 21166

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ENCAPSULATE WITH SILASTIC RUBBER PER ND1002009 METHOD C OR D

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	2004114	COVER, TEST CONNECTOR	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003100	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± ——— DECIMALS ± ——— ANGLES ± ———
DO NOT SCALE THIS DRAWING

MATERIAL ———

**MIT
INSTRUMENTATION LAB**
CAMBRIDGE, MASS.

DRAWN R. Roney 26 Apr 65
CHECKED A. Lindstrom 12 July 65
APPROVED
APPROVED Eldon C Hall 20 July 65
APPROVED MIT 27 Jul 65
APPROVED MSC 7/27/65
DATE

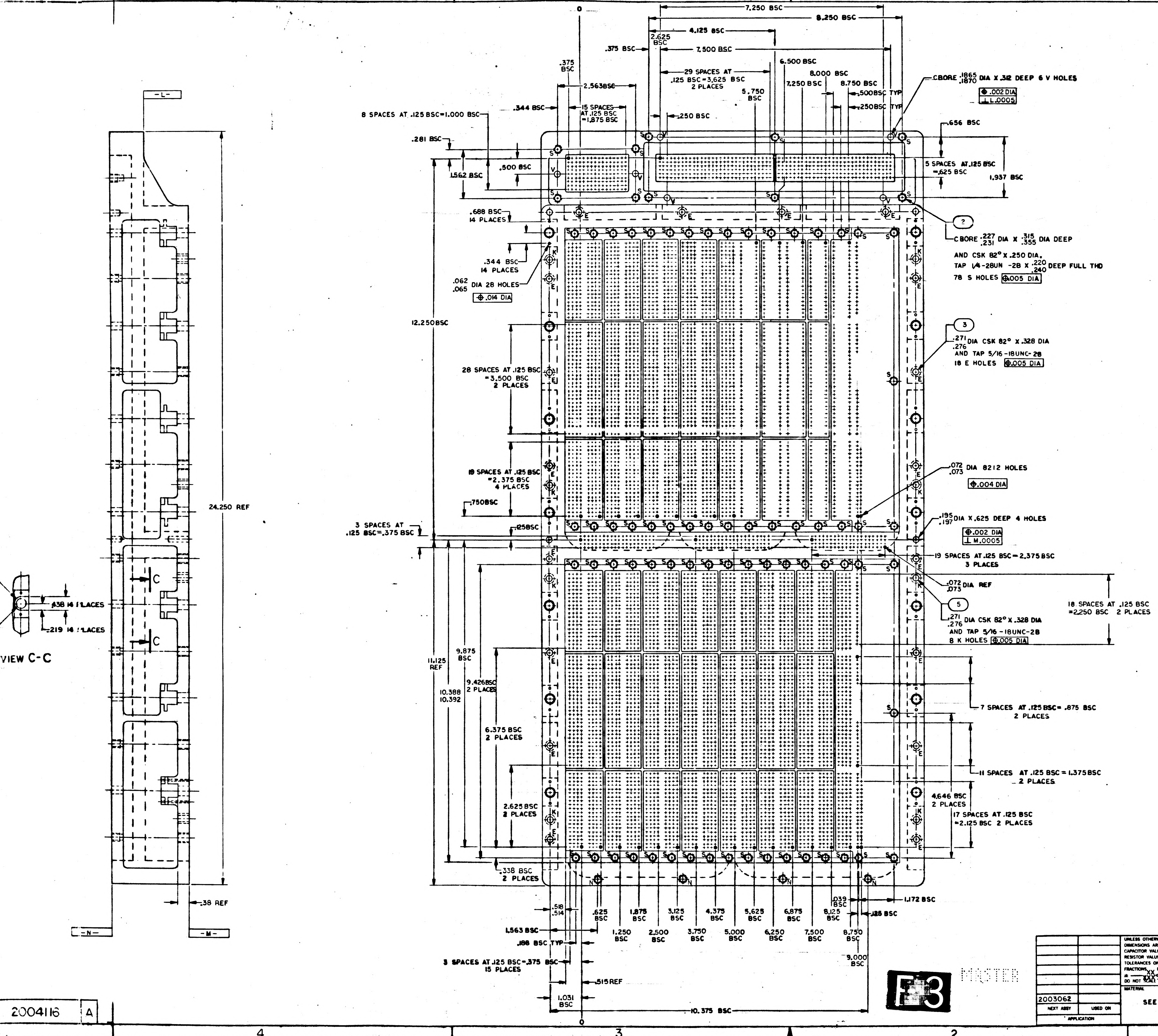
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COVER, POTTED
TEST CONNECTOR AGC

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004115

SCALE 1/1 ——— SHEET 1 OF 1

MASTER



4
3
2
1
D
C
B
A
7.250 BSC
8.250 BSC
4.125 BSC
2.625 BSC
.375 BSC
7.500 BSC
.375 BSC
6.500 BSC
29 SPACES AT .125 BSC=3.625 BSC 2 PLACES
8.000 BSC
7.250 BSC
8.750 BSC
5.750 BSC
.500BSC TYP
.250BSC TYP
2.563BSC
15 SPACES AT .125 BSC =1.875 BSC
.344 BSC
8 SPACES AT .125 BSC=1.000 BSC
.250 BSC
C BORE .1865 .1870 DIA X .312 DEEP 6 V HOLES
.002 DIA
⊥ L.0005
.656 BSC
5 SPACES AT .125 BSC =.625 BSC
1.937 BSC
.281 BSC
.500 BSC
1.562 BSC
.688 BSC 14 PLACES
C BORE .227 .231 DIA X .315 .355 DIA DEEP
AND CSK 82° X .250 DIA. TAP 1/4-28UN -2B X .220 .240 DEEP FULL THD
78 S HOLES .005 DIA
.344 BSC 14 PLACES
.062 .065 DIA 28 HOLES
.014 DIA
12.250BSC
3
.271 .276 DIA CSK 82° X .328 DIA AND TAP 5/16-18UNC-2B
18 E HOLES .005 DIA
28 SPACES AT .125 BSC =3.500 BSC 2 PLACES
.072 .073 DIA 8212 HOLES
.004 DIA
19 SPACES AT .125 BSC =2.375 BSC 4 PLACES
.750BSC
3 SPACES AT .125 BSC=.375 BSC
.125BSC
.195 .197 DIA X .625 DEEP 4 HOLES
.002 DIA
⊥ M.0005
19 SPACES AT .125 BSC=2.375 BSC 3 PLACES
.072 .073 DIA REF
5
.271 .276 DIA CSK 82° X .328 DIA AND TAP 5/16-18UNC-2B
8 K HOLES .005 DIA
18 SPACES AT .125 BSC =2.250 BSC 2 PLACES
24.250 REF
11.125 REF
9.875 BSC
10.388 10.392
9.426BSC 2 PLACES
6.375 BSC 2 PLACES
7 SPACES AT .125 BSC= .875 BSC 2 PLACES
11 SPACES AT .125 BSC = 1.375BSC 2 PLACES
4.646 BSC 2 PLACES
17 SPACES AT .125 BSC =2.125 BSC 2 PLACES
2.625 BSC 2 PLACES
.338 BSC 2 PLACES
.38 REF
-L-
-N-
-M-
C
C
.438 14 PLACES
.219 14 PLACES
VIEW C-C
.518 .514
.625 BSC
1.875 BSC
3.125 BSC
4.375 BSC
5.625 BSC
6.875 BSC
8.125 BSC
1.039 BSC
1.172 BSC
.125 BSC
1.563 BSC
1.250 BSC
2.500 BSC
3.750 BSC
5.000 BSC
6.250 BSC
7.500 BSC
8.750 BSC
9.000 BSC
.188 BSC TYP
3 SPACES AT .125 BSC=.375 BSC 15 PLACES
.515REF
1.031 BSC
10.375 BSC
0
S
V
E
K
N
F3
MASTER

REVISIONS 19219						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20285	E.J.	B	23 Jun 65	JMG M

8	NAS1394CA-3	INSERT, THREADED	5
2	NAS1394CA-4L	INSERT, THREADED, SELF-LOCKING	4
18	NAS1394CA-3L	INSERT, THREADED, SELF-LOCKING	3
108	1006702-5	INSERT, THREADED, SELF-LOCKING	2
1	2004116-001	TRAY A MACHINED	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
011	LIST OF MATERIALS		

2003062	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS XX ±.01 XXX ±.005 ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN C.B. [illegible] 13 APR 65
CHECKED R. Hong 5/13/65
APPROVED J. Dugan 5/13/65
APPROVED [illegible] 13 May 65
APPROVED MIT M G Morley 14 May 65
APPROVED MSC [illegible] 5/14/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRAY A
AGC

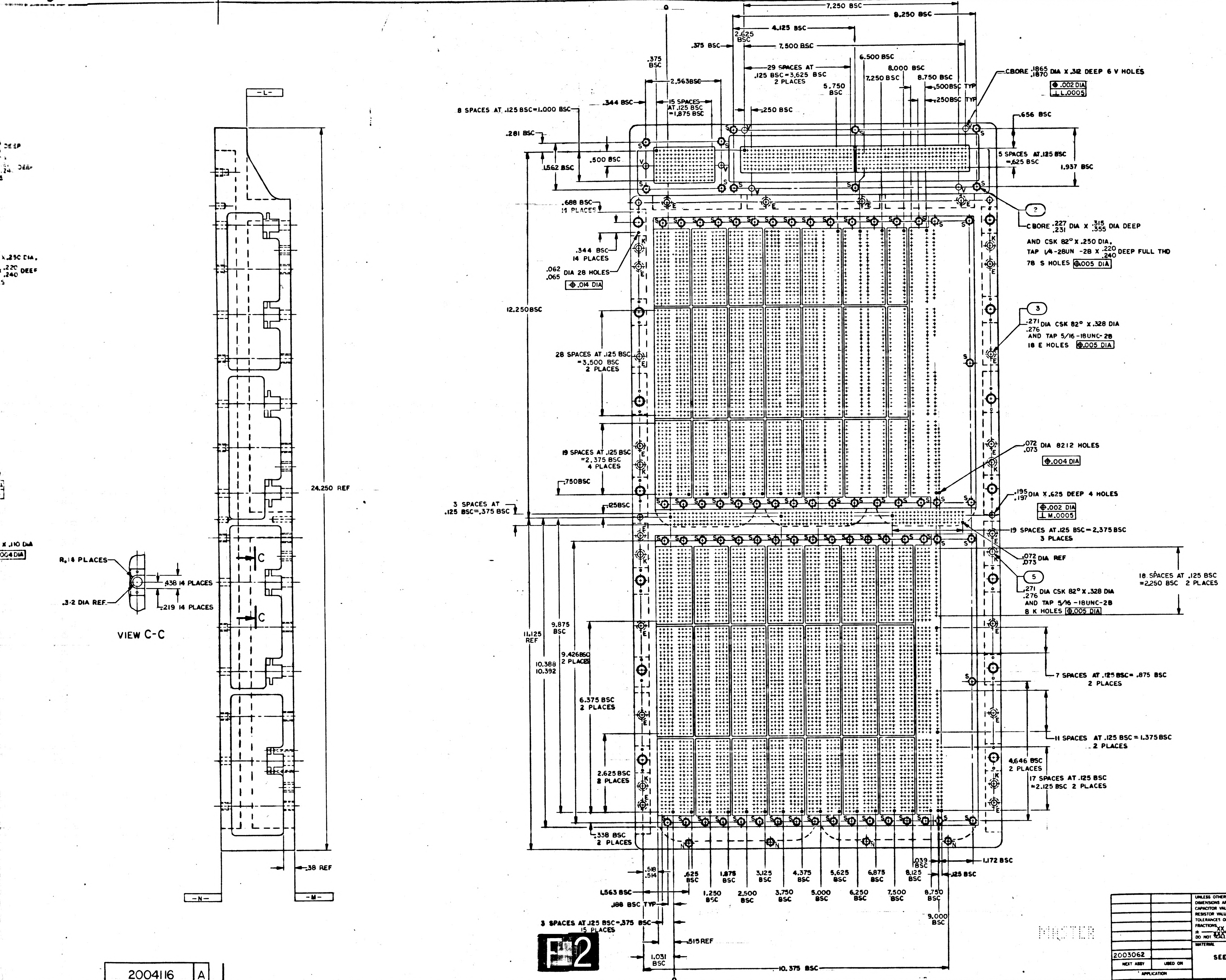
CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004116
SCALE 1/1
SHEET 1 OF 2

2004116 A

2004116 A

2X

REVISIONS 19219						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20285			23 Jun 65	



-L-
24.250 REF
.38 REF
-N-
-M-
R,14 PLACES
.312 DIA REF
.438 14 PLACES
.219 14 PLACES
C
C
VIEW C-C
0
7.250 BSC
8.250 BSC
4.125 BSC
2.625 BSC
.375 BSC
7.500 BSC
.375 BSC
6.500 BSC
29 SPACES AT .125 BSC=3.625 BSC 2 PLACES
8.000 BSC
8.750 BSC
7.250 BSC
5.750 BSC
2.563BSC
.500BSC TYP
.250BSC TYP
15 SPACES AT .125 BSC =1.875 BSC
.344 BSC
.250 BSC
8 SPACES AT .125 BSC=1.000 BSC
CBORE .1865/.1870 DIA X .312 DEEP 6 V HOLES
⌖ .002 DIA
⊥ L.0005
.656 BSC
5 SPACES AT .125 BSC =.625 BSC
1.937 BSC
.281 BSC
.500 BSC
1.562 BSC
.688 BSC 14 PLACES
2
CBORE .227/.231 DIA X .315/.355 DIA DEEP
AND CSK 82° X .250 DIA,
TAP 1/4-28UN -2B X .220/.240 DEEP FULL THD
78 S HOLES ⌖.005 DIA
.344 BSC 14 PLACES
.062/.065 DIA 28 HOLES
⌖ .014 DIA
12.250BSC
3
.271/.276 DIA CSK 82° X .328 DIA
AND TAP 5/16-18UNC-2B
18 E HOLES ⌖.005 DIA
28 SPACES AT .125 BSC =3.500 BSC 2 PLACES
.072/.073 DIA 8212 HOLES
⌖.004 DIA
19 SPACES AT .125 BSC =2.375 BSC 4 PLACES
.750BSC
.195/.197 DIA X .625 DEEP 4 HOLES
⌖.002 DIA
⊥ M.0005
3 SPACES AT .125 BSC=.375 BSC
.125BSC
19 SPACES AT .125 BSC=2.375 BSC 3 PLACES
.072/.073 DIA REF
18 SPACES AT .125 BSC =2.250 BSC 2 PLACES
5
.271/.276 DIA CSK 82° X .328 DIA
AND TAP 5/16-18UNC-2B
8 K HOLES ⌖.005 DIA
9.875 BSC
11.125 REF
9.426BSC 2 PLACES
10.388/10.392
7 SPACES AT .125 BSC= .875 BSC 2 PLACES
6.375 BSC 2 PLACES
11 SPACES AT .125 BSC = 1.375BSC 2 PLACES
4.646 BSC 2 PLACES
2.625 BSC 2 PLACES
17 SPACES AT .125 BSC =2.125 BSC 2 PLACES
.338 BSC 2 PLACES
.039 BSC
1.172 BSC
.518/.514
.625 BSC
1.875 BSC
3.125 BSC
4.375 BSC
5.625 BSC
6.875 BSC
8.125 BSC
.125 BSC
1.563 BSC
1.250 BSC
2.500 BSC
3.750 BSC
5.000 BSC
6.250 BSC
7.500 BSC
8.750 BSC
.188 BSC TYP
9.000 BSC
3 SPACES AT .125 BSC=.375 BSC 15 PLACES
.515REF
1.031 BSC
10.375 BSC
0
S
V
E
K
N
F2

2004116	A

8	NAS1394CA-3	INSERT, THREADED	5
2	NAS1394CA-4L	INSERT, THREADED, SELF-LOCKING	4
18	NAS1394CA-3L	INSERT, THREADED, SELF-LOCKING	3
108	1006702-5	INSERT, THREADED, SELF-LOCKING	2
1	2004116-001	TRAY A MACHINED	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
011	LIST OF MATERIALS		

2003062	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS XX ±.01 XXX ±.005 ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

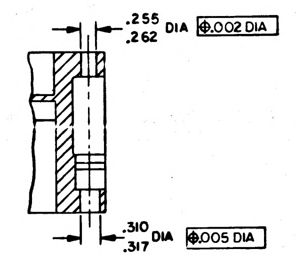
DRAWN	C.B.	APR 65
CHECKED	R.	5/17/65
APPROVED		
APPROVED		
APPROVED MIT	M.G.	May 65
APPROVED MSC		
		DATE

TRAY A
AGC

CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2004116
SCALE 1/1		SHEET 1 OF 2

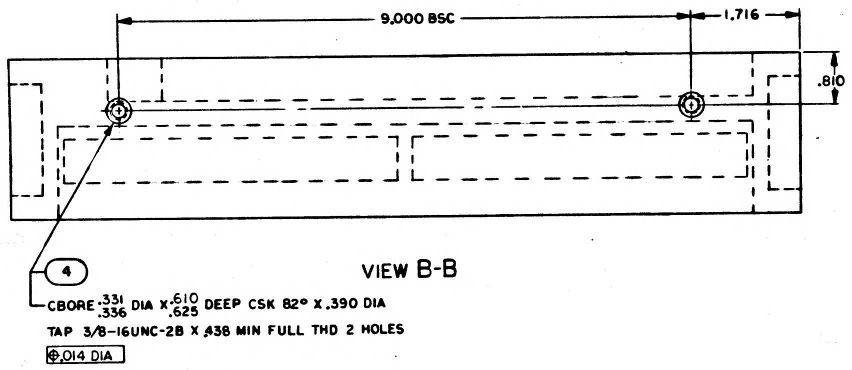
2004116 A

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.



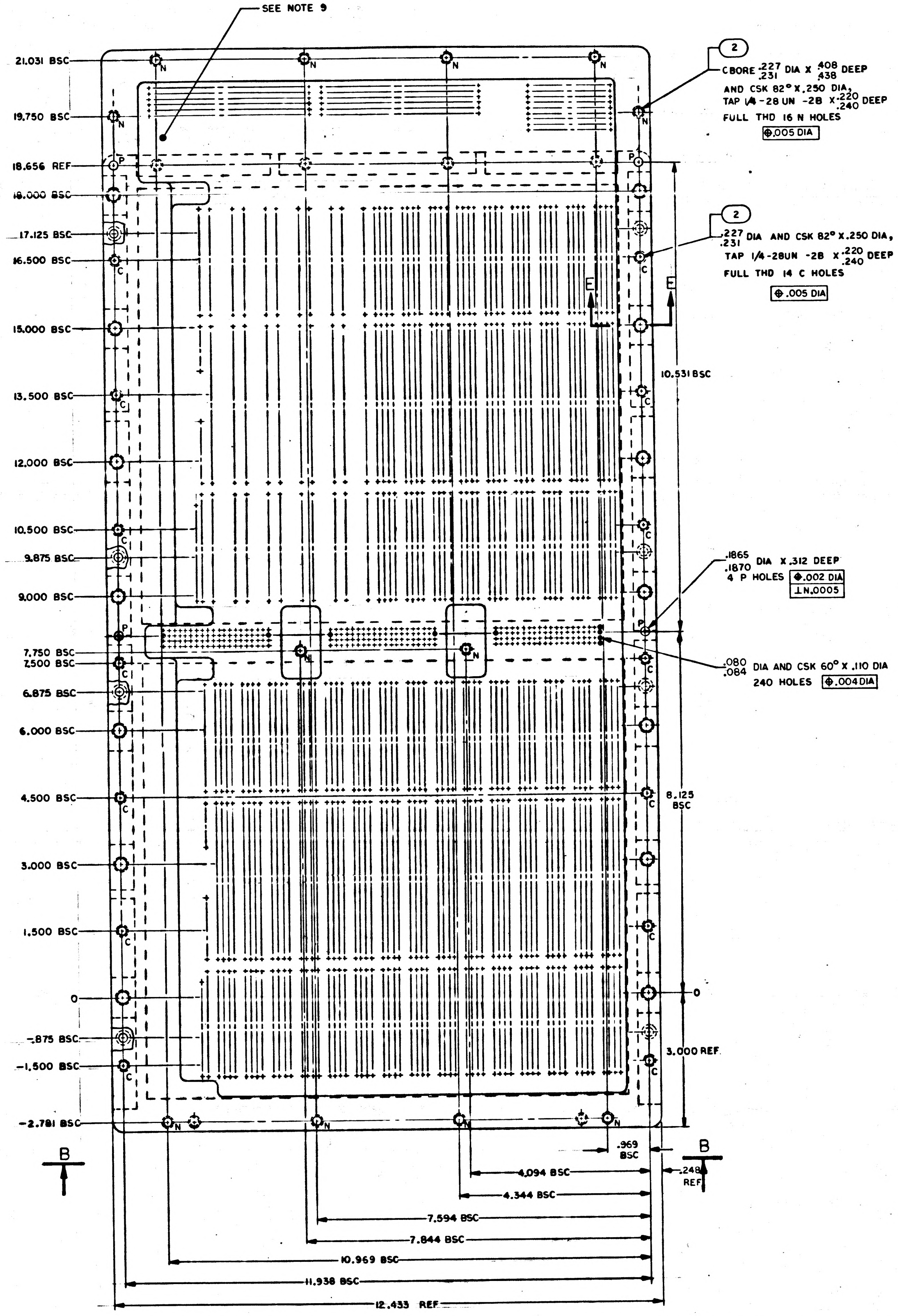
.255 .262 DIA ⊕.002 DIA
.310 .317 DIA ⊕.005 DIA

SECTION E-E
14 PLACES

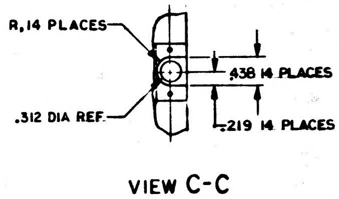


9.000 BSC
1.716
.810
4
CBORE .331 .336 DIA X .610 .625 DEEP CSK 82° X .390 DIA
TAP 3/8-16UNC-2B X .438 MIN FULL THD 2 HOLES
⊕.014 DIA

VIEW B-B

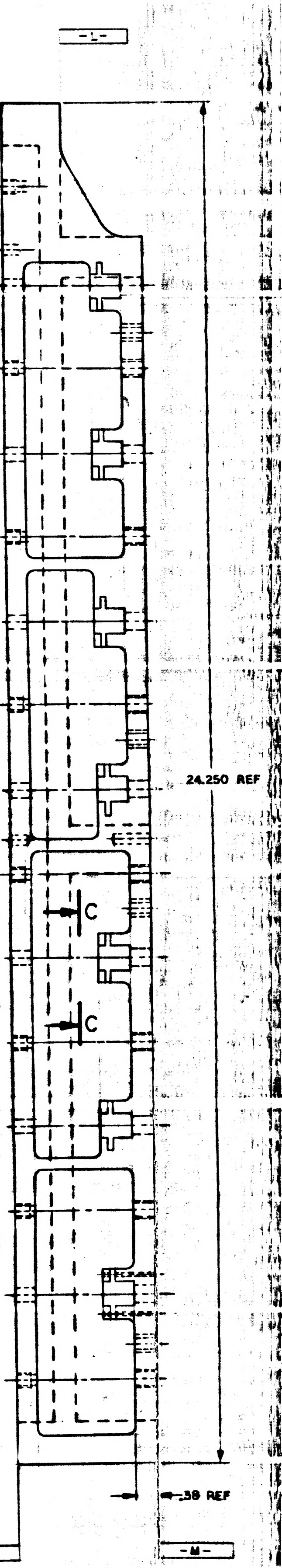


SEE NOTE 9
21.031 BSC
19.750 BSC
18.656 REF
18.000 BSC
17.125 BSC
16.500 BSC
15.000 BSC
13.500 BSC
12.000 BSC
10.500 BSC
9.875 BSC
9.000 BSC
7.750 BSC
7.500 BSC
6.875 BSC
6.000 BSC
4.500 BSC
3.000 BSC
1.500 BSC
0
-.875 BSC
-1.500 BSC
-2.781 BSC
N
P
C
E
2
CBORE .227 .231 DIA X .408 .438 DEEP
AND CSK 82° X .250 DIA,
TAP 1/4-28 UN -2B X .220 .240 DEEP
FULL THD 16 N HOLES
⊕.005 DIA
2
.227 .231 DIA AND CSK 82° X .250 DIA,
TAP 1/4-28UN -2B X .220 .240 DEEP
FULL THD 14 C HOLES
⊕ .005 DIA
10.531 BSC
.1865 .1870 DIA X .312 DEEP
4 P HOLES ⊕.002 DIA ⊥N.0005
.080 .084 DIA AND CSK 60° X .110 DIA
240 HOLES ⊕.004 DIA
8.125 BSC
0
3.000 REF
B
B
.969 BSC
.248 REF
4.094 BSC
4.344 BSC
7.594 BSC
7.844 BSC
10.969 BSC
11.938 BSC
12.433 REF



R,14 PLACES
.312 DIA REF
.438 14 PLACES
.219 14 PLACES

VIEW C-C



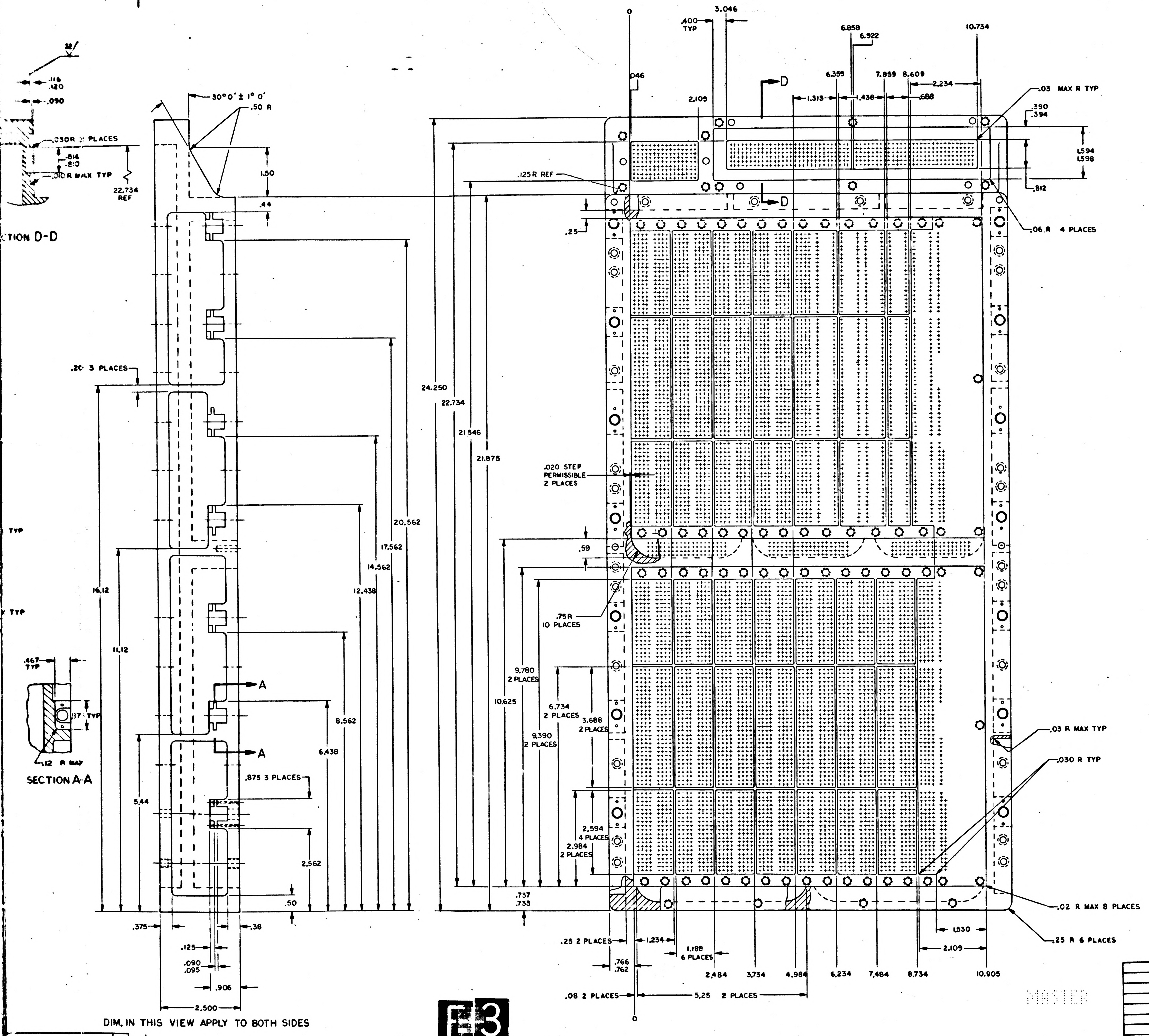
-L-
24.250 REF
C
C
.38 REF
-N-
-M-

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATL: 6061-T6 AL PER QQ-A-250/11, TEMP T6
3. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3 BEFORE INSTALLING FIND NO. 2, 3, 4 AND 5
4. ALL SURFACES 125/ UNLESS OTHERWISE SPECIFIED
5. REMOVE BURRS AND SHARP EDGES .005/.015
6. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII .125
7. INSTALL FIND NO. 2, 3, 4 AND 5 PER ND1002121
8. COAT THREADS OF FIND NO. 2, 3, 4 AND -5 WITH MIL-P-8585, COLOR YELLOW
9. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019 AND SERIALIZE PER ND1002023 WHERE SHOWN

F1

2004116 A

REVISIONS 1921						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20285			25 65	



4
3
2
1
D
C
B
A
TION D-D
SECTION A-A
.116
.120
.090
.030R 2 PLACES
.814
.810
.010R MAX TYP
22.734 REF
30° 0' ± 1° 0'
.50 R
1.50
.44
.20 3 PLACES
.467 TYP
.17 TYP
.12 R MAX
16.12
11.12
5.44
20.562
17.562
14.562
12.438
8.562
6.438
2.562
.875 3 PLACES
.50
.375
.38
.125
.090
.095
.906
2.500
DIM. IN THIS VIEW APPLY TO BOTH SIDES
0
3.046
.400 TYP
6.858
6.922
10.734
.046
6.359
7.859
8.609
2.109
1.313
1.438
.688
2.234
.03 MAX R TYP
.390
.394
1.594
1.598
.812
.125R REF
.06 R 4 PLACES
.25
24.250
22.734
21.546
21.875
.020 STEP PERMISSIBLE 2 PLACES
.59
.75R 10 PLACES
9.780 2 PLACES
10.625
6.734 2 PLACES
3.688 2 PLACES
9.390 2 PLACES
2.594 4 PLACES
2.984 2 PLACES
.737
.733
.03 R MAX TYP
.030 R TYP
.02 R MAX 8 PLACES
.25 R 6 PLACES
1.530
2.109
.25 2 PLACES
1.234
1.188 6 PLACES
.766
.762
2.484
3.734
4.984
6.234
7.484
8.734
10.905
.08 2 PLACES
5.25 2 PLACES
D
A

F3

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN R. E. [illegible] 26 APR 65
CHECKED P. Hong 5/17/65
APPROVED [illegible]
APPROVED [illegible] 18 May 65
APPROVED MIT [illegible] 18 May 65
APPROVED MSC [illegible] 5/18/65
DATE

TRAY A
AGC

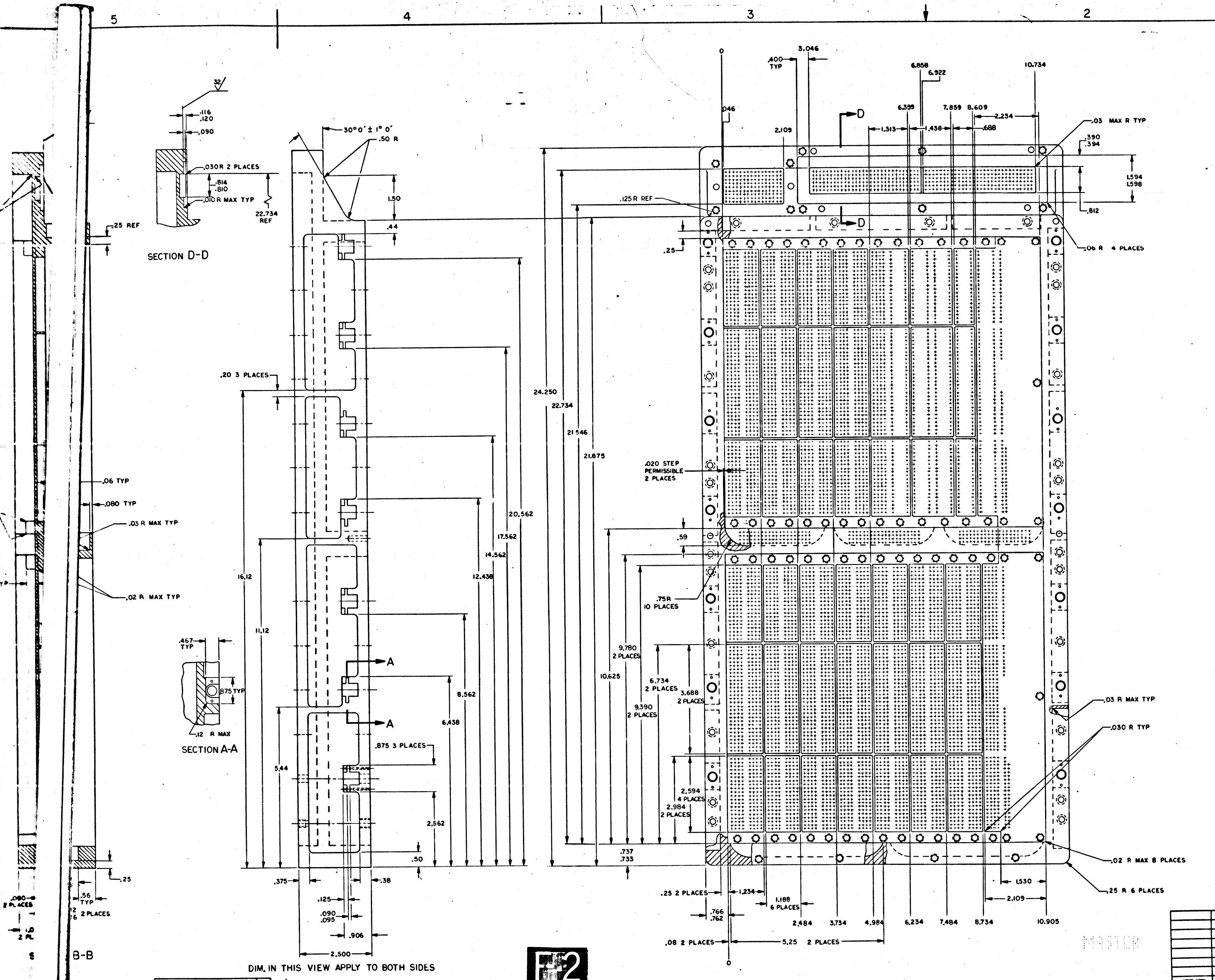
CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2004116
SCALE 1/1		SHEET 2 OF 2

2004116 A

2004116 A

21

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20285				



5
4
3
2
1
32
.116
.120
.090
.030R 2 PLACES
.814
.810
.010 R MAX TYP
22.734 REF
SECTION D-D
.25 REF
30°0' ± 1° 0'
.50 R
1.50
.44
.20 3 PLACES
24.250
22.734
21.546
21.875
20.562
17.562
14.562
12.438
16.12
11.12
8.562
6.438
5.44
2.562
.50
.875 3 PLACES
A
A
.375
.38
.125
.090
.095
.906
2.500
DIM. IN THIS VIEW APPLY TO BOTH SIDES
.06 TYP
.080 TYP
.03 R MAX TYP
.02 R MAX TYP
.467 TYP
.875 TYP
.12 R MAX
SECTION A-A
.25
.56 TYP
2 PLACES
.080
2 PLACES
1.0
2 PL
B-B
0
.400 TYP
3.046
.046
2.109
D
D
6.858
6.922
6.359
7.859
8.609
10.734
1.313
1.438
.688
2.234
.03 MAX R TYP
.390
.394
1.594
1.598
.812
.125 R REF
.06 R 4 PLACES
.25
.020 STEP PERMISSIBLE 2 PLACES
.59
.75R 10 PLACES
9.780 2 PLACES
10.625
6.734 2 PLACES
3.688 2 PLACES
9.390 2 PLACES
2.594 4 PLACES
2.984 2 PLACES
.737
.733
.03 R MAX TYP
.030 R TYP
.02 R MAX 8 PLACES
.25 R 6 PLACES
.25 2 PLACES
1.234
1.188 6 PLACES
.766
.762
2.484
3.734
4.984
6.234
7.484
8.734
10.905
1.530
2.109
.08 2 PLACES
5.25 2 PLACES
0
F2
MASTER

2004116 A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

NEXT ASSY | USED ON
APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

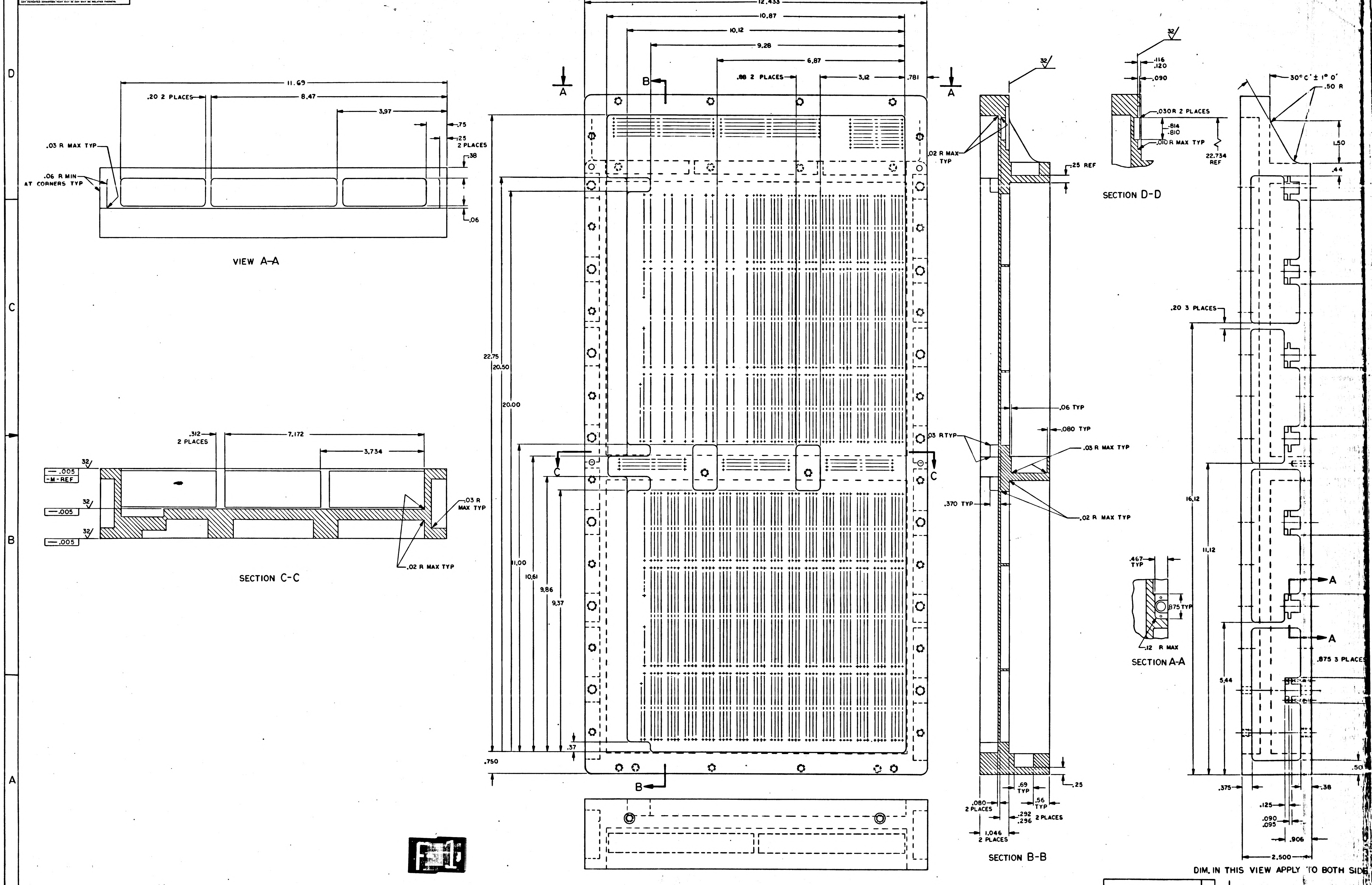
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN R.B. [illegible] 26 APR 65
CHECKED P. Hong 5/13/65
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

TRAY A
AGC

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004116
SCALE 1/1
SHEET 2 of 2

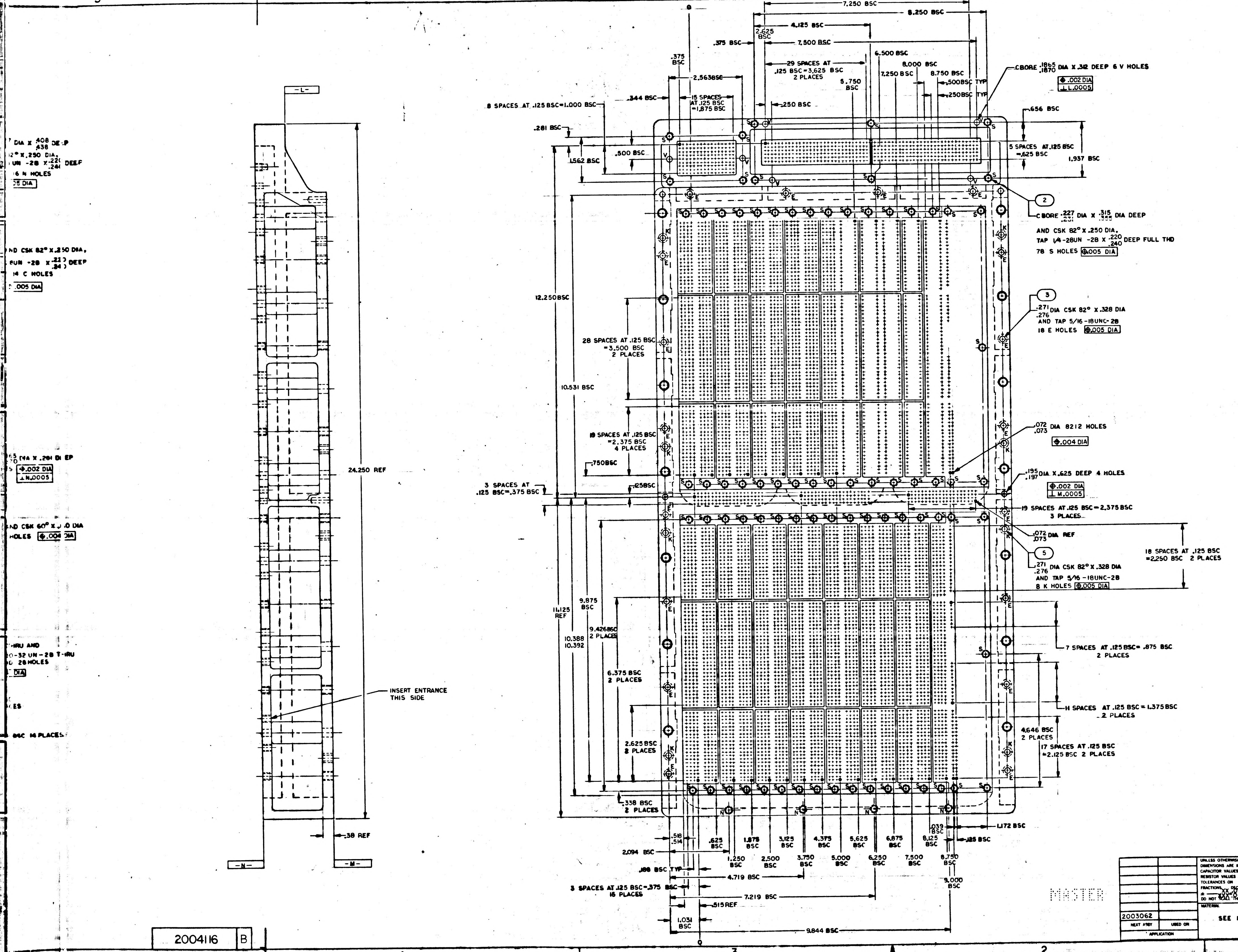
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


8
7
6
5
D
C
B
A
11.69
.20 2 PLACES
8.47
3.97
.75
.25
2 PLACES
.38
.03 R MAX TYP
.06 R MIN AT CORNERS TYP
.06
VIEW A-A
.312
2 PLACES
7.172
3.734
.005
-M-REF
.005
.005
32
.03 R MAX TYP
.02 R MAX TYP
SECTION C-C
12.433
10.87
10.12
9.28
6.87
.88 2 PLACES
3.12
.781
A
B
C
22.75
20.50
20.00
11.00
10.61
9.86
9.37
.37
.750
.02 R MAX TYP
.25 REF
.06 TYP
.080 TYP
.03 R TYP
.03 R MAX TYP
.370 TYP
.02 R MAX TYP
.25
.69 TYP
.56 TYP
.080 2 PLACES
.292
.296 2 PLACES
1.046 2 PLACES
SECTION B-B
.116
.120
.090
.030R 2 PLACES
.814
.810
.010 R MAX TYP
22.734 REF
SECTION D-D
30°C' ± 1° 0'
.50 R
1.50
.44
.20 3 PLACES
16.12
11.12
5.44
.467 TYP
.875 TYP
.12 R MAX
SECTION A-A
.875 3 PLACES
.50
.375
.125
.38
.090
.095
.906
2.500
DIM. IN THIS VIEW APPLY TO BOTH SIDE

217

2004116 A

REVISIONS 19219						
SYM	ZONE	DESCRIPTION	DR	CHK		
A		REVISED PER TDRR 20285				
B		REVISED PER TDRR 21251				



7 DIA X .408/.438 DEEP
82° X .250 DIA.
UN -28 X .220/.240 DEEP
16 N HOLES
.005 DIA
AND CSK 82° X .250 DIA,
UN -28 X .220/.240 DEEP
14 C HOLES
.005 DIA
DIA X .281 DEEP
.002 DIA
⊥ N .0005
AND CSK 60° X .310 DIA
HOLES .004 DIA
THRU AND
-32 UN -2B THRU
28 HOLES
DIA
BSC 14 PLACES
-L-
-N-
-M-
24.250 REF
.38 REF
INSERT ENTRANCE THIS SIDE
7.250 BSC
8.250 BSC
4.125 BSC
2.625 BSC
7.500 BSC
.375 BSC
29 SPACES AT .125 BSC=3.625 BSC 2 PLACES
6.500 BSC
8.000 BSC
7.250 BSC
8.750 BSC
5.750 BSC
.500 BSC TYP
.250 BSC TYP
CBORE .1865/.1870 DIA X .32 DEEP 6 V HOLES
.002 DIA
⊥ L .0005
.375 BSC
2.563 BSC
15 SPACES AT .125 BSC =1.875 BSC
.344 BSC
.250 BSC
8 SPACES AT .125 BSC=1.000 BSC
.281 BSC
.500 BSC
1.562 BSC
.656 BSC
5 SPACES AT .125 BSC =.625 BSC
1.937 BSC
②
CBORE .227/.231 DIA X .315/.355 DIA DEEP
AND CSK 82° X .250 DIA,
TAP 1/4-28UN -2B X .220/.240 DEEP FULL THD
78 S HOLES .005 DIA
③
.271/.276 DIA CSK 82° X .328 DIA
AND TAP 5/16 -18UNC-2B
18 E HOLES .005 DIA
12.250 BSC
28 SPACES AT .125 BSC =3.500 BSC 2 PLACES
10.531 BSC
19 SPACES AT .125 BSC =2.375 BSC 4 PLACES
.750 BSC
3 SPACES AT .125 BSC=.375 BSC
.258 BSC
.072/.073 DIA 8212 HOLES
.004 DIA
.195/.197 DIA X .625 DEEP 4 HOLES
.002 DIA
⊥ M .0005
19 SPACES AT .125 BSC=2.375 BSC 3 PLACES
.072/.073 DIA REF
⑤
.271/.276 DIA CSK 82° X .328 DIA
AND TAP 5/16 -18UNC-2B
8 K HOLES .005 DIA
18 SPACES AT .125 BSC =2.250 BSC 2 PLACES
11.125 REF
9.875 BSC
10.388/10.392
9.426 BSC 2 PLACES
6.375 BSC 2 PLACES
7 SPACES AT .125 BSC= .875 BSC 2 PLACES
11 SPACES AT .125 BSC = 1.375 BSC 2 PLACES
4.646 BSC 2 PLACES
17 SPACES AT .125 BSC =2.125 BSC 2 PLACES
2.625 BSC 8 PLACES
.338 BSC 2 PLACES
.516/.514
2.094 BSC
.188 BSC TYP
.625 BSC
1.250 BSC
1.875 BSC
2.500 BSC
3.125 BSC
3.750 BSC
4.375 BSC
5.000 BSC
5.625 BSC
6.250 BSC
6.875 BSC
7.500 BSC
8.125 BSC
8.750 BSC
9.000 BSC
.039 BSC
1.172 BSC
.125 BSC
4.719 BSC
3 SPACES AT .125 BSC=.375 BSC 15 PLACES
7.219 BSC
.515 REF
1.031 BSC
9.844 BSC
S
V
E
K
N
C
MASTER

28	1006702-2	INSERT, THREADED, SELF-LOCKING	6
8	NAS1394CA-3	INSERT, THREADED	5
2	NAS1394CA-4L	INSERT, THREADED, SELF-LOCKING	4
19	NAS1394CA-3L	INSERT, THREADED, SELF-LOCKING	3
108	1006702-5	INSERT, THREADED, SELF-LOCKING	2
1	2004116-001	TRAY A MACHINED	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
0	LIST OF MATERIALS		

2003062	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XX .01 .XXX ±.005 ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING
MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

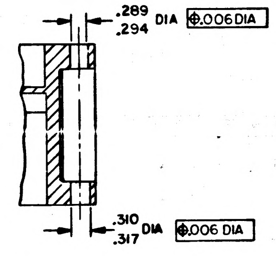
DRAWN R.B. [illegible] 5/13/65
CHECKED [illegible] 5/13/65
APPROVED [illegible]
APPROVED [illegible]
APPROVED MIT [illegible] 14 May 65
APPROVED MSC [illegible]
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRAY A
AGC

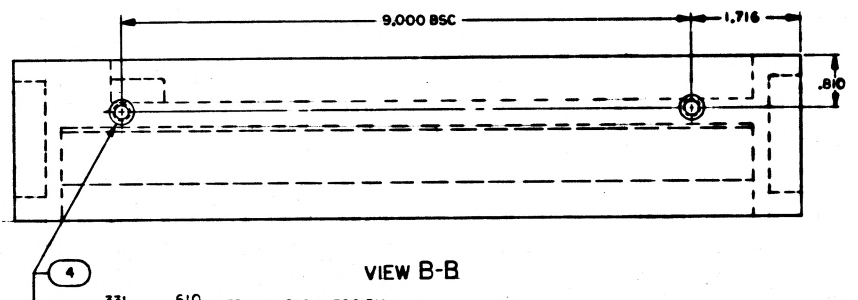
CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004116
SCALE 1/1
SHEET 1 OF 2

2004116 B



.289
.294 DIA ⌖.006 DIA
.310
.317 DIA ⌖.006 DIA

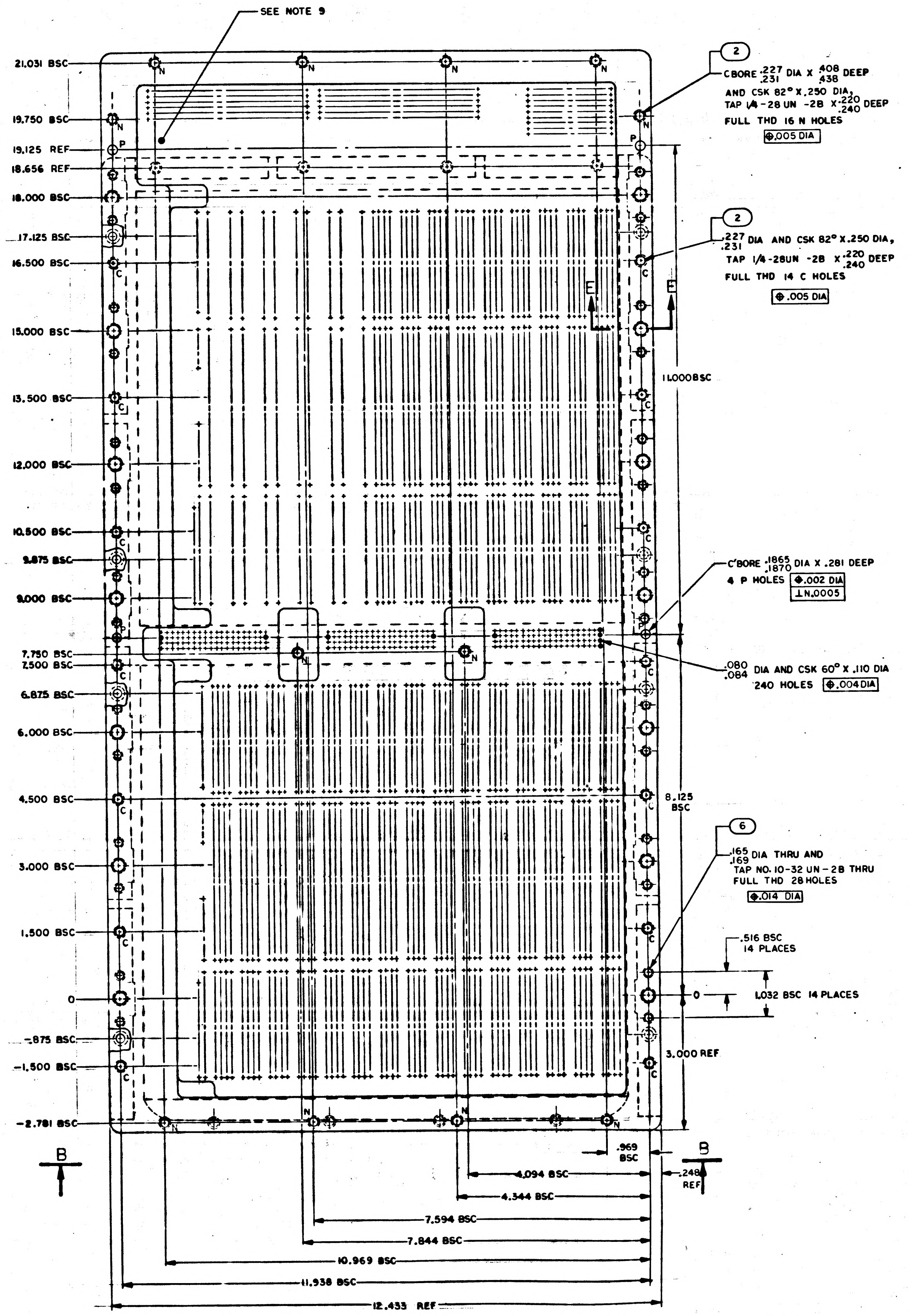
SECTION E-E
14 PLACES



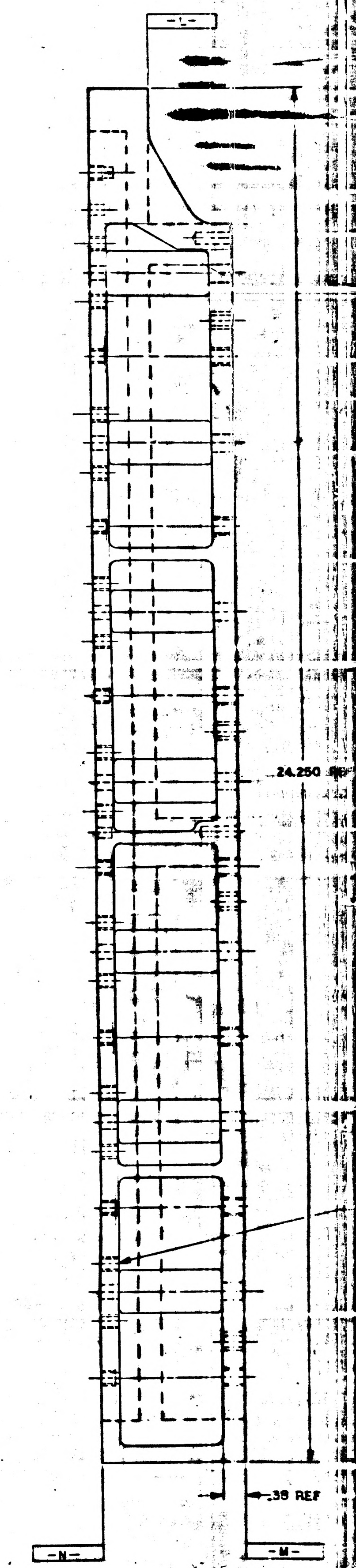
9.000 BSC
1.716
.810

VIEW B-B

4
CBORE .331 .336 DIA X .610 .625 DEEP CSK 82° X .390 DIA
TAP 3/8-16UNC-2B X .438 MIN FULL THD 2 HOLES
⌖.014 DIA



SEE NOTE 9
21.031 BSC
19.750 BSC
19.125 REF
18.656 REF
18.000 BSC
17.125 BSC
16.500 BSC
15.000 BSC
13.500 BSC
12.000 BSC
10.500 BSC
9.875 BSC
9.000 BSC
7.750 BSC
7.500 BSC
6.875 BSC
6.000 BSC
4.500 BSC
3.000 BSC
1.500 BSC
0
-.875 BSC
-1.500 BSC
-2.781 BSC
N
C
P
E
E
B
B
2
CBORE .227 .231 DIA X .408 .438 DEEP
AND CSK 82° X .250 DIA,
TAP 1/4-28 UN -2B X .220 .240 DEEP
FULL THD 16 N HOLES
⌖.005 DIA
2
.227 .231 DIA AND CSK 82° X .250 DIA,
TAP 1/4-28UN -2B X .220 .240 DEEP
FULL THD 14 C HOLES
⌖.005 DIA
11.000 BSC
C'BORE .1865 .1870 DIA X .281 DEEP
4 P HOLES ⌖.002 DIA ⊥N.0005
.080 .084 DIA AND CSK 60° X .110 DIA
240 HOLES ⌖.004 DIA
8.125 BSC
6
.165 .169 DIA THRU AND
TAP NO. 10-32 UN-2B THRU
FULL THD 28 HOLES
⌖.014 DIA
.516 BSC
14 PLACES
0
1.032 BSC 14 PLACES
3.000 REF
.969 BSC
.248 REF
4.094 BSC
4.344 BSC
7.594 BSC
7.844 BSC
10.969 BSC
11.938 BSC
12.433 REF



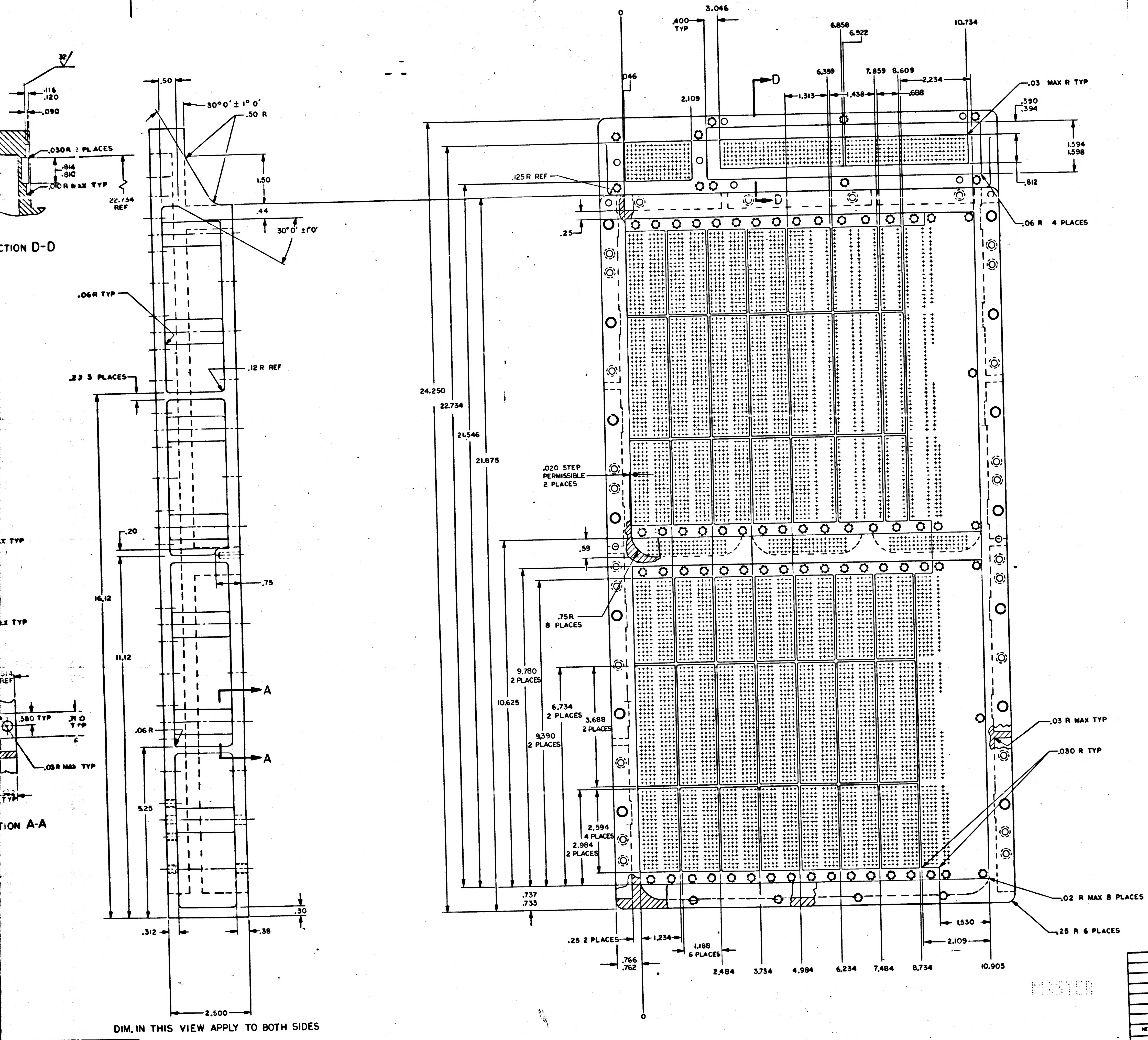
-L-
24.250
.38 REF
-N-
-M-

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATL: 6061-T6 AL PER QQ-A-250/11, TEMP T6
3. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3 BEFORE INSTALLING FIND NO. 2,3,4,5 AND 6
4. ALL SURFACES 125√ UNLESS OTHERWISE SPECIFIED
5. REMOVE BURRS AND SHARP EDGES .005/.015
6. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII .125
7. INSTALL FIND NO. 2,3,4,5 AND 6 PER ND1002121
8. COAT THREADS OF FIND NO. 2,3,4,5 AND 6 WITH MIL-P-8585, COLOR YELLOW
9. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019 AND SERIALIZE PER ND 002023 WHERE SHOWN

2004116 B

REVISIONS 19219						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20285			23	
B		REVISED PER TDRR 21251				

G



32
.116
.120
.090
.030R 2 PLACES
.814
.810
.010R MAX TYP
22.734 REF
CTION D-D
.50
30°0' ± 1° 0'
.50 R
1.50
.44
30°0' ±1°0'
.06R TYP
.12 R REF
.23 3 PLACES
.20
X TYP
.75
X TYP
16.12
11.12
.514 REF
.380 TYP
.310 TYP
.06 R
.03R MAX TYP
TYP
TION A-A
A
A
5.25
.312
.30
.38
2.500
DIM. IN THIS VIEW APPLY TO BOTH SIDES
0
.400 TYP
3.046
.046
2.109
D
D
6.858
6.922
6.359
7.859
8.609
10.734
1.313
1.438
.688
2.234
.03 MAX R TYP
.390
.394
1.594
1.598
.812
.125 R REF
.06 R 4 PLACES
.25
24.250
22.734
21.546
21.875
.020 STEP PERMISSIBLE 2 PLACES
.59
.75R 8 PLACES
9.780 2 PLACES
10.625
6.734 2 PLACES
3.688 2 PLACES
9.390 2 PLACES
2.594 4 PLACES
2.984 2 PLACES
.03 R MAX TYP
.030 R TYP
.02 R MAX 8 PLACES
.25 R 6 PLACES
.737
.733
1.530
2.109
.25 2 PLACES
1.234
1.188 6 PLACES
.766
.762
2.484
3.734
4.984
6.234
7.484
8.734
10.905
0
MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	R. B.	26 APR 65
CHECKED	R. Hong	5/13/65
APPROVED		
APPROVED		
APPROVED MIT		
APPROVED MSC		7/12/65
		DATE

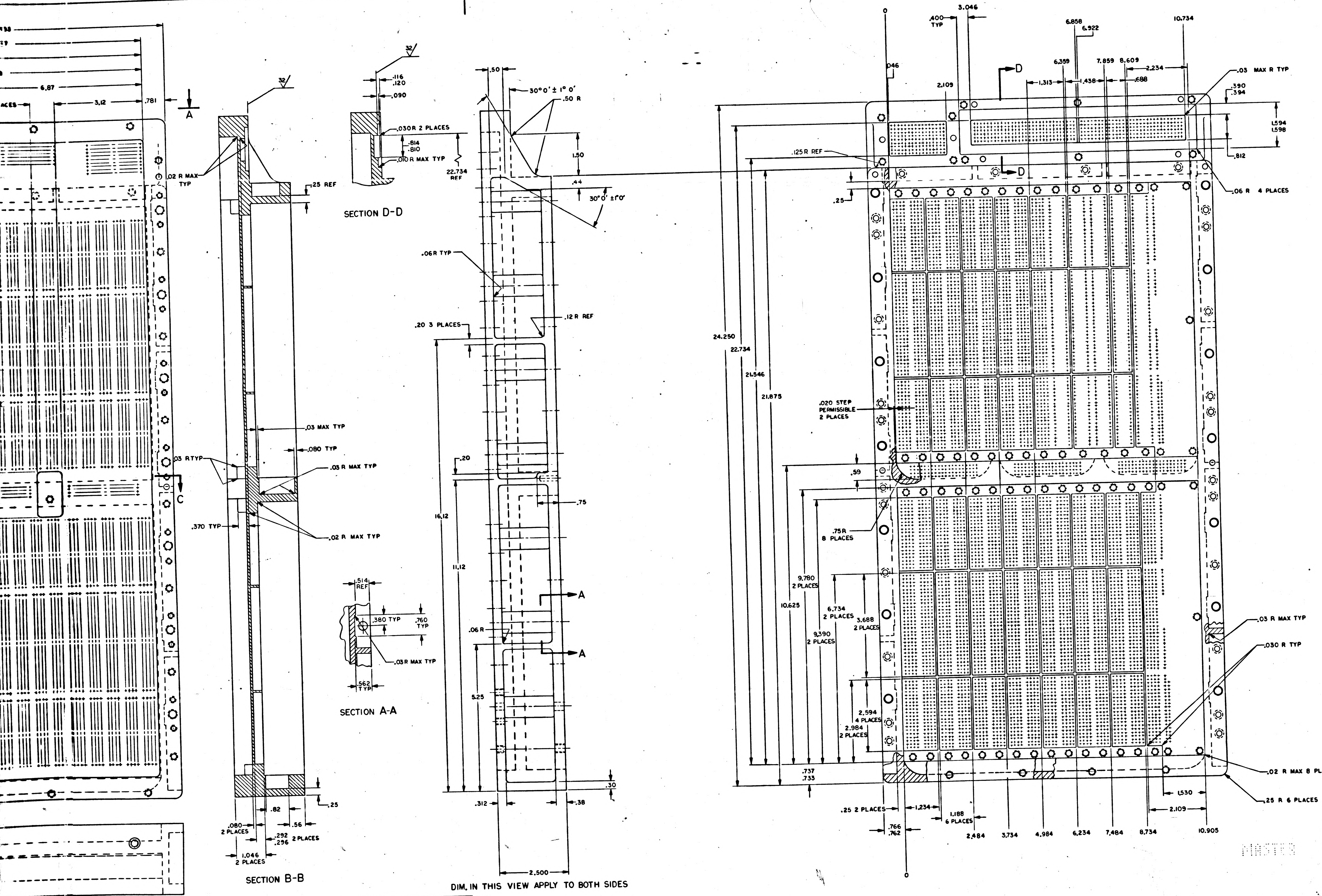
TRAY A
AGC

CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2004116
SCALE 1/1		SHEET 2 OF 2

2004116 B

20041.6 B

2/1



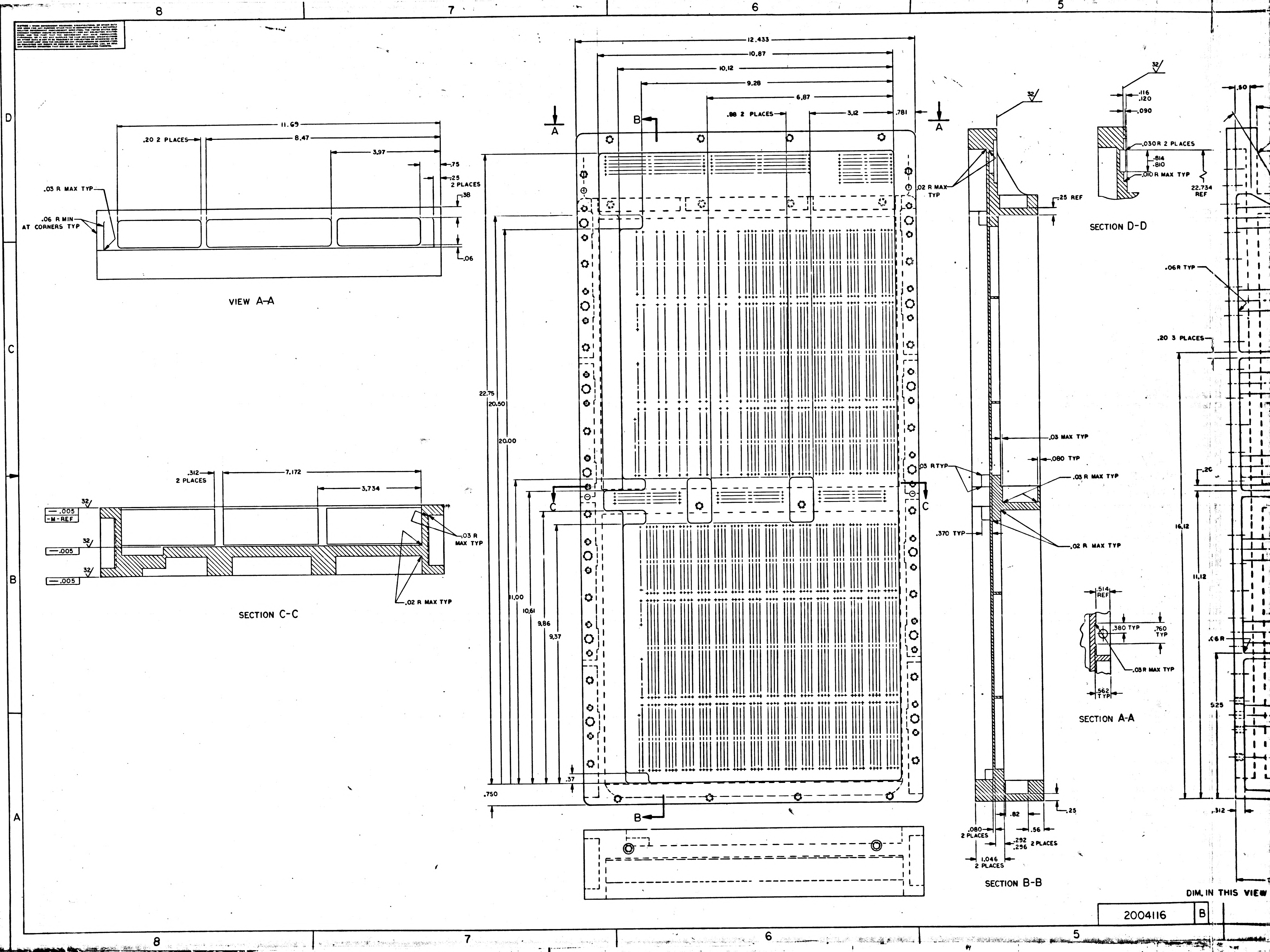
5
4
3
2
6.87
3.12
.781
A
.02 R MAX TYP
C
.370 TYP
.03 R TYP
32
.25 REF
.03 MAX TYP
.080 TYP
.03 R MAX TYP
.02 R MAX TYP
.080 2 PLACES
.82
.56
.25
.292 .296 2 PLACES
1.046 2 PLACES
SECTION B-B
.116 .120
.090
.030 R 2 PLACES
.814 .810
.010 R MAX TYP
22.734 REF
SECTION D-D
.514 REF
.380 TYP
.760 TYP
.03R MAX TYP
.562 TYP
SECTION A-A
.50
30° 0' ± 1° 0'
.50 R
1.50
.44
30° 0' ±1° 0'
.06R TYP
.12 R REF
.20 3 PLACES
16.12
11.12
.20
.75
.06 R
5.25
.30
.312
.38
2.500
DIM. IN THIS VIEW APPLY TO BOTH SIDES
0
3.046
.400 TYP
6.858
6.922
10.734
.046
D
6.359
7.859
8.609
2.234
.03 MAX R TYP
2.109
1.313
1.438
.688
.390 .394
1.594 1.598
.812
.125R REF
.06 R 4 PLACES
.25
24.250
22.734
21.546
21.875
.020 STEP PERMISSIBLE 2 PLACES
.59
.75R 8 PLACES
9.780 2 PLACES
10.625
6.734 2 PLACES
3.688 2 PLACES
9.390 2 PLACES
2.594 4 PLACES
2.984 2 PLACES
.737 .733
.03 R MAX TYP
.030 R TYP
.02 R MAX 8 PLACES
.25 R 6 PLACES
1.530
2.109
.25 2 PLACES
1.234
1.188 6 PLACES
.766 .762
2.484
3.734
4.984
6.234
7.484
8.734
10.905
MASTER

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
±
DO NOT SCALE THIS DRAWING
MATERIAL

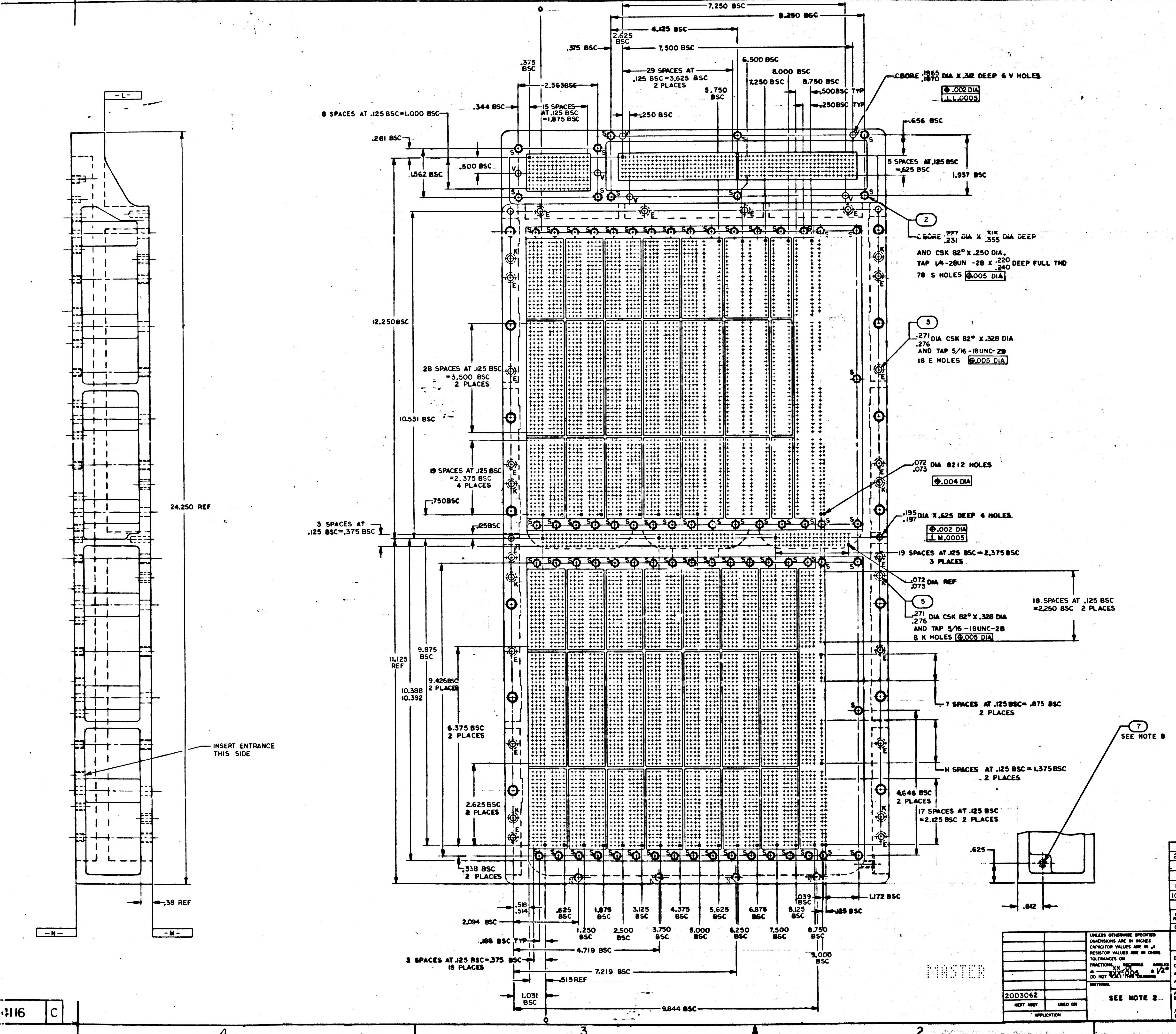
2004116 B

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


8
7
6
5
D
C
B
A
11.69
.20 2 PLACES
8.47
3.97
.75
.25 2 PLACES
.38
.03 R MAX TYP
.06 R MIN AT CORNERS TYP
.06
VIEW A-A
.312 2 PLACES
7.172
3.734
32
.005
-M- REF
.005
.005
.03 R MAX TYP
.02 R MAX TYP
SECTION C-C
12.433
10.87
10.12
9.28
6.87
.88 2 PLACES
3.12
.781
A
A
B
B
C
C
22.75
20.50
20.00
11.00
10.61
9.86
9.37
.37
.750
.02 R MAX TYP
.25 REF
.03 MAX TYP
.080 TYP
.03 R MAX TYP
.03 R TYP
.370 TYP
.02 R MAX TYP
.82
.56
.25
.080 2 PLACES
.292 .296 2 PLACES
1.046 2 PLACES
SECTION B-B
.116 .120
.090
.030 R 2 PLACES
.814 .810
.010 R MAX TYP
22.734 REF
SECTION D-D
.514 REF
.380 TYP
.760 TYP
.03 R MAX TYP
.562 TYP
SECTION A-A
.50
.06R TYP
.20 3 PLACES
.20
16.12
11.12
.06R
5.25
.312
DIM. IN THIS VIEW
2004116
B

217

REVISIONS 19219						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20285	E.G.	B	25 Aug 65	MGM
B		REVISED PER TDRR 21251	E.G.		10 Aug	WK
C		REVISED PER TDRR 22158	KCH		3 Sept 65	



7.250 BSC
8.250 BSC
4.125 BSC
2.625 BSC
.375 BSC
7.500 BSC
6.500 BSC
8.000 BSC
7.250 BSC
8.750 BSC
5.750 BSC
.375 BSC
29 SPACES AT .125 BSC=3.625 BSC 2 PLACES
2.563BSC
15 SPACES AT .125 BSC =1.875 BSC
8 SPACES AT .125 BSC=1.000 BSC
.344 BSC
.250 BSC
.500BSC TYP
.250BSC TYP
CBORE .1865/.1870 DIA X .312 DEEP 6 V HOLES
.002 DIA
⊥ L .0005
.656 BSC
.281 BSC
.500 BSC
1.562 BSC
5 SPACES AT .125 BSC =.625 BSC
1.937 BSC
②
CBORE .227/.231 DIA X .315/.355 DIA DEEP
AND CSK 82° X .250 DIA.
TAP 1/4-28UN -2B X .220/.240 DEEP FULL THD
78 S HOLES .005 DIA
③
.271/.276 DIA CSK 82° X .328 DIA
AND TAP 5/16-18UNC-2B
18 E HOLES .005 DIA
12.250BSC
28 SPACES AT .125 BSC =3.500 BSC 2 PLACES
10.531 BSC
19 SPACES AT .125 BSC =2.375 BSC 4 PLACES
.750BSC
3 SPACES AT .125 BSC=.375 BSC
.1258SC
.072/.073 DIA 8212 HOLES
.004 DIA
.195/.197 DIA X .625 DEEP 4 HOLES
.002 DIA
⊥ M .0005
19 SPACES AT .125 BSC=2.375 BSC 3 PLACES
.072/.073 DIA REF
⑤
.271/.276 DIA CSK 82° X .328 DIA
AND TAP 5/16-18UNC-2B
8 K HOLES .005 DIA
18 SPACES AT .125 BSC =2.250 BSC 2 PLACES
24.250 REF
9.875 BSC
11.125 REF
9.426BSC 2 PLACES
10.388/10.392
6.375 BSC 2 PLACES
2.625 BSC 3 PLACES
7 SPACES AT .125 BSC= .875 BSC 2 PLACES
11 SPACES AT .125 BSC = 1.375 BSC 2 PLACES
4.646 BSC 2 PLACES
17 SPACES AT .125 BSC =2.125 BSC 2 PLACES
⑦
SEE NOTE 8
.625
.812
INSERT ENTRANCE THIS SIDE
.338 BSC 2 PLACES
.38 REF
.516/.514
.625 BSC
1.875 BSC
3.125 BSC
4.375 BSC
5.625 BSC
6.875 BSC
8.125 BSC
.039 BSC
1.172 BSC
.125 BSC
2.094 BSC
1.250 BSC
2.500 BSC
3.750 BSC
5.000 BSC
6.250 BSC
7.500 BSC
8.750 BSC
.188 BSC TYP
4.719 BSC
9.000 BSC
3 SPACES AT .125 BSC=.375 BSC 15 PLACES
7.219 BSC
.515REF
1.031 BSC
9.844 BSC
-L-
-N-
-M-
S
V
E
K

1	MS21209-C0815	INSERT, THREADED, SELF-LOCKING	7
28	1006702-2	INSERT, THREADED, SELF-LOCKING	6
8	NAS1394CA-3	INSERT, THREADED	5
4	NAS1394CA-4L	INSERT, THREADED, SELF-LOCKING	4
18	NAS1394CA-3L	INSERT, THREADED, SELF-LOCKING	3
108	1006702-5	INSERT, THREADED, SELF-LOCKING	2
1	2004116-001	TRAY A MACHINED	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
011	LIST OF MATERIALS		

2003062	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XX ± .01 .XXX ± .005 ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING

MATERIAL

SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN C.B. [illegible] 5/17/65
CHECKED R. Hong 5/17/65
APPROVED [illegible]
APPROVED [illegible]
APPROVED MIT M.G. Mauly 17 May 65
APPROVED MSC [illegible] 5/17/65 DATE

TRAY A
AGC

CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2004116
SCALE 1/1		SHEET 1 OF 2

2004116 C

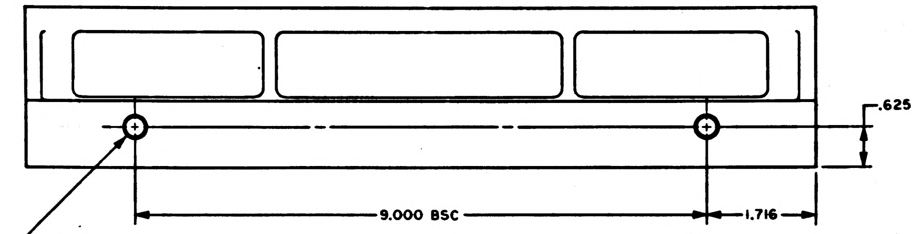
2004116 C

MASTER

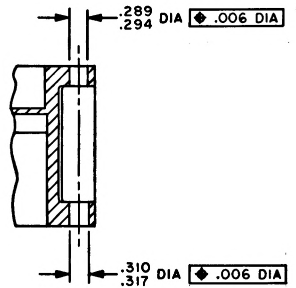
E2

2X

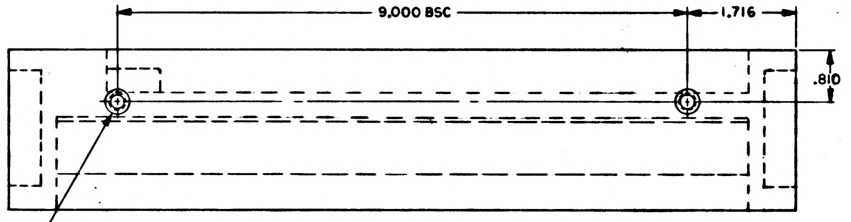
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO


.625
9.000 BSC
1.716
4
C'BORE .331/.336 DIA X .610/.625 DEEP
CSK 82° X .390 DIA
TAP 3/8-16UNC-2B X .438 MIN
FULL THD 2 HOLES
⊕ .014 DIA

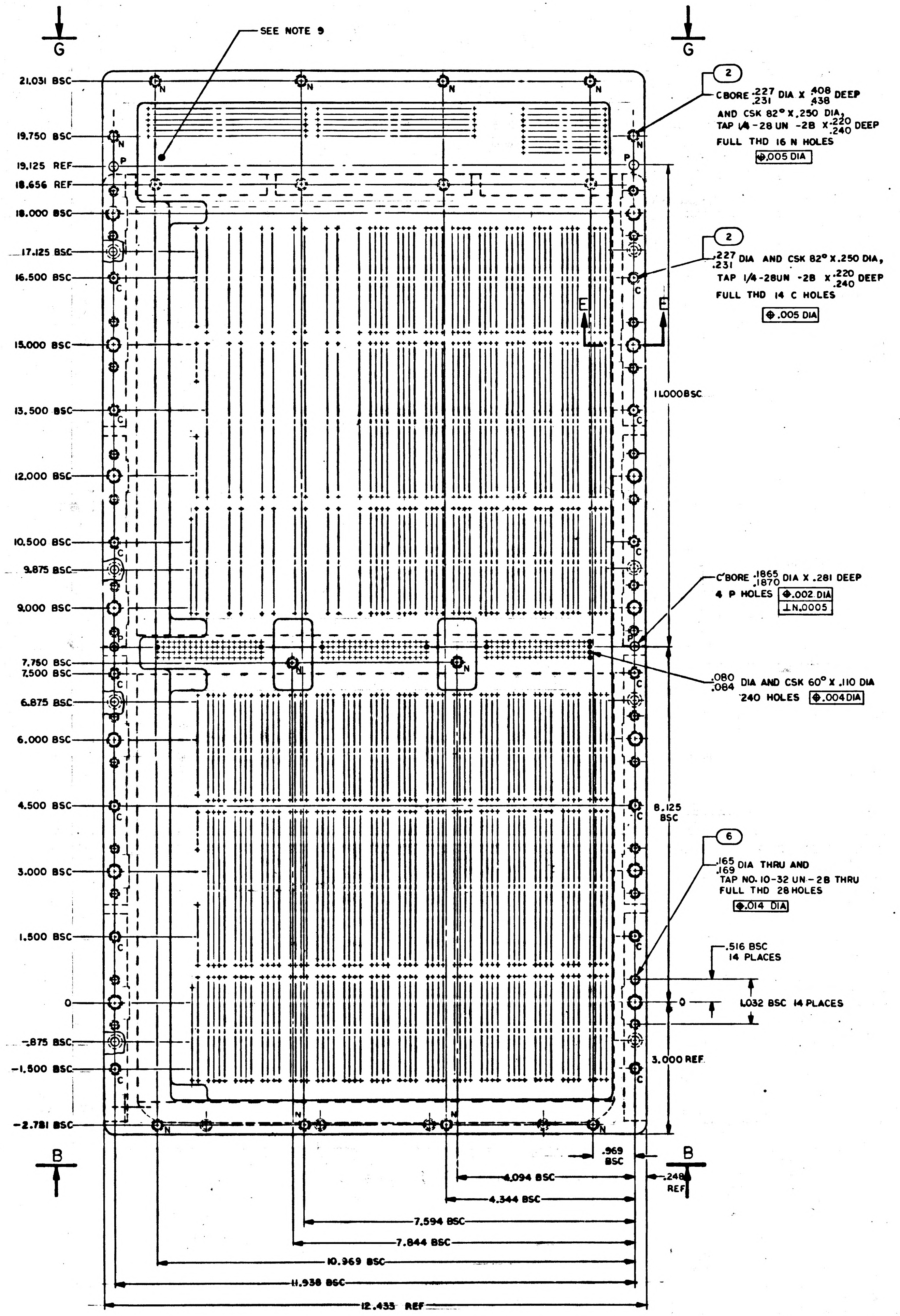
VIEW G-G

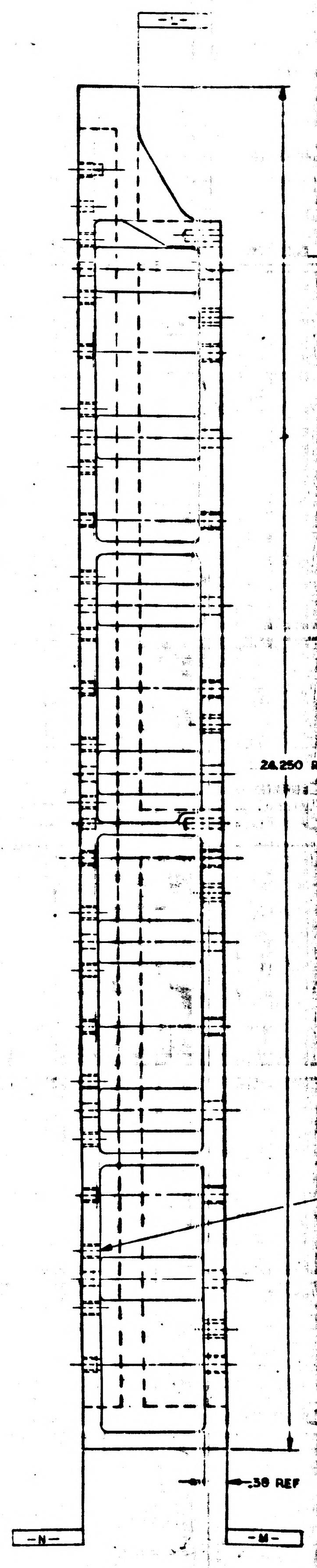

.289/.294 DIA ⊕ .006 DIA
.310/.317 DIA ⊕ .006 DIA

SECTION E-E
14 PLACES


9.000 BSC
1.716
.810
4
C'BORE .331/.336 DIA X .610/.625 DEEP CSK 82° X .390 DIA
TAP 3/8-16UNC-2B X .438 MIN FULL THD 2 HOLES
⊕ .014 DIA

VIEW B-B

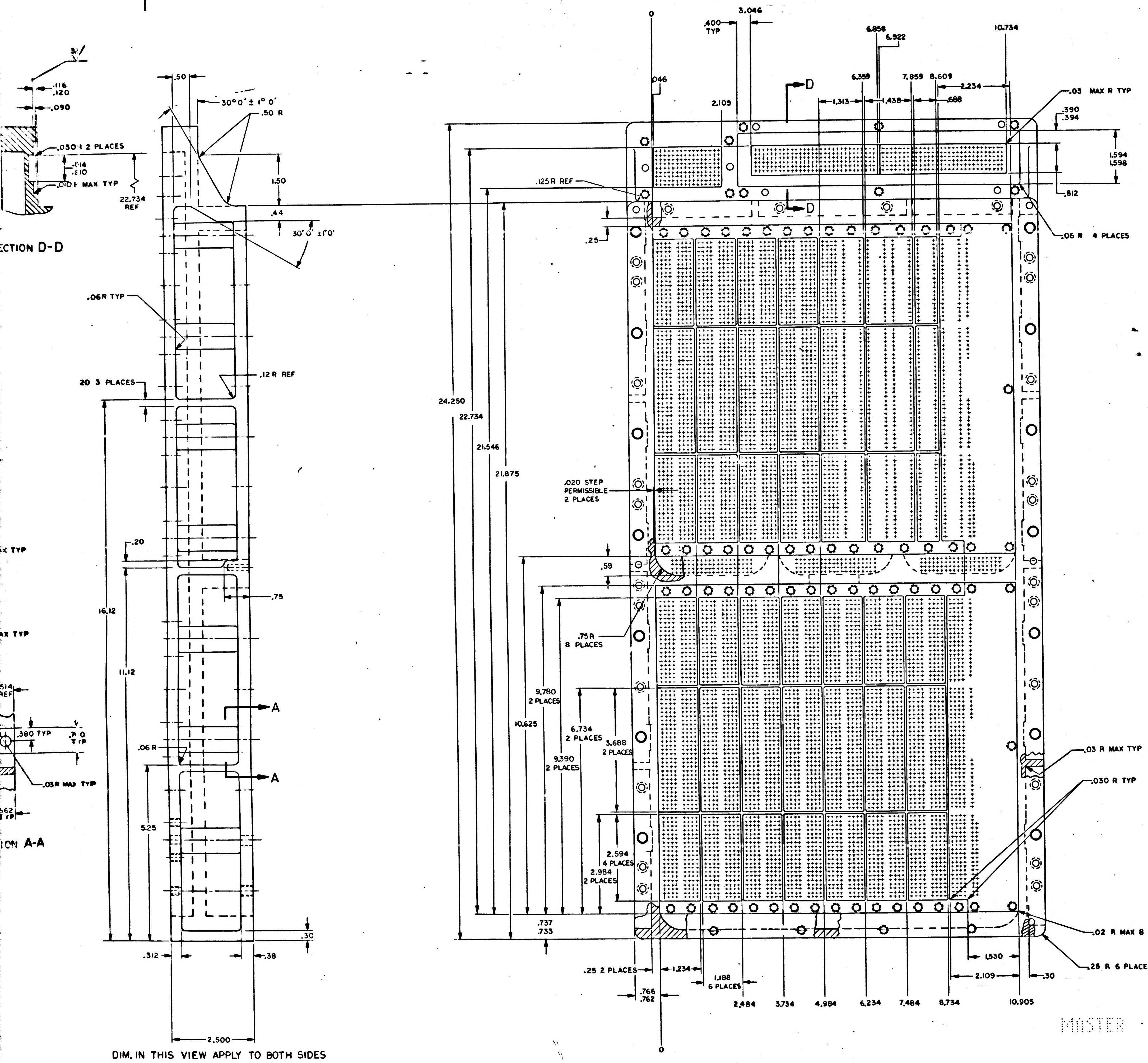

G
G
SEE NOTE 9
21.031 BSC
19.750 BSC
19.125 REF
18.656 REF
18.000 BSC
17.125 BSC
16.500 BSC
15.000 BSC
13.500 BSC
12.000 BSC
10.500 BSC
9.875 BSC
9.000 BSC
7.750 BSC
7.500 BSC
6.875 BSC
6.000 BSC
4.500 BSC
3.000 BSC
1.500 BSC
0
-.875 BSC
-1.500 BSC
-2.781 BSC
N
P
C
E
E
2
C'BORE .227/.231 DIA X .408/.438 DEEP
AND CSK 82° X .250 DIA,
TAP 1/4-28 UN -2B X .220/.240 DEEP
FULL THD 16 N HOLES
⊕ .005 DIA
2
.227/.231 DIA AND CSK 82° X .250 DIA,
TAP 1/4-28UN -2B X .220/.240 DEEP
FULL THD 14 C HOLES
⊕ .005 DIA
11.000 BSC
C'BORE .1865/.1870 DIA X .281 DEEP
4 P HOLES ⊕ .002 DIA
⊥ N .0005
.080/.084 DIA AND CSK 60° X .110 DIA
240 HOLES ⊕ .004 DIA
8.125 BSC
6
.165/.169 DIA THRU AND
TAP NO. 10-32 UN-2B THRU
FULL THD 28 HOLES
⊕ .014 DIA
.516 BSC
14 PLACES
0
1.032 BSC 14 PLACES
3.000 REF
.969 BSC
.248 REF
B
B
4.094 BSC
4.344 BSC
7.594 BSC
7.844 BSC
10.969 BSC
11.938 BSC
12.433 REF


24.250
.38 REF
-N-
-M-

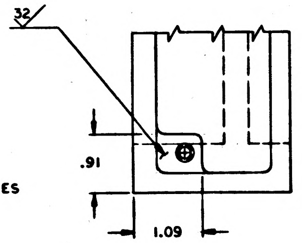
2004116 | C

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATL: 6061-T6 AL PER QQ-A-250/11, TEMP T6
3. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3 BEFORE INSTALLING FIND NO. 2,3,4,5,6 AND 7
4. ALL SURFACES 125√ UNLESS OTHERWISE SPECIFIED
5. REMOVE BURRS AND SHARP EDGES .005/.015
6. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII .125
7. INSTALL FIND NO. 2,3,4,5 AND 6 PER ND1002121
8. INSTALL FIND NO. 7 PER MS 33646 AND REMOVE DRIVING TANG
9. COAT THREADS OF FIND NO. 2, 3, 4, 5, 6 AND 7 WITH MIL-P-8585, COLOR YELLOW
10. IDENTIFY WITH PART NO. PER ND 1002019 AND SERIALIZE PER ND 1002023 WHERE SHOWN

REVISIONS 19219						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20285				WGW
B		REVISED PER TDRR 21251		ARK		WK
C		REVISED PER TDRR 22158				



ECTION D-D
.116
.120
.090
.030R 2 PLACES
.114
.110
.010R MAX TYP
22.734 REF
.50
30°0' ± 1°0'
.50 R
1.50
.44
30°0' ±1°0'
.06R TYP
.12 R REF
.20 3 PLACES
.20
.75
16.12
11.12
A
A
.06 R
5.25
.30
.312
.38
2.500
.380 TYP
.514 REF
.03R MAX TYP
.562 TYP
ION A-A
DIM. IN THIS VIEW APPLY TO BOTH SIDES
0
3.046
.400 TYP
2.109
.046
D
D
6.858
6.922
6.359
7.859
8.609
10.734
1.313
1.438
.688
2.234
.03 MAX R TYP
.390
.394
1.594
1.598
.812
.125R REF
.06 R 4 PLACES
.25
24.250
22.734
21.546
21.875
.020 STEP PERMISSIBLE 2 PLACES
.59
.75R 8 PLACES
9.780 2 PLACES
10.625
6.734 2 PLACES
3.688 2 PLACES
9.390 2 PLACES
2.594 4 PLACES
2.984 2 PLACES
.03 R MAX TYP
.030 R TYP
.737
.733
.02 R MAX 8 PLACES
.25 R 6 PLACES
.25 2 PLACES
1.234
1.188 6 PLACES
.766
.762
2.484
3.734
4.984
6.234
7.484
8.734
10.905
1.530
2.109
.30



MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	R. B. Sorensen	26 APR 65
CHECKED	R. Hong	5/17/65
APPROVED		
APPROVED		11 May 65
APPROVED MIT		11 May 65
APPROVED MSC		5/11/65
		DATE

TRAY A
AGC

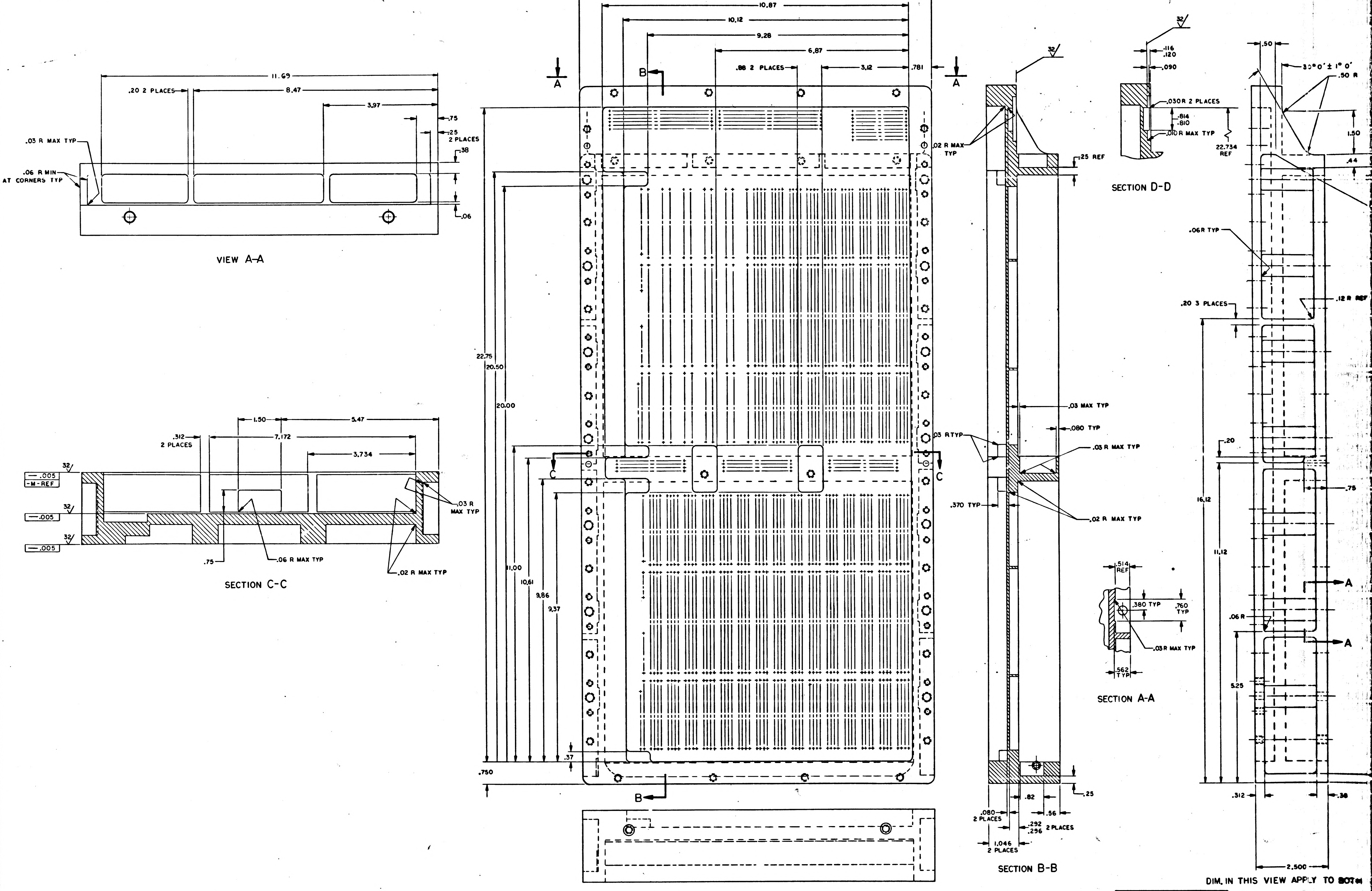
CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2004116
SCALE 1/1		SHEET 2 OF 2

2004116 C

2004116

2/4

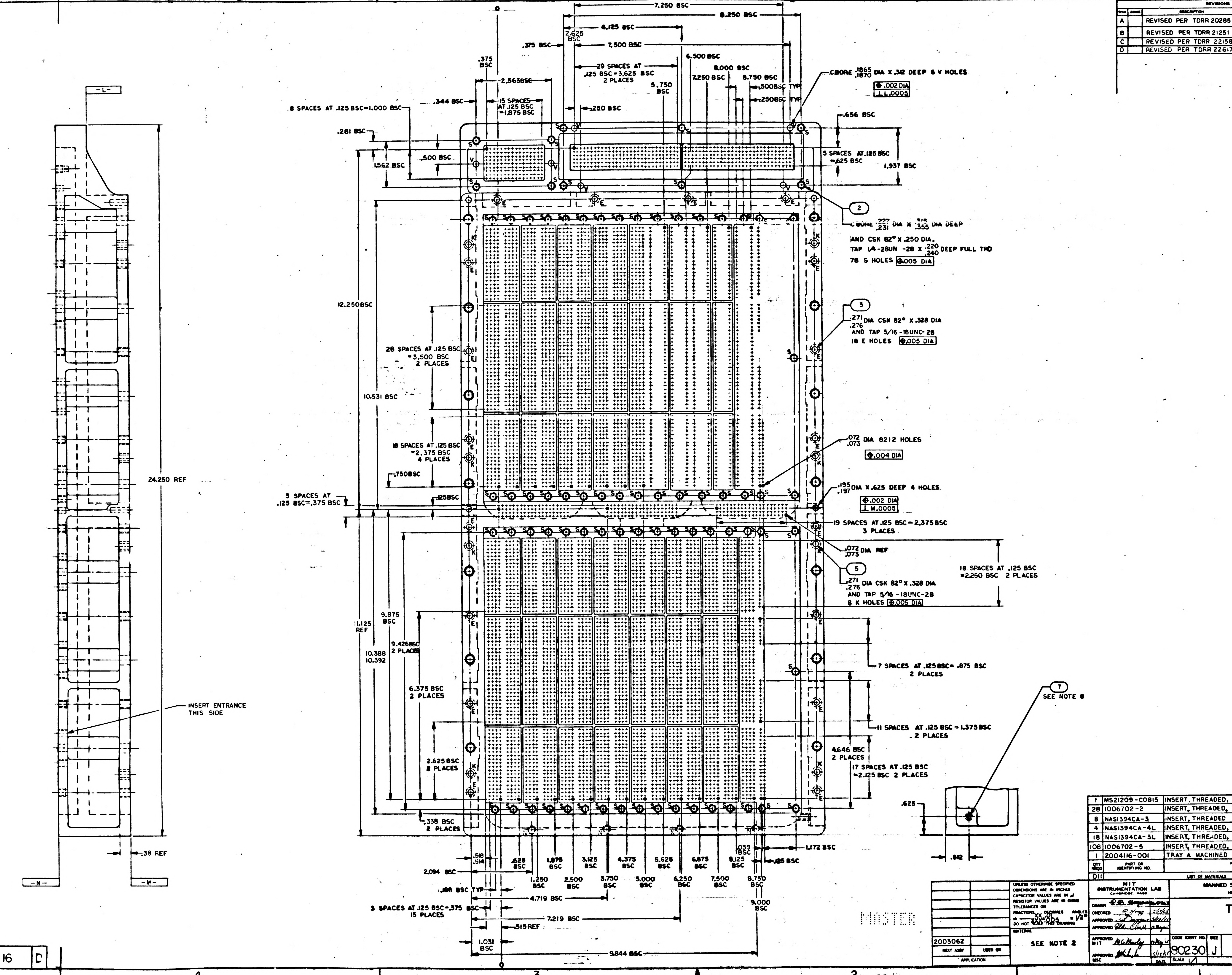
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.



8
7
6
5
D
C
B
A
11.69
.20 2 PLACES
8.47
3.97
.75
.25
2 PLACES
.38
.03 R MAX TYP
.06 R MIN
AT CORNERS TYP
.06
VIEW A-A
1.50
5.47
.312
2 PLACES
7.172
3.734
32
—.005
-M-REF
—.005
—.005
.03 R
MAX TYP
.75
.06 R MAX TYP
.02 R MAX TYP
SECTION C-C
12.433
10.87
10.12
9.28
6.87
.88 2 PLACES
3.12
.781
A
B
C
22.75
20.50
20.00
11.00
10.61
9.86
9.37
.37
.750
.02 R MAX
TYP
.25 REF
.03 MAX TYP
.080 TYP
.03 R TYP
.03 R MAX TYP
.370 TYP
.02 R MAX TYP
.25
.82
.56
.080
2 PLACES
.292
.296
2 PLACES
1.046
2 PLACES
SECTION B-B
.116
.120
.090
.030 R 2 PLACES
.814
.810
.010 R MAX TYP
22.734
REF
SECTION D-D
.514
REF
.380 TYP
.760
TYP
.03 R MAX TYP
.562
TYP
SECTION A-A
.50
30°0' ± 1°0'
.50 R
1.50
.44
.06 R TYP
.12 R REF
.20 3 PLACES
.20
.75
16.12
11.12
.06 R
5.25
.312
.38
2.500
DIM. IN THIS VIEW APPLY TO BOTH

2004116

SYM	ZONE	REVISIONS 19219 DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20285	E.G.	B	23 Jul 65	
B		REVISED PER TDRR 21251	E.G.			WK
C		REVISED PER TDRR 22158	KCH		3 Sept 65	
D		REVISED PER TDRR 22617				



7.250 BSC
8.250 BSC
4.125 BSC
2.625 BSC
.375 BSC
7.500 BSC
.375 BSC
6.500 BSC
29 SPACES AT .125 BSC=3.625 BSC 2 PLACES
8.000 BSC
7.250 BSC
8.750 BSC
5.750 BSC
2.563BSC
.500BSC TYP
.250BSC TYP
.344 BSC
15 SPACES AT .125 BSC =1.875 BSC
.250 BSC
8 SPACES AT .125 BSC=1.000 BSC
CBORE .1865 .1870 DIA X .312 DEEP 6 V HOLES
.002 DIA
⊥ L .0005
.656 BSC
.281 BSC
.500 BSC
1.562 BSC
5 SPACES AT .125 BSC =.625 BSC
1.937 BSC
2
CBORE .227 .231 DIA X .315 .355 DIA DEEP
AND CSK 82° X .250 DIA,
TAP 1/4-28UN -2B X .220 .240 DEEP FULL THD
78 S HOLES .005 DIA
12.250BSC
3
.271 .276 DIA CSK 82° X .328 DIA
AND TAP 5/16-18UNC-2B
18 E HOLES .005 DIA
28 SPACES AT .125 BSC =3.500 BSC 2 PLACES
10.531 BSC
19 SPACES AT .125 BSC =2.375 BSC 4 PLACES
.750BSC
.072 .073 DIA 8212 HOLES
.004 DIA
.195 .197 DIA X .625 DEEP 4 HOLES
.002 DIA
⊥ M .0005
3 SPACES AT .125 BSC=.375 BSC
.125BSC
19 SPACES AT .125 BSC=2.375 BSC 3 PLACES
.072 .073 DIA REF
5
.271 .276 DIA CSK 82° X .328 DIA
AND TAP 5/16-18UNC-2B
8 K HOLES .005 DIA
18 SPACES AT .125 BSC =2.250 BSC 2 PLACES
11.125 REF
9.875 BSC
9.426BSC 2 PLACES
10.388 10.392
6.375 BSC 2 PLACES
7 SPACES AT .125 BSC= .875 BSC 2 PLACES
11 SPACES AT .125 BSC = 1.375 BSC 2 PLACES
4.646 BSC 2 PLACES
17 SPACES AT .125 BSC =2.125 BSC 2 PLACES
2.625 BSC 2 PLACES
.338 BSC 2 PLACES
7
SEE NOTE 8
.625
.812
.518 .514
2.094 BSC
.625 BSC
1.250 BSC
1.875 BSC
2.500 BSC
3.125 BSC
3.750 BSC
4.375 BSC
5.000 BSC
5.625 BSC
6.250 BSC
6.875 BSC
7.500 BSC
8.125 BSC
8.750 BSC
.039 BSC
1.172 BSC
.125 BSC
9.000 BSC
.188 BSC TYP
4.719 BSC
3 SPACES AT .125 BSC=.375 BSC 15 PLACES
7.219 BSC
.515REF
1.031 BSC
9.844 BSC
0
S
V
E
K
N
L
M
24.250 REF
INSERT ENTRANCE THIS SIDE
.38 REF

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	MS21209-C0815	INSERT, THREADED, SELF-LOCKING	7
28	1006702-2	INSERT, THREADED, SELF-LOCKING	6
8	NAS1394CA-3	INSERT, THREADED	5
4	NAS1394CA-4L	INSERT, THREADED, SELF-LOCKING	4
18	NAS1394CA-3L	INSERT, THREADED, SELF-LOCKING	3
108	1006702-5	INSERT, THREADED, SELF-LOCKING	2
1	2004116-001	TRAY A MACHINED	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003062	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS XX ±.01 XXX ±.005 ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN P.B. [illegible]
CHECKED R. Hong 5/17/65
APPROVED [illegible]
APPROVED [illegible]
APPROVED MIT M.G. [illegible] 17 May 65
APPROVED MSC [illegible] 5/18/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRAY A
AGC

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004116
SCALE 1/1
SHEET 1 OF 2

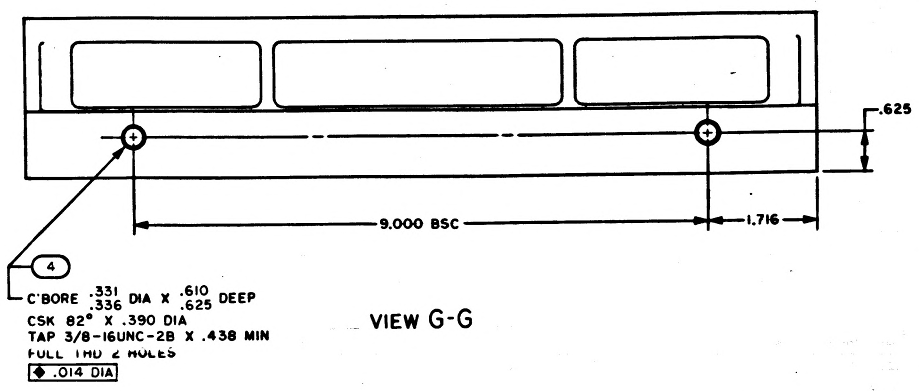
2004116 D

MASTER

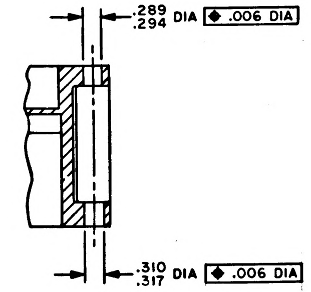
F-2

2X

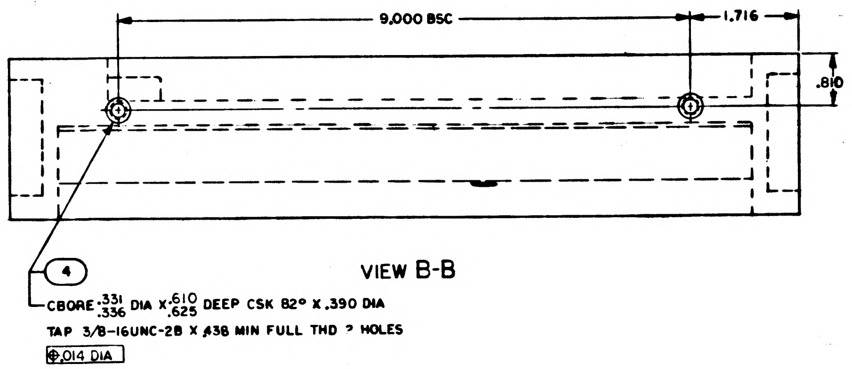
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


.625
9.000 BSC
1.716
4
C'BORE .331/.336 DIA X .610/.625 DEEP
CSK 82° X .390 DIA
TAP 3/8-16UNC-2B X .438 MIN
FULL THD 2 HOLES
⊕ .014 DIA

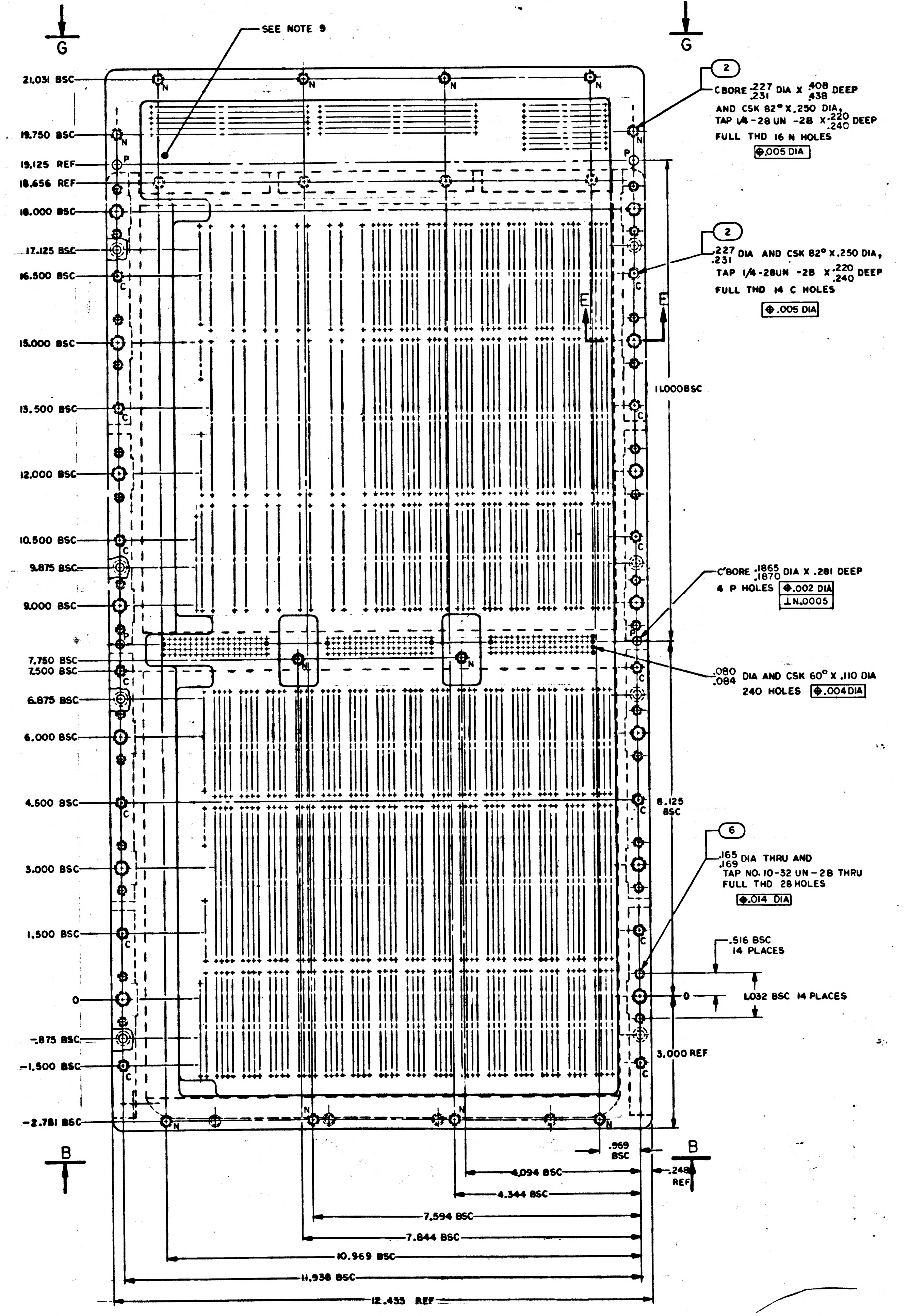
VIEW G-G

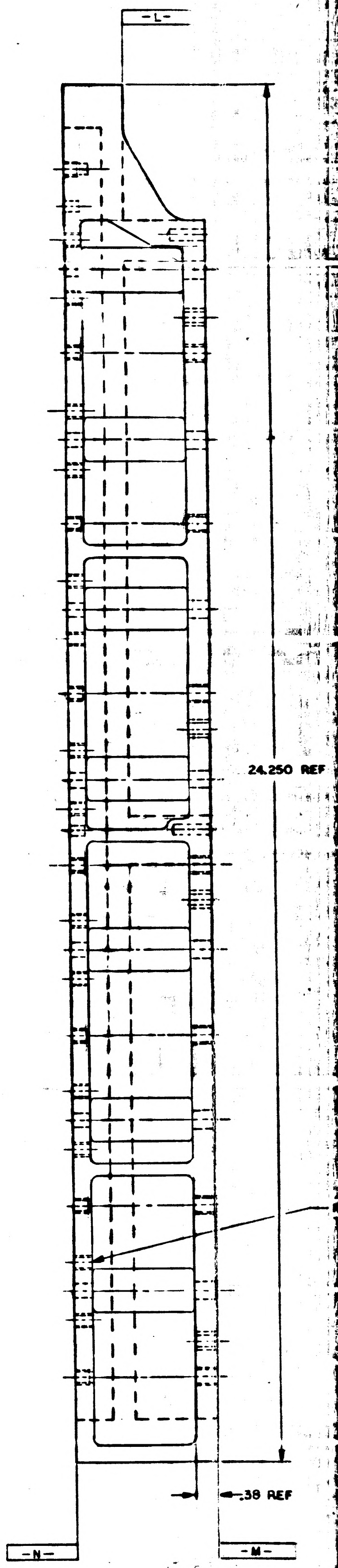

.289/.294 DIA ◈ .006 DIA
.310/.317 DIA ◈ .006 DIA

SECTION E-E
14 PLACES


9.000 BSC
1.716
.810
4
CBORE .331/.336 DIA X .610/.625 DEEP CSK 82° X .390 DIA
TAP 3/8-16UNC-2B X .438 MIN FULL THD 2 HOLES
⊕ .014 DIA

VIEW B-B


G
G
SEE NOTE 9
21.031 BSC
19.750 BSC
19.125 REF
18.656 REF
18.000 BSC
17.125 BSC
16.500 BSC
15.000 BSC
13.500 BSC
12.000 BSC
10.500 BSC
9.875 BSC
9.000 BSC
7.750 BSC
7.500 BSC
6.875 BSC
6.000 BSC
4.500 BSC
3.000 BSC
1.500 BSC
0
-.875 BSC
-1.500 BSC
-2.781 BSC
N
P
C
E
E
2
CBORE .227/.231 DIA X .408/.438 DEEP
AND CSK 82° X .250 DIA,
TAP 1/4-28 UN -2B X .220/.240 DEEP
FULL THD 16 N HOLES
⊕ .005 DIA
2
.227/.231 DIA AND CSK 82° X .250 DIA,
TAP 1/4-28UN -2B X .220/.240 DEEP
FULL THD 14 C HOLES
⊕ .005 DIA
11.000 BSC
C'BORE .1865/.1870 DIA X .281 DEEP
4 P HOLES ⊕ .002 DIA
⊥ N .0005
.080/.084 DIA AND CSK 60° X .110 DIA
240 HOLES ⊕ .004 DIA
8.125 BSC
6
.165/.169 DIA THRU AND
TAP NO. 10-32 UN - 2B THRU
FULL THD 28 HOLES
⊕ .014 DIA
.516 BSC
14 PLACES
0
1.032 BSC 14 PLACES
3.000 REF
.969 BSC
.248 REF
4.094 BSC
4.344 BSC
7.594 BSC
7.844 BSC
10.969 BSC
11.938 BSC
12.433 REF
B
B

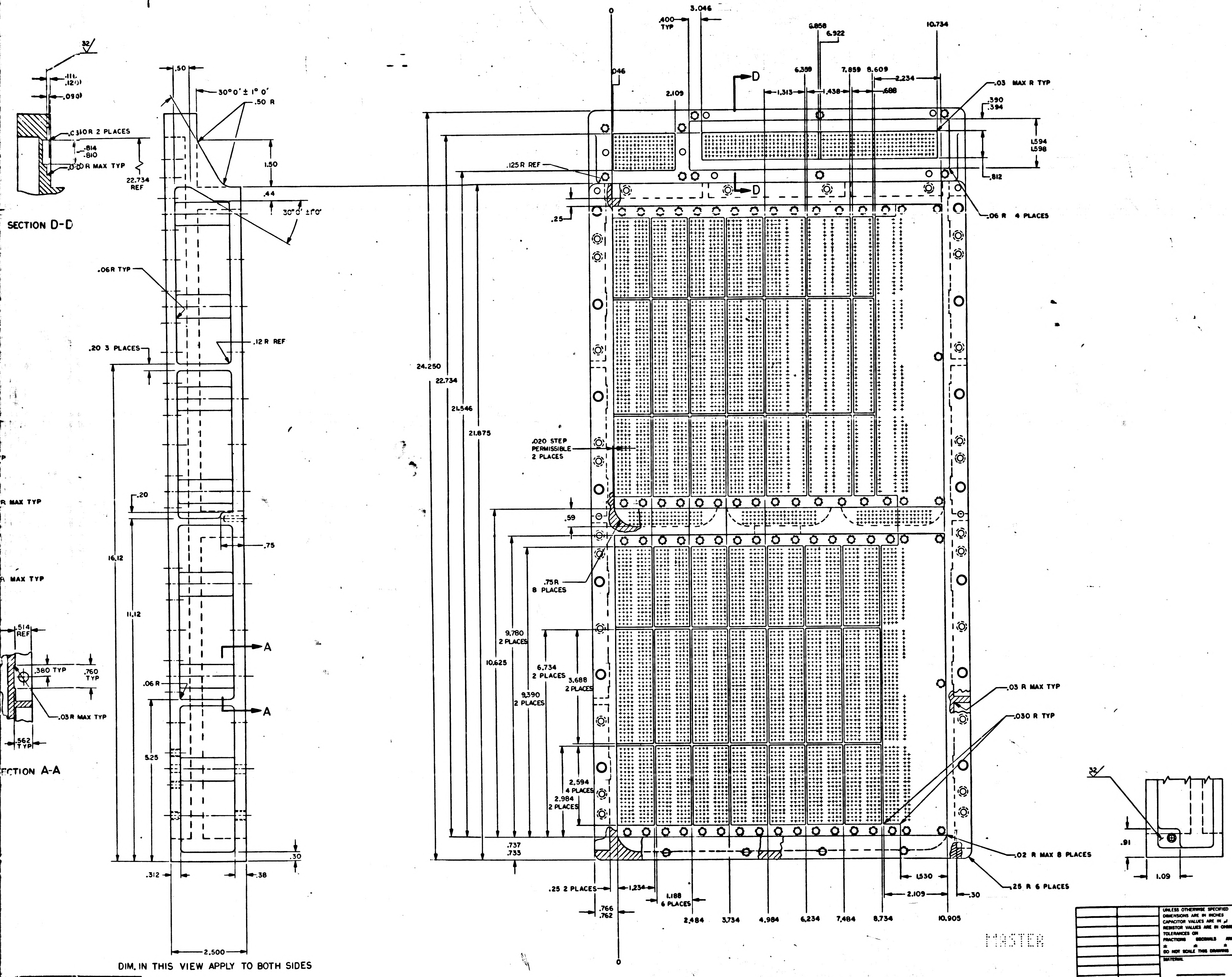

-L-
24.250 REF
.38 REF
-N-
-M-

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATL: 6061-T6 AL PER QQ-A-250/11, TEMP T6
3. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3 BEFORE INSTALLING FIND NO. 2,3,4,5,6 AND 7
4. ALL SURFACES 125/ UNLESS OTHERWISE SPECIFIED
5. REMOVE BURRS AND SHARP EDGES .005/.015
6. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII .125
7. INSTALL FIND NO. 2,3,4,5 AND 6 PER ND1002121
8. INSTALL FIND NO. 7 PER MS 33646 AND REMOVE DRIVING TANG
9. COAT THREADS OF FIND NO. 2, 3, 4, 5, 6 AND 7 WITH MIL-P-8585, COLOR YELLOW
10. IDENTIFY WITH PART NO. PER ND 1002019 AND SERIALIZE PER ND 1002023 WHERE SHOWN

2004116	D

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20285				
B		REVISED PER TDRR 21251				
C		REVISED PER TDRR 22158				
D		REVISED PER TDRR 22617				

REVISIONS 19217



32
.116
.120
.090
.030 R 2 PLACES
.814
.810
.020 R MAX TYP
22.734 REF
SECTION D-D
.50
30°0' ± 1° 0'
.50 R
1.50
.44
30°0' ±1°0'
.06R TYP
.12 R REF
.20 3 PLACES
.20
R MAX TYP
.75
16.12
11.12
.514 REF
.380 TYP
.760 TYP
.06 R
.03 R MAX TYP
.562 TYP
SECTION A-A
5.25
.30
.312
.38
2.500
DIM. IN THIS VIEW APPLY TO BOTH SIDES
0
3.046
.400 TYP
6.858
6.922
10.734
.046
2.109
6.359
7.859
8.609
1.313
1.438
.688
2.234
.03 MAX R TYP
.390
.394
1.594
1.598
.812
.125 R REF
.06 R 4 PLACES
.25
24.250
22.734
21.546
21.875
.020 STEP PERMISSIBLE 2 PLACES
.59
.75R 8 PLACES
9.780 2 PLACES
10.625
6.734 2 PLACES
3.688 2 PLACES
9.390 2 PLACES
.03 R MAX TYP
.030 R TYP
2.594 4 PLACES
2.984 2 PLACES
.737
.733
.02 R MAX 8 PLACES
.25 R 6 PLACES
1.530
2.109
.30
.25 2 PLACES
1.234
1.188 6 PLACES
.766
.762
2.484
3.734
4.984
6.234
7.484
8.734
10.905
D
A
.91
1.09

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN R B [illegible] 26 APR 65
CHECKED R. Hong 5/17/65
APPROVED
APPROVED
APPROVED MIT M. Mundy
APPROVED MSC 5/17/65
DATE

TRAY A
AGC

CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2004116

SCALE 1/1
SHEET 2 OF 2

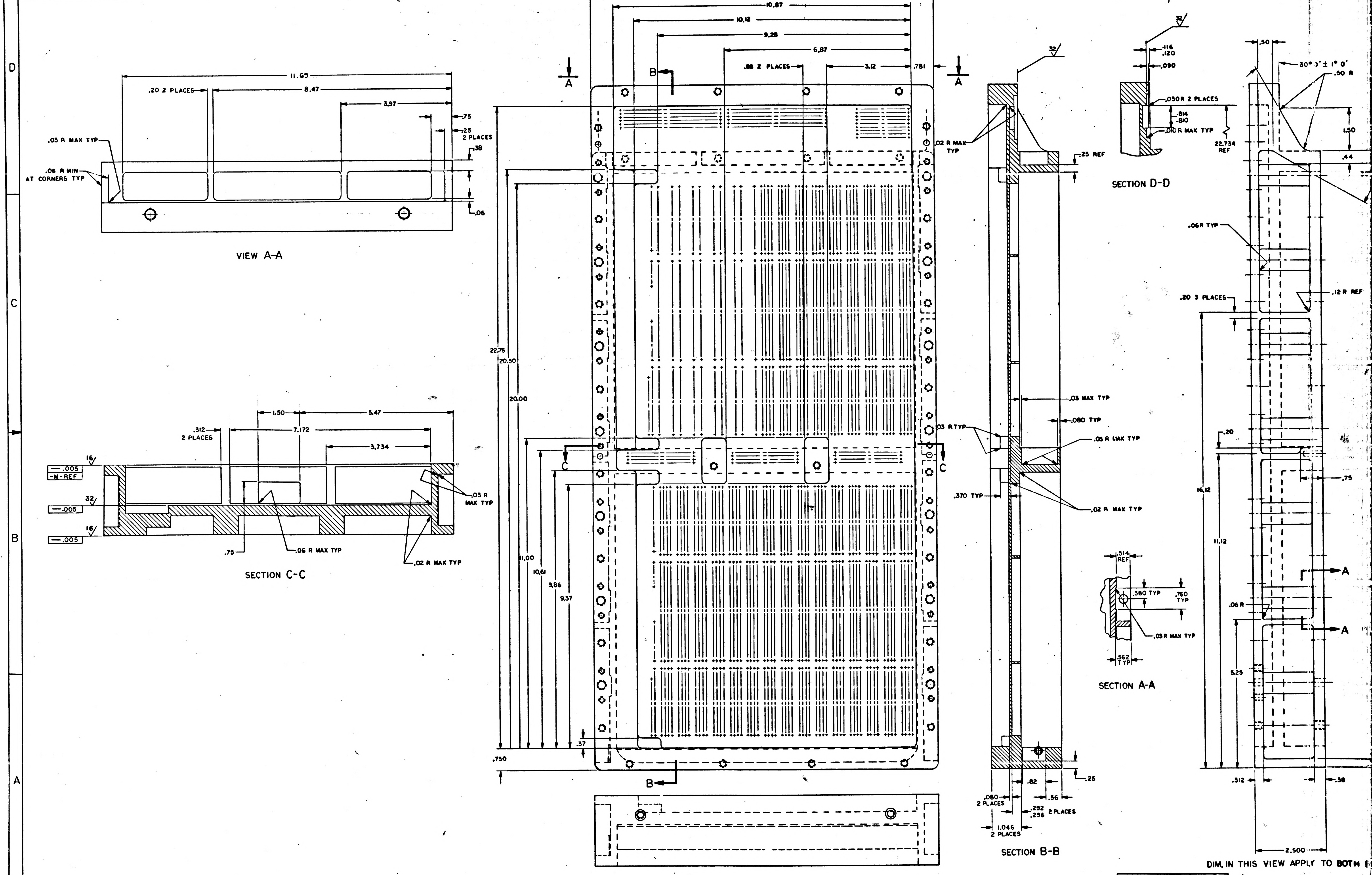
MASTER

2004116 D

2004116 D

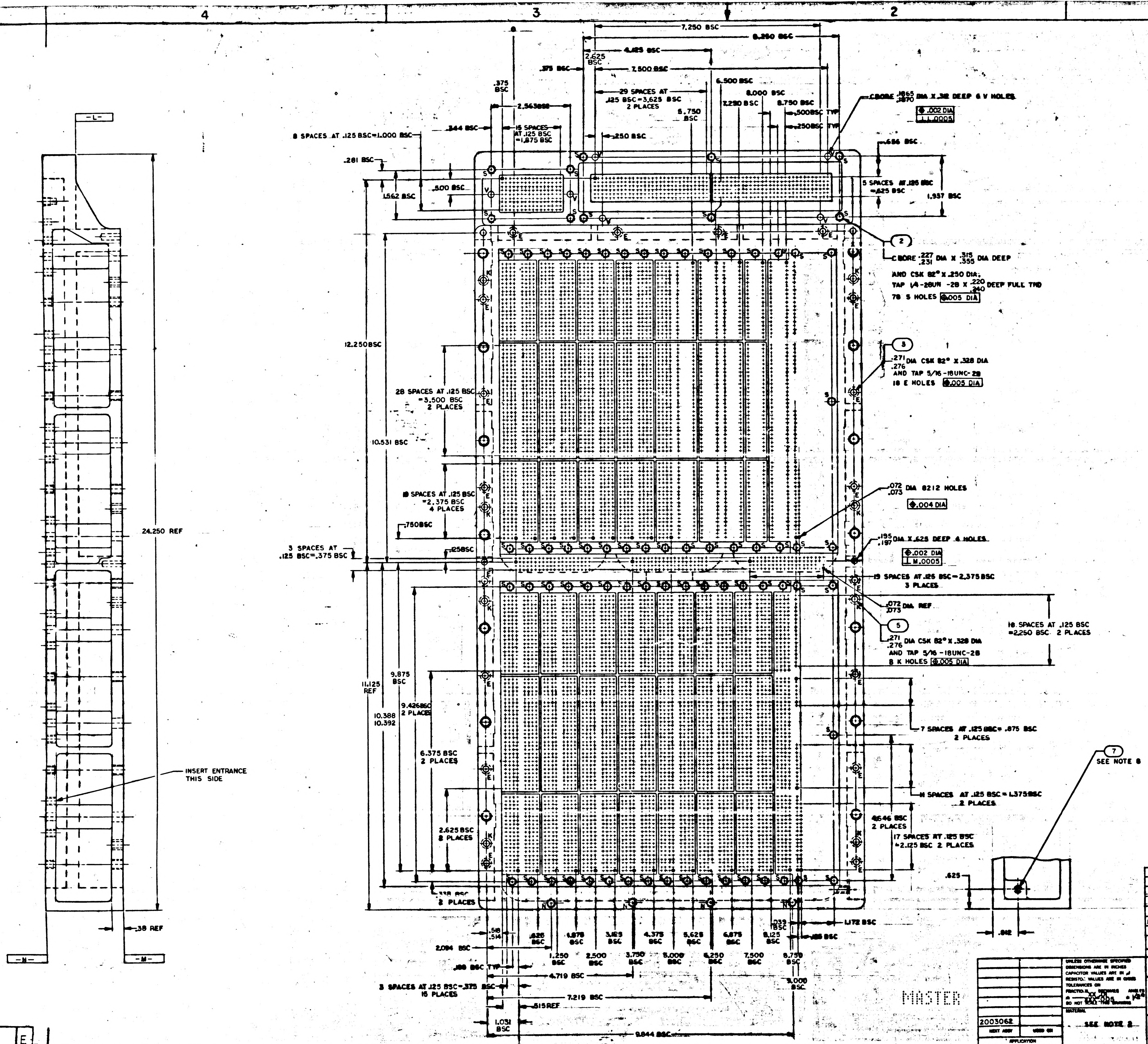
21

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


8
7
6
5
D
C
B
A
11.69
.20 2 PLACES
8.47
3.97
.75
.25
2 PLACES
.38
.06
.03 R MAX TYP
.06 R MIN
AT CORNERS TYP
VIEW A-A
1.50
5.47
.312
2 PLACES
7.172
3.734
16
.005
-M- REF
32
.005
16
.005
.03 R
MAX TYP
.75
.06 R MAX TYP
.02 R MAX TYP
SECTION C-C
12.433
10.87
10.12
9.28
6.87
.88 2 PLACES
3.12
.781
A
B
22.75
20.50
20.00
11.00
10.61
9.86
9.37
.37
.750
C
C
B
A
32
.02 R MAX
TYP
.25 REF
.03 MAX TYP
.080 TYP
.03 R TYP
.03 R MAX TYP
.370 TYP
.02 R MAX TYP
.82
.56
.25
.080
2 PLACES
.292
.296
2 PLACES
1.046
2 PLACES
SECTION B-B
32
.116
.120
.090
.030R 2 PLACES
.814
.810
.010 R MAX TYP
22.734
REF
SECTION D-D
.514
REF
.380 TYP
.760
TYP
.03R MAX TYP
.562
TYP
SECTION A-A
.50
30° 0' ± 1° 0'
.50 R
1.50
.44
.06R TYP
.20 3 PLACES
.12 R REF
.20
.75
16.12
11.12
A
A
.06 R
5.25
.312
.38
2.500
DIM. IN THIS VIEW APPLY TO BOTH

2004116 D

SYM	ZONE	REVISIONS 19219 DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20285				
B		REVISED PER TDRR 21251				
C		REVISED PER TDRR 22158	KCN			
D		REVISED PER TDRR 22617	PDL			
E		REVISED PER TDRR 23147				



-L-
-M-
-N-
24.250 REF
.38 REF
INSERT ENTRANCE THIS SIDE
7.250 BSC
8.250 BSC
4.125 BSC
2.625 BSC
.375 BSC
7.500 BSC
6.500 BSC
29 SPACES AT .125 BSC=3.625 BSC 2 PLACES
8.000 BSC
7.290 BSC
8.750 BSC
5.750 BSC
.500BSC TYP
.250BSC TYP
.375 BSC
2.563BSC
.344 BSC
15 SPACES AT .125 BSC =1.875 BSC
.250 BSC
8 SPACES AT .125 BSC=1.000 BSC
.281 BSC
.500 BSC
1.562 BSC
CBORE .1865 .1870 DIA X .312 DEEP 6 V HOLES
.002 DIA
.0005
.656 BSC
5 SPACES AT .125 BSC =.625 BSC
1.937 BSC
2
CBORE .227 .231 DIA X .315 .355 DIA DEEP AND CSK 82° X .250 DIA, TAP 1/4-28UN -2B X .220 .240 DEEP FULL THD 78 S HOLES .005 DIA
3
.271 .276 DIA CSK 82° X .328 DIA AND TAP 5/16-18UNC-2B 18 E HOLES .005 DIA
12.250BSC
28 SPACES AT .125 BSC =3.500 BSC 2 PLACES
10.531 BSC
19 SPACES AT .125 BSC =2.375 BSC 4 PLACES
.750BSC
3 SPACES AT .125 BSC=.375 BSC
.1258BSC
.072 .073 DIA 8212 HOLES
.004 DIA
.195 .197 DIA X .625 DEEP 4 HOLES
.002 DIA
M.0005
19 SPACES AT .125 BSC=2.375BSC 3 PLACES
.072 .073 DIA REF
5
.271 .276 DIA CSK 82° X .328 DIA AND TAP 5/16-18UNC-2B 8 K HOLES .005 DIA
18 SPACES AT .125 BSC =2.250 BSC 2 PLACES
11.125 REF
9.875 BSC
9.426BSC 2 PLACES
10.388 10.392
6.375 BSC 2 PLACES
2.625 BSC 8 PLACES
7 SPACES AT .125 BSC= .875 BSC 2 PLACES
11 SPACES AT .125 BSC=1.375BSC 2 PLACES
4.646 BSC 2 PLACES
17 SPACES AT .125 BSC =2.125 BSC 2 PLACES
7
SEE NOTE 8
.625
.812
.338 BSC 2 PLACES
.518 .514
2.094 BSC
.188 BSC TYP
3 SPACES AT .125 BSC=.375 BSC 16 PLACES
.625 BSC
1.250 BSC
1.875 BSC
2.500 BSC
3.125 BSC
3.750 BSC
4.375 BSC
5.000 BSC
5.625 BSC
6.250 BSC
6.875 BSC
7.500 BSC
8.125 BSC
8.750 BSC
9.000 BSC
.039 BSC
.188 BSC
1.172 BSC
4.719 BSC
7.219 BSC
.515REF
1.031 BSC
9.844 BSC
S
V
E
K
N

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	MS21209-C0815	INSERT, THREADED, SELF-LOCKING	7
28	1006702-2	INSERT, THREADED, SELF-LOCKING	6
8	NAS1394CA-3	INSERT, THREADED	5
4	NAS1394CA-4L	INSERT, THREADED, SELF-LOCKING	4
18	NAS1394CA-3L	INSERT, THREADED, SELF-LOCKING	3
108	1006702-5	INSERT, THREADED, SELF-LOCKING	2
1	2004116-001	TRAY A MACHINED	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003062	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — .XX ±.01 .XXX ±.005 ± 1/2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
CHECKED R. Hong 5/17/65
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC 5/17/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

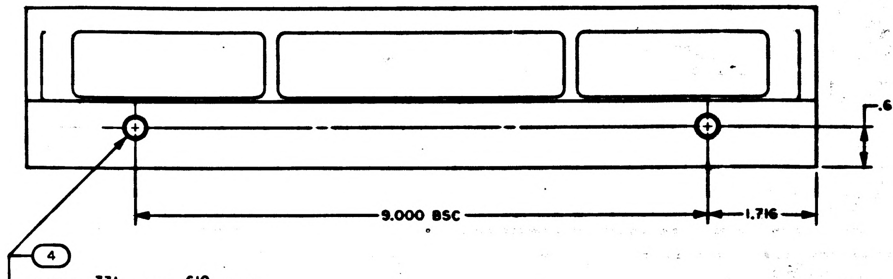
TRAY A
INSEPARABLE ASSY
AGC

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004116
SCALE 1/1
SHEET 1 OF 2

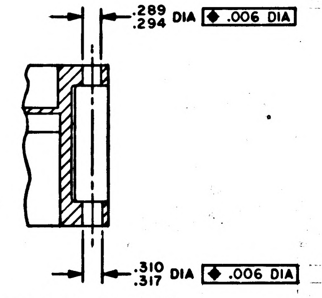
2004116 E

2004116 E

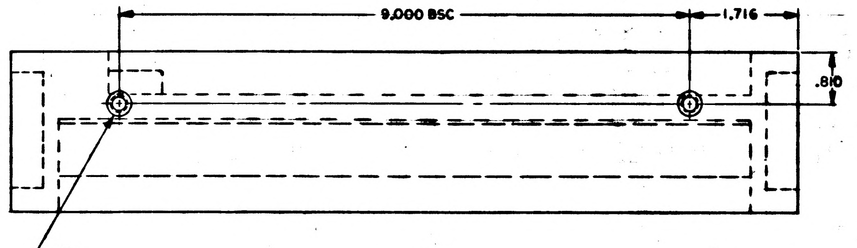
2X


.625
9.000 BSC
1.716
4
C'BORE .331/.336 DIA X .610/.625 DEEP
CSK 82° X .390 DIA
TAP 3/8-16UNC-2B X .438 MIN
FULL THD 2 HOLES
⌖ .014 DIA

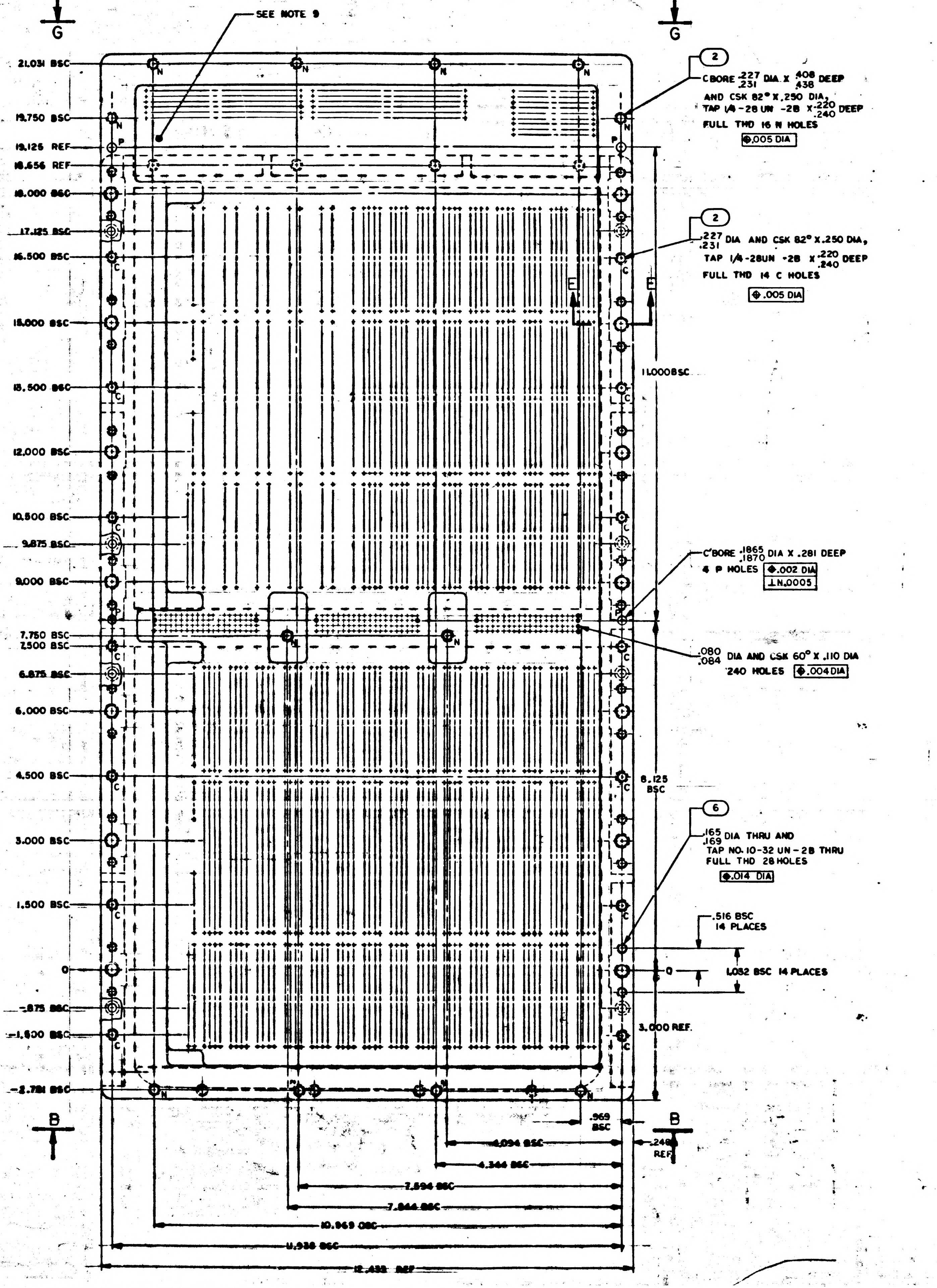
VIEW G-G

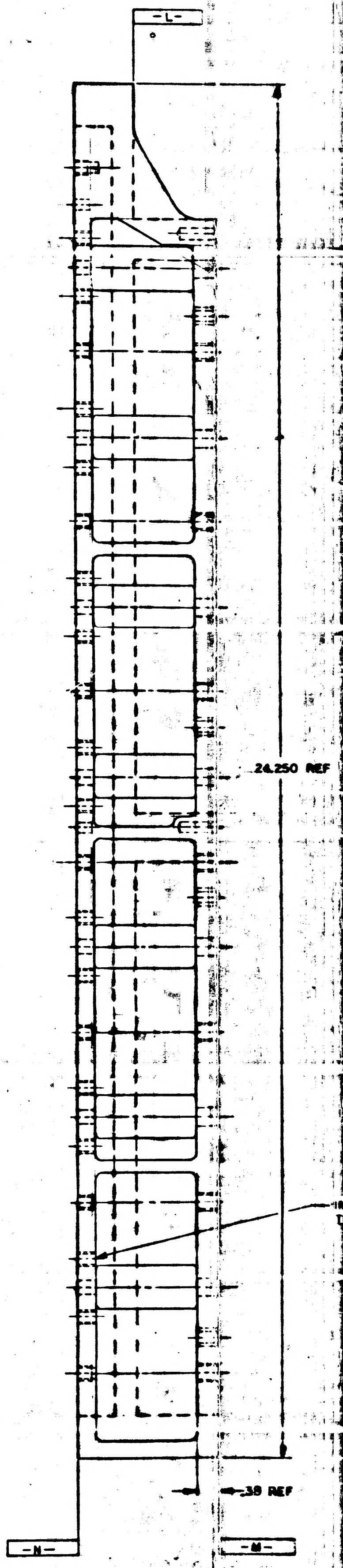

.289/.294 DIA ⌖ .006 DIA
.310/.317 DIA ⌖ .006 DIA

SECTION E-E
14 PLACES


9.000 BSC
1.716
.810
4
CBORE .331/.336 DIA X .610/.625 DEEP CSK 82° X .390 DIA
TAP 3/8-16UNC-28 X .438 MIN FULL THD 2 HOLES
⌖.014 DIA

VIEW B-B

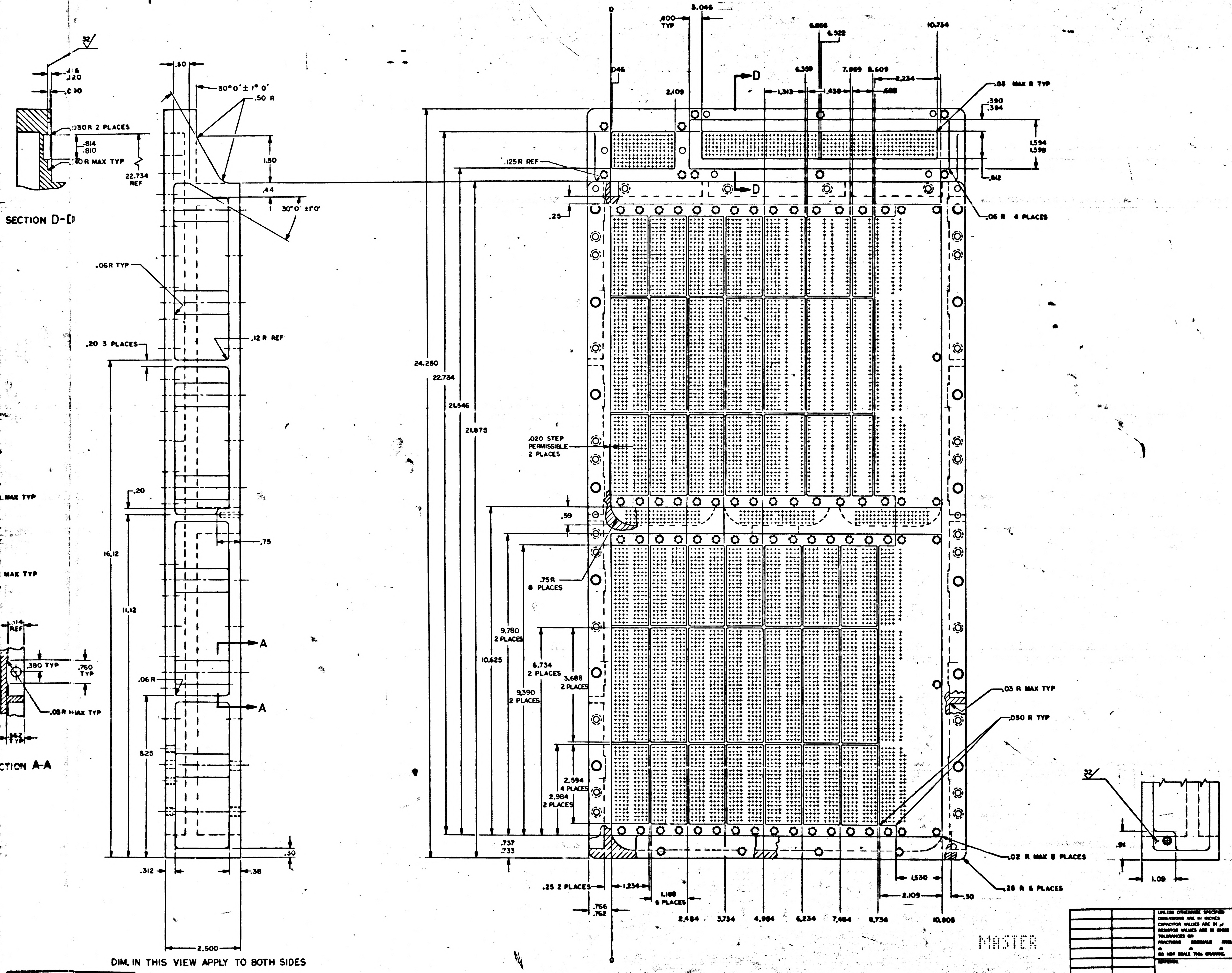

G
G
SEE NOTE 9
21.031 BSC
19.750 BSC
19.125 REF
18.656 REF
18.000 BSC
17.125 BSC
16.500 BSC
15.000 BSC
13.500 BSC
12.000 BSC
10.500 BSC
9.875 BSC
9.000 BSC
7.750 BSC
7.500 BSC
6.875 BSC
6.000 BSC
4.500 BSC
3.000 BSC
1.500 BSC
0
-.875 BSC
-1.500 BSC
-2.781 BSC
N
P
C
E
E
2
C BORE .227/.231 DIA X .408/.438 DEEP
AND CSK 82° X .250 DIA,
TAP 1/4-28 UN -2B X .220/.240 DEEP
FULL THD 16 N HOLES
⌖.005 DIA
2
.227/.231 DIA AND CSK 82° X .250 DIA,
TAP 1/4-28UN -2B X .220/.240 DEEP
FULL THD 14 C HOLES
⌖ .005 DIA
11.000 BSC
C'BORE .1865/.1870 DIA X .281 DEEP
4 P HOLES ⌖.002 DIA
⊥N.0005
.080/.084 DIA AND CSK 60° X .110 DIA
240 HOLES ⌖.004 DIA
8.125 BSC
6
.165/.169 DIA THRU AND
TAP NO. 10-32 UN-2B THRU
FULL THD 28 HOLES
⌖.014 DIA
.516 BSC
14 PLACES
0
1.032 BSC 14 PLACES
3.000 REF.
.969 BSC
.248 REF
B
B
4.094 BSC
4.344 BSC
7.594 BSC
7.844 BSC
10.969 BSC
11.938 BSC
12.438 REF


-L-
24.250 REF
.38 REF
-N-
-M-

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATL: 6061-T6 AL PER QQ-A-250/11, TEMP T6
3. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3 BEFORE INSTALLING FIND NO. 2,3,4,5,6 AND 7
4. ALL SURFACES 125/ UNLESS OTHERWISE SPECIFIED
5. REMOVE BURRS AND SHARP EDGES .005/.015
6. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII .125
7. INSTALL FIND NO. 2,3,4,5 AND 6 PER ND1002121
8. INSTALL FIND NO. 7 PER MS 33646 AND REMOVE DRIVING TANG
9. COAT THREADS OF FIND NO. 2, 3, 4, 5, 6 AND 7 WITH MIL-P-8585, COLOR YELLOW
10. IDENTIFY WITH PART NO. PER ND 1002019 AND SERIALIZE PER ND 1002023 WHERE SHOWN

2004116	E

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20286				
B		REVISED PER TDRR 21251				WK
C		REVISED PER TDRR 22158				
D		REVISED PER TDRR 22617				WK
E		REVISED PER TDRR 23147				WK



SECTION D-D
CTION A-A
32
.416
.120
.090
.030 R 2 PLACES
.814
.810
.10 R MAX TYP
22.734 REF
.50
30°0' ± 1° 0'
.50 R
1.50
.44
30°0' ±1°0'
.06R TYP
.12 R REF
.20 3 PLACES
.20
.75
16.12
11.12
.06 R
A
5.25
.30
.312
.38
2.500
DIM. IN THIS VIEW APPLY TO BOTH SIDES
MAX TYP
.14 REF
.380 TYP
.760 TYP
.08R MAX TYP
.562 TYP
.400 TYP
3.046
.046
2.109
D
6.858
6.922
10.734
6.359
7.859
8.609
1.313
1.438
.688
2.234
.03 MAX R TYP
.390
.394
1.594
1.598
.812
.125R REF
.06 R 4 PLACES
.25
24.250
22.734
21.546
21.875
.020 STEP PERMISSIBLE 2 PLACES
.59
.75R 8 PLACES
9.780 2 PLACES
10.625
6.734 2 PLACES
3.688 2 PLACES
9.390 2 PLACES
.03 R MAX TYP
.030 R TYP
2.594 4 PLACES
2.984 2 PLACES
.737
.733
.02 R MAX 8 PLACES
.25 R 6 PLACES
.25 2 PLACES
1.234
1.188 6 PLACES
.766
.762
2.484
3.734
4.984
6.234
7.484
8.734
1.530
2.109
.30
10.906
32
.91
1.09
MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY | USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN R. B. [illegible]
CHECKED G. Hong 5/13/65
APPROVED
APPROVED

APPROVED MIT
APPROVED MSC
DATE 5/11/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRAY A
INSEPARABLE ASSY
AGC

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004116
SCALE 1/1
SHEET 2 OF 2

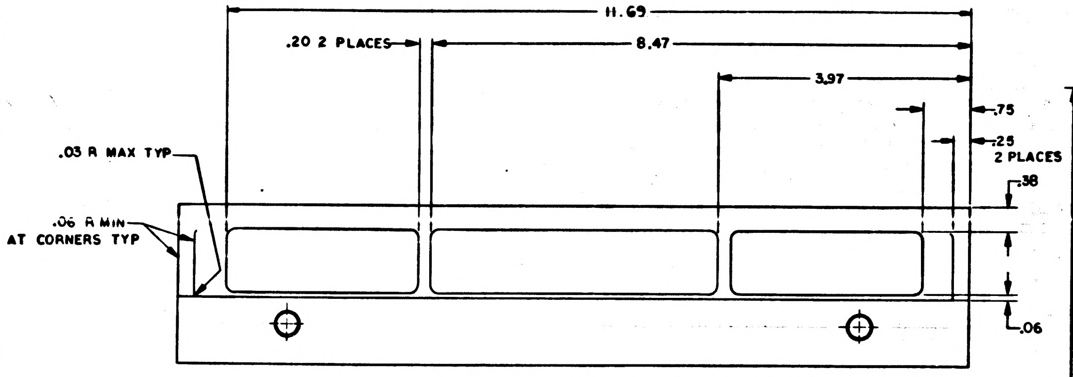
2004116 E

2004116 E

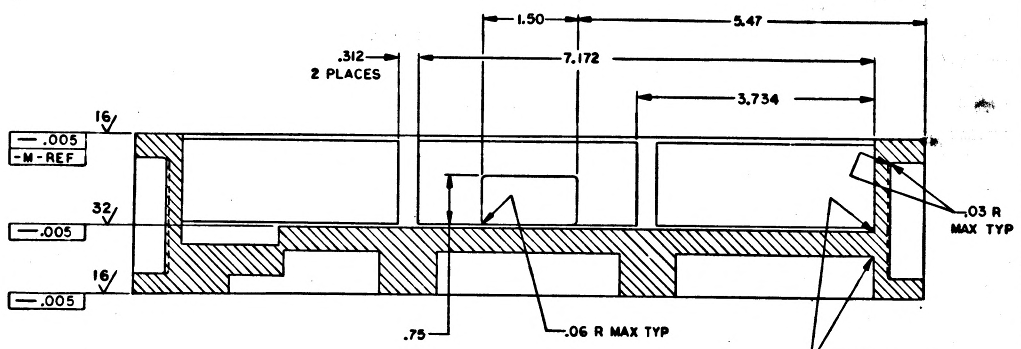
19217

24

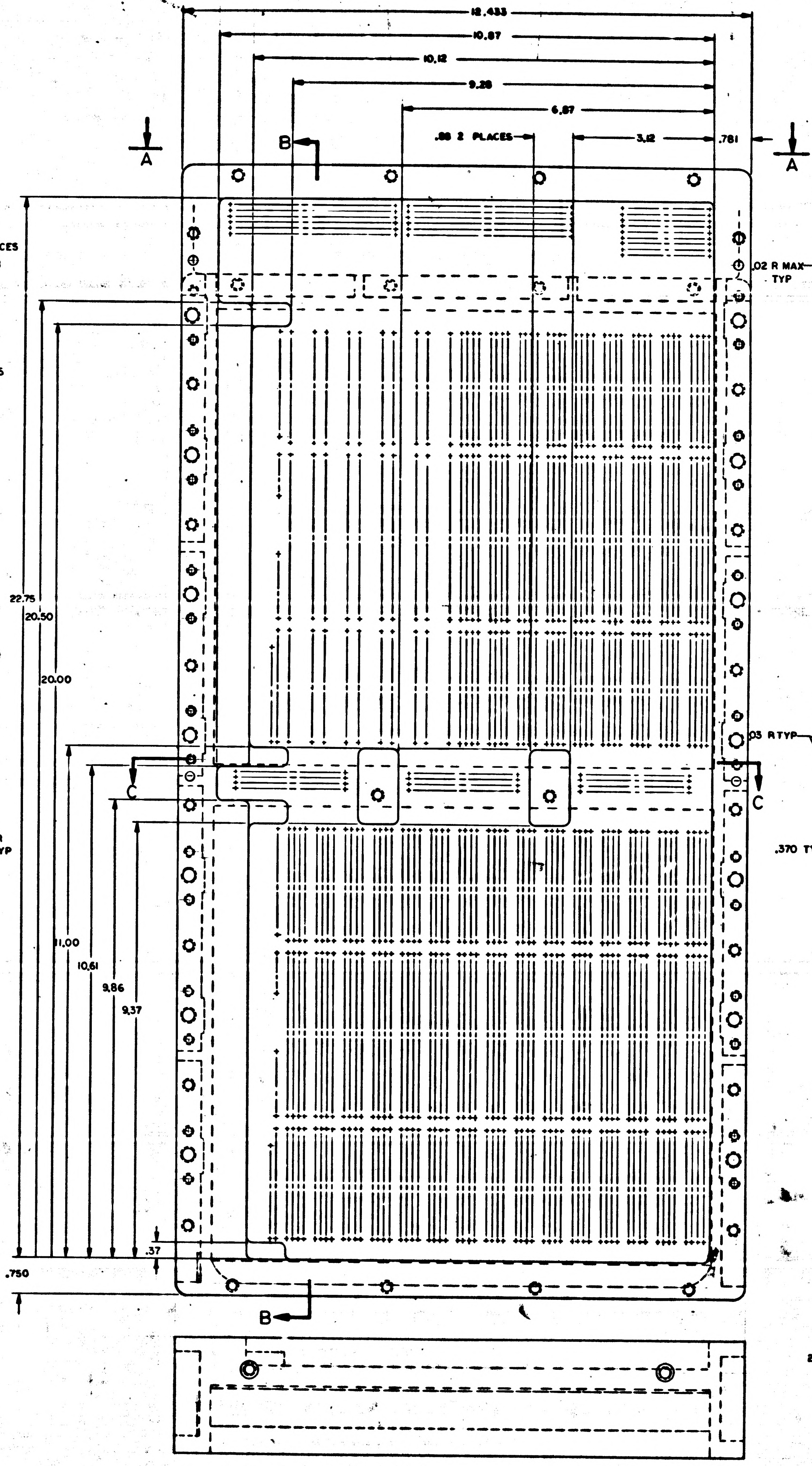
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

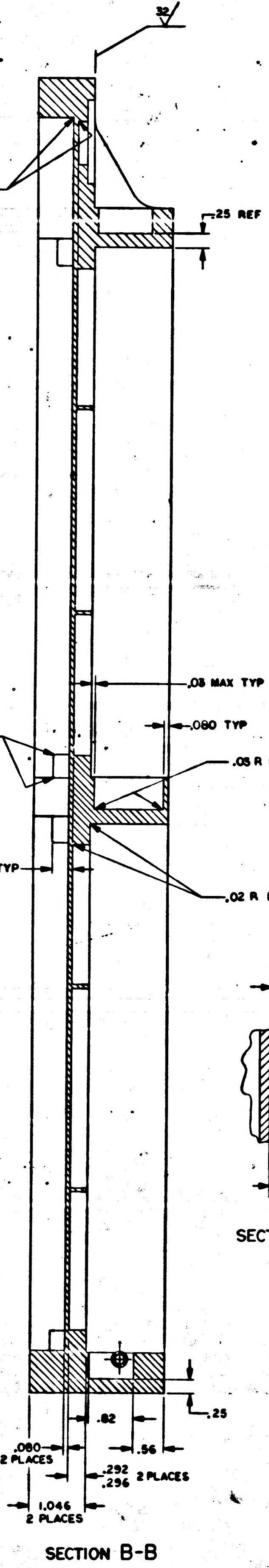

11.69
.20 2 PLACES
8.47
3.97
.75
.25
2 PLACES
.38
.03 R MAX TYP
.06 R MIN
AT CORNERS TYP
.06

VIEW A-A

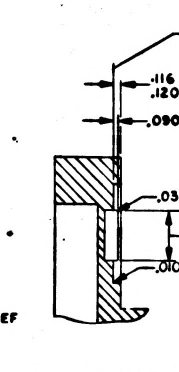

1.50
5.47
.312
2 PLACES
7.172
3.734
16
.005
-M-REF
32
.005
16
.005
.03 R
MAX TYP
.75
.06 R MAX TYP
.02 R MAX TYP

SECTION C-C

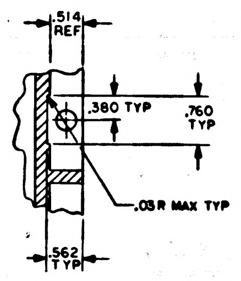

12.433
10.87
10.12
9.28
6.87
.88 2 PLACES
3.12
.781
A
A
B
B
C
C
.02 R MAX
TYP
22.75
20.50
20.00
11.00
10.61
9.86
9.37
.37
.750


32
.25 REF
.03 MAX TYP
.080 TYP
.03 R TYP
.05 R MAX TYP
.370 TYP
.02 R MAX TYP
.25
.82
.56
.080
2 PLACES
.292
.296
2 PLACES
1.046
2 PLACES

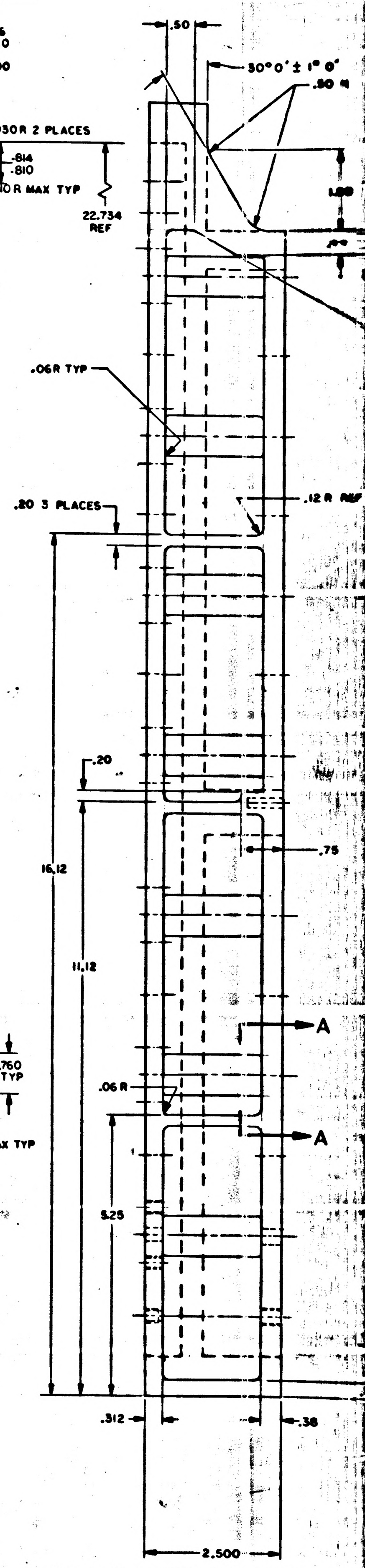
SECTION B-B


32
.116
.120
.090
.030R 2 PLACES
.814
.810
.010R MAX TYP
22.734
REF

SECTION D-D

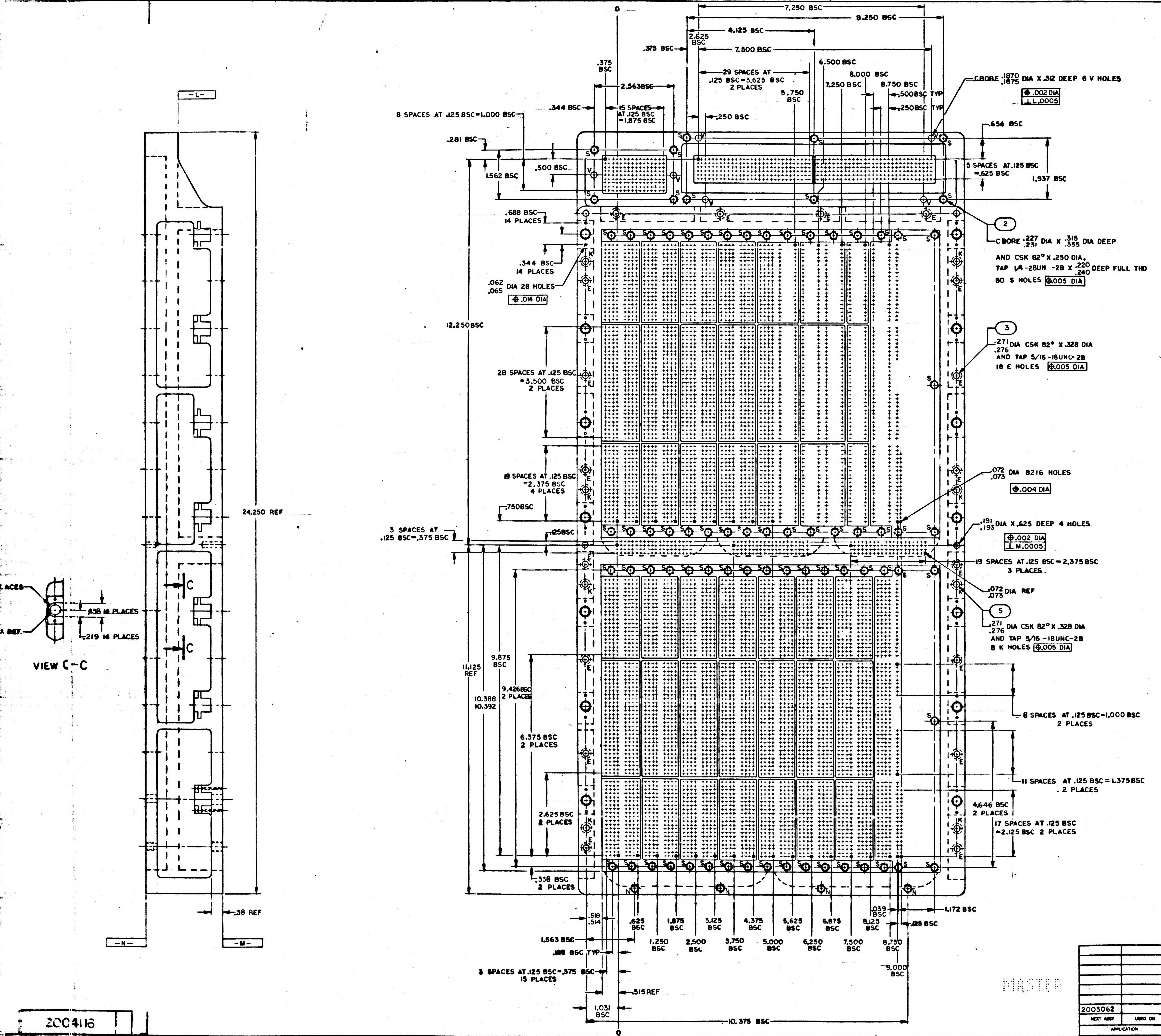

.514
REF
.380 TYP
.760
TYP
.03R MAX TYP
.562
TYP

SECTION A-A


.50
30°0' ± 1° 0'
.50 R
.06R TYP
.20 3 PLACES
.12 R REF
.20
16.12
11.12
.75
A
A
.06 R
5.25
.312
.38
2.500

DIM. IN THIS VIEW APPLY TO BOTH S

2004116 E



4
3
2
1
D
C
B
A
REVISIONS
SYM
ZONE
DESCRIPTION
DR
CHK
DATE
APPROVED
7.250 BSC
8.250 BSC
4.125 BSC
2.625 BSC
.375 BSC
7.500 BSC
6.500 BSC
.375 BSC
29 SPACES AT .125 BSC=3.625 BSC 2 PLACES
8.000 BSC
2.563BSC
7.250 BSC
8.750 BSC
5.750 BSC
.500BSC TYP
.250BSC TYP
8 SPACES AT .125 BSC=1.000 BSC
.344 BSC
15 SPACES AT .125 BSC =1.875 BSC
.250 BSC
CBORE .1870 .1875 DIA X .312 DEEP 6 V HOLES
.002 DIA
⊥ L .0005
.656 BSC
.281 BSC
.500 BSC
1.562 BSC
5 SPACES AT .125 BSC =.625 BSC
1.937 BSC
.688 BSC 14 PLACES
②
CBORE .227 .231 DIA X .315 .355 DIA DEEP
AND CSK 82° X .250 DIA.
TAP 1/4-28UN -2B X .220 .240 DEEP FULL THD
80 S HOLES .005 DIA
.344 BSC 14 PLACES
.062 .065 DIA 28 HOLES
.014 DIA
12.250BSC
③
.271 .276 DIA CSK 82° X .328 DIA
AND TAP 5/16-18UNC-2B
18 E HOLES .005 DIA
28 SPACES AT .125 BSC =3.500 BSC 2 PLACES
.072 .073 DIA 8216 HOLES
.004 DIA
19 SPACES AT .125 BSC =2.375 BSC 4 PLACES
.750BSC
.191 .193 DIA X .625 DEEP 4 HOLES
.002 DIA
⊥ M .0005
3 SPACES AT .125 BSC=.375 BSC
.125BSC
19 SPACES AT .125 BSC=2.375 BSC 3 PLACES
.072 .073 DIA REF
⑤
.271 .276 DIA CSK 82° X .328 DIA
AND TAP 5/16-18UNC-2B
8 K HOLES .005 DIA
11.125 REF
9.875 BSC
9.426BSC 2 PLACES
10.388 10.392
8 SPACES AT .125 BSC=1.000 BSC 2 PLACES
6.375 BSC 2 PLACES
11 SPACES AT .125 BSC = 1.375 BSC 2 PLACES
4.646 BSC 2 PLACES
2.625 BSC 8 PLACES
17 SPACES AT .125 BSC =2.125 BSC 2 PLACES
.338 BSC 2 PLACES
.518 .514
.625 BSC
1.875 BSC
3.125 BSC
4.375 BSC
5.625 BSC
6.875 BSC
8.125 BSC
.039 BSC
1.172 BSC
.125 BSC
1.563 BSC
1.250 BSC
2.500 BSC
3.750 BSC
5.000 BSC
6.250 BSC
7.500 BSC
8.750 BSC
.188 BSC TYP
9.000 BSC
3 SPACES AT .125 BSC=.375 BSC 15 PLACES
.515REF
1.031 BSC
10.375 BSC
0
S
V
E
K
N
L
24.250 REF
.38 REF
N
M
C
.438 14 PLACES
.219 14 PLACES
REF
VIEW C-C
MASTER

8	NAS1394CA-3	INSERT, THREADED	5
2	NAS1394CA-4L	INSERT, THREADED, SELF-LOCKING	4
18	NAS1394CA-3L	INSERT, THREADED, SELF-LOCKING	3
110	1006702-5	INSERT, THREADED, SELF-LOCKING	2
1	2004116-1	TRAY A MACHINED	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003062	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XX ±.01 .XXX ±.005 ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE. MASS

DRAWN C.B. Hoagson 6APR65
CHECKED R. 5/17/65
APPROVED Duggan
APPROVED 18 May
APPROVED MIT M.G. Mudge 18 May 65
APPROVED MSC 5/18/65
DATE

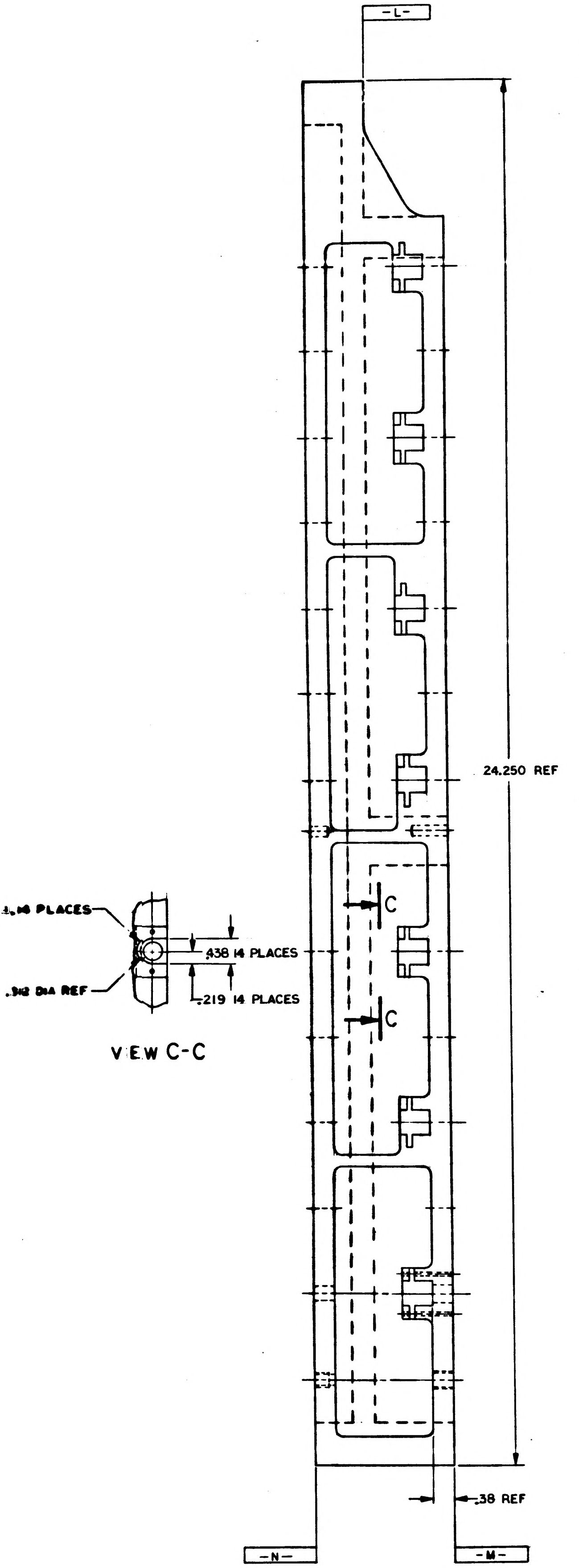
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRAY A
AGC

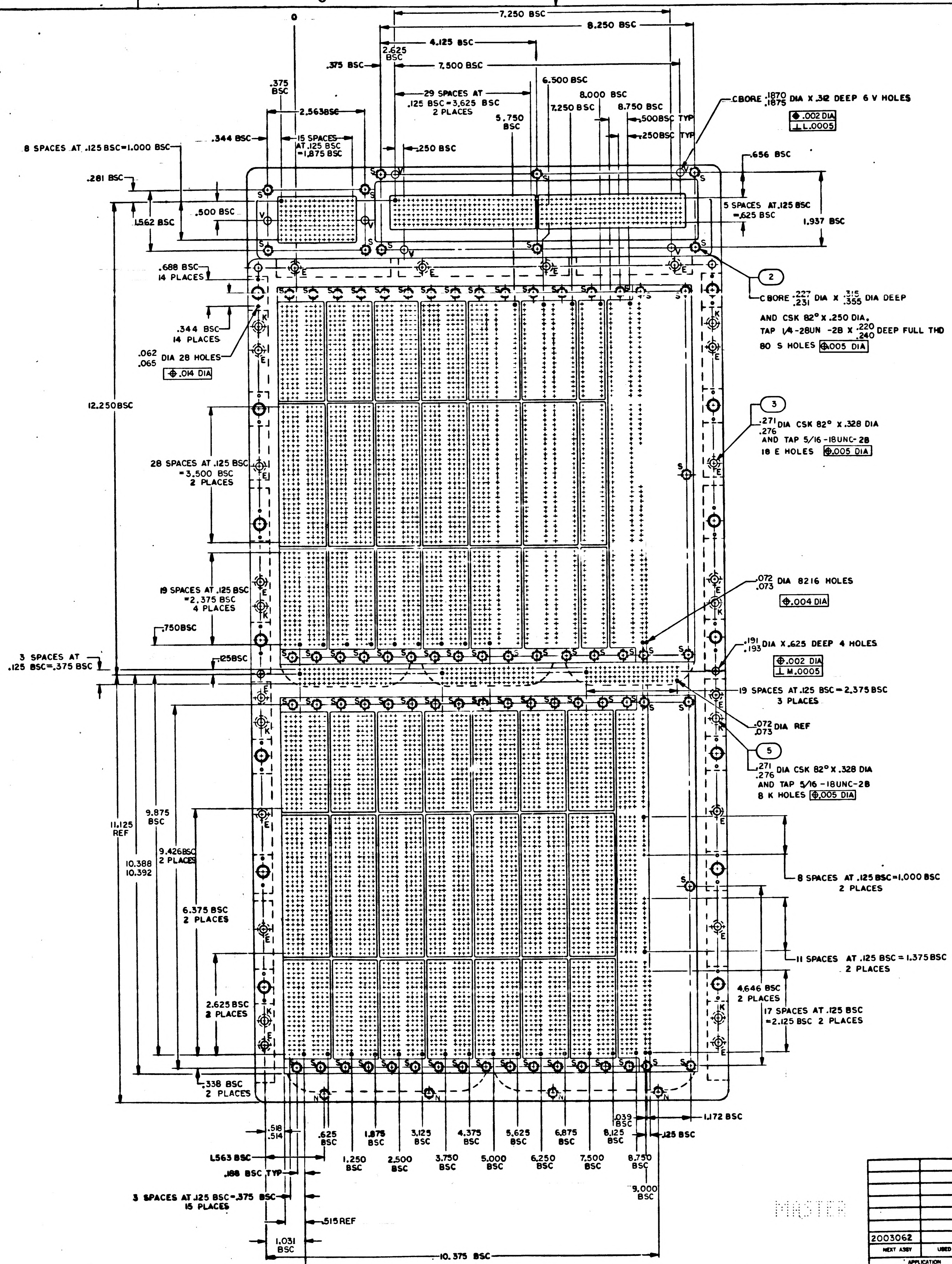
CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004116
SCALE 1/1
SHEET 1 OF 2

2004116

REVISIONS						
SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED



L
24.250 REF
.38 REF
N
M
C
C
14 PLACES
.312 DIA REF
.438 14 PLACES
.219 14 PLACES
VIEW C-C



7.250 BSC
8.250 BSC
4.125 BSC
2.625 BSC
.375 BSC
7.500 BSC
6.500 BSC
.375 BSC
2.5638 BSC
29 SPACES AT .125 BSC=3.625 BSC 2 PLACES
8.000 BSC
5.750 BSC
7.250 BSC
8.750 BSC
.500 BSC TYP
.250 BSC TYP
8 SPACES AT .125 BSC=1.000 BSC
.344 BSC
15 SPACES AT .125 BSC =1.875 BSC
.250 BSC
.281 BSC
.500 BSC
1.562 BSC
CBORE .1870 .1875 DIA X .312 DEEP 6 V HOLES
.002 DIA
L.0005
.656 BSC
5 SPACES AT .125 BSC =.625 BSC
1.937 BSC
2
CBORE .227 .231 DIA X .315 .355 DIA DEEP AND CSK 82° X .250 DIA. TAP 1/4-28UN -2B X .220 .240 DEEP FULL THD 80 S HOLES .005 DIA
.688 BSC 14 PLACES
.344 BSC 14 PLACES
.062 .065 DIA 28 HOLES
.014 DIA
12.250 BSC
3
.271 .276 DIA CSK 82° X .328 DIA AND TAP 5/16-18UNC-2B 18 E HOLES .005 DIA
28 SPACES AT .125 BSC =3.500 BSC 2 PLACES
19 SPACES AT .125 BSC =2.375 BSC 4 PLACES
.750 BSC
.072 .073 DIA 8216 HOLES
.004 DIA
.191 .193 DIA X .625 DEEP 4 HOLES
.002 DIA
M.0005
3 SPACES AT .125 BSC=.375 BSC
.125 BSC
19 SPACES AT .125 BSC=2.375 BSC 3 PLACES
.072 .073 DIA REF
5
.271 .276 DIA CSK 82° X .328 DIA AND TAP 5/16-18UNC-2B 8 K HOLES .005 DIA
11.125 REF
9.875 BSC
10.388 10.392
9.426 BSC 2 PLACES
6.375 BSC 2 PLACES
2.625 BSC 2 PLACES
8 SPACES AT .125 BSC=1.000 BSC 2 PLACES
11 SPACES AT .125 BSC = 1.375 BSC 2 PLACES
4.646 BSC 2 PLACES
17 SPACES AT .125 BSC =2.125 BSC 2 PLACES
.338 BSC 2 PLACES
S
V
E
K
N
0
.518 .514
.625 BSC
1.250 BSC
1.875 BSC
2.500 BSC
3.125 BSC
3.750 BSC
4.375 BSC
5.000 BSC
5.625 BSC
6.250 BSC
6.875 BSC
7.500 BSC
8.125 BSC
8.750 BSC
9.000 BSC
.039 BSC
1.172 BSC
.125 BSC
1.563 BSC
.188 BSC TYP
3 SPACES AT .125 BSC=.375 BSC 15 PLACES
.515 REF
1.031 BSC
10.375 BSC

8	NAS1394CA-3	INSERT, THREADED	5
2	NAS1394CA-4L	INSERT, THREADED, SELF-LOCKING	4
18	NAS1394CA-3L	INSERT, THREADED, SELF-LOCKING	3
110	1006702-5	INSERT, THREADED, SELF-LOCKING	2
1	2004116-1	TRAY A MACHINED	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003062	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS XX ±.01 XXX ±.005 ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN R.B. Gaquin 5 APR 65
CHECKED R. Hong 5/17/65
APPROVED Duggan
APPROVED Alden Hall 17 May
APPROVED MIT M G Murley 17 May 65
APPROVED MSC
DATE

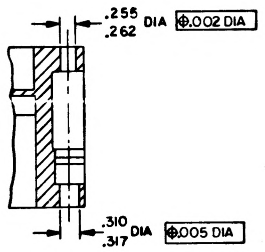
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRAY A
AGC

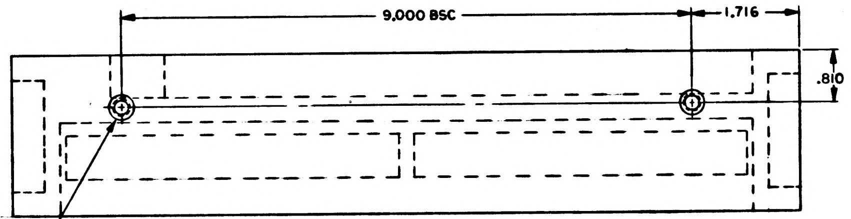
CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004116
SCALE 1/1
SHEET 1 OF 2

MASTER

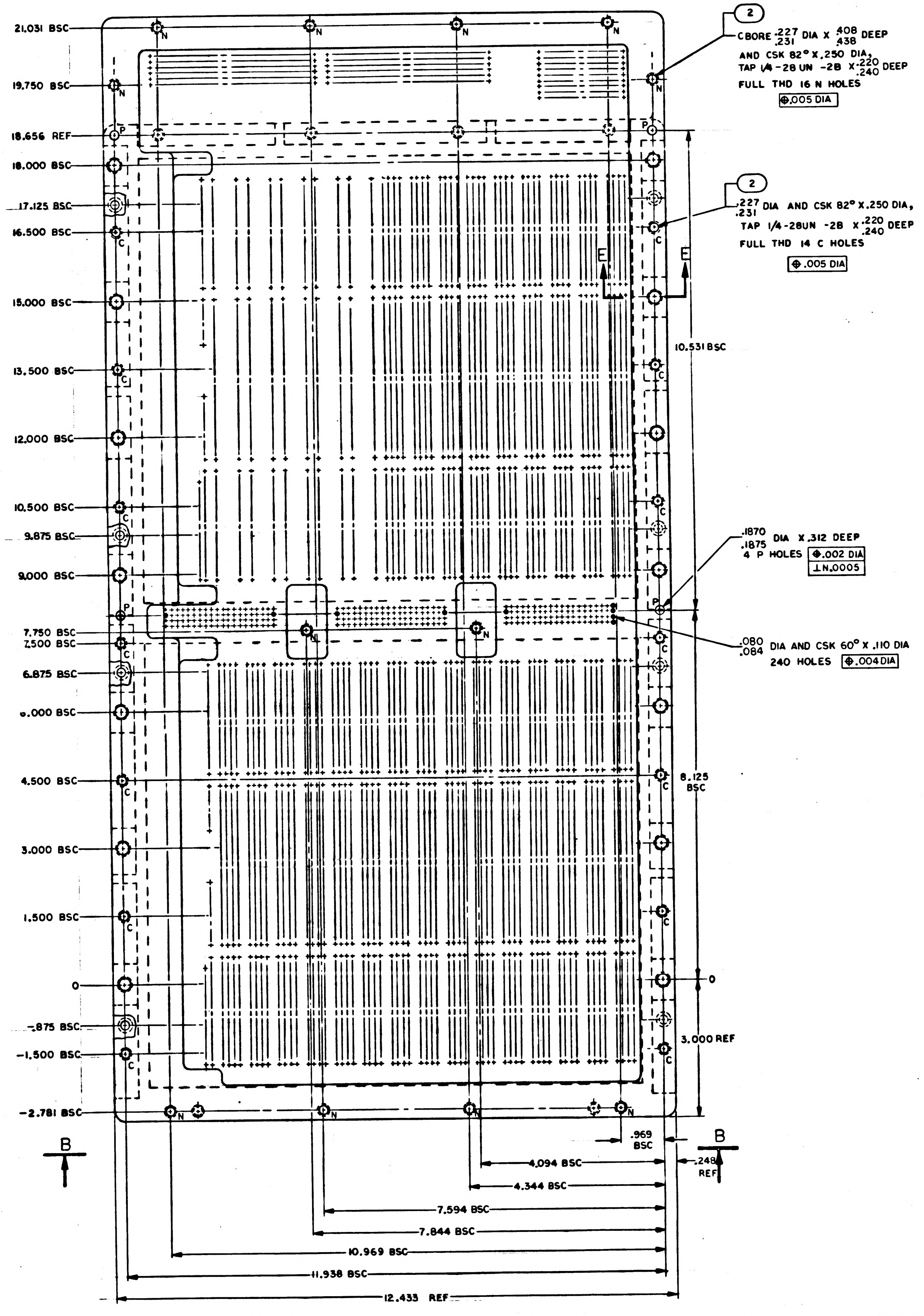
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

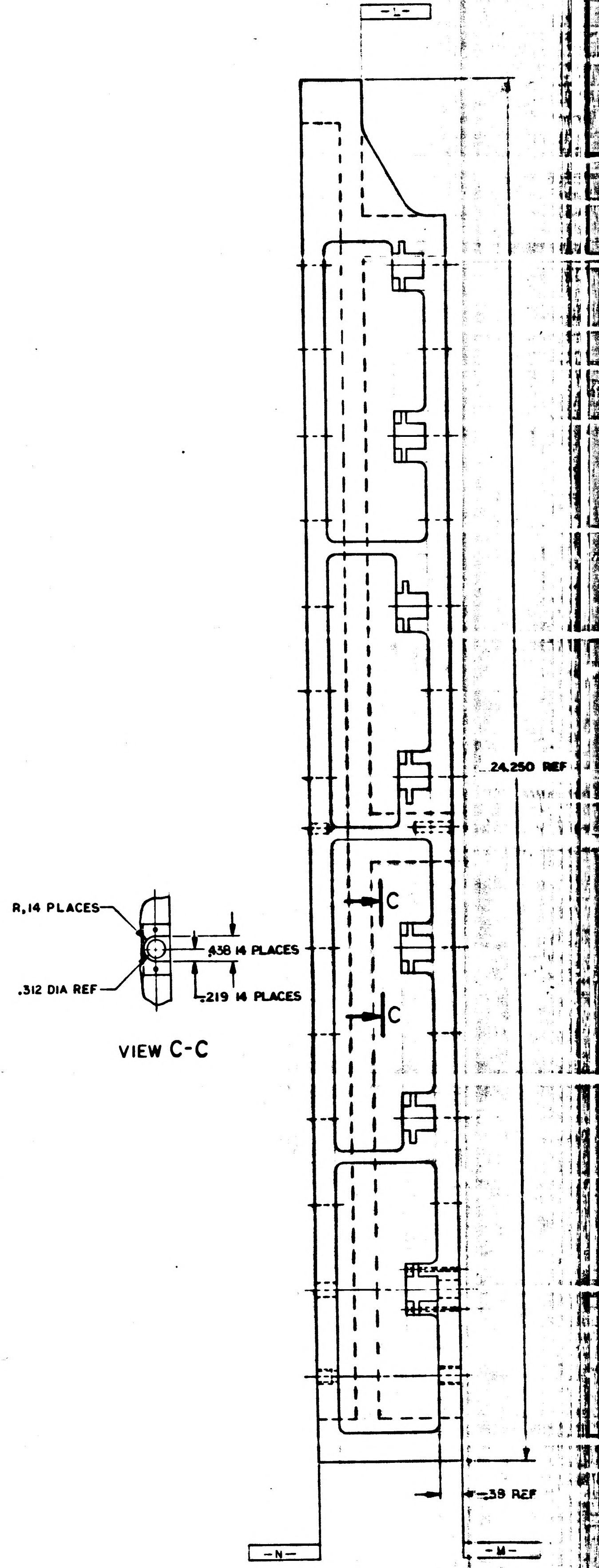

.255 .262 DIA ⊕.002 DIA
.310 .317 DIA ⊕.005 DIA

SECTION E-E
14 PLACES


9,000 BSC
1.716
.810
4
CBORE .331 .336 DIA X .610 .625 DEEP CSK 82° X .390 DIA
TAP 3/8-16UNC-2B X .438 MIN FULL THD 2 HOLES
⊕.014 DIA

VIEW B-B

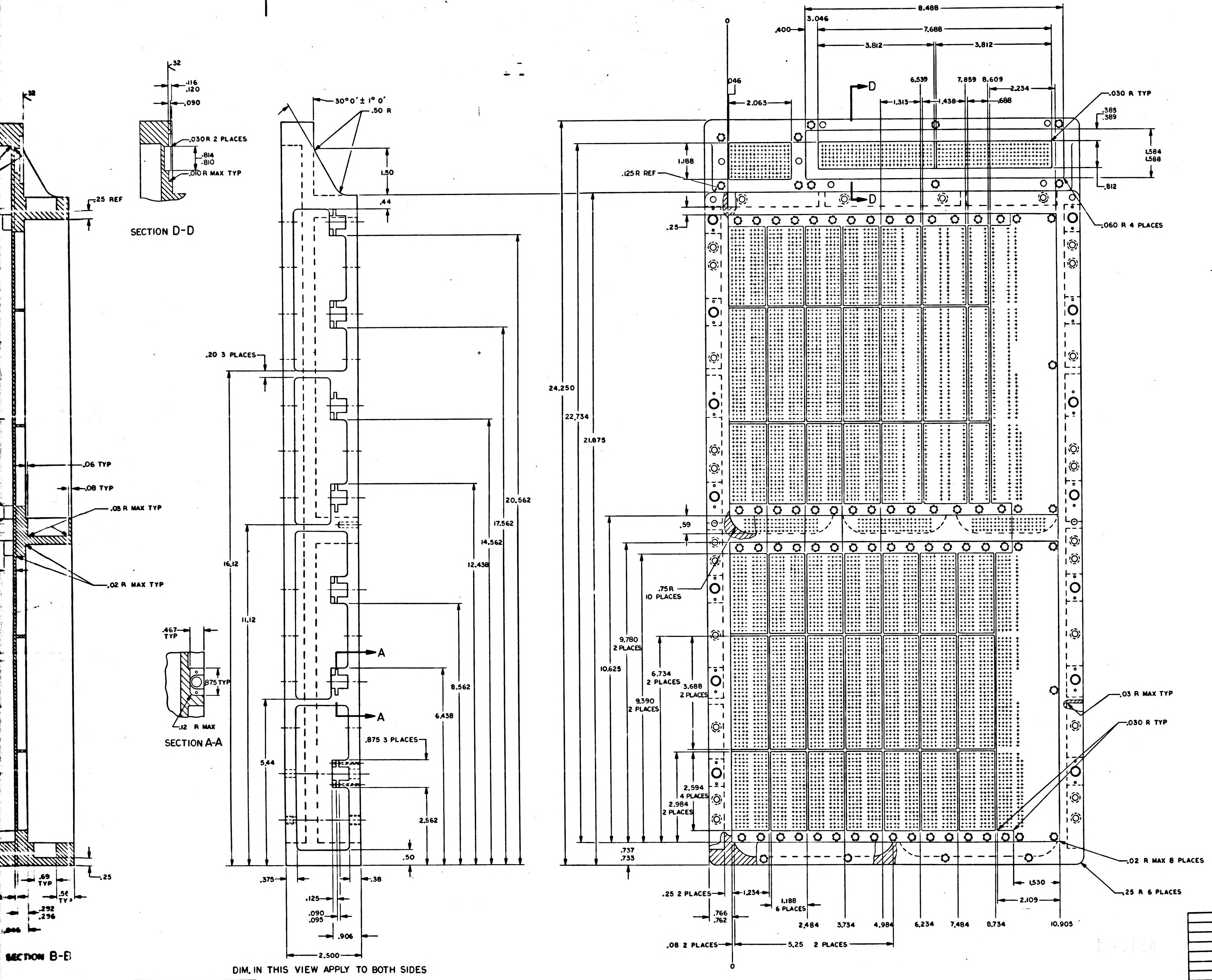

21.031 BSC
19.750 BSC
18.656 REF
18.000 BSC
17.125 BSC
16.500 BSC
15.000 BSC
13.500 BSC
12.000 BSC
10.500 BSC
9.875 BSC
9.000 BSC
7.750 BSC
7.500 BSC
6.875 BSC
6.000 BSC
4.500 BSC
3.000 BSC
1.500 BSC
0
-.875 BSC
-1.500 BSC
-2.781 BSC
N
C
P
E
2
CBORE .227 .231 DIA X .408 .438 DEEP
AND CSK 82° X .250 DIA,
TAP 1/4-28 UN -2B X .220 .240 DEEP
FULL THD 16 N HOLES
⊕.005 DIA
2
.227 .231 DIA AND CSK 82° X .250 DIA,
TAP 1/4-28UN -2B X .220 .240 DEEP
FULL THD 14 C HOLES
⊕.005 DIA
10.531 BSC
.1870 .1875 DIA X .312 DEEP
4 P HOLES ⊕.002 DIA ⊥N.0005
.080 .084 DIA AND CSK 60° X .110 DIA
240 HOLES ⊕.004 DIA
8.125 BSC
0
3.000 REF
B
B
.969 BSC
.248 REF
4.094 BSC
4.344 BSC
7.594 BSC
7.844 BSC
10.969 BSC
11.938 BSC
12.433 REF


R,14 PLACES
.312 DIA REF
.438 14 PLACES
.219 14 PLACES
C
C
24.250 REF
.38 REF
-L-
-N-
-M-

VIEW C-C

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATL: 6061-T6 AL PER QQ-A-250/11, TEMP T6
3. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3 BEFORE INSTALLING FIND NO. 2,3,4 AND 5
4. ALL SURFACES 125/ UNLESS OTHERWISE SPECIFIED
5. REMOVE BURRS AND SHARP EDGES .005/.015
6. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII .125
7. INSTALL FIND NO. 2,3,4 AND 5 PER ND1002121
8. COAT THREADS OF FIND NO. 2,3,4 AND 5 WITH MIL-P-8585, COLOR YELLOW
9. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

200416



SECTION D-D
32
.116
.120
.090
.030 R 2 PLACES
.814
.810
.010 R MAX TYP
.25 REF
30°0' ± 1° 0'
.50 R
1.50
.44
.20 3 PLACES
16.12
11.12
5.44
.375
.125
.090
.095
.906
2.500
.38
.50
2.562
6.438
8.562
12.438
14.562
17.562
20.562
A
.875 3 PLACES
.467 TYP
.875 TYP
.12 R MAX
SECTION A-A
.06 TYP
.08 TYP
.03 R MAX TYP
.02 R MAX TYP
.25
.69 TYP
.56 TYP
.292
.296
SECTION B-B
DIM. IN THIS VIEW APPLY TO BOTH SIDES
8.488
3.046
.400
7.688
3.812
3.812
.046
2.063
6.539
1.313
1.438
7.859
8.609
.688
2.234
D
.030 R TYP
.385
.389
1.584
1.588
.812
1.188
.125 R REF
.060 R 4 PLACES
.25
24.250
22.734
21.875
.59
.75 R
10 PLACES
9.780
2 PLACES
10.625
6.734
2 PLACES
3.688
2 PLACES
9.390
2 PLACES
2.594
4 PLACES
2.984
2 PLACES
.737
.733
.03 R MAX TYP
.030 R TYP
.02 R MAX 8 PLACES
.25 R 6 PLACES
1.530
2.109
.25 2 PLACES
1.234
1.188
6 PLACES
.766
.762
2.484
3.734
4.984
6.234
7.484
8.734
10.905
.08 2 PLACES
5.25 2 PLACES
0

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

REVISIONS 9219

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	R.B. Hoguan	26 APR 65
CHECKED	G. Hong	5/17/65
APPROVED		
APPROVED	Eldon C. Hall	11 May 65
APPROVED MIT	M. C. Wheeler	11 May 65
APPROVED MSC		5/10/65
		DATE

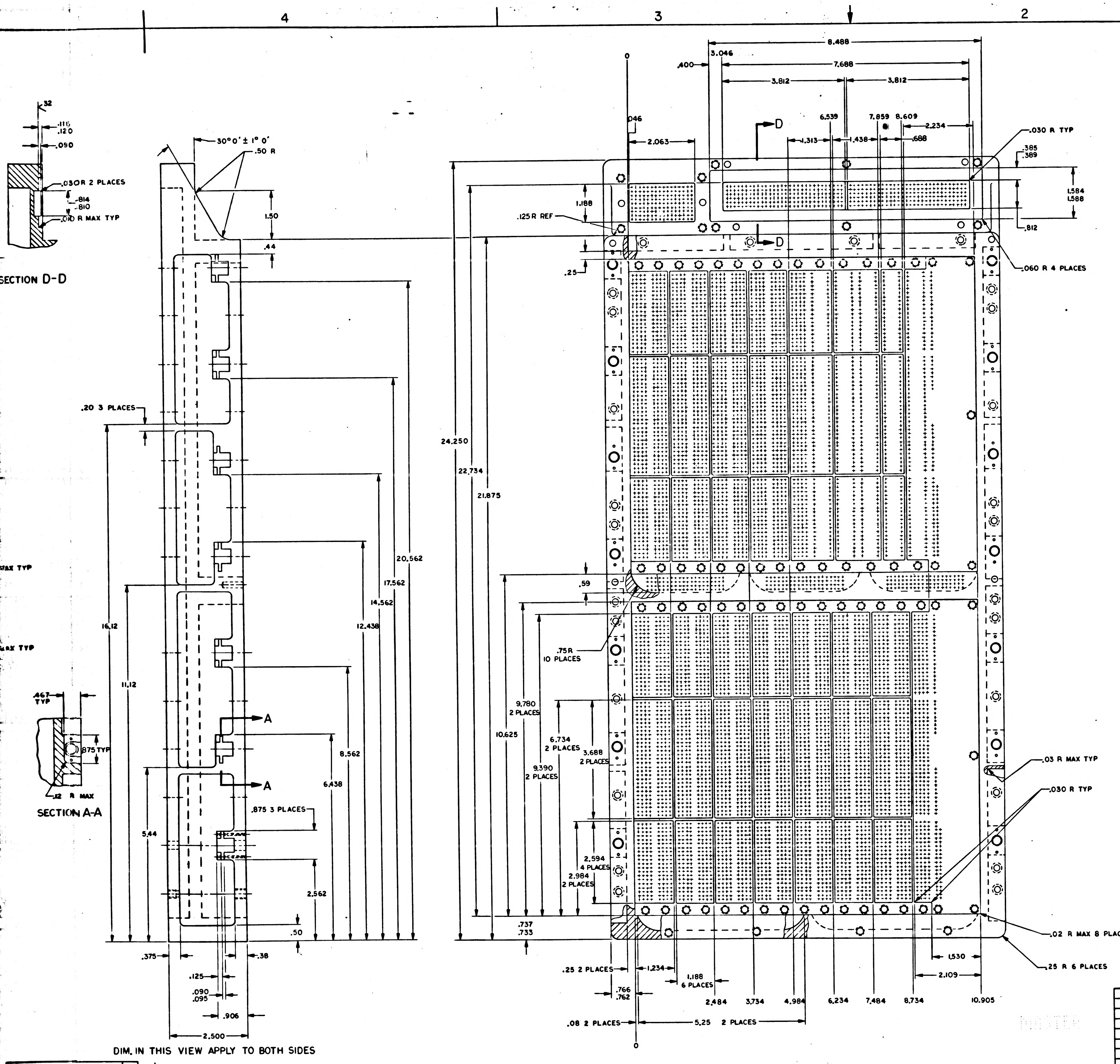
TRAY A
AGC

CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2004116
SCALE 1/1		SHEET 2 OF 2

2004116

2004116

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



4
3
2
1
D
C
B
A
SECTION D-D
.32
.116
.120
.090
.030 R 2 PLACES
.814
.810
.010 R MAX TYP
30°0' ± 1° 0'
.50 R
1.50
.44
.20 3 PLACES
MAX TYP
MAX TYP
16.12
11.12
5.44
.467 TYP
.875 TYP
.12 R MAX
SECTION A-A
A
A
.875 3 PLACES
20.562
17.562
14.562
12.438
8.562
6.438
2.562
.50
.375
.38
.125
.090
.095
.906
2.500
DIM. IN THIS VIEW APPLY TO BOTH SIDES
8.488
.400
3.046
7.688
3.812
3.812
6.539
7.859
8.609
2.234
.046
2.063
1.313
1.438
.688
D
D
.030 R TYP
.385
.389
1.584
1.588
.812
1.188
.125 R REF
.060 R 4 PLACES
.25
24.250
22.734
21.875
10.625
.59
.75 R
10 PLACES
9.780
2 PLACES
9.390
2 PLACES
6.734
2 PLACES
3.688
2 PLACES
2.594
4 PLACES
2.984
2 PLACES
.737
.733
.03 R MAX TYP
.030 R TYP
.02 R MAX 8 PLACES
.25 R 6 PLACES
1.530
2.109
.25 2 PLACES
1.234
1.188
6 PLACES
.766
.762
2.484
3.734
4.984
6.234
7.484
8.734
10.905
.08 2 PLACES
5.25 2 PLACES
0
0

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

NEXT ASSY | USED ON
APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN R.B. Hogan 26APR65
CHECKED R. Hong 5/17/65
APPROVED
APPROVED
APPROVED MIT 12 May 65
APPROVED MSC 5/18/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRAY A
AGC

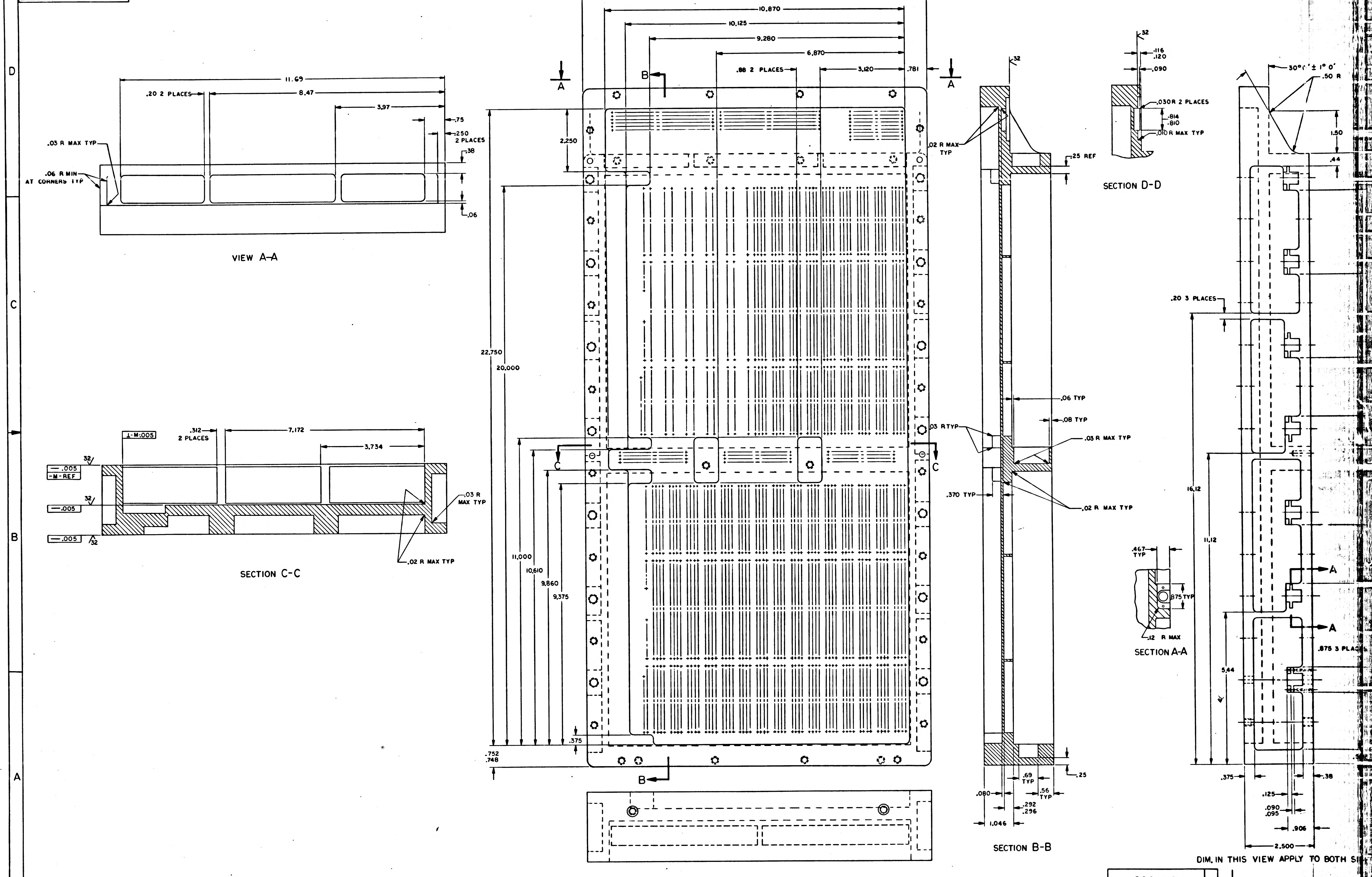
CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2004116

SCALE 1/1
SHEET 2 OF 2

2004116

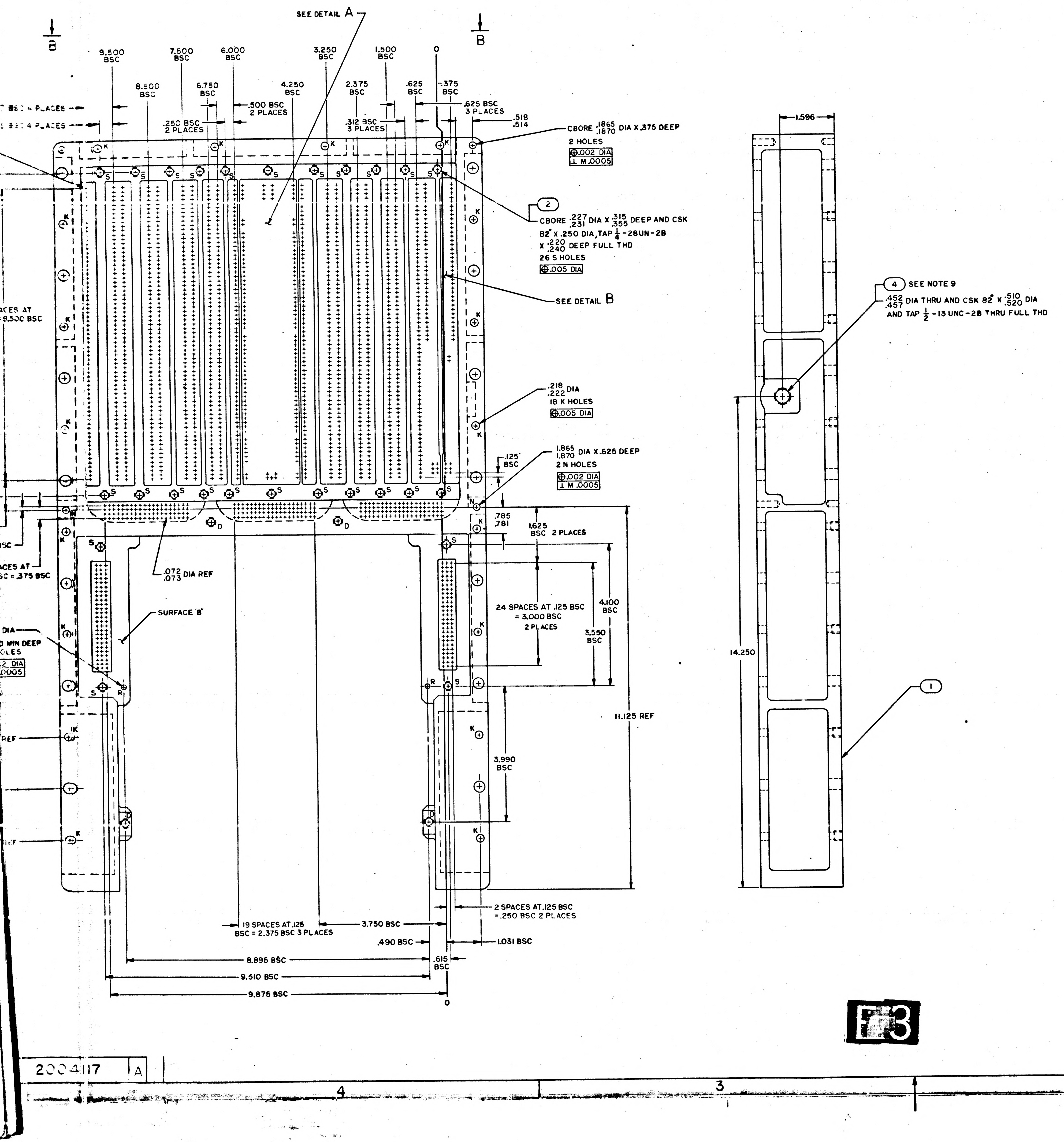
2004116

NOTICE -- WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


8
7
6
5
4
D
C
B
A
11.69
.20 2 PLACES
8.47
3.97
.75
.250
2 PLACES
.38
.03 R MAX TYP
.06 R MIN
AT CORNERS TYP
.06
VIEW A-A
⊥-M-.005
.312
2 PLACES
7.172
3.734
—.005
-M-REF
32
—.005
—.005
.03 R
MAX TYP
.02 R MAX TYP
SECTION C-C
12.433
10.870
10.125
9.280
6.870
.88 2 PLACES
3.120
.781
A
B
2.250
22.750
20.000
11.000
10.610
9.860
9.375
.375
.752
.748
C
C
B
.02 R MAX
TYP
32
.25 REF
.06 TYP
.08 TYP
.03 R TYP
.03 R MAX TYP
.370 TYP
.02 R MAX TYP
.25
.080
.69
TYP
.56
TYP
.292
.296
1.046
SECTION B-B
32
.116
.120
.090
.030R 2 PLACES
.814
.810
.010R MAX TYP
SECTION D-D
30°0'± 1° 0'
.50 R
1.50
.44
.20 3 PLACES
16.12
11.12
5.44
.467
TYP
.875 TYP
.12 R MAX
SECTION A-A
A
A
.875 3 PLA
.375
.38
.125
.090
.095
.906
2.500
DIM. IN THIS VIEW APPLY TO BOTH SI

2004116

REVISIONS 19219						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER 20286	RB		23 Jun 65	



SEE DETAIL A
B
B
9.500 BSC
7.500 BSC
6.000 BSC
3.250 BSC
1.500 BSC
0
8.500 BSC
6.750 BSC
4.250 BSC
2.375 BSC
.625 BSC
.375 BSC
.500 BSC 2 PLACES
.625 BSC 3 PLACES
.250 BSC 2 PLACES
.312 BSC 3 PLACES
.518 .514
BSC 4 PLACES
BSC 4 PLACES
CBORE .1865 .1870 DIA X .375 DEEP
2 HOLES
⊕ .002 DIA
⊥ M .0005
2
CBORE .227 .231 DIA X .315 .355 DEEP AND CSK
82° X .250 DIA, TAP 1/4 -28UN-2B
X .220 .240 DEEP FULL THD
26 S HOLES
⊕ .005 DIA
SEE DETAIL B
ACES AT
8.500 BSC
.218 .222 DIA
18 K HOLES
⊕ .005 DIA
.125 BSC
1.865 1.870 DIA X .625 DEEP
2 N HOLES
⊕ .002 DIA
⊥ M .0005
.785 .781
1.625 BSC 2 PLACES
.072 .073 DIA REF
SURFACE 'B'
24 SPACES AT .125 BSC = 3.000 BSC 2 PLACES
4.100 BSC
3.550 BSC
11.125 REF
3.990 BSC
ACES AT
C = .375 BSC
DIA
MIN DEEP
LES
REF
19 SPACES AT .125 BSC = 2.375 BSC 3 PLACES
3.750 BSC
.490 BSC
2 SPACES AT .125 BSC = .250 BSC 2 PLACES
1.031 BSC
8.895 BSC
.615 BSC
9.510 BSC
9.875 BSC
0
S
K
D
N
R
1.596
4 SEE NOTE 9
.452 .457 DIA THRU AND CSK 82° X .510 .520 DIA
AND TAP 1/2 -13 UNC-2B THRU FULL THD
14.250
1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	NAS1394CA-6L	INSERT, THREADED, SELF-LOCKING	4
3	NAS1394CA-3L	INSERT, THREADED, SELF-LOCKING	3
60	1006702-5	INSERT, THREADED, SELF-LOCKING	2
1	2004117-001	TRAY B, MACHINED	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003063	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XXX ± .005 .XX ± .01 ANGLES ± 1/2
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN R.A. Taylor 27 Apr 65
CHECKED R. Wong 5/12/65
APPROVED 5/12/65
APPROVED Eldon C. Hall 11 May 65
APPROVED MIT 11 May 65
APPROVED MSC
DATE

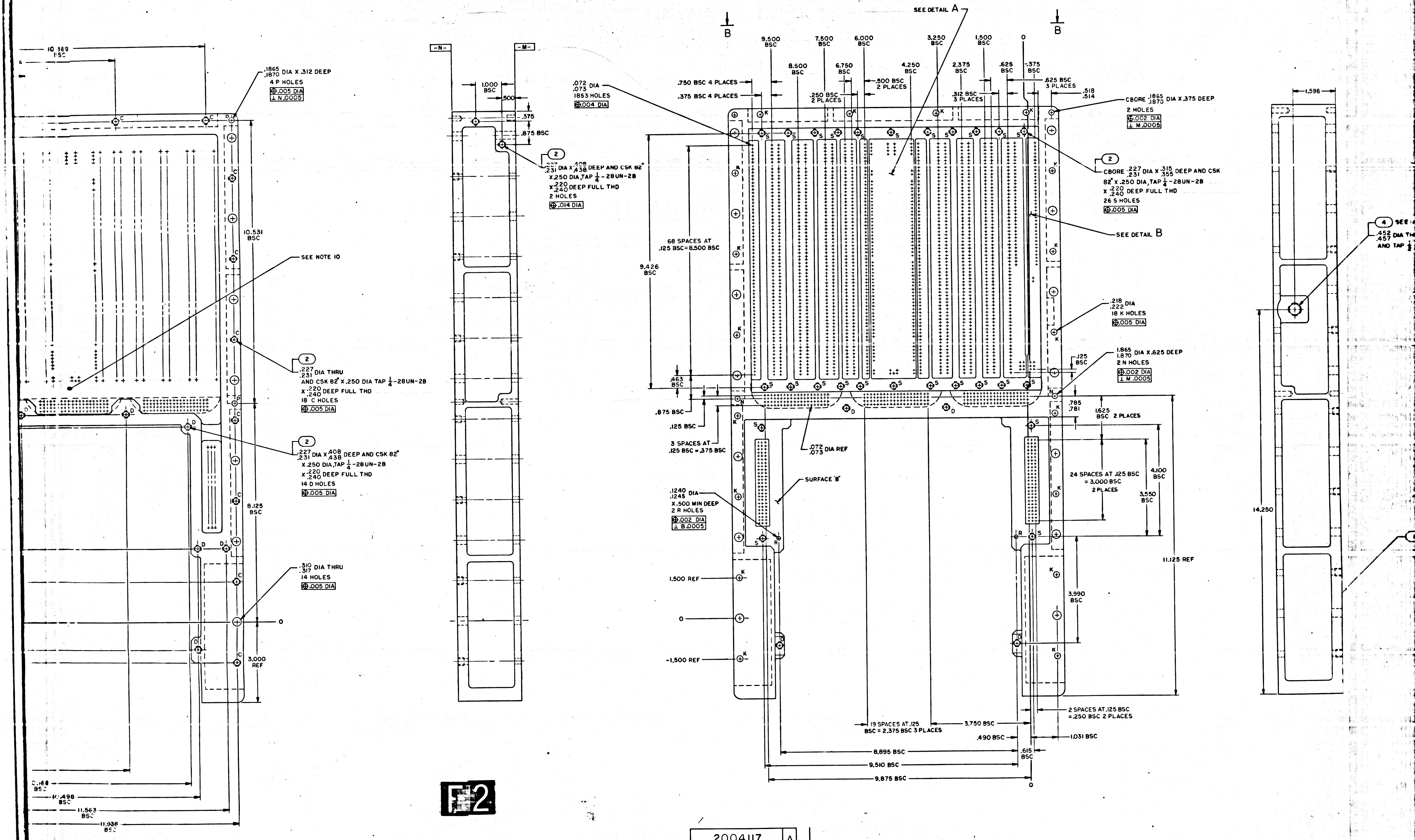
TRAY B
AGC

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004117
SCALE 1/1
SHEET 1 OF 2

F3

MASTER

3H

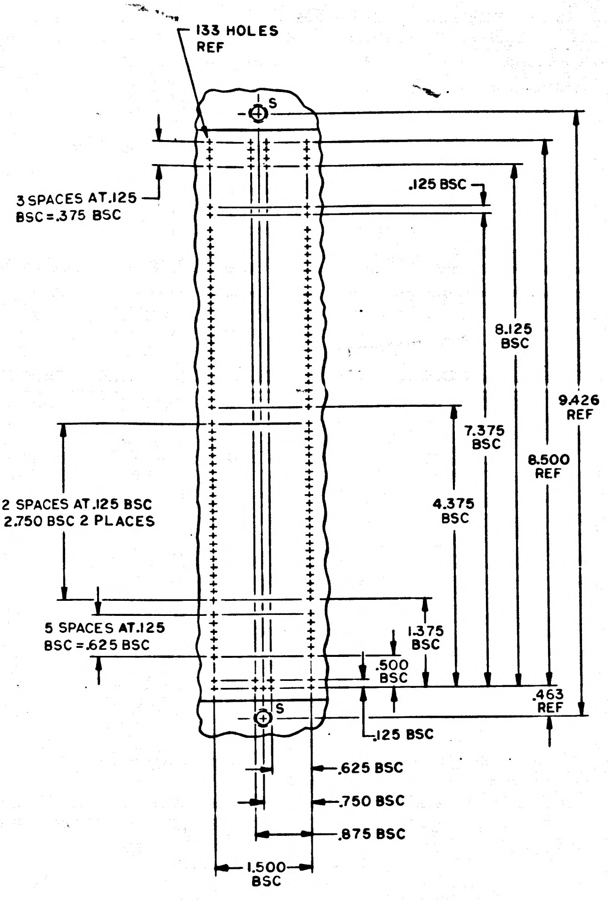


SEE DETAIL A
B
B
10.369 BSC
.1865 .1870 DIA X .312 DEEP
4 P HOLES
⊕ .005 DIA
⊥ N .0005
10.531 BSC
SEE NOTE 10
2
.227 .231 DIA THRU
AND CSK 82° X .250 DIA TAP 1/4 -28UN-2B
X .220 .240 DEEP FULL THD
18 C HOLES
⊕ .005 DIA
2
.227 .231 DIA X .408 .438 DEEP AND CSK 82°
X .250 DIA, TAP 1/4 -28UN-2B
X .220 .240 DEEP FULL THD
14 D HOLES
⊕ .005 DIA
8.125 BSC
.310 .317 DIA THRU
14 HOLES
⊕ .005 DIA
0
3.000 REF
0.168 BSC
10.498 BSC
11.563 BSC
11.938 BSC
-N-
-M-
1.000 BSC
.500
.375
.875 BSC
2
.227 .231 DIA X .408 .438 DEEP AND CSK 82°
X .250 DIA, TAP 1/4 - 28UN-2B
X .220 .240 DEEP FULL THD
2 HOLES
⊕ .014 DIA
.072 .073 DIA
1853 HOLES
⊕ .004 DIA
9.500 BSC
7.500 BSC
6.000 BSC
3.250 BSC
1.500 BSC
0
8.500 BSC
6.750 BSC
4.250 BSC
2.375 BSC
.625 BSC
.375 BSC
.750 BSC 4 PLACES
.375 BSC 4 PLACES
.250 BSC 2 PLACES
.500 BSC 2 PLACES
.312 BSC 3 PLACES
.625 BSC 3 PLACES
.518 .514
CBORE .1865 .1870 DIA X .375 DEEP
2 HOLES
⊕ .002 DIA
⊥ M .0005
2
CBORE .227 .231 DIA X .315 .355 DEEP AND CSK
82° X .250 DIA, TAP 1/4 -28UN-2B
X .220 .240 DEEP FULL THD
26 S HOLES
⊕ .005 DIA
SEE DETAIL B
68 SPACES AT .125 BSC = 8.500 BSC
9.426 BSC
.218 .222 DIA
18 K HOLES
⊕ .005 DIA
.125 BSC
1.865 1.870 DIA X .625 DEEP
2 N HOLES
⊕ .002 DIA
⊥ M .0005
.463 BSC
.875 BSC
.125 BSC
3 SPACES AT .125 BSC = .375 BSC
.072 .073 DIA REF
.785 .781
1.625 BSC 2 PLACES
SURFACE "B"
24 SPACES AT .125 BSC = 3.000 BSC 2 PLACES
4.100 BSC
3.550 BSC
.1240 .1245 DIA
X .500 MIN DEEP
2 R HOLES
⊕ .002 DIA
⊥ B .0005
11.125 REF
1.500 REF
0
-1.500 REF
3.990 BSC
2 SPACES AT .125 BSC = .250 BSC 2 PLACES
19 SPACES AT .125 BSC = 2.375 BSC 3 PLACES
3.750 BSC
.490 BSC
1.031 BSC
8.895 BSC
.615 BSC
9.510 BSC
9.875 BSC
0
1.596
4 SEE
.452 .457 DIA TH
AND TAP
14.250
K
S
C
D
P
R
N

F2

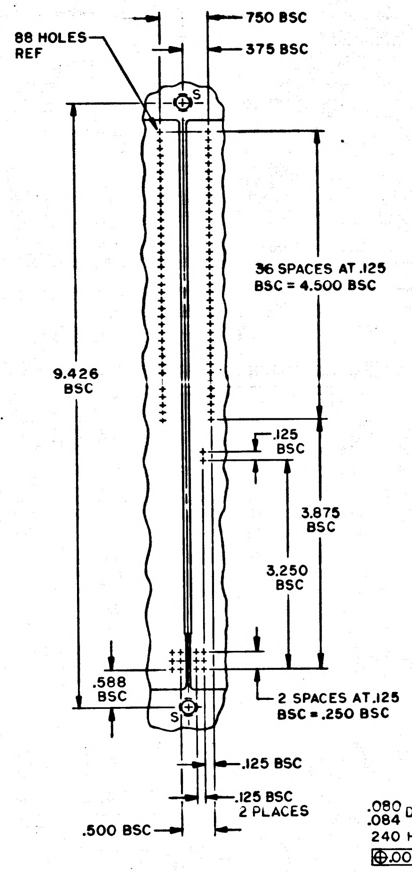
2004117 A

3H



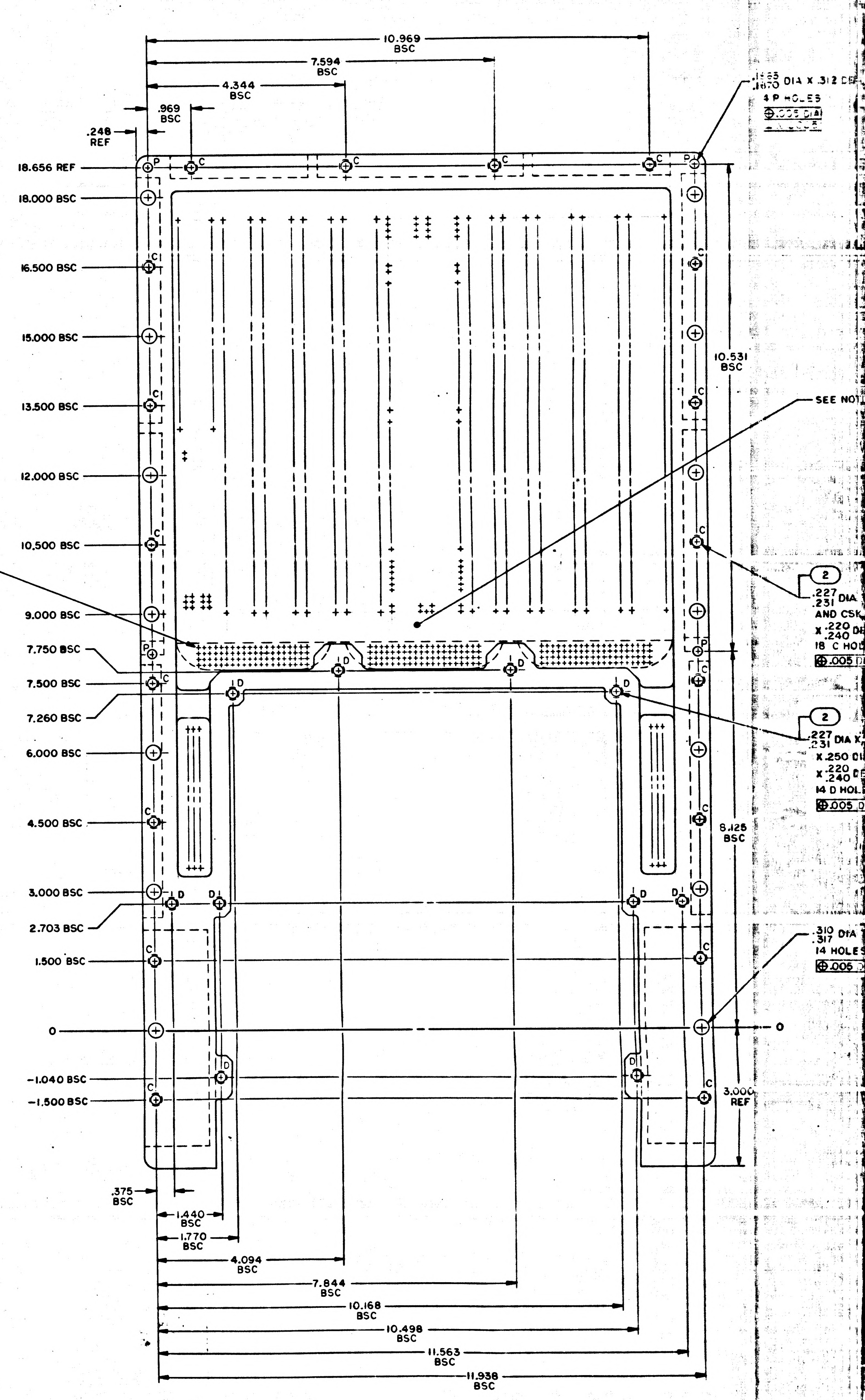
133 HOLES REF
3 SPACES AT .125 BSC = .375 BSC
.125 BSC
8.125 BSC
9.426 REF
7.375 BSC
8.500 REF
22 SPACES AT .125 BSC = 2.750 BSC 2 PLACES
4.375 BSC
5 SPACES AT .125 BSC = .625 BSC
1.375 BSC
.500 BSC
.463 REF
.125 BSC
.625 BSC
.750 BSC
.875 BSC
1.500 BSC
S

DETAIL A

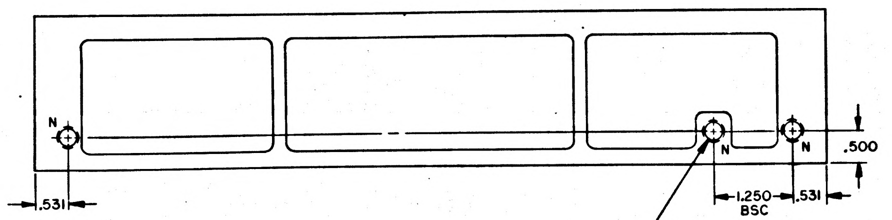


750 BSC
375 BSC
88 HOLES REF
36 SPACES AT .125 BSC = 4.500 BSC
9.426 BSC
.125 BSC
3.875 BSC
3.250 BSC
.588 BSC
2 SPACES AT .125 BSC = .250 BSC
.125 BSC
.125 BSC 2 PLACES
.500 BSC
S

DETAIL B



10.969 BSC
7.594 BSC
4.344 BSC
.969 BSC
.248 REF
.1865 .1870 DIA X .312 DEEP
4 P HOLES
18.656 REF
18.000 BSC
16.500 BSC
15.000 BSC
13.500 BSC
12.000 BSC
10.500 BSC
9.000 BSC
7.750 BSC
7.500 BSC
7.260 BSC
6.000 BSC
4.500 BSC
3.000 BSC
2.703 BSC
1.500 BSC
0
-1.040 BSC
-1.500 BSC
10.531 BSC
SEE NOTE
.080 .084 DIA AND CSK 60° X .110 DIA
240 HOLES
⊕ .004 DIA
2
.227 .231 DIA AND CSK X .220 .240 DEEP
18 C HOLES
⊕ .005
2
.227 .231 DIA X .250 DEEP X .220 .240 DEEP
14 D HOLES
⊕ .005
8.125 BSC
.310 .317 DIA
14 HOLES
⊕ .005
3.000 REF
0
.375 BSC
1.440 BSC
1.770 BSC
4.094 BSC
7.844 BSC
10.168 BSC
10.498 BSC
11.563 BSC
11.938 BSC
C
D
P



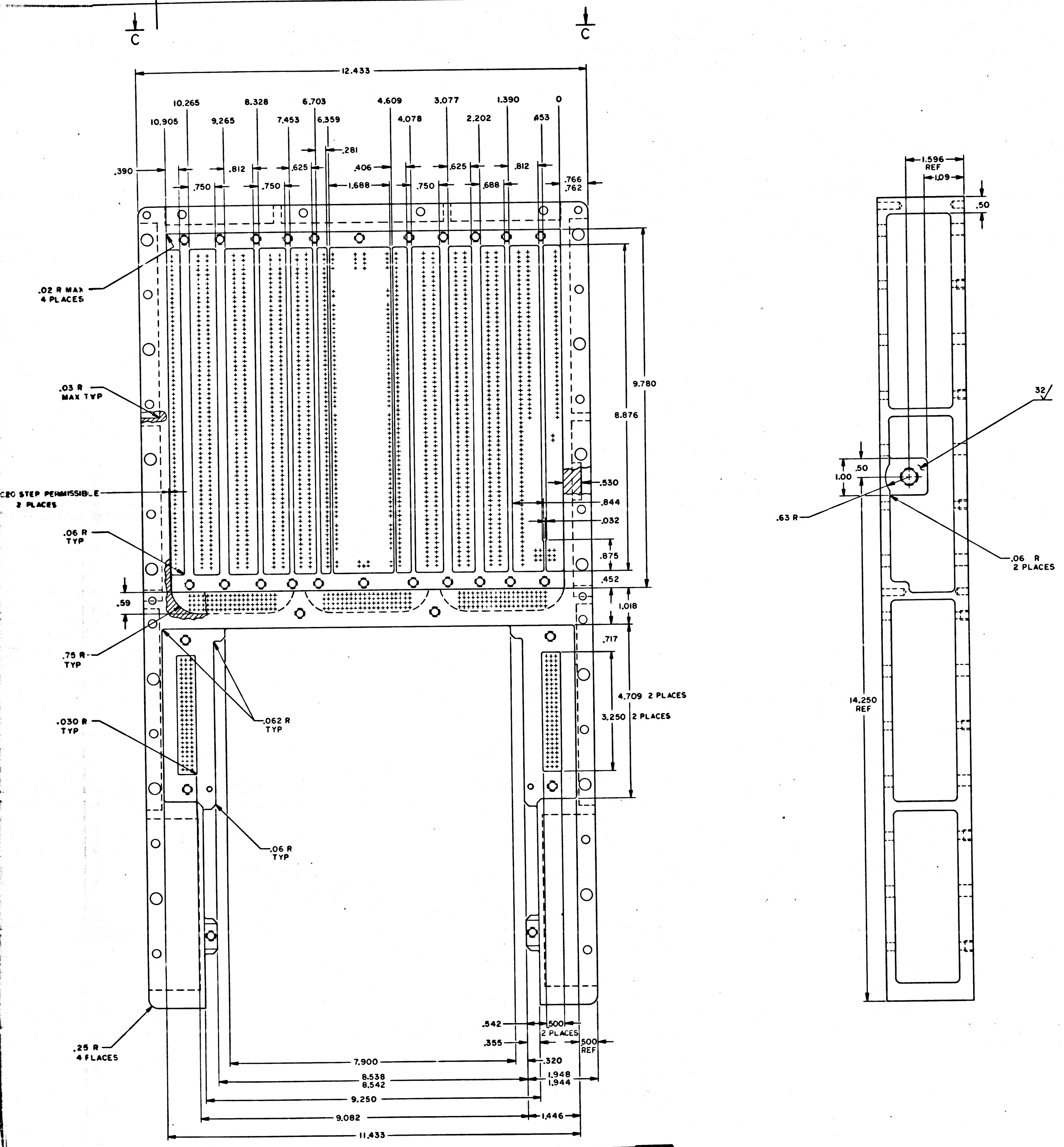
N
N
.500
.531
1.250 BSC
.531

3

CBORE $\frac{.271}{.276}$ DIA X $\frac{.408}{.438}$ DEEP
AND CSK 82° X $\frac{.323}{.333}$ DIA
TAP $\frac{5}{16}$-18UNC-2B X .375
MIN DEPTH FULL THD
3 N HOLES
⊕ .014 DIA

VIEW B-B

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP 6
3. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3. BEFORE INSTALLING FIND NO. 2,3 AND 4
4. ALL SURFACES 125√ UNLESS OTHERWISE SPECIFIED
5. REMOVE BURRS AND SHARP EDGES .005/.015
6. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .125
7. INSTALL FIND NO. 2,3 AND 4 PER ND1002121
8. COAT THREADS OF FIND NO. 2,3 AND 4 WITH MIL-P-8585, COLOR YELLOW
9. INSTALL FIND NO. 4 .000/.015 BELOW SURFACE
10. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019 AND SERIALIZE PER ND 1002023 WHERE SHOWN


C
C
12.433
10.265
10.905
9.265
8.328
7.453
6.703
6.359
4.609
4.078
3.077
2.202
1.390
.653
0
.281
.390
.812
.625
.406
.625
.812
.750
.750
1.688
.750
.688
.766
.762
.02 R MAX
4 PLACES
.03 R
MAX TYP
C20 STEP PERMISSIBLE
2 PLACES
.06 R
TYP
.59
.75 R
TYP
.030 R
TYP
.062 R
TYP
.06 R
TYP
.25 R
4 PLACES
9.780
8.876
.530
.844
.032
.875
.452
1.018
.717
4.709 2 PLACES
3.250 2 PLACES
.542
.355
.500
2 PLACES
.500
REF
.320
7.900
8.538
8.542
1.948
1.944
9.250
9.082
1.446
11.433
1.596
REF
1.09
.50
32
.50
1.00
.63 R
.06 R
2 PLACES
14.250
REF

4 3 2 1

D C B A

REVISIONS 19219					
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20286			23 Jul 65	

3#

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	R.C. Gardner	27 Apr 65
CHECKED	R. Yong	5/17/65
APPROVED		5/18/65
APPROVED	Eldon C. Hall	18 May 65
APPROVED MIT	M.C. Murphy	18 May 65
APPROVED MSC		5/17/65
		DATE

TRAY B
AGC

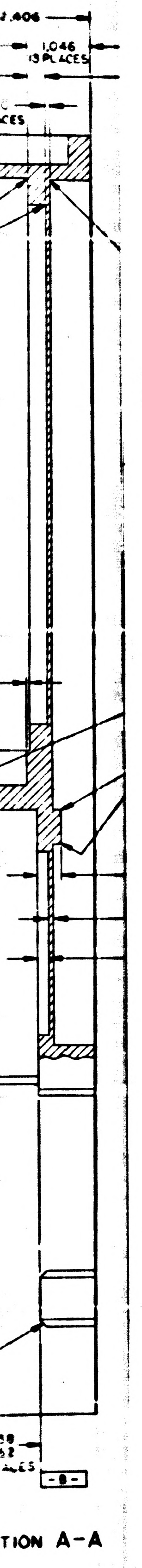
CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2004117

SCALE 1/1 SHEET 2 OF 2

2004117 A

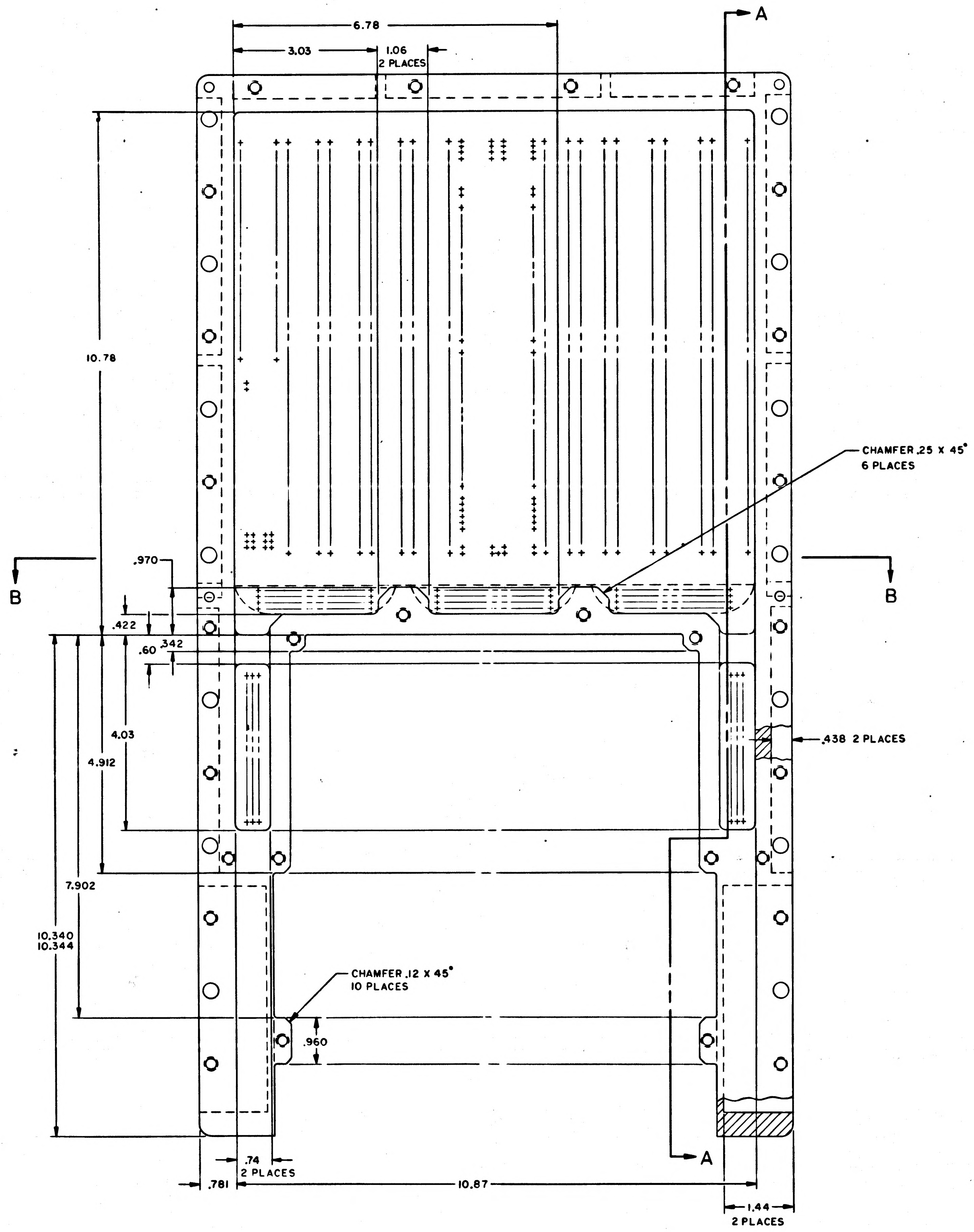
2004117 A

F3

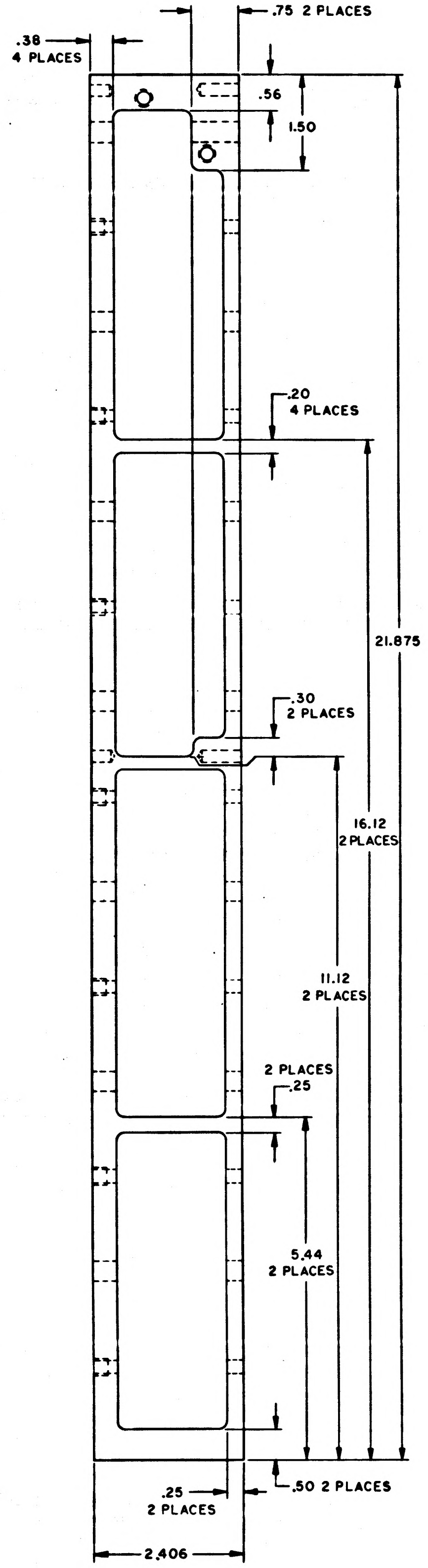


.406
1.046
13 PLACES
PLACES
R MAX TYP
.03 R MAX TYP
R TYP
PLACES
LACES
LACES
-B-

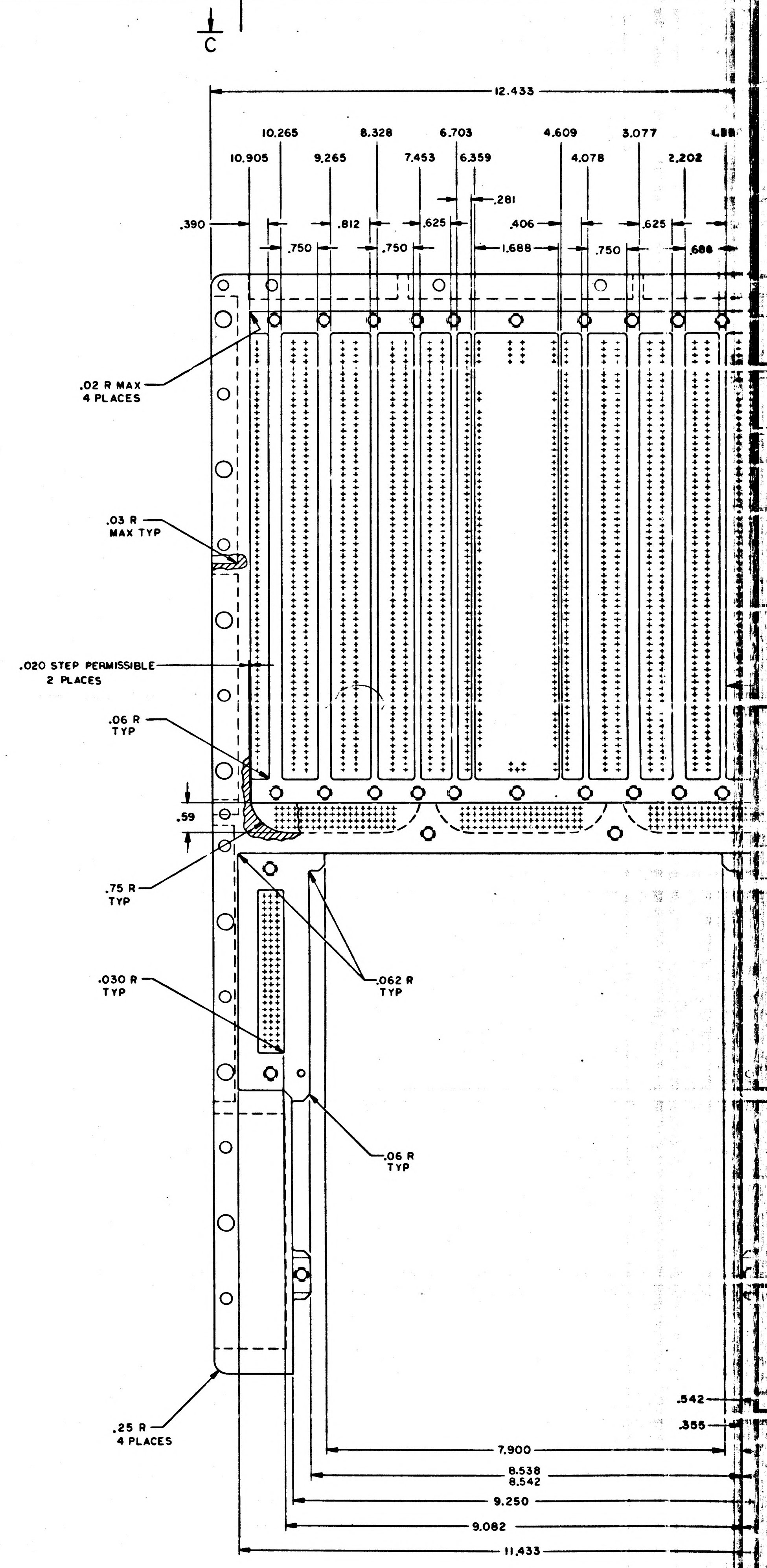
TION A-A



A
6.78
3.03
1.06
2 PLACES
10.78
CHAMFER .25 X 45°
6 PLACES
B
B
.970
.422
.342
.60
4.03
4.912
.438 2 PLACES
7.902
10.340
10.344
CHAMFER .12 X 45°
10 PLACES
.960
A
.781
.74
2 PLACES
10.87
1.44
2 PLACES



.38
4 PLACES
.75 2 PLACES
.56
1.50
.20
4 PLACES
21.875
.30
2 PLACES
16.12
2 PLACES
11.12
2 PLACES
2 PLACES
.25
5.44
2 PLACES
.25
2 PLACES
.50 2 PLACES
2.406



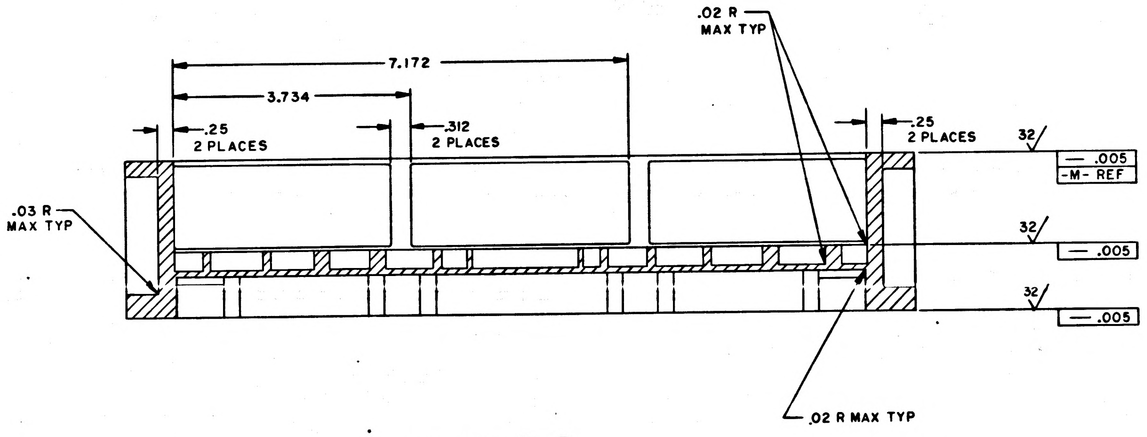
C
12.433
10.265
8.328
6.703
4.609
3.077
10.905
9.265
7.453
6.359
4.078
2.202
.281
.390
.812
.625
.406
.625
.750
.750
1.688
.750
.688
.02 R MAX
4 PLACES
.03 R
MAX TYP
.020 STEP PERMISSIBLE
2 PLACES
.06 R
TYP
.59
.75 R
TYP
.030 R
TYP
.062 R
TYP
.06 R
TYP
.25 R
4 PLACES
.542
.355
7.900
8.538
8.542
9.250
9.082
11.433

F2

2004117	A

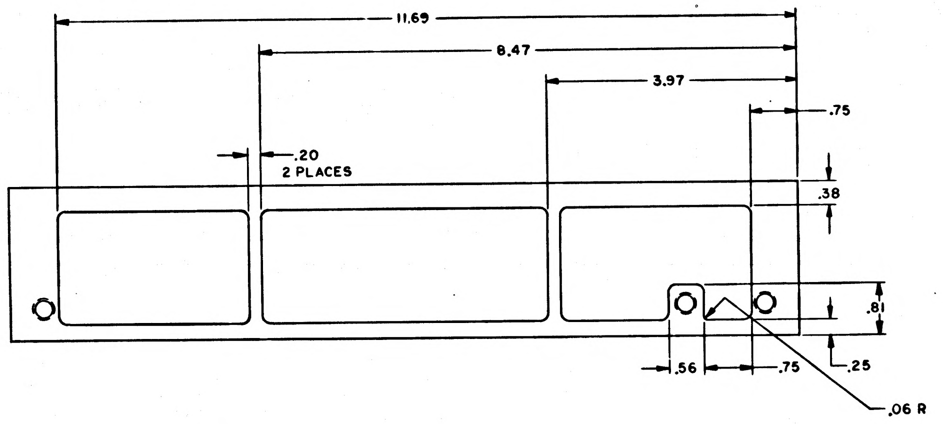
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

D


7.172
3.734
.25 2 PLACES
.312 2 PLACES
.25 2 PLACES
.02 R MAX TYP
.03 R MAX TYP
32
.005
-M- REF
.005
.005
.02 R MAX TYP

SECTION B-B

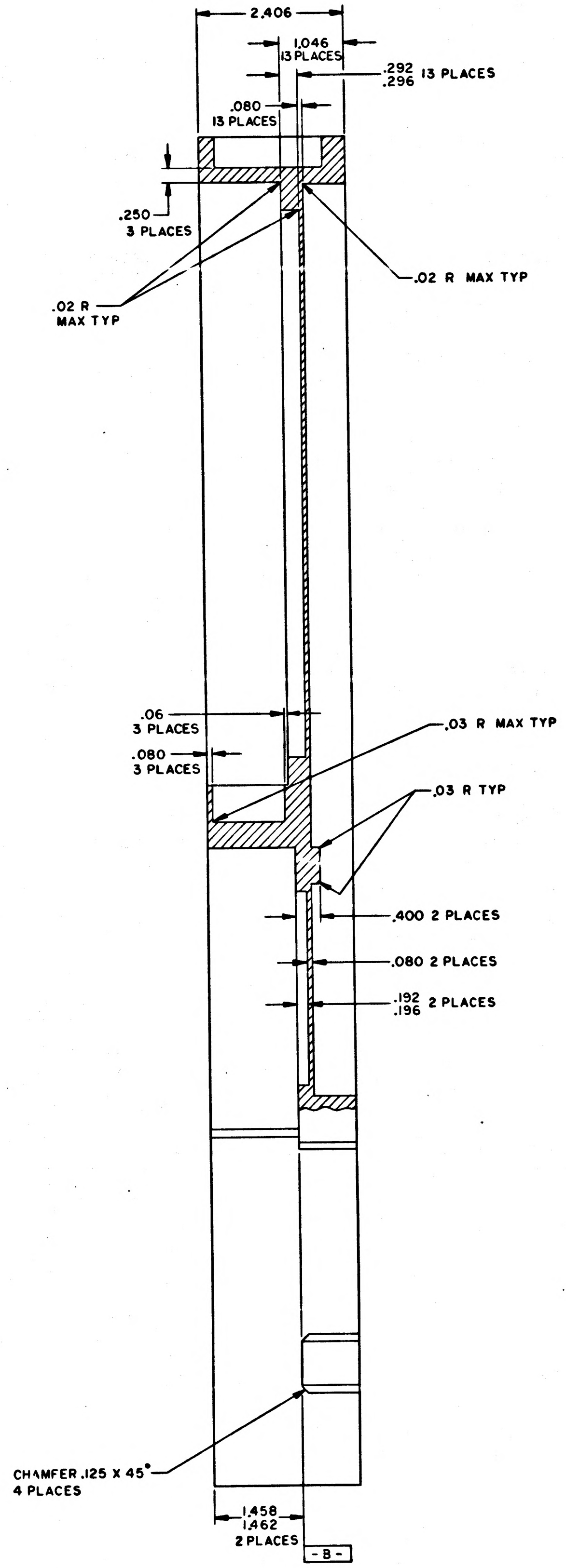
C


11.69
8.47
3.97
.75
.20 2 PLACES
.38
.81
.56
.75
.25
.06 R

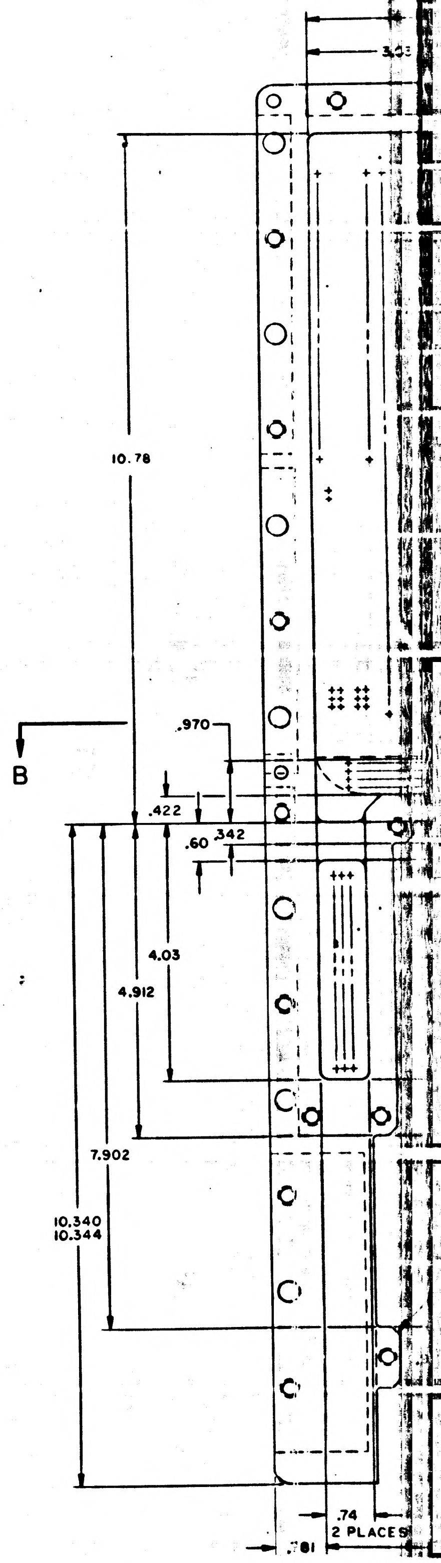
VIEW C-C

B

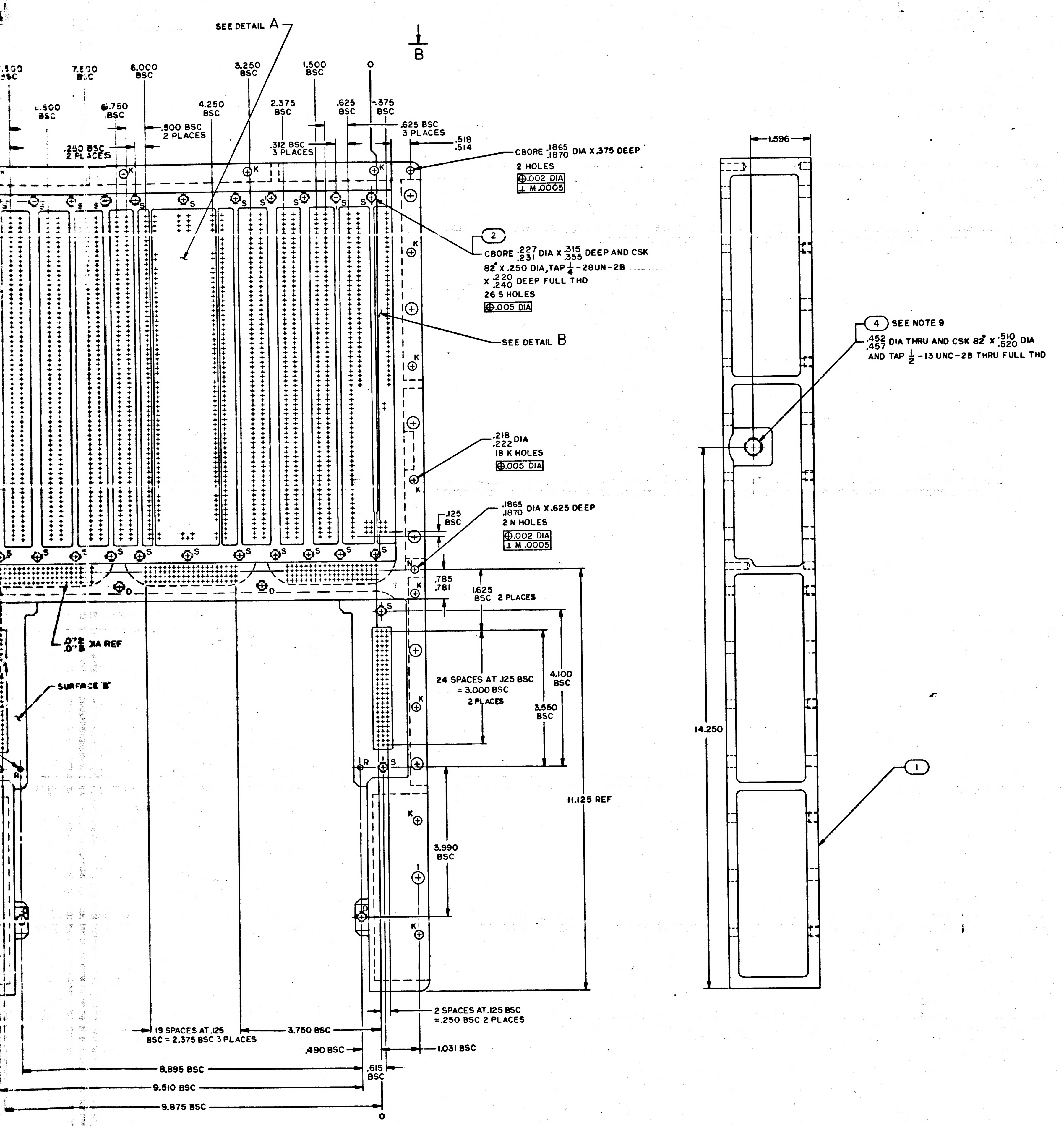
A


2.406
1.046 13 PLACES
.292 .296 13 PLACES
.080 13 PLACES
.250 3 PLACES
.02 R MAX TYP
.02 R MAX TYP
.06 3 PLACES
.080 3 PLACES
.03 R MAX TYP
.03 R TYP
.400 2 PLACES
.080 2 PLACES
.192 .196 2 PLACES
CHAMFER .125 X 45° 4 PLACES
1.458 1.462 2 PLACES
-B-

SECTION A-A


3.03
10.78
B
.970
.422
.60
.342
4.03
4.912
7.902
10.340 10.344
.74 2 PLACES
.81

REVISIONS 19219						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER 20286	RB		23 Mar 65	
B		REVISED PER TDRR 21250			10 May 65	WR


SEE DETAIL A
B
7.500 BSC
7.500 BSC
6.000 BSC
3.250 BSC
1.500 BSC
0
6.500 BSC
6.750 BSC
4.250 BSC
2.375 BSC
.625 BSC
-.375 BSC
.500 BSC 2 PLACES
.250 BSC 2 PLACES
.312 BSC 3 PLACES
.625 BSC 3 PLACES
.518
.514
CBORE .1865/.1870 DIA X .375 DEEP
2 HOLES
⊕.002 DIA
⊥ M .0005
2
CBORE .227/.231 DIA X .315/.355 DEEP AND CSK
82° X .250 DIA, TAP 1/4-28UN-2B
X .220/.240 DEEP FULL THD
26 S HOLES
⊕.005 DIA
SEE DETAIL B
K
S
D
N
R
.218/.222 DIA
18 K HOLES
⊕.005 DIA
.125 BSC
.1865/.1870 DIA X .625 DEEP
2 N HOLES
⊕.002 DIA
⊥ M .0005
.785
.781
1.625 BSC 2 PLACES
24 SPACES AT .125 BSC = 3.000 BSC 2 PLACES
4.100 BSC
3.550 BSC
11.125 REF
3.990 BSC
.072/.078 DIA REF
SURFACE 'B'
19 SPACES AT .125 BSC = 2.375 BSC 3 PLACES
3.750 BSC
2 SPACES AT .125 BSC = .250 BSC 2 PLACES
.490 BSC
1.031 BSC
8.895 BSC
.615 BSC
9.510 BSC
9.875 BSC
0
1.596
4
SEE NOTE 9
.452/.457 DIA THRU AND CSK 82° X .510/.520 DIA
AND TAP 1/2-13 UNC-2B THRU FULL THD
14.250
1

3H

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	NAS1394CA-6L	INSERT, THREADED, SELF-LOCKING	4
3	NAS1394CA-3L	INSERT, THREADED, SELF-LOCKING	3
60	1006702-5	INSERT, THREADED, SELF-LOCKING	2
1	2004117-001	TRAY B, MACHINED	1
-011	LIST OF MATERIALS		

MASTER

NEXT ASSY	USED ON
2003063	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XXX ± .005, .XX ± .01 ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

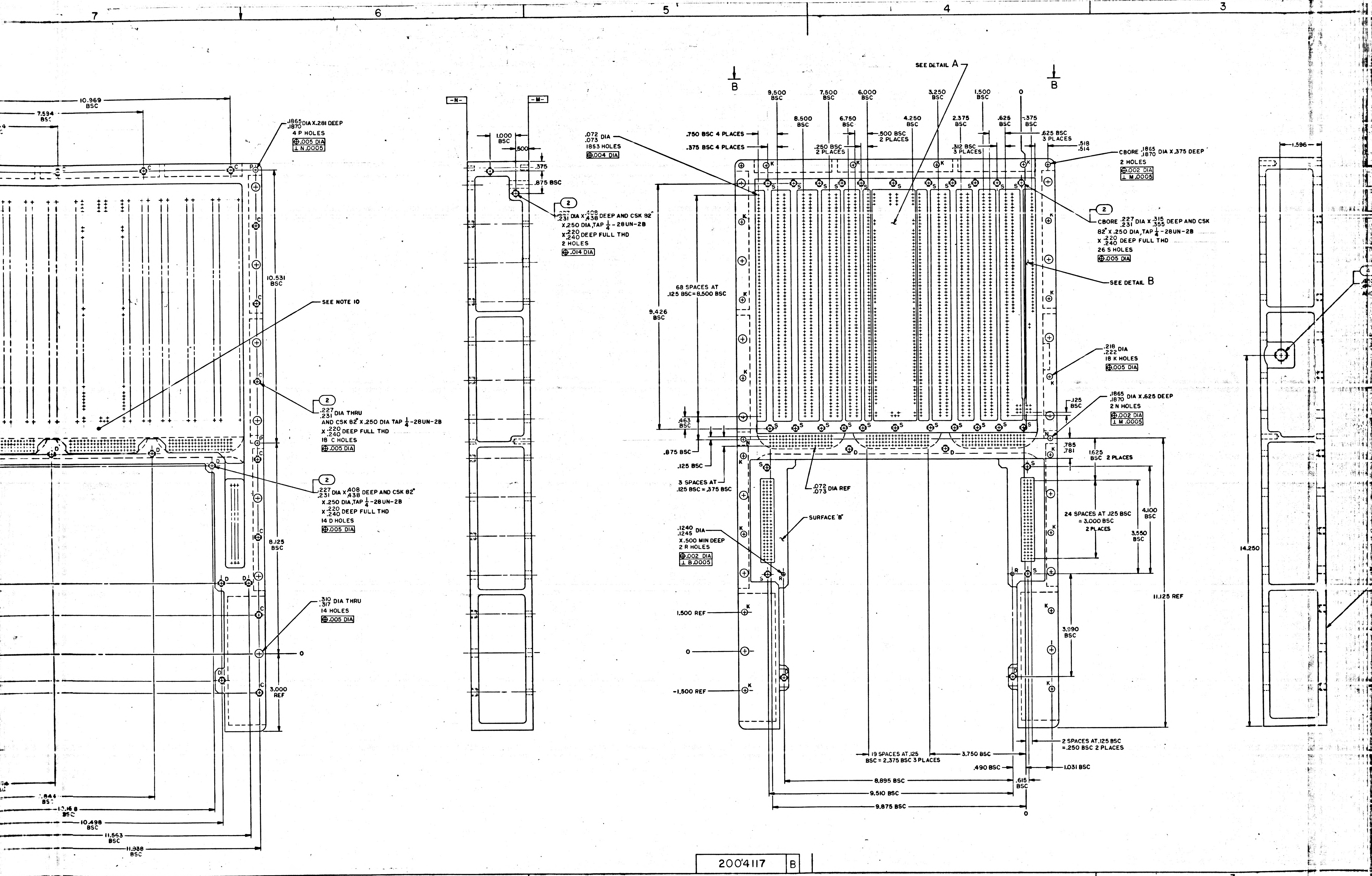
DRAWN	R.A. Taylor	27 Apr 65
CHECKED	R. Hong	5/13/65
APPROVED		5/14/65
APPROVED	Eldon Hall	14 May 65
APPROVED MIT		14 May 65
APPROVED MSC		5/17/65
		DATE

TRAY B
AGC

CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2004117

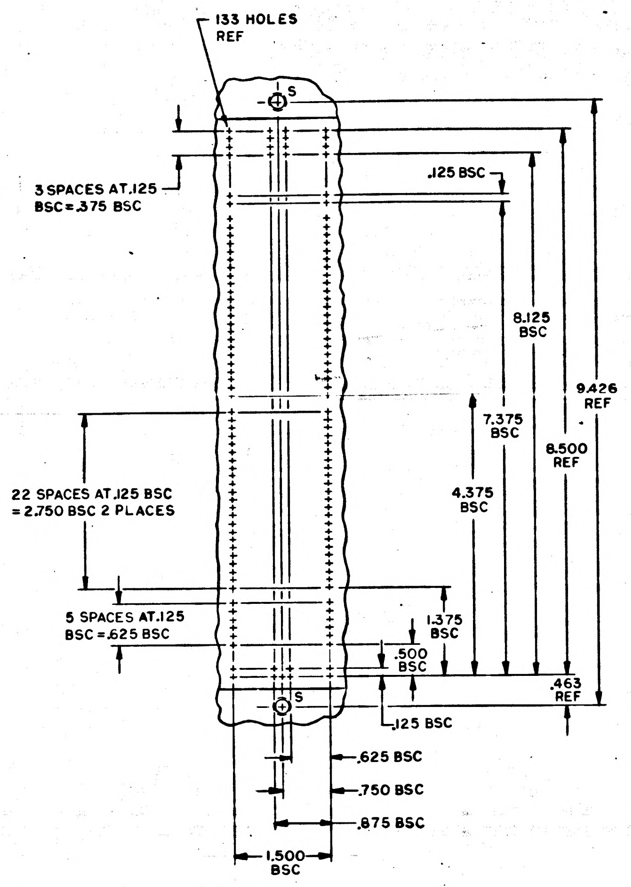
SCALE 1/1 SHEET 1 OF 2

2004117 B

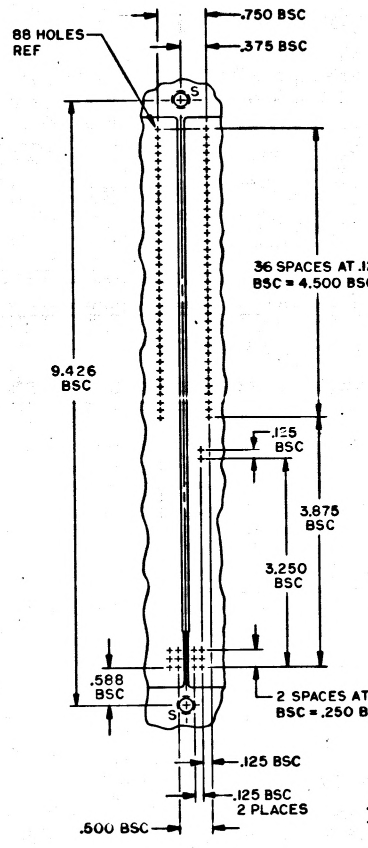


7
6
5
4
3
10.969 BSC
7.594 BSC
.1865 .1870 DIA X .281 DEEP
4 P HOLES
⊕ .005 DIA
⊥ N .0005
10.531 BSC
SEE NOTE 10
2
.227 .231 DIA THRU
AND CSK 82° X .250 DIA TAP 1/4 -28UN-2B
X .220 .240 DEEP FULL THD
18 C HOLES
⊕ .005 DIA
2
.227 .231 DIA X .408 .438 DEEP AND CSK 82°
X .250 DIA, TAP 1/4 -28UN-2B
X .220 .240 DEEP FULL THD
14 D HOLES
⊕ .005 DIA
8.125 BSC
.310 .317 DIA THRU
14 HOLES
⊕ .005 DIA
0
3.000 REF
7.844 BSC
10.168 BSC
10.498 BSC
11.563 BSC
11.938 BSC
-N-
-M-
1.000 BSC
.500
.375
.875 BSC
2
.227 .231 DIA X .408 .438 DEEP AND CSK 82°
X .250 DIA, TAP 1/4 - 28UN-2B
X .220 .240 DEEP FULL THD
2 HOLES
⊕ .014 DIA
B
B
SEE DETAIL A
9.500 BSC
7.500 BSC
6.000 BSC
3.250 BSC
1.500 BSC
0
8.500 BSC
6.750 BSC
4.250 BSC
2.375 BSC
.625 BSC
-.375 BSC
.072 .073 DIA
1853 HOLES
⊕ .004 DIA
.750 BSC 4 PLACES
.375 BSC 4 PLACES
.250 BSC 2 PLACES
.500 BSC 2 PLACES
.312 BSC 3 PLACES
.625 BSC 3 PLACES
.518 .514
CBORE .1865 .1870 DIA X .375 DEEP
2 HOLES
⊕ .002 DIA
⊥ M .0005
2
CBORE .227 .231 DIA X .315 .355 DEEP AND CSK
82° X .250 DIA, TAP 1/4 - 28UN-2B
X .220 .240 DEEP FULL THD
26 S HOLES
⊕ .005 DIA
SEE DETAIL B
68 SPACES AT .125 BSC = 8.500 BSC
9.426 BSC
.218 .222 DIA
18 K HOLES
⊕ .005 DIA
.1865 .1870 DIA X .625 DEEP
2 N HOLES
⊕ .002 DIA
⊥ M .0005
.125 BSC
.463 BSC
.875 BSC
.125 BSC
3 SPACES AT .125 BSC = .375 BSC
.072 .073 DIA REF
.785 .781
1.625 BSC 2 PLACES
SURFACE 'B'
24 SPACES AT .125 BSC = 3.000 BSC 2 PLACES
4.100 BSC
3.550 BSC
.1240 .1245 DIA
X .500 MIN DEEP
2 R HOLES
⊕ .002 DIA
⊥ B .0005
11.125 REF
1.500 REF
0
-1.500 REF
3.990 BSC
19 SPACES AT .125 BSC = 2.375 BSC 3 PLACES
3.750 BSC
2 SPACES AT .125 BSC = .250 BSC 2 PLACES
.490 BSC
1.031 BSC
8.895 BSC
.615 BSC
9.510 BSC
9.875 BSC
0
1.596
14.250
K
S
C
D
P
N
R

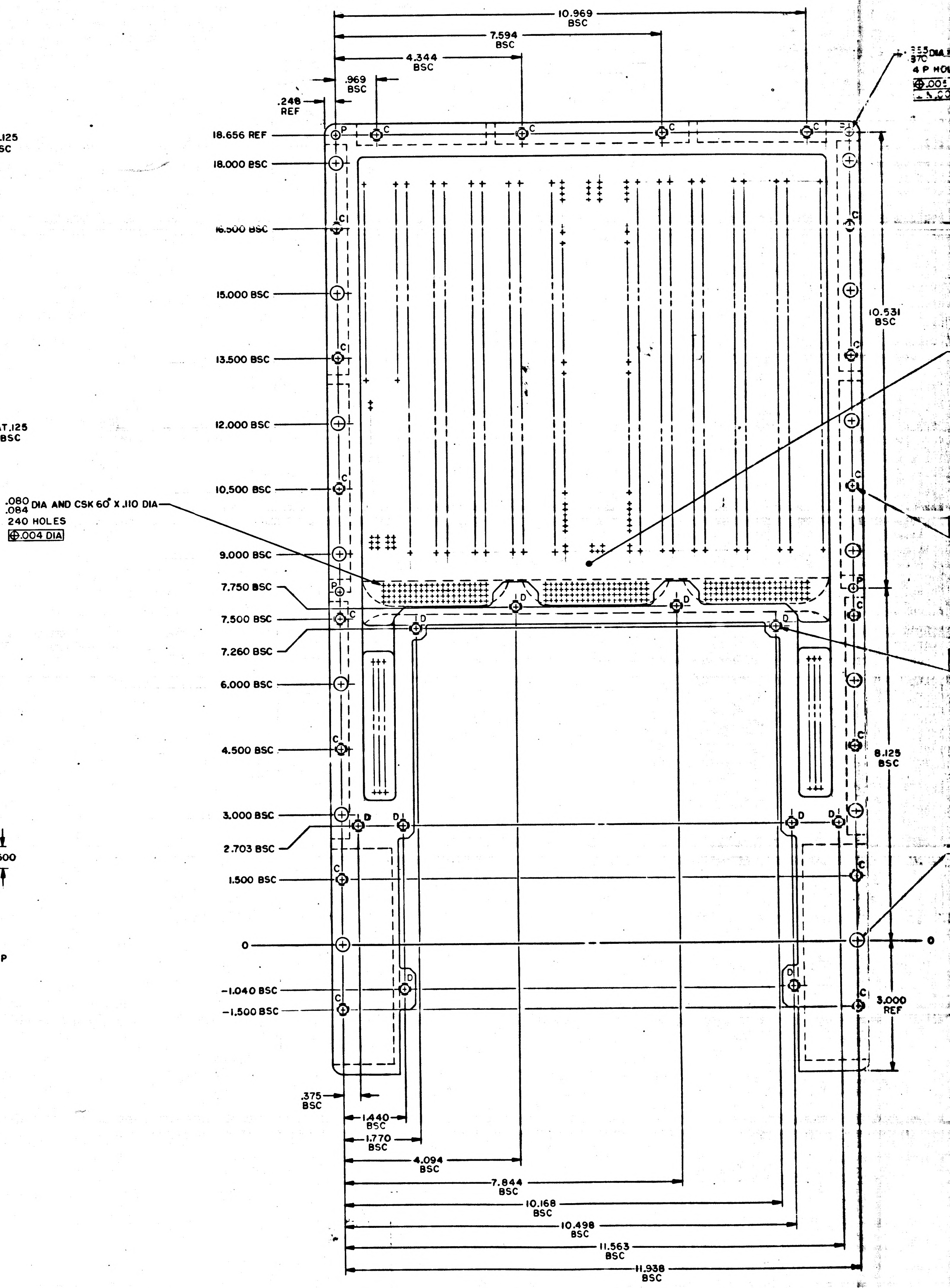
2004117 B


133 HOLES
REF
S
3 SPACES AT .125
BSC = .375 BSC
.125 BSC
8.125
BSC
7.375
BSC
9.426
REF
8.500
REF
22 SPACES AT .125 BSC
= 2.750 BSC 2 PLACES
4.375
BSC
5 SPACES AT .125
BSC = .625 BSC
1.375
BSC
.500
BSC
.463
REF
.125 BSC
.625 BSC
.750 BSC
.875 BSC
1.500
BSC

DETAIL A


88 HOLES
REF
.750 BSC
.375 BSC
S
36 SPACES AT .125
BSC = 4.500 BSC
9.426
BSC
.125
BSC
3.875
BSC
3.250
BSC
.588
BSC
2 SPACES AT .125
BSC = .250 BSC
.125 BSC
.125 BSC
2 PLACES
.600 BSC

DETAIL B


.080
.084 DIA AND CSK 60° X .110 DIA
240 HOLES
⊕ .004 DIA
10.969
BSC
7.594
BSC
4.344
BSC
.969
BSC
.248
REF
18.656 REF
18.000 BSC
16.500 BSC
15.000 BSC
13.500 BSC
12.000 BSC
10.500 BSC
9.000 BSC
7.750 BSC
7.500 BSC
7.260 BSC
6.000 BSC
4.500 BSC
3.000 BSC
2.703 BSC
1.500 BSC
0
-1.040 BSC
-1.500 BSC
P
C
D
10.531
BSC
8.125
BSC
3.000
REF
0
.375
BSC
1.440
BSC
1.770
BSC
4.094
BSC
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10.168
BSC
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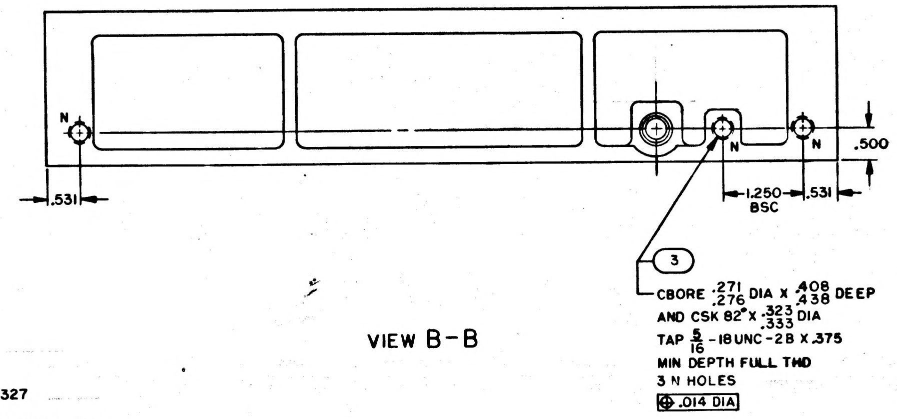
BSC
11.563
BSC
11.938
BSC


N
N
N
.531
1.250
BSC
.531
.500
3
CBORE .271/.276 DIA X .408/.438 DEEP
AND CSK 82° X .323/.333 DIA
TAP 5/16 -18UNC-2B X .375
MIN DEPTH FULL THD
3 N HOLES
⊕ .014 DIA

VIEW B-B

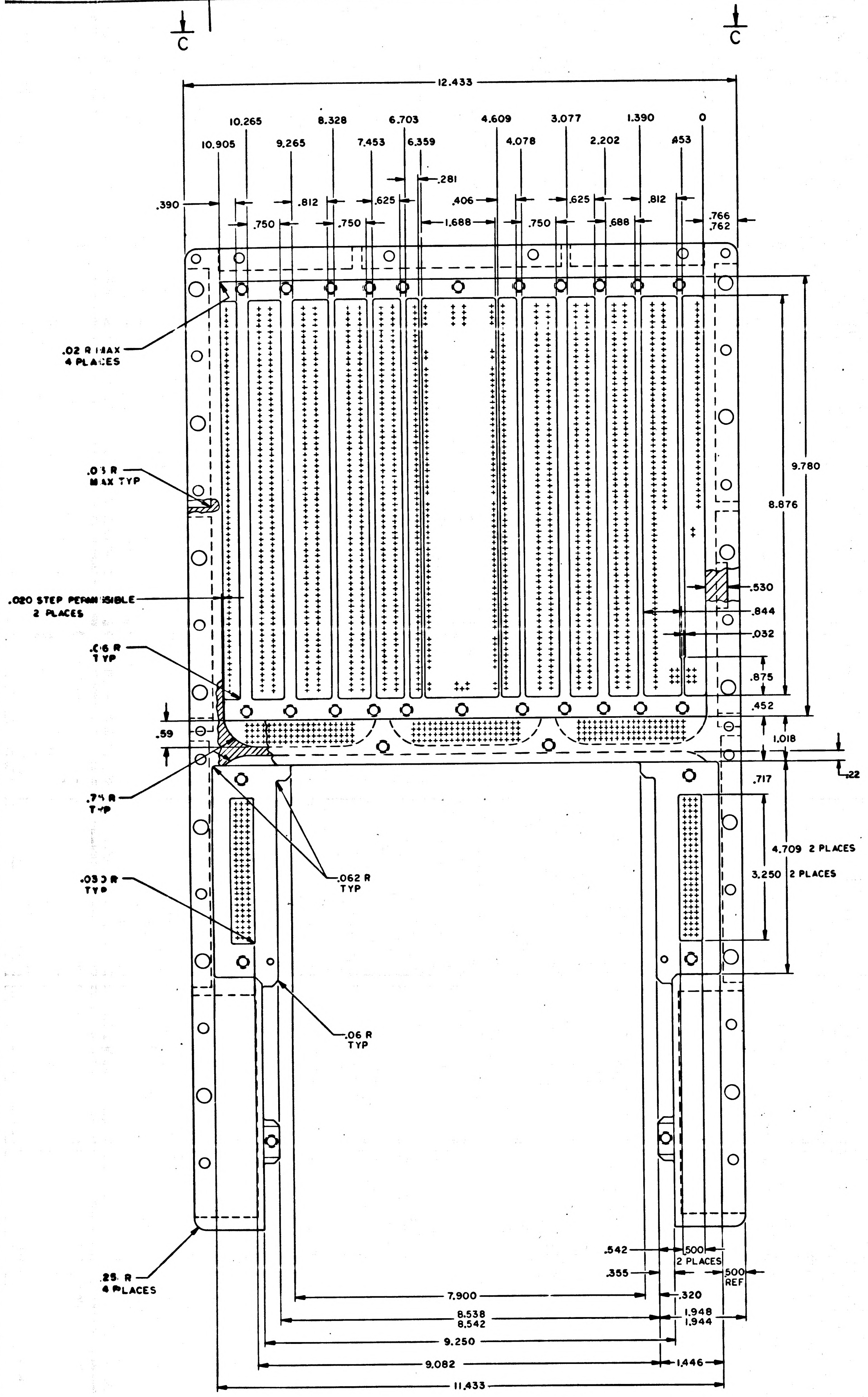
NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP 6
3. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3. BEFORE INSTALLING FIND NO. 2,3 AND 4
4. ALL SURFACES 125√ UNLESS OTHERWISE SPECIFIED
5. REMOVE BURRS AND SHARP EDGES .005/.015
6. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .125
7. INSTALL FIND NO. 2,3 AND 4 PER ND1002121
8. COAT THREADS OF FIND NO. 2,3 AND 4 WITH MIL-P-8585, COLOR YELLOW
9. INSTALL FIND NO. 4 .000/.015 BELOW SURFACE
10. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019 AND SERIALIZE PER ND 1002023 WHERE SHOWN

34

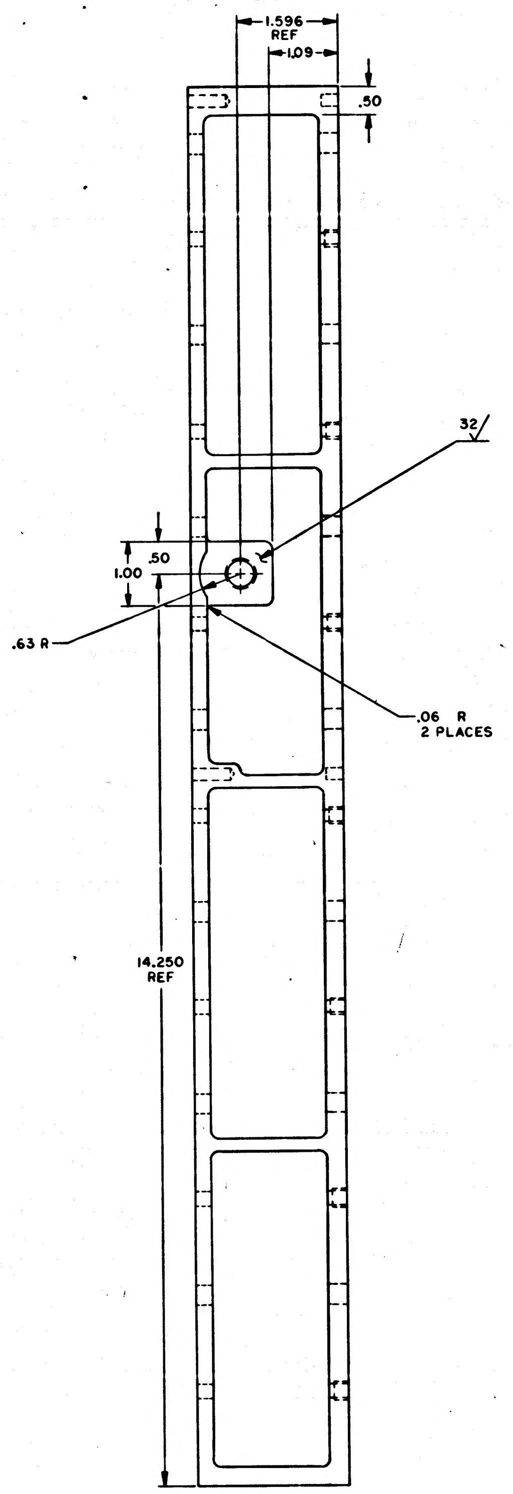
2004117	B

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20286			23 Jun 65	
B		REVISED PER TDRR 21250				

REVISIONS 19219



C
C
12.433
10.265
10.905
9.265
8.328
7.453
6.703
6.359
4.609
4.078
3.077
2.202
1.390
.453
0
.390
.750
.812
.750
.625
.281
.406
1.688
.750
.625
.688
.812
.766
.762
.02 R MAX 4 PLACES
.03 R MAX TYP
.020 STEP PERMISSIBLE 2 PLACES
.06 R TYP
.59
.75 R TYP
.062 R TYP
.030 R TYP
.06 R TYP
.25 R 4 PLACES
9.780
8.876
.530
.844
.032
.875
.452
1.018
.22
.717
4.709 2 PLACES
3.250 2 PLACES
.542
.500 2 PLACES
.355
.500 REF
7.900
.320
8.538
8.542
1.948
1.944
9.250
9.082
1.446
11.433



1.596 REF
1.09
.50
32
.50
1.00
.63 R
.06 R 2 PLACES
14.250 REF

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN R. C. Taylor
CHECKED R. Yong 5/17/65
APPROVED 5/18/65
APPROVED Eldon C. Hall
APPROVED MIT
APPROVED MSC
DATE

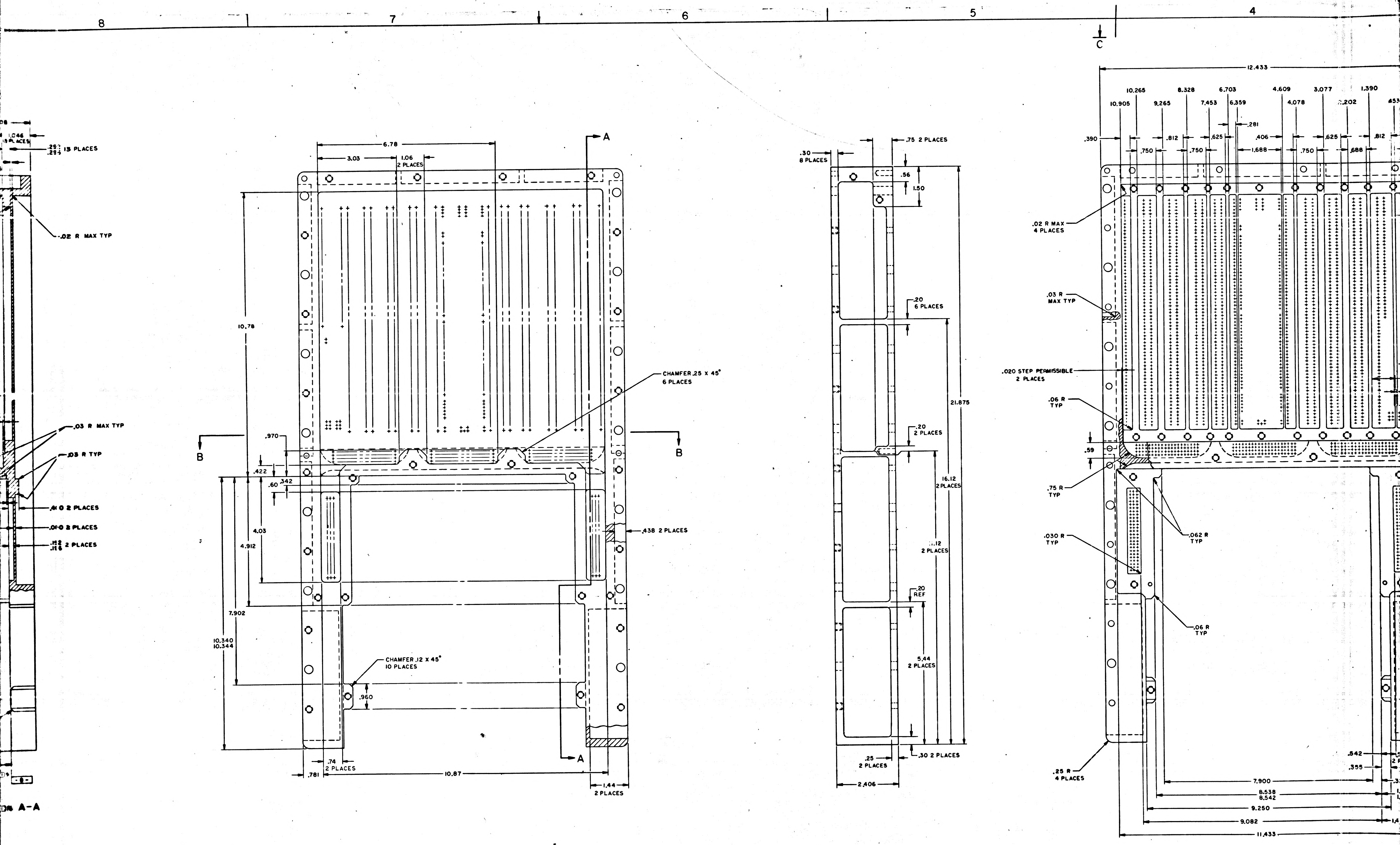
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRAY B
AGC

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004117
SCALE 1/1
SHEET 2 OF 2

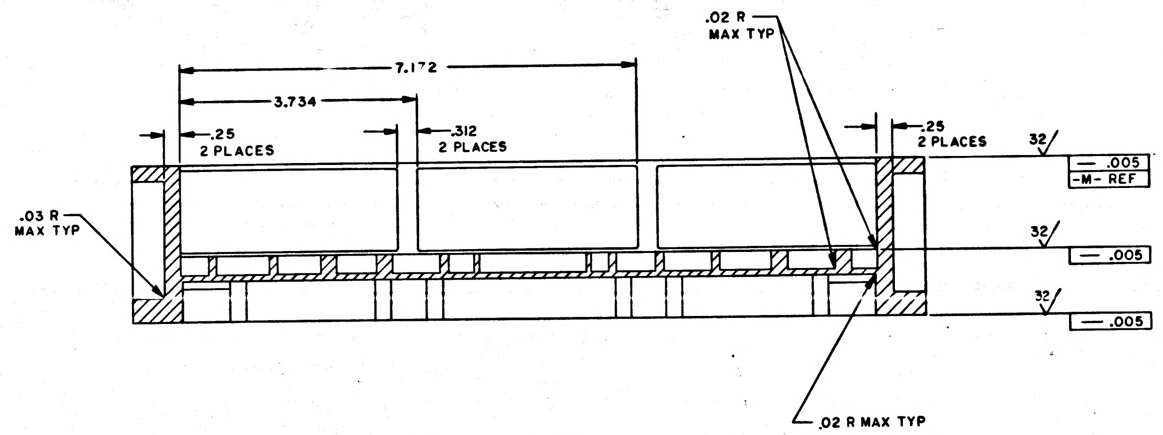
2004117 B

3H

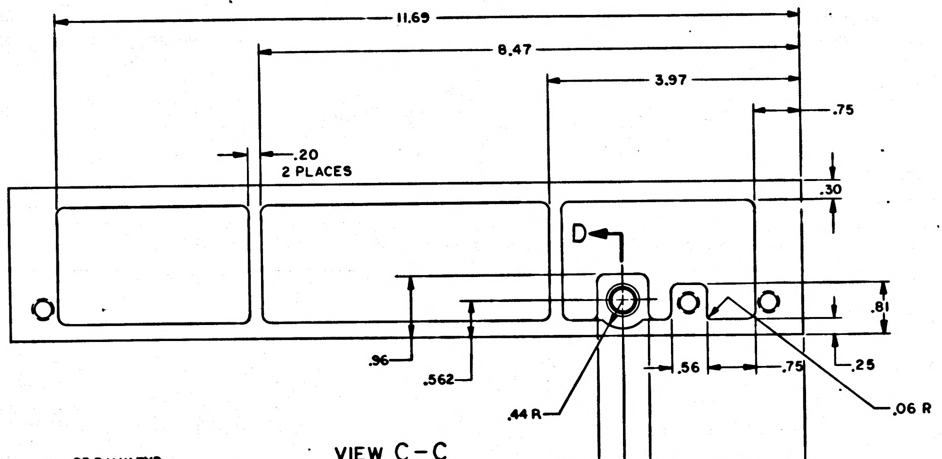
8
7
6
5
4
C
1.046
13 PLACES
.292
.294
13 PLACES
.02 R MAX TYP
.03 R MAX TYP
.03 R TYP
.410 2 PLACES
.010 2 PLACES
.152
.156
2 PLACES
A-A
A
6.78
3.03
1.06
2 PLACES
10.78
.970
.422
.342
.60
4.03
4.912
7.902
10.340
10.344
CHAMFER .25 X 45°
6 PLACES
.438 2 PLACES
CHAMFER .12 X 45°
10 PLACES
.960
.74
2 PLACES
.781
10.87
1.44
2 PLACES
B
B
A
.30
8 PLACES
.75 2 PLACES
.56
1.50
.20
6 PLACES
21.875
.20
2 PLACES
16.12
2 PLACES
.12
2 PLACES
.20
REF
5.44
2 PLACES
.25
2 PLACES
.30 2 PLACES
2.406
12.433
10.265
8.328
6.703
4.609
3.077
1.390
10.905
9.265
7.453
6.359
4.078
2.202
453
.281
.390
.812
.625
.406
.625
.812
.750
.750
1.688
.750
.688
.02 R MAX
4 PLACES
.03 R
MAX TYP
.020 STEP PERMISSIBLE
2 PLACES
.06 R
TYP
.59
.75 R
TYP
.030 R
TYP
.062 R
TYP
.06 R
TYP
.25 R
4 PLACES
.542
.355
7.900
8.538
8.542
9.250
9.082
11.433

2004117 B

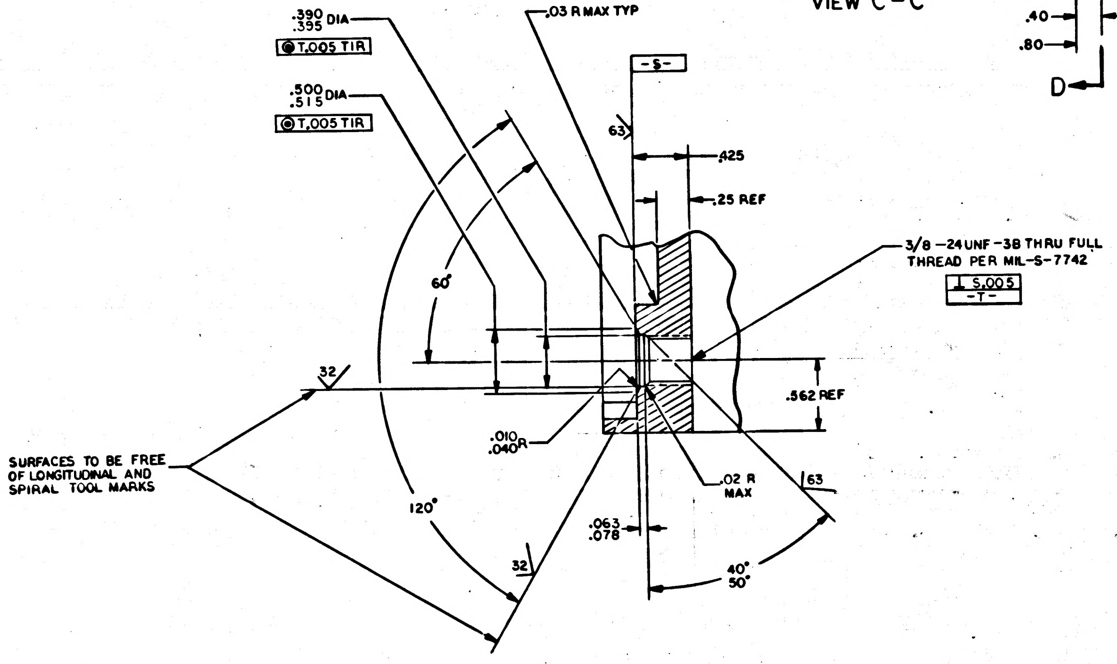
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


.02 R
MAX TYP
7.172
3.734
.25
2 PLACES
.312
2 PLACES
.25
2 PLACES
32
.005
-M- REF
.03 R
MAX TYP
32
.005
32
.005
.02 R MAX TYP

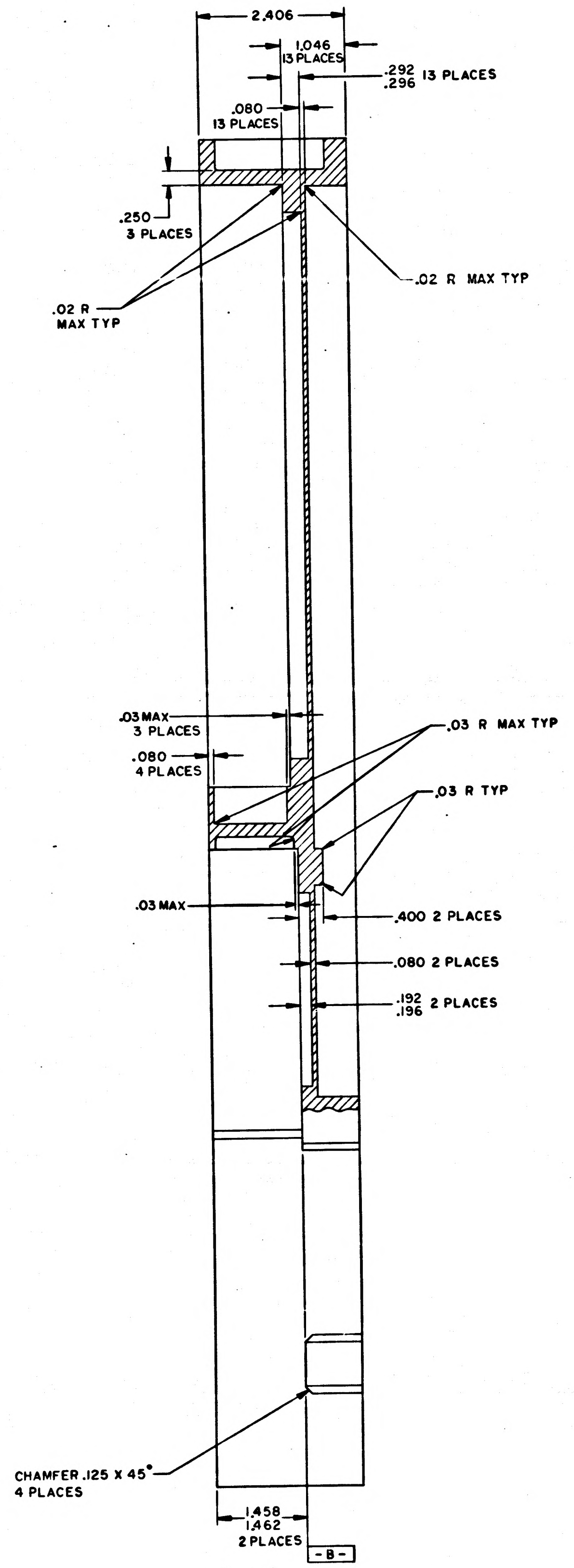
SECTION B-B


11.69
8.47
3.97
.75
.20
2 PLACES
.30
D
.81
.96
.562
.56
.75
.25
.44 R
.06 R

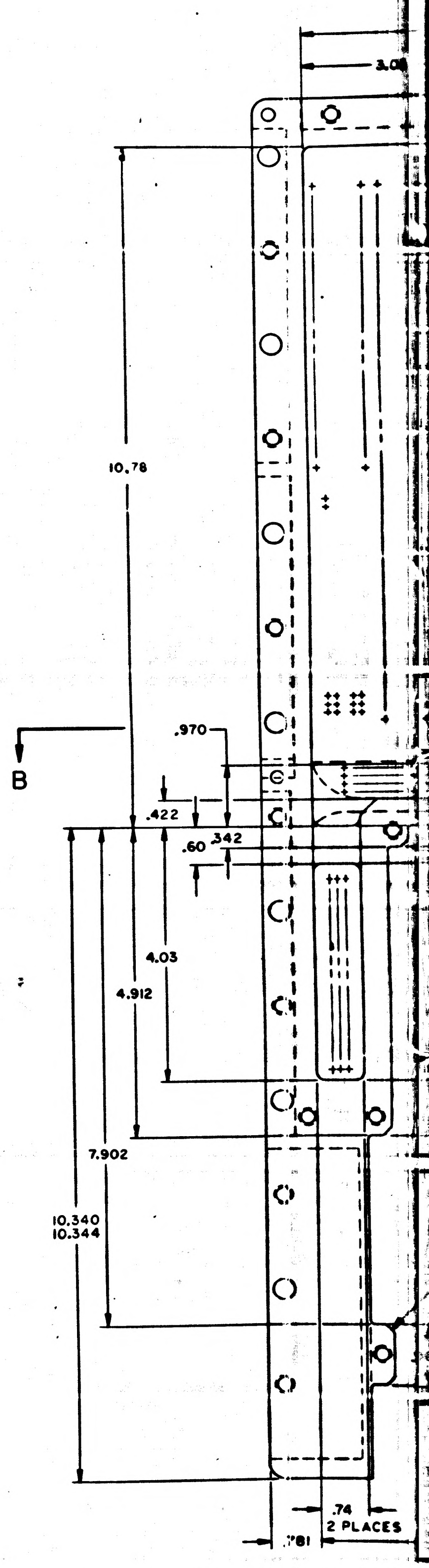
VIEW C-C


.40
.80
2.812
D
.390
.395 DIA
T.005 TIR
.500
.515 DIA
T.005 TIR
.03 R MAX TYP
-S-
63
.425
.25 REF
60°
3/8 -24UNF -3B THRU FULL
THREAD PER MIL-S-7742
⊥ S.005
-T-
32
.562 REF
SURFACES TO BE FREE
OF LONGITUDINAL AND
SPIRAL TOOL MARKS
.010
.040 R
.02 R
MAX
63
120°
.063
.078
32
40°
50°

SECTION D-D
SCALE: 2/1

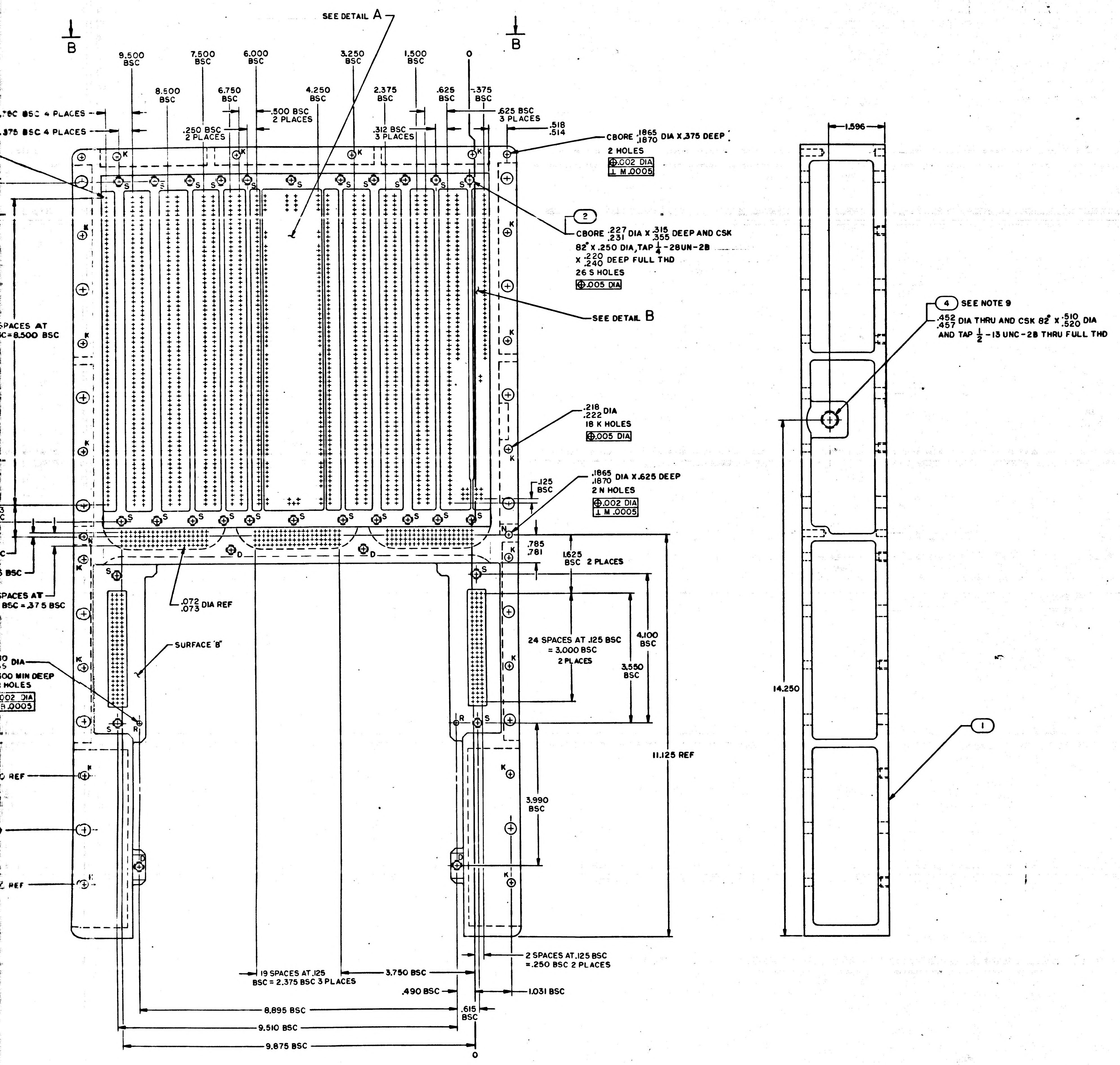

2.406
1.046
13 PLACES
.292
.296 13 PLACES
.080
13 PLACES
.250
3 PLACES
.02 R MAX TYP
.02 R
MAX TYP
.03 MAX
3 PLACES
.080
4 PLACES
.03 R MAX TYP
.03 R TYP
.03 MAX
.400 2 PLACES
.080 2 PLACES
.192
.196 2 PLACES
CHAMFER .125 X 45°
4 PLACES
1.458
1.462
2 PLACES
-B-

SECTION A-A


3.0
10.78
B
.970
.422
.60
.342
4.03
4.912
7.902
10.340
10.344
.74
2 PLACES
.781

2004117	B

REVISIONS 19219						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER 20286				
B		REVISED PER TDRR 21250				
C		REVISED PER TDRR 22617				


SEE DETAIL A
B
B
9.500 BSC
7.500 BSC
6.000 BSC
3.250 BSC
1.500 BSC
0
8.500 BSC
6.750 BSC
4.250 BSC
2.375 BSC
.625 BSC
-.375 BSC
.75C BSC 4 PLACES
.375 BSC 4 PLACES
.250 BSC 2 PLACES
.500 BSC 2 PLACES
.312 BSC 3 PLACES
.625 BSC 3 PLACES
.518 .514
CBORE .1865 .1870 DIA X .375 DEEP
2 HOLES
.002 DIA
⊥ M .0005
2
CBORE .227 .231 DIA X .315 .355 DEEP AND CSK
82° X .250 DIA, TAP 1/4-28UN-2B
X .220 .240 DEEP FULL THD
26 S HOLES
.005 DIA
SEE DETAIL B
SPACES AT
C=8.500 BSC
.218 .222 DIA
18 K HOLES
.005 DIA
.125 BSC
.1865 .1870 DIA X .625 DEEP
2 N HOLES
.002 DIA
⊥ M .0005
.785 .781
1.625 BSC 2 PLACES
S BSC
SPACES AT
BSC = .375 BSC
.072 .073 DIA REF
SURFACE 'B'
24 SPACES AT .125 BSC = 3.000 BSC 2 PLACES
4.100 BSC
3.550 BSC
DIA
.500 MIN DEEP
HOLES
.002 DIA
B .0005
11.125 REF
REF
REF
3.990 BSC
19 SPACES AT .125 BSC = 2.375 BSC 3 PLACES
3.750 BSC
.490 BSC
2 SPACES AT .125 BSC =.250 BSC 2 PLACES
1.031 BSC
8.895 BSC
.615 BSC
9.510 BSC
9.875 BSC
0
K
S
N
D
R
1.596
4
SEE NOTE 9
.452 .457 DIA THRU AND CSK 82° X .510 .520 DIA
AND TAP 1/2-13 UNC-2B THRU FULL THD
14.250
1

3H

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	NAS1394CA-6L	INSERT, THREADED, SELF-LOCKING	4
3	NAS1394CA-3L	INSERT, THREADED, SELF-LOCKING	3
60	1006702-5	INSERT, THREADED, SELF-LOCKING	2
1	2004117-001	TRAY B, MACHINED	1

-011 LIST OF MATERIALS

2003063	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XXX ± .005 .XX ± .01 ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
CHECKED 5/13/65
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRAY B
AGC

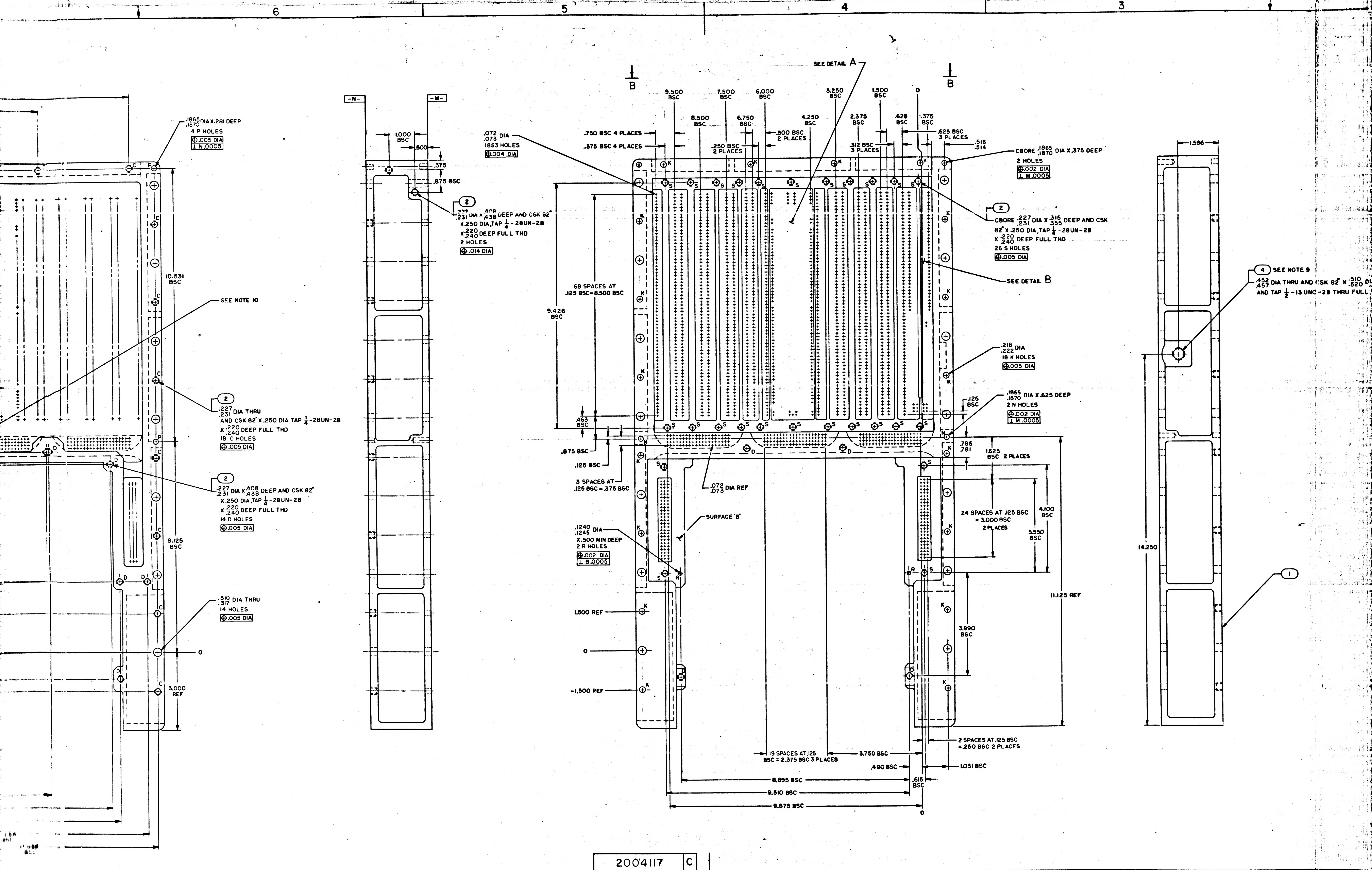
CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2004117

SCALE 1/1 SHEET 1 OF 2

MASTER

2004117 C

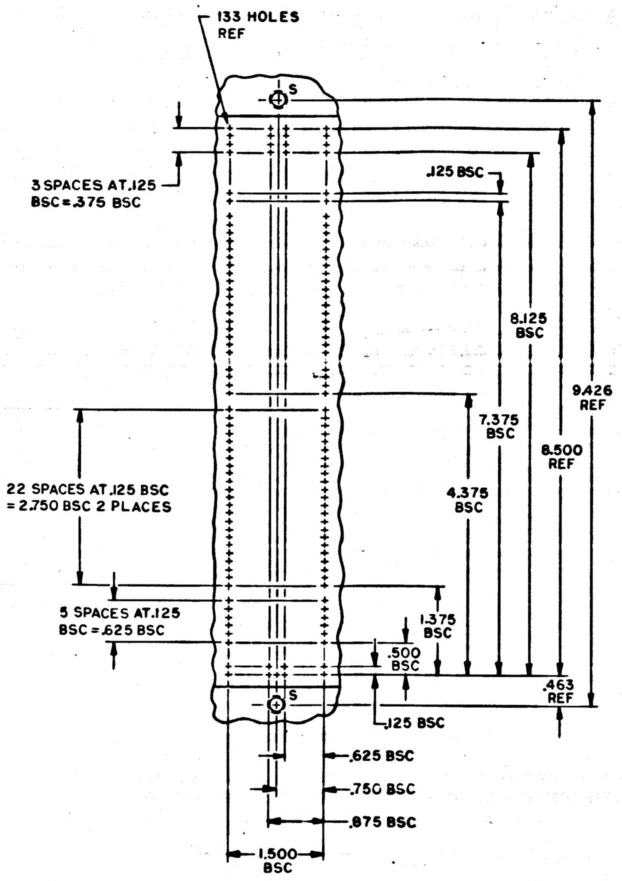
E3


6
5
4
3
B
B
SEE DETAIL A
SEE DETAIL B
-N-
-M-
.1865 .1670 DIA X .281 DEEP
4 P HOLES
⊕ .005 DIA
⊥ N .0005
10.531 BSC
SEE NOTE 10
2
.227 .231 DIA THRU
AND CSK 82° X .250 DIA TAP 1/4-28UN-2B
X .220 .240 DEEP FULL THD
18 C HOLES
⊕ .005 DIA
2
.227 .231 DIA X .408 .438 DEEP AND CSK 82°
X .250 DIA, TAP 1/4-28UN-2B
X .220 .240 DEEP FULL THD
14 D HOLES
⊕ .005 DIA
8.125 BSC
.310 .317 DIA THRU
14 HOLES
⊕ .005 DIA
0
3.000 REF
1.000 BSC
.500
.375
.875 BSC
2
.227 .231 DIA X .408 .438 DEEP AND CSK 82°
X .250 DIA, TAP 1/4-28UN-2B
X .220 .240 DEEP FULL THD
2 HOLES
⊕ .014 DIA
.072 .073 DIA
1853 HOLES
⊕ .004 DIA
9.500 BSC
8.500 BSC
7.500 BSC
6.750 BSC
6.000 BSC
4.250 BSC
3.250 BSC
2.375 BSC
1.500 BSC
.625 BSC
0
.375 BSC
.750 BSC 4 PLACES
.375 BSC 4 PLACES
.250 BSC 2 PLACES
.500 BSC 2 PLACES
.312 BSC 3 PLACES
.625 BSC 3 PLACES
.518 .514
CBORE .1865 .1870 DIA X .375 DEEP
2 HOLES
⊕ .002 DIA
⊥ M .0005
2
CBORE .227 .231 DIA X .315 .355 DEEP AND CSK
82° X .250 DIA, TAP 1/4-28UN-2B
X .220 .240 DEEP FULL THD
26 S HOLES
⊕ .005 DIA
68 SPACES AT .125 BSC = 8.500 BSC
9.426 BSC
.463 BSC
.875 BSC
.125 BSC
3 SPACES AT .125 BSC = .375 BSC
.072 .073 DIA REF
SURFACE 'B'
.1240 .1245 DIA
X .500 MIN DEEP
2 R HOLES
⊕ .002 DIA
⊥ B .0005
1.500 REF
0
-1.500 REF
.218 .222 DIA
18 K HOLES
⊕ .005 DIA
.1865 .1870 DIA X .625 DEEP
2 N HOLES
⊕ .002 DIA
⊥ M .0005
.125 BSC
.785 .781
1.625 BSC 2 PLACES
24 SPACES AT .125 BSC = 3.000 BSC 2 PLACES
4.100 BSC
3.550 BSC
11.125 REF
3.990 BSC
2 SPACES AT .125 BSC = .250 BSC 2 PLACES
19 SPACES AT .125 BSC = 2.375 BSC 3 PLACES
3.750 BSC
.490 BSC
1.031 BSC
8.895 BSC
.615 BSC
9.510 BSC
9.875 BSC
0
1.596
4
SEE NOTE 9
.452 .457 DIA THRU AND CSK 82° X .510 .520 DI
AND TAP 1/2-13 UNC-2B THRU FULL
14.250
1
S
K
C
D
P
R
N

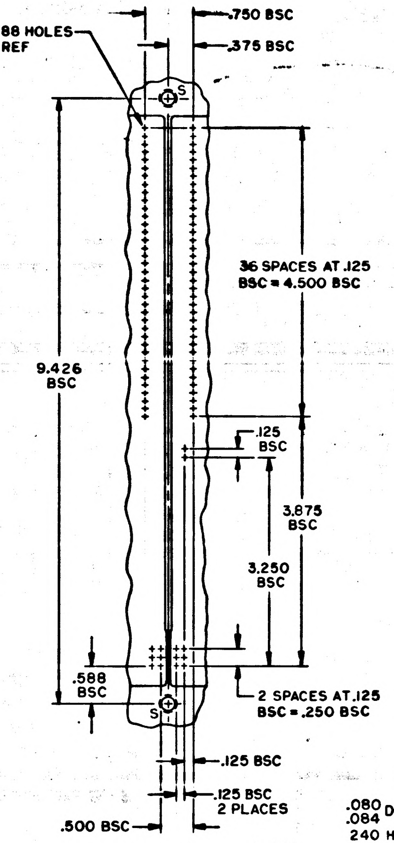
6
5
4
3

E2

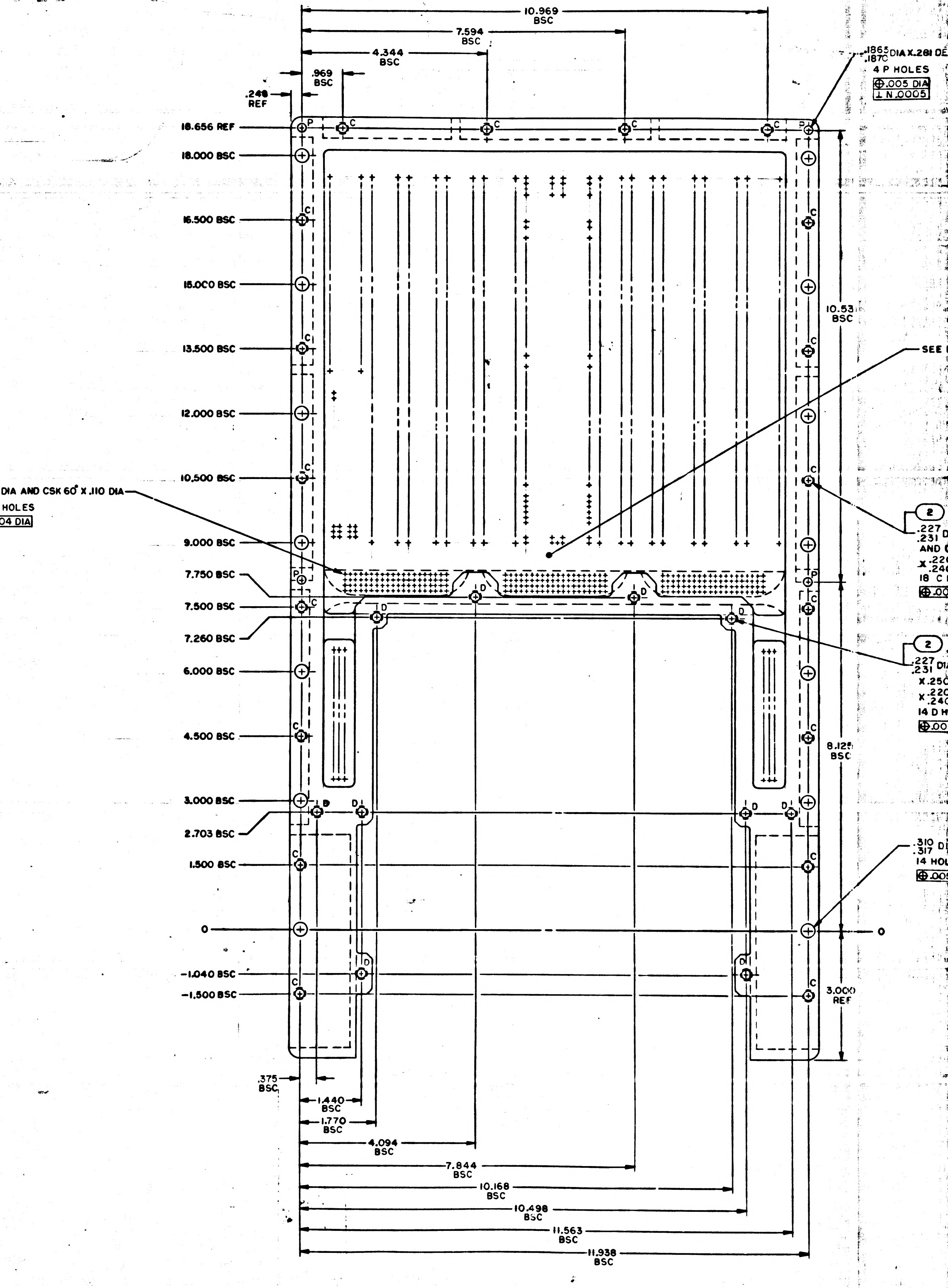
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

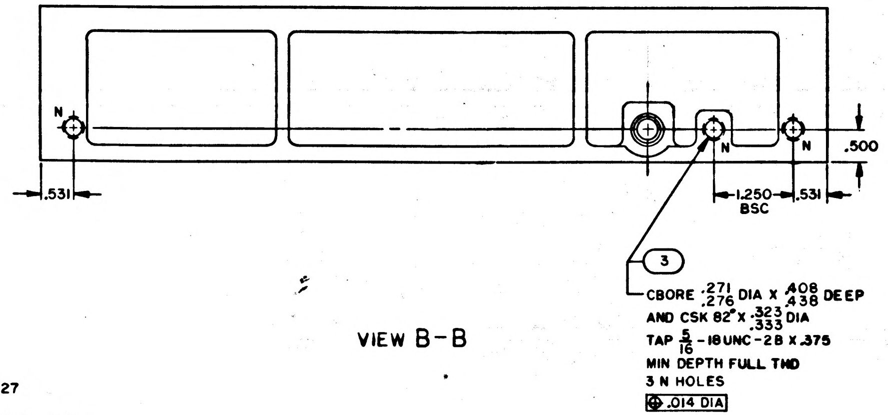

133 HOLES REF
S
3 SPACES AT .125 BSC = .375 BSC
.125 BSC
8.125 BSC
9.426 REF
7.375 BSC
8.500 REF
22 SPACES AT .125 BSC = 2.750 BSC 2 PLACES
4.375 BSC
5 SPACES AT .125 BSC = .625 BSC
1.375 BSC
.500 BSC
.463 REF
.125 BSC
.625 BSC
.750 BSC
.875 BSC
1.500 BSC

DETAIL A


88 HOLES REF
.750 BSC
.375 BSC
S
36 SPACES AT .125 BSC = 4.500 BSC
9.426 BSC
.125 BSC
3.875 BSC
3.250 BSC
.588 BSC
2 SPACES AT .125 BSC = .250 BSC
.125 BSC
.125 BSC 2 PLACES
.500 BSC

DETAIL B


.080 .084 DIA AND CSK 60° X .110 DIA
240 HOLES
⊕ .004 DIA
10.969 BSC
7.594 BSC
4.344 BSC
.969 BSC
.249 REF
.1865 .1870 DIA X .281 DE
4 P HOLES
⊕ .005 DIA
⊥ N .0005
18.656 REF
18.000 BSC
16.500 BSC
15.000 BSC
13.500 BSC
12.000 BSC
10.500 BSC
9.000 BSC
7.750 BSC
7.500 BSC
7.260 BSC
6.000 BSC
4.500 BSC
3.000 BSC
2.703 BSC
1.500 BSC
0
-1.040 BSC
-1.500 BSC
0
10.53 BSC
SEE
2
.227 .231 D
AND
X .220 .240
18 C
⊕ .00
2
.227 .231 DIA
X .250
X .220 .240
14 D H
⊕ .00
8.125 BSC
.310 .317 D
14 HOL
⊕ .005
3.000 REF
P
C
D
.375 BSC
1.440 BSC
1.770 BSC
4.094 BSC
7.844 BSC
10.168 BSC
10.498 BSC
11.563 BSC
11.938 BSC


N
N
N
.500
.531
1.250 BSC
.531
3
CBORE .271 .276 DIA X .408 .438 DEEP
AND CSK 82° X .323 .333 DIA
TAP 5/16 - 18UNC-2B X .375
MIN DEPTH FULL THD
3 N HOLES
⊕ .014 DIA

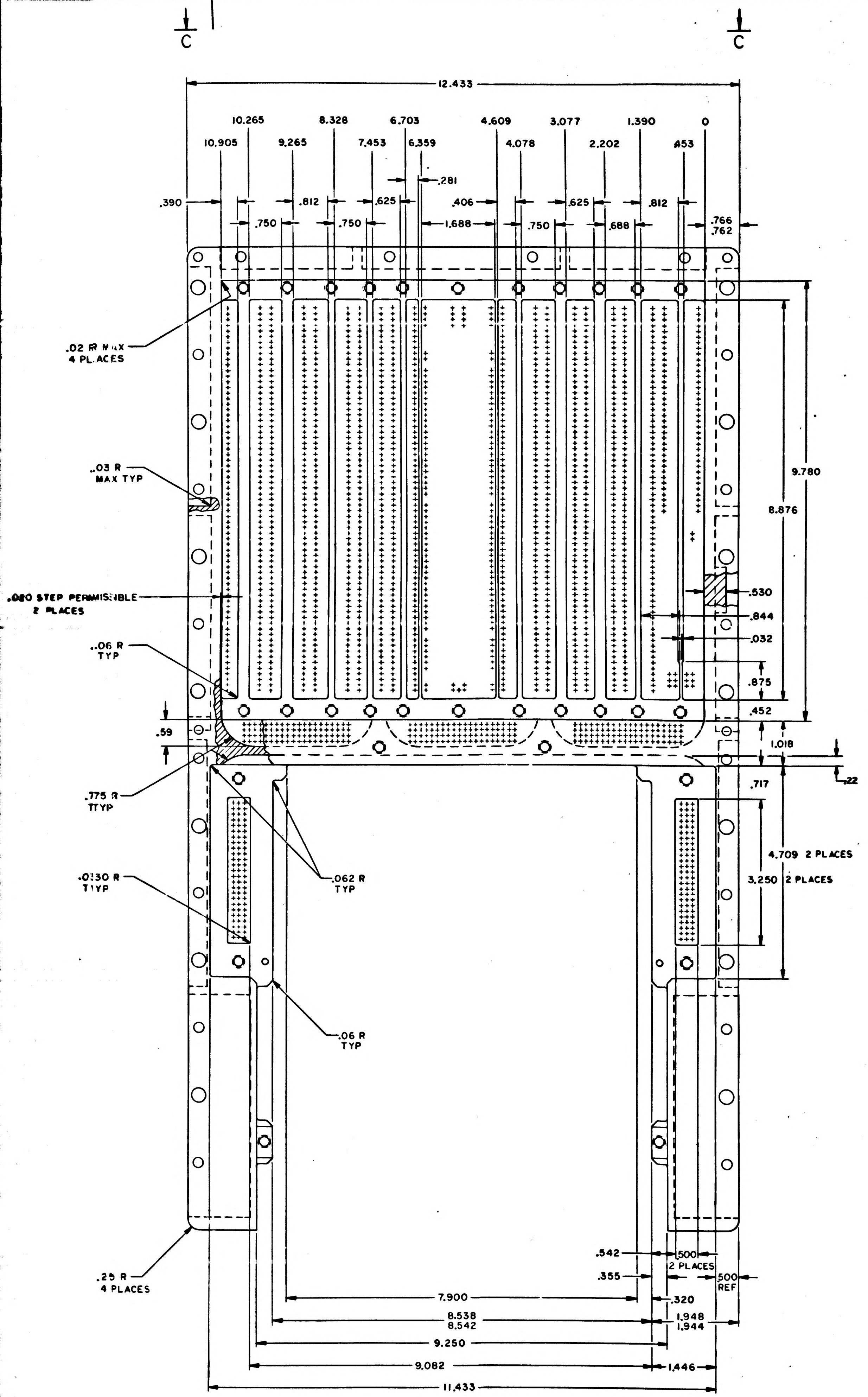
VIEW B-B

NOTES

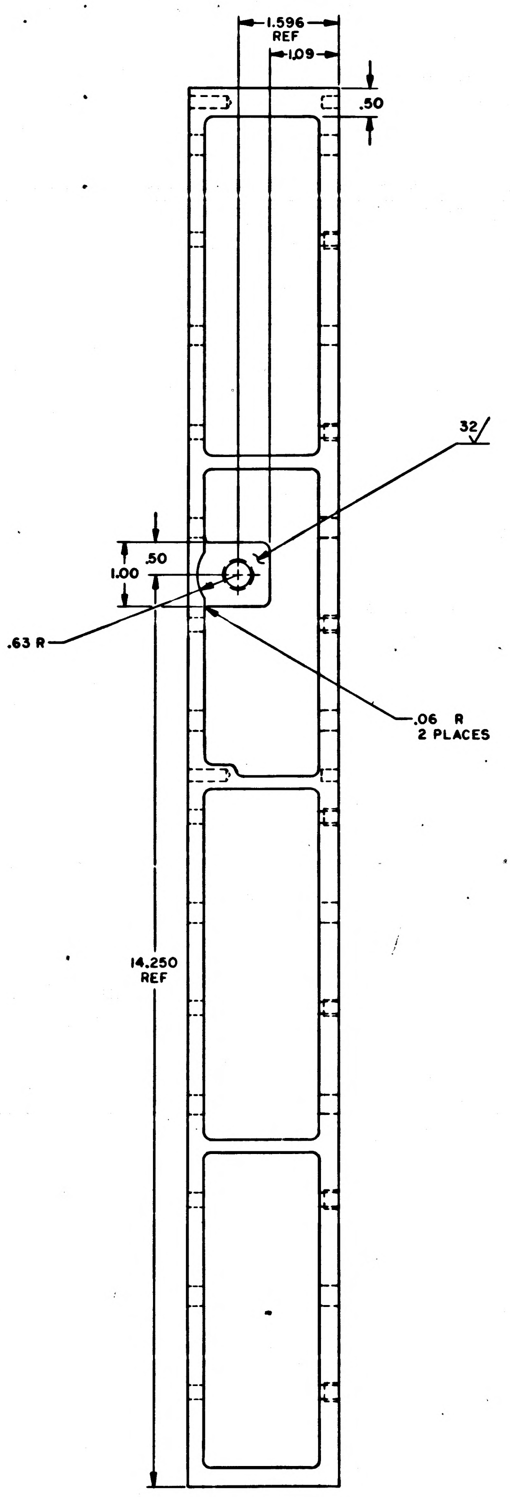
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP 6
3. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3. BEFORE INSTALLING FIND NO. 2,3 AND 4
4. ALL SURFACES 125/ UNLESS OTHERWISE SPECIFIED
5. REMOVE BURRS AND SHARP EDGES .005/.015
6. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .125
7. INSTALL FIND NO. 2,3 AND 4 PER ND1002121
8. COAT THREADS OF FIND NO. 2,3 AND 4 WITH MIL-P-8585, COLOR YELLOW
9. INSTALL FIND NO. 4 .000/.015 BELOW SURFACE
10. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019 AND SERIALIZE PER ND 1002023 WHERE SHOWN

2004117 C

REVISIONS 19219						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20286			23	
B		REVISED PER TDRR 21250				
C		REVISED PER TDRR 22617				



4
3
C
C
12.433
10.265
8.328
6.703
4.609
3.077
1.390
0
10.905
9.265
7.453
6.359
4.078
2.202
.453
.281
.390
.812
.625
.406
.625
.812
.766
.762
.750
.750
1.688
.750
.688
.02 R MAX 4 PLACES
.03 R MAX TYP
.020 STEP PERMISSIBLE 2 PLACES
.06 R TYP
.59
.775 R TYP
.0130 R TYP
.062 R TYP
.06 R TYP
.25 R 4 PLACES
9.780
8.876
.530
.844
.032
.875
.452
1.018
.22
.717
4.709 2 PLACES
3.250 2 PLACES
.542
.355
.500 2 PLACES
.500 REF
.320
1.948
1.944
7.900
8.538
8.542
9.250
9.082
1.446
11.433



1.596 REF
1.09
.50
32
.50
1.00
.63 R
.06 R 2 PLACES
14.250 REF

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN R. C. Taylor 27 May 65
CHECKED R. Yong 5/17/65
APPROVED 5/10/65
APPROVED Eldon C Hall 18 May 65

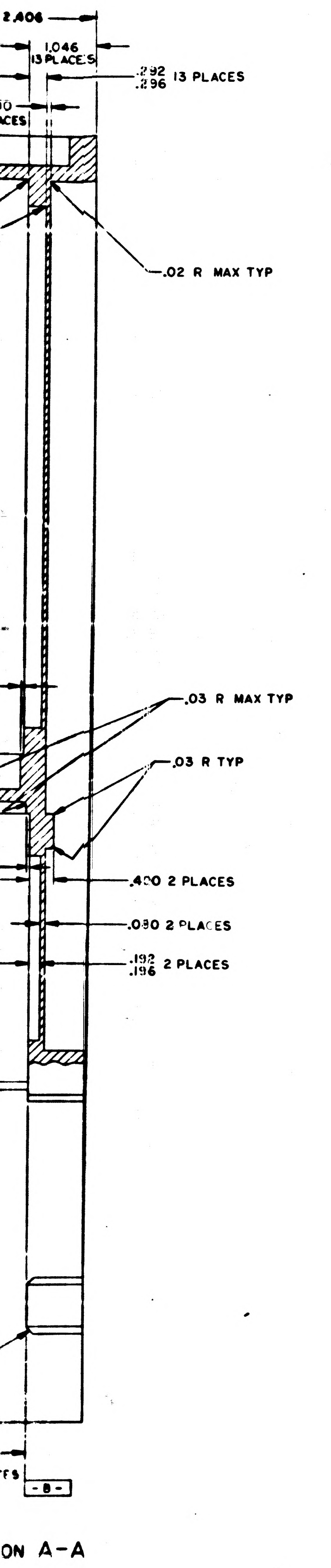
APPROVED MIT
APPROVED MSC
DATE

TRAY B
AGC

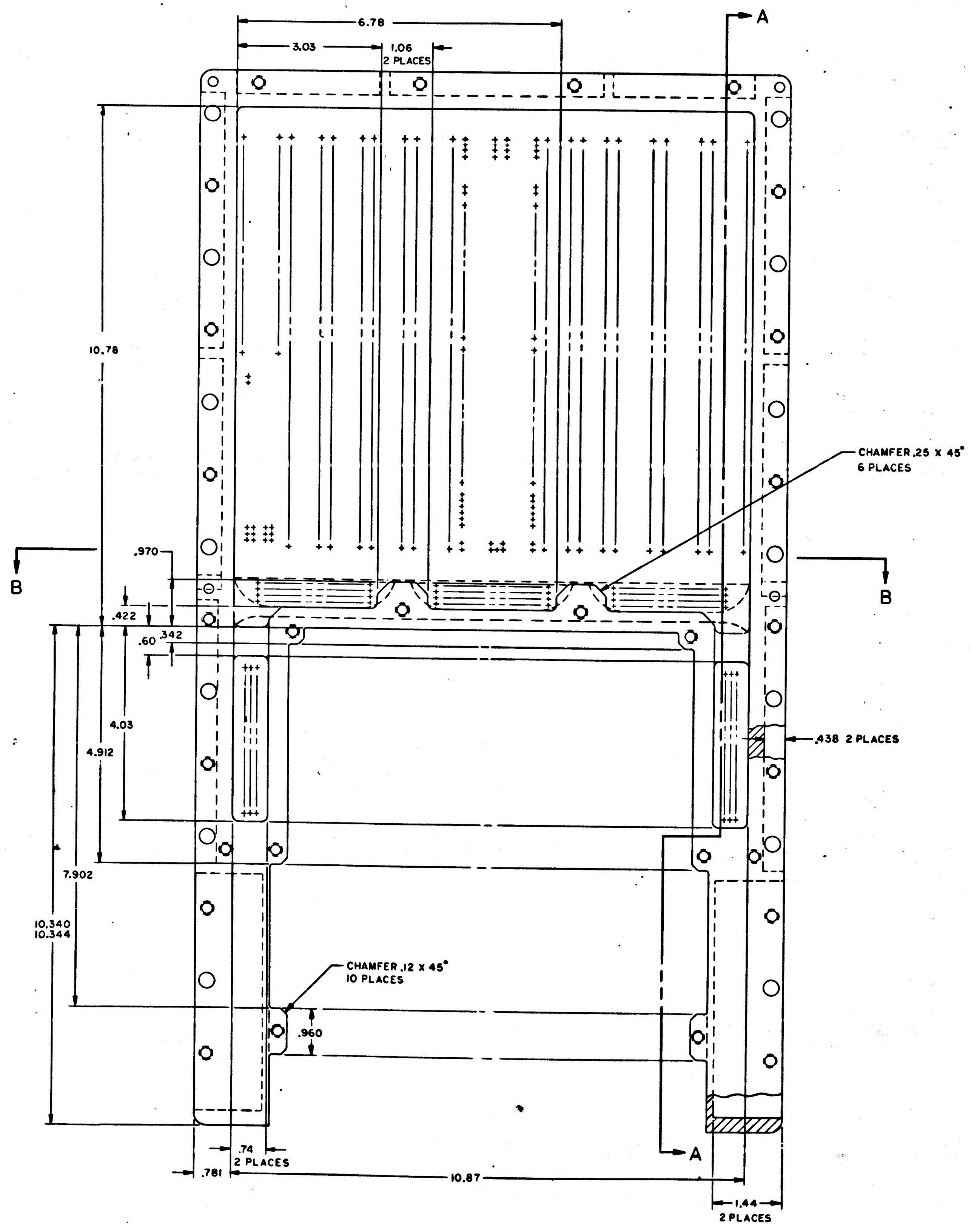
CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004117
SCALE 1/1
SHEET 2 OF 2

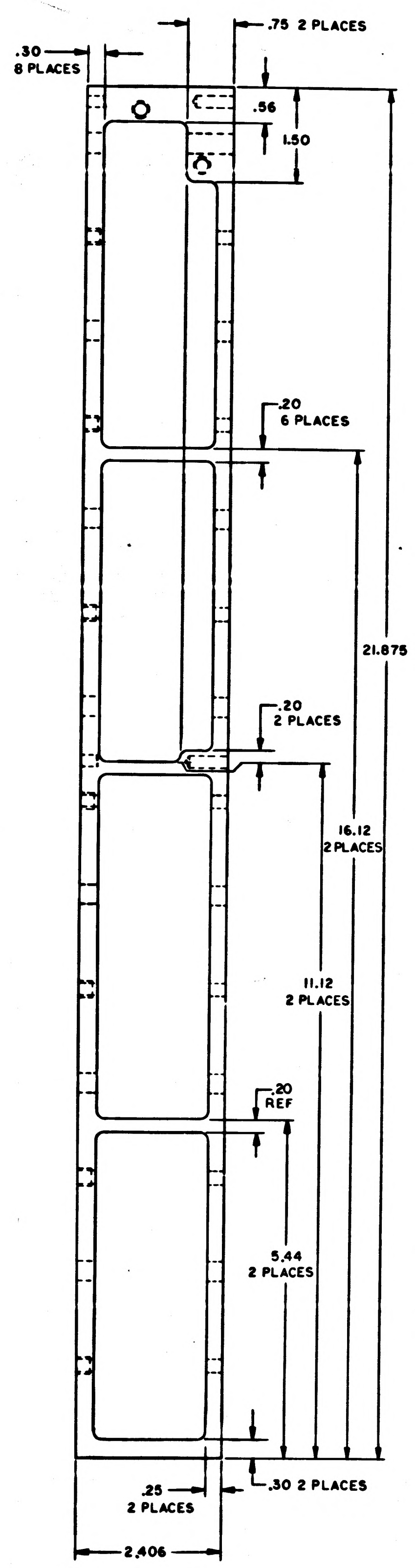
2004117 C

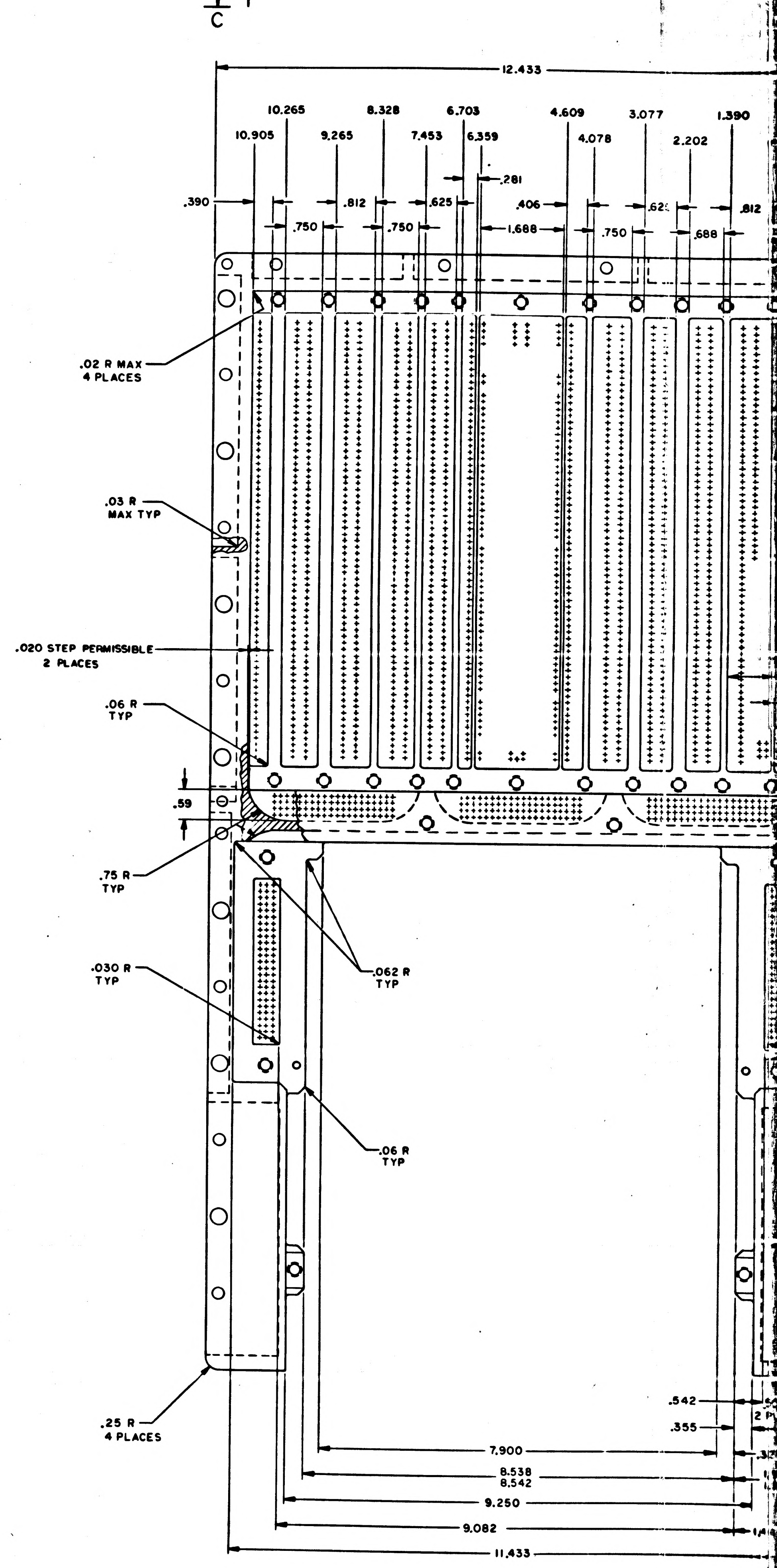
3††


2.406
1.046
13 PLACES
.292
.296 13 PLACES
.02 R MAX TYP
.03 R MAX TYP
.03 R TYP
.400 2 PLACES
.030 2 PLACES
.192
.196 2 PLACES
-B-

ON A-A

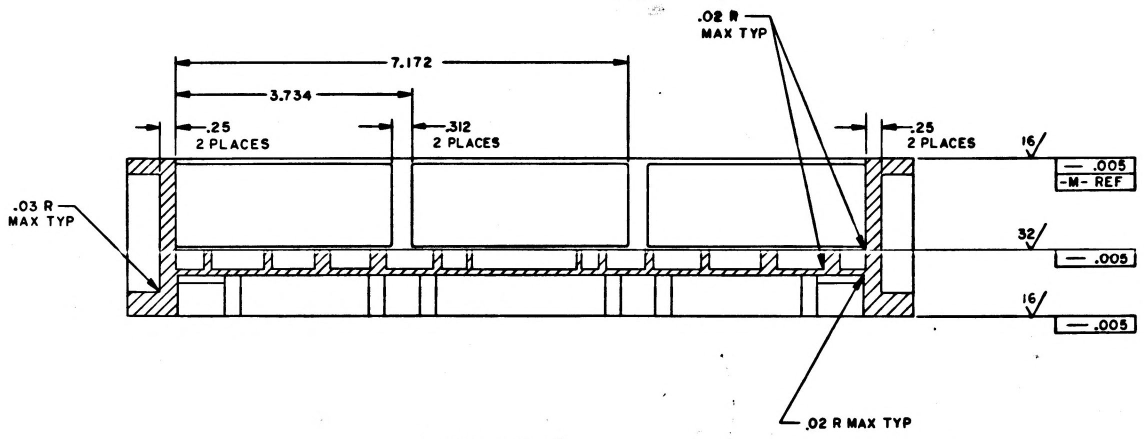

6.78
3.03
1.06
2 PLACES
A
10.78
CHAMFER .25 X 45°
6 PLACES
B
B
.970
.422
.60
.342
4.03
4.912
.438 2 PLACES
7.902
10.340
10.344
CHAMFER .12 X 45°
10 PLACES
.960
A
.74
2 PLACES
.781
10.87
1.44
2 PLACES


.30
8 PLACES
.75 2 PLACES
.56
1.50
.20
6 PLACES
21.875
.20
2 PLACES
16.12
2 PLACES
11.12
2 PLACES
.20
REF
5.44
2 PLACES
.25
2 PLACES
.30 2 PLACES
2.406


C
12.433
10.265
10.905
8.328
9.265
6.703
7.453
6.359
4.609
4.078
3.077
2.202
1.390
.281
.390
.812
.625
.406
.625
.812
.750
.750
1.688
.750
.688
.02 R MAX
4 PLACES
.03 R
MAX TYP
.020 STEP PERMISSIBLE
2 PLACES
.06 R
TYP
.59
.75 R
TYP
.062 R
TYP
.030 R
TYP
.06 R
TYP
.25 R
4 PLACES
.542
.355
7.900
8.538
8.542
9.250
9.082
11.433

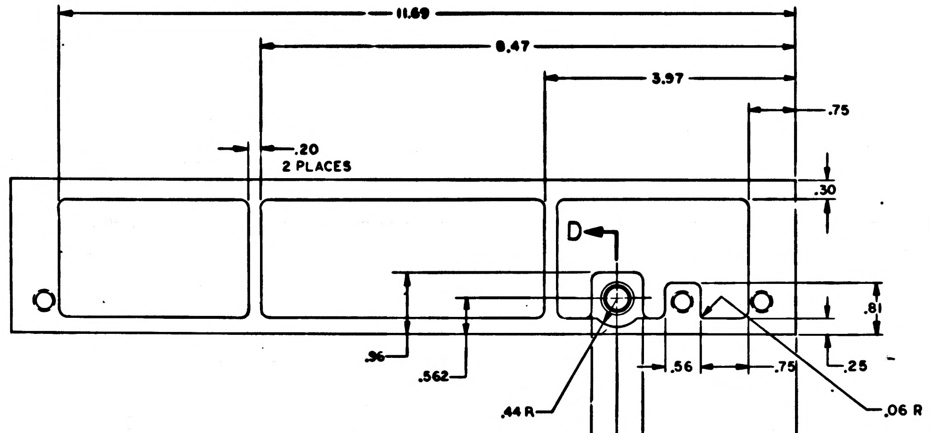
2004117 C

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.



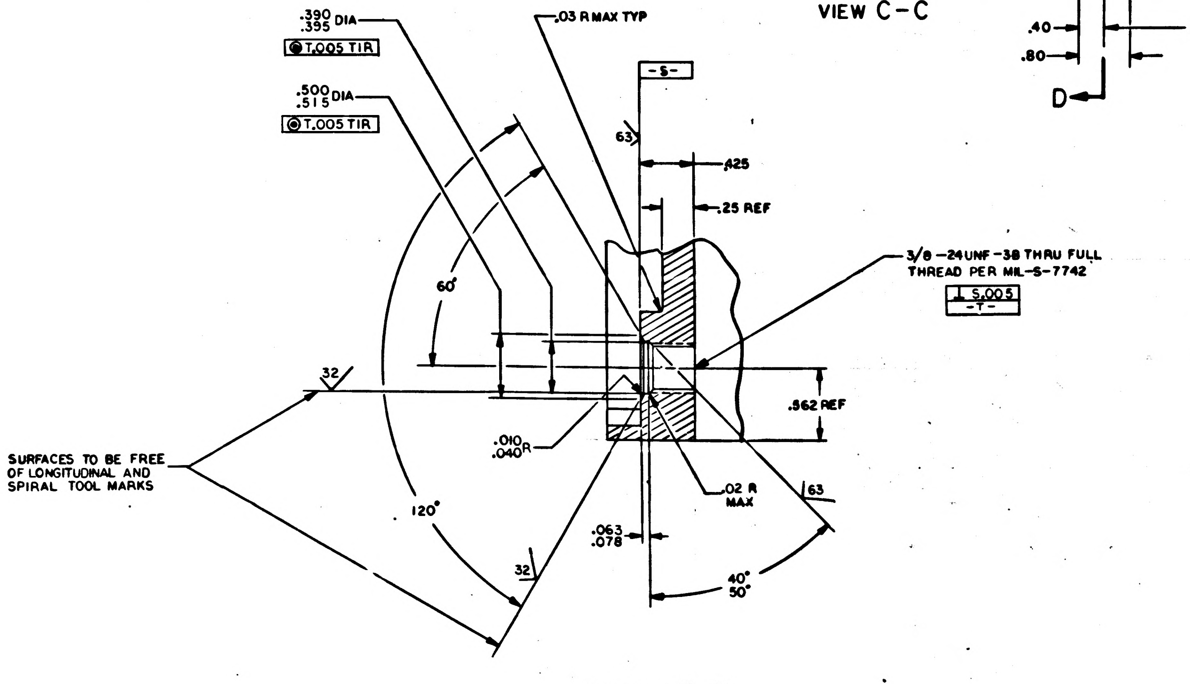
7.172
3.734
.25 2 PLACES
.312 2 PLACES
.25 2 PLACES
.02 R MAX TYP
.03 R MAX TYP
16
.005
-M- REF
32
.005
16
.005
.02 R MAX TYP

SECTION B–B



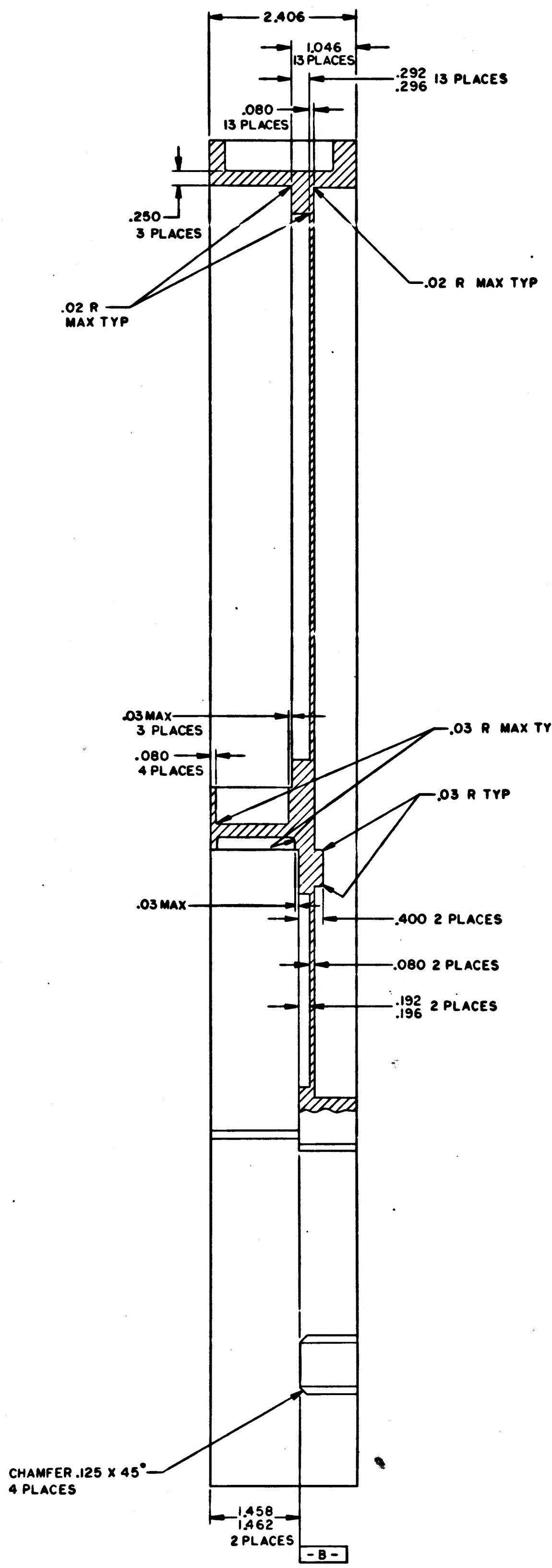
11.69
8.47
3.97
.75
.20 2 PLACES
.30
D
.81
.96
.562
.56
.75
.25
.44 R
.06 R

VIEW C–C



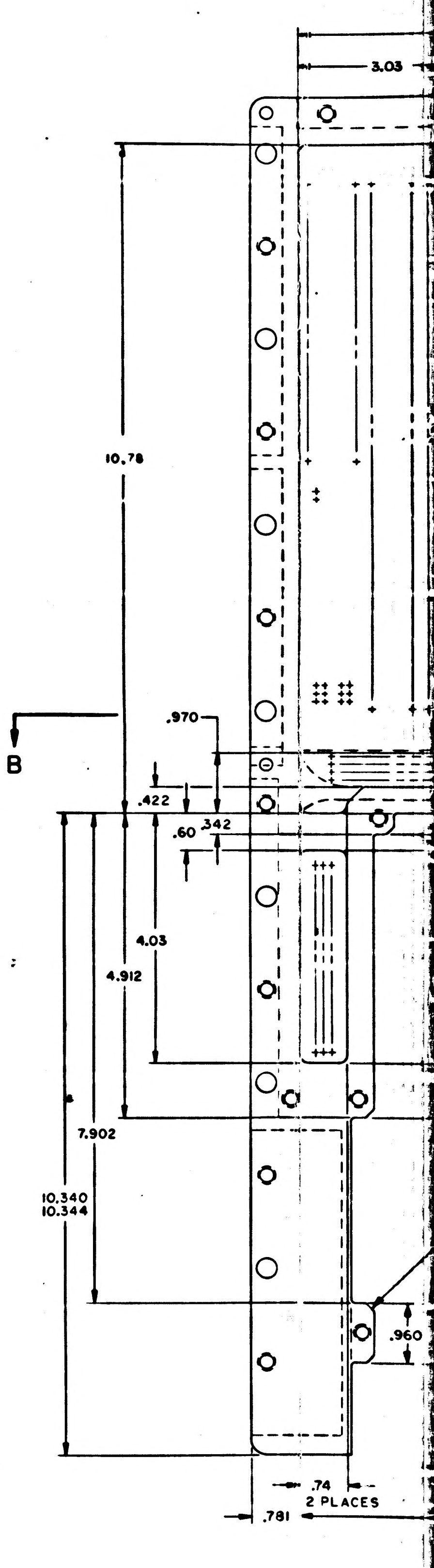
.390 .395 DIA
⊚ T .005 TIR
.500 .515 DIA
⊚ T .005 TIR
.03 R MAX TYP
-S-
63
.125
.25 REF
60°
32
3/8 –24UNF –3B THRU FULL THREAD PER MIL–S–7742
⊥ S .005
-T-
.562 REF
SURFACES TO BE FREE OF LONGITUDINAL AND SPIRAL TOOL MARKS
.010 .040 R
.02 R MAX
63
120°
.063 .078
32
40° 50°
.40
.80
2.812
D

SECTION D–D
SCALE: 2/1



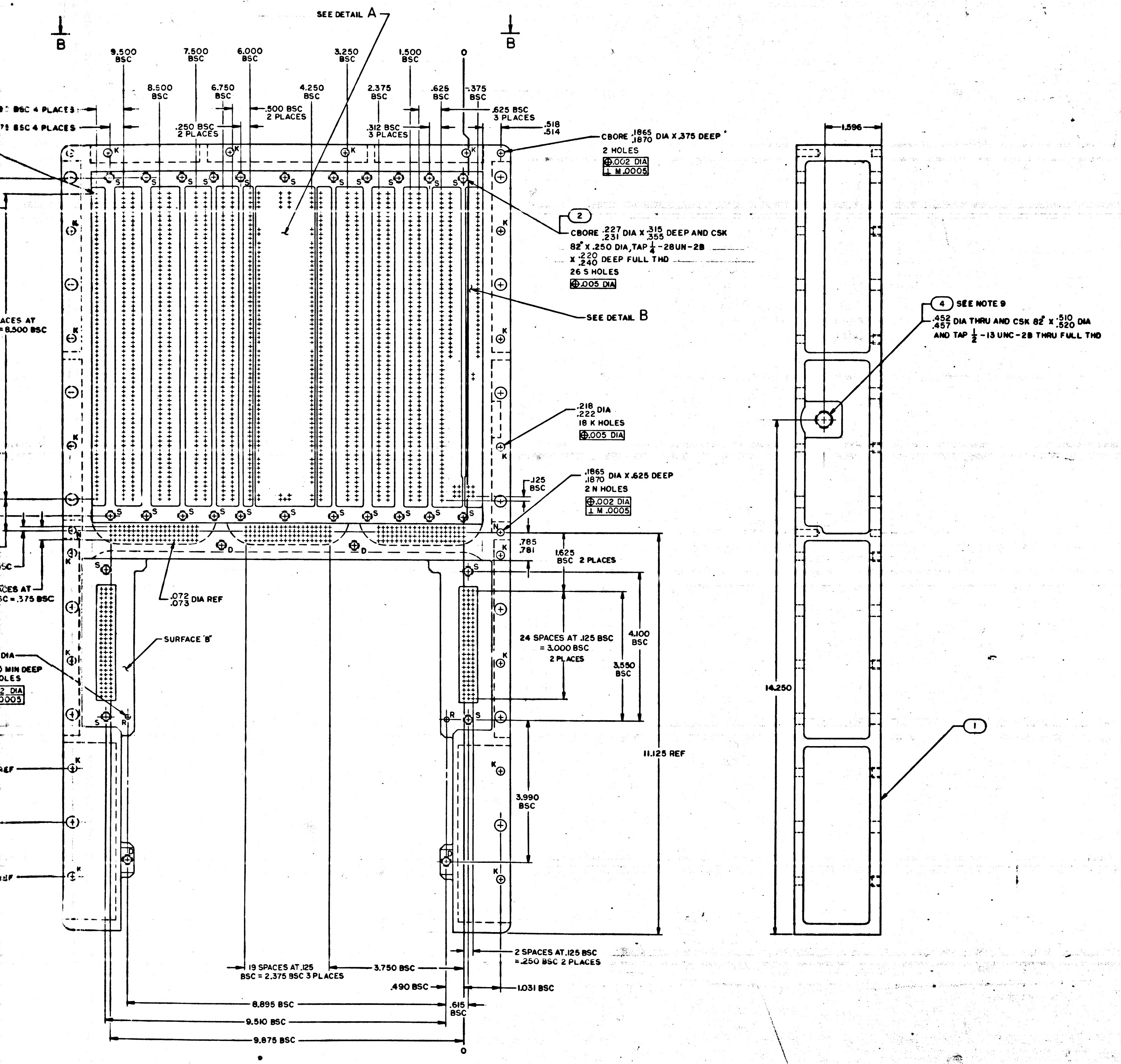
2.406
1.046 13 PLACES
.292 .296 13 PLACES
.080 13 PLACES
.250 3 PLACES
.02 R MAX TYP
.02 R MAX TYP
.03 MAX 3 PLACES
.080 4 PLACES
.03 R MAX TYP
.03 R TYP
.03 MAX
.400 2 PLACES
.080 2 PLACES
.192 .196 2 PLACES
CHAMFER .125 X 45° 4 PLACES
1.458 1.462 2 PLACES
-B-

SECTION A–A



3.03
10.78
B
.970
.422
.342
.60
4.03
4.912
7.902
10.340 10.344
.960
.74 2 PLACES
.781

SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
		REVISIONS 19219				
A		REVISED PER 20286				
B		REVISED PER TDRR 21250				WR
C		REVISED PER TDRR 22617				WR
D		REVISED PER TDRR 23146				WR



4
3
2
1
SEE DETAIL A
B
B
9.500 BSC
7.500 BSC
6.000 BSC
3.250 BSC
1.500 BSC
0
8.500 BSC
6.750 BSC
4.250 BSC
2.375 BSC
.625 BSC
.375 BSC
BSC 4 PLACES
.75 BSC 4 PLACES
.250 BSC 2 PLACES
.500 BSC 2 PLACES
.312 BSC 3 PLACES
.625 BSC 3 PLACES
.518 .514
CBORE .1865 .1870 DIA X .375 DEEP
2 HOLES
.002 DIA
⊥ M .0005
K
S
2
CBORE .227 .231 DIA X .315 .355 DEEP AND CSK
82° X .250 DIA, TAP 1/4-28UN-2B
X .220 .240 DEEP FULL THD
26 S HOLES
.005 DIA
SEE DETAIL B
ACES AT
= 8.500 BSC
.218 .222 DIA
18 K HOLES
.005 DIA
.1865 .1870 DIA X .625 DEEP
2 N HOLES
.002 DIA
⊥ M .0005
.125 BSC
N
D
.785 .781
1.625 BSC 2 PLACES
.072 .073 DIA REF
SURFACE 'B'
24 SPACES AT .125 BSC = 3.000 BSC 2 PLACES
4.100 BSC
3.550 BSC
11.125 REF
3.990 BSC
R
DIA
MIN DEEP
OLES
.002 DIA
.0005
REF
SC
CES AT
= .375 BSC
19 SPACES AT .125 BSC = 2.375 BSC 3 PLACES
3.750 BSC
.490 BSC
2 SPACES AT .125 BSC = .250 BSC 2 PLACES
1.031 BSC
.615 BSC
8.895 BSC
9.510 BSC
9.875 BSC
1.596
4
SEE NOTE 9
.452 .457 DIA THRU AND CSK 82° X .510 .520 DIA
AND TAP 1/2-13 UNC-2B THRU FULL THD
14.250
1

D

C

B

A

3H

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	NAS1394CA-6L	INSERT, THREADED, SELF-LOCKING	4
3	NAS1394CA-3L	INSERT, THREADED, SELF-LOCKING	3
60	1006702-5	INSERT, THREADED, SELF-LOCKING	2
1	2004117-001	TRAY B, MACHINED	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003063	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XX ±.01 .XXX ±.005 ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
CHECKED R. Wong
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC

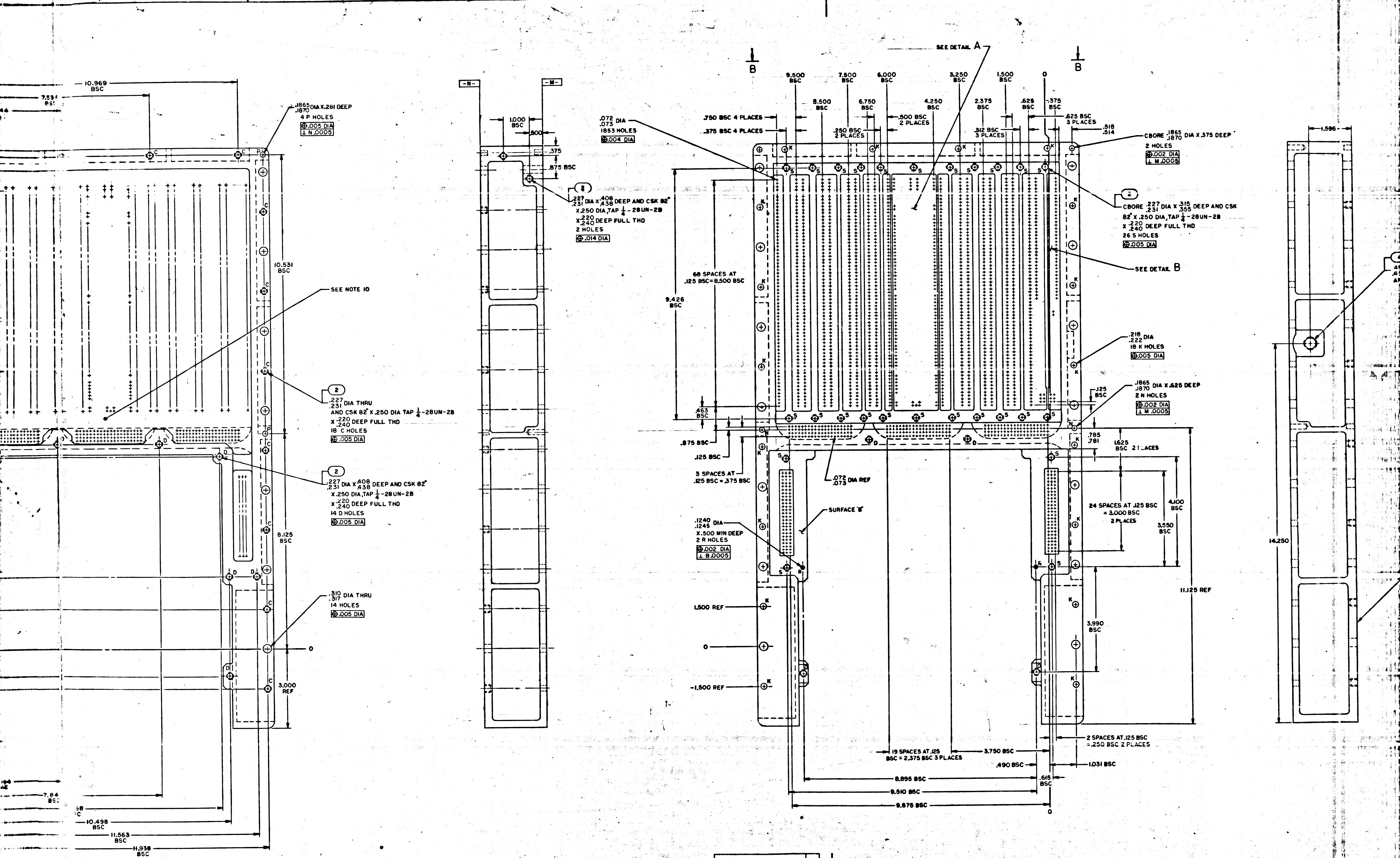
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRAY B
INSEPARABLE ASSY
AGC

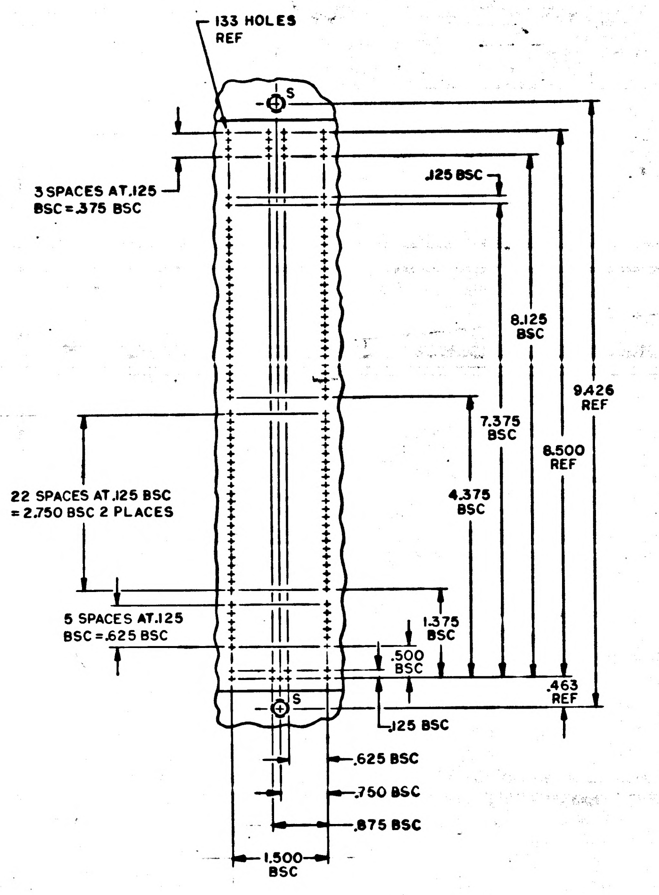
CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004117
SCALE 1/1
SHEET 1 OF 2

2004117 D

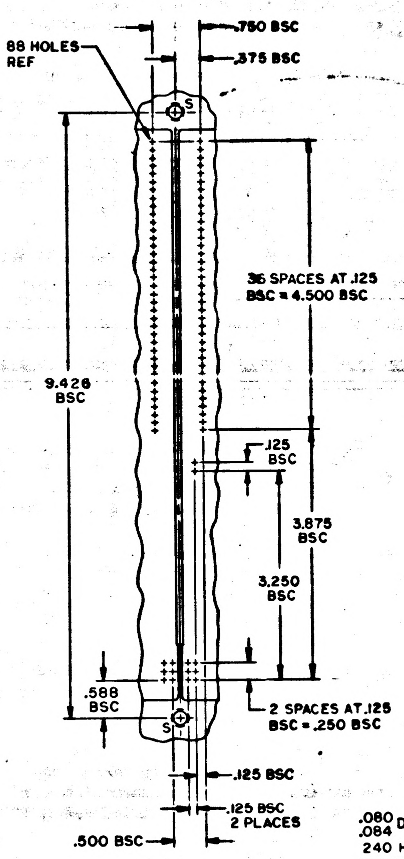
2004117 D


10.969 BSC
7.53 BS
.1865 .1870 DIA X .281 DEEP
4 P HOLES
⊕ .005 DIA
⊥ N .0005
10.531 BSC
SEE NOTE 10
② .227 .231 DIA THRU AND CSK 82° X .250 DIA TAP 1/4-28UN-2B X .220 .240 DEEP FULL THD
18 C HOLES
⊕ .005 DIA
② .227 .231 DIA X .408 .438 DEEP AND CSK 82° X .250 DIA, TAP 1/4-28UN-2B X .220 .240 DEEP FULL THD
14 D HOLES
⊕ .005 DIA
8.125 BSC
.310 .317 DIA THRU
14 HOLES
⊕ .005 DIA
3.000 REF
0
7.84 BS
10.498 BSC
11.563 BSC
11.938 BSC
-N-
-M-
1.000 BSC
.500
.375
.875 BSC
② .227 .231 DIA X .408 .438 DEEP AND CSK 82° X .250 DIA, TAP 1/4-28UN-2B X .220 .240 DEEP FULL THD
2 HOLES
⊕ .014 DIA
SEE DETAIL A
B
B
.072 .073 DIA
1853 HOLES
⊕ .004 DIA
9.500 BSC
7.500 BSC
6.000 BSC
3.250 BSC
1.500 BSC
0
8.500 BSC
6.750 BSC
4.250 BSC
2.375 BSC
.625 BSC
.375 BSC
.750 BSC 4 PLACES
.375 BSC 4 PLACES
.250 BSC 2 PLACES
.500 BSC 2 PLACES
.312 BSC 3 PLACES
.625 BSC 3 PLACES
.518 .514
CBORE .1865 .1870 DIA X .375 DEEP
2 HOLES
⊕ .002 DIA
⊥ M .0005
② CBORE .227 .231 DIA X .315 .355 DEEP AND CSK 82° X .250 DIA, TAP 1/4-28UN-2B X .220 .240 DEEP FULL THD
26 S HOLES
⊕ .005 DIA
SEE DETAIL B
68 SPACES AT .125 BSC = 8.500 BSC
9.426 BSC
.218 .222 DIA
18 K HOLES
⊕ .005 DIA
.1865 .1870 DIA X .625 DEEP
2 N HOLES
⊕ .002 DIA
⊥ M .0005
.125 BSC
.463 BSC
.875 BSC
.125 BSC
3 SPACES AT .125 BSC = .375 BSC
.785 .781
1.625 BSC 2 PLACES
.072 .073 DIA REF
SURFACE 'B'
24 SPACES AT .125 BSC = 3.000 BSC 2 PLACES
4.100 BSC
3.550 BSC
.1240 .1245 DIA X .500 MIN DEEP
2 R HOLES
⊕ .002 DIA
⊥ B .0005
11.125 REF
14.250
1.596
1.500 REF
0
-1.500 REF
3.990 BSC
2 SPACES AT .125 BSC = .250 BSC 2 PLACES
19 SPACES AT .125 BSC = 2.375 BSC 3 PLACES
3.750 BSC
.490 BSC
1.031 BSC
.615 BSC
8.895 BSC
9.510 BSC
9.875 BSC
7
6
5
4
3

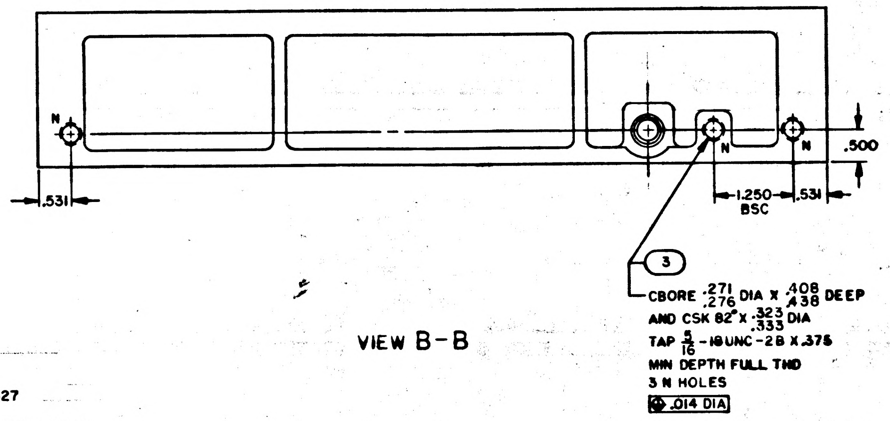
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


133 HOLES REF
S
3 SPACES AT .125 BSC = .375 BSC
.125 BSC
8.125 BSC
9.426 REF
7.375 BSC
8.500 REF
22 SPACES AT .125 BSC = 2.750 BSC 2 PLACES
4.375 BSC
5 SPACES AT .125 BSC = .625 BSC
1.375 BSC
.500 BSC
.463 REF
.125 BSC
.625 BSC
.750 BSC
.875 BSC
1.500 BSC

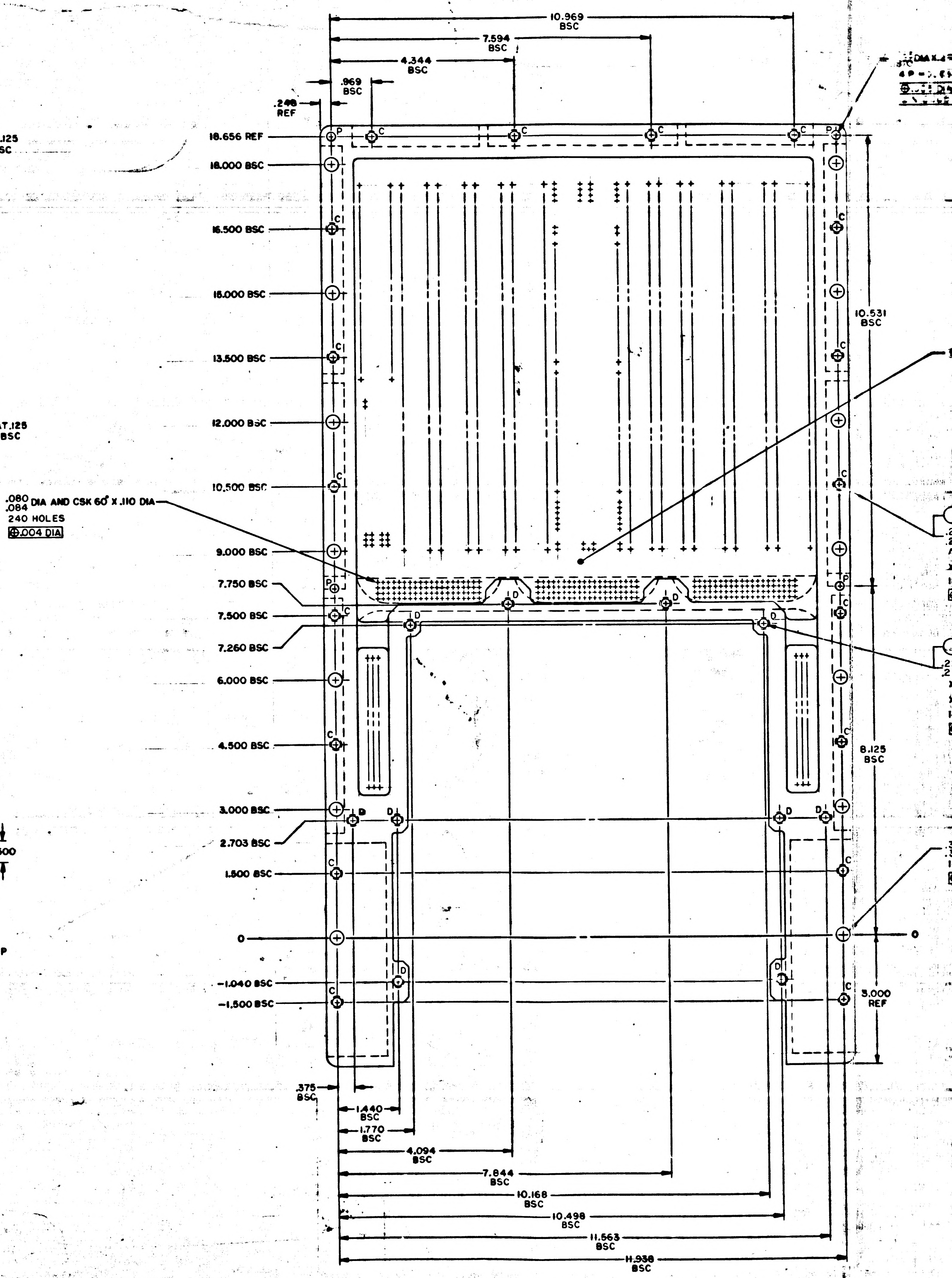
DETAIL A


88 HOLES REF
.750 BSC
.375 BSC
S
36 SPACES AT .125 BSC = 4.500 BSC
9.426 BSC
.125 BSC
3.875 BSC
3.250 BSC
.588 BSC
2 SPACES AT .125 BSC = .250 BSC
.125 BSC
.125 BSC 2 PLACES
.500 BSC

DETAIL B


N
.500
1.250 BSC
.531
.531
3
CBORE .271/.276 DIA X .408/.438 DEEP
AND CSK 82° X .323/.333 DIA
TAP 5/16-18UNC-2B X .375
MIN DEPTH FULL THD
3 N HOLES
⌖ .014 DIA

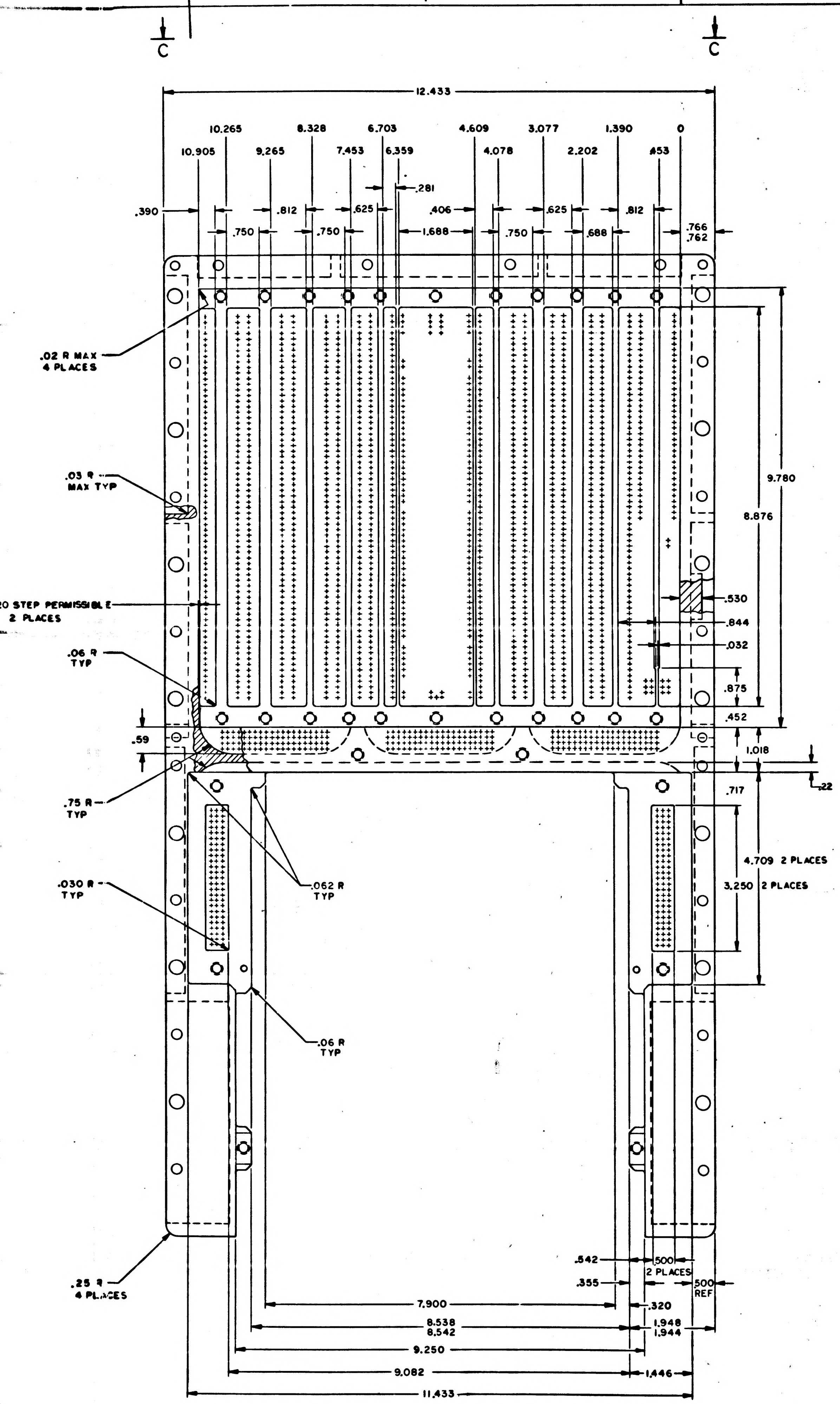
VIEW B-B


10.969 BSC
7.594 BSC
4.344 BSC
.969 BSC
.248 REF
18.656 REF
18.000 BSC
16.500 BSC
15.000 BSC
13.500 BSC
12.000 BSC
10.500 BSC
9.000 BSC
7.750 BSC
7.500 BSC
7.260 BSC
6.000 BSC
4.500 BSC
3.000 BSC
2.703 BSC
1.500 BSC
0
-1.040 BSC
-1.500 BSC
.080/.084 DIA AND CSK 60° X .110 DIA
240 HOLES
⌖ .004 DIA
10.531 BSC
8.125 BSC
3.000 REF
.375 BSC
1.440 BSC
1.770 BSC
4.094 BSC
7.844 BSC
10.168 BSC
10.498 BSC
11.563 BSC
11.938 BSC
P
C
D

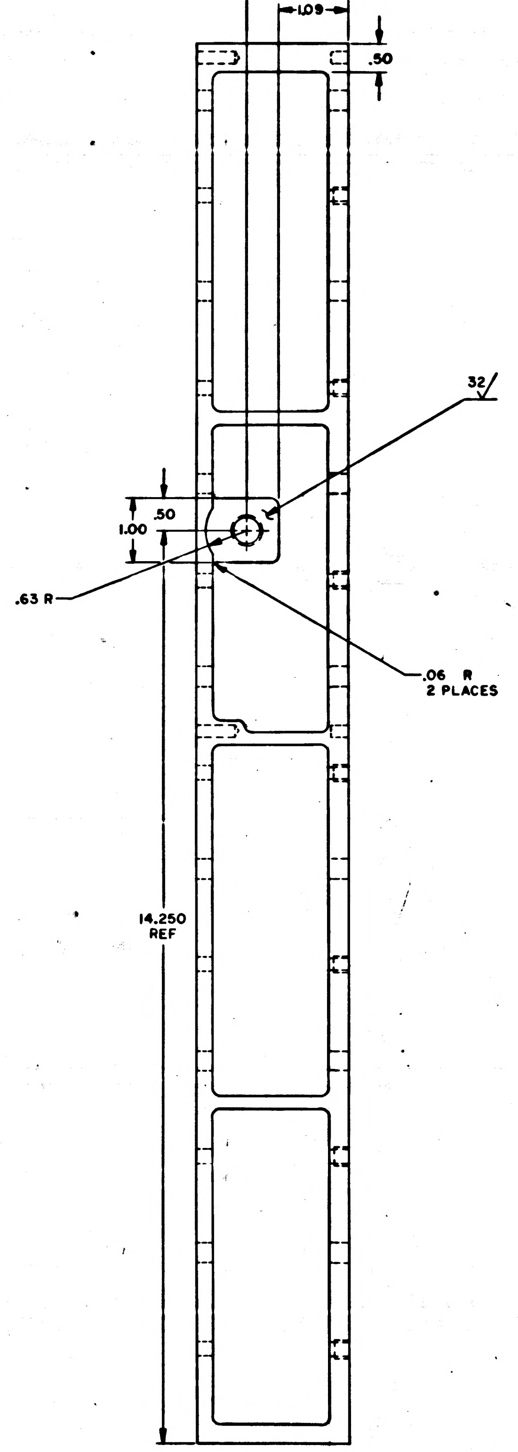
NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP 6
3. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3. BEFORE INSTALLING FIND NO. 2, 3 AND 4
4. ALL SURFACES 125√ UNLESS OTHERWISE SPECIFIED
5. REMOVE BURRS AND SHARP EDGES .005/.015
6. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .125
7. INSTALL FIND NO. 2, 3 AND 4 PER ND1002121
8. COAT THREADS OF FIND NO. 2, 3 AND 4 WITH MIL-P-8585, COLOR YELLOW
9. INSTALL FIND NO. 4 .000/.015 BELOW SURFACE
10. IDENTIFY WITH PART NO. PER ND1002019 AND SERIALIZE PER ND1002023 WHERE SHOWN

3H

REVISIONS 19219						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20286				
B		REVISED PER TDRR 21250				
C		REVISED PER TDRR 22617				
D		REVISED PER TDRR 23146				



C
C
12.433
10.265
8.328
6.703
4.609
3.077
1.390
0
10.905
9.265
7.453
6.359
4.078
2.202
.453
.281
.390
.812
.625
.406
.625
.812
.750
.750
1.688
.750
.688
.766
.762
.02 R MAX
4 PLACES
.03 R
MAX TYP
9.780
8.876
.020 STEP PERMISSIBLE
2 PLACES
.530
.844
.032
.06 R
TYP
.875
.452
.59
1.018
.22
.75 R
TYP
.717
4.709 2 PLACES
3.250 2 PLACES
.062 R
TYP
.030 R
TYP
.06 R
TYP
.25 R
4 PLACES
.542
.500
2 PLACES
.355
.500
REF
.320
7.900
8.538
8.542
1.948
1.944
9.250
9.082
1.446
11.433



1.596
REF
1.09
.50
32
1.00
.50
.63 R
.06 R
2 PLACES
14.250
REF

MASTER

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN R.C. Taylor 27 Apr 65
CHECKED R. Yong 5/17/65
APPROVED 5/18/65
APPROVED Eldon C. Hall 18 May 65
APPROVED MIT 15 May 65
APPROVED MSC 5/14/65

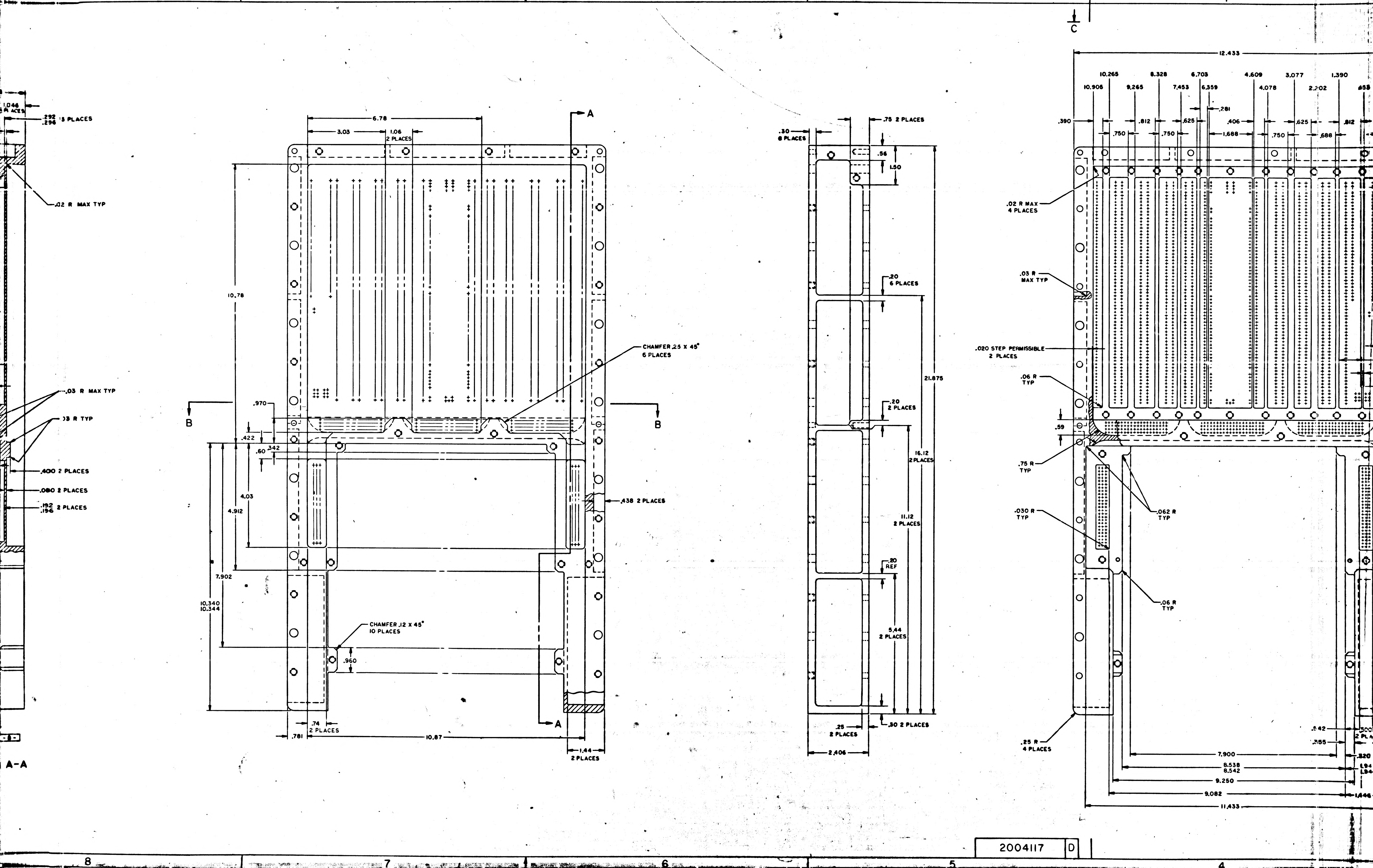
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRAY B
INSEPARABLE ASSY
AGC

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004117
SCALE 1/1
SHEET 2 OF 2

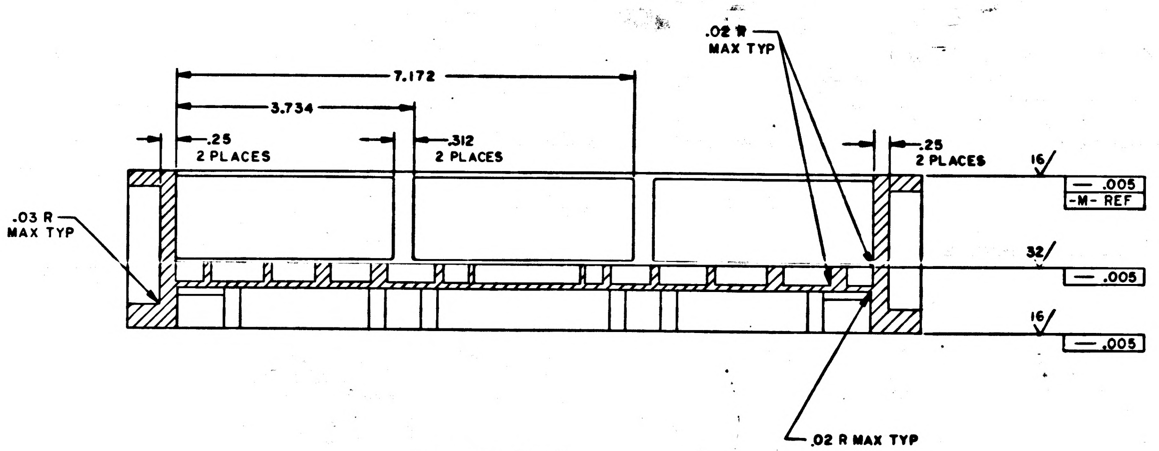
2004117 D

34



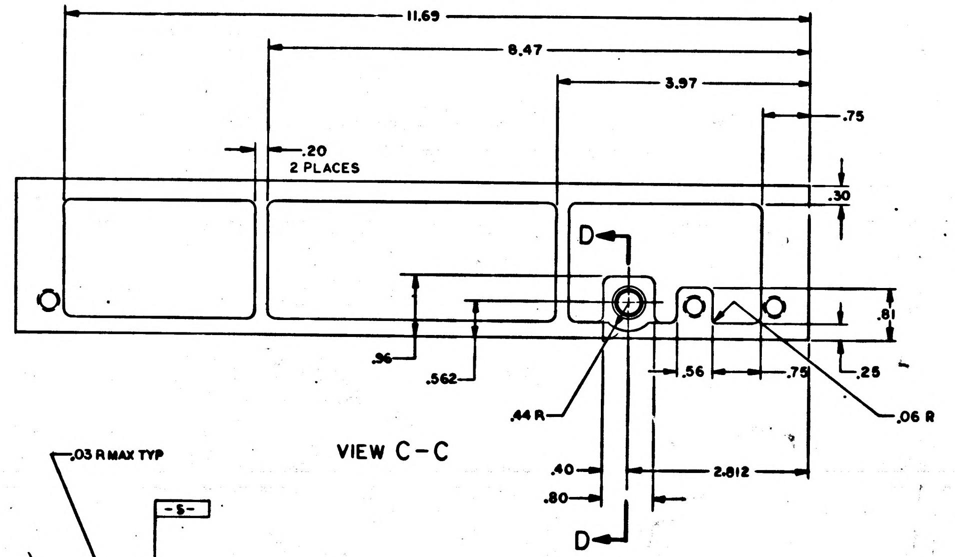
8
7
6
5
4
C
1.046
.292
.296
3 PLACES
.02 R MAX TYP
.03 R MAX TYP
.03 R TYP
.400 2 PLACES
.080 2 PLACES
.192
.196
2 PLACES
A-A
6.78
3.03
1.06
2 PLACES
A
10.78
.970
.422
.60
.342
4.03
4.912
7.902
10.340
10.344
B
B
CHAMFER .25 X 45° 6 PLACES
.438 2 PLACES
CHAMFER .12 X 45° 10 PLACES
.960
.781
.74
2 PLACES
10.87
1.44
2 PLACES
A
.30
8 PLACES
.75 2 PLACES
.56
1.50
.20
6 PLACES
21.875
.20
2 PLACES
16.12
2 PLACES
11.12
2 PLACES
.20
REF
5.44
2 PLACES
.25
2 PLACES
.30 2 PLACES
2.406
12.433
10.265
10.906
8.328
9.265
6.703
7.453
6.359
4.609
4.078
3.077
2.202
1.390
.281
.390
.812
.750
.625
.750
.406
1.688
.750
.625
.688
.812
.02 R MAX
4 PLACES
.03 R
MAX TYP
.020 STEP PERMISSIBLE
2 PLACES
.06 R
TYP
.59
.75 R
TYP
.062 R
TYP
.030 R
TYP
.06 R
TYP
.25 R
4 PLACES
.542
.555
.500
7.900
8.538
8.542
9.250
9.082
11.433
.320
1.446

2004117 D



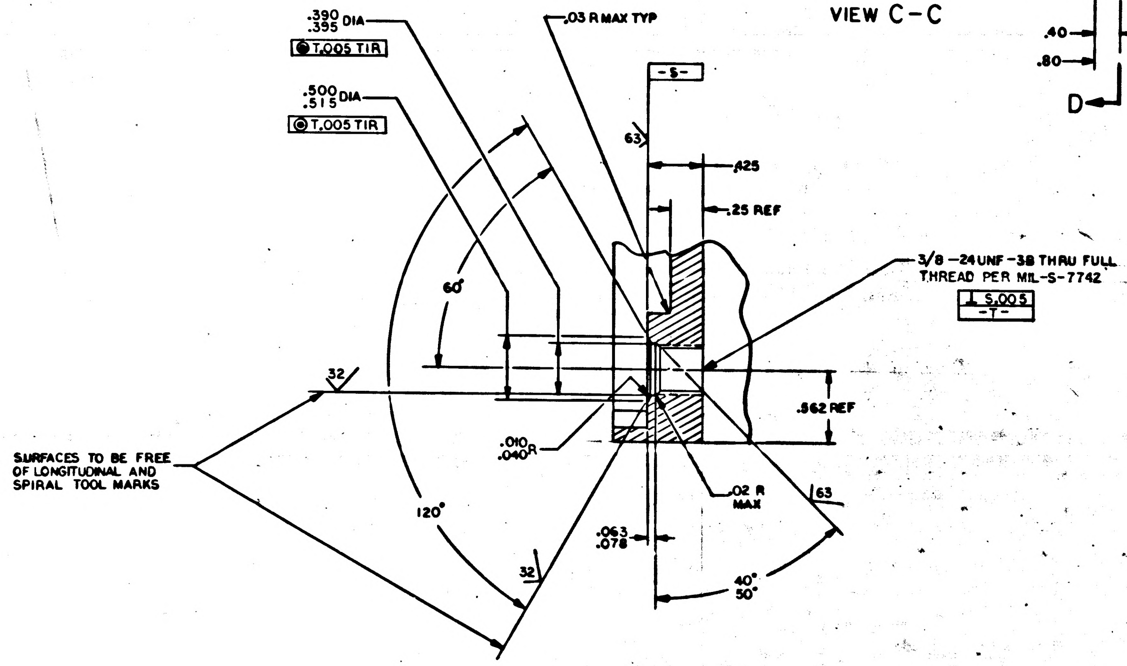
7.172
3.734
.25
2 PLACES
.312
2 PLACES
.02 R
MAX TYP
.25
2 PLACES
.03 R
MAX TYP
16
— .005
-M- REF
32
— .005
16
— .005
.02 R MAX TYP

SECTION B-B



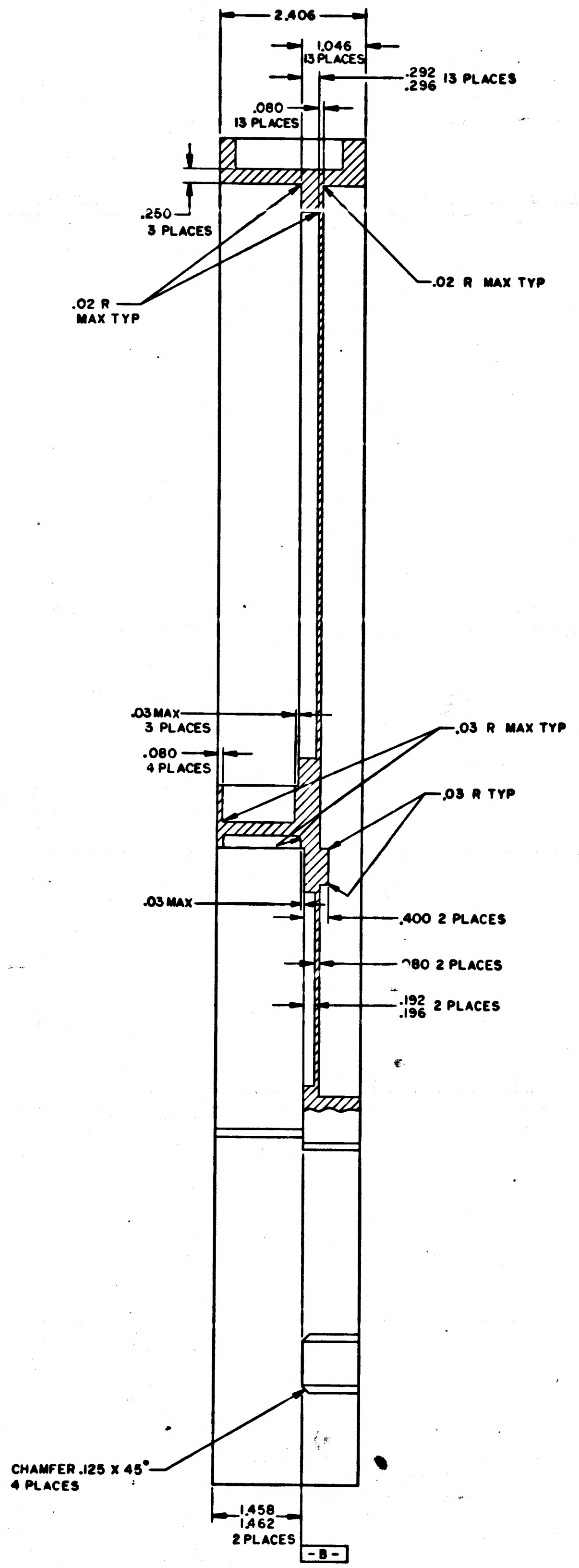
11.69
8.47
3.97
.75
.20
2 PLACES
.30
D
.96
.562
.81
.56
.75
.25
.44 R
.06 R
.40
.80
2.812
D

VIEW C-C



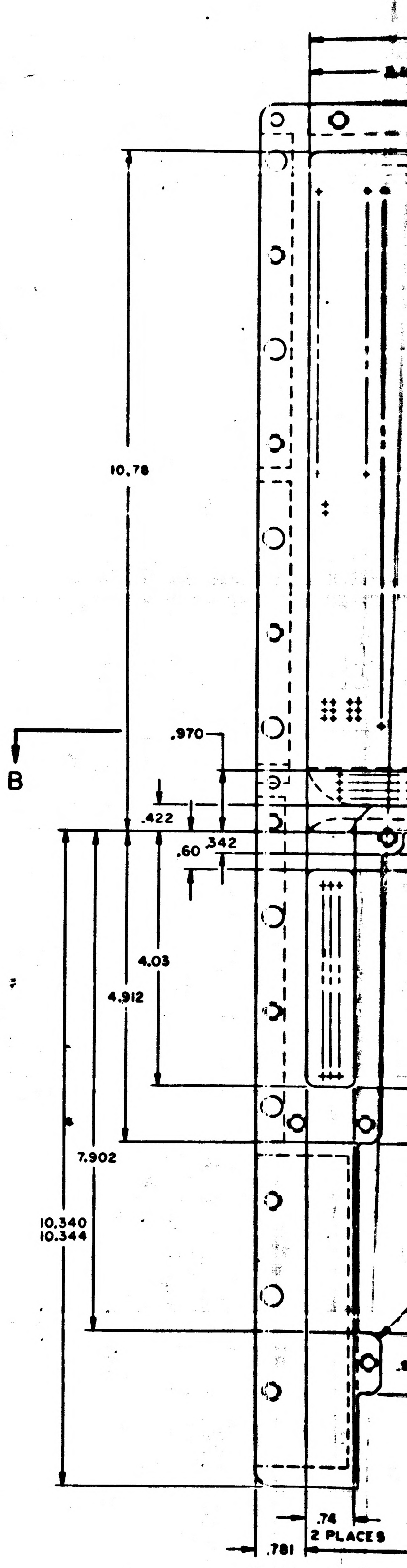
.390 .395 DIA
◎ T .005 TIR
.500 .515 DIA
◎ T .005 TIR
.03 R MAX TYP
-S-
63
.425
.25 REF
60°
3/8 -24UNF-3B THRU FULL THREAD PER MIL-S-7742
⊥ S .005
-T-
32
SURFACES TO BE FREE OF LONGITUDINAL AND SPIRAL TOOL MARKS
.562 REF
.010 .040 R
.02 R MAX
63
120°
32
.063 .078
40° 50°

SECTION D-D
SCALE: 2/1



2.406
1.046
13 PLACES
.292 .296 13 PLACES
.080
13 PLACES
.250
3 PLACES
.02 R
MAX TYP
.02 R MAX TYP
.03 MAX
3 PLACES
.080
4 PLACES
.03 R MAX TYP
.03 R TYP
.03 MAX
.400 2 PLACES
.080 2 PLACES
.192 .196 2 PLACES
CHAMFER .125 X 45°
4 PLACES
1.458 1.462
2 PLACES
-B-

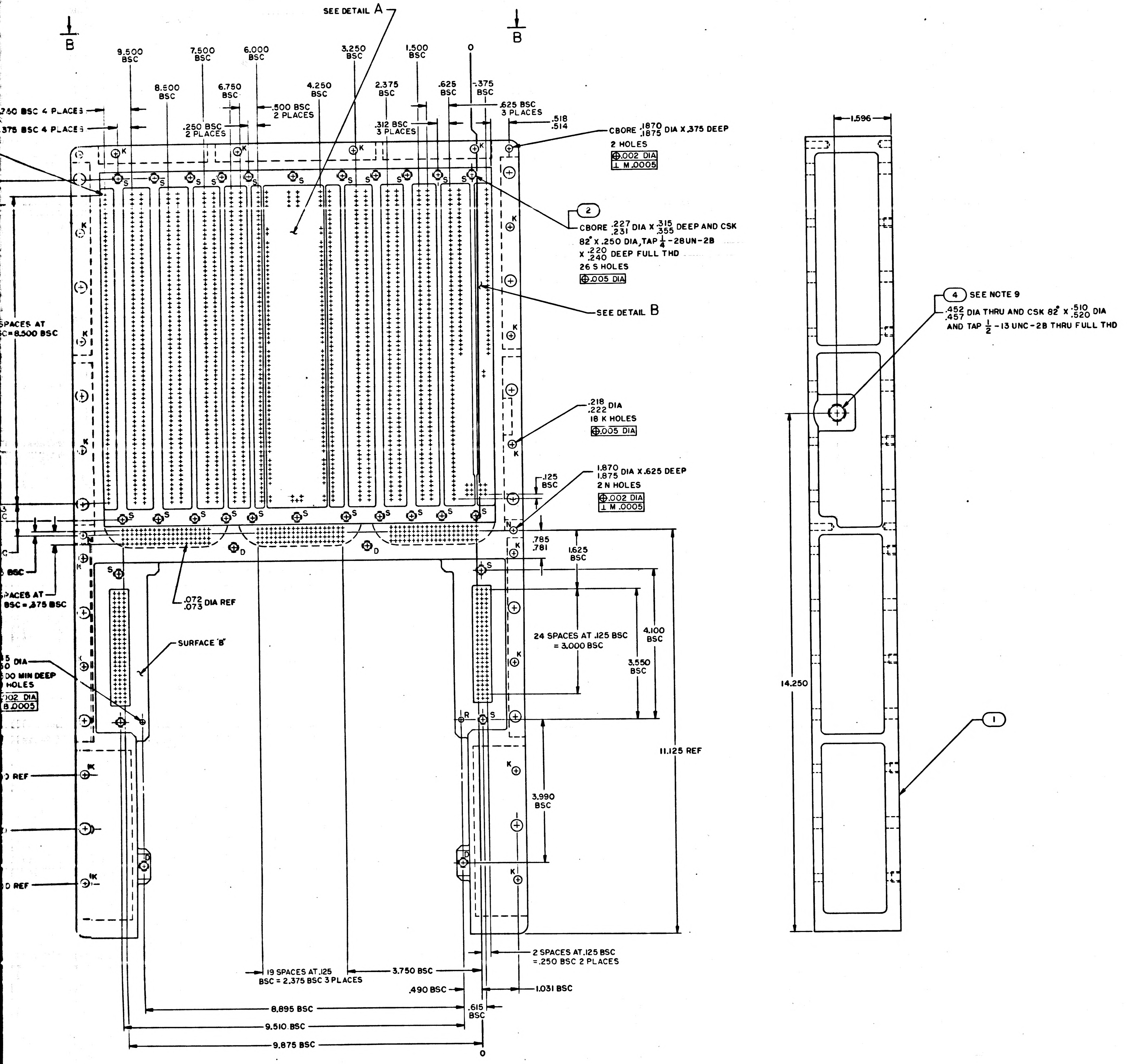
SECTION A-A



10.78
B
.970
.422
.60
.342
4.03
4.912
7.902
10.340 10.344
.74
2 PLACES
.781

2004117 | D

REVISIONS							
SYM	ZONE	DESCRIPTION		DR	CHK	DATE	APPROVED



SEE DETAIL A
B
B
9.500 BSC
7.500 BSC
6.000 BSC
3.250 BSC
1.500 BSC
0
8.500 BSC
6.750 BSC
4.250 BSC
2.375 BSC
.625 BSC
.375 BSC
.760 BSC 4 PLACES
.375 BSC 4 PLACES
.250 BSC 2 PLACES
.500 BSC 2 PLACES
.312 BSC 3 PLACES
.625 BSC 3 PLACES
.518 .514
CBORE .1870 .1875 DIA X .375 DEEP
2 HOLES
⊕.002 DIA
⊥ M .0005
②
CBORE .227 .231 DIA X .315 .355 DEEP AND CSK
82° X .250 DIA, TAP 1/4 -28UN-2B
X .220 .240 DEEP FULL THD
26 S HOLES
⊕.005 DIA
SEE DETAIL B
SPACES AT
C = 8.500 BSC
.218 .222 DIA
18 K HOLES
⊕.005 DIA
.125 BSC
1.870 1.875 DIA X .625 DEEP
2 N HOLES
⊕.002 DIA
⊥ M .0005
.785 .781
1.625 BSC
.072 .073 DIA REF
SPACES AT
BSC = .375 BSC
SURFACE 'B'
24 SPACES AT .125 BSC = 3.000 BSC
4.100 BSC
3.550 BSC
11.125 REF
5 DIA
0 MIN DEEP
HOLES
.002 DIA
B .0005
REF
REF
3.990 BSC
19 SPACES AT .125 BSC = 2.375 BSC 3 PLACES
3.750 BSC
2 SPACES AT .125 BSC = .250 BSC 2 PLACES
.490 BSC
1.031 BSC
8.895 BSC
.615 BSC
9.510 BSC
9.875 BSC
0
K
S
D
N
R
1.596
④ SEE NOTE 9
.452 .457 DIA THRU AND CSK 82° X .510 .520 DIA
AND TAP 1/2 -13 UNC-2B THRU FULL THD
14.250
①

3H

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	NAS1394CA-6L	INSERT, THREADED, SELF-LOCKING	4
3	NAS1394CA-3L	INSERT, THREADED, SELF-LOCKING	3
60	1006702-5	INSERT, THREADED, SELF-LOCKING	2
1	2004117-1	TRAY B, MACHINED	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003063	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XXX ± .005 .XX ± .01 ANGLES ± 1/2
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN R.A. Taylor
CHECKED R. Hong 5/12/65
APPROVED
APPROVED Eldon C. Hall
APPROVED MIT
APPROVED MSC
DATE

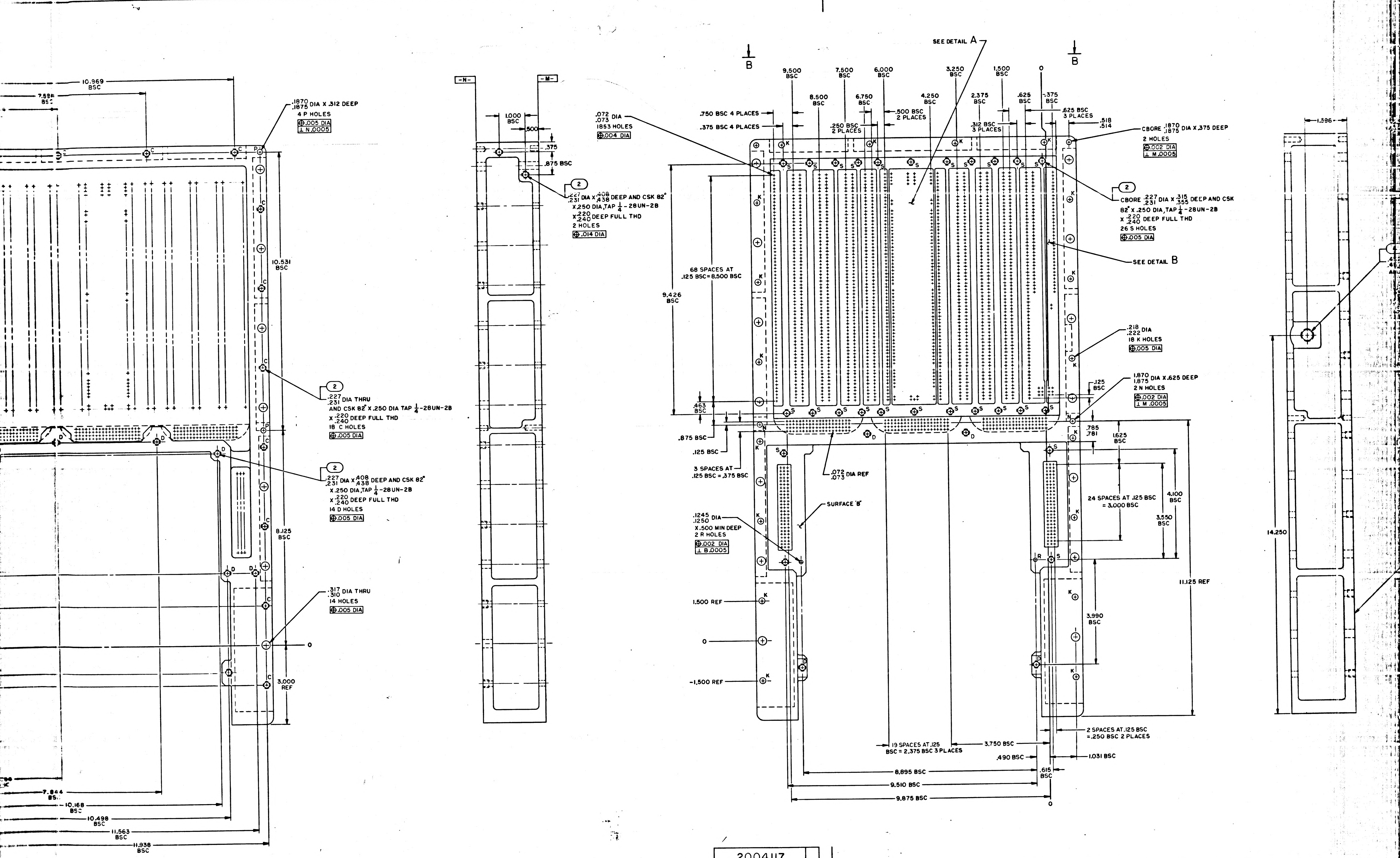
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRAY B
AGC

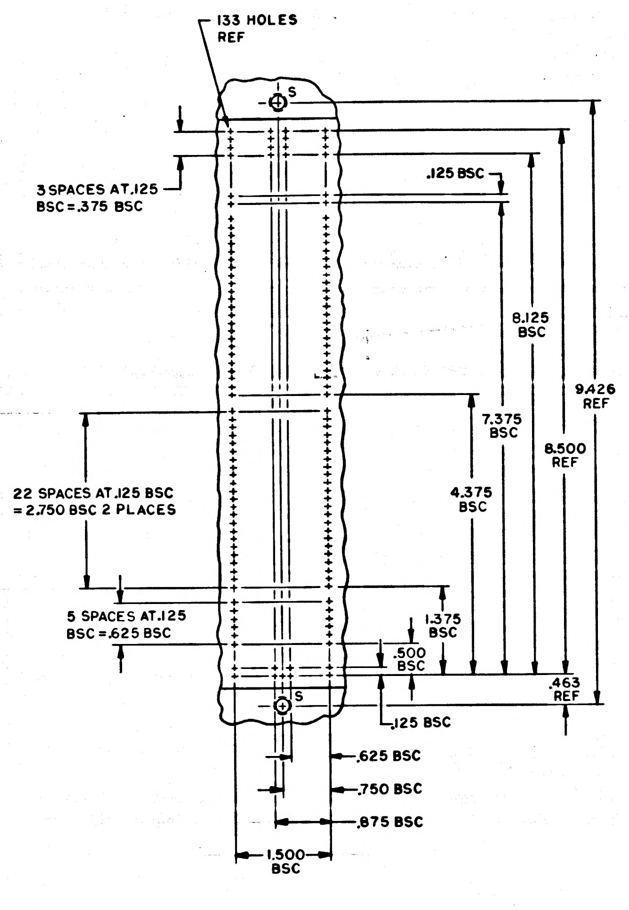
CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004117
SCALE 1/1
SHEET 1 OF 2

2004117

2004117


10.969 BSC
7.598 BSC
.1870 .1875 DIA X .312 DEEP
4 P HOLES
⊕.005 DIA
⊥ N.0005
10.531 BSC
2
.227 .231 DIA THRU
AND CSK 82° X .250 DIA TAP 1/4-28UN-2B
X .220 .240 DEEP FULL THD
18 C HOLES
⊕.005 DIA
2
.227 .231 DIA X .408 .438 DEEP AND CSK 82°
X .250 DIA,TAP 1/4-28UN-2B
X .220 .240 DEEP FULL THD
14 D HOLES
⊕.005 DIA
8.125 BSC
.317 .310 DIA THRU
14 HOLES
⊕.005 DIA
0
3.000 REF
7.844 BSC
10.168 BSC
10.498 BSC
11.563 BSC
11.938 BSC
-N-
-M-
1.000 BSC
.500
.375
.875 BSC
2
.227 .231 DIA X .408 .438 DEEP AND CSK 82°
X .250 DIA,TAP 1/4-28UN-2B
X .220 .240 DEEP FULL THD
2 HOLES
⊕.014 DIA
.072 .073 DIA
1853 HOLES
⊕.004 DIA
B
B
SEE DETAIL A
9.500 BSC
7.500 BSC
6.000 BSC
3.250 BSC
1.500 BSC
0
8.500 BSC
6.750 BSC
4.250 BSC
2.375 BSC
.625 BSC
-.375 BSC
.750 BSC 4 PLACES
.375 BSC 4 PLACES
.250 BSC 2 PLACES
.500 BSC 2 PLACES
.312 BSC 3 PLACES
.625 BSC 3 PLACES
.518 .514
CBORE .1870 .1875 DIA X .375 DEEP
2 HOLES
⊕.002 DIA
⊥ M.0005
2
CBORE .227 .231 DIA X .315 .355 DEEP AND CSK
82° X .250 DIA,TAP 1/4-28UN-2B
X .220 .240 DEEP FULL THD
26 S HOLES
⊕.005 DIA
SEE DETAIL B
68 SPACES AT .125 BSC=8.500 BSC
9.426 BSC
.218 .222 DIA
18 K HOLES
⊕.005 DIA
1.870 1.875 DIA X .625 DEEP
2 N HOLES
⊕.002 DIA
⊥ M .0005
.125 BSC
.463 BSC
.875 BSC
.125 BSC
3 SPACES AT .125 BSC = .375 BSC
.072 .073 DIA REF
.785 .781
1.625 BSC
24 SPACES AT .125 BSC = 3.000 BSC
4.100 BSC
3.550 BSC
SURFACE 'B'
.1245 .1250 DIA
X .500 MIN DEEP
2 R HOLES
⊕.002 DIA
⊥ B.0005
11.125 REF
1.500 REF
0
-1.500 REF
3.990 BSC
2 SPACES AT .125 BSC =.250 BSC 2 PLACES
19 SPACES AT .125 BSC = 2.375 BSC 3 PLACES
3.750 BSC
.490 BSC
1.031 BSC
8.895 BSC
.615 BSC
9.510 BSC
9.875 BSC
0
1.396
14.250
S
K
C
D
P
N
R
7
6
5
4
3

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.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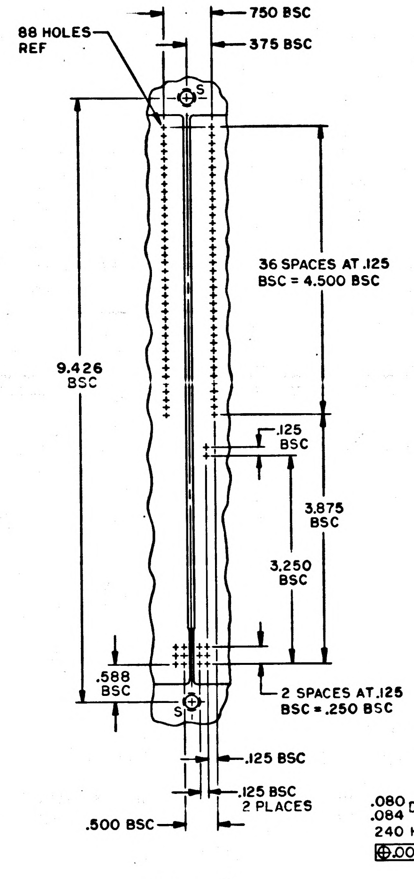
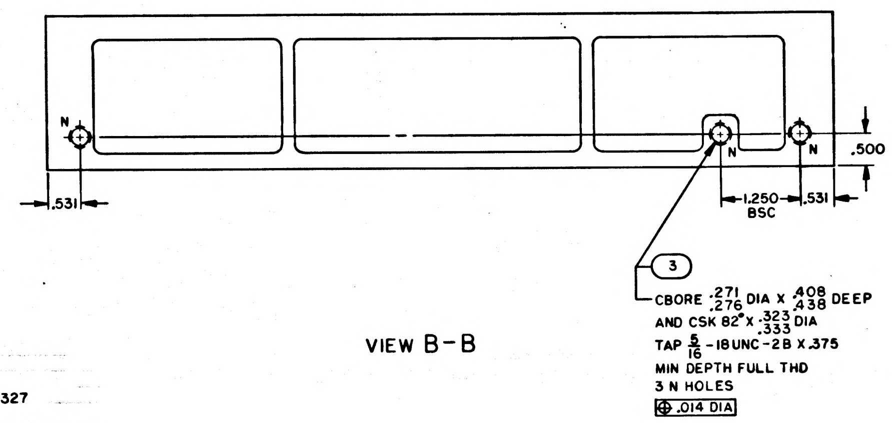
REF
S
3 SPACES AT .125
BSC = .375 BSC
.125 BSC
8.125
BSC
9.426
REF
7.375
BSC
8.500
REF
22 SPACES AT .125 BSC
= 2.750 BSC 2 PLACES
4.375
BSC
5 SPACES AT .125
BSC = .625 BSC
1.375
BSC
.500
BSC
.463
REF
.125 BSC
.625 BSC
.750 BSC
.875 BSC
1.500
BSC

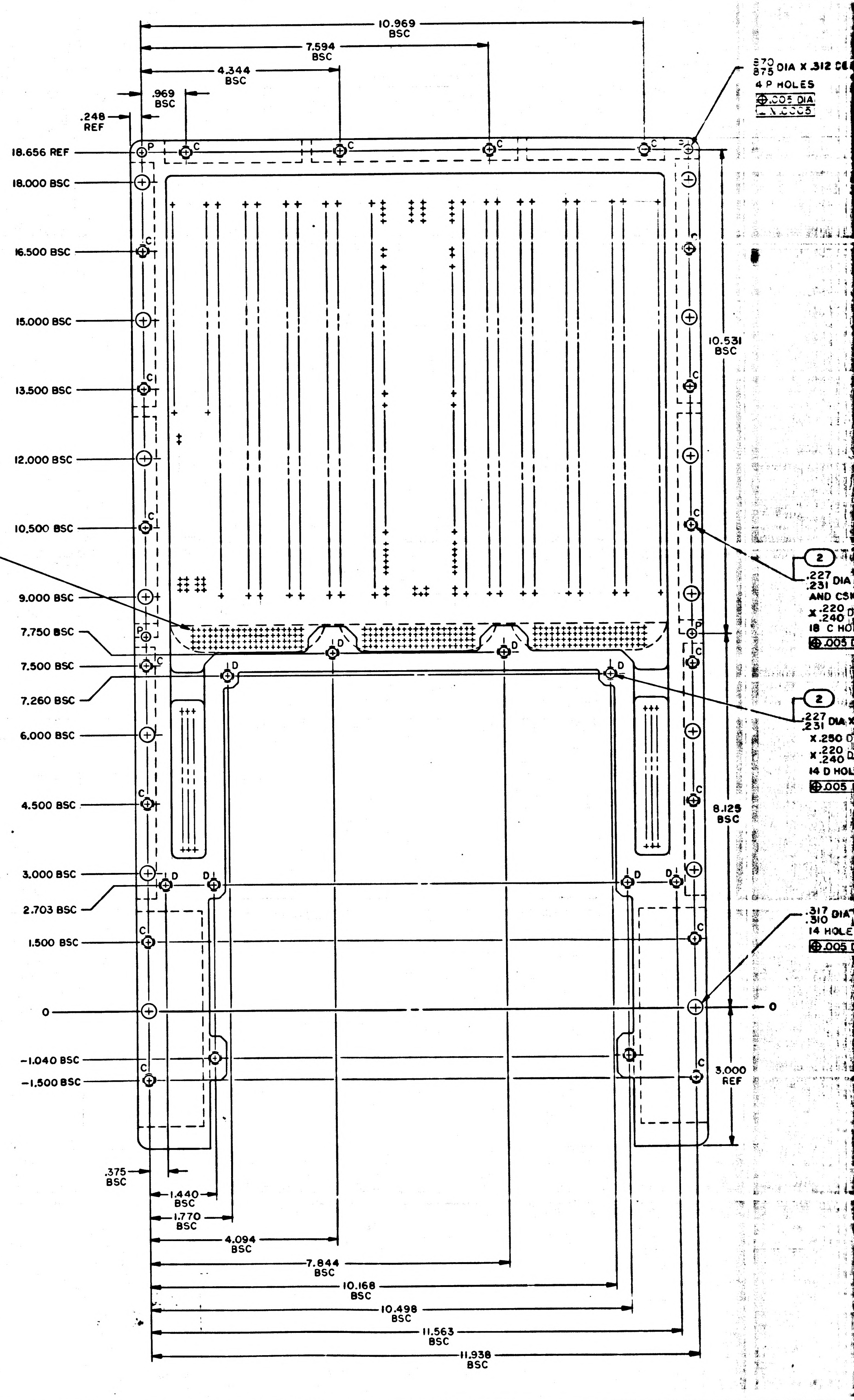
DETAIL A


88 HOLES
REF
.750 BSC
.375 BSC
S
36 SPACES AT .125
BSC = 4.500 BSC
9.426
BSC
.125
BSC
3.875
BSC
3.250
BSC
.588
BSC
2 SPACES AT .125
BSC = .250 BSC
.125 BSC
.125 BSC
2 PLACES
.500 BSC

DETAIL B


N
N
N
.500
.531
1.250
BSC
.531
3
CBORE .271/.276 DIA X .408/.438 DEEP
AND CSK 82° X .323/.333 DIA
TAP 5/16 -18UNC-2B X .375
MIN DEPTH FULL THD
3 N HOLES
⊕ .014 DIA

VIEW B-B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BSC
7.594
BSC
4.344
BSC
.969
BSC
.248
REF
.870/.875 DIA X .312 C
4 P HOLES
⊕ .005 DIA
⊥ .0005
18.656 REF
18.000 BSC
16.500 BSC
15.000 BSC
13.500 BSC
12.000 BSC
10.500 BSC
.080/.084 DIA AND CSK 60° X .110 DIA
240 HOLES
⊕ .004 DIA
9.000 BSC
7.750 BSC
7.500 BSC
7.260 BSC
6.000 BSC
4.500 BSC
3.000 BSC
2.703 BSC
1.500 BSC
0
-1.040 BSC
-1.500 BSC
10.531
BSC
2
.227/.231 DIA
AND CSK
X .220/.240
18 C HO
⊕ .005
2
.227/.231 DIA X
X .250
X .220/.240
14 D HOL
⊕ .005
8.125
BSC
.317/.310 DIA
14 HOLE
⊕ .005
0
3.000
REF
C
D
P
.375
BSC
1.440
BSC
1.770
BSC
4.094
BSC
7.844
BSC
10.168
BSC
10.498
BSC
11.563
BSC
11.938
BSC

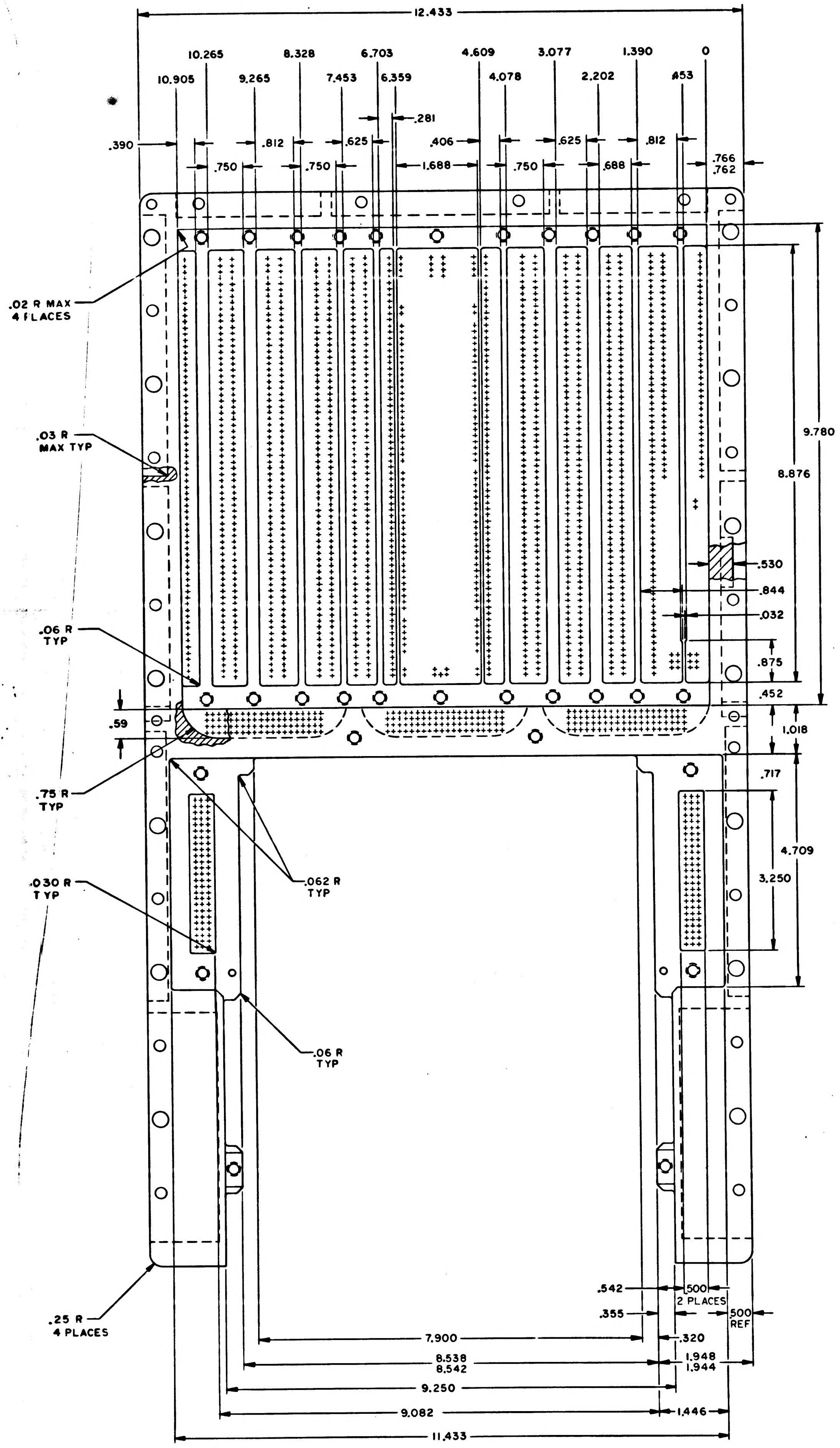
NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP 6
3. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3. BEFORE INSTALLING FIND NO. 2,3 AND 4
4. ALL SURFACES 125√ UNLESS OTHERWISE SPECIFIED
5. REMOVE BURRS AND SHARP EDGES .005/.015
6. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .125
7. INSTALL FIND NO. 2,3 AND 4 PER ND1002121
8. COAT THREADS OF FIND NO. 2,3 AND 4 WITH MIL-P-8585, COLOR YELLOW
9. INSTALL FIND NO. 4 .000/.015 BELOW SURFACE
10. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

D
C
B
A

3 H

REVISIONS 192.9						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

C
C



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1.390
0
10.905
9.265
7.453
6.359
4.078
2.202
.453
.281
.390
.812
.625
.406
.625
.812
.766
.762
.750
.750
1.688
.750
.688
.02 R MAX
4 PLACES
.03 R
MAX TYP
9.780
8.876
.530
.844
.032
.875
.452
.06 R
TYP
.59
1.018
.75 R
TYP
.717
4.709
.062 R
TYP
3.250
.030 R
TYP
.06 R
TYP
.25 R
4 PLACES
.542
.500
2 PLACES
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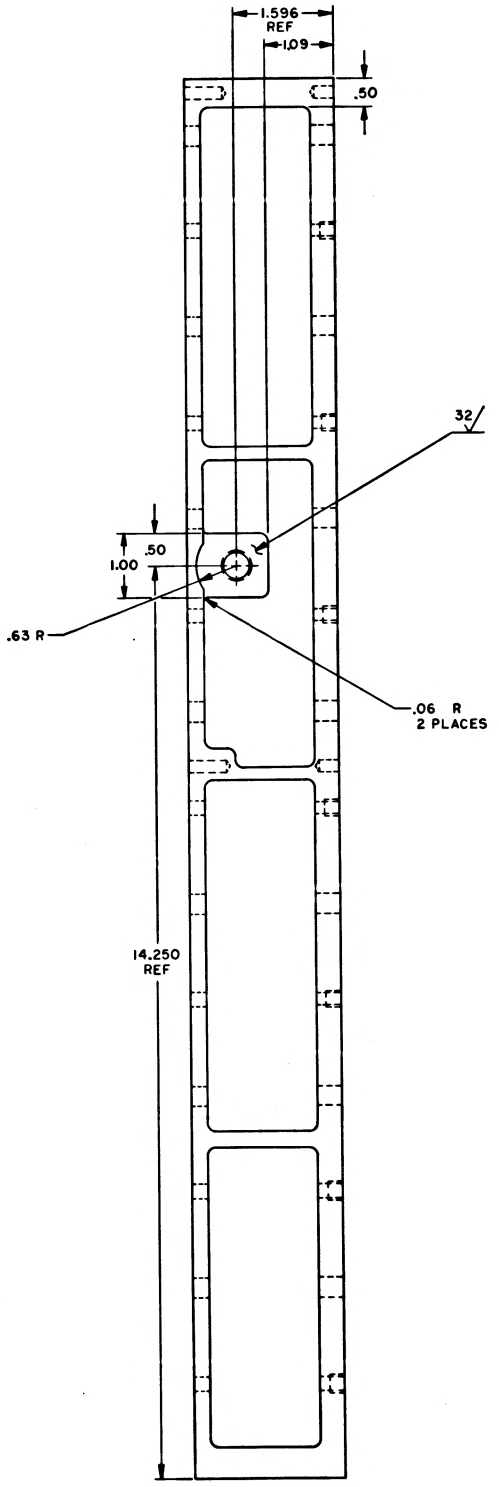
1.446
11.433



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1.09
.50
32
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1.00
.63 R
.06 R
2 PLACES
14.250
REF

3H

2004117

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

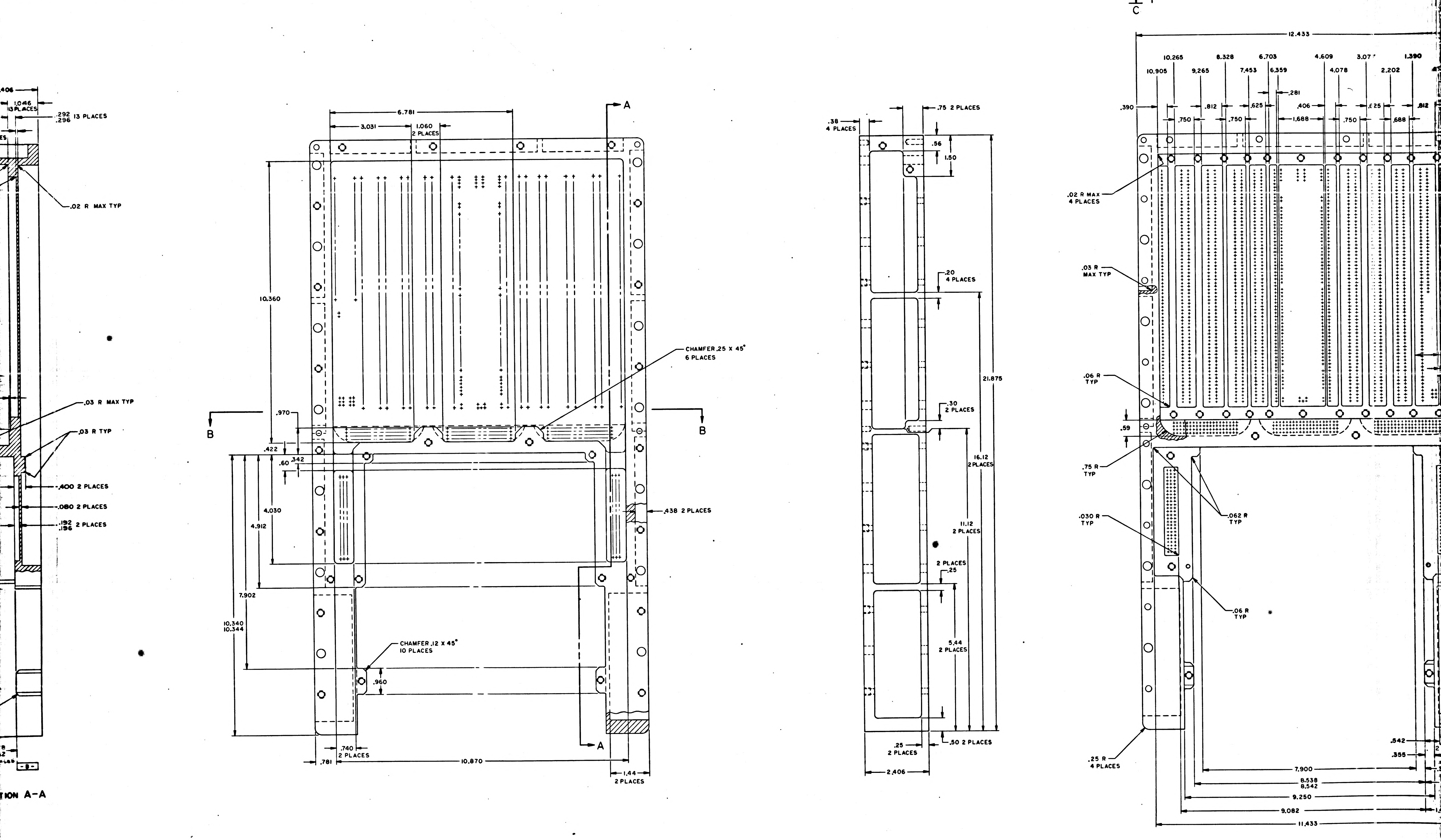
DRAWN R.C. Taylor 27 Nov 64
CHECKED R. Yong 5/17/65
APPROVED 5/18/65
APPROVED Eldon C. Hall 18 May 65
APPROVED MIT 18 May 65
APPROVED MSC 5/17/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRAY B
AGC

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004117
SCALE 1/1
SHEET 2 OF 2

2004117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12.433
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10.905
9.265
8.328
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6.703
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4.609
4.078
3.07
2.202
1.390
.390
.281
.812
.625
.406
.750
1.688
.688
.02 R MAX
4 PLACES
.03 R
MAX TYP
.06 R
TYP
.59
.75 R
TYP
.030 R
TYP
.062 R
TYP
.06 R
TYP
.25 R
4 PLACES
7.900
8.538
8.542
9.250
9.082
11.433
.542
.355
.406
1.046
13 PLACES
.292
.296
13 PLACES
.02 R MAX TYP
.03 R MAX TYP
.03 R TYP
.400 2 PLACES
.080 2 PLACES
.192
.196
2 PLACES
-B-
SECTION A-A
A
6.781
3.031
1.060
2 PLACES
10.360
.970
.422
.342
.60
4.030
4.912
7.902
10.340
10.344
CHAMFER .25 X 45°
6 PLACES
CHAMFER .12 X 45°
10 PLACES
.960
.438 2 PLACES
B
B
A
.781
.740
2 PLACES
10.870
1.44
2 PLACES
.38
4 PLACES
.75 2 PLACES
.56
1.50
.20
4 PLACES
21.875
.30
2 PLACES
16.12
2 PLACES
11.12
2 PLACES
2 PLACES
.25
5.44
2 PLACES
.25
2 PLACES
.50 2 PLACES
2.406

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

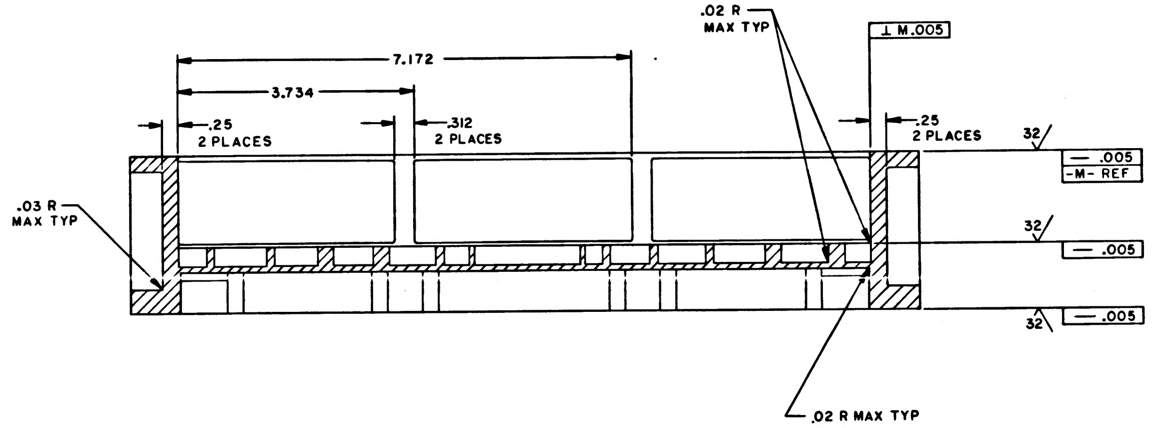
D

C

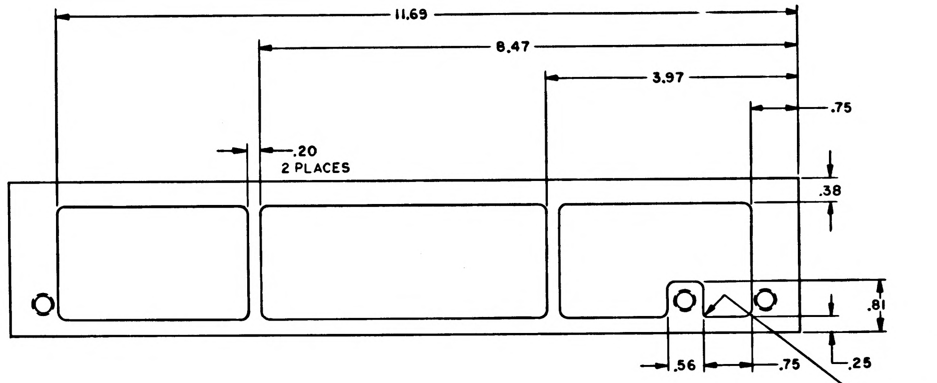
B

A

3H


.02 R
MAX TYP
⊥ M .005
7.172
3.734
.25
2 PLACES
.312
2 PLACES
.25
2 PLACES
32
— .005
-M- REF
.03 R
MAX TYP
32
— .005
32
— .005
.02 R MAX TYP

SECTION B-B


11.69
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2 PLACES
.38
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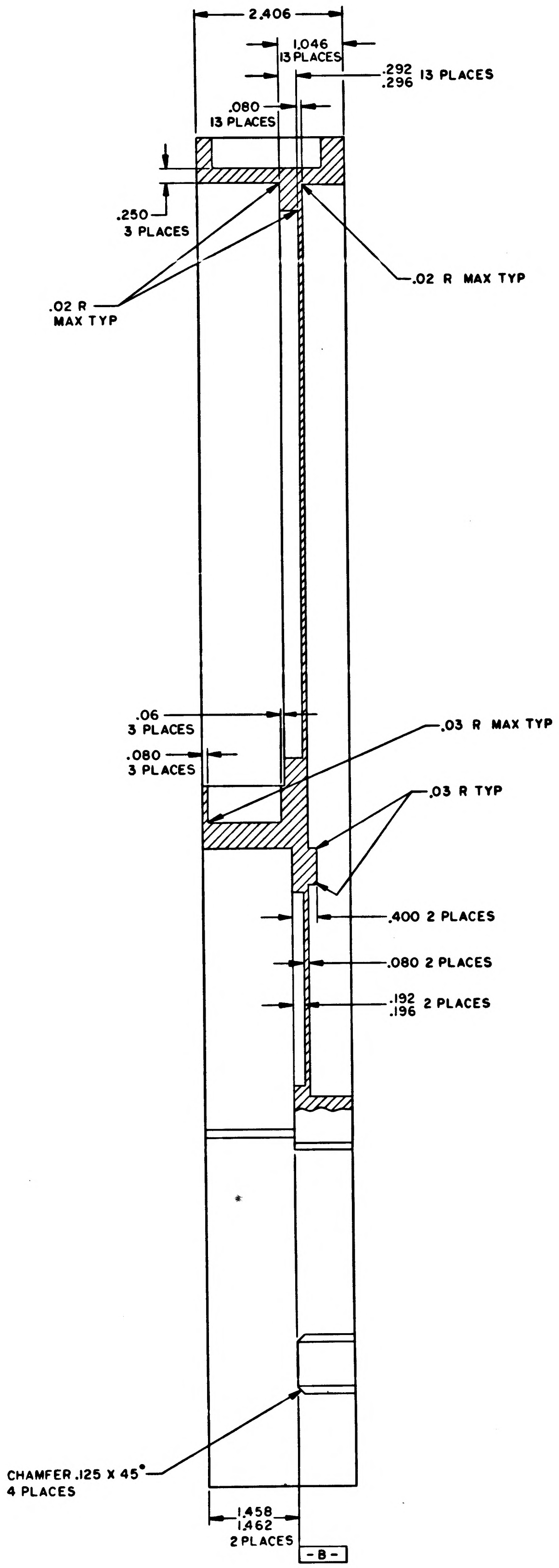
.06 R

VIEW C-C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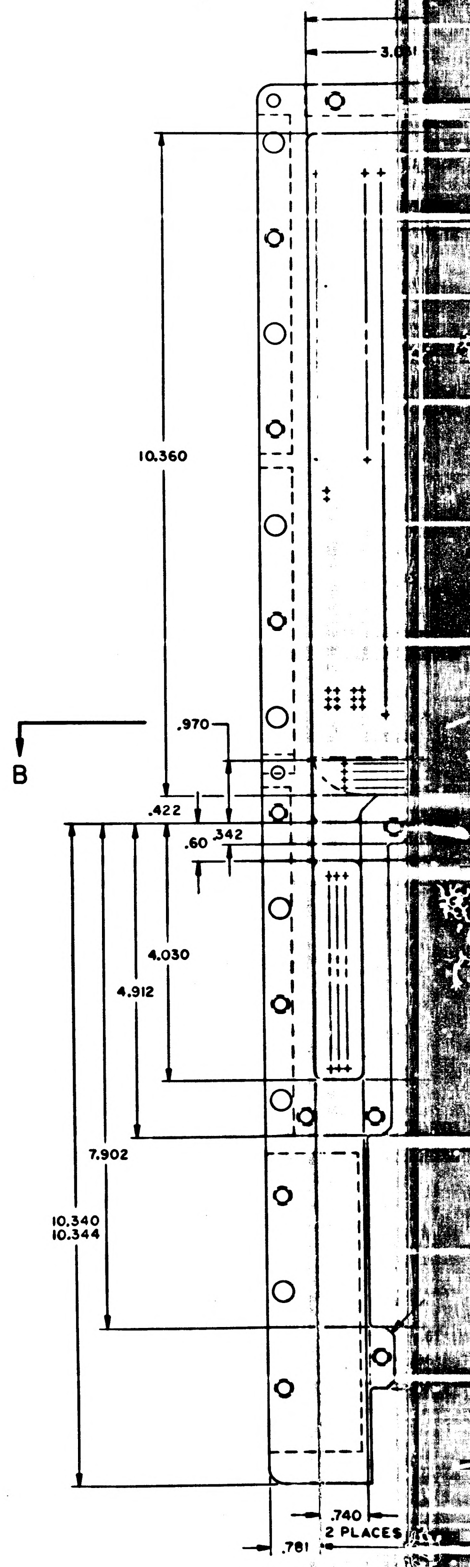
13 PLACES
.292
.296
13 PLACES
.080
13 PLACES
.250
3 PLACES
.02 R MAX TYP
.02 R
MAX TYP
.06
3 PLACES
.080
3 PLACES
.03 R MAX TYP
.03 R TYP
.400 2 PLACES
.080 2 PLACES
.192
.196
2 PLACES
CHAMFER .125 X 45°
4 PLACES
1.458
1.462
2 PLACES
-B-

SECTION A-A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B
.422
.342
.60
4.030
4.912
7.902
10.340
10.344
.740
2 PLACES
.781

2004117

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

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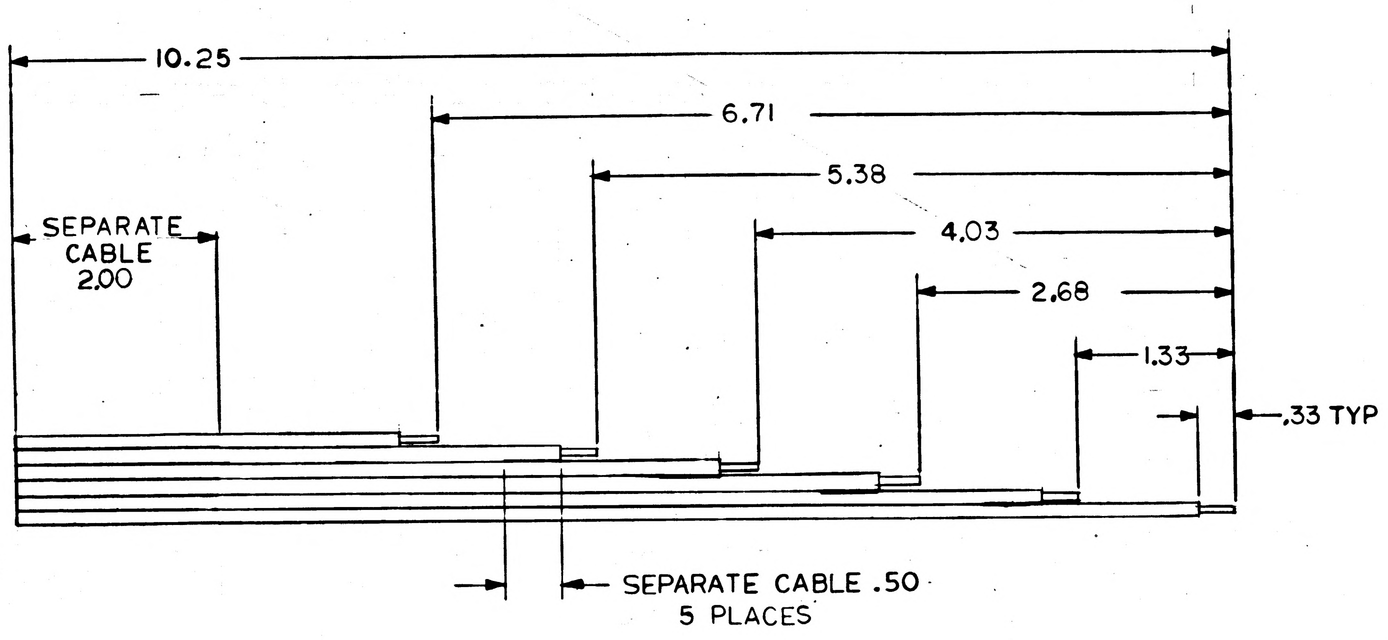


NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MAKE FROM 1006343-001
3. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003053	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.03 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

		DATE
DRAWN	D Black	27APR65
CHECKED	R. P. Kingsbury	21May65
APPROVED	[illegible]	27MAY65
APPROVED	Eldon C Hall	3June65
APPROVED MIT	W Kupfer	8June65
APPROVED MSC	[illegible]	6/4/65

FLAT CABLE
FIXED MEMORY MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004119

SCALE NONE

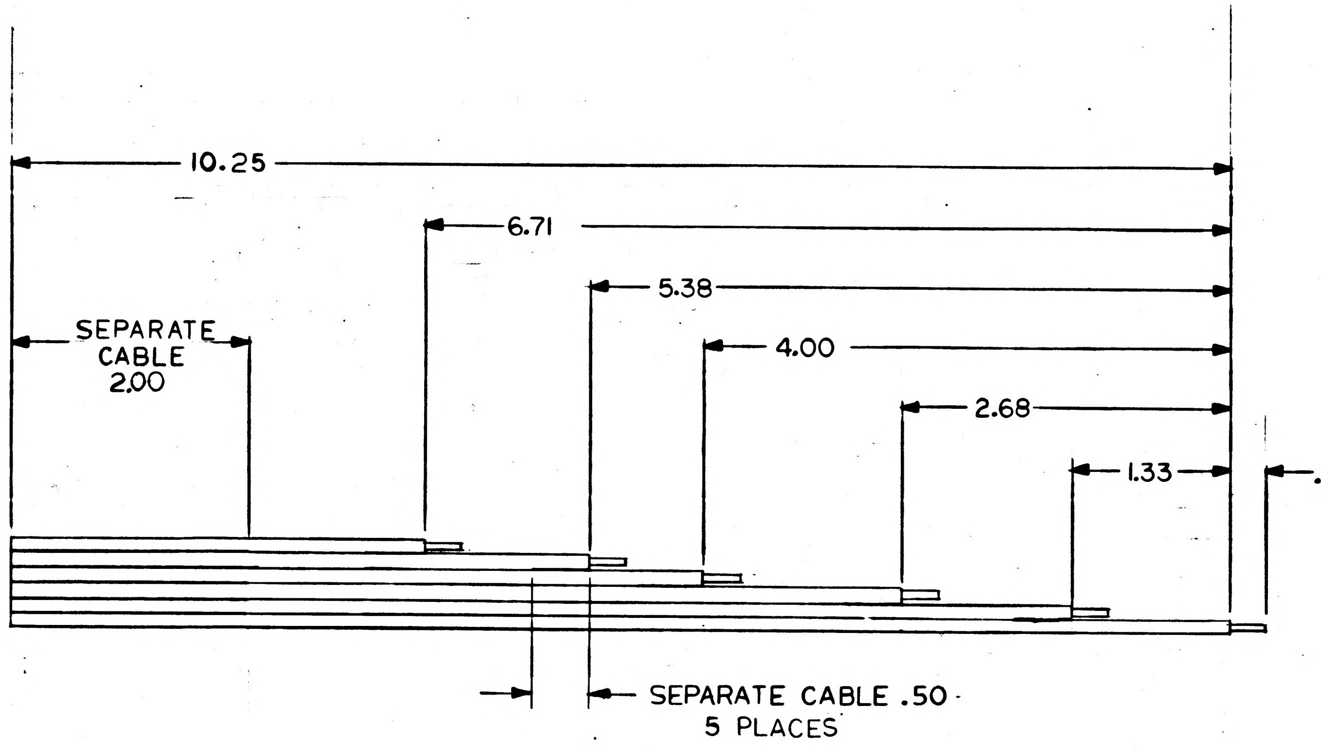
SHEET 1 OF 1

2004119 A

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



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MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003053	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.03 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

		DATE
DRAWN	D Black	27APR65
CHECKED	R.P. Kingsbury	21May65
APPROVED		27MAY65
APPROVED	Eldon C Hall	3June65
APPROVED MIT		8June65
APPROVED MSC		6/8/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FLAT CABLE
FIXED MEMORY MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004119

SCALE NONE SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
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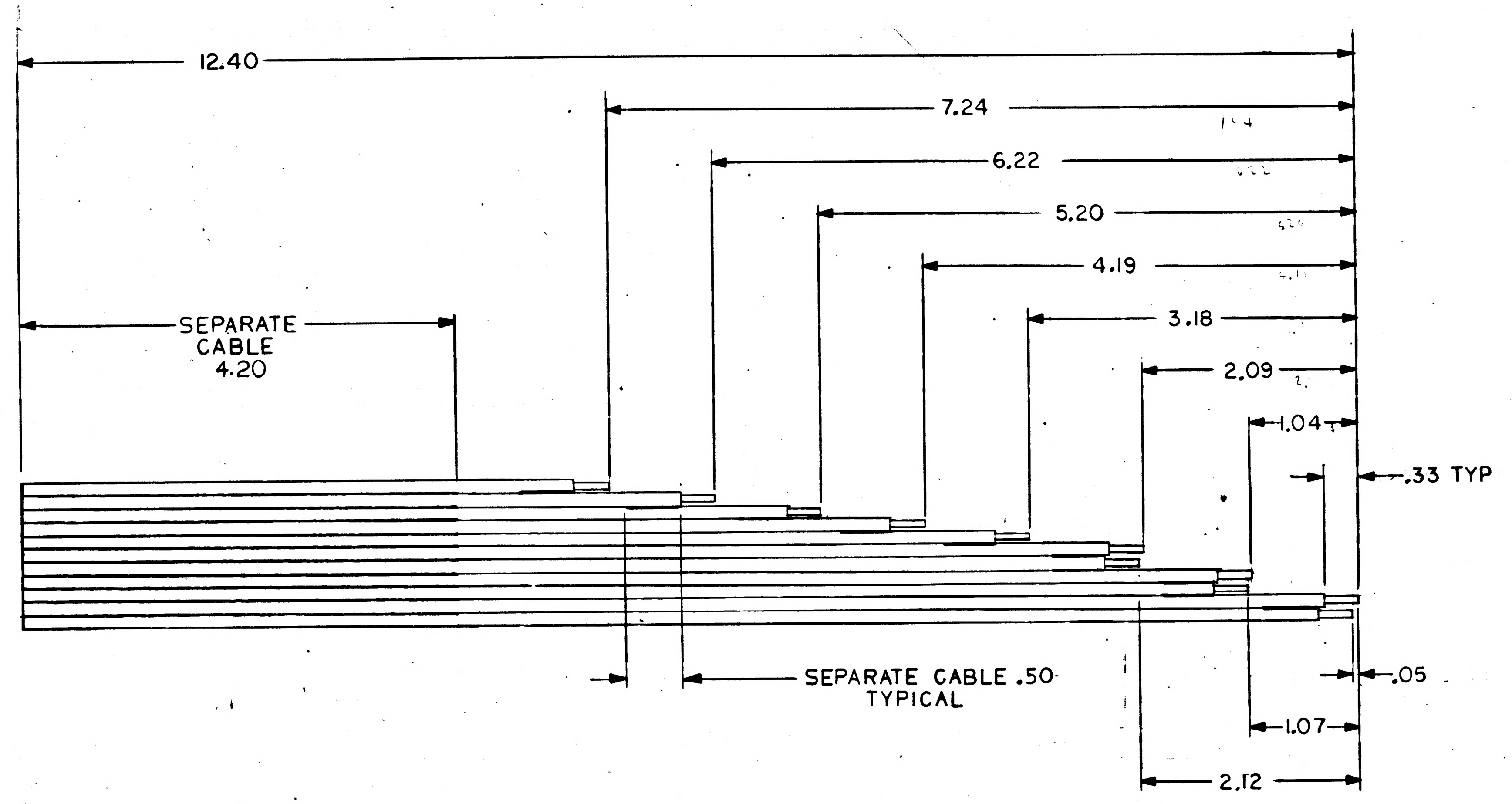

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MAKE FROM 1006343-002
3. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

MASTER

2003053	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON

FRACTIONS	DECIMALS	ANGLES
± —	±.03	± —

DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	D. Black	27APR65
CHECKED	R.P. Kangesberry	21May65
APPROVED	D. London	27MAY65
APPROVED	Eldon C Hall	3June65
APPROVED MIT		
APPROVED MSC		4/8/
		DATE

FLAT CABLE
FIXED MEMORY MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004120

SCALE NONE

SHEET 1 OF 1

2004120 A

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
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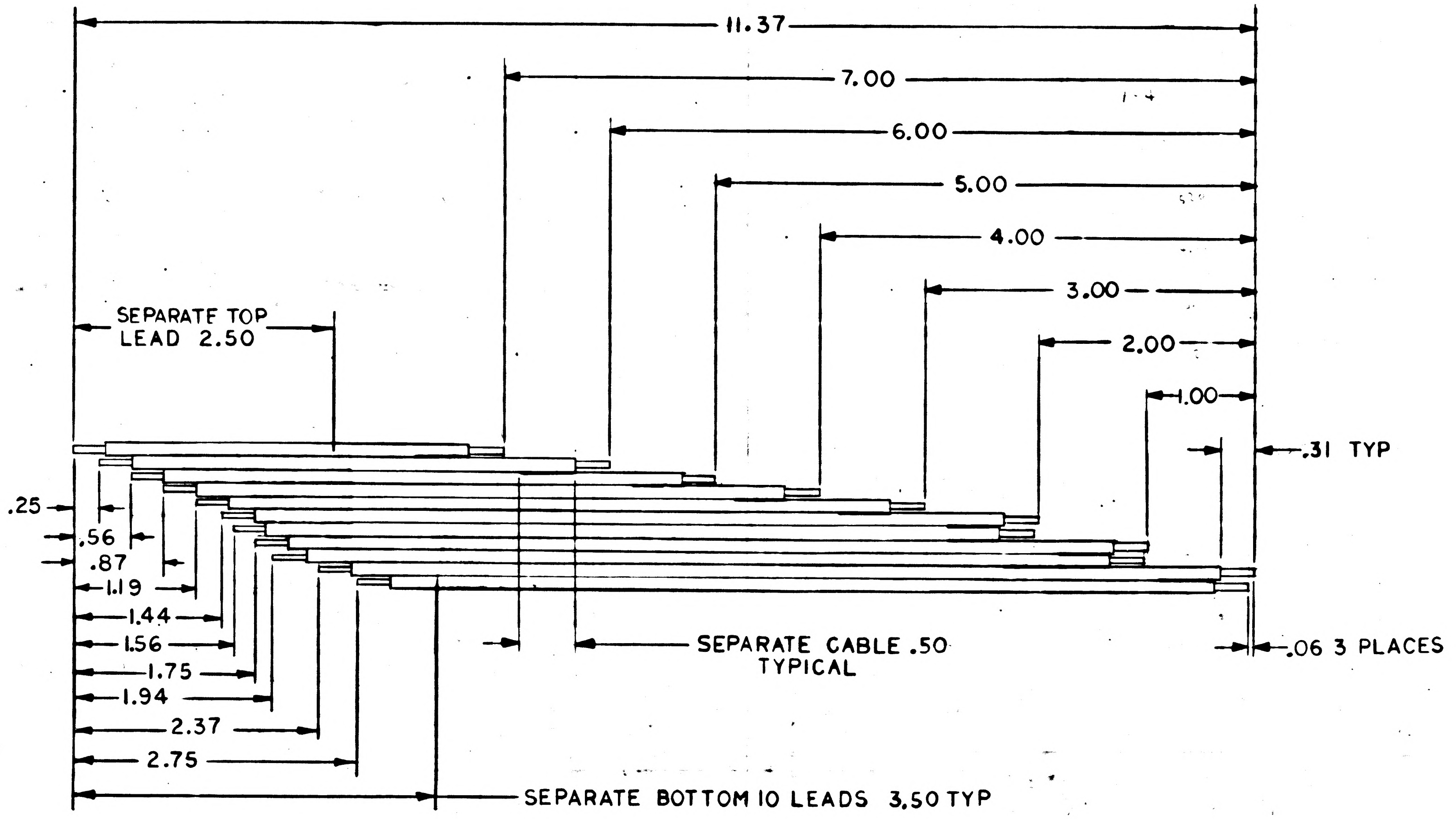
B		REVISED PER TDRR 28624				6-10-66



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2003053	
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APPLICATION	

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MATERIAL
SEE NOTE 2

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INSTRUMENTATION LAB
CAMBRIDGE, MASS.

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HOUSTON, TEXAS

DRAWN	D. Black	27APR65
CHECKED		
APPROVED		27 MAY 65
APPROVED		3 June
APPROVED MIT		
APPROVED MSC		6/8/66
		DATE

FLAT CABLE
FIXED MEMORY MODULE

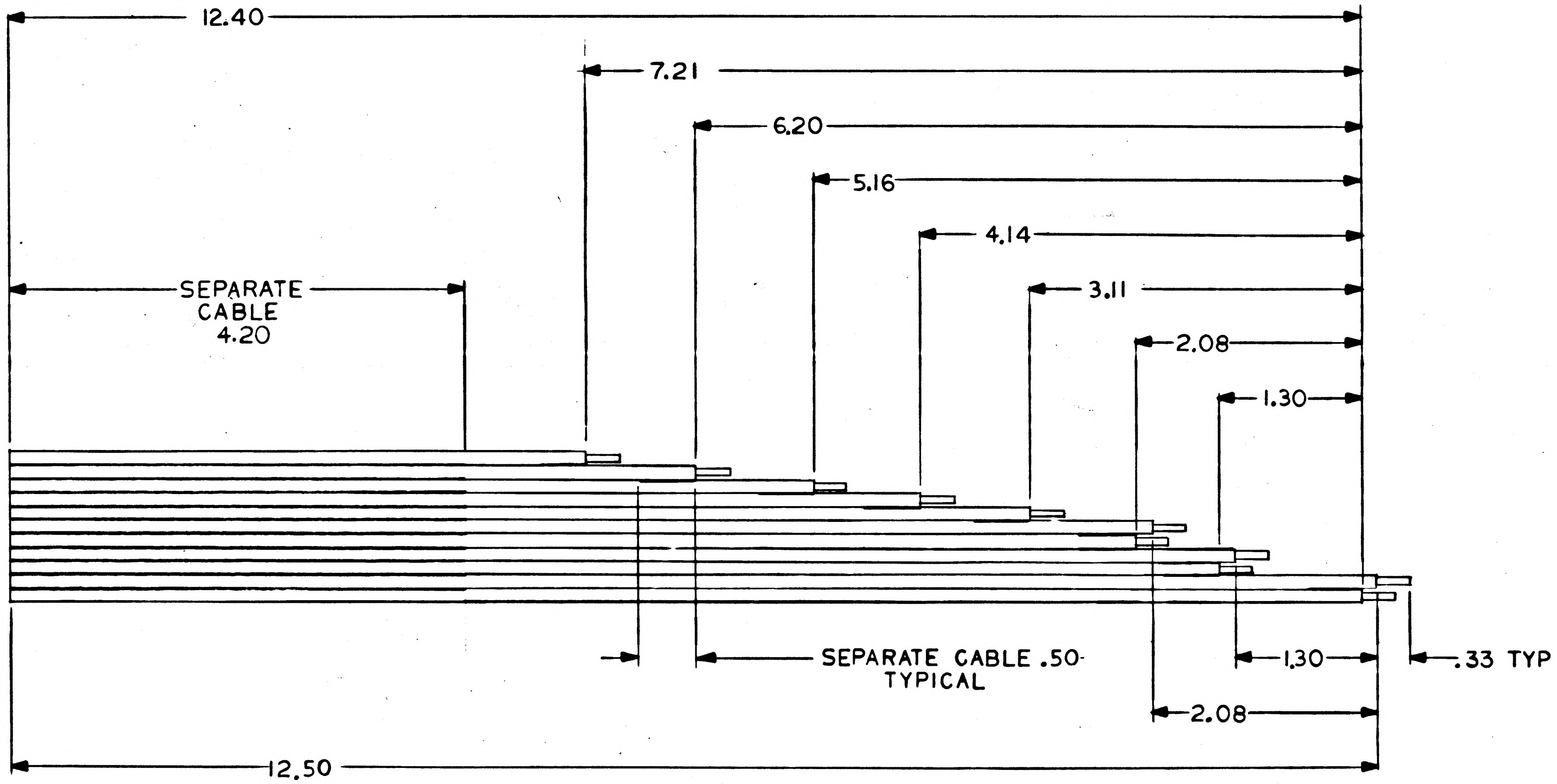
CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004120
SCALE NONE
SHEET 1 OF 1

2004120 B

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES:
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LIST OF MATERIALS

MASTER

2003053	
NEXT ASSY	USED ON

APPLICATION

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DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN D. Black 27APR65
CHECKED R.L. Kingsbury [illegible]
APPROVED D. Londen 27MAY65
APPROVED Eldon C Hall 3 June 65
APPROVED MIT [illegible] 8 June 65
APPROVED MSC [illegible] 6/8/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FLAT CABLE
FIXED MEMORY MODULE

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004120
SCALE NONE
SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
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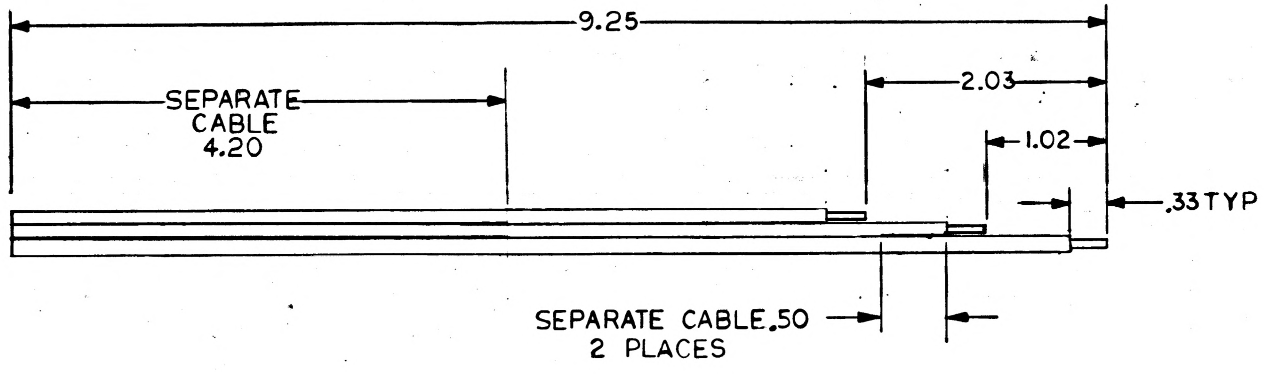

NOTES:

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MASTER

2003053	
NEXT ASSY	USED ON
APPLICATION	

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DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	D. Black	27APR65
CHECKED	R. P. Kingsbury	21Aug65
APPROVED	F. J. Londre	27 MAY 65
APPROVED	Eldon C. Hall	3 June 65
APPROVED MIT		
APPROVED MSC		6/8/65
		DATE

FLAT CABLE
FIXED MEMORY MODULE

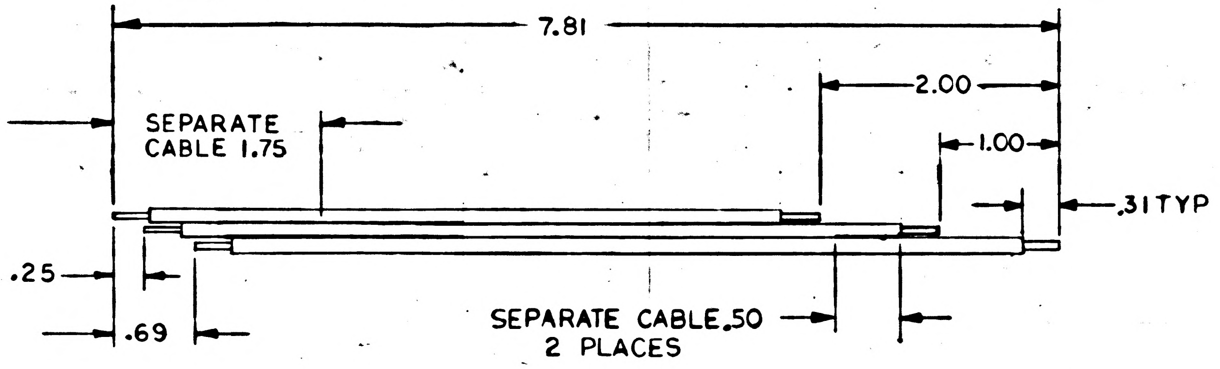
CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004121

SCALE NONE SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED	
A		REVISED PER TDRR 21340		ppk	24Aug65		
B		REVISED PER TDRR 28624		A.Z.			6-16-66
C		REVISED PER TDRR 30417		C.D.			



NOTES:
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QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003972	
2003053	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON

FRACTIONS	DECIMALS	ANGLES
± —	±.03	± —

DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

		DATE
DRAWN	D. Black	27APR65
CHECKED		
APPROVED		27 MAY65
APPROVED		
APPROVED MIT		
APPROVED MSC		

FLAT CABLE
FIXED MEMORY MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004121

SCALE NONE
SHEET 1 OF 1

2004121 C

4 3 2 1

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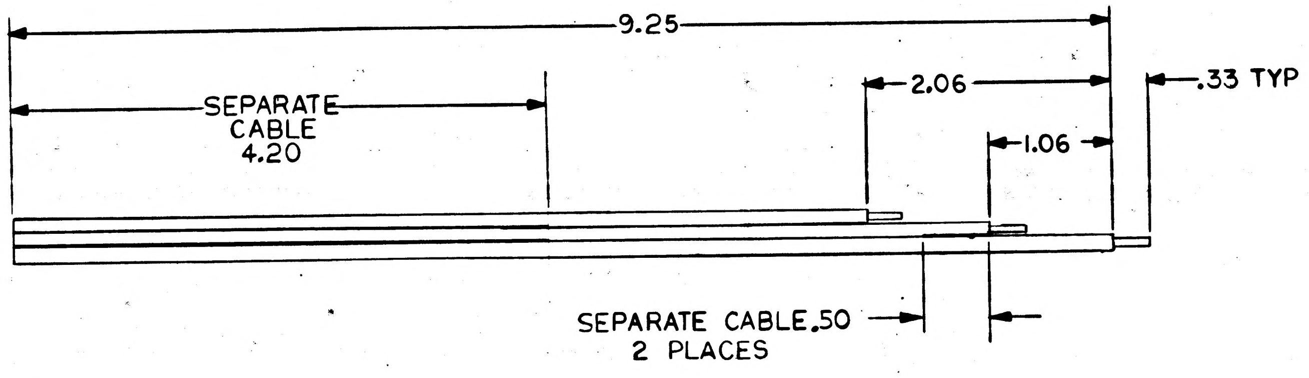
REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



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MASTER

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NEXT ASSY	USED ON
APPLICATION	

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DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
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DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	D. Black	27APR65
CHECKED	R. P. Kingsbury	21May65
APPROVED	F. J. Londroil	27 MAY 65
APPROVED	Eldon C Hall	3 June 65
APPROVED MIT		8 Jun 65
APPROVED MSC		6/8/65
		DATE

FLAT CABLE
FIXED MEMORY MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004121
SCALE NONE		SHEET 1 OF 1

4 3 2 1

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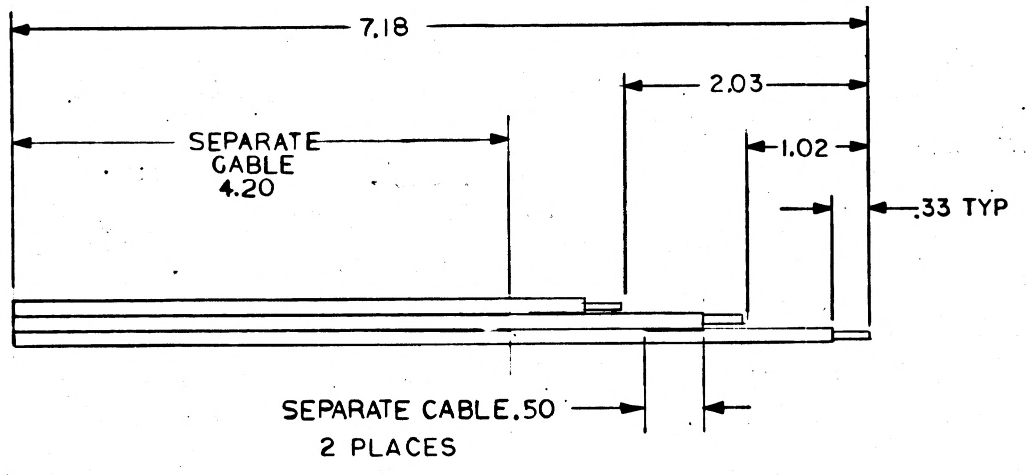
REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 21340	HB	CPK	24 AUG 65	WR



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APPLICATION	

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SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	D. Black	27APR65
CHECKED	R.P. Kingsbury	21 May 65
APPROVED	F.J. Landon	27 MAY 65
APPROVED	Eldon C Hall	3 June 65
APPROVED MIT	W Kupfer	8 Jun 65
APPROVED MSC		6/8/65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FLAT CABLE
FIXED MEMORY MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004122

SCALE NONE
SHEET 1 OF 1

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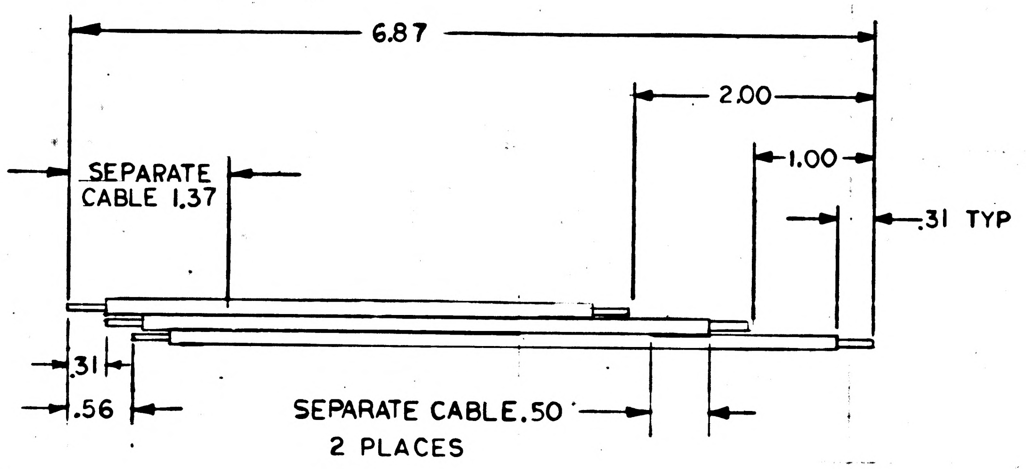
REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 21340			24Aug65	WR
B		REVISED PER TDRR 28624				6/16/66



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1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MAKE FROM 1006343-003
3. IDENTIFY WITH PART NO. PER ND100219

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003053	

APPLICATION

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DIMENSIONS ARE IN INCHES
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TOLERANCES ON
FRACTIONS ± —— DECIMALS ±.03 ANGLES ± ——
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN D. Black 27APR65
CHECKED
APPROVED 27May65
APPROVED Eldon C Hall 3 June 65
APPROVED MIT
APPROVED MSC 6/1/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FLAT CABLE
FIXED MEMORY MODULE

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004122
SCALE NONE
SHEET 1 OF 1

2004122 B

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

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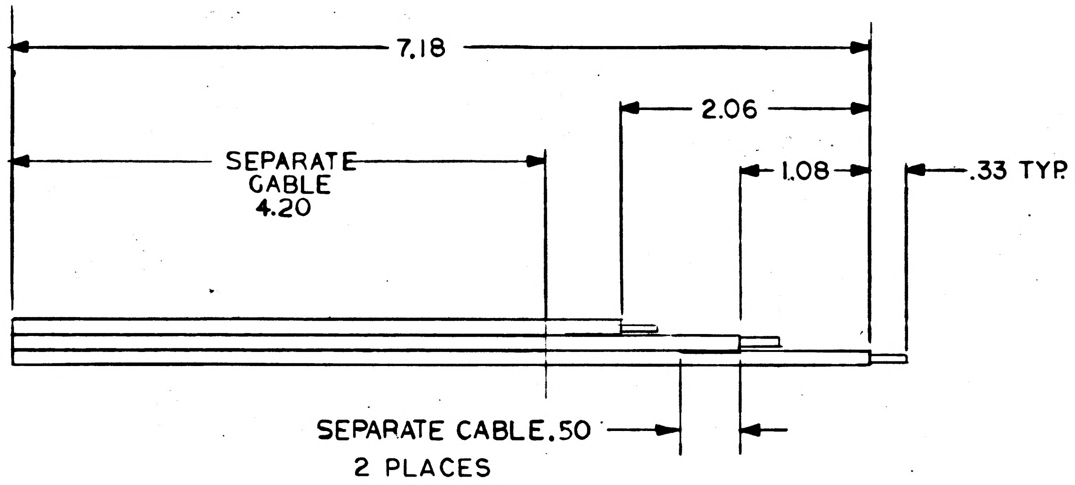
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



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SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN D. Black 27APR65
CHECKED 21May65
APPROVED 27May65
APPROVED Eldon C Hall 3 June 65
APPROVED MIT 8 Jun 65
APPROVED MSC 6/8/65
DATE

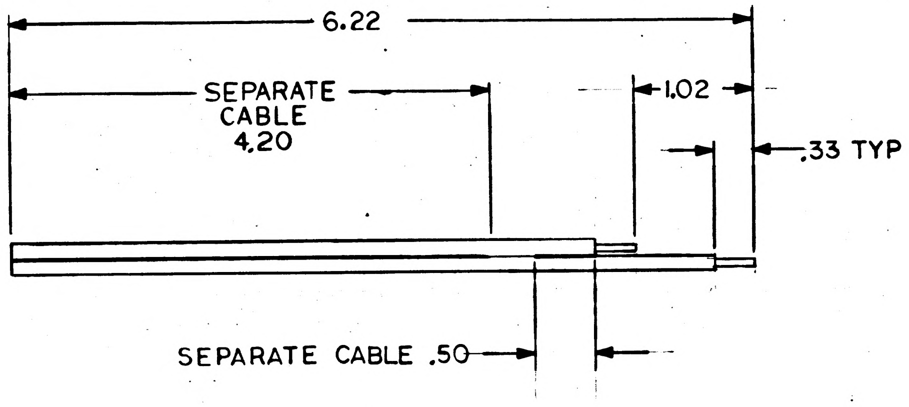
FLAT CABLE
FIXED MEMORY MODULE

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004122
SCALE NONE
SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 21340			24 Aug 65	



NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MAKE FROM 1006343-004
3. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003053	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.03 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

		DATE
DRAWN	D Black	27APR65
CHECKED	R. L. Kingsbury	21 May 65
APPROVED	F. J.	27 MAY 65
APPROVED	Eldon C Hall	3 June 65
APPROVED MIT		Jun 65
APPROVED MSC		6/4/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FLAT CABLE
FIXED MEMORY MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004123

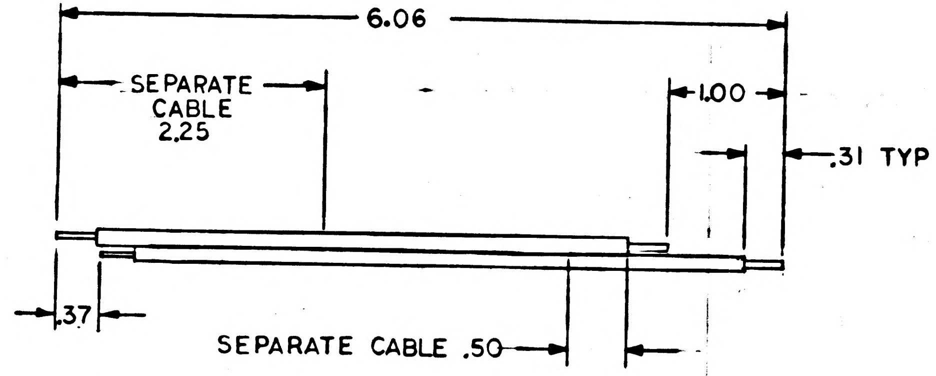
SCALE NONE SHEET 1 OF 1

2004123 A

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 21340			24 Aug 65	WK
B		REVISED PER TDRR 28624				6/4/66



NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MAKE FROM 1006343-004
3. IDENTIFY WITH PART NO. PER ND1002019

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003053	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.03 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN D Black 27APR65
CHECKED
APPROVED 27 MAY 65
APPROVED
APPROVED MIT
APPROVED MSC 6/4/66
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FLAT CABLE
FIXED MEMORY MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004123

SCALE NONE
SHEET 1 OF 1

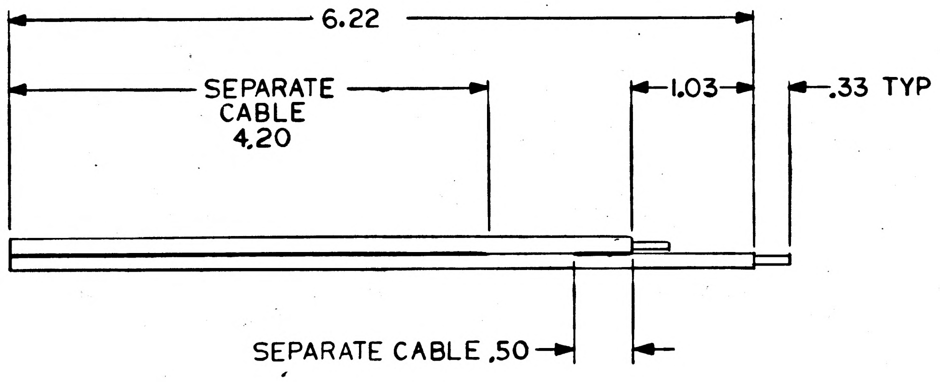
2004123 B

4 3 2 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MAKE FROM 1006343-004
3. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003053	
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON

FRACTIONS	DECIMALS	ANGLES
± —	± .03	± —

DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	D Black	27APR65
CHECKED	R. L. Kingsbury	21 May 65
APPROVED	F. J. Lodin	27 MAY 65
APPROVED	Eldon C Hall	3 June 65
APPROVED MIT	W Kupfer	7 Jul 65
APPROVED MSC		6/8/65
		DATE

FLAT CABLE
FIXED MEMORY MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004123

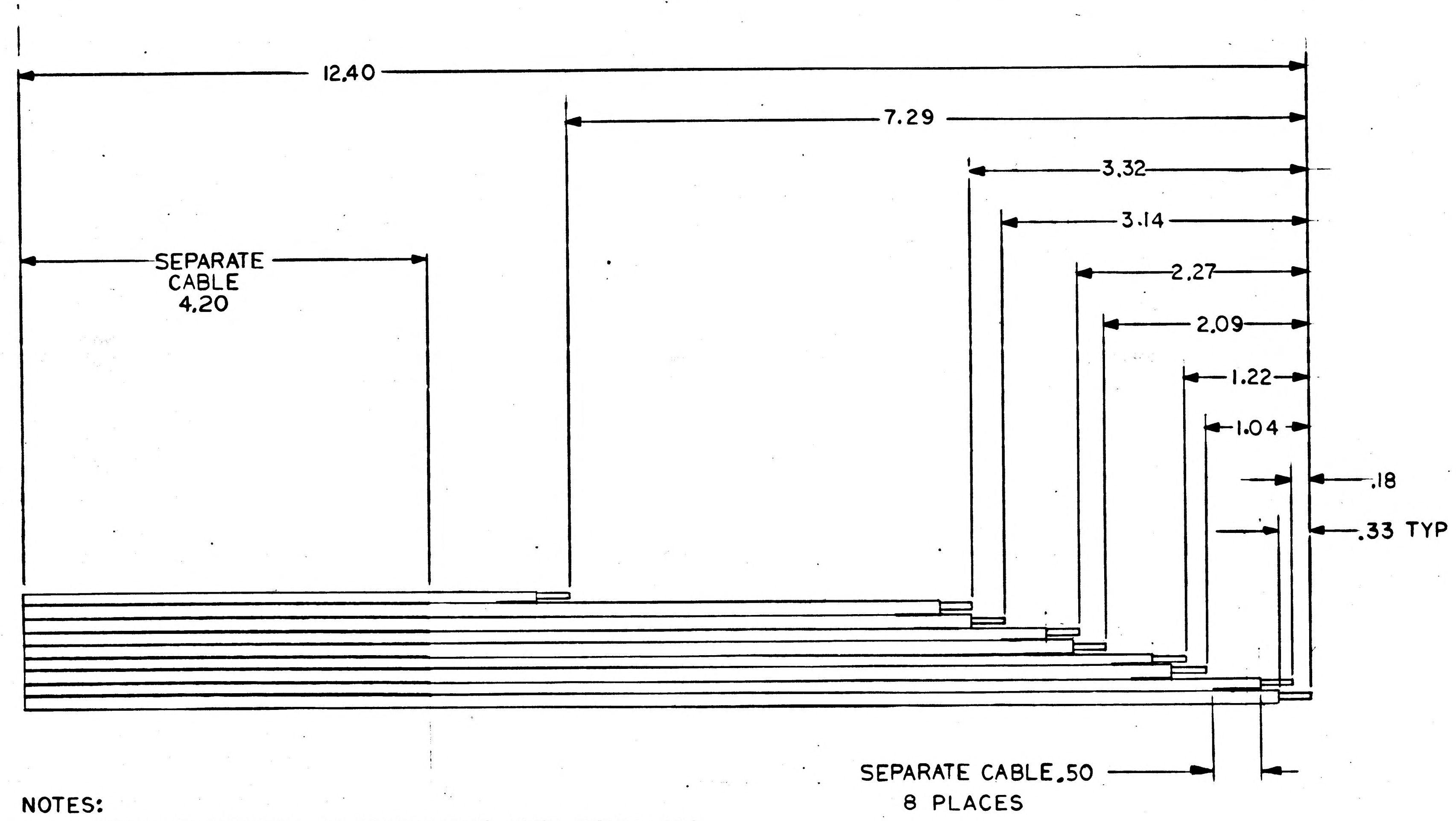
SCALE NONE   SHEET 1 OF 1

4 3 2 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 21340			24Aug65	



NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MAKE FROM 1006343-005
3. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MASTER

2003053	
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —
DECIMALS ±.03
ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	D Black	27APR65
CHECKED	R.P. Kingsbury	21May65
APPROVED		27MAY65
APPROVED	Eldon C Hall	3 Jun 65
APPROVED MIT		8 Jun 65
APPROVED MSC		6/8/65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FLAT CABLE
FIXED MEMORY MODULE

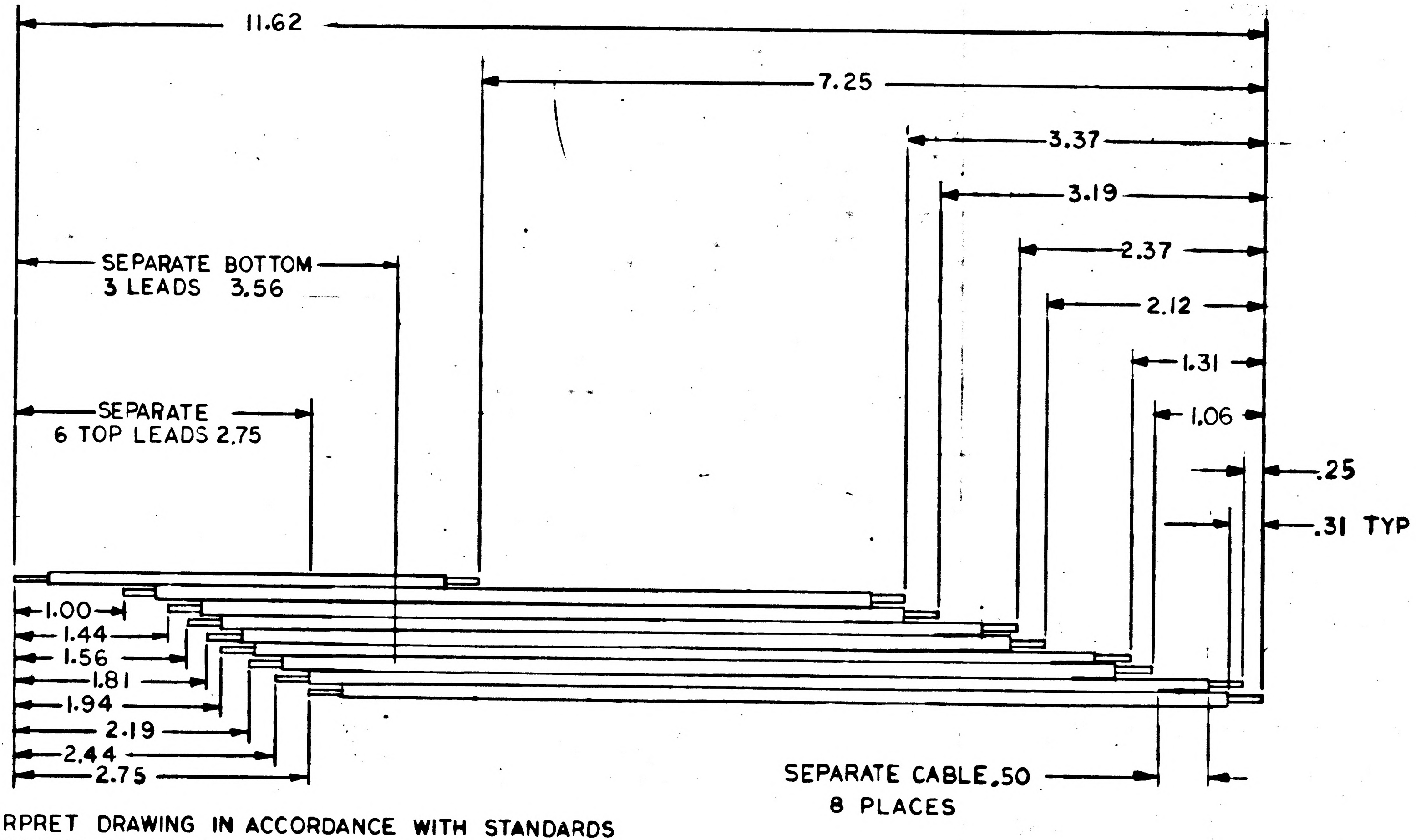
CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004124

SCALE NONE
SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED	
A		REVISED PER TDRR 21340	[illegible]	[illegible]	[illegible]	WK	
B		REVISED PER TDRR 28624	jm	[illegible]		FR	6/6/66
C		REVISED PER TDRR 30417	[illegible]	C.D.		FR	[illegible]



11.62
7.25
3.37
3.19
2.37
2.12
1.31
1.06
.25
.31 TYP
SEPARATE BOTTOM 3 LEADS 3.56
SEPARATE 6 TOP LEADS 2.75
1.00
1.44
1.56
1.81
1.94
2.19
2.44
2.75
SEPARATE CABLE .50 8 PLACES

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MAKE FROM 1006343-005
3. IDENTIFY WITH PART NO. PER ND1002019

2003972	
2003053	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.03 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	D Black	27APR65
CHECKED	[illegible]	[illegible]
APPROVED	[illegible]	27MAY65
APPROVED	[illegible]	3 [illegible]
APPROVED MIT	[illegible]	[illegible] 65
APPROVED MSC	[illegible]	[illegible]
		DATE

FLAT CABLE
FIXED MEMORY MODULE

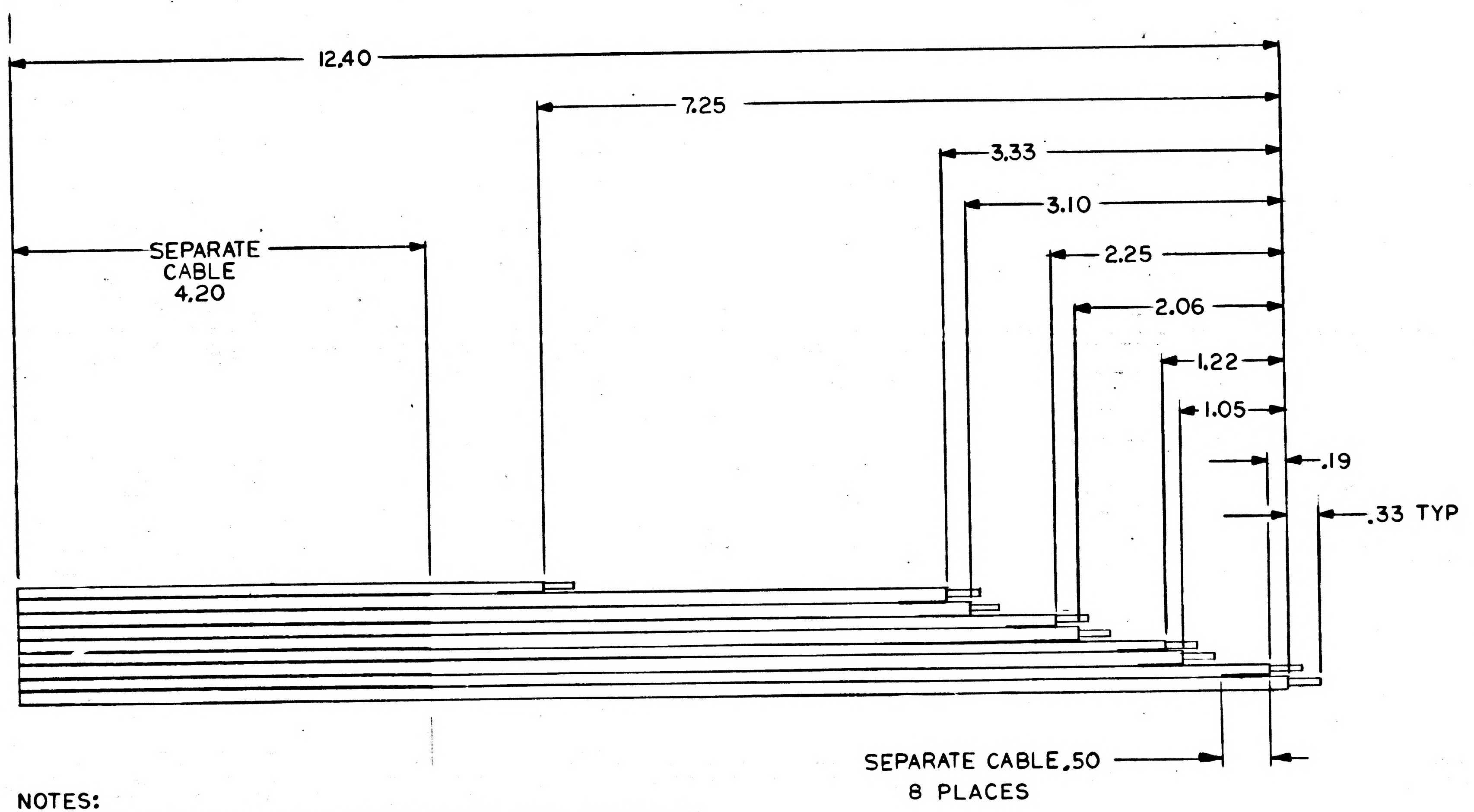
CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004124
SCALE NONE
SHEET 1 OF 1

2004124 C

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MAKE FROM 1006343-005
3. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003053	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.03 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

		DATE
DRAWN	D Black	27APR65
CHECKED	R.P. Kingsbury	21 Apr 65
APPROVED		27 MAY 65
APPROVED	Eldon C Hall	3 June 65
APPROVED MIT		
APPROVED MSC		6/8/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

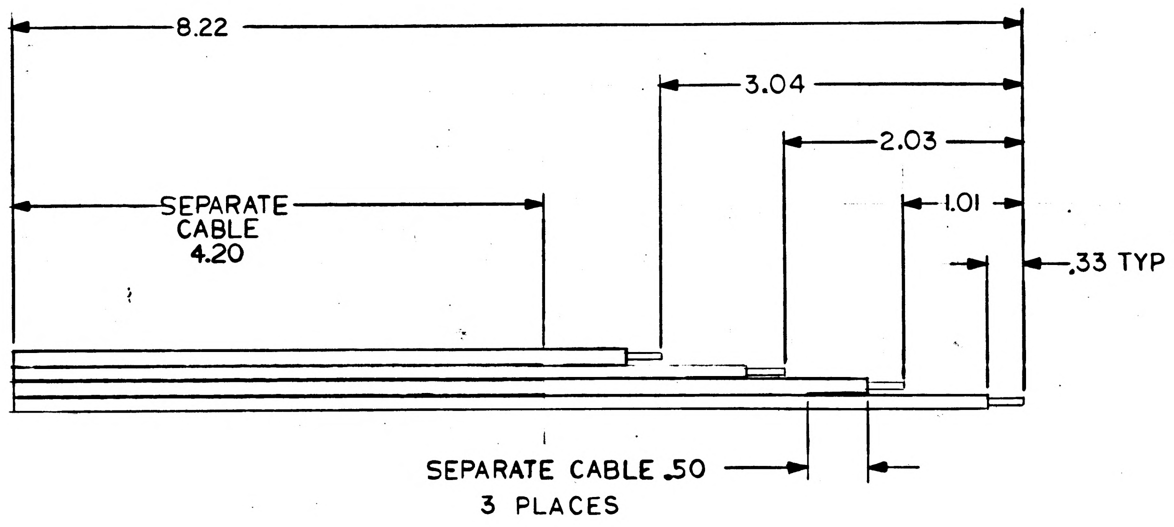
FLAT CABLE
FIXED MEMORY MODULE

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004124
SCALE NONE
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 21340	TB	EPK	24AUG65	WK



NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MAKE FROM 1006343-006
3. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003053	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ±.03 ANGLES ± ——
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	D. Black	27APR65
CHECKED	R.P. Kingsbury	21MAY65
APPROVED	F.J. Lindsey	27MAY65
APPROVED	Eldon C Hall	3June65
APPROVED MIT	W. Kupfer	8June65
APPROVED MSC	M. Michael	6/8/65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FLAT CABLE
FIXED MEMORY MODULE

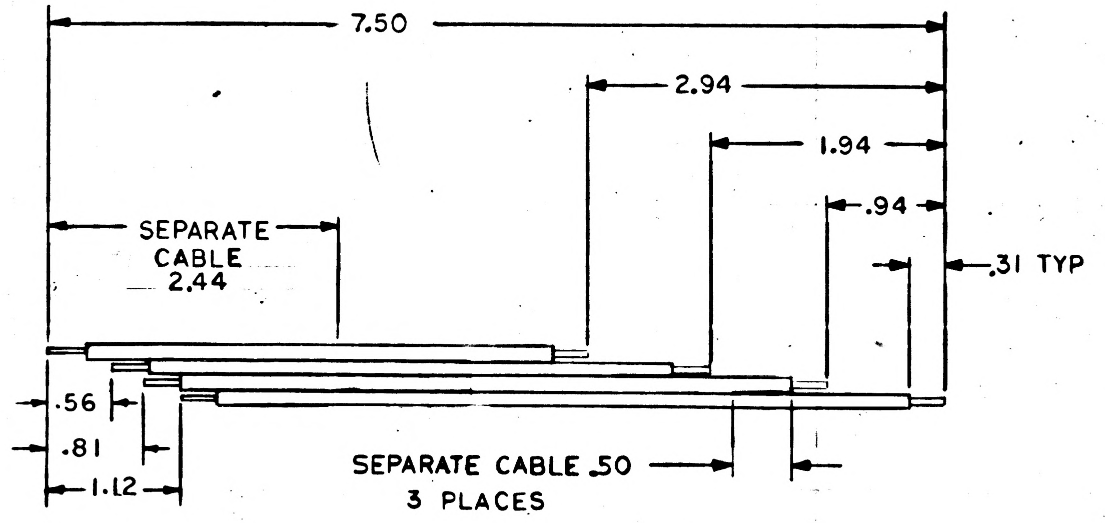
CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004125

SCALE NONE
SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 21340		EPK	24Aug65	
B		REVISED PER TDRR 28624		A.K.		6/16/66
C		REVISED PER TDRR 30417		C.D.		



NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MAKE FROM 1006343-006
3. IDENTIFY WITH PART NO. PER ND1002019

NEXT ASSY	USED ON
2003972	
2003053	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.03 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN D. Black 27APR65
CHECKED 21May65
APPROVED 27MAY65
APPROVED 3June65
APPROVED MIT
APPROVED MSC
DATE

FLAT CABLE
FIXED MEMORY MODULE

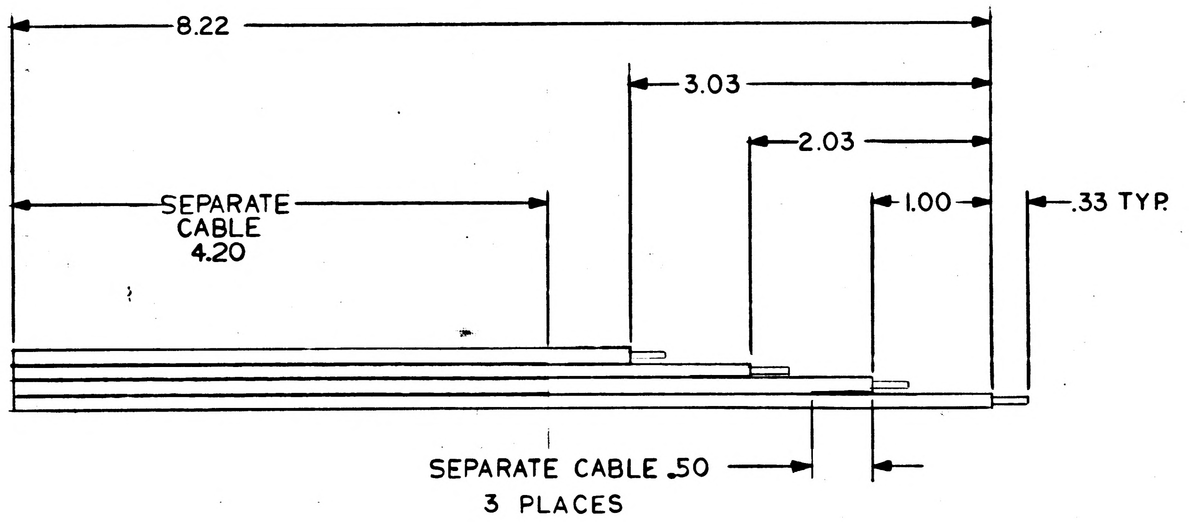
CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004125
SCALE NONE
SHEET 1 OF 1

2004125 C

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MAKE FROM 1006343-006
3. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003053	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ±.03 ANGLES ± ——
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN D. Black 27APR65
CHECKED R.P. Kingsbury 21May65
APPROVED 27MAY65
APPROVED Alden C Hall 3June65
APPROVED MIT 8 June 65
APPROVED MSC 6/8/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

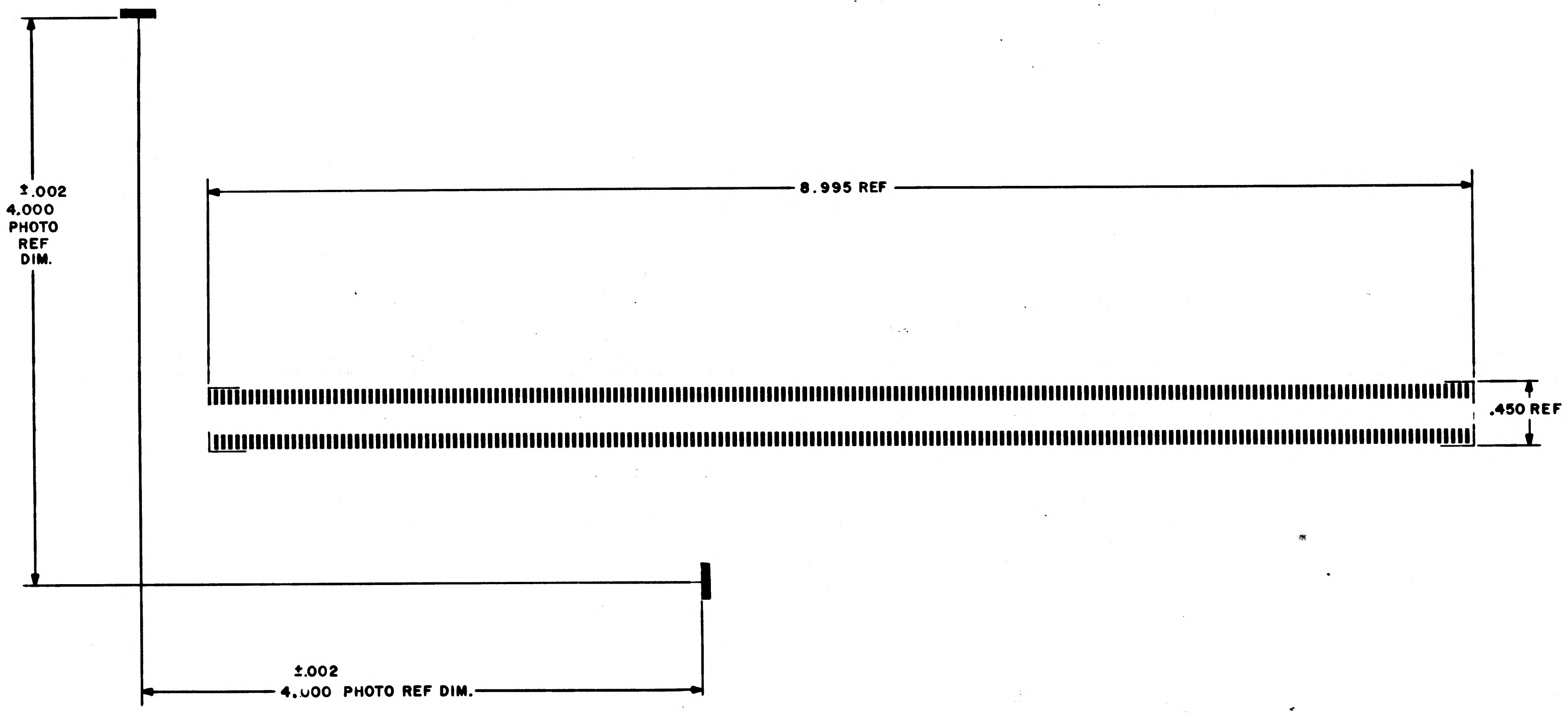
FLAT CABLE
FIXED MEMORY MODULE

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004125
SCALE NONE
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 18726

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY.

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ± —— ANGLES ± ——
DO NOT SCALE THIS DRAWING

MATERIAL ——

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	W. Horgan	[illegible]
CHECKED	[illegible]	[illegible]
APPROVED		
APPROVED	Eldon C. Hall	3 May 65
APPROVED MIT	W Kupfer	4 May 65
APPROVED MSC	W J Rhine	5-4-65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

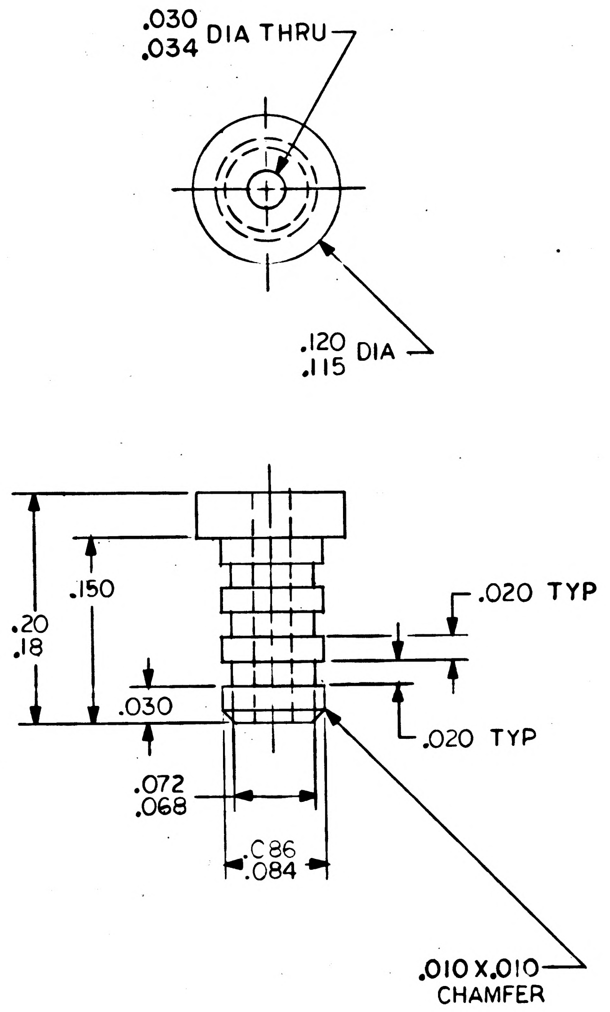
PHOTOGRAPHIC MASTER
MATRIX SUPPORT BOARD LOGIC

CODE IDENT NO	SIZE	DRAWING NO.
80230	D	2004126
SCALE 2/1		SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 21166

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: POLYTETRAFLUOROETHYLENE (TEFLON) PER MIL-P-19468 TYPE TFE

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003063	
2003062	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

		DATE
DRAWN	Louis Lowe	APR 29 65
CHECKED	A. Lindstrom	8 July 65
APPROVED		
APPROVED	Eldon C Hall	20 July 65
APPROVED MIT	W Ruger	27 Jul 65
APPROVED MSC		7/27/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BUSHING
AGC

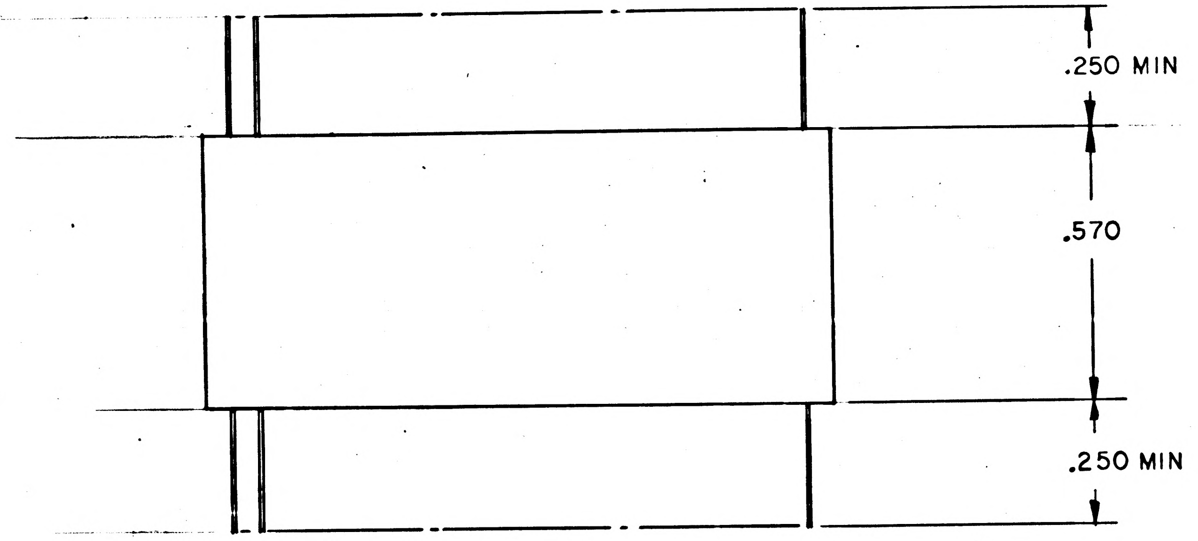
CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004127

SCALE 10/1
SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DAT/ IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20843

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 21340		RPK	24 AUG 65	WK



NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MAKE FROM 1006343-007
3. IDENTIFY WITH DRAWING NO. AND REVISION PER ND 1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003053	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.010 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN		6 MAY 65
CHECKED	R.P. Kingsbury	21 MAY 65
APPROVED		27 MAY 65
APPROVED	Eldon C Hall	3 June 65
APPROVED MIT		9 Jun 65
APPROVED MSC		6/8/65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FLAT CABLE INTERCONNECTION FIXED MEMORY MODULE

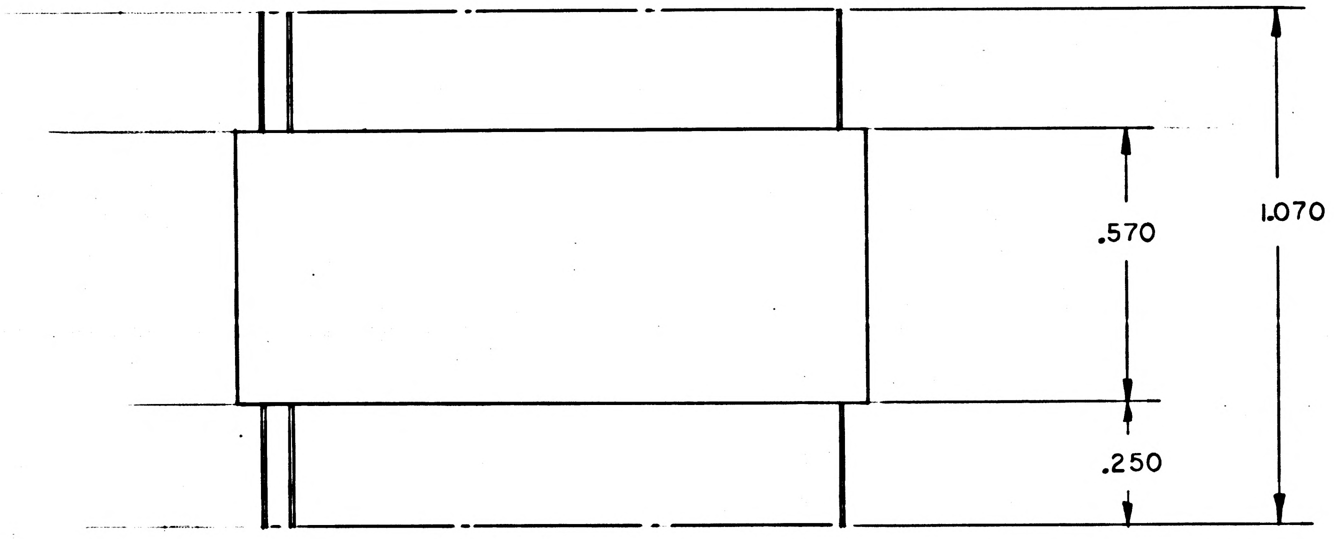
CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004129

SCALE 4/1
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MAKE FROM 1006343-007
3. IDENTIFY WITH DRAWING NO. AND REVISION PER ND 1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003053	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.010 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL

SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

		DATE
DRAWN		6MAY65
CHECKED		21MAY65
APPROVED		27MAY65
APPROVED	Ellen C Hall	3June65
APPROVED MIT		8Jun65
APPROVED MSC		6/8/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FLAT CABLE INTERCONNECTION FIXED MEMORY MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004129

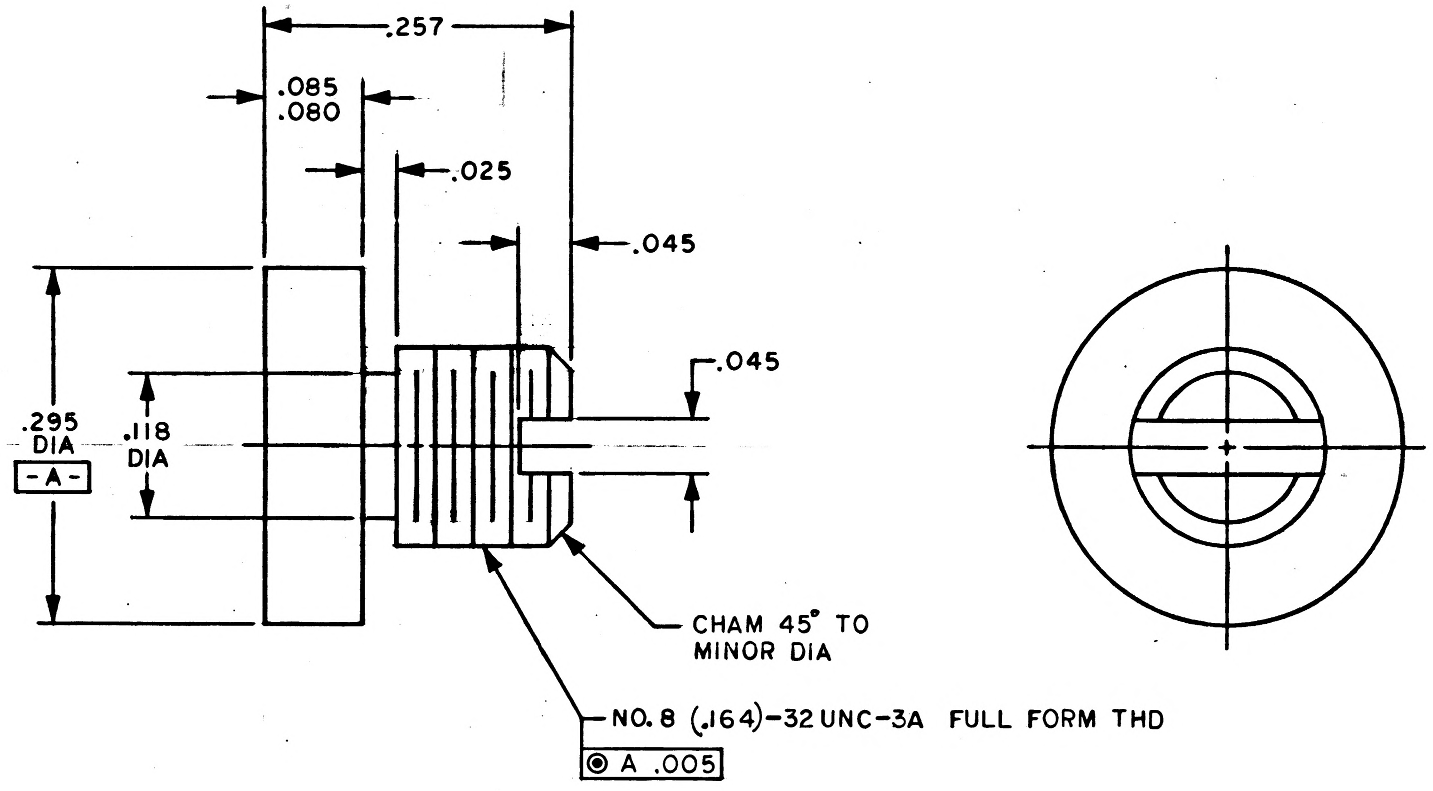
SCALE 4/1

SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 21166

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: CRES PER QQ-S-763, CLASS 416, COND A
3. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII .010 MAX
4. REMOVE BURRS AND SHARP EDGES .005/.015
5. ALL SURFACES 125/ UNLESS OTHERWISE SPECIFIED
6. FINISH: PASSIVATE PER MIL-F-14072, FINISH E300, TYPE II

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003100	
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ±1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN Ken Healy 11 MAY 65
CHECKED A. Lindstrom 8 July 65
APPROVED
APPROVED Eldon C Hall 20 July 65
APPROVED MIT 27 Jul 65
APPROVED MSC 7/27/65
DATE

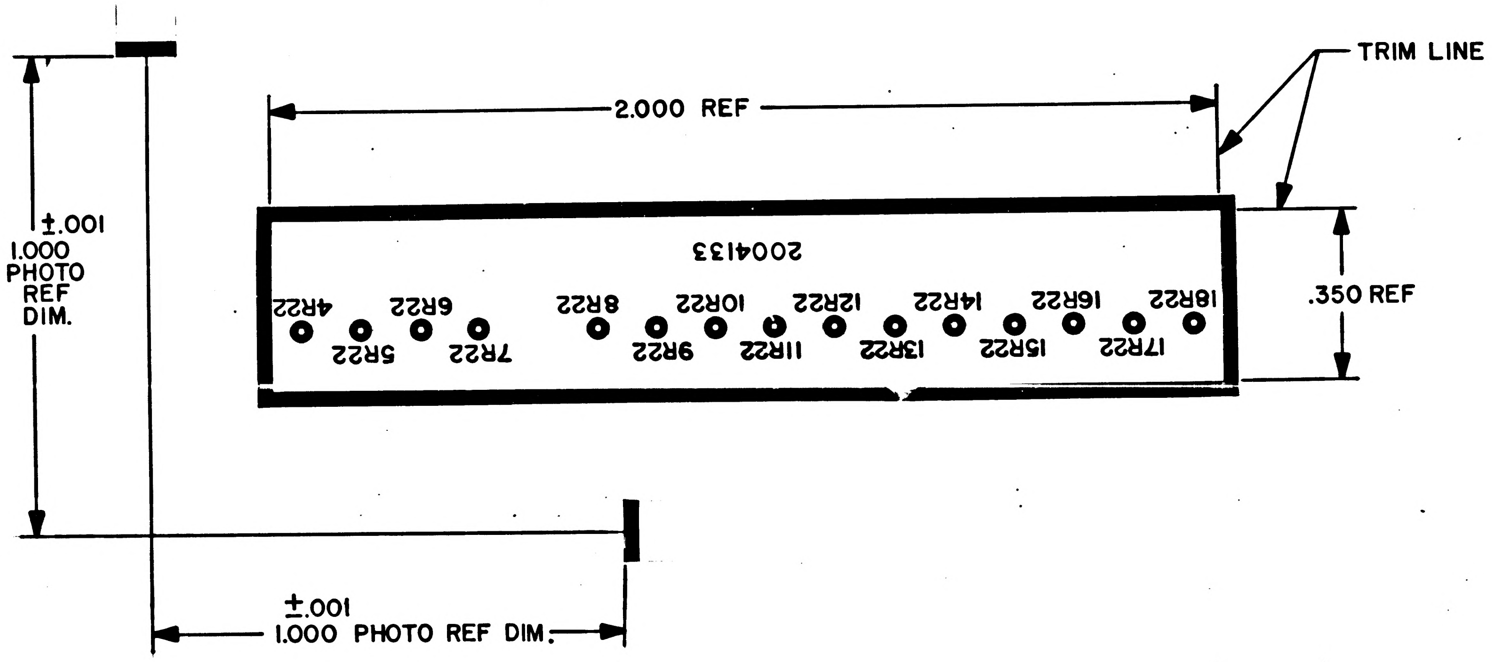
PAD, THREADED
AGC

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004130
SCALE 10/1
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20615

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: FILM .006/.008 THICK SENSITIZED DIMENSIONALLY STABLE PER L-F-340, TYPE IB, CLASS 2, STYLE IA
3. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
4. MAKE MASTER PATTERN POSITIVE FILMS TO DIMENSIONS SHOWN
5. CUT TO WITHIN .010 OF TRIM LINE
6. ⊙ .040/.050 DIA HOLE

MASTER

2003067	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

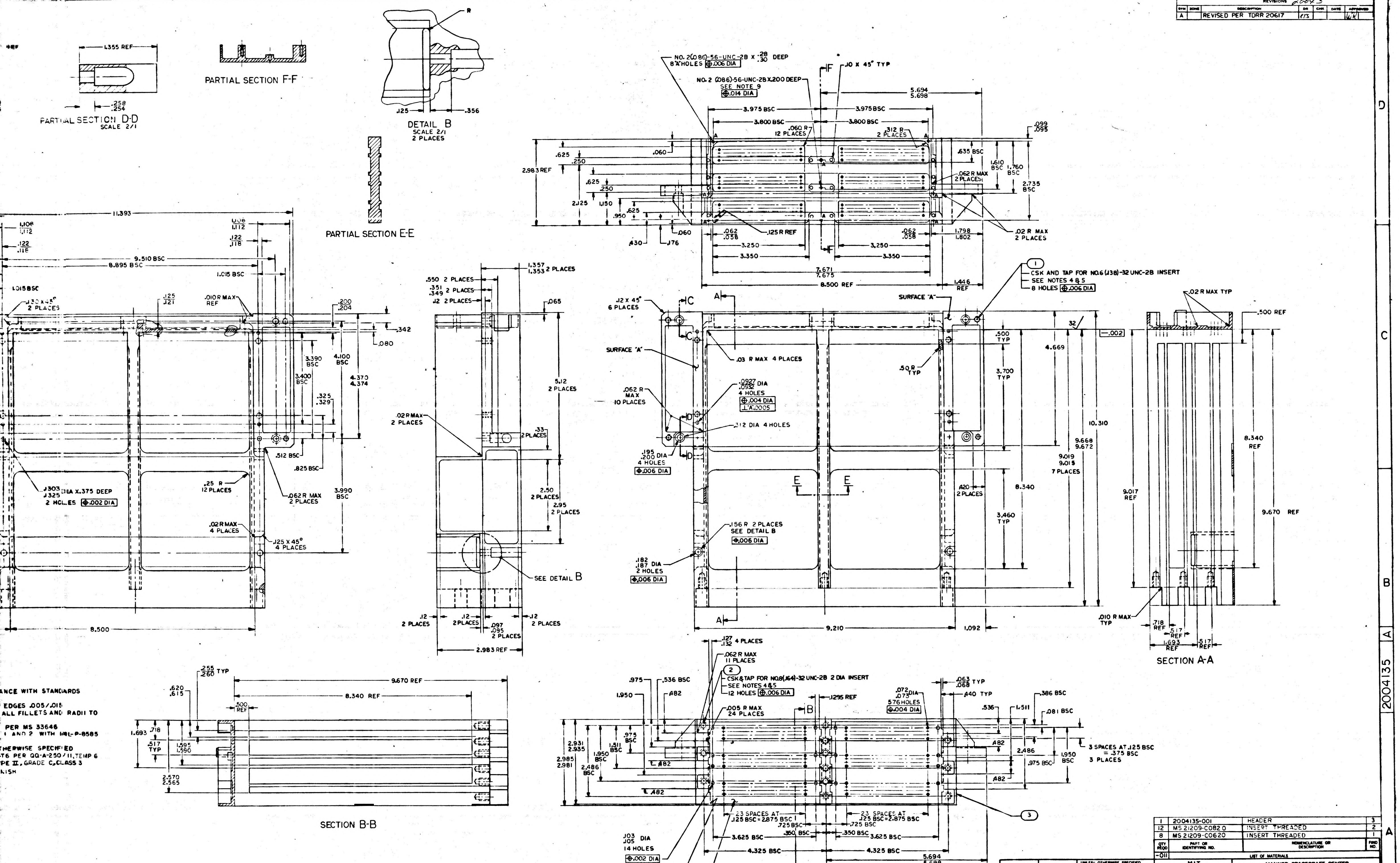
DRAWN	C. F. Welch	21 May 65
CHECKED	R. Lizdenis	29 JUN 65
APPROVED		28 JUNE 65
APPROVED	Eldon C Hall	28 June 65
APPROVED MIT		7/1/65
APPROVED MSC		7/7
		DATE

INSULATOR C PHOTOGRAPHIC MASTER

INTERFACE MODULE A27-29

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004133

SCALE 4/1 SHEET 1 OF 1


PARTIAL SECTION D-D
SCALE 2/1
1.355 REF
.258
.254
PARTIAL SECTION F-F
DETAIL B
SCALE 2/1
2 PLACES
R
.125
.356
PARTIAL SECTION E-E
NO. 2(.086)-56-UNC-2B X .28 .30 DEEP
8 "A" HOLES ⊕.006 DIA
NO. 2 (.086)-56-UNC-2B X.200 DEEP
SEE NOTE 9
⊕.014 DIA
.10 X 45° TYP
5.694
5.698
3.975 BSC
3.800 BSC
.060 R
12 PLACES
.312 R
2 PLACES
.099
.095
2.983 REF
.635 BSC
1.610 BSC
1.760 BSC
2.735 BSC
.062 R MAX
2 PLACES
.125 R REF
.02 R MAX
2 PLACES
3.250
3.350
7.671
7.675
8.500 REF
1.446 REF
1.798
1.802
11.393
9.510 BSC
8.895 BSC
1.015 BSC
.010 R MAX REF
.130 x 45°
2 PLACES
.200
.204
.342
.080
3.390 BSC
3.400 BSC
4.100 BSC
4.370
4.374
.325
.329
.512 BSC
.825 BSC
3.990 BSC
.303
.325 DIA X .375 DEEP
2 HOLES ⊕.002 DIA
.25 R
12 PLACES
.062 R MAX
2 PLACES
.02 R MAX
4 PLACES
.125 X 45°
4 PLACES
8.500
.550 2 PLACES
.351
.349 2 PLACES
.12 2 PLACES
1.357
1.353 2 PLACES
.065
5.12
2 PLACES
.02 R MAX
2 PLACES
.33
2 PLACES
2.50
2 PLACES
2.95
2 PLACES
SEE DETAIL B
.12
2 PLACES
.097
.095
2 PLACES
2.983 REF
.12 X 45°
6 PLACES
SURFACE "A"
1
CSK AND TAP FOR NO.6 (.138)-32 UNC-2B INSERT
SEE NOTES 4 & 5
8 HOLES ⊕.006 DIA
.03 R MAX 4 PLACES
.0927
.0932 DIA
4 HOLES
⊕.004 DIA
⊥A .0005
.312 DIA 4 HOLES
.062 R MAX
10 PLACES
.195
.200 DIA
4 HOLES
⊕.006 DIA
.156 R 2 PLACES
SEE DETAIL B
⊕.006 DIA
.182
.187 DIA
2 HOLES
⊕.006 DIA
.50 R TYP
.500 TYP
3.700 TYP
.120 R
2 PLACES
3.460 TYP
4.669
10.310
9.668
9.672
9.019
9.015
7 PLACES
8.340
—.002
9.210
1.092
.02 R MAX TYP
.500 REF
8.340 REF
9.017 REF
9.670 REF
.010 R MAX TYP
.718 REF
.517 REF
1.693 REF
SECTION A-A
.255
.260 TYP
9.670 REF
8.340 REF
.620
.615
.500 REF
1.693
.718
.517 TYP
1.595
1.590
2.570
2.565
SECTION B-B
.127
.132 4 PLACES
.062 R MAX
11 PLACES
2
CSK & TAP FOR NO.8 (.164)-32 UNC-2B 2 DIA INSERT
SEE NOTES 4 & 5
12 HOLES ⊕.006 DIA
.975
.536 BSC
1.950
.482
.005 R
24 PLACES
.1295 REF
.072
.073 DIA
576 HOLES
⊕.004 DIA
.063
.068 TYP
.440 TYP
.536
1.511
.386 BSC
.081 BSC
3 SPACES AT .125 BSC = .375 BSC
3 PLACES
2.931
2.935
2.985
2.981
2.486
1.511 BSC
.975 BSC
23 SPACES AT .125 BSC = 2.875 BSC
.725 BSC
.350 BSC
3.625 BSC
4.325 BSC
5.694
5.698
.103
.105 DIA
14 HOLES
⊕.002 DIA
⊥B .0005
.010 R MAX
4 PLACES
SURFACE "B"
3
MASTER

ANCE WITH STANDARDS

EDGES .005/.015
ALL FILLETS AND RADII TO

PER MS 33646
1 AND 2 WITH MIL-P-8585

THERWISE SPECIFIED
-T6 PER QQ-A-250/11, TEMP 6
PE II, GRADE C, CLASS 3
NISH

REVISIONS 20043						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20617	ETS			WR

1	2004135-001	HEADER	3
12	MS 21209-C0820	INSERT THREADED	2
8	MS 21209-C0620	INSERT THREADED	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

2003066	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± .01 .005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 7

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN J.A. Baffini 7APR65
CHECKED 27MAY65
APPROVED 28MAY65
APPROVED Ellen C. Hall
APPROVED MIT W Kupfer
APPROVED MSC
DATE

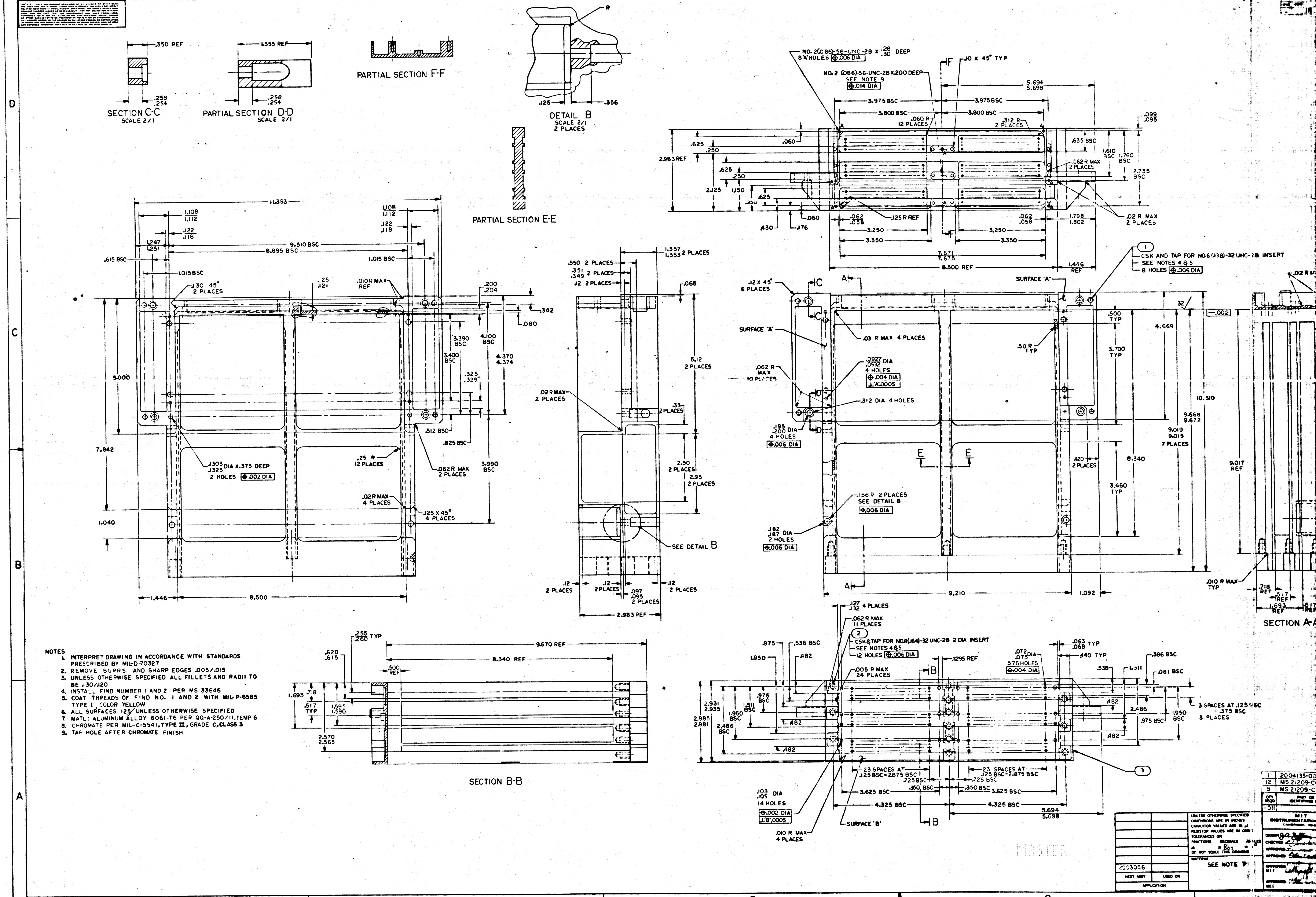
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INTERCONNECTION HEADER
FIXED MEMORY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004135
SCALE 1/1
SHEET 1 OF 1

2004135

E-2


SECTION C-C
SCALE 2/1
.350 REF
.258
.254
PARTIAL SECTION D-D
SCALE 2/1
1.355 REF
PARTIAL SECTION F-F
DETAIL B
SCALE 2/1
2 PLACES
R
.125
.356
PARTIAL SECTION E-E
NO. 2(.086)-56-UNC-2B X .28/.30 DEEP
8 HOLES ⊕ .006 DIA
NO. 2 (.086)-56-UNC-2B X .200 DEEP
SEE NOTE 9
⊕ .014 DIA
.10 X 45° TYP
5.694
5.698
3.975 BSC
3.800 BSC
.060 R
12 PLACES
.312 R
2 PLACES
2.983 REF
.635 BSC
1.610 BSC
1.760 BSC
2.735 BSC
.062 R MAX
2 PLACES
.125 R REF
3.250
3.350
7.671
7.675
8.500 REF
1.798
1.802
.02 R MAX
2 PLACES
1.446 REF
CSK AND TAP FOR NO.6 (.138)-32 UNC-2B INSERT
SEE NOTES 4 & 5
8 HOLES ⊕ .006 DIA
SURFACE "A"
.12 X 45°
6 PLACES
.03 R MAX 4 PLACES
.0927
.0932 DIA
4 HOLES
⊕ .004 DIA
⊥ A .0005
.062 R MAX
10 PLACES
.312 DIA 4 HOLES
.195
.200 DIA
4 HOLES
⊕ .006 DIA
.50 R TYP
.500 TYP
3.700 TYP
4.669
10.310
9.668
9.672
9.019
9.015
7 PLACES
8.340
3.460 TYP
.420
2 PLACES
9.017 REF
.156 R 2 PLACES
SEE DETAIL B
⊕ .006 DIA
.182
.187 DIA
2 HOLES
⊕ .006 DIA
9.210
1.092
.010 R MAX TYP
SECTION A-A
11.393
1.108
1.112
.122
.118
1.247
1.251
9.510 BSC
8.895 BSC
.615 BSC
1.015 BSC
.130 45°
2 PLACES
.125
.121
.010 R MAX REF
.200
.204
.342
.080
3.390 BSC
3.400 BSC
4.100 BSC
4.370
4.374
.325
.329
5.000
7.842
.512 BSC
.825 BSC
.25 R
12 PLACES
.062 R MAX
2 PLACES
3.990 BSC
.1303
.1325 DIA X .375 DEEP
2 HOLES ⊕ .002 DIA
.02 R MAX
4 PLACES
.125 X 45°
4 PLACES
1.040
1.446
8.500
.550 2 PLACES
.351
.349 2 PLACES
.12 2 PLACES
1.357
1.353 2 PLACES
.065
5.12
2 PLACES
.02 R MAX
2 PLACES
.33
2 PLACES
2.50
2 PLACES
2.95
2 PLACES
SEE DETAIL B
.12 2 PLACES
.097
.095
2 PLACES
2.983 REF
.255
.260 TYP
.620
.615
9.670 REF
8.340 REF
.500 REF
1.693
.718
.517 TYP
1.595
1.590
2.570
2.565
SECTION B-B
.127
.132 4 PLACES
.062 R MAX
11 PLACES
CSK & TAP FOR NO.8 (.164)-32 UNC-2B 2 DIA INSERT
SEE NOTES 4 & 5
12 HOLES ⊕ .006 DIA
.975
.536 BSC
1.950
.482
.005 R MAX
24 PLACES
.1295 REF
.072
.073 DIA
576 HOLES
⊕ .004 DIA
.063
.068 TYP
.440 TYP
.386 BSC
.081 BSC
2.931
2.935
2.985
2.981
2.486 BSC
1.511 BSC
3 SPACES AT .125 BSC = .375 BSC
3 PLACES
23 SPACES AT .125 BSC = 2.875 BSC
.725 BSC
.350 BSC
3.625 BSC
4.325 BSC
.103
.105 DIA
14 HOLES
⊕ .002 DIA
⊥ B .0005
.010 R MAX
4 PLACES
SURFACE "B"
MASTER

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. REMOVE BURRS AND SHARP EDGES .005/.015
3. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .130/.120
4. INSTALL FIND NUMBER 1 AND 2 PER MS 33646
5. COAT THREADS OF FIND NO. 1 AND 2 WITH MIL-P-8585 TYPE I, COLOR YELLOW
6. ALL SURFACES 125✓ UNLESS OTHERWISE SPECIFIED
7. MATL: ALUMINUM ALLOY 6061-T6 PER QQ-A-250/11, TEMP 6
8. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
9. TAP HOLE AFTER CHROMATE FINISH

QTY REQD	PART OR IDENTIFYING
1	2004135-00
12	MS 21209-C
8	MS 21209-C
-011	

NEXT ASSY	USED ON
2003066	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± .01 .005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
SEE NOTE 7

MIT
INSTRUMENTATION
CAMBRIDGE
DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED

F-1

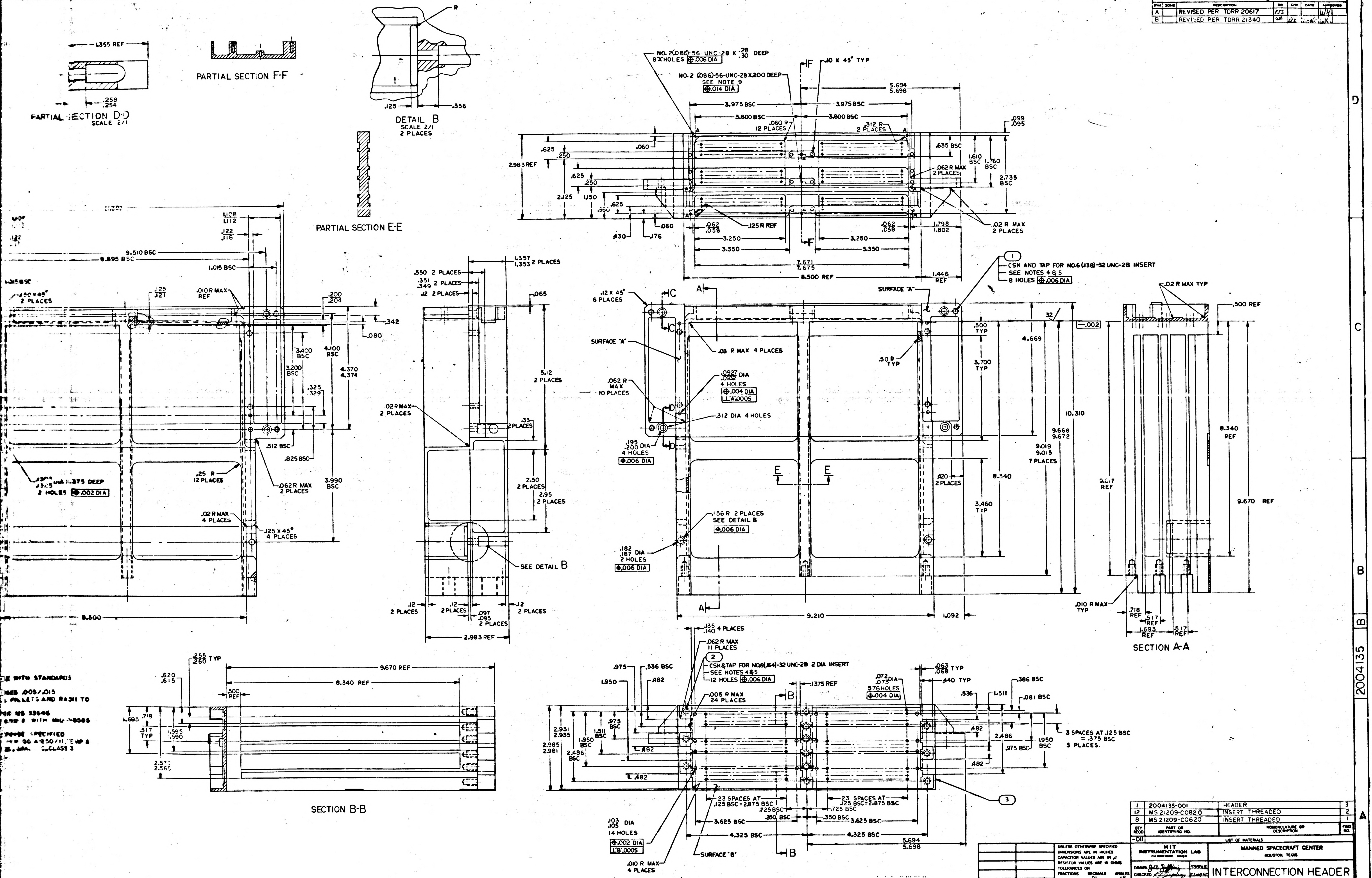
REVISIONS 20043						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20617	R.T.S			WR
B		REVISED PER TDRR 21340	QB			WR

E WITH STANDARDS

.005/.015
, FILLETS AND RADII TO

MS 33646
WITH MIL-8585

SPECIFIED
QQ-A-250/11, TEMP 6
C, CLASS 3



PARTIAL SECTION D-D
SCALE 2/1
1.355 REF
.258
.254
PARTIAL SECTION F-F
DETAIL B
SCALE 2/1
2 PLACES
R
.125
.356
PARTIAL SECTION E-E
NO. 2(.086)-56-UNC-2B X .28/.30 DEEP
8 HOLES ⊕ .006 DIA
NO. 2 (.086)-56-UNC-2B X .200 DEEP
SEE NOTE 9
⊕ .014 DIA
.10 X 45° TYP
5.694
5.698
3.975 BSC
3.800 BSC
.060 R
12 PLACES
.312 R
2 PLACES
.099
.095
.635 BSC
1.610 BSC
1.760 BSC
2.735 BSC
.062 R MAX
2 PLACES
2.983 REF
.625
.250
2.125
1.150
.930
.060
.176
.062
.058
.125 R REF
3.250
3.350
7.671
7.675
8.500 REF
1.798
1.802
.02 R MAX
2 PLACES
1.446 REF
9.510 BSC
8.895 BSC
1.015 BSC
1.108
1.112
.122
.118
.125
.121
.010 R MAX REF
.200
.204
.342
.080
3.400 BSC
3.200 BSC
4.100 BSC
4.370
4.374
.325
.329
.512 BSC
.825 BSC
.25 R
12 PLACES
.062 R MAX
2 PLACES
3.990 BSC
.02 R MAX
4 PLACES
.125 X 45°
4 PLACES
.375 DEEP
2 HOLES ⊕ .002 DIA
8.500
.550 2 PLACES
.351
.349 2 PLACES
.12 2 PLACES
1.357
1.353 2 PLACES
.065
5.12
2 PLACES
.02 R MAX
2 PLACES
.33
2 PLACES
2.50
2 PLACES
2.95
2 PLACES
SEE DETAIL B
.12
2 PLACES
.097
.095
2 PLACES
2.983 REF
① CSK AND TAP FOR NO.6 (.138)-32 UNC-2B INSERT
SEE NOTES 4 & 5
8 HOLES ⊕ .006 DIA
SURFACE "A"
.12 X 45°
6 PLACES
.03 R MAX 4 PLACES
.0927
.0932 DIA
4 HOLES
⊕ .004 DIA
⊥ A .0005
.062 R MAX
10 PLACES
.312 DIA 4 HOLES
.195
.200 DIA
4 HOLES
⊕ .006 DIA
.50 R TYP
.500 TYP
3.700 TYP
4.669
.002
10.310
9.668
9.672
9.019
9.015
7 PLACES
.120
2 PLACES
8.340
3.460 TYP
.156 R 2 PLACES
SEE DETAIL B
⊕ .006 DIA
.182
.187 DIA
2 HOLES
⊕ .006 DIA
9.210
1.092
.02 R MAX TYP
.500 REF
8.340 REF
9.017 REF
9.670 REF
.010 R MAX TYP
.718 REF
.517 REF
1.693 REF
SECTION A-A
.255
.260 TYP
9.670 REF
8.340 REF
.500 REF
.620
.615
1.693
.718
.517 TYP
1.595
1.590
2.575
2.565
SECTION B-B
.135
.140 4 PLACES
.062 R MAX
11 PLACES
② CSK & TAP FOR NO.8 (.164)-32 UNC-2B 2 DIA INSERT
SEE NOTES 4 & 5
12 HOLES ⊕ .006 DIA
.975
.536 BSC
.482
1.950
.005 R MAX
24 PLACES
.1375 REF
.072
.073 DIA
576 HOLES
⊕ .004 DIA
.063
.068 TYP
.440 TYP
.386 BSC
.536
1.511
.081 BSC
2.931
2.935
2.985
2.981
1.950 BSC
1.511 BSC
.975 BSC
2.486 BSC
3 SPACES AT .125 BSC
= .375 BSC
3 PLACES
23 SPACES AT .125 BSC = 2.875 BSC
.725 BSC
.350 BSC
3.625 BSC
4.325 BSC
.103
.105 DIA
14 HOLES
⊕ .002 DIA
⊥ B .0005
.010 R MAX
4 PLACES
SURFACE "B"
③

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	2004135-001	HEADER	3
12	MS 21209-C0820	INSERT THREADED	2
8	MS 21209-C0620	INSERT THREADED	1
-011	LIST OF MATERIALS		

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± .01 .005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 7

NEXT ASSY	USED ON
2003066	

APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

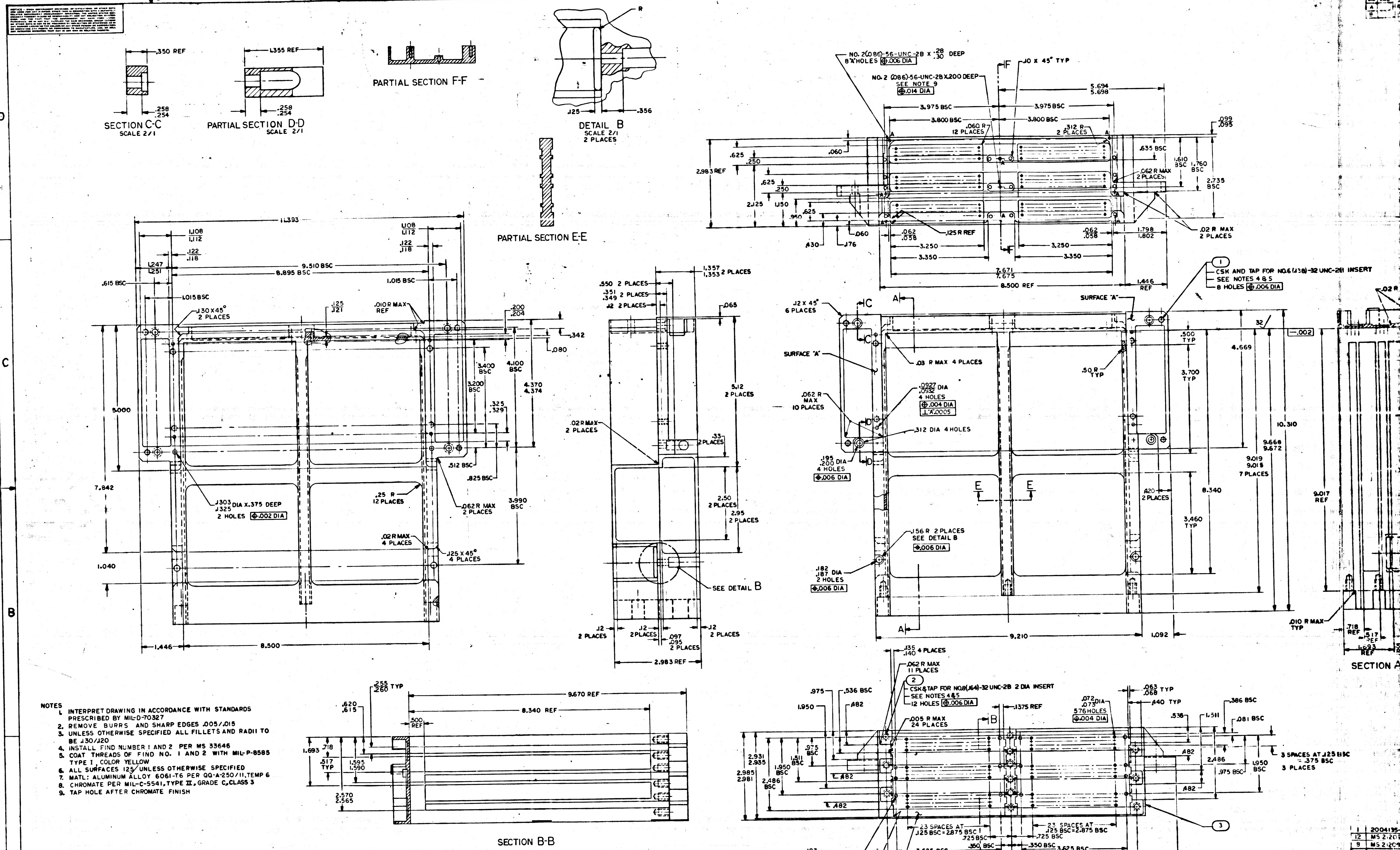
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN J.A. Baffini 7APR65
CHECKED 22APR65
APPROVED 28MAR65
APPROVED
APPROVED MIT
APPROVED MSC
DATE

INTERCONNECTION HEADER
FIXED MEMORY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004135
SCALE 1/1
SHEET 1 OF 1

MASTER


SECTION C-C
SCALE 2/1
PARTIAL SECTION D-D
SCALE 2/1
PARTIAL SECTION F-F
DETAIL B
SCALE 2/1
2 PLACES
PARTIAL SECTION E-E
SEE DETAIL B
SURFACE "A"
SURFACE "B"
SECTION B-B
SECTION A
CSK AND TAP FOR NO.6 (.138)-32 UNC-2B INSERT
SEE NOTES 4 & 5
8 HOLES ⊕.006 DIA
CSK & TAP FOR NO.8 (.164)-32 UNC-2B 2 DIA INSERT
SEE NOTES 4 & 5
12 HOLES ⊕.006 DIA
NO. 2 (.086)-56-UNC-2B X .28/.30 DEEP
8 HOLES ⊕.006 DIA
NO. 2 (.086)-56-UNC-2B X .200 DEEP
SEE NOTE 9
⊕.014 DIA
MASTER

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. REMOVE BURRS AND SHARP EDGES .005/.015
3. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .130/.120
4. INSTALL FIND NUMBER 1 AND 2 PER MS 33646
5. COAT THREADS OF FIND NO. 1 AND 2 WITH MIL-P-8585 TYPE I, COLOR YELLOW
6. ALL SURFACES 125√ UNLESS OTHERWISE SPECIFIED
7. MATL: ALUMINUM ALLOY 6061-T6 PER QQ-A-250/11, TEMP 6
8. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
9. TAP HOLE AFTER CHROMATE FINISH

277

1	2004135-
12	MS 2120
9	MS 2120
QTY REQD	
-011	

2003066	
NEXT ASSY	USED ON
APPLICATION	

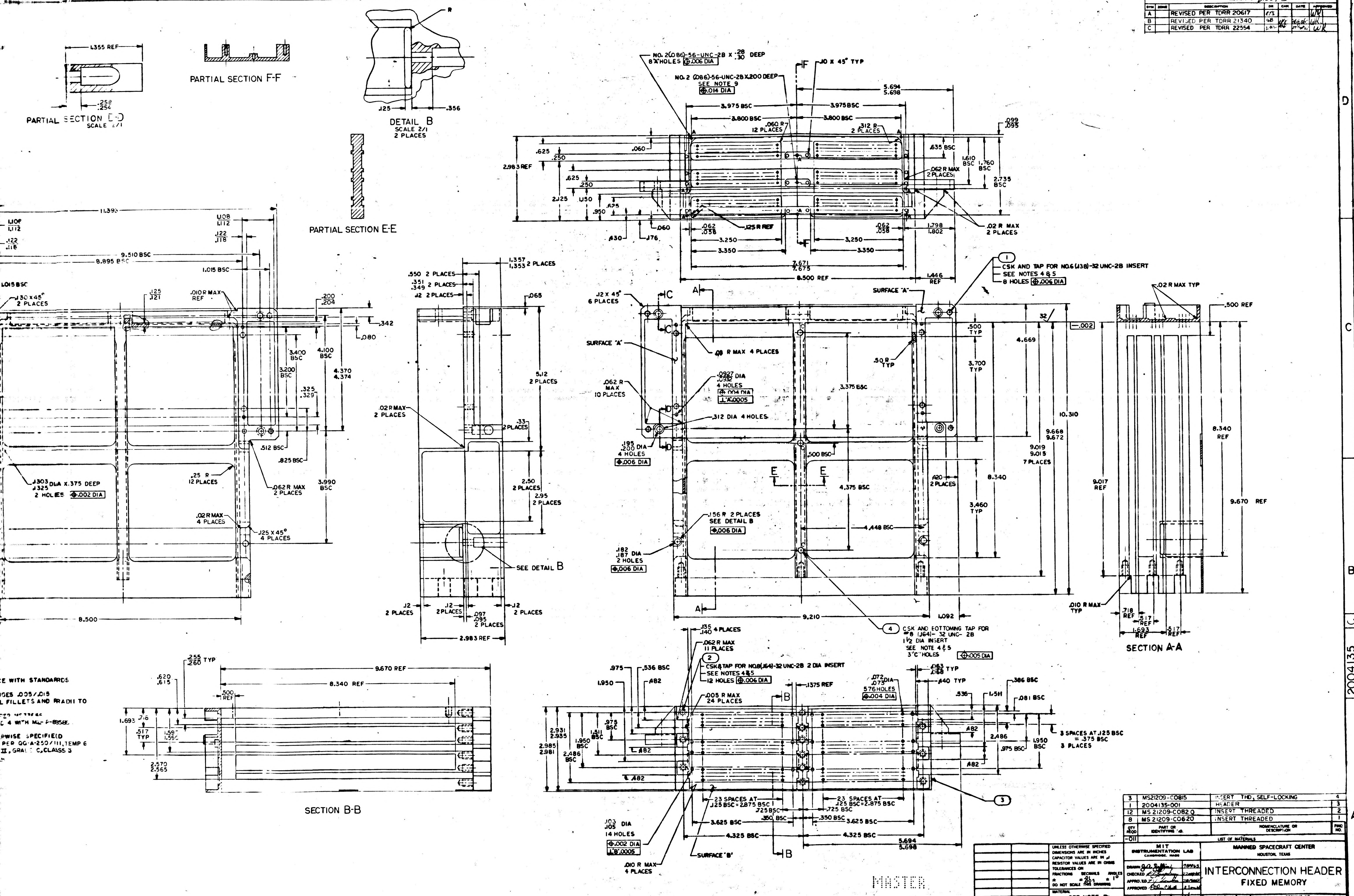
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± .01 .005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 7

MIT
INSTRUMENTATION
CAMBRIDGE

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC

REVISIONS 20043						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20617	R.T.S			WR
B		REVISED PER TDRR 21340	AB			WR
C		REVISED PER TDRR 22554	L.A.L		27 ... 65	WR



PARTIAL SECTION D-D
SCALE 2/1
PARTIAL SECTION F-F
DETAIL B
SCALE 2/1
2 PLACES
PARTIAL SECTION E-E
SECTION A-A
SECTION B-B
SURFACE "A"
SURFACE "B"
NO. 2 (.086)-56-UNC-2B X .28/.30 DEEP 8 "A" HOLES ⊕.006 DIA
NO. 2 (.086)-56-UNC-2B X .200 DEEP SEE NOTE 9 ⊕.014 DIA
CSK AND TAP FOR NO.6 (.138)-32 UNC-2B INSERT SEE NOTES 4 & 5 8 HOLES ⊕.006 DIA
CSK & TAP FOR NO.8 (.164)-32 UNC-2B 2 DIA INSERT SEE NOTES 4 & 5 12 HOLES ⊕.006 DIA
CSK AND BOTTOMING TAP FOR #8 (.164)-32 UNC-2B 1½ DIA INSERT SEE NOTE 4 & 5 3 "C" HOLES ⊕.005 DIA
.156 R 2 PLACES SEE DETAIL B ⊕.006 DIA
.0927/.0932 DIA 4 HOLES ⊕.004 DIA
.312 DIA 4 HOLES
.195/.200 DIA 4 HOLES ⊕.006 DIA
.182/.187 DIA 2 HOLES ⊕.006 DIA
.303/.325 DIA X .375 DEEP 2 HOLES ⊕.002 DIA
.072/.073 DIA 576 HOLES ⊕.004 DIA
.103/.105 DIA 14 HOLES ⊕.002 DIA
23 SPACES AT .125 BSC = 2.875 BSC
3 SPACES AT .125 BSC = .375 BSC 3 PLACES
9.210
8.500
9.670 REF
8.340 REF
10.310
2.983 REF
SEE DETAIL B
①
②
③
④

CE WITH STANDARDS

GES .005/.015

L FILLETS AND RADII TO

C 4 WITH MIL-F-8958...

RWISE SPECIFIED

PER QQ-A-250/11, TEMP 6

II, GRADE C, CLASS 3

3	MS21209-C0815	INSERT THD, SELF-LOCKING	4
1	2004135-001	HEADER	3
12	MS 21209-C0820	INSERT THREADED	2
8	MS 21209-C0620	INSERT THREADED	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003066	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± .01/.005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 7

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN J.A. Baffini 7APR65
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

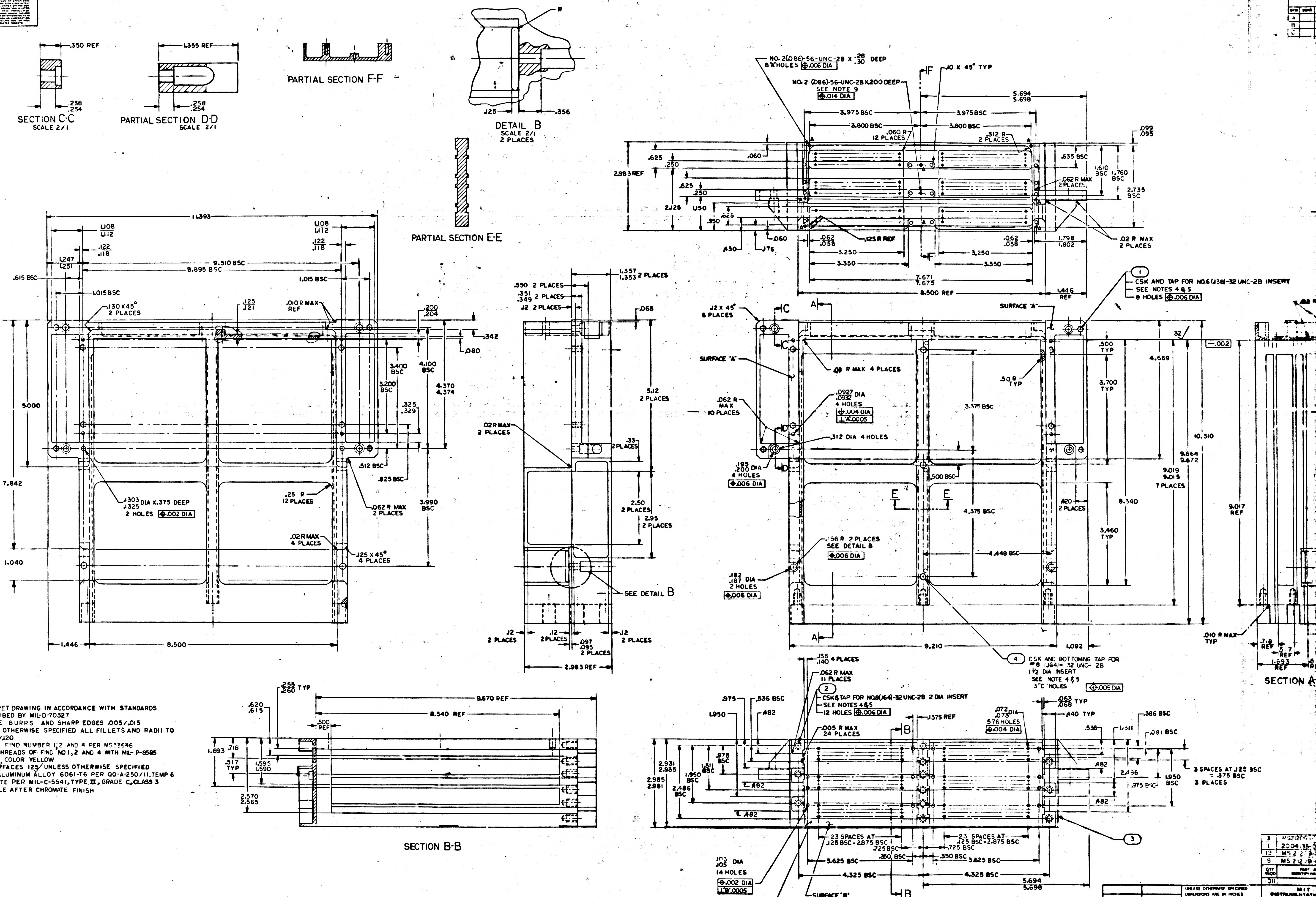
INTERCONNECTION HEADER
FIXED MEMORY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2004135
SCALE 1/1		SHEET 1 OF 1

MASTER

2004135 C

E-2


SECTION C-C
SCALE 2/1
.350 REF
.258
.254
PARTIAL SECTION D-D
SCALE 2/1
1.355 REF
PARTIAL SECTION F-F
DETAIL B
SCALE 2/1
2 PLACES
R
.125
.356
PARTIAL SECTION E-E
11.393
1.108
1.112
.122
.118
9.510 BSC
8.895 BSC
1.247
1.251
.615 BSC
1.015 BSC
.130 X 45°
2 PLACES
.125
.121
.010 R MAX
REF
.200
.204
.342
.080
3.400
BSC
4.100
BSC
4.370
4.374
3.200
BSC
.325
.329
5.000
7.842
.512 BSC
.825 BSC
.1303
.1325 DIA X .375 DEEP
2 HOLES ⊕.002 DIA
.25 R
12 PLACES
.062 R MAX
2 PLACES
3.990
BSC
.02 R MAX
4 PLACES
.125 X 45°
4 PLACES
1.040
1.446
8.500
.550 2 PLACES
.351
.349 2 PLACES
.12 2 PLACES
1.357
1.353 2 PLACES
.065
.02 R MAX
2 PLACES
5.12
2 PLACES
.33
2 PLACES
2.50
2 PLACES
2.95
2 PLACES
SEE DETAIL B
.12
2 PLACES
.097
.095
2.983 REF
NO. 2(.086)-56-UNC-2B X .28/.30 DEEP
8 "A" HOLES ⊕.006 DIA
NO. 2 (.086)-56-UNC-2B X .200 DEEP
SEE NOTE 9
⊕.014 DIA
F
.10 X 45° TYP
5.694
5.698
3.975 BSC
3.800 BSC
.060 R
12 PLACES
.312 R
2 PLACES
.099
.095
.625
.250
.060
2.983 REF
.635 BSC
1.610
BSC
1.760
BSC
.062 R MAX
2 PLACES
2.735
BSC
2.125
1.150
.950
.430
.176
.062
.058
.060
.125 R REF
3.250
3.350
7.671
7.675
8.500 REF
1.798
1.802
.02 R MAX
2 PLACES
1.446
REF
①
CSK AND TAP FOR NO.6 (.138)-32 UNC-2B INSERT
SEE NOTES 4 & 5
8 HOLES ⊕.006 DIA
SURFACE "A"
.12 X 45°
6 PLACES
C
A
.03 R MAX 4 PLACES
.0927 DIA
.0932
4 HOLES
⊕.004 DIA
⊥A .0005
.062 R
MAX
10 PLACES
.312 DIA 4 HOLES
.195
.200 DIA
4 HOLES
⊕.006 DIA
3.375 BSC
.50 R
TYP
.500 BSC
.500
TYP
3.700
TYP
4.669
32
—.002
10.310
9.668
9.672
9.019
9.015
7 PLACES
9.017
REF
E
4.375 BSC
.120
2 PLACES
8.340
.156 R 2 PLACES
SEE DETAIL B
⊕.006 DIA
4.448 BSC
3.460
TYP
.182
.187 DIA
2 HOLES
⊕.006 DIA
9.210
1.092
.010 R MAX
TYP
④
CSK AND BOTTOMING TAP FOR
#8 (.164)- 32 UNC- 2B
1 1/2 DIA INSERT
SEE NOTE 4 & 5
3 "C" HOLES ⊕.005 DIA
SECTION A
.718
.517
REF
1.693
REF
.255
.260 TYP
.620
.615
9.670 REF
8.340 REF
.500
REF
1.693
.718
.517
TYP
1.595
1.590
2.570
2.565
SECTION B-B
.135
.140 4 PLACES
.062 R MAX
11 PLACES
②
CSK & TAP FOR NO.8(.164)-32 UNC-2B 2 DIA INSERT
SEE NOTES 4 & 5
12 HOLES ⊕.006 DIA
.975
.536 BSC
1.950
.482
.005 R MAX
24 PLACES
B
.1375 REF
.072
.073 DIA
576 HOLES
⊕.004 DIA
.063
.068 TYP
.440 TYP
.386 BSC
.536
1.311
.091 BSC
2.931
2.935
.975
BSC
1.511
BSC
1.950
BSC
2.985
2.981
2.486
BSC
2.436
1.950
BSC
.975 BSC
3 SPACES AT .125 BSC
= .375 BSC
3 PLACES
23 SPACES AT
.125 BSC = 2.875 BSC
.725 BSC
.350 BSC
3.625 BSC
4.325 BSC
③
.103
.105 DIA
14 HOLES
⊕.002 DIA
⊥B .0005
.010 R MAX
4 PLACES
SURFACE "B"
5.694
5.698
MASTER

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. REMOVE BURRS AND SHARP EDGES .005/.015
3. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .130/.120
4. INSTALL FIND NUMBER 1, 2 AND 4 PER MS33646
5. COAT THREADS OF FIND NO 1, 2 AND 4 WITH MIL-P-8585 TYPE I, COLOR YELLOW
6. ALL SURFACES 125 UNLESS OTHERWISE SPECIFIED
7. MATL: ALUMINUM ALLOY 6061-T6 PER QQ-A-250/11, TEMP 6
8. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
9. TAP HOLE AFTER CHROMATE FINISH

QTY REQD	PART OR IDENTIFYING NO.
3	MS2120
1	2004135-
12	MS 2
9	MS 212
-011	

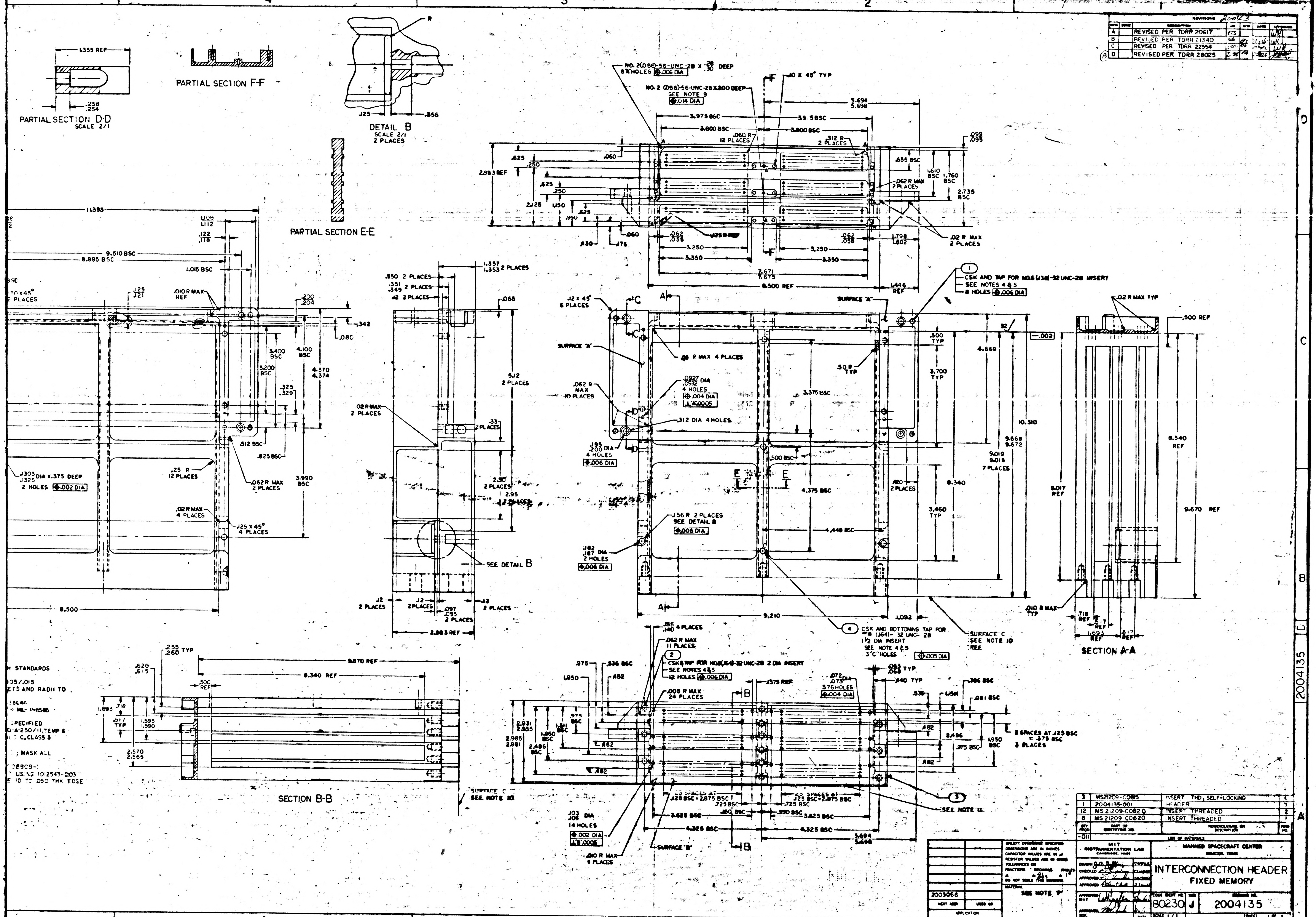
2003066	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± .01 .005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 7

MIT
INSTRUMENTATION
CAMBRIDGE

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED NASC



PARTIAL SECTION D-D
SCALE 2/1
PARTIAL SECTION F-F
DETAIL B
SCALE 2/1
2 PLACES
PARTIAL SECTION E-E
SECTION A-A
SECTION B-B
SURFACE "A"
SURFACE "B"
SURFACE C
SEE NOTE 10
SEE DETAIL B
CSK AND TAP FOR NO.6 (.138)-32 UNC-2B INSERT
SEE NOTES 4 & 5
8 HOLES
CSK & TAP FOR NO.8 (.164)-32 UNC-2B 2 DIA INSERT
SEE NOTES 4 & 5
12 HOLES
CSK AND BOTTOMING TAP FOR #8 (.164)-32 UNC-2B 1½ DIA INSERT
SEE NOTE 4 & 5
3 "C" HOLES
NO. 2 (.086)-56-UNC-2B X .200 DEEP
SEE NOTE 9
SEE NOTE 12
8.500 REF
9.210
9.670 REF
8.340 REF

H STANDARDS

05/.015
ETS AND RADII TO

33646
MIL-P-8585

SPECIFIED
Q-A-250/11, TEMP 6
C, CLASS 3

; MASK ALL

2BBC9-
USING 1012543-003
10 TO .050 THK EDGE

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20617				WR
B		REVISED PER TDRR 21340				WR
C		REVISED PER TDRR 22554				WR
D		REVISED PER TDRR 28025				

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
3	MS21209-C0815	INSERT THD, SELF-LOCKING	4
1	2004135-001	HEADER	3
12	MS 21209-C0820	INSERT THREADED	2
8	MS 21209-C0620	INSERT THREADED	1
-011			

LIST OF MATERIALS

2003066	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± .01 / .005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 7

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

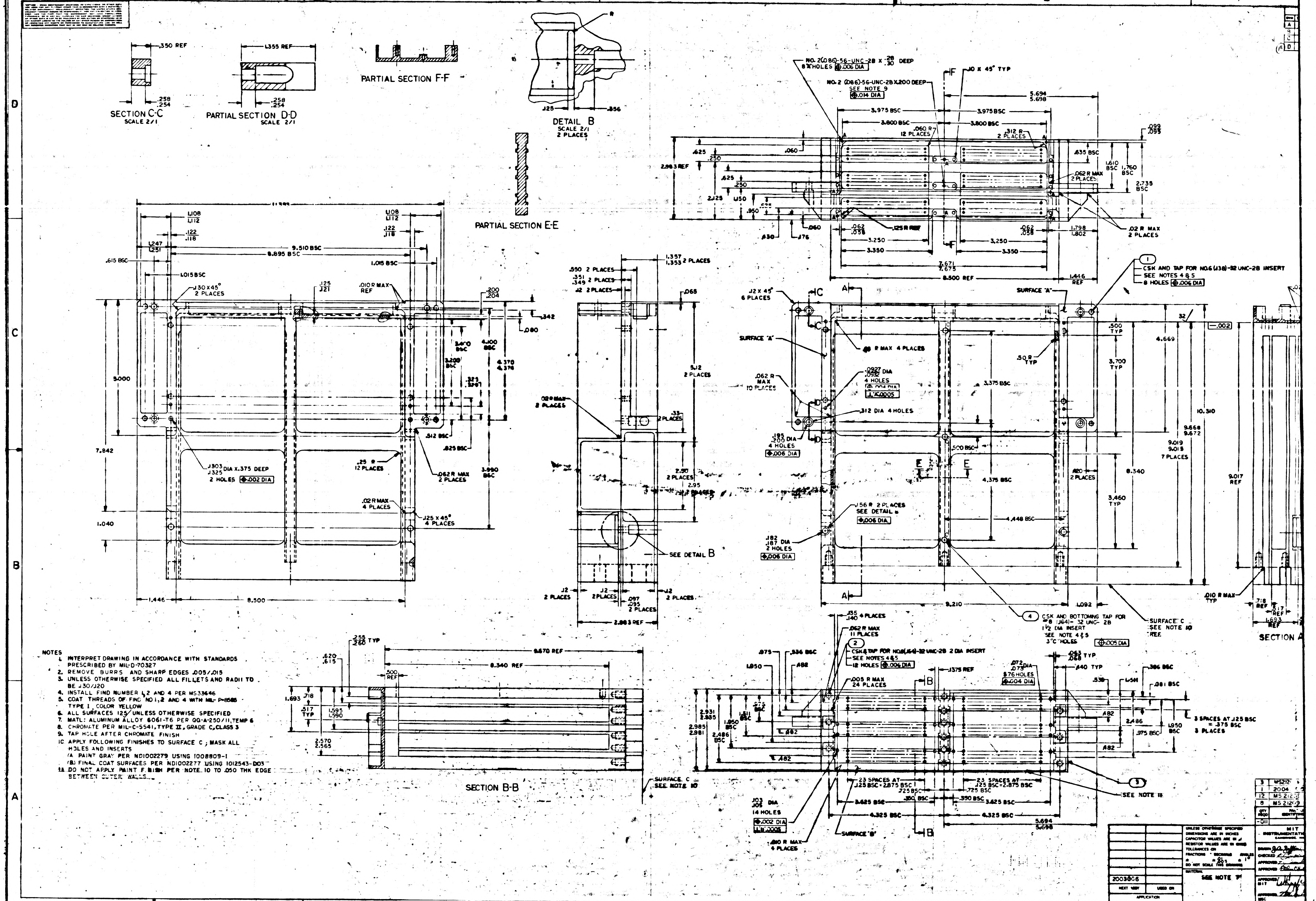
DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

INTERCONNECTION HEADER
FIXED MEMORY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004135
SCALE 1/1
SHEET 1 OF 1

2004135

2/2


SECTION C-C
SCALE 2/1
.350 REF
.258
.254
PARTIAL SECTION D-D
SCALE 2/1
1.355 REF
PARTIAL SECTION F-F
DETAIL B
SCALE 2/1
2 PLACES
.125
.856
PARTIAL SECTION E-E
NO. 2(.086)-56-UNC-2B X .28/.30 DEEP
8 HOLES ⌖.006 DIA
NO. 2 (.086)-56-UNC-2B X.200 DEEP
SEE NOTE 9
⌖.014 DIA
.10 X 45° TYP
3.975 BSC
3.800 BSC
5.694
5.698
.060 R
12 PLACES
.312 R
2 PLACES
.062 R MAX
2 PLACES
.02 R MAX
2 PLACES
.125 R
2.983 REF
1.610 BSC
1.760 BSC
2.735 BSC
.635 BSC
.099
.095
3.250
3.350
7.671
7.675
8.500 REF
1.446 REF
1.798
1.802
CSK AND TAP FOR NO.6 (.138)-32 UNC-2B INSERT
SEE NOTES 4 & 5
8 HOLES ⌖.006 DIA
SURFACE "A"
.12 X 45°
6 PLACES
.06 R MAX 4 PLACES
.0927 DIA
.0931
4 HOLES
.312 DIA 4 HOLES
.195
.200 DIA
4 HOLES
⌖.006 DIA
.50 R TYP
3.375 BSC
4.375 BSC
4.448 BSC
.500 BSC
.120
2 PLACES
.156 R 2 PLACES
SEE DETAIL B
⌖.006 DIA
.182
.187 DIA
2 HOLES
⌖.006 DIA
4.669
3.700 TYP
3.460 TYP
8.340
9.019
9.015
7 PLACES
9.668
9.672
10.310
9.017 REF
.010 R MAX TYP
9.210
1.092
CSK AND BOTTOMING TAP FOR #8 (.164)-32 UNC-2B
1 1/2 DIA INSERT
SEE NOTE 4 & 5
3 "C" HOLES
⌖.005 DIA
SURFACE C
SEE NOTE 10
REF
SECTION A
9.510 BSC
8.895 BSC
1.015 BSC
.615 BSC
1.108
1.112
.122
.118
1.247
1.251
.130 X 45°
2 PLACES
.125
.121
.010 R MAX REF
.200
.204
.342
.080
5.000
7.842
1.040
1.303
1.325 DIA X.375 DEEP
2 HOLES ⌖.002 DIA
.25 R
12 PLACES
.02 R MAX
4 PLACES
.125 X 45°
4 PLACES
.062 R MAX
2 PLACES
.512 BSC
.825 BSC
3.990 BSC
3.410 BSC
3.209 BSC
4.100 BSC
4.370
4.376
1.446
8.500
.550 2 PLACES
.351
.349 2 PLACES
.12 2 PLACES
1.357
1.353 2 PLACES
.065
5.12
2 PLACES
.02 R MAX
2 PLACES
.33
2 PLACES
2.50
2 PLACES
2.95
2 PLACES
SEE DETAIL B
.12
2 PLACES
.097
.095
2 PLACES
2.983 REF
9.670 REF
8.340 REF
.255
.260 TYP
.620
.615
.500 REF
1.693
.718
.517 TYP
1.595
1.590
2.570
2.565
SECTION B-B
SURFACE C
SEE NOTE 10
.135
.140 4 PLACES
.062 R MAX
11 PLACES
CSK & TAP FOR NO.8 (.164)-32 UNC-2B 2 DIA INSERT
SEE NOTES 4 & 5
12 HOLES ⌖.006 DIA
.005 R MAX
24 PLACES
.1375 REF
.072
.073 DIA
.576 HOLES
⌖.004 DIA
.063 TYP
.040 TYP
.386 BSC
.081 BSC
3 SPACES AT .125 BSC
= .375 BSC
3 PLACES
2.931
2.935
2.985
2.981
1.950 BSC
2.486 BSC
.975 BSC
.482
23 SPACES AT
.125 BSC = 2.875 BSC
.725 BSC
.350 BSC
3.625 BSC
4.325 BSC
5.694
5.698
.103
.105 DIA
14 HOLES
⌖.002 DIA
⊥.0005
SURFACE "B"
.010 R MAX
4 PLACES
SEE NOTE 11

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. REMOVE BURRS AND SHARP EDGES .005/.015
3. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .130/.120
4. INSTALL FIND NUMBER 1, 2 AND 4 PER MS33646
5. COAT THREADS OF FIND NO 1, 2 AND 4 WITH MIL-P-8585 TYPE I, COLOR YELLOW
6. ALL SURFACES 125√ UNLESS OTHERWISE SPECIFIED
7. MATL: ALUMINUM ALLOY 6061-T6 PER QQ-A-250/11, TEMP 6
8. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
9. TAP HOLE AFTER CHROMATE FINISH
10. APPLY FOLLOWING FINISHES TO SURFACE C; MASK ALL HOLES AND INSERTS
   (A) PAINT GRAY PER ND1002279 USING 1008809-1
   (B) FINAL COAT SURFACES PER ND1002277 USING 1012543-D03
11. DO NOT APPLY PAINT FINISH PER NOTE 10 TO .050 THK EDGE BETWEEN OUTER WALLS

QTY REQD	PART OR IDENTIFYING
3	MS212
1	2004
12	MS 21209
8	MS 21209
-011	

2003606	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± .01/.005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING

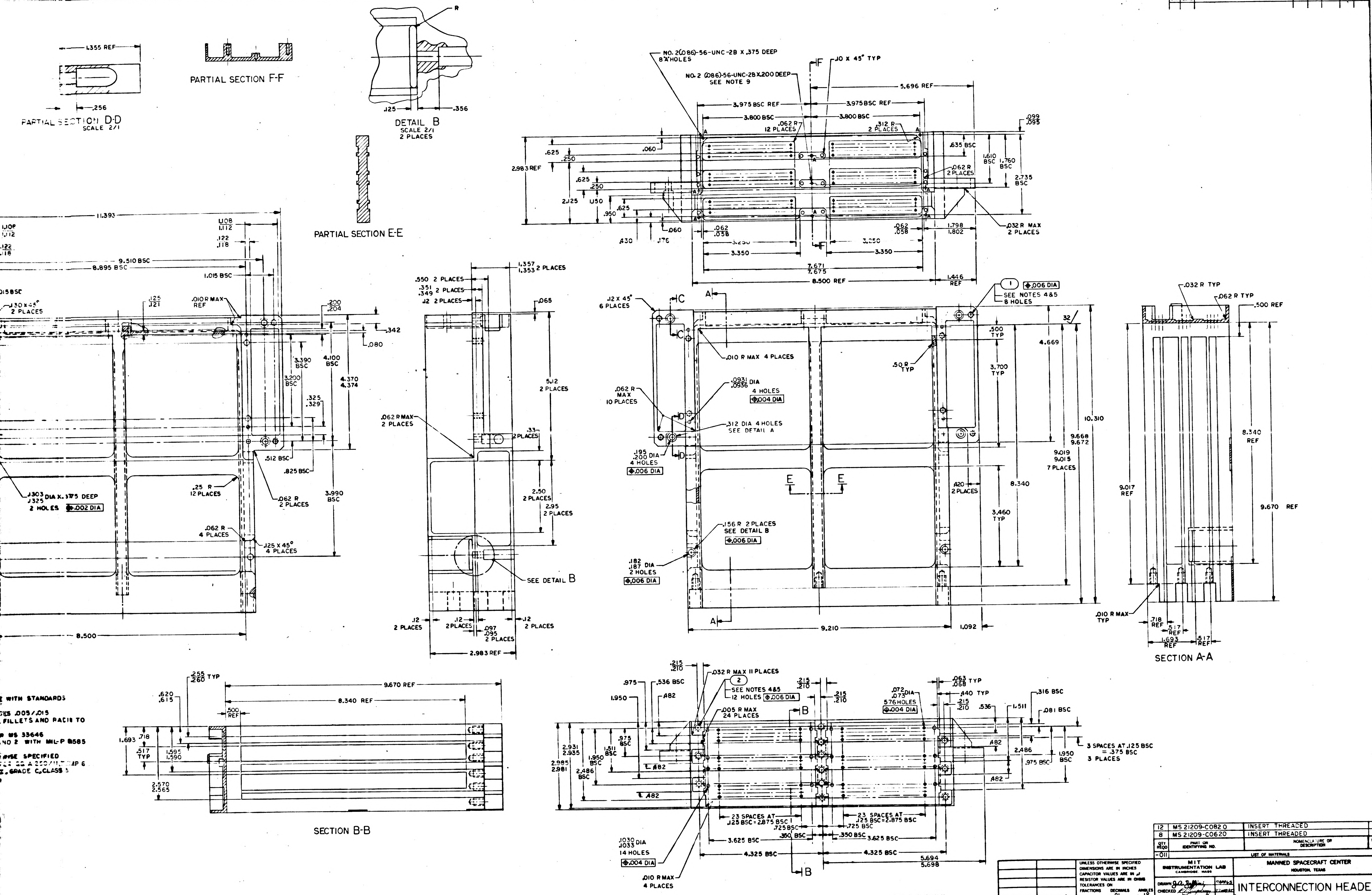
MATERIAL
SEE NOTE 7

MIT
INSTRUMENTATI
CAMBRIDGE, M

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED NASC

2004135 D F1/2

SYM	ZONE	REVISIONS 20043 DESCRIPTION	DR	CHK	DATE	APPROVED



PARTIAL SECTION D-D
SCALE 2/1
PARTIAL SECTION F-F
DETAIL B
SCALE 2/1
2 PLACES
PARTIAL SECTION E-E
SECTION A-A
SECTION B-B
NO. 2(.086)-56-UNC-2B X .375 DEEP
8 A HOLES
NO. 2 (.086)-56-UNC-2B X .200 DEEP
SEE NOTE 9
.10 X 45° TYP
5.696 REF
3.975 BSC REF
3.800 BSC
.062 R 12 PLACES
.312 R 2 PLACES
2.983 REF
7.671
7.675
8.500 REF
1.446 REF
.032 R MAX 2 PLACES
SEE NOTES 4&5
8 HOLES
.006 DIA
.010 R MAX 4 PLACES
.0931 DIA
.0936
4 HOLES
.004 DIA
.312 DIA 4 HOLES
SEE DETAIL A
.156 R 2 PLACES
SEE DETAIL B
.182
.187 DIA
2 HOLES
SEE DETAIL B
9.210
1.092
10.310
9.668
9.672
9.019
9.015
7 PLACES
8.340
.032 R TYP
.062 R TYP
.500 REF
9.017 REF
8.340 REF
9.670 REF
9.670 REF
8.340 REF
11.393
9.510 BSC
8.895 BSC
8.500
.303
.325 DIA X .375 DEEP
2 HOLES
.002 DIA
.25 R 12 PLACES
.125 X 45° 4 PLACES
.032 R MAX 11 PLACES
SEE NOTES 4&5
12 HOLES
.005 R MAX 24 PLACES
.072
.075 DIA
576 HOLES
23 SPACES AT .125 BSC = 2.875 BSC
3.625 BSC
4.325 BSC
5.694
5.698
.1030
.1033 DIA
14 HOLES
.010 R MAX 4 PLACES
3 SPACES AT .125 BSC = .375 BSC
3 PLACES

E WITH STANDARDS

GES .005/.015
, FILLETS AND RACII TO

MS 33646
NO 2 WITH MIL-P 8585

WISE SPECIFIED
A 250/11, TEMP 6
, GRADE C, CLASS 5

12	MS 21209-C0820	INSERT THREADED	2
8	MS 21209-C0620	INSERT THREADED	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
-011	LIST OF MATERIALS		

2003066	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± .01 .005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 7

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN J.A. Baffini 7APR65
CHECKED 22APR65
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INTERCONNECTION HEADER
FIXED MEMORY

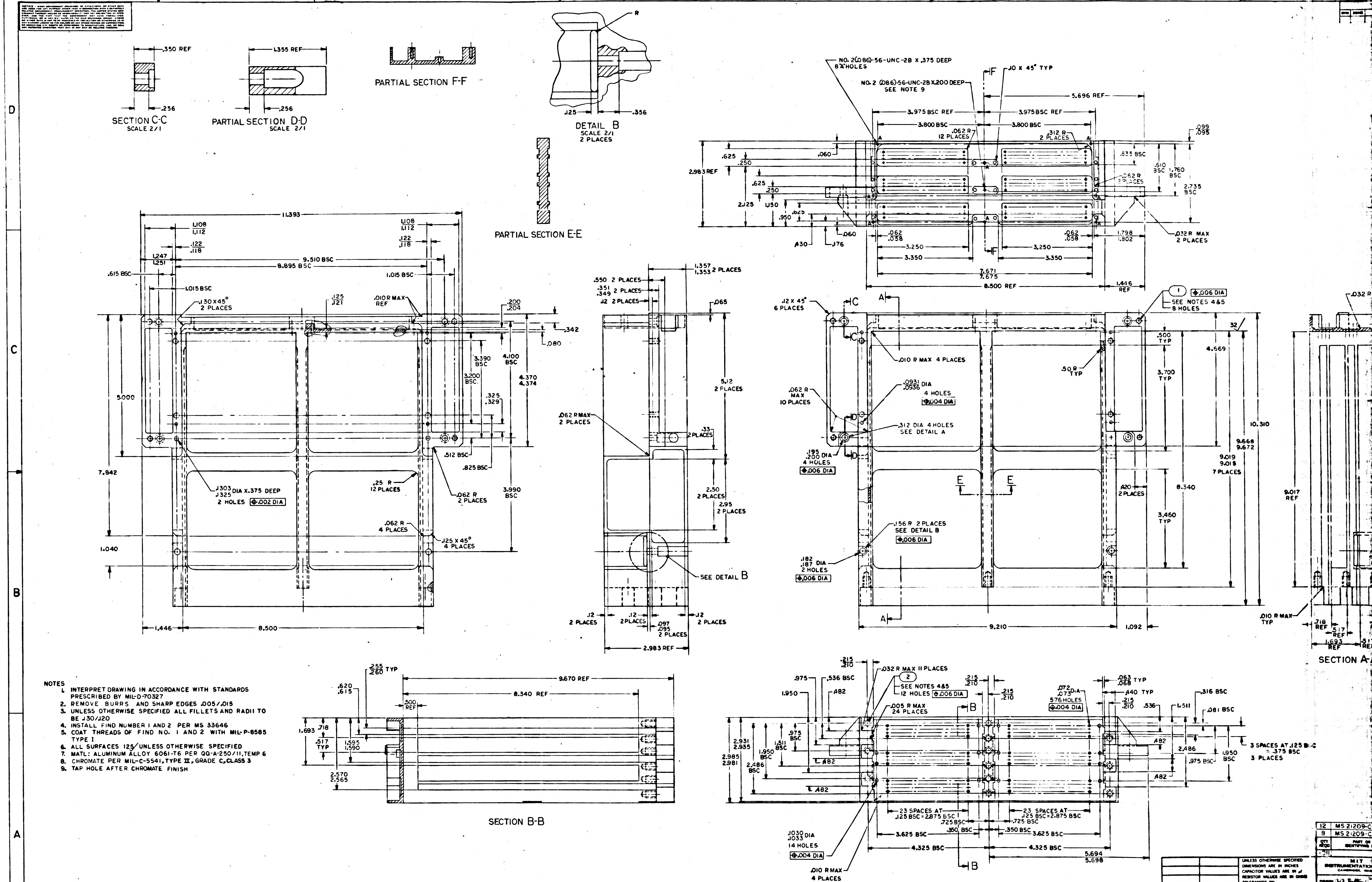
CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004135
SCALE 1/1
SHEET OF

MASTER

2004135

21

F2 2004135


SECTION C-C
SCALE 2/1
PARTIAL SECTION D-D
SCALE 2/1
PARTIAL SECTION F-F
DETAIL B
SCALE 2/1
2 PLACES
PARTIAL SECTION E-E
SECTION B-B
SECTION A-A
SEE DETAIL B
NO. 2(.086)-56-UNC-2B X .375 DEEP
8 HOLES
NO. 2 (.086)-56-UNC-2B X .200 DEEP
SEE NOTE 9
SEE NOTES 4&5
8 HOLES
SEE NOTES 4&5
12 HOLES
.312 DIA 4 HOLES
SEE DETAIL A
.156 R 2 PLACES
SEE DETAIL B
.303
.325 DIA X .375 DEEP
2 HOLES
11.393
9.510 BSC
8.895 BSC
8.500
9.210
9.670 REF
8.340 REF
2.983 REF
5.696 REF
8.500 REF
10.310

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. REMOVE BURRS AND SHARP EDGES .005/.015
3. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .130/.120
4. INSTALL FIND NUMBER 1 AND 2 PER MS 33646
5. COAT THREADS OF FIND NO. 1 AND 2 WITH MIL-P-8585 TYPE I
6. ALL SURFACES 125√ UNLESS OTHERWISE SPECIFIED
7. MATL: ALUMINUM ALLOY 6061-T6 PER QQ-A-250/11, TEMP 6
8. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
9. TAP HOLE AFTER CHROMATE FINISH

277

12	MS 21209-C
9	MS 21209-C
QTY REQD	PART OR IDENTIFYING
-011	

2003056	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± .01 .005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 7

MIT
INSTRUMENTATION
CAMBRIDGE

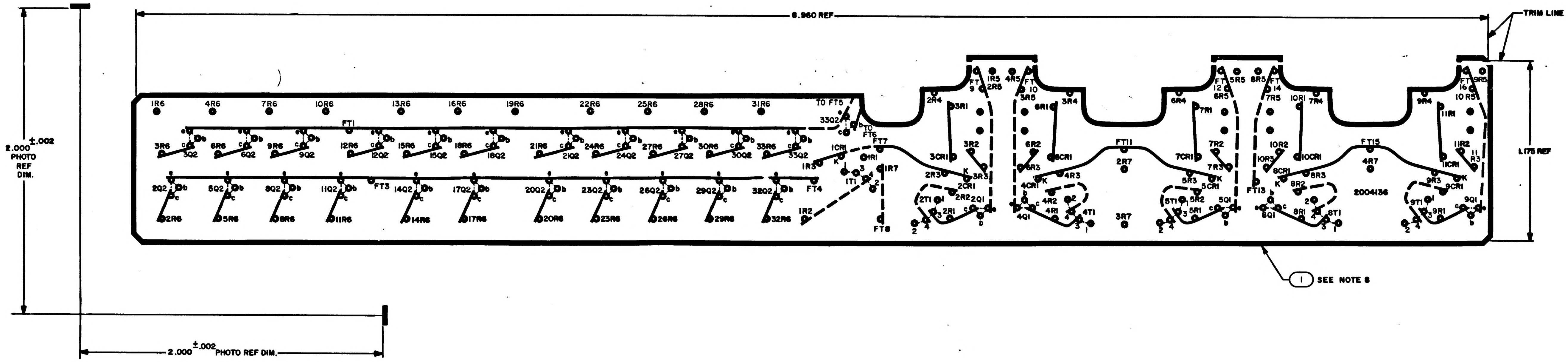
DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED NASA

MASTER

E-1 2004135

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20276						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED


8.960 REF
TRIM LINE
2.000 ±.002 PHOTO REF DIM.
2.000 ±.002 PHOTO REF DIM.
1.175 REF
1 SEE NOTE 8
2004136
1R6 4R6 7R6 10R6 13R6 16R6 19R6 22R6 25R6 28R6 31R6
TO FT5
FT1
3R6 3Q2 6R6 6Q2 9R6 9Q2 12R6 12Q2 15R6 15Q2 18R6 18Q2 21R6 21Q2 24R6 24Q2 27R6 27Q2 30R6 30Q2 33R6 33Q2
e b c
TO FT6
FT7
1CR1 1R1 1R3 K 1T1 1R7 1R2 FT4 FT8
FT3
2Q2 5Q2 8Q2 11Q2 14Q2 17Q2 20Q2 23Q2 26Q2 29Q2 32Q2
2R6 5R6 8R6 11R6 14R6 17R6 20R6 23R6 26R6 29R6 32R6
FT 9 1R5 2R5 4R5 FT 10 3R5
2R4 3R1 3R4 6R1
3R2 3CR1 2R3 3R3 2CR1 2R2 2T1 2R1 2Q1
6R2 6CR1 6R3 4R3 4CR1 4R2 4R1 4Q1 4T1
FT11 2R7 3R7
FT 12 5R5 8R5 FT 14 6R5 7R5
6R4 7R1 10R1 7R4
7R2 7CR1 7R3 5R3 5CR1 5T1 5R2 5R1 5Q1
10R2 10R3 10CR1 8CR1 8R3 8R2 FT13 8Q1 8R1 8T1
FT15 4R7
FT 16 9R5 10 R5 9R4 11R1
11R2 11 R3 11CR1 9R3 9CR1 9T1 9R1 9Q1
1 2 3 4

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: FILM .006/.008 THK SENSITIZED DIMENSIONALLY STABLE PER L-F-340, TYPE IB, CLASS 2 STYLE 1A
3. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
4. MAKE MASTER PATTERN POSITIVE FILMS TO DIMENSIONS SHOWN
5. CUT TO WITHIN .010 OF TRIM LINE
6. ● .040/.050 DIA HOLE
7. BROKEN LINE DENOTES SLEEVING
8. APPLY FIND NO. 2 TO FAR SIDE OF FIND NO. 1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006318	ADHESIVE	2
1	2004136-001	INSULATOR	1
-011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003070	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	W. F. Tracy	5/26/65
CHECKED		
APPROVED		
APPROVED	Eldon C. Hall	
APPROVED MIT		
APPROVED MSC		
		DATE

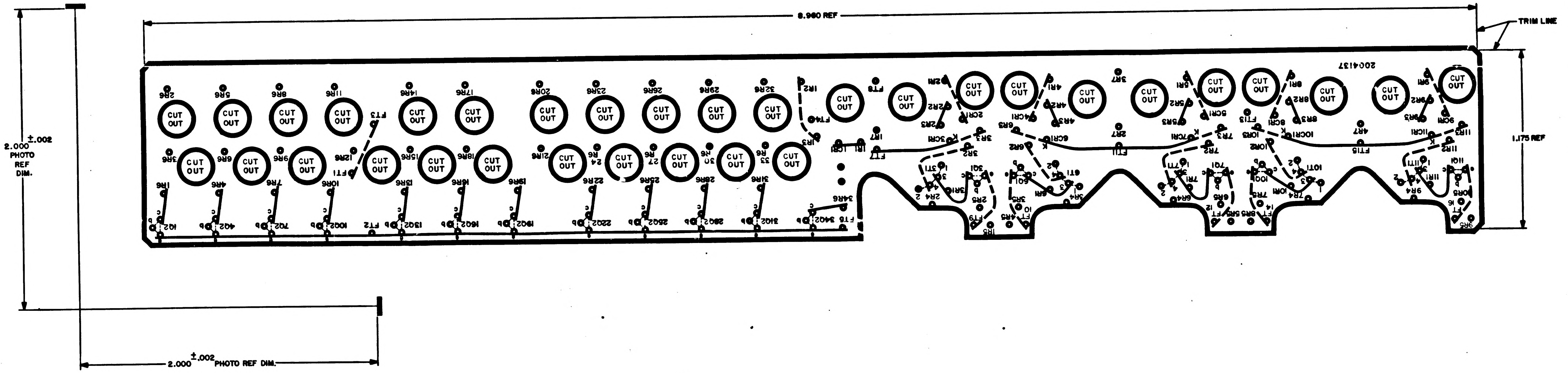
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSULATOR A
PHOTOGRAPHIC MASTER
INTERFACE MODULE A25-26

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2004136
SCALE 4/1		SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 2070						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED


8.960 REF
TRIM LINE
1.175 REF
2.000 ±.002 PHOTO REF DIM.
2.000 ±.002 PHOTO REF DIM.
2004137
CUT OUT
2R6
5R6
8R6
11R6
14R6
17R6
20R6
23R6
26R6
29R6
32R6
3R6
6R6
9R6
12R6
15R6
18R6
21R6
24 R6
27 R6
30 R6
33 R6
1R6
4R6
7R6
10R6
13R6
16R6
19R6
22R6
25R6
28R6
31R6
34R6
1Q2
4Q2
7Q2
10Q2
13Q2
16Q2
19Q2
22Q2
25Q2
28Q2
31Q2
34Q2
FT1
FT2
FT3
FT6
FT7
FT8
FT9
FT10
FT11
FT12
FT13
FT14
FT15
FT16
1R1
1R2
1R3
1R5
1R7
1CR1
2M
2R2
2R3
2R4
2R5
2R7
2CR1
3R2
3R3
3R5
3R7
3CR1
3T1
3Q1
4R1
4R2
4R3
4R5
4R7
4CR1
5R1
5R2
5R3
5R5
5CR1
6R1
6R2
6R3
6R4
6R5
6CR1
6T1
6Q1
7R1
7R2
7R3
7R5
7CR1
7T1
7Q1
8R1
8R2
8R3
8R5
8CR1
9R1
9R2
9R3
9R4
9R5
9CR1
10R2
10R3
10R4
10R5
10CR1
10T1
10Q1
11R1
11R2
11R3
11CR1
11T1
11Q1
b
c
K

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: FILM, .006/.008 THK SENSITIZED DIMENSIONALLY STABLE PER L-F-340, TYPE IB, CLASS 2, STYLE IA
3. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
4. MAKE MASTER PATTERN POSITIVE FILMS TO DIMENSIONS SHOWN
5. CUT TO WITHIN .010 OF TRIM LINE
6. ● .040/.050 DIA HOLE
7. BROKEN LINE DENOTES SLEEVING
8. ALL CUTOUTS TO BE .20/.22 DIA

Q REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003070	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	W. F. Tracy	15JUN65
CHECKED	R. Lipponi	17JUN65
APPROVED		18JUN65
APPROVED	Eldon C. Hall	
APPROVED MIT	W Kupfer	
APPROVED MSC		4-4-65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSULATOR B
PHOTOGRAPHIC MASTER
INTERFACE MODULE A25–26

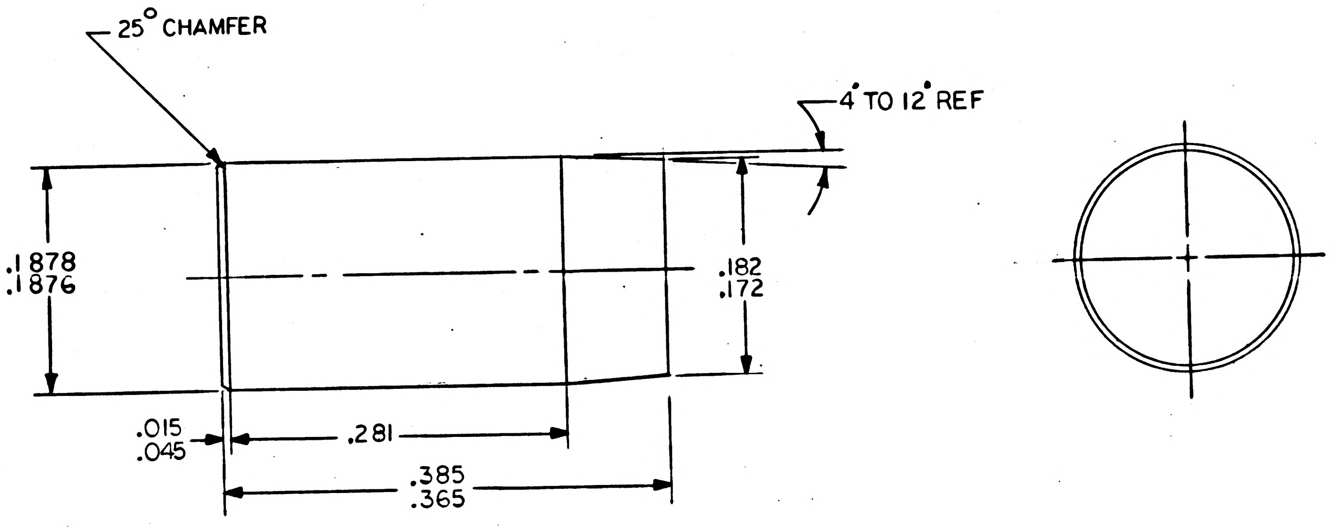
CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2004137
SCALE 4/1		SHEET 1 OF 1

2004137

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 21166

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: CRES PER QQ-S-763 CLASS 416 COND A
3. PASSIVATE PER MIL-F-14072 FINISH E 300 TYPE II
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND 1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003074	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ±.005 ANGLES ± 5°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	Louis A Lowe	2 June '65
CHECKED	A. Lindstrom	8 July '65
APPROVED		
APPROVED	Eldon C Hall	20 July 65
APPROVED MIT	W Kupfer	27 Jul 65
APPROVED MSC		
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

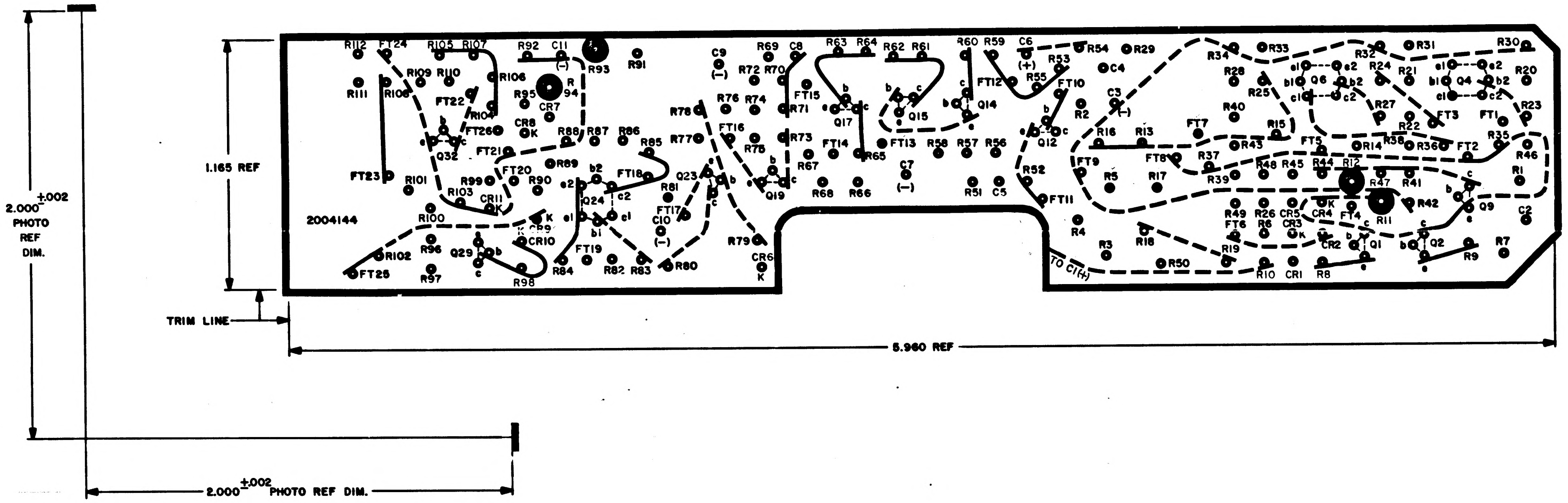
PIN HEADLESS
DOWEL

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004139
SCALE 10/1		SHEET 1 OF 1

NOTICE WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20405

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20865				



R112
FT24
R105
R107
R92
C11
(−)
R93
R91
C9
(−)
R69
C8
R63
R64
R62
R61
R60
R59
C6
(+)
R53
R54
R29
R34
R33
R32
R31
R30
R111
R108
R109
R110
R106
R95
R
94
CR7
R72
R70
FT15
R55
FT12
FT10
C4
R28
R25
e1
b1
c1
Q6
e2
b2
c2
R24
R21
Q4
R20
FT22
R104
FT26
CR8
K
R88
R87
R86
R85
R78
R77
R76
R74
R71
R73
e
b
c
Q17
Q15
Q14
Q12
R2
C3
(−)
R40
R27
FT3
FT1
R23
Q32
FT21
FT16
R75
FT14
FT13
R58
R57
R56
R16
R13
FT7
R15
R43
FT5
R14
R22
R38
R36
FT2
R35
R46
FT23
R101
R99
FT20
R89
R90
FT18
Q23
Q19
R67
R65
C7
(−)
R52
FT9
R5
FT8
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R45
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R12
R47
R41
R1
1.165 REF
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CR11
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FT17
C10
(−)
R68
R66
R51
C5
FT11
R42
Q9
C2
2004144
R100
CR9
CR10
R79
CR6
K
R4
R49
FT6
R26
R6
CR5
CR3
CR4
FT4
R11
Q1
Q2
R7
R102
R96
Q29
R98
R84
FT19
R82
R83
R80
R3
R18
R19
R50
R10
CR1
R8
R9
FT25
R97
TO C1(+)
TRIM LINE
5.960 REF
2.000 ±.002 PHOTO REF DIM.
2.000 ±.002 PHOTO REF DIM.

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: FILM, .006/.008 THICK SENSITIZED DIMENSIONALLY STABLE PER L-F-340, TYPE IB, CLASS 2, STYLE IA
3. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
4. CUT TO WITHIN .010 OF TRIMLINE
5. BROKEN LINE DENOTES SLEEVING
6. ● .040/.050 DIA HOLE
7. ◉ .120/.130 DIA HOLE
8. MAKE MASTER PATTERN POSITIVE FILM TO DIMENSIONS SHOWN

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

NEXT ASSY	USED ON
2003069	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Ed Powers
CHECKED
APPROVED
APPROVED Ellen C Hall
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSULATOR A
PHOTOGRAPHIC MASTER
ALARM MODULE

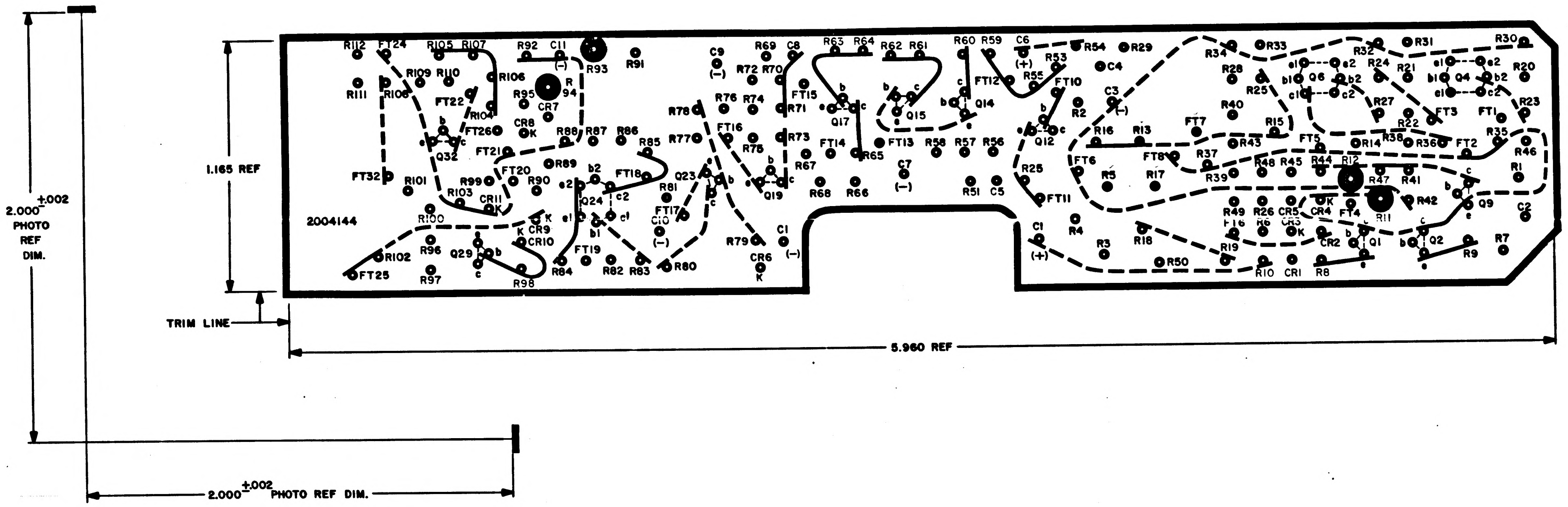
CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2004144

SCALE 4/1 SHEET 1 OF

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 2045

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED


2.000 ±.002 PHOTO REF DIM.
1.165 REF
2004144
TRIM LINE
5.960 REF
2.000 ±.002 PHOTO REF DIM.
R112 FT24 R105 R107 R92 C11 (–) R93 R91 C9 (–) R69 C8 R63 R64 R62 R61 R60 R59 C6 (+) R54 R29 R34 R33 R32 R31 R30
R111 R108 R109 R110 R106 R95 R94 CR7 FT22 R104 CR8 K FT26 R88 R87 R86 R85 R72 R70 R76 R74 R71 R78 R77 FT15 FT16 R73 R75 Q17 Q15 Q14 FT12 R55 R53 FT10 C4 C3 (–) R28 R25 R40 R15 Q6 R24 R21 Q4 R20 R27 R22 FT3 FT1 R23
Q32 FT21 FT20 R89 FT18 Q23 Q24 Q19 FT14 FT13 R58 R57 R56 R65 Q12 R2 R16 R13 FT7 R43 FT5 R14 R38 R36 FT2 R35 R46
FT32 R101 R99 R90 R103 CR11 K R81 FT17 C10 (–) R67 R68 R66 C7 (–) R51 C5 R25 FT6 R5 R17 FT8 R37 R39 R48 R45 R44 R12 R47 R41 R1 Q9 C2
R100 CR9 K CR10 K Q29 R96 R102 FT25 R97 R98 R84 FT19 R82 R83 R80 R79 CR6 K C1 (–) FT11 C1 (+) R4 R3 R18 R50 R49 F16 R26 R6 CR5 CR3 CR4 FT4 R11 R42 R19 R10 CR1 CR2 R8 Q1 Q2 R9 R7
b c e e1 e2 b1 b2 c1 c2 K

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: FILM, .006/.008 THICK SENSITIZED DIMENSIONALLY STABLE PER L-F-340, TYPE IB, CLASS 2, STYLE IA
3. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
4. CUT TO WITHIN .010 OF TRIMLINE
5. BROKEN LINE DENOTES SLEEVING
6. ⊙ .040/.050 DIA HOLE
7. ● .120/.130 DIA HOLE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003069	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Ed Powers
CHECKED
APPROVED
APPROVED Ellen C Hall
APPROVED MIT
APPROVED MSC
DATE

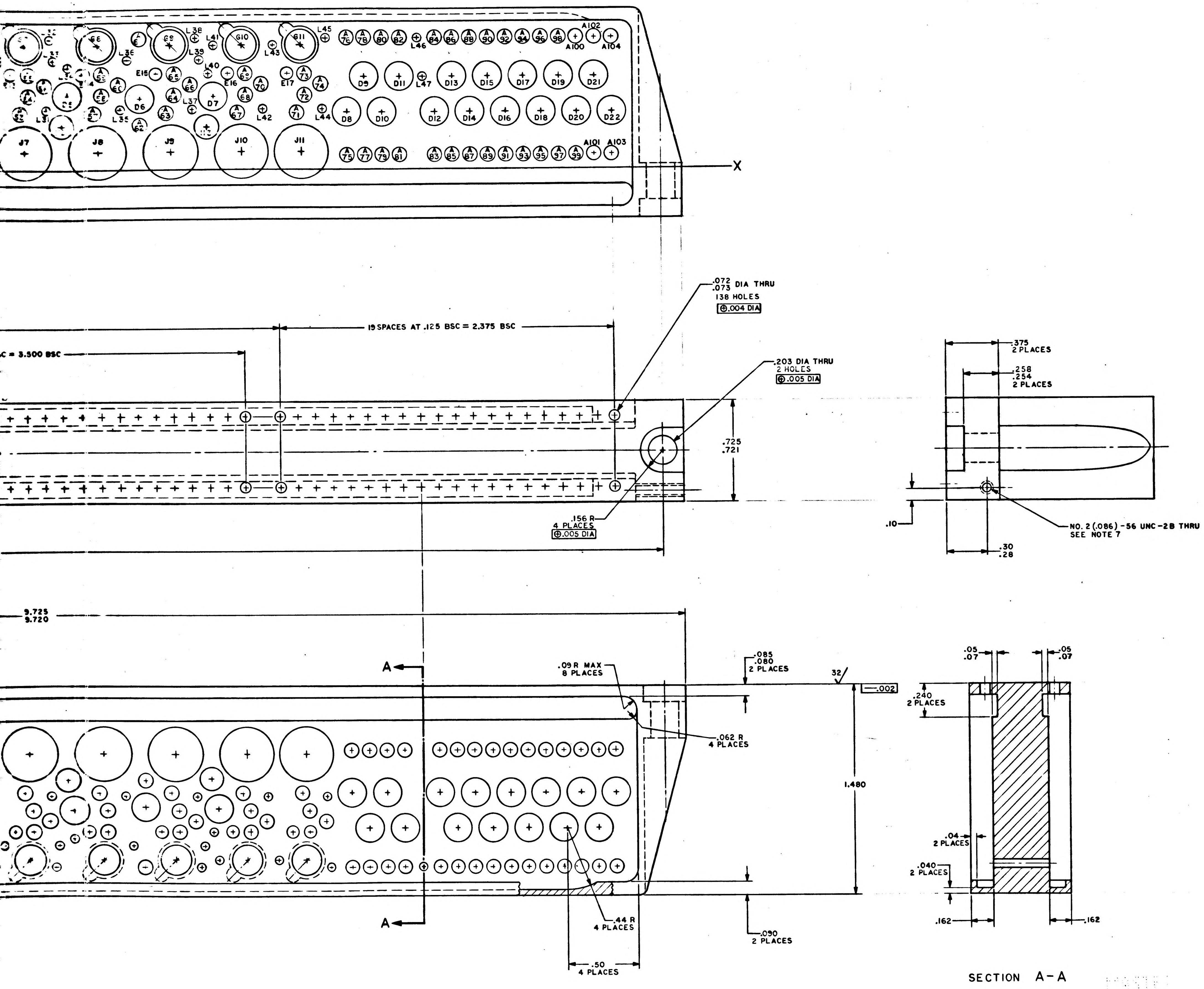
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSULATOR A PHOTOGRAPHIC MASTER
ALARM MODULE

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2004144
SCALE 4/1
SHEET 1 OF 1

2004144

REVISIONS			20615			
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 21344				



.072 .073 DIA THRU
138 HOLES
⊕.004 DIA
19 SPACES AT .125 BSC = 2.375 BSC
SC = 3.500 BSC
.203 DIA THRU
2 HOLES
⊕.005 DIA
.725 .721
.156 R
4 PLACES
⊕.005 DIA
.375
2 PLACES
.258 .254
2 PLACES
.10
NO. 2 (.086) -56 UNC-2B THRU
SEE NOTE 7
.30 .28
9.725 9.720
A
.09 R MAX
8 PLACES
.085 .080
2 PLACES
32
.002
.062 R
4 PLACES
1.480
.44 R
4 PLACES
.50
4 PLACES
.090
2 PLACES
.05 .07
.05 .07
.240
2 PLACES
.04
2 PLACES
.040
2 PLACES
.162
.162
SECTION A-A
X
J7
J8
J9
J10
J11
A102
A100
A104
A101
A103
L45
L46
L47
L43
L44
L42
L41
L40
L39
L38
L37
L36
L35
E15
E16
E17
D6
D7
D8
D9
D10
D11
D12
D13
D14
D15
D16
D17
D18
D19
D20
D21
D22

3H

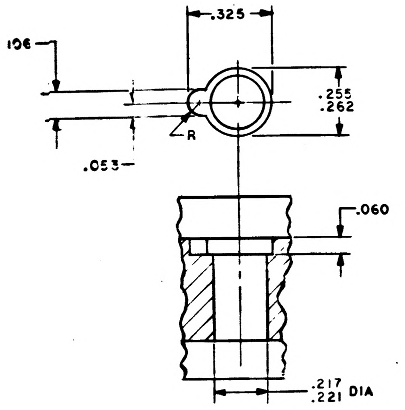
2004145 A

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES CAPACITOR VALUES ARE IN μf RESISTOR VALUES ARE IN OHMS TOLERANCES ON FRACTIONS ± — DECIMALS XXX±.005 XX±.02 ANGLES ±1° DO NOT SCALE THIS DRAWING
2003007		MATERIAL SEE NOTE 2
NEXT ASSY	USED ON	
APPLICATION		

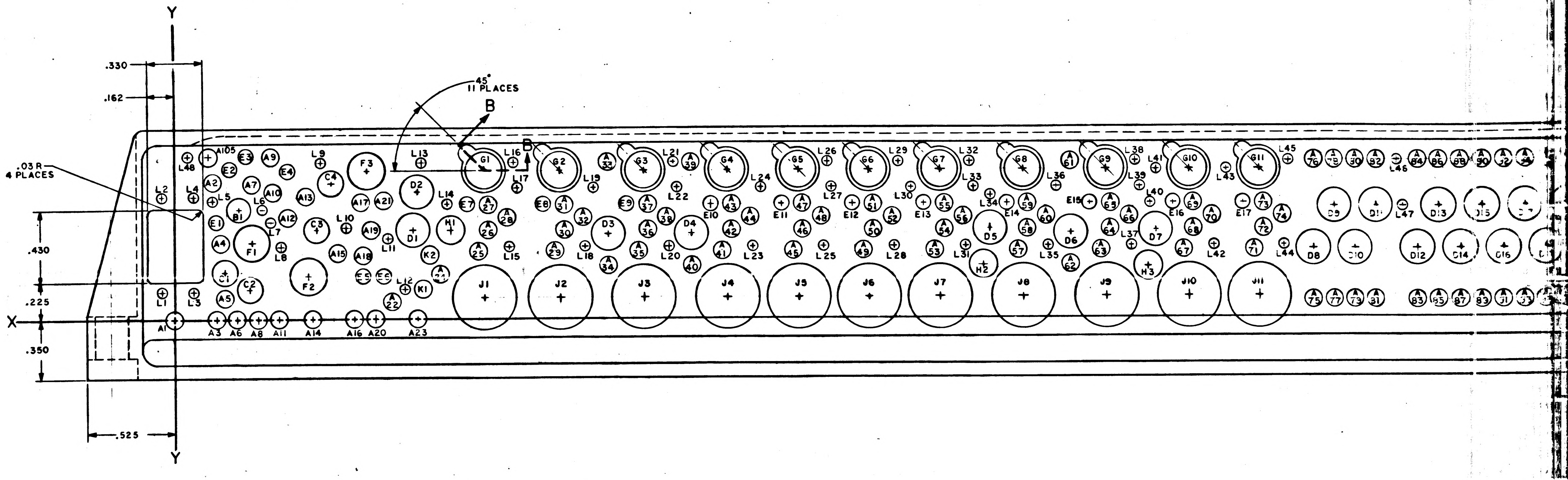
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

MIT INSTRUMENTATION LAB CAMBRIDGE, MASS	MANNED SPACECRAFT CENTER HOUSTON, TEXAS		
DRAWN Leroy G. Abdalon · Jun '65 CHECKED · 29 Jun 65 APPROVED APPROVED Eldon C. Hall	HEADER HOUSING INTERFACE MODULE A27-29		
APPROVED MIT · July 65 APPROVED MSC · 7/7 DATE	CODE IDENT NO. 80230	SIZE J	DRAWING NO. 2004145
	SCALE 4/1		SHEET 1 OF 1


.325
.106
.255
.262
R
.053
.060
.217
.221 DIA

SECTION B-B


Y
.330
.162
.03 R
4 PLACES
.430
.225
X
.350
.525
Y
45°
11 PLACES
B
B
A105
L48
L2
L4
L1
L3
A1
A3
A6
A8
A11
A14
A16
A20
A23
E1
E2
E3
E4
A2
A4
A5
A7
A9
A10
A12
A13
A15
A17
A18
A19
A21
A22
B1
C1
C2
C3
C4
F1
F2
F3
D1
D2
H1
K1
K2
G1
G2
G3
G4
G5
G6
G7
G8
G9
G10
G11
J1
J2
J3
J4
J5
J6
J7
J8
J9
J10
J11
D3
D4
D5
D6
D7
D8
D12
D13
D14
D16
H2
H3
L5
L6
L7
L8
L9
L10
L11
L12
L13
L14
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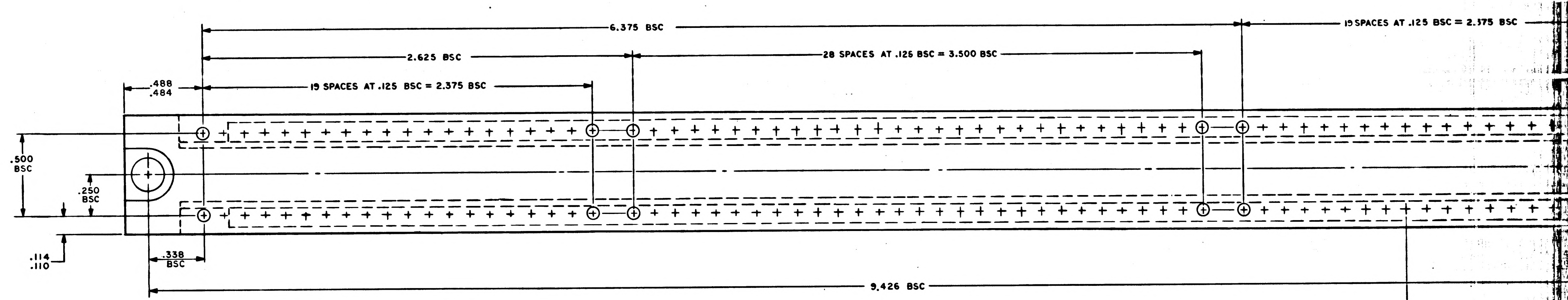
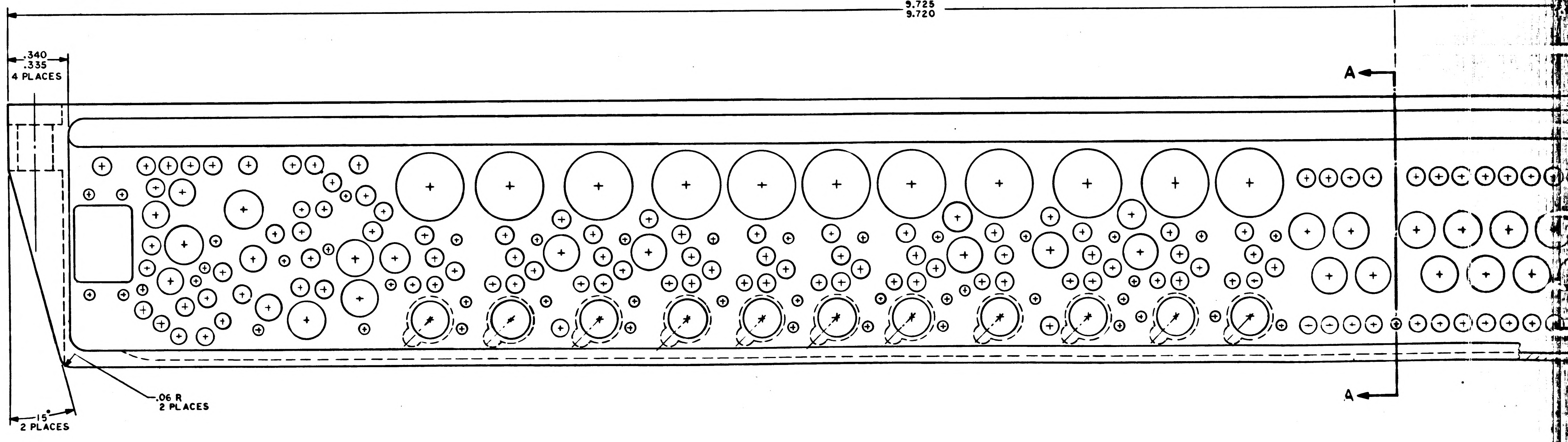
E16
E17


6.375 BSC
19 SPACES AT .125 BSC = 2.375 BSC
2.625 BSC
28 SPACES AT .125 BSC = 3.500 BSC
.488
.484
19 SPACES AT .125 BSC = 2.375 BSC
.500
BSC
.250
BSC
.114
.110
.338
BSC
9.426 BSC

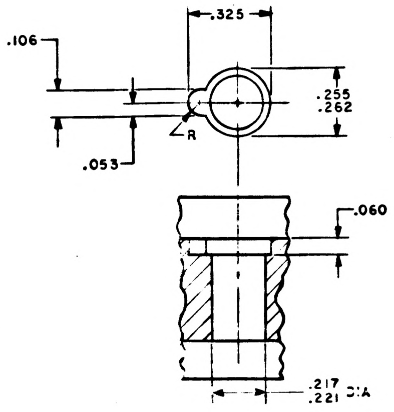

9.725
9.720
.340
.335
4 PLACES
A
A
.06 R
2 PLACES
15°
2 PLACES

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

HOLE IDENT	X DIM.	Y DIM.	HOLE DIA	QTY
A1	.000	.000	.100 .104	105
A2	.225	.812		
A3	.250	.000		
A4	.275	.450		
A5	.300	.125		
A6	.375	.000		
A7	.462	.800		
A8	.500	.000		
A9	.575	.962		
A10	.587	.750		
A11	.625	.000		
A12	.680	.600		
A13	.787	.725		
A14	.825	.000		
A15	.975	.387		
A16	1.075	.000		
A17	1.112	.687		
A18	1.125	.375		
A19	1.175	.525		
A20	1.200	.000		
A21	1.250	.700		
A22	1.300	.100		
A23	1.450	.000		
A24	1.605	.262		
A25	1.820	.400		
A26	1.875	.525		
A27	1.875	.670		
A28	1.987	.600		
A29	2.270	.400		
A30	2.325	.525		
A31	2.325	.670		
A32	2.437	.600		
A33	2.565	.925		
A34	2.587	.312		
A35	2.770	.400		
A36	2.825	.525		
A37	2.825	.670		
A38	2.937	.600		
A39	3.080	.925		
A40	3.087	.312		
A41	3.270	.400		
A42	3.325	.525		
A43	3.325	.670		
A44	3.437	.600		
A45	3.695	.400		
A46	3.750	.525		
A47	3.750	.670		
A48	3.862	.600		
A49	4.120	.400		
A50	4.175	.525		
A51	4.175	.670		
A52	4.287	.600		
A53	4.545	.400		
A54	4.600	.525		
A55	4.600	.670		
A56	4.712	.600		
A57	5.045	.400		
A58	5.100	.525		
A59	5.100	.670		
A60	5.212	.600		
A61	5.345	.925		
A62	5.362	.312		
A63	5.545	.400		
A64	5.600	.525		
A65	5.600	.670		
A66	5.712	.600		
A67	6.045	.400		
A68	6.100	.525		
A69	6.100	.670		
A70	6.212	.600		
A71	6.470	.400		
A72	6.525	.525		
A73	6.525	.670		
A74	6.637	.600		
A75	6.825	.100		
A76	6.825	.925		
A77	6.950	.100		
A78	6.950	.925		
A79	7.075	.100		
A80	7.075	.925		
A81	7.200	.100		
A82	7.200	.925		
A83	7.450	.100		
A84	7.450	.925		
A85	7.575	.100		
A86	7.575	.925		
A87	7.700	.100		
A88	7.700	.925		
A89	7.825	.100		
A90	7.825	.925		
A91	7.950	.100		
A92	7.950	.925		
A93	8.075	.100		
A94	8.075	.925		
A95	8.200	.100		
A96	8.200	.925		
A97	8.325	.100		
A98	8.325	.925		
A99	8.450	.100		
A100	8.450	.925		
A101	8.575	.100		
A102	8.575	.925		
A103	8.700	.100		
A104	8.700	.925		
A105	.200	.962		

HOLE IDENT	X DIM.	Y DIM.	HOLE DIA	QTY
B1	.380	.650	.143 .147	1
C1	.300	.275	.153 .157	4
C2	.450	.175		
C3	.850	.525		
C4	.937	.800		
D1	1.425	.525	.202 .206	22
D2	1.450	.750		
D3	2.587	.500		
D4	3.087	.500		
D5	4.875	.525		
D6	5.362	.500		
D7	6.875	.512		
D8	6.825	.400		
D9	6.950	.650		
D10	7.075	.400		
D11	7.200	.650		
D12	7.450	.400		
D13	7.575	.650		
D14	7.700	.400		
D15	7.825	.650		
D16	7.950	.400		
D17	8.075	.650		
D18	8.200	.400		
D19	8.325	.650		
D20	8.450	.400		
D21	8.575	.650		
D22	8.700	.400		
E1	.250	.575	.088 .092	17
E2	.329	.890		
E3	.425	.962		
E4	.675	.875		
E5	1.125	.250		
E6	1.250	.250		
E7	1.750	.670		
E8	2.200	.670		
E9	2.700	.670		
E10	3.200	.670		
E11	3.625	.670		
E12	4.050	.670		
E13	4.475	.670		
E14	4.975	.670		
E15	5.475	.670		
E16	5.975	.670		
E17	6.400	.670		
F1	.462	.450	.217 .221	3
F2	.800	.250		
F3	1.150	.875		
G1	1.850	.875	SEE SECT B-B	11
G2	2.300	.875		
G3	2.795	.875		
G4	3.310	.875		
G5	3.725	.875		
G6	4.150	.875		
G7	4.575	.875		
G8	5.075	.875		
G9	5.575	.875		
G10	6.075	.875		
G11	6.500	.875		

HOLE IDENT	X DIM.	Y DIM.	HOLE DIA	QTY
H1	1.650	.525	.168 .172	3
H2	4.835	.315		
H3	5.825	.300		
J1	1.850	.125	.384 .391	11
J2	2.300	.125		
J3	2.800	.125		
J4	3.300	.125		
J5	3.725	.125		
J6	4.150	.125		
J7	4.575	.125		
J8	5.075	.125		
J9	5.575	.125		
J10	6.075	.125		
J11	6.500	.125		
K1	1.487	.175	.108 .112	2
K2	1.525	.370		
L1	−.075	.162	.058 .062	48
L2	−.075	.725		
L3	.112	.162		
L4	.112	.725		
L5	.225	.700		
L6	.525	.650		
L7	.575	.575		
L8	.637	.425		
L9	.875	.925		
L10	1.025	.537		
L11	1.275	.475		
L12	1.375	.180		
L13	1.475	.925		
L14	1.625	.670		
L15	2.000	.425		
L16	2.030	.925		
L17	2.050	.775		
L18	2.445	.425		
L19	2.500	.775		
L20	2.945	.425		
L21	2.975	.925		
L22	3.000	.775		
L23	3.450	.425		
L24	3.500	.775		
L25	3.875	.425		
L26	3.905	.925		
L27	3.925	.775		
L28	4.300	.425		
L29	4.330	.925		
L30	4.400	.775		
L31	4.725	.425		
L32	4.755	.925		
L33	4.775	.775		
L34	4.875	.725		
L35	5.220	.425		
L36	5.275	.775		
L37	5.725	.425		
L38	5.755	.925		
L39	5.775	.775		
L40	5.837	.670		
L41	5.875	.875		
L42	6.225	.425		
L43	6.300	.875		
L44	6.650	.425		
L45	6.680	.925		
L46	7.325	.925		
L47	7.362	.650		
L48	.075	.962		

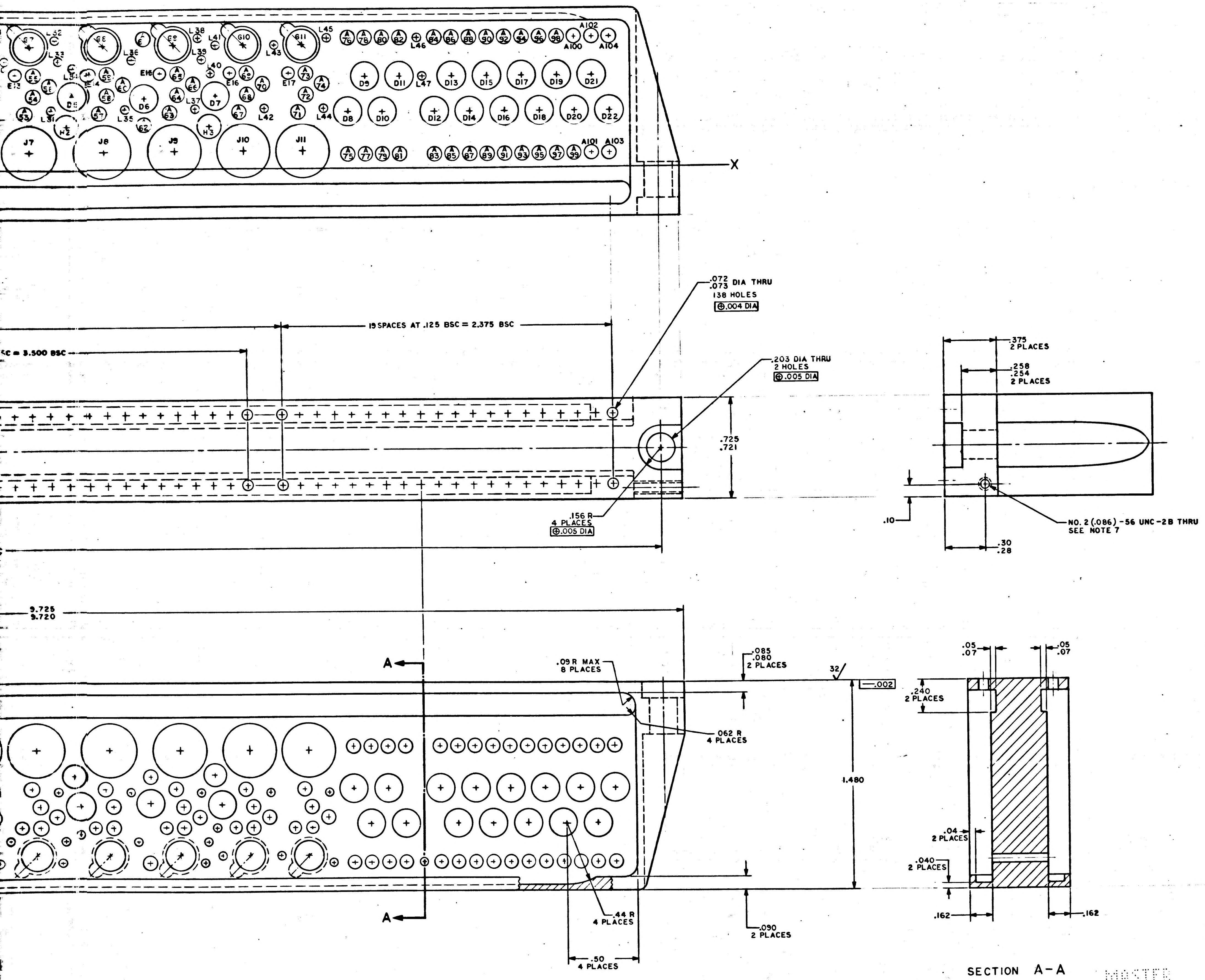


SECTION B-B

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: MAGNESIUM ZK60A-T5 PER QQ-M-31, TEMP 5
3. ANODIZE PER MIL-M-45202, TYPE I, CLASS C
4. ALL SURFACES 125√ UNLESS OTHERWISE SPECIFIED
5. REMOVE BURRS AND SHARP EDGES .005 /.015
6. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .010 MAX
7. TAP HOLE AFTER ANODIZE. COAT PER ND1002040
8. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

REVISIONS 20615						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



J7
J8
J9
J10
J11
D6
D7
D8
D9
D10
D11
D12
D13
D14
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D16
D17
D18
D19
D20
D21
D22
L38
L41
L45
L43
L46
L47
L44
L42
L39
L40
L37
L35
E16
E17
A100
A101
A102
A103
A104
X
.072 / .073 DIA THRU
138 HOLES
⊕ .004 DIA
19 SPACES AT .125 BSC = 2.375 BSC
SC = 3.500 BSC
.203 DIA THRU
2 HOLES
⊕ .005 DIA
.725
.721
.156 R
4 PLACES
⊕ .005 DIA
.375
2 PLACES
.258
.254
2 PLACES
.10
NO. 2 (.086) -56 UNC-2B THRU
SEE NOTE 7
.30
.28
9.725
9.720
A
A
.09 R MAX
8 PLACES
.085
.080
2 PLACES
32
.002
.062 R
4 PLACES
1.480
.44 R
4 PLACES
.50
4 PLACES
.090
2 PLACES
.05
.07
.05
.07
.240
2 PLACES
.04
2 PLACES
.040
2 PLACES
.162
.162
SECTION A-A

MASTER

34

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003067	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS XXX ± .005 XX ± .02 ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
CHECKED
APPROVED
APPROVED Elton C. Hall
APPROVED MIT
APPROVED MSC 7/9
DATE

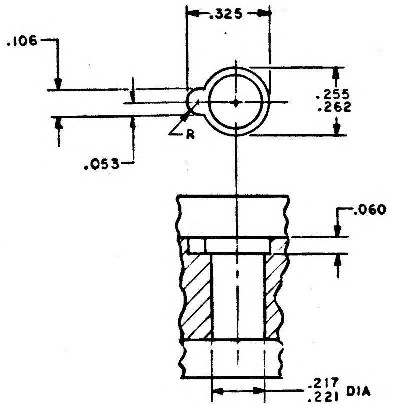
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HEADER HOUSING
INTERFACE MODULE
A27-29

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004145
SCALE 4/1
SHEET 1 OF 1

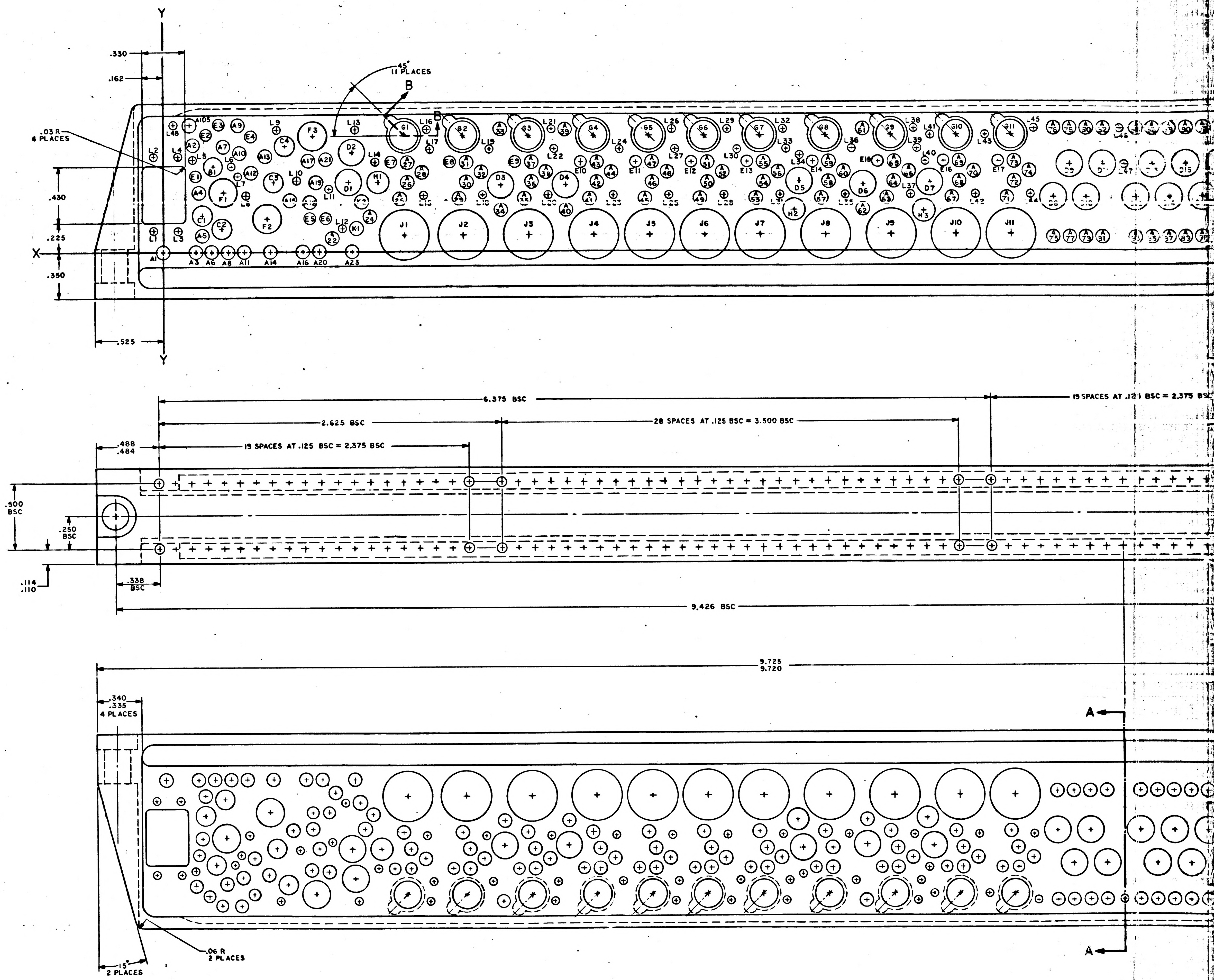
E3

QTY
3
11
2
48



.325
.106
.255
.262
R
.053
.060
.217
.221 DIA

SECTION B-B



8
7
6
5
4
Y
.330
.162
45°
11 PLACES
B
B
.03 R
4 PLACES
.430
.225
X
.350
.525
Y
A1
A3
A6
A8
A11
A14
A16
A20
A23
A105
L2
L4
L1
L3
L48
E1
E2
E3
E4
E5
E6
F1
F2
F3
C1
C2
C3
C4
D1
D2
K1
H1
G1
G2
G3
G4
G5
G6
G7
G8
G9
G10
G11
J1
J2
J3
J4
J5
J6
J7
J8
J9
J10
J11
6.375 BSC
2.625 BSC
19 SPACES AT .125 BSC = 2.375 BSC
28 SPACES AT .125 BSC = 3.500 BSC
19 SPACES AT .125 BSC = 2.375 BSC
.488
.484
.500
BSC
.250
BSC
.114
.110
.338
BSC
9.426 BSC
9.725
9.720
.340
.335
4 PLACES
A
A
.06 R
2 PLACES
15°
2 PLACES

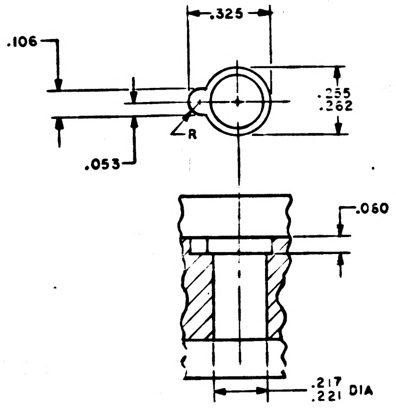
200445

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

HOLE IDENT	X DIM.	Y DIM.	HOLE DIA	QTY
A1	.000	.000	.100 .104	105
A2	.225	.812		
A3	.250	.000		
A4	.275	.450		
A5	.300	.125		
A6	.375	.000		
A7	.462	.800		
A8	.500	.000		
A9	.575	.962		
A10	.587	.750		
A11	.625	.000		
A12	.680	.600		
A13	.787	.725		
A14	.825	.000		
A15	.975	.387		
A16	1.075	.000		
A17	1.112	.687		
A18	1.125	.375		
A19	1.175	.525		
A20	1.200	.000		
A21	1.250	.700		
A22	1.300	.100		
A23	1.450	.000		
A24	1.605	.262		
A25	1.820	.400		
A26	1.875	.525		
A27	1.875	.670		
A28	1.987	.600		
A29	2.270	.400		
A30	2.325	.525		
A31	2.325	.670		
A32	2.437	.600		
A33	2.565	.925		
A34	2.587	.312		
A35	2.770	.400		
A36	2.825	.525		
A37	2.825	.670		
A38	2.937	.600		
A39	3.080	.925		
A40	3.087	.312		
A41	3.270	.400		
A42	3.325	.525		
A43	3.325	.670		
A44	3.437	.600		
A45	3.695	.400		
A46	3.750	.525		
A47	3.750	.670		
A48	3.862	.600		
A49	4.120	.400		
A50	4.175	.525		
A51	4.175	.670		
A52	4.287	.600		
A53	4.545	.400		
A54	4.600	.525		
A55	4.600	.670		
A56	4.712	.600		
A57	5.045	.400		
A58	5.100	.525		
A59	5.100	.670		
A60	5.212	.600		
A61	5.345	.925		
A62	5.362	.312		
A63	5.545	.400		
A64	5.600	.525		
A65	5.600	.670		
A66	5.712	.600		
A67	6.045	.400		
A68	6.100	.525		
A69	6.100	.670		
A70	6.212	.600		
A71	6.470	.400		
A72	6.525	.525		
A73	6.525	.670		
A74	6.637	.600		
A75	6.825	.100		
A76	6.825	.925		
A77	6.950	.100		
A78	6.950	.925		
A79	7.075	.100		
A80	7.075	.925		
A81	7.200	.100		
A82	7.200	.925		
A83	7.450	.100		
A84	7.450	.925		
A85	7.575	.100		
A86	7.575	.925		
A87	7.700	.100		
A88	7.700	.925		
A89	7.825	.100		
A90	7.825	.925		
A91	7.950	.100		
A92	7.950	.925		
A93	8.075	.100		
A94	8.075	.925		
A95	8.200	.100		
A96	8.200	.925		
A97	8.325	.100		
A98	8.325	.925		
A99	8.450	.100		
A100	8.450	.925		
A101	8.575	.100		
A102	8.575	.925		
A103	8.700	.100		
A104	8.700	.925		
A105	.200	.962		

HOLE IDENT	X DIM.	Y DIM.	HOLE DIA	QTY
B1	.380	.650	.143 .147	1
C1	.300	.275	.153 .157	4
C2	.450	.175		
C3	.850	.525		
C4	.937	.800		
D1	1.425	.525	.202 .206	22
D2	1.450	.750		
D3	2.587	.500		
D4	3.087	.500		
D5	4.875	.525		
D6	5.362	.500		
D7	5.875	.512		
D8	6.825	.400		
D9	6.950	.650		
D10	7.075	.400		
D11	7.200	.650		
D12	7.450	.400		
D13	7.575	.650		
D14	7.700	.400		
D15	7.825	.650		
D16	7.950	.400		
D17	8.075	.650		
D18	8.200	.400		
D19	8.325	.650		
D20	8.450	.400		
D21	8.575	.650		
D22	8.700	.400		
E1	.250	.575	.088 .092	17
E2	.329	.890		
E3	.425	.962		
E4	.675	.875		
E5	1.125	.250		
E6	1.250	.250		
E7	1.750	.670		
E8	2.200	.670		
E9	2.700	.670		
E10	3.200	.670		
E11	3.625	.670		
E12	4.050	.670		
E13	4.475	.670		
E14	4.975	.670		
E15	5.475	.670		
E16	5.975	.670		
E17	6.400	.670		
F1	.462	.450	.217 .221	3
F2	.800	.250		
F3	1.150	.875		
G1	1.850	.875	SEE SECT B-B	11
G2	2.300	.875		
G3	2.795	.875		
G4	3.310	.875		
G5	3.725	.875		
G6	4.150	.875		
G7	4.575	.875		
G8	5.075	.875		
G9	5.575	.875		
G10	6.075	.875		
G11	6.500	.875		

HOLE IDENT	X DIM.	Y DIM.	HOLE DIA	QTY
H1	1.650	.525	.168 .172	3
H2	4.835	.315		
H3	5.825	.300		
J1	1.850	.125	.384 .391	11
J2	2.300	.125		
J3	2.800	.125		
J4	3.300	.125		
J5	3.725	.125		
J6	4.150	.125		
J7	4.575	.125		
J8	5.075	.125		
J9	5.575	.125		
J10	6.075	.125		
J11	6.500	.125		
K1	1.487	.175	.108 .112	2
K2	1.525	.370		
L1	−.075	.162	.058 .062	48
L2	−.075	.725		
L3	.112	.162		
L4	.112	.725		
L5	.225	.700		
L6	.525	.650		
L7	.575	.575		
L8	.637	.425		
L9	.875	.925		
L10	1.025	.537		
L11	1.275	.475		
L12	1.375	.180		
L13	1.475	.925		
L14	1.625	.670		
L15	2.000	.425		
L16	2.030	.925		
L17	2.050	.775		
L18	2.445	.425		
L19	2.500	.775		
L20	2.945	.425		
L21	2.975	.925		
L22	3.000	.775		
L23	3.450	.425		
L24	3.500	.775		
L25	3.875	.425		
L26	3.905	.925		
L27	3.925	.775		
L28	4.300	.425		
L29	4.330	.925		
L30	4.400	.775		
L31	4.725	.425		
L32	4.755	.925		
L33	4.775	.775		
L34	4.875	.725		
L35	5.220	.425		
L36	5.275	.775		
L37	5.725	.425		
L38	5.755	.925		
L39	5.775	.775		
L40	5.837	.670		
L41	5.875	.875		
L42	6.225	.425		
L43	6.300	.875		
L44	6.650	.425		
L45	6.680	.925		
L46	7.325	.925		
L47	7.362	.650		
L48	.075	.962		



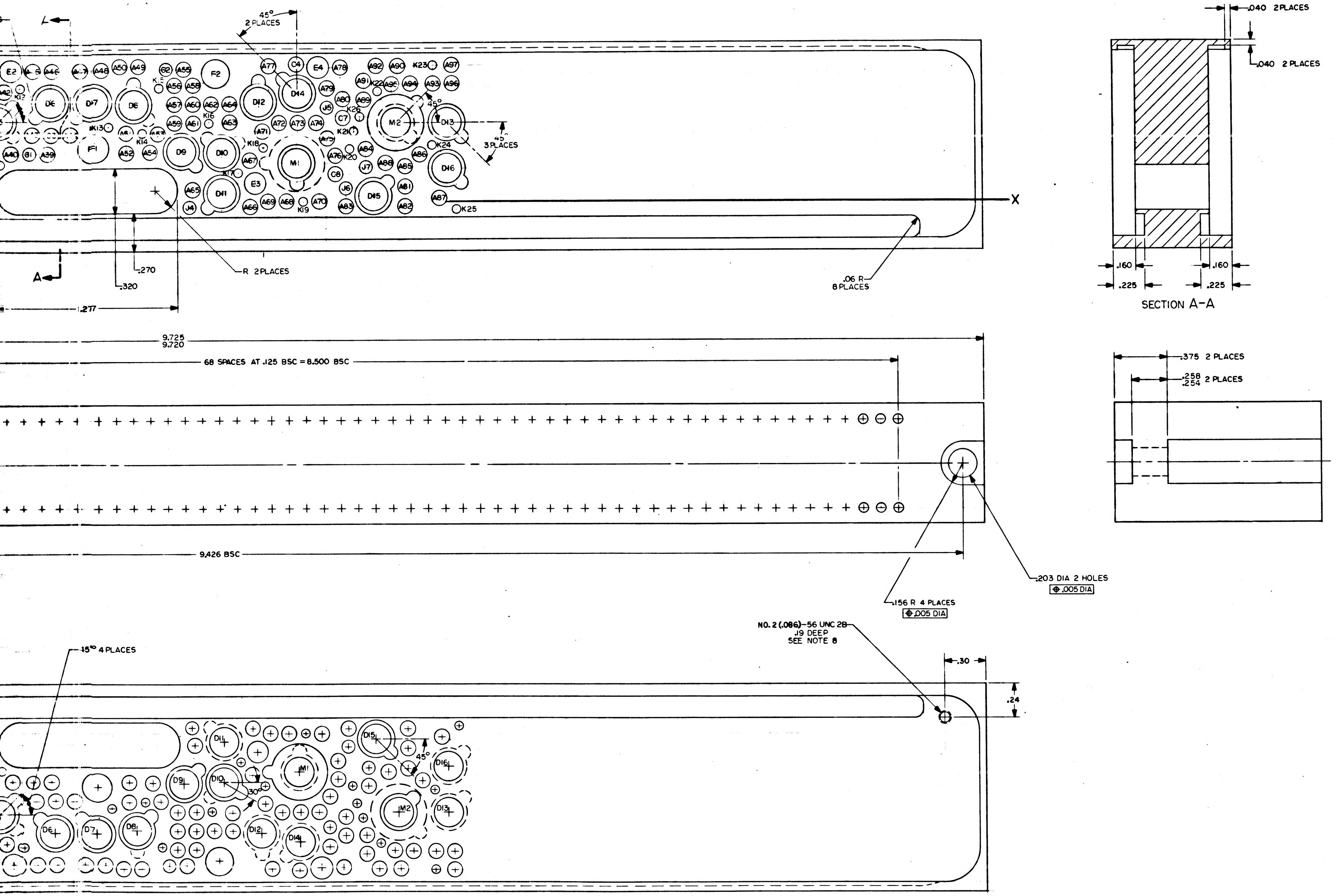
SECTION B-B

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: MAGNESIUM ZK60A-T5 PER QQ-M-31, TEMP 5
3. ANODIZE PER MIL-M-45202, TYPE I, CLASS C
4. ALL SURFACES 125√ UNLESS OTHERWISE SPECIFIED
5. REMOVE BURRS AND SHARP EDGES .005/.015
6. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .010 MAX
7. TAP HOLE AFTER ANODIZE. COAT PER ND1002040
8. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

3X

REVISIONS 20405						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20865				



45°
2 PLACES
45°
3 PLACES
A
X
R 2 PLACES
.270
.320
.277
.06 R
8 PLACES
.040 2 PLACES
.040 2 PLACES
.160
.160
.225
.225
SECTION A-A
.375 2 PLACES
.258
.254 2 PLACES
9.725
9.720
68 SPACES AT .125 BSC = 8.500 BSC
9.426 BSC
.203 DIA 2 HOLES
⊕ .005 DIA
.156 R 4 PLACES
⊕ .005 DIA
NO. 2 (.086)-56 UNC 2B
.19 DEEP
SEE NOTE 8
.30
.24
15° 4 PLACES
30°
45°
E2
D6
D7
D8
D9
D10
D11
D12
D13
D14
D15
D16
F1
F2
M1
M2
E3
E4
C4
K24
K25

3H

2004146 A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

2003032	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS XXX ±.005 XX ±.02 ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

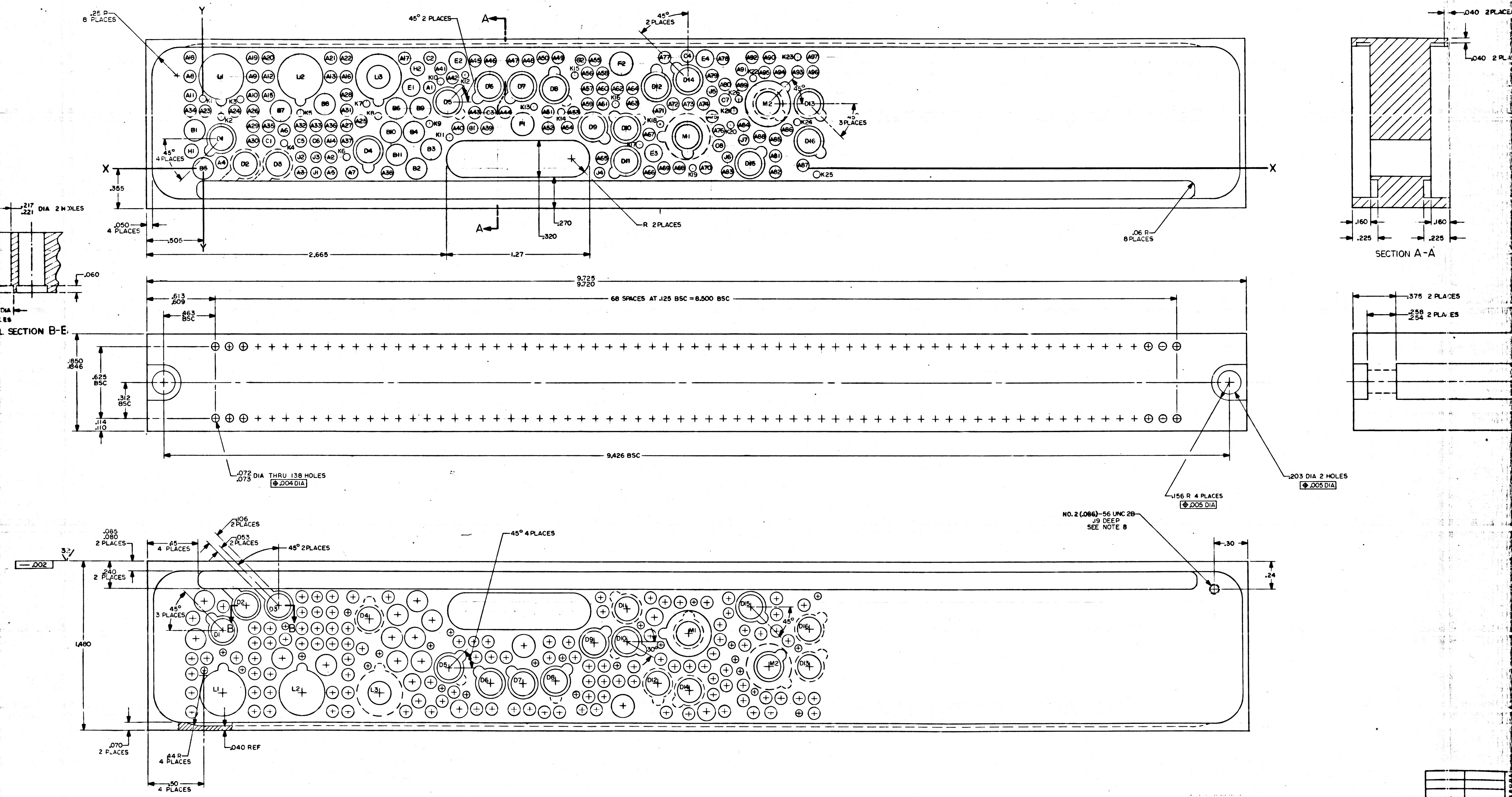
MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN		
CHECKED		
APPROVED		
APPROVED		
APPROVED MIT		6-28-65
APPROVED MSC		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HEADER HOUSING
ALARM MODULE

CODE IDENT NO	SIZE	DRAWING NO.
8C230	J	2004146
SCALE 4/1		SHEET 1 OF 1



6
5
4
3
2
.25 R
8 PLACES
Y
45° 2 PLACES
A
45°
2 PLACES
.040 2 PLACES
.040 2 PL
L1
L2
L3
M1
M2
F1
F2
45°
3 PLACES
45°
4 PLACES
X
X
.355
.217
.221 DIA 2 HOLES
.050
4 PLACES
.505
Y
.270
.320
R 2 PLACES
.06 R
8 PLACES
2.665
1.27
.160
.160
.225
.225
SECTION A-A
.060
SECTION B-B
9.725
9.720
.613
.609
68 SPACES AT .125 BSC = 8.500 BSC
.463
BSC
.375 2 PLACES
.258
.254 2 PLACES
.850
.846
.625
BSC
.312
BSC
.114
.110
9.426 BSC
.072
.073 DIA THRU 138 HOLES
⊕ .004 DIA
.203 DIA 2 HOLES
⊕ .005 DIA
.156 R 4 PLACES
⊕ .005 DIA
NO. 2 (.086)-56 UNC 2B
.19 DEEP
SEE NOTE 8
.106
2 PLACES
.053
2 PLACES
45° 2 PLACES
45° 4 PLACES
.085
.080
2 PLACES
.45
4 PLACES
.002
32
.240
2 PLACES
.30
.24
1.480
45°
3 PLACES
B
B
30°
.070
2 PLACES
.44 R
4 PLACES
.040 REF
.50
4 PLACES

MASTER

2004146 A

32

NEXT ASSY | USED ON

APPLICATION

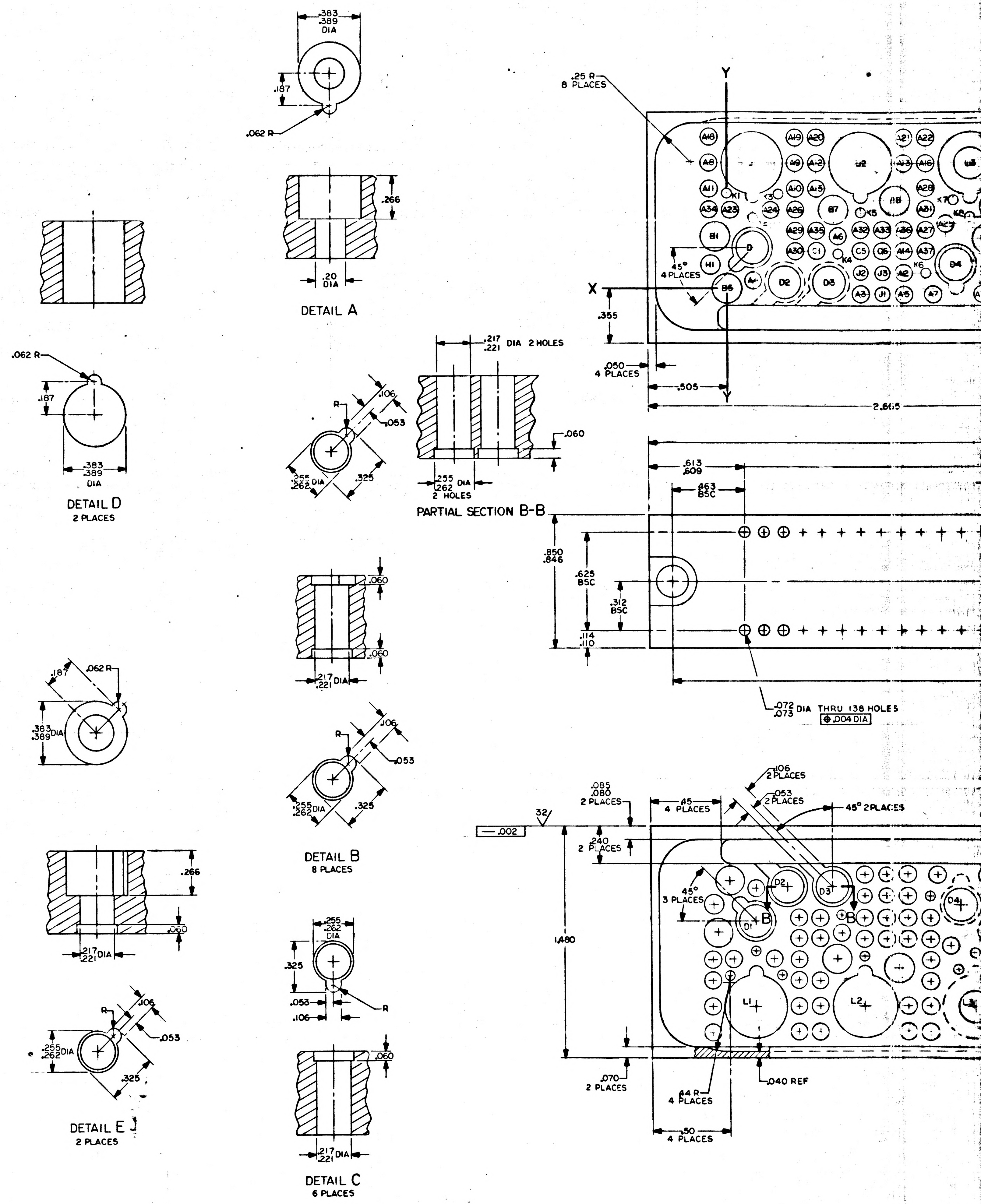
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

HOLE IDENT	X DIM.	Y DIM.	HOLE DIA	QTY
A1	2.005	.710	.100 .104	97
A2	1.135	.100		
A3	.865	−.035		
A4	.165	.050		
A5	1.135	−.035		
A6	.720	.335		
A7	1.320	−.035		
A8	−.115	.805		
A9	.445	.805		
A10	.445	.640		
A11	−.115	.640		
A12	.580	.805		
A13	1.135	.805		
A14	1.135	.240		
A15	.580	.640		
A16	1.275	.805		
A17	1.785	.965		
A18	−.115	.970		
A19	.445	.965		
A20	.580	.965		
A21	1.135	.965		
A22	1.275	.965		
A23	.020	.500		
A24	.285	.500		
A25	1.400	.415		
A26	.445	.505		
A27	1.275	.375		
A28	1.275	.645		
A29	.445	.370		
A30	.445	.240		
A31	1.275	.510		
A32	.865	.375		
A33	1.000	.375		
A34	−.115	.505		
A35	.580	.370		
A36	1.135	.375		
A37	1.275	.240		
A38	1.630	−.035		
A39	2.520	.350		
A40	2.260	.350		
A41	2.105	.870		
A42	2.215	.790		
A43	2.410	.485		
A44	2.680	.485		
A45	2.415	.940		
A46	2.550	.940		
A47	2.750	.940		
A48	2.885	.940		
A49	3.150	.965		
A50	3.015	.965		
A51	3.060	.490		
A52	3.060	.350		
A53	3.290	.485		
A54	3.230	.355		
A55	3.480	.945		
A56	3.410	.830		
A57	3.410	.695		
A58	3.545	.830		
A59	3.410	.560		
A60	3.545	.695		
A61	3.545	.560		
A62	3.675	.695		
A63	3.810	.565		
A64	3.810	.695		
A65	3.540	.085		
A66	3.955	−.035		
A67	3.955	.295		
A68	4.220	.000		
A69	4.085	.000		
A70	4.455	.000		
A71	4.045	.500		
A72	4.165	.560		
A73	4.300	.560		
A74	4.435	.560		
A75	4.515	.450		
A76	4.570	.325		
A77	4.095	.965		
A78	4.610	.955		
A79	4.510	.805		
A80	4.625	.730		
A81	5.070	.105		
A82	5.070	−.035		
A83	4.645	−.035		
A84	4.790	.375		
A85	5.070	.250		
A86	5.175	.335		
A87	5.315	.025		
A88	4.930	.275		
A89	4.775	.725		
A90	5.020	.965		
A91	4.775	.860		
A92	4.865	.965		
A93	5.270	.840		
A94	5.110	.840		
A95	4.980	.835		
A96	5.405	.835		
A97	5.405	.970		
B1	−.075	.335	.181 .185	4
B2	1.890	.000		
B3	2.020	.170		
B4	1.870	.320		

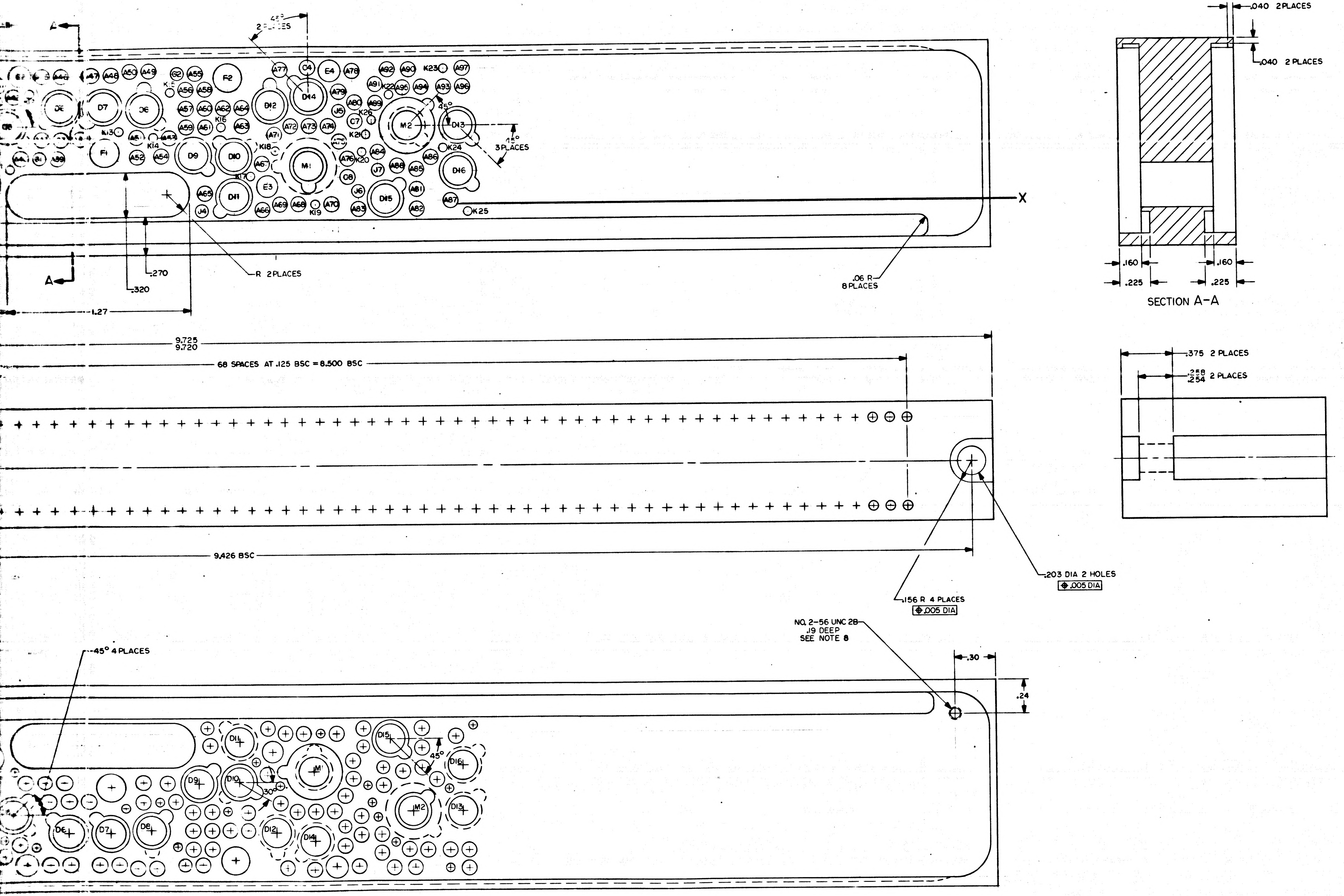
HOLE IDENT	X DIM.	Y DIM.	HOLE DIA	QTY
B5	.000	.000	.181 .185	7
B6	1.715	.525		
B7	.690	.505		
B8	1.080	.565		
B9	1.930	.525		
B10	1.660	.320		
B11	1.715	.120		
C1	.580	.240	.108 .112	8
C2	2.010	.970		
C3	2.545	.485		
C4	4.295	.980		
C5	.865	.240		
C6	1.000	.240		
C7	4.625	.595		
C8	4.570	.195		
D1	.165	.260	DETAIL B	1
D2	.375	.040	SECTION B-B	2
D3	.665	.040		
D4	1.470	.155	DETAIL C	1
D5	2.170	.580	DETAIL B	6
D6	2.540	.715		
D7	2.830	.715		
D8	3.115	.693		
D9	3.460	.350		
D10	3.750	.350		
D11	3.750	.060	DETAIL C	4
D12	4.020	.710		
D13	5.370	.560		
D14	4.300	.770		
D15	4.845	.040	DETAIL B	1
D16	5.370	.235	DETAIL C	1
E1	1.845	.710	.153 .157	4
E2	2.260	.940		
E3	3.990	.130		
E4	4.450	.955		
F1	2.835	.385	.202 .206	2
F2	3.710	.913		
G1	2.390	.350	.092 .096	2
G2	3.350	.945		
H1	−.100	.150	.124 .128	2
H2	1.900	.875		
J1	1.000	−.035	.088 .092	7
J2	.865	.100		
J3	1.000	.100		
J4	3.515	−.040		
J5	4.510	.670		
J6	4.645	.095		
J7	4.790	.245		
K1	.000	.605	.058 .062	26
K2	.165	.450		
K3	.335	.605		
K4	.720	.220		
K5	.865	.485		
K6	1.275	.100		
K7	1.445	.565		
K8	1.555	.460		
K9	2.005	.390		
K10	2.105	.760		
K11	2.185	.270		
K12	2.325	.815		
K13	2.935	.535		
K14	3.175	.490		
K15	3.300	.810		
K16	3.660	.560		
K17	3.870	.205		
K18	4.045	.385		
K19	4.340	.000		
K20	4.675	.375		
K21	4.705	.500		
K22	4.875	.785		
K23	5.270	.970		
K24	5.265	.400		
K25	5.440	−.055		
K26	4.745	.605		
L1	.165	.805	DETAIL. D	2
L2	.865	.805		
L3	1.555	.805	DETAIL A	1
M1	4.290	.275	DETAIL E	2
M2	5.005	.560		

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: MAGNESIUM ALLOY ZK-60A-T5 PER QQ-M-31, TEMP 5
3. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .010 MAX
4. ALL SURFACES $\overset{125}{\vee}$ UNLESS OTHERWISE SPECIFIED
5. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
6. REMOVE BURRS AND SHARP EDGES .005/.015
7. FINISH: ANODIZE PER MIL-M-45202 TYPE I, CLASS C
8. TAP HOLE AFTER ANODIZE. COAT PER ND1002040


.383
.389
DIA
.187
.062 R
.266
.20
DIA
DETAIL A
.25 R
8 PLACES
Y
A18
A8
A11
A34
A23
B1
H1
K1
A19
A20
A9
A10
A15
A24
A29
A30
A35
A26
B7
C1
C5
D2
D3
D
K4
K5
K6
K7
J1
J2
J3
A3
A5
A7
A2
A4
A12
L2
L3
A14
A21
A22
A28
A31
A27
A32
A33
A36
A37
C6
D4
18
45°
4 PLACES
X
B5
.355
.050
4 PLACES
.505
2.665
.062 R
.187
DETAIL D
2 PLACES
R
.106
.053
.255
.262 DIA
.325
.217
.221 DIA 2 HOLES
.060
.255
.262 DIA
2 HOLES
PARTIAL SECTION B-B
.613
.609
.463
BSC
.850
.846
.625
BSC
.312
BSC
.114
.110
.072
.073 DIA THRU 138 HOLES
⊕ .004 DIA
.060
.217
.221 DIA
DETAIL B
8 PLACES
.187
.062 R
.383
.389 DIA
.266
.060
.217
.221 DIA
DETAIL E
2 PLACES
.255
.262
DIA
.325
.053
.106
R
.060
.217
.221 DIA
DETAIL C
6 PLACES
.085
.080
2 PLACES
.45
4 PLACES
.106
2 PLACES
.053
2 PLACES
45° 2 PLACES
32
— .002
.240
2 PLACES
45°
3 PLACES
D1
D2
D3
D4
B
L1
L2
1.480
.070
2 PLACES
.44 R
4 PLACES
.040 REF
.50
4 PLACES

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



45° 2 PLACES
45° 3 PLACES
X
A
R 2 PLACES
.270
.320
1.27
.06 R 8 PLACES
.040 2 PLACES
.040 2 PLACES
.160
.160
.225
.225
9.725
9.720
68 SPACES AT .125 BSC = 8.500 BSC
9.426 BSC
.203 DIA 2 HOLES
⌖ .005 DIA
.156 R 4 PLACES
⌖ .005 DIA
.375 2 PLACES
.258
.254 2 PLACES
NO. 2-56 UNC 2B
.19 DEEP
SEE NOTE 8
.30
.24
45° 4 PLACES
30°
45°

SECTION A-A

3H

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003032	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS .XXX ± .005 .XX ± .02 ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN Ed Mahoney 9 Jun 65
CHECKED 24 Jun 65
APPROVED 25 June 65
APPROVED 24 June 65
APPROVED MIT 6-28-65
APPROVED MSC 7/1/65
DATE

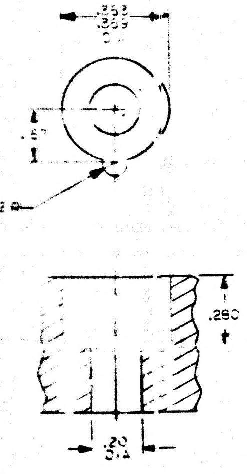
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HEADER HOUSING
ALARM MODULE

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004146
SCALE 4/1
SHEET 1 OF 1

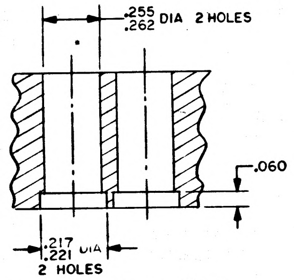
2004146

2004 46



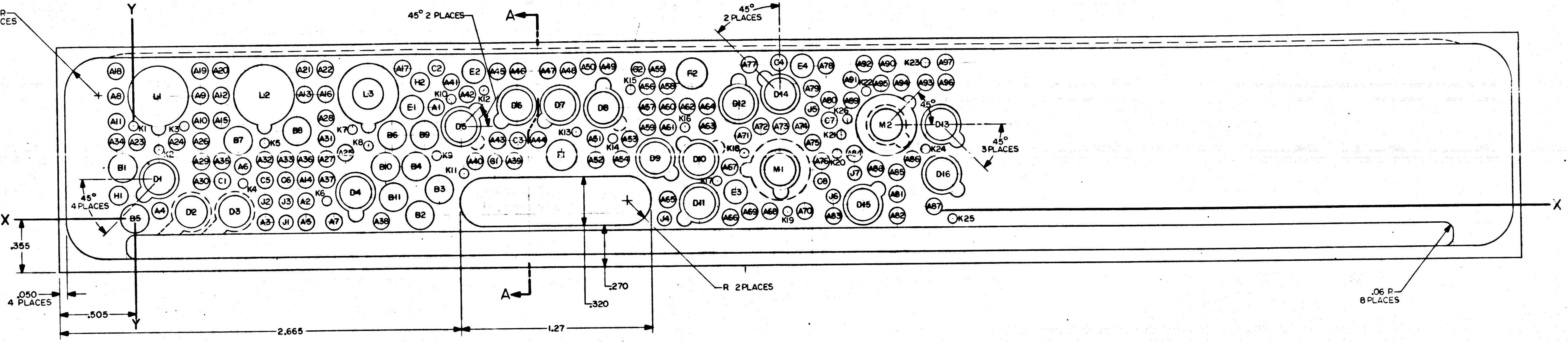
.353
.359
.67
R
.280
.20
DIA

DETAIL A

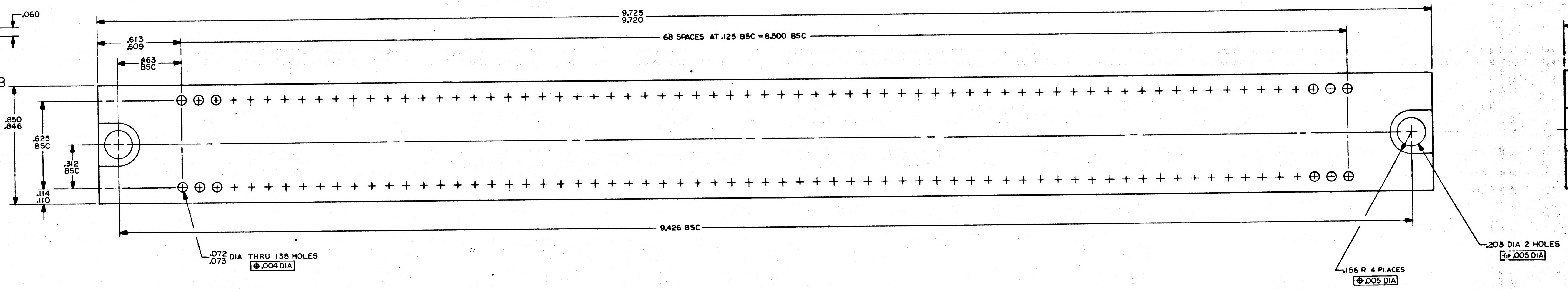


.255
.262 DIA 2 HOLES
.060
.217
.221 DIA
2 HOLES

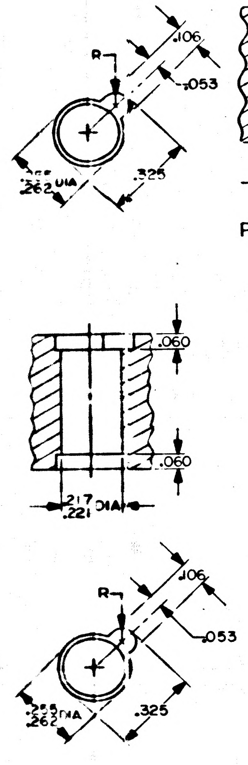
PARTIAL SECTION B-B



.25 R
8 PLACES
Y
45° 2 PLACES
A
45°
2 PLACES
45°
3 PLACES
45°
4 PLACES
X
X
.355
.050
4 PLACES
.505
2.665
1.27
.270
.320
R 2 PLACES
.06 R
8 PLACES
L1
L2
L3
M1
M2
F1
F2

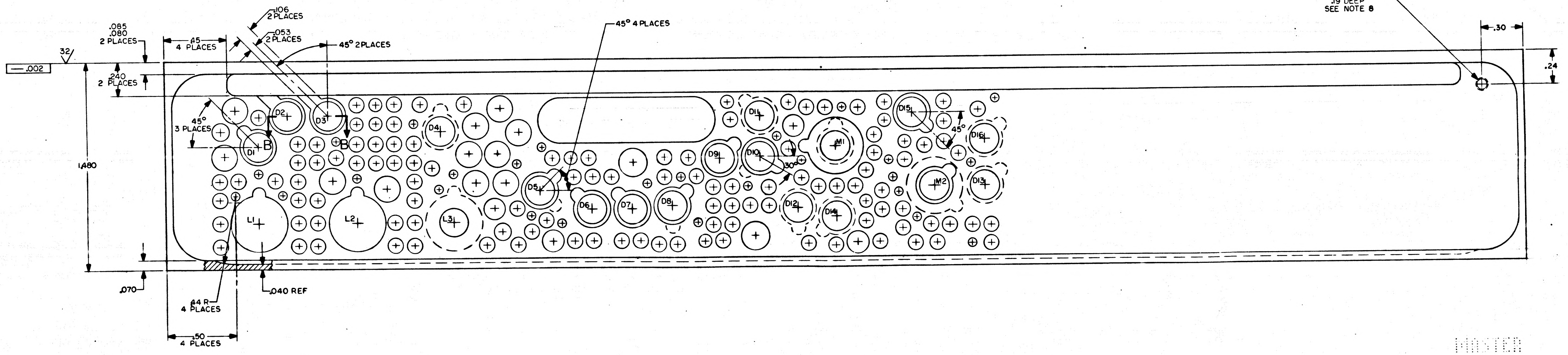


9.725
9.720
.613
.609
68 SPACES AT .125 BSC = 8.500 BSC
.463
BSC
.850
.846
.625
BSC
.312
BSC
.114
.110
9.426 BSC
.072
.073 DIA THRU 138 HOLES
⊕ .004 DIA
.203 DIA 2 HOLES
⊕ .005 DIA
.156 R 4 PLACES
⊕ .005 DIA

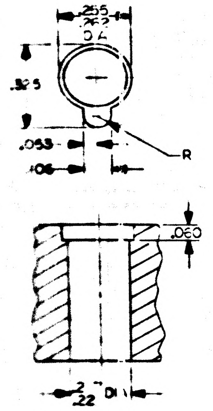


R
.106
.053
.255
.262 DIA
.325
.060
.060
.217
.221 DIA
R
.106
.053
.255
.262 DIA
.325

DETAIL B
9 PLACES



NO. 2-56 UNC 2B
.19 DEEP
SEE NOTE 8
.30
.24
.085
.080
2 PLACES
.45
4 PLACES
.106
2 PLACES
.053
2 PLACES
45° 2 PLACES
45° 4 PLACES
32
.002
.240
2 PLACES
45°
3 PLACES
B
B
1.480
30°
45°
.070
.04 R
4 PLACES
.040 REF
.50
4 PLACES



.255
.262
DIA
.325
.053
.106
R
.060
.217
.221 DIA

DETAIL C
8 PLACES

MASTER

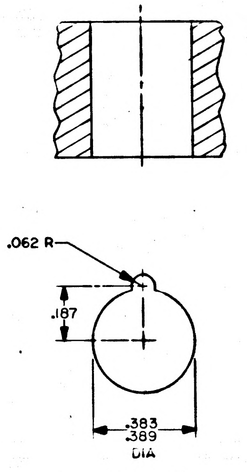
2004146

HOLE IDENT	X DIM.	Y DIM.	HOLE DIA	QTY
A1	2.005	.710	.100 .104	97
A2	1.135	.100		
A3	.865	−.035		
A4	.165	.050		
A5	1.135	−.035		
A6	.720	.335		
A7	1.320	−.035		
A8	−.115	.805		
A9	.445	.805		
A10	.445	.640		
A11	−.115	.640		
A12	.580	.805		
A13	1.135	.805		
A14	1.135	.240		
A15	.580	.640		
A16	1.275	.805		
A17	1.785	.965		
A18	−.115	.970		
A19	.445	.965		
A20	.580	.965		
A21	1.135	.965		
A22	1.275	.965		
A23	.020	.500		
A24	.285	.500		
A25	1.400	.415		
A26	.445	.505		
A27	1.275	.375		
A28	1.275	.645		
A29	.445	.370		
A30	.445	.240		
A31	1.275	.510		
A32	.865	.375		
A33	1.000	.375		
A34	−.115	.505		
A35	.580	.370		
A36	1.135	.375		
A37	1.275	.240		
A38	1.630	−.035		
A39	2.520	.350		
A40	2.260	.350		
A41	2.105	.870		
A42	2.215	.790		
A43	2.410	.485		
A44	2.680	.485		
A45	2.415	.940		
A46	2.550	.940		
A47	2.750	.940		
A48	2.885	.940		
A49	3.150	.965		
A50	3.015	.965		
A51	3.060	.490		
A52	3.060	.350		
A53	3.290	.485		
A54	3.230	.355		
A55	3.480	.945		
A56	3.410	.830		
A57	3.410	.695		
A58	3.545	.830		
A59	3.410	.560		
A60	3.545	.695		
A61	3.545	.560		
A62	3.675	.695		
A63	3.810	.565		
A64	3.810	.695		
A65	3.540	.085		
A66	3.955	−.035		
A67	3.955	.295		
A68	4.220	.000		
A69	4.085	.000		
A70	4.455	.000		
A71	4.045	.500		
A72	4.165	.560		
A73	4.300	.560		
A74	4.435	.560		
A75	4.515	.450		
A76	4.570	.325		
A77	4.095	.965		
A78	4.610	.955		
A79	4.510	.805		
A80	4.625	.730		
A81	5.070	.105		
A82	5.070	−.035		
A83	4.645	−.035		
A84	4.790	.375		
A85	5.070	.250		
A66	5.175	.335		
A87	5.315	.025		
A88	4.930	.275		
A89	4.775	.725		
A90	5.020	.965		
A91	4.775	.860		
A92	4.865	.965		
A93	5.270	.840		
A94	5.110	.840		
A95	4.980	.835		
A96	5.405	.835		
A97	5.405	.970		
B1	−.075	.335	.181 .185	4
B2	1.890	.000		
B3	2.020	.170		
B4	1.870	.320		

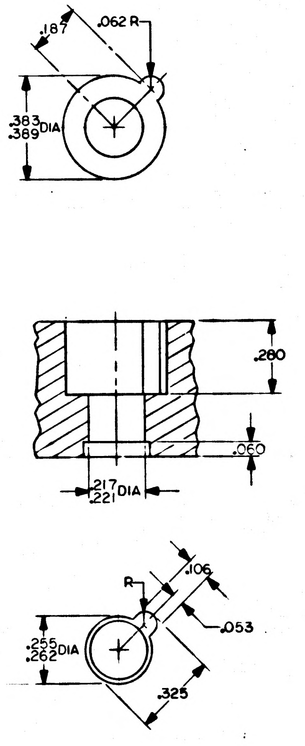
HOLE IDENT	X DIM.	Y DIM.	HOLE DIA	QTY
B5	.000	.000	.181 .185	7
B6	1.715	.525		
B7	.690	.505		
B8	1.080	.565		
B9	1.930	.525		
B10	1.660	.320		
B11	1.715	.120		
C1	.580	.240	.108 .112	8
C2	2.010	.970		
C3	2.545	.485		
C4	4.295	.980		
C5	.865	.240		
C6	1.000	.240		
C7	4.625	.595		
C8	4.570	.195		
D1	.165	.260	DETAIL B	1
D2	.375	.040	SECTION B-B	2
D3	.665	.040		
D4	1.470	.155	DETAIL B	7
D5	2.170	.580		
D6	2.540	.715		
D7	2.830	.715		
D8	3.115	.693		
D9	3.460	.350		
D10	3.750	.350		
D11	3.750	.060	DETAIL C	4
D12	4.020	.710		
D13	5.370	.560		
D14	4.300	.770		
D15	4.845	.040	DETAIL B	1
D16	5.370	.235	DETAIL C	1
E1	1.845	.710	.153 .157	4
E2	2.260	.940		
E3	3.990	.130		
E4	4.450	.955		
F1	2.835	.385	.202 .206	2
F2	3.710	.913		
G1	2.390	.350	.092 .096	2
G2	3.350	.945		
H1	−.100	.150	.124 .128	2
H2	1.900	.875		
J1	1.000	−.035	.088 .092	7
J2	.865	.100		
J3	1.000	.100		
J4	3.515	−.040		
J5	4.510	.670		
J6	4.645	.095		
J7	4.790	.245		
K1	.000	.605	.058 .062	26
K2	.165	.450		
K3	.335	.605		
K4	.720	.220		
K5	.865	.485		
K6	1.275	.100		
K7	1.445	.565		
K8	1.555	.460		
K9	2.005	.390		
K10	2.105	.760		
K11	2.185	.270		
K12	2.325	.815		
K13	2.935	.535		
K14	3.175	.490		
K15	3.300	.810		
K16	3.660	.560		
K17	3.870	.205		
K18	4.045	.385		
K19	4.340	.000		
K20	4.675	.375		
K21	4.705	.500		
K22	4.875	.785		
K23	5.270	.970		
K24	5.265	.400		
K25	5.440	−.055		
K26	4.745	.605		
L1	.165	.805	DETAIL D	2
L2	.865	.805		
L3	1.555	.805	DETAIL A	1
M1	4.290	.275	DETAIL E	2
M2	5.005	.560		

TES:

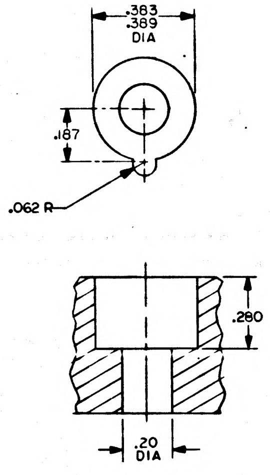
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: MAGNESIUM ALLOY ZK-60A-T5 PER QQ-M-31, TEMP 5
3. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .010 MAX
4. ALL SURFACES $\overset{125}{\vee}$ UNLESS OTHERWISE SPECIFIED
5. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
6. REMOVE BURRS AND SHARP EDGES .005/.015
7. FINISH: ANODIZE PER MIL-M-45202 TYPE I, CLASS C
8. TAP HOLE AFTER ANODIZE. COAT PER ND1002040


.062 R
.187
.383
.389
DIA

DETAIL D
2 PLACES


.187
.062 R
.383
.389 DIA
.280
.060
.217
.221 DIA
R
.106
.053
.255
.262 DIA
.325

DETAIL E
2 PLACES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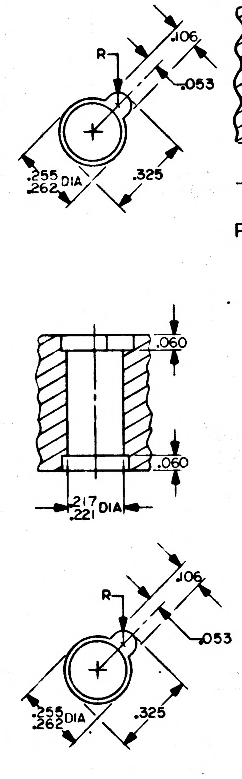
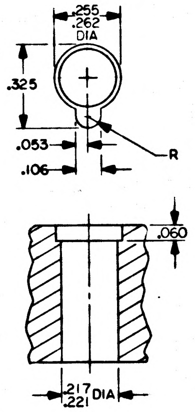
.389
DIA
.187
.062 R
.280
.20
DIA

DETAIL A


R
.106
.053
.255
.262 DIA
.325
.060
.060
.217
.221 DIA

DETAIL B
9 PLACES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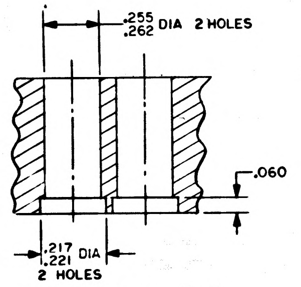
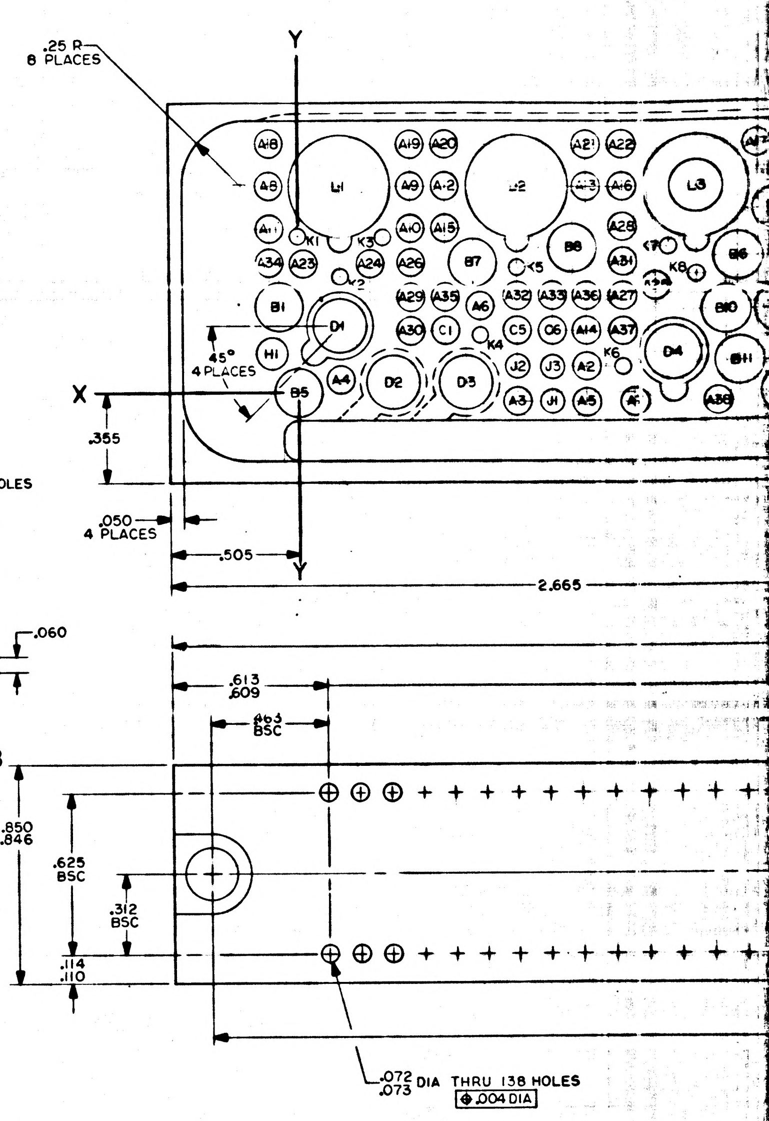
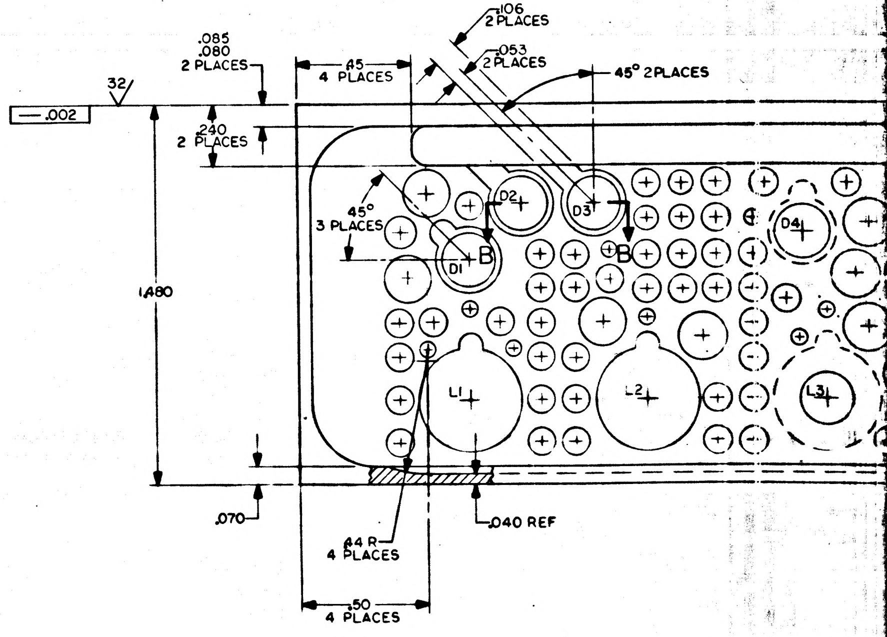
.262
DIA
.325
.053
.106
R
.060
.217
.221 DIA

DETAIL C
5 PLACES


.255
.262 DIA 2 HOLES
.060
.217
.221 DIA
2 HOLES

PARTIAL SECTION B-B

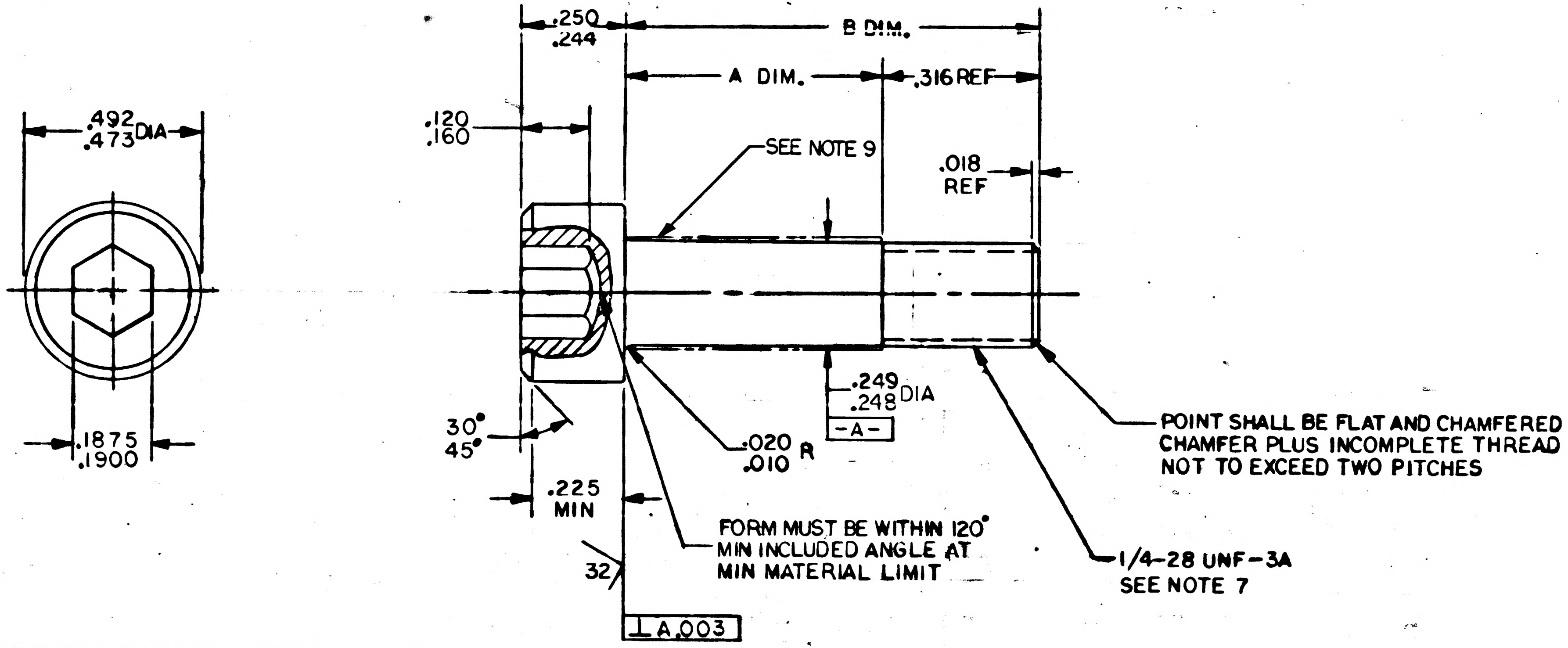

.25 R
8 PLACES
Y
X
45°
4 PLACES
.355
.050
4 PLACES
.505
Y
2.665
.613
.609
.463
BSC
.850
.846
.625
BSC
.312
BSC
.114
.110
.072
.073 DIA THRU 138 HOLES
⊕ .004 DIA
A18 A8 A11 A34 A23 L1 K1 K3 K2 A19 A20 A9 A12 A10 A15 A24 A26 B7 K5 L2 B8 A21 A22 A13 A16 A28 A31 L3 K7 K8 B6 B1 D1 H1 B5 A4 D2 D3 A29 A35 A30 C1 A6 K4 A32 A33 A36 A27 C5 C6 A14 A37 J2 J3 A2 K6 A3 J1 A5 A7 D4 B10 B11 A38


.002
32
.085
.080
2 PLACES
.45
4 PLACES
.240
2 PLACES
.106
2 PLACES
.053
2 PLACES
45° 2 PLACES
45°
3 PLACES
D1 D2 D3 D4
B
B
L1 L2 L3
1.480
.070
.040 REF
.44 R
4 PLACES
.50
4 PLACES

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 22892

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 24943			1/26/66	


.492
.473 DIA
.1875
.1900
.250
.244
B DIM.
A DIM.
.316 REF
.120
.160
SEE NOTE 9
.018
REF
.249
.248 DIA
-A-
30°
45°
.020
.010 R
.225
MIN
32
FORM MUST BE WITHIN 120° MIN INCLUDED ANGLE AT MIN MATERIAL LIMIT
⊥ A .003
1/4-28 UNF-3A
SEE NOTE 7
POINT SHALL BE FLAT AND CHAMFERED CHAMFER PLUS INCOMPLETE THREAD NOT TO EXCEED TWO PITCHES

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: CORR. RES. STEEL PER AMS 5735(A-286)
3. REMOVE BURRS AND SHARP EDGES
4. ALL SURFACES 125 UNLESS OTHERWISE SPECIFIED
5. HEAT TREATMENT: 140,000 PSI UTS MIN AT ROOM TEMPERATURE
6. FINISH: PASSIVATE IN ACCORDANCE WITH MIL-S-5002
7. THREAD PER MIL-S-7742 EXCEPT MAJOR DIA. TO BE .001 BELOW MIN SHANK DIA AND THREAD RUNOUT PER MIL-B-7838
8. CONCENTRICITY: ALL DIAMETERS SHALL BE WITHIN .005 TIR
9. TEFLON COAT 2/4 MILS THK PER ND1002067, TYPE II
10. IDENTIFY WITH PART NO. PER ND1002019

PART NO.	A DIM.	B DIM.
2004147-001	.448/.428	.769/.739
-002	.572/.552	.893/.863
-003	.760/.740	1.081/1.051
-004	.822/.802	1.143/1.113
2004147-005	.510/.490	.831/.801

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2007222	
6003001	
2003101	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN		20 July 65
CHECKED		
APPROVED		5 Oct 65
APPROVED	Ellen C Hall	4 Oct 65
APPROVED MIT	W Kupfer	5 Oct 65
APPROVED MSC	NOT REQUIRED PER LETTER NASA PP7-65-612	DATE

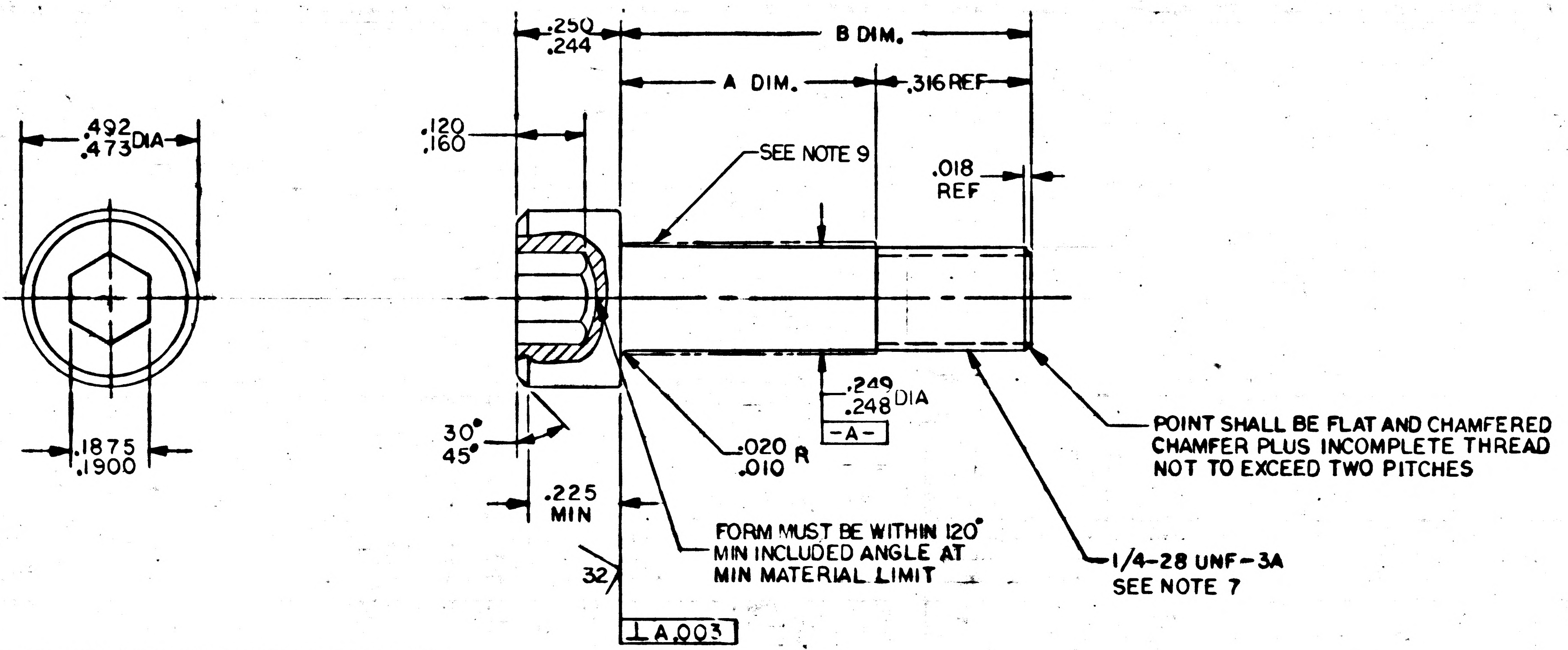
BOLT, CAP, SOCKET HEAD-HEXAGON, SHORT THREAD

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004147
SCALE NONE		SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 22892

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 24943			1/26/66	
B		REVISED PER TDRR 27468		A.R.B.	4/5/66	



.492
.473 DIA
.1875
.1900
.250
.244
B DIM.
A DIM.
.316 REF
.120
.160
SEE NOTE 9
.018
REF
.249
.248 DIA
-A-
30°
45°
.020
.010 R
.225
MIN
32
⊥ A .003
FORM MUST BE WITHIN 120° MIN INCLUDED ANGLE AT MIN MATERIAL LIMIT
POINT SHALL BE FLAT AND CHAMFERED CHAMFER PLUS INCOMPLETE THREAD NOT TO EXCEED TWO PITCHES
1/4-28 UNF-3A
SEE NOTE 7

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: CORR. RES. STEEL PER AMS 5735 (A-286)
3. REMOVE BURRS AND SHARP EDGES
4. ALL SURFACES 125√ UNLESS OTHERWISE SPECIFIED
5. HEAT TREATMENT: 140,000 PSI UTS MIN AT ROOM TEMPERATURE
6. FINISH: PASSIVATE IN ACCORDANCE WITH MIL-S-5002
7. THREAD PER MIL-S-7742 EXCEPT MAJOR DIA. TO BE .001 BELOW MIN SHANK DIA AND THREAD RUNOUT PER MIL-B-7838
8. CONCENTRICITY: ALL DIAMETERS SHALL BE WITHIN .005 TIR
9. TEFLON COAT 2/4 MILS THK PER ND1002067, TYPE II
10. IDENTIFY WITH PART NO. PER ND1002019

PART NO.	A DIM.	B DIM.
2004147-001	.448/.428	.769/.739
-002	.572/.552	.893/.863
-003	.760/.740	1.081/1.051
-004	.822/.802	1.143/1.113
-005	.510/.490	.831/.801
2004147-006	.884/.864	1.205/1.175

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2007222	
2004199	
6004000	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED
APPROVED 5Oct65
APPROVED
APPROVED MIT 5Oct65
NOT REQUIRED PER LETTER
APPROVED MSC NASA PP7-65-612
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BOLT, CAP, SOCKET HEAD-HEXAGON, SHORT THREAD

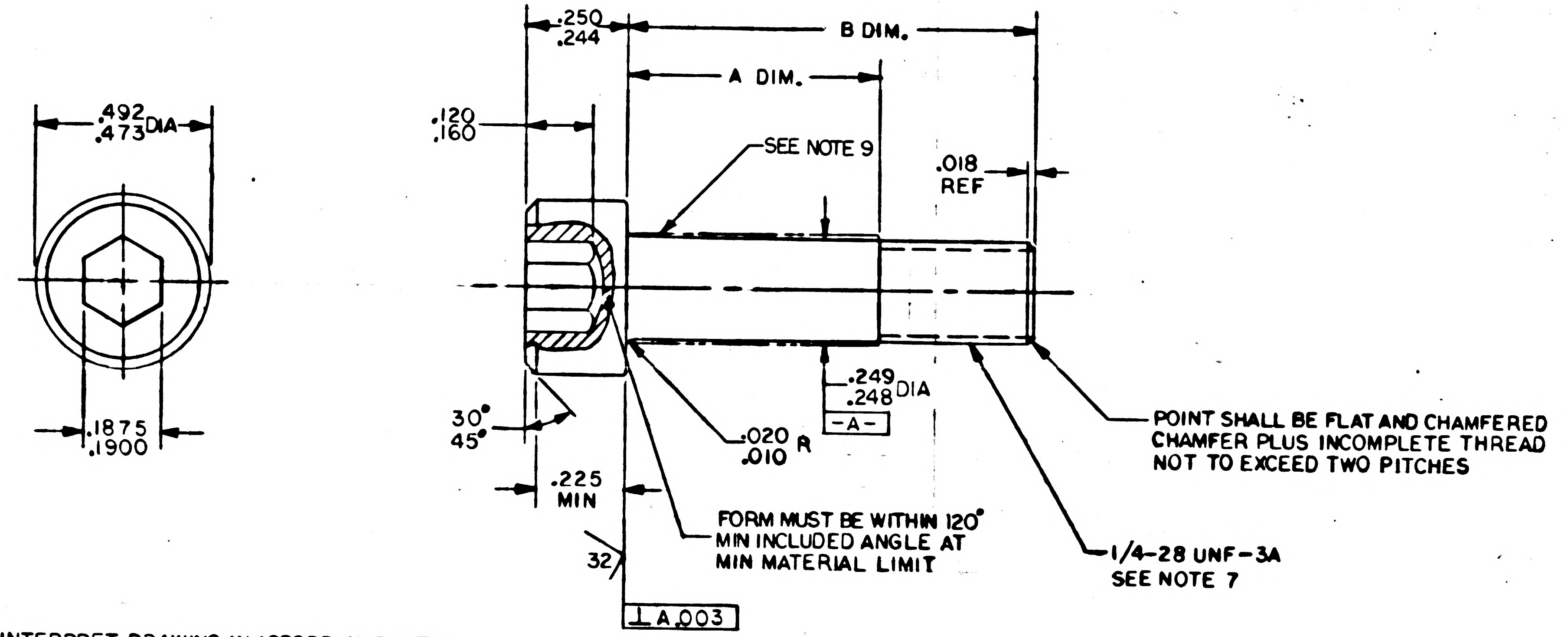
CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004147

SCALE NONE
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 22892

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 24943			1/20/66	
B		REVISED PER TDRR 27468		A.R.B.	4/5/66	
C		REVISED PER TDRR 33641	P97		5/8/67	


.492
.473 DIA
.1875
.1900
.250
.244
B DIM.
A DIM.
.120
.160
SEE NOTE 9
.018
REF
30°
45°
.225
MIN
.249
.248 DIA
-A-
.020
.010 R
32
⊥ A .003
POINT SHALL BE FLAT AND CHAMFERED CHAMFER PLUS INCOMPLETE THREAD NOT TO EXCEED TWO PITCHES
FORM MUST BE WITHIN 120° MIN INCLUDED ANGLE AT MIN MATERIAL LIMIT
1/4-28 UNF-3A
SEE NOTE 7

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: CORR. RES. STEEL PER AMS 5735 (A-286)
3. REMOVE BURRS AND SHARP EDGES
4. ALL SURFACES 125✓ UNLESS OTHERWISE SPECIFIED
5. HEAT TREATMENT: 140,000 PSI UTS MIN AT ROOM TEMPERATURE
6. FINISH: PASSIVATE IN ACCORDANCE WITH MIL-S-5002
7. THREAD PER MIL-S-7742 EXCEPT MAJOR DIA. TO BE .001 BELOW MIN SHANK DIA AND THREAD RUNOUT PER MIL-B-7838
8. CONCENTRICITY: ALL DIAMETERS SHALL BE WITHIN .005 TIR
9. TEFLON COAT 2/4 MILS THK PER ND1002067, TYPE II
10. IDENTIFY WITH PART NO. PER ND1002019

PART NO.	A DIM.	B DIM.
2004147-001	.448/.428	.769/.739
-002	.572/.552	.893/.863
-003	.760/.740	1.081/1.051
-004	.822/.802	1.143/1.113
-005	.510/.490	.831/.801
2004147-006	.884/.864	1.205/1.175
2004147-007	.800/.780	1.205/1.175
2004147-008	.860/.840	1.230/1.200

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2007222	
2004199	
6004000	
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± ___ DECIMALS ± ___ ANGLES ± ___
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN 20 Jly 65
CHECKED
APPROVED 5 Oct 65
APPROVED 4 Oct 65
APPROVED MIT 5 Oct 65
APPROVED MSC NOT REQUIRED PER LETTER A P87-65-512
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BOLT, CAP, SOCKET HEAD-HEXAGON, SHORT THREAD

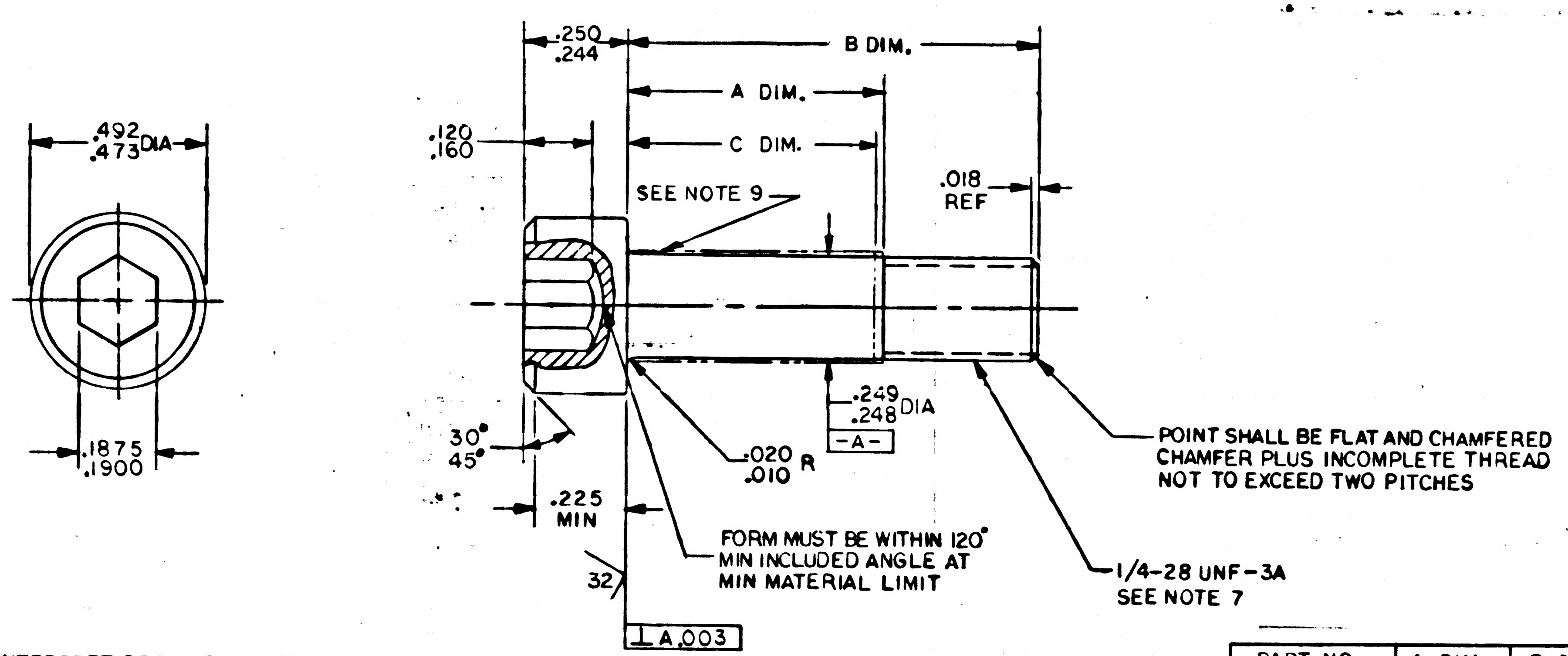
CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004147
SCALE NONE
SHEET 1 OF 1

2004147 C

NOTICE – WHEN GOVERNMENT DRAW NOS. SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 22892

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 24943			1/26/66	
B		REVISED PER TDRR 27468		A.R.B.	4/5/66	
C		REVISED PER TDRR 33641			5/8/67	
D		REVISED REP TDRR 35048			11/29/67	


.492
.473 DIA
.1875
.1900
.250
.244
B DIM.
A DIM.
C DIM.
.120
.160
SEE NOTE 9
.018
REF
30°
45°
.225
MIN
.249
.248 DIA
-A-
.020
.010 R
POINT SHALL BE FLAT AND CHAMFERED
CHAMFER PLUS INCOMPLETE THREAD
NOT TO EXCEED TWO PITCHES
FORM MUST BE WITHIN 120°
MIN INCLUDED ANGLE AT
MIN MATERIAL LIMIT
1/4-28 UNF-3A
SEE NOTE 7
32
⊥ A .003

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: CORR. RES. STEEL PER AMS5735(A-286)
3. REMOVE BURRS AND SHARP EDGES
4. ALL SURFACES 125 UNLESS OTHERWISE SPECIFIED
5. HEAT TREATMENT: 140,000 PSI UTS MIN AT ROOM TEMPERATURE
6. FINISH: PASSIVATE IN ACCORDANCE WITH MIL-S-5002
7. THREAD PER MIL-S-7742 EXCEPT MAJOR DIA. TO BE .001 MIN BELOW SHANK DIA AND THREAD RUNOUT PER MIL-B-7838
8. CONCENTRICITY: ALL DIAMETERS SHALL BE WITHIN .005 TIR
9. TEFLON COAT 2/4 MILS THK PER ND1002067, TYPE II TO DIM C
10. IDENTIFY WITH PART NO. PER ND1002019

PART NO.	A DIM.	B DIM.	C DIM.
2004147-001	.448/.428	.769/.739	.448/.428
-002	.572/.552	.893/.863	.572/.552
-003	.760/.740	1.081/1.051	.760/.740
-004	.822/.802	1.143/1.113	.822/.802
-005	.510/.490	.831/.801	.510/.490
2004147-006	.884/.864	1.205/1.175	.884/.864
2004147-007	.800/.780	1.205/1.175	.800/.780
2004147-008	.860/.840	1.230/1.200	.860/.840

PART NO	A DIM	B DIM	C DIM
2004147-009	.939/.919	1.284/1.254	.867/.847
-010	.989/.969	1.334/1.304	.917/.897
-012	.944/.924	1.310/1.280	.872/.852
-013	1.009/.989	1.375/1.345	.937/.917

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2007222	
2004199	
6004000	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± ——— DECIMALS ± ——— ANGLES ± ———
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED
APPROVED
APPROVED Ellen C Hall

APPROVED MIT
NOT REQUIRED PER LETTER
APPROVED MSC A-57-00-512
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BOLT, CAP, SOCKET HEAD-HEXAGON, SHORT THREAD

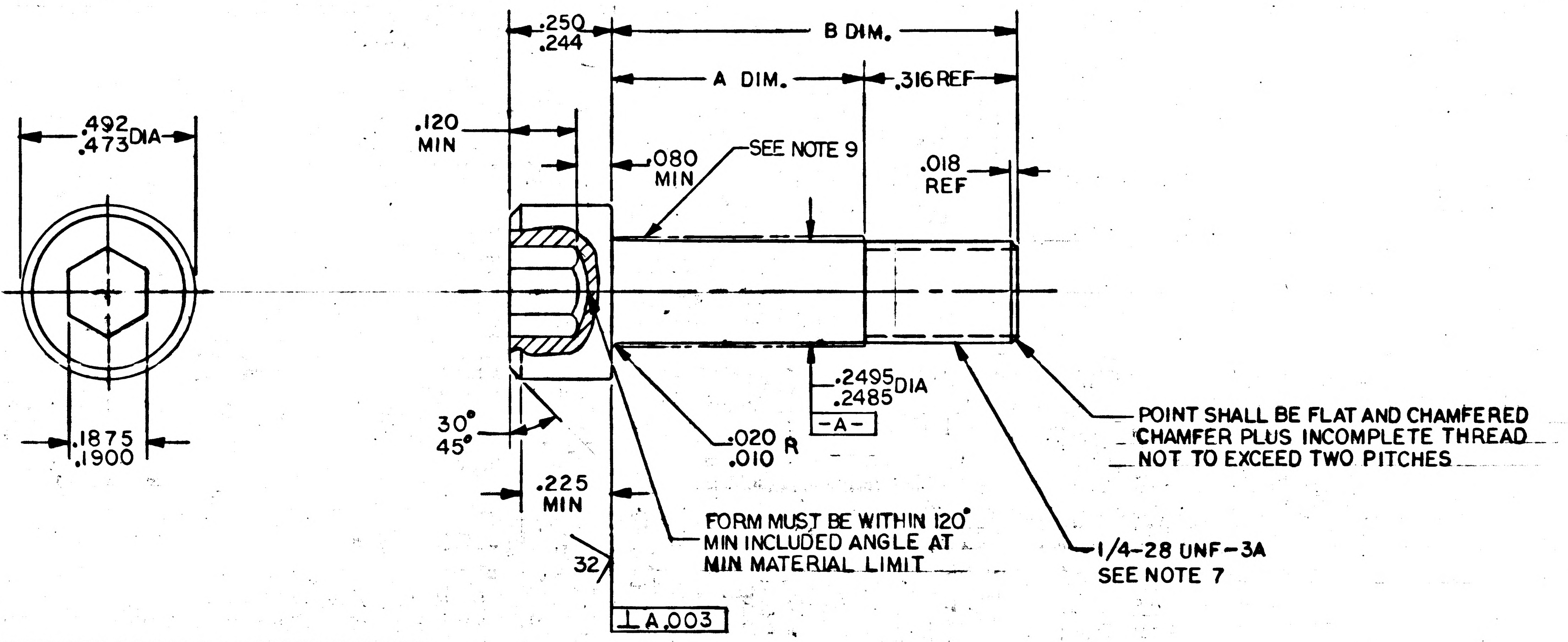
CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004147
SCALE NONE
SHEET 1 OF 1

2004147 D

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 22892

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED


.492
.473 DIA
.1875
.1900
.250
.244
B DIM.
A DIM.
.316 REF
.120
MIN
.080
MIN
SEE NOTE 9
.018
REF
30°
45°
.225
MIN
.2495
.2485 DIA
-A-
.020
.010 R
32
⊥ A .003
FORM MUST BE WITHIN 120°
MIN INCLUDED ANGLE AT
MIN MATERIAL LIMIT
POINT SHALL BE FLAT AND CHAMFERED
CHAMFER PLUS INCOMPLETE THREAD
NOT TO EXCEED TWO PITCHES
1/4-28 UNF-3A
SEE NOTE 7

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: CORR. RES. STEEL PER AMS5735(A-286)
3. REMOVE BURRS AND SHARP EDGES
4. ALL SURFACES 125/ UNLESS OTHERWISE SPECIFIED
5. HEAT TREATMENT: 140,000 PSI UTS MIN AT ROOM TEMPERATURE
6. FINISH: PASSIVATE IN ACCORDANCE WITH MIL-S-5002
7. THREAD PER MIL-S-7742 EXCEPT MAJOR DIA. TO BE .001 BELOW MIN SHANK DIA AND THREAD RUNOUT PER MIL-B-7838
8. CONCENTRICITY: ALL DIAMETERS SHALL BE WITHIN .005 TIR
9. TEFLON COAT 4 MILS MAX. THK PER ND1002067, TYPE II
10. IDENTIFY WITH PART NO. PER ND1002019

PART NO.	A DIM.	B DIM.
2004147-001	.448/.428	.769/.739
-002	.572/.552	.893/.863
-003	.760/.740	1.081/1.051
-004	.822/.802	1.143/1.113
2004147-005	.510/.490	.831/.801

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MASTER

NEXT ASSY	USED ON
2007222	
6003001	
2003101	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN		20 July 65
CHECKED		4 Aug 65
APPROVED		5 Oct 65
APPROVED	Ellen C Hall	4 Oct 65
APPROVED MIT	W Kupfer	5 Oct 65
APPROVED MSC	NOT REQUIRED PER LETTER NASA PP7-65-612	DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BOLT, CAP, SOCKET HEAD-HEXAGON, SHORT THREAD

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004147

SCALE NONE
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 22892

	SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
(n)		A	REVISED PER TDRR 24696	awg	BM	1/6/66	

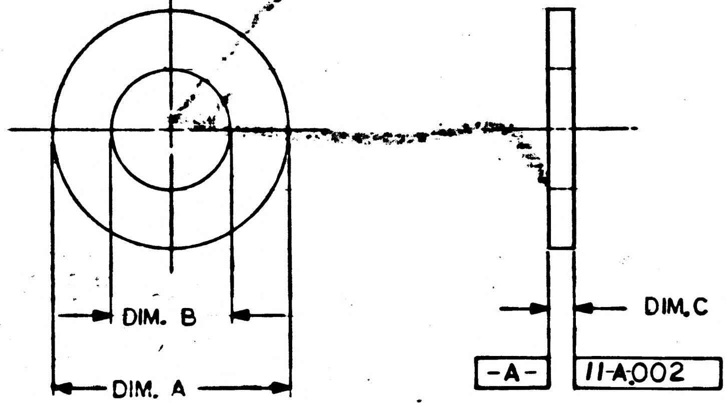


CHART A				
PART NO.	DIM. A	DIM. B	DIM. C	FINISH
2004148-001	.504 /.500	.260 /.265	.034/.030	SEE NOTE 5
2004148-002	.504 /.500	.260 /.265	.064/.060	SEE NOTE 5
2004148-003	.282 /.262	.143 /.153	.032 /.028	SEE NOTE 5
2004148-004	.600 /.590	.395 / .385	.036/.028	SEE NOTE 7

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: 6061-T6 AL PER QQ-A-250/11, TEMP 6
3. ALL SURFACES 63√ UNLESS OTHRWISE SPECIFIED
4. REMOVE BURRS AND SHARP EDGES .010 MAX
5. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
6. IDENTIFY WITH PART NO. PER ND1002019
7. ANODIZE PER MIL-A-8625, TYPE I, CLEAR

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
6007200	
6007000	
2007222	
6003001	
2003101	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± ___ DECIMALS ± ___ ANGLES ± ___
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN		7/22/65
CHECKED		23 Jul 65
APPROVED		5 Oct 65
APPROVED	Eldon C Hall	1 Oct 65
APPROVED MIT	W Kupfer	5 Oct 65
APPROVED NASA	NOT REQUIRED PER LETTER PP7-65-612	DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WASHER, FLAT

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004148

SCALE 4/1
SHEET 1 OF 1

2004148

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 22892

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 24696			1/6/66	
B		REVISED PER TDRR 25976			2/14/66	

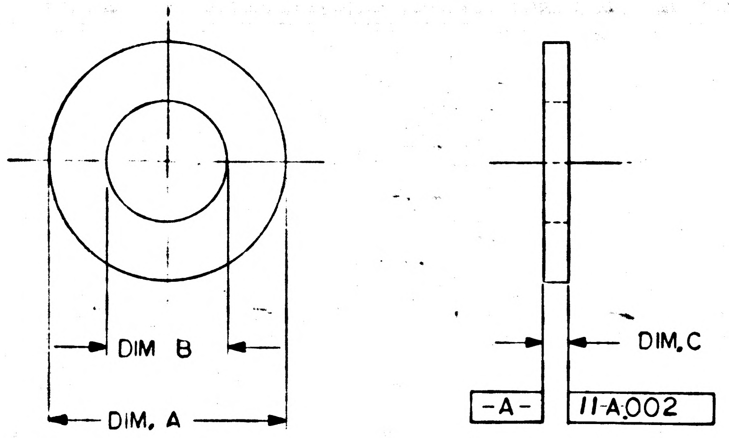


CHART A				
PART NO.	DIM. A	DIM. B	DIM. C	FINISH
2004148-001	.504/.500	.260/.265	.034/.030	SEE NOTE 5
2004148-002	.504/.500	.260/.265	.064/.060	SEE NOTE 5
2004148-003	.282/.262	.143/.153	.032/.028	SEE NOTE 5
2004148-004	.600/.590	.395/.385	.036/.028	SEE NOTE 7
2004148-005	.314/.304	.169/.179	.030/.025	SEE NOTE 5
2004148-006	.364/.354	.195/.205	.034/.030	SEE NOTE 5

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: 6061-T6 AL PER QQ-A-250/11, TEMP 6
3. ALL SURFACES 63√ UNLESS OTHRWISE SPECIFIED
4. REMOVE BURRS AND SHARP EDGES .010 MAX
5. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
6. IDENTIFY WITH PART NO. PER ND1002019
7. ANODIZE PER MIL-A-8625, TYPE I, CLEAR

NEXT ASSY	USED ON
2007322	
6007200	
6007000	
2007222	
6003001	
2003101	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING.

MATERIAL
SEE NOTE 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN W.F. Troy 7/22/65
CHECKED 23 Jul 65
APPROVED 5 Oct 65
APPROVED Eldon C Hall 4 Oct 65
APPROVED MIT 5 Oct 65
NOT REQUIRED PER LETTER
APPROVED MSC PP7-65-612 DATE

WASHER, FLAT

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004148
SCALE 4/1
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 22892

	SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
ⓜ	A		REVISED PER TDRR 24696	awg.		1/6/66	
ⓜ	B		REVISED PER TDRR 25976	DPJ		2/14/66	
ⓜ	C		REVISED PER TDRR 26769	DPJ	JCJ	3/8/66	

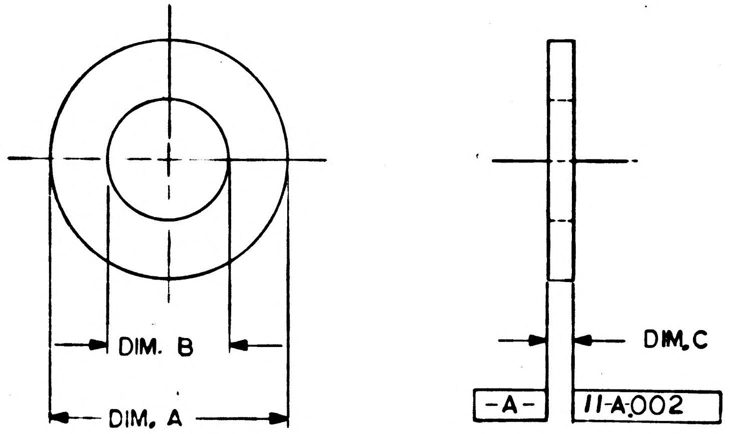


CHART A				
PART NO.	DIM. A	DIM. B	DIM. C	FINISH
2004148-001	.504 /.500	.260 /.265	.034/.030	SEE NOTE 5
2004148-002	.504 /.500	.260 /.265	.064/.060	SEE NOTE 5
2004148-003	.282 /.262	.143 / .153	.032 /.028	SEE NOTE 5
2004148-004	.600 /.590	.395 / .385	.036/.028	SEE NOTE 7
2004148-005	.314 /.304	.169 /.179	.030/.025	SEE NOTE 5
2004148-006	.364 /.354	.195 /.205	.034/.030	SEE NOTE 5
2004148-007	.314 /.304	.169/ .179	.006/.008	SEE NOTE 5

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: 6061-T6 AL PER QQ-A-250/11, TEMP 6
3. ALL SURFACES $\overset{63}{\surd}$ UNLESS OTHRWISE SPECIFIED
4. REMOVE BURRS AND SHARP EDGES .010 MAX
5. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
6. IDENTIFY WITH PART NO. PER ND1002019
7 ANODIZE PER MIL-A-8625, TYPE I, CLEAR

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2007322	
6007200	
6007000	
2007222	
6003001	
2003101	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± ——— DECIMALS ± ——— ANGLES ± ———
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	N F Troy	7/22/65
CHECKED		23 Jul 65
APPROVED		5 Oct 65
APPROVED	Eldon C Hall	4 Oct 65
APPROVED MIT	W Kupfer	5 Oct 65
APPROVED MSC	NOT REQUIRED PER LETTER PP7-65-612	DATE

WASHER, FLAT

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004148
SCALE 4/1		SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 22892

	SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
ⓜ	A		REVISED PER TDRR 24696	AWJ.		1/6/66	
ⓜ	B		REVISED PER TDRR 25976			2/14/66	
ⓜ	C		REVISED PER TDRR 26769		JCJ	3/8/66	
	D		REVISED PER TDRR 28477			5/25/66	E.S.S.

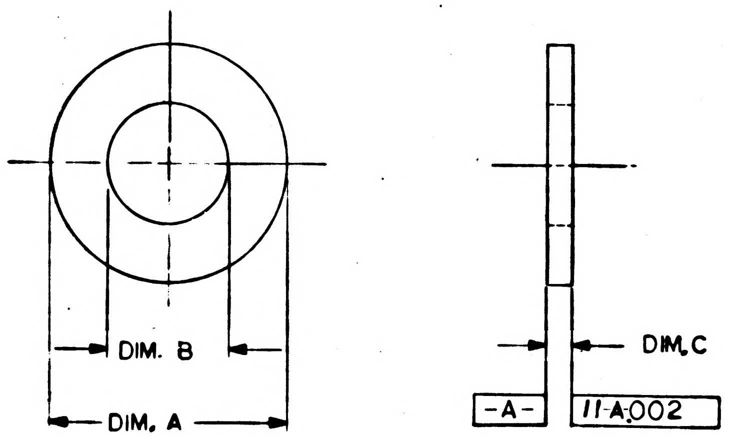


CHART A				
PART NO.	DIM. A	DIM. B	DIM. C	FINISH
2004148-001	.504 /.500	.260 /.265	.034/.030	SEE NOTE 5
2004148-002	.504 /.500	.260 /.265	.064/.060	SEE NOTE 5
2004148-003	.282 /.262	.143 / .153	.032 /.028	SEE NOTE 5
2004148-004	.600 /.590	.395 / .385	.036/.028	SEE NOTE 7
2004148-005	.314 /.304	.169 /.179	.030/.025	SEE NOTE 5
2004148-006	.364 /.354	.195 /.205	.034/.030	SEE NOTE 5
2004148-007	.314 /.304	.169/ .179	.006/.008	SEE NOTE 5
2004148-008	.443/.433	.215/.225	.034/.030	SEE NOTE 5

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: 6061-T6 AL PER QQ-A-250/11, TEMP 6
3. ALL SURFACES $\sqrt{}^{63}$ UNLESS OTHRWISE SPECIFIED
4. REMOVE BURRS AND SHARP EDGES .010 MAX
5. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
6. IDENTIFY WITH PART NO. PER ND1002019
7. ANODIZE PER MIL-A-8625, TYPE I, CLEAR

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2007322	
6007200	
6007000	
2007222	
6003001	
2003101	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± ___ DECIMALS ± ___ ANGLES ± ___
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN H F Tong 7/22/65
CHECKED 23 Jul 65
APPROVED 5 Oct 65
APPROVED Eldon C Hall 1 Oct 65
APPROVED MIT W Kupfer 5 Oct 65
APPROVED NASA NOT REQUIRED PER LETTER PP7-65-612
DATE

WASHER, FLAT

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004148
SCALE 4/1
SHEET 1 OF 1

2004148 D

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 22892

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 24696	AWJ		1/6/66	
B		REVISED PER TDRR 25976			2/14/66	
C		REVISED PER TDRR 26769			3/8/66	
D		REVISED PER TDRR 28477		CH	5/25/66	E.S.S.
E		REVISED PER TDRR 29143	PB	A.K.	6-16-66	

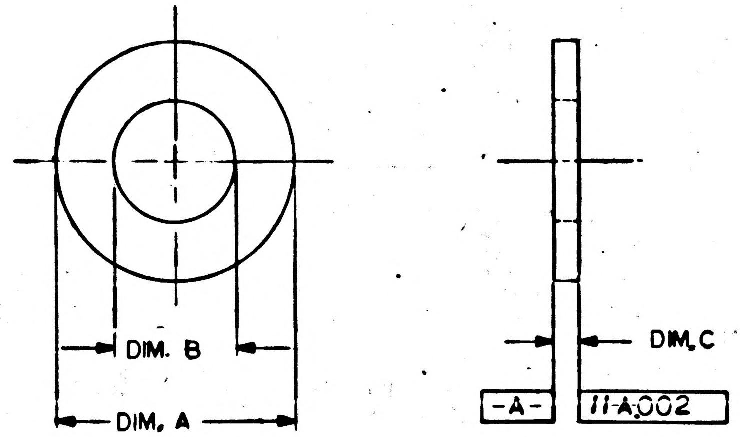


CHART A				
PART NO.	DIM. A	DIM. B	DIM. C	FINISH
2004148-001	.504/.500	.260/.265	.034/.030	SEE NOTE 5
2004148-002	.504/.500	.260/.265	.064/.060	SEE NOTE 5
2004148-003	.282/.262	.143/.153	.032/.028	SEE NOTE 5
2004148-004	.600/.590	.395/.385	.036/.028	SEE NOTE 7
2004148-005	.314/.304	.169/.179	.030/.025	SEE NOTE 5
2004148-006	.364/.354	.195/.205	.034/.030	SEE NOTE 5
2004148-007	.314/.304	.169/.179	.006/.008	SEE NOTE 5
2004148-008	.443/.433	.215/.225	.034/.030	SEE NOTE 5
2004148-009	.364/.354	.215/.225	.034/.030	SEE NOTE 5

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: 6061-T6 AL PER QQ-A-250/11, TEMP 6
3. ALL SURFACES $\overset{63}{\surd}$ UNLESS OTHRWISE SPECIFIED
4. REMOVE BURRS AND SHARP EDGES .010 MAX
5. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
6. IDENTIFY WITH PART NO. PER ND1002019
7. ANODIZE PER MIL-A-8625, TYPE I, CLEAR

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2007322	
6007200	
6007000	
2007222	
6003001	
2003101	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± ____ DECIMALS ± ____ ANGLES ± ____
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN		7/22/65
CHECKED		23 Jul 65
APPROVED		5 Oct 65
APPROVED	Eldon C Hall	4 Oct 65
APPROVED MIT		5 Oct 65
APPROVED NASA	NOT REQUIRED PER LETTER PP7-65-612	DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WASHER, FLAT

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004148

SCALE 4/1
SHEET 1 OF 1

2004148 E

4 3 2 1

NCTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 22892

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

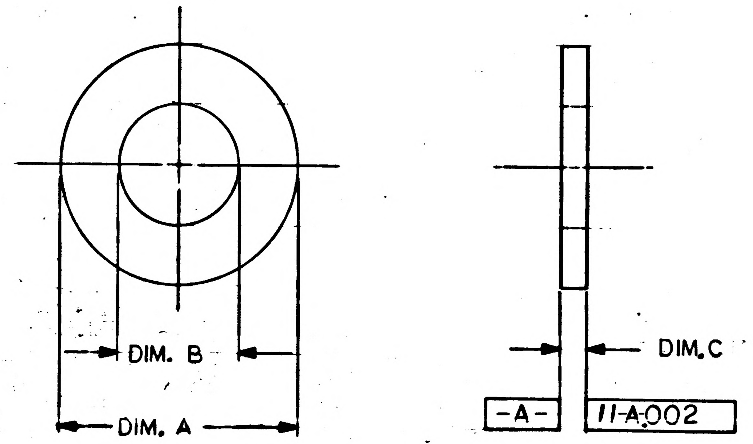


CHART A			
PART NO.	DIM. A	DIM. B	DIM. C
2004148-001	.504 /.500	.260 /.265	.034/.030
2004148-002	.504 /.500	.260 /.265	.064/.060
2004148-003	.282 /.262	.143 /.153	.032 /.028

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: 6061-T6 AL PER QQ-A-250/11, TEMP 6
3. ALL SURFACES 63√ UNLESS OTHRWISE SPECIFIED
4. REMOVE BURRS AND SHARP EDGES .010 MAX
5. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
6. IDENTIFY WITH PART NO. PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2007222	
6003001	
2003101	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN W F Troy 7/22/65
CHECKED R P Kingsbury 23 Jul 65
APPROVED 5 Oct 65
APPROVED Eldon C Hall 4 Oct 65
APPROVED MIT W Kupfer 5 Oct 65
APPROVED NASA NOT REQUIRED PER LETTER PP7-65-612
DATE

WASHER, FLAT

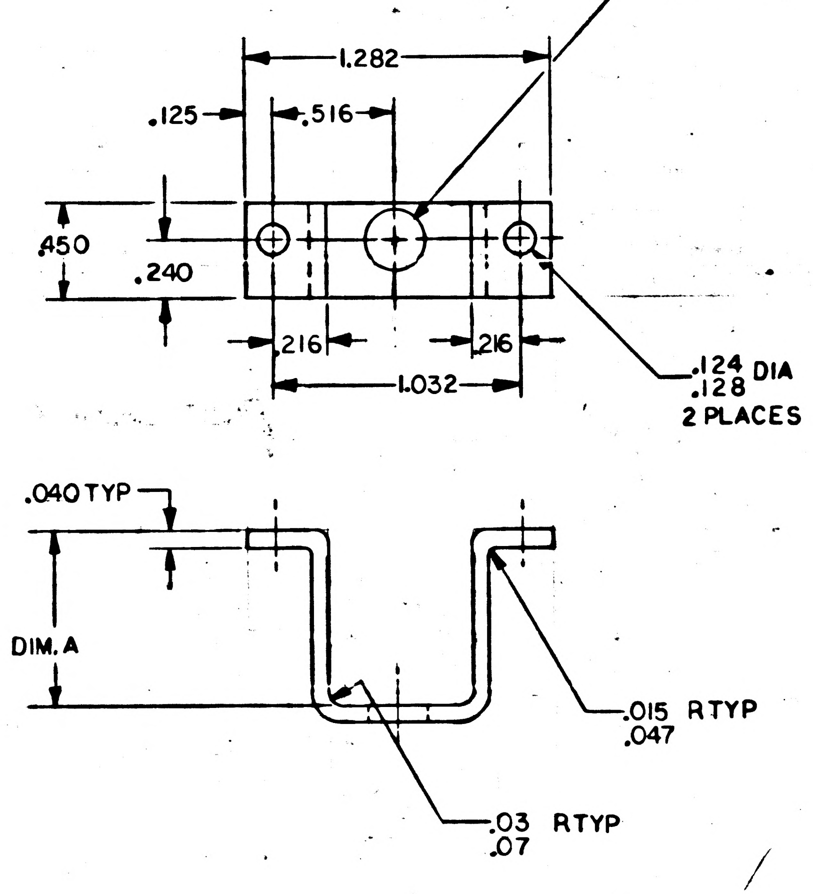
CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004148
SCALE 4/1
SHEET 1 OF 1

4 3 2 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 22892

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
Ⓜ	A	REVISED PER TDRR 24695	awq		1/6/66	



PART NO.	DIM. A
2004149 –001	.845
2004149 –002	.960
2004149 –003	.907

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: 5052-H32AL PER QQ-A-250/8 TEMP-H32
3. REMOVE BURRS AND BREAK SHARP EDGES .005/.015
4. ~~ALL SURFACES 125 UNLESS OTHERWISE SPECIFIED~~
5. FINISH: CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
6. IDENTIFY WITH PART NO. PER ND1002019

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
6003001	
2003101	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN		30 July 65
CHECKED	R P	4 Aug 65
APPROVED		5 Oct 65
APPROVED	Ellen C Hall	4 Oct 65
APPROVED MIT	W Kupfer	5 Oct 66
APPROVED MSC	NOT REQUIRED PER LETTER NASA PP7-65-612	DATE

BRACKET, SCREW RETAINER

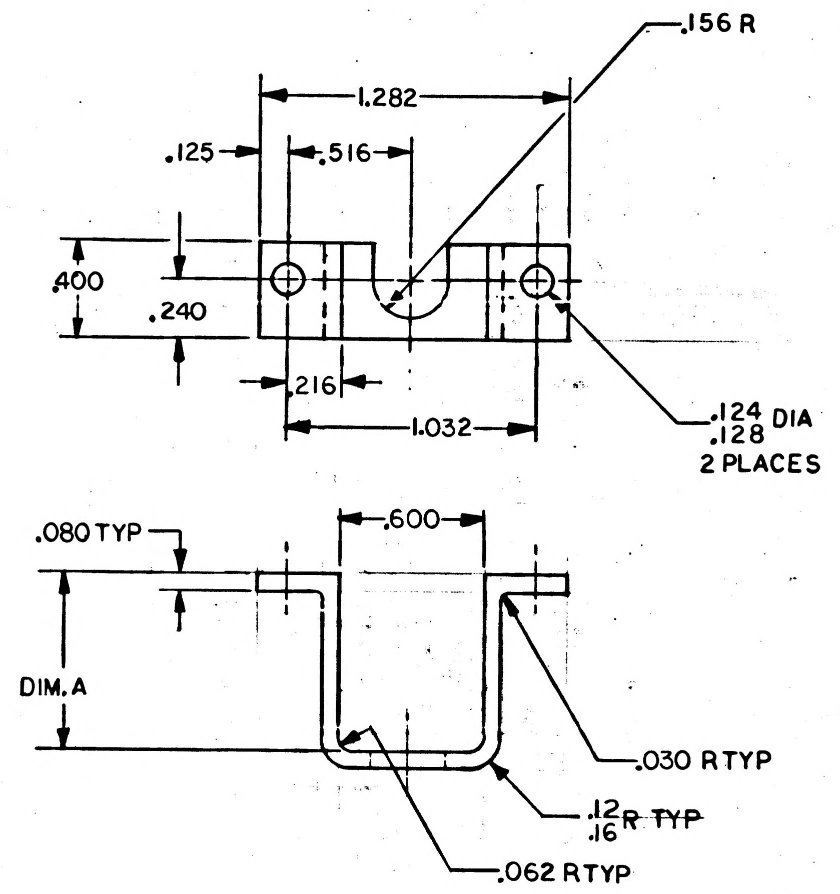
CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004149

SCALE NONE SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 22892

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



PART NO.	DIM. A
2004149 – 001	.845
2004149 – 002	.960
2004149 – 003	.907

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: 6061-T6 AL PER QQ-A-250/11 TEMP 6
3. REMOVE BURRS AND BREAK SHARP EDGES .005/.015
4. ALL SURFACES √125 UNLESS OTHERWISE SPECIFIED
5. FINISH: CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
6. IDENTIFY WITH PART NO. PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
6003001	
2003101	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ±.005 ANGLES ± ——
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN 30 July 65
CHECKED R.K. Kingsley 4 Aug 65
APPROVED 5 Oct 65
APPROVED Edw. C Hall 4 Oct 65
APPROVED MIT W Kupfer 5 Oct 66
APPROVED MSC NOT REQUIRED PER LETTER NASA PP7-65-612
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

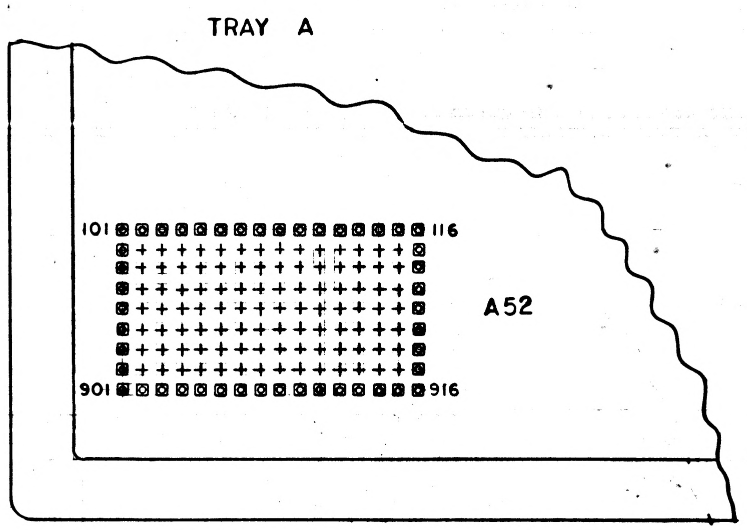
BRACKET,
SCREW RETAINER

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004149
SCALE NONE
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 22262

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 24046	AA			



WIREWRAP SIDE
SCALE: NONE

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201 MWL01	202 MWL02	203 MWL03	204 MWL04	205 MWL05	206 MWL06	207 MWL07	208 MWL08	209 MWL09	210 MWL10	211 MWL11	212 MWL12	213 MWL13	214 MWL14	215 MWL15	216 MWL16
301 MT01	302 MT02	303 MT03	304 MT04	305 MT05	306 MT06	307 MT07	308 MT08	309 MT09	310 MT10	311 MT11	312 MT12	313 MRULOG	314 MWFBG	315 MWEBG	316 MWBBEG
401 MST1	402 MST2	403 MST3	404 MTCSA/	405 MWSG	406 MWZG	407 MWYG	408 MWQG	409 MWBG	410 MSQ10	411 MSQ11	412 MSQ12	413 MSQ13	414 MSQ14	415 MSQEXT	416 MSQ16
501 MBR1	502 MBR2	503 MIIP	504 MCTRAL/	505 MTCAL/	506 MRPTAL/	507 ALGA	508 MPAL/	509 MSTPIT/	510 MGOJAM	511 MINHL	512 MINKL	513 MWLG	514 MONWT	515 MRSC	516 MRLG
601 STRT1	602 STRT2	603 MNHSBF	604 MNHNC	605 MNHRPT	606 MTCSAI	607 MSTRT	608 MSTP	609 MSBSTP	610 MRDCH	611 MLDCH	612 MGP/	613 MSP	614 MRGG	615 MWAG	616 MRAG
701 CNTRL1	702 CNTRL2	703 MTHI	704 MTLO	705 MWCH	706 MRCH	707 MONPAR	708 MONWBK	709 MWG	710 MNISQ	711 MREQIN	712 MWATCH/	713 MLOAD	714 MREAD	715 MON800	716 MPIPAL/
801 BPLSSW	802 +4SW	803	804	805	806	807	808 MSCDBL/	809 NHALGA	810 DOSCAL	811 DBLTST	812 MWARNF/	813 OUTCOM	814 MSCAFL/	815 MOSCAL/	816 MVFAIL/
901 0VDCA	902	903 0VDCA	904	905 0VDCA	906	907 0VDCA	908	909 0VDCA	910	911 0VDCA	912	913 0VDCA	914	915 0VDCA	916

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN A. Di Leo 20 AUG 65
CHECKED
APPROVED Albert Hopkins
APPROVED Eldon C Hall
APPROVED MIT
APPROVED MSC
NOT REQUIRED PER LETTER NASA EP7-65-612
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

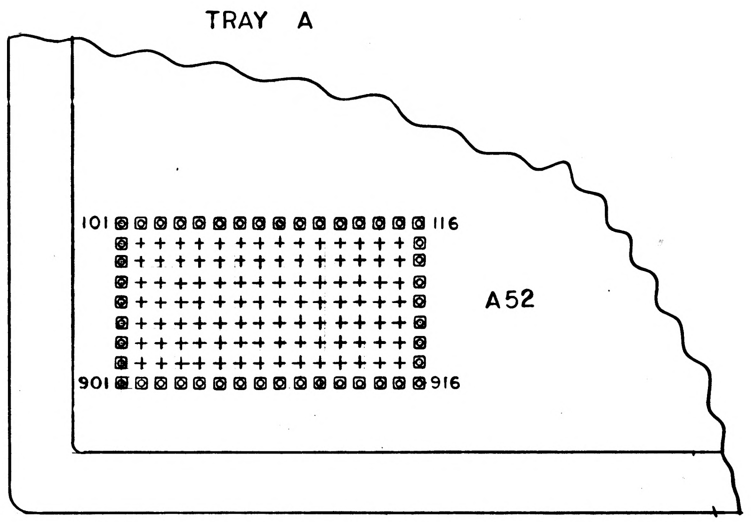
SIGNAL PIN ASSIGNMENT
CONNECTOR A52

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2004152
SCALE
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 22262

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



WIREWRAP SIDE
SCALE: NONE

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201 MWL01	202 MWL02	203 MWL03	204 MWL04	205 MWL05	206 MWL06	207 MWL07	208 MWL08	209 MWL09	210 MWL10	211 MWL11	212 MWL12	213 MWL13	214 MWL16	215 MWL15	216 MWL16
301 MT01	302 MT02	303 MT03	304 MT04	305 MT05	306 MT06	307 MT07	308 MT08	309 MT09	310 MT10	311 MT11	312 MT12	313 MRULOG	314 MWFBG	315 MWEBG	316 MWBBG
401 MST1	402 MST2	403 MST3	404 MTCSA/	405 MWSG	406 MWZG	407 MWYG	408 MWQG	409 MWBG	410 MSQ10	411 MSQ11	412 MSQ12	413 MSQ13	414 MSQ14	415 MSQEXT	416 MSQ16
501 MBR1	502 MBR2	503 MIIP	504 MCTRAL/	505 MTCAL/	506 MRPTAL/	507 ALGA	508 MPAL/	509 MSTPIT/	510 MGOJAM	511 MINHL	512 MINKL	513 MWLG	514 MONWT	515 MRSC	516 MRLG
601 STRT1	602 STRT2	603 MNHSBF	604 MNHNC	605 MNHRPT	606 MTCSAI	607 MSTRT	608 MSTP	609 MSBSTP	610 MRDCH	611 MLDCH	612 MGP/	613 MSP	614 MRGG	615 MWAG	616 MRAG
701 CNTRL1	702 CNTRL2	703 MTHI	704 MTLO	705 MWCH	706 MRCH	707 MONPAR	708 MONWBK	709 MWG	710 MNISQ	711 MREQIN	712 MWATCH	713 MLOAD	714 MREAD	715 MON800	716 MPIPAL/
801 BPLSSW	802 +4SW	803	804	805	806	807	808 MSCDBL/	809 NHALGA	810 DOSCAL	811 DBLTST	812 MWARNF/	813 OUTCOM	814 MSCAFL/	815 MOSCAL/	816 MVFAIL/
901 OVDCA	902	903 OVDCA	904	905 OVDCA	906	907 OVDCA	908	909 OVDCA	910	911 OVDCA	912	913 OVDCA	914	915 OVDCA	916

2004152

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN A. Di Leo 20 AUG 65
CHECKED
APPROVED Albert Hopkins 31 AUG 65
APPROVED Eldon C Hall 7 Sept 65
APPROVED MIT
APPROVED MSC
DATE

NOT REQUIRED PER LETTER NASC-PPY-65-612

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SIGNAL PIN ASSIGNMENT
CONNECTOR A52

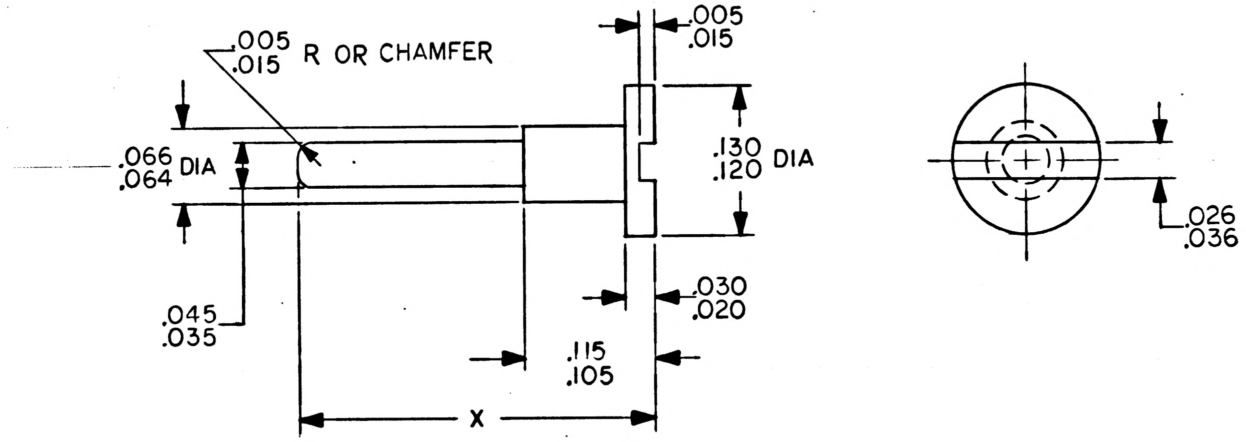
CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2004152
SCALE —
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
–		INITIAL RELEASE 22466				

DASH NO.	DIM. X
2004154-001	.355/.345



NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNPLATED NICKEL IN ACCORDANCE WITH MIL-N-46026
3. CONCENTRICITY WITHIN .005 TIR
4. UNLESS OTHERWISE SPECIFIED 125/ALL OVER
5. REMOVE BURRS AND BREAK SHARP EDGES .005 TO .015
6. IDENTIFY PER ND1002019

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MASTER

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN		7 Sept 65
CHECKED		8 Sept 65
APPROVED		
APPROVED	Eldon C Hall	13 Sept 65
APPROVED MIT		14 Sept 65
APPROVED MSC		
		DATE

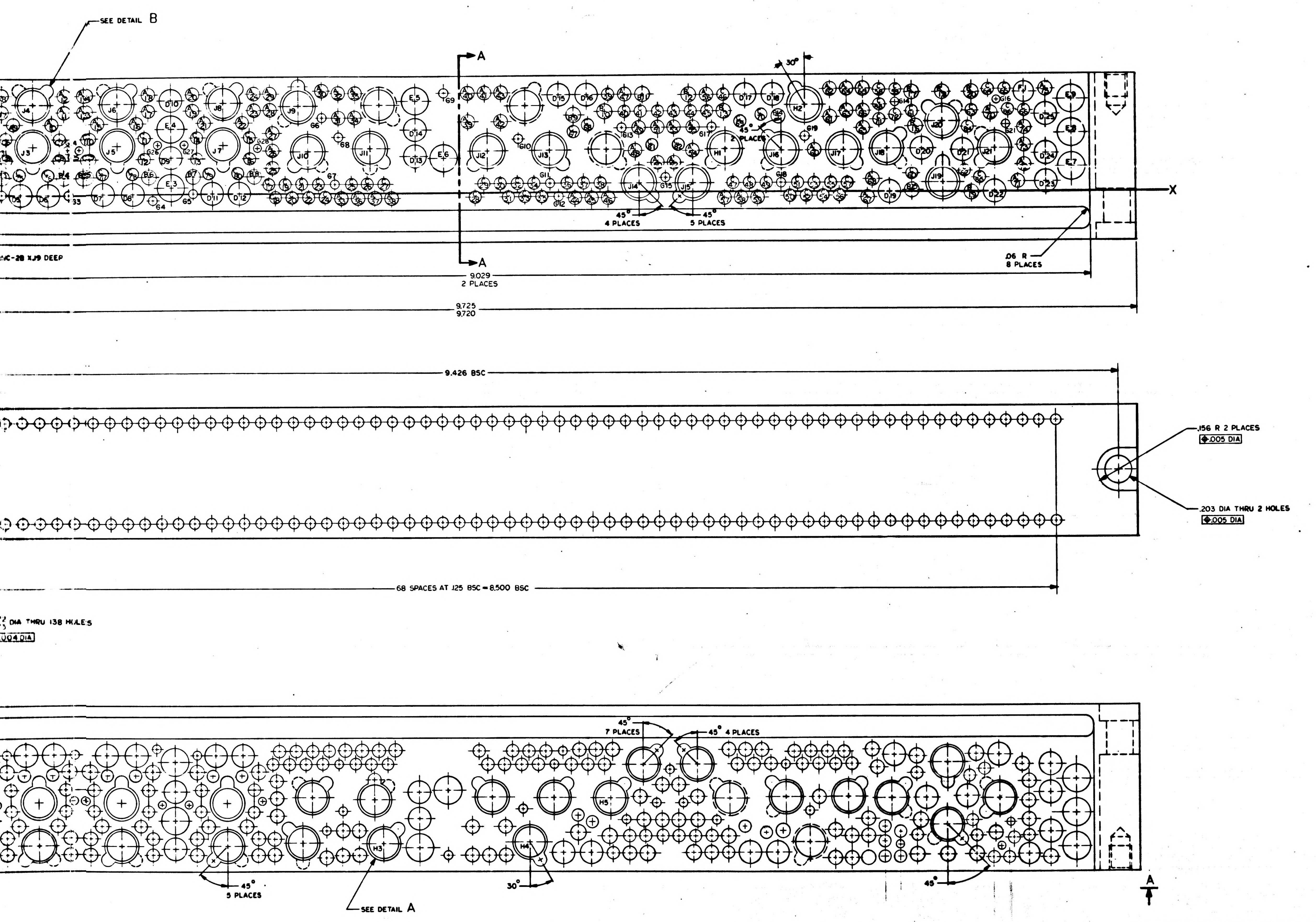
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TERMINAL, LUG

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004154
SCALE 10/1		SHEET 1 OF 1

2004154

REVISIONS 25910						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED


SEE DETAIL B
A
A
30°
45° 2 PLACES
45° 4 PLACES
45° 5 PLACES
X
-28 X.19 DEEP
.06 R 8 PLACES
9.029 2 PLACES
9.725
9.720
9.426 BSC
.156 R 2 PLACES
.005 DIA
.203 DIA THRU 2 HOLES
.005 DIA
68 SPACES AT .125 BSC = 8.500 BSC
DIA THRU 138 HOLES
.004 DIA
45° 7 PLACES
45° 4 PLACES
45° 5 PLACES
SEE DETAIL A
30°
45°
A
H3
H4
H5

4	1000115-1	INSERT, THREADED, SELF-LOCKING	2
1	2004156-001	HEADER HOUSING	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XX ± .02 .XXX ± .005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

NEXT ASSY	USED ON
2003084	

APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC A. C. METZGER

HEADER HOUSING
INSEPARABLE ASSEMBLY
ROPE DRIVER MODULE

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004156
SCALE 4/1
SHEET 1 OF 1

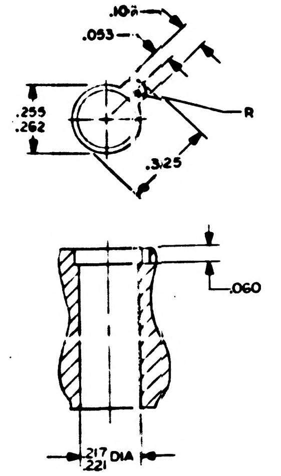
2004156

F3

MASTER

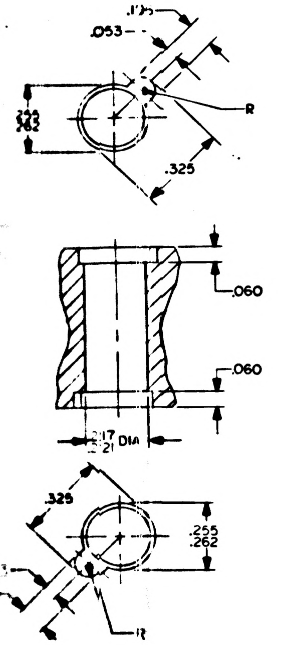
2004156

34



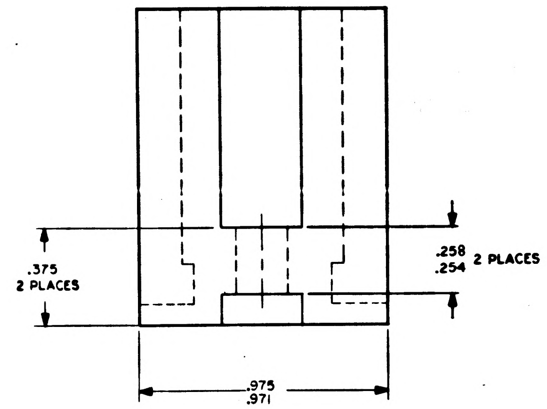
.107
.053
.255
.262
R
.325
.060
.217 DIA
.221

DETAIL A

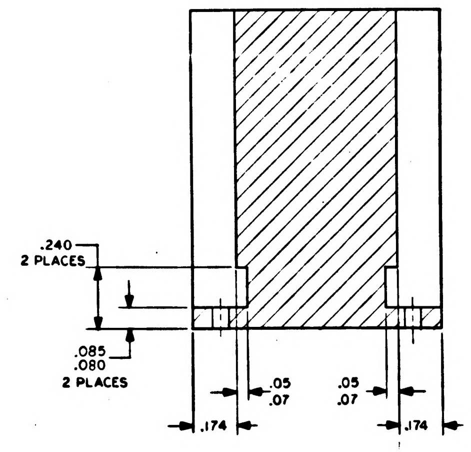


.107
.053
.255
.262
R
.325
.060
.060
.217 DIA
.221
.325
.255
.262
R

DETAIL B

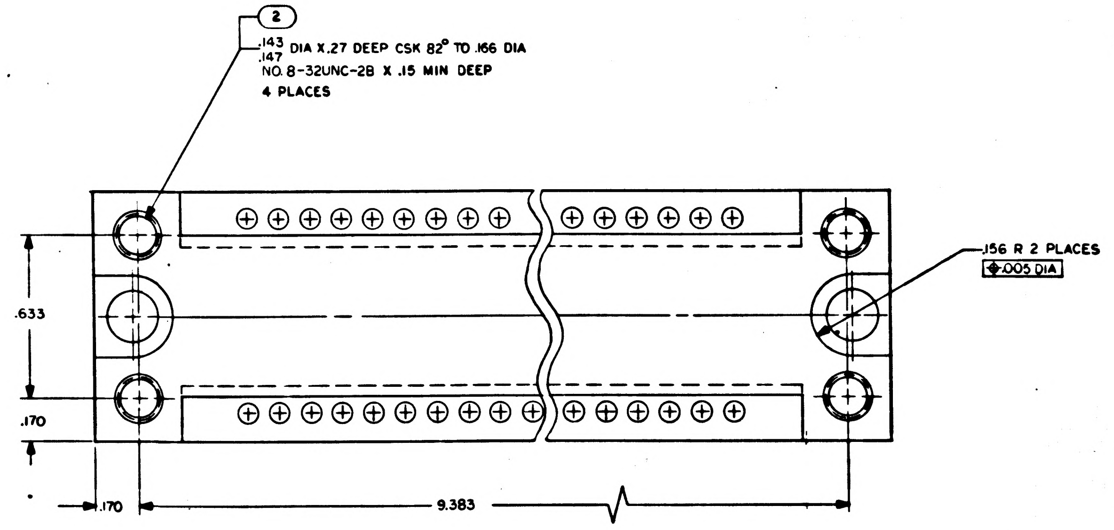


.375
2 PLACES
.258
.254
2 PLACES
.975
.971



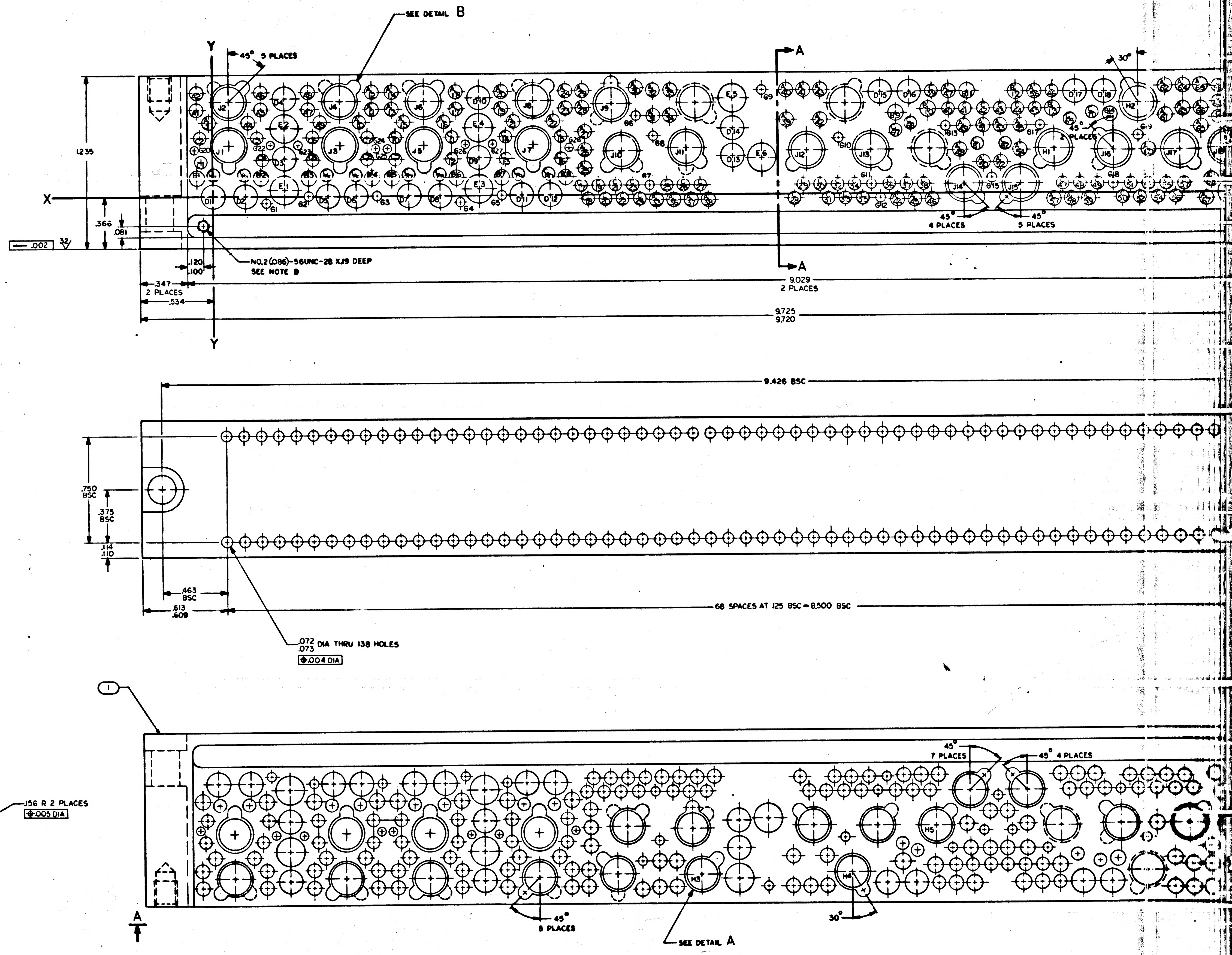
.240
2 PLACES
.085
.080
2 PLACES
.174
.05
.07
.05
.07
.174

SECTION A-A



2
.143 DIA X .27 DEEP CSK 82° TO .166 DIA
.147
NO. 8-32UNC-2B X .15 MIN DEEP
4 PLACES
.156 R 2 PLACES
.005 DIA
.633
.170
.170
9.383

VIEW A-A



SEE DETAIL B
Y
45° 5 PLACES
A
30°
1.235
X
.366
.081
.002
32
.120
.100
.347
2 PLACES
.534
NO.2 (.086)-56UNC-2B X.19 DEEP
SEE NOTE 9
45°
4 PLACES
45°
5 PLACES
A
9.029
2 PLACES
9.725
9.720
Y
9.426 BSC
.750
BSC
.375
BSC
.114
.110
.463
BSC
.613
.609
68 SPACES AT .125 BSC = 8.500 BSC
.072 DIA THRU 138 HOLES
.073
.004 DIA
1
45°
7 PLACES
45° 4 PLACES
H3
H4
H5
45°
5 PLACES
SEE DETAIL A
30°
A

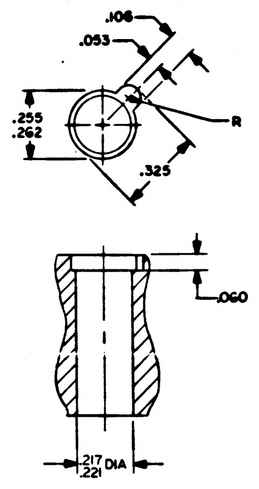
F2

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

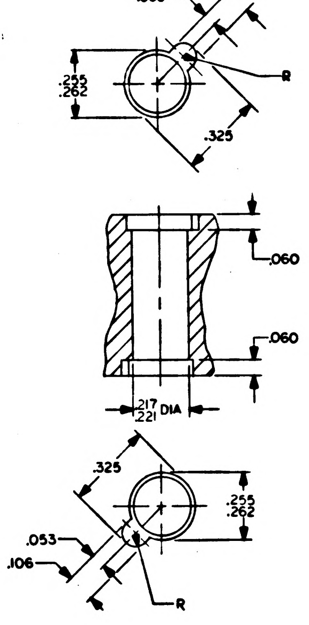
HOLE IDENT	X DIM.	Y DIM.	HOLE DIA	QTY
A1	-.115	.615	.100 .104	75
A2	-.115	.740		
A3	-.025	.525		
A4	.255	.525		
A5	.345	.615		
A6	.345	.740		
A7	.685	.615		
A8	.685	.740		
A9	.775	.525		
A10	1.055	.525		
A11	1.145	.615		
A12	1.145	.740		
A13	1.290	.615		
A14	1.290	.740		
A15	1.375	.525		
A16	1.670	.525		
A17	1.755	.615		
A18	1.755	.740		
A19	2.085	.615		
A20	2.085	.740		
A21	2.175	.525		
A22	2.465	.525		
A23	2.550	.615		
A24	2.550	.740		
A25	2.690	.195		
A26	2.690	.325		
A27	2.690	.455		
A28	2.675	.615		
A29	2.675	.740		
A30	3.065	.765		
A31	3.190	.565		
A32	3.190	.745		
A33	3.215	-.040		
A34	3.315	.565		
A35	3.315	.745		
A36	3.340	-.040		
A37	3.465	-.040		
A38	3.590	-.040		
A39	4.160	.530		
A40	4.160	.740		
A41	4.285	.740		
A42	4.415	.530		
A43	4.410	.740		
A44	4.965	-.040		
A45	5.090	-.040		
A46	5.215	-.040		
A47	5.340	.730		
A48	5.420	.310		
A49	5.450	.480		
A50	5.590	.220		
A51	5.590	.480		
A52	5.715	.220		
A53	5.710	.480		
A54	5.860	.310		
A55	5.855	.480		
A56	5.965	.725		
A57	6.090	-.040		
A58	6.220	-.040		
A59	6.350	-.040		
A60	6.780	.310		
A61	6.900	.555		
A62	6.900	.740		
A63	7.025	.600		
A64	7.025	.740		
A65	7.150	.470		
A66	7.150	.600		
A67	7.180	-.040		
A68	7.215	.095		
A69	7.150	.740		
A70	8.110	.585		
A71	8.320	.075		
A72	8.365	.200		
A73	8.365	.345		
A74	8.365	.475		
A75	8.530	.760		
B1	-.115	.125	.108 .112	18
B2	.345	.125		
B3	.685	.125		
B4	1.145	.125		
B5	1.290	.125		
B6	1.755	.125		
B7	2.085	.125		
B8	2.550	.125		
B9	4.955	.575		
B10	5.190	.600		
B11	5.475	.725		
B12	5.825	.725		
B13	6.095	.600		
B14	6.510	.565		
B15	7.515	.010		
B16	7.540	.485		
B17	7.520	.740		
B18	7.750	.740		

HOLE IDENT	X DIM.	Y DIM.	HOLE DIA	QTY
B19	7.970	-.010	.108 .112	2
B20	7.970	.740		
C1	-.080	.250	.088 .092	66
C2	-.090	.415		
C3	.320	.415		
C4	.355	.260		
C5	.720	.260		
C6	.720	.415		
C7	1.115	.415		
C8	1.115	.260		
C9	1.320	.260		
C10	1.320	.415		
C11	1.725	.415		
C12	1.725	.260		
C13	2.120	.260		
C14	2.120	.415		
C15	2.515	.415		
C16	2.515	.260		
C17	2.665	.070		
C18	2.715	-.035		
C19	2.790	.070		
C20	2.840	-.035		
C21	2.915	.070		
C22	2.965	-.035		
C23	3.040	.070		
C24	3.090	-.035		
C25	3.290	.070		
C26	3.410	.070		
C27	3.535	.070		
C28	4.215	-.035		
C29	4.280	.070		
C30	4.405	.070		
C31	4.470	-.035		
C32	4.535	.070		
C33	4.590	-.035		
C34	4.655	.070		
C35	4.715	-.035		
C36	4.905	.070		
C37	5.030	.070		
C38	5.155	.070		
C39	5.215	.730		
C40	5.340	.600		
C41	5.460	.600		
C42	5.590	.600		
C43	5.715	.600		
C44	5.845	.600		
C45	5.965	.600		
C46	6.095	.725		
C47	6.160	.070		
C48	6.285	.070		
C49	6.410	.070		
C50	6.590	-.035		
C51	6.650	.070		
C52	6.715	-.035		
C53	6.775	.070		
C54	6.840	-.035		
C55	6.900	.070		
C56	6.965	-.035		
C57	7.025	.070		
C58	7.275	.765		
C59	7.395	.765		
C60	7.520	.130		
C61	7.515	.610		
C62	7.918	.155		
C63	7.985	.600		
C64	8.100	.764		
C65	8.220	.764		
C66	8.370	.594		
D1	.000	.000	.169 .173	22
D2	.230	.000		
D3	.515	.270		
D4	.515	.700		
D5	.830	.000		
D6	1.030	.000		
D7	1.415	.000		
D8	1.625	.000		
D9	1.925	.270		
D10	1.925	.700		
D11	2.235	.000		
D12	2.435	.000		
D13	3.765	.275		
D14	3.765	.470		
D15	4.845	.725		
D16	5.055	.725		
D17	6.255	.725		
D18	6.465	.725		
D19	7.345	.000		
D20	7.590	.320		
D21	7.900	.310		
D22	8.140	.000		

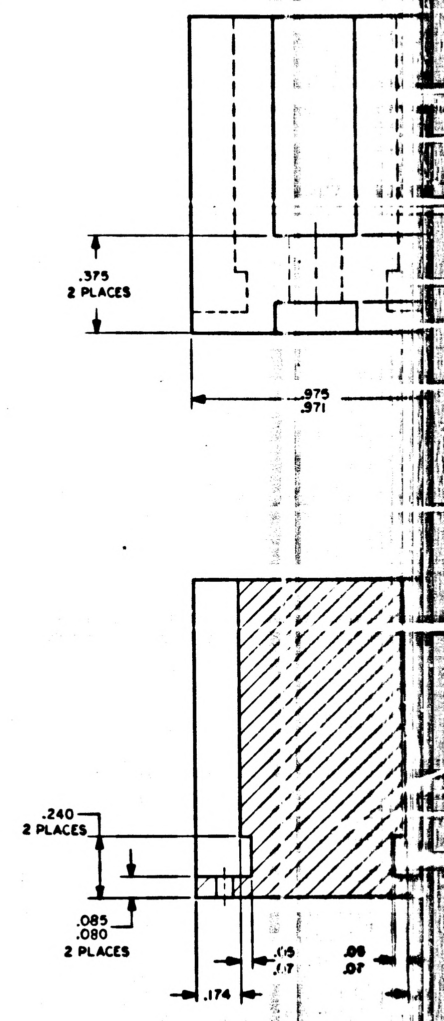
HOLE IDENT	X DIM.	Y DIM.	HOLE DIA	QTY
D23	8.530	.075	.169 .173	3
D24	8.530	.285		
D25	8.530	.575		
E1	.515	.045	.202 .206	9
E2	.515	.485		
E3	1.925	.045		
E4	1.925	.485		
E5	3.770	.685		
E6	3.980	.260		
E7	8.725	.185		
E8	8.725	.435		
E9	8.725	.685		
F1	8.365	.740	.153/.157	1
G1	.380	-.050	.058 .062	21
G2	.685	.000		
G3	1.185	.000		
G4	1.785	-.050		
G5	2.085	.000		
G6	3.065	.560		
G7	3.160	.070		
G8	3.190	.415		
G9	3.985	.745		
G10	4.540	.400		
G11	4.780	.070		
G12	4.845	-.035		
G13	5.320	.480		
G14	7.395	.667		
G15	5.650	.110		
G16	8.160	.684		
G17	6.000	.480		
G18	6.525	.070		
G19	6.705	.415		
G20	-.136	.330		
G21	8.230	.500		
H1	6.105	.320	SEE DETAIL A	5
H2	6.705	.645		
H3	3.500	.655		
H4	4.595	.645		
H5	5.190	.320		
J1	.120	.360	SEE DETAIL B	21
J2	.120	.675		
J3	.920	.360		
J4	.920	.675		
J5	1.525	.360		
J6	1.525	.675		
J7	2.320	.360		
J8	2.320	.675		
J9	2.890	.650		
J10	2.960	.310		
J11	3.430	.340		
J12	4.310	.310		
J13	4.775	.310		
J14	5.445	.070		
J15	5.855	.070		
J16	6.530	.310		
J17	7.000	.310		
J18	7.315	.320		
J19	7.750	.055		
J20	7.750	.520		
J21	8.145	.320		
C67	4.955	.450	.088 .092	20
C68	5.065	.500		
C69	6.215	.530		
C70	6.380	.575		
C71	7.275	.541		
C72	7.395	.555		
C73	.007	.152		
C74	.223	.152		
C75	.807	.152		
C76	1.023	.152		
C77	1.412	.152		
C78	1.628	.152		
C79	2.207	.152		
C80	2.423	.152		
C81	5.545	.355		
C82	5.740	.355		
C83	7.275	.652		
C84	7.945	.485		
C85	8.032	.105		
C86	8.250	.615		
G22	.415	.368	.058 .062	7
G23	.615	.368		
G24	1.175	.337		
G25	1.260	.337		
G26	1.825	.368		
G27	2.025	.368		
G28	2.575	.337		



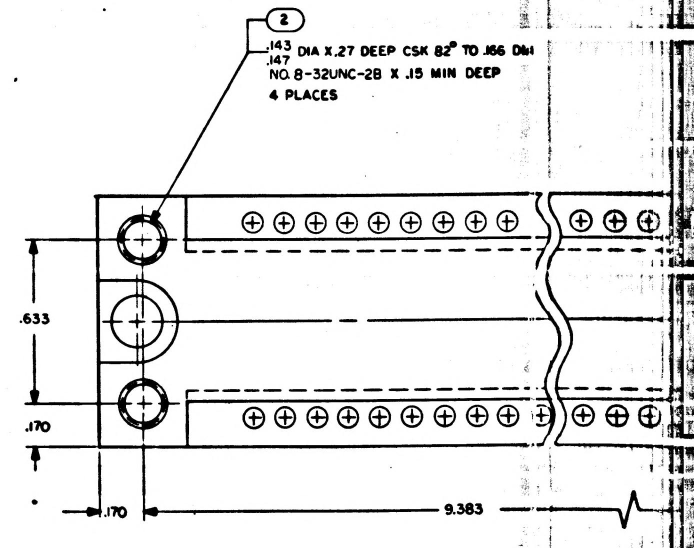
DETAIL A



DETAIL B



SECT ON A-A


2
.143
.147 DIA X .27 DEEP CSK 82° TO .166 DIA
NO. 8-32UNC-2B X .15 MIN DEEP
4 PLACES
.633
.170
.170
9.383

VIEW A-A

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATL: MAGNESIUM ALLOY ZK60A-T5 PER QQ-M-31, TEMP 5
3. FINISH: ANODIZE PER MIL-M-45202, TYPE I, CLASS C
4. ALL SURFACES 125✓ UNLESS OTHERWISE SPECIFIED
5. INSTALL FIND NO. 2 PER ND1002121
6. REMOVE BURRS AND SHARP EDGES .005/.015
7. UNLESS OTHERWISE SPECIFIED ALL FILLETS & RADII TO BE .020 MAX
8. IDENTIFY WITH PART NO. PER ND1002019
9. TAP HOLE AFTER ANODIZE. COAT PER ND1002040
10. COAT THREADS OF FIND NO. 1 WITH MIL-P-8585, COLOR YELLOW

3H

F1

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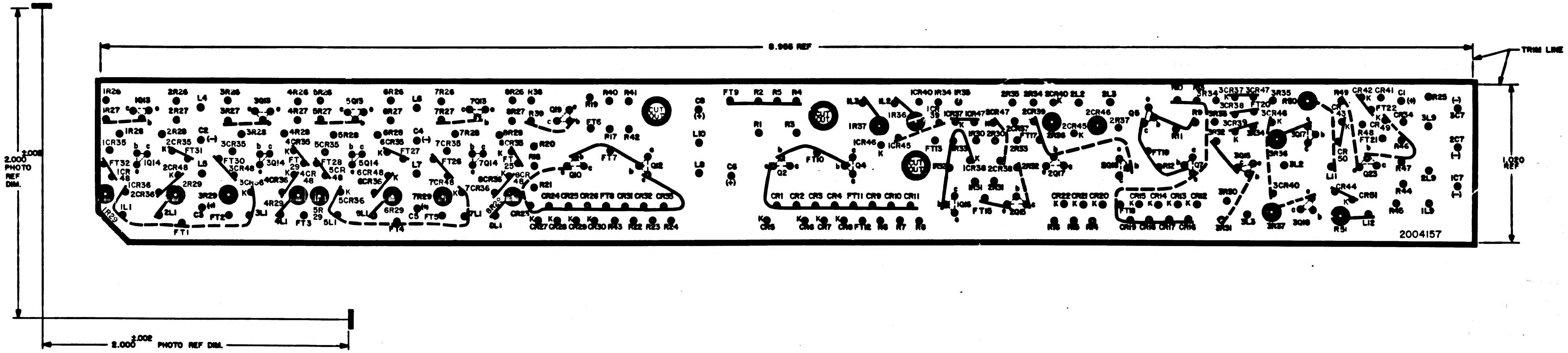
REVISIONS 2590						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: FILM .006/.008 THK SENSITIZED DIMENSIONALLY STABLE PER L-F-340, TYPE IB, CLASS 2, STYLE IA
3. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
4. MAKE MASTER PATTERN POSITIVE FILM TO DIMENSIONS SHOWN
5. CUT TO WITHIN .010 OF TRIM LINE
6. BROKEN LINE DENOTES SLEEVING
7. ● .040/.050 DIA HOLE
8. ◉ .120/.130 DIA HOLE
9. ALL CUTOUT TO BE .20/.22 DIA

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003140	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Ed Powers
CHECKED
APPROVED
APPROVED
APPROVED MIT A.C. METZGER
APPROVED MSC
DATE

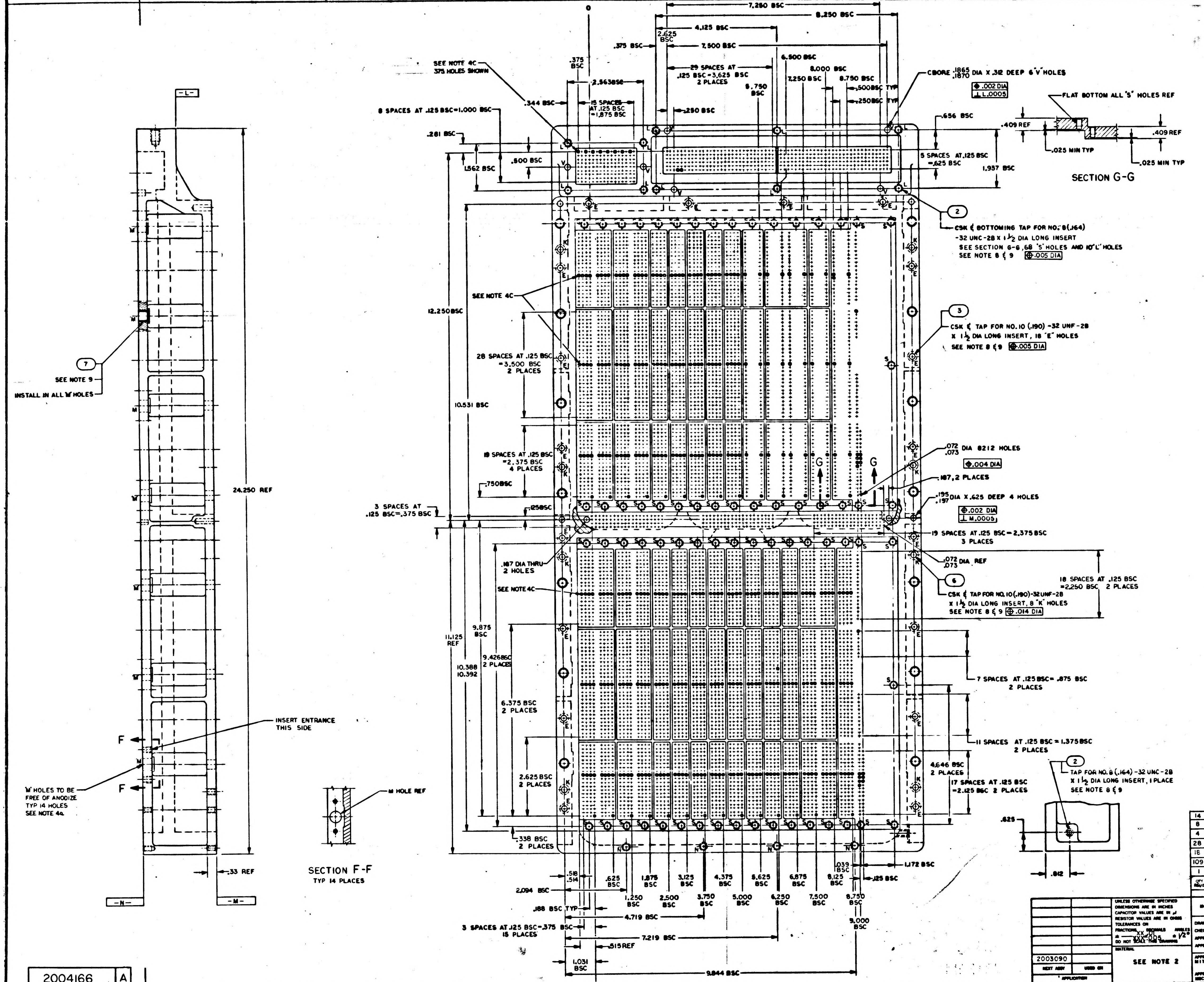
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSULATOR A
PHOTOGRAPHIC MASTER
ROPE DRIVER MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2004157
SCALE 4/1		SHEET OF

2004157

REVISIONS 25977						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 26555			3/8/66	



0
7,250 BSC
8,250 BSC
4,125 BSC
2.625 BSC
.375 BSC
7,500 BSC
6.500 BSC
29 SPACES AT .125 BSC=3,625 BSC 2 PLACES
8,000 BSC
7,250 BSC
8.750 BSC
5,750 BSC
,500 BSC TYP
,250 BSC TYP
,250 BSC
SEE NOTE 4C
375 HOLES SHOWN
.375 BSC
2,563 BSC
.344 BSC
15 SPACES AT .125 BSC =1,875 BSC
8 SPACES AT .125 BSC=1.000 BSC
.281 BSC
.500 BSC
1.562 BSC
CBORE .1865 .1870 DIA X .312 DEEP 6 "V" HOLES
.002 DIA
L.0005
.656 BSC
5 SPACES AT .125 BSC =.625 BSC
1.937 BSC
FLAT BOTTOM ALL 'S' HOLES REF
.409 REF
.409 REF
.025 MIN TYP
.025 MIN TYP
SECTION G-G
2
CSK & BOTTOMING TAP FOR NO. 8(.164) -32 UNC-2B X 1 1/2 DIA LONG INSERT
SEE SECTION G-G, 68 'S' HOLES AND 10 'L' HOLES
SEE NOTE 8 & 9 .005 DIA
3
CSK & TAP FOR NO. 10 (.190) -32 UNF-2B X 1 1/2 DIA LONG INSERT, 18 'E' HOLES
SEE NOTE 8 & 9 .005 DIA
SEE NOTE 4C
12.250 BSC
28 SPACES AT .125 BSC =3.500 BSC 2 PLACES
10.531 BSC
19 SPACES AT .125 BSC =2.375 BSC 4 PLACES
.750 BSC
3 SPACES AT .125 BSC=.375 BSC
.125 BSC
G
G
.072 .073 DIA 8212 HOLES
.004 DIA
.187, 2 PLACES
.195 .197 DIA X .625 DEEP 4 HOLES
.002 DIA
M.0005
19 SPACES AT .125 BSC = 2,375 BSC 3 PLACES
.072 .073 DIA REF
6
CSK & TAP FOR NO. 10 (.190)-32 UNF-2B X 1 1/2 DIA LONG INSERT, 8 "K" HOLES
SEE NOTE 8 & 9 .014 DIA
18 SPACES AT .125 BSC =2,250 BSC 2 PLACES
.187 DIA THRU 2 HOLES
SEE NOTE 4C
11.125 REF
9.875 BSC
9.426 BSC 2 PLACES
10.388 10.392
6.375 BSC 2 PLACES
2.625 BSC 2 PLACES
.338 BSC 2 PLACES
7 SPACES AT .125 BSC= .875 BSC 2 PLACES
11 SPACES AT .125 BSC = 1.375 BSC 2 PLACES
4.646 BSC 2 PLACES
17 SPACES AT .125 BSC =2.125 BSC 2 PLACES
2
TAP FOR NO. 8 (.164) -32 UNC-2B X 1 1/2 DIA LONG INSERT, 1 PLACE
SEE NOTE 8 & 9
.625
.812
.518 .514
.625 BSC
1.875 BSC
3.125 BSC
4.375 BSC
5.625 BSC
6.875 BSC
8.125 BSC
.039 BSC
1.172 BSC
.125 BSC
2.094 BSC
1.250 BSC
2.500 BSC
3.750 BSC
5.000 BSC
6.250 BSC
7.500 BSC
8.750 BSC
9.000 BSC
.188 BSC TYP
4.719 BSC
3 SPACES AT .125 BSC=.375 BSC 15 PLACES
7.219 BSC
.515 REF
1.031 BSC
9.844 BSC
-L-
7
SEE NOTE 9
INSTALL IN ALL 'M' HOLES
24.250 REF
INSERT ENTRANCE THIS SIDE
F
F
'M' HOLES TO BE FREE OF ANODIZE TYP 14 HOLES SEE NOTE 4a
.33 REF
-N-
-M-
M HOLE REF
SECTION F-F
TYP 14 PLACES

14	2004706-002	INSERT, KNURLED	7
8	MS21208-F1-15	INSERT, THREADED	6
4	MS21209-F4-15	INSERT, THREADED, SELF-LOCKING	5
28	MS21209-C0415	INSERT, THREADED, SELF-LOCKING	4
18	MS21209-F1-15	INSERT, THREADED, SELF-LOCKING	3
109	MS21209-C0815	INSERT, THREADED, SELF-LOCKING	2
1	2004166-001	TRAY A MACHINED	1
QTY REQ'D	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003090	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XX ±.01 .XXX ±.005 ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN W. Horgan 8 Oct 65
CHECKED 15 Oct 65
APPROVED
APPROVED Ellen C Hall 5 Feb 66
APPROVED MIT A. C. METZGER
APPROVED MSC

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

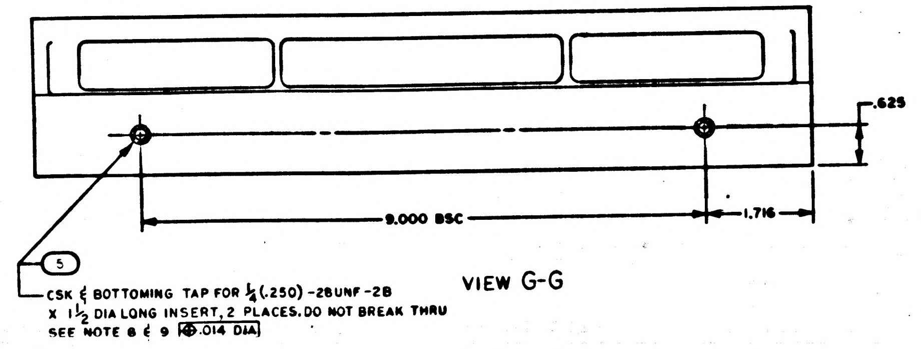
TRAY A
INSEPARABLE ASSY
AGC

CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2004166

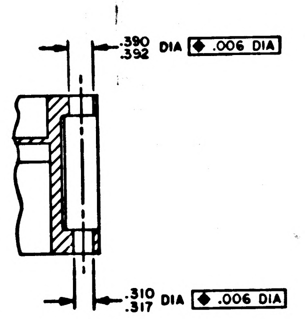
SCALE 1/1 SHEET 1 OF 2

2004166 A

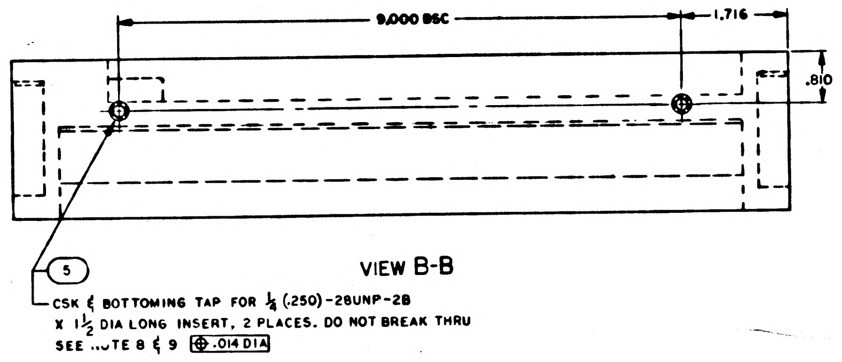
F 2/2


.625
9.000 BSC
1.716
5
CSK & BOTTOMING TAP FOR 1/4 (.250)-28UNF-2B
X 1 1/2 DIA LONG INSERT, 2 PLACES. DO NOT BREAK THRU
SEE NOTE 8 & 9 ⊕.014 DIA

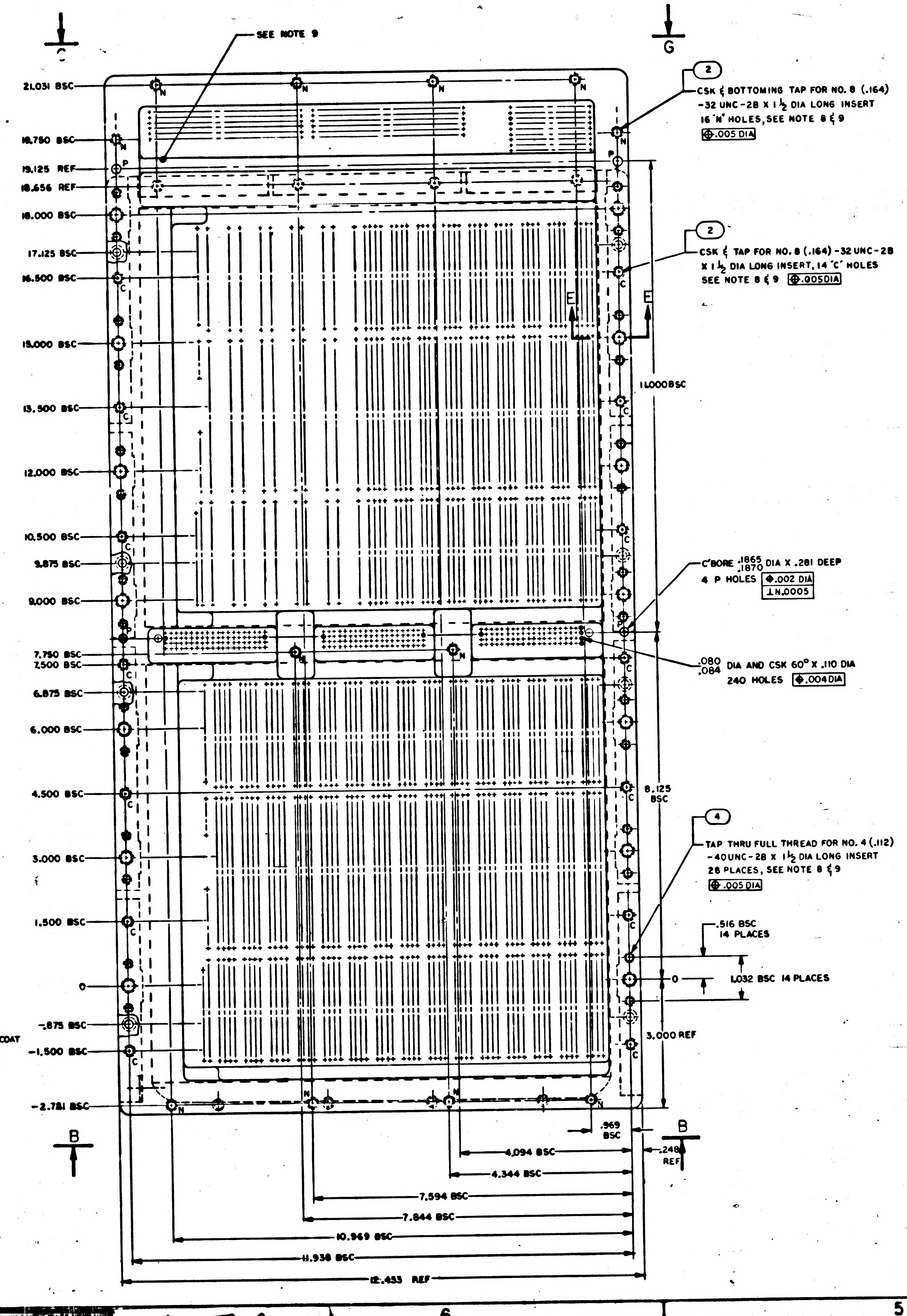
VIEW G-G

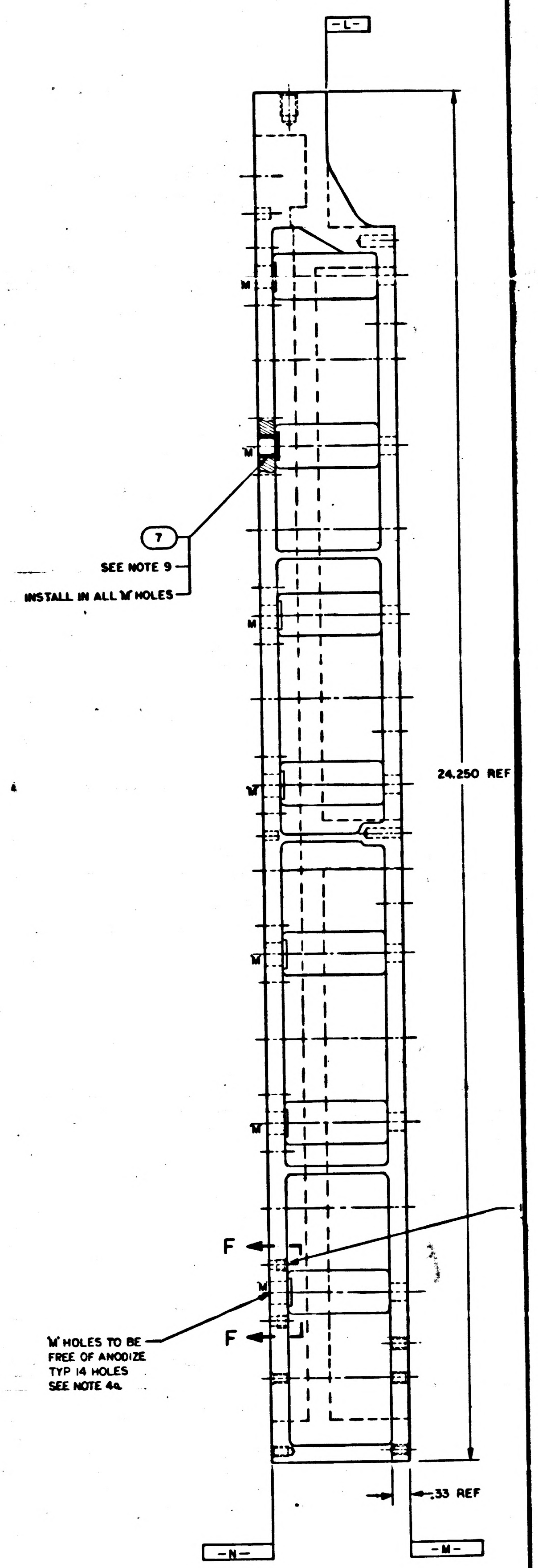

.390
.392 DIA ◆.006 DIA
.310
.317 DIA ◆.006 DIA

SECTION E-E
14 PLACES


9.000 BSC
1.716
.810
5
CSK & BOTTOMING TAP FOR 1/4 (.250)-28UNF-2B
X 1 1/2 DIA LONG INSERT, 2 PLACES. DO NOT BREAK THRU
SEE NOTE 8 & 9 ⊕.014 DIA

VIEW B-B


C
G
SEE NOTE 9
21.031 BSC
19.750 BSC
19.125 REF
18.656 REF
18.000 BSC
17.125 BSC
16.500 BSC
15.000 BSC
13.500 BSC
12.000 BSC
10.500 BSC
9.875 BSC
9.000 BSC
7.750 BSC
7.500 BSC
6.875 BSC
6.000 BSC
4.500 BSC
3.000 BSC
1.500 BSC
0
-.875 BSC
-1.500 BSC
-2.781 BSC
N
P
C
E
2
CSK & BOTTOMING TAP FOR NO. 8 (.164)
-32 UNC-2B X 1 1/2 DIA LONG INSERT
16 "N" HOLES, SEE NOTE 8 & 9
⊕.005 DIA
2
CSK & TAP FOR NO. 8 (.164)-32 UNC-2B
X 1 1/2 DIA LONG INSERT, 14 "C" HOLES
SEE NOTE 8 & 9 ⊕.005 DIA
11.000 BSC
C'BORE .1865/.1870 DIA X .281 DEEP
4 P HOLES ◆.002 DIA
⊥N.0005
.080/.084 DIA AND CSK 60° X .110 DIA
240 HOLES ◆.004 DIA
8.125 BSC
4
TAP THRU FULL THREAD FOR NO. 4 (.112)
-40UNC-2B X 1 1/2 DIA LONG INSERT
28 PLACES, SEE NOTE 8 & 9
⊕.005 DIA
.516 BSC
14 PLACES
0
1.032 BSC 14 PLACES
3.000 REF
.969 BSC
.248 REF
B
4.094 BSC
4.344 BSC
7.594 BSC
7.844 BSC
10.969 BSC
11.938 BSC
12.433 REF

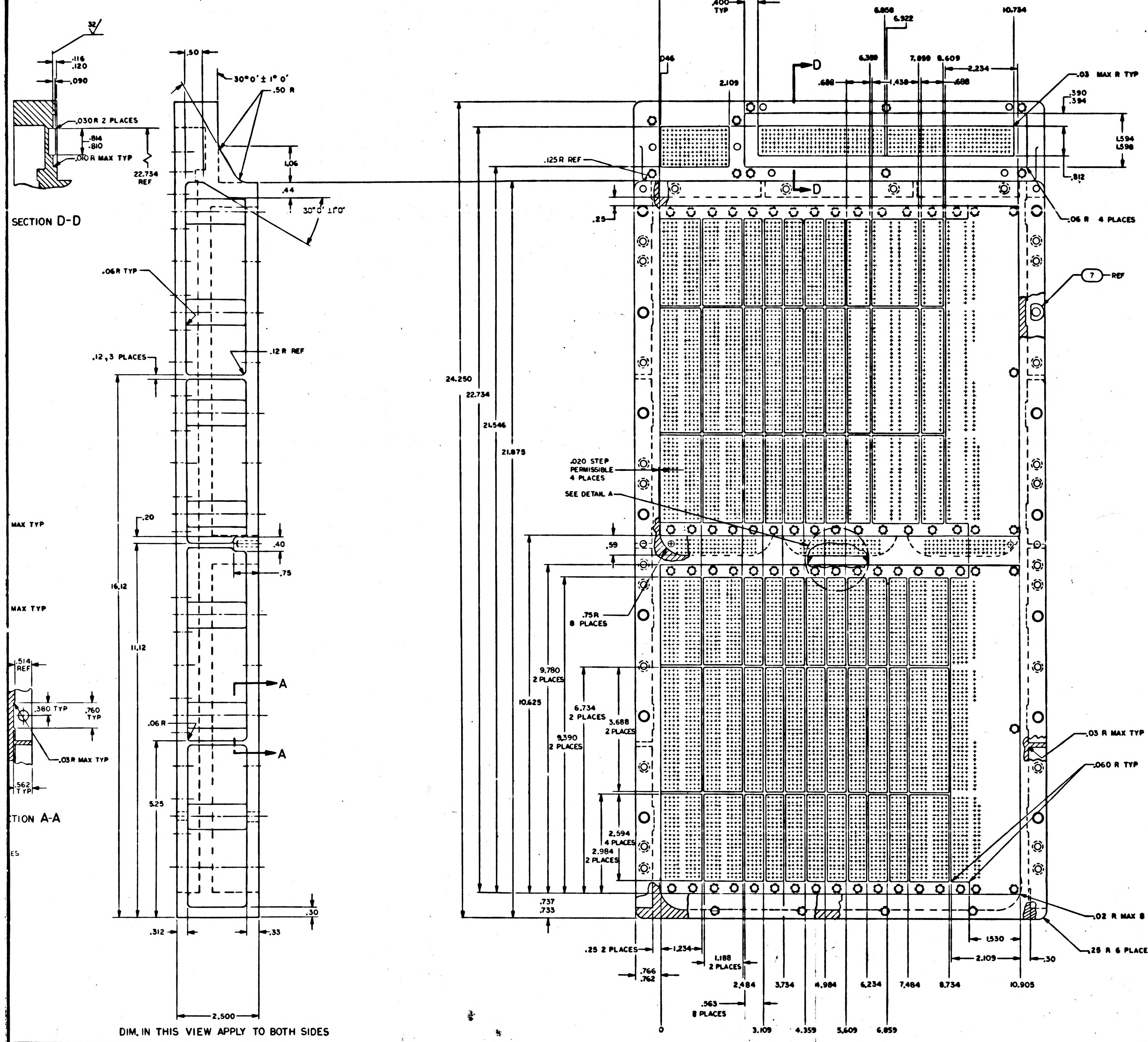

L
7
SEE NOTE 9
INSTALL IN ALL 'M' HOLES
M
24.250 REF
F
F
'M' HOLES TO BE
FREE OF ANODIZE
TYP 14 HOLES
SEE NOTE 4a
.33 REF
N
M

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MAT'L MAGNESIUM ZK60A-T5 PER QQ-M-31, TEMP T5
3. ANODIZE PER MIL-M-45202, TYPE I, CLASS C
4. a) INDICATED SURFACES SHALL BE FREE OF ANODIZE, TREAT PER ND1002040 USING DILUTE CHROMIC ACID TREATMENT USING O-C-303 DO NOT EPOXY COAT
   b) TAP "C", E, "L" & "N" HOLES AFTER ANODIZE AND TREAT PER ND1002040 USING DILUTE CHROMIC ACID TREATMENT USING O-C-303 DO NOT EPOXY COAT
   c) 375 HOLES SHOWN TO BE FREE OF ANODIZE TREAT PER ND1002040 USING DILUTE CHROMIC ACID TREATMENT USING O-C-303 DO NOT EPOXY COAT
5. ALL SURFACES $\overset{125}{\checkmark}$ UNLESS OTHERWISE SPECIFIED
6. REMOVE BURRS AND SHARP EDGES .005/.015
7. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII .125
8. INSTALL FIND NO. 2,3,4,5. AND 6 PER MS 33646 AND REMOVE DRIVING TANG
9. COAT FIND NO.7 AND THREADS OF FIND NO,2,3,4,5 AND 6 WITH MIL-P-8585 COLOR YELLOW
10. IDENTIFY WITH PART NO. PER ND 1002019 AND SERIALIZE PER ND 1002023 WHERE SHOWN

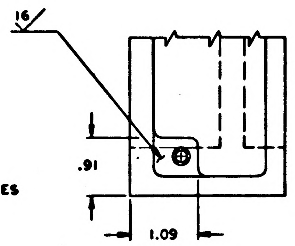
2004166	A

2004166 A E1/2 SHEET 1

		REVISIONS 25977				
SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
A		REVISED PER TDRR 26555				



SECTION D-D
32
.116
.120
.090
.030R 2 PLACES
.814
.810
.010R MAX TYP
.50
30° 0' ± 1° 0'
.50 R
22.734 REF
1.06
.44
30° 0' ± 1° 0'
.06R TYP
.12 R REF
.12, 3 PLACES
.20
.40
.75
16.12
11.12
.06 R
5.25
.30
.312
.33
2.500
A
A
MAX TYP
MAX TYP
.514 REF
.380 TYP
.760 TYP
.03R MAX TYP
.562 TYP
SECTION A-A
B-B
DIM. IN THIS VIEW APPLY TO BOTH SIDES
0
3.046
.400 TYP
.046
6.856
6.922
10.734
6.359
7.859
8.609
2.109
.688
1.438
2.234
.688
D
D
.03 MAX R TYP
.390
.394
1.594
1.598
.812
.125R REF
.06 R 4 PLACES
.25
7
REF
24.250
22.734
21.546
21.875
.020 STEP PERMISSIBLE 4 PLACES
SEE DETAIL A
.59
.75R 8 PLACES
9.780 2 PLACES
10.625
6.734 2 PLACES
3.688 2 PLACES
9.390 2 PLACES
2.594 4 PLACES
2.984 2 PLACES
.737
.733
.03 R MAX TYP
.060 R TYP
.02 R MAX 8 PLACES
.25 R 6 PLACES
1.530
2.109
.30
.25 2 PLACES
1.234
1.188 2 PLACES
.766
.762
2.484
3.734
4.984
6.234
7.484
8.734
10.905
.563 8 PLACES
3.109
4.359
5.609
6.859
0



QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN E W [illegible] 1 OCT 65
CHECKED [illegible] 1 OCT 65
APPROVED
APPROVED Eldon C Hall [illegible]
APPROVED MIT [illegible] A.C. METZGER [illegible]
APPROVED MSC
DATE

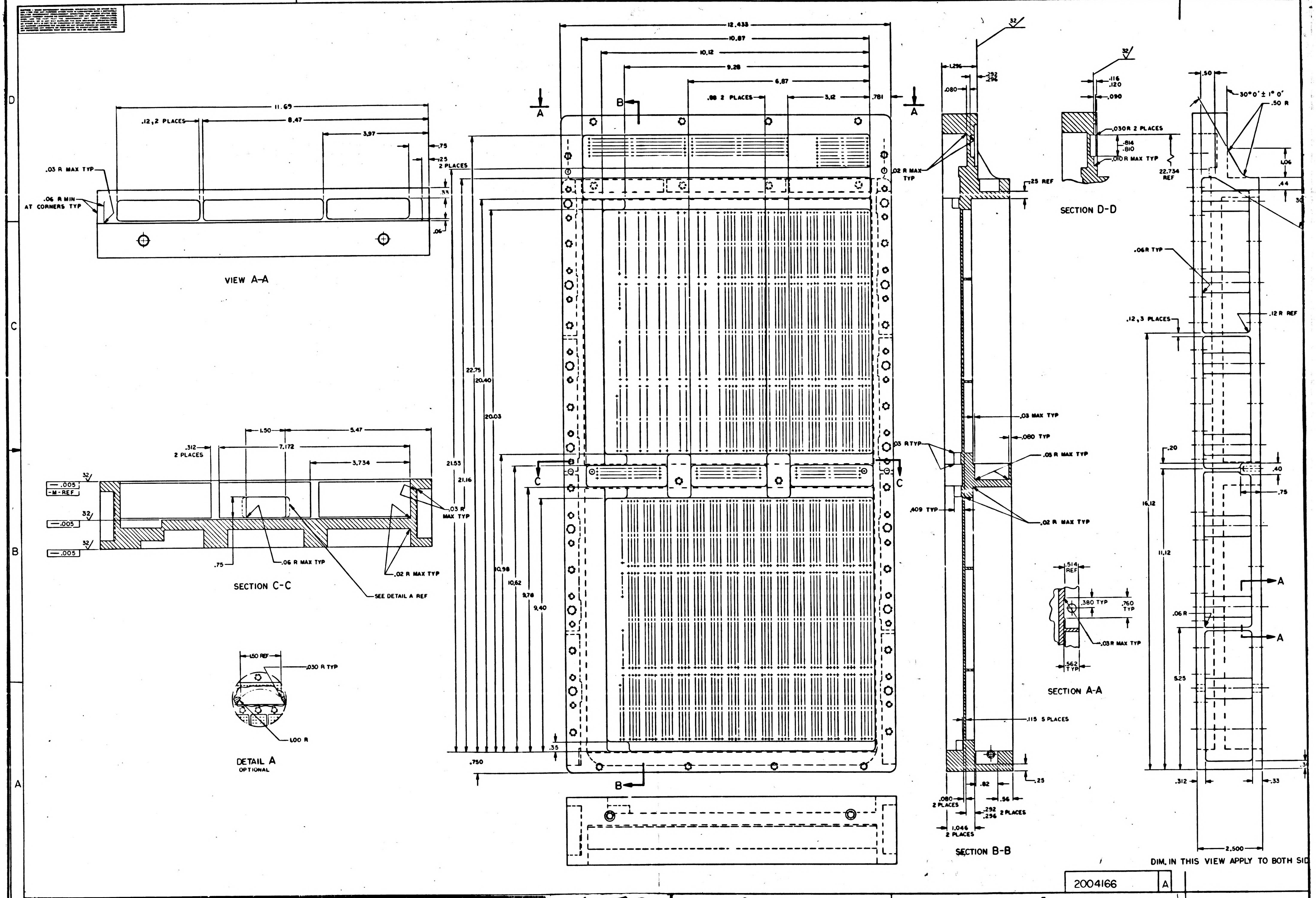
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRAY A
INSEPARABLE ASSY
AGC

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004166
SCALE 1/1
SHEET 2 OF 2

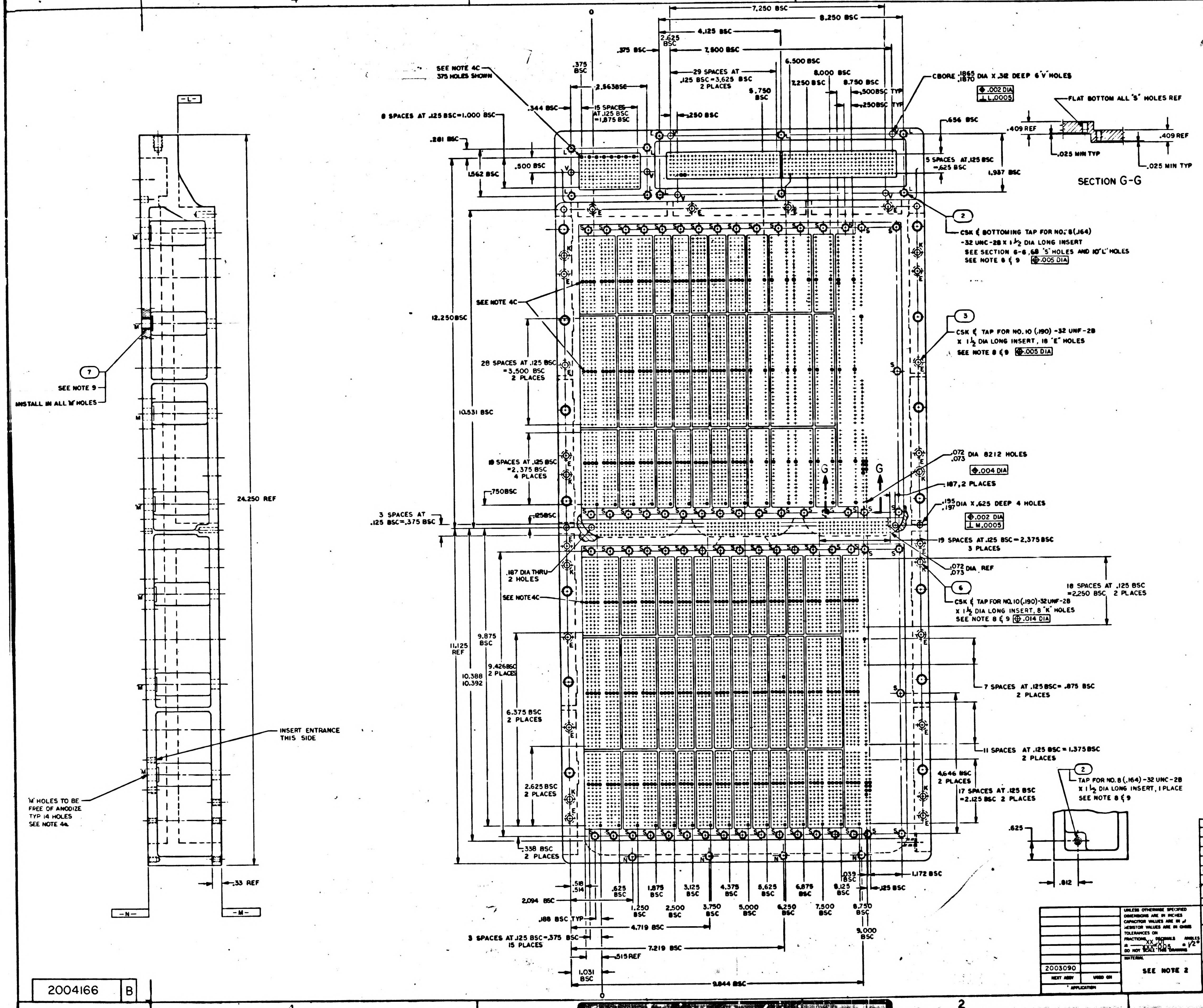
2004166 A

F 2/2


VIEW A-A
SECTION C-C
DETAIL A
OPTIONAL
SECTION B-B
SECTION D-D
SECTION A-A
DIM. IN THIS VIEW APPLY TO BOTH SID
12.433
10.87
10.12
9.28
6.87
3.12
.781
.88 2 PLACES
11.69
8.47
3.97
.12, 2 PLACES
.75
.25
2 PLACES
.33
.06
.03 R MAX TYP
.06 R MIN AT CORNERS TYP
22.75
20.40
20.03
21.53
21.16
10.98
10.62
9.78
9.40
.35
.750
1.50
5.47
7.172
3.734
.312 2 PLACES
.005
-M-REF
.75
.06 R MAX TYP
.02 R MAX TYP
.03 R MAX TYP
SEE DETAIL A REF
1.50 REF
.030 R TYP
1.00 R
1.296
.292
.296
.080
.02 R MAX TYP
.25 REF
.03 MAX TYP
.080 TYP
.03 R TYP
.05 R MAX TYP
.409 TYP
.02 R MAX TYP
.115 5 PLACES
.82
.56
.25
.080 2 PLACES
.292 .296 2 PLACES
1.046 2 PLACES
.116
.120
.090
.030 R 2 PLACES
.814
.810
.010 R MAX TYP
22.734 REF
.514 REF
.380 TYP
.760 TYP
.03 R MAX TYP
.562 TYP
.50
30°0' ± 1° 0'
.50 R
1.06
.44
.06R TYP
.12, 3 PLACES
.12 R REF
.20
.40
.75
16.12
11.12
.06 R
5.25
.312
.33
2.500
A
B
C
32
2004166 A
8
7
6
5
4
D

2004166 A F1/2 SHEET 2

REVISIONS 25977						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 26515			3/8/66	
B		REVISED PER TDRR 28026			5/2/66	



4
3
2
1
D
C
B
A
-L-
-N-
-M-
SEE NOTE 9
INSTALL IN ALL 'M' HOLES
24.250 REF
INSERT ENTRANCE THIS SIDE
'M' HOLES TO BE FREE OF ANODIZE TYP 14 HOLES SEE NOTE 4a
.33 REF
7.250 BSC
8.250 BSC
4.125 BSC
2.625 BSC
7.500 BSC
.375 BSC
SEE NOTE 4C 375 HOLES SHOWN
.375 BSC
2.563 BSC
29 SPACES AT .125 BSC=3.625 BSC 2 PLACES
6.500 BSC
8.000 BSC
7.250 BSC
8.750 BSC
5.750 BSC
.500 BSC TYP
.250 BSC TYP
8 SPACES AT .125 BSC=1.000 BSC
.344 BSC
15 SPACES AT .125 BSC =1.875 BSC
.250 BSC
.281 BSC
.500 BSC
1.562 BSC
CBORE .1865 .1870 DIA X .312 DEEP 6 'V' HOLES
.002 DIA
L.0005
FLAT BOTTOM ALL 'S' HOLES REF
.656 BSC
.409 REF
.409 REF
.025 MIN TYP
.025 MIN TYP
5 SPACES AT .125 BSC =.625 BSC
1.937 BSC
SECTION G-G
2
CSK & BOTTOMING TAP FOR NO. 8(.164) -32 UNC-2B X 1½ DIA LONG INSERT
SEE SECTION G-G, 68 'S' HOLES AND 10 'L' HOLES
SEE NOTE 8 & 9 .005 DIA
SEE NOTE 4C
12.250 BSC
3
CSK & TAP FOR NO. 10 (.190) -32 UNF-2B X 1½ DIA LONG INSERT, 18 'E' HOLES
SEE NOTE 8 & 9 .005 DIA
28 SPACES AT .125 BSC =3.500 BSC 2 PLACES
10.531 BSC
19 SPACES AT .125 BSC =2.375 BSC 4 PLACES
.750 BSC
.072 .073 DIA 8212 HOLES
.004 DIA
G
G
.187, 2 PLACES
.195 .197 DIA X .625 DEEP 4 HOLES
.002 DIA
M.0005
3 SPACES AT .125 BSC=.375 BSC
.125 BSC
19 SPACES AT .125 BSC=2.375 BSC 3 PLACES
.072 .073 DIA REF
6
CSK & TAP FOR NO. 10(.190)-32 UNF-2B X 1½ DIA LONG INSERT, 8 'K' HOLES
SEE NOTE 8 & 9 .014 DIA
18 SPACES AT .125 BSC =2.250 BSC 2 PLACES
.187 DIA THRU 2 HOLES
SEE NOTE 4C
11.125 REF
9.875 BSC
10.388 10.392
9.426 BSC 2 PLACES
6.375 BSC 2 PLACES
7 SPACES AT .125 BSC= .875 BSC 2 PLACES
11 SPACES AT .125 BSC = 1.375 BSC 2 PLACES
2.625 BSC 2 PLACES
4.646 BSC 2 PLACES
17 SPACES AT .125 BSC =2.125 BSC 2 PLACES
2
TAP FOR NO. 8 (.164) -32 UNC-2B X 1½ DIA LONG INSERT, 1 PLACE
SEE NOTE 8 & 9
.625
.812
.338 BSC 2 PLACES
.516 .514
.625 BSC
1.875 BSC
3.125 BSC
4.375 BSC
5.625 BSC
6.875 BSC
8.125 BSC
.039 BSC
1.172 BSC
.125 BSC
2.094 BSC
1.250 BSC
2.500 BSC
3.750 BSC
5.000 BSC
6.250 BSC
7.500 BSC
8.750 BSC
9.000 BSC
.188 BSC TYP
4.719 BSC
3 SPACES AT .125 BSC=.375 BSC 15 PLACES
7.219 BSC
.515 REF
1.031 BSC
9.844 BSC
S
L
V
E
K
N
M

2004166 B

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
14	2004706-002	INSERT, KNURLED	7
8	MS21208F1-15	INSERT, THREADED	6
4	MS21209F4-15	INSERT, THREADED, SELF-LOCKING	5
28	MS21209C0415	INSERT, THREADED, SELF-LOCKING	4
18	MS21209F1-15	INSERT, THREADED, SELF-LOCKING	3
109	MS21209C0815	INSERT, THREADED, SELF-LOCKING	2
1	2004166-001	TRAY A MACHINED	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003090	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XX ±.01 .XXX ±.005 ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

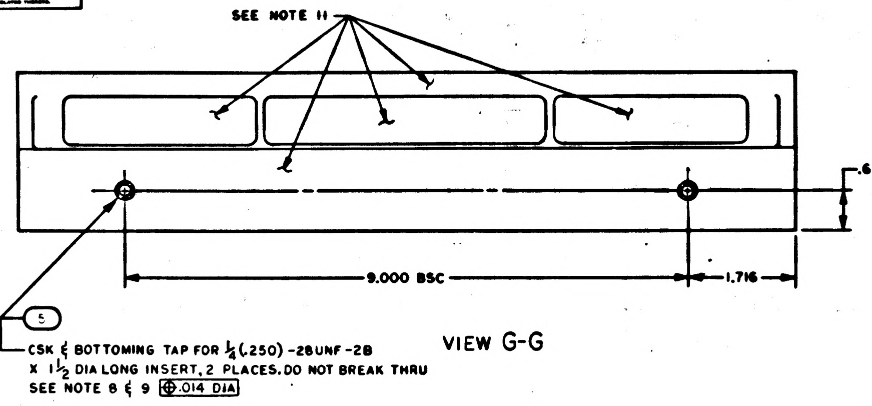
DRAWN W. Horgan 28 Oct 65
CHECKED 15 Oct 65
APPROVED
APPROVED 8 Feb 66
APPROVED MIT A. C. METZGER
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

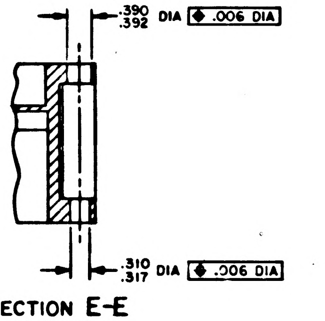
TRAY A
INSEPARABLE ASSY
AGC

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004166
SCALE 1/1
SHEET 1 OF 2

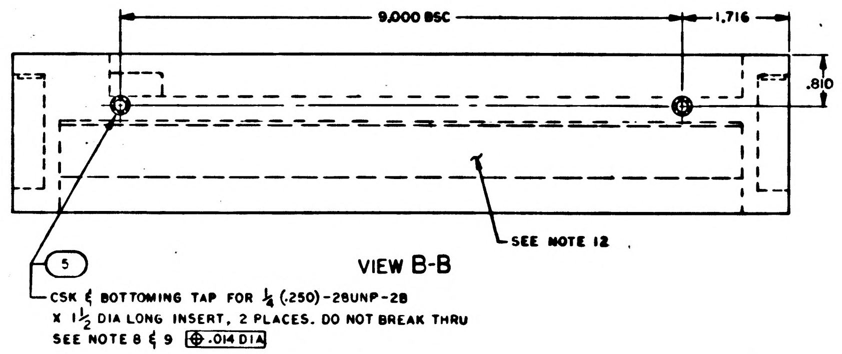
2004166 B


SEE NOTE 11
.625
9.000 BSC
1.716
5
CSK & BOTTOMING TAP FOR 1/4 (.250) -28UNF-2B
X 1 1/2 DIA LONG INSERT, 2 PLACES. DO NOT BREAK THRU
SEE NOTE 8 & 9 ⊕.014 DIA

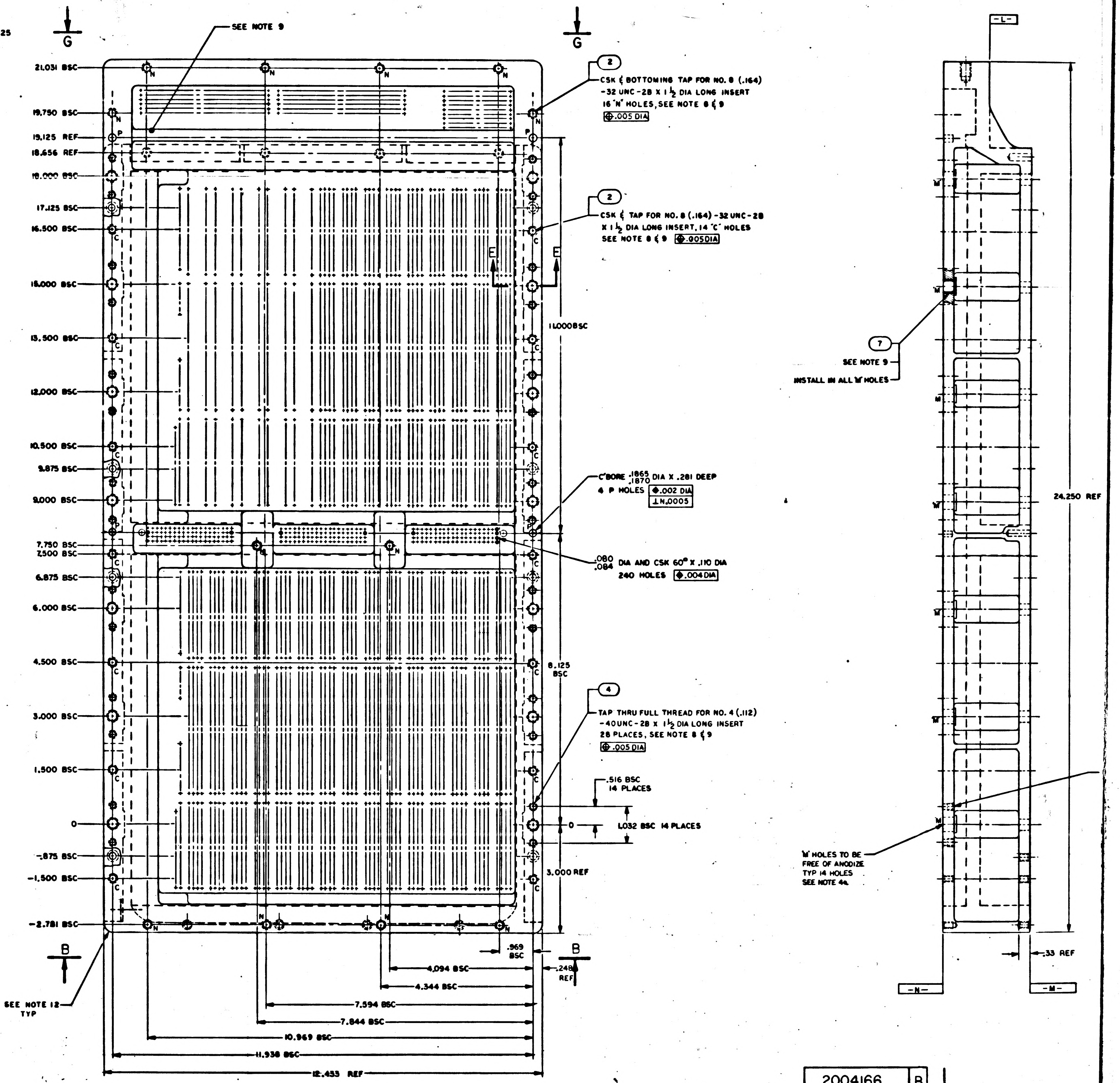
VIEW G-G


.390 .392 DIA ◆.006 DIA
.310 .317 DIA ◆.006 DIA

SECTION E-E
14 PLACES


9.000 BSC
1.716
.810
SEE NOTE 12
5
CSK & BOTTOMING TAP FOR 1/4 (.250)-28UNF-2B
X 1 1/2 DIA LONG INSERT, 2 PLACES. DO NOT BREAK THRU
SEE NOTE 8 & 9 ⊕.014 DIA

VIEW B-B


SEE NOTE 9
G
G
21.031 BSC
19.790 BSC
19.125 REF
18.656 REF
18.000 BSC
17.125 BSC
16.500 BSC
15.000 BSC
13.500 BSC
12.000 BSC
10.500 BSC
9.875 BSC
9.000 BSC
7.750 BSC
7.500 BSC
6.875 BSC
6.000 BSC
4.500 BSC
3.000 BSC
1.500 BSC
0
-.875 BSC
-1.500 BSC
-2.781 BSC
2
CSK & BOTTOMING TAP FOR NO. 8 (.164)
-32 UNC-2B X 1 1/2 DIA LONG INSERT
16 "N" HOLES, SEE NOTE 8 & 9
⊕.005 DIA
2
CSK & TAP FOR NO. 8 (.164)-32 UNC-2B
X 1 1/2 DIA LONG INSERT, 14 "C" HOLES
SEE NOTE 8 & 9 ⊕.005DIA
E
E
11.000 BSC
C'BORE .1865 .1870 DIA X .281 DEEP
4 P HOLES ◆.002 DIA
⊥N.0005
.080 .084 DIA AND CSK 60° X .110 DIA
240 HOLES ◆.004DIA
8.125 BSC
4
TAP THRU FULL THREAD FOR NO. 4 (.112)
-40UNC-2B X 1 1/2 DIA LONG INSERT
28 PLACES, SEE NOTE 8 & 9
⊕.005 DIA
.516 BSC
14 PLACES
0
1.032 BSC 14 PLACES
3.000 REF
.969 BSC
.248 REF
B
B
SEE NOTE 12 TYP
4.094 BSC
4.344 BSC
7.594 BSC
7.844 BSC
10.969 BSC
11.938 BSC
12.453 REF
N
C
P
-L-
7
SEE NOTE 9
INSTALL IN ALL "M" HOLES
24.250 REF
"M" HOLES TO BE
FREE OF ANODIZE
TYP 14 HOLES
SEE NOTE 4a
.33 REF
-N-
-M-

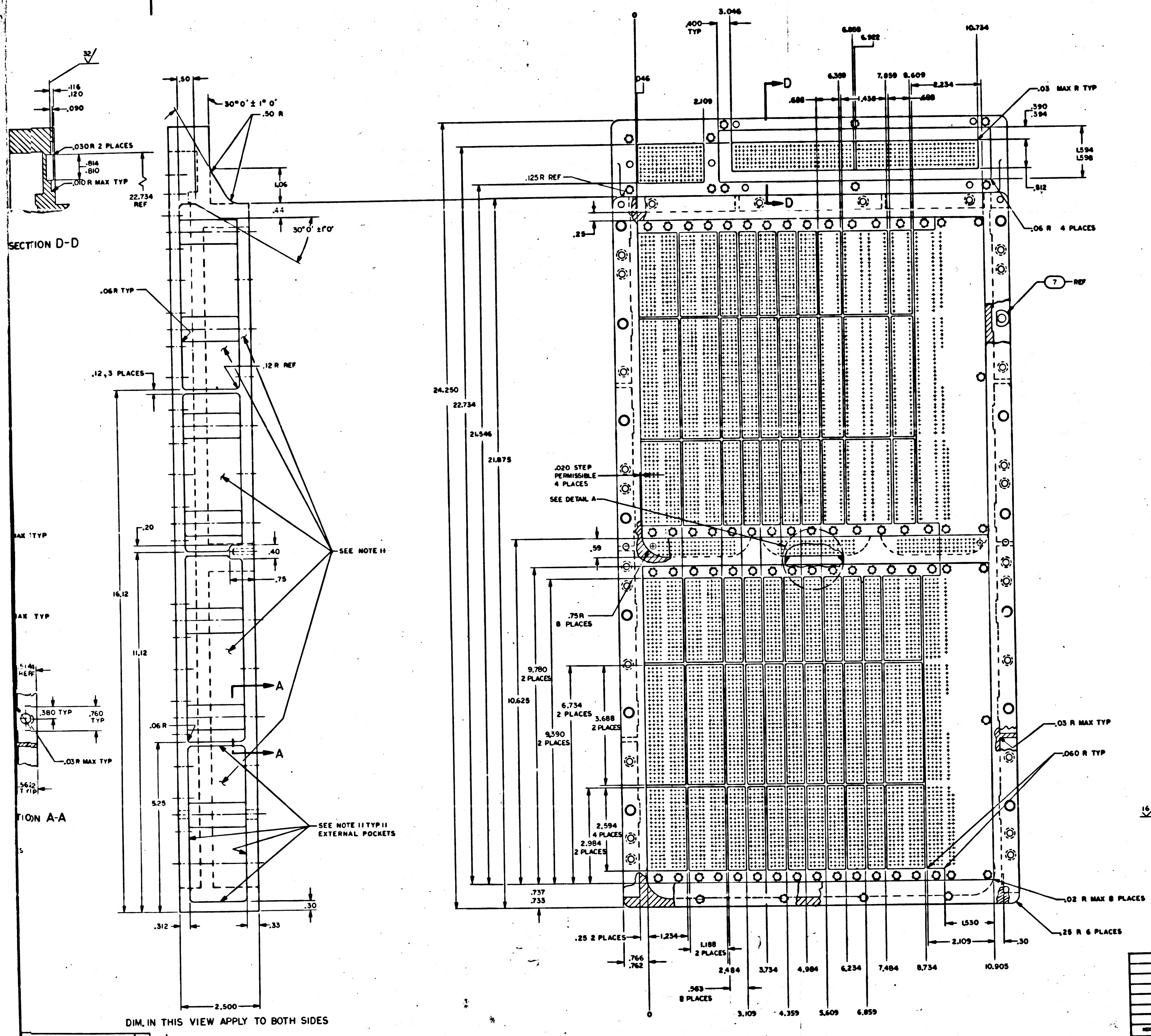
NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MAT'L MAGNESIUM ZK60A-T5 PER QQ-M-31, TEMP T5
3. ANODIZE PER MIL-M-45202, TYPE I, CLASS C
4. a) INDICATED SURFACES SHALL BE FREE OF ANODIZE, TREAT PER MIL-M-3171, TYPE VI
   b) TAP "C, E, L" & "N" HOLES AFTER ANODIZE AND TREAT PER MIL-M-3171, TYPE VI
   c) 375 HOLES SHOWN TO BE FREE OF ANODIZE TREAT PER MIL-M-3171, TYPE VI
5. ALL SURFACES $\sqrt{125}$ UNLESS OTHERWISE SPECIFIED
6. REMOVE BURRS AND SHARP EDGES .005/.015
7. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII .125
8. INSTALL FIND NO. 2, 3, 4, 5, AND 6 PER MS 33646 AND REMOVE DRIVING TANG
9. COAT FIND NO. 7 AND THREADS OF FIND NO. 2, 3, 4, 5 AND 6 WITH MIL-P-8585 COLOR YELLOW, INSTALL WET
10. IDENTIFY WITH PART NO. PER ND 1002019 AND SERIALIZE PER ND 1002023 WHERE SHOWN
11. APPLY FOLLOWING FINISHES TO SURFACES INDICATED, ALL HOLES AND INSERTS TO BE FREE OF THESE FINISHES:
   a) PRIMER ONLY PER ND1002279 USING 1010992
   b) PAINT ALUMINUM FILLED EPOXY PER ND1002289
12. APPLY FOLLOWING FINISHES TO SURFACES INDICATED, INCLUDING RADII, ALL HOLES AND INSERTS TO BE FREE OF THESE FINISHES:
   a) PAINT GRAY PER ND1002279 USING 1008809-1
   b) FINAL COAT SURFACES PER ND1002277 USING 1012543-003

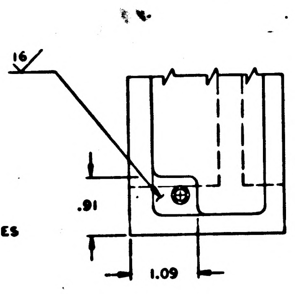
2004166 B

2004166 B F1/2 SHEET 1

SYM	ZONE	REVISIONS 25977 DESCRIPTION	BY	CHK	DATE	APPROVED
A		REVISED PER TDRR 26555				
B		REVISED PER TDRR 28026	D.V.			



SECTION D-D
32
.116
.120
.090
.030R 2 PLACES
.814
.810
.010R MAX TYP
22.734 REF
.50
30°0' ± 1° 0'
.50 R
1.06
.44
30°0' ±1°0'
.06R TYP
.12 R REF
.12, 3 PLACES
SEE NOTE 11
.20
.40
.75
16.12
11.12
.380 TYP
.760 TYP
.03R MAX TYP
TION A-A
.06 R
A
A
5.25
SEE NOTE 11 TYP 11 EXTERNAL POCKETS
.30
.312
.33
2.500
DIM. IN THIS VIEW APPLY TO BOTH SIDES
.400 TYP
3.046
.046
6.858
6.902
10.734
6.359
7.859
8.609
2.234
D
2.109
.688
1.438
.688
.03 MAX R TYP
.390
.394
1.594
1.598
.125R REF
.812
D
.06 R 4 PLACES
.25
7
REF
24.250
22.734
21.546
21.875
.020 STEP PERMISSIBLE 4 PLACES
SEE DETAIL A
.59
.75R 8 PLACES
9.780 2 PLACES
10.625
6.734 2 PLACES
3.688 2 PLACES
9.390 2 PLACES
2.594 4 PLACES
2.984 2 PLACES
.03 R MAX TYP
.060 R TYP
.737
.735
.02 R MAX 8 PLACES
1.530
.25 2 PLACES
1.234
2.109
.30
.25 R 6 PLACES
.766
.762
1.188 2 PLACES
.563 8 PLACES
2.484
3.734
4.984
6.234
7.484
8.734
10.905
0
3.109
4.359
5.609
6.859



QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

NEXT ASSY | USED ON
APPLICATION

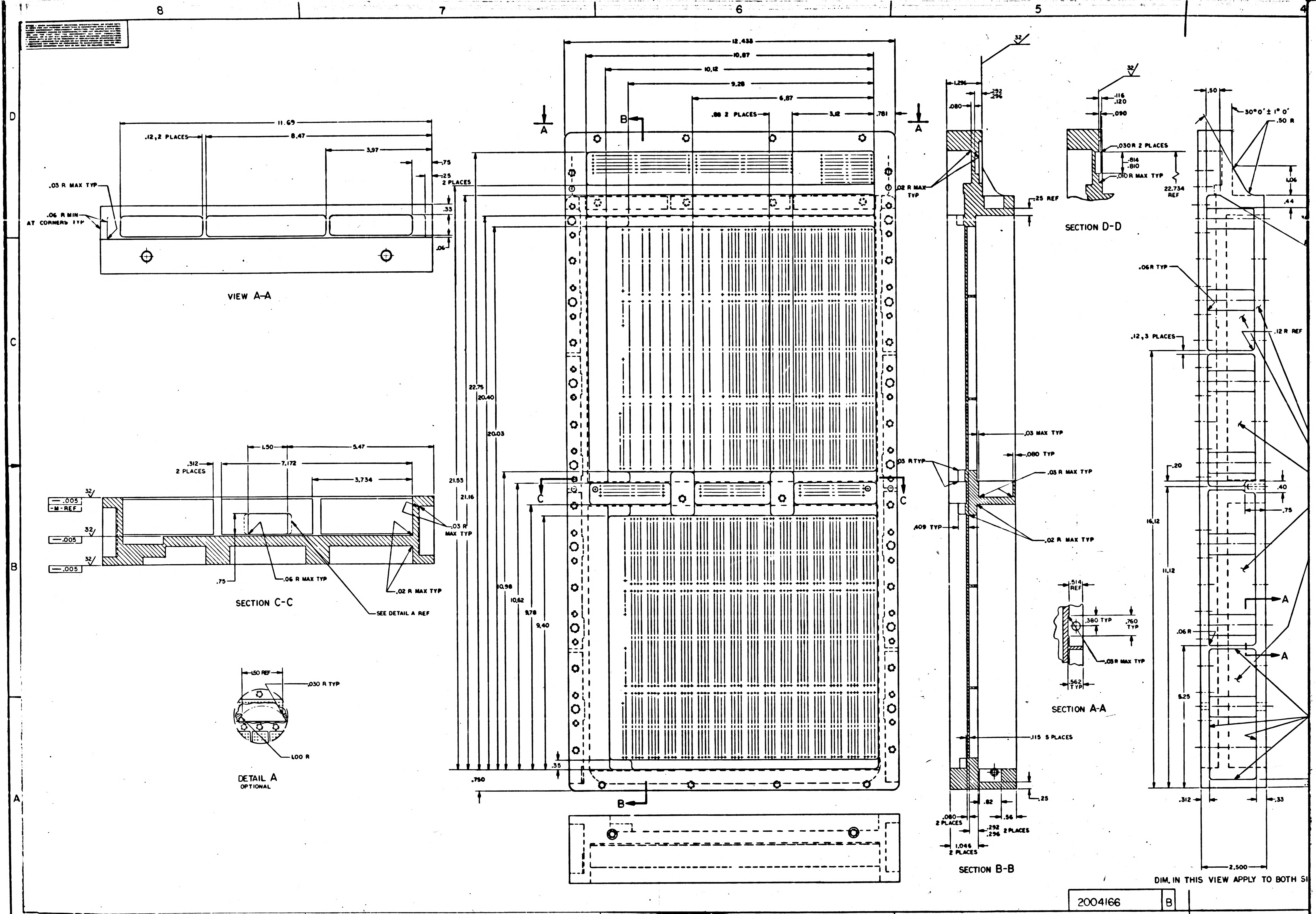
MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN E.W. [illegible]
CHECKED [illegible]
APPROVED
APPROVED Eldon C. Hall
APPROVED MIT W. [illegible]
APPROVED MSC

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRAY A
INSEPARABLE ASSY
AGC

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004166
SCALE 1/1
SHEET 2 OF 2



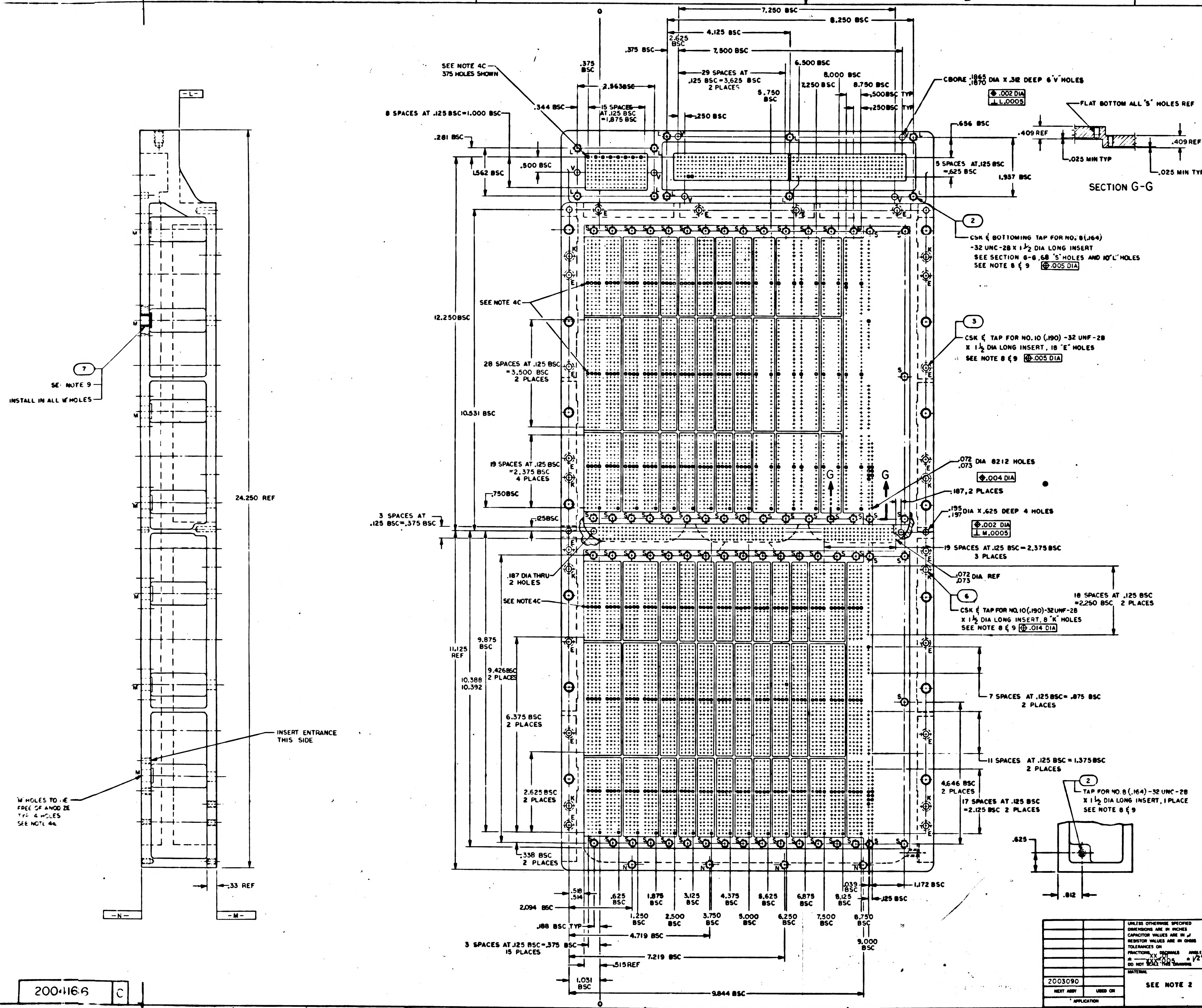
8
7
6
5
4
D
C
B
A
VIEW A-A
11.69
8.47
3.97
.12, 2 PLACES
.03 R MAX TYP
.06 R MIN AT CORNERS TYP
.75
.25 2 PLACES
.33
.06
SECTION C-C
1.50
5.47
7.172
3.734
.312 2 PLACES
.005
-M-REF
.005
.005
32
.03 R MAX TYP
.75
.06 R MAX TYP
.02 R MAX TYP
SEE DETAIL A REF
DETAIL A
OPTIONAL
1.50 REF
.030 R TYP
1.00 R
A
A
B
B
C
C
12.433
10.87
10.12
9.28
6.87
.88 2 PLACES
3.12
.781
22.75
20.40
20.03
21.53
21.16
10.98
10.62
9.78
9.40
.35
.750
SECTION B-B
1.296
.080
.292
.296
.02 R MAX TYP
.25 REF
.03 MAX TYP
.080 TYP
.03 R MAX TYP
.03 R TYP
.409 TYP
.02 R MAX TYP
.115 5 PLACES
.25
.82
.56
.080 2 PLACES
.292
.296 2 PLACES
1.046 2 PLACES
SECTION D-D
.116
.120
.090
.030 R 2 PLACES
.814
.810
.010 R MAX TYP
22.734 REF
SECTION A-A
.514 REF
.380 TYP
.760 TYP
.03 R MAX TYP
.562 TYP
.50
30°0' ± 1°0'
.50 R
1.06
.44
.06 R TYP
.12 R REF
.12, 3 PLACES
.20
.40
.75
16.12
11.12
5.25
.06 R
.312
.33
2.500
DIM. IN THIS VIEW APPLY TO BOTH SI

2004166 B

2004166 B F1/2

SHEET 2

REVISIONS 25977						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 26505	JPS		3/8/66	
B		REVISED PER TDRR 28026	DAW		5/2/66	
C		REVISED PER TDRR 28448			5/26/66	E S S.



-L-
24.250 REF
7
SEE NOTE 9
INSTALL IN ALL 'M' HOLES
M
INSERT ENTRANCE THIS SIDE
'M' HOLES TO BE FREE OF ANODIZE TYP 4 HOLES SEE NOTE 4a
.33 REF
-N-
-M-
0
7.250 BSC
8.250 BSC
4.125 BSC
2.625 BSC
.375 BSC
7.500 BSC
6.500 BSC
29 SPACES AT .125 BSC=3.625 BSC 2 PLACES
8.000 BSC
7.250 BSC
8.750 BSC
5.750 BSC
.500 BSC TYP
.250 BSC TYP
.250 BSC
SEE NOTE 4C 375 HOLES SHOWN
.375 BSC
2.563 BSC
15 SPACES AT .125 BSC =1.875 BSC
.344 BSC
8 SPACES AT .125 BSC=1.000 BSC
.281 BSC
.500 BSC
1.562 BSC
CBORE .1865/.1870 DIA X .312 DEEP 6 'V' HOLES
.002 DIA
L .0005
FLAT BOTTOM ALL 'S' HOLES REF
.656 BSC
.409 REF
.409 REF
.025 MIN TYP
.025 MIN TYP
5 SPACES AT .125 BSC =.625 BSC
1.937 BSC
SECTION G-G
2
CSK & BOTTOMING TAP FOR NO. 8 (.164) -32 UNC-2B X 1½ DIA LONG INSERT SEE SECTION G-G, 68 'S' HOLES AND 10 'L' HOLES SEE NOTE 8 & 9 .005 DIA
3
CSK & TAP FOR NO. 10 (.190) -32 UNF-2B X 1½ DIA LONG INSERT, 18 'E' HOLES SEE NOTE 8 & 9 .005 DIA
SEE NOTE 4C
12.250 BSC
28 SPACES AT .125 BSC =3.500 BSC 2 PLACES
10.531 BSC
19 SPACES AT .125 BSC =2.375 BSC 4 PLACES
.750 BSC
3 SPACES AT .125 BSC=.375 BSC
.125 BSC
G
G
.072/.073 DIA 8212 HOLES
.004 DIA
.187, 2 PLACES
.195/.197 DIA X .625 DEEP 4 HOLES
.002 DIA
M .0005
19 SPACES AT .125 BSC=2.375 BSC 3 PLACES
.072/.073 DIA REF
6
CSK & TAP FOR NO. 10 (.190)-32 UNF-2B X 1½ DIA LONG INSERT, 8 'K' HOLES SEE NOTE 8 & 9 .014 DIA
18 SPACES AT .125 BSC =2.250 BSC 2 PLACES
.187 DIA THRU 2 HOLES
SEE NOTE 4C
11.125 REF
9.875 BSC
10.388/10.392
9.426 BSC 2 PLACES
6.375 BSC 2 PLACES
2.625 BSC 2 PLACES
.338 BSC 2 PLACES
7 SPACES AT .125 BSC= .875 BSC 2 PLACES
11 SPACES AT .125 BSC = 1.375 BSC 2 PLACES
4.646 BSC 2 PLACES
17 SPACES AT .125 BSC =2.125 BSC 2 PLACES
2
TAP FOR NO. 8 (.164) -32 UNC-2B X 1½ DIA LONG INSERT, 1 PLACE SEE NOTE 8 & 9
.625
.812
S
L
V
E
K
N
.518/.514
.625 BSC
1.875 BSC
3.125 BSC
4.375 BSC
5.625 BSC
6.875 BSC
8.125 BSC
.039 BSC
1.172 BSC
.125 BSC
2.094 BSC
1.250 BSC
2.500 BSC
3.750 BSC
5.000 BSC
6.250 BSC
7.500 BSC
8.750 BSC
9.000 BSC
.188 BSC TYP
4.719 BSC
3 SPACES AT .125 BSC=.375 BSC 15 PLACES
7.219 BSC
.515 REF
1.031 BSC
9.844 BSC
0

14	2004706-002	INSERT, KNURLED	7
8	MS21208F1-15	INSERT, THREADED	6
4	MS21209F4-15	INSERT, THREADED, SELF-LOCKING	5
28	MS21209C0415	INSERT, THREADED, SELF-LOCKING	4
18	MS21209F1-15	INSERT, THREADED, SELF-LOCKING	3
109	MS21209C0815	INSERT, THREADED, SELF-LOCKING	2
1	2004166-001	TRAY A MACHINED	1
QTY REQ'D	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003090	
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XX ±.01 .XXX ±.005 ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN W. Hogan 15 Oct 65
CHECKED 15 Oct 65
APPROVED
APPROVED Eldon C. Hall
APPROVED MIT A. C. METZGER
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRAY A
INSEPARABLE ASSY
AGC

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004166
SCALE 1/1
SHEET 1 OF 2

2004166 C

2004166 C

24

E2/2

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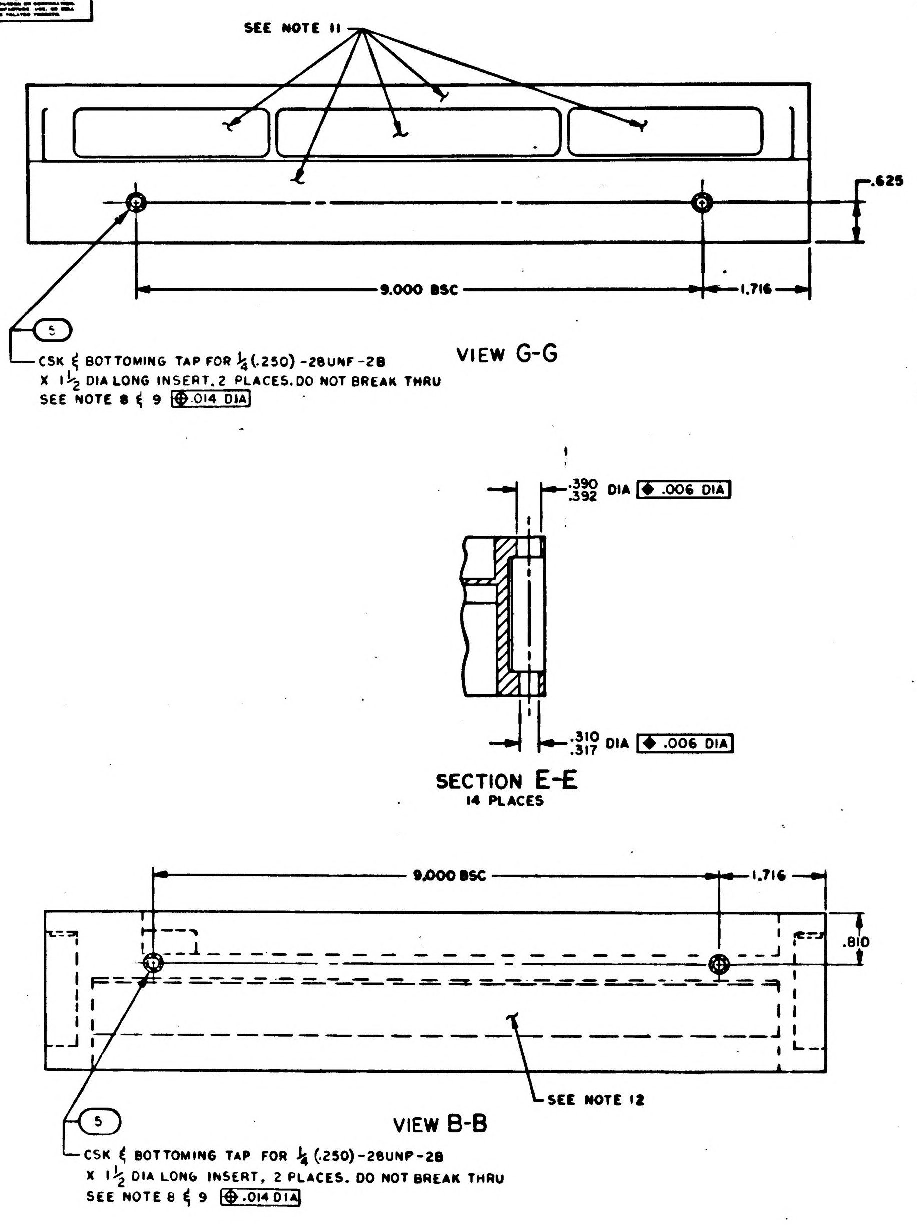
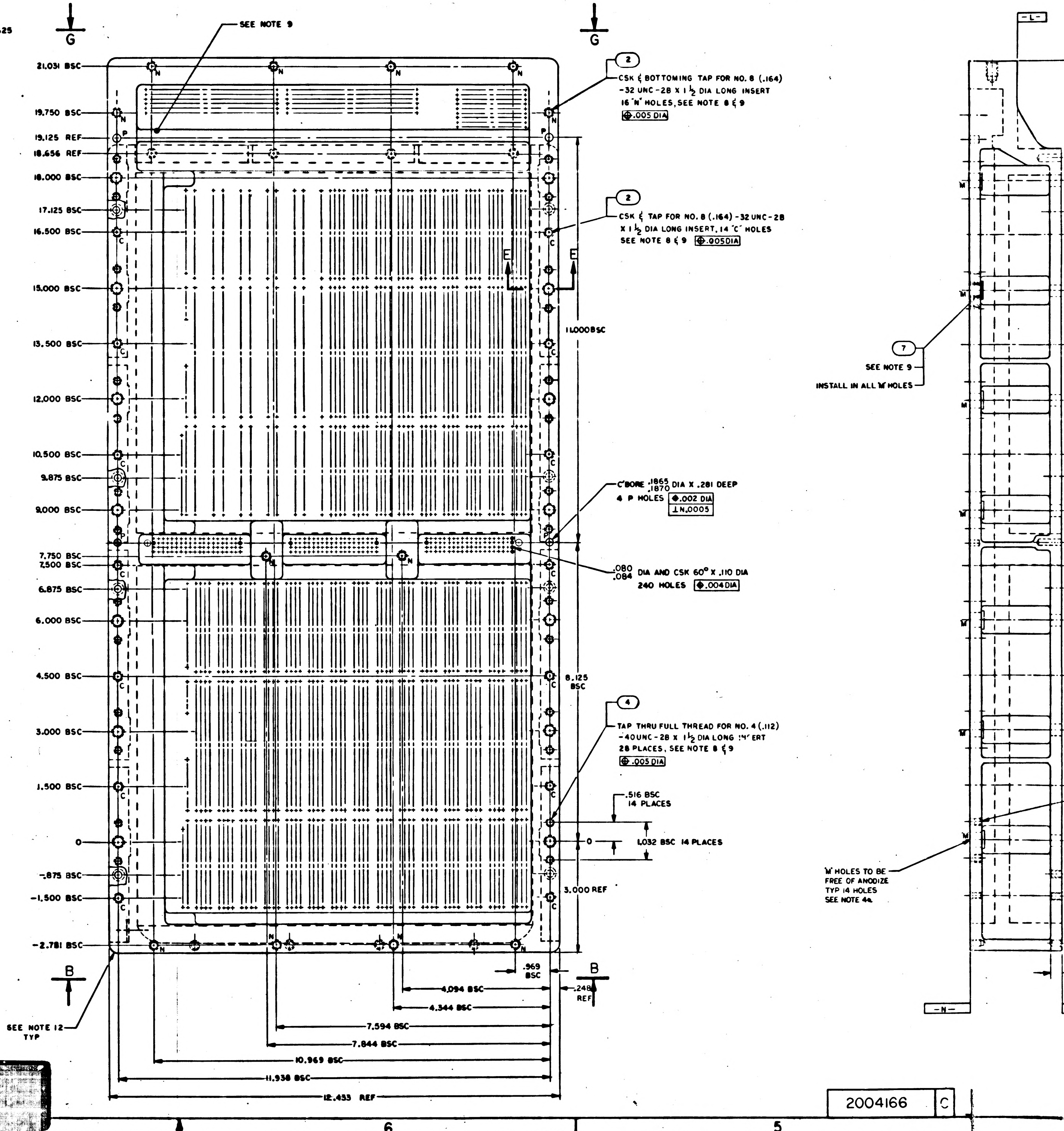


SEE NOTE 11
.625
9.000 BSC
1.716
5
CSK & BOTTOMING TAP FOR 1/4 (.250) -28UNF-2B X 1 1/2 DIA LONG INSERT, 2 PLACES. DO NOT BREAK THRU SEE NOTE 8 & 9 ⊕ .014 DIA
VIEW G-G
.390 .392 DIA ◆ .006 DIA
.310 .317 DIA ◆ .006 DIA
SECTION E-E
14 PLACES
9.000 BSC
1.716
.810
SEE NOTE 12
5
CSK & BOTTOMING TAP FOR 1/4 (.250)-28UNF-2B X 1 1/2 DIA LONG INSERT, 2 PLACES. DO NOT BREAK THRU SEE NOTE 8 & 9 ⊕ .014 DIA
VIEW B-B



G
G
SEE NOTE 9
21.031 BSC
19.750 BSC
19.125 REF
18.656 REF
18.000 BSC
17.125 BSC
16.500 BSC
15.000 BSC
13.500 BSC
12.000 BSC
10.500 BSC
9.875 BSC
9.000 BSC
7.750 BSC
7.500 BSC
6.875 BSC
6.000 BSC
4.500 BSC
3.000 BSC
1.500 BSC
0
-.875 BSC
-1.500 BSC
-2.781 BSC
N
P
C
E
E
2
CSK & BOTTOMING TAP FOR NO. 8 (.164) -32 UNC-2B X 1 1/2 DIA LONG INSERT 16 "N" HOLES, SEE NOTE 8 & 9 ⊕ .005 DIA
2
CSK & TAP FOR NO. 8 (.164) -32 UNC-2B X 1 1/2 DIA LONG INSERT, 14 "C" HOLES SEE NOTE 8 & 9 ⊕ .005DIA
11.000 BSC
C'BORE .1865 .1870 DIA X .281 DEEP 4 P HOLES ◆ .002 DIA ⊥ N .0005
.080 .084 DIA AND CSK 60° X .110 DIA 240 HOLES ◆ .004 DIA
8.125 BSC
4
TAP THRU FULL THREAD FOR NO. 4 (.112) -40UNC-2B X 1 1/2 DIA LONG INSERT 28 PLACES, SEE NOTE 8 & 9 ⊕ .005 DIA
.516 BSC 14 PLACES
0
1.032 BSC 14 PLACES
3.000 REF
.969 BSC
.248 REF
B
B
SEE NOTE 12 TYP
4.094 BSC
4.344 BSC
7.594 BSC
7.844 BSC
10.969 BSC
11.938 BSC
12.433 REF
-L-
7
SEE NOTE 9
INSTALL IN ALL 'M' HOLES
M
'M' HOLES TO BE FREE OF ANODIZE TYP 14 HOLES SEE NOTE 4a
-N-

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MAT'L MAGNESIUM ZK60A-T5 PER QQ-M-31, TEMP T5
3. ANODIZE PER MIL-M-45202, TYPE I, CLASS C
4. a) INDICATED SURFACES SHALL BE FREE OF ANODIZE, TREAT PER MIL-M-3171, TYPE VI
   b) TAP 'C', E, 'L' & 'N' HOLES AFTER ANODIZE AND TREAT PER MIL-M-3171, TYPE VI
   c) 375 HOLES SHOWN TO BE FREE OF ANODIZE TREAT PER MIL-M-3171, TYPE VI
5. ALL SURFACES $\sqrt{125}$ UNLESS OTHERWISE SPECIFIED
6. REMOVE BURRS AND SHARP EDGES .005/.015
7. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII .125
8. INSTALL FIND NO. 2, 3, 4, 5 AND 6 PER MS 33646 AND REMOVE DRIVING TANG
9. COAT FIND NO. 7 AND THREADS OF FIND NO. 2, 3, 4, 5 AND 6 WITH MIL-P-8585 COLOR YELLOW, INSTALL WET
10. IDENTIFY WITH PART NO. PER ND 1002019 AND SERIALIZE PER ND 1002023 WHERE SHOWN
11. APPLY FOLLOWING FINISHES TO SURFACES INDICATED, ALL HOLES AND INSERTS TO BE FREE OF THESE FINISHES:
    a) PRIMER ONLY PER ND1002279 USING 1010992
    b) PAINT ALUMINUM FILLED EPOXY PER ND1002289
12. APPLY FOLLOWING FINISHES TO SURFACES INDICATED, INCLUDING RADII, ALL HOLES AND INSERTS TO BE FREE OF THESE FINISHES:
    a) PAINT GRAY PER ND1002279 USING 1008809-1
    b) FINAL COAT SURFACES PER ND1002277 USING 1012543-003

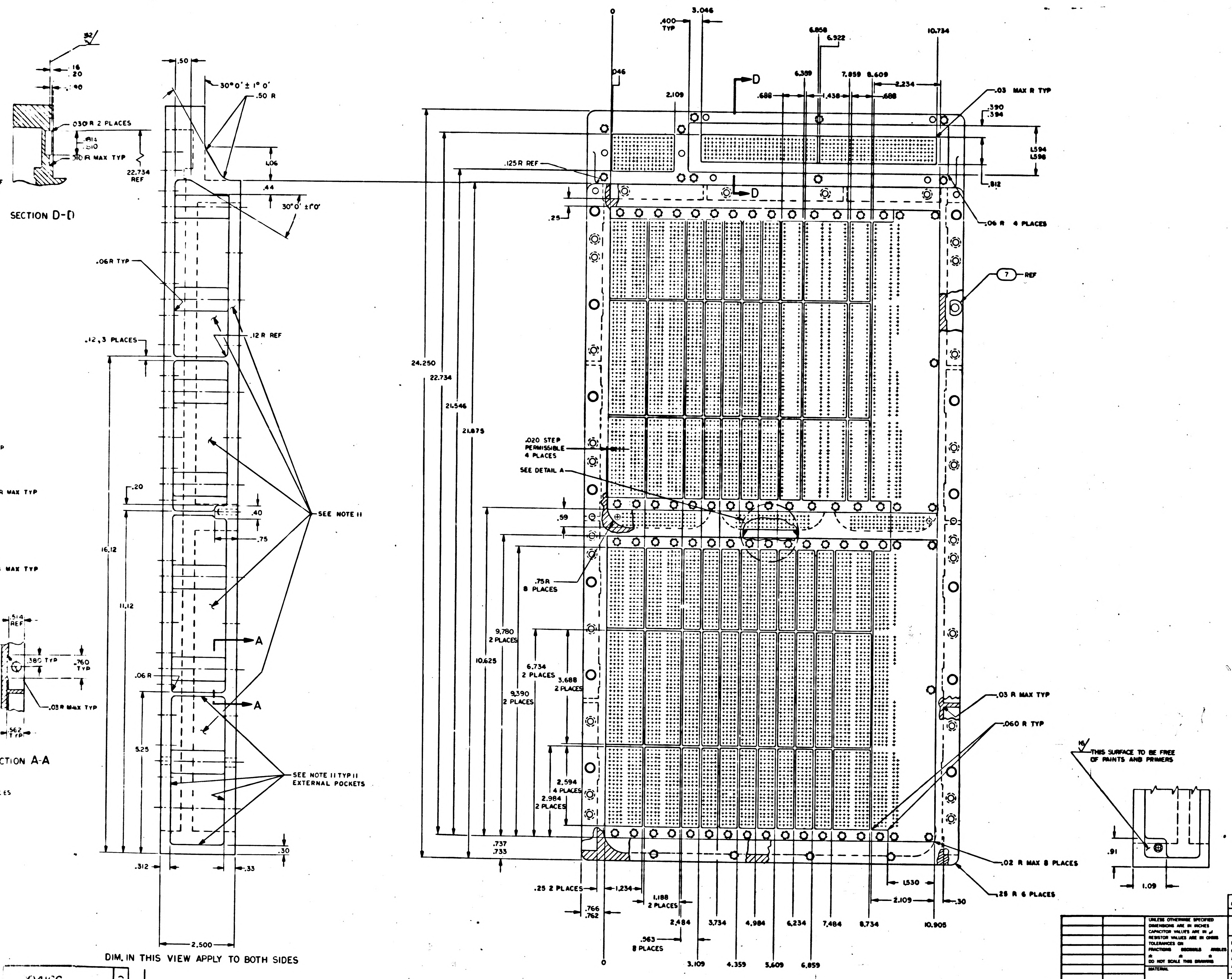
24

2004166 C

F1/2

2004166 C SH1/2

SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
		REVISIONS 25477				
A		REVISED PER TDRR 26555			3/8/66	
B		REVISED PER TDRR 28026	D.A.V.		5/12/66	
C		REVISED PER TDRR 28448			5/25/66	E.S.S.


SECTION D-D
SECTION A-A
.16
.20
.90
.030 R 2 PLACES
.010 R MAX TYP
22.734 REF
.50
30° 0' ± 1° 0'
.50 R
1.06
.44
30° 0' ± 1° 0'
.06R TYP
.12 R REF
.12, 3 PLACES
.20
.40
.75
SEE NOTE 11
16.12
11.12
5.25
.06 R
.514 REF
.380 TYP
.760 TYP
.03 R MAX TYP
.562 TYP
SEE NOTE 11 TYP 11 EXTERNAL POCKETS
.30
.312
.33
2.500
DIM. IN THIS VIEW APPLY TO BOTH SIDES
0
3.046
.400 TYP
.046
2.109
6.858
6.922
6.359
7.859
8.609
10.734
2.234
.688
1.438
.688
.03 MAX R TYP
.390
.394
1.594
1.596
.812
D
.125 R REF
.25
.06 R 4 PLACES
7 REF
24.250
22.734
21.546
21.875
.020 STEP PERMISSIBLE 4 PLACES
SEE DETAIL A
.59
.75R 8 PLACES
9.780 2 PLACES
10.625
6.734 2 PLACES
3.688 2 PLACES
9.390 2 PLACES
2.594 4 PLACES
2.984 2 PLACES
.737
.733
.03 R MAX TYP
.060 R TYP
.02 R MAX 8 PLACES
.25 R 6 PLACES
.25 2 PLACES
1.234
1.188 2 PLACES
.766
.762
.563 8 PLACES
2.484
3.109
3.734
4.359
4.984
5.609
6.234
6.859
7.484
8.734
10.905
1.530
2.109
.30
THIS SURFACE TO BE FREE OF PAINTS AND PRIMERS
.91
1.09
A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN E.W. Hansen MAR 7 65
CHECKED MAR 7 65
APPROVED
APPROVED Eldon C. Hall
APPROVED MIT W. Kupfer A.C. METZGER
APPROVED MSC

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRAY A
INSEPARABLE ASSY
AGC

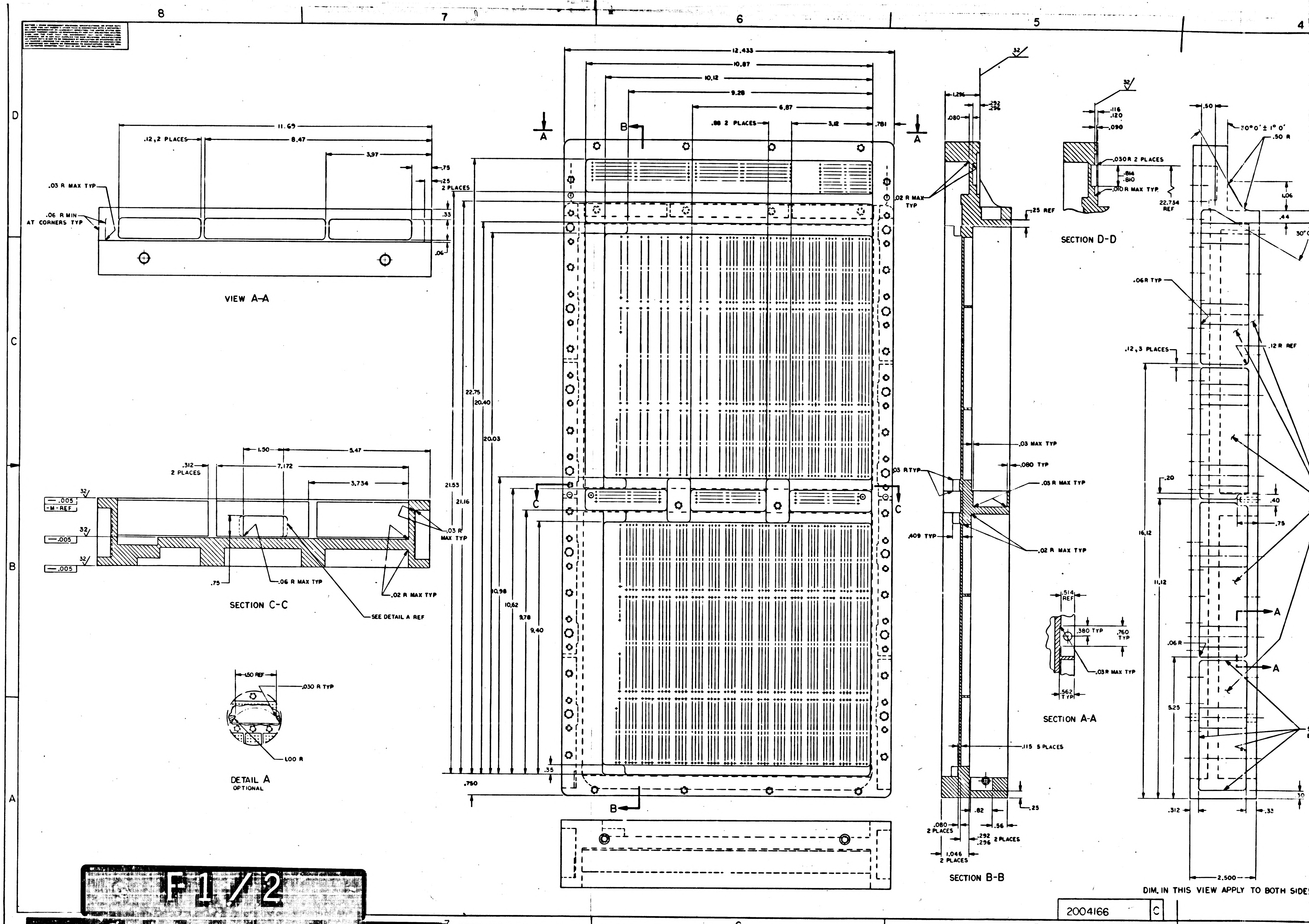
CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004166
SCALE 1/1
SHEET 2 OF 2

2004166 C

04166 C

F 2/2

24

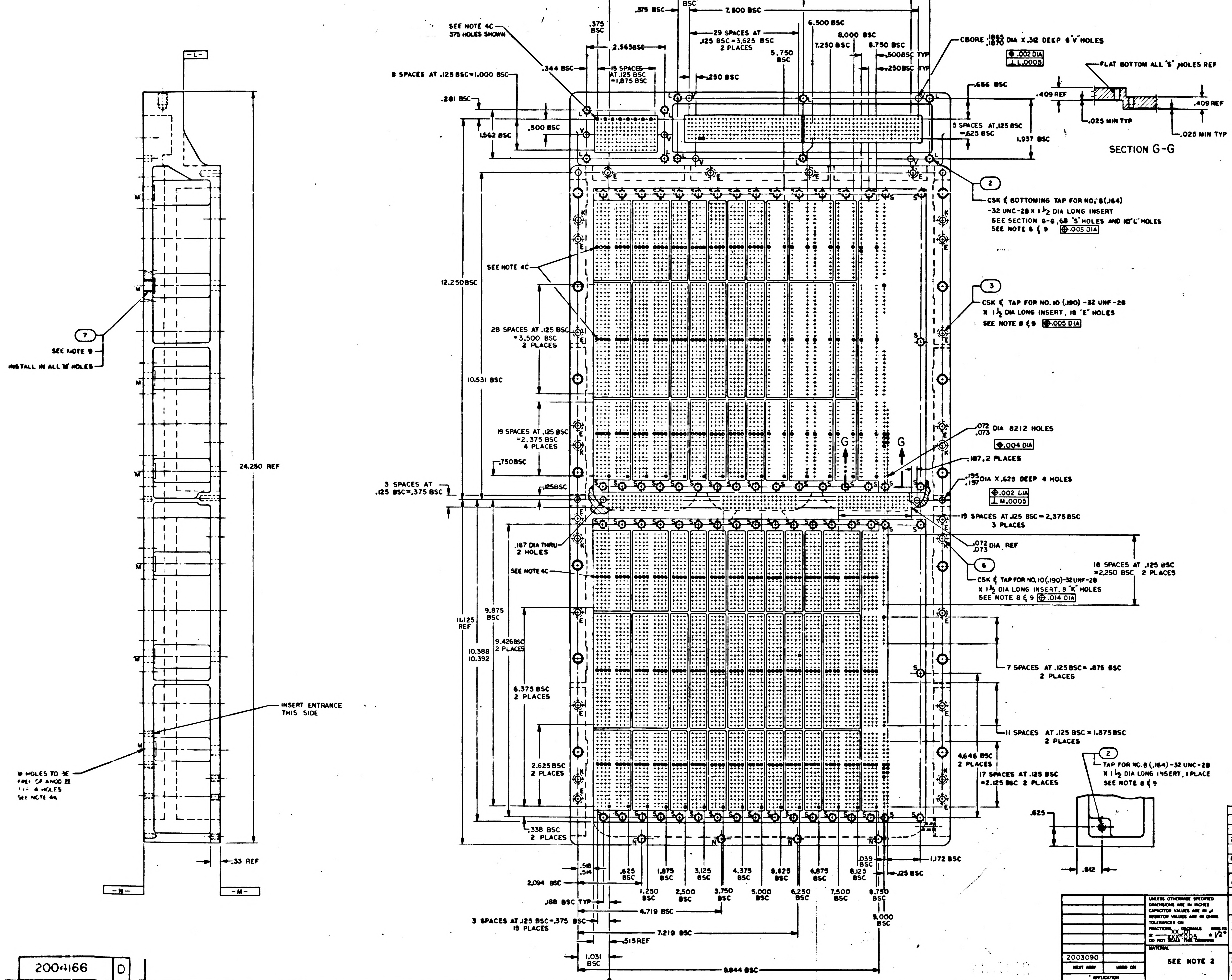

8
7
6
5
4
D
C
B
A
VIEW A-A
11.69
.12, 2 PLACES
8.47
3.97
.75
.25
2 PLACES
.33
.06
.03 R MAX TYP
.06 R MIN
AT CORNERS TYP
SECTION C-C
1.50
5.47
.312
2 PLACES
7.172
3.734
32
.005
-M-REF
.03 R
MAX TYP
.75
.06 R MAX TYP
.02 R MAX TYP
SEE DETAIL A REF
DETAIL A
OPTIONAL
1.50 REF
.030 R TYP
1.00 R
12.433
10.87
10.12
9.28
6.87
.88 2 PLACES
3.12
.781
A
B
C
22.75
20.40
20.03
21.53
21.16
10.98
10.62
9.78
9.40
.35
.750
.02 R MAX
TYP
.03 R TYP
.409 TYP
1.296
.080
.292
.296
.25 REF
.03 MAX TYP
.080 TYP
.03 R MAX TYP
.02 R MAX TYP
.115 5 PLACES
.82
.56
.25
.080
2 PLACES
.292
.296 2 PLACES
1.046
2 PLACES
SECTION B-B
.116
.120
.090
.030 R 2 PLACES
.814
.810
.010 R MAX TYP
22.734
REF
SECTION D-D
.514
REF
.380 TYP
.760
TYP
.03 R MAX TYP
.562
TYP
SECTION A-A
.50
30°0' ± 1°0'
.50 R
1.06
.44
30°
.06 R TYP
.12, 3 PLACES
.12 R REF
.20
.40
.75
16.12
11.12
.06 R
5.25
.312
.33
.30
2.500
DIM. IN THIS VIEW APPLY TO BOTH SIDES

2004166 C

F1/2

2004166 C SH2/2

REVISIONS 25977						
SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
A		REVISED PER TDRR 26505			3/8/66	
B		REVISED PER TDRR 28026	DRN		5/2/66	
C		REVISED PER TDRR 28448		JJR	5/25/66	E S S.
D		REVISED PER TDRR 29081		JJR	6/13/66	E S S


SEE NOTE 4C
375 HOLES SHOWN
8 SPACES AT .125 BSC=1.000 BSC
.281 BSC
1.562 BSC
.500 BSC
.344 BSC
.375 BSC
2.563BSC
15 SPACES AT .125 BSC =1.875 BSC
0
.375 BSC
2.625 BSC
4.125 BSC
7.250 BSC
8.250 BSC
7.500 BSC
29 SPACES AT .125 BSC=3.625 BSC 2 PLACES
.250 BSC
5.750 BSC
6.500 BSC
7.250 BSC
8.000 BSC
8.750 BSC
.500BSC TYP
.250BSC TYP
CBORE .1865 .1870 DIA X .312 DEEP 6 "V" HOLES
.002 DIA
.0005
.656 BSC
5 SPACES AT .125 BSC =.625 BSC
1.937 BSC
FLAT BOTTOM ALL "S" HOLES REF
.409 REF
.409 REF
.025 MIN TYP
.025 MIN TYP
SECTION G-G
2
CSK & BOTTOMING TAP FOR NO. 8(.164) -32 UNC-2B X 1 1/2 DIA LONG INSERT
SEE SECTION G-G, 68 "S" HOLES AND 10 "L" HOLES
SEE NOTE 8 & 9 .005 DIA
3
CSK & TAP FOR NO. 10 (.190) -32 UNF-2B X 1 1/2 DIA LONG INSERT, 18 "E" HOLES
SEE NOTE 8 & 9 .005 DIA
12.250BSC
SEE NOTE 4C
28 SPACES AT .125 BSC =3.500 BSC 2 PLACES
10.531 BSC
19 SPACES AT .125 BSC =2.375 BSC 4 PLACES
.750BSC
3 SPACES AT .125 BSC=.375 BSC
.125BSC
G
G
.072 .073 DIA 8212 HOLES
.004 DIA
.187, 2 PLACES
.195 .197 DIA X .625 DEEP 4 HOLES
.002 DIA
M .0005
19 SPACES AT .125 BSC = 2.375 BSC 3 PLACES
.072 .073 DIA REF
6
CSK & TAP FOR NO. 10(.190)-32UNF-2B X 1 1/2 DIA LONG INSERT, 8 "K" HOLES
SEE NOTE 8 & 9 .014 DIA
18 SPACES AT .125 BSC =2.250 BSC 2 PLACES
.187 DIA THRU 2 HOLES
SEE NOTE 4C
11.125 REF
9.875 BSC
10.388 10.392
9.426BSC 2 PLACES
6.375 BSC 2 PLACES
2.625 BSC 2 PLACES
.338 BSC 2 PLACES
7 SPACES AT .125 BSC= .875 BSC 2 PLACES
11 SPACES AT .125 BSC = 1.375 BSC 2 PLACES
4.646 BSC 2 PLACES
17 SPACES AT .125 BSC =2.125 BSC 2 PLACES
2
TAP FOR NO. 8 (.164) -32 UNC-2B X 1 1/2 DIA LONG INSERT, 1 PLACE
SEE NOTE 8 & 9
.625
.812
.518 .514
2.094 BSC
.188 BSC TYP
3 SPACES AT .125 BSC=.375 BSC 15 PLACES
.625 BSC
1.250 BSC
1.875 BSC
2.500 BSC
3.125 BSC
3.750 BSC
4.375 BSC
5.000 BSC
5.625 BSC
6.250 BSC
6.875 BSC
7.500 BSC
8.125 BSC
8.750 BSC
.039 BSC
.125 BSC
1.172 BSC
9.000 BSC
4.719 BSC
7.219 BSC
.515REF
1.031 BSC
9.844 BSC
0
-L-
7
SEE NOTE 9
INSTALL IN ALL "M" HOLES
24.250 REF
INSERT ENTRANCE THIS SIDE
M HOLES TO BE FREE OF ANOD ZE TYP 4 HOLES SEE NOTE 4A
.33 REF
-N-
-M-

14	2004706-002	INSERT, KNURLED	7
8	MS21208F1-15	INSERT, THREADED	6
4	MS21209F4-15	INSERT, THREADED, SELF-LOCKING	5
28	MS21209C0415	INSERT, THREADED, SELF-LOCKING	4
18	MS21209F1-15	INSERT, THREADED, SELF-LOCKING	3
109	MS21209C0815	INSERT, THREADED, SELF-LOCKING	2
1	2004166-001	TRAY A MACHINED	1
QTY REQ'D	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003090	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XX ±.01 .XXX ±.005 ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN W. Horgan 13 Oct 65
CHECKED R. P. Langelier 15 Oct 65
APPROVED
APPROVED Eldon C. Hall 8 Feb 66
APPROVED MIT A. C. METZGER
APPROVED MSC

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRAY A
INSEPARABLE ASSY
AGC

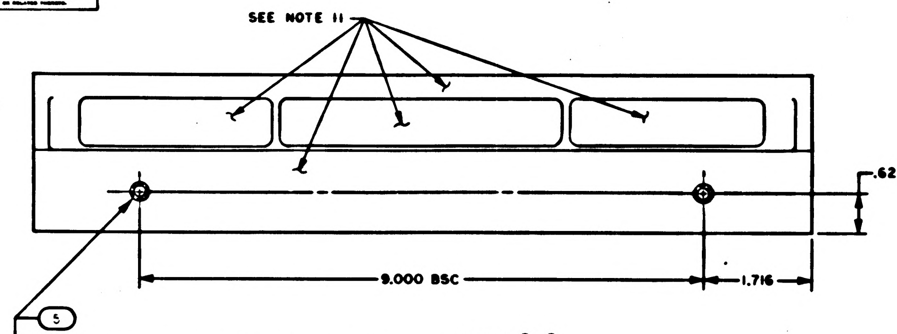
CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004166
SCALE 1/1
SHEET 1 OF 2

2004166 D

2004166 D

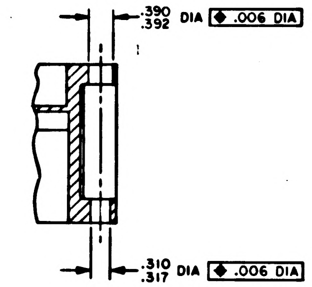
F 2/2

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

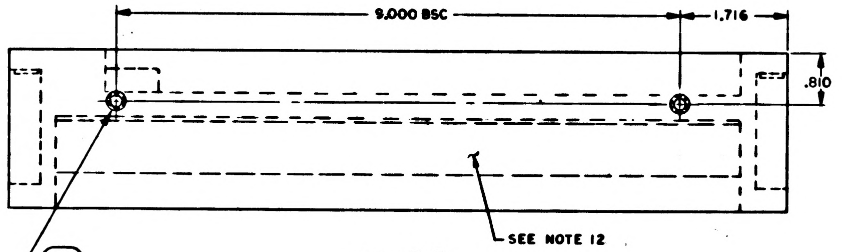

SEE NOTE 11
.625
9.000 BSC
1.716
5

CSK & BOTTOMING TAP FOR 1/4 (.250) -28UNF-2B
X 1 1/2 DIA LONG INSERT, 2 PLACES. DO NOT BREAK THRU
SEE NOTE 8 & 9 ⊕ .014 DIA

VIEW G-G

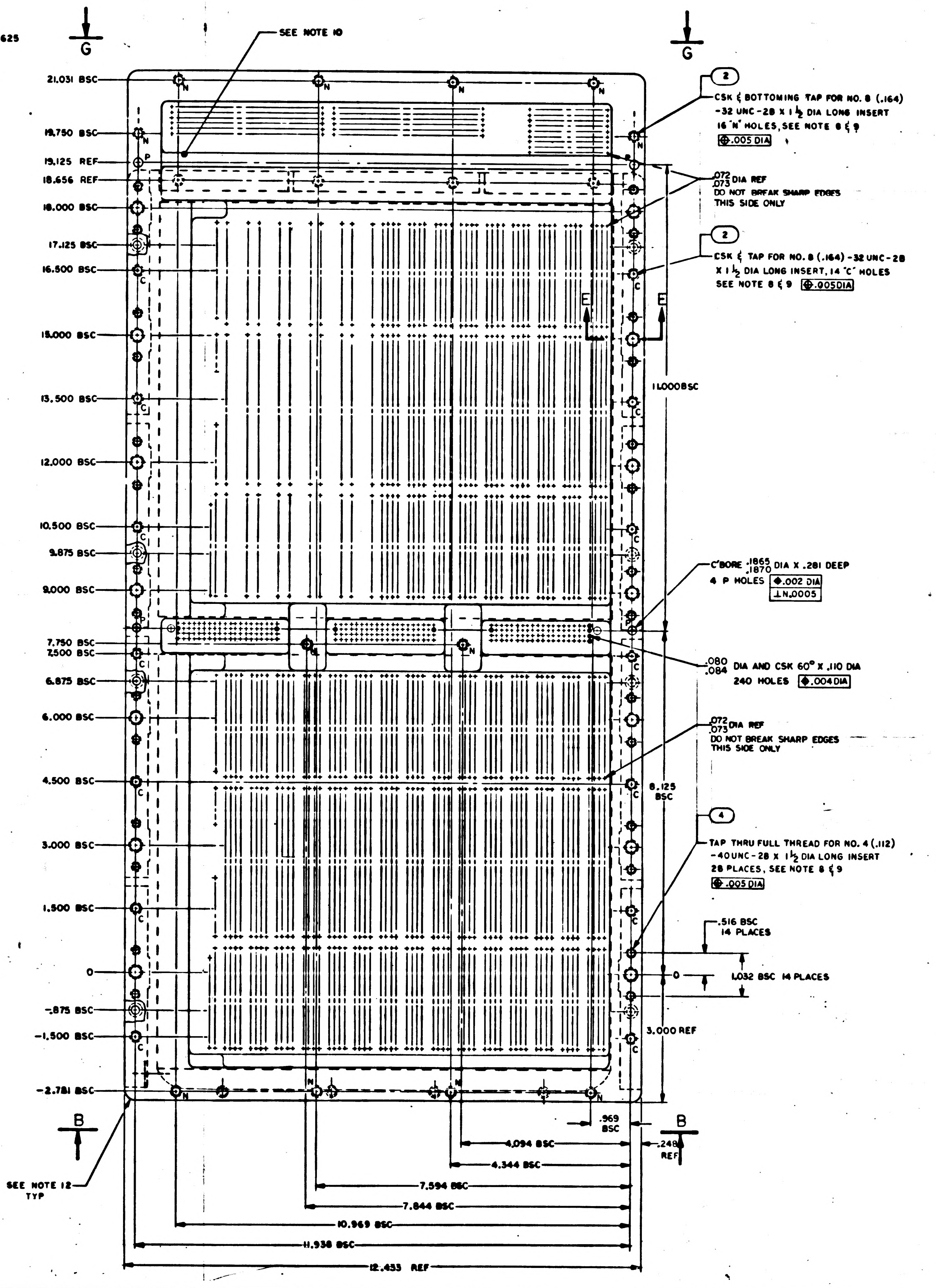

.390 .392 DIA ◈ .006 DIA
.310 .317 DIA ◈ .006 DIA

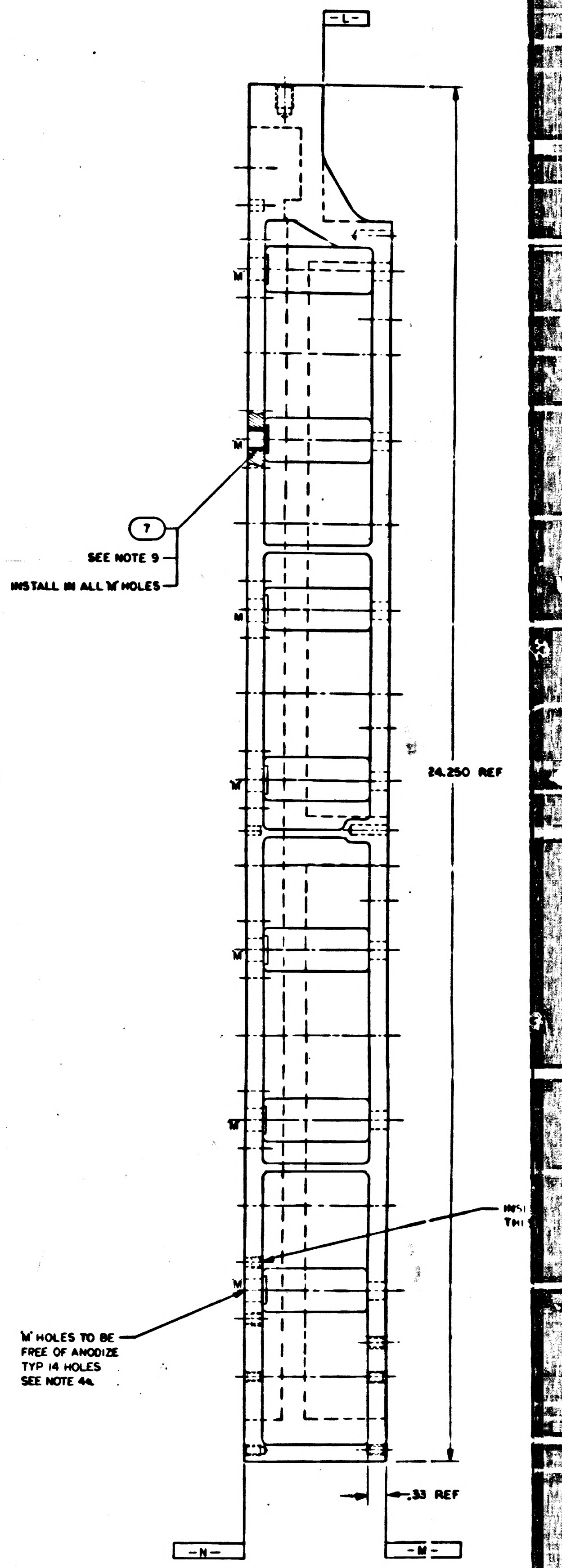
SECTION E-E
14 PLACES


9.000 BSC
1.716
.810
SEE NOTE 12
5

VIEW B-B

CSK & BOTTOMING TAP FOR 1/4 (.250)-28UNP-2B
X 1 1/2 DIA LONG INSERT, 2 PLACES. DO NOT BREAK THRU
SEE NOTE 8 & 9 ⊕ .014 DIA


G
G
SEE NOTE 10
21.031 BSC
19.750 BSC
19.125 REF
18.656 REF
18.000 BSC
17.125 BSC
16.500 BSC
15.000 BSC
13.500 BSC
12.000 BSC
10.500 BSC
9.875 BSC
9.000 BSC
7.750 BSC
7.500 BSC
6.875 BSC
6.000 BSC
4.500 BSC
3.000 BSC
1.500 BSC
0
-.875 BSC
-1.500 BSC
-2.781 BSC
N
P
C
E
E
2
CSK & BOTTOMING TAP FOR NO. 8 (.164) -32 UNC-2B X 1 1/2 DIA LONG INSERT 16 "N" HOLES, SEE NOTE 8 & 9 ⊕ .005 DIA
.072 .073 DIA REF DO NOT BREAK SHARP EDGES THIS SIDE ONLY
2
CSK & TAP FOR NO. 8 (.164) -32 UNC-2B X 1 1/2 DIA LONG INSERT, 14 "C" HOLES SEE NOTE 8 & 9 ⊕ .005 DIA
11.000 BSC
C'BORE .1865 .1870 DIA X .281 DEEP 4 P HOLES ◈ .002 DIA ⊥ N .0005
.080 .084 DIA AND CSK 60° X .110 DIA 240 HOLES ◈ .004 DIA
.072 .073 DIA REF DO NOT BREAK SHARP EDGES THIS SIDE ONLY
8.125 BSC
4
TAP THRU FULL THREAD FOR NO. 4 (.112) -40UNC-2B X 1 1/2 DIA LONG INSERT 28 PLACES, SEE NOTE 8 & 9 ⊕ .005 DIA
.516 BSC 14 PLACES
0
1.032 BSC 14 PLACES
3.000 REF
.969 BSC
B
B
.248 REF
4.094 BSC
4.344 BSC
7.594 BSC
7.844 BSC
10.969 BSC
11.938 BSC
12.453 REF
SEE NOTE 12 TYP


-L-
M
7
SEE NOTE 9
INSTALL IN ALL "M" HOLES
24.250 REF
"M" HOLES TO BE FREE OF ANODIZE TYP 14 HOLES SEE NOTE 4a
.33 REF
-N-
-M-

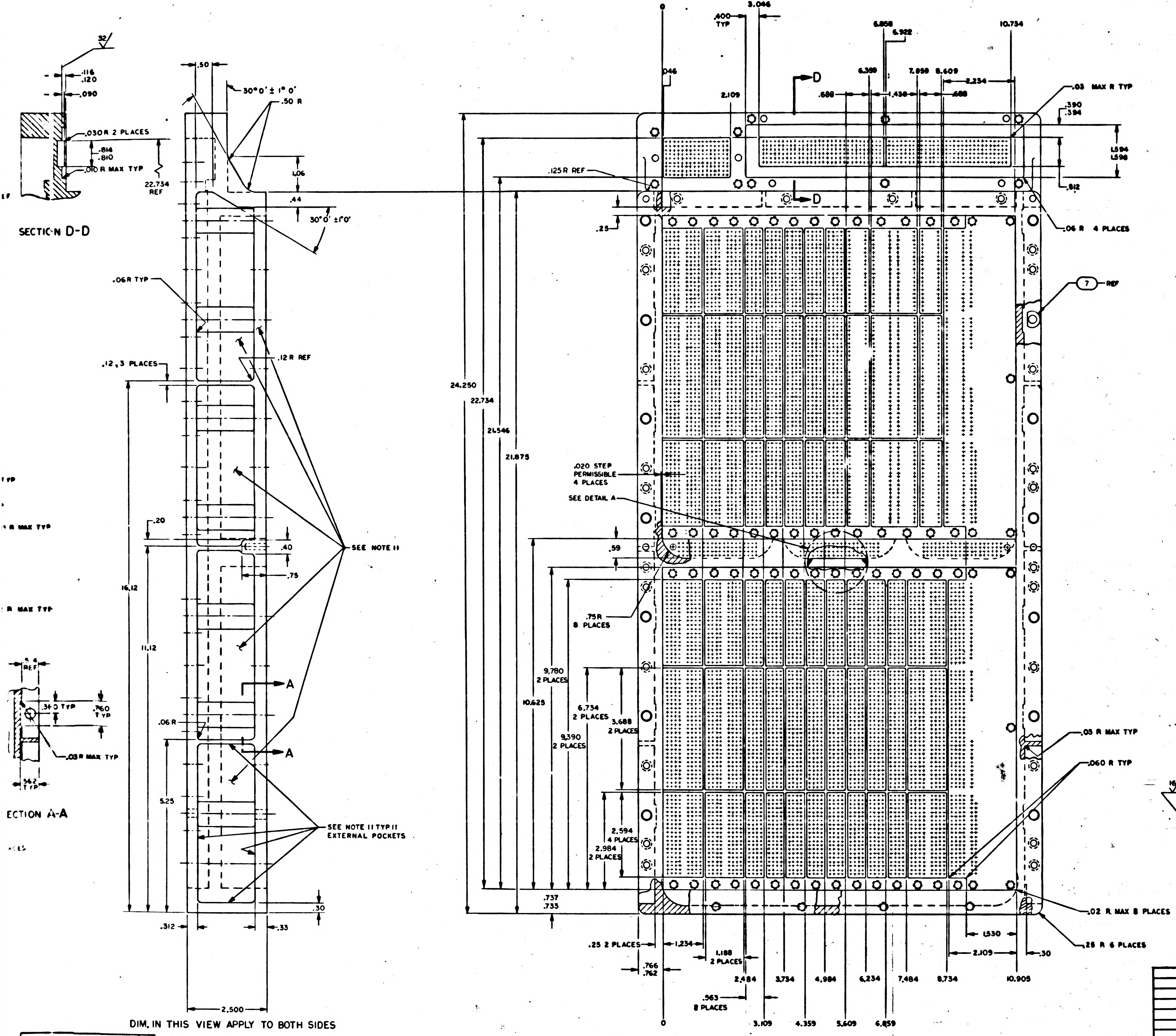
NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MAT'L MAGNESIUM ZK60A-T5 PER QQ-M-31, TEMP T5
3. ANODIZE PER MIL-M-45202, TYPE I, CLASS C
4. a) INDICATED SURFACES SHALL BE FREE OF ANODIZE, TREAT PER MIL-M-3171, TYPE VI
   b) TAP "C", E, "L" & "N" HOLES AFTER ANODIZE AND TREAT PER MIL-M-3171, TYPE VI
   c) .375 HOLES SHOWN TO BE FREE OF ANODIZE TREAT PER MIL-M-3171, TYPE VI
5. ALL SURFACES $\sqrt{125}$ UNLESS OTHERWISE SPECIFIED
6. REMOVE BURRS AND SHARP EDGES .005/.015 UNLESS OTHERWISE SPECIFIED
7. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII .125
8. INSTALL FIND NO. 2, 3, 4, 5, AND 6 PER MS 33646 AND REMOVE DRIVING TANG
9. COAT FIND NO. 7 AND THREADS OF FIND NO. 2, 3, 4, 5 AND 6 WITH MIL-P-8585 COLOR YELLOW, INSTALL WET
10. IDENTIFY WITH PART NO. PER ND 1002019 AND SERIALIZE PER ND 1002023 WHERE SHOWN
11. APPLY FOLLOWING FINISHES TO SURFACES INDICATED, ALL HOLES AND INSERTS TO BE FREE OF THESE FINISHES:
   a) PRIMER ONLY PER ND 1002279 USING 1010992
   b) PAINT ALUMINUM FILLED EPOXY PER ND 1002289
12. APPLY FOLLOWING FINISHES TO SURFACES INDICATED, INCLUDING RADII, ALL HOLES AND INSERTS TO BE FREE OF THESE FINISHES:
   a) PAINT GRAY PER ND 1002279 USING 1008809-1
   b) FINAL COAT SURFACES PER ND 1002277 USING 1012543-003

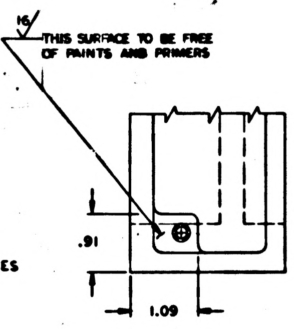
24

2004166	D

SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
		REVISIONS 25977				
A		REVISED PER TDRR 26555			3/8/66	
B		REVISED PER TDRR 28026	DAY.		5/2/	
C		REVISED PER TDRR 28448			5-26-66	
D		REVISED PER TDRR 29081			6/13/66	ESS



32
.116
.120
.090
.030R 2 PLACES
.814
.810
.010 R MAX TYP
SECTION D-D
.50
30°0' ± 1° 0'
.50 R
22.734 REF
1.06
.44
30°0' ±1°0'
.06R TYP
.12 R REF
.12, 3 PLACES
16.12
11.12
.20
.40
.75
SEE NOTE 11
A
A
.06 R
5.25
SEE NOTE 11 TYP 11 EXTERNAL POCKETS
.30
.312
.33
2.500
DIM. IN THIS VIEW APPLY TO BOTH SIDES
.4 REF
.340 TYP
.760 TYP
.03R MAX TYP
.562 TYP
SECTION A-A
0
.046
.400 TYP
3.046
2.109
D
D
6.858
6.922
6.359
7.859
8.609
10.734
2.234
.688
1.438
.688
.03 MAX R TYP
.390
.394
1.594
1.598
.812
.125 R REF
.25
.06 R 4 PLACES
7 REF
24.250
22.734
24.546
21.875
.020 STEP PERMISSIBLE 4 PLACES
SEE DETAIL A
.59
.75R 8 PLACES
9.780 2 PLACES
10.625
6.734 2 PLACES
3.688 2 PLACES
9.390 2 PLACES
2.594 4 PLACES
2.984 2 PLACES
.737
.733
.03 R MAX TYP
.060 R TYP
.02 R MAX 8 PLACES
.25 R 6 PLACES
1.530
2.109
.30
.25 2 PLACES
1.234
1.188 2 PLACES
.766
.762
2.484
3.734
4.984
6.234
7.484
8.734
10.905
.563 8 PLACES
0
3.109
4.359
5.609
6.859



16
THIS SURFACE TO BE FREE OF PAINTS AND PRIMERS
.91
1.09

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
	LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN E.W. Jolgrand 4OCT65
CHECKED
APPROVED
APPROVED
APPROVED MIT D.C. FETZGER
APPROVED MSC

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRAY A
INSEPARABLE ASSY
AGC

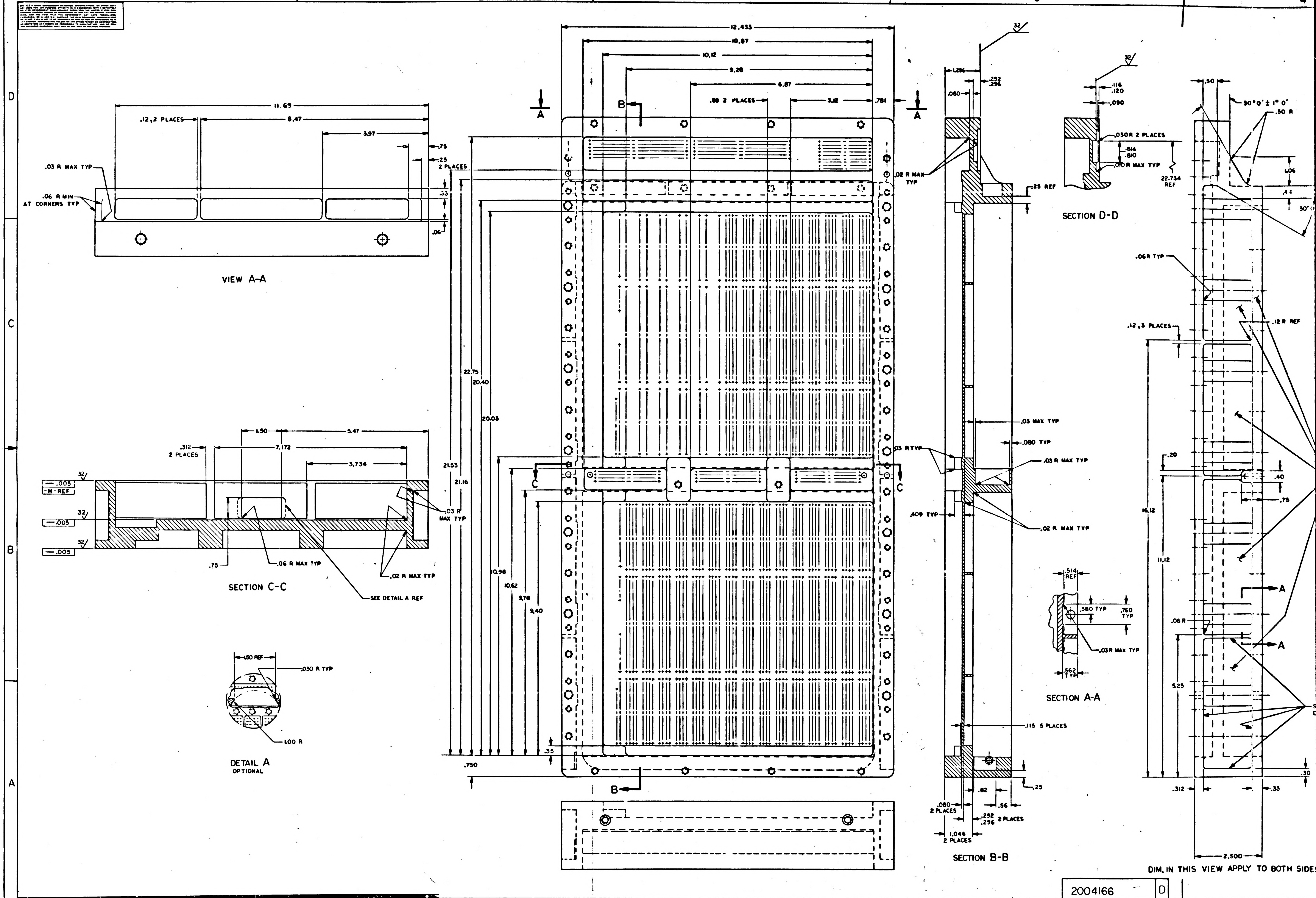
CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004166
SCALE 1/1
SHEET 2 OF 2

2004166 D

20C4166 D

E 2/2

2u



VIEW A-A
11.69
.12, 2 PLACES
8.47
3.97
.75
.25 2 PLACES
.03 R MAX TYP
.06 R MIN AT CORNERS TYP
.33
.06
SECTION C-C
1.50
5.47
.312 2 PLACES
7.172
3.734
.005
-M- REF
.005
.005
32
.03 R MAX TYP
.75
.06 R MAX TYP
.02 R MAX TYP
SEE DETAIL A REF
DETAIL A
OPTIONAL
1.50 REF
.030 R TYP
1.00 R
12.433
10.87
10.12
9.28
6.87
.88 2 PLACES
3.12
.781
A
B
C
22.75
20.40
20.03
21.53
21.16
10.98
10.62
9.78
9.40
.35
.750
.02 R MAX TYP
.03 R TYP
.409 TYP
SECTION B-B
1.296
.080
.292 .296
.25 REF
.03 MAX TYP
.080 TYP
.03 R MAX TYP
.02 R MAX TYP
.115 5 PLACES
.080 2 PLACES
.82
.56
.25
.292 .296 2 PLACES
1.046 2 PLACES
SECTION D-D
.116 .120
.090
.030 R 2 PLACES
.814 .810
.010 R MAX TYP
22.734 REF
SECTION A-A
.514 REF
.380 TYP
.760 TYP
.03 R MAX TYP
.562 TYP
.50
30°0' ± 1° 0'
.50 R
1.06
.44
30°
.06 R TYP
.12, 3 PLACES
.12 R REF
.20
.40
.75
16.12
11.12
5.25
.06 R
.312
.33
.30
2.500
DIM. IN THIS VIEW APPLY TO BOTH SIDES

D C B A

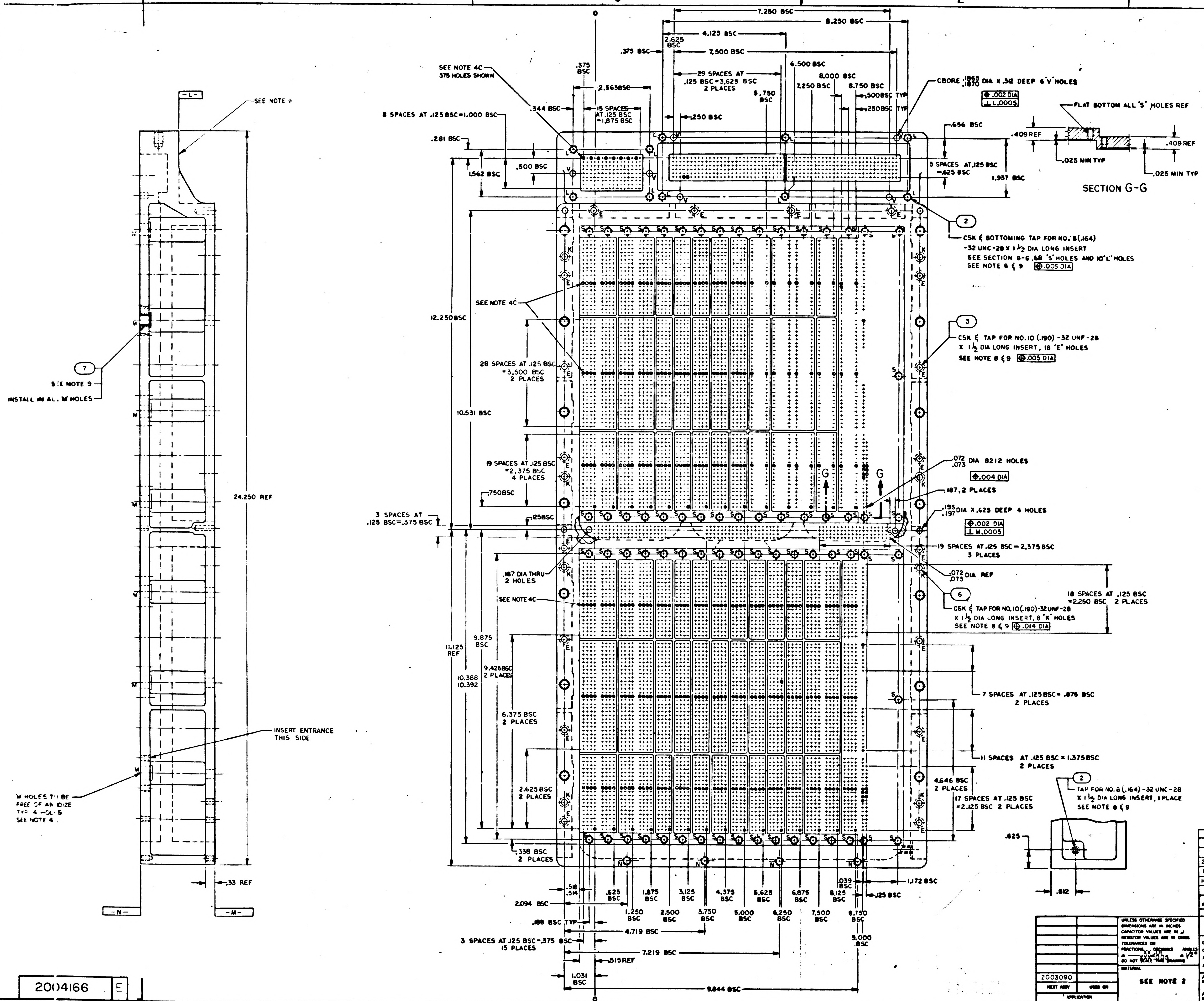
2H

2004166 D

5

2004166-D SH2/2 F1/2

REVISIONS 25477						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 26536			3/8/66	
B		REVISED PER TDRR 28026	DRW		5/2/66	
C		REVISED PER TDRR 28448		JJR	5-25/66	E S S.
D		REVISED PER TDRR 29081		JJR	6/13/66	E S S
E		REVISED PER TDRR 29819				



SEE NOTE 11
-L-
SEE NOTE 4C 375 HOLES SHOWN
8 SPACES AT .125 BSC=1.000 BSC
.281 BSC
1.562 BSC
.500 BSC
.344 BSC
.375 BSC
2.5638 BSC
15 SPACES AT .125 BSC =1.875 BSC
7.250 BSC
8.250 BSC
4.125 BSC
2.625 BSC
.375 BSC
7.500 BSC
29 SPACES AT .125 BSC=3.625 BSC 2 PLACES
6.500 BSC
8.000 BSC
5.750 BSC
7.250 BSC
8.750 BSC
.500 BSC TYP
.250 BSC TYP
.250 BSC
CBORE .1865/.1870 DIA X .312 DEEP 6 'V' HOLES
⌖ .002 DIA
⊥ L .0005
FLAT BOTTOM ALL 'S' HOLES REF
.656 BSC
.409 REF
.409 REF
.025 MIN TYP
.025 MIN TYP
SECTION G-G
5 SPACES AT .125 BSC =.625 BSC
1.937 BSC
2
CSK & BOTTOMING TAP FOR NO. 8 (.164) -32 UNC-2B X 1½ DIA LONG INSERT SEE SECTION G-G, 68 'S' HOLES AND 10 'L' HOLES SEE NOTE 8 & 9 ⌖ .005 DIA
3
CSK & TAP FOR NO.10 (.190) -32 UNF-2B X 1½ DIA LONG INSERT, 18 'E' HOLES SEE NOTE 8 & 9 ⌖ .005 DIA
7
SEE NOTE 9
INSTALL IN ALL 'M' HOLES
12.250 BSC
SEE NOTE 4C
28 SPACES AT .125 BSC =3.500 BSC 2 PLACES
10.531 BSC
19 SPACES AT .125 BSC =2.375 BSC 4 PLACES
.750 BSC
24.250 REF
3 SPACES AT .125 BSC=.375 BSC
.125 BSC
G
G
.072/.073 DIA 8212 HOLES
⌖ .004 DIA
.187, 2 PLACES
.195/.197 DIA X .625 DEEP 4 HOLES
⌖ .002 DIA
⊥ M .0005
19 SPACES AT .125 BSC = 2.375 BSC 3 PLACES
.072/.073 DIA REF
6
CSK & TAP FOR NO.10 (.190) -32 UNF-2B X 1½ DIA LONG INSERT, 8 'K' HOLES SEE NOTE 8 & 9 ⌖ .014 DIA
18 SPACES AT .125 BSC =2.250 BSC 2 PLACES
.187 DIA THRU 2 HOLES
SEE NOTE 4C
9.875 BSC
11.125 REF
10.388/10.392
9.426 BSC 2 PLACES
6.375 BSC 2 PLACES
7 SPACES AT .125 BSC= .875 BSC 2 PLACES
INSERT ENTRANCE THIS SIDE
11 SPACES AT .125 BSC = 1.375 BSC 2 PLACES
4.646 BSC 2 PLACES
17 SPACES AT .125 BSC =2.125 BSC 2 PLACES
2.625 BSC 2 PLACES
'M' HOLES TO BE FREE OF ANODIZE TYP 4 HOLES SEE NOTE 4
2
TAP FOR NO. 8 (.164) -32 UNC-2B X 1½ DIA LONG INSERT, 1 PLACE SEE NOTE 8 & 9
.625
.812
.338 BSC 2 PLACES
.33 REF
-N-
-M-
.518/.514
.625 BSC
1.875 BSC
3.125 BSC
4.375 BSC
5.625 BSC
6.875 BSC
8.125 BSC
.039 BSC
1.172 BSC
.125 BSC
2.094 BSC
1.250 BSC
2.500 BSC
3.750 BSC
5.000 BSC
6.250 BSC
7.500 BSC
8.750 BSC
.188 BSC TYP
4.719 BSC
9.000 BSC
3 SPACES AT .125 BSC=.375 BSC 15 PLACES
7.219 BSC
.515 REF
1.031 BSC
9.844 BSC
2004166 E

QTY REQ'D	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
14	2004706-002	INSERT, KNURLED	7
8	MS21208F1-15	INSERT, THREADED	6
4	MS21209F4-15	INSERT, THREADED, SELF-LOCKING	5
28	MS21209C0415	INSERT, THREADED, SELF-LOCKING	4
16	MS21209F1-15	INSERT, THREADED, SELF-LOCKING	3
109	MS21209C0815	INSERT, THREADED, SELF-LOCKING	2
1	2004166-001	TRAY A MACHINED	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003090	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XX ±.01 .XXX ±.005 ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN W. Hogan
CHECKED
APPROVED
APPROVED
APPROVED MIT
A. C. METZGER
APPROVED MSC

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

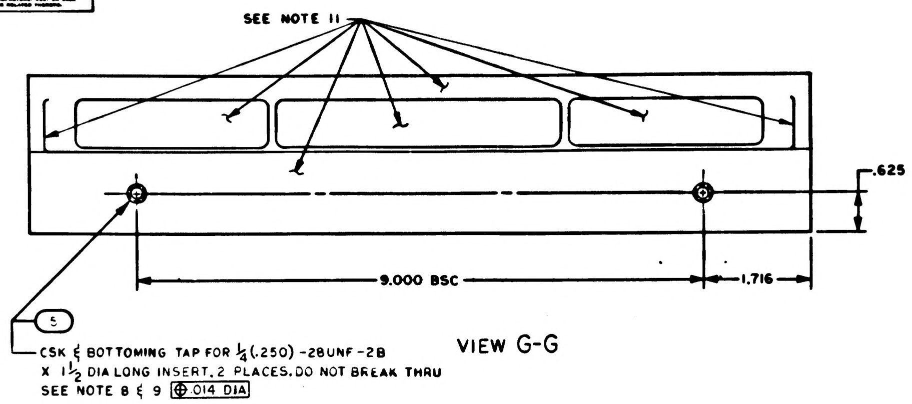
TRAY A
INSEPARABLE ASSY
AGC

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004166
SCALE 1/1
SHEET 1 OF 2

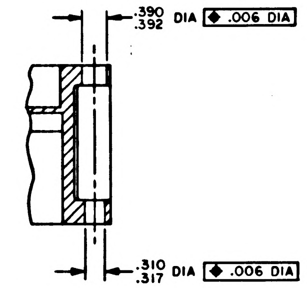
2004166

F2/2

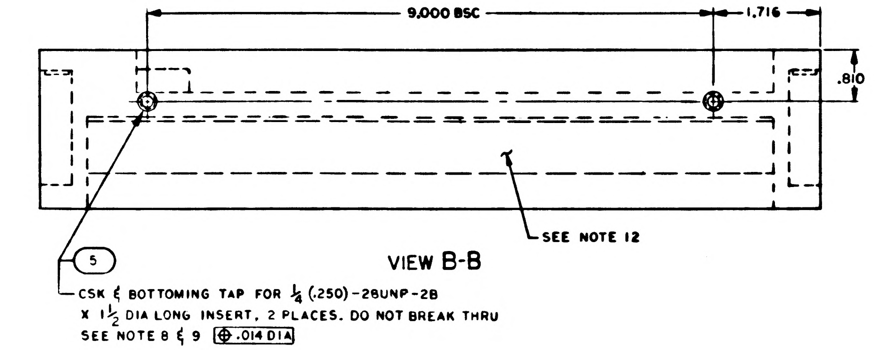
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


SEE NOTE 11
.625
9.000 BSC
1.716
5
CSK & BOTTOMING TAP FOR 1/4 (.250) -28UNF-2B X 1 1/2 DIA LONG INSERT, 2 PLACES. DO NOT BREAK THRU SEE NOTE 8 & 9 ⊕ .014 DIA

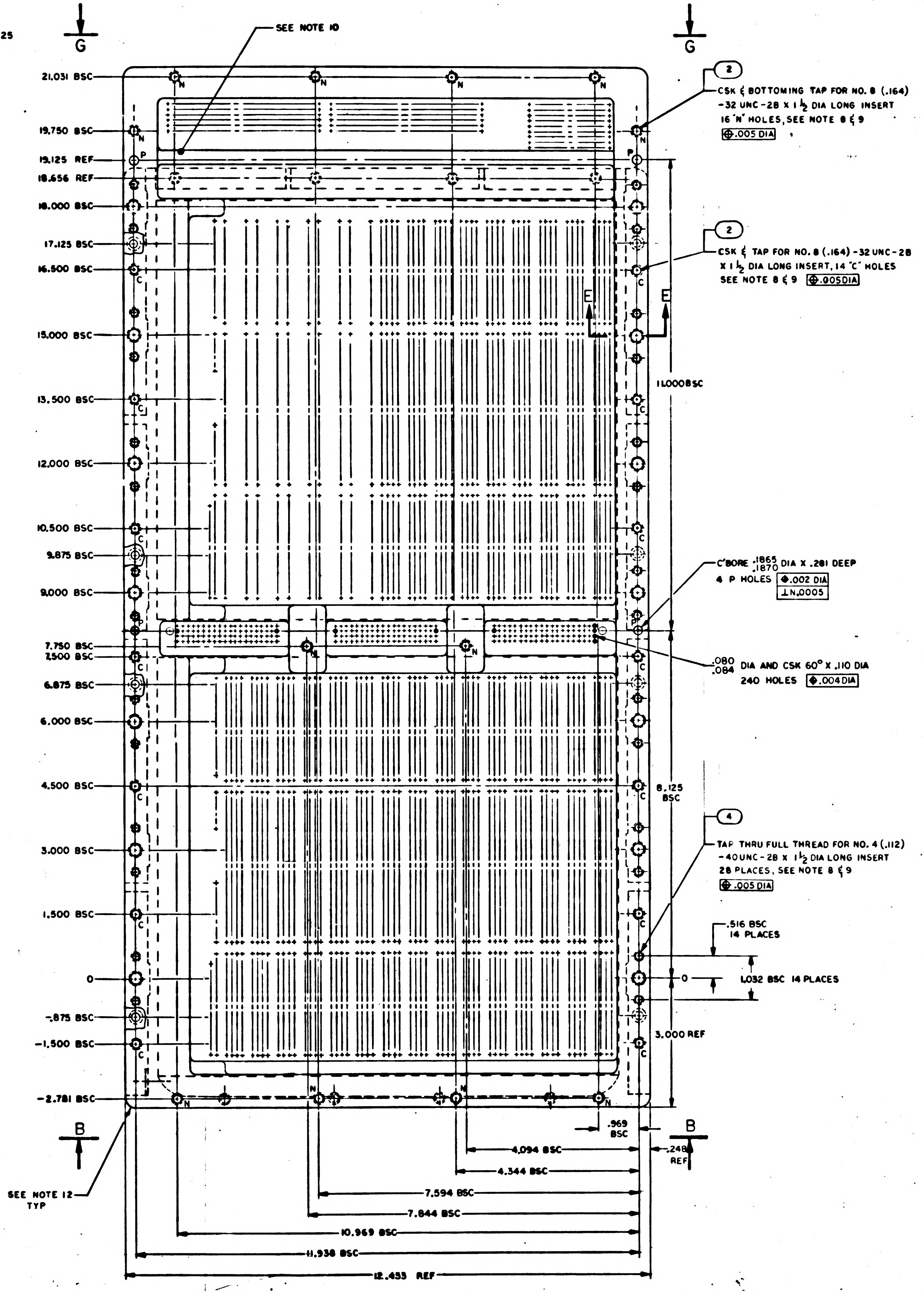
VIEW G-G

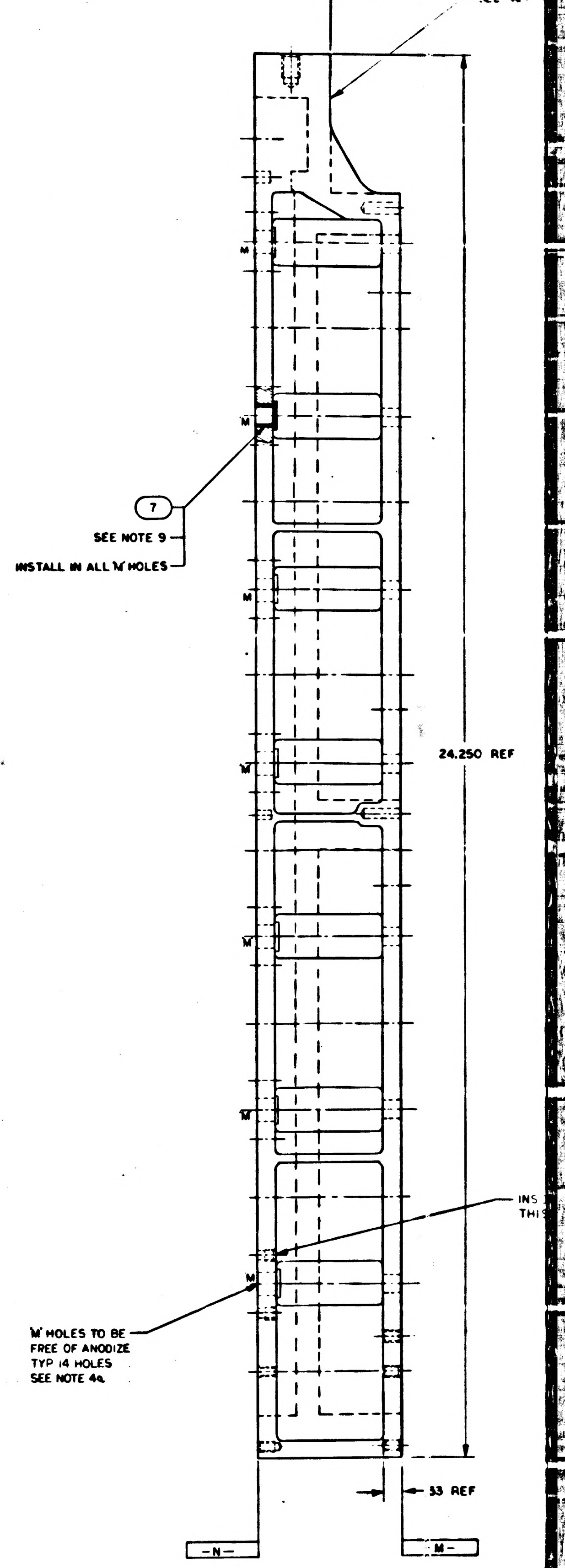

.390 .392 DIA ◆ .006 DIA
.310 .317 DIA ◆ .006 DIA

SECTION E-E
14 PLACES


9.000 BSC
1.716
.810
SEE NOTE 12
5
CSK & BOTTOMING TAP FOR 1/4 (.250) -28UNF-2B X 1 1/2 DIA LONG INSERT, 2 PLACES. DO NOT BREAK THRU SEE NOTE 8 & 9 ⊕ .014 DIA

VIEW B-B


G
G
SEE NOTE 10
21.031 BSC
19.750 BSC
19.125 REF
18.656 REF
18.000 BSC
17.125 BSC
16.500 BSC
15.000 BSC
13.500 BSC
12.000 BSC
10.500 BSC
9.875 BSC
9.000 BSC
7.750 BSC
7.500 BSC
6.875 BSC
6.000 BSC
4.500 BSC
3.000 BSC
1.500 BSC
0
-.875 BSC
-1.500 BSC
-2.781 BSC
N
P
C
E
E
2
CSK & BOTTOMING TAP FOR NO. 8 (.164) -32 UNC-2B X 1 1/2 DIA LONG INSERT 16 "N" HOLES, SEE NOTE 8 & 9 ⊕ .005 DIA
2
CSK & TAP FOR NO. 8 (.164) -32 UNC-2B X 1 1/2 DIA LONG INSERT, 14 "C" HOLES SEE NOTE 8 & 9 ⊕ .005 DIA
11.000 BSC
C'BORE .1865 .1870 DIA X .281 DEEP 4 P HOLES ◆ .002 DIA ⊥ N .0005
.080 .084 DIA AND CSK 60° X .110 DIA 240 HOLES ◆ .004 DIA
8.125 BSC
4
TAP THRU FULL THREAD FOR NO. 4 (.112) -40UNC-2B X 1 1/2 DIA LONG INSERT 28 PLACES, SEE NOTE 8 & 9 ⊕ .005 DIA
.516 BSC 14 PLACES
0
1.032 BSC 14 PLACES
3.000 REF
B
B
SEE NOTE 12 TYP
.969 BSC
.248 REF
4.094 BSC
4.344 BSC
7.594 BSC
7.844 BSC
10.969 BSC
11.938 BSC
12.433 REF

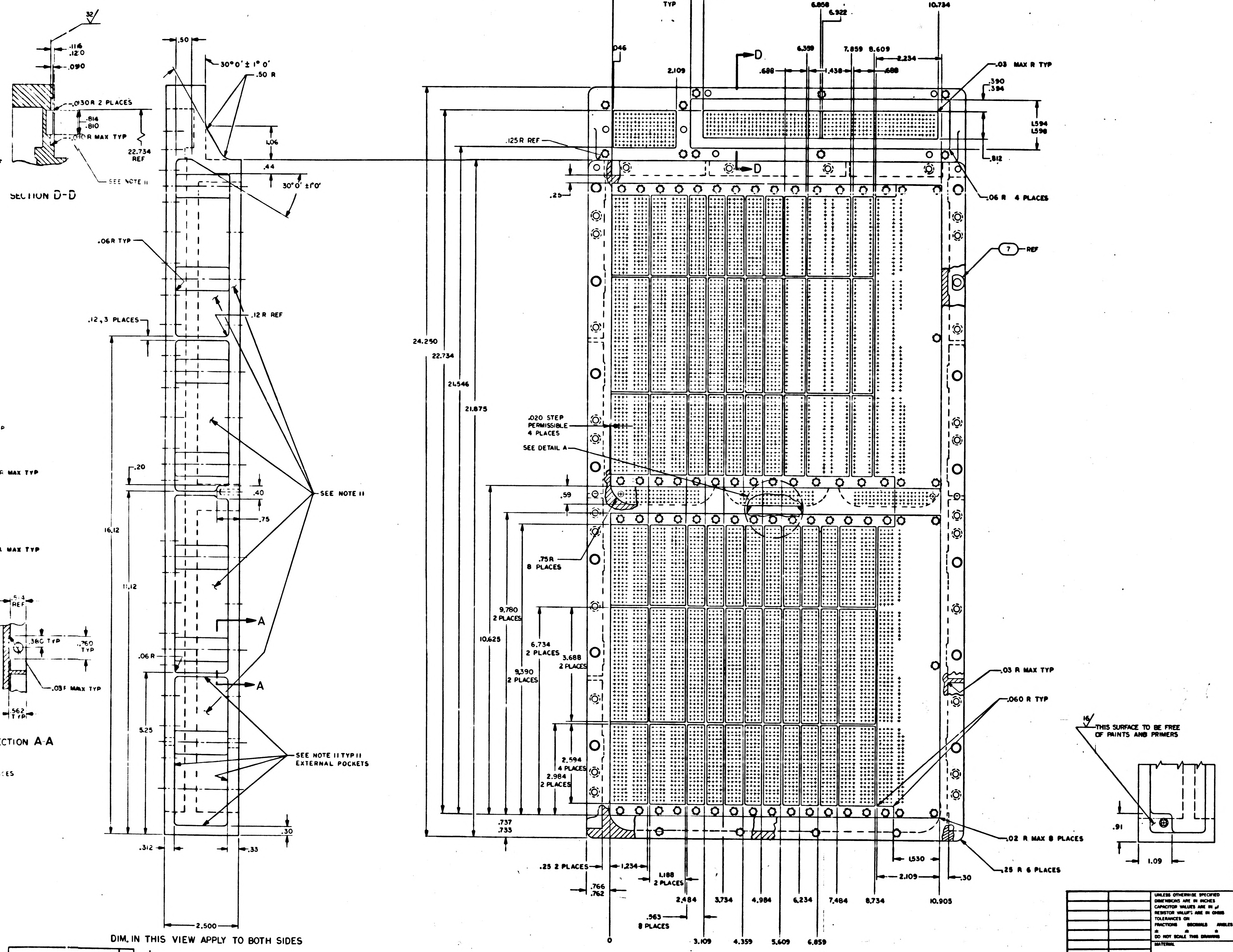

-L-
SEE NOT
7
SEE NOTE 9
INSTALL IN ALL 'M' HOLES
M
24.250 REF
INS
THIS
'M' HOLES TO BE FREE OF ANODIZE TYP 14 HOLES SEE NOTE 4a
.33 REF
-N-
-M-

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MAT'L MAGNESIUM ZK60A-T5 PER QQ-M-31, TEMP T5
3. ANODIZE PER MIL-M-45202, TYPE I, CLASS C
4. a) INDICATED SURFACES SHALL BE FREE OF ANODIZE, TREAT PER MIL-M-3171, TYPE VI
   b) TAP 'C, E, L' & N HOLES AFTER ANODIZE AND TREAT PER MIL-M-3171, TYPE VI
   c) 375 HOLES SHOWN TO BE FREE OF ANODIZE TREAT PER MIL-M-3171, TYPE VI
5. ALL SURFACES $\sqrt{125}$ UNLESS OTHERWISE SPECIFIED
6. REMOVE BURRS AND SHARP EDGES .005/.015 UNLESS OTHERWISE SPECIFIED
7. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII .125
8. INSTALL FIND NO. 2,3,4,5. AND 6 PER MS 33646 AND REMOVE DRIVING TANG
9. COAT FIND NO.7 AND THREADS OF FIND NO.2,3,4,5 AND 6 WITH MIL-P-8585 COLOR YELLOW, INSTALL WET
10. IDENTIFY WITH PART NO. PER ND1002019 AND SERIALIZE PER ND1002023 WHERE SHOWN
11. APPLY FOLLOWING FINISHES TO SURFACES INDICATED, ALL HOLES AND INSERTS TO BE FREE OF THESE FINISHES:
    a) PRIMER ONLY PER ND1002279 USING 1010992
    b) PAINT ALUMINUM FILLED EPOXY PER ND1002289
12. APPLY FOLLOWING FINISHES TO SURFACES INDICATED, INCLUDING RADII, ALL HOLES AND INSERTS TO BE FREE OF THESE FINISHES:
    a) PAINT GRAY PER ND1002279 USING 1008809-1
    b) FINAL COAT SURFACES. PER ND1002277 USING 1012543-003

2004166 E

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		REVISIONS 25977				
A		REVISED PER TDRR 26555			3/8/66	
B		REVISED PER TDRR 28026	DRY		5/2/66	
C		REVISED PER TDRR 28448			5-25-66	ESS
D		REVISED PER TDRR 29081			6/10/66	ESS
E		REVISED PER TDRR 29819			7/4/66	


SECTION D-D
.116
.120
.090
.030R 2 PLACES
.814
.810
.010 R MAX TYP
22.734 REF
SEE NOTE 11
30°0' ± 1°0'
.50 R
.50
1.06
.44
30°0' ± 1°0'
.06R TYP
.12 R REF
.12, 3 PLACES
.20
.40
.75
SEE NOTE 11
16.12
11.12
5.25
.06 R
A
A
SEE NOTE 11 TYP 11 EXTERNAL POCKETS
.30
.312
.33
2.500
DIM. IN THIS VIEW APPLY TO BOTH SIDES
SECTION A-A
.380 TYP
.760 TYP
.03 R MAX TYP
.562 TYP
0
.400 TYP
3.046
.046
2.109
D
D
6.858
6.922
6.359
7.859
8.609
10.734
.688
1.438
.688
2.234
.03 MAX R TYP
.390
.394
1.594
1.598
.812
.125R REF
.25
.06 R 4 PLACES
7 REF
24.250
22.734
21.546
21.875
.020 STEP PERMISSIBLE 4 PLACES
SEE DETAIL A
.59
.75R 8 PLACES
10.625
9.780 2 PLACES
9.390 2 PLACES
6.734 2 PLACES
3.688 2 PLACES
2.594 4 PLACES
2.984 2 PLACES
.737
.733
.03 R MAX TYP
.060 R TYP
.02 R MAX 8 PLACES
.25 R 6 PLACES
1.530
2.109
.30
10.905
.25 2 PLACES
1.234
1.188 2 PLACES
.766
.762
.563 8 PLACES
2.484
3.734
4.984
6.234
7.484
8.734
3.109
4.359
5.609
6.859
0
16
THIS SURFACE TO BE FREE OF PAINTS AND PRIMERS
.91
1.09

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

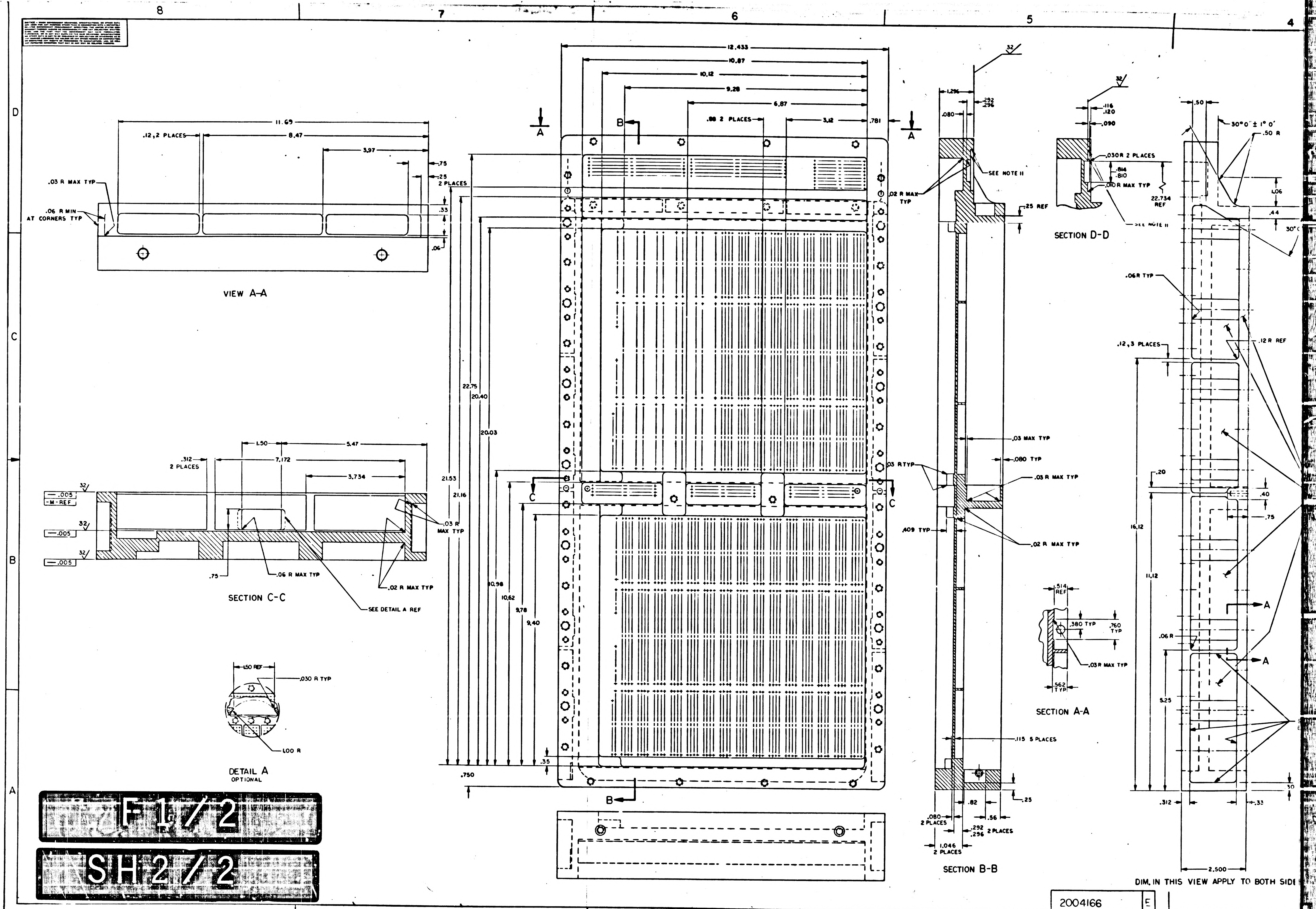
DRAWN E.W. Hoguard 10OCT65
CHECKED 10OCT65
APPROVED
APPROVED Eldon C. Hall
APPROVED MIT W. Wenzler A.C. Metzger
APPROVED MSC
DATE

TRAY A
INSEPARABLE ASSY
AGC

CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2004166
SCALE 1/1		SHEET 2 OF 2

2.4

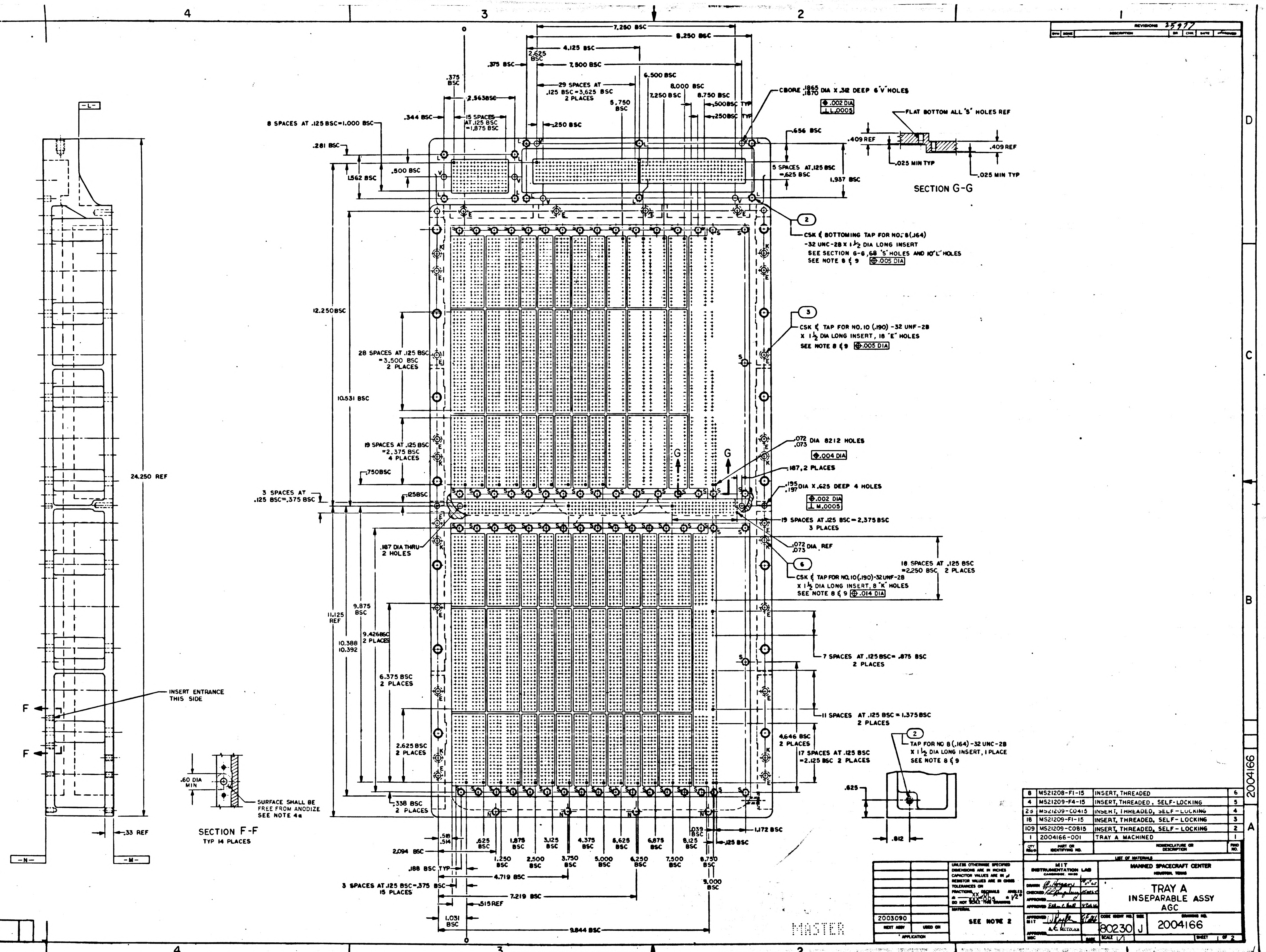
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


8
7
6
5
4
D
C
B
A
VIEW A-A
11.69
.12, 2 PLACES
8.47
3.97
.75
.25
2 PLACES
.33
.06
.03 R MAX TYP
.06 R MIN AT CORNERS TYP
SECTION C-C
1.50
5.47
.312 2 PLACES
7.172
3.734
.005
-M-REF
32
.03 R MAX TYP
.75
.06 R MAX TYP
.02 R MAX TYP
SEE DETAIL A REF
DETAIL A
OPTIONAL
1.50 REF
.030 R TYP
1.00 R
12.433
10.87
10.12
9.28
6.87
.88 2 PLACES
3.12
.781
A
B
C
22.75
20.40
20.03
21.53
21.16
10.98
10.62
9.78
9.40
.35
.750
.02 R MAX TYP
.03 R TYP
SECTION B-B
1.296
.292
.296
.080
SEE NOTE 11
.25 REF
.03 MAX TYP
.080 TYP
.03 R MAX TYP
.409 TYP
.02 R MAX TYP
.115 5 PLACES
.82
.56
.25
.080 2 PLACES
.292
.296 2 PLACES
1.046 2 PLACES
SECTION D-D
.116
.120
.090
.030R 2 PLACES
.814
.810
.010R MAX TYP
22.734 REF
SEE NOTE 11
SECTION A-A
.514 REF
.380 TYP
.760 TYP
.03R MAX TYP
.562 TYP
.50
30°0' ± 1°0'
.50 R
1.06
.44
30°
.06R TYP
.12, 3 PLACES
.12 R REF
16.12
11.12
5.25
.20
.40
.75
.06 R
.312
.33
.30
2.500
DIM. IN THIS VIEW APPLY TO BOTH SIDE

F1/2

SH2/2

2004166 E



REVISIONS 25977
SYM ZONE DESCRIPTION BY CHK DATE APPROVED
7.250 BSC
8.250 BSC
4.125 BSC
2.625 BSC
.375 BSC
7.500 BSC
29 SPACES AT .125 BSC=3.625 BSC 2 PLACES
6.500 BSC
8.000 BSC
7.250 BSC
8.750 BSC
5.750 BSC
.500 BSC TYP
.250 BSC TYP
.375 BSC
2.563 BSC
15 SPACES AT .125 BSC =1.875 BSC
.344 BSC
8 SPACES AT .125 BSC=1.000 BSC
.250 BSC
.281 BSC
.500 BSC
1.562 BSC
CBORE .1865/.1870 DIA X .312 DEEP 6 'V' HOLES
⌖ .002 DIA
⊥ L .0005
FLAT BOTTOM ALL 'S' HOLES REF
.656 BSC
.409 REF
.409 REF
.025 MIN TYP
.025 MIN TYP
5 SPACES AT .125 BSC =.625 BSC
1.937 BSC
SECTION G-G
2
CSK & BOTTOMING TAP FOR NO. 8 (.164) -32 UNC-2B X 1½ DIA LONG INSERT SEE SECTION G-G, 68 'S' HOLES AND 10 'L' HOLES SEE NOTE 8 & 9 ⌖ .005 DIA
3
CSK & TAP FOR NO. 10 (.190) -32 UNF-2B X 1½ DIA LONG INSERT, 18 'E' HOLES SEE NOTE 8 & 9 ⌖ .005 DIA
12.250 BSC
28 SPACES AT .125 BSC =3.500 BSC 2 PLACES
10.531 BSC
19 SPACES AT .125 BSC =2.375 BSC 4 PLACES
.750 BSC
3 SPACES AT .125 BSC=.375 BSC
.125 BSC
.072/.073 DIA 8212 HOLES
⌖ .004 DIA
G
G
.187, 2 PLACES
.195/.197 DIA X .625 DEEP 4 HOLES
⌖ .002 DIA
⊥ M .0005
19 SPACES AT .125 BSC = 2.375 BSC 3 PLACES
.072/.073 DIA REF
.187 DIA THRU 2 HOLES
6
CSK & TAP FOR NO. 10 (.190)-32 UNF-2B X 1½ DIA LONG INSERT, 8 'K' HOLES SEE NOTE 8 & 9 ⌖ .014 DIA
18 SPACES AT .125 BSC =2.250 BSC 2 PLACES
11.125 REF
9.875 BSC
9.426 BSC 2 PLACES
10.388/10.392
6.375 BSC 2 PLACES
7 SPACES AT .125 BSC= .875 BSC 2 PLACES
11 SPACES AT .125 BSC = 1.375 BSC 2 PLACES
2.625 BSC 2 PLACES
4.646 BSC 2 PLACES
17 SPACES AT .125 BSC =2.125 BSC 2 PLACES
2
TAP FOR NO 8 (.164) -32 UNC-2B X 1½ DIA LONG INSERT, 1 PLACE SEE NOTE 8 & 9
.625
.812
.338 BSC 2 PLACES
.518/.514
2.094 BSC
.625 BSC
1.875 BSC
3.125 BSC
4.375 BSC
5.625 BSC
6.875 BSC
8.125 BSC
.039 BSC
.125 BSC
1.172 BSC
1.250 BSC
2.500 BSC
3.750 BSC
5.000 BSC
6.250 BSC
7.500 BSC
8.750 BSC
9.000 BSC
.188 BSC TYP
4.719 BSC
3 SPACES AT .125 BSC=.375 BSC 15 PLACES
7.219 BSC
.515 REF
1.031 BSC
9.844 BSC
0
0
-L-
24.250 REF
INSERT ENTRANCE THIS SIDE
F
F
.33 REF
-N-
-M-
.60 DIA MIN
SURFACE SHALL BE FREE FROM ANODIZE SEE NOTE 4a
SECTION F-F
TYP 14 PLACES
4
3
2
1
D
C
B
A
MASTER
2004166

8	MS21208-F1-15	INSERT, THREADED	6
4	MS21209-F4-15	INSERT, THREADED, SELF-LOCKING	5
23	MS21209-C0415	INSERT, THREADED, SELF-LOCKING	4
18	MS21209-F1-15	INSERT, THREADED, SELF-LOCKING	3
109	MS21209-C0815	INSERT, THREADED, SELF-LOCKING	2
1	2004166-001	TRAY A MACHINED	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003090	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS XX ±.01 XXX ±.005 ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING
MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN W. Horgan 18 Oct 65
CHECKED R.L. Kingsbury 15 Oct 65
APPROVED
APPROVED Ellen C. Hall 8 Feb 66
APPROVED MIT A. C. METZGER
APPROVED MSC

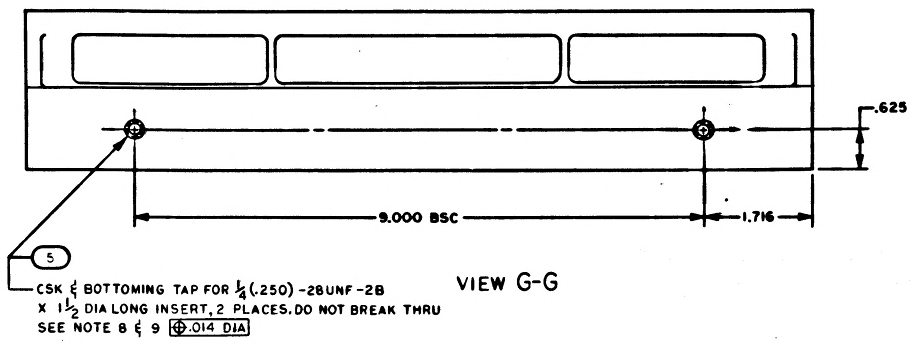
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRAY A
INSEPARABLE ASSY
AGC

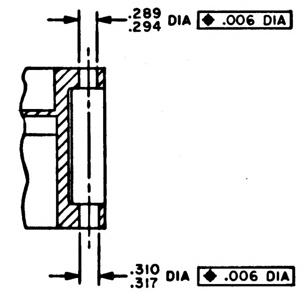
CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004166
SCALE 1/1
SHEET 1 OF 2

2004166

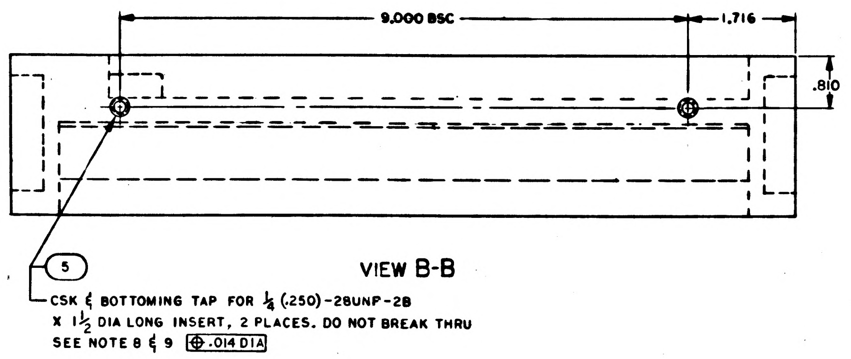
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


.625
9.000 BSC
1.716
5
CSK & BOTTOMING TAP FOR 1/4 (.250) -28UNF-2B X 1 1/2 DIA LONG INSERT, 2 PLACES. DO NOT BREAK THRU SEE NOTE 8 & 9 ⊕ .014 DIA

VIEW G-G


.289 .294 DIA ◆ .006 DIA
.310 .317 DIA ◆ .006 DIA

SECTION E-E
14 PLACES

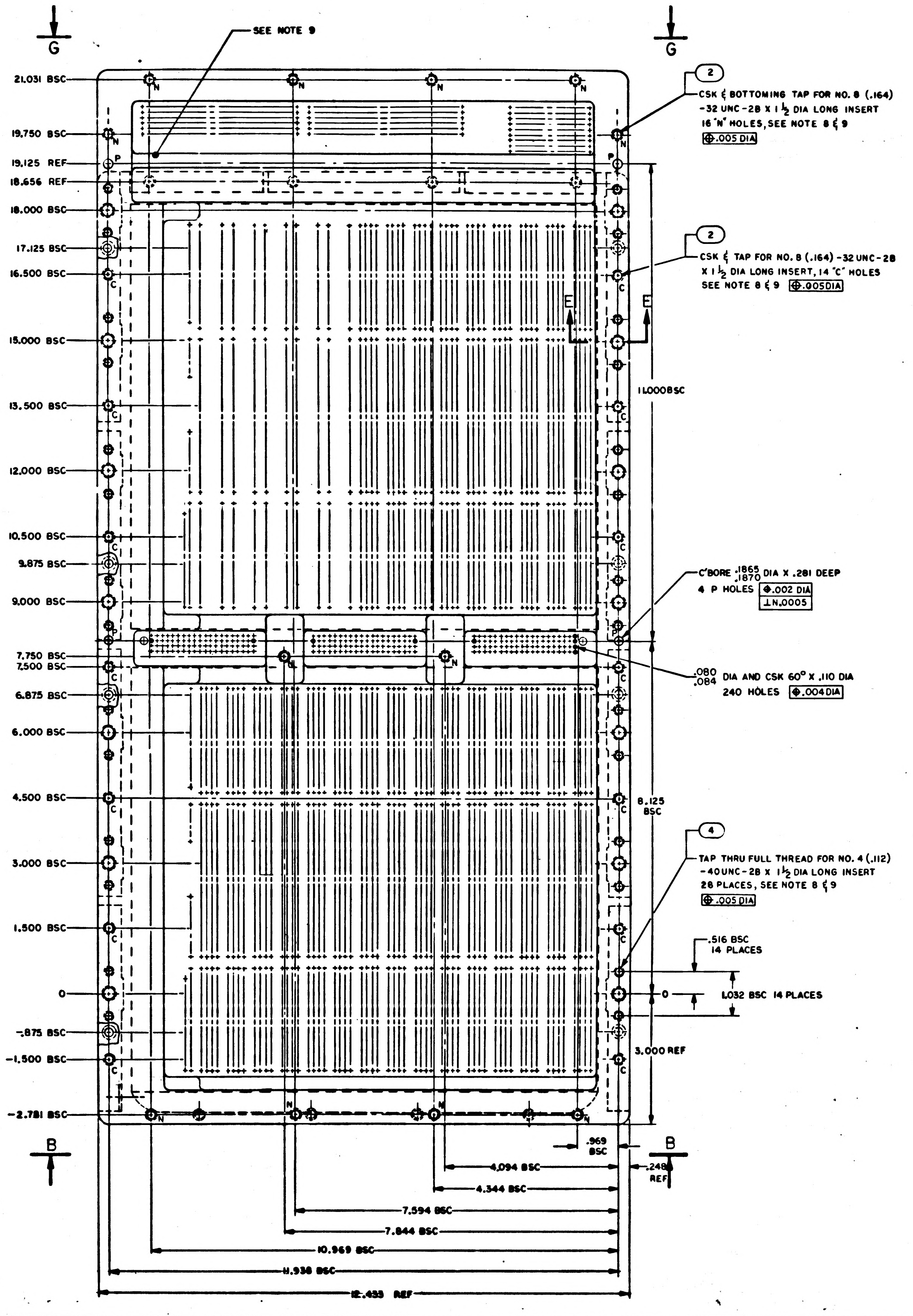

9.000 BSC
1.716
.810
5
CSK & BOTTOMING TAP FOR 1/4 (.250) -28UNF-2B X 1 1/2 DIA LONG INSERT, 2 PLACES. DO NOT BREAK THRU SEE NOTE 8 & 9 ⊕ .014 DIA

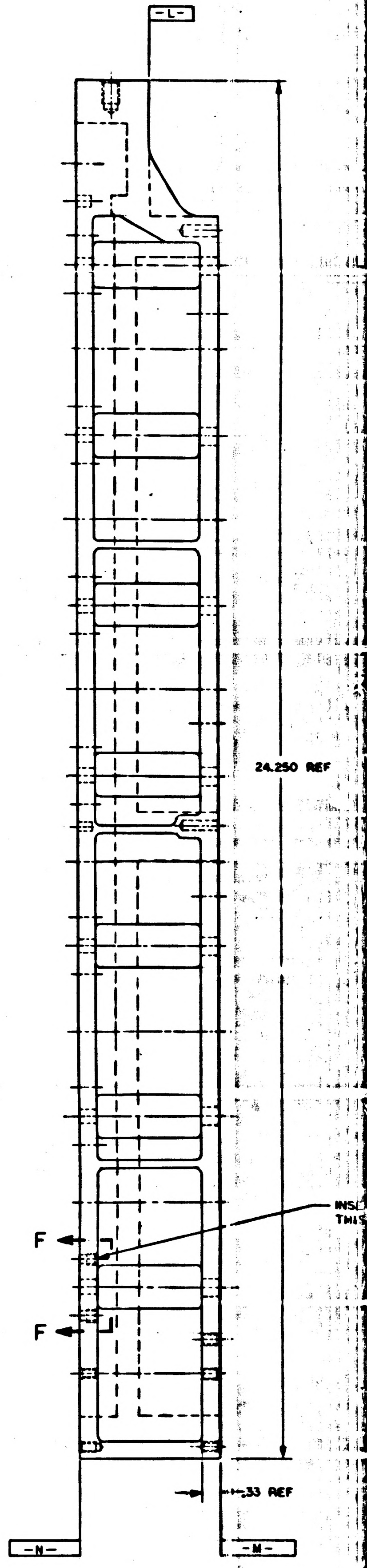
VIEW B-B

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MAT'L: MAGNESIUM ZK60A-T5 PER QQ-M-31, TEMP T5
3. ANODIZE PER
4. a) INDICATED SURFACES SHALL BE FREE OF ANODIZE, TREAT PER .DO NOT EPOXY COAT
   b) TAP "C", "E", "L" & "N" HOLES AFTER ANODIZE AND TREAT PER DO NOT EPOXY COAT
5. ALL SURFACES $\sqrt{125}$ UNLESS OTHERWISE SPECIFIED
6. REMOVE BURRS AND SHARP EDGES .005/.015
7. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII .125
8. INSTALL FIND NO. 2, 3, 4, 5, AND 6 PER MS 33646 AND REMOVE DRIVING TANG
9. COAT THREADS OF FIND NO. 2, 3, 4, 5, AND 6 WITH COLOR YELLOW, EXCEPT "C", "E" "N" AND "L" HOLES
10. IDENTIFY WITH PART NO. PER ND 1002019 AND SERIALIZE PER ND 1002023 WHERE SHOWN

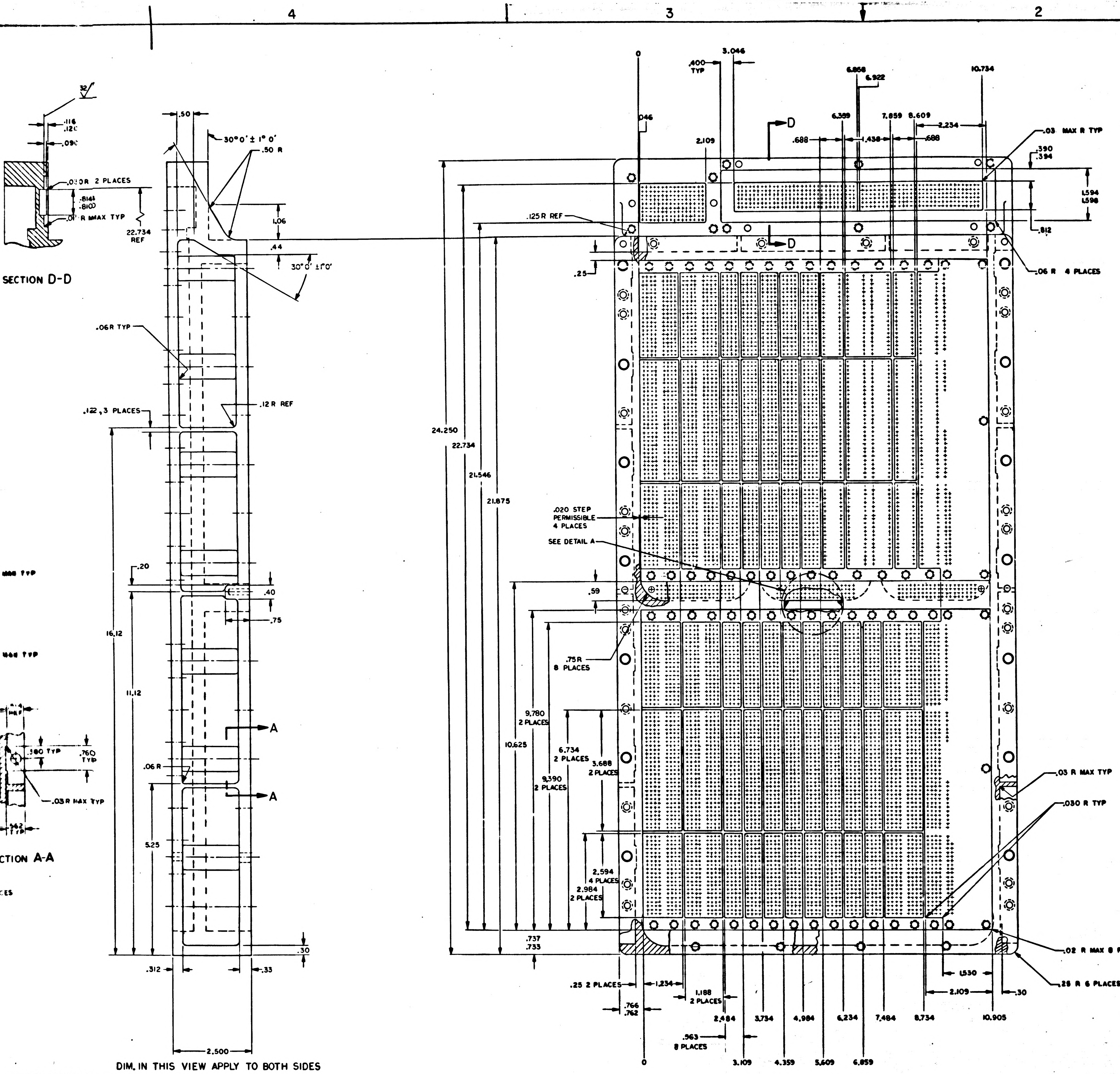
24


G
G
SEE NOTE 9
21.031 BSC
19.750 BSC
19.125 REF
18.656 REF
18.000 BSC
17.125 BSC
16.500 BSC
15.000 BSC
13.500 BSC
12.000 BSC
10.500 BSC
9.875 BSC
9.000 BSC
7.750 BSC
7.500 BSC
6.875 BSC
6.000 BSC
4.500 BSC
3.000 BSC
1.500 BSC
0
-.875 BSC
-1.500 BSC
-2.781 BSC
N
P
C
E
E
2
CSK & BOTTOMING TAP FOR NO. 8 (.164) -32 UNC-2B X 1 1/2 DIA LONG INSERT 16 "N" HOLES, SEE NOTE 8 & 9 ⊕ .005 DIA
2
CSK & TAP FOR NO. 8 (.164) -32 UNC-2B X 1 1/2 DIA LONG INSERT, 14 "C" HOLES SEE NOTE 8 & 9 ⊕ .005 DIA
11.000 BSC
C'BORE .1865 .1870 DIA X .281 DEEP 4 P HOLES ⊕ .002 DIA ⊥ N .0005
.080 .084 DIA AND CSK 60° X .110 DIA 240 HOLES ⊕ .004 DIA
8.125 BSC
4
TAP THRU FULL THREAD FOR NO. 4 (.112) -40UNC-2B X 1 1/2 DIA LONG INSERT 28 PLACES, SEE NOTE 8 & 9 ⊕ .005 DIA
.516 BSC 14 PLACES
0
1.032 BSC 14 PLACES
3.000 REF
.969 BSC
.248 REF
B
B
4.094 BSC
4.344 BSC
7.594 BSC
7.844 BSC
10.969 BSC
11.938 BSC
12.435 REF


-L-
24.250 REF
F
F
.33 REF
-N-
-M-

2004166

REVISIONS 25977						
SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED



SECTION D-D
CTION A-A
32
.116
.120
.090
.010R 2 PLACES
.8141
.8103
.01 R MAX TYP
22.734 REF
.50
30°0' ± 1° 0'
.50 R
1.06
.44
30°0' ±1°0'
.06R TYP
.12 R REF
.122, 3 PLACES
.20
.40
.75
16.12
11.12
.380 TYP
.760 TYP
.06 R
.03 R MAX TYP
A
5.25
.30
.312
.33
2.500
DIM. IN THIS VIEW APPLY TO BOTH SIDES
0
3.046
.400 TYP
.046
2.109
D
6.858
6.922
10.734
6.359
7.859
8.609
.688
1.438
.688
2.234
.03 MAX R TYP
.390
.394
1.594
1.598
.812
.125 R REF
.06 R 4 PLACES
.25
24.250
22.734
21.546
21.875
.020 STEP PERMISSIBLE 4 PLACES
SEE DETAIL A
.59
.75R 8 PLACES
9.780 2 PLACES
10.625
6.734 2 PLACES
3.688 2 PLACES
9.390 2 PLACES
2.594 4 PLACES
2.984 2 PLACES
.737
.733
.03 R MAX TYP
.030 R TYP
.02 R MAX 8 PLACES
.25 R 6 PLACES
1.530
2.109
.30
.25 2 PLACES
1.234
.766
.762
1.188 2 PLACES
2.484
3.734
4.984
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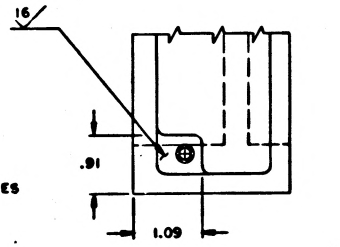
7.484
8.734
10.905
.963 8 PLACES
3.109
4.359
5.609
6.859



QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN E W Lynn 14OCT65
CHECKED 14OCT65
APPROVED
APPROVED
APPROVED MIT
D. C. FETZGER
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRAY A
INSEPARABLE ASSY
AGC

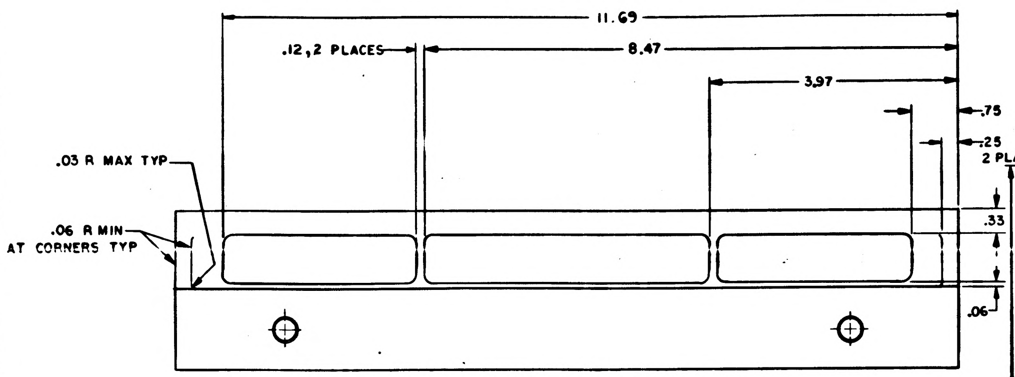
CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004166
SCALE 1/1
SHEET 2 OF 2

2004166

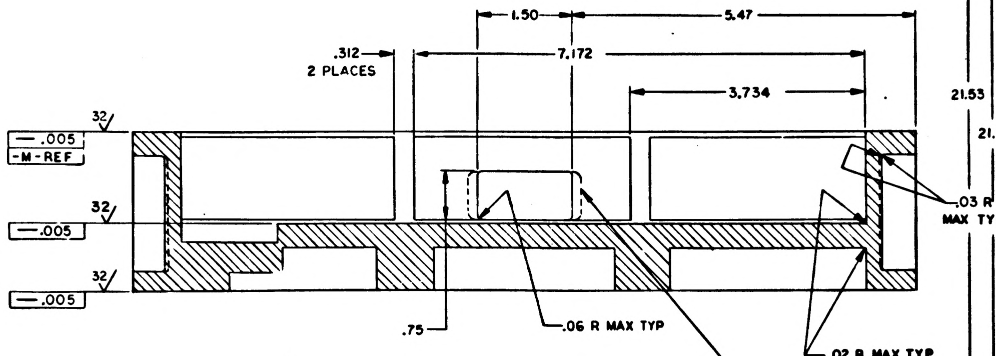
2004166

E-2

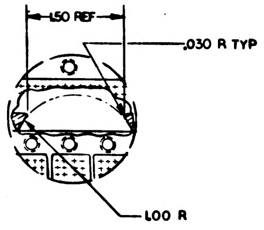
NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


11.69
.12, 2 PLACES
8.47
3.97
.75
.25
2 PLACES
.03 R MAX TYP
.06 R MIN
AT CORNERS TYP
.33
.06

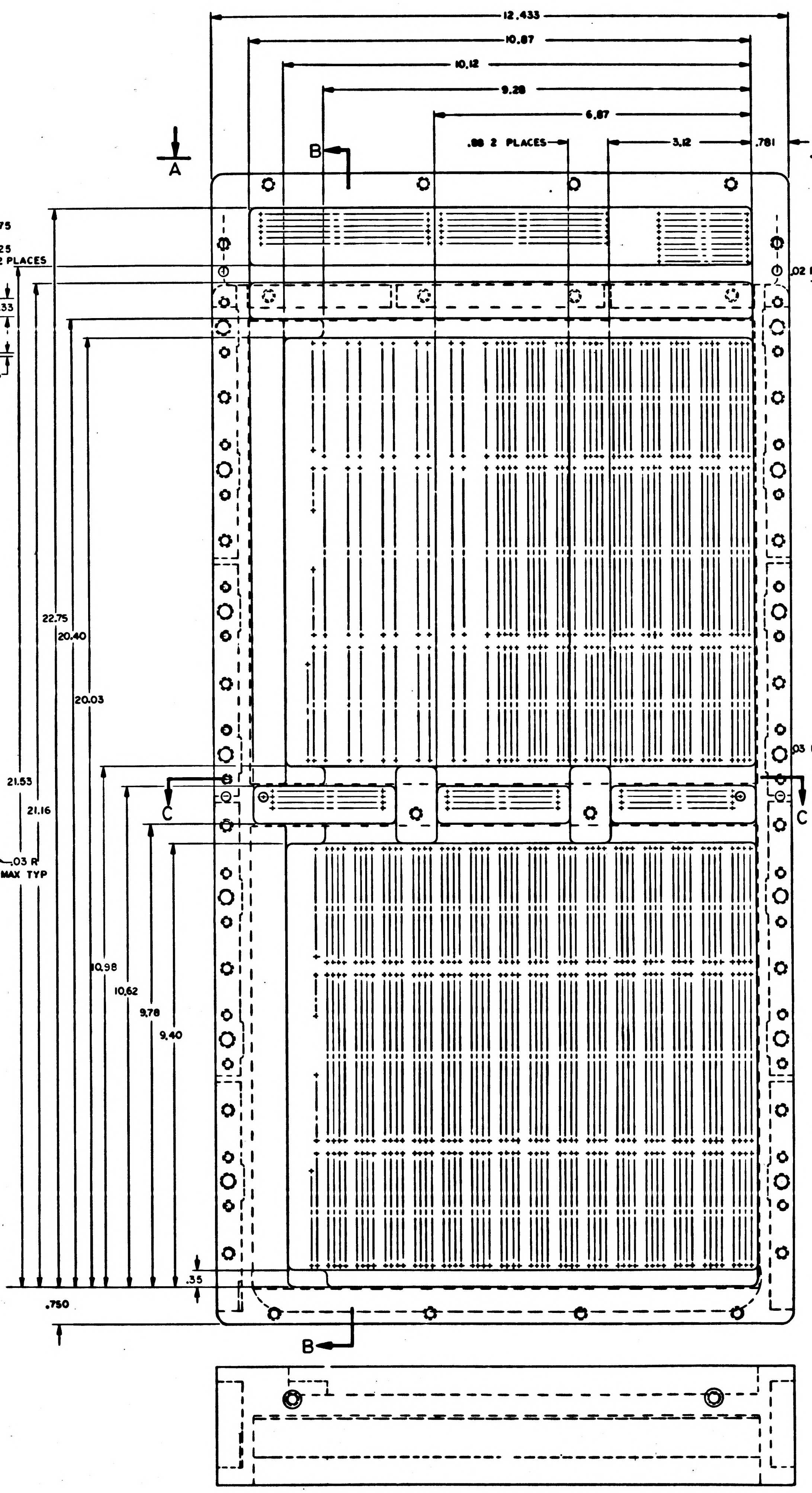
VIEW A-A

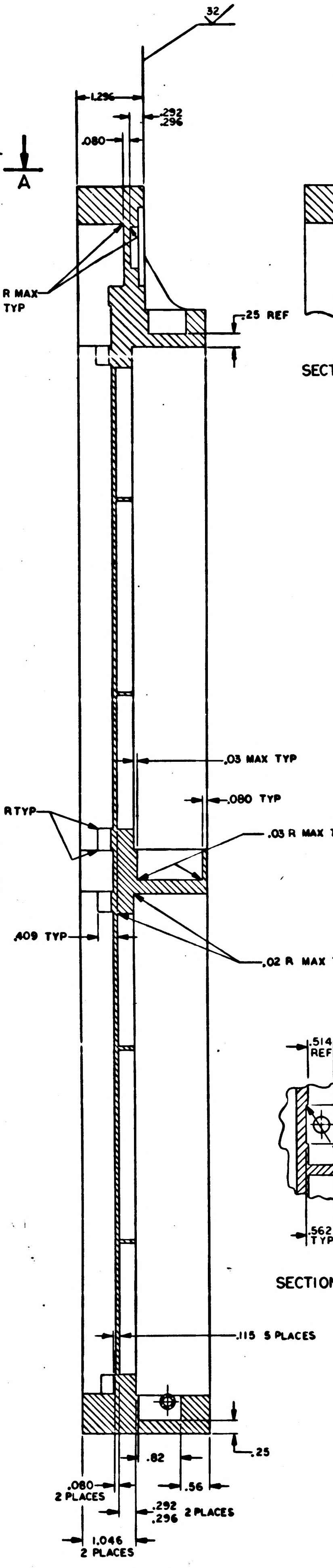

1.50
5.47
.312
2 PLACES
7.172
3.734
.005
-M- REF
.005
.005
32
.03 R
MAX TYP
.75
.06 R MAX TYP
.02 R MAX TYP
SEE DETAIL A REF

SECTION C-C

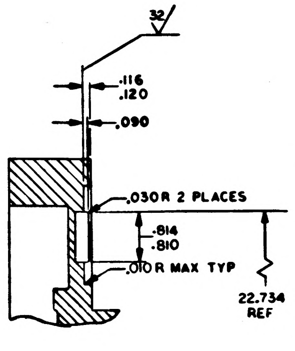

1.50 REF
.030 R TYP
1.00 R

DETAIL A
OPTIONAL

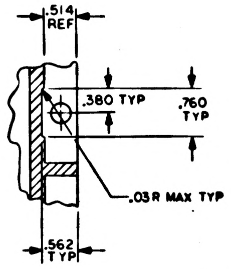

12.433
10.87
10.12
9.28
6.87
.88 2 PLACES
3.12
.781
A
A
B
B
C
C
22.75
20.40
20.03
21.53
21.16
10.98
10.62
9.78
9.40
.35
.750


32
1.296
.292
.296
.080
.02 R MAX
TYP
.25 REF
.03 MAX TYP
.080 TYP
.03 R TYP
.03 R MAX TYP
.409 TYP
.02 R MAX TYP
.115 5 PLACES
.82
.25
.56
.080
2 PLACES
.292
.296 2 PLACES
1.046
2 PLACES

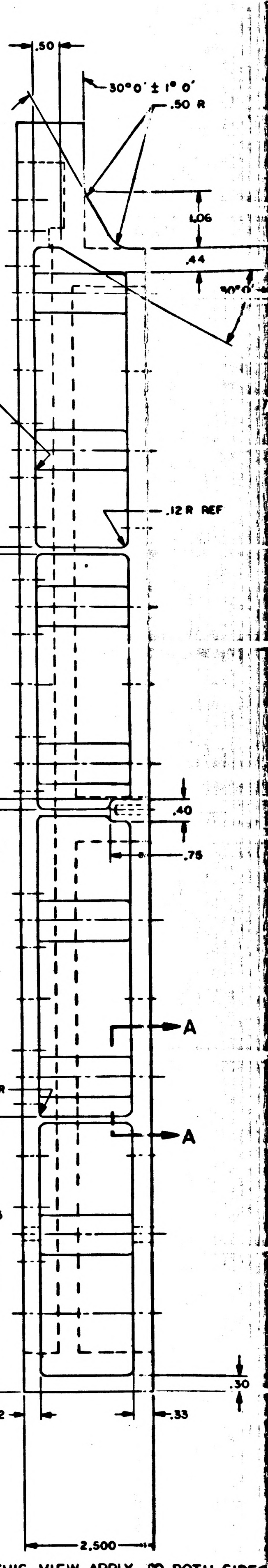
SECTION B-B


32
.116
.120
.090
.030 R 2 PLACES
.814
.810
.010 R MAX TYP
22.734
REF

SECTION D-D


.514
REF
.380 TYP
.760
TYP
.03 R MAX TYP
.562
TYP

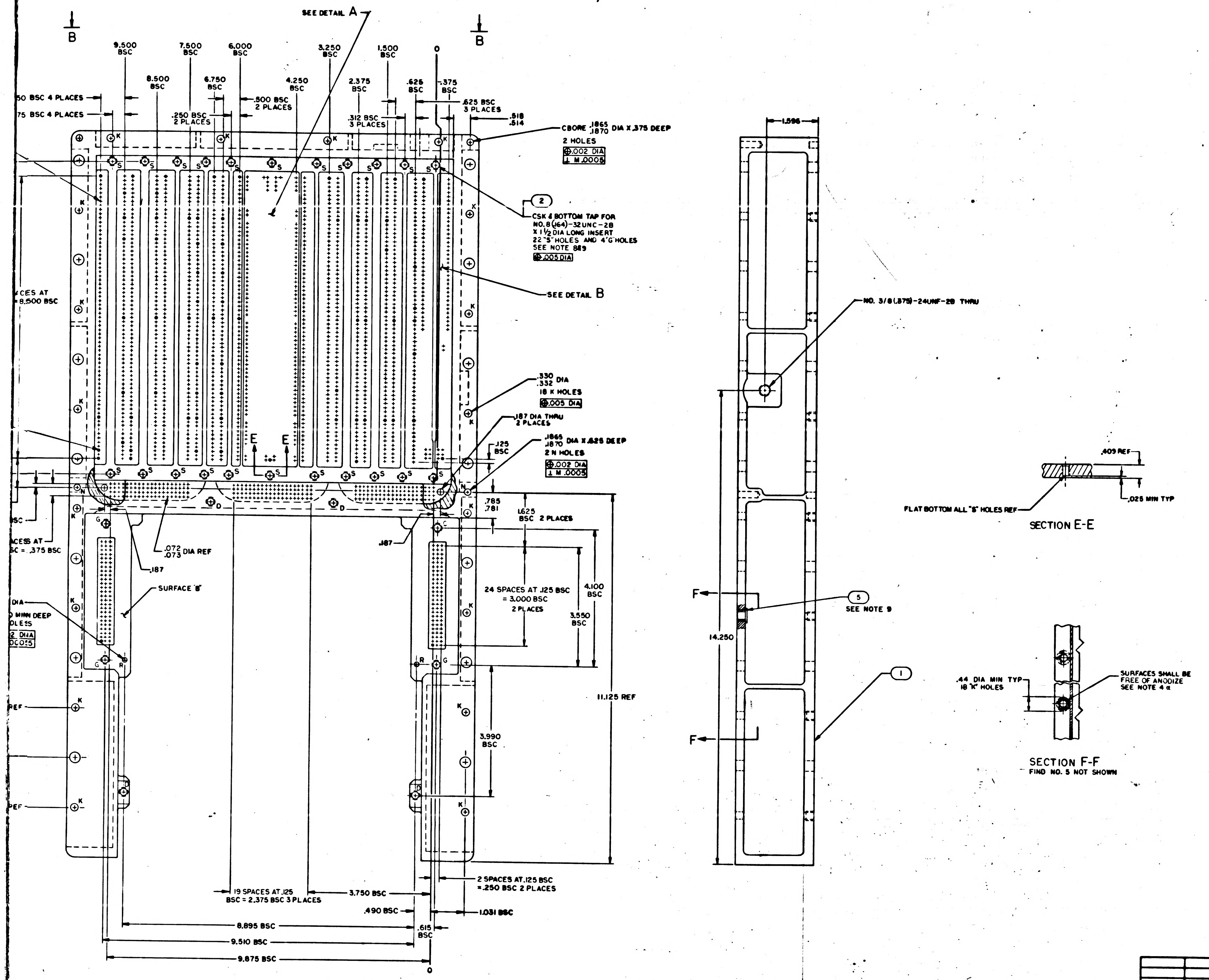
SECTION A-A


.50
30°0' ± 1° 0'
.50 R
1.06
.44
30°0'
.06R TYP
.12, 3 PLACES
.12 R REF
.20
.40
.75
16.12
11.12
5.25
.06 R
A
A
.30
.312
.33
2.500

DIM. IN THIS VIEW APPLY TO BOTH SIDES

2004166

SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
	A	REVISED PER TDRR 26555				


SEE DETAIL A
B
B
9.500 BSC
7.500 BSC
6.000 BSC
3.250 BSC
1.500 BSC
0
8.500 BSC
6.750 BSC
4.250 BSC
2.375 BSC
.625 BSC
-.375 BSC
50 BSC 4 PLACES
75 BSC 4 PLACES
.250 BSC 2 PLACES
.500 BSC 2 PLACES
.312 BSC 3 PLACES
.625 BSC 3 PLACES
.518 .514
CBORE .1865 .1870 DIA X .375 DEEP 2 HOLES
.002 DIA
⊥ M .0005
2
CSK & BOTTOM TAP FOR NO.8 (.164)-32UNC-2B X 1 1/2 DIA LONG INSERT 22 "S" HOLES AND 4 "G" HOLES SEE NOTE 8&9
.005 DIA
SEE DETAIL B
CES AT =8.500 BSC
.330 .332 DIA 18 K HOLES
.005 DIA
.187 DIA THRU 2 PLACES
.125 BSC
.1865 .1870 DIA X .625 DEEP 2 N HOLES
.002 DIA
⊥ M .0005
E
E
S
K
N
D
G
R
C
.785 .781
1.625 BSC 2 PLACES
BSC
ACESS AT BSC = .375 BSC
.072 .073 DIA REF
.187
.187
SURFACE 'B'
DIA
MINN DEEP
OLESS
2 DIA
.0C015
24 SPACES AT .125 BSC = 3.000 BSC 2 PLACES
4.100 BSC
3.550 BSC
11.125 REF
3.990 BSC
REF
REF
19 SPACES AT .125 BSC = 2.375 BSC 3 PLACES
3.750 BSC
2 SPACES AT .125 BSC =.250 BSC 2 PLACES
.490 BSC
1.031 BSC
8.895 BSC
.615 BSC
9.510 BSC
9.875 BSC
1.596
NO. 3/8 (.375)-24UNF-2B THRU
14.250
F
F
5
SEE NOTE 9
1
.409 REF
FLAT BOTTOM ALL "S" HOLES REF
.025 MIN TYP
SECTION E-E
.44 DIA MIN TYP 18 "K" HOLES
SURFACES SHALL BE FREE OF ANODIZE SEE NOTE 4 a
SECTION F-F
FIND NO. 5 NOT SHOWN

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
18	2004706-001	INSERT, KNURLED	5
~~4~~	~~MS21209 F6-15~~	~~INSERT, THREADED, SELF-LOCKING~~	~~4~~
3	MS21209 F1-15	INSERT, THREADED, SELF-LOCKING	3
60	MS21209 C0815	INSERT, THREADED, SELF-LOCKING	2
1	2004167-001	TRAY B, MACHINED	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003091	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XXX ± .005 .XX ± .01 ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
CHECKED
APPROVED
APPROVED E. C. Hall
APPROVED MIT
APPROVED MSC A. C. METZGER

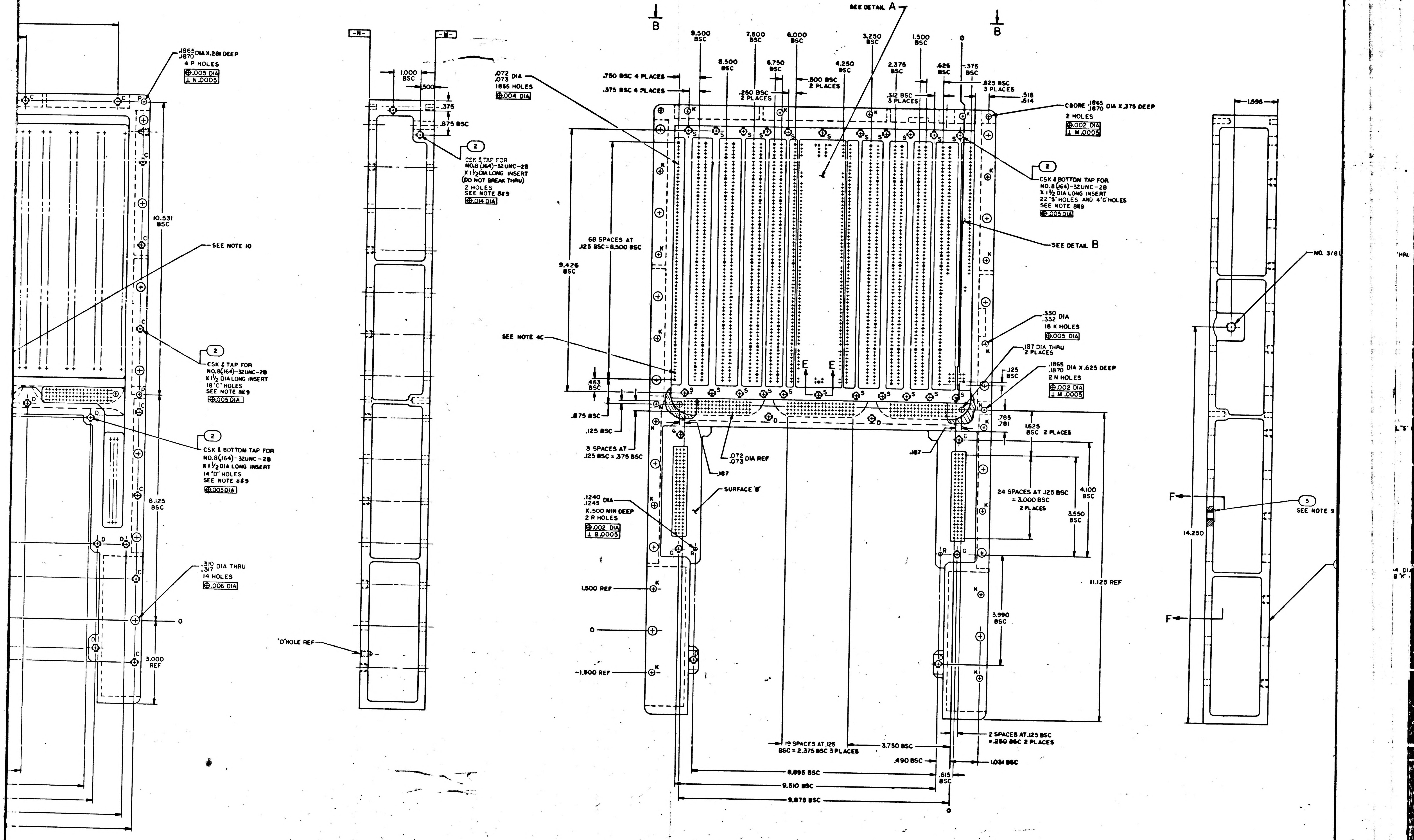
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRAY B
INSEPARABLE ASSY
AGC

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004167
SCALE 1/1
SHEET 1 OF 2

2004167 A

F 3/3


6
5
4
3
.1865 .1870 DIA X.281 DEEP
4 P HOLES
⊕.005 DIA
⊥ N.0005
10.531 BSC
SEE NOTE 10
2
CSK & TAP FOR NO.8(.164)-32UNC-2B X 1 1/2 DIA LONG INSERT 18 "C" HOLES SEE NOTE 8&9
⊕.005 DIA
2
CSK & BOTTOM TAP FOR NO.8(.164)-32UNC-2B X 1 1/2 DIA LONG INSERT 14 "D" HOLES SEE NOTE 8&9
⊕.005 DIA
8.125 BSC
.310 .317 DIA THRU
14 HOLES
⊕.006 DIA
0
3.000 REF
-N-
-M-
1.000 BSC
.500
.375
.875 BSC
2
CSK & TAP FOR NO.8 (.164)-32UNC-2B X 1 1/2 DIA LONG INSERT (DO NOT BREAK THRU)
2 HOLES
SEE NOTE 8&9
⊕.014 DIA
"D" HOLE REF
.072 .073 DIA
1855 HOLES
⊕.004 DIA
B
B
SEE DETAIL A
9.500 BSC
7.500 BSC
6.000 BSC
3.250 BSC
1.500 BSC
0
8.500 BSC
6.750 BSC
4.250 BSC
2.375 BSC
.625 BSC
.375 BSC
.750 BSC 4 PLACES
.375 BSC 4 PLACES
.250 BSC 2 PLACES
.500 BSC 2 PLACES
.312 BSC 3 PLACES
.625 BSC 3 PLACES
.518 .514
CBORE .1865 .1870 DIA X.375 DEEP
2 HOLES
⊕.002 DIA
⊥ M.0005
2
CSK & BOTTOM TAP FOR NO.8(.164)-32UNC-2B X 1 1/2 DIA LONG INSERT 22 "S" HOLES AND 4 "G" HOLES SEE NOTE 8&9
⊕.005 DIA
SEE DETAIL B
68 SPACES AT .125 BSC=8.500 BSC
9.426 BSC
SEE NOTE 4C
.463 BSC
.875 BSC
.125 BSC
3 SPACES AT .125 BSC = .375 BSC
.072 .073 DIA REF
.187
SURFACE "B"
.1240 .1245 DIA
X.500 MIN DEEP
2 R HOLES
⊕.002 DIA
⊥ B.0005
1.500 REF
0
-1.500 REF
E
E
K
S
C
D
P
N
G
R
.330 .332 DIA
18 K HOLES
⊕.005 DIA
.187 DIA THRU 2 PLACES
.125 BSC
.1865 .1870 DIA X.625 DEEP
2 N HOLES
⊕.002 DIA
⊥ M.0005
.785 .781
1.625 BSC 2 PLACES
.187
24 SPACES AT .125 BSC = 3.000 BSC 2 PLACES
4.100 BSC
3.550 BSC
11.125 REF
3.990 BSC
19 SPACES AT .125 BSC = 2.375 BSC 3 PLACES
3.750 BSC
2 SPACES AT .125 BSC =.250 BSC 2 PLACES
.490 BSC
1.031 BSC
8.895 BSC
.615 BSC
9.510 BSC
9.875 BSC
0
1.596
NO. 3/8
F
F
5
SEE NOTE 9
14.250

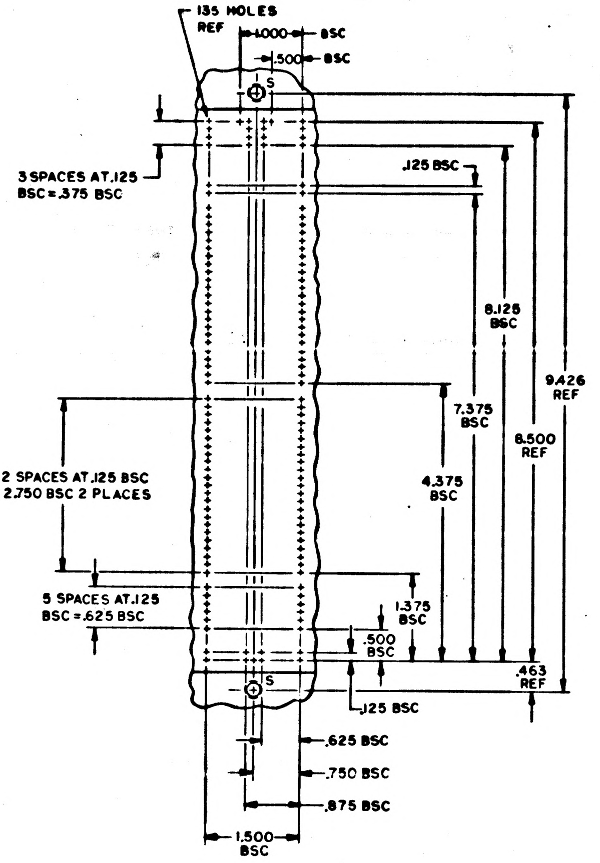
2004167 A

SHEET 1

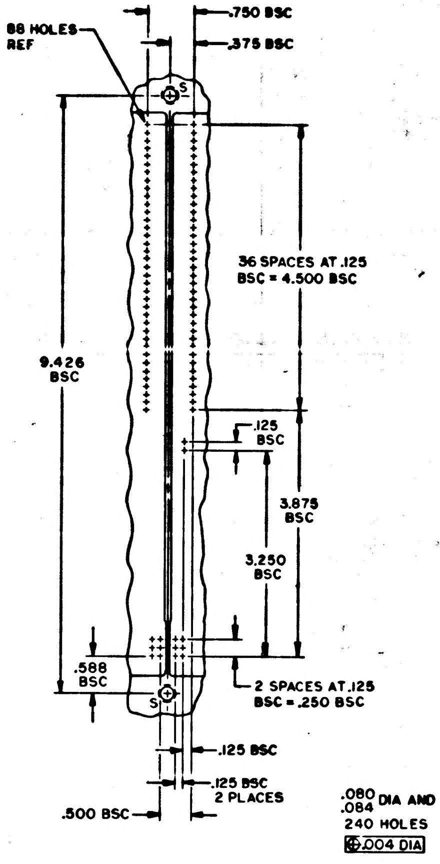
4

3

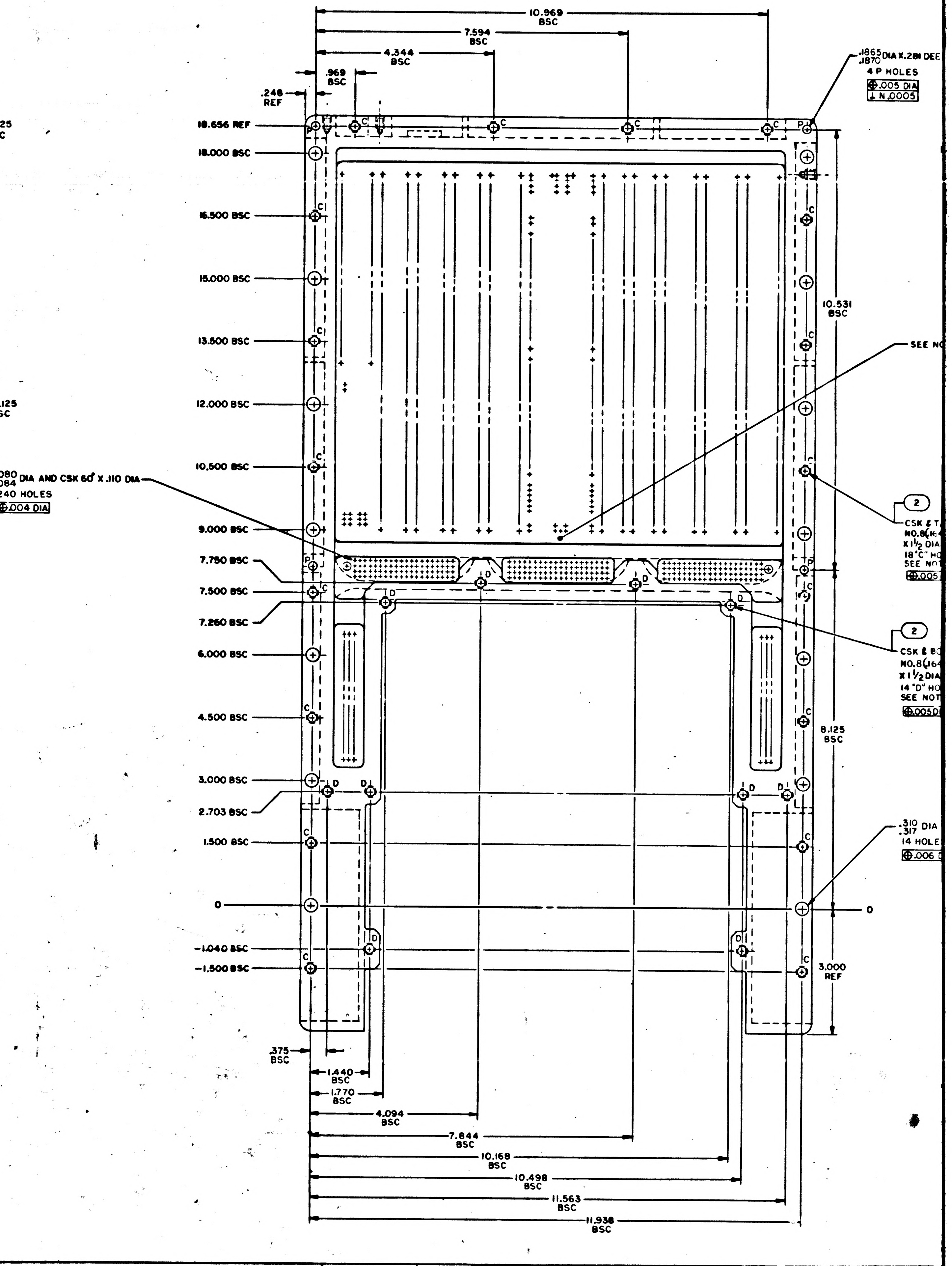
2004167 A F2/3


135 HOLES REF
1.000 BSC
.500 BSC
3 SPACES AT .125 BSC = .375 BSC
.125 BSC
8.125 BSC
7.375 BSC
9.426 REF
8.500 REF
4.375 BSC
22 SPACES AT .125 BSC = 2.750 BSC 2 PLACES
5 SPACES AT .125 BSC = .625 BSC
1.375 BSC
.500 BSC
.463 REF
.125 BSC
.625 BSC
.750 BSC
.875 BSC
1.500 BSC
S

DETAIL A


88 HOLES REF
.750 BSC
.375 BSC
36 SPACES AT .125 BSC = 4.500 BSC
9.426 BSC
.125 BSC
3.875 BSC
3.250 BSC
.588 BSC
2 SPACES AT .125 BSC = .250 BSC
.125 BSC
.125 BSC 2 PLACES
.500 BSC
S

DETAIL B


10.969 BSC
7.594 BSC
4.344 BSC
.969 BSC
.248 REF
.1865 .1870 DIA X .281 DEE
4 P HOLES
.005 DIA
N .0005
18.656 REF
18.000 BSC
16.500 BSC
15.000 BSC
13.500 BSC
12.000 BSC
10.500 BSC
9.000 BSC
7.750 BSC
7.500 BSC
7.260 BSC
6.000 BSC
4.500 BSC
3.000 BSC
2.703 BSC
1.500 BSC
0
-1.040 BSC
-1.500 BSC
.080 .084 DIA AND CSK 60° X .110 DIA
240 HOLES
.004 DIA
10.531 BSC
SEE NO
2
CSK & T
NO.8(.16
X 1 1/2 DIA
18 "C" HO
SEE NO
.005
2
CSK & B
NO.8(.164
X 1 1/2 DIA
14 "D" HO
SEE NOT
.005
8.125 BSC
.310 .317 DIA
14 HOLE
.006
3.000 REF
0
.375 BSC
1.440 BSC
1.770 BSC
4.094 BSC
7.844 BSC
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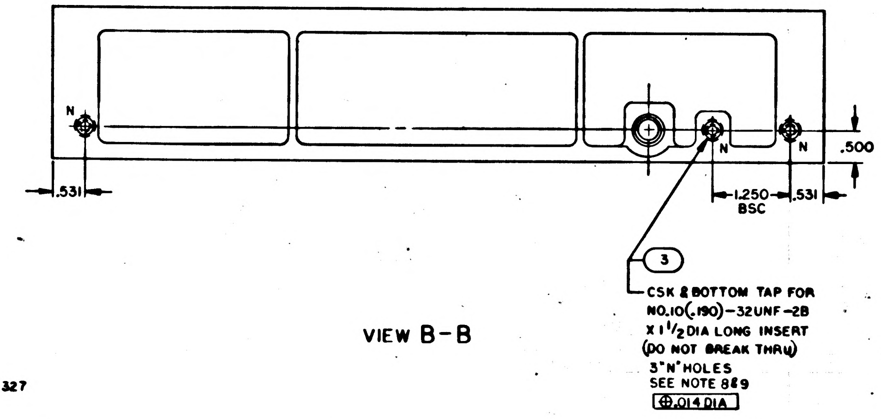
10.498 BSC
11.563 BSC
11.938 BSC
P
C
D


N
.531
1.250 BSC
.531
.500
3
CSK & BOTTOM TAP FOR NO.10(.190)-32UNF-2B X 1 1/2 DIA LONG INSERT (DO NOT BREAK THRU)
3 "N" HOLES
SEE NOTE 8 & 9
.014 DIA

VIEW B-B

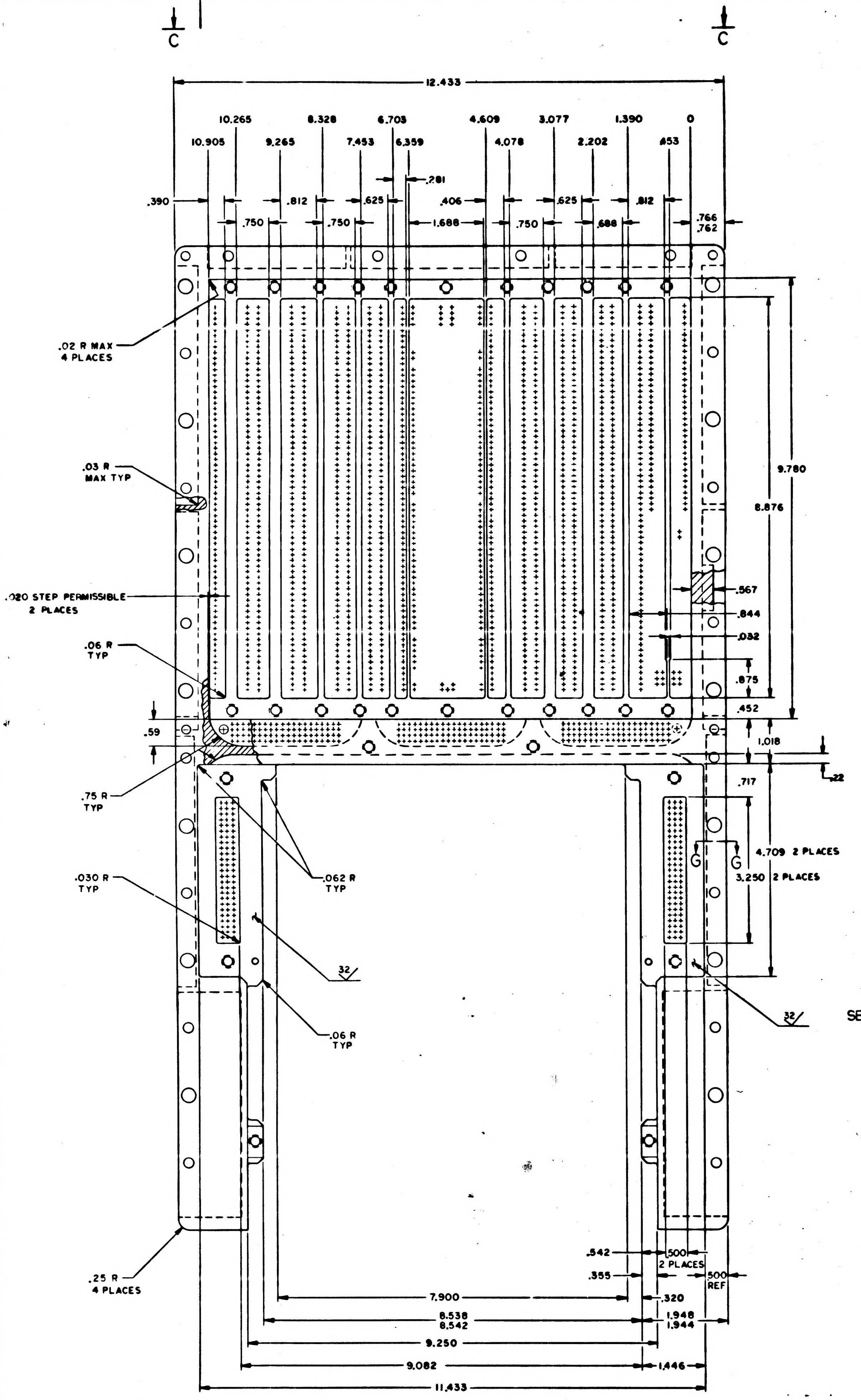
NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: MAGNESIUM ZK60A-T5 PER QQ-M-31, TEMP T5
3. ANODIZE PER MIL-M-45202, TYPE I, CLASS C
4. a.) INDICATED SURFACES SHALL BE FREE OF ANODIZE, TREAT PER ND1002040, USING DILUTE CHROMIC ACID TREATMENT USING O-C-303. DO NOT EPOXY COAT
   b.) TAP "C", "D" & "G" HOLES AFTER ANODIZE AND TREAT PER ND1002040, USING DILUTE CHROMIC ACID TREATMENT USING O-C-303. DO NOT EPOXY COAT
   c.) 71 HOLES SHOWN TO BE FREE OF ANODIZE TREAT PER ND1002040, USING DILUTE CHROMIC ACID TREATMENT USING O-C-303. DO NOT EPOXY COAT
5. ALL SURFACES 125✓ UNLESS OTHERWISE SPECIFIED
6. REMOVE BURRS AND SHARP EDGES .005/.015
7. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .125
8. INSTALL FIND NO. 2 AND 3 PER MS33646 REMOVE DRIVING TANG
9. COAT FIND NO. 5 AND THREADS OF FIND NO. 2 AND 3 WITH MIL-P-8585, COLOR YELLOW
10. IDENTIFY WITH PART NO. PER ND1002019 AND SERIALIZE PER ND1002023 WHERE SHOWN

2004167	A

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 26555				

REVISIONS 25 4-7



C
C
12.433
10.265
8.328
6.703
4.609
3.077
1.390
0
10.905
9.265
7.453
6.359
4.078
2.202
.653
.281
.390
.812
.625
.406
.625
.812
.766
.762
.750
.750
1.688
.750
.688
.02 R MAX
4 PLACES
.03 R
MAX TYP
.020 STEP PERMISSIBLE
2 PLACES
.06 R
TYP
.59
.75 R
TYP
.030 R
TYP
.062 R
TYP
32
.06 R
TYP
32
.25 R
4 PLACES
9.780
8.876
.567
.844
.032
.875
.452
1.018
.22
.717
4.709 2 PLACES
3.250 2 PLACES
G
G
.542
.355
.500
2 PLACES
.500
REF
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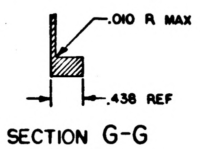
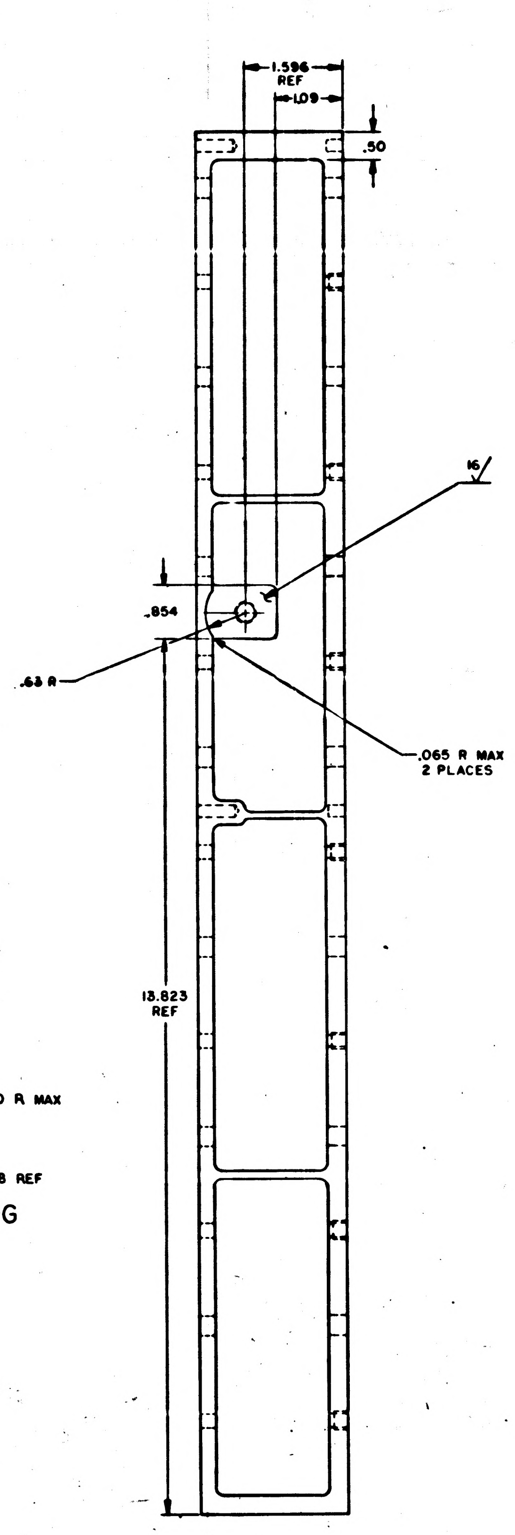
8.538
8.542
1.948
1.944
9.250
9.082
1.446
11.433



.010 R MAX
.438 REF

SECTION G-G
2 PLACES



1.596
REF
1.09
.50
16
.854
.63 R
.065 R MAX
2 PLACES
13.823
REF

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
CHECKED
APPROVED
APPROVED Ellen C Hall
APPROVED MIT
A. L. METZGER
APPROVED MSC

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

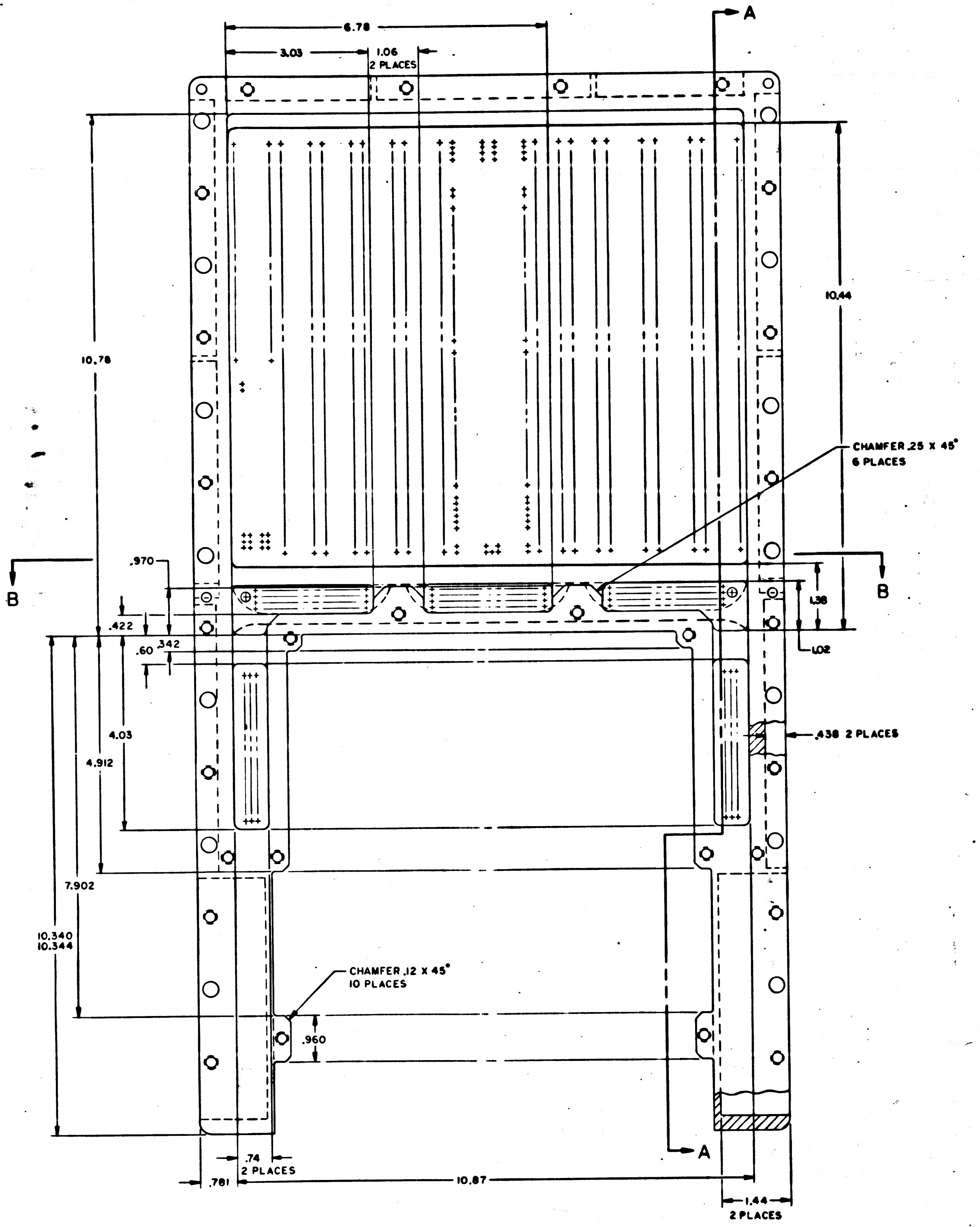
TRAY B
INSEPARABLE ASSY
AGC

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004167
SCALE 1/1
SHEET 2 OF 2

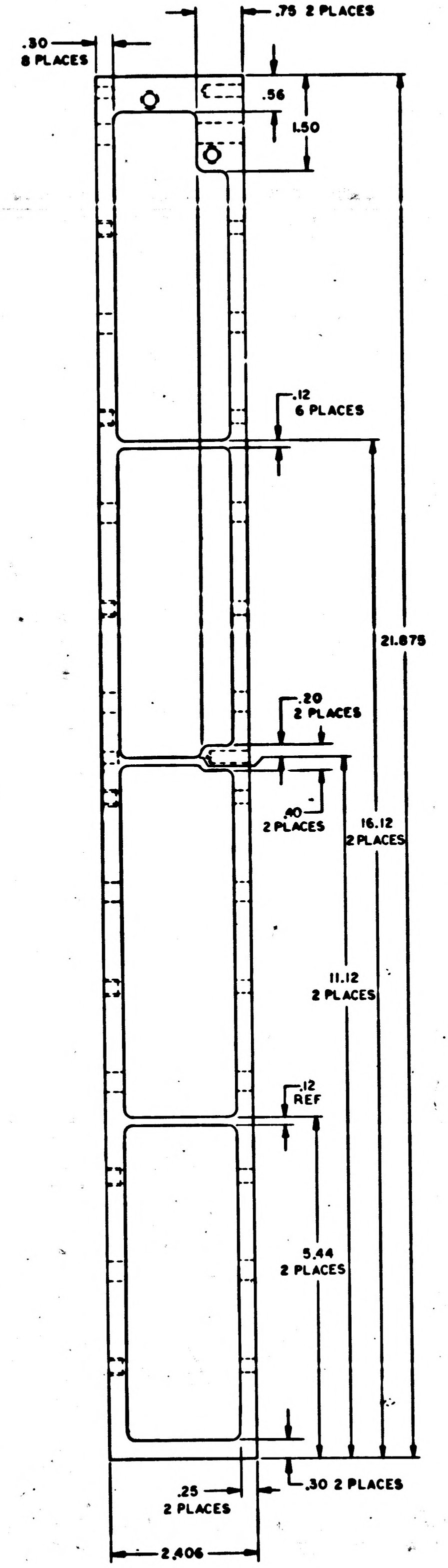
2004167 A

2004167 A

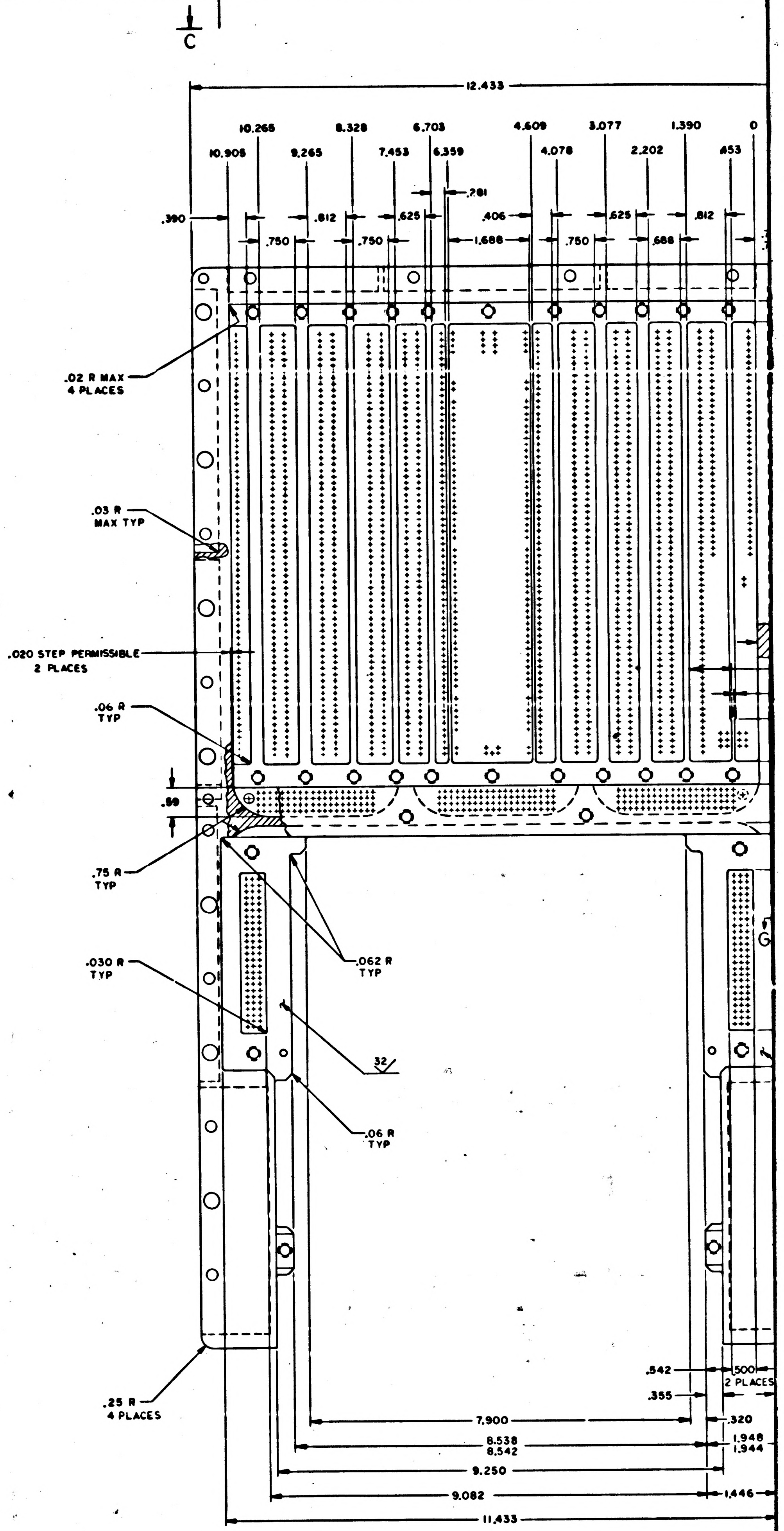
F 3/13



A
6.78
3.03
1.06
2 PLACES
10.44
10.78
CHAMFER .25 X 45°
6 PLACES
.970
B
B
1.38
.422
.60
.342
1.02
.438 2 PLACES
4.03
4.912
7.902
10.340
10.344
CHAMFER .12 X 45°
10 PLACES
.960
A
.781
.74
2 PLACES
10.87
1.44
2 PLACES



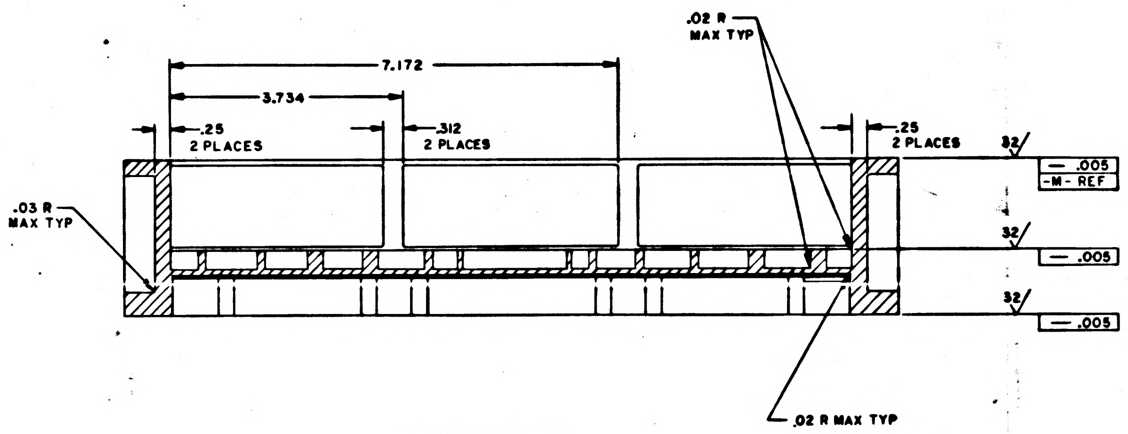
.30
8 PLACES
.75 2 PLACES
.56
1.50
.12
6 PLACES
21.875
.20
2 PLACES
.10
2 PLACES
16.12
2 PLACES
11.12
2 PLACES
.12
REF
5.44
2 PLACES
.25
2 PLACES
.30 2 PLACES
2.406



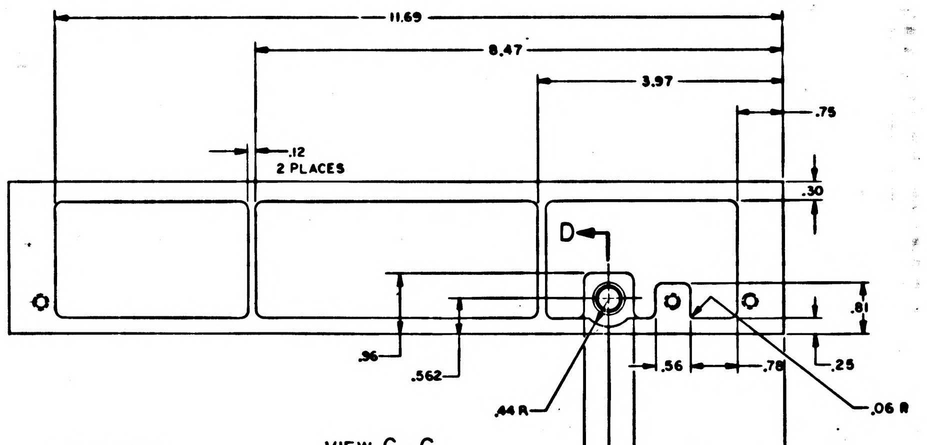
C
12.433
10.265
8.328
6.703
4.609
3.077
1.390
0
10.905
9.265
7.453
6.359
4.078
2.202
.453
.281
.390
.812
.625
.406
.625
.812
.750
.750
1.688
.750
.688
.02 R MAX
4 PLACES
.03 R
MAX TYP
.020 STEP PERMISSIBLE
2 PLACES
.06 R
TYP
.59
.75 R
TYP
.062 R
TYP
.030 R
TYP
32
.06 R
TYP
.25 R
4 PLACES
.542
.500
2 PLACES
.355
.320
7.900
8.538
8.542
1.948
1.944
9.250
9.082
1.446
11.433

2004167 A

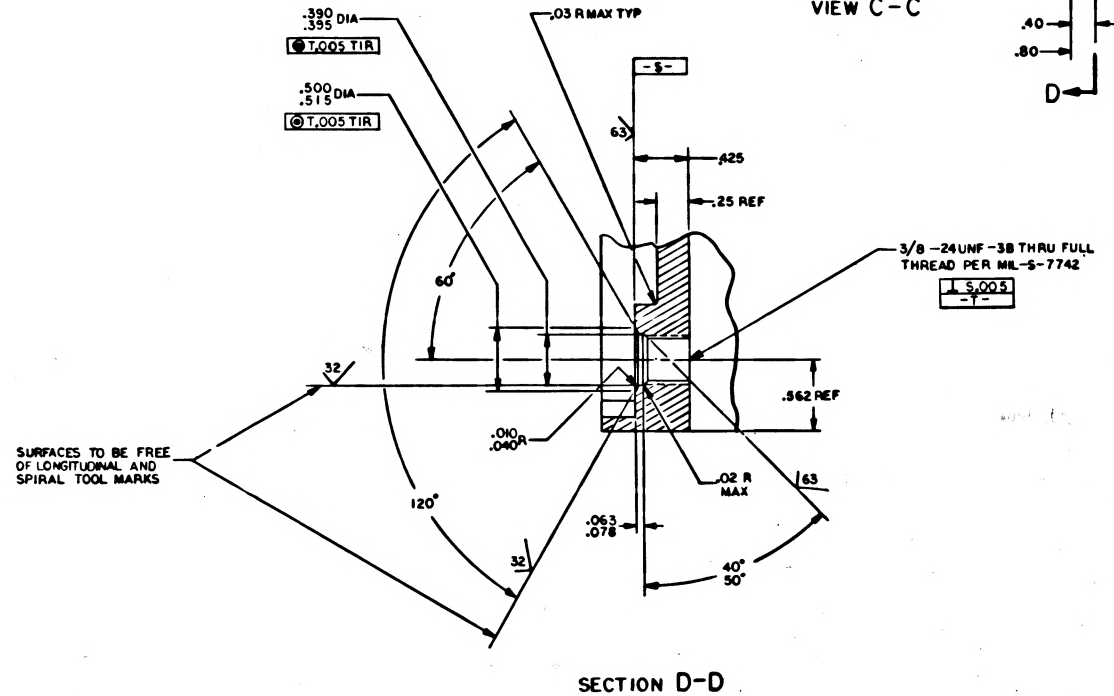
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


.02 R
MAX TYP
7.172
3.734
.25
2 PLACES
.312
2 PLACES
.25
2 PLACES
.03 R
MAX TYP
32
— .005
-M- REF
32
— .005
32
— .005
.02 R MAX TYP

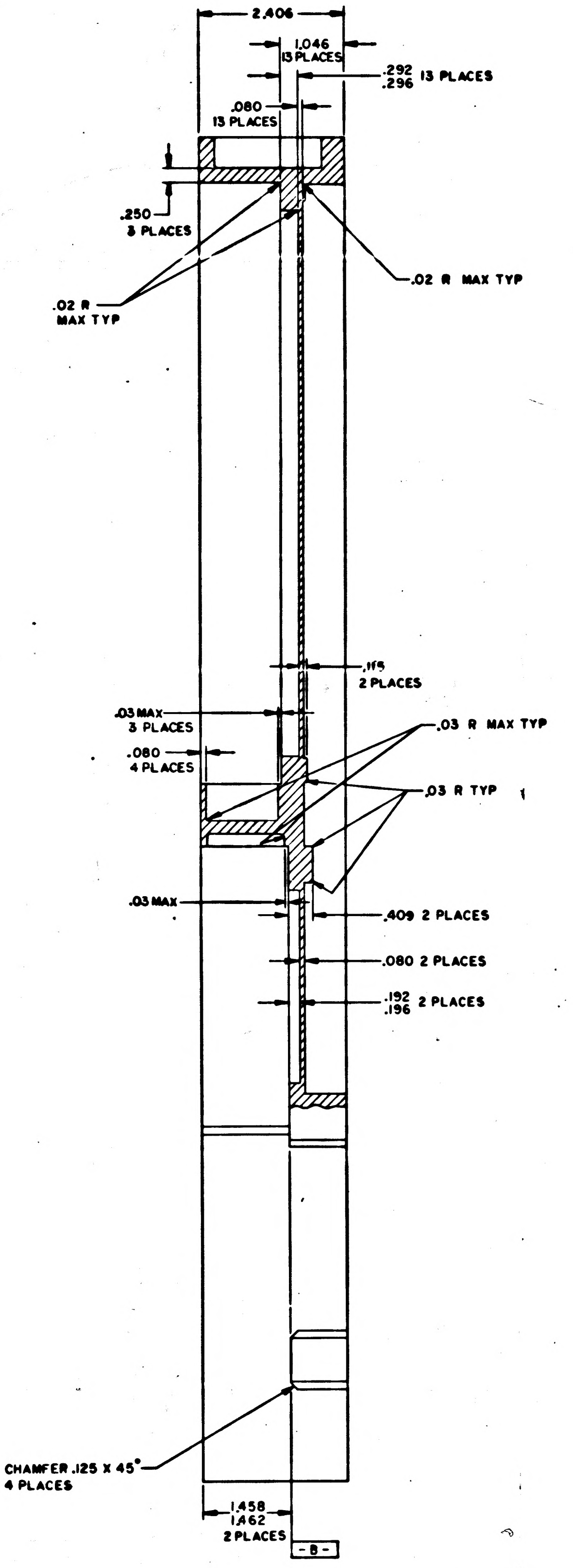
SECTION B-B


11.69
8.47
3.97
.75
.12
2 PLACES
.30
D
.81
.96
.562
.56
.78
.25
.44 R
.06 R
.40
.80
2.812
D

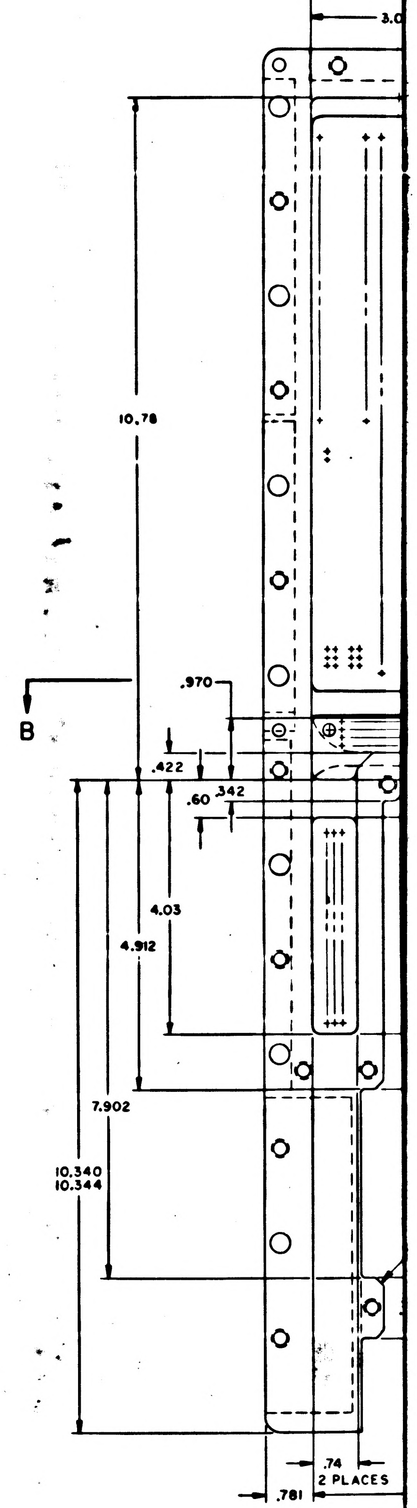
VIEW C-C


.390
.395 DIA
T.005 TIR
.500
.515 DIA
T.005 TIR
.03 R MAX TYP
-S-
63
.425
.25 REF
3/8 -24UNF -3B THRU FULL
THREAD PER MIL-S-7742
⊥ S.005
-T-
60°
32
.562 REF
SURFACES TO BE FREE
OF LONGITUDINAL AND
SPIRAL TOOL MARKS
.010
.040 R
.02 R
MAX
63
120°
32
.063
.078
40°
50°

SECTION D-D
SCALE: 2/1


2.406
1.046
13 PLACES
.292
.296 13 PLACES
.080
13 PLACES
.250
3 PLACES
.02 R
MAX TYP
.02 R MAX TYP
.115
2 PLACES
.03 MAX
3 PLACES
.080
4 PLACES
.03 R MAX TYP
.03 R TYP
.03 MAX
.409 2 PLACES
.080 2 PLACES
.192
.196 2 PLACES
CHAMFER .125 X 45°
4 PLACES
1.458
1.462
2 PLACES
-B-

SECTION A-A

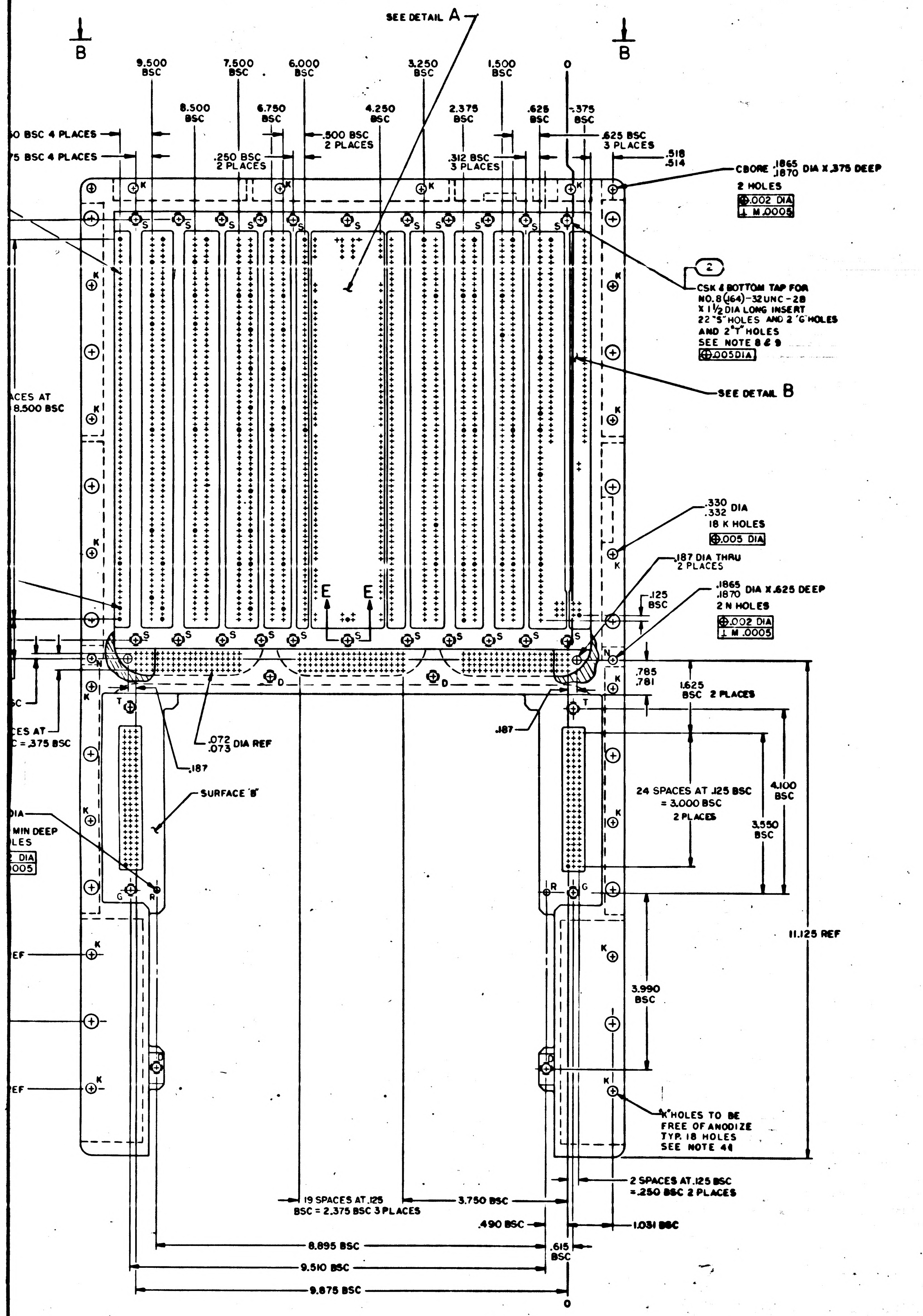

3.0
10.78
B
.970
.422
.60
.342
4.03
4.912
7.902
10.340
10.344
.74
2 PLACES
.781

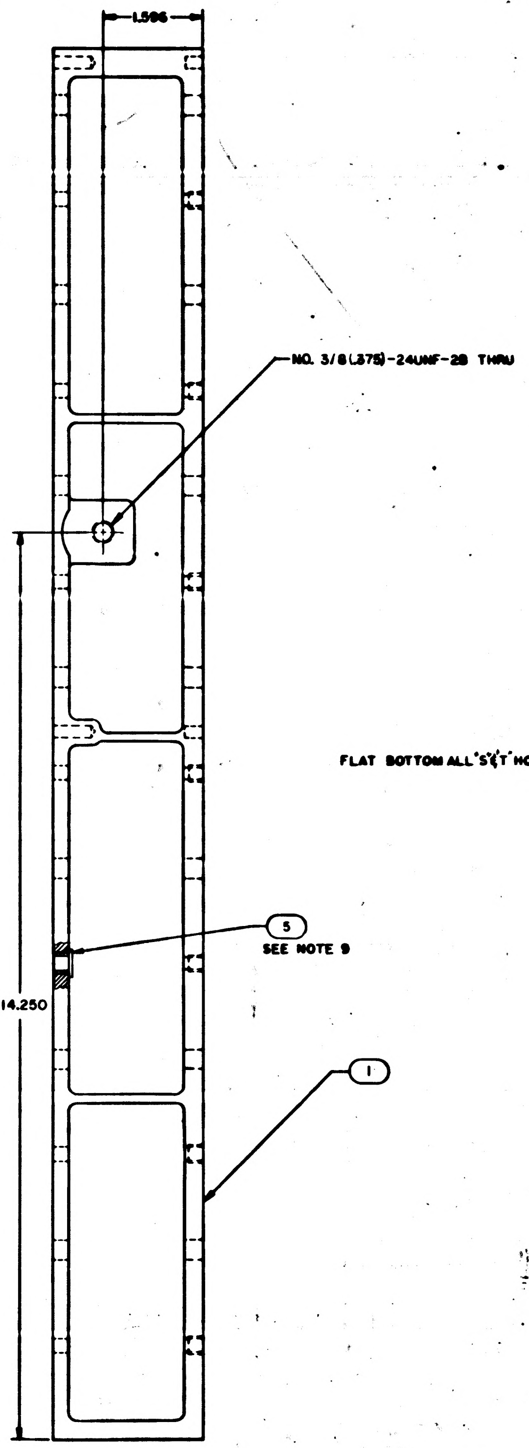
2004167 A

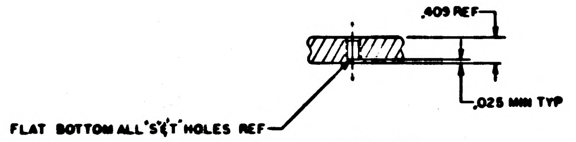
2004167 A F1/3

SHEET 2

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
	A	REVISED PER TDRR 26555	DAC			
	B	REVISED PER TDRR 28026	DRV			


SEE DETAIL A
B
B
9.500 BSC
7.500 BSC
6.000 BSC
3.250 BSC
1.500 BSC
0
8.500 BSC
6.750 BSC
4.250 BSC
2.375 BSC
.625 BSC
-.375 BSC
0 BSC 4 PLACES
75 BSC 4 PLACES
.250 BSC 2 PLACES
.500 BSC 2 PLACES
.312 BSC 3 PLACES
.625 BSC 3 PLACES
.518 .514
CBORE .1865 .1870 DIA X .375 DEEP
2 HOLES
⊕ .002 DIA
⊥ M .0005
2
CSK & BOTTOM TAP FOR NO. 8 (.164)-32 UNC-2B X 1 1/2 DIA LONG INSERT
22 "S" HOLES AND 2 "G" HOLES AND 2 "T" HOLES
SEE NOTE 8 & 9
⊕ .005 DIA
SEE DETAIL B
ACES AT 8.500 BSC
K
S
D
N
T
G
R
E
E
.330 .332 DIA
18 K HOLES
⊕ .005 DIA
.187 DIA THRU 2 PLACES
.1865 .1870 DIA X .625 DEEP
2 N HOLES
⊕ .002 DIA
⊥ M .0005
.125 BSC
.785 .781
1.625 BSC 2 PLACES
.187
24 SPACES AT .125 BSC = 3.000 BSC 2 PLACES
4.100 BSC
3.550 BSC
11.125 REF
3.990 BSC
SC
CES AT
C = .375 BSC
.072 .073 DIA REF
.187
SURFACE "B"
DIA
MIN DEEP
LES
DIA
005
EF
EF
"K" HOLES TO BE FREE OF ANODIZE TYP. 18 HOLES SEE NOTE 44
19 SPACES AT .125 BSC = 2.375 BSC 3 PLACES
3.750 BSC
2 SPACES AT .125 BSC = .250 BSC 2 PLACES
.490 BSC
1.031 BSC
8.895 BSC
9.510 BSC
9.875 BSC
.615 BSC
0


1.586
NO. 3/8 (.375)-24UNF-2B THRU
5
SEE NOTE 9
14.250
1


.409 REF
.025 MIN TYP
FLAT BOTTOM ALL "S" & "T" HOLES REF

SECTION E-E

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
18	2004706-001	INSERT, KNURLED	5
~~1~~	~~MS21209 F6-15~~	~~INSERT, THREADED, SELF-LOCKING~~	~~4~~
3	MS21209 F1-15	INSERT, THREADED, SELF-LOCKING	3
60	MS21209 C0815	INSERT, THREADED, SELF-LOCKING	2
1	2004167-001	TRAY B, MACHINED	1

LIST OF MATERIALS

2003091	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XXX ± .005 .XX ± .01 ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC C. METZGER

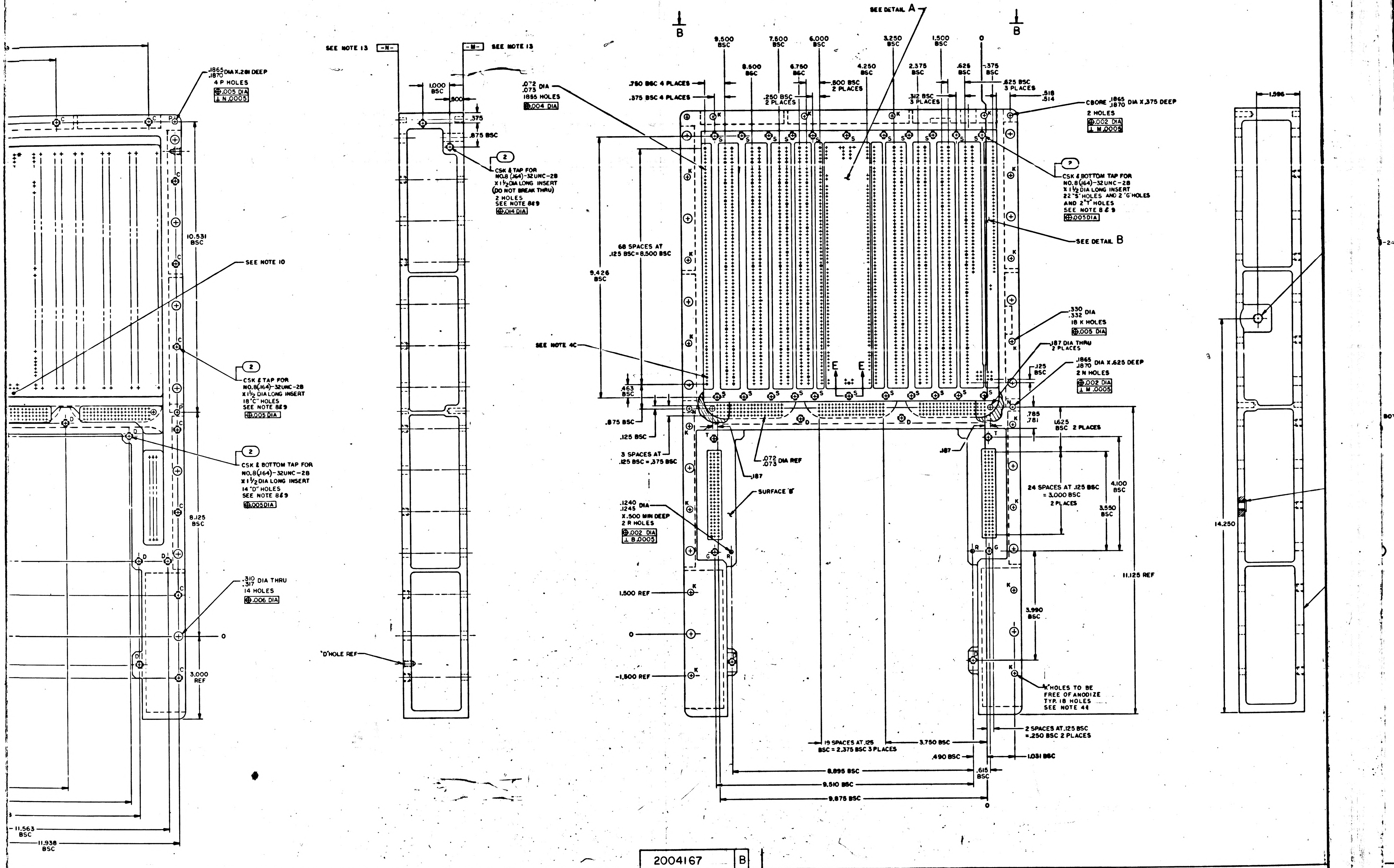
TRAY B
INSEPARABLE ASSY
AGC

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004167
SCALE 1/1
SHEET 1 OF 2

2004167 B

2004167 B

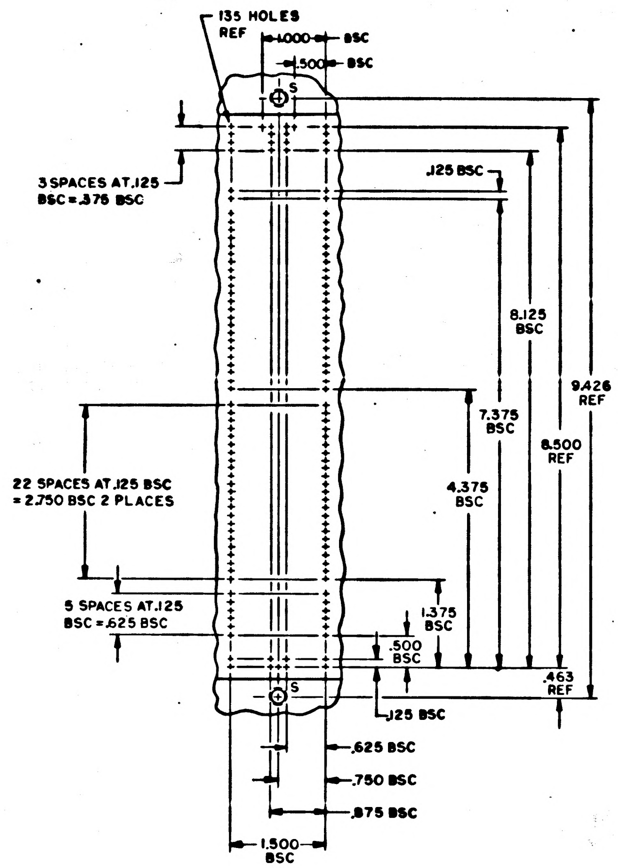
F3/3



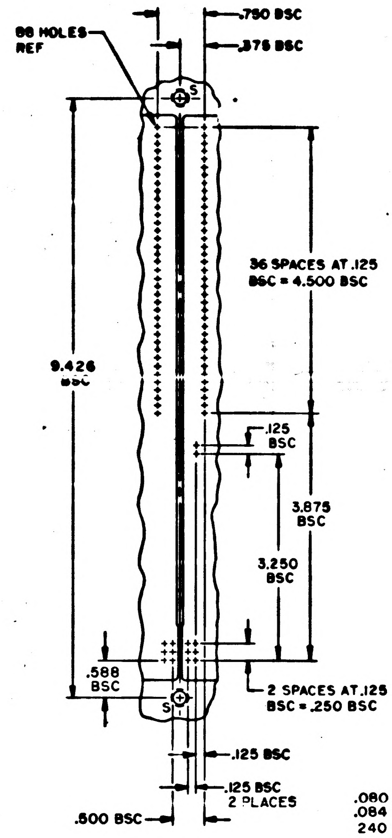
6
5
4
3
B
B
SEE DETAIL A
SEE NOTE 13 -N-
-M- SEE NOTE 13
.1865
.1870 DIA X .281 DEEP
4 P HOLES
⊕ .005 DIA
⊥ N .0005
1.000 BSC
.500
.375
.875 BSC
2
CSK & TAP FOR NO.8 (.164)-32UNC-2B X 1 1/2 DIA LONG INSERT (DO NOT BREAK THRU)
2 HOLES
SEE NOTE 8 & 9
⊕ .014 DIA
.072
.073 DIA
1855 HOLES
⊕ .004 DIA
9.500 BSC
7.500 BSC
6.000 BSC
3.250 BSC
1.500 BSC
0
8.500 BSC
6.750 BSC
4.250 BSC
2.375 BSC
.625 BSC
.375 BSC
.750 BSC 4 PLACES
.375 BSC 4 PLACES
.250 BSC 2 PLACES
.500 BSC 2 PLACES
.312 BSC 3 PLACES
.625 BSC 3 PLACES
.518
.514
CBORE .1865
.1870 DIA X .375 DEEP
2 HOLES
⊕ .002 DIA
⊥ M .0005
2
CSK & BOTTOM TAP FOR NO.8 (.164)-32UNC-2B X 1 1/2 DIA LONG INSERT
22 "S" HOLES AND 2 "G" HOLES AND 2 "T" HOLES
SEE NOTE 8 & 9
⊕ .005 DIA
SEE DETAIL B
10.531 BSC
SEE NOTE 10
68 SPACES AT .125 BSC = 8.500 BSC
9.426 BSC
2
CSK & TAP FOR NO.8 (.164)-32UNC-2B X 1 1/2 DIA LONG INSERT
18 "C" HOLES
SEE NOTE 8 & 9
⊕ .005 DIA
SEE NOTE 4C
.330
.332 DIA
18 K HOLES
⊕ .005 DIA
.187 DIA THRU 2 PLACES
.125 BSC
.1865
.1870 DIA X .625 DEEP
2 N HOLES
⊕ .002 DIA
⊥ M .0005
.463 BSC
E
E
.875 BSC
.125 BSC
3 SPACES AT .125 BSC = .375 BSC
.072
.073 DIA REF
.187
.187
.785
.781
1.625 BSC 2 PLACES
2
CSK & BOTTOM TAP FOR NO.8 (.164)-32UNC-2B X 1 1/2 DIA LONG INSERT
14 "D" HOLES
SEE NOTE 8 & 9
⊕ .005 DIA
8.125 BSC
SURFACE 'B'
.1240
.1245 DIA
X .500 MIN DEEP
2 R HOLES
⊕ .002 DIA
⊥ B .0005
24 SPACES AT .125 BSC = 3.000 BSC
2 PLACES
4.100 BSC
3.550 BSC
14.250
11.125 REF
1.596
.310
.317 DIA THRU
14 HOLES
⊕ .006 DIA
1.500 REF
0
0
-1.500 REF
3.000 REF
"D" HOLE REF
3.990 BSC
"K" HOLES TO BE FREE OF ANODIZE TYP. 18 HOLES
SEE NOTE 44
19 SPACES AT .125 BSC = 2.375 BSC 3 PLACES
3.750 BSC
2 SPACES AT .125 BSC = .250 BSC 2 PLACES
.490 BSC
1.031 BSC
8.895 BSC
.615 BSC
9.510 BSC
9.875 BSC
0
11.563 BSC
11.938 BSC
C
D
K
S
G
T
R
P
N

2004167 B

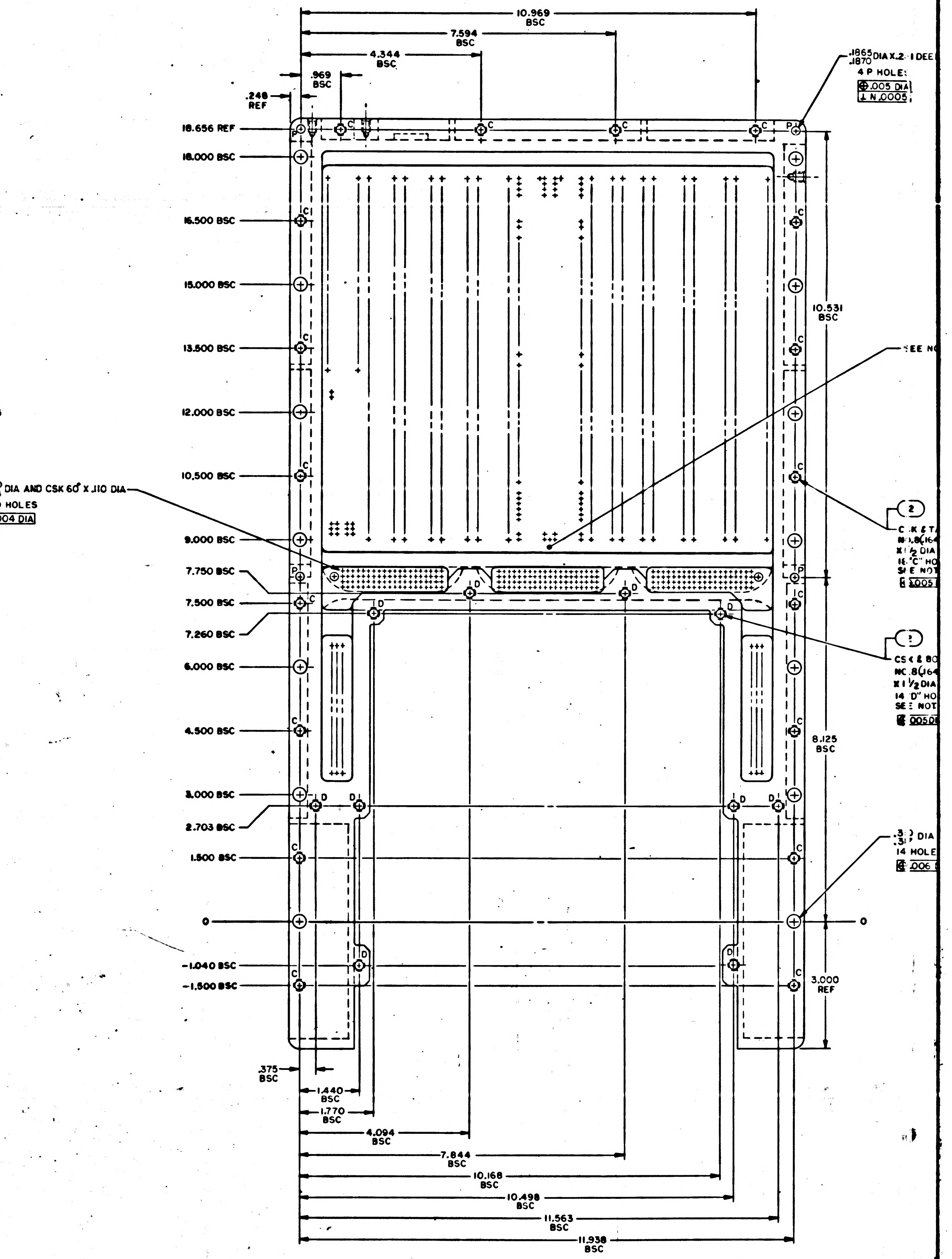
2004167 B F2/3 SHEET 1

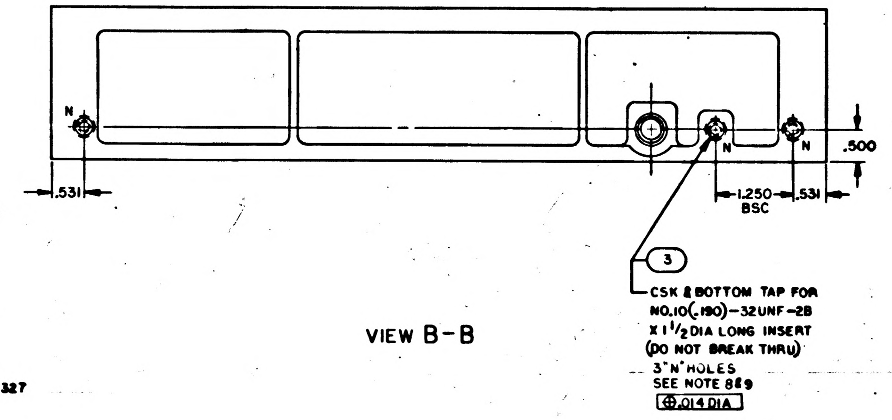

135 HOLES REF
1.000 BSC
.500 BSC
S
3 SPACES AT .125 BSC = .375 BSC
.125 BSC
8.125 BSC
7.375 BSC
9.426 REF
8.500 REF
22 SPACES AT .125 BSC = 2.750 BSC 2 PLACES
4.375 BSC
5 SPACES AT .125 BSC = .625 BSC
1.375 BSC
.500 BSC
.463 REF
.125 BSC
.625 BSC
.750 BSC
.875 BSC
1.500 BSC

DETAIL A


88 HOLES REF
.750 BSC
.375 BSC
S
36 SPACES AT .125 BSC = 4.500 BSC
9.426 BSC
.125 BSC
3.875 BSC
3.250 BSC
.588 BSC
2 SPACES AT .125 BSC = .250 BSC
.125 BSC
.125 BSC 2 PLACES
.500 BSC

DETAIL B


.080
.084 DIA AND CSK 60° X .110 DIA
240 HOLES
⊕ .004 DIA
10.969 BSC
7.594 BSC
4.344 BSC
.969 BSC
.248 REF
.1865
.1870 DIA X .2 1 DEE
4 P HOLES
⊕ .005 DIA
⊥ N .0005
18.656 REF
18.000 BSC
16.500 BSC
15.000 BSC
13.500 BSC
12.000 BSC
10.500 BSC
9.000 BSC
7.750 BSC
7.500 BSC
7.260 BSC
6.000 BSC
4.500 BSC
3.000 BSC
2.703 BSC
1.500 BSC
0
-1.040 BSC
-1.500 BSC
0
10.531 BSC
SEE NO
2
C K & TA
NO. 8 (.164
X 1 1/2 DIA
16 "C" HO
SEE NOT
.005
2
CSK & BO
NO. 8 (.164
X 1 1/2 DIA
14 "D" HO
SEE NOT
.005 DI
8.125 BSC
.3
.3 DIA
14 HOLE
.006
3.000 REF
C
D
P
.375 BSC
1.440 BSC
1.770 BSC
4.094 BSC
7.844 BSC
10.168 BSC
10.498 BSC
11.563 BSC
11.938 BSC


N
N
N
.500
.531
1.250 BSC
.531
3
CSK & BOTTOM TAP FOR
NO. 10 (.190)-32UNF-2B
X 1 1/2 DIA LONG INSERT
(DO NOT BREAK THRU)
3 "N" HOLES
SEE NOTE 8 & 9
⊕ .014 DIA

VIEW B-B

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: MAGNESIUM ZK60A-T5 PER QQ-M-31, TEMP T5
3. ANODIZE PER MIL-M-45202, TYPE I, CLASS C
4. a.) INDICATED SURFACES SHALL BE FREE OF ANODIZE, TREAT PER MIL-M-3171, TYPE VI

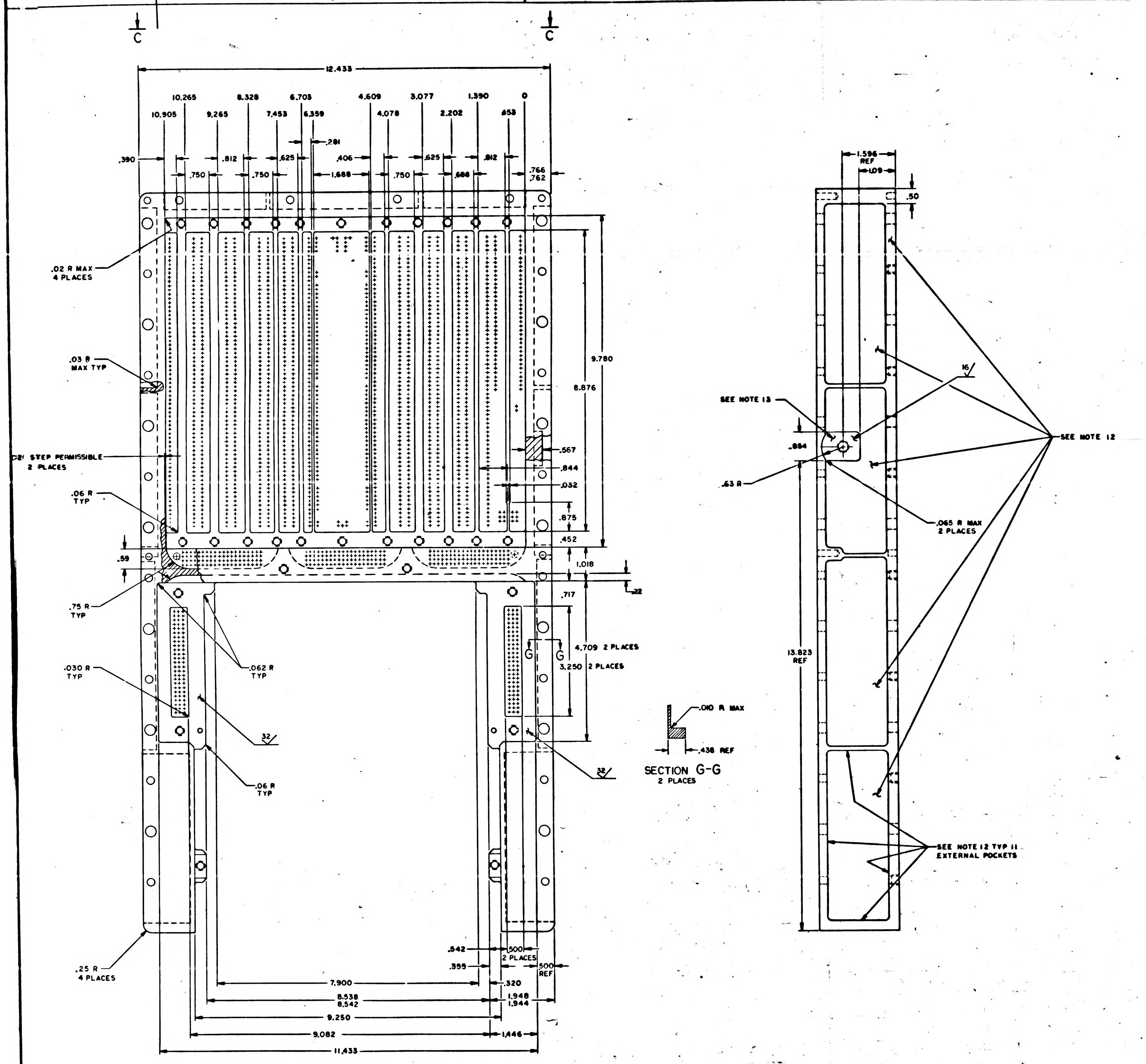
   b.) TAP "C", "D", "G" & "T" HOLES AFTER ANODIZE AND TREAT PER MIL-M-3171, TYPE VI

   c.) 71 HOLES SHOWN TO BE FREE OF ANODIZE TREAT PER MIL-M-3171, TYPE VI
5. ALL SURFACES 125√ UNLESS OTHERWISE SPECIFIED
6. REMOVE BURRS AND SHARP EDGES .005/.015
7. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .125
8. INSTALL FIND NO. 2 AND 3 PER MS33646 REMOVE DRIVING TANG
9. COAT FIND NO. 5 AND THREADS OF FIND NO. 2 AND 3 WITH MIL-P-8585, COLOR YELLOW, INSTALL WET
10. IDENTIFY WITH PART NO. PER ND1002019 AND SERIALIZE PER ND1002023 WHERE SHOWN
11. APPLY FOLLOWING FINISHES TO SURFACES INDICATED, INCLUDING RADII; ALL HOLES AND INSERTS TO BE FREE OF THESE FINISHES:
    a) PAINT GRAY PER ND1002279 USING 1008809-1
    b) FINAL COAT SURFACES PER ND1002277 USING 1012543-003
12. APPLY FOLLOWING FINISHES TO SURFACES INDICATED, ALL HOLES AND INSERTS TO BE FREE OF THESE FINISHES:
    a) PRIMER ONLY PER ND1002279 USING 1010992
    b) PAINT ALUMINUM FILLED EPOXY PER ND1002289
13. THESE SURFACES TO BE FREE OF FINISHES AS STATED PER NOTES 11 & 12

2004167 B

SHEET 1

REVISIONS 25977						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 26555	Dac			
B		REVISED PER TDRR 28026	DRV	RJ		


C
C
12.433
10.265
10.905
9.265
8.328
7.453
6.703
6.359
4.609
4.078
3.077
2.202
1.390
.653
0
.281
.390
.750
.812
.750
.625
.406
1.688
.750
.625
.686
.812
.766
.762
.02 R MAX
4 PLACES
.03 R
MAX TYP
.02 STEP PERMISSIBLE
2 PLACES
.06 R
TYP
.59
.75 R
TYP
.030 R
TYP
.062 R
TYP
32
.06 R
TYP
.25 R
4 PLACES
9.780
8.876
.567
.844
.032
.875
.452
1.018
.22
.717
G
G
4.709 2 PLACES
3.250 2 PLACES
32
.542
.355
.500
2 PLACES
.500
REF
7.900
.320
8.538
8.542
1.948
1.944
9.250
9.082
1.446
11.433
.010 R MAX
.438 REF
SECTION G-G
2 PLACES
1.596
REF
1.09
.50
16
SEE NOTE 13
SEE NOTE 12
.884
.63 R
.065 R MAX
2 PLACES
13.823
REF
SEE NOTE 12 TYP 11
EXTERNAL POCKETS

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC A. L. METZGER

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

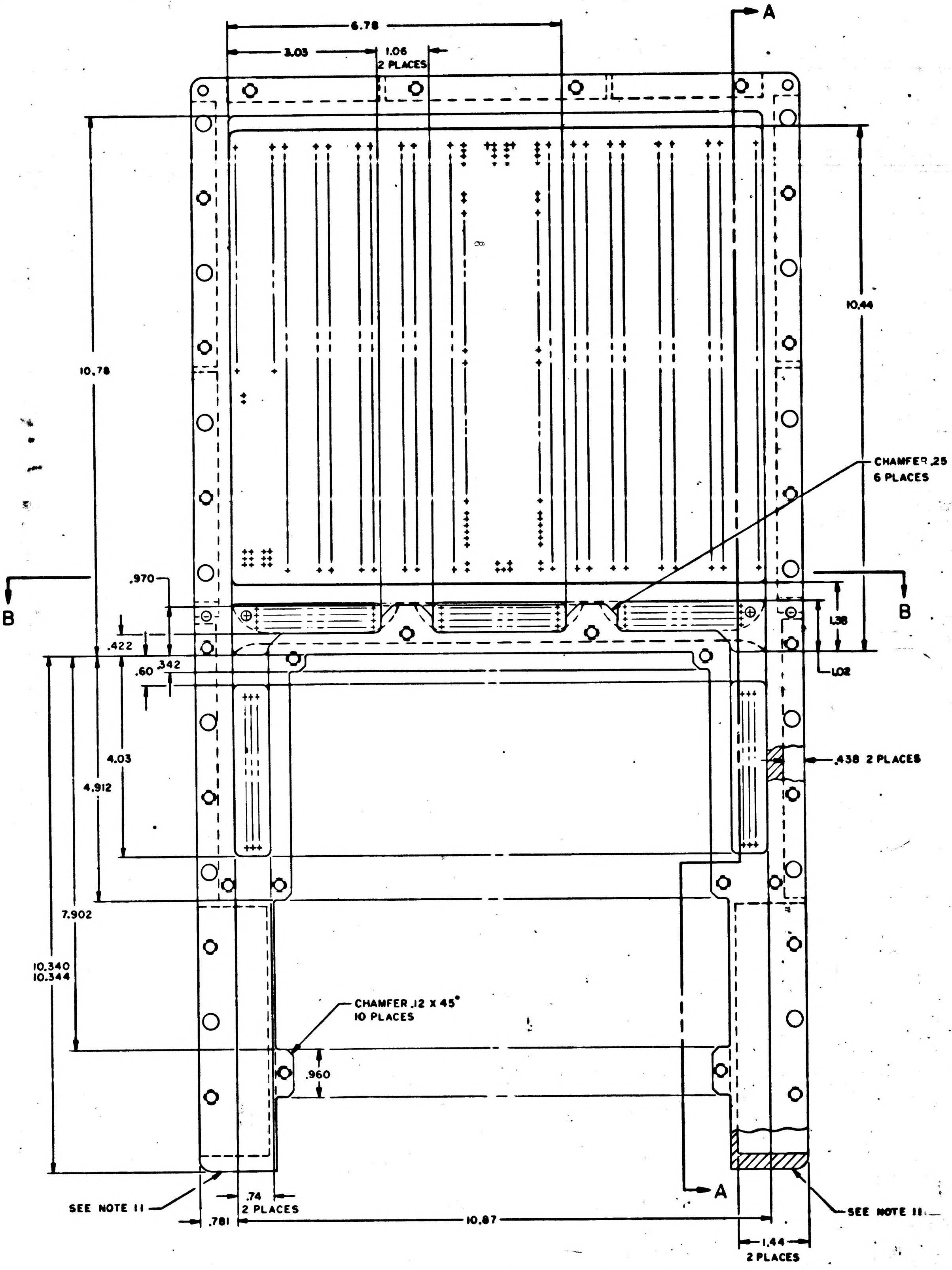
TRAY B
INSEPARABLE ASSY
AGC

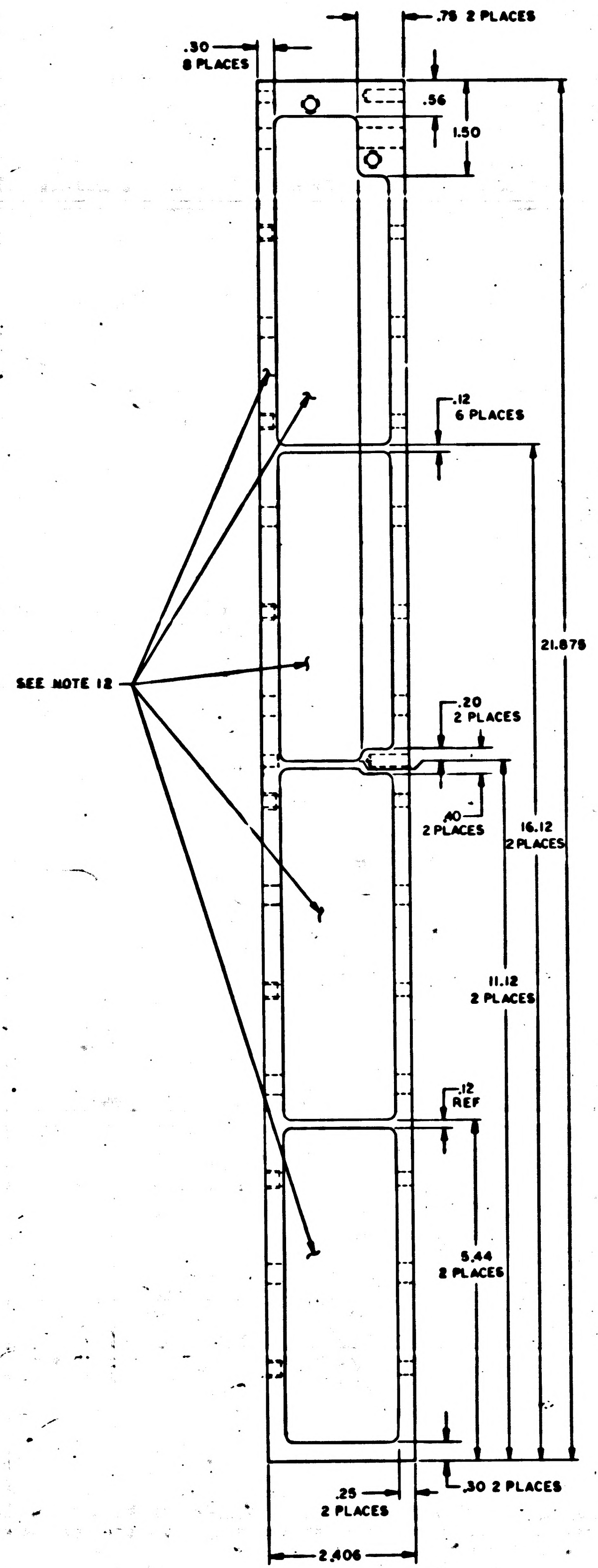
CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2004167

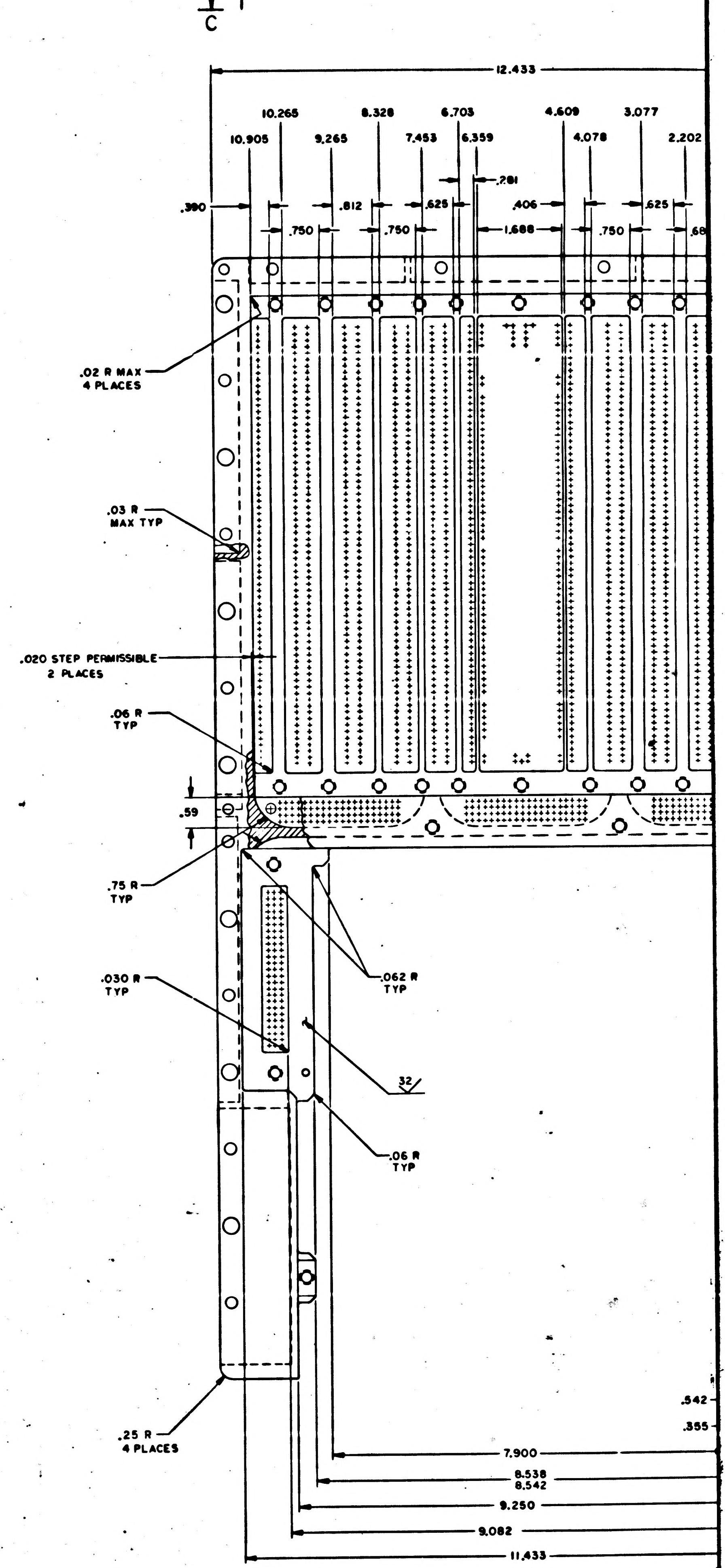
SCALE 1/1 SHEET 2 OF 2

2004167 B

F3X3

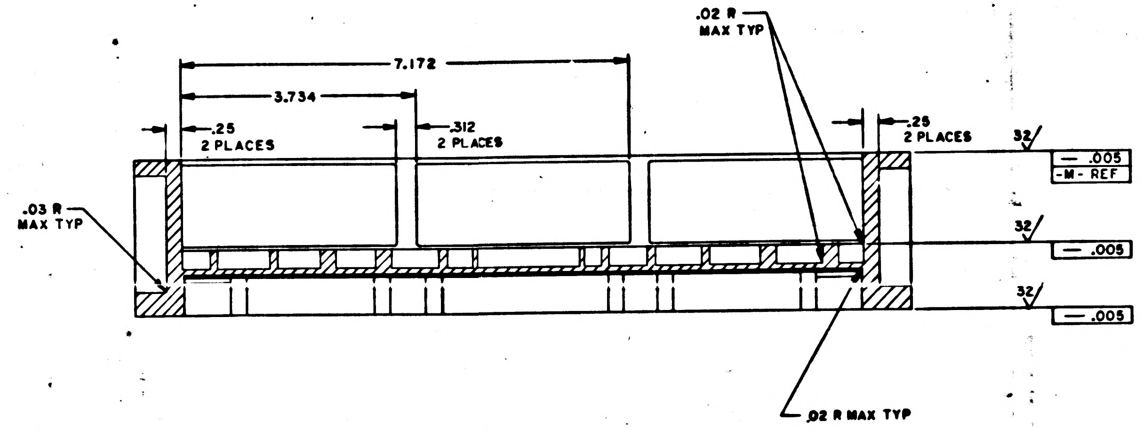

6.78
3.03
1.06
2 PLACES
A
10.78
10.44
CHAMFER .25 X 45°
6 PLACES
B
.970
B
.422
.60
.342
1.38
1.02
4.03
4.912
.438 2 PLACES
7.902
10.340
10.344
CHAMFER .12 X 45°
10 PLACES
.960
A
SEE NOTE 11
.781
.74
2 PLACES
10.87
SEE NOTE 11
1.44
2 PLACES


.30
8 PLACES
.75 2 PLACES
.56
1.50
.12
6 PLACES
SEE NOTE 12
21.875
.20
2 PLACES
.40
2 PLACES
16.12
2 PLACES
11.12
2 PLACES
.12
REF
5.44
2 PLACES
.25
2 PLACES
.30 2 PLACES
2.406

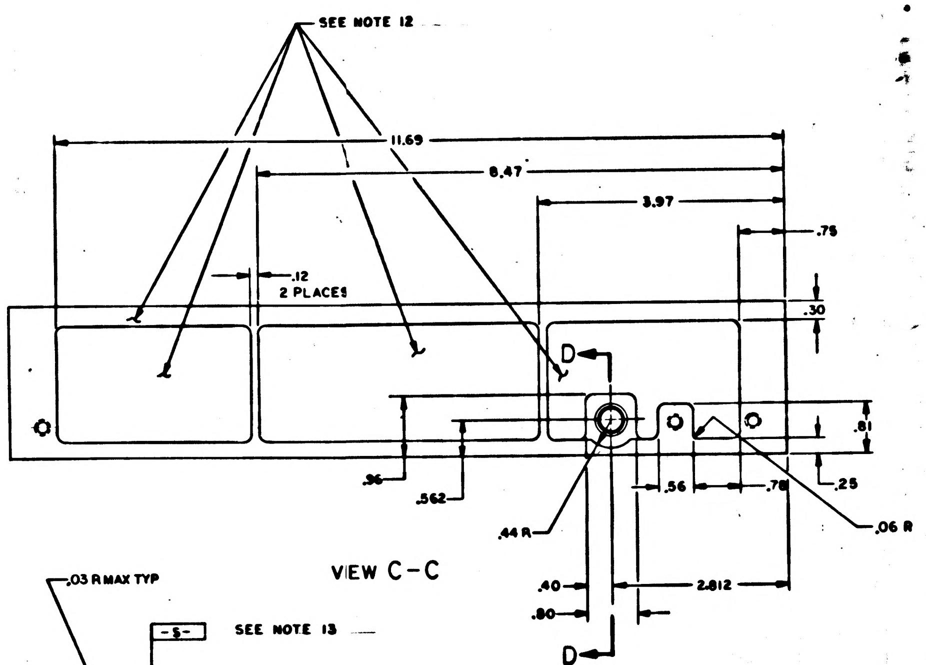

C
12.433
10.265
10.905
9.265
8.328
7.453
6.703
6.359
4.609
4.078
3.077
2.202
.281
.390
.750
.812
.750
.625
.406
1.688
.750
.625
.68
.02 R MAX
4 PLACES
.03 R
MAX TYP
.020 STEP PERMISSIBLE
2 PLACES
.06 R
TYP
.59
.75 R
TYP
.030 R
TYP
.062 R
TYP
32
.06 R
TYP
.25 R
4 PLACES
.542
.355
7.900
8.538
8.542
9.250
9.082
11.433

2004167 B

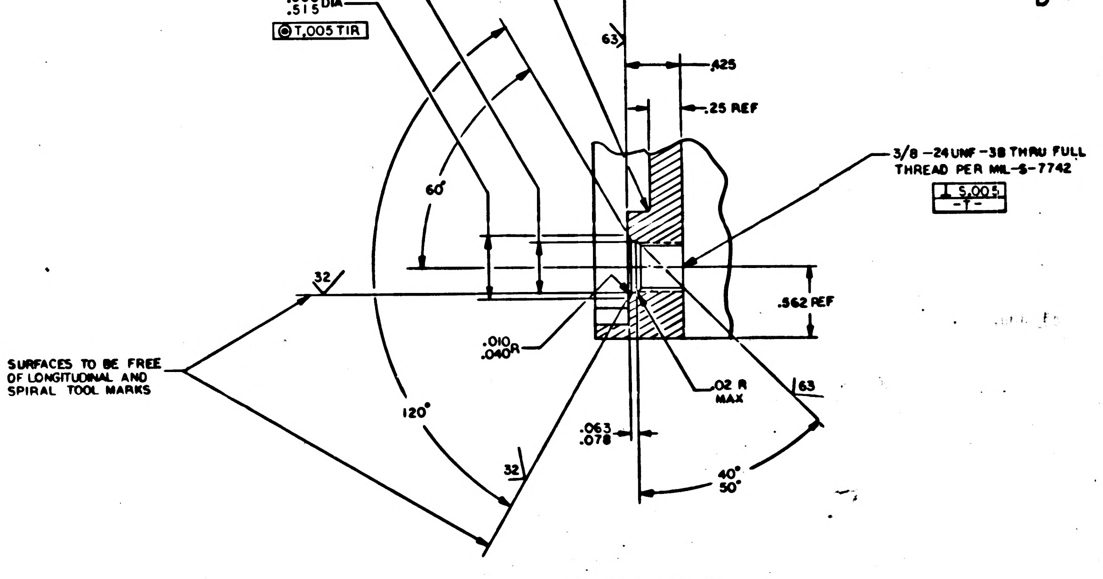
2004167 B E2/43 SHEET 2


7.172
3.734
.25
2 PLACES
.312
2 PLACES
.02 R
MAX TYP
.25
2 PLACES
32
.005
-M- REF
.03 R
MAX TYP
32
.005
32
.005
.02 R MAX TYP

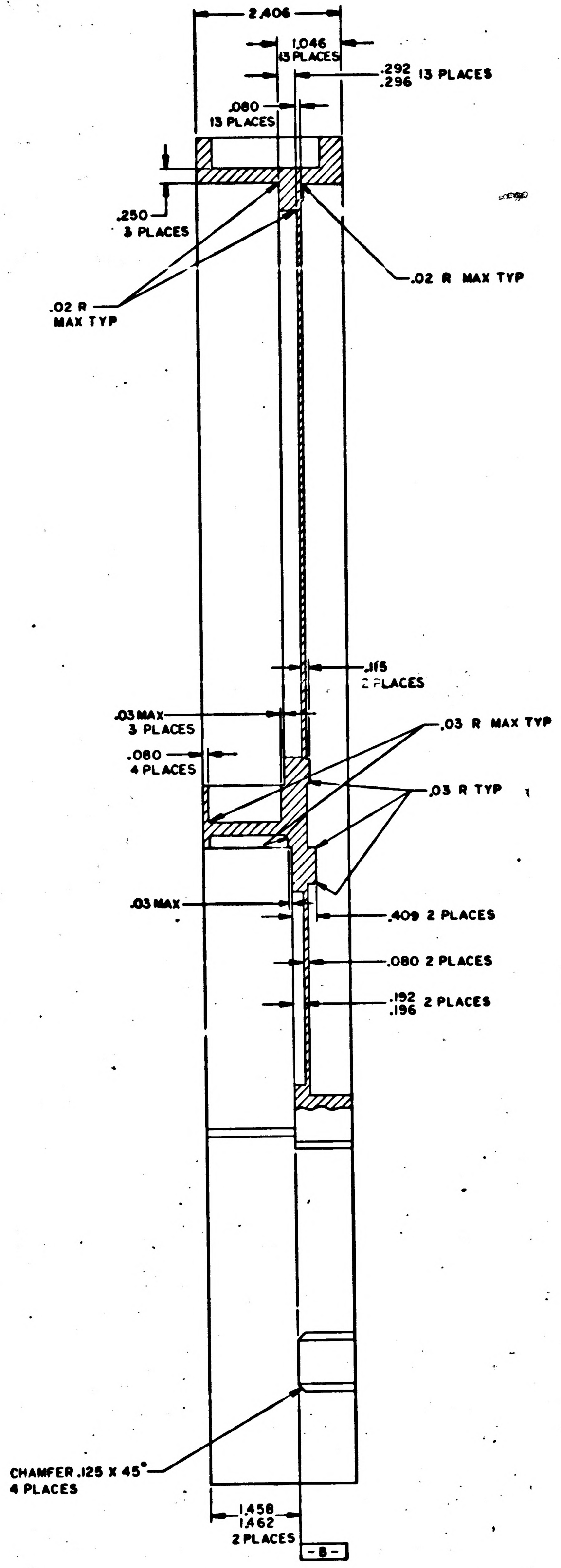
SECTION B-B


SEE NOTE 12
11.69
8.47
3.97
.75
.12
2 PLACES
.30
D
.81
.96
.562
.44 R
.56
.78
.25
.06 R
.40
.80
2.812
D

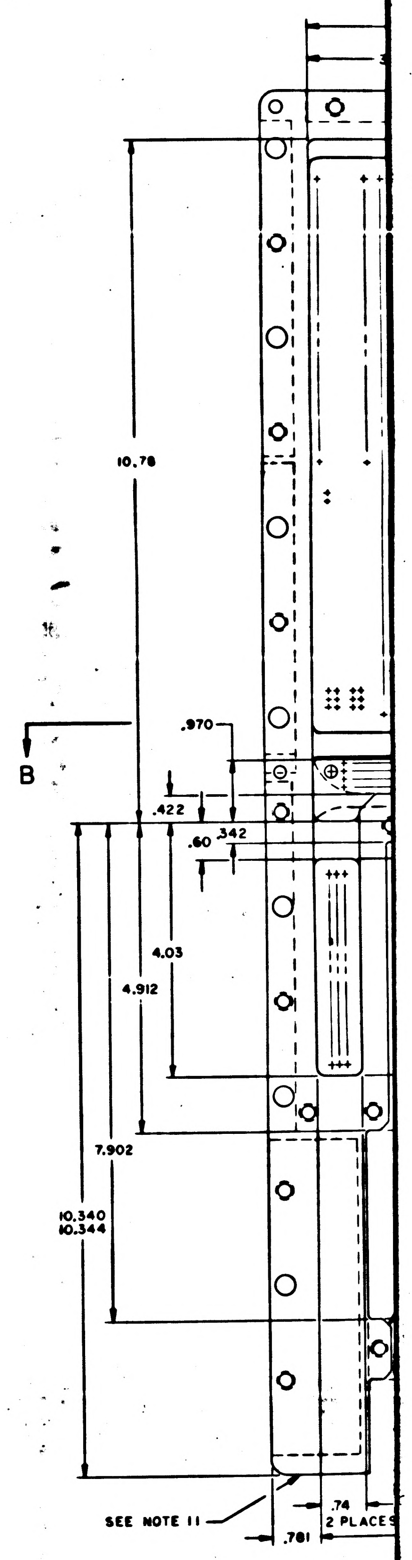
VIEW C-C


.390
.395 DIA
T.005 TIR
.500
.515 DIA
T.005 TIR
.03 R MAX TYP
-S-
SEE NOTE 13
63
.425
.25 REF
3/8 -24UNF-3B THRU FULL
THREAD PER MIL-S-7742
⊥ S.005
-T-
60°
32
.562 REF
.010
.040 R
SURFACES TO BE FREE
OF LONGITUDINAL AND
SPIRAL TOOL MARKS
.02 R
MAX
63
120°
.063
.078
32
40°
50°

SECTION D-D
SCALE: 2/1


2.406
1.046
13 PLACES
.292
.296 13 PLACES
.080
13 PLACES
.250
3 PLACES
.02 R
MAX TYP
.02 R MAX TYP
.115
2 PLACES
.03 MAX
3 PLACES
.080
4 PLACES
.03 R MAX TYP
.03 R TYP
.03 MAX
.409 2 PLACES
.080 2 PLACES
.192
.196 2 PLACES
CHAMFER .125 X 45°
4 PLACES
1.458
1.462
2 PLACES
-B-

SECTION A-A

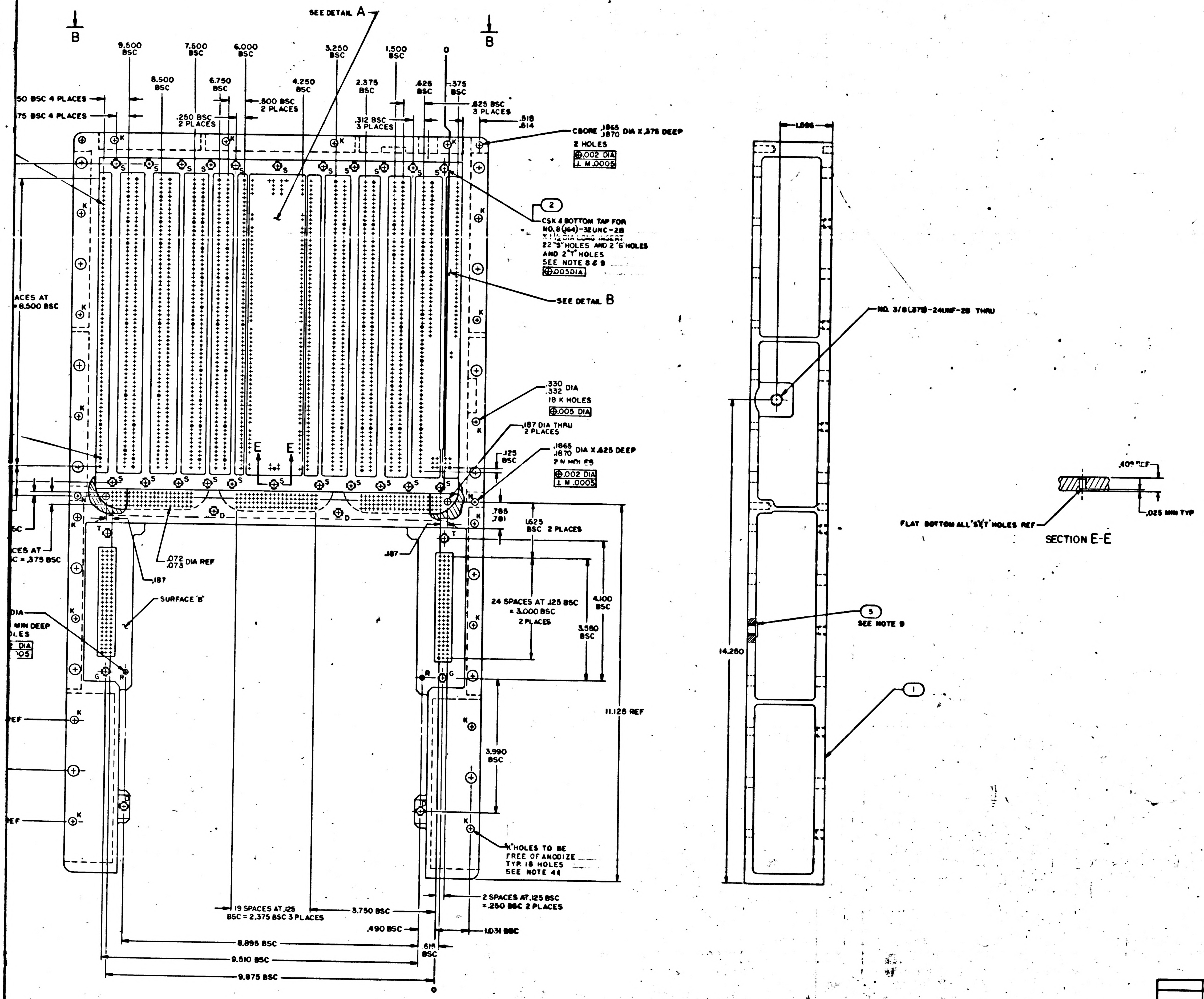

10.78
.970
B
.422
.60
.342
4.03
4.912
7.902
10.340
10.344
SEE NOTE 11
.74
2 PLACES
.781

2004167 B

SHEET 2

SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
	A	REVISED PER TDRR 26555				
	B	REVISED PER TDRR 28026				
	C	REVISED PER TDRR 28251				

REVISIONS 259



SEE DETAIL A
B
B
9.500 BSC
7.500 BSC
6.000 BSC
3.250 BSC
1.500 BSC
0
8.500 BSC
6.750 BSC
4.250 BSC
2.375 BSC
.625 BSC
.375 BSC
50 BSC 4 PLACES
75 BSC 4 PLACES
.250 BSC 2 PLACES
.500 BSC 2 PLACES
.312 BSC 3 PLACES
.625 BSC 3 PLACES
.518 .514
CBORE .1865 .1870 DIA X .375 DEEP 2 HOLES
.002 DIA
M .0005
2
CSK & BOTTOM TAP FOR NO.8(.164)-32UNC-2B X 1½ DIA LONG INSERT 22 "S" HOLES AND 2 "G" HOLES AND 2 "T" HOLES SEE NOTE 8 & 9
.005 DIA
SEE DETAIL B
ACES AT = 8.500 BSC
.330 .332 DIA 18 K HOLES
.005 DIA
.187 DIA THRU 2 PLACES
.1865 .1870 DIA X .625 DEEP 2 N HOLES
.002 DIA
M .0005
.125 BSC
E
E
.785 .781
1.625 BSC 2 PLACES
CES AT C = .375 BSC
.072 .073 DIA REF
.187
.187
SURFACE "B"
DIA
MIN DEEP
LES
DIA
005
24 SPACES AT .125 BSC = 3.000 BSC 2 PLACES
4.100 BSC
3.550 BSC
11.125 REF
3.990 BSC
EF
EF
"K" HOLES TO BE FREE OF ANODIZE TYP. 18 HOLES SEE NOTE 44
19 SPACES AT .125 BSC = 2.375 BSC 3 PLACES
3.750 BSC
.490 BSC
2 SPACES AT .125 BSC = .250 BSC 2 PLACES
1.031 BSC
.615 BSC
8.895 BSC
9.510 BSC
9.875 BSC
0
K
S
T
G
R
N
D
1.596
NO. 3/8(.375)-24UNF-2B THRU
14.250
5
SEE NOTE 9
1
.409 REF
FLAT BOTTOM ALL "S"&"T" HOLES REF
.025 MIN TYP
SECTION E-E

18	2004706-001	INSERT, KNURLED	5
~~1~~	~~MS21209 F6-15~~	~~INSERT, THREADED, SELF-LOCKING~~	~~4~~
3	MS21209 F1-15	INSERT, THREADED, SELF-LOCKING	3
60	MS21209 C0815	INSERT, THREADED, SELF-LOCKING	2
1	2004167-001	TRAY B, MACHINED	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003091	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —
DECIMALS .XXX ± .005 .XX ± .01
ANGLES ± ½°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

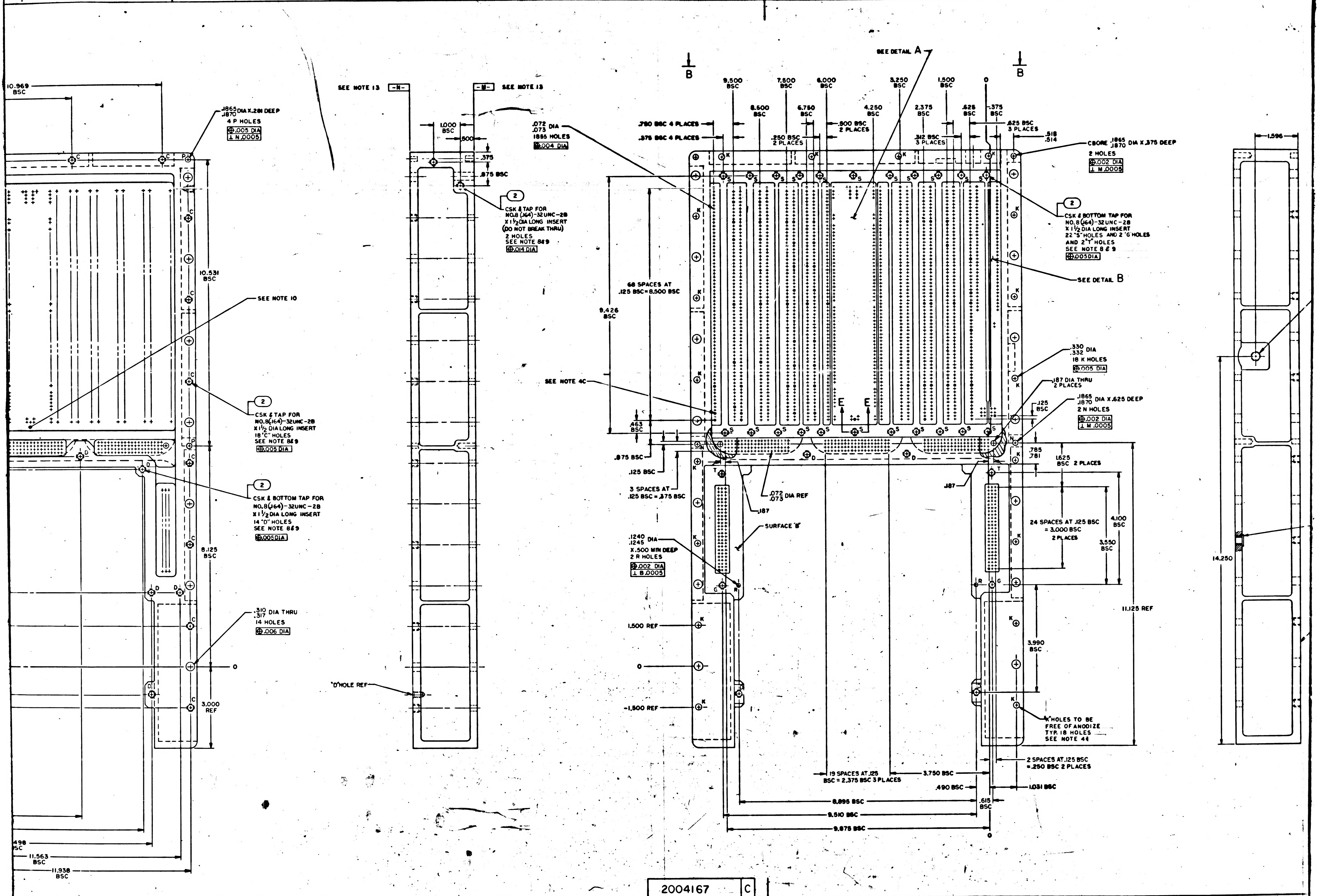
DRAWN
CHECKED
APPROVED
APPROVED E. Hall
APPROVED MIT
APPROVED MSC A. C. METZGER

TRAY B
INSEPARABLE ASSY
AGC

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004167
SCALE 1/1
SHEET 1 OF 2

2004167 C

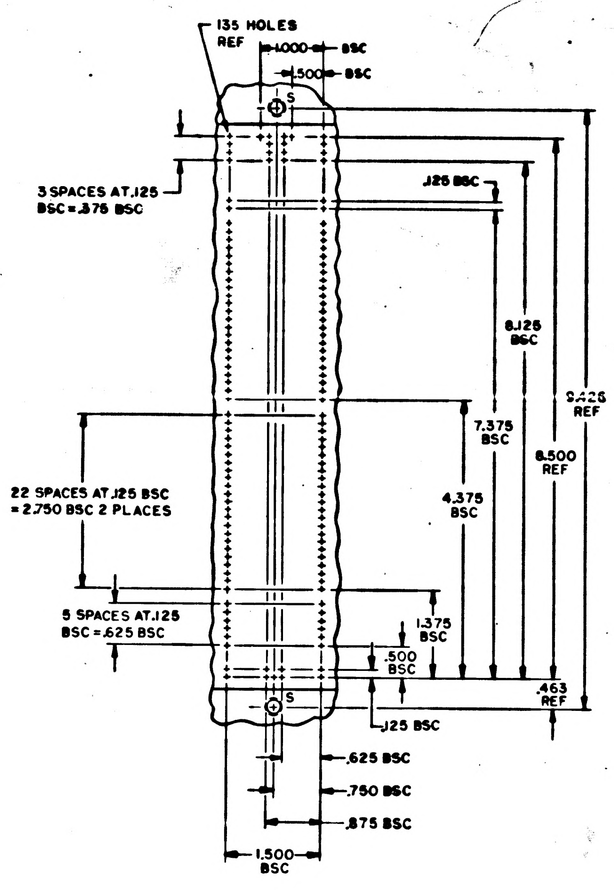
F3/3


SEE DETAIL A
B
B
9.500 BSC
7.500 BSC
6.000 BSC
3.250 BSC
1.500 BSC
0
8.500 BSC
6.750 BSC
4.250 BSC
2.375 BSC
.625 BSC
.375 BSC
.750 BSC 4 PLACES
.375 BSC 4 PLACES
.250 BSC 2 PLACES
.500 BSC 2 PLACES
.312 BSC 3 PLACES
.625 BSC 3 PLACES
.518 .514
CBORE .1865 .1870 DIA X .375 DEEP
2 HOLES
⊕.002 DIA
⊥ M .0005
2
CSK & BOTTOM TAP FOR NO.8 (.164)-32UNC-2B X 1 1/2 DIA LONG INSERT 22 "S" HOLES AND 2 "G" HOLES AND 2 "T" HOLES SEE NOTE 8 & 9
⊕.005 DIA
SEE DETAIL B
68 SPACES AT .125 BSC = 8.500 BSC
9.426 BSC
.330 .332 DIA
18 K HOLES
⊕.005 DIA
.187 DIA THRU 2 PLACES
.1865 .1870 DIA X .625 DEEP
2 N HOLES
⊕.002 DIA
⊥ M .0005
.125 BSC
SEE NOTE 4C
.463 BSC
.875 BSC
.125 BSC
3 SPACES AT .125 BSC = .375 BSC
.072 .073 DIA REF
.187
.785 .781
1.625 BSC 2 PLACES
.187
SURFACE "B"
.1240 .1245 DIA X .500 MIN DEEP
2 R HOLES
⊕.002 DIA
⊥ B .0005
24 SPACES AT .125 BSC = 3.000 BSC 2 PLACES
4.100 BSC
3.550 BSC
11.125 REF
1.500 REF
0
-1.500 REF
3.990 BSC
"K" HOLES TO BE FREE OF ANODIZE TYP. 18 HOLES SEE NOTE 4I
2 SPACES AT .125 BSC = .250 BSC 2 PLACES
19 SPACES AT .125 BSC = 2.375 BSC 3 PLACES
3.750 BSC
.490 BSC
1.031 BSC
.615 BSC
8.895 BSC
9.510 BSC
9.875 BSC
0
E
E
K S T G R N D
10.969 BSC
.1865 .1870 DIA X .281 DEEP
4 P HOLES
⊕.005 DIA
⊥ N .0005
10.531 BSC
SEE NOTE 10
2
CSK & TAP FOR NO.8 (.164)-32UNC-2B X 1 1/2 DIA LONG INSERT 18 "C" HOLES SEE NOTE 8 & 9
⊕.005 DIA
2
CSK & BOTTOM TAP FOR NO.8 (.164)-32UNC-2B X 1 1/2 DIA LONG INSERT 14 "D" HOLES SEE NOTE 8 & 9
⊕.005 DIA
8.125 BSC
.310 .317 DIA THRU
14 HOLES
⊕.006 DIA
0
3.000 REF
.498 BSC
11.563 BSC
11.938 BSC
SEE NOTE 13
-N-
-M-
SEE NOTE 13
1.000 BSC
.500
.375
.875 BSC
2
CSK & TAP FOR NO.8 (.164)-32UNC-2B X 1 1/2 DIA LONG INSERT (DO NOT BREAK THRU) 2 HOLES SEE NOTE 8 & 9
⊕.014 DIA
.072 .073 DIA
1855 HOLES
⊕.004 DIA
"D" HOLE REF
1.596
14.250

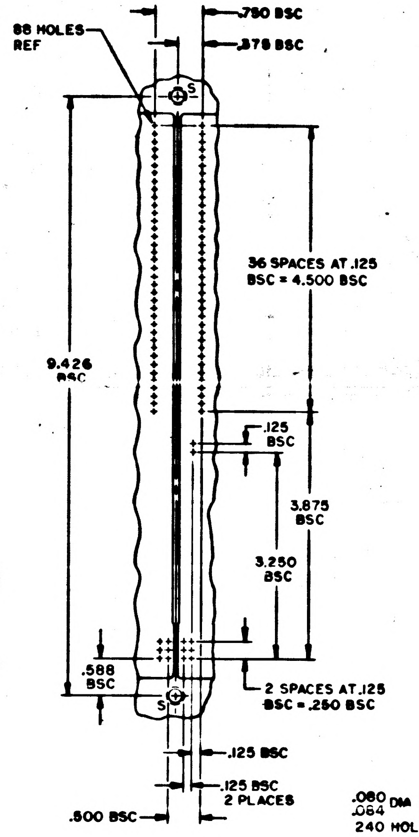
2004167 C

2004167-C-F2/3

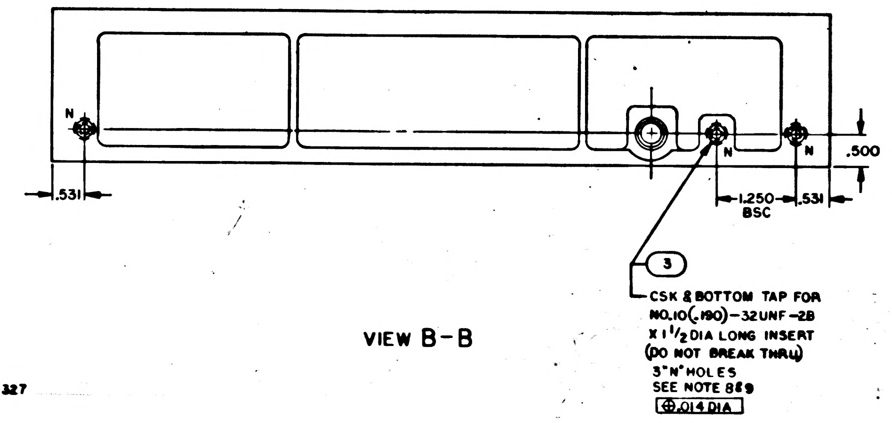
SHEET 1


135 HOLES REF
.1000 BSC
.500 BSC
3 SPACES AT .125 BSC = .375 BSC
.125 BSC
8.125 BSC
7.375 BSC
9.426 REF
8.500 REF
22 SPACES AT .125 BSC = 2.750 BSC 2 PLACES
4.375 BSC
5 SPACES AT .125 BSC = .625 BSC
1.375 BSC
.500 BSC
.463 REF
.125 BSC
.625 BSC
.750 BSC
.875 BSC
1.500 BSC
S

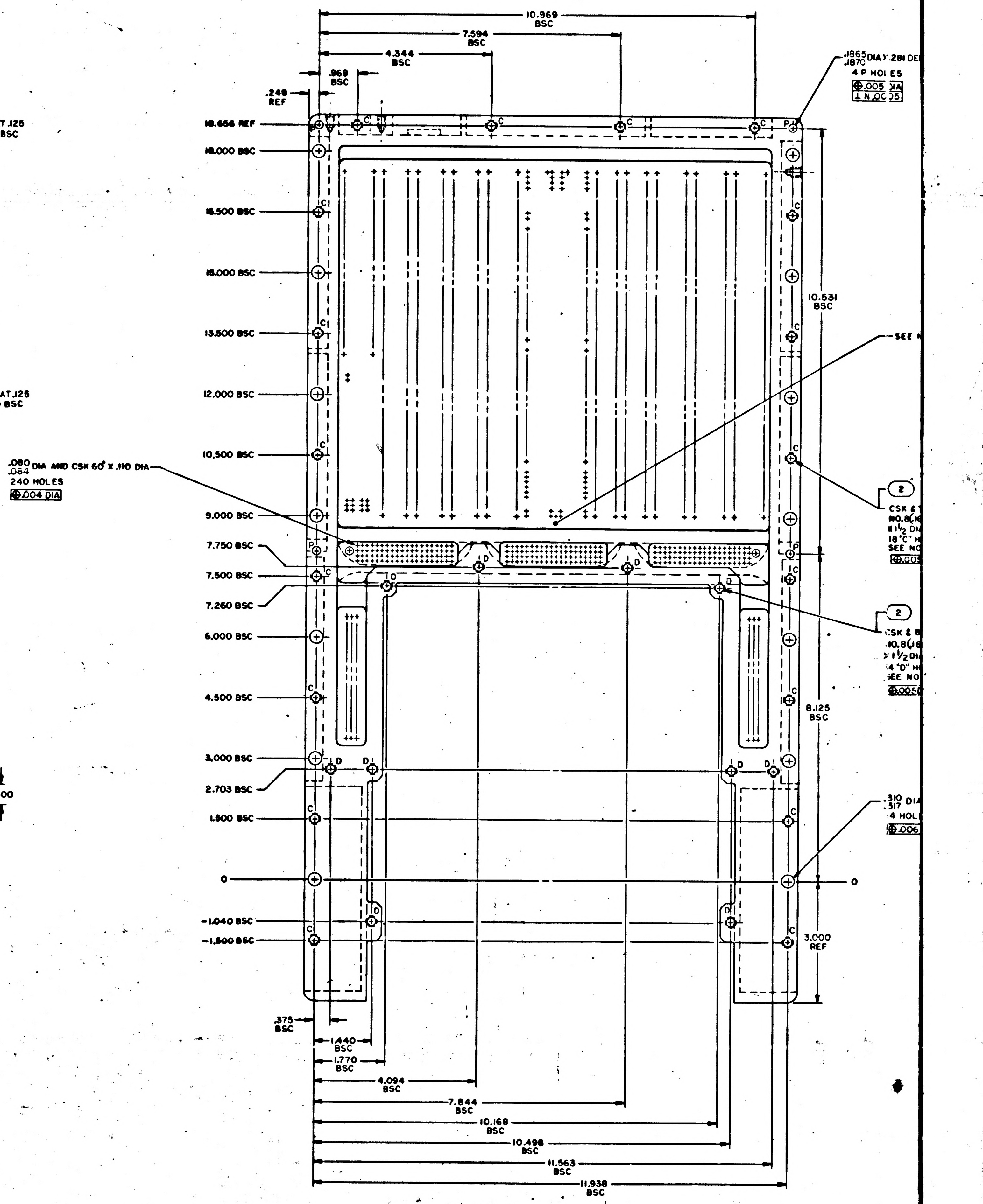
DETAIL A


88 HOLES REF
.750 BSC
.375 BSC
36 SPACES AT .125 BSC = 4.500 BSC
9.426 BSC
.125 BSC
3.875 BSC
3.250 BSC
.588 BSC
2 SPACES AT .125 BSC = .250 BSC
.125 BSC
.125 BSC 2 PLACES
.500 BSC
S

DETAIL B


N
N
N
.531
1.250 BSC
.531
.500
3
CSK & BOTTOM TAP FOR NO.10(.190)-32UNF-2B X 1 1/2 DIA LONG INSERT (DO NOT BREAK THRU)
3 "N" HOLES
SEE NOTE 8&9
⊕.014 DIA

VIEW B-B


10.969 BSC
7.594 BSC
4.344 BSC
.969 BSC
.248 REF
.1865 .1870 DIA X .281 DE
4 P HOLES
⊕.005
⊥.005
18.656 REF
18.000 BSC
16.500 BSC
15.000 BSC
13.500 BSC
12.000 BSC
10.500 BSC
9.000 BSC
7.750 BSC
7.500 BSC
7.260 BSC
6.000 BSC
4.500 BSC
3.000 BSC
2.703 BSC
1.500 BSC
0
-1.040 BSC
-1.500 BSC
.080 .064 DIA AND CSK 60° X .110 DIA
240 HOLES
⊕.004 DIA
10.531 BSC
SEE
2
CSK &
NO.8(
X 1 1/2 DI
18 "C"
SEE NO
⊕.005
2
CSK & B
NO.8(
X 1 1/2 DI
4 "D" H
SEE NO
⊕.005
8.125 BSC
.310 .317 DIA
4 HOL
⊕.006
3.000 REF
0
.375 BSC
1.440 BSC
1.770 BSC
4.094 BSC
7.844 BSC
10.168 BSC
10.498 BSC
11.563 BSC
11.938 BSC
C
D
P

NOTES

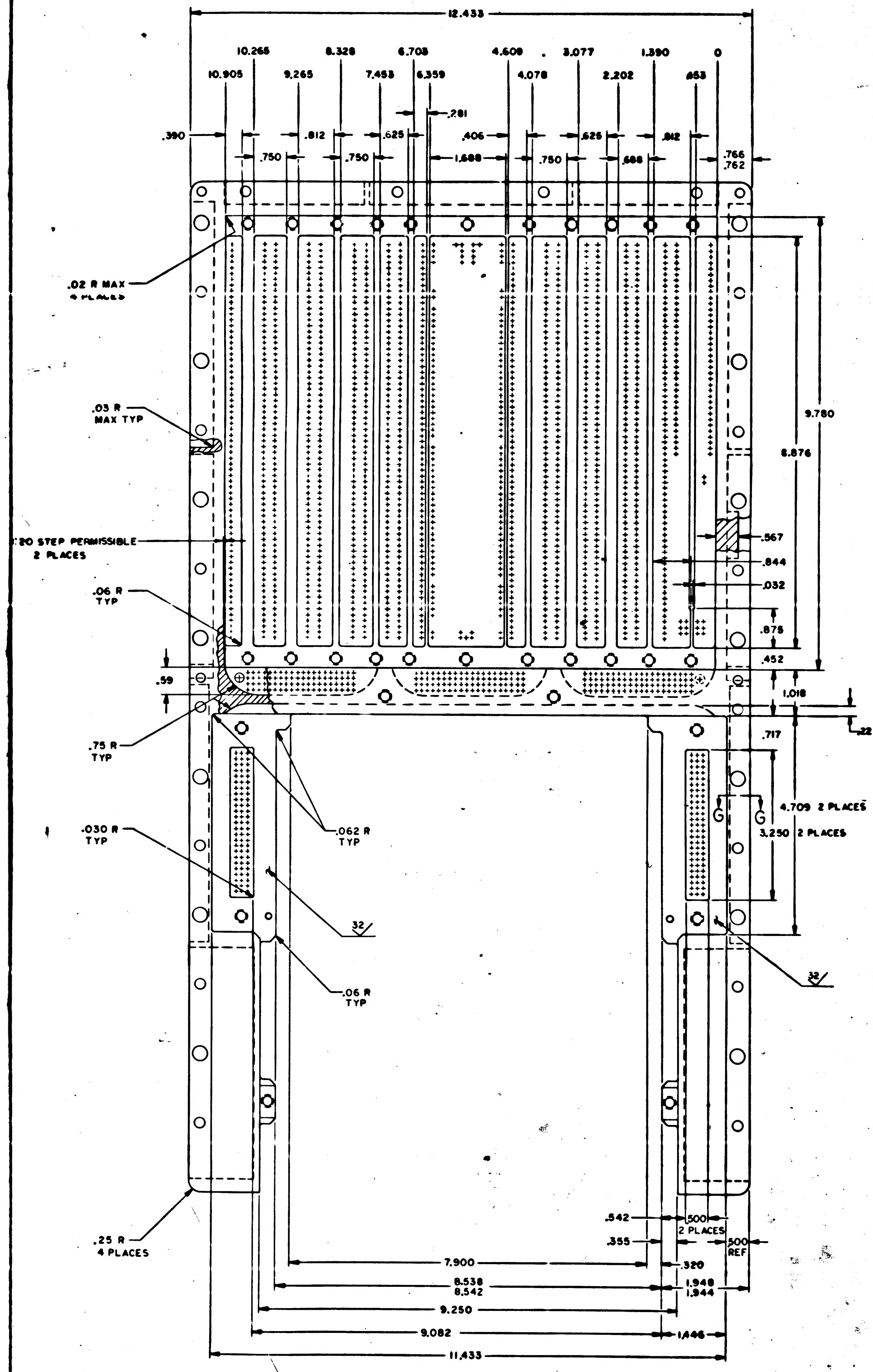
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: MAGNESIUM ZK60A-T5 PER QQ-M-31, TEMP T5
3. ANODIZE PER MIL-M-45202, TYPE I, CLASS C
4. a.) INDICATED SURFACES SHALL BE FREE OF ANODIZE, TREAT PER MIL-M-3171, TYPE VI
   b.) TAP "C, D, G & T" HOLES AFTER ANODIZE AND TREAT PER MIL-M-3171, TYPE VI
   c.) 71 HOLES SHOWN TO BE FREE OF ANODIZE TREAT PER MIL-M-3171, TYPE VI
5. ALL SURFACES 125✓ UNLESS OTHERWISE SPECIFIED
6. REMOVE BURRS AND SHARP EDGES .005/.015
7. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .125
8. INSTALL FIND NO. 2 AND 3 PER MS33646 REMOVE DRIVING TANG
9. COAT FIND NO. 5 AND THREADS OF FIND NO. 2 AND 3 WITH MIL-P-8585, COLOR YELLOW, INSTALL WET
10. IDENTIFY WITH PART NO. PER ND1002019 AND SERIALIZE PER ND1002023 WHERE SHOWN
11. APPLY FOLLOWING FINISHES TO SURFACES INDICATED, INCLUDING RADII; ALL HOLES AND INSERTS TO BE FREE OF THESE FINISHES:
   a) PAINT GRAY PER ND1002279 USING 1008809-1
   b) FINAL COAT SURFACES PER ND1002277 USING 1012543-003
12. APPLY FOLLOWING FINISHES TO SURFACES INDICATED, ALL HOLES AND INSERTS TO BE FREE OF THESE FINISHES:
   a) PRIMER ONLY PER ND1002279 USING 1010992
   b) PAINT ALUMINUM FILLED EPOXY PER ND1002289
13. THESE SURFACES TO BE FREE OF FINISHES AS STATED PER NOTES 11 & 12

2004167 C

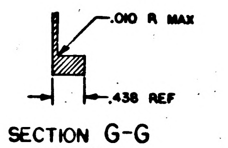
SHEET 1

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 26555	Dac			
B		REVISED PER TDRR 28026	DRV			
C		REVISED PER TDRR 28251				

REVISIONS 25977

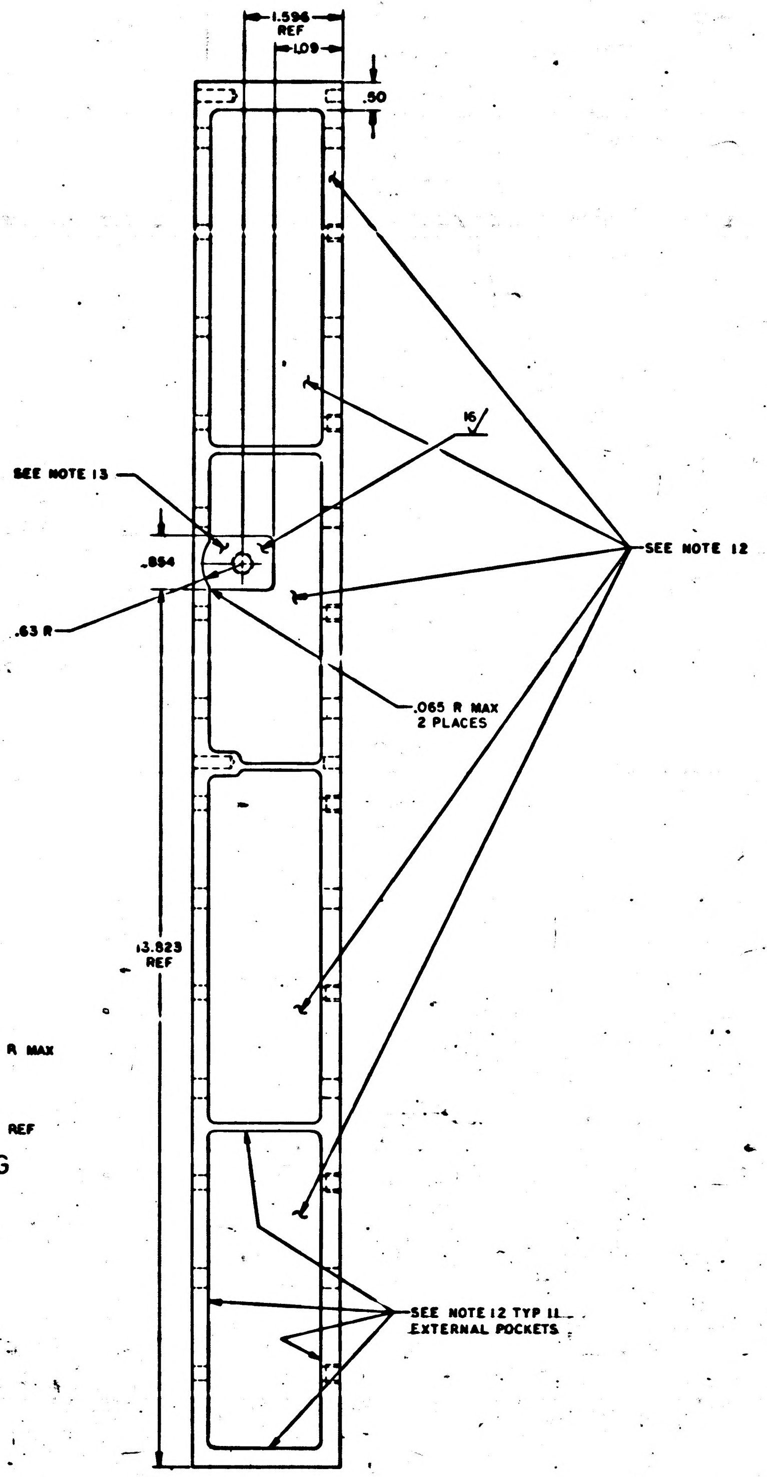


C
C
12.433
10.265
8.328
6.703
4.609
3.077
1.390
0
10.905
9.265
7.453
6.359
4.078
2.202
.653
.281
.390
.812
.625
.406
.625
.812
.766
.762
.750
.750
1.688
.750
.588
.02 R MAX 4 PLACES
.03 R MAX TYP
.20 STEP PERMISSIBLE 2 PLACES
.06 R TYP
.59
.75 R TYP
.030 R TYP
.062 R TYP
32
.06 R TYP
32
.25 R 4 PLACES
9.780
8.876
.567
.844
.032
.875
.452
1.018
.22
.717
4.709 2 PLACES
3.250 2 PLACES
G
G
.542
.355
.500 2 PLACES
.500 REF
.320
1.948
1.944
7.900
8.538
8.542
9.250
9.082
1.446
11.433



.010 R MAX
.438 REF

SECTION G-G
2 PLACES



1.596 REF
1.09
.50
16
SEE NOTE 13
.884
.63 R
SEE NOTE 12
.065 R MAX 2 PLACES
13.823 REF
SEE NOTE 12 TYP 11 EXTERNAL POCKETS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
A. L. METZGER
APPROVED NASA

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

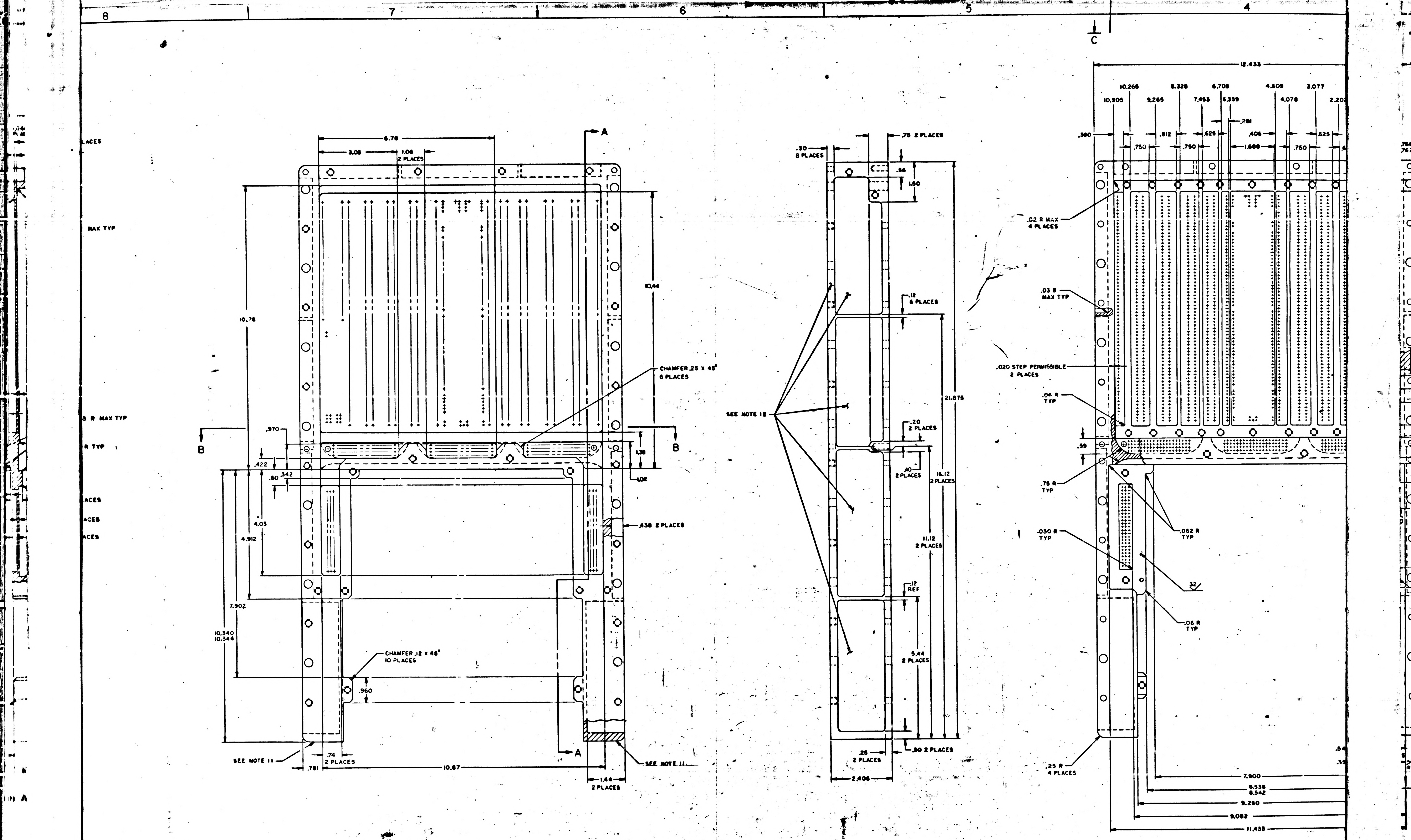
TRAY B
INSEPARABLE ASSY
AGC

CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2004167

SCALE 1/1
SHEET 2 OF 2

2004167 C

F3/3


8
7
6
5
4
C
LACES
MAX TYP
3 R MAX TYP
R TYP
LACES
LACES
LACES
A
6.78
3.08
1.06
2 PLACES
A
A
10.78
10.44
CHAMFER .25 X 45°
6 PLACES
B
B
.970
.422
.60
.342
1.38
1.02
4.03
4.912
.438 2 PLACES
7.902
10.340
10.344
CHAMFER .12 X 45°
10 PLACES
.960
SEE NOTE 11
.74
2 PLACES
.781
10.87
1.44
2 PLACES
SEE NOTE 11
.30
8 PLACES
.75 2 PLACES
.56
1.50
.12
6 PLACES
SEE NOTE 12
21.875
.20
2 PLACES
.40
2 PLACES
16.12
2 PLACES
11.12
2 PLACES
.12
REF
5.44
2 PLACES
.25
2 PLACES
.30 2 PLACES
2.406
12.433
10.265
8.328
6.703
4.609
3.077
10.905
9.265
7.453
6.359
4.078
2.202
.281
.390
.812
.625
.406
.625
.750
.750
1.688
.750
.02 R MAX
4 PLACES
.03 R
MAX TYP
.020 STEP PERMISSIBLE
2 PLACES
.06 R
TYP
.59
.75 R
TYP
.030 R
TYP
.062 R
TYP
32
.06 R
TYP
.25 R
4 PLACES
7.900
8.538
8.542
9.250
9.082
11.433

2004167 C

2Q04167 C F2/3 SHEET 2

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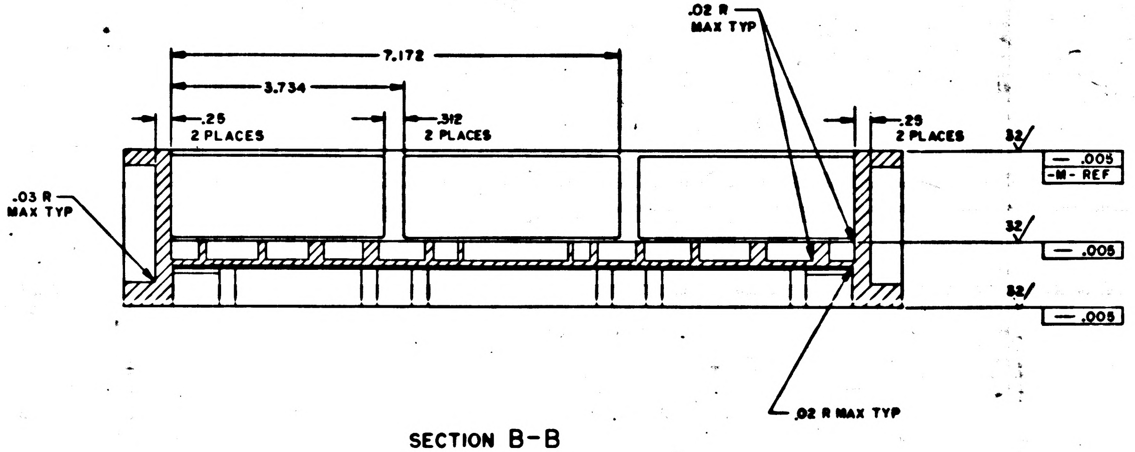
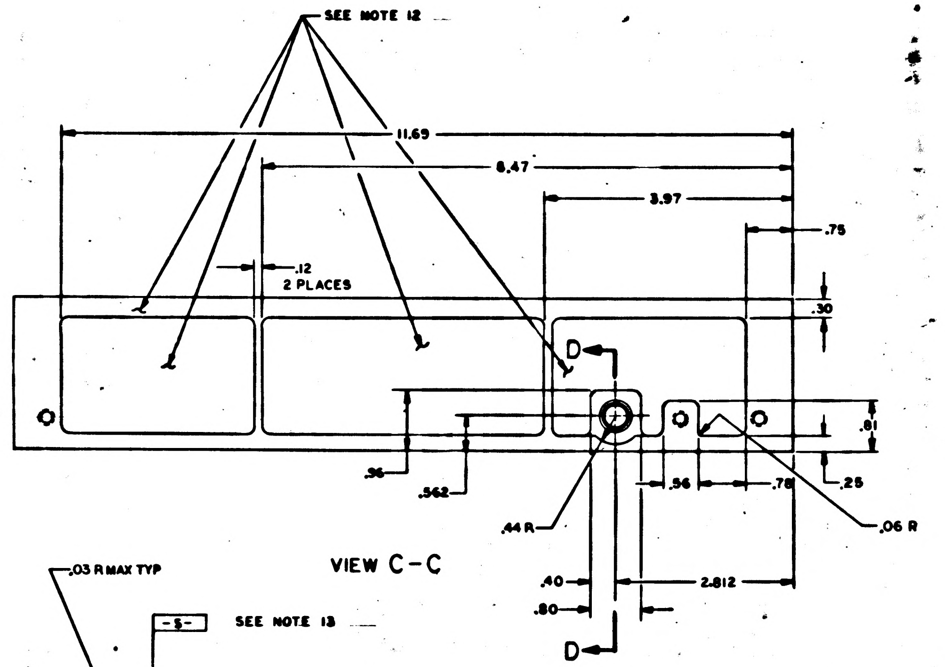
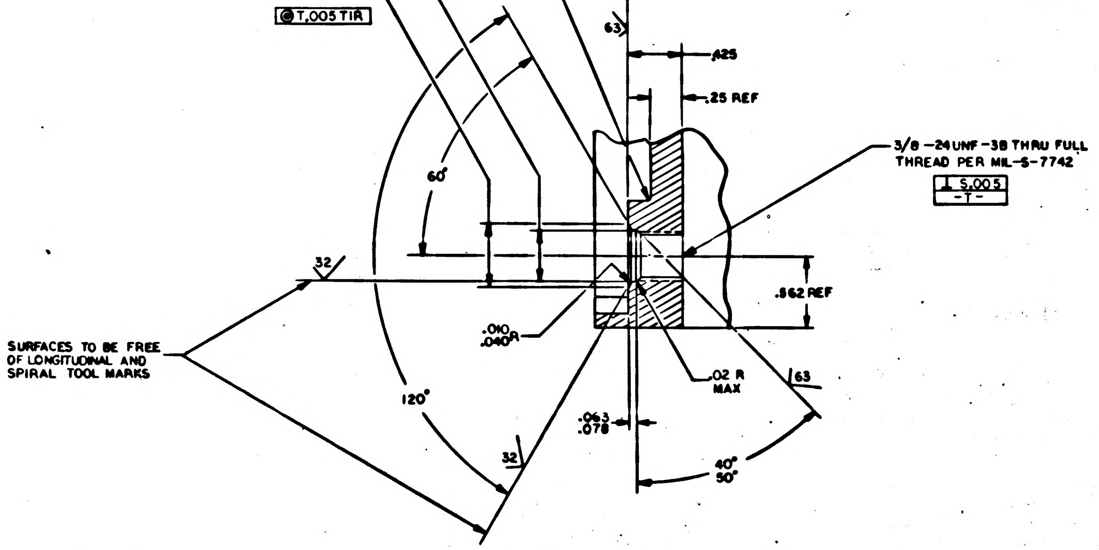

7.172
3.734
.25
2 PLACES
.312
2 PLACES
.02 R
MAX TYP
.29
2 PLACES
.03 R
MAX TYP
32
— .005
-M- REF
32
— .005
32
— .005
.02 R MAX TYP

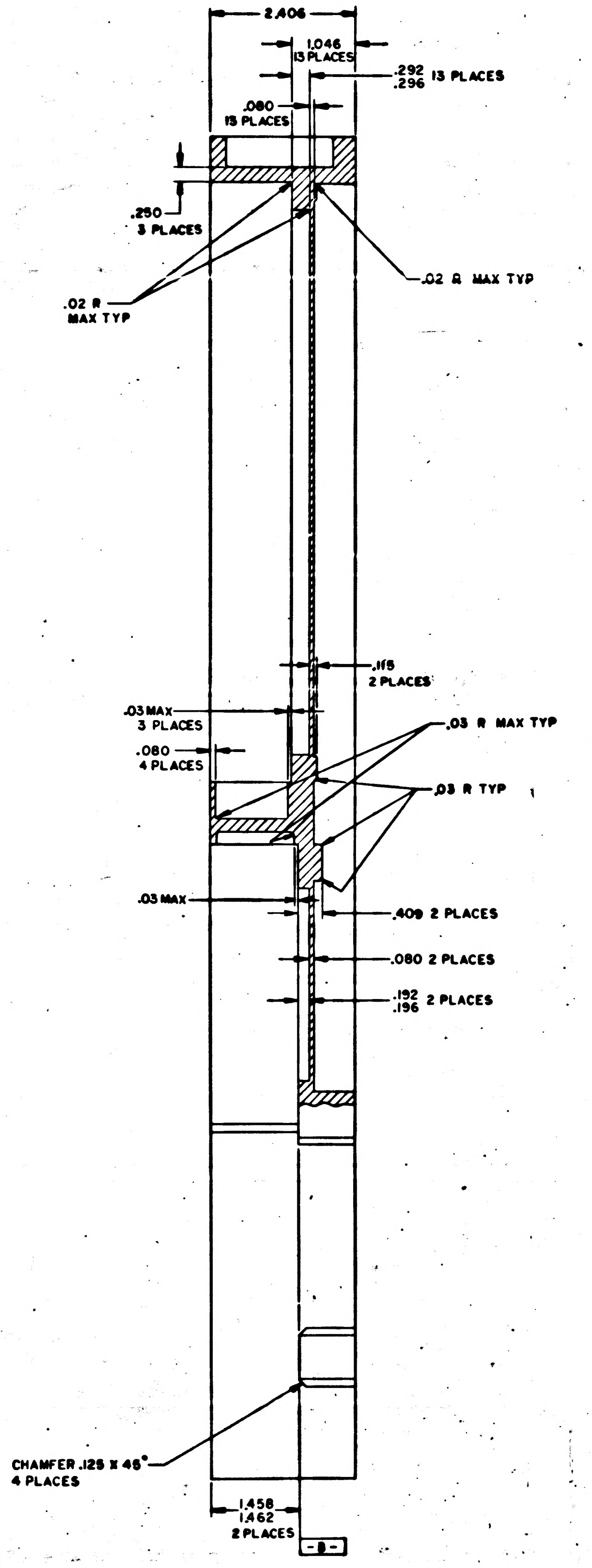
SECTION B-B


SEE NOTE 12
11.69
8.47
3.97
.75
.12
2 PLACES
.30
D
D
.81
.25
.96
.562
.44 R
.56
.78
.06 R
.40
.80
2.812

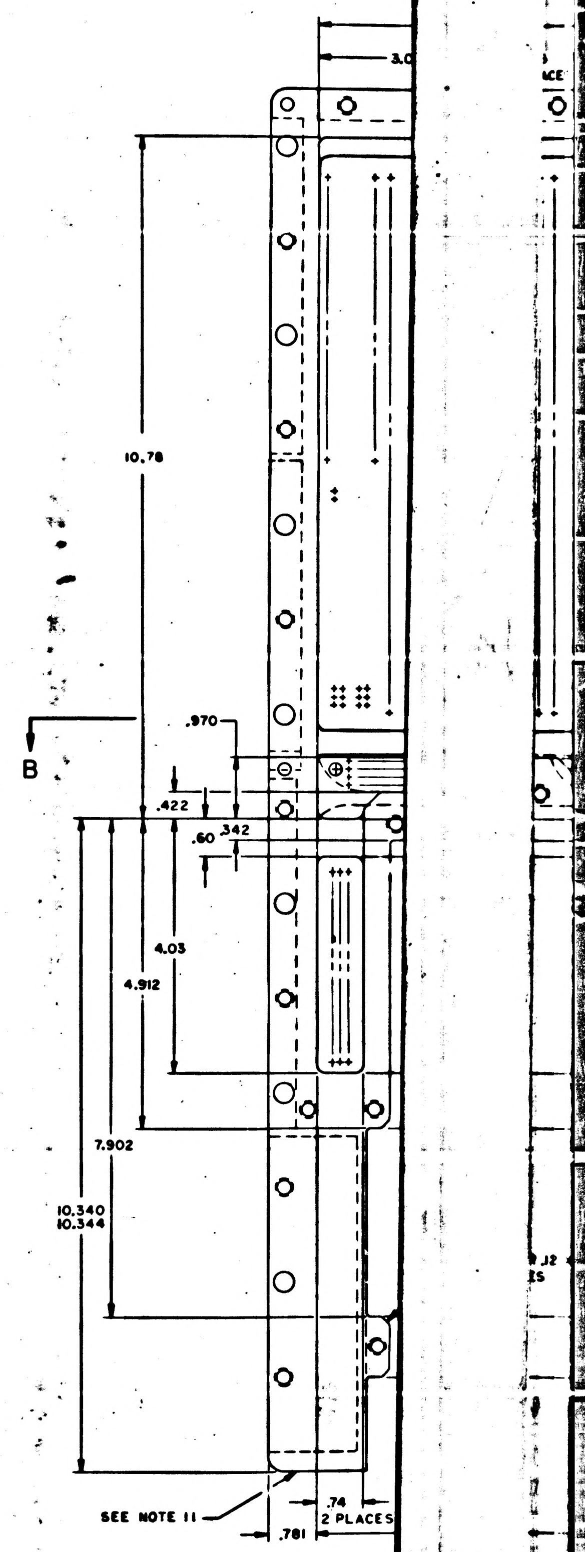
VIEW C-C


.390
.395 DIA
⊚ T .005 TIR
.500
.515 DIA
⊚ T .005 TIR
.03 R MAX TYP
-S-
SEE NOTE 13
63
.125
.25 REF
60°
3/8-24UNF-3B THRU FULL
THREAD PER MIL-S-7742
⊥ S .005
-T-
32
.562 REF
.010
.040 R
SURFACES TO BE FREE
OF LONGITUDINAL AND
SPIRAL TOOL MARKS
.02 R
MAX
63
120°
.063
.078
32
40°
50°

SECTION D-D
SCALE: 2/1


2.406
1.046
13 PLACES
.292
.296 13 PLACES
.080
13 PLACES
.250
3 PLACES
.02 R
MAX TYP
.02 R MAX TYP
.118
2 PLACES
.03 MAX
3 PLACES
.080
4 PLACES
.03 R MAX TYP
.03 R TYP
.03 MAX
.409 2 PLACES
.080 2 PLACES
.192
.196 2 PLACES
CHAMFER .125 X 45°
4 PLACES
1.458
1.462
2 PLACES
-B-

SECTION A-A


3.0
B
10.78
.970
.422
.60
.342
4.03
4.912
7.902
10.340
10.344
SEE NOTE 11
.74
2 PLACES
.781

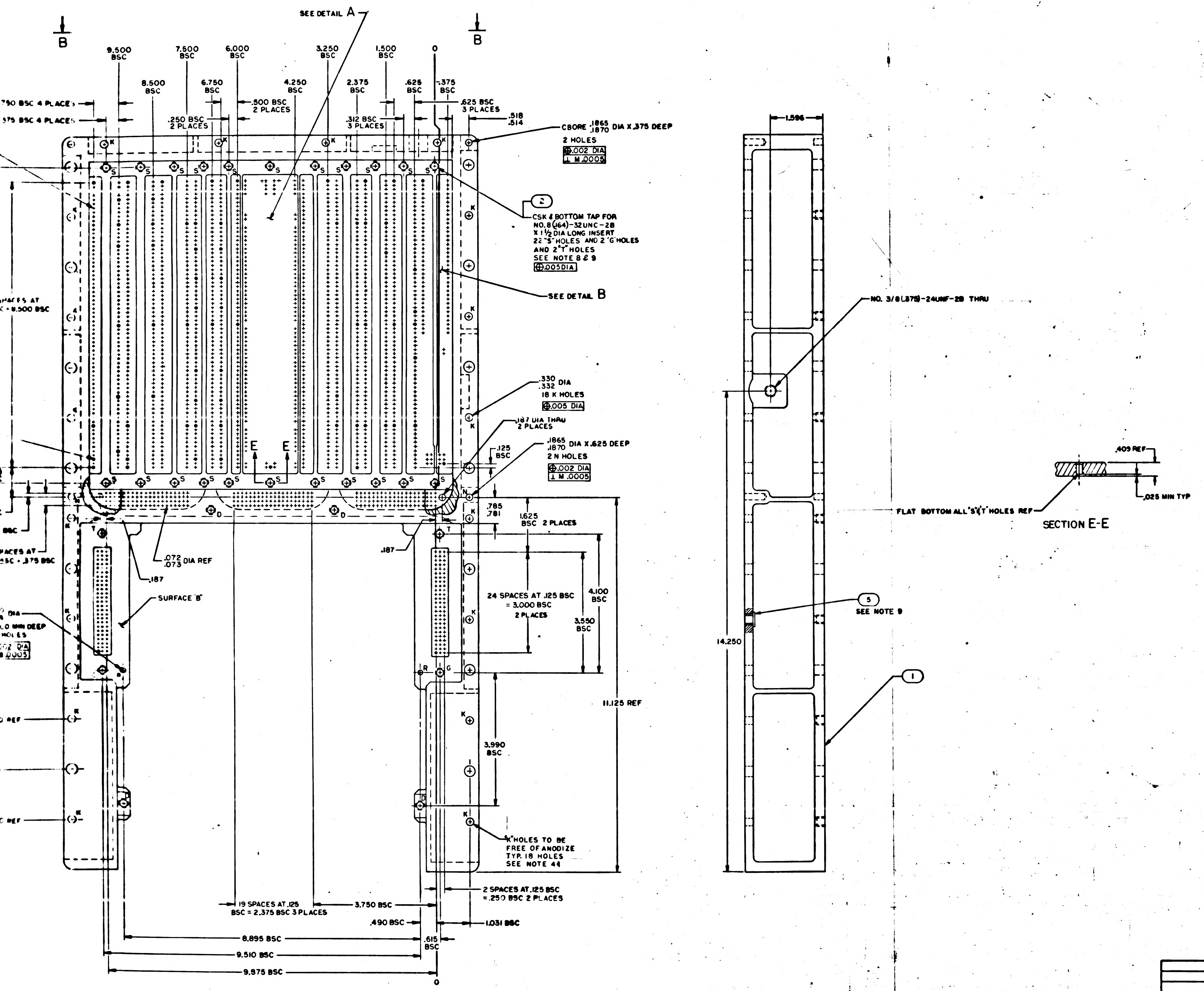
2004167 C

2004167 C F1/3

SHEET 2

SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
	A	REVISED PER TDRR 26555				
	B	REVISED PER TDRR 28026				
	C	REVISED PER TDRR 28251				
	D	REVISED PER TDRR 29081				

REVISIONS 2597


SEE DETAIL A
B
B
9.500 BSC
8.500 BSC
7.500 BSC
6.750 BSC
6.000 BSC
4.250 BSC
3.250 BSC
2.375 BSC
1.500 BSC
.625 BSC
0
-.375 BSC
.790 BSC 4 PLACES
.375 BSC 4 PLACES
.250 BSC 2 PLACES
.500 BSC 2 PLACES
.312 BSC 3 PLACES
.625 BSC 3 PLACES
.518 .514
CBORE .1865 .1870 DIA X .375 DEEP 2 HOLES
.002 DIA
M .0005
2
CSK & BOTTOM TAP FOR NO.8 (.164)-32UNC-2B X 1 1/2 DIA LONG INSERT 22 "S" HOLES AND 2 "G" HOLES AND 2 "T" HOLES SEE NOTE 8 & 9
.005 DIA
SEE DETAIL B
SPACES AT = 8.500 BSC
.330 .332 DIA 18 K HOLES
.005 DIA
.187 DIA THRU 2 PLACES
.1865 .1870 DIA X .625 DEEP 2 N HOLES
.002 DIA
M .0005
.125 BSC
E
E
S
K
D
N
T
R
G
.785 .781
1.625 BSC 2 PLACES
.072 .073 DIA REF
.187
.187
SURFACE "B"
24 SPACES AT .125 BSC = 3.000 BSC 2 PLACES
4.100 BSC
3.550 BSC
11.125 REF
3.990 BSC
SPACES AT BSC = .375 BSC
DIA
.0 MIN DEEP HOLES
.002 DIA
.0005
REF
REF
"K" HOLES TO BE FREE OF ANODIZE TYP. 18 HOLES SEE NOTE 4
19 SPACES AT .125 BSC = 2.375 BSC 3 PLACES
3.750 BSC
2 SPACES AT .125 BSC = .250 BSC 2 PLACES
.490 BSC
1.031 BSC
8.895 BSC
.615 BSC
9.510 BSC
9.875 BSC
0
1.596
NO. 3/8 (.375)-24UNF-2B THRU
5
SEE NOTE 9
14.250
1
.409 REF
.025 MIN TYP
FLAT BOTTOM ALL "S" "T" HOLES REF
SECTION E-E

18	2004706-001	INSERT, KNURLED	5
~~1~~	~~MS21209 F5-15~~	~~INSERT, THREADED, SELF-LOCKING~~	~~4~~
3	MS21209 F1-15	INSERT, THREADED, SELF-LOCKING	3
60	MS21209 C0815	INSERT, THREADED, SELF-LOCKING	2
1	2004167-001	TRAY B, MACHINED	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003091	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XXX ± .005 .XX ± .01 ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
CHECKED
APPROVED
APPROVED Eldon C. Hall
APPROVED MIT
APPROVED MSC A. C. METZGER

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRAY B
INSEPARABLE ASSY
AGC

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004167
SCALE 1/1
SHEET 1 OF 2

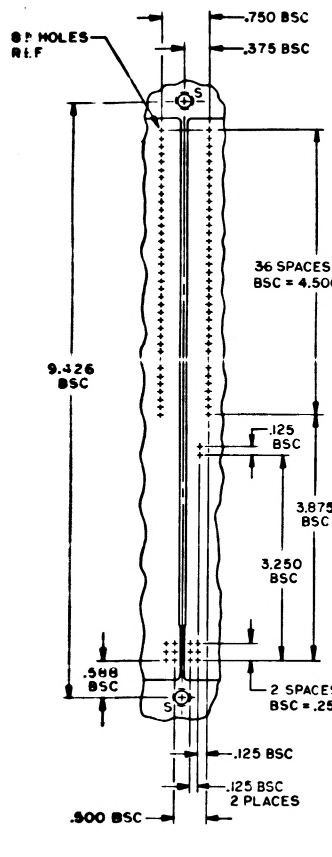
2004167 D

20 1167 D

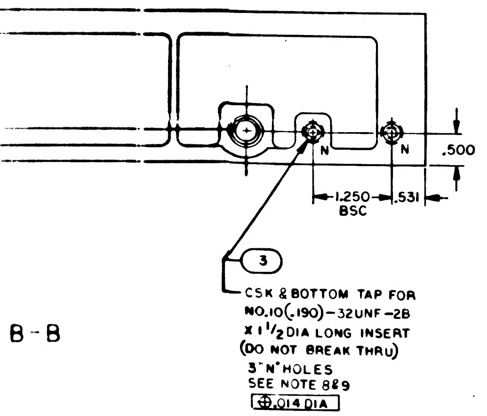
MASTER

F 3/3

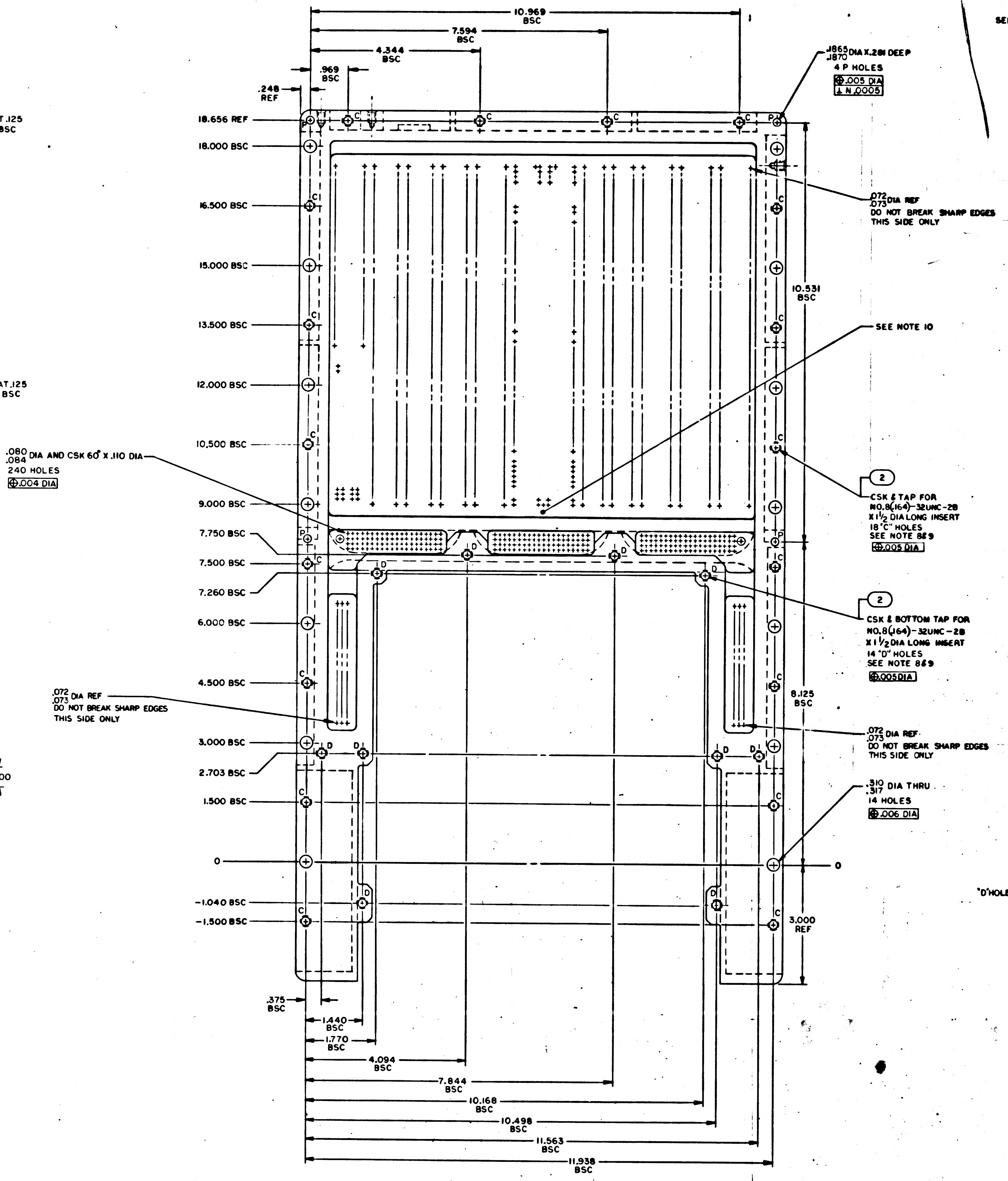
3/4

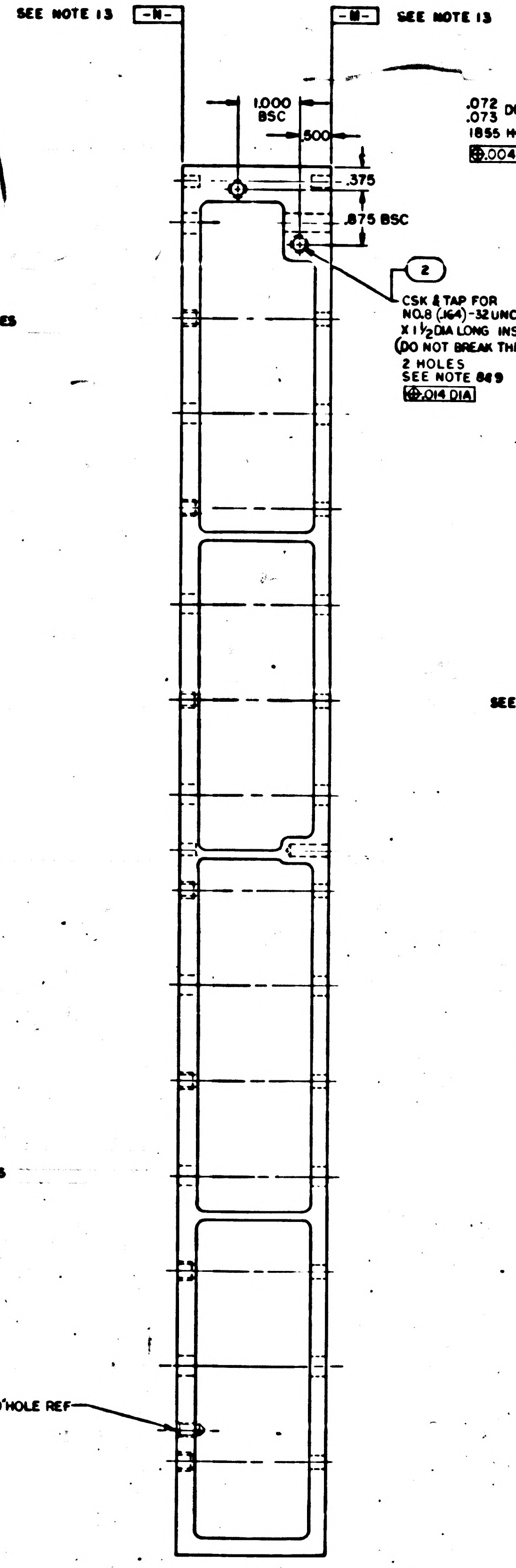

8 P HOLES REF
.750 BSC
.375 BSC
36 SPACES AT .125 BSC = 4.500 BSC
9.426 BSC
.125 BSC
3.875 BSC
3.250 BSC
.588 BSC
2 SPACES AT .125 BSC = .250 BSC
.125 BSC
.125 BSC 2 PLACES
.500 BSC
S

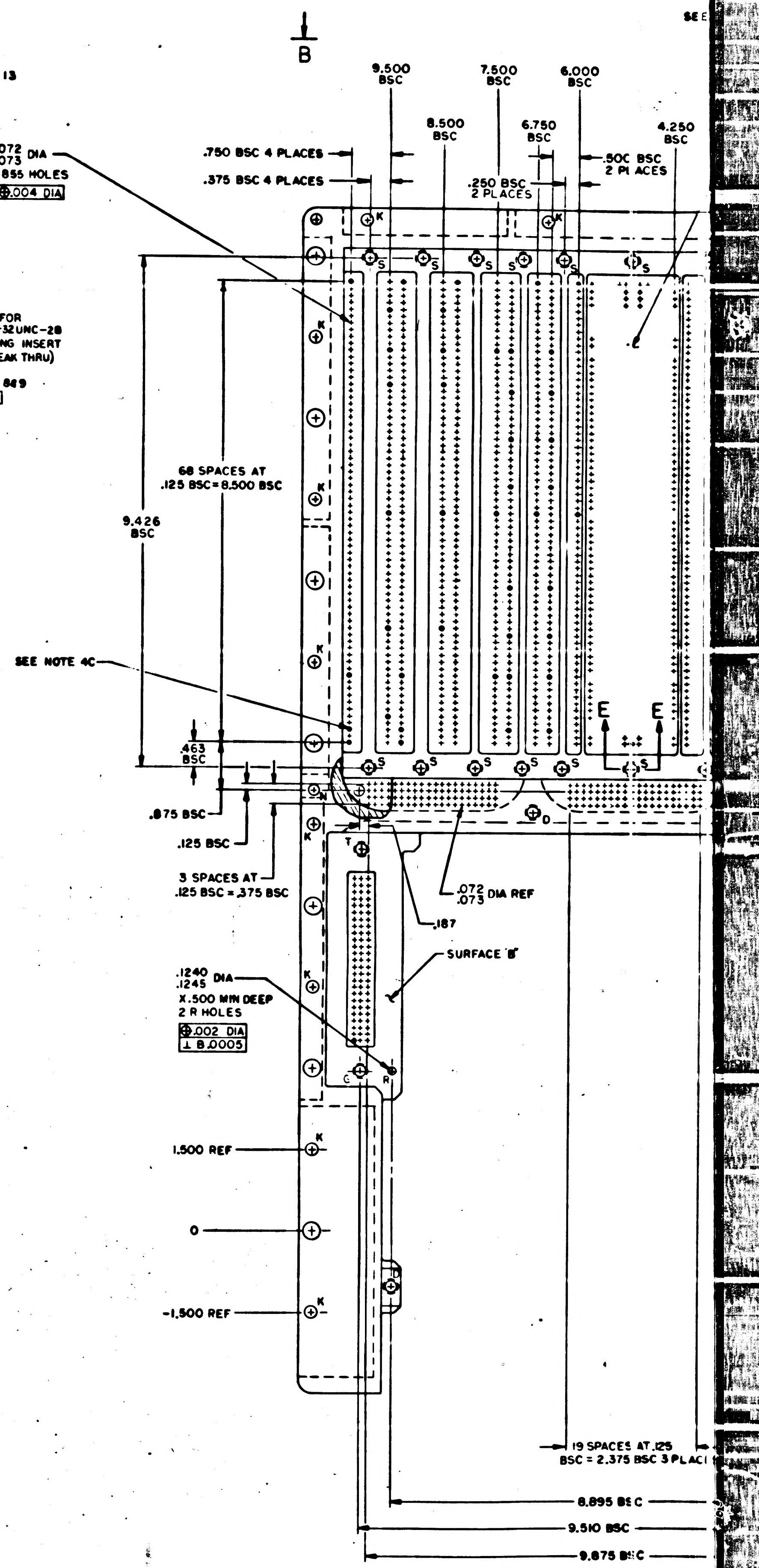
DETAIL B

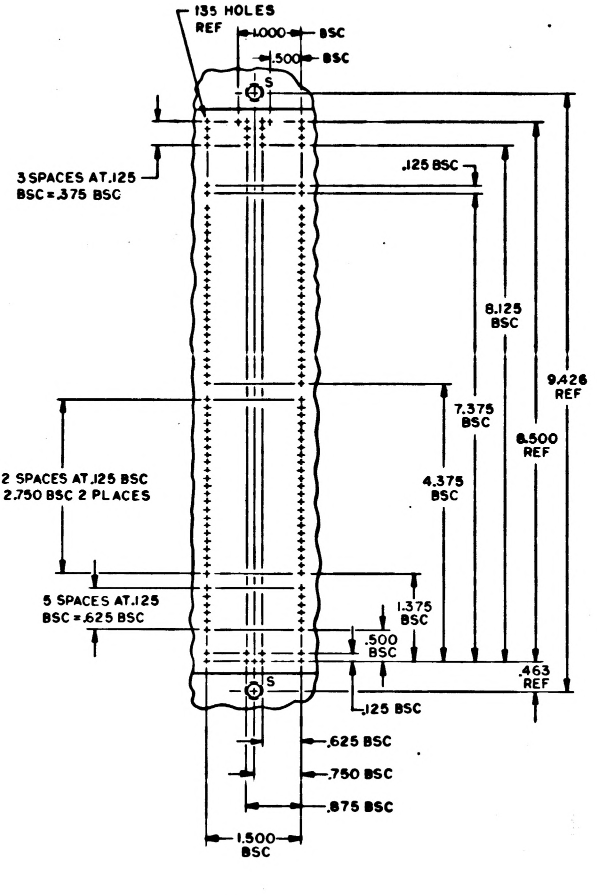

.500
N
1.250 BSC
.531
3
CSK & BOTTOM TAP FOR NO.10(.190)-32UNF-2B X 1 1/2 DIA LONG INSERT (DO NOT BREAK THRU)
3 "N" HOLES
SEE NOTE 8&9
⊕ .014 DIA

B - B

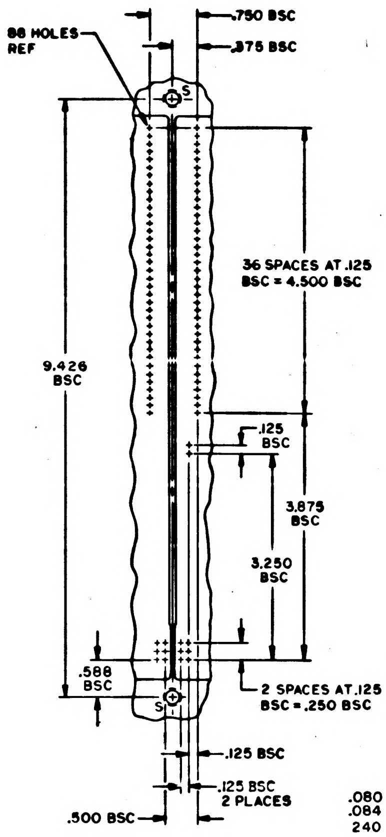

10.969 BSC
7.594 BSC
4.344 BSC
.969 BSC
.248 REF
.1865 .1870 DIA X .281 DEEP
4 P HOLES
⊕ .005 DIA
⊥ N .0005
18.656 REF
18.000 BSC
16.500 BSC
15.000 BSC
13.500 BSC
12.000 BSC
10.500 BSC
9.000 BSC
7.750 BSC
7.500 BSC
7.260 BSC
6.000 BSC
4.500 BSC
3.000 BSC
2.703 BSC
1.500 BSC
0
-1.040 BSC
-1.500 BSC
.072 .073 DIA REF
DO NOT BREAK SHARP EDGES THIS SIDE ONLY
SEE NOTE 10
10.531 BSC
2
CSK & TAP FOR NO.8(.164)-32UNC-2B X 1 1/2 DIA LONG INSERT
18 "C" HOLES
SEE NOTE 8&9
⊕ .005 DIA
2
CSK & BOTTOM TAP FOR NO.8(.164)-32UNC-2B X 1 1/2 DIA LONG INSERT
14 "D" HOLES
SEE NOTE 8&9
⊕ .005 DIA
8.125 BSC
.072 .073 DIA REF
DO NOT BREAK SHARP EDGES THIS SIDE ONLY
.310 .317 DIA THRU
14 HOLES
⊕ .006 DIA
0
3.000 REF
.080 .084 DIA AND CSK 60° X .110 DIA
240 HOLES
⊕ .004 DIA
.072 .073 DIA REF
DO NOT BREAK SHARP EDGES THIS SIDE ONLY
.375 BSC
1.440 BSC
1.770 BSC
4.094 BSC
7.844 BSC
10.168 BSC
10.498 BSC
11.563 BSC
11.938 BSC
C
D
P


SEE NOTE 13 -N-
-M- SEE NOTE 13
1.000 BSC
.500
.375
.875 BSC
2
CSK & TAP FOR NO.8 (.164)-32UNC-2B X 1 1/2 DIA LONG INSERT (DO NOT BREAK THRU)
2 HOLES
SEE NOTE 8&9
⊕ .014 DIA
"D" HOLE REF

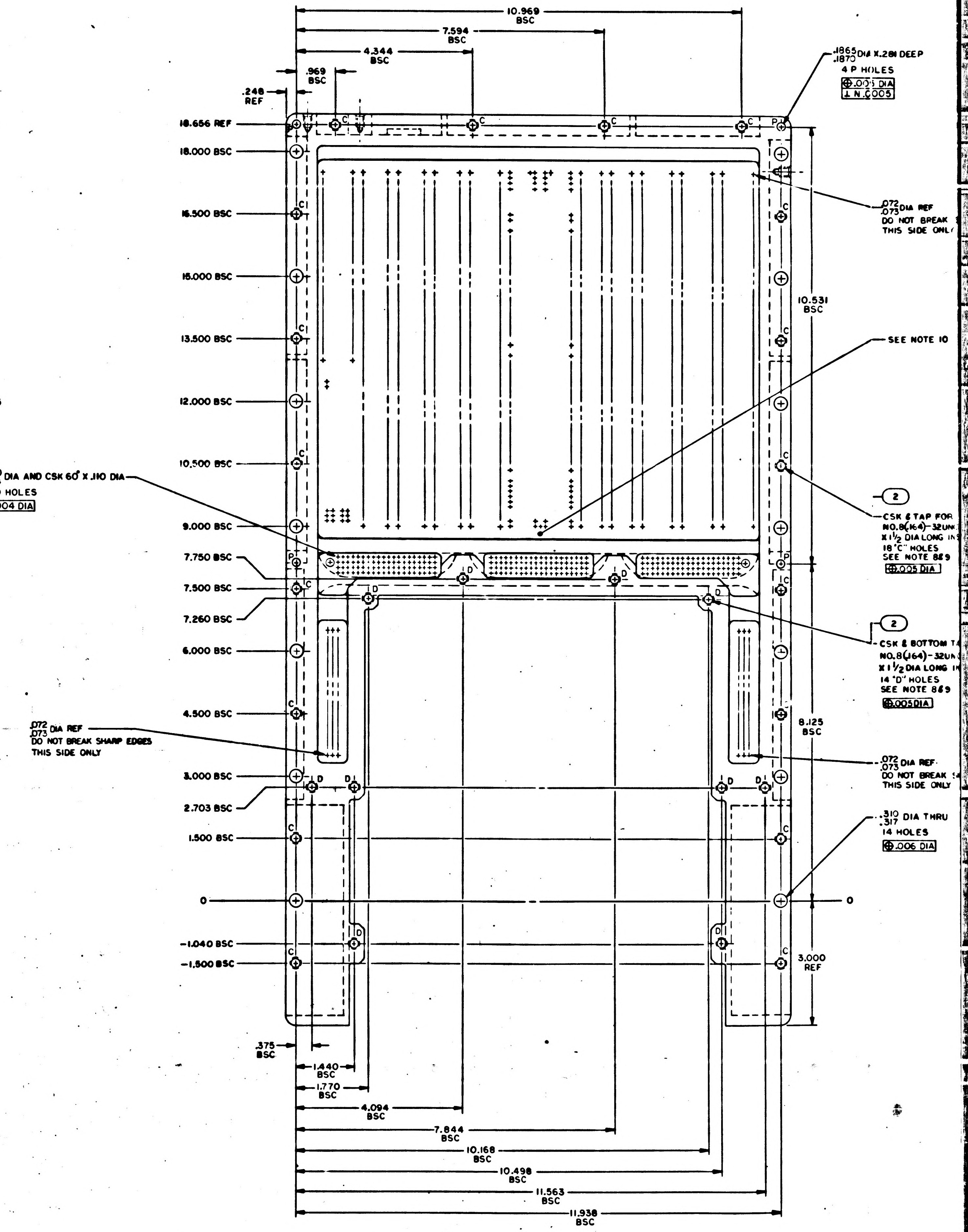

B
9.500 BSC
7.500 BSC
6.000 BSC
8.500 BSC
6.750 BSC
4.250 BSC
.072 .073 DIA
1855 HOLES
⊕ .004 DIA
.750 BSC 4 PLACES
.375 BSC 4 PLACES
.250 BSC 2 PLACES
.500 BSC 2 PLACES
68 SPACES AT .125 BSC = 8.500 BSC
9.426 BSC
SEE NOTE 4C
E
E
.463 BSC
.875 BSC
.125 BSC
3 SPACES AT .125 BSC = .375 BSC
.072 .073 DIA REF
.187
SURFACE "B"
.1240 .1245 DIA
X .500 MIN DEEP
2 R HOLES
⊕ .002 DIA
⊥ B .0005
1.500 REF
0
-1.500 REF
19 SPACES AT .125 BSC = 2.375 BSC 3 PLACES
8.895 BSC
9.510 BSC
9.875 BSC
K
S
T
R

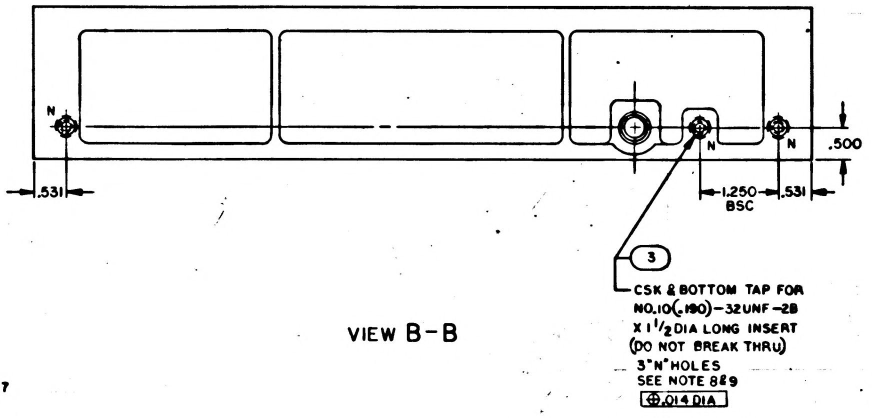

135 HOLES REF
1.000 BSC
.500 BSC
S
3 SPACES AT .125 BSC = .375 BSC
.125 BSC
8.125 BSC
7.375 BSC
9.426 REF
22 SPACES AT .125 BSC = 2.750 BSC 2 PLACES
4.375 BSC
8.500 REF
5 SPACES AT .125 BSC = .625 BSC
1.375 BSC
.500 BSC
.463 REF
.125 BSC
.625 BSC
.750 BSC
.875 BSC
1.500 BSC

DETAIL A


88 HOLES REF
.750 BSC
.375 BSC
S
36 SPACES AT .125 BSC = 4.500 BSC
9.426 BSC
.125 BSC
3.875 BSC
3.250 BSC
.588 BSC
2 SPACES AT .125 BSC = .250 BSC
.125 BSC
.125 BSC 2 PLACES
.500 BSC

DETAIL B


10.969 BSC
7.594 BSC
4.344 BSC
.969 BSC
.248 REF
.1865 .1870 DIA X .281 DEEP 4 P HOLES
⊕ .001 DIA
⊥ N .005
18.656 REF
18.000 BSC
16.500 BSC
15.000 BSC
13.500 BSC
12.000 BSC
10.500 BSC
9.000 BSC
7.750 BSC
7.500 BSC
7.260 BSC
6.000 BSC
4.500 BSC
3.000 BSC
2.703 BSC
1.500 BSC
0
-1.040 BSC
-1.500 BSC
.072 .073 DIA REF DO NOT BREAK THIS SIDE ONLY
10.531 BSC
SEE NOTE 10
.080 .084 DIA AND CSK 60° X .110 DIA 240 HOLES
⊕ .004 DIA
2
CSK & TAP FOR NO.8(.164)-32UNC X 1 1/2 DIA LONG INSERT 18 "C" HOLES SEE NOTE 8&9
⊕ .005 DIA
2
CSK & BOTTOM TAP FOR NO.8(.164)-32UNC X 1 1/2 DIA LONG INSERT 14 "D" HOLES SEE NOTE 8&9
⊕ .005 DIA
.072 DIA REF DO NOT BREAK SHARP EDGES THIS SIDE ONLY
.072 .073 DIA REF DO NOT BREAK THIS SIDE ONLY
8.125 BSC
.310 .317 DIA THRU 14 HOLES
⊕ .006 DIA
3.000 REF
C
D
P
.375 BSC
1.440 BSC
1.770 BSC
4.094 BSC
7.844 BSC
10.168 BSC
10.498 BSC
11.563 BSC
11.938 BSC


N
N
N
.500
.531
1.250 BSC
.531
3
CSK & BOTTOM TAP FOR NO.10(.190)-32UNF-2B X 1 1/2 DIA LONG INSERT (DO NOT BREAK THRU) 3 "N" HOLES SEE NOTE 8&9
⊕ .014 DIA

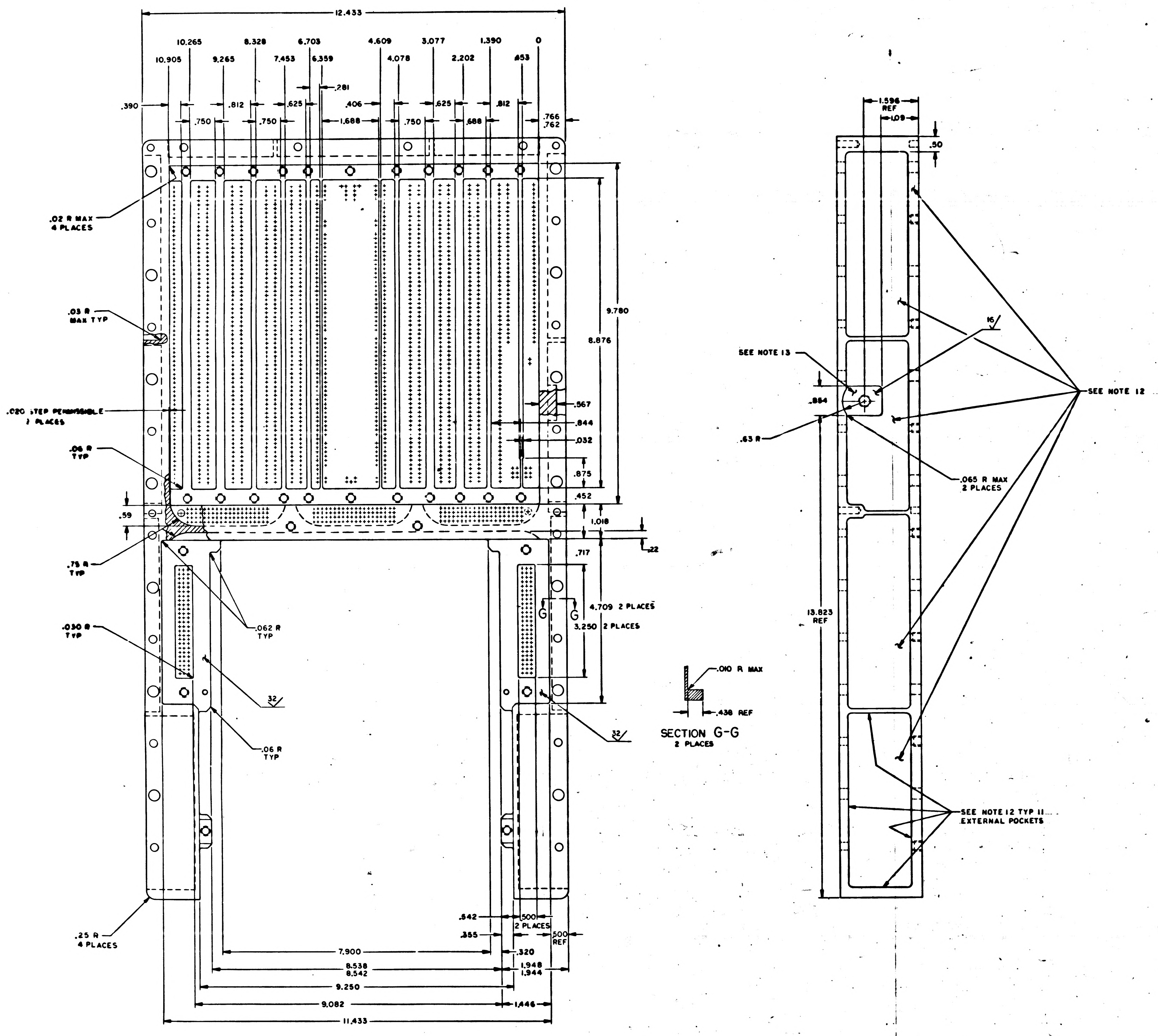
VIEW B-B

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: MAGNESIUM ZK60A-T5 PER QQ-M-31, TEMP T5
3. ANODIZE PER MIL-M-45202, TYPE I, CLASS C
4. a.) INDICATED SURFACES SHALL BE FREE OF ANODIZE, TREAT PER MIL-M-3171, TYPE VI
   b.) TAP "C","D","G" & "T" HOLES AFTER ANODIZE AND TREAT PER MIL-M-3171, TYPE VI
   c.) 71 HOLES SHOWN TO BE FREE OF ANODIZE TREAT PER MIL-M-3171, TYPE VI
5. ALL SURFACES 125√ UNLESS OTHERWISE SPECIFIED
6. REMOVE BURRS AND SHARP EDGES .005/.015 UNLESS OTHERWISE SPECIFIED
7. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .125
8. INSTALL FIND NO. 2 AND 3 PER MS33646 REMOVE DRIVING TANG
9. COAT FIND NO. 5 AND THREADS OF FIND NO. 2 AND 3 WITH MIL-P-8585, COLOR YELLOW, INSTALL WET
10. IDENTIFY WITH PART NO. PER ND1002019 AND SERIALIZE PER ND1002023 WHERE SHOWN
11. APPLY FOLLOWING FINISHES TO SURFACES INDICATED, INCLUDING RADII; ALL HOLES AND INSERTS TO BE FREE OF THESE FINISHES:
   a) PAINT GRAY PER ND1002279 USING 1008809-1
   b) FINAL COAT SURFACES PER ND1002277 USING 1012543-003
12. APPLY FOLLOWING FINISHES TO SURFACES INDICATED, ALL HOLES AND INSERTS TO BE FREE OF THESE FINISHES:
   a) PRIMER ONLY PER ND1002279 USING 1010992
   b) PAINT ALUMINUM FILLED EPOXY PER ND1002289
13. THESE SURFACES TO BE FREE OF FINISHES AS STATED PER NOTES 11 & 12

2004167	D

REVISIONS 25977						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 26555	DAC			
B		REVISED PER TDRR 26026	DRV			
C		REVISED PER TDRR 28251				
D		..EVISED PER TDRR 29081				



C
C
12.433
10.265
8.328
6.703
4.609
3.077
1.390
0
10.905
9.265
7.453
6.359
4.078
2.202
.653
.281
.390
.812
.625
.406
.625
.812
.766
.762
.750
.750
1.688
.750
.688
.02 R MAX
4 PLACES
.03 R
MAX TYP
.020 STEP PERMISSIBLE
2 PLACES
.06 R
TYP
.59
.75 R
TYP
.030 R
TYP
.062 R
TYP
32
.06 R
TYP
32
.25 R
4 PLACES
9.780
8.876
.567
.844
.032
.875
.452
1.018
.22
.717
4.709 2 PLACES
3.250 2 PLACES
G
G
.542
.355
.500
2 PLACES
.500
REF
.320
7.900
8.538
8.542
1.948
1.944
9.250
9.082
1.446
11.433
.010 R MAX
.438 REF
1.596
REF
1.09
.50
SEE NOTE 13
16
.884
.63 R
.065 R MAX
2 PLACES
SEE NOTE 12
13.823
REF
SEE NOTE 12 TYP 11
EXTERNAL POCKETS

SECTION G-G
2 PLACES

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
A. L. METZGER

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

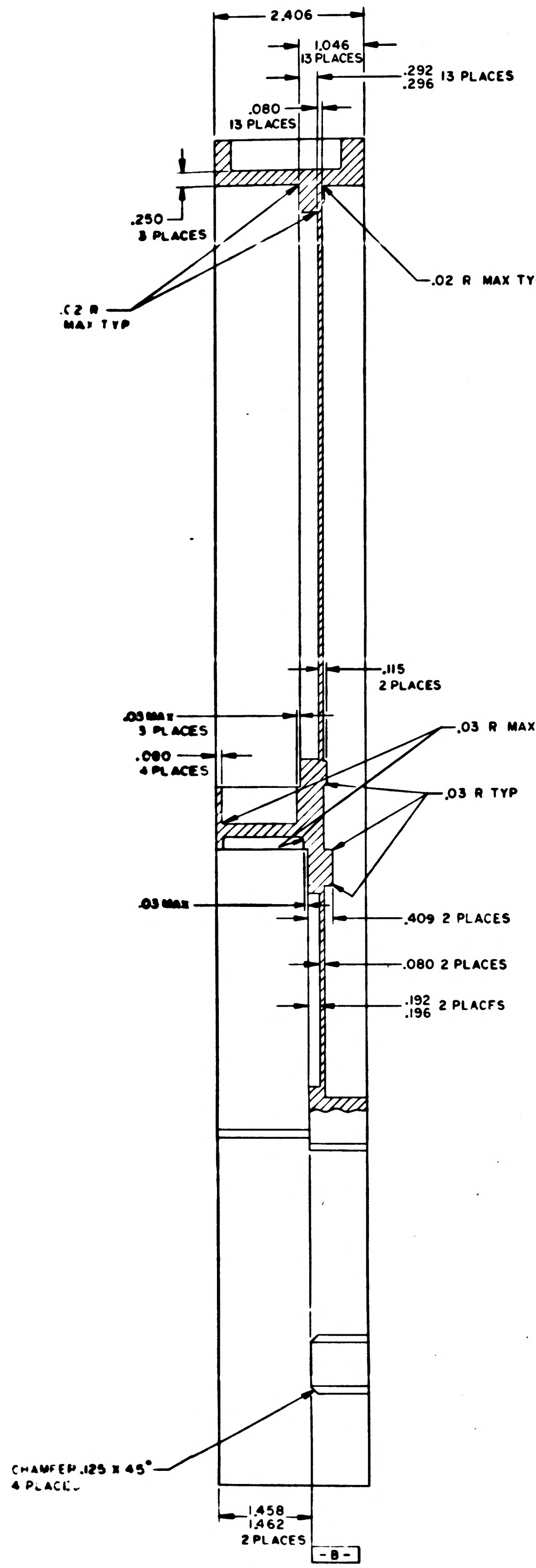
TRAY B
INSEPARABLE ASSY
AGC

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004167
SCALE 1/1
SHEET 2 OF 2

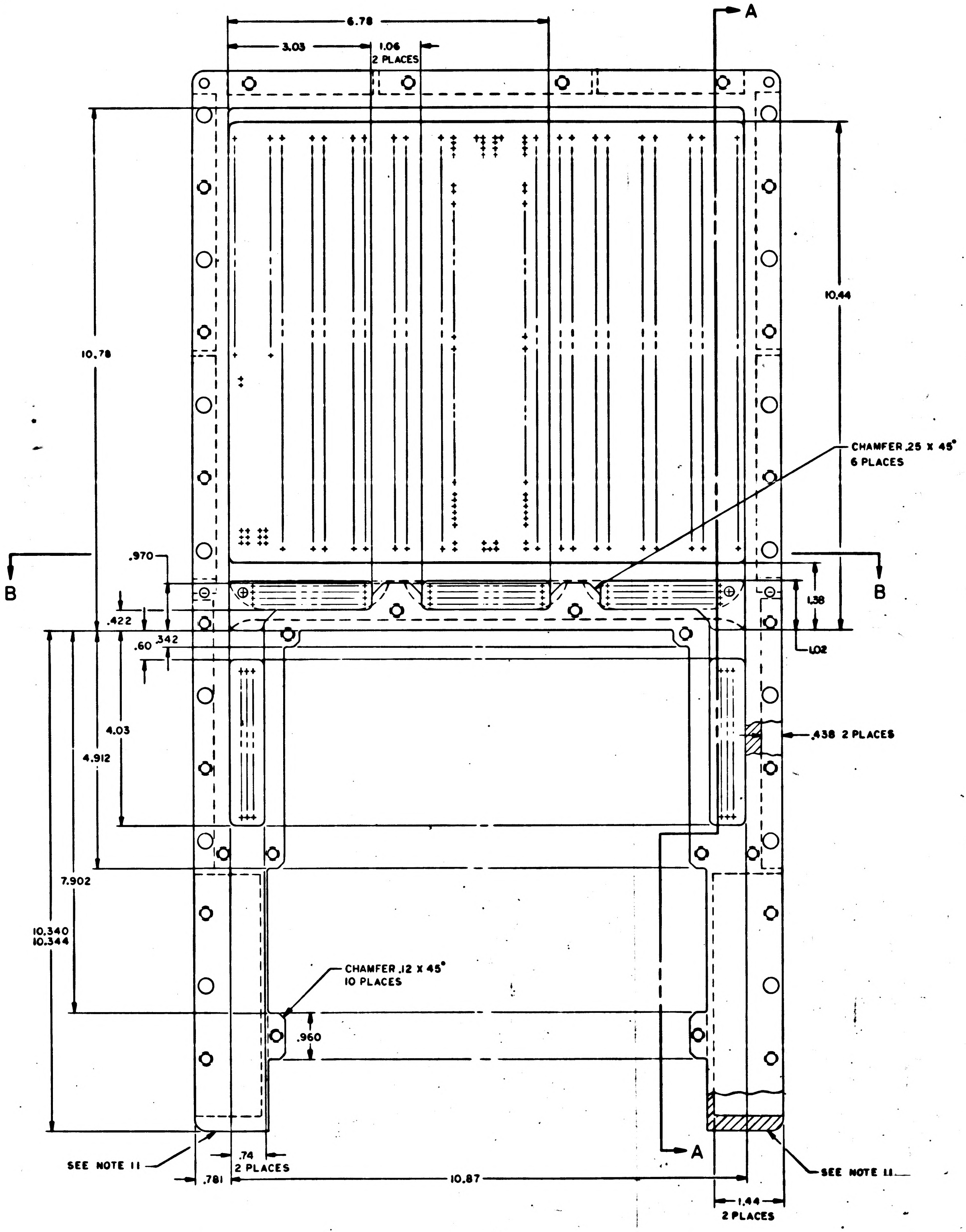
2004167 D

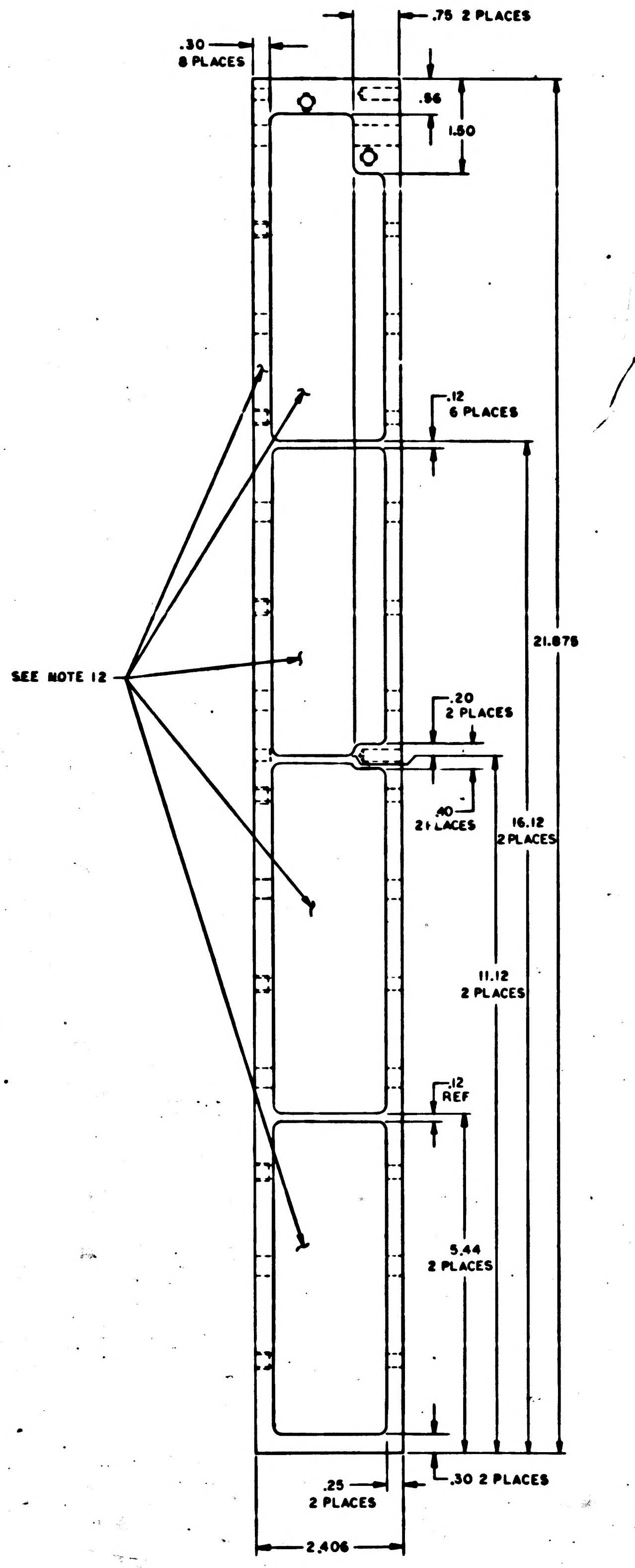
2004167 D

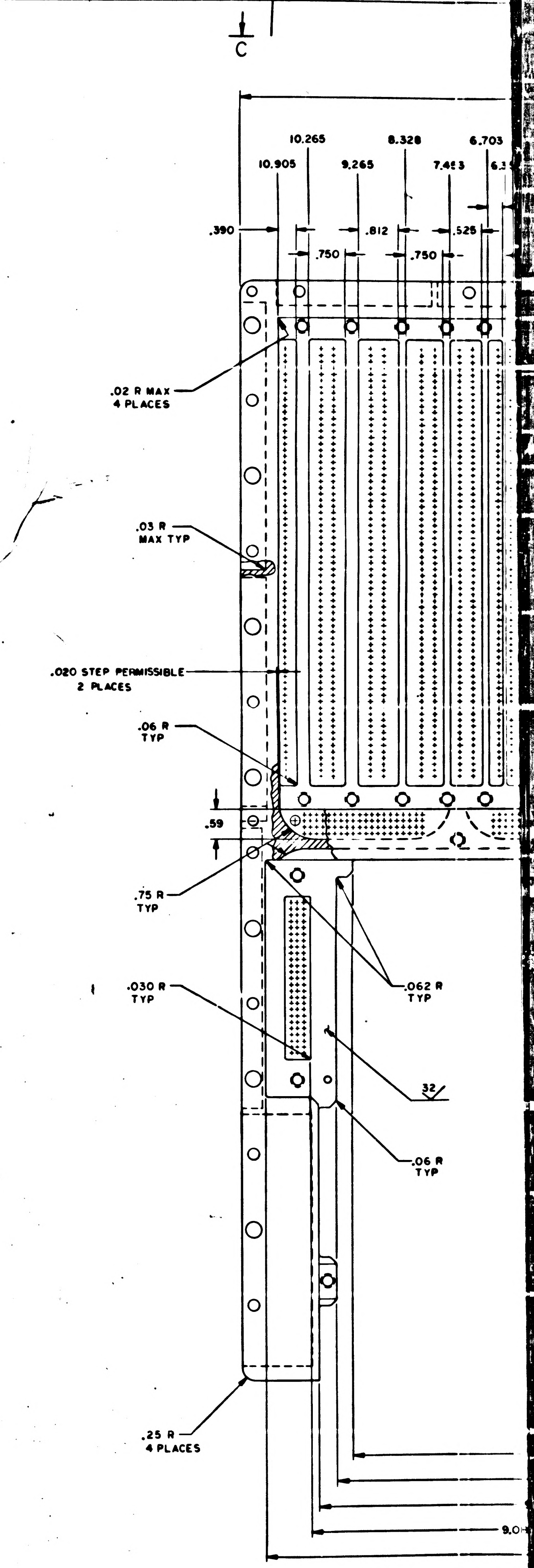
F3/3


2.406
1.046
13 PLACES
.292
.296 13 PLACES
.080
13 PLACES
.250
3 PLACES
.02 R
MAX TYP
.02 R MAX TYP
.115
2 PLACES
.03 MAX
3 PLACES
.080
4 PLACES
.03 R MAX TYP
.03 R TYP
.03 MAX
.409 2 PLACES
.080 2 PLACES
.192
.196 2 PLACES
CHAMFER .125 X 45°
4 PLACES
1.458
1.462
2 PLACES
-B-

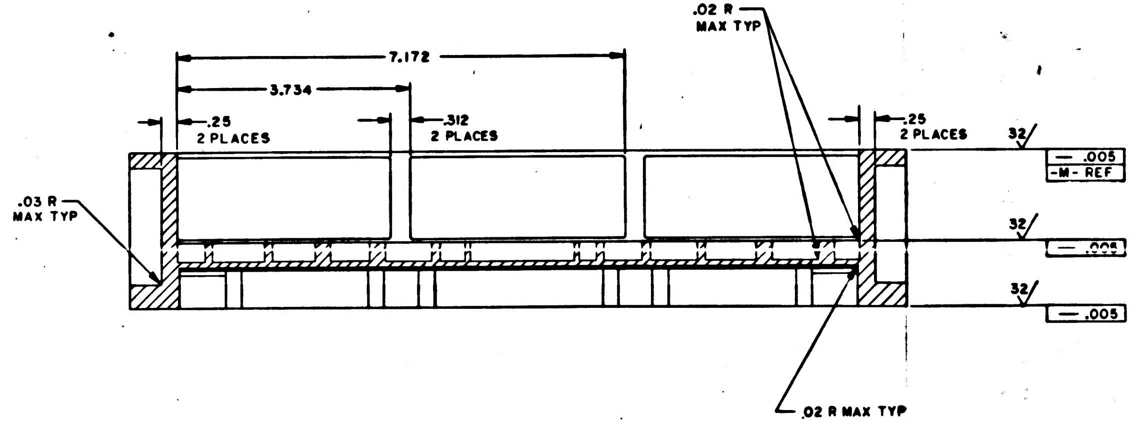
SECTION A-A


6.78
3.03
1.06
2 PLACES
A
10.78
10.44
CHAMFER .25 X 45°
6 PLACES
B
B
.970
.422
.60
.342
1.38
1.02
4.03
4.912
.438 2 PLACES
7.902
10.340
10.344
CHAMFER .12 X 45°
10 PLACES
.960
SEE NOTE 11
.74
2 PLACES
.781
10.87
A
SEE NOTE 11
1.44
2 PLACES


.30
8 PLACES
.75 2 PLACES
.56
1.50
.12
6 PLACES
SEE NOTE 12
21.875
.20
2 PLACES
.40
2 PLACES
16.12
2 PLACES
11.12
2 PLACES
.12
REF
5.44
2 PLACES
.25
2 PLACES
.30 2 PLACES
2.406

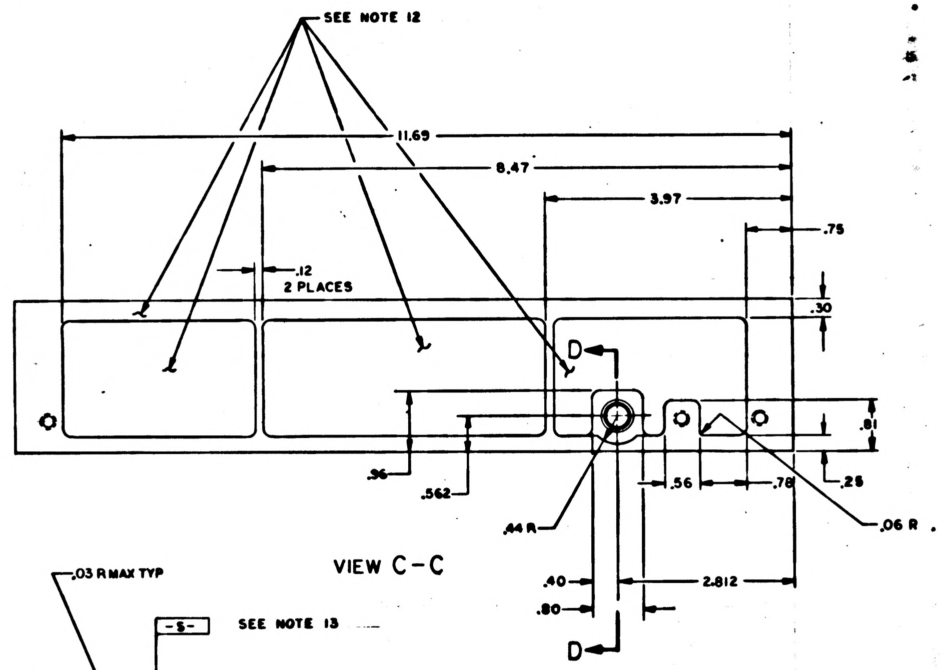

C
10.265
10.905
9.265
8.328
7.453
6.703
.390
.750
.812
.750
.526
.02 R MAX
4 PLACES
.03 R
MAX TYP
.020 STEP PERMISSIBLE
2 PLACES
.06 R
TYP
.59
.75 R
TYP
.030 R
TYP
.062 R
TYP
32
.06 R
TYP
.25 R
4 PLACES
9.0

11 10 9 8



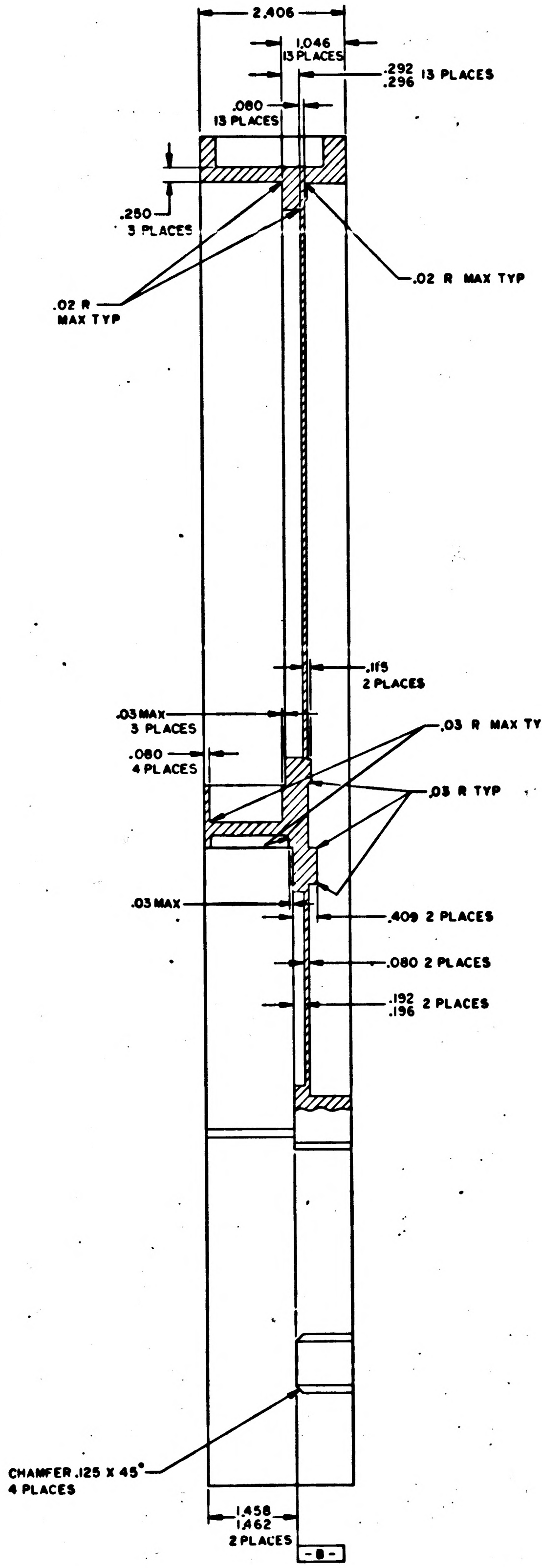
.02 R MAX TYP
7.172
3.734
.25 2 PLACES
.312 2 PLACES
.25 2 PLACES
32
— .005
-M- REF
.03 R MAX TYP
.005
.005
.02 R MAX TYP

SECTION B-B



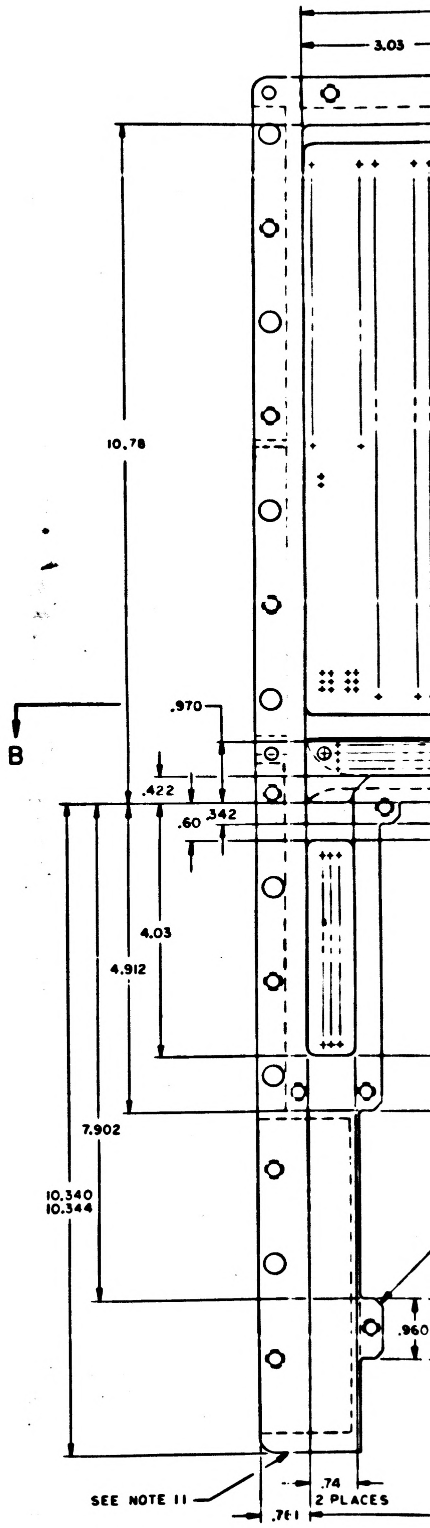
SEE NOTE 12
11.69
8.47
3.97
.75
.12 2 PLACES
.30
D
.81
.36
.562
.44 R
.56
.78
.25
.06 R
.40
.80
2.812
D

VIEW C-C

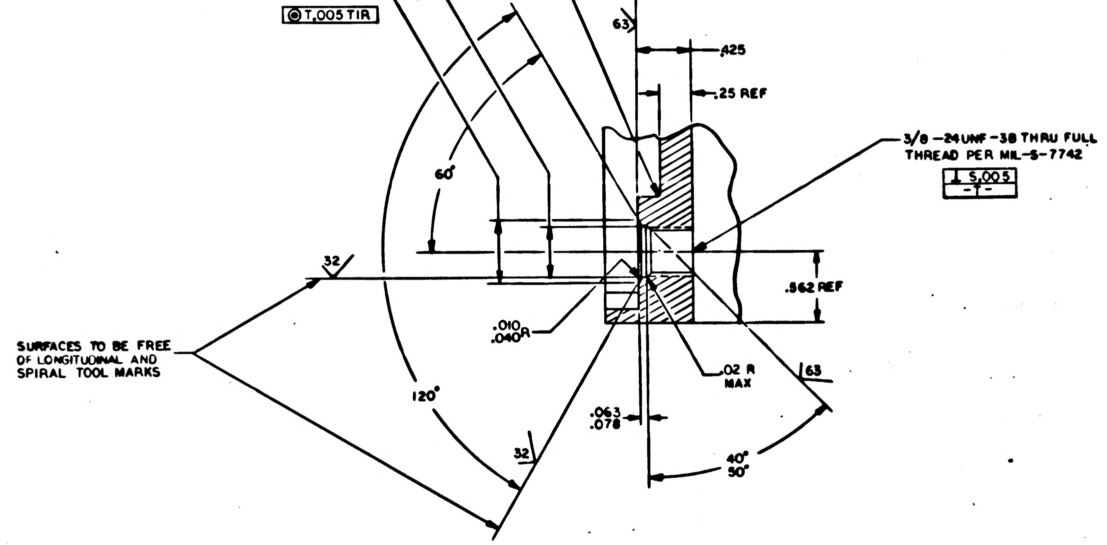


2.406
1.046 13 PLACES
.292 .296 13 PLACES
.080 13 PLACES
.250 3 PLACES
.02 R MAX TYP
.02 R MAX TYP
.115 2 PLACES
.03 MAX 3 PLACES
.03 R MAX TYP
.080 4 PLACES
.03 R TYP
.03 MAX
.409 2 PLACES
.080 2 PLACES
.192 .196 2 PLACES
CHAMFER .125 X 45° 4 PLACES
1.458 1.462 2 PLACES
-B-

SECTION A-A



3.03
10.78
B
.970
.422
.60
.342
4.03
4.912
7.902
10.340 10.344
.960
SEE NOTE 11
.74 2 PLACES
.781



.390 .395 DIA
⊚ T.005 TIR
.500 .515 DIA
⊚ T.005 TIR
.03 R MAX TYP
-S-
SEE NOTE 13
63
.125
.25 REF
3/8-24UNF-3B THRU FULL THREAD PER MIL-S-7742
⊥ S .005
-T-
60°
32
.562 REF
.010 .040 R
SURFACES TO BE FREE OF LONGITUDINAL AND SPIRAL TOOL MARKS
.02 R MAX
63
120°
.063 .078
32
40° 50°

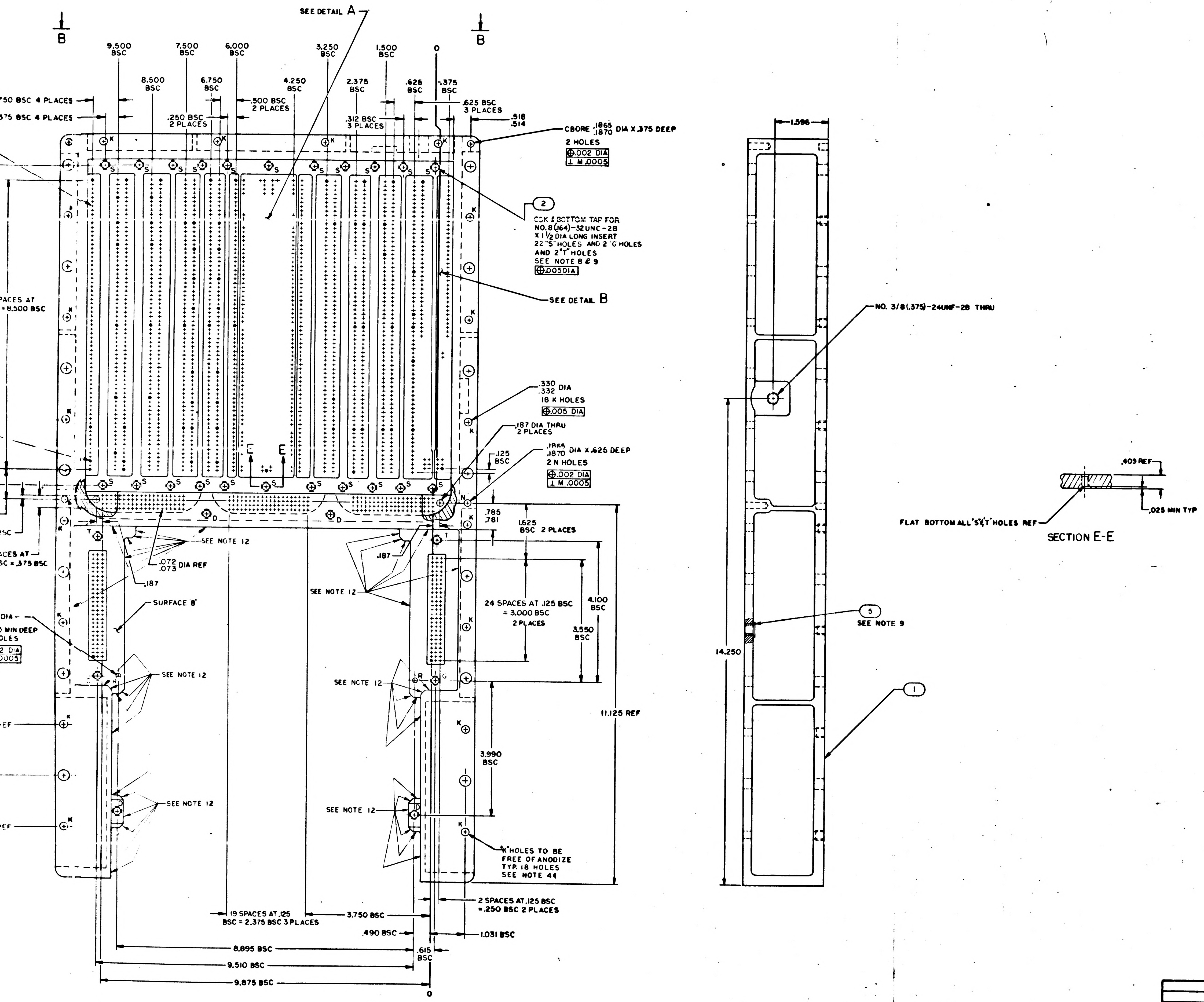
SECTION D-D
SCALE: 2/1

2004167	D

8

2004167 D SH 2/2 F1/3

		REVISIONS 25777				
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
	A	REVISED PER TDRR 26555				
	B	REVISED PER TDRR 28026				
	C	REVISED PER TDRR 28251				
	D	REVISED PER TDRR 29081				
	E	REVISED PER TDRR 29819				



4
3
2
B
B
SEE DETAIL A
9.500 BSC
7.500 BSC
6.000 BSC
3.250 BSC
1.500 BSC
0
8.500 BSC
6.750 BSC
4.250 BSC
2.375 BSC
.625 BSC
-.375 BSC
750 BSC 4 PLACES
375 BSC 4 PLACES
.250 BSC 2 PLACES
.500 BSC 2 PLACES
.312 BSC 3 PLACES
.625 BSC 3 PLACES
.518 .514
CBORE .1865 .1870 DIA X .375 DEEP
2 HOLES
⊕.002 DIA
⊥ M .0005
2
CSK & BOTTOM TAP FOR
NO. 8 (.164)-32 UNC-2B
X 1 1/2 DIA LONG INSERT
22 "S" HOLES AND 2 "G" HOLES
AND 2 "T" HOLES
SEE NOTE 8 & 9
⊕.005 DIA
SEE DETAIL B
PACES AT = 8.500 BSC
.330 .332 DIA
18 K HOLES
⊕.005 DIA
.187 DIA THRU 2 PLACES
.125 BSC
.1865 .1870 DIA X .625 DEEP
2 N HOLES
⊕.002 DIA
⊥ M .0005
E
E
K
S
T
D
N
G
R
.785 .781
1.625 BSC 2 PLACES
SEE NOTE 12
.072 .073 DIA REF
.187
SURFACE "B"
ACES AT
SC = .375 BSC
DIA
MIN DEEP
OLES
2 DIA
0005
SEE NOTE 12
SEE NOTE 12
EF
REF
SEE NOTE 12
24 SPACES AT .125 BSC = 3.000 BSC 2 PLACES
4.100 BSC
3.550 BSC
SEE NOTE 12
11.125 REF
3.990 BSC
SEE NOTE 12
"K" HOLES TO BE FREE OF ANODIZE TYP. 18 HOLES SEE NOTE 44
19 SPACES AT .125 BSC = 2.375 BSC 3 PLACES
3.750 BSC
2 SPACES AT .125 BSC = .250 BSC 2 PLACES
.490 BSC
1.031 BSC
8.895 BSC
.615 BSC
9.510 BSC
9.875 BSC
0
1.596
NO. 3/8 (.375)-24UNF-2B THRU
14.250
5
SEE NOTE 9
1
.409 REF
.025 MIN TYP
FLAT BOTTOM ALL "S" & "T" HOLES REF
SECTION E-E

D
C
B
A

18	2004706-001	INSERT, KNURLED	5
~~1~~	~~MS21209 F6-15~~	~~INSERT, THREADED, SELF-LOCKING~~	~~4~~
3	MS21209 F1-15	INSERT, THREADED, SELF-LOCKING	3
60	MS21209 C0815	INSERT, THREADED, SELF-LOCKING	2
1	2004167-001	TRAY B, MACHINED	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003091	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XXX ± .005 .XX ± .01 ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT W. Kupfer
APPROVED MSC C. METZGER
DATE

TRAY B
INSEPARABLE ASSY
AGC

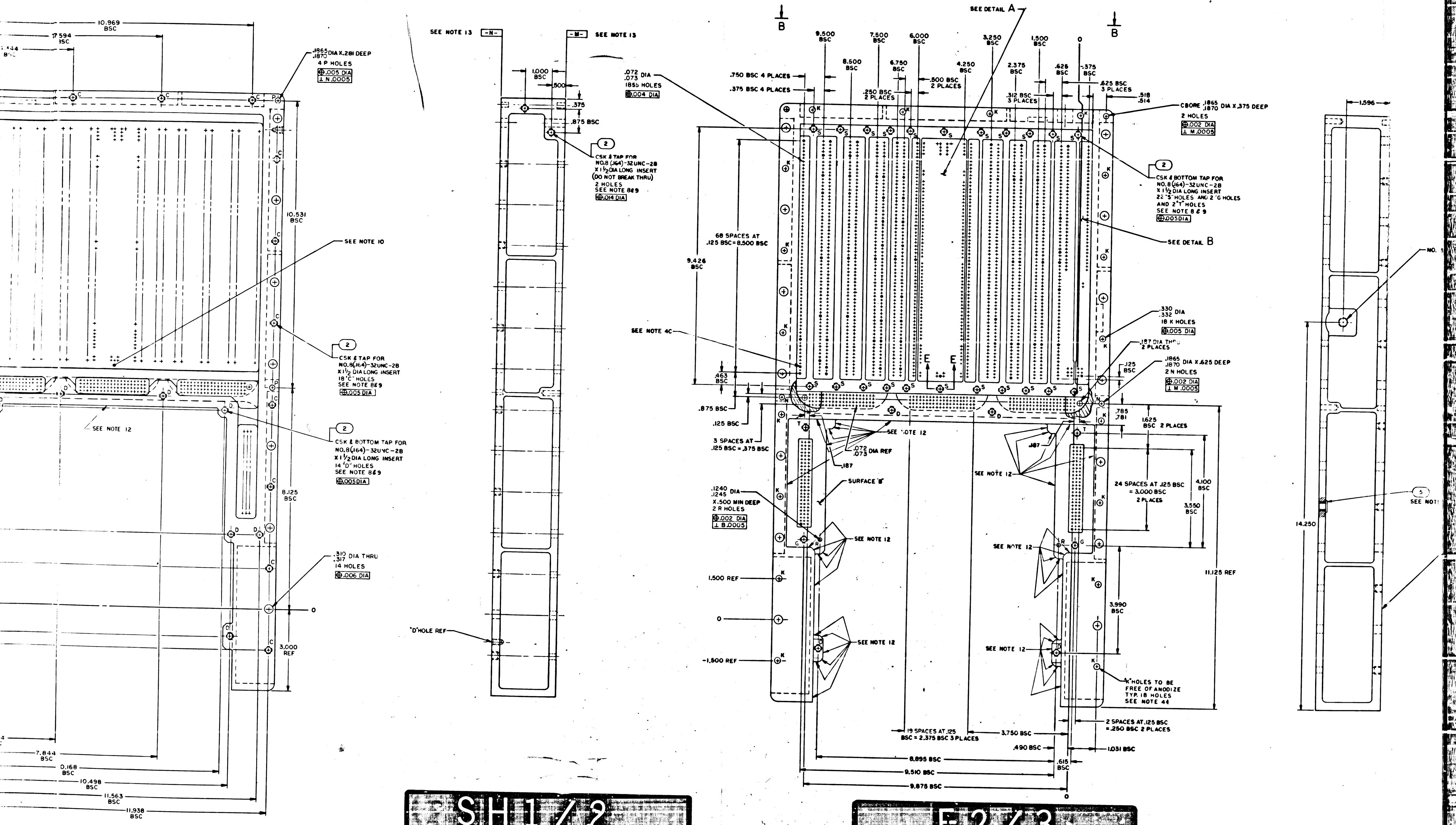
CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004167
SCALE 1/1
SHEET 1 OF 2

2004167 E

2004167 E

3/4

F3/3

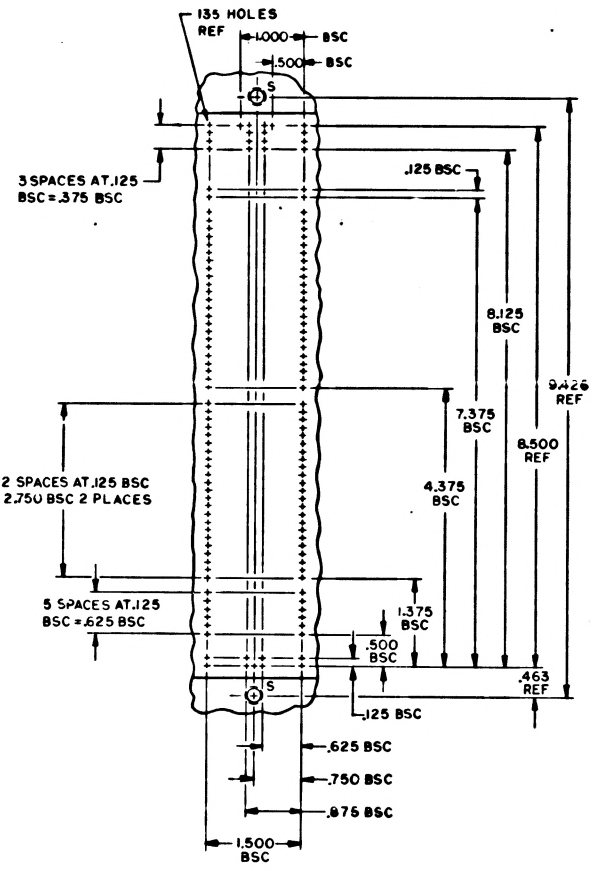

10.969 BSC
17.594 BSC
.1865 .1870 DIA X .281 DEEP
4 P HOLES
.005 DIA
⊥ N .0005
10.531 BSC
SEE NOTE 10
2
CSK & TAP FOR NO.8(.164)-32UNC-2B X 1½ DIA LONG INSERT
18 "C" HOLES
SEE NOTE 8&9
.005 DIA
SEE NOTE 12
2
CSK & BOTTOM TAP FOR NO.8(.164)-32UNC-2B X 1½ DIA LONG INSERT
14 "D" HOLES
SEE NOTE 8&9
.005 DIA
8.125 BSC
.310 .317 DIA THRU
14 HOLES
.006 DIA
0
3.000 REF
7.844 BSC
10.168 BSC
10.498 BSC
11.563 BSC
11.938 BSC
SEE NOTE 13
-N-
-M-
SEE NOTE 13
1.000 BSC
.500
.375
.875 BSC
2
CSK & TAP FOR NO.8 (.164)-32UNC-2B X 1½ DIA LONG INSERT (DO NOT BREAK THRU)
2 HOLES
SEE NOTE 8&9
.014 DIA
"D" HOLE REF
B
B
SEE DETAIL A
.072 .073 DIA
1855 HOLES
.004 DIA
9.500 BSC
7.500 BSC
6.000 BSC
3.250 BSC
1.500 BSC
0
8.500 BSC
6.750 BSC
4.250 BSC
2.375 BSC
.625 BSC
.375 BSC
.750 BSC 4 PLACES
.375 BSC 4 PLACES
.250 BSC 2 PLACES
.500 BSC 2 PLACES
.312 BSC 3 PLACES
.625 BSC 3 PLACES
.518 .514
CBORE .1865 .1870 DIA X .375 DEEP
2 HOLES
.002 DIA
⊥ M .0005
2
CSK & BOTTOM TAP FOR NO.8(.164)-32UNC-2B X 1½ DIA LONG INSERT
22 "S" HOLES AND 2 "G" HOLES AND 2 "T" HOLES
SEE NOTE 8 & 9
.005 DIA
SEE DETAIL B
68 SPACES AT .125 BSC = 8.500 BSC
9.426 BSC
SEE NOTE 4C
.463 BSC
.875 BSC
.125 BSC
3 SPACES AT .125 BSC = .375 BSC
.330 .332 DIA
18 K HOLES
.005 DIA
.187 DIA THRU 2 PLACES
.125 BSC
.1865 .1870 DIA X .625 DEEP
2 N HOLES
.002 DIA
⊥ M .0005
.785 .781
1.625 BSC 2 PLACES
E E
SEE NOTE 12
.072 .073 DIA REF
.187
.187
SURFACE "B"
SEE NOTE 12
24 SPACES AT .125 BSC = 3.000 BSC 2 PLACES
4.100 BSC
3.550 BSC
.1240 .1245 DIA X .500 MIN DEEP
2 R HOLES
.002 DIA
⊥ B .0005
SEE NOTE 12
SEE NOTE 12
11.125 REF
1.500 REF
0
-1.500 REF
SEE NOTE 12
3.990 BSC
SEE NOTE 12
"K" HOLES TO BE FREE OF ANODIZE TYP. 18 HOLES SEE NOTE 4I
19 SPACES AT .125 BSC = 2.375 BSC 3 PLACES
3.750 BSC
2 SPACES AT .125 BSC = .250 BSC 2 PLACES
.490 BSC
1.031 BSC
8.895 BSC
9.510 BSC
9.875 BSC
.615 BSC
0
1.596
14.250
5
SEE NOTE
NO.

SH1/2

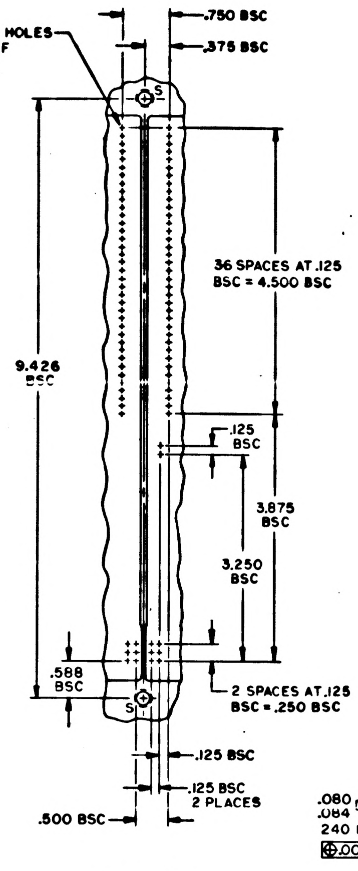
2004167 E

F2/3

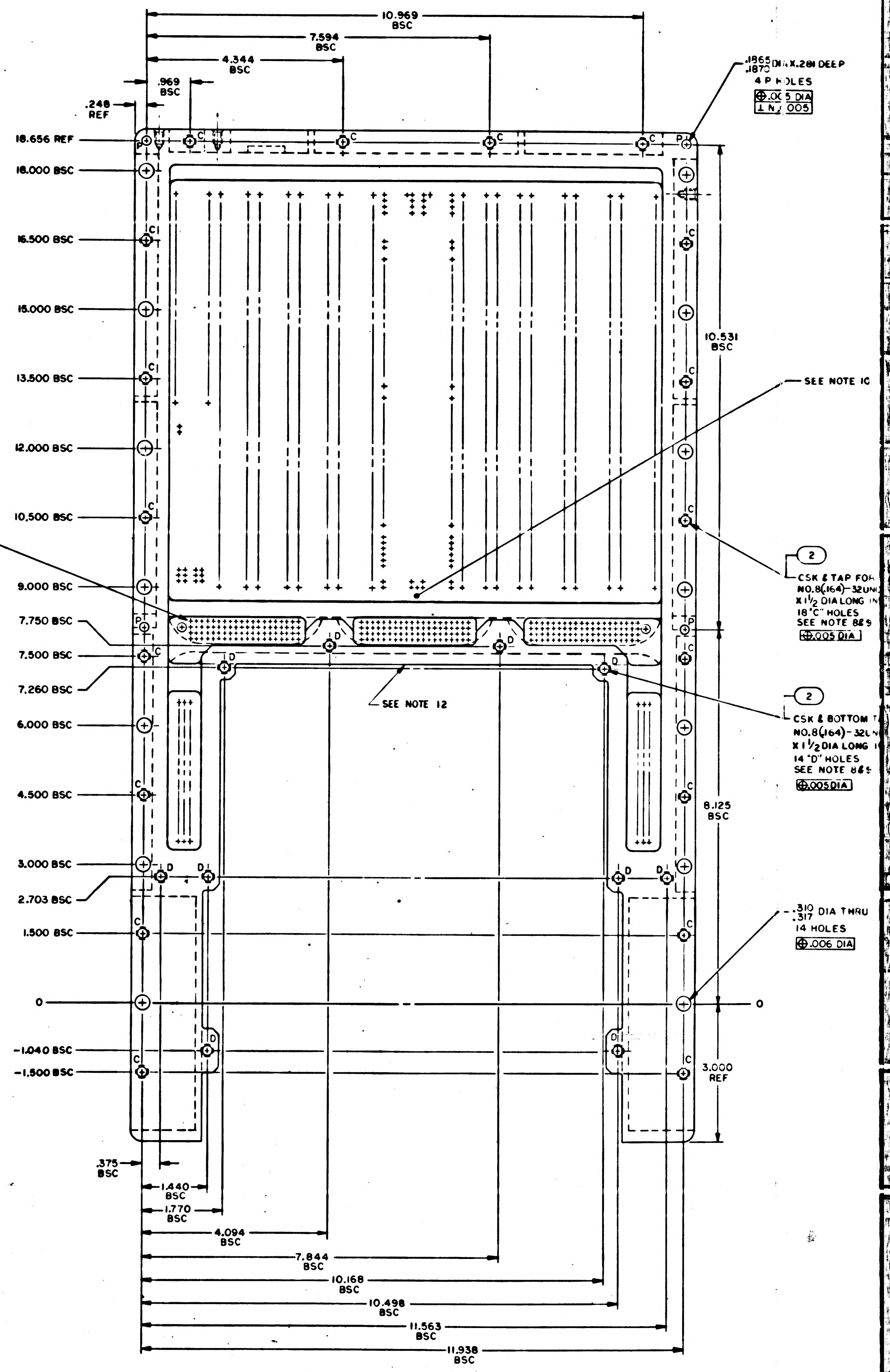
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

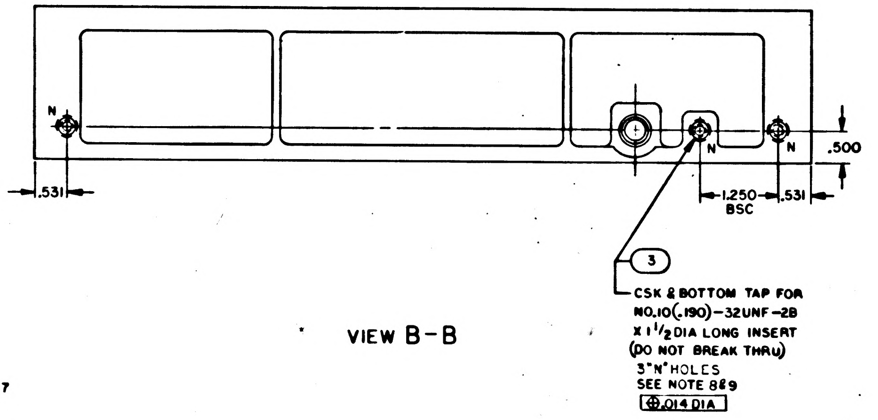

135 HOLES REF
1.000 BSC
.500 BSC
S
3 SPACES AT .125 BSC = .375 BSC
.125 BSC
8.125 BSC
9.426 REF
7.375 BSC
8.500 REF
22 SPACES AT .125 BSC = 2.750 BSC 2 PLACES
4.375 BSC
5 SPACES AT .125 BSC = .625 BSC
1.375 BSC
.500 BSC
.463 REF
.125 BSC
.625 BSC
.750 BSC
.875 BSC
1.500 BSC

DETAIL A


88 HOLES REF
.750 BSC
.375 BSC
S
9.426 BSC
36 SPACES AT .125 BSC = 4.500 BSC
.125 BSC
3.875 BSC
3.250 BSC
.588 BSC
2 SPACES AT .125 BSC = .250 BSC
.125 BSC
.125 BSC 2 PLACES
.500 BSC

DETAIL B


10.969 BSC
7.594 BSC
4.344 BSC
.969 BSC
.248 REF
.1865/.1870 DIA X.281 DEEP
4 P HOLES
⊕.005 DIA
⊥ N .005
18.656 REF
18.000 BSC
16.500 BSC
15.000 BSC
13.500 BSC
12.000 BSC
10.500 BSC
9.000 BSC
7.750 BSC
7.500 BSC
7.260 BSC
6.000 BSC
4.500 BSC
3.000 BSC
2.703 BSC
1.500 BSC
0
-1.040 BSC
-1.500 BSC
.080/.084 DIA AND CSK 60° X .110 DIA
240 HOLES
⊕.004 DIA
SEE NOTE 10
10.531 BSC
2
CSK & TAP FOR NO.8(.164)-32UN
X 1 1/2 DIA LONG IN
18 "C" HOLES
SEE NOTE 8&9
⊕.005 DIA
2
CSK & BOTTOM T
NO.8(.164)-32UN
X 1 1/2 DIA LONG I
14 "D" HOLES
SEE NOTE 8&9
⊕.005 DIA
SEE NOTE 12
8.125 BSC
.310/.317 DIA THRU
14 HOLES
⊕.006 DIA
0
3.000 REF
C
D
P
.375 BSC
1.440 BSC
1.770 BSC
4.094 BSC
7.844 BSC
10.168 BSC
10.498 BSC
11.563 BSC
11.938 BSC

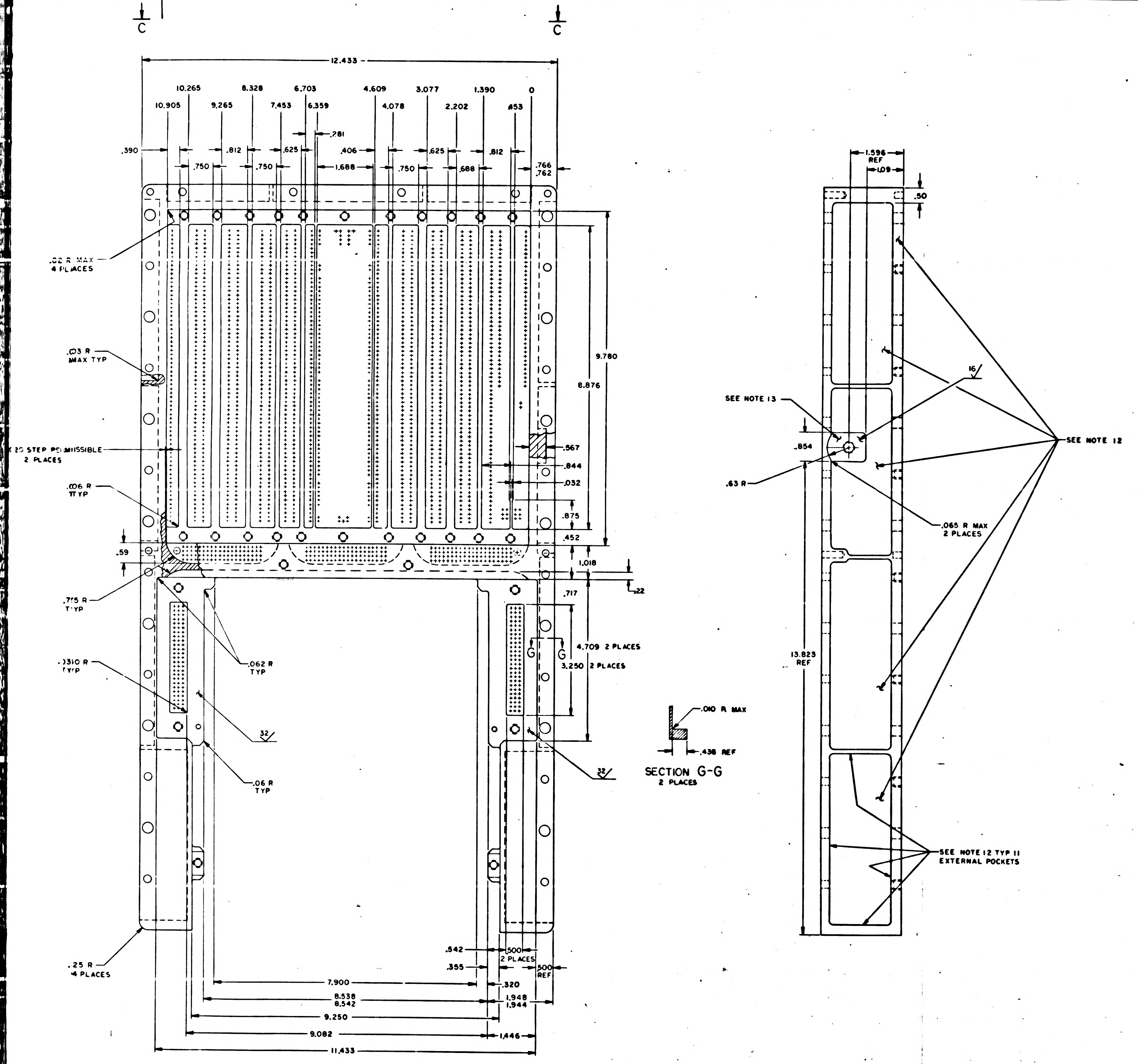

N
.531
.500
1.250 BSC
.531
3
CSK & BOTTOM TAP FOR NO.10(.190)-32UNF-2B X 1 1/2 DIA LONG INSERT (DO NOT BREAK THRU)
3 "N" HOLES
SEE NOTE 8&9
⊕.014 DIA

VIEW B-B

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: MAGNESIUM ZK60A-T5 PER QQ-M-31, TEMP T5
3. ANODIZE PER MIL-M-45202, TYPE I, CLASS C
4. a.) INDICATED SURFACES SHALL BE FREE OF ANODIZE, TREAT PER MIL-M-3171, TYPE VI
   b.) TAP "C","D","G" & "T" HOLES AFTER ANODIZE AND TREAT PER MIL-M-3171, TYPE VI
   c.) 71 HOLES SHOWN TO BE FREE OF ANODIZE TREAT PER MIL-M-3171, TYPE VI
5. ALL SURFACES 125✓ UNLESS OTHERWISE SPECIFIED
6. REMOVE BURRS AND SHARP EDGES .005/.015 UNLESS OTHERWISE SPECIFIED
7. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .125
8. INSTALL FIND NO. 2 AND 3 PER MS33646 REMOVE DRIVING TANG
9. COAT FIND NO. 5 AND THREADS OF FIND NO. 2 AND 3 WITH MIL-P-8585, COLOR YELLOW, INSTALL WET
10. IDENTIFY WITH PART NO. PER ND1002019 AND SERIALIZE PER ND1002023 WHERE SHOWN
11. APPLY FOLLOWING FINISHES TO SURFACES INDICATED, INCLUDING RADII; ALL HOLES AND INSERTS TO BE FREE OF THESE FINISHES:
    a) PAINT GRAY PER ND1002279 USING 1008809-1
    b) FINAL COAT SURFACES PER ND1002277 USING 1012543-003
12. APPLY FOLLOWING FINISHES TO SURFACES INDICATED, ALL HOLES AND INSERTS TO BE FREE OF THESE FINISHES:
    a) PRIMER ONLY PER ND1002279 USING 1010992
    b) PAINT ALUMINUM FILLED EPOXY PER ND1002289
13. THESE SURFACES TO BE FREE OF FINISHES AS STATED PER NOTES 11 & 12

2004167 E


C
C
12.433
10.265
8.328
6.703
4.609
3.077
1.390
0
10.905
9.265
7.453
6.359
4.078
2.202
.453
.281
.390
.812
.625
.406
.625
.812
.750
.750
1.688
.750
.688
.766
.762
.02 R MAX
4 PLACES
.03 R
MAX TYP
.20 STEP PERMISSIBLE
2 PLACES
.006 R
TYP
.59
.715 R
TYP
.0310 R
TYP
.062 R
TYP
32
.06 R
TYP
.25 R
4 PLACES
9.780
8.876
.567
.844
.032
.875
.452
1.018
.22
.717
4.709 2 PLACES
3.250 2 PLACES
G
G
32
.542
.355
.500
2 PLACES
.500
REF
.320
1.948
1.944
7.900
8.538
8.542
9.250
9.082
1.446
11.433
.010 R MAX
.438 REF
SECTION G-G
2 PLACES
1.596
REF
1.09
.50
SEE NOTE 13
.854
.63 R
16
SEE NOTE 12
.065 R MAX
2 PLACES
13.823
REF
SEE NOTE 12 TYP 11
EXTERNAL POCKETS
4
3
2
1
D
C
B
A

REVISIONS 25977

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 26555	DAC		[illegible]	[illegible]
B		REVISED PER TDRR 28026	DRV	[illegible]	[illegible]	[illegible]
C		REVISED PER TDRR 28251	[illegible]	[illegible]	[illegible]	[illegible]
D		REVISED PER TDRR 29081	[illegible]	[illegible]	[illegible]	ESS
E		REVISED PER TDRR 29819	[illegible]	[illegible]	[illegible]	[illegible]

2004167 L

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC

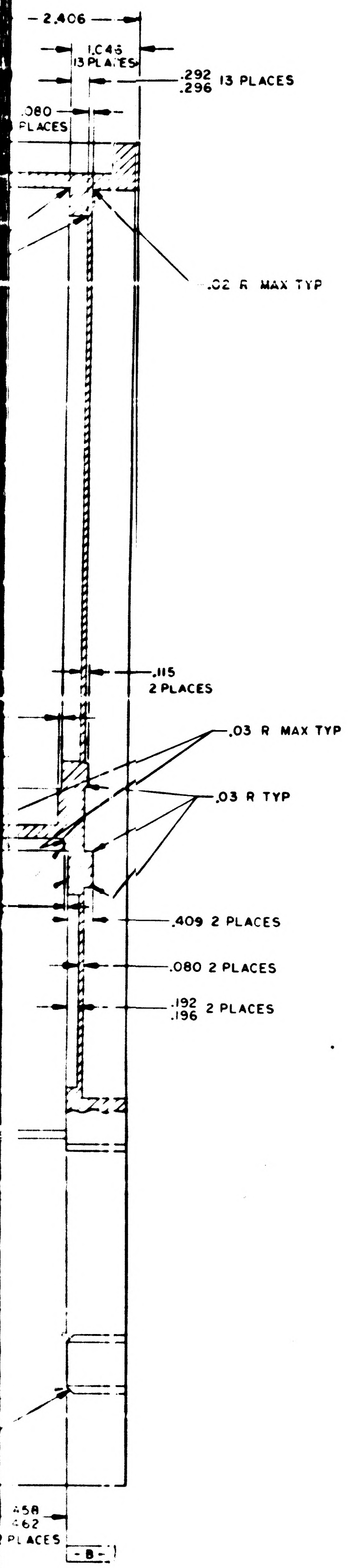
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRAY B
INSEPARABLE ASSY
AGC

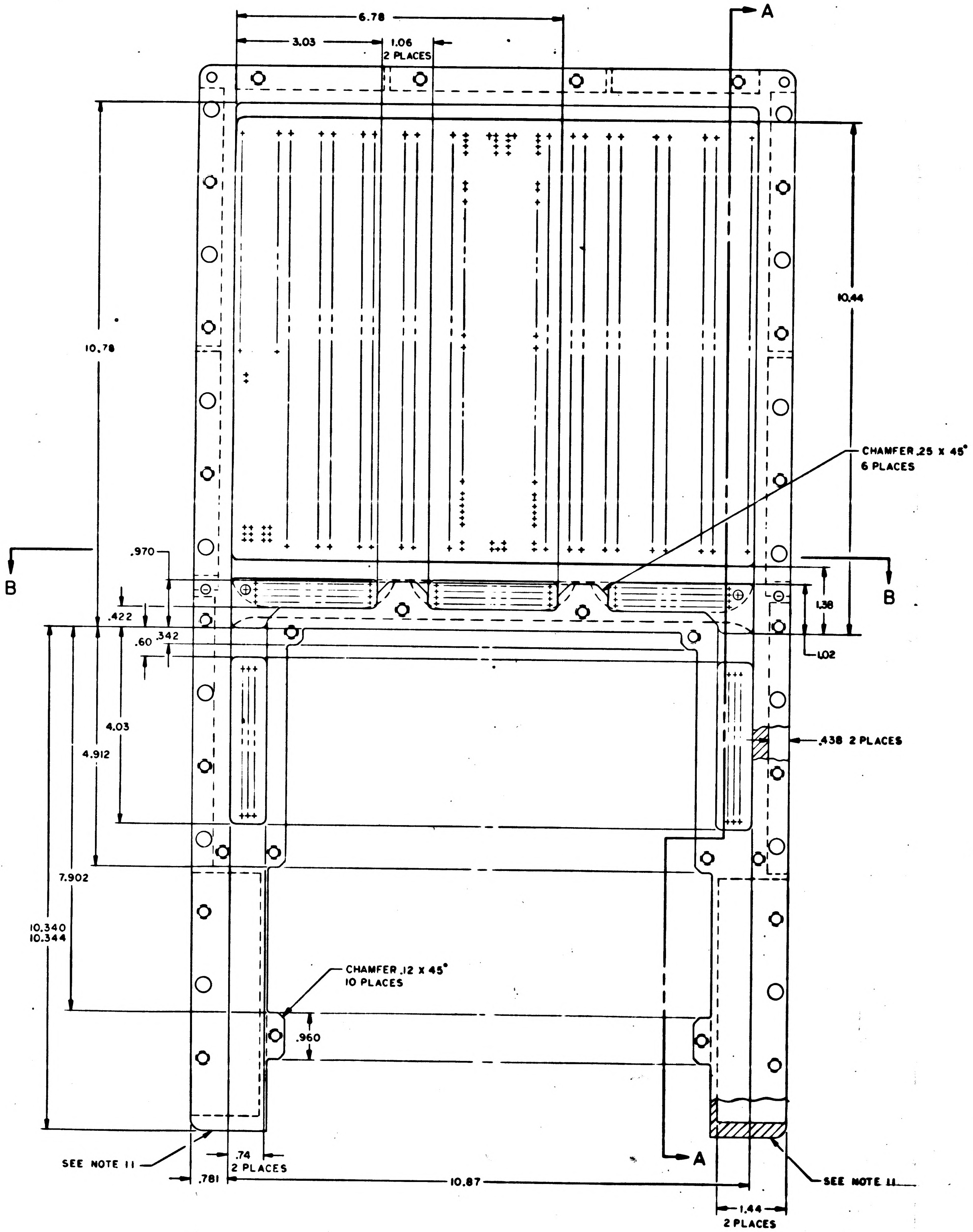
CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004167
SCALE 1/1
SHEET 2 OF 2

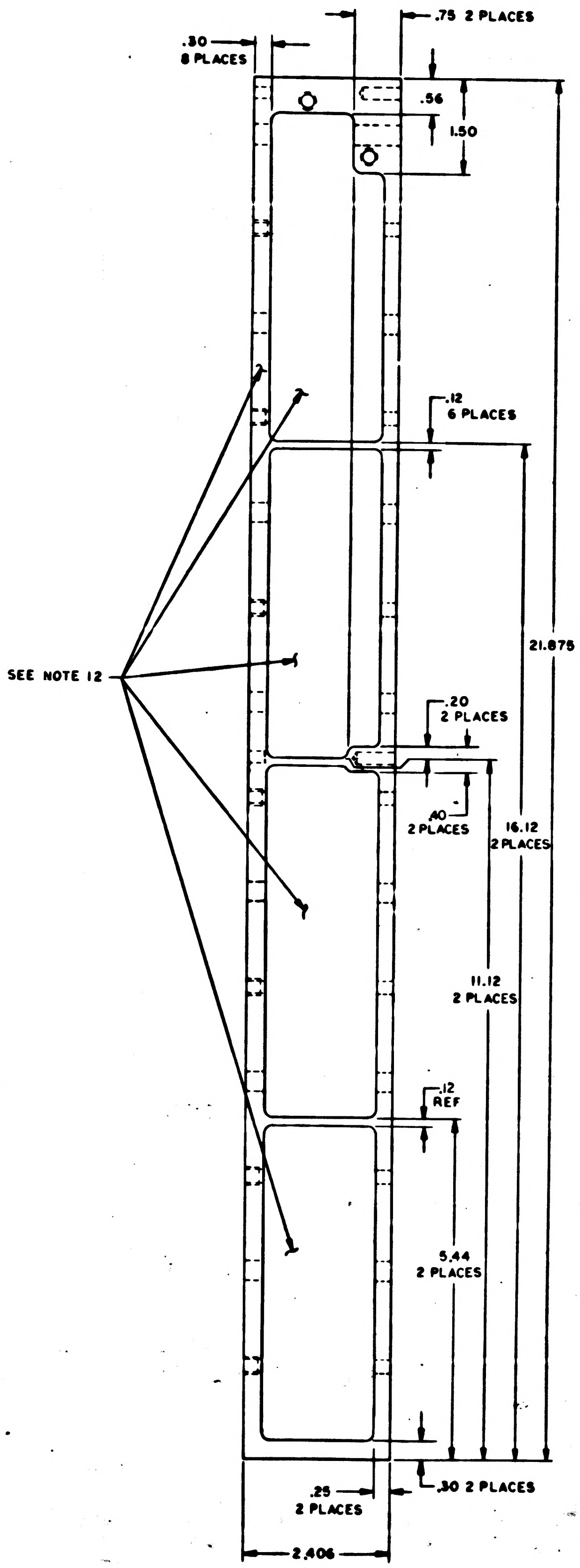
2004167 E

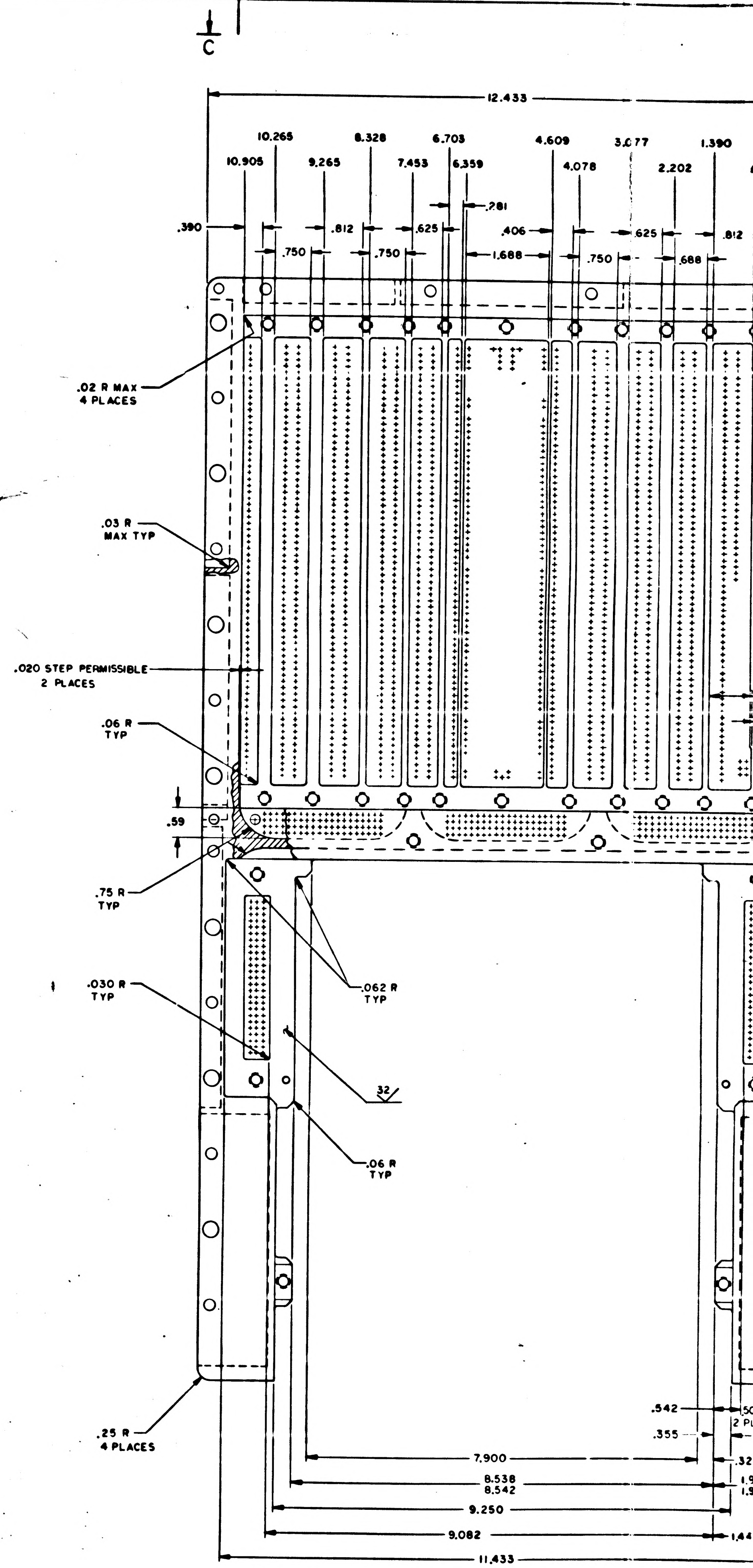
F3/3


2.406
1.046
13 PLACES
.292
.296 13 PLACES
.080
PLACES
.02 R MAX TYP
.115
2 PLACES
.03 R MAX TYP
.03 R TYP
.409 2 PLACES
.080 2 PLACES
.192
.196 2 PLACES
.458
.462
PLACES
-B-

CTION A-A

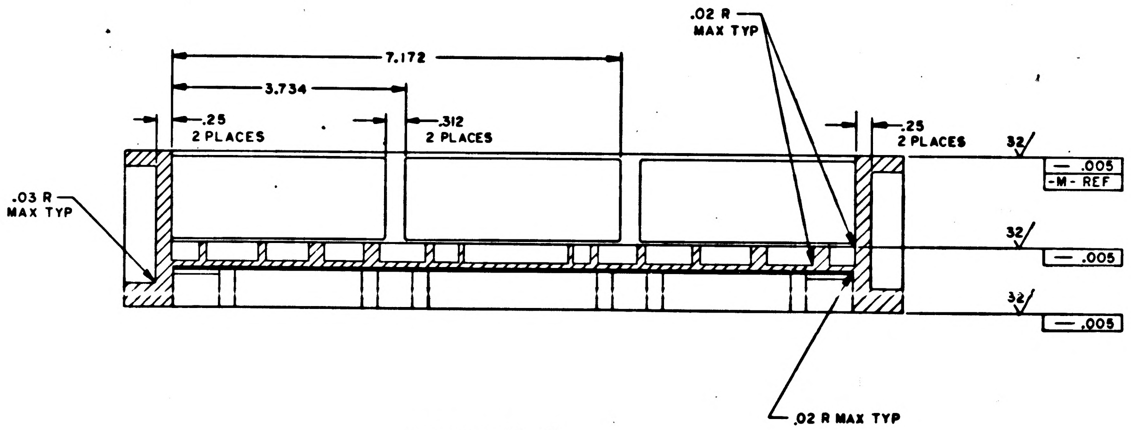

A
6.78
3.03
1.06
2 PLACES
10.78
10.44
CHAMFER .25 X 45°
6 PLACES
B
B
.970
.422
.60
.342
1.38
1.02
4.03
4.912
.438 2 PLACES
7.902
10.340
10.344
CHAMFER .12 X 45°
10 PLACES
.960
SEE NOTE 11
.74
2 PLACES
.781
10.87
A
SEE NOTE 11
1.44
2 PLACES


.30
8 PLACES
.75 2 PLACES
.56
1.50
.12
6 PLACES
SEE NOTE 12
.20
2 PLACES
21.875
.40
2 PLACES
16.12
2 PLACES
11.12
2 PLACES
.12
REF
5.44
2 PLACES
.25
2 PLACES
.30 2 PLACES
2.406


C
12.433
10.265
10.905
9.265
8.328
7.453
6.703
6.359
4.609
4.078
3.077
2.202
1.390
.390
.750
.812
.750
.625
.281
.406
1.688
.750
.625
.688
.812
.02 R MAX
4 PLACES
.03 R
MAX TYP
.020 STEP PERMISSIBLE
2 PLACES
.06 R
TYP
.59
.75 R
TYP
.030 R
TYP
.062 R
TYP
32
.06 R
TYP
.25 R
4 PLACES
.542
.355
7.900
8.538
8.542
9.250
9.082
11.433

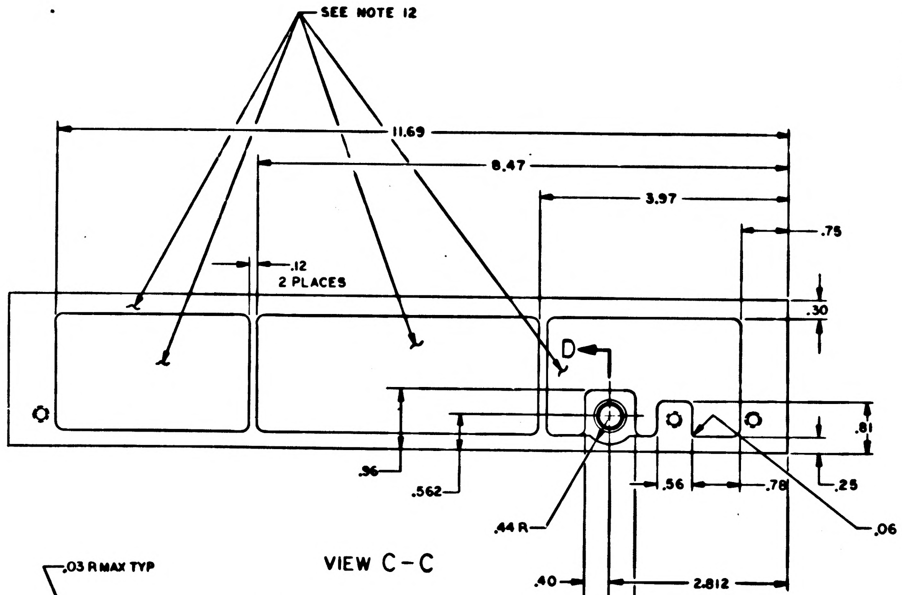
F2/3 SH2/2

2004167 E



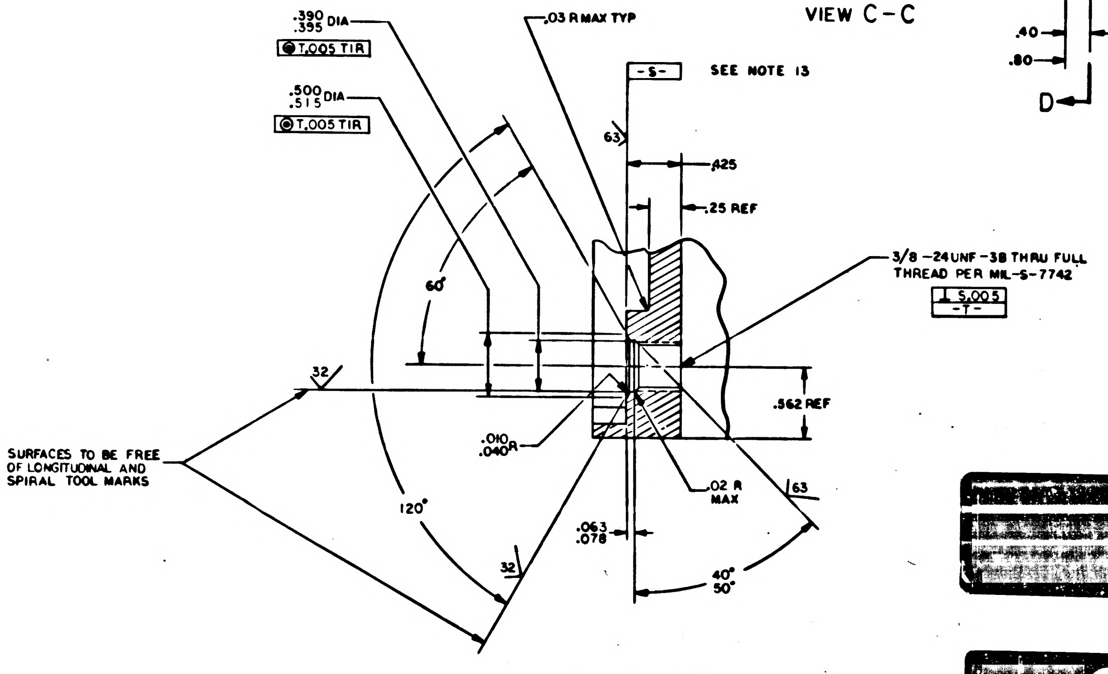
.02 R MAX TYP
7.172
3.734
.25 2 PLACES
.312 2 PLACES
.25 2 PLACES
.03 R MAX TYP
32
.005
-M- REF
.005
.005
.02 R MAX TYP

SECTION B-B



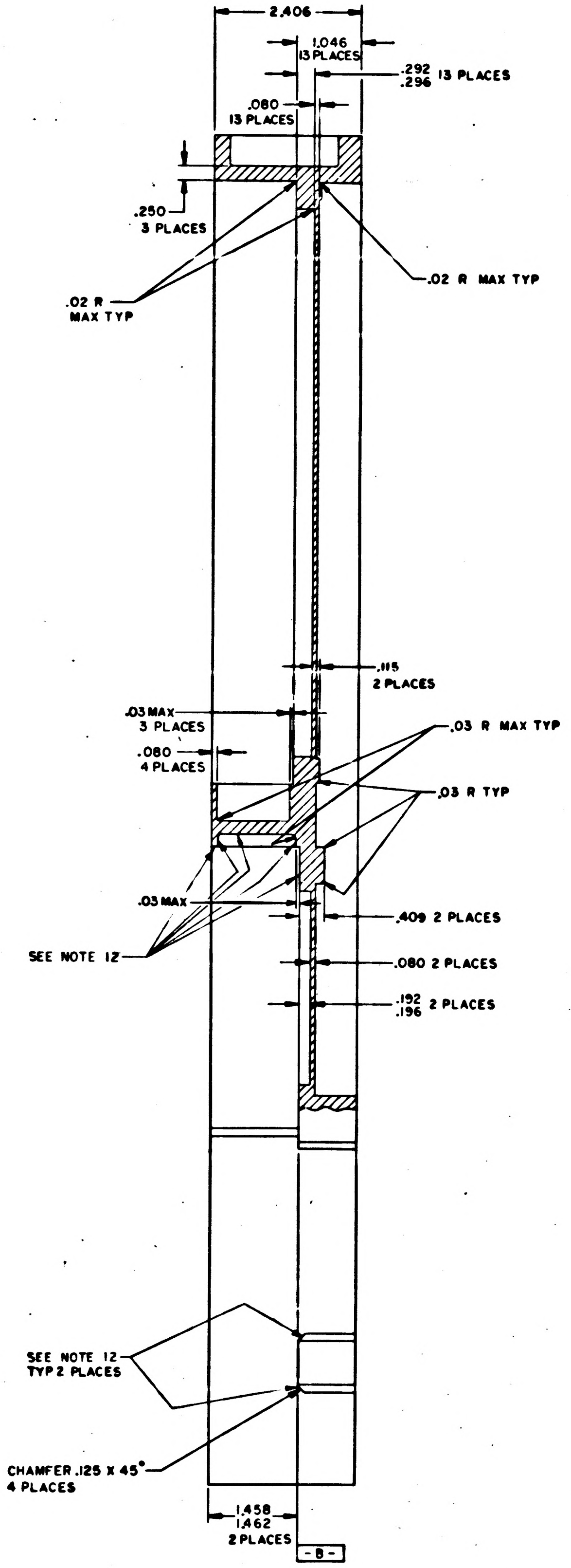
SEE NOTE 12
11.69
8.47
3.97
.75
.12 2 PLACES
.30
D
.81
.36
.562
.56
.78
.25
.44 R
.06 R
.40
2.812
.80
D

VIEW C-C



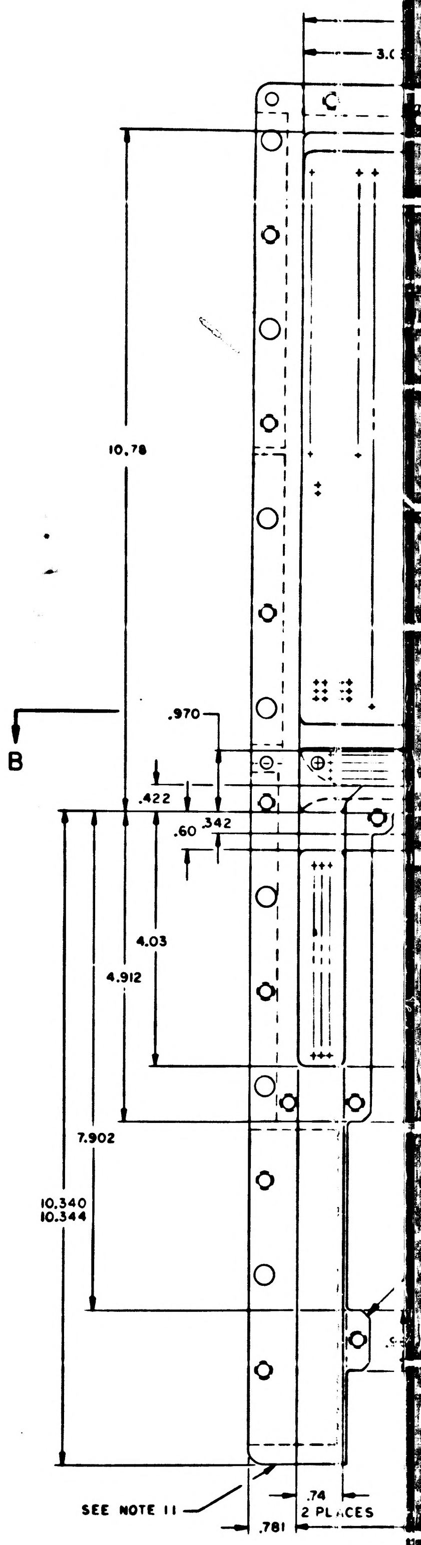
.390 .395 DIA
T.005 TIR
.500 .515 DIA
T.005 TIR
.03 R MAX TYP
-S-
SEE NOTE 13
63
.425
.25 REF
3/8-24UNF-3B THRU FULL THREAD PER MIL-S-7742
S.005 -T-
60°
32
.562 REF
.010 .040 R
.02 R MAX
63
120°
.063 .078
32
40° 50°
SURFACES TO BE FREE OF LONGITUDINAL AND SPIRAL TOOL MARKS

SECTION D-D
SCALE: 2/1



2.406
1.046 13 PLACES
.292 .296 13 PLACES
.080 13 PLACES
.250 3 PLACES
.02 R MAX TYP
.02 R MAX TYP
.115 2 PLACES
.03 MAX 3 PLACES
.080 4 PLACES
.03 R MAX TYP
.03 R TYP
.03 MAX
SEE NOTE 12
.409 2 PLACES
.080 2 PLACES
.192 .196 2 PLACES
SEE NOTE 12 TYP 2 PLACES
CHAMFER .125 X 45° 4 PLACES
1.458 1.462 2 PLACES
-B-

SECTION A-A



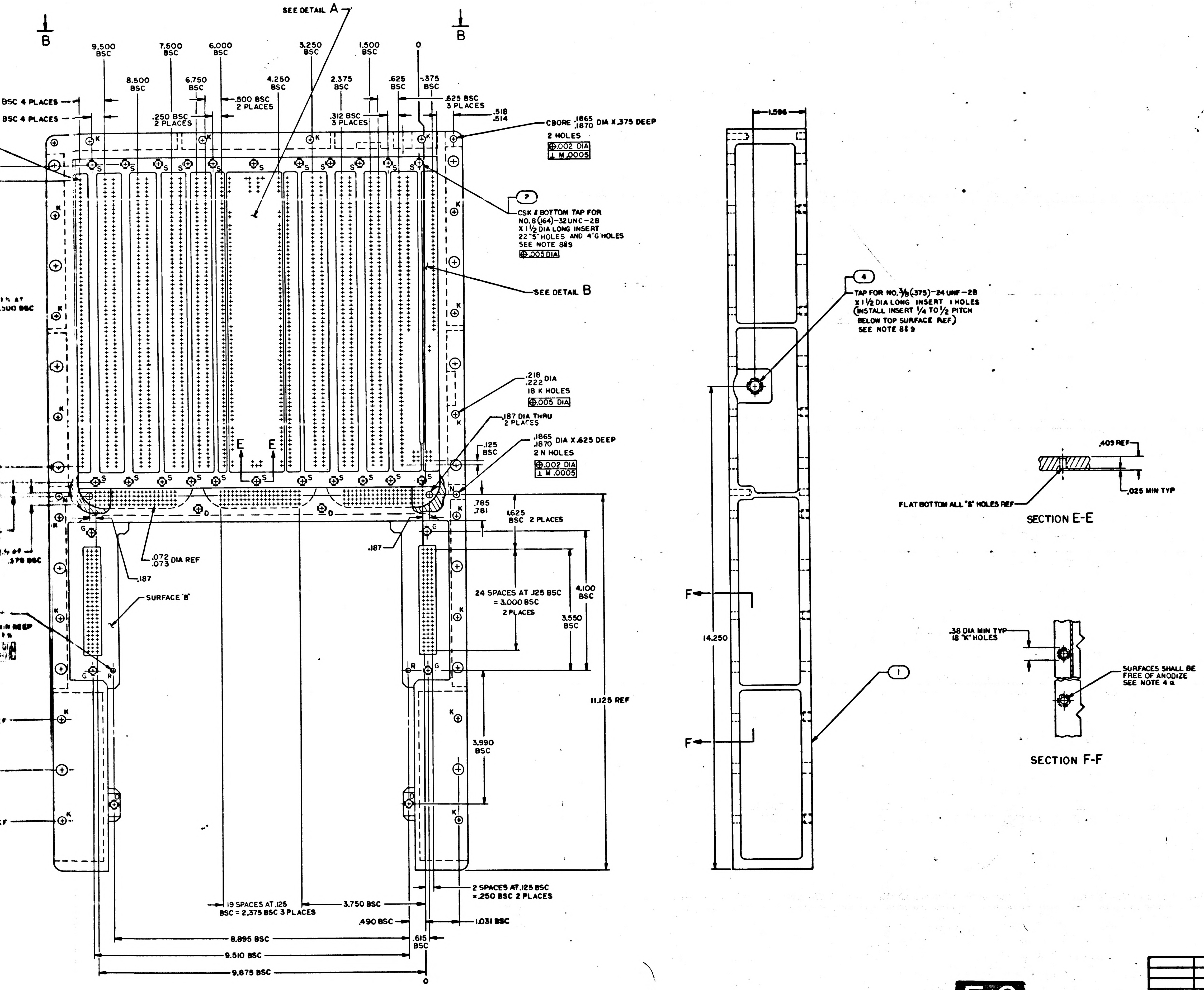
10.78
B
.970
.422
.60
.342
4.03
4.912
7.902
10.340 10.344
SEE NOTE 11
.74 2 PLACES
.781

F1/3

SH2/2

2004167 E

REVISIONS 23977


B
B
SEE DETAIL A
9.500 BSC
7.500 BSC
6.000 BSC
3.250 BSC
1.500 BSC
0
8.500 BSC
6.750 BSC
4.250 BSC
2.375 BSC
.625 BSC
-.375 BSC
BSC 4 PLACES
BSC 4 PLACES
.250 BSC 2 PLACES
.500 BSC 2 PLACES
.312 BSC 3 PLACES
.625 BSC 3 PLACES
.518 .514
CBORE .1865 .1870 DIA X .375 DEEP
2 HOLES
⊕.002 DIA
⊥ M .0005
2
CSK & BOTTOM TAP FOR NO. 8 (.164)-32UNC-2B
X 1 1/2 DIA LONG INSERT
22 "S" HOLES AND 4 "G" HOLES
SEE NOTE 8&9
⊕.005 DIA
SEE DETAIL B
.218 .222 DIA
18 K HOLES
⊕.005 DIA
.187 DIA THRU 2 PLACES
.1865 .1870 DIA X .625 DEEP
2 N HOLES
⊕.002 DIA
⊥ M .0005
.125 BSC
.785 .781
1.625 BSC 2 PLACES
.187
.072 .073 DIA REF
.187
SURFACE 'B'
24 SPACES AT .125 BSC = 3.000 BSC 2 PLACES
4.100 BSC
3.550 BSC
11.125 REF
3.990 BSC
E
E
S
K
G
R
D
N
19 SPACES AT .125 BSC = 2.375 BSC 3 PLACES
3.750 BSC
2 SPACES AT .125 BSC = .250 BSC 2 PLACES
.490 BSC
1.031 BSC
8.895 BSC
.615 BSC
9.510 BSC
9.875 BSC
0
1.596
4
TAP FOR NO. 3/8 (.375)-24 UNF-2B
X 1 1/2 DIA LONG INSERT 1 HOLES
(INSTALL INSERT 1/4 TO 1/2 PITCH BELOW TOP SURFACE REF)
SEE NOTE 8&9
14.250
F
F
1
.409 REF
.025 MIN TYP
FLAT BOTTOM ALL "S" HOLES REF
SECTION E-E
.38 DIA MIN TYP
18 "K" HOLES
SURFACES SHALL BE FREE OF ANODIZE
SEE NOTE 4 a
SECTION F-F

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	MS21209 F6-15	INSERT, THREADED, SELF-LOCKING	4
3	MS21209 F1-15	INSERT, THREADED, SELF-LOCKING	3
60	MS21209 C0815	INSERT, THREADED, SELF-LOCKING	2
1	2004167-001	TRAY B, MACHINED	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003091	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XXX ± .005 .XX ± .01 ANGLES ± 1/2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN F. Dillon 13 OCT 65
CHECKED R. P. Lougebag
APPROVED
APPROVED Elton C. Hall
APPROVED MIT
APPROVED MSC A. C. METZGER
DATE

TRAY B
INSEPARABLE ASSY
AGC

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004167
SCALE 1/1
SHEET 1 OF 2

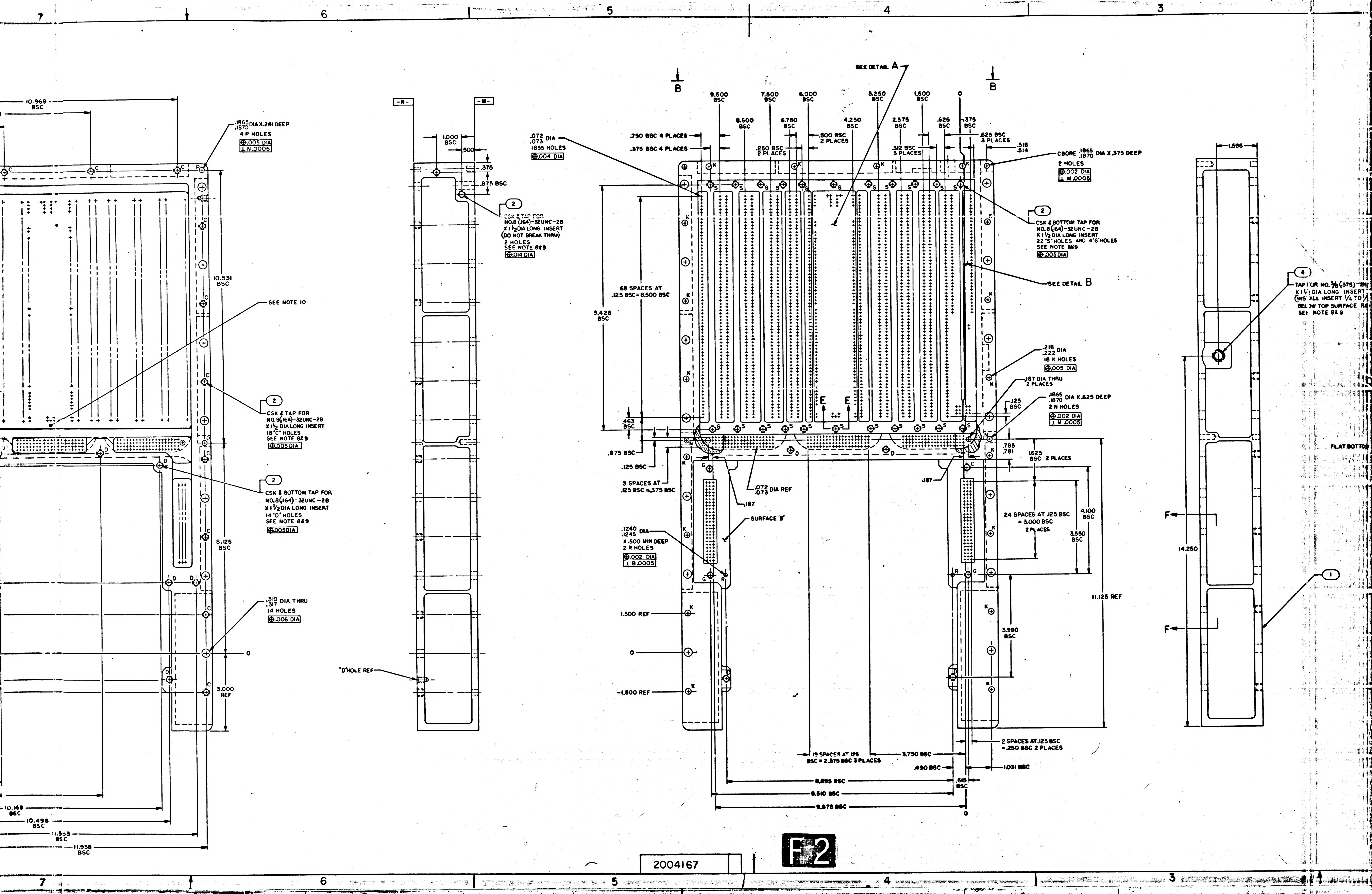
2004167

F3

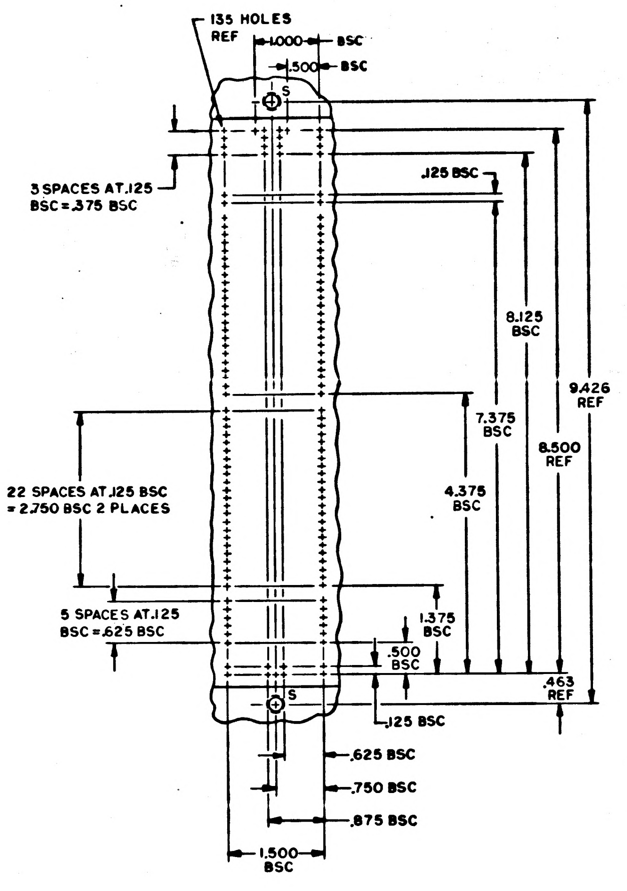
MASTER

3/4

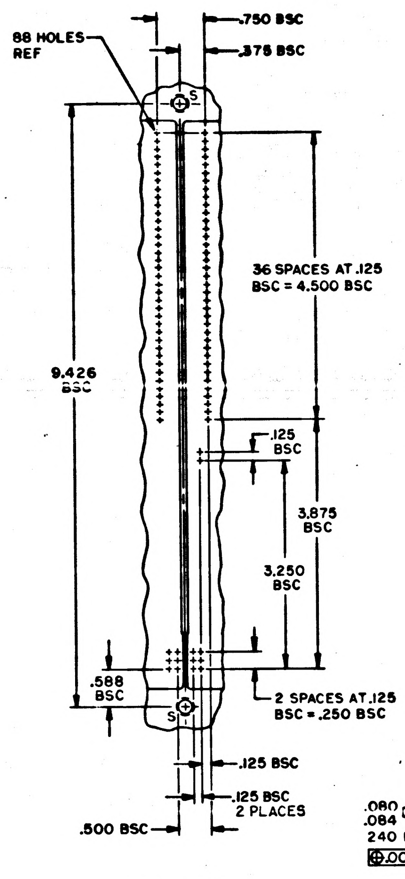
2004167


7
6
5
4
3
10.969 BSC
.1865 .1870 DIA X.281 DEEP
4 P HOLES
⊕.005 DIA
⊥ N.0005
10.531 BSC
SEE NOTE 10
2
CSK & TAP FOR NO.8(.164)-32UNC-2B X 1½ DIA LONG INSERT 18 "C" HOLES SEE NOTE 8&9
⊕.005 DIA
2
CSK & BOTTOM TAP FOR NO.8(.164)-32UNC-2B X 1½ DIA LONG INSERT 14 "D" HOLES SEE NOTE 8&9
⊕.005 DIA
8.125 BSC
.310 .317 DIA THRU
14 HOLES
⊕.006 DIA
0
3.000 REF
10.168 BSC
10.498 BSC
11.563 BSC
11.938 BSC
-N-
-M-
1.000 BSC
.500
.375
.875 BSC
2
CSK & TAP FOR NO.8 (.164)-32UNC-2B X 1½ DIA LONG INSERT (DO NOT BREAK THRU)
2 HOLES
SEE NOTE 8&9
⊕.014 DIA
"D" HOLE REF
.072 .073 DIA
1855 HOLES
⊕.004 DIA
B
B
SEE DETAIL A
9.500 BSC
7.500 BSC
6.000 BSC
3.250 BSC
1.500 BSC
0
8.500 BSC
6.750 BSC
4.250 BSC
2.375 BSC
.625 BSC
-.375 BSC
.750 BSC 4 PLACES
.375 BSC 4 PLACES
.250 BSC 2 PLACES
.500 BSC 2 PLACES
.312 BSC 3 PLACES
.625 BSC 3 PLACES
.518 .514
CBORE .1865 .1870 DIA X.375 DEEP
2 HOLES
⊕.002 DIA
⊥ M.0005
2
CSK & BOTTOM TAP FOR NO.8(.164)-32UNC-2B X 1½ DIA LONG INSERT 22 "S" HOLES AND 4 "G" HOLES SEE NOTE 8&9
⊕.005 DIA
SEE DETAIL B
68 SPACES AT .125 BSC=8.500 BSC
9.426 BSC
.218 .222 DIA
18 K HOLES
⊕.005 DIA
.187 DIA THRU 2 PLACES
.125 BSC
.1865 .1870 DIA X.625 DEEP
2 N HOLES
⊕.002 DIA
⊥ M.0005
E
E
.463 BSC
.875 BSC
.125 BSC
3 SPACES AT .125 BSC =.375 BSC
.072 .073 DIA REF
.187
.187
SURFACE "B"
.785 .781
1.625 BSC 2 PLACES
24 SPACES AT .125 BSC = 3.000 BSC 2 PLACES
4.100 BSC
3.550 BSC
.1240 .1245 DIA
X.500 MIN DEEP
2 R HOLES
⊕.002 DIA
⊥ B.0005
11.125 REF
1.500 REF
0
-1.500 REF
3.990 BSC
19 SPACES AT .125 BSC = 2.375 BSC 3 PLACES
3.750 BSC
2 SPACES AT .125 BSC =.250 BSC 2 PLACES
.490 BSC
1.031 BSC
8.895 BSC
.615 BSC
9.510 BSC
9.875 BSC
0
1.596
4
TAP FOR NO.⅜(.375)-24
X 1½ DIA LONG INSERT
(INSTALL INSERT ¼ TO
BELOW TOP SURFACE
SEE NOTE 8&9
14.250
F
F
1
FLAT BOTTO
2004167
F2
7
6
5
4
3

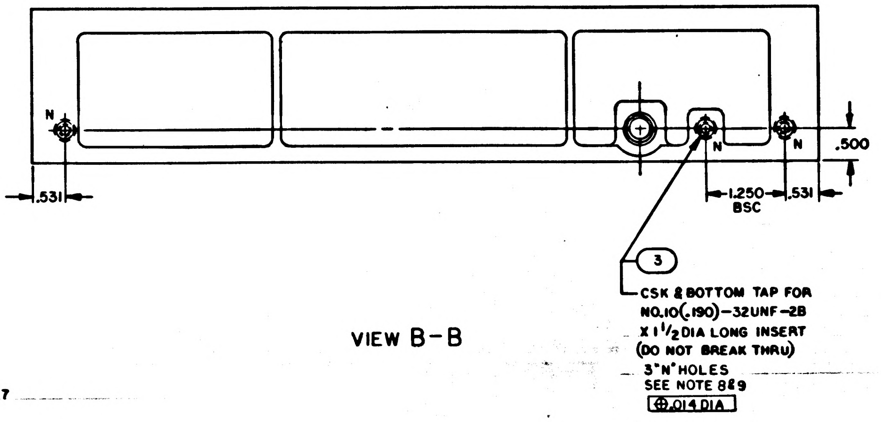
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


135 HOLES
REF
1.000 BSC
.500 BSC
S
3 SPACES AT .125
BSC = .375 BSC
.125 BSC
8.125
BSC
9.426
REF
7.375
BSC
8.500
REF
22 SPACES AT .125 BSC
= 2.750 BSC 2 PLACES
4.375
BSC
5 SPACES AT .125
BSC = .625 BSC
1.375
BSC
.500
BSC
.463
REF
.125 BSC
.625 BSC
.750 BSC
.875 BSC
1.500
BSC

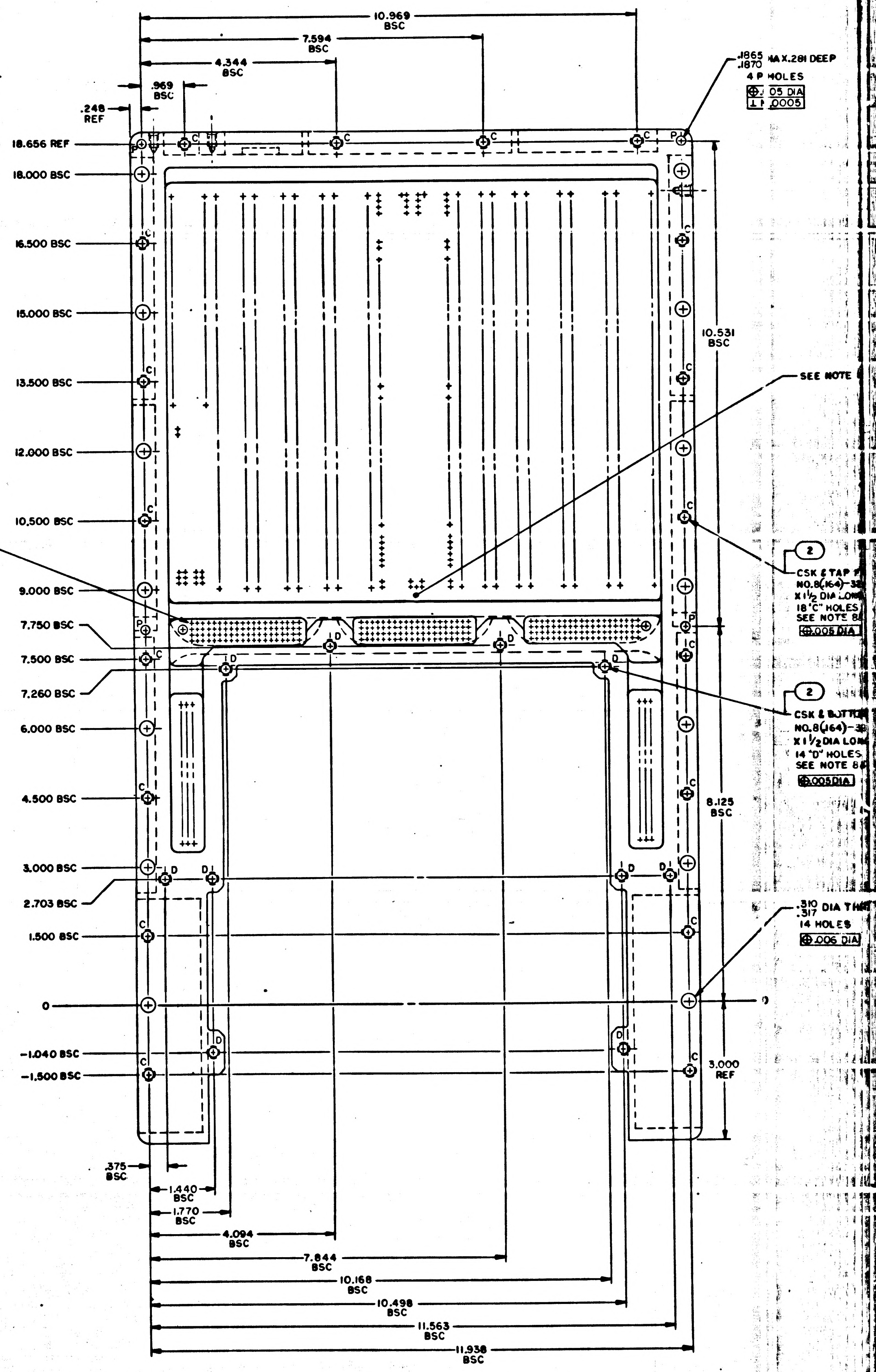
DETAIL A


88 HOLES
REF
.750 BSC
.375 BSC
S
36 SPACES AT .125
BSC = 4.500 BSC
9.426
BSC
.125
BSC
3.875
BSC
3.250
BSC
.588
BSC
2 SPACES AT .125
BSC = .250 BSC
.125 BSC
.125 BSC
2 PLACES
.500 BSC

DETAIL B


N
N
N
.531
1.250
BSC
.531
.500
3
CSK & BOTTOM TAP FOR
NO.10(.190)-32UNF-2B
X 1 1/2 DIA LONG INSERT
(DO NOT BREAK THRU)
3 "N" HOLES
SEE NOTE 8&9
⊕ .014 DIA

VIEW B-B


10.969
BSC
7.594
BSC
4.344
BSC
.969
BSC
.248
REF
.1865
.1870
MAX .281 DEEP
4 P HOLES
⊕ .005 DIA
⊥ .0005
18.656 REF
18.000 BSC
16.500 BSC
15.000 BSC
13.500 BSC
12.000 BSC
10.500 BSC
9.000 BSC
7.750 BSC
7.500 BSC
7.260 BSC
6.000 BSC
4.500 BSC
3.000 BSC
2.703 BSC
1.500 BSC
0
-1.040 BSC
-1.500 BSC
10.531
BSC
SEE NOTE
.080
.084 DIA AND CSK 60° X .110 DIA
240 HOLES
⊕ .004 DIA
2
CSK & TAP
NO.8(.164)-32
X 1 1/2 DIA LONG
18 "C" HOLES
SEE NOTE 8
⊕ .005 DIA
2
CSK & BOTTOM
NO.8(.164)-32
X 1 1/2 DIA LONG
14 "D" HOLES
SEE NOTE 8
⊕ .005 DIA
8.125
BSC
.310
.317 DIA THRU
14 HOLES
⊕ .005 DIA
0
3.000
REF
C
D
P
.375
BSC
1.440
BSC
1.770
BSC
4.094
BSC
7.844
BSC
10.168
BSC
10.498
BSC
11.563
BSC
11.938
BSC

3H

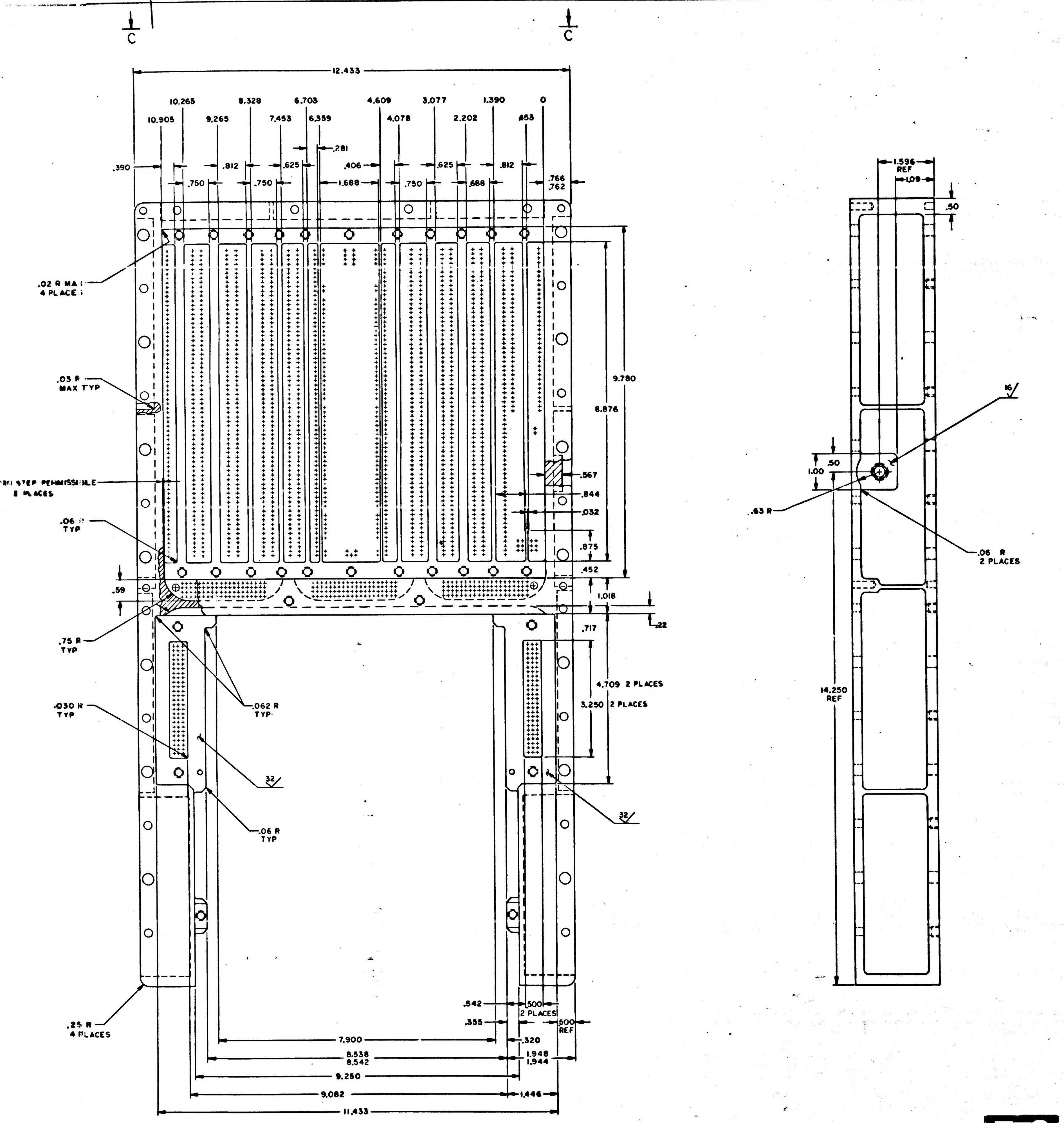
NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: MAGNESIUM ZK60A-T5 PER QQ-M-31, TEMP T5
3. ANODIZE PER
4. a.) INDICATED SURFACES SHALL BE FREE OF ANODIZE; TREAT PER .DO NOT EPOXY COAT
   b.) TAP "C", "D" & "G" HOLES AFTER ANODIZE AND TREAT PER .DO NOT EPOXY COAT
5. ALL SURFACES 125✓ UNLESS OTHERWISE SPECIFIED
6. REMOVE BURRS AND SHARP EDGES .005/.015
7. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .125
8. INSTALL FIND NO. 2,3 & 4 PER MS33646 REMOVE DRIVING TANG
9. COAT THREADS OF FIND NO. 2,3 & 4 WITH ,COLOR YELLOW, EXCEPT "C", "D" AND "G" HOLES
10. IDENTIFY WITH PART NO. PER ND1002019 AND SERIALIZE PER ND1002023 WHERE SHOWN

F-1

2004167

REVISIONS 25977

ZONE	SYMB	DESCRIPTION	DR	CHK	DATE	APPROVED



C
C
12.433
10.265
8.328
6.703
4.609
3.077
1.390
0
10.905
9.265
7.453
6.359
4.078
2.202
.453
.281
.390
.812
.625
.406
.625
.812
.766
.762
.750
.750
1.688
.750
.688
.02 R MAX
4 PLACES
.03 R
MAX TYP
STEP PERMISSIBLE
2 PLACES
.06 R
TYP
9.780
8.876
.567
.844
.032
.875
.452
.59
1.018
.22
.75 R
TYP
.717
4.709 2 PLACES
3.250 2 PLACES
.030 R
TYP
.062 R
TYP
32
32
.06 R
TYP
.25 R
4 PLACES
.542
.355
.500
2 PLACES
.500
REF
.320
7.900
8.538
8.542
1.948
1.944
9.250
9.082
1.446
11.433
1.596
REF
1.09
.50
16
.50
1.00
.63 R
.06 R
2 PLACES
14.250
REF

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN L. Rollins
CHECKED
APPROVED
APPROVED
APPROVED MIT A. C. METZGER
APPROVED MSC

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRAY B
INSEPARABLE ASSY
AGC

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004167
SCALE 1/1
SHEET 2 OF 2

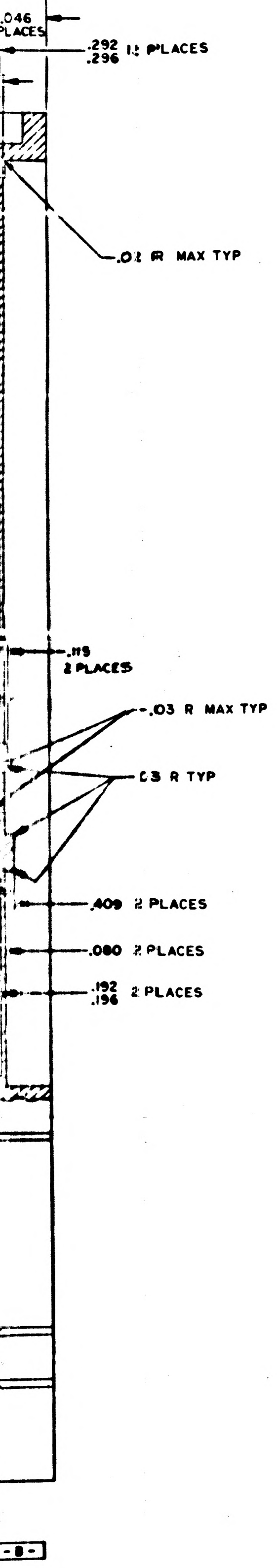
F3

MASTER

2004167

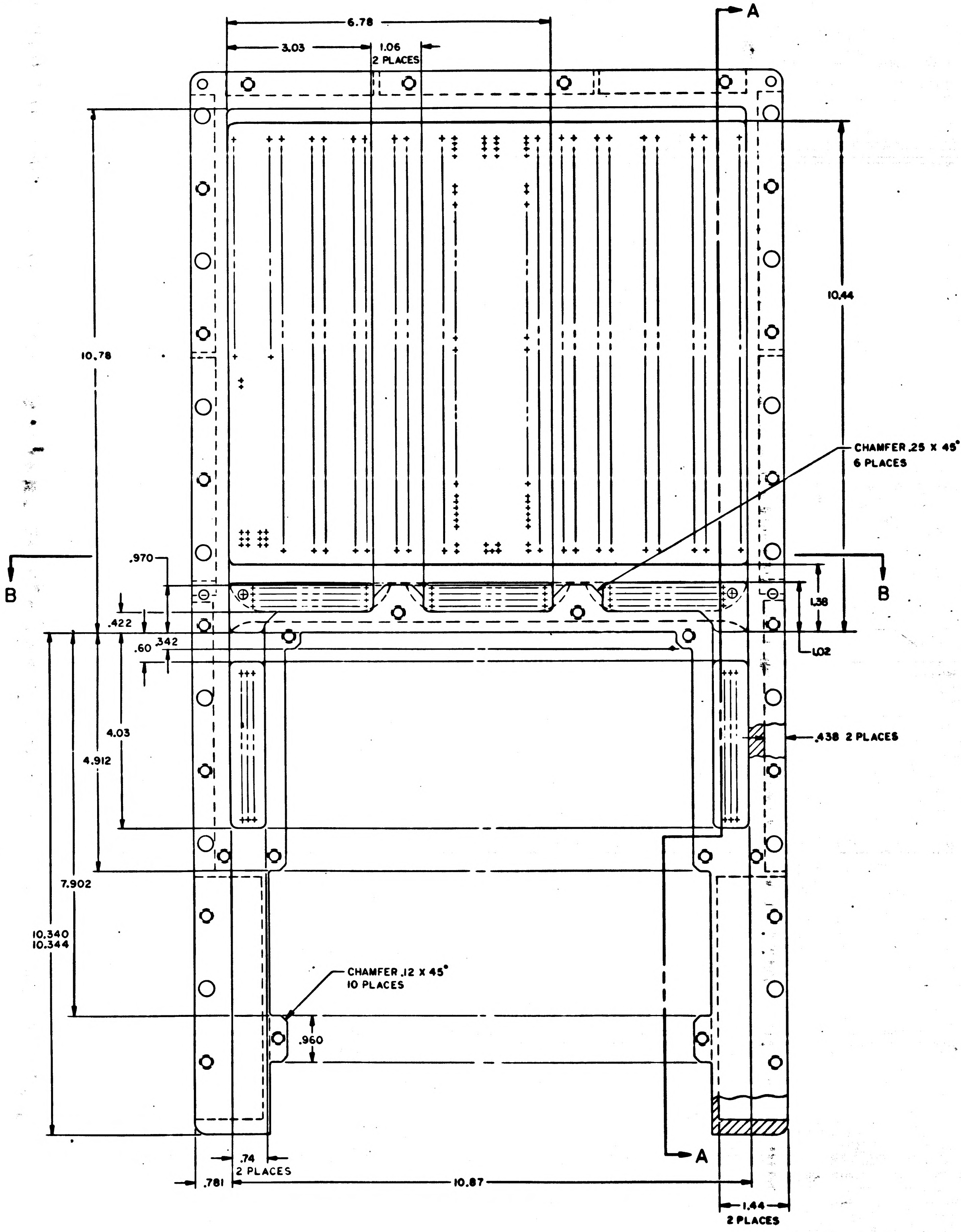
2004167

8 7 6 5 4

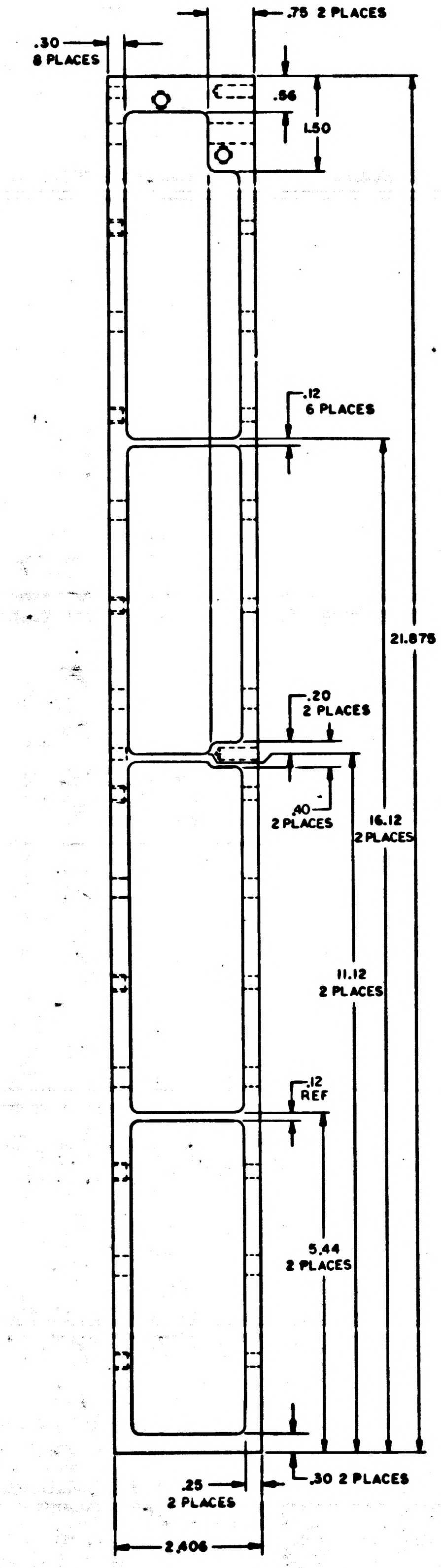


.046
PLACES
.292
.296 12 PLACES
.02 R MAX TYP
.115
2 PLACES
.03 R MAX TYP
.03 R TYP
.409 2 PLACES
.080 2 PLACES
.192
.196 2 PLACES
B

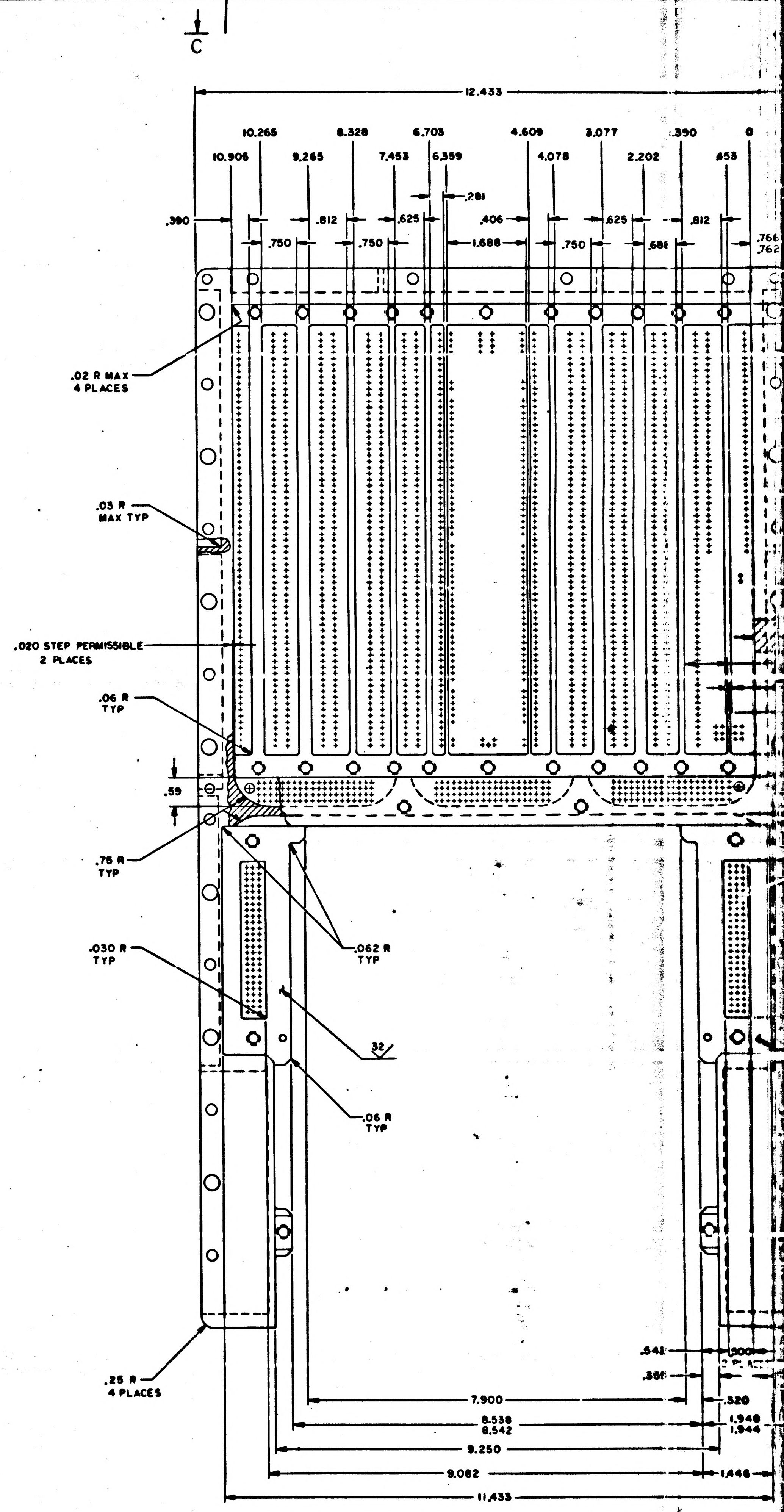
A-A



A
6.78
3.03
1.06
2 PLACES
10.78
10.44
CHAMFER .25 X 45°
6 PLACES
B
B
.970
.422
.60
.342
1.38
1.02
4.03
4.912
.438 2 PLACES
7.902
10.340
10.344
CHAMFER .12 X 45°
10 PLACES
.960
A
.74
2 PLACES
.781
10.87
1.44
2 PLACES



.30
8 PLACES
.75 2 PLACES
.86
1.50
.12
6 PLACES
21.875
.20
2 PLACES
.10
2 PLACES
16.12
2 PLACES
11.12
2 PLACES
.12
REF
5.44
2 PLACES
.25
2 PLACES
.30 2 PLACES
2.406



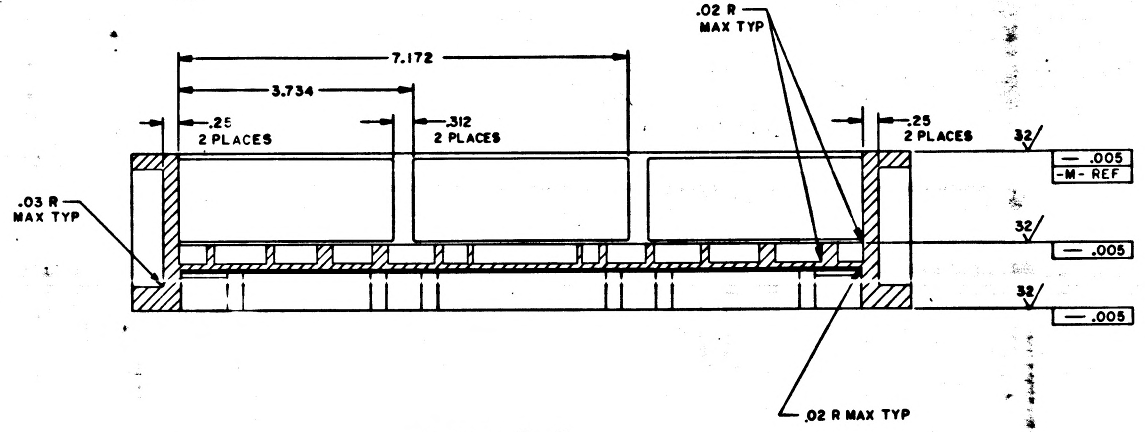
C
12.433
10.265
8.328
6.703
4.609
3.077
1.390
0
10.906
9.265
7.453
6.359
4.078
2.202
.453
.281
.390
.812
.625
.406
.625
.812
.766
.762
.750
.750
1.688
.750
.686
.02 R MAX
4 PLACES
.03 R
MAX TYP
.020 STEP PERMISSIBLE
2 PLACES
.06 R
TYP
.59
.75 R
TYP
.062 R
TYP
.030 R
TYP
32
.06 R
TYP
.25 R
4 PLACES
.542
.386
.300
.320
1.948
1.944
7.900
8.538
8.542
9.250
9.082
1.446
11.433

F2

2004167

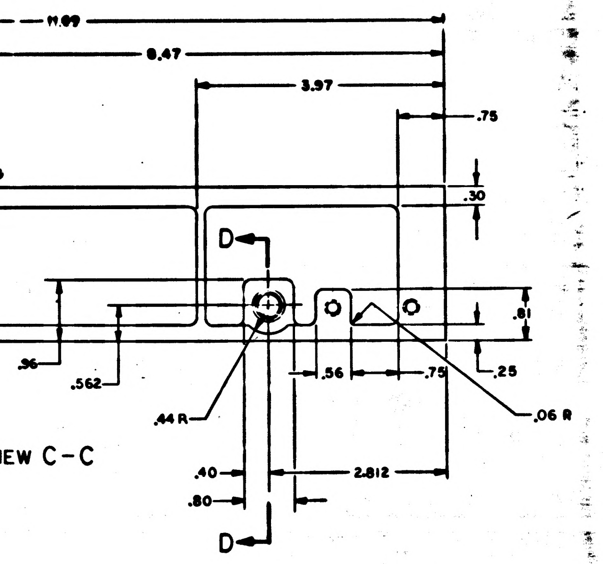
8 7 6 5 4

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.



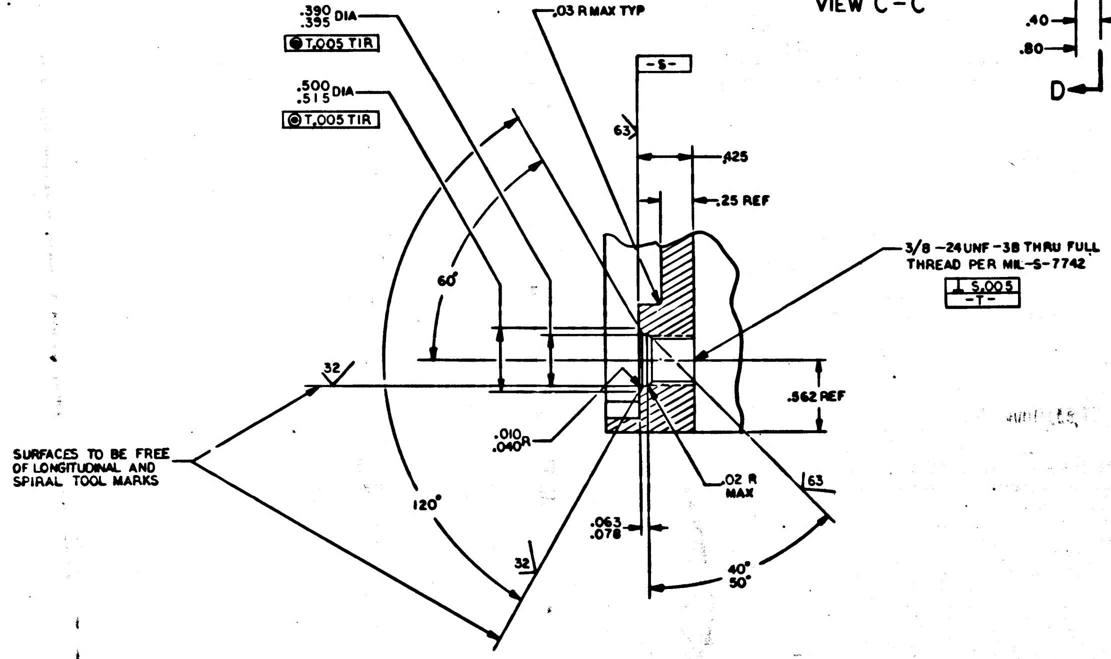
.02 R
MAX TYP
7.172
3.734
.25
2 PLACES
.312
2 PLACES
.25
2 PLACES
32
.005
-M- REF
.03 R
MAX TYP
32
.005
32
.005
.02 R MAX TYP

SECTION B-B



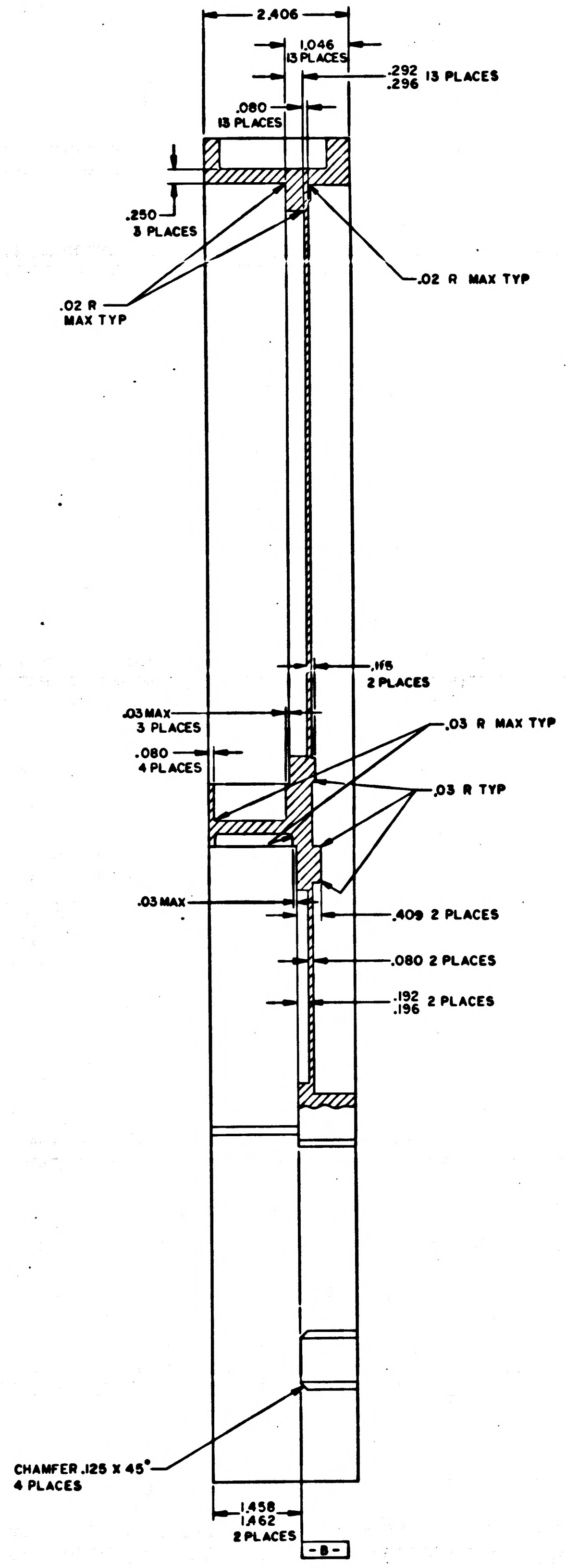
11.09
8.47
3.97
.75
.12
2 PLACES
.30
D
D
.81
.96
.562
.56
.75
.25
.44 R
.06 R
.40
.80
2.812

VIEW C-C



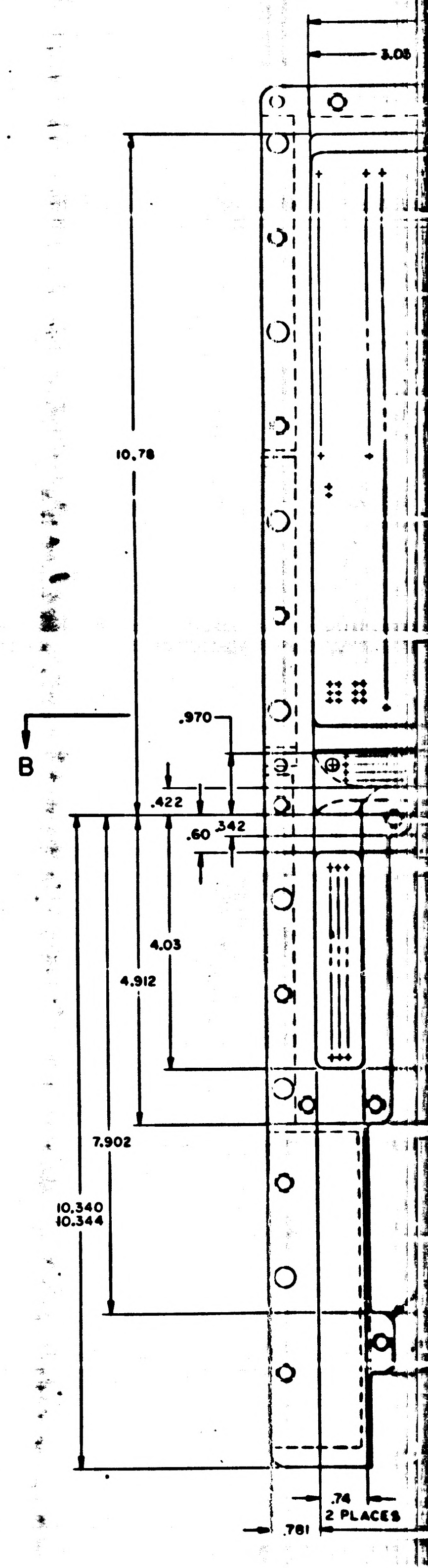
.390
.395 DIA
T.005 TIR
.500
.515 DIA
T.005 TIR
.03 R MAX TYP
-S-
63
.125
.25 REF
3/8 -24UNF -3B THRU FULL
THREAD PER MIL-S-7742
⊥ S.005
-T-
60°
32
.562 REF
.010
.040 R
SURFACES TO BE FREE
OF LONGITUDINAL AND
SPIRAL TOOL MARKS
.02 R
MAX
63
120°
32
.063
.078
40°
50°

SECTION D-D
SCALE: 2/1



2.406
1.046
13 PLACES
.292
.296 13 PLACES
.080
13 PLACES
.250
3 PLACES
.02 R MAX TYP
.02 R
MAX TYP
.115
2 PLACES
.03 MAX
3 PLACES
.080
4 PLACES
.03 R MAX TYP
.03 R TYP
.03 MAX
.409 2 PLACES
.080 2 PLACES
.192
.196 2 PLACES
CHAMFER .125 X 45°
4 PLACES
1.458
1.462
2 PLACES
-B-

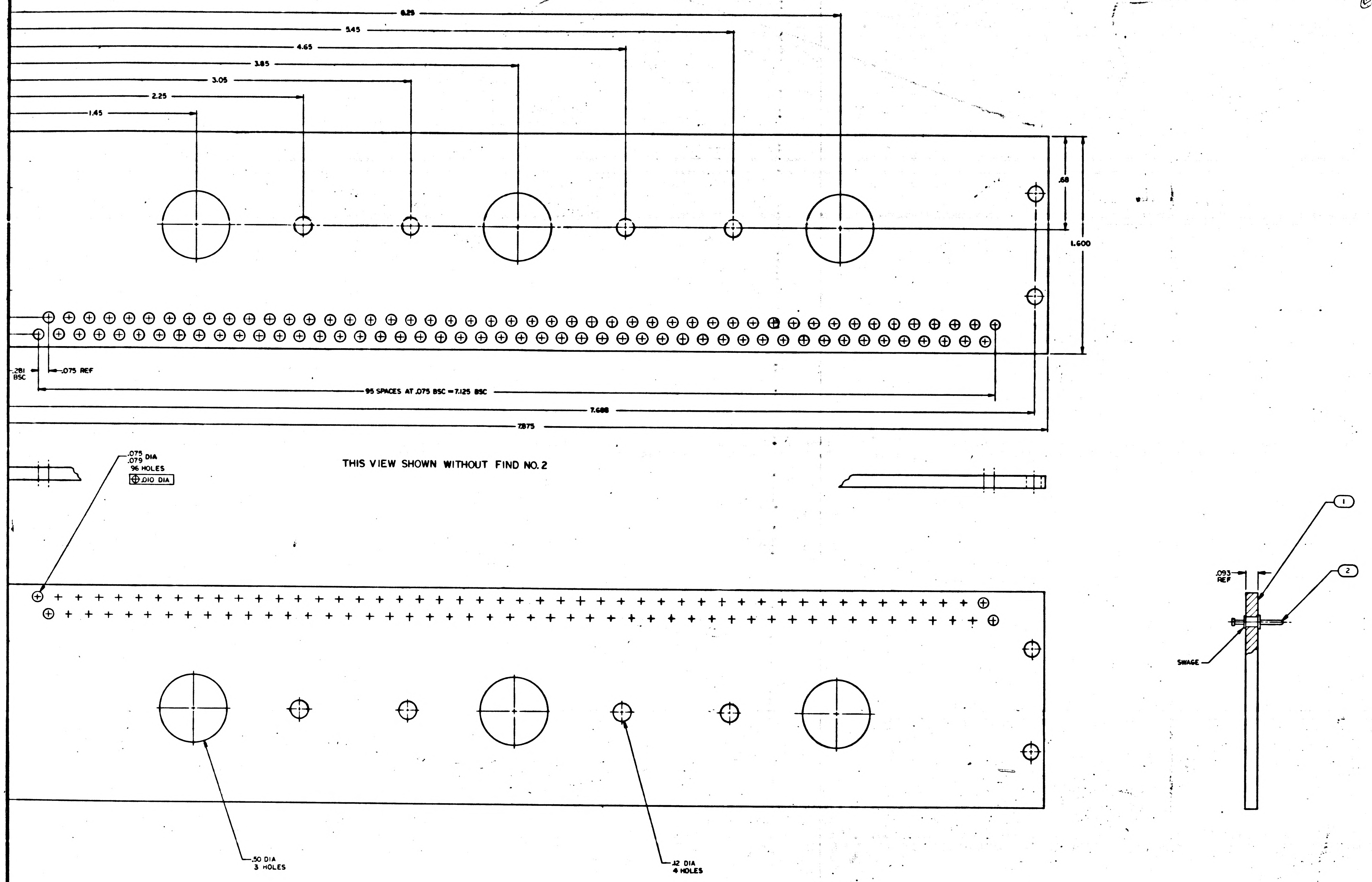
SECTION A-A



3.08
10.78
B
.970
.422
.60
.342
4.03
4.912
7.902
10.340
10.344
.74
2 PLACES
.781

F1

REVISIONS 25978						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 26767				


6.25
5.45
4.65
3.85
3.05
2.25
1.45
.68
1.600
.281 BSC
.075 REF
95 SPACES AT .075 BSC = 7.125 BSC
7.688
7.875
.075 .079 DIA
96 HOLES
⊕ .010 DIA
THIS VIEW SHOWN WITHOUT FIND NO. 2
.50 DIA
3 HOLES
.12 DIA
4 HOLES
.093 REF
SWAGE
1
2

LIST OF MATERIALS

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
96	2004171	TERMINAL	2
1	2004170-001	PLATE, FEEDTHRU	1

NEXT ASSY	USED ON
2003109	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XXX ±.005 .XX ±.02 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN 22 Aug
CHECKED
APPROVED
APPROVED Allan C Hall
APPROVED MIT
A. C. METZGER
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

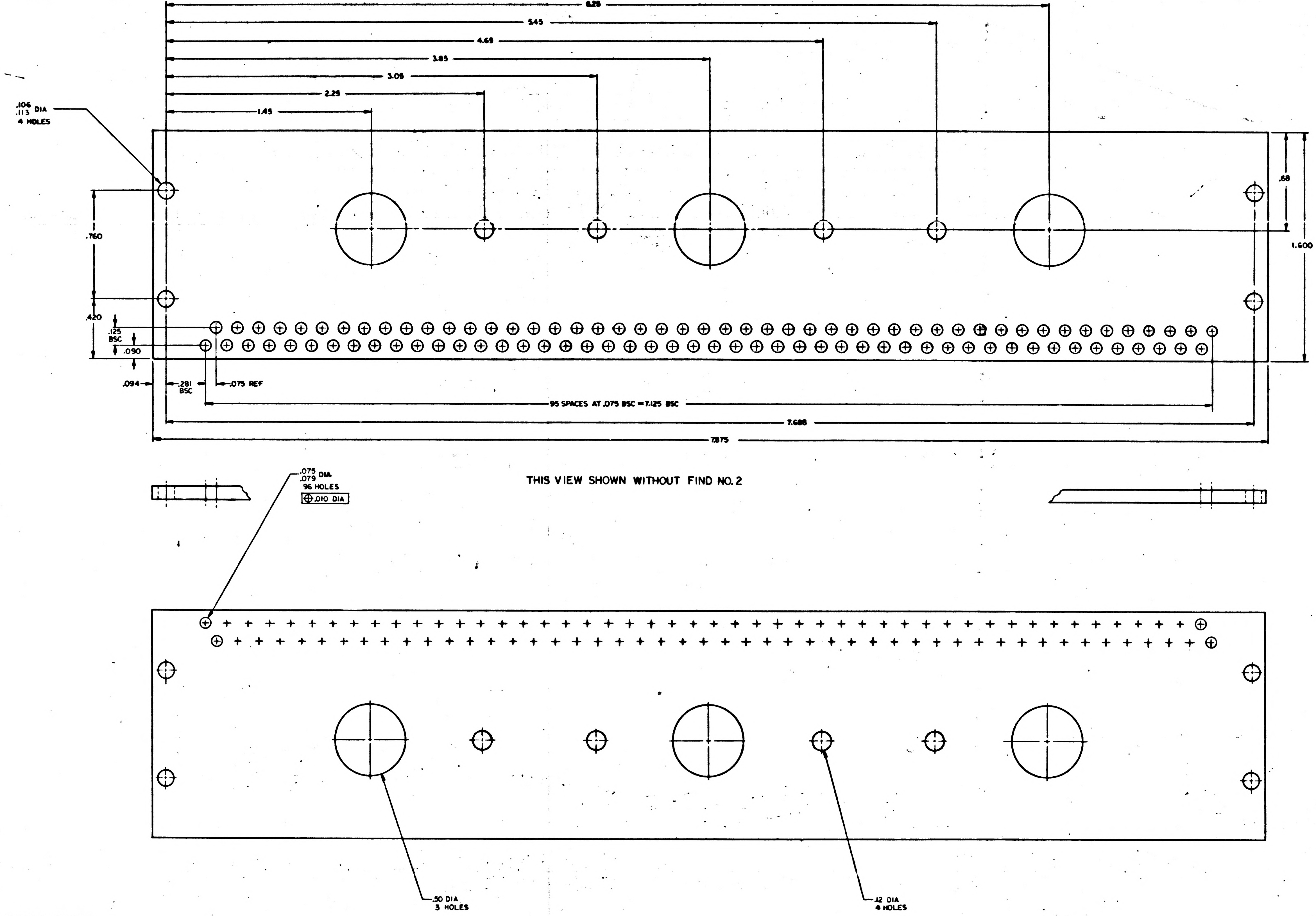
FEEDTHRU PLATE
INSEPARABLE ASSEMBLY
ERASABLE MEMORY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004170
SCALE 4/1
SHEET 1 OF 1

2004170 A

2004170 A

F 2/2

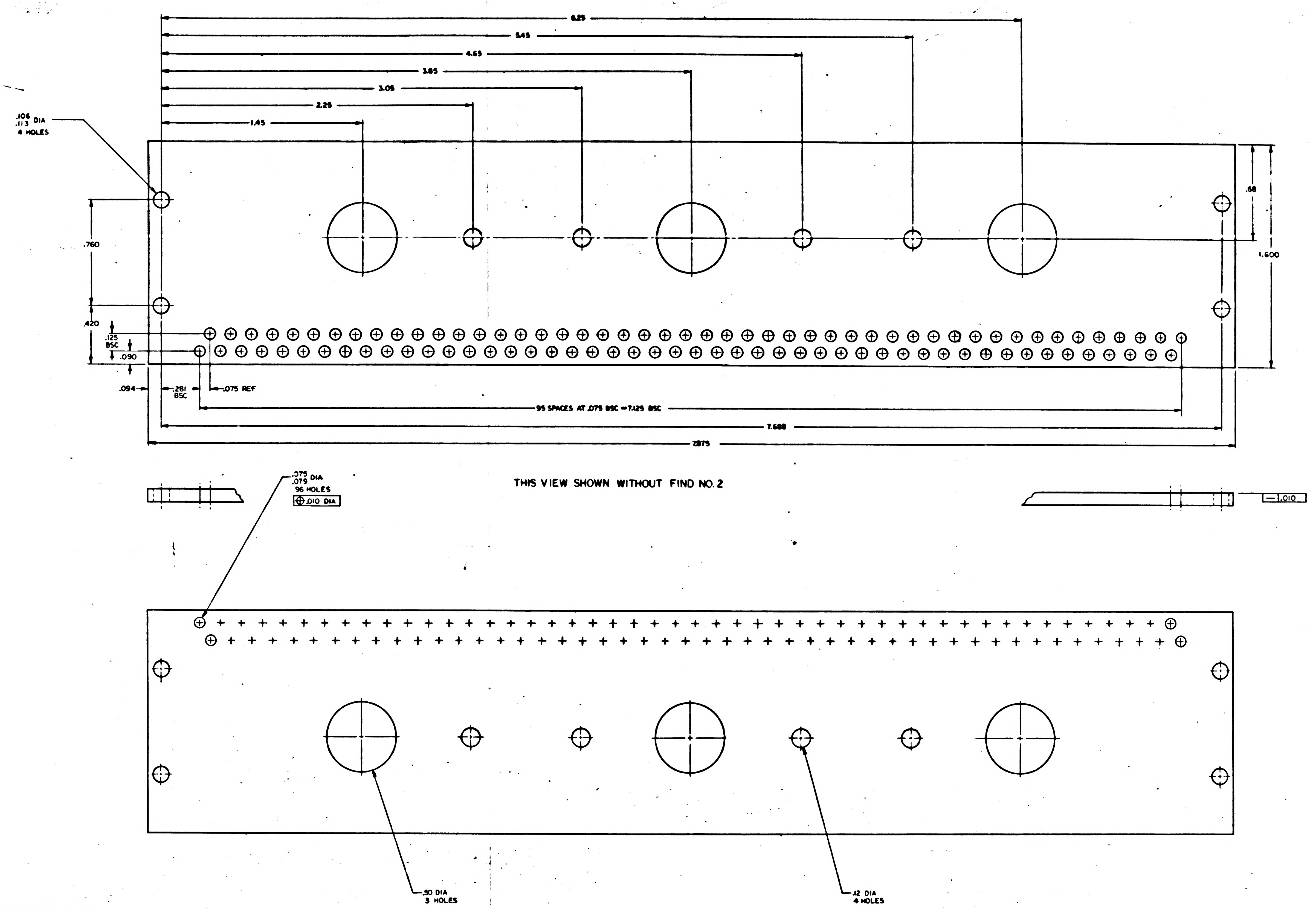

6.25
5.45
4.65
3.85
3.05
2.25
1.45
.106
.113 DIA
4 HOLES
.760
.420
.125
BSC
.090
.094
.281
BSC
.075 REF
95 SPACES AT .075 BSC = 7.125 BSC
7.688
7.875
.68
1.600
.075
.079 DIA
96 HOLES
⊕ .010 DIA
.50 DIA
3 HOLES
.12 DIA
4 HOLES

THIS VIEW SHOWN WITHOUT FIND NO. 2

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: PLASTIC SHEET, .093 THICK LAMINATED PER MIL-P-18177 TYPE GEE
3. REMOVE ALL BURRS AND BREAK SHARP EDGES .005/.015
4. IDENTIFY WITH PART NO. PER ND1002019

NOTICE – [illegible]


6.25
5.45
4.65
3.85
3.05
2.25
1.45
.106
.113 DIA
4 HOLES
.68
1.600
.760
.420
.125
BSC
.090
.094
.281
BSC
.075 REF
95 SPACES AT .075 BSC = 7.125 BSC
7.688
7.875
.075
.079 DIA
96 HOLES
⊕ .010 DIA
— .010
.50 DIA
3 HOLES
.12 DIA
4 HOLES

THIS VIEW SHOWN WITHOUT FIND NO. 2

SWAGE —

LH

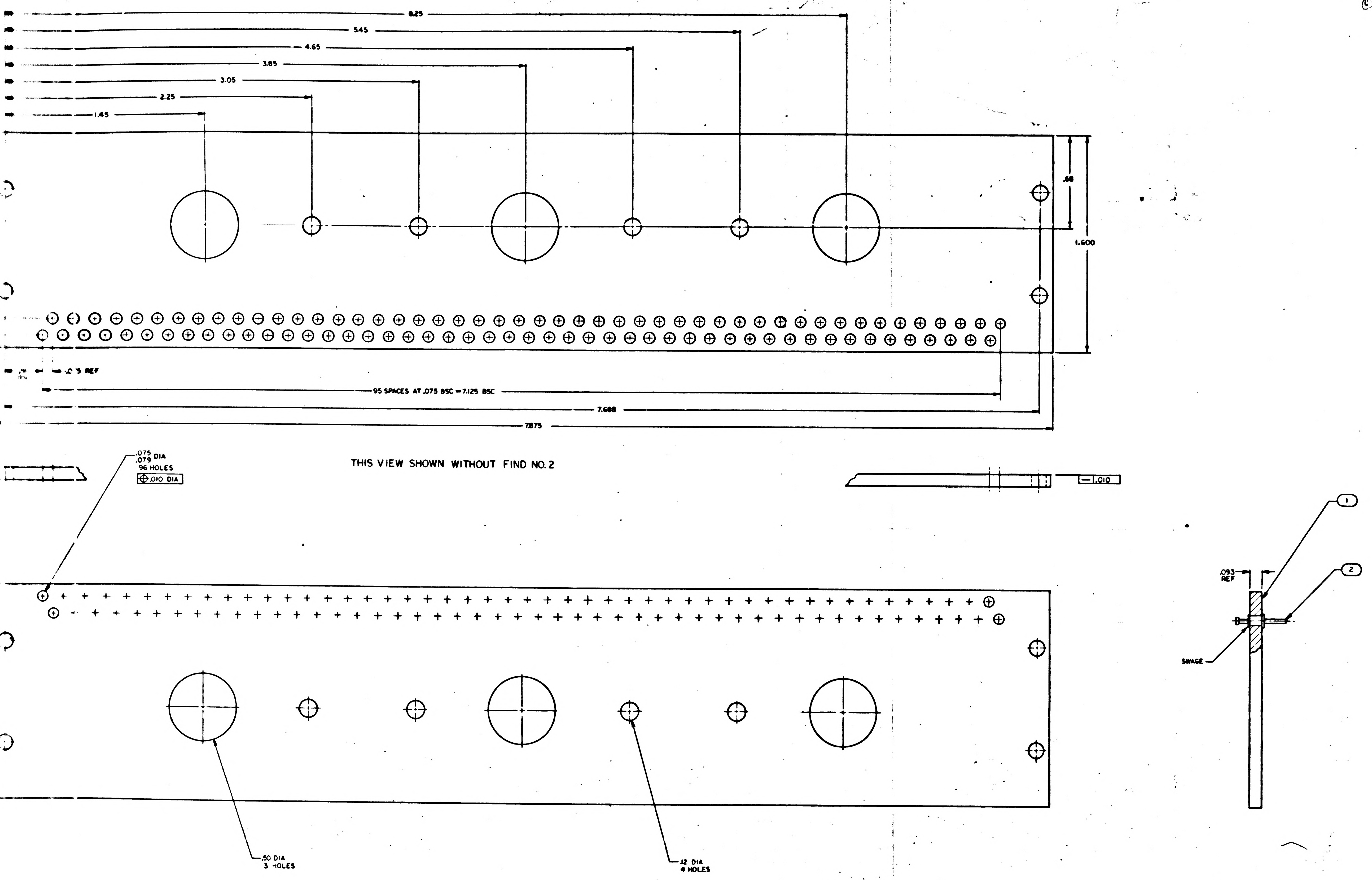
NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: PLASTIC SHEET, .093 THICK LAMINATED PER MIL-P-18177 TYPE GEE
3. REMOVE ALL BURRS AND BREAK SHARP EDGES .005/.015
4. IDENTIFY WITH PART NO. PER ND1002019

2004170 B

E1 / 2

			REVISIONS 25978				
SYM	ZONE	DESCRIPTION		BY	CHK	DATE	APPROVED
A		REVISED PER TDRR 26767					
B		REVISED PER TDRR 30416					



4
3
2
1
D
C
B
A
8.25
5.45
4.65
3.85
3.05
2.25
1.45
.68
1.600
.C'5 REF
95 SPACES AT .075 BSC = 7.125 BSC
7.688
7.875
.075
.079 DIA
96 HOLES
⊕ .010 DIA
THIS VIEW SHOWN WITHOUT FIND NO. 2
—.010
1
2
.093
REF
SWAGE
.50 DIA
3 HOLES
.12 DIA
4 HOLES

96	2004171	TERMINAL	2
1	2004170-001	PLATE, FEEDTHRU	1
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

2003109	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XXX ±.005 .XX ±.02 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN 22 [illegible]
CHECKED 23 Oct 65
APPROVED
APPROVED Allan C Hall
APPROVED MIT
APPROVED MSC A. C. METZLER
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FEEDTHRU PLATE
INSEPARABLE ASSEMBLY
ERASABLE MEMORY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004170
SCALE 4/1
SHEET 1 OF 1

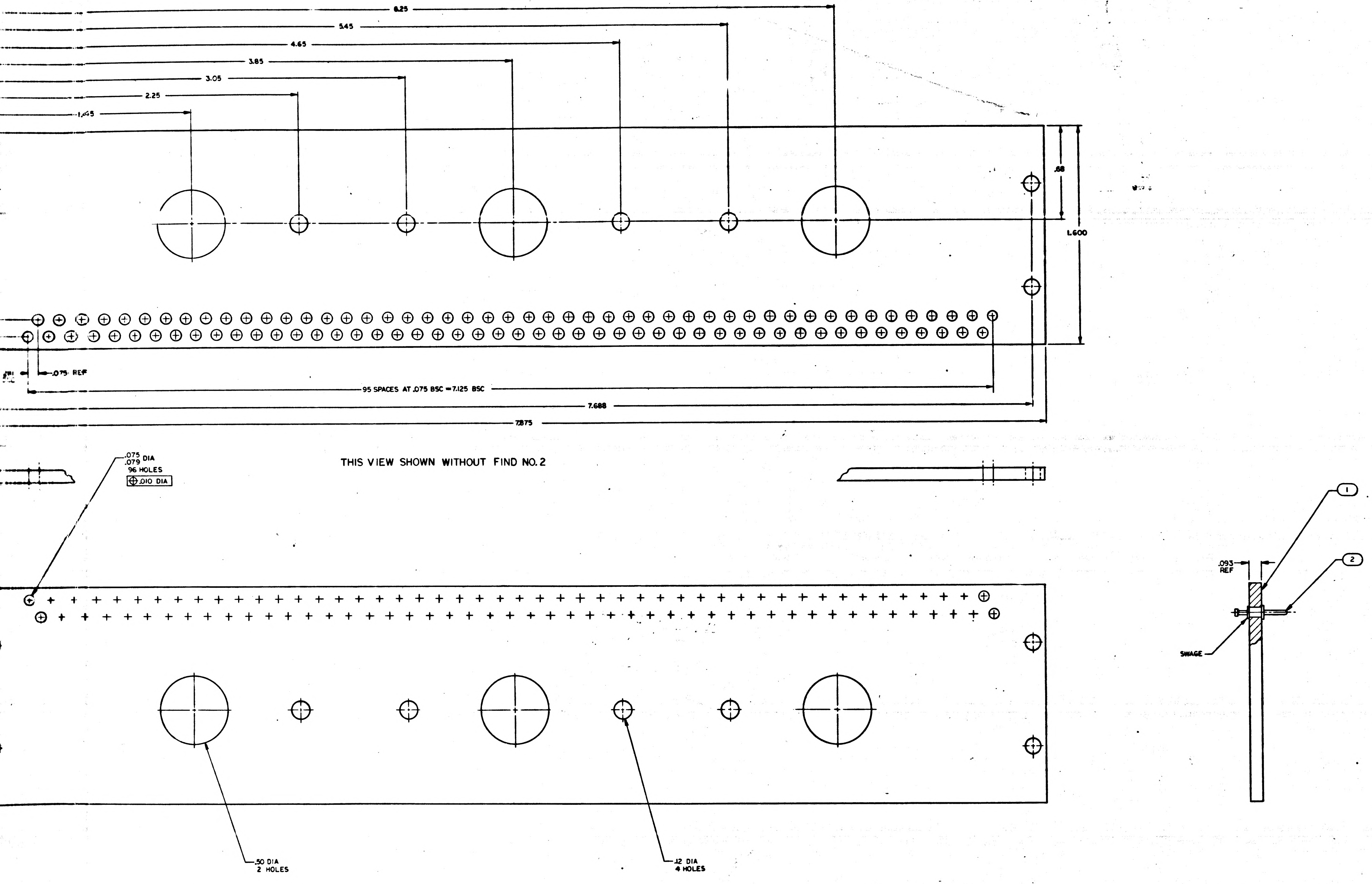
2004170 B

2C04.70 B

E2/2

REVISIONS 25978

SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED



8.25
5.45
4.65
3.85
3.05
2.25
1.45
.68
1.600
.075 REF
95 SPACES AT .075 BSC = 7.125 BSC
7.688
7.875
.075 DIA
.079
96 HOLES
⊕ .010 DIA
.093 REF
1
2
SWAGE
.50 DIA
2 HOLES
.12 DIA
4 HOLES

THIS VIEW SHOWN WITHOUT FIND NO. 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
96	2004171	TERMINAL	2
1	2004170-001	PLATE, FEEDTHRU	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003109	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XXX ±.005 .XX ±.02 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN 22 Aug
CHECKED
APPROVED
APPROVED Dan C Hall
APPROVED MIT
APPROVED NASC A. C. METZGER
DATE

FEEDTHRU PLATE
INSEPARABLE ASSEMBLY
ERASABLE MEMORY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2004170

SCALE 4/1
SHEET 1 OF 1

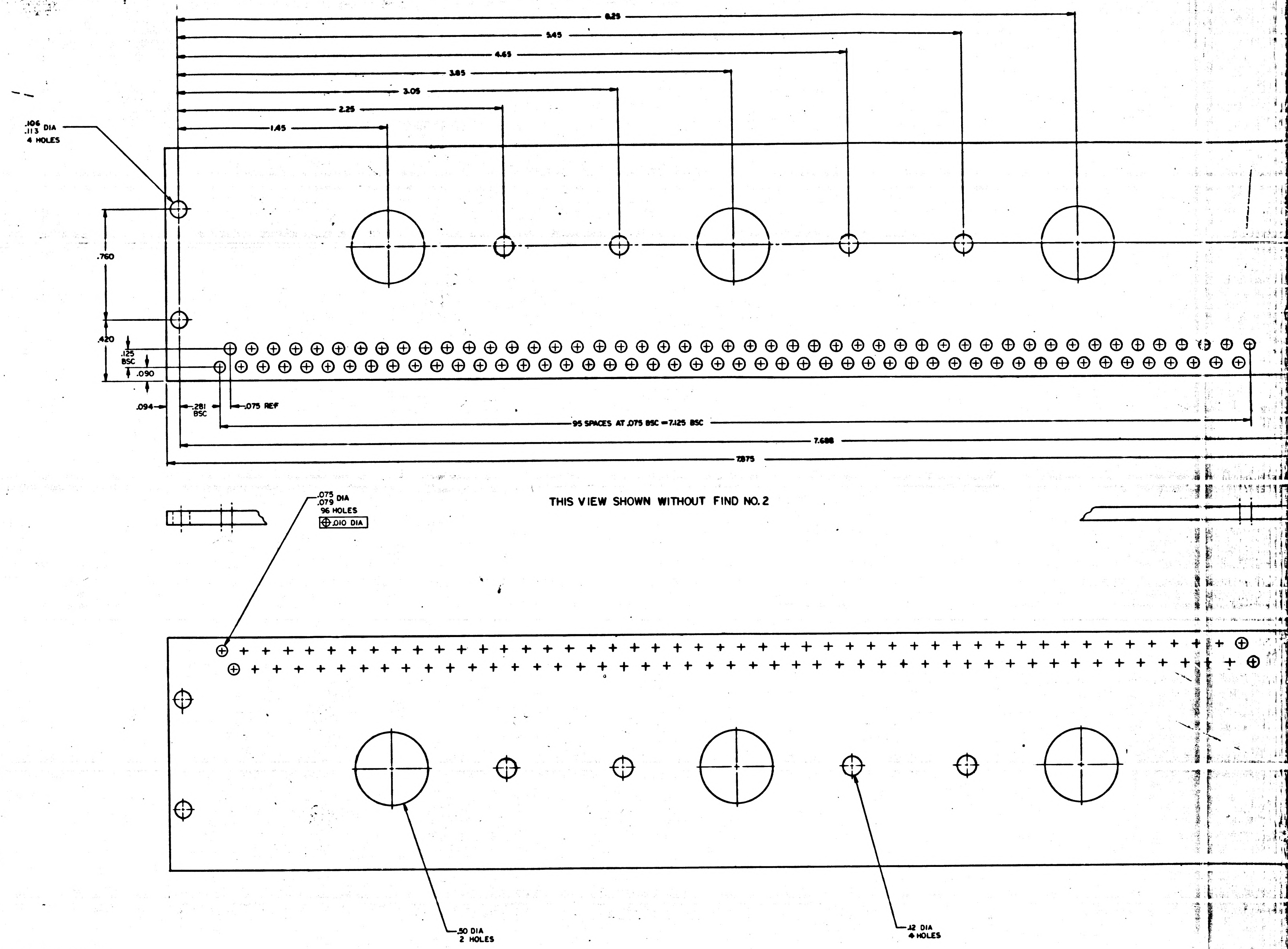
2004170

F2

2004170

MASTER

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


6.25
5.45
4.65
3.85
3.05
2.25
1.45
.106 .113 DIA 4 HOLES
.760
.420
.125 BSC
.090
.094
.281 BSC
.075 REF
95 SPACES AT .075 BSC = 7.125 BSC
7.688
7.875
.075 .079 DIA 96 HOLES
⊕ .010 DIA
THIS VIEW SHOWN WITHOUT FIND NO. 2
.50 DIA 2 HOLES
.12 DIA 4 HOLES

2H

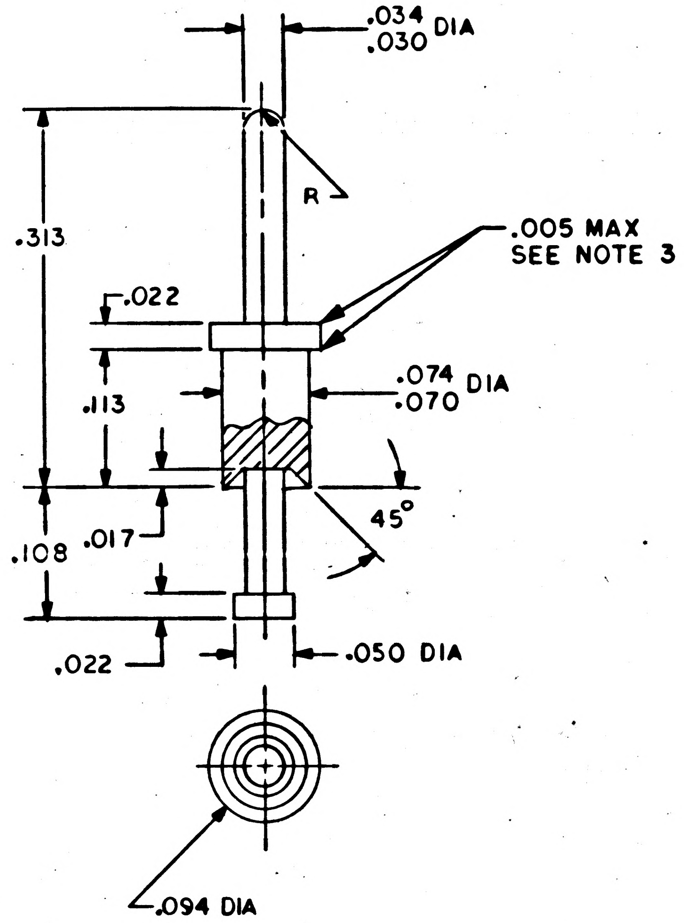
NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: PLASTIC SHEET, .093 THICK LAMINATED PER MIL-P-18177 TYPE GEE
3. REMOVE ALL BURRS AND BREAK SHARP EDGES .005/.015
4. IDENTIFY WITH PART NO. PER ND1002019

F-1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 25978

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: NICKEL PER MIL-N-46026, TEMP AS DRAWN
3. REMOVE BURRS AND BREAK SHARP EDGES .005/.016 UNLESS OTHERWISE SPECIFIED
4. UNLESS OTHERWISE SPECIFIED $\overset{125}{\vee}$ ALL OVER
5. FINISH: GOLD PLATE IN ACCORDANCE WITH MIL-G-45204 TYPE II, CLASS I (COPPER STRIKE)
6. IDENTIFY WITH PART NO. PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2004170	
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON

FRACTIONS	DECIMALS	ANGLES
± —	±.005	±5°

DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

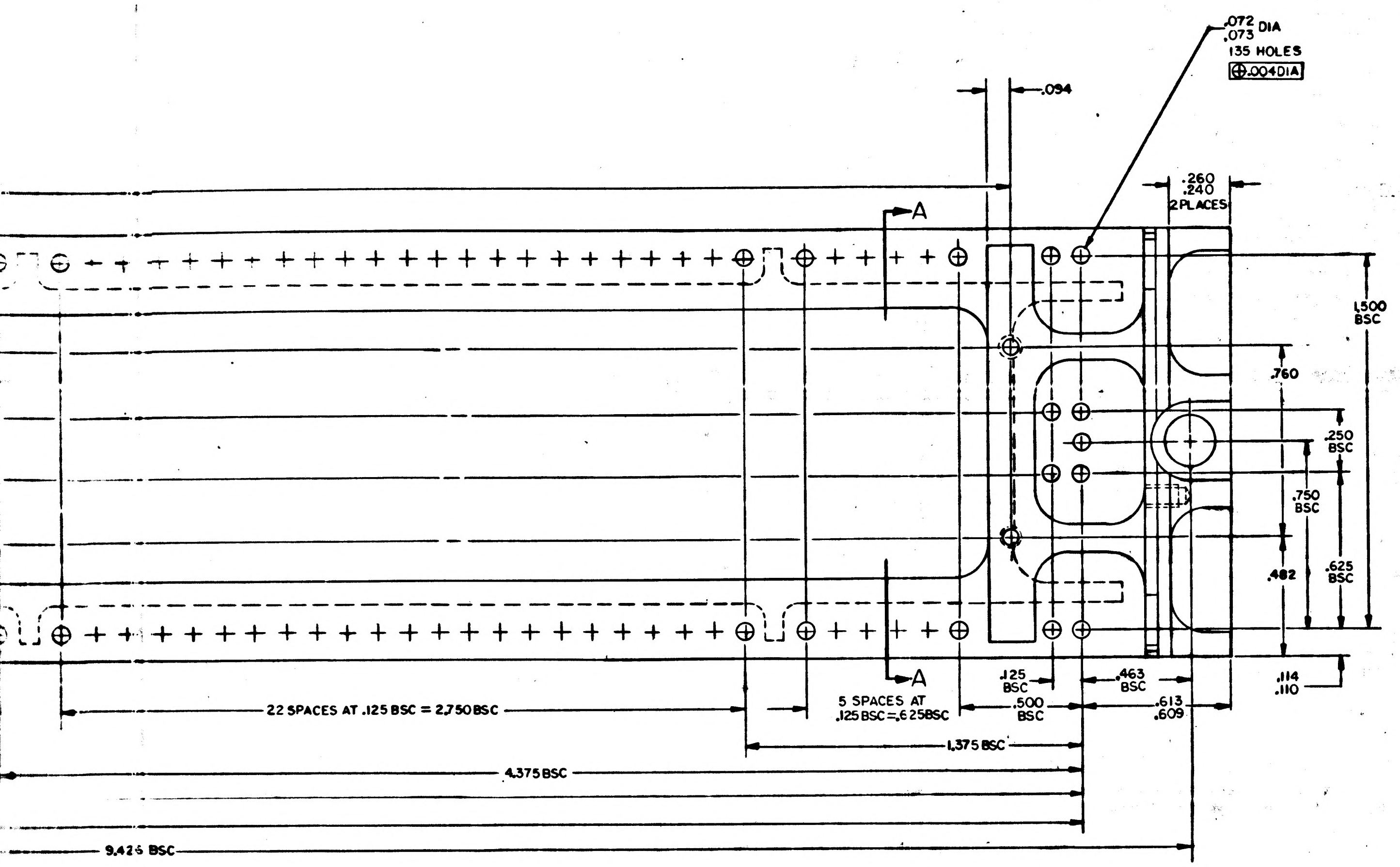
DRAWN Louis A Love 19 Nov 65
CHECKED 19 Nov 65
APPROVED
APPROVED Ellen C Hall 3 Dec 65
APPROVED MIT W Kupfer
A. C. METZGER
APPROVED MSC
DATE

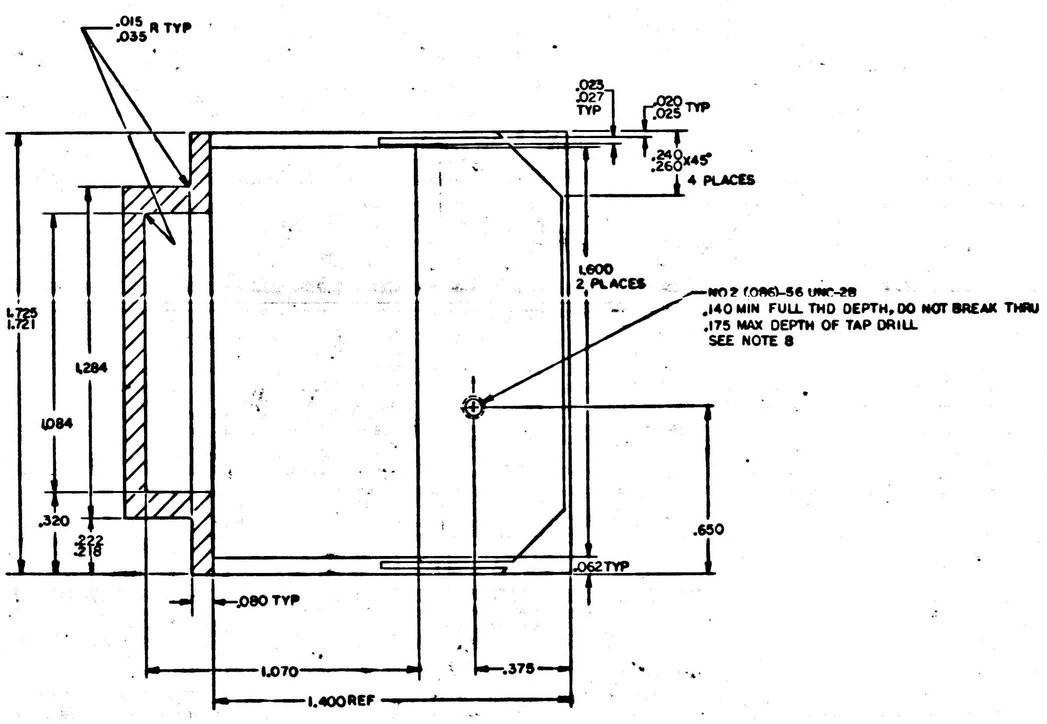
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TERMINAL
ERASABLE MEMORY

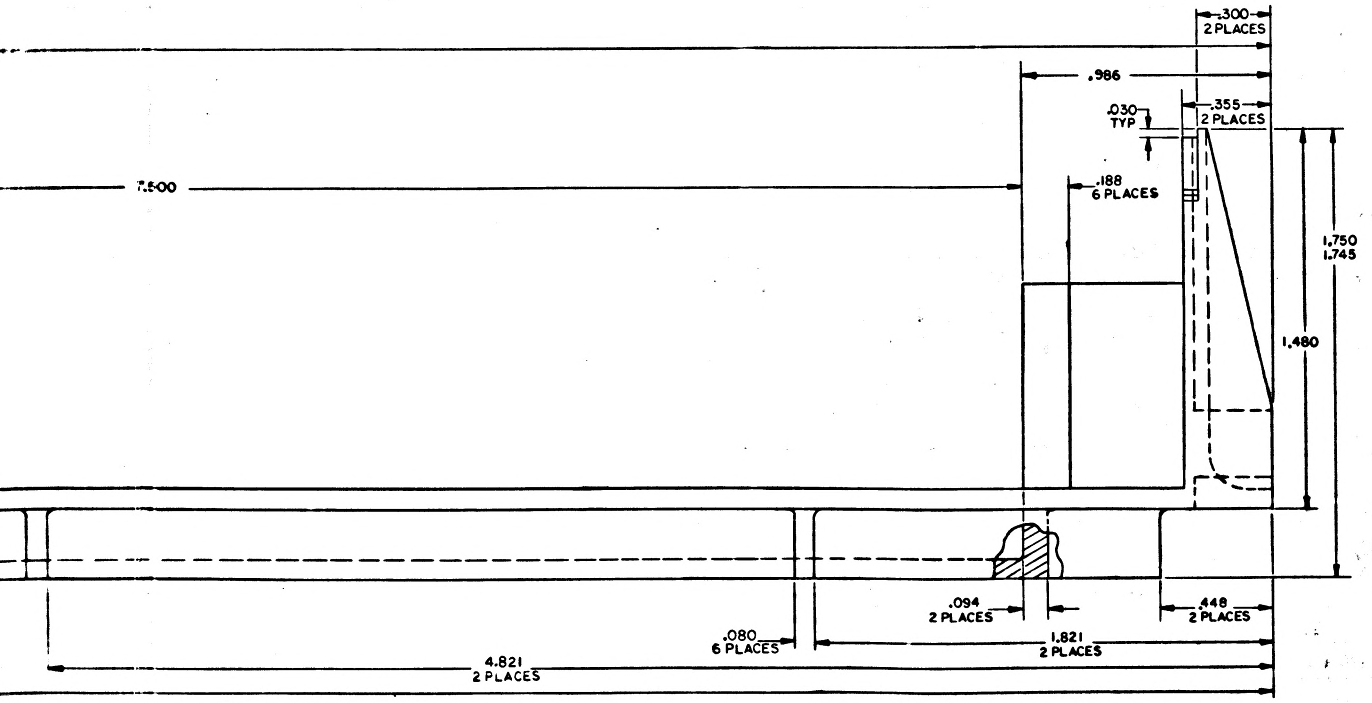
CODE IDENT NO.
SIZE C
DRAWING NO. 2004171
SCALE 10/1
SHEET 1 OF 1

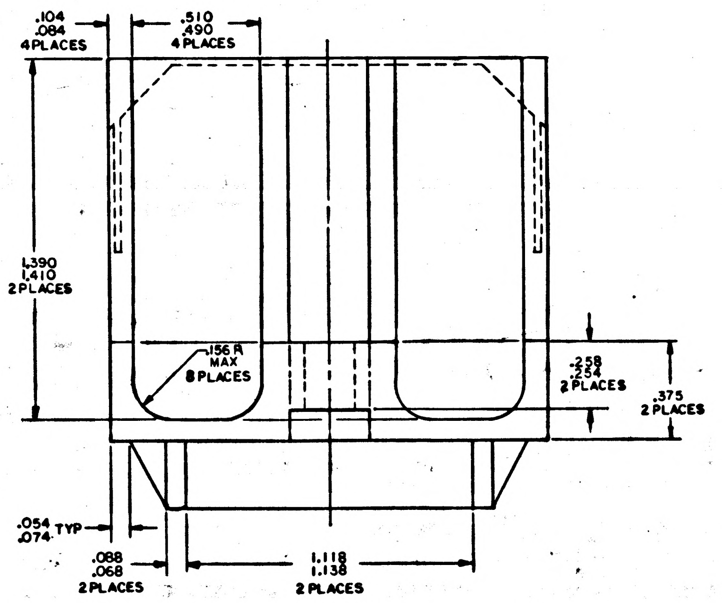
REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED


.072
.073 DIA
135 HOLES
⊕.004DIA
.094
.260
.240
2 PLACES
A
A
1.500
BSC
.760
.250
BSC
.750
BSC
.625
BSC
.482
.114
.110
22 SPACES AT .125 BSC = 2.750 BSC
5 SPACES AT
.125 BSC = .625 BSC
.125
BSC
.500
BSC
.463
BSC
.613
.609
1.375 BSC
4.375 BSC
9.425 BSC


.015
.035 R TYP
.023
.027
TYP
.020
.025 TYP
.240
.260 X45°
4 PLACES
1.600
2 PLACES
NO 2 (.086)-56 UNC-2B
.140 MIN FULL THD DEPTH, DO NOT BREAK THRU
.175 MAX DEPTH OF TAP DRILL
SEE NOTE 8
1.725
1.721
1.284
1.084
.320
.222
.218
.650
.062 TYP
.080 TYP
1.070
.375
1.400 REF

SECTION A–A


.300
2 PLACES
.986
.030
TYP
.355
2 PLACES
7.500
.188
6 PLACES
1.750
1.745
1.480
.094
2 PLACES
.448
2 PLACES
.080
6 PLACES
1.821
2 PLACES
4.821
2 PLACES


.104
.084
4 PLACES
.510
.490
4 PLACES
1.390
1.410
2 PLACES
.156 R
MAX
8 PLACES
.258
.254
2 PLACES
.375
2 PLACES
.054
.074 TYP
.088
.068
2 PLACES
1.118
1.138
2 PLACES

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003110	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ±.005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
A. C. METZINGER
APPROVED MSC
DATE

HEADER HOUSING
ERASABLE MEMORY

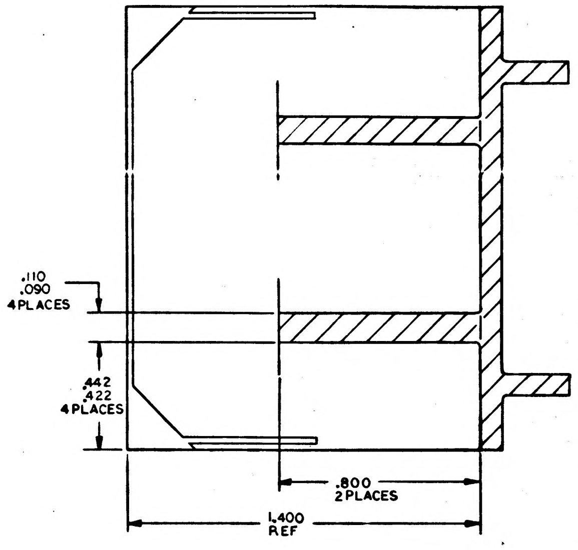
CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2004174
SCALE 4/1		SHEET 1 OF 1

MASTER

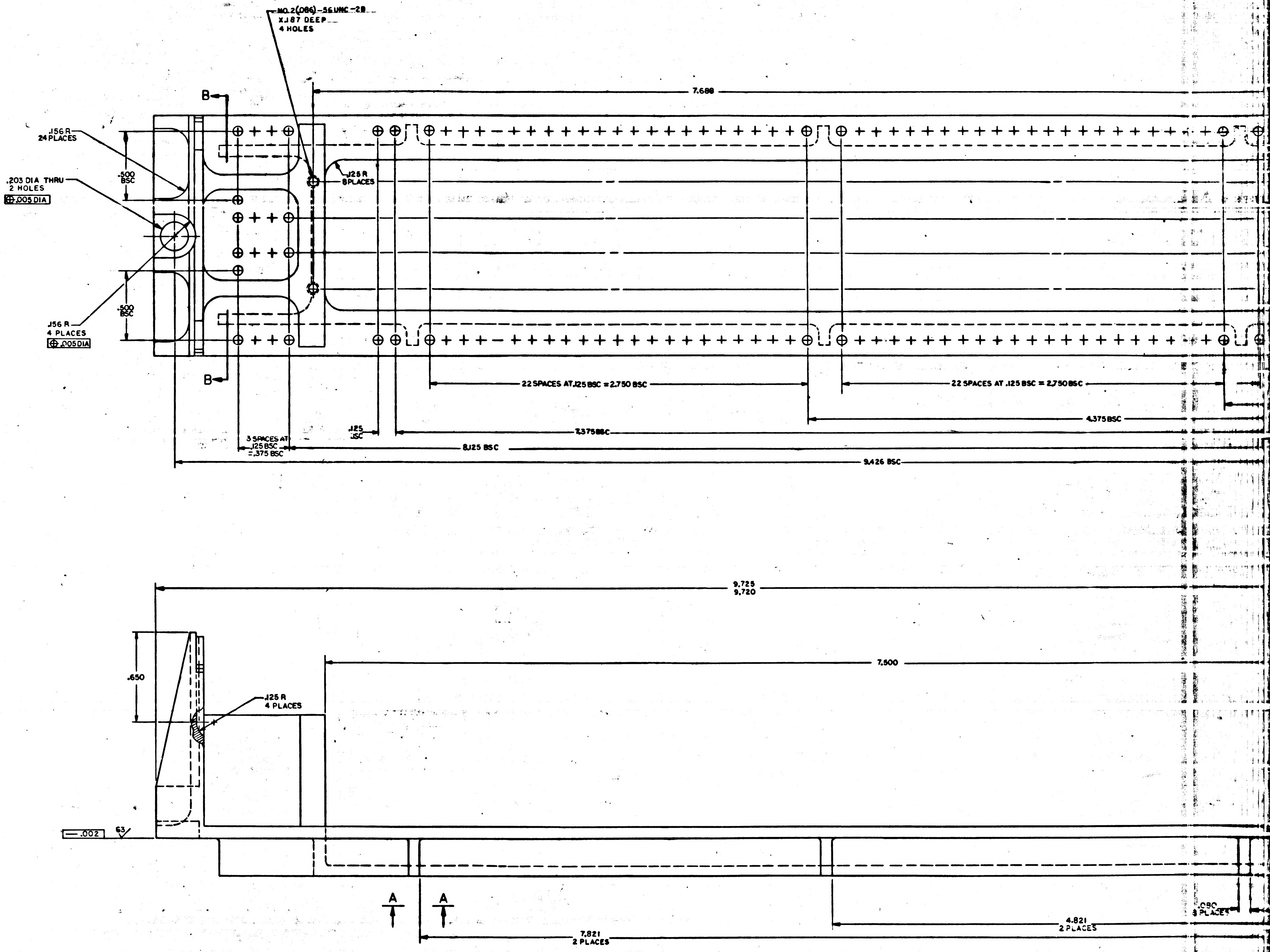
2004174

2004174

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

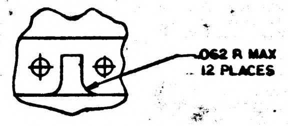

.110
.090
4 PLACES
.442
.422
4 PLACES
.800
2 PLACES
1.400
REF

SECTION B-B


NO.2(.086)-56UNC-2B
X.187 DEEP
4 HOLES
B
B
7.688
.156 R
24 PLACES
.500
BSC
.203 DIA THRU
2 HOLES
⊕ .005 DIA
.156 R
4 PLACES
⊕ .005 DIA
.500
BSC
.125 R
8 PLACES
22 SPACES AT .125 BSC = 2.750 BSC
22 SPACES AT .125 BSC = 2.750 BSC
4.375 BSC
.125
BSC
7.375 BSC
3 SPACES AT
.125 BSC
=.375 BSC
8.125 BSC
9.426 BSC
9.725
9.720
.650
7.500
.125 R
4 PLACES
.002
63
A
A
7.821
2 PLACES
4.821
2 PLACES
.080
3 PLACES

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDANDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: MAGNESIUM ZK60A-T5 PER QQ-M-31, TEMP 5
3. FINISH: ANODIZE PER MIL-M-45202, TYPE I, CLASS C
4. ALL SURFACES $\overset{125}{\checkmark}$ UNLESS OTHERWISE SPECIFIED
5. REMOVE ALL BURRS AND BREAK SHARP EDGES .005-.015
6. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .010 MAX
7. IDENTIFY WITH PART NO. PER ND1002019
8. TAP HOLE AFTER ANODIZE. COAT PER ND1002040


.062 R MAX
12 PLACES

PARTIAL VIEW A-A

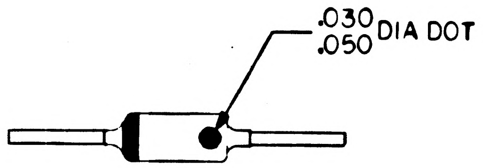
2004174

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REDRAWN & REVISED PER 32544	R.D.J.		2 Feb 67	

PART NO.	DOT COLOR		MARKING INK	DIODE NO.	NOTES
2004183-001	GREEN	UNMATCHED	1006271-5	1006399	SEE NOTE 4
2004183-002	GREEN & YELLOW	MATCHED SET	1006271-5 1006271-4	1006399	SEE NOTE 4



GENERAL REQUIREMENTS:

UPON COMPLETION OF ALL REQUIREMENTS AS SPECIFIED IN ND1002314 ONLY THOSE DIODES FROM LOTS WHICH QUALIFY FOR FLIGHT HARDWARE UNDER THE PROVISIONS OF ND1002314 SHALL BE MARKED AS INDICATED IN THIS DOCUMENT.

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. IDENTIFY WITH PART NO. PER ND1002019.
3. MATCHED SET:

   TEST FOR MATCHING: A MATCHED SET WILL HAVE A FORWARD VOLTAGE MISMATCH OF LESS THAN 3 MILLVOLTS AT 1.0 AND 3.6 MILLAMPS FORWARD CURRENT

   A MATCHED SET IS MARKED WITH AN ADDITIONAL (YELLOW) DOT FARSIDE AND THEN THE SET IS BAGGED AND TAGGED. BOTH DIODES OF A GIVEN PAIR SHALL BE FROM THE SAME LOT.
4. USE 1006399-000 OR 1006399-001.

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	R. St. Jean	20JAN67
CHECKED		23JAN67
APPROVED		
APPROVED	Eldon C Hall	24 JAN67
APPROVED [redacted] CCB		2 Feb 67
APPROVED MSC		
		DATE

DIODE
(FLIGHT QUALIFIED)

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004183
SCALE NONE
SHEET 1 OF 1

2004183 A

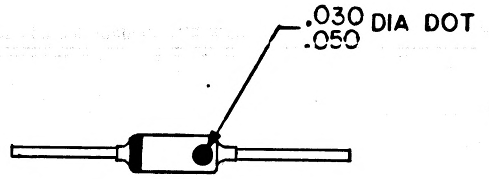
MODERN BLUE PRINT CO., INC. 02840

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 29947

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

PART NO.	DOT COLOR		MARKING INK	DIODE NO.
2004183-001	GREEN	UNMATCHED	1006271-5	1006399
2004183-002	GREEN & YELLOW	MATCHED SET	1006271-5 1006271-4	1006399



GENERAL REQUIREMENTS:

UPON COMPLETION OF ALL REQUIREMENTS AS SPECIFIED IN ND1002314 ONLY THOSE DIODES FROM LOTS WHICH QUALIFY FOR FLIGHT HARDWARE UNDER THE PROVISIONS OF ND1002314 SHALL BE MARKED AS INDICATED IN THIS DOCUMENT.

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. IDENTIFY WITH PART NO. PER ND1002019
3. MATCHED SET:
   TEST FOR MATCHING: A MATCHED SET WILL HAVE A FORWARD VOLTAGE MISMATCH OF LESS THAN 3 MILLVOLTS AT 1.8 MILLAMPS FORWARD CURRENT
   A MATCHED SET IS MARKED WITH AN ADDITIONAL (YELLOW) DOT FARSIDE AND THEN THE SET IS BAGGED AND TAGGED

MASTER

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	[illegible]	2 June 66
CHECKED	L. Arnold	6/6/66
APPROVED	L D Hanley	6/14/66
APPROVED	L D Hanley	6/14/66
APPROVED MIT	M G Hurley	7-5-66
APPROVED MSC	C. METZGER	
		DATE

DIODE
(FLIGHT QUALIFIED)

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004183
SCALE —		SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REDRAWN & REVISED PER TDRR30418	BRF		1/20/67	

PART NO.	FIND NO.1 TRANSISTOR NO.	DOT COLOR		MARKING INK	
2004184-001	1006323	WHITE	POTTED	1006271-1	
-002	1006323	WHITE	UNPOTTED	-1	
-003	1006323	BLUE	UNPOTTED	-6	SEE CHART A
-004	1006323	WHT&RED	POTTED	-8	SEE NOTE 5

GENERAL REQUIREMENT:
UPON COMPLETION OF ALL REQUIREMENTS AS SPECIFIED IN ND1002313 ONLY THOSE TRANSISTORS FROM LOTS WHICH QUALIFY FOR FLIGHT HARDWARE UNDER THE PROVISIONS OF ND1002313 SHALL BE MARKED AS INDICATED IN THIS DOCUMENT

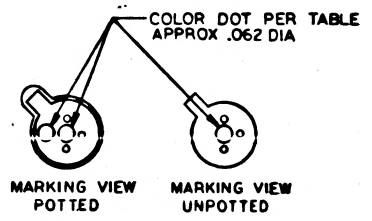
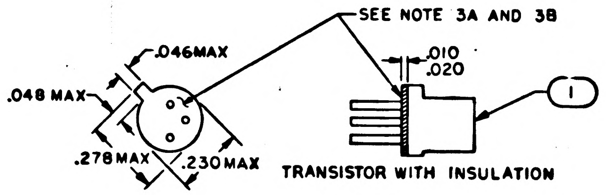


CHART A

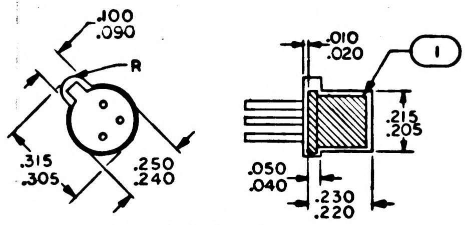
TEST	CONDITIONS	SYM	LIMITS MIN	LIMITS MAX	UNITS
D.C. CURRENT GAIN	$I_C = 0.1mA$ $V_{CE} = 1.0V$	h_{FE}	25	—	—
COLLECTOR TO BASE CUTOFF CURRENT	$V_{CB} = 8V$ $I_E = 0$	I_{CBO}	—	25	nA
COLLECTOR TO EMITTER SATURATION VOLTAGE	$I_C = 1.6MA$ $I_B = 0.5MA$	V_{CE} (SAT)	—	0.2	V



TRANSISTOR WITH INSULATION

CHART B

TEST	CONDITIONS	SYM	LIMITS MIN	LIMITS MAX	UNITS
BASE-EMITTER SATURATION VOLTAGE DIFFERENCE (ABSOLUTE VALUE)	$I_C = 500ma$ $I_B = 50ma$	$\lvert V_{BE\,SAT1} - V_{BE\,SAT2} \rvert$	—	0.2	VDC



POTTED VIEWS

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ELECTRICAL REQUIREMENTS UNLESS OTHERWISE SPECIFIED:
    A. ALL TRANSISTORS, AFTER ENCAPSULATION, SHALL HAVE THEIR ELECTRICAL ACCEPTANCE REQUIREMENTS WITHIN THE LIMITS SET BY THE ORIGINAL SCD
3. CONSTRUCTION REQUIREMENTS:
    A. ENCAPSULATE PER ND1002183 TYPE II
    B. ALL LEADS AND HEADER TO BE FREE OF POTTING MATERIAL AND THEY SHALL NOT SHOW ANY DEFECT DUE TO THE POTTING, SUCH AS; BENDS, KINKS, PLATING DAMAGE, ETC
    C. THERE SHALL BE A MINIMUN ENCAPSULATION THICKNESS OF .003
4. IDENTIFY WITH PART NO. PER ND1002019
5. 2004184-004 IS A PAIR OF TRANSISTORS MATCHED IN ACCORDANCE WITH CHART B.

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	SEE CHART		TRANSISTOR SILICON (FLIGHT QUAL)	1

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

		DATE
DRAWN		17JAN67
CHECKED		18JAN67
APPROVED		
APPROVED	Eldon C Hall	20Jan67
APPROVED CCB		2Feb67
APPROVED MSC		

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRANSISTOR, SILICON (FLIGHT QUALIFIED)

CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2004184

SCALE 4/1 SHEET 1 OF 1

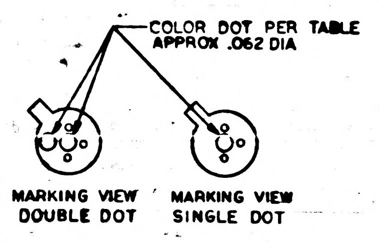
2004184 A

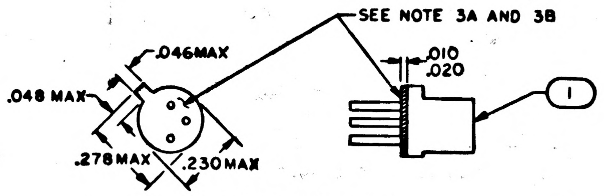
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REDRAWN & REVISED PER TDRR30418	BRG		1/20/67	JJR
B		REVISED PER TDRR 32580	RWX		2/8/67	JJR

PART NO.	FIND NO.1 TRANSISTOR NO.	DOT COLOR		MARKING INK	
2004184-001	1006323	WHITE	POTTED	1006271-1	
-002	1006323	WHITE	UNPOTTED	-1	
-003	1006323	BLUE	UNPOTTED	-6	SEE CHART A
-004	1006323	WHT&RED	POTTED	-8	SEE NOTE 5
-005	1006323	WHT&YEL	POTTED	-1,-4	SEE CHART C

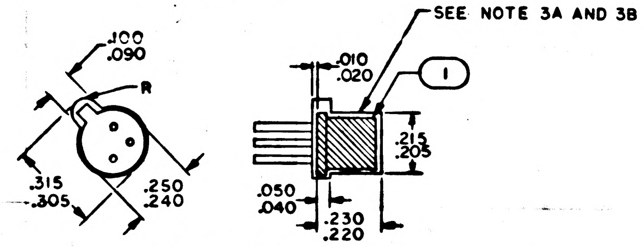
GENERAL REQUIREMENT:
UPON COMPLETION OF ALL REQUIREMENTS AS SPECIFIED IN ND1002313 ONLY THOSE TRANSISTORS FROM LOTS WHICH QUALIFY FOR FLIGHT HARDWARE UNDER THE PROVISIONS OF ND1002313 SHALL BE MARKED AS INDICATED IN THIS DOCUMENT





UNPOTTED VIEWS

CHART A					
TEST	CONDITIONS	SYM	LIMITS		UNITS
			MIN	MAX	
D.C.CURRENT GAIN	I_C=0.1mA V_{CE}=1.0V	h_{FE}	25	—	—
COLLECTOR TO BASE CUTOFF CURRENT	V_{CB}=8V I_E = 0	I_{CBO}	—	25	nA
COLLECTOR TO EMITTER SATURATION VOLTAGE	I_C = 1.6MA I_B = 0.5MA	V_{CE} (SAT)	—	0.2	V



POTTED VIEWS

CHART B					
TEST	CONDITIONS	SYM	LIMITS		UNITS
			MIN	MAX	
BASE-EMITTER SATURATION VOLTAGE DIFFERENCE(ABSOLUTE VALUE)	I_C=500ma I_B=50ma	$\lvert V_{BE\,SAT1} - V_{BE\,SAT2} \rvert$	—	0.2	VDC

CHART C (MAKE FROM 2004184-001)					
TEST	CONDITIONS	SYM	LIMITS		UNITS
			MIN	MAX	
COLLECTOR — EMITTER SUSTAINING VOLTAGE	I_C=30ma PULSED I_B=0	V_{CEO} SUST.	40	—	V

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ELECTRICAL REQUIREMENTS UNLESS OTHERWISE SPECIFIED:
   A. ALL TRANSISTORS, AFTER ENCAPSULATION, SHALL HAVE THEIR ELECTRICAL ACCEPTANCE REQUIREMENTS WITHIN THE LIMITS SET BY THE ORIGINAL SCD
3. CONSTRUCTION REQUIREMENTS:
   A. ENCAPSULATE PER ND1002183 TYPE II
   B. ALL LEADS AND HEADER TO BE FREE OF POTTING MATERIAL AND THEY SHALL NOT SHOW ANY DEFECT DUE TO THE POTTING, SUCH AS; BENDS, KINKS, PLATING DAMAGE, ETC
   C. THERE SHALL BE A MINIMUN ENCAPSULATION THICKNESS OF .003
4. IDENTIFY WITH PART NO. PER ND1002019
5. 2004184-004 IS A PAIR OF TRANSISTORS MATCHED IN ACCORDANCE WITH CHART B. AFTER MARKING AS INDICATED THE SET IS BAGGED AND TAGGED

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	SEE CHART		TRANSISTOR SILICON(FLIGHT QUAL)	1

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ± —— ANGLES ± ——
DO NOT SCALE THIS DRAWING
MATERIAL ——

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN 17 JAN 67
CHECKED 18 JAN 67
APPROVED
APPROVED Eldon C Hall 20 Jan 67
APPROVED CCB 2 Feb 67
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

TRANSISTOR, SILICON
(FLIGHT QUALIFIED)

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2004184
SCALE 4/1
SHEET 1 OF 1

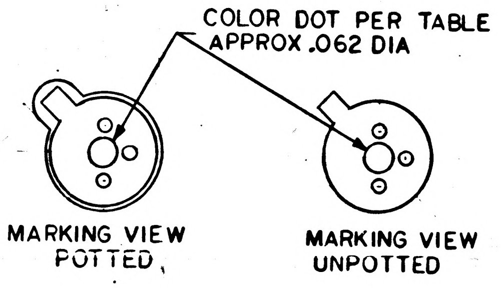
2004184 B

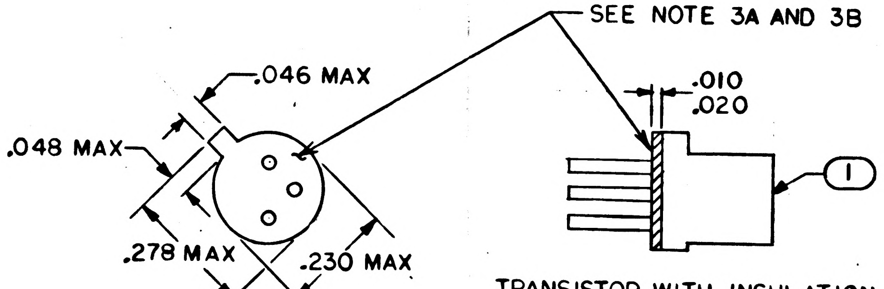
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 29947						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

PART NO.	FIND NO. I TRANSISTOR NO.	DOT COLOR		MARKING INK	
2004184-001	1006323	WHITE	POTTED	1006271-1	
-002	1006323	WHITE	UNPOTTED	-1	
-003	1006323	BLUE	UNPOTTED	-6	SEE CHART A

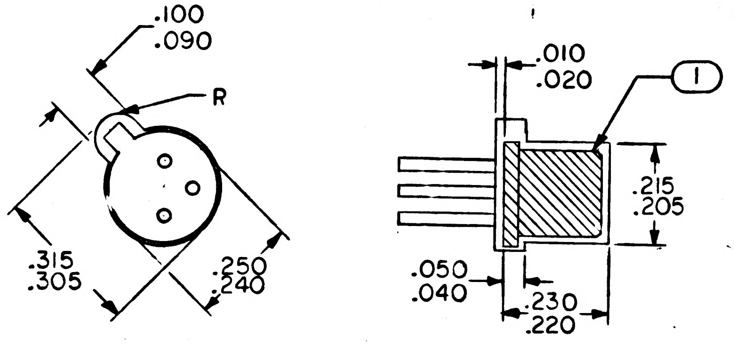
GENERAL REQUIREMENT:
UPON COMPLETION OF ALL REQUIREMENTS AS SPECIFIED IN ND 1002313 ONLY THOSE TRANSISTORS FROM LOTS WHICH QUALIFY FOR FLIGHT HARDWARE UNDER THE PROVISIONS OF ND 1002313 SHALL BE MARKED AS INDICATED IN THIS DOCUMENT





TRANSISTOR WITH INSULATION

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ELECTRICAL REQUIRIMENTS UNLESS OTHERWISE SPECIFIED:
   A. ALL TRANSISTORS, AFTER ENCAPSULATION, SHALL HAVE THEIR ELECTRICAL ACCEPTANCE REQUIREMENTS WITHIN THE LIMITS SET BY THE ORIGINAL SCD
3. CONSTRUCTION REQUIREMENTS:
   A. ENCAPSULATE PER ND 1002183 TYPE II
   B. ALL LEADS AND HEADER TO BE FREE OF POTTING MATERIAL AND THEY SHALL NOT SHOW ANY DEFECT DUE TO THE POTTING, SUCH AS; BENDS, KINKS, PLATING DAMAGE, ETC
   C. THERE SHALL BE A MINIMUM ENCAPSULATION THICKNESS OF .003
4. IDENTIFY WITH PART NO. PER ND1002019



POTTED VIEWS

CHART A

TEST	CONDITIONS	SYM	LIMITS MIN	LIMITS MAX	UNITS
D.C. CURRENT GAIN	$I_C = 0.1 mA$ $V_{CE} = 1.0 V$	h_{FE}	25	—	—
COLLECTOR TO BASE CUTOFF CURRENT	$V_{CB} = 8V$ $I_E = 0$	I_{CBO}	—	25	nA
COLLECTOR TO EMITTER SATURATION VOLTAGE	$I_C = 1.6MA$, $I_B = 0.5MA$	(SAT) V_{CE}	—	0.2	V

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	SEE CHART		TRANSISTOR SILICON (FLIGHT QUAL)	1

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J. FUCHS 6 June 66
CHECKED L. Hood cc 6/6/66
APPROVED L D Hanley 6/16/66
APPROVED L D Hanley 6/16/66
APPROVED MIT M G Murley 7-5-66
A. C. [illegible]
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

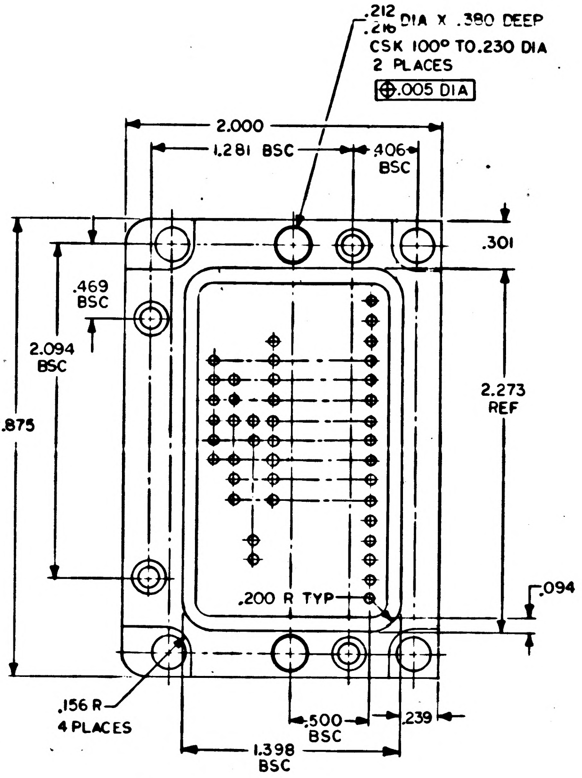
TRANSISTOR, SILICON
(FLIGHT QUALIFIED)

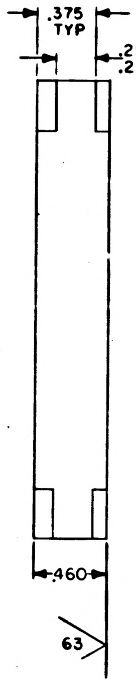
CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004184
SCALE 4/1
SHEET 1 OF 1

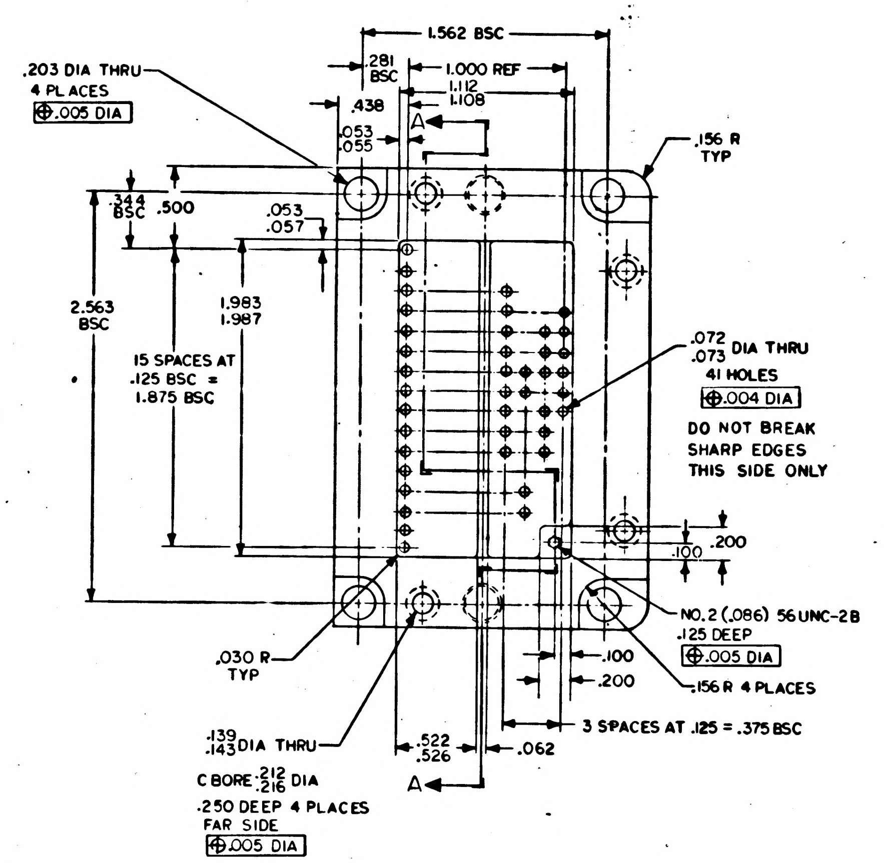
MASTER

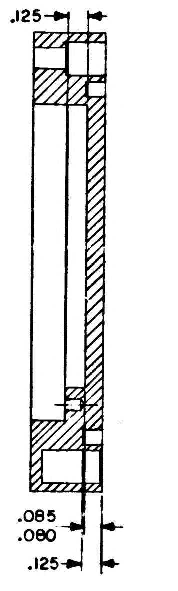
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS TPRR 32543						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED


.212 .216 DIA X .380 DEEP
CSK 100° TO .230 DIA
2 PLACES
.005 DIA
2.000
1.281 BSC
.406 BSC
.301
.469 BSC
2.094 BSC
2.875
2.273 REF
.094 TYP
.200 R TYP
.156 R
4 PLACES
.500 BSC
.239
1.398 BSC


.375 TYP
.258 .254 TYP
.460
63


1.562 BSC
.281 BSC
1.000 REF
.438
1.112 1.108
A
.053 .055
.203 DIA THRU
4 PLACES
.005 DIA
.156 R TYP
.344 BSC
.500
.053 .057
2.563 BSC
1.983 1.987
15 SPACES AT .125 BSC = 1.875 BSC
.072 .073 DIA THRU
41 HOLES
.004 DIA
DO NOT BREAK SHARP EDGES THIS SIDE ONLY
.200
.100
NO.2 (.086) 56UNC-2B
.125 DEEP
.005 DIA
.030 R TYP
.100
.200
.156 R 4 PLACES
3 SPACES AT .125 = .375 BSC
.139 .143 DIA THRU
C BORE .212 .216 DIA
.250 DEEP 4 PLACES FAR SIDE
.005 DIA
.522 .526
.062
A


.125
.085 .080
.125

SECTION A-A

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-1000
2. MATL: 6061 T6 AL PER QQ-A-250/11
3. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
4. ALL SURFACES 125√ UNLESS OTHERWISE SPECIFIED
5. REMOVE BURRS AND SHARP EDGES .005/.015
6. IDENTIFY WITH PART NO PER ND 1002019

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003094	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ±.005 ANGLES ± ——
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	Joseph C Finch	8-26-66
CHECKED	Bonarrigo	30 Aug 66
APPROVED		
APPROVED	Albert Hopkins	31 Aug 66
APPROVED EDR		6 Sep 67
APPROVED MSC		
		DATE

FRAME
CONNECTOR

CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2004190
SCALE 2/1		SHEET 1 OF 1

2004190

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
-		INITIAL RELEASE CLASS A PER TDRR 25802				
A		REVISED PER TDRR 26195	HB	R.W.E.	3/29/66	

DESCRIPTION	PART NO.		QTY
BRACKET, SCREW RETAINER	2004149-001		14
~~BRACKET, MOUNTING SCREW~~	~~1001489-3~~		~~28~~
BOLT, CAP SOCKET HD.	2004147-003		14
WASHER, FLAT	2004148-003		28

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
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CAPACITOR VALUES ARE IN μf
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TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Ken Buell 28MAR66
CHECKED
APPROVED
APPROVED Eldon C Hall 6Feb66
APPROVED MIT W Kupfer 1Feb66
APPROVED MSC A. C. METZGER
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSTALLATION KIT
COMPUTER GROUP C/M

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004199
SCALE
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
-		INITIAL RELEASE CLASS A PER TDRR 25802				
A		REVISED PER TDRR 26195	NB	R.H.E.	3/20/66	
B		REVISED PER TDRR 27554	W.D	R.H.E.	4/12/66	

-000

DESCRIPTION	PART NO.		QTY
BRACKET, SCREW RETAINER	2004149-001		14
BRACKET, MOUNTING SCREW	1001489-3		28
BOLT, CAP SOCKET HD.	2004147-003		14
WASHER, FLAT	2004148-003		28

-011

DESCRIPTION	PART NO.		QTY
BRACKET, SCREW RETAINER	2004149-001		14
BRACKET, MOUNTING SCREW	1001489-3		28
BOLT, CAP SOCKET HD	2004147-004		14
WASHER, FLAT	2004147-003		28

NOTE:

1. THE ORIGINAL CONFIGURATION OF THIS DRAWING IS IDENTIFIED BY THE DRAWING NUMBER AND A -000 SUFFIX.

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN 28MAR66
CHECKED
APPROVED
APPROVED Eldon C Hall 2Feb66
APPROVED MIT 1Feb66
A. C. METZGER
APPROVED MSC
DATE

INSTALLATION KIT
COMPUTER GROUP C/M

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004199
SCALE
SHEET 1 OF 1

2004199 B

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
-		INITIAL RELEASE CLASS A PER TDRR 25802				

DESCRIPTION	PART NO.	QTY
BRACKET, SCREW RETAINER	2004149-001	14
BRACKET, MOUNTING SCREW	1001489-3	28
BOLT, CAP SOCKET HD.	2004147-003	14
WASHER, FLAT	2004148-001	28

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN
CHECKED
APPROVED
APPROVED Eldon C Hall 2 Feb 66
APPROVED MIT A. C. METZGER 1 Feb 66
APPROVED MSC
DATE

INSTALLATION KIT
COMPUTER GROUP C/M

CODE IDENT NO.
SIZE C
DRAWING NO. 2004199
SCALE
SHEET 1 OF 1

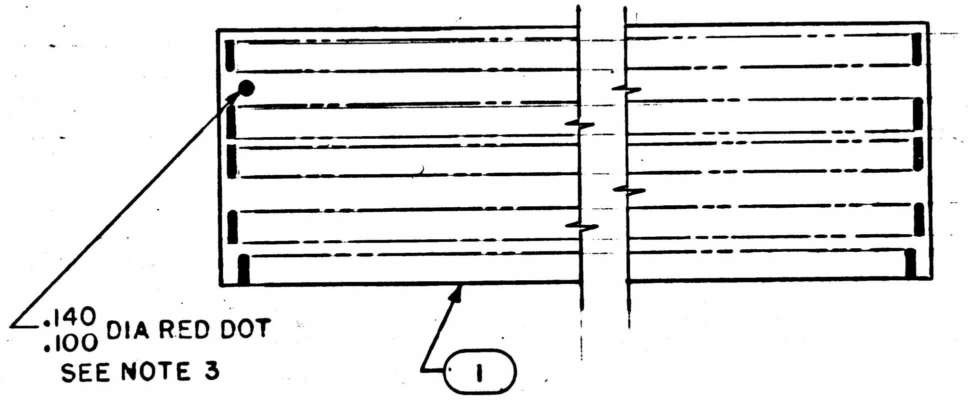
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 25981

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

PART NO.	FIND NO. 1	REF MOD NO.
204250-001	1006390-001	A1
-002	-002	A1
-003	-003	A2
-004	-004	A2
-005	-005	A3
-006	-006	A3
-007	-007	A4
-008	-008	A4
-009	-009	A5
-010	-010	A5
-011	-011	A6
-012	-012	A6
-013	-013	A7
-014	-014	A7
-015	-015	A8
-016	-016	A8
-015	-015	A9
-016	-016	A9
-015	-015	A10
-016	-016	A10
-015	-015	A11
-016	-016	A11
-017	-017	A12
-018	-018	A12
204250-019	1006390-019	A13

PART NO.	FIND NO. 1	REF MOD NO
204250-020	1006390-020	A14
-021	-021	A14
-022	-022	A15
-023	-023	A15
-024	-024	A16
-025	-025	A16
-026	-026	A17
-027	-027	A17
-028	-028	A18
-029	-029	A18
-030	-030	A19
-031	-031	A19
-032	-032	A20
-033	-033	A20
-034	-034	A21
-035	-035	A21
-036	-036	A22
-037	-037	A22
-038	-038	A23
-039	-039	A23
-040	-040	A24
204250-041	1006390-041	A24



NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. IDENTIFY WITH PART NO. PER ND1002019
3. MARK RED DOT USING INK PER 1006271-8 APPROXIMATELY WHERE SHOWN

GENERAL REQUIREMENT

UPON COMPLETION OF ALL REQUIREMENTS AS SPECIFIED IN ND 1002293 , THE BOARDS WHICH QUALIFY FOR FLIGHT HARDWARE UNDER THE PROVISIONS OF ND1002293 SHALL BE MARKED IN RED AS INDICATED IN THIS DOCUMENT

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	1006390-	MULTILAYER CIRCUIT BOARD	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003086	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN W. Horgan 3 FEB 66
CHECKED cc R.P. Kurgaluny 3 Feb 66
APPROVED
APPROVED Eldon C. Hall 8 Feb 66
APPROVED MIT 8 Feb 66
A. C. METZGER
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

MULTILAYER CIRCUIT BOARD
(FLIGHT QUALIFIED)

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004250

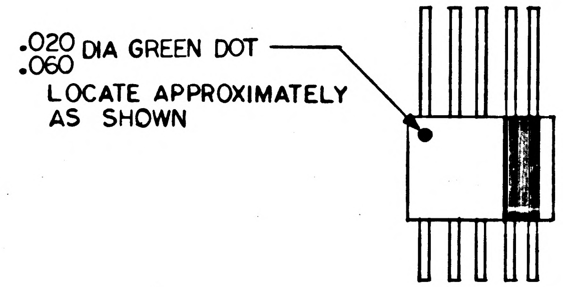
SCALE NONE
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 29947

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

PART NO.	SCD NO.	MARKING INK
2004301-001	1006321	1006271-5
2004301-002	1006394	1006271-5



GENERAL REQUIREMENT:

UPON COMPLETION OF ALL REQUIREMENTS AS SPECIFIED IN ND1002312 THE NOR GATES WHICH QUALIFY FOR FLIGHT HARDWARE UNDER THE PROVISIONS OF ND1002312 SHALL BE MARKED IN GREEN AS INDICATED IN THIS DOCUMENT

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. IDENTIFY WITH PART NO. PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN 2 June 66
CHECKED 6/6/66
APPROVED 6/16/66
APPROVED 6/16/66
APPROVED MIT 7-5-66
A. C. METZGER
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

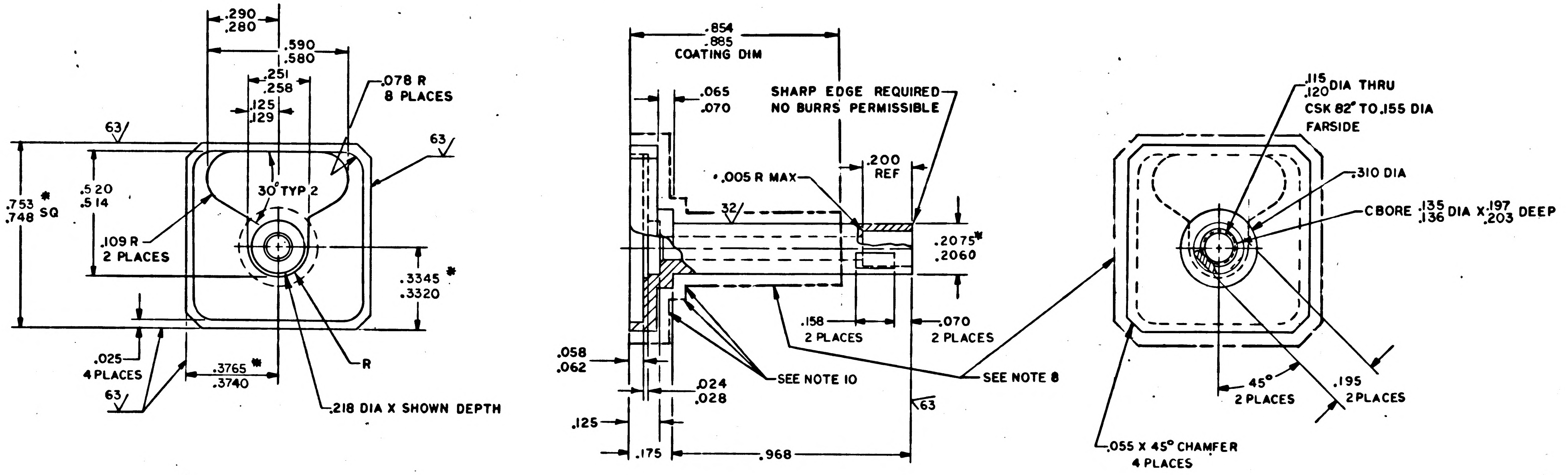
DUAL NOR GATE (FLATPACK)
(FLIGHT QUALIFIED)

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004301
SCALE 5/1
SHEET 1 OF 1

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		INITIAL RELEASE 70AA32573			6 Jan 67	[illegible]


.290
.280
.590
.580
.251
.258
.125
.129
.078 R
8 PLACES
63
63
.753
.748 * SQ
.520
.514
30° TYP 2
.109 R
2 PLACES
.3345 *
.3320
.025
4 PLACES
63
.3765 *
.3740
R
.218 DIA X SHOWN DEPTH
.854
.885
COATING DIM
.065
.070
SHARP EDGE REQUIRED
NO BURRS PERMISSIBLE
.200
REF
•.005 R MAX
32
.2075*
.2060
.158
2 PLACES
.070
2 PLACES
.058
.062
SEE NOTE 10
SEE NOTE 8
.024
.028
63
.125
.175
.968
.115
.120 DIA THRU
CSK 82° TO .155 DIA
FARSIDE
.310 DIA
CBORE .135
.136 DIA X .197
.203 DEEP
45°
2 PLACES
.195
2 PLACES
.055 X 45° CHAMFER
4 PLACES

NOTES

1. MATL:6061-T6 AL PER QQ-A-225b/8, TEMP 6
2. REMOVE BURRS AND SHARP EDGES .005 MAX UNLESS OTHERWISE SPECIFIED
3. INSIDE RADII TO BE .010 R MAX
4. ANODIZE PER MIL-A-8625, TYPE II, NOT DYED (THICKNESS OF ANODIC COATING .0003-.0004)
5. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
6. IDENTIFY WITH PART NO. PER ND1002019
7. ALL SURFACES $\sqrt{}$ 125 UNLESS OTHERWISE SPECIFIED
8. COAT INDICATED SURFACES 0.2/0.4 MIL DRY FILM THICKNESS PER AMS 2515B, EXCEPT 0.2 MIL MINIMUM NOT REQUIRED AT SURFACE INTERSECTIONS
9. * INDICATES DIMENSIONS AFTER COATING SURFACES PER NOTE 8
10. COATING THICKNESS ON INDICATED SURFACES MAY EXCEED 0.4 MIL AS FLASHING, BUT NOT TO EXCEED 1.0 MIL.

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003975	
2003925	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE. MASS.

DRAWN	[illegible]	16AUG66
CHECKED	[illegible]	18 AUG 66
APPROVED		
APPROVED	Eldon C Hall	[illegible]
APPROVED CC&I	[illegible]	1/6/67
APPROVED MSC	[illegible]	[illegible]
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SHAFT
SWITCH, PUSH BUTTON
AGC DSKY

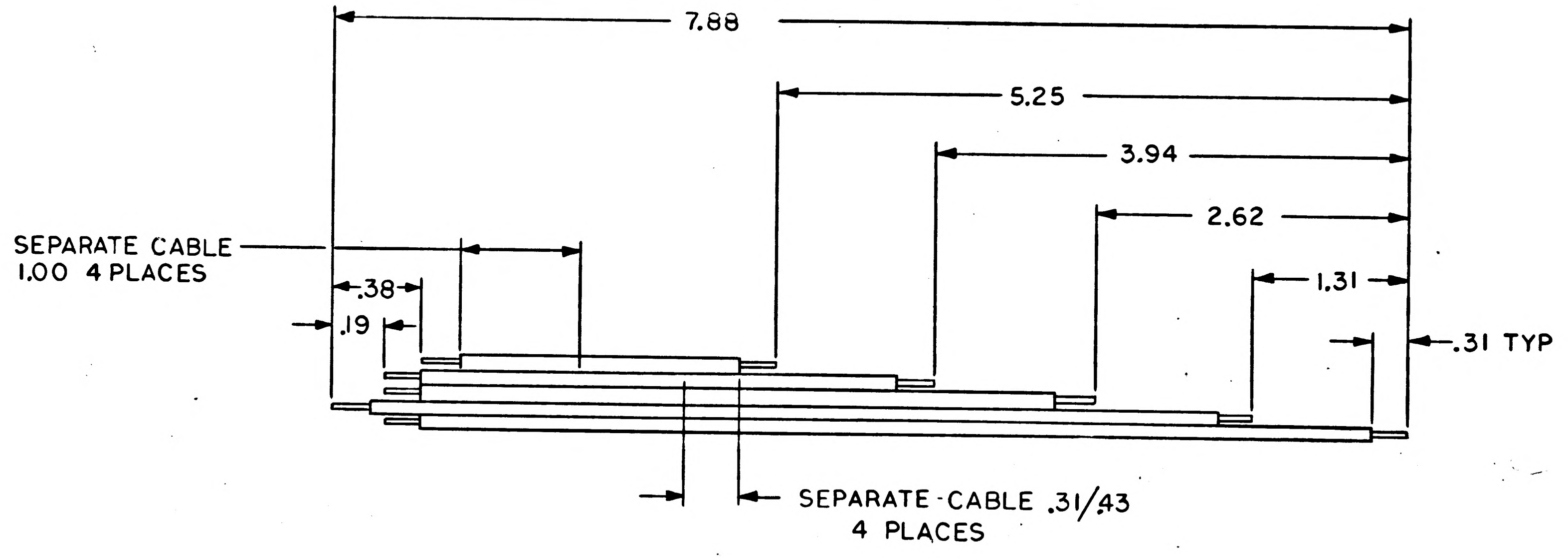
CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2004678

SCALE 4/1
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		INITIAL RELEASE TDRR 32992			16 Feb 67	



NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MAKE FROM 1006343-001
3. IDENTIFY WITH PART NO. PER ND1002019

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003972	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ±.03 ANGLES ± ——
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN Barry L. Fuller 10 OCT 66
CHECKED 11 OCT 66
APPROVED
APPROVED Ellen C Hall 28 Oct 66
APPROVED ~~NRET~~ CCB
APPROVED MSC
DATE

FLAT CABLE
FIXED MEMORY MODULE

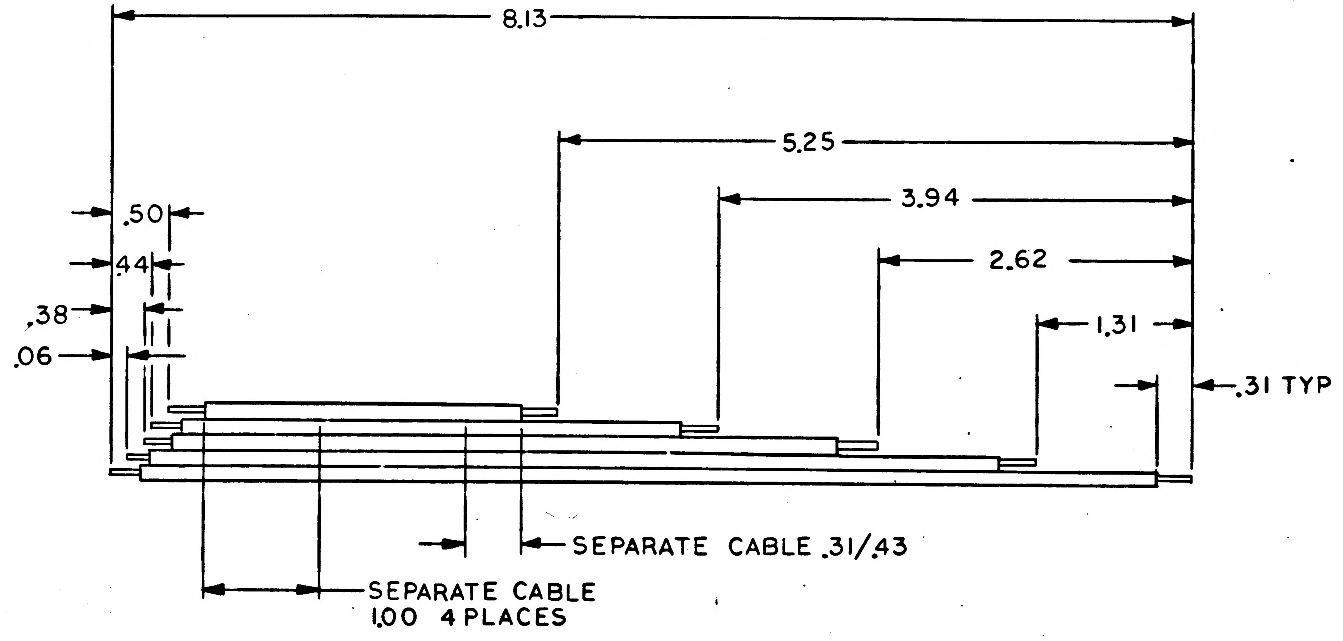
CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004684
SCALE NONE
SHEET 1 OF 1

2004684 A

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED	
A		INITIAL RELEASE TDRR 32992			2 FEB 67		



NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MAKE FROM 1006343-001
3. IDENTIFY WITH PART NO. PER ND1002019

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003972	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ±.03 ANGLES ± ——
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	Barry R. Fuller	10 OCT 66
CHECKED		11 Oct 66
APPROVED		
APPROVED	Eldon C Hall	28 Oct 66
APPROVED CCD		
APPROVED MSC		
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FLAT CABLE
FIXED MEMORY MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004685

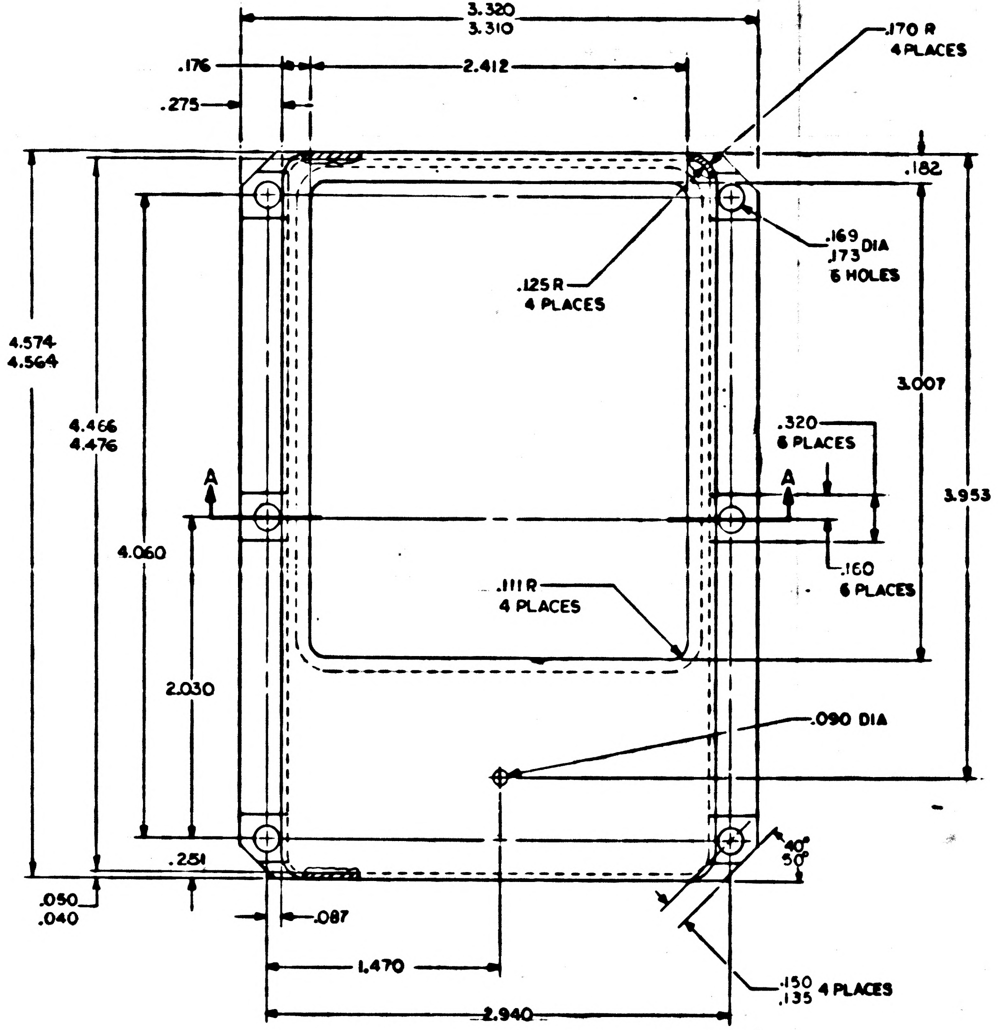
SCALE NONE
SHEET 1 OF 1

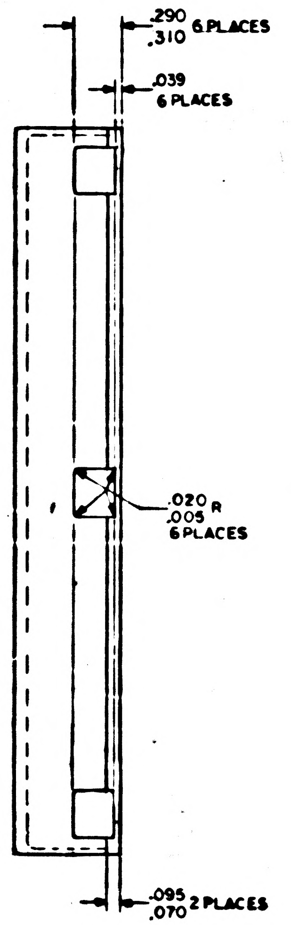
2004685 A

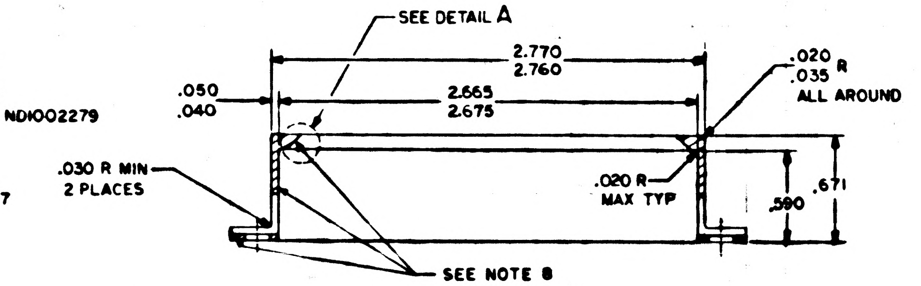
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS TDRR 35062

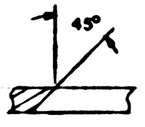
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		CHANGED PER TDRR 35188	WJM			


3.320
3.310
.176
2.412
.275
.170 R
4 PLACES
.182
.169
.173 DIA
6 HOLES
.125 R
4 PLACES
4.574
4.564
4.466
4.476
3.007
.320
6 PLACES
A
A
3.953
4.060
.160
6 PLACES
.111 R
4 PLACES
2.030
.090 DIA
40°
50°
.251
.050
.040
.087
1.470
.150
.135 4 PLACES
2.940


.290
.310 6 PLACES
.039
6 PLACES
.020 R
.005
6 PLACES
.095
.070 2 PLACES


SEE DETAIL A
2.770
2.760
.020
.035 R
ALL AROUND
.050
.040
2.665
2.675
.030 R MIN
2 PLACES
.020 R
MAX TYP
.671
.590
SEE NOTE 8

SECTION A-A



DETAIL A
SCALE 4/1

NOTES
1. MAT'L: 6061 AL PER QQ-A-250
2. REMOVE BURRS AND SHARP EDGES .005/.015 EXCEPT AS NOTED
3. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS B
4. PAINT WITH 1008809-1 DARK GRAY EPOXY ENAMEL EXTERNAL SURFACES ONLY PER ND1002279
5. ALL SURFACES $\sqrt{125}$
6. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
7. FINAL COAT EXTERNAL SURFACES PER ND1002277 USING 1012543-003
8. DO NOT PAINT ALL INSIDE AND BOTTOM SURFACES SHOWN
9. IDENTIFY WITH PART NO. PER ND1002019
10. FINAL MAT'L CONDITION TO BE TEMP T6. HEAT TREAT PER MIL-H-6088

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003897	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1&10

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN J.R. [illegible] 2 [illegible]
CHECKED E. [illegible]
APPROVED [illegible]
APPROVED [illegible]
APPROVED [illegible]
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

FRAME, INDICATOR COVER
AGC DSKY

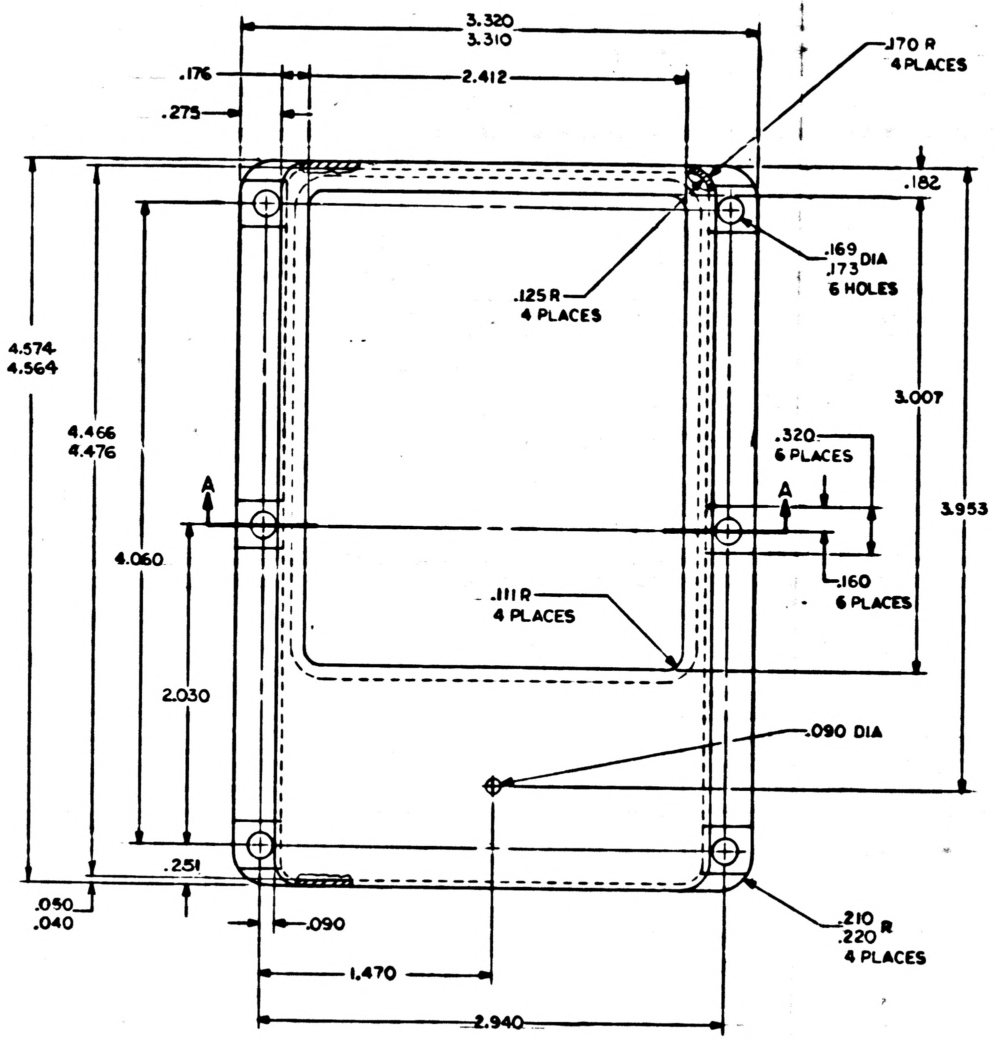
CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2004699
SCALE 2/1
SHEET 1 OF 1

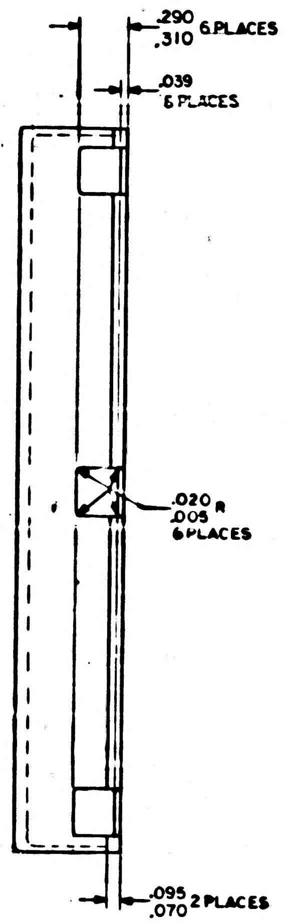
2004699 A

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

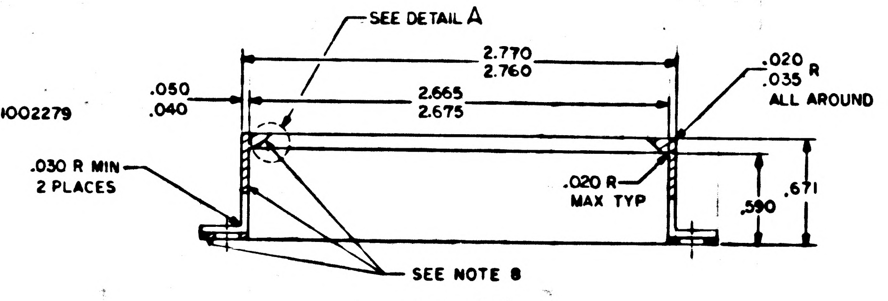
REVISIONS TDRR 35062

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

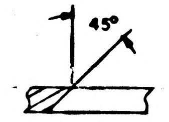

3.320
3.310
.176
2.412
.275
.170 R
4 PLACES
.182
.169
.173 DIA
6 HOLES
.125 R
4 PLACES
4.574
4.564
4.466
4.476
3.007
.320
6 PLACES
A
A
3.953
4.060
.111 R
4 PLACES
.160
6 PLACES
2.030
.090 DIA
.251
.050
.040
.090
.210
.220 R
4 PLACES
1.470
2.940


.290
.310 6 PLACES
.039
6 PLACES
.020
.005 R
6 PLACES
.095
.070 2 PLACES

NOTES
1. MAT'L: 6061 AL PER QQ-A-250
2. REMOVE BURRS AND SHARP EDGES .005/.015 EXCEPT AS NOTED
3. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS B
4. PAINT WITH 1008809-1 DARK GRAY EPOXY ENAMEL EXTERNAL SURFACES ONLY PER ND1002279
5. ALL SURFACES 125√
6. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
7. FINAL COAT EXTERNAL SURFACES PER ND1002277 USING 1012543-003
8. DO NOT PAINT ALL INSIDE AND BOTTOM SURFACES SHOWN
9. IDENTIFY WITH PART NO. PER ND1002019
10. FINAL MAT'L CONDITION TO BE TEMP T6, HEAT TREAT PER MIL-H-6088


SEE DETAIL A
2.770
2.760
.020
.035 R
ALL AROUND
.050
.040
2.665
2.675
.030 R MIN
2 PLACES
.020 R
MAX TYP
.671
.590
SEE NOTE 8

SECTION A-A



DETAIL A
SCALE 4/1

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003897	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1&10

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN J. R. Leonard 2 May 67
CHECKED E. Urban 6 Nov 67
APPROVED Eldon C. Hall 7 Nov 67
APPROVED W. Stameris 8 Nov 67
APPROVED NASA E. Mquit 11/9/67
APPROVED MSC A C Hut 11/9/67
DATE

FRAME, INDICATOR COVER
AGC DSKY

CODE IDENT NO 80230
SIZE D
DRAWING NO. 2004699
SCALE 2/1
SHEET 1 OF 1

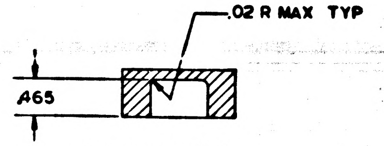
2004699 – 1

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004700 A

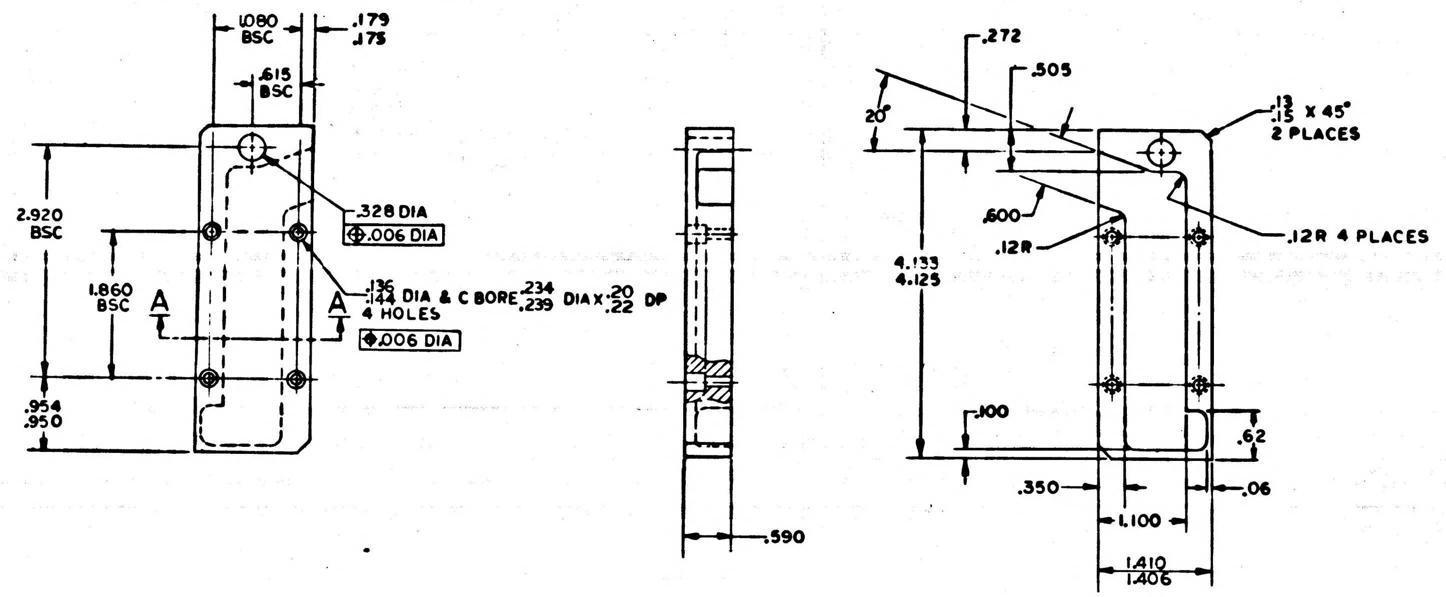
REVISIONS TDRR 26196

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 27738		A.R.B.	14Mar66	



.02 R MAX TYP
.465

SECTION A-A



1.080 BSC
.179 .175
.615 BSC
2.920 BSC
1.860 BSC
.954 .950
A
A
.328 DIA
⌖ .006 DIA
.136 .144 DIA & C BORE .234 .239 DIA X .20 .22 DP
4 HOLES
⌖ .006 DIA
.590
.272
.505
20°
.13 .15 X 45°
2 PLACES
.600
.12R
.12R 4 PLACES
4.133 4.125
.100
.62
.350
.06
1.100
1.410 1.406

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. REMOVE BURRS AND SHARP EDGES .005/.015
3. ALL SURFACES 125/
4. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP 6
5. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
6. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .010 MAX
7. IDENTIFY WITH PART NO. PER ND 1002019

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
2003059	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XX ± .01 .XXX ± .005 ANGLES ± 5°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 4

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	E. Whiting	10FEB64
CHECKED	J. C. Goulet	10FEB64
APPROVED		
APPROVED	Eldon C. Hall	11Feb64
APPROVED MIT		
APPROVED MSC	A. C. Metzger	
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COVER
CONNECTOR B42
FIXED MEMORY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2004700

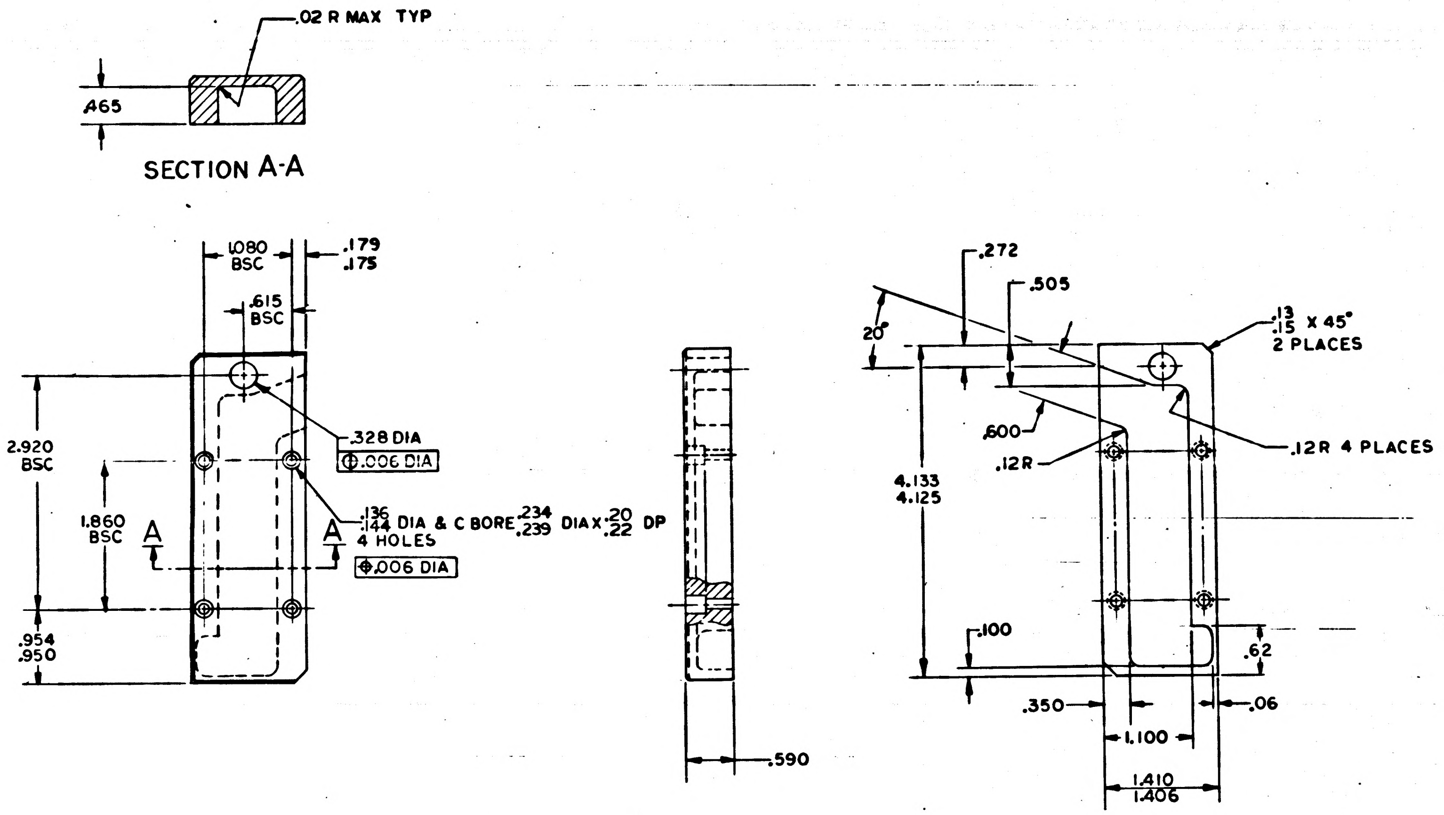
SCALE 1/1 SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004700 | –

REVISIONS TDRR 26196

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED


.02 R MAX TYP
.465
SECTION A-A
1.080 BSC
.179 .175
.615 BSC
2.920 BSC
1.860 BSC
.954 .950
A
A
.328 DIA
⌖ .006 DIA
.136 .144 DIA & C BORE .234 .239 DIA X .20 .22 DP
4 HOLES
⌖ .006 DIA
.590
.272
.505
20°
.13 .15 X 45°
2 PLACES
.600
.12R
.12R 4 PLACES
4.133 4.125
.100
.62
.350
.06
1.100
1.410 1.406

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. REMOVE BURRS AND SHARP EDGES .005/.015
3. ALL SURFACES 125√
4. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP 6
5. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
6. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .010 MAX
7. IDENTIFY WITH PART NO. PER ND 1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS .XX ± .01 .XXX ± .005 ANGLES ± 5°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 4

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	E. Wtring	10FEB66
CHECKED	J. C. Grinbert	10FEB66
APPROVED		
APPROVED	Eldon C. Hall	Feb 66
APPROVED MIT		11Feb66
APPROVED MSC	A. C. METZGER	DATE

COVER
CONNECTOR B42
FIXED MEMORY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2004700
SCALE 1/1		SHEET 1 OF 1

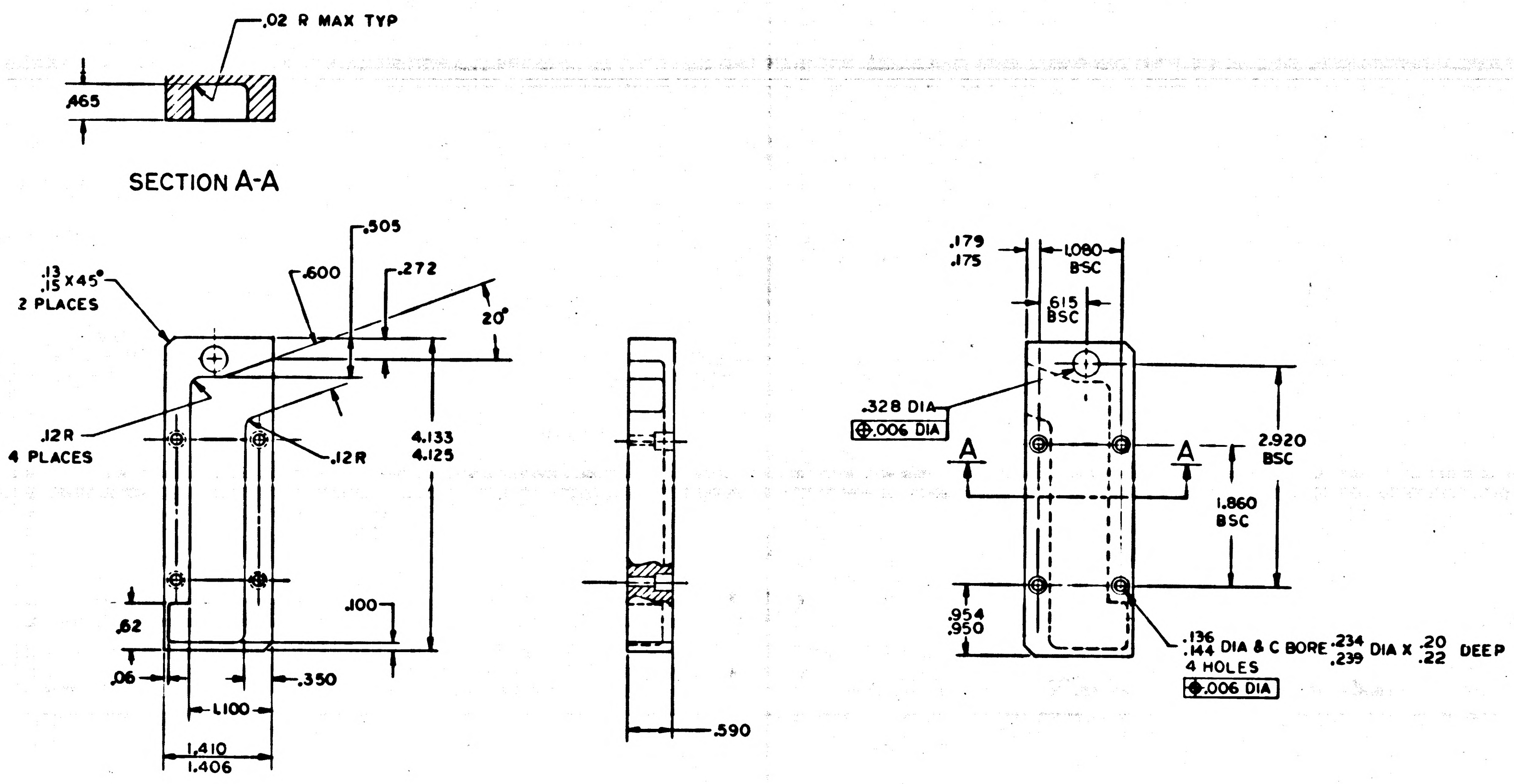
2004700 | –

NOTICE WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004702 A

REVISIONS TDRR 26196

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 27738	SPJ	A.R.	4 MAR 66	


.02 R MAX TYP
.465
SECTION A-A
.13
.15 X 45°
2 PLACES
.600
.505
.272
20°
.12R
4 PLACES
.12R
4.133
4.125
.100
.62
.06
.350
1.100
1.410
1.406
.590
.179
.175
1.080
BSC
.615
BSC
.328 DIA
⊕ .006 DIA
A
A
2.920
BSC
1.860
BSC
.954
.950
.136
.144 DIA & C BORE .234
.239 DIA X .20
.22 DEEP
4 HOLES
⊕ .006 DIA

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. REMOVE BURRS AND SHARP EDGES .005/.015
3. ALL SURFACES 125√
4. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP 6
5. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
6. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .010 MAX
7. IDENTIFY WITH PART NO. PER ND1002019

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
2003059	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS .XX ± .01 .XXX ± .005 ANGLES ± 5°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 4

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN A.J. Green 8 FEB 66
CHECKED J.C. Jauhert 10 FEB 66
APPROVED
APPROVED Ellen C Hall 11 Feb 66
APPROVED MIT
APPROVED MSC A. G. METZGER
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COVER
CONNECTOR B41
FIXED MEMORY

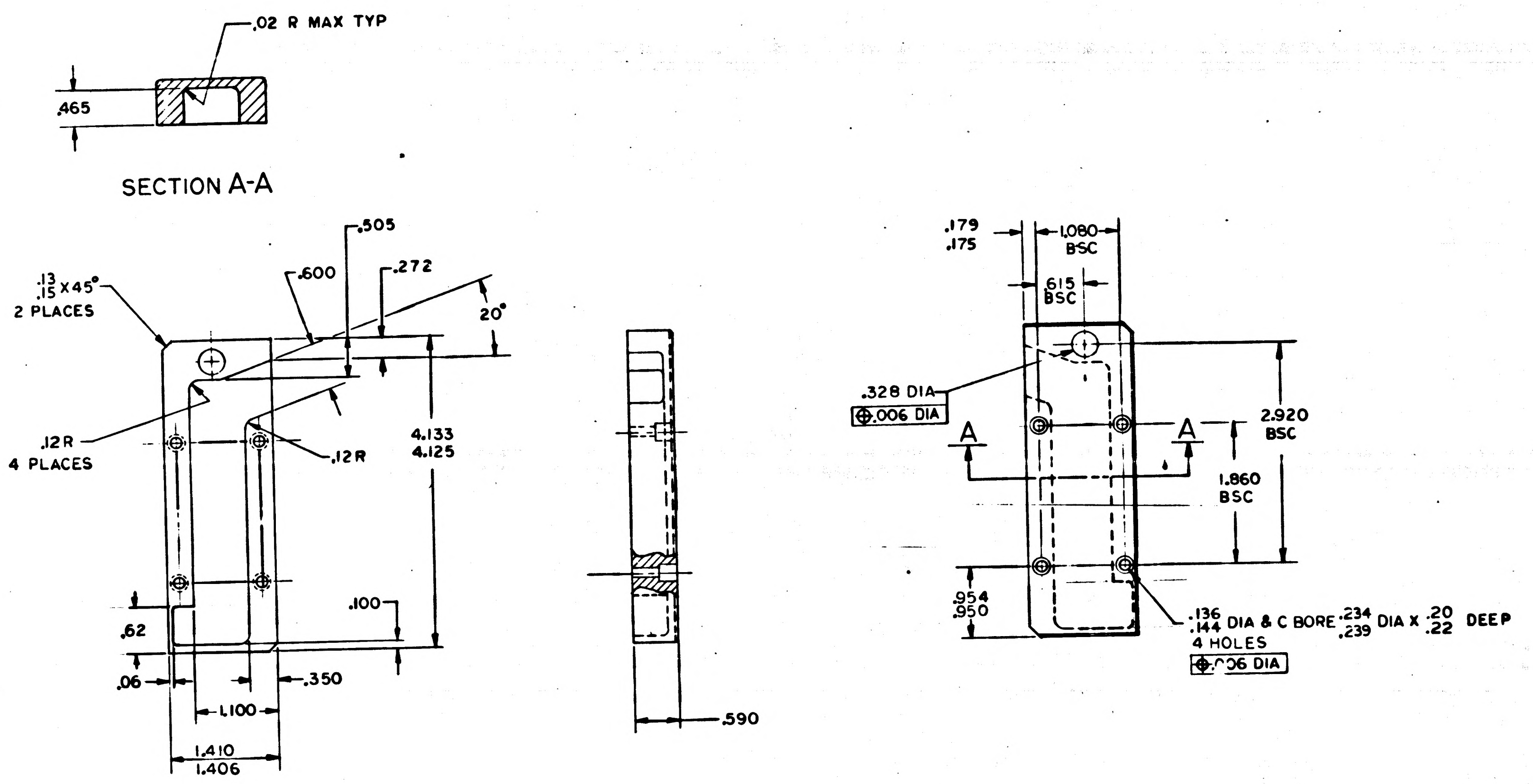
CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2004702
SCALE 1/1
SHEET 1 OF 1

- 2004702

REVISIONS TDRR 26196

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

NOTICE -- WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


.02 R MAX TYP
.465
SECTION A-A
.13 .15 X45° 2 PLACES
.600
.505
.272
20°
.12R 4 PLACES
.12R
4.133 4.125
.100
.62
.06
.350
1.100
1.410 1.406
.590
.179 .175
1.080 BSC
.615 BSC
.328 DIA
⊕.006 DIA
A
A
2.920 BSC
1.860 BSC
.954 .950
.136 .144 DIA & C BORE .234 .239 DIA X .20 .22 DEEP
4 HOLES
⊕.006 DIA

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. REMOVE BURRS AND SHARP EDGES .005/.015
3. ALL SURFACES 125√
4. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP 6
5. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
6. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .010 MAX
7. IDENTIFY WITH PART NO. PER ND1002019

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
2003059	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS XX ± .01 XXX ± .005 ANGLES ± 5°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 4

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN A.J. Green
CHECKED J.C. Joubert 10FEB66
APPROVED
APPROVED Eldon C Hall 11Feb66
APPROVED MIT
APPROVED MSC A. G. METZGER
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

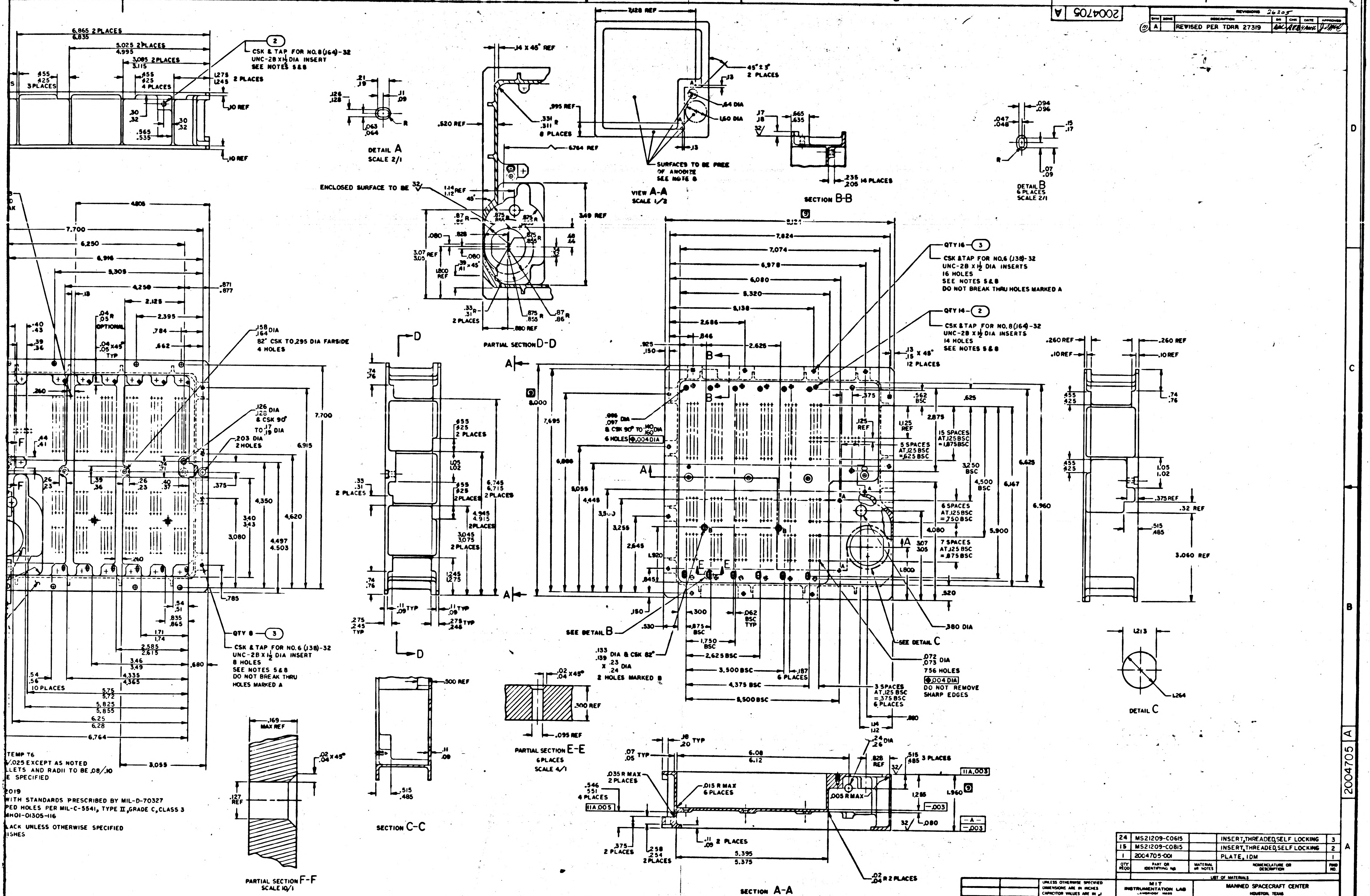
COVER
CONNECTOR B41
FIXED MEMORY

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2004702
SCALE 1/1
SHEET 1 OF 1

MASTER

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 27319	ARC	A.P.B.	4 Aug 66	J.M.

REVISIONS 26205



DETAIL A
SCALE 2/1
DETAIL B
6 PLACES
SCALE 2/1
DETAIL C
VIEW A-A
SCALE 1/2
SECTION B-B
SECTION C-C
PARTIAL SECTION D-D
PARTIAL SECTION E-E
6 PLACES
SCALE 4/1
PARTIAL SECTION F-F
SCALE 10/1
SECTION A-A
CSK & TAP FOR NO.8 (164)-32 UNC-2B X 1½ DIA INSERT SEE NOTES 5&8
QTY 16 ③ CSK & TAP FOR NO.6 (138)-32 UNC-2B X 1½ DIA INSERTS 16 HOLES SEE NOTES 5&8 DO NOT BREAK THRU HOLES MARKED A
QTY 14 ② CSK & TAP FOR NO.8 (164)-32 UNC-2B X 1½ DIA INSERTS 14 HOLES SEE NOTES 5&8
QTY 8 ③ CSK & TAP FOR NO.6 (138)-32 UNC-2B X 1½ DIA INSERT 8 HOLES SEE NOTES 5&8 DO NOT BREAK THRU HOLES MARKED A
.158 .164 DIA 82° CSK TO .295 DIA FARSIDE 4 HOLES
.126 .128 DIA & CSK 90° TO .17 .19 DIA
.203 DIA 2 HOLES
.133 .139 DIA & CSK 82° X .23 .24 DIA 2 HOLES MARKED B
.086 .097 DIA & CSK 90° TO .140 .160 DIA 6 HOLES
.072 .073 DIA 756 HOLES .004 DIA DO NOT REMOVE SHARP EDGES
.380 DIA
SURFACES TO BE FREE OF ANODIZE SEE NOTE 8
ENCLOSED SURFACE TO BE 32
SEE DETAIL B
SEE DETAIL C
15 SPACES AT .125 BSC = 1.875 BSC
5 SPACES AT .125 BSC = .625 BSC
6 SPACES AT .125 BSC = .750 BSC
7 SPACES AT .125 BSC = .875 BSC
3 SPACES AT .125 BSC = .375 BSC 6 PLACES

TEMP T6
/.025 EXCEPT AS NOTED
LLETS AND RADII TO BE .08/.10
E SPECIFIED

2019
WITH STANDARDS PRESCRIBED BY MIL-D-70327
PED HOLES PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
MHO1-01305-116

ACK UNLESS OTHERWISE SPECIFIED
ISHES

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
24	MS21209-C0615		INSERT, THREADED, SELF LOCKING	3
15	MS21209-C0815		INSERT, THREADED, SELF LOCKING	2
1	2004705-001		PLATE, IDM	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003947	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ±.03 ANGLES ±0° 30'
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

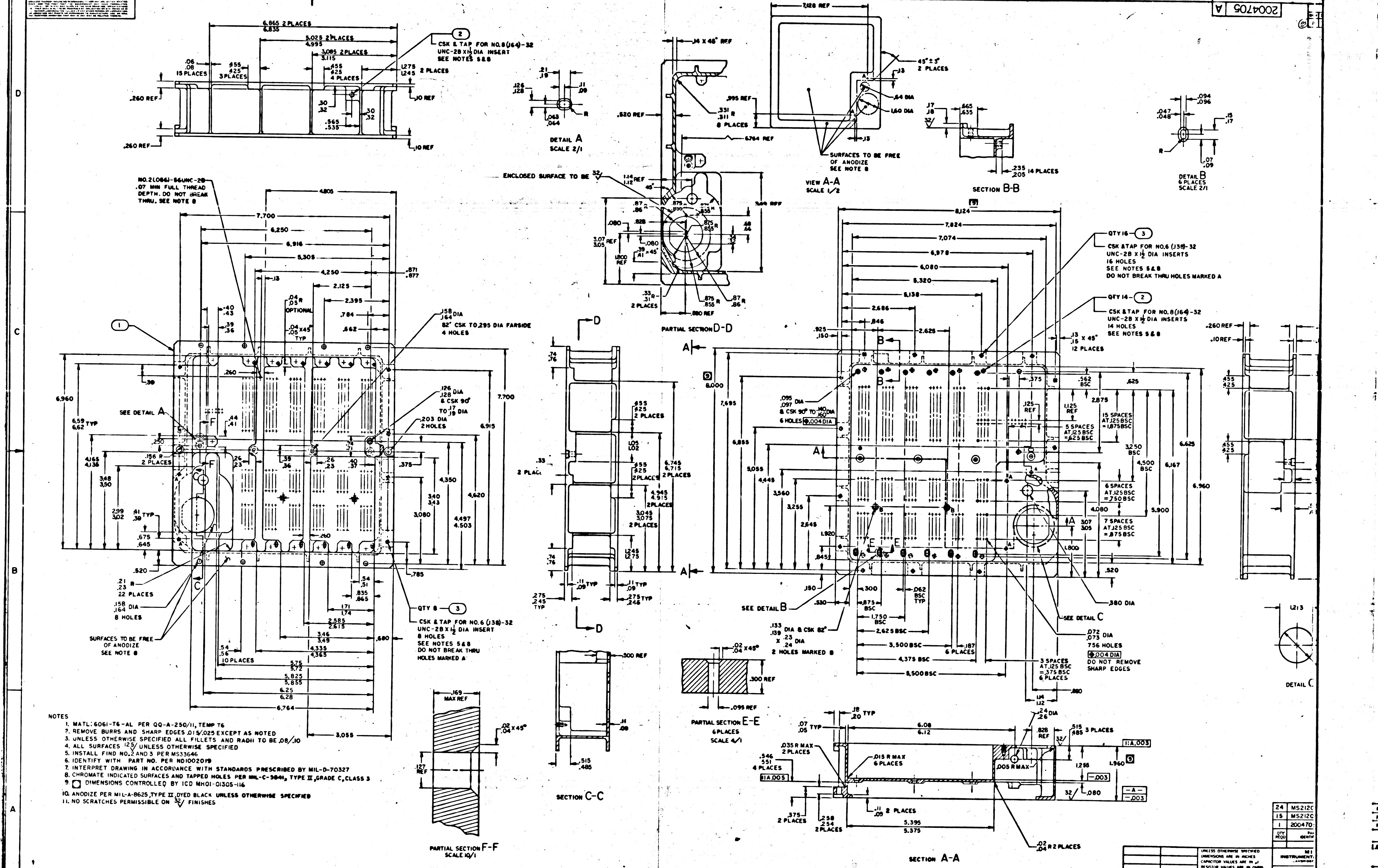
DRAWN A.J. Green 1 FEB 66
CHECKED J.C. Jackson 1 FEB 66
APPROVED C. B. Hall 15 Feb 66
APPROVED
APPROVED MIT W. Kupfer
A.C. METZGER
APPROVED MSC

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PLATE, IDM
MAIN HOUSING
AGC DSKY

CODE IDENT NO 80230
SIZE J
DRAWING NO. 2004705
SCALE 1/1
SHEET 1 OF 1

E 27/2


CSK & TAP FOR NO.8(164)-32 UNC-2B X 1/2 DIA INSERT SEE NOTES 5&8
DETAIL A SCALE 2/1
ENCLOSED SURFACE TO BE 32
PARTIAL SECTION D-D
SURFACES TO BE FREE OF ANODIZE SEE NOTE 8
VIEW A-A SCALE 1/2
SECTION B-B
DETAIL B 6 PLACES SCALE 2/1
NO.2(086)-56UNC-2B .07 MIN FULL THREAD DEPTH. DO NOT BREAK THRU. SEE NOTE 8
SEE DETAIL A
.158 DIA 82° CSK TO .295 DIA FARSIDE 4 HOLES
.126 .128 DIA & CSK 90° TO .17 .19 DIA
.203 DIA 2 HOLES
QTY 8 ③ CSK & TAP FOR NO.6 (138)-32 UNC-2B X 1/2 DIA INSERT 8 HOLES SEE NOTES 5&8 DO NOT BREAK THRU HOLES MARKED A
QTY 16 ③ CSK & TAP FOR NO.6 (138)-32 UNC-2B X 1/2 DIA INSERTS 16 HOLES SEE NOTES 5&8 DO NOT BREAK THRU HOLES MARKED A
QTY 14 ② CSK & TAP FOR NO.8(164)-32 UNC-2B X 1/2 DIA INSERTS 14 HOLES SEE NOTES 5&8
.072 .073 DIA 756 HOLES .004 DIA DO NOT REMOVE SHARP EDGES
.133 .139 DIA & CSK 82° X .23 .24 2 HOLES MARKED B
SEE DETAIL B
SEE DETAIL C
DETAIL C
SECTION C-C
PARTIAL SECTION E-E 6 PLACES SCALE 4/1
PARTIAL SECTION F-F SCALE 10/1
SECTION A-A

NOTES
1. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP T6
2. REMOVE BURRS AND SHARP EDGES .015/.025 EXCEPT AS NOTED
3. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .08/.10
4. ALL SURFACES 125√ UNLESS OTHERWISE SPECIFIED
5. INSTALL FIND NO. 2 AND 3 PER MS33646
6. IDENTIFY WITH PART NO. PER ND1002019
7. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
8. CHROMATE INDICATED SURFACES AND TAPPED HOLES PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
9. ☐ DIMENSIONS CONTROLLED BY ICD MH01-01305-116
10. ANODIZE PER MIL-A-8625, TYPE II, DYED BLACK UNLESS OTHERWISE SPECIFIED
11. NO SCRATCHES PERMISSIBLE ON 32√ FINISHES

QTY REQD	PA IDENTIF
24	MS212C
15	MS212C
1	200470

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ±.03 ANGLES ±0° 30
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

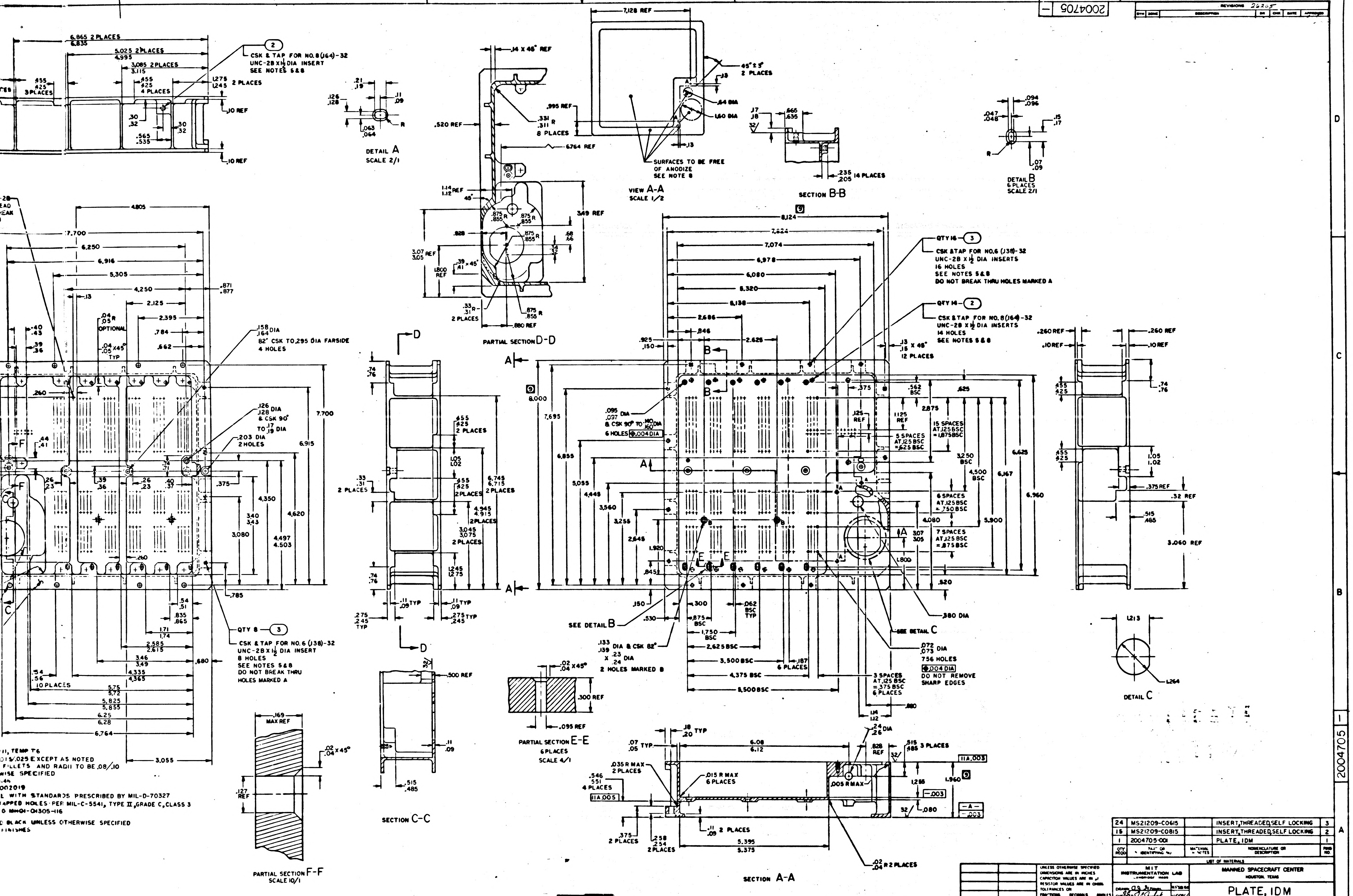
NEXT ASSY	USED ON
2003947	

APPLICATION

MI
INSTRUMENTA
CAMBRIDGE

DRAWN A.J.
CHECKED
APPROVED
APPROVED
APPROVED MIT A.C.
APPROVED MSC

2004705 -


CSK & TAP FOR NO.8(164)-32 UNC-2B X 1½ DIA INSERT SEE NOTES 5&8
DETAIL A SCALE 2/1
PARTIAL SECTION D-D
SURFACES TO BE FREE OF ANODIZE SEE NOTE 8
VIEW A-A SCALE 1/2
SECTION B-B
DETAIL B 6 PLACES SCALE 2/1
QTY 16 ③ CSK & TAP FOR NO.6 (138)-32 UNC-2B X 1½ DIA INSERTS 16 HOLES SEE NOTES 5&8 DO NOT BREAK THRU HOLES MARKED A
QTY 14 ② CSK & TAP FOR NO.8(164)-32 UNC-2B X 1½ DIA INSERTS 14 HOLES SEE NOTES 5&8
.158 .164 DIA 82° CSK TO .295 DIA FARSIDE 4 HOLES
.126 .128 DIA & CSK 90° TO .17 .19 DIA
.203 DIA 2 HOLES
QTY 8 ③ CSK & TAP FOR NO.6 (138)-32 UNC-2B X 1½ DIA INSERT 8 HOLES SEE NOTES 5&8 DO NOT BREAK THRU HOLES MARKED A
.095 .097 DIA & CSK 90° TO .140 .160 DIA 6 HOLES ⊕ .004 DIA
.133 .139 DIA & CSK 82° X .23 .24 DIA 2 HOLES MARKED B
.072 .073 DIA 756 HOLES ⊕ .004 DIA DO NOT REMOVE SHARP EDGES
SEE DETAIL B
SEE DETAIL C
.380 DIA
DETAIL C
SECTION C-C
PARTIAL SECTION E-E 6 PLACES SCALE 4/1
PARTIAL SECTION F-F SCALE 10/1
SECTION A-A
MASTER
F2

II, TEMP T6
015/.025 EXCEPT AS NOTED
FILLETS AND RADII TO BE .08/.10
WISE SPECIFIED
.46
002019
L WITH STANDARDS PRESCRIBED BY MIL-D-70327
TAPPED HOLES PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
O MH01-01305-116
D BLACK UNLESS OTHERWISE SPECIFIED
FINISHES

24	MS21209-C0615		INSERT, THREADED, SELF LOCKING	3
15	MS21209-C0815		INSERT, THREADED, SELF LOCKING	2
1	2004705-001		PLATE, IDM	1
QTY REQD	PART OR IDENTIFYING NO	MATERIAL & NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003947	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ±.03 ANGLES ±0° 30'
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE I

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN A.J. Simon
CHECKED J.C. Juleil
APPROVED E. B. Hall 15 Feb 66
APPROVED
APPROVED MIT W Kahr
APPROVED MSC A.C. Metzger
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

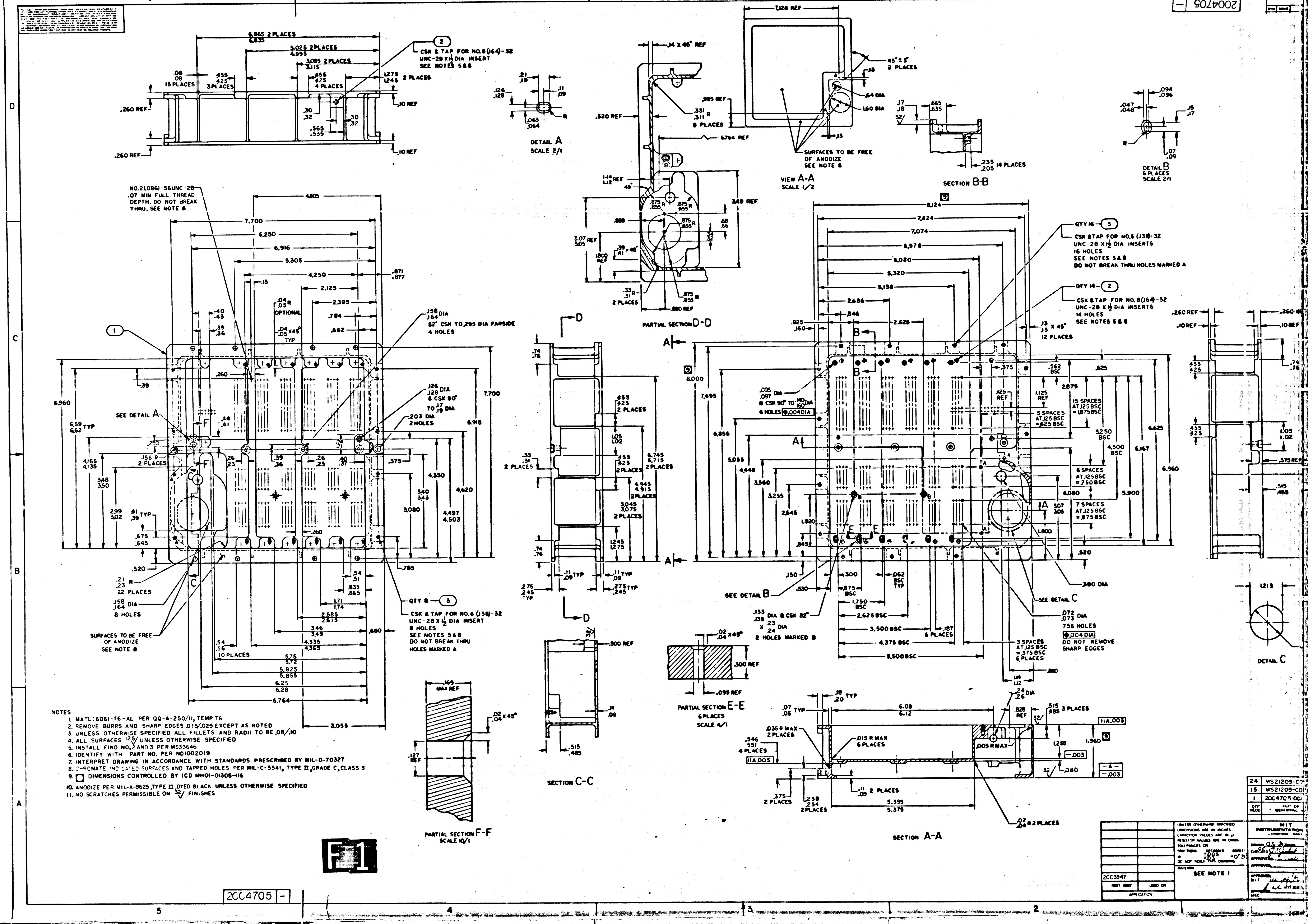
PLATE, IDM
MAIN HOUSING
AGC DSKY

CODE IDENT NO 80230
SIZE J
DRAWING NO 2004705
SCALE 1/1
SHEET 1 OF 1

REVISIONS 2E205

2004705

20C4705 -



DETAIL A
SCALE 2/1
DETAIL B
6 PLACES
SCALE 2/1
DETAIL C
VIEW A-A
SCALE 1/2
SECTION B-B
PARTIAL SECTION D-D
SECTION C-C
PARTIAL SECTION E-E
6 PLACES
SCALE 4/1
PARTIAL SECTION F-F
SCALE 10/1
SECTION A-A
CSK & TAP FOR NO.8(.164)-32 UNC-2B X 1½ DIA INSERT SEE NOTES 5&8
NO.2(.086)-56UNC-2B .07 MIN FULL THREAD DEPTH. DO NOT BREAK THRU. SEE NOTE 8
QTY 16 CSK & TAP FOR NO.6 (.138)-32 UNC-2B X 1½ DIA INSERTS 16 HOLES SEE NOTES 5&8 DO NOT BREAK THRU HOLES MARKED A
QTY 14 CSK & TAP FOR NO.8(.164)-32 UNC-2B X 1½ DIA INSERTS 14 HOLES SEE NOTES 5&8
QTY 8 CSK & TAP FOR NO.6 (.138)-32 UNC-2B X 1½ DIA INSERT 8 HOLES SEE NOTES 5&8 DO NOT BREAK THRU HOLES MARKED A
SURFACES TO BE FREE OF ANODIZE SEE NOTE 8
.072 .073 DIA 756 HOLES .004 DIA DO NOT REMOVE SHARP EDGES
F1

NOTES
1. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP T6
2. REMOVE BURRS AND SHARP EDGES .015/.025 EXCEPT AS NOTED
3. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .08/.10
4. ALL SURFACES $^{125}\checkmark$ UNLESS OTHERWISE SPECIFIED
5. INSTALL FIND NO. 2 AND 3 PER MS33646
6. IDENTIFY WITH PART NO. PER ND1002019
7. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
8. CHROMATE INDICATED SURFACES AND TAPPED HOLES PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
9. ▢ DIMENSIONS CONTROLLED BY ICD MH01-01305-116
10. ANODIZE PER MIL-A-8625, TYPE II, DYED BLACK UNLESS OTHERWISE SPECIFIED
11. NO SCRATCHES PERMISSIBLE ON $^{32}\checkmark$ FINISHES

QTY REQD	PART OR IDENTIFYING
24	MS21209-C
15	MS21209-C0
1	2004705-001

2CC3947	
NEXT ASSY	USED ON
APPLICATION	

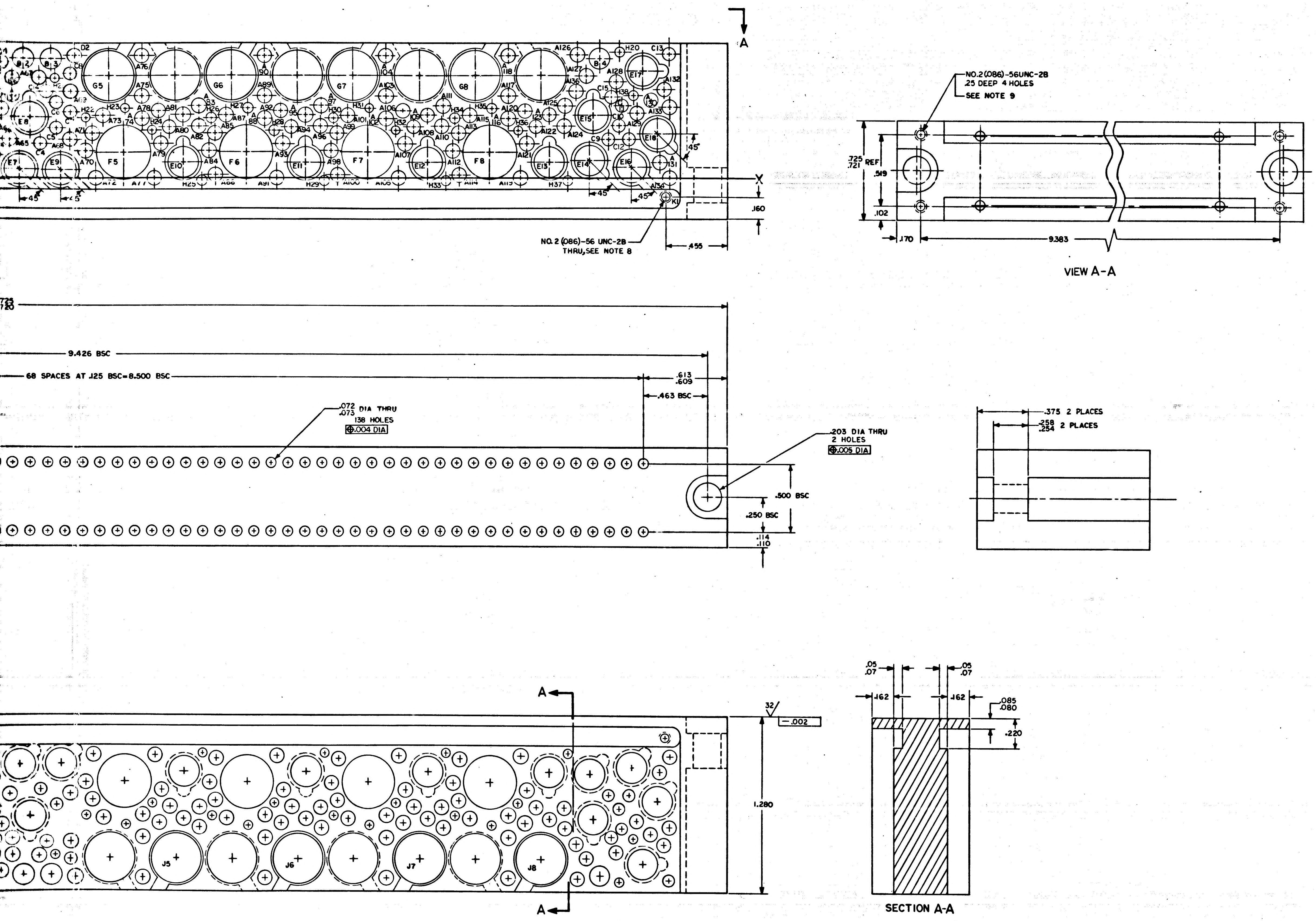
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ±.03 ANGLES ±0° 30'
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION
CAMBRIDGE MASS

DRAWN A.S.
CHECKED
APPROVED
APPROVED
APPROVED MIT
A.C. METZGER
APPROVED MSC

REVISIONS 27035



A
NO.2 (086)-56UNC-2B
.25 DEEP 4 HOLES
SEE NOTE 9
.725
.721 REF
.519
.102
.170
9.383
VIEW A-A
NO. 2 (086)-56 UNC-2B
THRU, SEE NOTE 8
.455
.160
45°
X
.723
.720
9.426 BSC
68 SPACES AT .125 BSC=8.500 BSC
.613
.609
.463 BSC
.072
.073 DIA THRU
138 HOLES
.004 DIA
.203 DIA THRU
2 HOLES
.005 DIA
.500 BSC
.250 BSC
.114
.110
.375 2 PLACES
.258
.254 2 PLACES
A
A
32
.002
1.280
.05
.07
.162
.085
.080
.220
SECTION A-A
G5
G6
G7
G8
F5
F6
F7
F8
J5
J6
J7
J8

MASTER

2003044	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS .XX ±.02 .XXX±.005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN E. Ufting 28 MAR 66
CHECKED R. Eckard 3/1
APPROVED
APPROVED Eldon C Hall 12 Apr 66
APPROVED MIT W Kupfer
APPROVED MSC 4/14/66
DATE

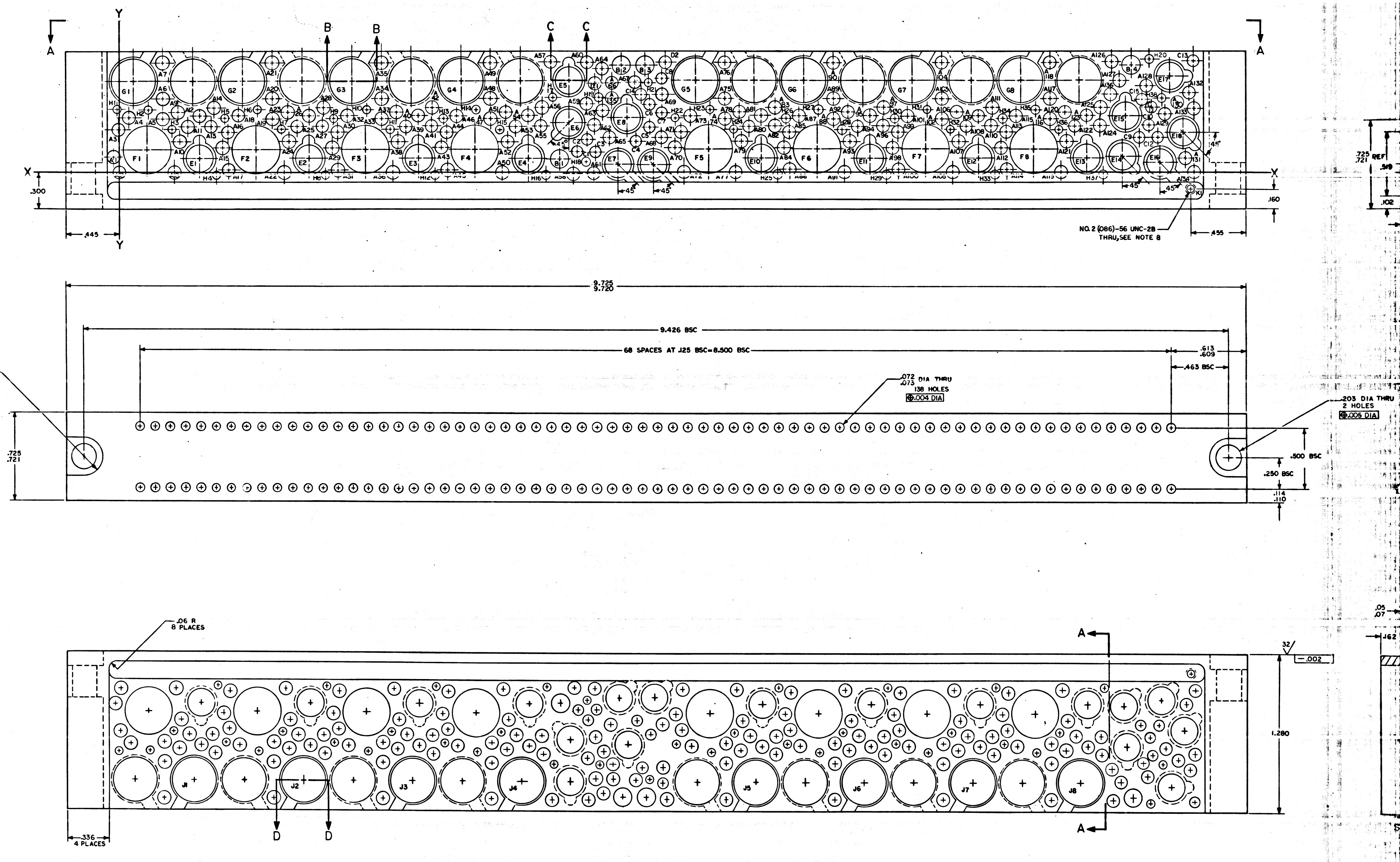
HEADER HOUSING
SENSE AMPLIFIER MODULE

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004708
SCALE 4/1
SHEET 1 OF 1

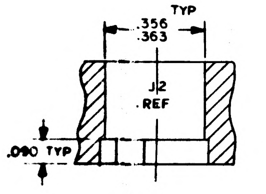
20_4708

E3

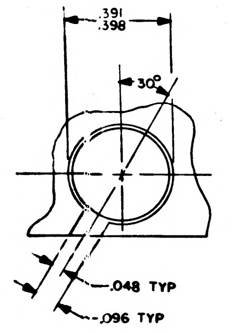
7 6 5 4 3



A
A
B
B
C
C
X
X
Y
Y
G1
G2
G3
G4
G5
G6
G7
G8
F1
F2
F3
F4
F5
F6
F7
F8
E1
E2
E3
E4
E5
E6
E7
E8
E9
E10
E11
E12
E13
E14
E15
E16
E17
E18
K1
.300
.445
.455
.160
45°
NO.2 (086)-56 UNC-2B THRU, SEE NOTE 8
.725 .721 REF
.519
.102
9.725 9.720
9.426 BSC
68 SPACES AT .125 BSC=8.500 BSC
.613 .609
.463 BSC
.156 R 4 PLACES
⊕.005 DIA
.072 .073 DIA THRU 138 HOLES
⊕.004 DIA
.203 DIA THRU 2 HOLES
⊕.005 DIA
.725 .721
.500 BSC
.250 BSC
.114 .110
.06 R 8 PLACES
A
A
32
—.002
1.280
J1
J2
J3
J4
J5
J6
J7
J8
D
D
.336 4 PLACES
.05 .07
.162



TYP
.356 .363
J2 REF
.090 TYP
.060
DIA



.391 .398
30°
.048 TYP
.096 TYP

SECTION D-D

2004708

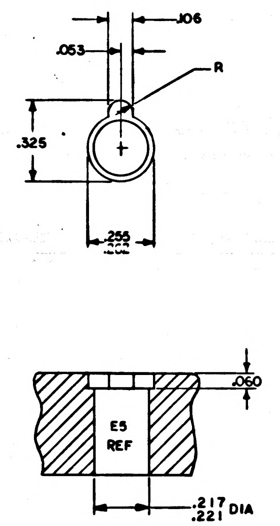
7 6 5 4 3

E12

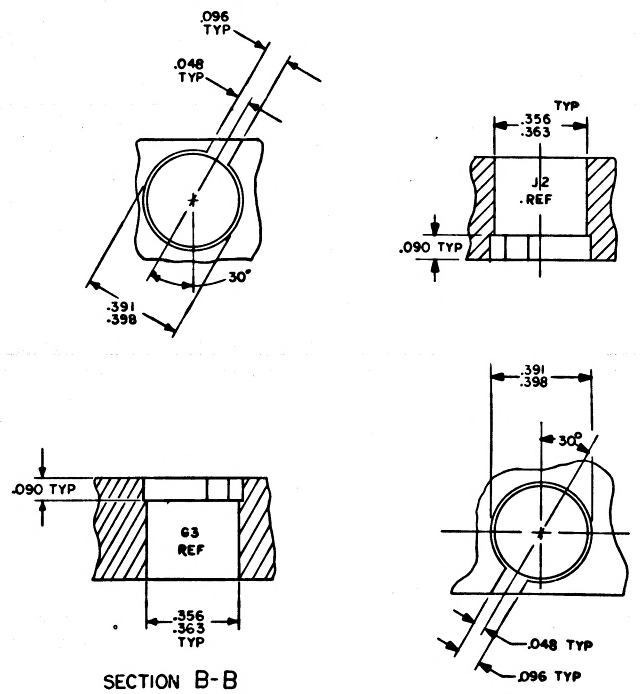
HOLE IDENT	X DIM.	Y DIM.	HOLE DIA	QTY
A1	−.042	.126	.100 .104	100
A2	.000	.000		
A3	−.005	.347		
A4	.075	.448		
A5	.357	.432		
A6	.357	.595		
A7	.357	.887		
A8	.450	.000		
A9	.480	.487		
A10	.495	.253		
A11	.560	.371		
A12	.660	.458		
A13	.767	.371		
A14	.775	.522		
A15	.848	.200		
A16	.891	.325		
A17	.897	.021		
A18	.977	.458		
A19	1.254	.432		
A20	1.254	.595		
A21	1.254	.887		
A22	1.350	.000		
A23	1.377	.487		
A24	1.392	.253		
A25	1.457	.371		
A26	1.557	.458		
A27	1.664	.371		
A28	1.672	.522		
A29	1.745	.200		
A30	1.788	.325		
A31	1.794	.021		
A32	1.869	.458		
A33	2.151	.432		
A34	2.151	.595		
A35	2.151	.887		
A36	2.244	.000		
A37	2.274	.487		
A38	2.289	.253		
A39	2.354	.371		
A40	2.454	.458		
A41	2.561	.371		
A42	2.569	.522		
A43	2.642	.200		
A44	2.685	.325		
A45	2.691	.021		
A46	2.766	.458		
A47	3.048	.432		
A48	3.048	.595		
A49	3.048	.887		
A50	3.141	.000		
A51	3.171	.487		
A52	3.186	.253		
A53	3.251	.371		
A54	3.351	.458		
A55	3.458	.371		
A56	3.466	.522		
A57	3.537	.892		
A58	3.720	−.000		
A59	3.831	.555		
A60	3.836	.892		
A61	3.893	.000		
A62	3.897	.386		
A63	3.961	.498		
A64	3.961	.842		
A65	4.021	.282		
A66	4.041	.727		
* A67	4.219	.736		
A68	4.451	.282		
A69	4.451	.630		
A70	4.557	.200		
A71	4.606	.325		
A72	4.632	.000		
A73	4.687	.458		
A74	4.969	.432		
A75	4.969	.595		
A76	4.969	.887		
A77	5.062	.000		
A78	5.092	.487		
A79	5.107	.253		
A80	5.172	.371		
A81	5.272	.458		
A82	5.389	.371		
A83	5.387	.522		
A84	5.460	.200		
A85	5.503	.325		
A86	5.509	.021		
A87	5.584	.458		
A88	5.866	.432		
A89	5.866	.595		
A90	5.866	.887		
A91	5.959	.000		
A92	5.989	.487		
A93	6.004	.253		
A94	6.069	.371		
A95	6.169	.458		
A96	6.276	.371		
A97	6.284	.522		
A98	6.357	.200		
A99	6.400	.325		
A100	6.406	.021		

HOLE IDENT	X DIM.	Y DIM.	HOLE DIA	QTY
A101	6.481	.458	.100 .104	36
A102	6.763	.432		
A103	6.763	.595		
A104	6.763	.887		
A105	6.856	.000		
A106	6.886	.487		
A107	6.901	.253		
A108	6.966	.371		
A109	7.066	.458		
A110	7.173	.371		
A111	7.181	.522		
A112	7.254	.200		
A113	7.297	.325		
A114	7.303	.021		
A115	7.378	.458		
A116	7.660	.432		
A117	7.660	.595		
A118	7.660	.887		
A119	7.753	.000		
A120	7.783	.487		
A121	7.798	.253		
A122	7.863	.371		
A123	7.963	.458		
A124	8.070	.371		
A125	8.078	.522		
A126	8.168	.895		
A127	8.232	.742		
* A128	8.440	.715		
A129	8.610	.467		
A130	8.701	.562		
A131	8.777	.112		
A132	8.810	.642		
A133	8.850	.513		
A134	8.850	.000		
A135	4.035	.603		
A136	8.155	.632		
B1	3.610	.107	.153 .157	4
B2	4.118	.867		
B3	4.312	.867		
B4	8.330	.867		
C1	3.757	.167	.088 .092	15
C2	3.836	.262		
C3	3.901	.162		
C4	4.240	.253		
C5	4.352	.367		
C6	4.352	.539		
C7	4.451	.481		
C8	4.451	.760		
C9	8.395	.282		
C10	8.476	.376		
C11	8.495	.510		
C12	8.552	.282		
C13	8.842	.900		
* C14	4.230	.630		
* C15	8.416	.595		
D1	3.897	.720	.10[illegible] .112	2
D2	4.480	.892		
E1	.660	.112	SEE SECT C-C	18
E2	1.557	.112		
E3	2.454	.112		
E4	3.351	.112		
E5	3.685	.740		
E6	3.685	.402		
E7	4.092	.066		
E8	4.162	.441		
E9	4.382	.061		
E10	5.272	.112		
E11	6.169	.112		
E12	7.066	.112		
E13	7.963	.112		
E14	8.260	.126		
E15	8.283	.455		
E16	8.570	.077		
E17	8.647	.788		
E18	8.762	.320		
F1	.225	.180	.384 .391	8
F2	1.122			
F3	2.019			
F4	2.916			
F5	4.837			
F6	5.734			
F7	6.631	↓		
F8	7.528	.180		
G1	.115	.740	SEE SECT B-B	8
G2	1.012			
G3	1.909			
G4	2.806			
G5	4.727			
G6	5.624			
G7	6.521	↓		
G8	7.418	.740		

HOLE IDENT	X DIM.	Y DIM.	HOLE DIA	QTY
H1	−.017	.512	.058 .062	38
H2	.237	.507		
H3	.430	.347		
H4	.797	−.022		
H5	.866	.437		
H6	1.134	.507		
H7	1.327	.347		
H8	1.694	−.022		
H9	1.763	.437		
H10	2.031	.507		
H11	2.224	.347		
H12	2.591	−.022		
H13	2.660	.437		
H14	2.928	.507		
H15	3.121	.347		
H16	3.497	−.022		
H17	3.555	.603		
H18	3.827	.085		
H19	3.930	.607		
H20	8.476	.915		
H21	4.340	.725		
H22	4.557	.437		
H23	[illegible]	[illegible]		
H24	5.042	.347		
H25	5.409	−.022		
H26	5.478	.437		
H27	5.746	.507		
H28	5.939	.347		
H29	6.306	−.022		
H30	6.375	.437		
H31	6.643	.507		
H32	6.836	.347		
H33	7.203	−.022		
H34	7.272	.437		
H35	7.540	.507		
H36	7.733	.347		
H37	8.100	−.022		
H38	8.583	.600		
J1	.600	.740	SEE SECT D-D	8
J2	1.497			
J3	2.394			
J4	3.291			
J5	5.212			
J6	6.109			
J7	7.006	↓		
J8	7.903	.740		

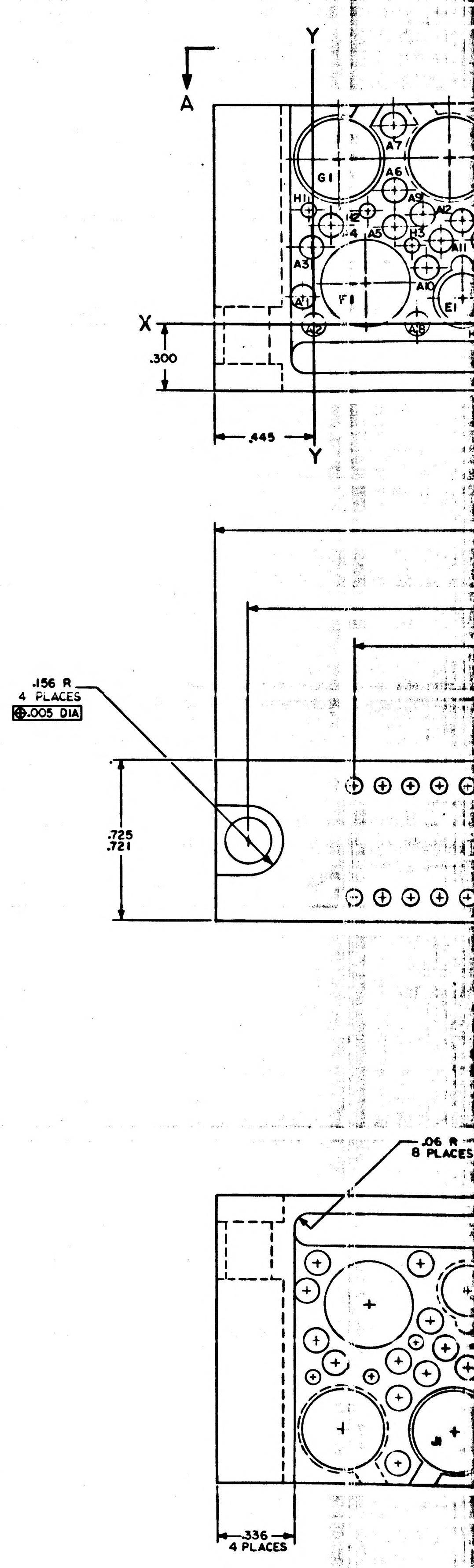


SECTION C-C
TYP



SECTION B-B

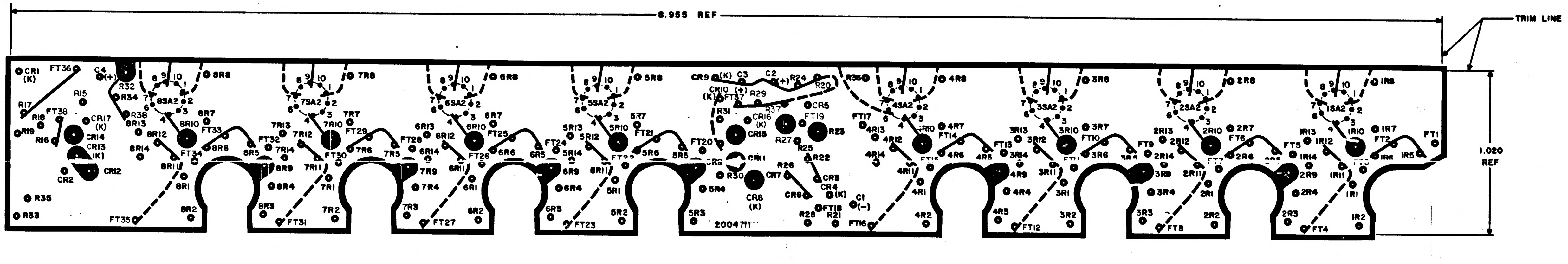
SECTION D-D



NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: MAGNESIUM ZK60A-T5 PER QQ-M-31, TEMP 5
3. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII .020 MAX.
4. ALL SURFACES $\sqrt{125}$ UNLESS OTHERWISE SPECIFIED
5. IDENTIFY WITH PART NO. PER ND 1002019
6. REMOVE BURRS AND SHARP EDGES .005/.015
7. FINISH: ANODIZE PER MIL-M-45202, TYPE I, CLASS C
8. TAP HOLE (K1) AFTER ANODIZE. COAT PER ND1002040
9. COAT THREADS WITH MIL-P-8585, COLOR YELLOW
10. BREAKOUTS PERMISSABLE WHERE SHOWN WITH *

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 2F035						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED


8.955 REF
TRIM LINE
1.020 REF
2004711
CR1 (K)
FT36
C4 (+)
R32
R34
R15
R17
R18
R19
R16
FT38
CR14
CR13 (K)
CR17 (K)
CR2
CR12
R35
R33
FT35
8SA2
8R10
8R7
8R8
FT34
FT33
7SA2
7R10
7R8
6SA2
6R10
6R8
5SA2
5R10
5R8
CR9 (K)
C3
C2 (+)
R24
R20
R29
FT37
CR10 (K)
R31
CR16 (K)
CR15
CR11
FT19
CR5
R23
R27
R25
R22
R30
CR8 (K)
CR7
R26
CR3
CR4 (K)
CR6
FT18
C1 (-)
R28
R21
FT16
4SA2
4R10
4R8
3SA2
3R10
3R8
2SA2
2R10
2R8
1SA2
1R10
1R8
FT1
FT2
FT4
FT8
FT12
FT23
FT27
FT31

2.000 ±.002 PHOTO REF DIM.

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: FILM .006/.008 THICK SENSITIZED DIMENSIONALLY STABLE PER L-F-340 TYPE IB, CLASS 2, STYLE IA
3. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
4. MAKE MASTER PATTERN POSITIVE FILMS TO DIMENSIONS SHOWN
5. CUT TO WITHIN .010 OF TRIMLINE
6. BROKEN LINE DENOTES SLEEVING
7. ⊙ .040/.050 DIA HOLE
8. • .035/.045 DIA HOLE (1SA2 THRU 8SA2 ONLY)
9. ● .120/.130 DIA HOLE (14 PLACES)

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003982	
2003981	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

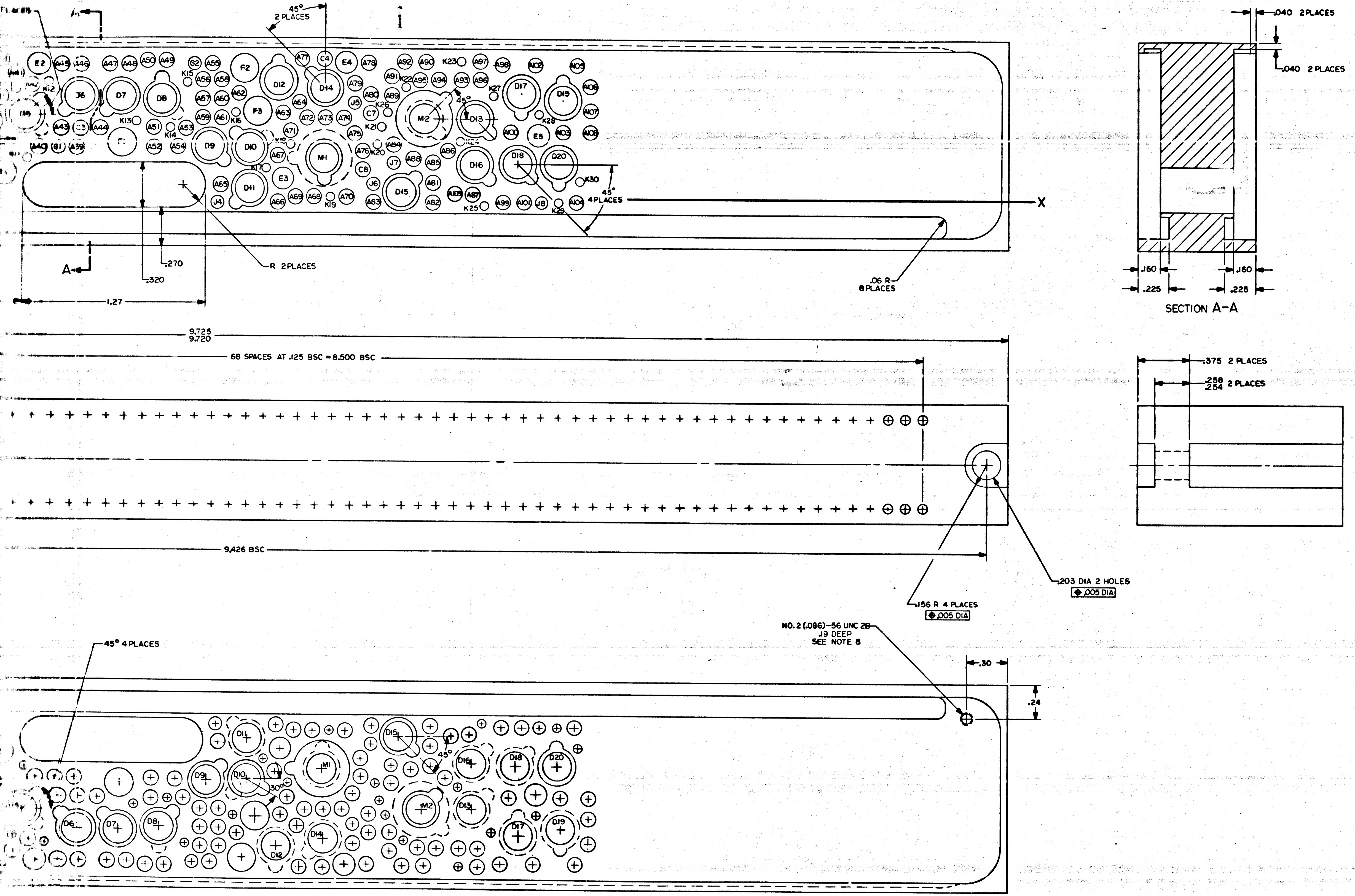
DRAWN
CHECKED R Edwards
APPROVED
APPROVED Eldon C Hall
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSULATOR B
PHOTOGRAPHIC MASTER
SENSE AMPLIFIER MODULE

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2004711
SCALE 4/1
SHEET 1 OF 1

2004711


45° 2 PLACES
A
A
.270
.320
1.27
R 2 PLACES
45° 4 PLACES
X
.06 R 8 PLACES
.040 2 PLACES
.040 2 PLACES
.160
.160
.225
.225
SECTION A-A
9.725
9.720
68 SPACES AT .125 BSC = 8.500 BSC
.375 2 PLACES
.258
.254 2 PLACES
9.426 BSC
.203 DIA 2 HOLES
.005 DIA
.156 R 4 PLACES
.005 DIA
NO. 2 (.086)-56 UNC 2B
.19 DEEP
SEE NOTE 8
.30
.24
45° 4 PLACES
D14
D12
M1
M2
D13
D15
D16
D17
D18
D19
D20
D6
D7
D8
D9
D10
D11
F2
F3
E2
E3
E4
E5
J6
J7
J8

REVISIONS 28061						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS .XXX ± .005 .XX ± .02 ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 2

2003032	
NEXT ASSY	USED ON

APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN W. Brown 7 Apr 66
CHECKED J. C. Garbarl[illegible]
APPROVED
APPROVED Eldon C. Hall
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

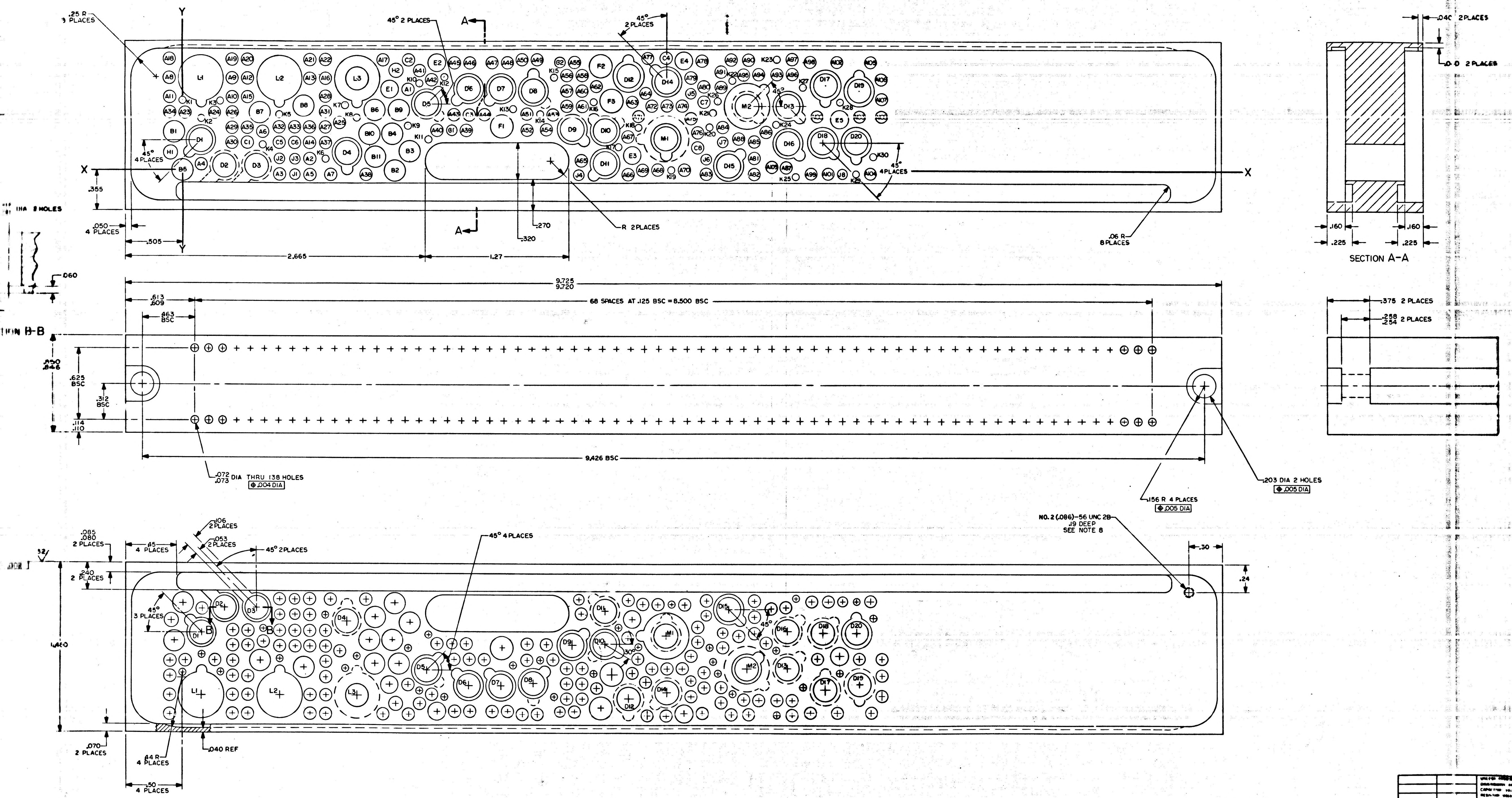
HEADER HOUSING
ALARM MODULE

CODE IDENT NO 80230
SIZE J
DRAWING NO 2004712
SCALE 4/1
SHEET 1 OF 1

2004712 | –

MASTER

3H


.25 R
3 PLACES
Y
X
45° 2 PLACES
A
45°
2 PLACES
.040 2 PLACES
.010 2 PLACES
L1
L2
L3
M1
M2
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D13
D14
D15
D16
D17
D18
D19
D20
45°
4 PLACES
.355
.050
4 PLACES
.505
2.665
1.27
.320
.270
R 2 PLACES
.06 R
8 PLACES
45°
4 PLACES
.160
.225
SECTION A-A
.060
9.725
9.720
.613
.609
68 SPACES AT .125 BSC = 8.500 BSC
.463
BSC
.375 2 PLACES
.258
.254 2 PLACES
SECTION B-B
.850
.846
.625
BSC
.312
BSC
.114
.110
9.426 BSC
.072
.073 DIA THRU 138 HOLES
⊕ .004 DIA
.156 R 4 PLACES
⊕ .005 DIA
.203 DIA 2 HOLES
⊕ .005 DIA
.106
2 PLACES
.053
2 PLACES
.085
.080
2 PLACES
.65
4 PLACES
45° 2 PLACES
45° 4 PLACES
NO. 2 (.086)-56 UNC 2B
.19 DEEP
SEE NOTE 8
.30
.24
.240
2 PLACES
45°
3 PLACES
B
30°
1.400
.070
2 PLACES
.44 R
4 PLACES
.040 REF
.50
4 PLACES
32

MASTER

2003032	
NEXT ASSY	USED ON
APPLICATION	

2004712 | –

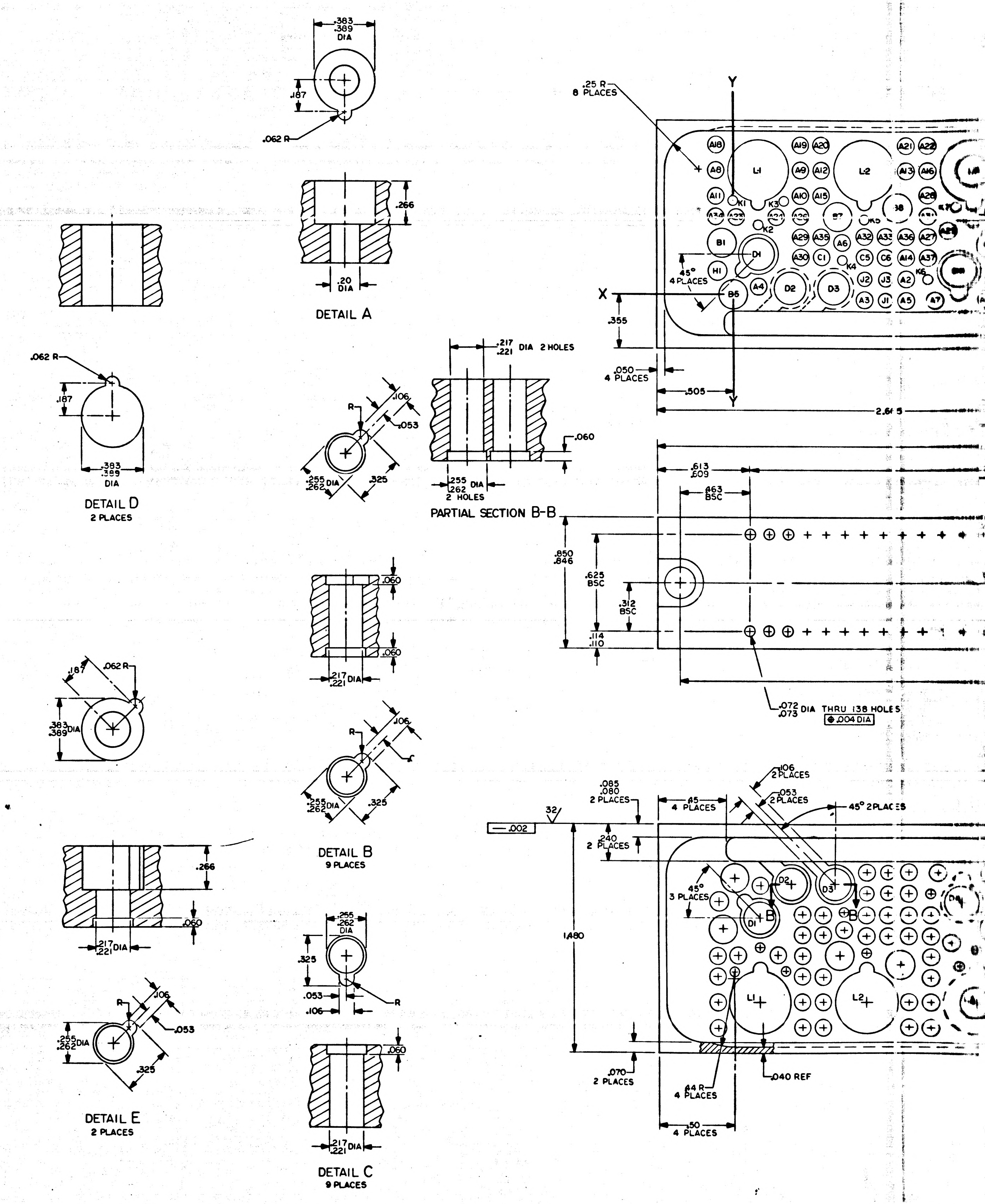
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

SIT400S

HOLE IDENT	X DIM.	Y DIM.	HOLE DIA	QTY
A1	2.005	.710	.100 .104	109
A2	1.135	.100		
A3	.865	-.035		
A4	.165	.050		
A5	1.135	-.035		
A6	.720	.335		
A7	1.320	-.035		
A8	-.115	.805		
A9	.445	.805		
A10	.445	.640		
A11	-.115	.640		
A12	.580	.805		
A13	1.135	.805		
A14	1.135	.240		
A15	.580	.640		
A16	1.275	.805		
A17	1.785	.965		
A18	-.115	.970		
A19	.445	.965		
A20	.580	.965		
A21	1.135	.965		
A22	1.275	.965		
A23	.020	.500		
A24	.285	.500		
A25	1.400	.415		
A26	.445	.505		
A27	1.275	.375		
A28	1.275	.645		
A29	.445	.370		
A30	.445	.240		
A31	1.275	.510		
A32	.865	.375		
A33	1.000	.375		
A34	-.115	.505		
A35	.580	.370		
A36	1.135	.375		
A37	1.275	.240		
A38	1.630	-.035		
A39	2.520	.350		
A40	2.260	.350		
A41	2.105	.870		
A42	2.215	.790		
A43	2.410	.485		
A44	2.680	.485		
A45	2.415	.940		
A46	2.550	.940		
A47	2.750	.940		
A48	2.885	.940		
A49	3.150	.965		
A50	3.015	.965		
A51	3.060	.490		
A52	3.060	.350		
A53	3.290	.485		
A54	3.230	.355		
A55	3.480	.945		
A56	3.410	.830		
A57	3.410	.695		
A58	3.545	.830		
A59	3.410	.560		
A60	3.545	.695		
A61	3.545	.560		
A62	3.675	.735		
A63	3.990	.600		
A64	4.110	.675		
A65	3.540	.085		
A66	3.955	-.035		
A67	3.955	.295		
A68	4.220	.000		
A69	4.085	.000		
A70	4.455	.000		
A71	4.045	.475		
A72	4.165	.560		
A73	4.300	.560		
A74	4.435	.560		
A75	4.515	.450		
A76	4.570	.325		
A77	4.125	.975		
A78	4.610	.955		
A79	4.510	.805		
A80	4.625	.730		
A81	5.070	.105		
A82	5.070	-.035		
A83	4.645	-.035		
A84	4.790	.375		
A85	5.070	.250		
A86	5.175	.335		
A87	5.315	.025		
A88	4.930	.275		
A89	4.775	.725		
A90	5.020	.965		
A91	4.775	.860		
A92	4.865	.965		
A93	5.270	.840		
A94	5.110	.840		
A95	4.980	.835		
A96	5.405	.835		
A97	5.405	.970		
A98	5.560	.950		
A99	5.575	-.025		
A100	5.625	.475		
A101	5.725	-.025		
A102	5.800	.950		
A103	6.000	.475		
A104	6.100	-.025		
A105	6.100	.950		
A106	6.200	.800		
A107	6.200	.625		
A108	6.200	.475		
A109	5.182	.035		
B1	-.075	.335	.181 .185	4
B2	1.890	.000		
B3	2.020	.170		
B4	1.870	.320		

HOLE IDENT	X DIM.	Y DIM.	HOLE DIA	QTY
B5	.000	.000	.181 .185	7
B6	1.715	.525		
B7	.690	.505		
B8	1.080	.565		
B9	1.930	.525		
B10	1.660	.320		
B11	1.715	.120		
C1	.580	.240	.108 .112	8
C2	2.010	.970		
C3	2.545	.485		
C4	4.295	.980		
C5	.865	.240		
C6	1.000	.240		
C7	4.625	.595		
C8	4.570	.195		
D1	.165	.260	DETAIL B	1
D2	.375	.040	SECTION B-B	2
D3	.665	.040		
D4	1.470	.155	DETAIL C	1
D5	2.170	.580	DETAIL B	6
D6	2.540	.715		
D7	2.830	.715		
D8	3.115	.693		
D9	3.460	.350		
D10	3.750	.350		
D11	3.750	.060	DETAIL C	4
D12	3.960	.825		
D13	5.370	.560		
D14	4.300	.770		
D15	4.845	.040	DETAIL B	1
D16	5.370	.235	DETAIL C	4
D17	5.700	.750		
D18	5.675	.250		
D19	6.000	.700		
D20	5.975	.250	DETAIL B	1
E1	1.845	.710	.153 .157	5
E2	2.260	.940		
E3	3.990	.130		
E4	4.450	.955		
E5	5.825	.450		
F1	2.835	.385	.202 .206	3
F2	3.710	.913		
F3	3.810	.610		
G1	2.390	.350	.092 .096	2
G2	3.350	.945		
H1	-.100	.150	.124 .128	2
H2	1.900	.875		
J1	1.000	-.035	.088 .092	8
J2	.865	.100		
J3	1.000	.100		
J4	3.515	-.040		
J5	4.510	.670		
J6	4.645	.095		
J7	4.790	.245		
J8	5.850	-.025		
K1	.000	.605	.058 .062	30
K2	.165	.450		
K3	.335	.605		
K4	.720	.220		
K5	.865	.485		
K6	1.275	.100		
K7	1.445	.565		
K8	1.555	.460		
K9	2.005	.390		
K10	2.105	.760		
K11	2.185	.270		
K12	2.325	.815		
K13	2.935	.535		
K14	3.175	.490		
K15	3.300	.810		
K16	3.650	.600		
K17	3.870	.205		
K18	4.045	.375		
K19	4.340	.000		
K20	4.675	.375		
K21	4.705	.500		
K22	4.875	.785		
K23	5.270	.970		
K24	5.265	.400		
K25	5.440	-.055		
K26	4.745	.605		
K27	5.500	.725		
K28	5.825	.600		
K29	5.975	-.025		
K30	6.125	.125		
L1	.165	.805	DETAIL D	2
L2	.865	.805		
L3	1.555	.805	DETAIL A	1
M1	4.290	.275	DETAIL E	2
M2	5.005	.560		

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATERIAL: MAGNESIUM ALLOY ZK-60A-T5 PER QQ-M-31, TEMP 5
3. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .010 MAX
4. ALL SURFACES 125√ UNLESS OTHERWISE SPECIFIED
5. IDENTIFY WITH PART NO. PER ND 1002019
6. REMOVE BURRS AND SHARP EDGES .005/.015
7. FINISH: ANODIZE PER MIL-M-45202 TYPE I, CLASS C
8. TAP HOLE AFTER ANODIZE. COAT PER ND1002040


.383
.389
DIA
.187
.062 R
.266
.20
DIA
DETAIL A
.062 R
.187
.383
.389
DIA
DETAIL D
2 PLACES
.187
.062 R
.383
.389 DIA
.266
.060
.217
.221 DIA
R
.106
.053
.255
.262 DIA
.325
DETAIL E
2 PLACES
R
.106
.053
.255
.262 DIA
.325
.060
.060
.217
.221 DIA
DETAIL B
9 PLACES
.255
.262
DIA
.325
.053
.106
R
.060
.217
.221 DIA
DETAIL C
9 PLACES
.217
.221 DIA 2 HOLES
.060
.255
.262 DIA
2 HOLES
PARTIAL SECTION B-B
.25 R
8 PLACES
Y
X
45°
4 PLACES
.355
.050
4 PLACES
.505
Y
.613
.609
.463
BSC
.850
.846
.625
BSC
.312
BSC
.114
.110
.072
.073 DIA THRU 138 HOLES
⊕ .004 DIA
.085
.080
2 PLACES
.45
4 PLACES
.106
2 PLACES
.053
2 PLACES
45° 2 PLACES
32
.002
.240
2 PLACES
45°
3 PLACES
1.480
.070
2 PLACES
.64 R
4 PLACES
.50
4 PLACES
.040 REF
B
B

2004712 -

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
–		RELEASED PER TDRR 30648				8/11

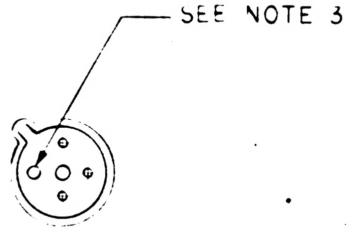
REF DES	FIND NO.
Q9 Q10 Q11	1

CHART A

TEST	CONDITION	LIMITS
D.C.CURRENT GAIN	I_C = 150 MA V_{CE} = 1 VOLT	THE BETA SHALL BE MATCHED SUCH THAT OF THE THREE DEVICES THE MAX BETA VALUE DIVIDED BY THE MINIMUM SHALL NOT YIELD A FACTOR OF MORE THAN 1.5
V_{BC}	I_B = 20 MA	V_{BC} SHALL BE MATCHED WITHIN 10 MILLIVOLTS FOR THE THREE UNITS
V_{CE} SAT	I_B = 15 MA I_C = 150MA	V_{CE} SAT SHALL BE MATCHED WITHIN 10 MILLIVOLTS FOR THE THREE UNITS

NOTES

1. Q9, Q10 AND Q11 SHALL BE SELECTED AS A MATCHED SET PER CHART A
2. IDENTIFY PER ND1002019
3. COLOR YELLOW DOT APPROX .062 DIA ADJACENT TO EXISTING DOT, USING INK ICC6271-4



3	2004004-002		TRANSISTOR	1
QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003953	
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
CHECKED
APPROVED
APPROVED Eldon C Hall
APPROVED CCG 8/18
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

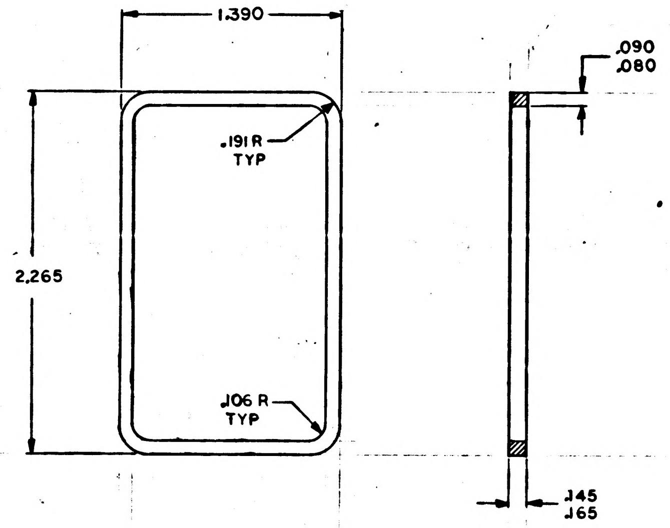
TRANSISTOR SELECTION LIST
POWER SUPPLY

CODE IDENT NO	SIZE	DRAWING NO.
80230	C	2004722

SCALE NONE
SHEET 1 OF 1

2004722

REVISIONS TOar 32543			
SYM	DESCRIPTION	DATE	APPROVED



NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-1000
2. IDENTIFY WITH PART NO. PER ND1002019
3. MATL: SILICONE RUBBER PER MIL-R-5847, CLASS IIB, GRADE 40

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003099	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
DECIMALS .XX ± —
DECIMALS .XXX ±.005
ANGLES ± —
DO NOT SCALE DRAWING

MATERIAL
SEE NOTE 3

RAYTHEON
RAYTHEON CO.
LEXINGTON, MASS.
CONTRACT NO.
DRAWN D. Mooney DATE 9-29-66
CHECKED E. Urban 30 Sep 66
APPROVAL
APPROVAL
APPROVAL Eldon C. Hall
NASA APPROVAL
MIT APPROVAL
SCB APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

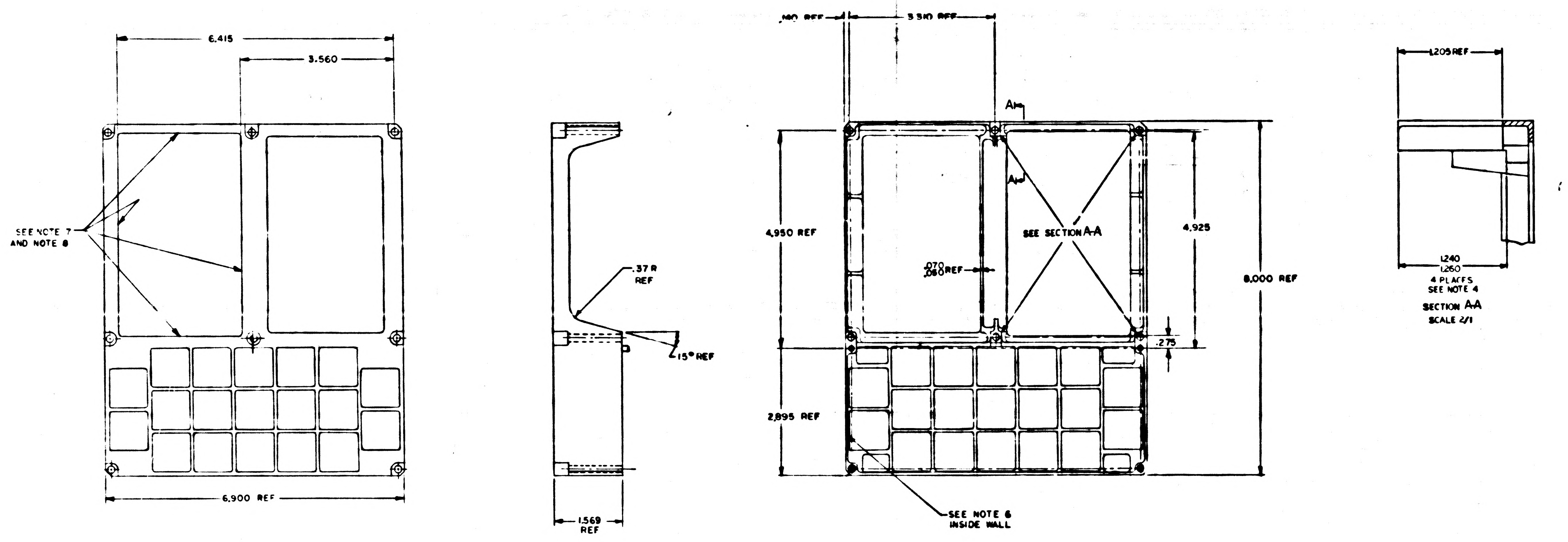
GASKET, RUBBER
AGC

CODE IDENT NO. 80230
SIZE D
NASA DRAWING NO. 2004727
SCALE 2/1
WT
SHEET 1 OF 1

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REVISIONS TDRR 35062

SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
A		CHANGED PER TDRR 35137				



6.415
3.560
SEE NOTE 7 AND NOTE 8
6.900 REF
.37 R REF
15° REF
1.569 REF
.180 REF
3.310 REF
A
4.950 REF
.070 .060 REF
SEE SECTION A-A
4.925
8.000 REF
.275
2.895 REF
SEE NOTE 6 INSIDE WALL
1.205 REF
1.240 1.260
4 PLACES SEE NOTE 4
SECTION A-A
SCALE 2/1

NOTES
1. MATL MAKE FROM 2004929-021
2. REMOVE BURRS AND SHARP EDGES .005/.015
3. ALL SURFACES 125
4. TOUCH UP ALL EXPOSED MACHINED SURFACES PER ND1002040, DO NOT EPOXY COAT
5. UNLESS OTHEWISE SPECIFIED ALL FILLETS AND RADII TO BE .09R MAX.
6. IDENTIFY WITH PART NO. PER ND1002019 APPROXIMATELY WHERE SHOWN
7. PAINT INDICATED SURFACES WITH 1008809-1, DARK GRAY EPOXY ENAMEL PER 1002279
8. FINAL COAT INDICATED SURFACES PER ND1002277 USING 1012543-003
9. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
2003985	
2003950	
2003994	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON FRACTIONS ± — DECIMALS ±.005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED GAEC
APPROVED MSC
DATE

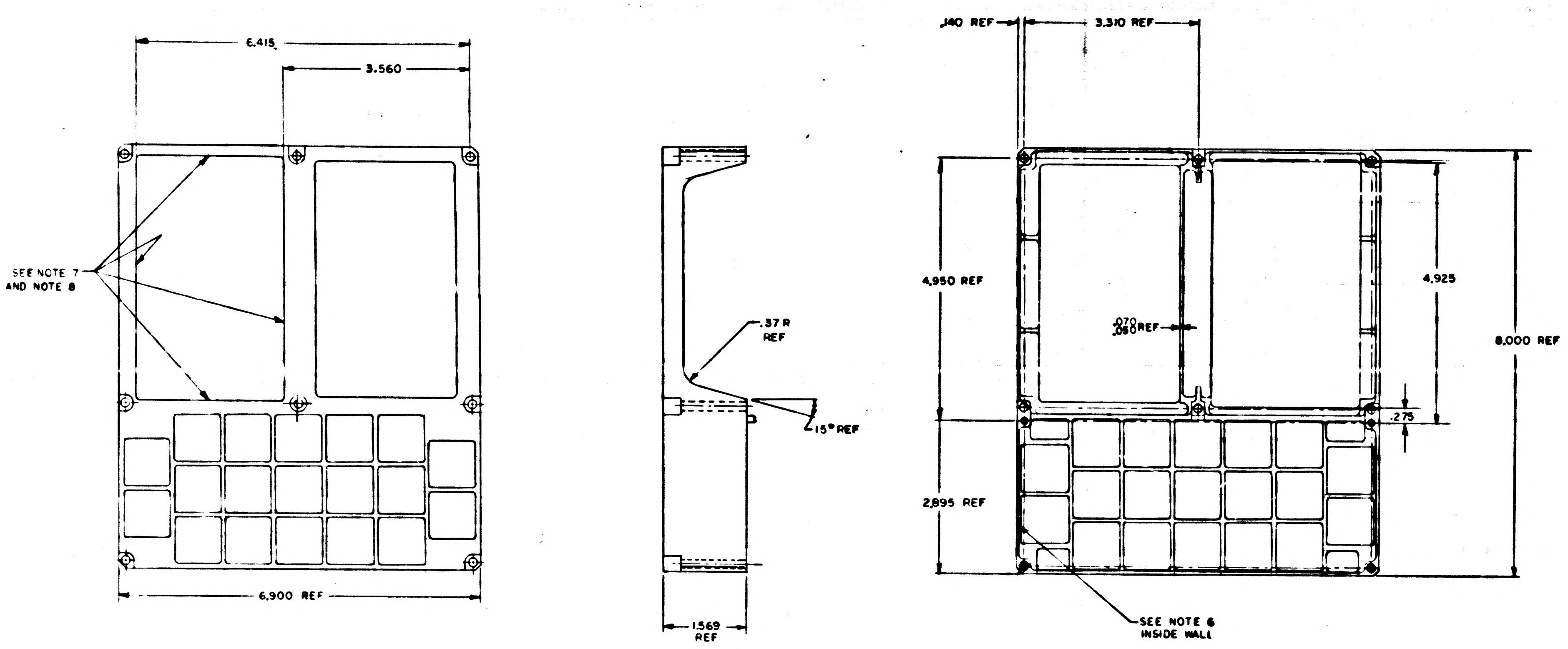
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COVER, FRONT
AGC DSKY

CODE IDENT NO 80230
SIZE E
DRAWING NO. 2004739
SCALE 1/1
SHEET 1 OF 1

REVISIONS TDRR 35042

SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED



6.415
3.560
SEE NOTE 7
AND NOTE 8
6.900 REF
.37 R
REF
15° REF
1.569
REF
.140 REF
3.310 REF
4.950 REF
.070
.060 REF
4.925
8.000 REF
.275
2.895 REF
SEE NOTE 6
INSIDE WALL

NOTES
1. MATL MAKE FROM 2004929-021
2. REMOVE BURRS AND SHARP EDGES .005/.015
3. ALL SURFACES 125√
4. TOUCH UP ALL EXPOSED MACHINED SURFACES PER ND1002040, DO NOT EPOXY COAT
5. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .09R MAX.
6. IDENTIFY WITH PART NO. PER ND1002019 APPROXIMATELY WHERE SHOWN
7. PAINT INDICATED SURFACES WITH 1008809-1, DARK GRAY EPOXY ENAMEL PER 1002279
8. FINAL COAT INDICATED SURFACES PER ND1002277 USING 1012543-003
9. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
2003985	
2003950	
2003934	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN		
CHECKED		
APPROVED	Ellen Hall	27 Mar 67
APPROVED		9 Mar 67
APPROVED ASST		7/4/67
APPROVED MSC		
		DATE

COVER, FRONT
AGC DSKY

CODE IDENT NO	SIZE	DRAWING NO.
80230	E	2004739

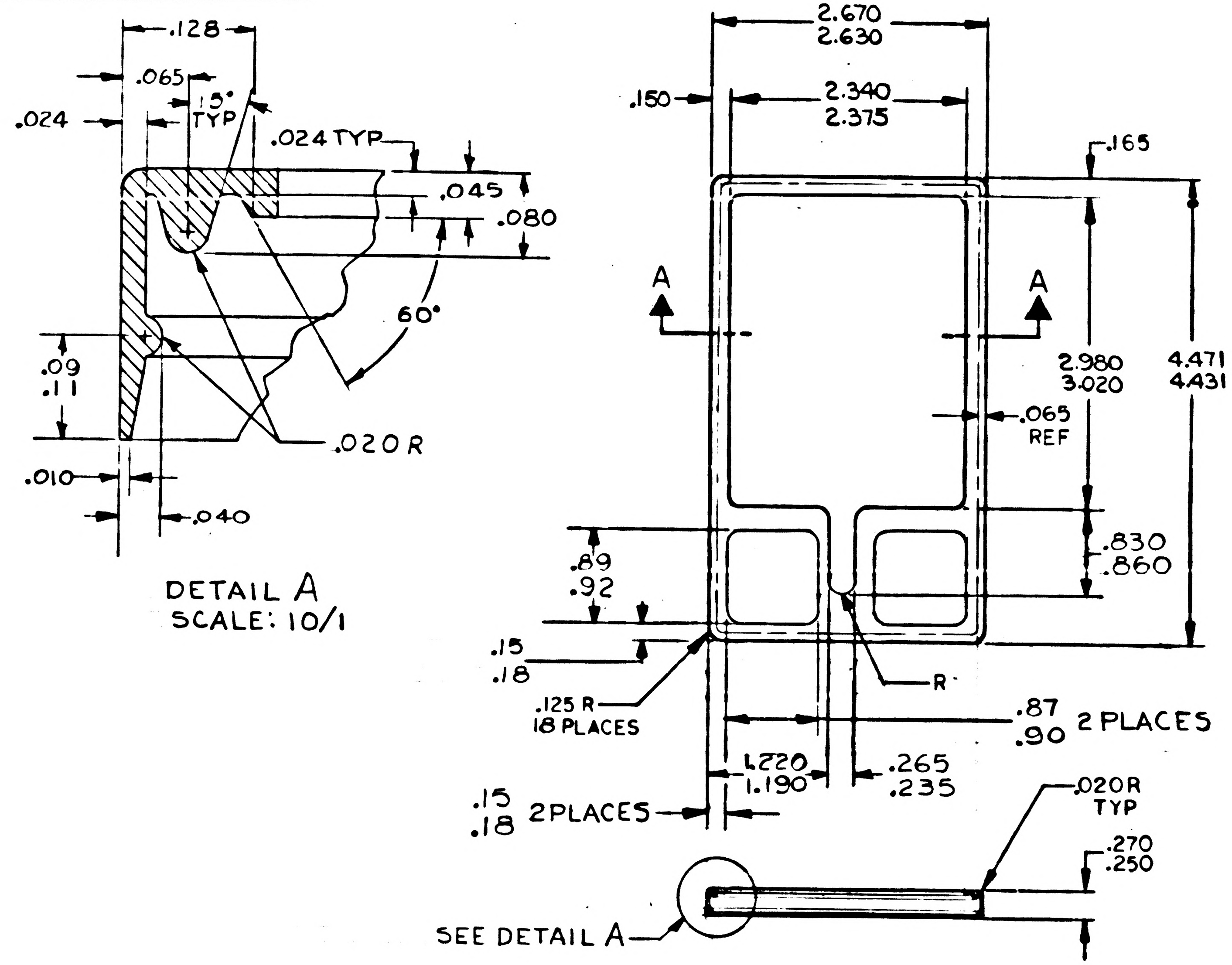
SCALE

SHEET OF

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS TDRR 35062

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 35331	cfo		1/5/68	TOR



.128
.065
15° TYP
.024
.024 TYP
.045
.080
60°
.09
.11
.020 R
.010
.040
DETAIL A
SCALE: 10/1
2.670
2.630
2.340
2.375
.150
.165
A
A
2.980
3.020
4.471
4.431
.065 REF
.830
.860
.89
.92
.15
.18
.125 R 18 PLACES
R
.87
.90 2 PLACES
1.220
1.190
.265
.235
.15
.18 2PLACES
.020R TYP
.270
.250
SEE DETAIL A

NOTES

1. MATL: RUBBER, MOLDED SILICONE (GE-5211) PER MIL-R-5847, CLASS III, 20-25 DUROMETER
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
3. IDENTIFY WITH PART NO. PER ND1002019, EXCEPT DO NOT MARK GASKET.

SECTION A-A

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003897	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ± 5°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN R. J. Gomes 6 NOV 67
CHECKED 3 NOV 67
APPROVED Eldon C Hall 7 Nov 67
APPROVED 8 Nov 67
CONTRACT NAS9-497
APPROVED
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

GASKET,
INDICATOR COVER

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004741
SCALE 1/1
SHEET 1 OF 1

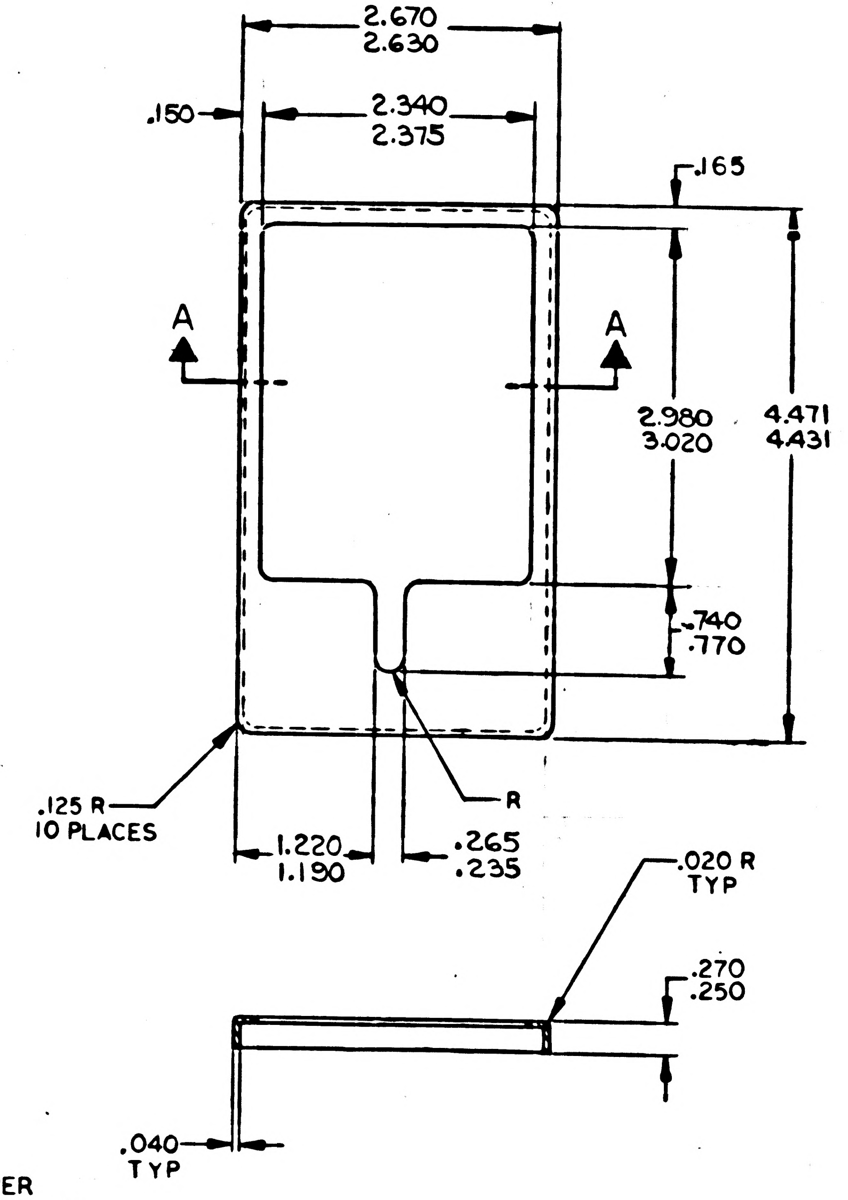
2004741 A

MODERN BLUE PRINT CO., INC. 02840

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS TDRR 35062

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



SECTION A-A

NOTES
1. MATL: RUBBER SILICONE (GE-5211) PER MIL-R-5847, CLASS III, 20-25 DUROMETER
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
3. IDENTIFY WITH PART NO. PER ND1002019, EXCEPT DO NOT MARK GASKET.

2003897	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN R. J. Gomes	2 NOV 67
CHECKED E.	3 NOV 67
APPROVED Eldon C. Hall	7 Nov 67
APPROVED W Stameris	8 Nov 67
CONTRACT NAS9-497	
APPROVED [redacted]	11/16/67
APPROVED MSC	11/8/67
	DATE

GASKET,
INDICATOR COVER

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004741

SCALE 1/1 SHEET 1 OF 1

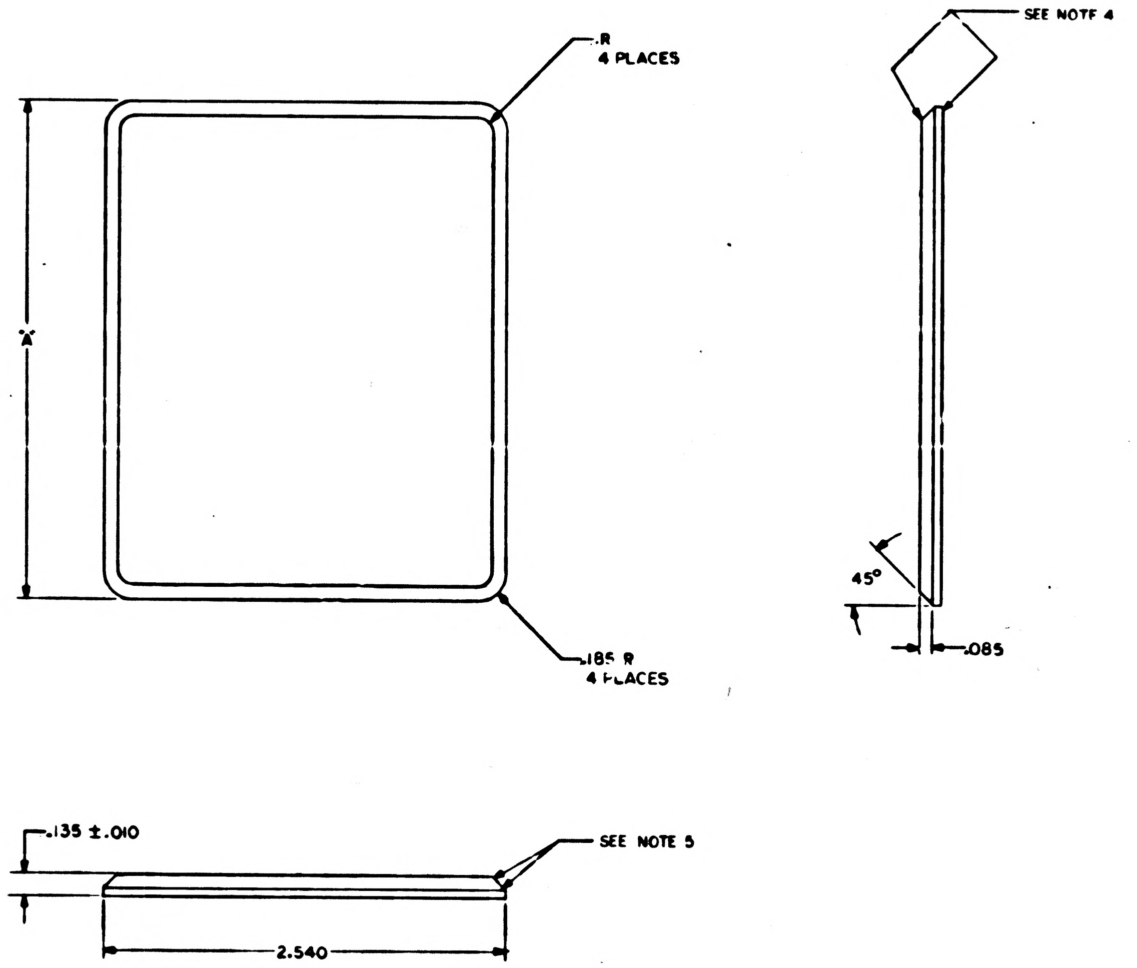
2004741

NOTICE - [illegible]

REVISIONS TDRR 36455						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 36657			8 14/68	

PART NO.	DIM "A"	
-001	3.135	
-002	4.358	
-003	4.358	SEE NOTES 4&5

-003	12345
-002	123
-001	123
NOTE APPLICATION	



NOTES:

1. MAT'L: LAMINATED GLASS PER MIL-6-8602A, CLASS II, GRADE 2N
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
3. IDENTIFY WITH PART NO. PER ND1002019
4. FRONT AND REAR SURFACES TO HAVE ANTI-REFLECTION COATING PER MIL-C-675A EXCEPT REQUIREMENTS OF PARA. 4.6.9
5. BORDER SURFACE SHALL BE FREE OF COATING PER NOTE 4

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
2003897	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±2°
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN J.P.
CHECKED
APPROVED
APPROVED
APPROVED CCG 6/27/63
APPROVED MSC 6/27/63
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PANEL, INDICATOR
IL-EL
AGC DSKY

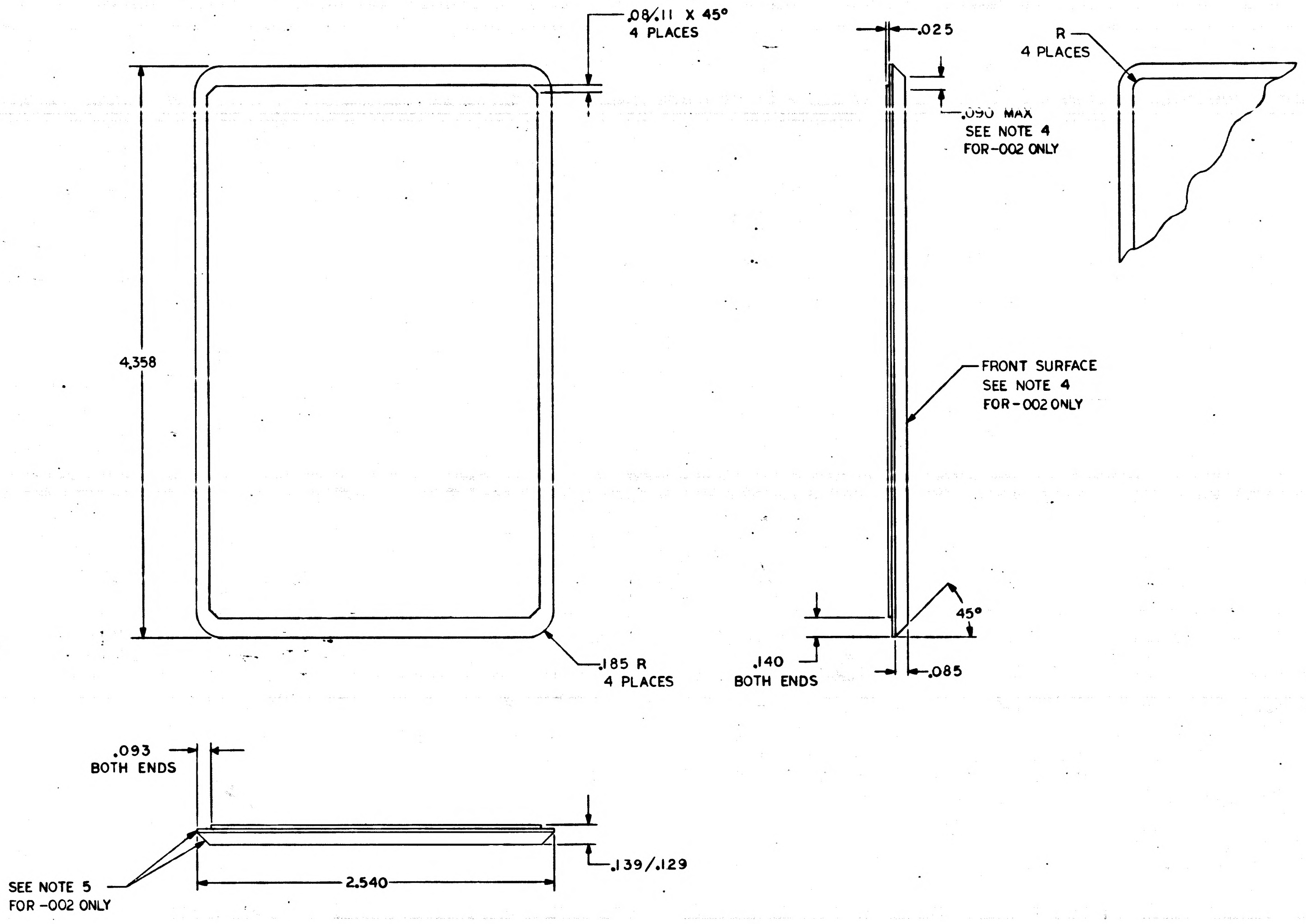
CODE IDENT NO 80230
SIZE D
DRAWING NO. 2004743
SCALE 2/1
SHEET 1 OF 1

2004743 A

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS TDRR 37321

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



-002	1 THRU 6
-001	1,2,3&6
NOTE APPLICATION	

NOTES:

1. MATL: LAMINATED GLASS PER MIL-G-8602A, CLASS II, GRADE 2N.
2. INTERPRET DWG IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
3. IDENTIFY WITH PART NO. PER ND1002019
4. ANTI-REFLECTION COATING PER MIL-C-675A, EXCEPT THE REQUIREMENTS OF PARA: 3.7 AND 4.6.9; MAY BE APPLIED TO THE FRONT SURFACE. THE COATING SHALL BE WITHIN .09 IN. OF THE EXTREMITIES OF THE FRONT SURFACE. THE UNCOATED AREA SHALL NOT EXCEED A TOTAL OF 0.7 SQ. IN.
5. BORDER SURFACES SHALL BE FREE OF COATING PER NOTE 4
6. GRIND SHARP EDGES .004/.008.

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003988	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±2°
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	Tom Smith	6 JAN 69
CHECKED	E. Urban	9 JAN 69
APPROVED	Eldon C. Hall	21 Jan 69
APPROVED	W. Stameris	28 Jan 69
APPROVED MIT		29 Jan 69
APPROVED MSC		
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PANEL, INDICATOR (E/L)
AGC DSKY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2004745

SCALE 2/1 SHEET 1 OF 1

2004745

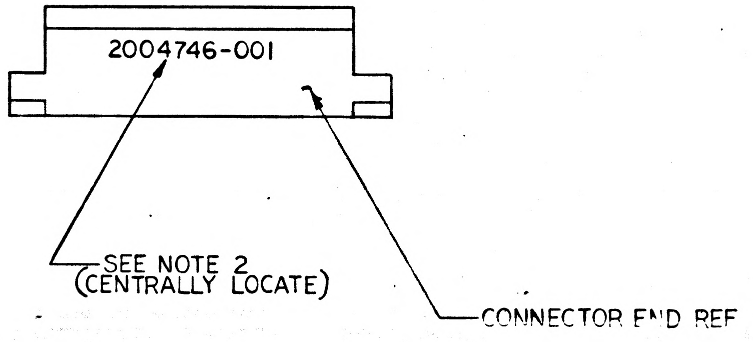
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004746

REVISIONS TDRR 37319

SYM	DESCRIPTION	DATE	APPROVAL

PART NO.	DIGITAL INDICATOR NO.
2004746 — 001	1006315 — 001



GENERAL REQUIREMENTS:

UPON COMPLETION OF ALL THE REQUIREMENTS AS SPECIFIED IN PARA. 4.2.1. OF PS 2016043 ONLY THE DIGITAL INDICATORS WHICH PASS THE REQUIREMENTS OF PARA 4.2.1 OF PS 2016043 SHALL BE MARKED AS SPECIFIED IN THIS DOCUMENT

NOTES

1. INTERPERT DRAWING IN ACCORDANCE WITH STANDARDS PERSCRIBED BY MIL-D-70327
2. IDENTIFY WITH PART NO. PER ND 1002019 AND SERIALIZE PER ND1002023

2004746

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003988	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN Dick Clinton DATE 1-23-69
CHECKED E. Urban 1-27-69
APPROVAL Eldon C Hall 27 Jan 69
APPROVAL W Stameris 28 Jan 69
NASA APPROVAL
MIT APPROVAL 20 Jan 69

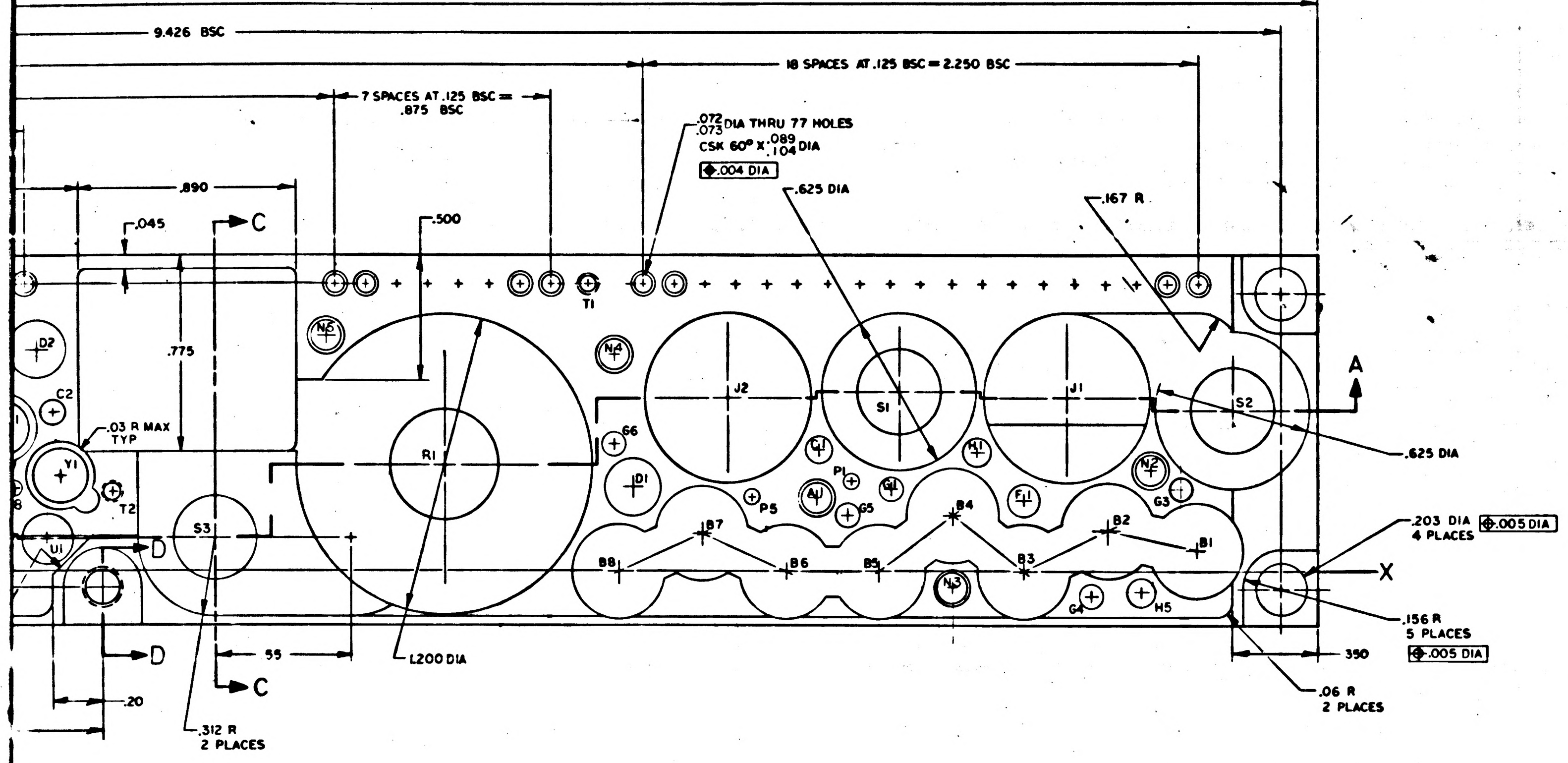
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INDICATOR, DIGITAL
(THERMAL-VAC)

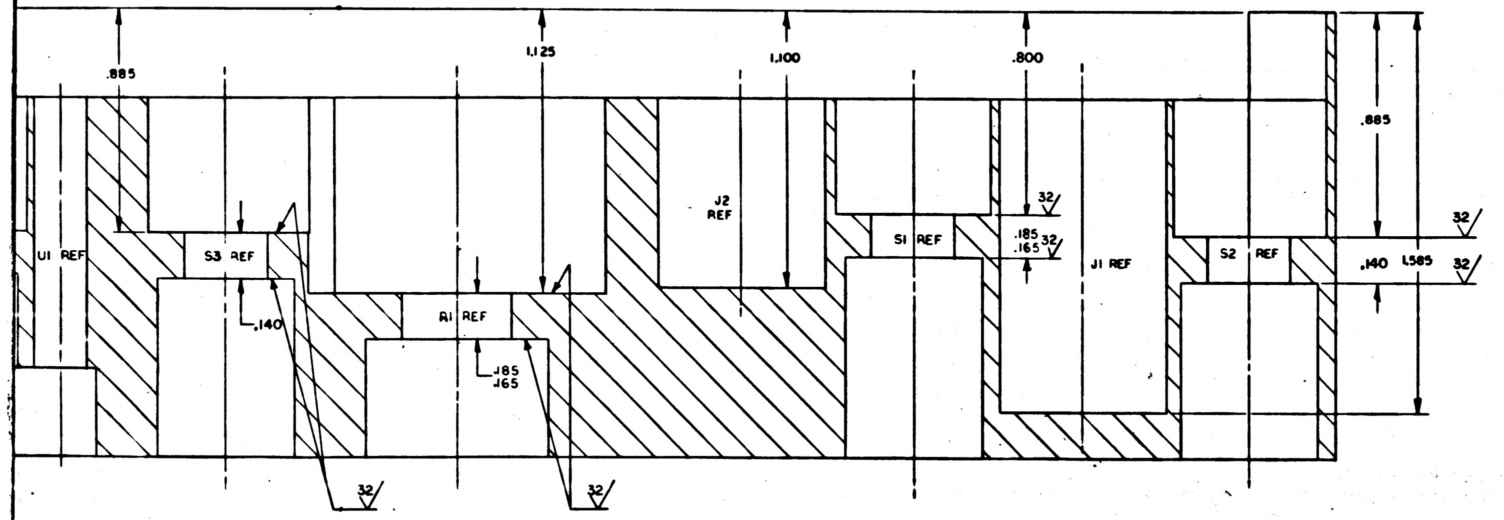
CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	C	2004746

SCALE NONE WT SHEET 1 OF 1

			REVISIONS 26197				
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 27323	DAC	RRB	4 Aug	J.T.M.C

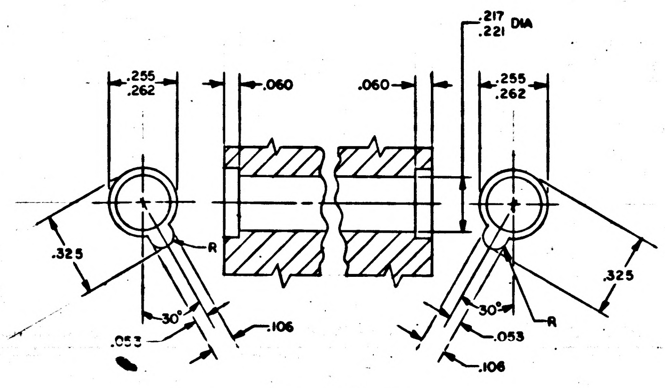


9.426 BSC
18 SPACES AT .125 BSC = 2.250 BSC
7 SPACES AT .125 BSC = .875 BSC
.072/.073 DIA THRU 77 HOLES
CSK 60° X .089/.104 DIA
.004 DIA
.625 DIA
.890
.045
.500
.167 R
C
.775
.03 R MAX TYP
D2
C2
Y1
T2
U1
S3
R1
J2
S1
J1
S2
T1
N6
N4
66
D1
P5
P1
G5
B7
B6
B5
B4
B3
B2
B1
B8
N3
G4
H5
G3
A
.625 DIA
.203 DIA 4 PLACES
.005 DIA
X
.156 R 5 PLACES
.005 DIA
.350
.06 R 2 PLACES
D
.55
1.200 DIA
.20
.312 R 2 PLACES



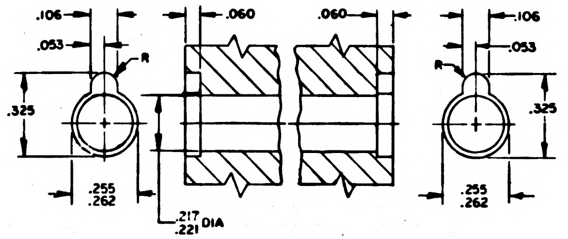
.885
1.125
1.100
.800
.885
J2 REF
U1 REF
S3 REF
S1 REF
J1 REF
S2 REF
R1 REF
.140
.185/.165
.140
1.585
32

SECTION A-A



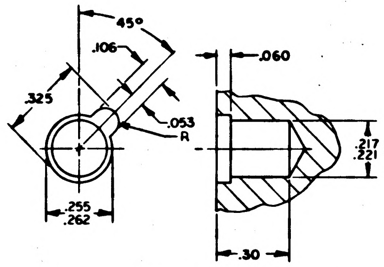
.217/.221 DIA
.255/.262
.060
.060
.255/.262
.325
R
30°
.053
.106
.325
30°
R
.053
.106

DETAIL C



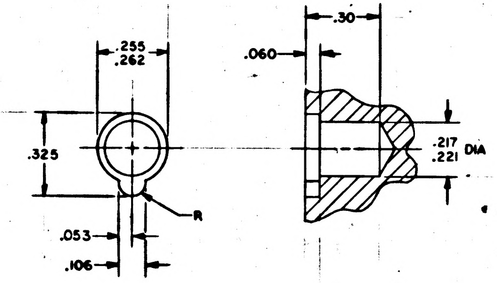
.106
.053
R
.060
.060
.106
.053
R
.325
.325
.255/.262
.217/.221 DIA
.255/.262

DETAIL A



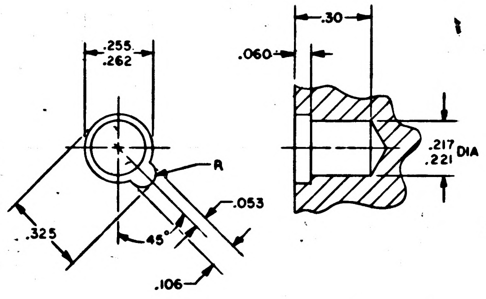
45°
.106
.060
.325
.053
R
.217/.221 DIA
.255/.262
.30

DETAIL B



.255/.262
.30
.060
.325
.217/.221 DIA
R
.053
.106

DETAIL E



.255/.262
.30
.060
.217/.221 DIA
R
.053
.325
45°
.106

DETAIL D

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS,
TOLERANCES ON
FRACTIONS ± — DECIMALS .XX ± .01 .XXX ± .005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN D.A. Clement 4 FEB 66
CHECKED
APPROVED
APPROVED Ed. C Hall
APPROVED MIT
APPROVED MSC A. C. METZGER
DATE

HEADER HOUSING
POWER SUPPLY

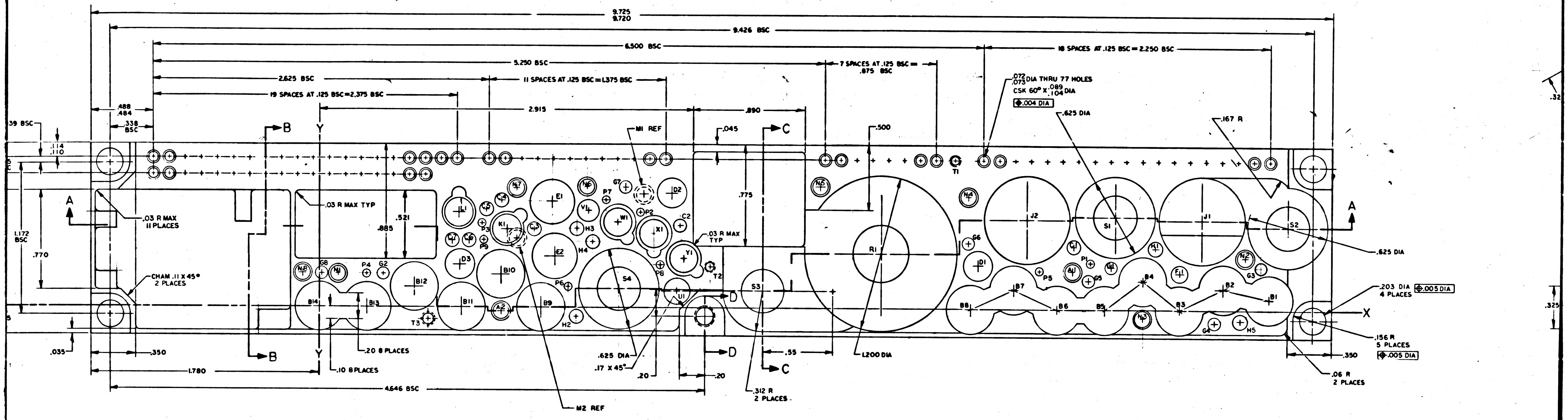
NEXT ASSY	USED ON
2003057	

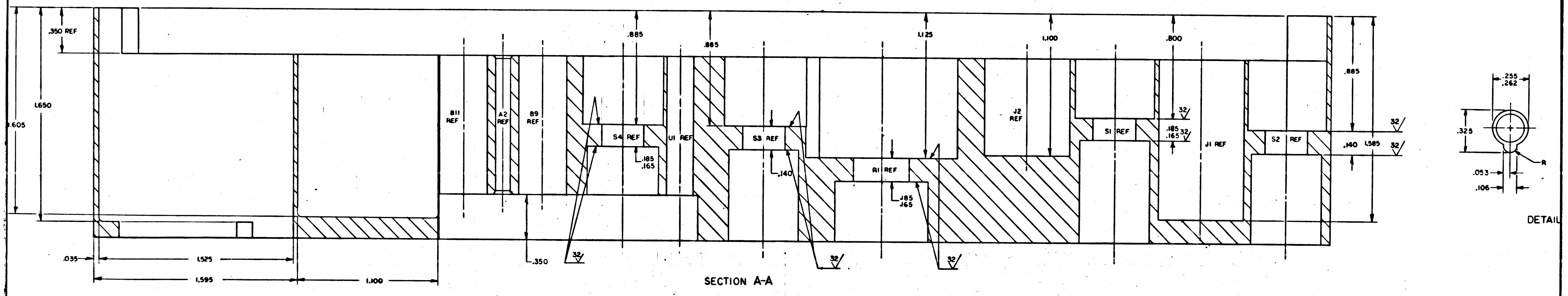
APPLICATION

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004888
SCALE 4/1
SHEET 1 OF 1

2004888 A

F4/4


9.725
9.720
9.426 BSC
6.500 BSC
18 SPACES AT .125 BSC = 2.250 BSC
5.250 BSC
7 SPACES AT .125 BSC = .875 BSC
2.625 BSC
11 SPACES AT .125 BSC = 1.375 BSC
19 SPACES AT .125 BSC = 2.375 BSC
.072
.075 DIA THRU 77 HOLES
CSK 60° X .089
.104 DIA
.004 DIA
.625 DIA
.167 R
2.915
.890
.488
.484
.338 BSC
.39 BSC
.114
.110
M1 REF
.045
.500
B
Y
C
A
.03 R MAX
11 PLACES
.03 R MAX TYP
.885
.521
.775
.03 R MAX TYP
1.172 BSC
.770
CHAM .11 X 45°
2 PLACES
.625 DIA
.203 DIA
4 PLACES
.005 DIA
X
.156 R
5 PLACES
.005 DIA
.325
.350
.06 R
2 PLACES
.035
.350
1.780
.20 8 PLACES
.10 8 PLACES
.625 DIA
.17 X 45°
.20
.20
D
.55
1.200 DIA
.312 R
2 PLACES
4.646 BSC
M2 REF
L1 C5 C4 N7 E1 N6 G7 P7 D2 K1 C3 V1 W1 H3 X1 C2 L2 L3 D3 B10 E2 H4 Y1 P2 P3 P9 N8 G8 N1 P4 G2 B12 S4 P6 P8 T2 B14 B13 B11 A2 B9 H2 U1 S3 T3 N5 R1 G6 D1 N4 J2 S1 J1 S2 C1 A1 P1 G1 H1 F1 N2 G5 P5 G3 B7 B4 B2 B1 B8 B6 B5 B3 N3 G4 H5 T1 C7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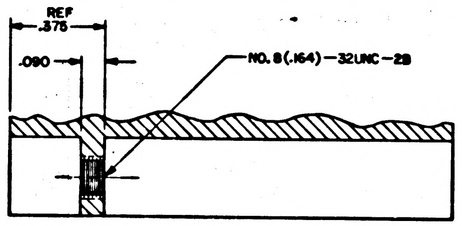
1.650
1.605
.885
.885
1.125
1.100
.800
.885
B11 REF
A2 REF
B9 REF
S4 REF
U1 REF
S3 REF
R1 REF
J2 REF
S1 REF
J1 REF
S2 REF
.185
.165
.140
.185
.165
.185
.165
.140
1.585
32
.035
1.525
1.595
1.100
.350
.255
.262
.325
.053
.106
R
DETAIL

SECTION A-A



REF
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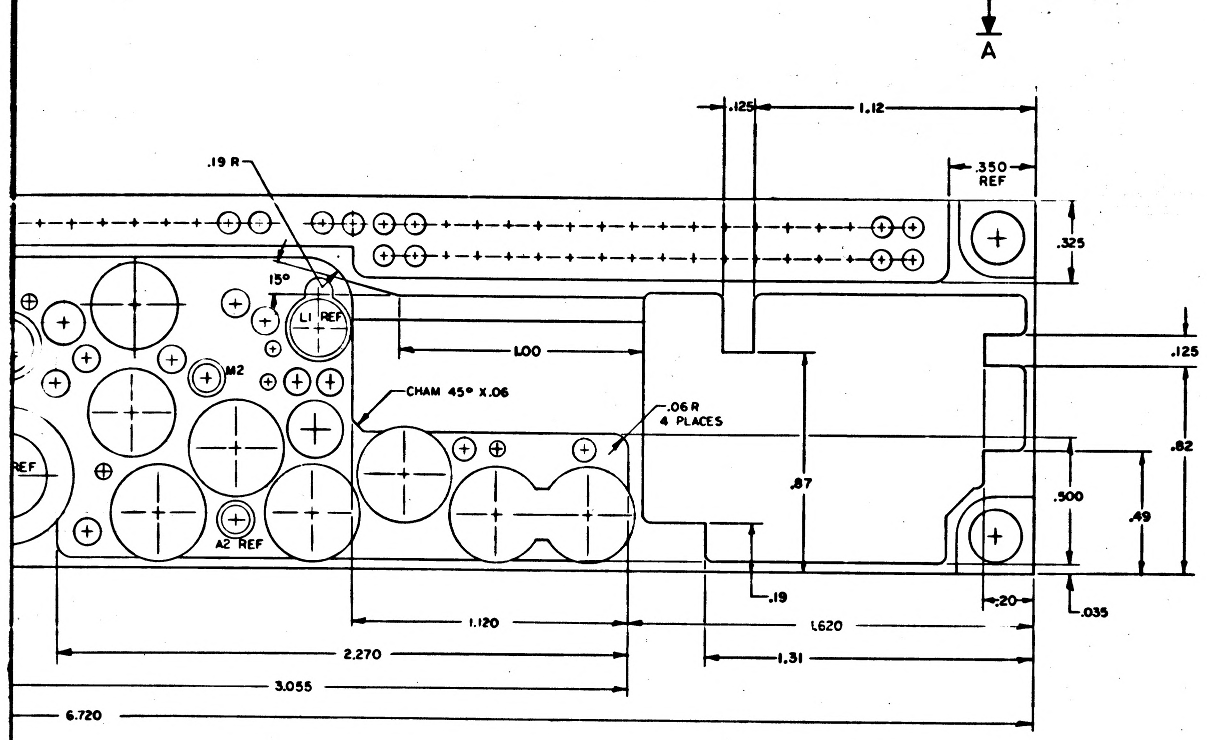
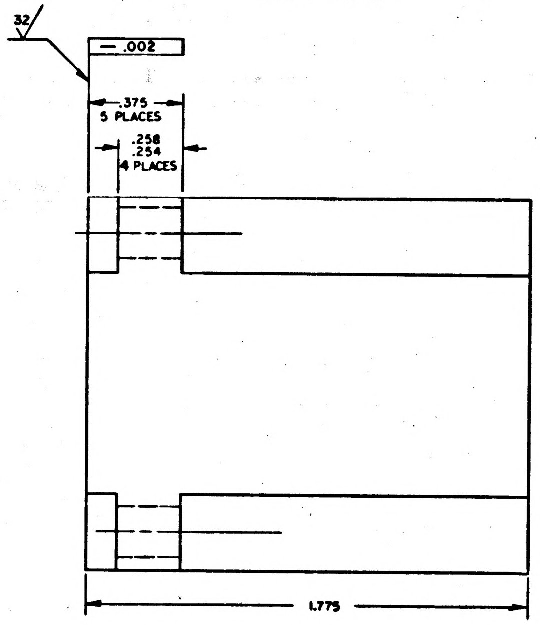
NO. 8 (.164)-32UNC-2B

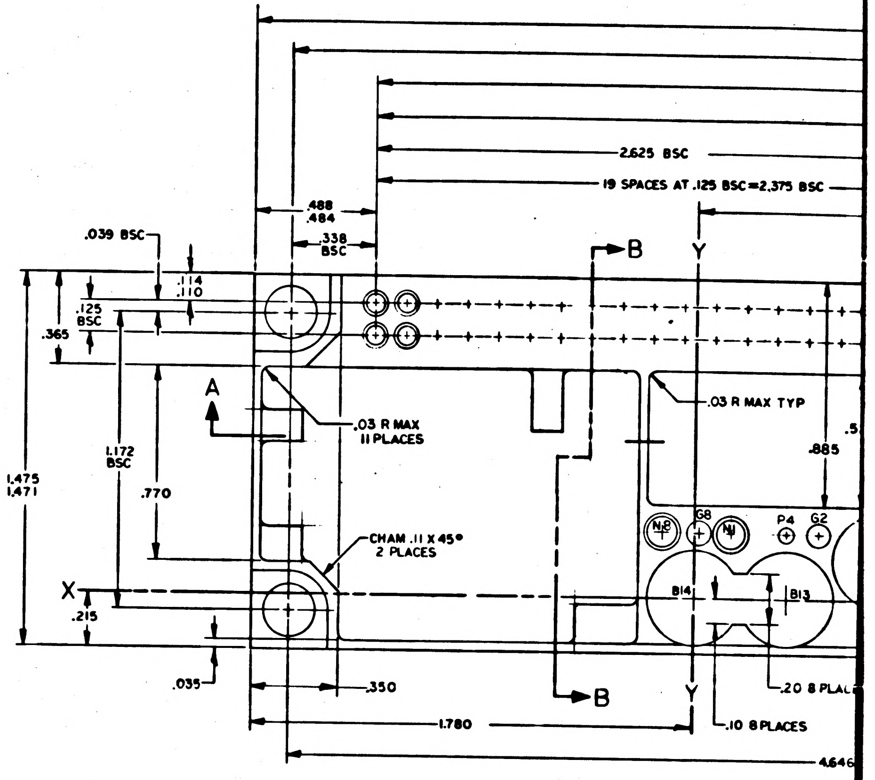
SECTION D-D



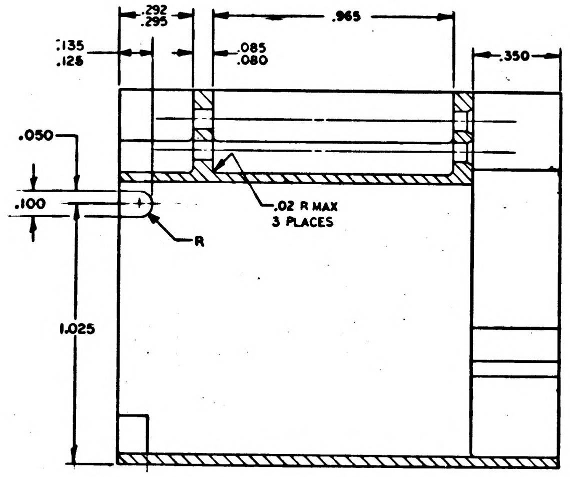
A
.125
1.12
.350
REF
.325
.19 R
15°
L1 REF
1.00
.125
M2
CHAM 45° X.06
.06 R
4 PLACES
.87
.82
.500
.49
REF
A2 REF
.19
.20
.035
1.120
1.620
2.270
1.31
3.055
6.720



32
.002
.375
5 PLACES
.258
.254
4 PLACES
1.775

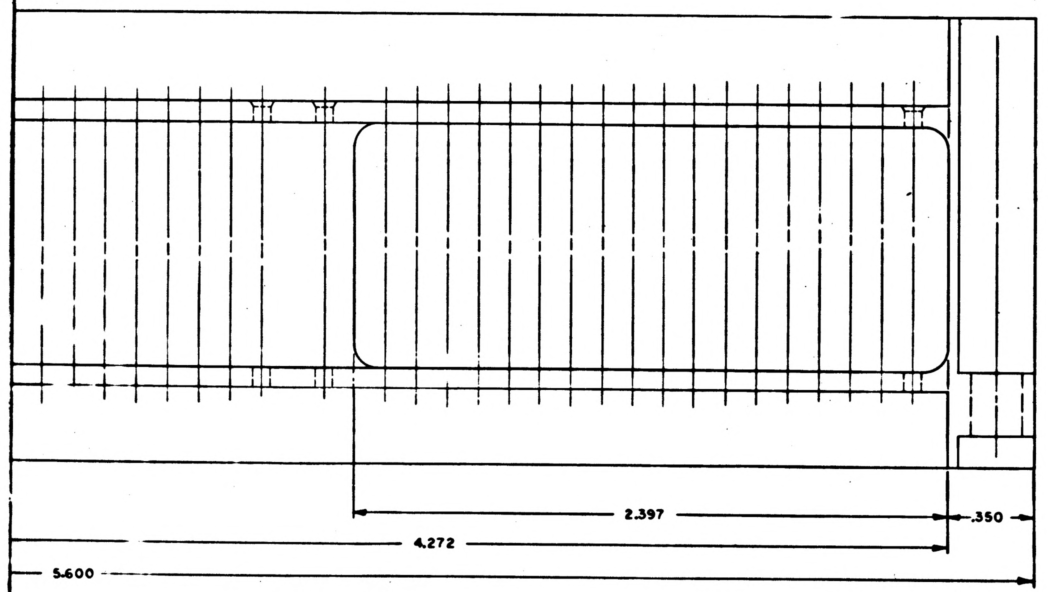


2.625 BSC
19 SPACES AT .125 BSC=2.375 BSC
.488
.484
.338
BSC
.039 BSC
.114
.110
.125
BSC
.365
B
Y
.03 R MAX TYP
A
.03 R MAX
11 PLACES
.5
.885
1.475
1.471
1.172
BSC
.770
CHAM .11 X 45°
2 PLACES
G8
P4
G2
X
.215
B14
B13
.035
.350
B
Y
.20 8 PLA
.10 8 PLACES
1.780
4.646

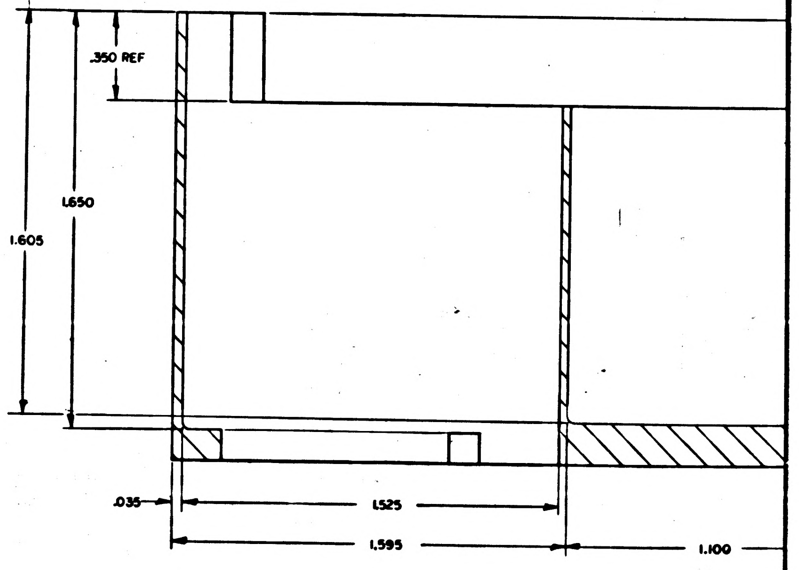


.292
.295
.965
.135
.128
.085
.080
.350
.050
.100
.02 R MAX
3 PLACES
R
1.025

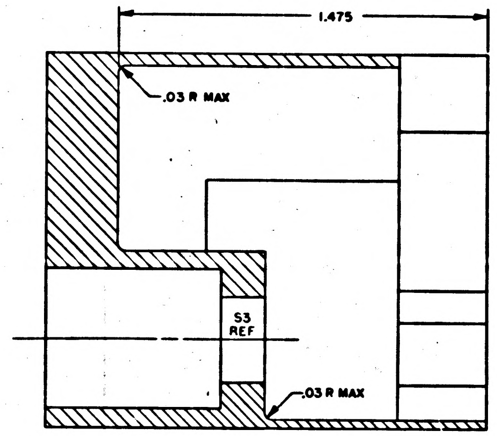
SECTION B-B



2.397
.350
4.272
5.600



.350 REF
1.650
1.605
.035
1.525
1.595
1.100



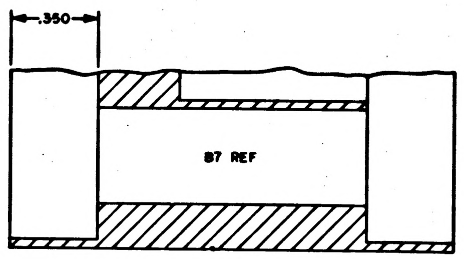
1.475
.03 R MAX
S3
REF
.03 R MAX

SECTION C-C

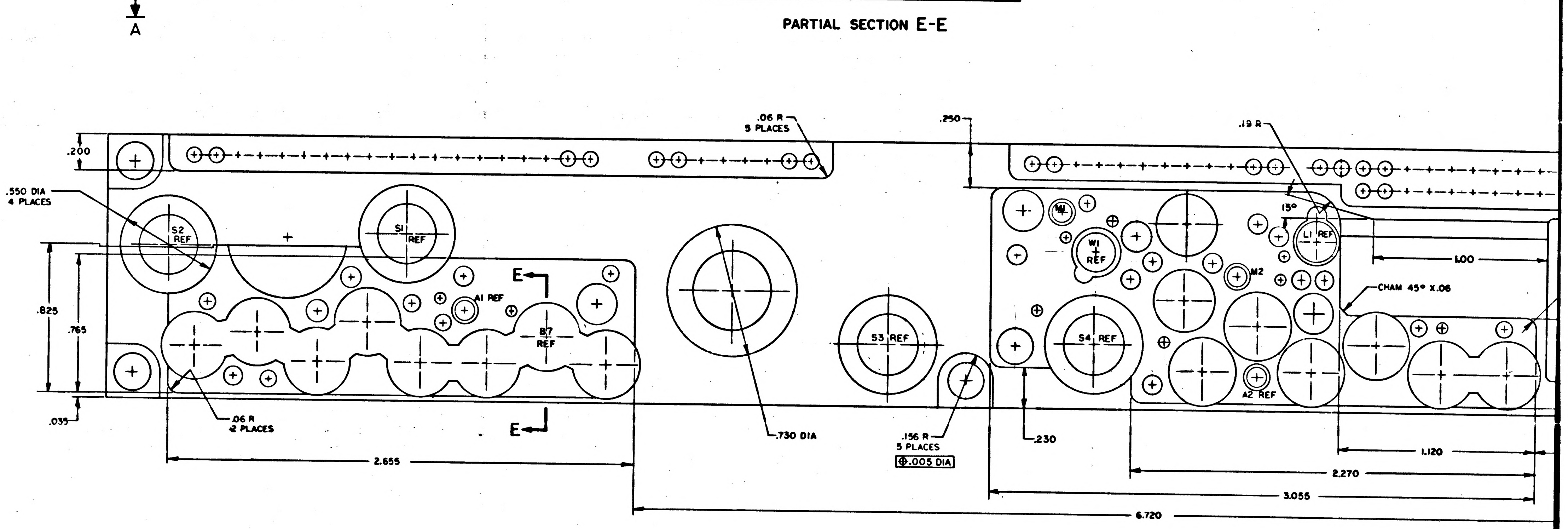
[illegible]

HOLE	X DIM.	Y DIM.	DIA	QTY
A1	5.905	.295	.115 .119 DIA THRU CSK BOTH SIDES 60° X.155 DIA	2
A2	1.420	-.030		
B1	7.445	.085	.368 .375	14
B2	7.085	.165		
B3	6.745	.000		
B4	6.450	.225		
B5	6.155	.000		
B6	5.780	.000		
B7	5.440	.150		
B8	5.100	.000		
B9	1.730	.000		
B10	1.420	.255		
B11	1.115	.000		
B12	.745	.155		
B13	.375	.000		
B14	.000	.000		
C1	5.915	.485	.100 .104	7
C2	2.785	.635		
C3	1.680	.600		
C4	1.430	.820		
C5	1.310	.755		
C6	1.170	.515		
C7	1.040	.515		
D1	5.160	.335	.227 .231	3
D2	2.755	.880		
D3	1.100	.330		
E1	1.805	.820	.346 .353	2
E2	1.840	.395		
F1	6.745	.285	.127 .131	1
G1	6.205	.350	.088 .092	8
G2	.495	.260		
G3	7.375	.330		
G4	7.020	-.095		
G5	6.030	.225		
G6	5.080	.505		
G7	2.395	.925		
G8	.020	.260		

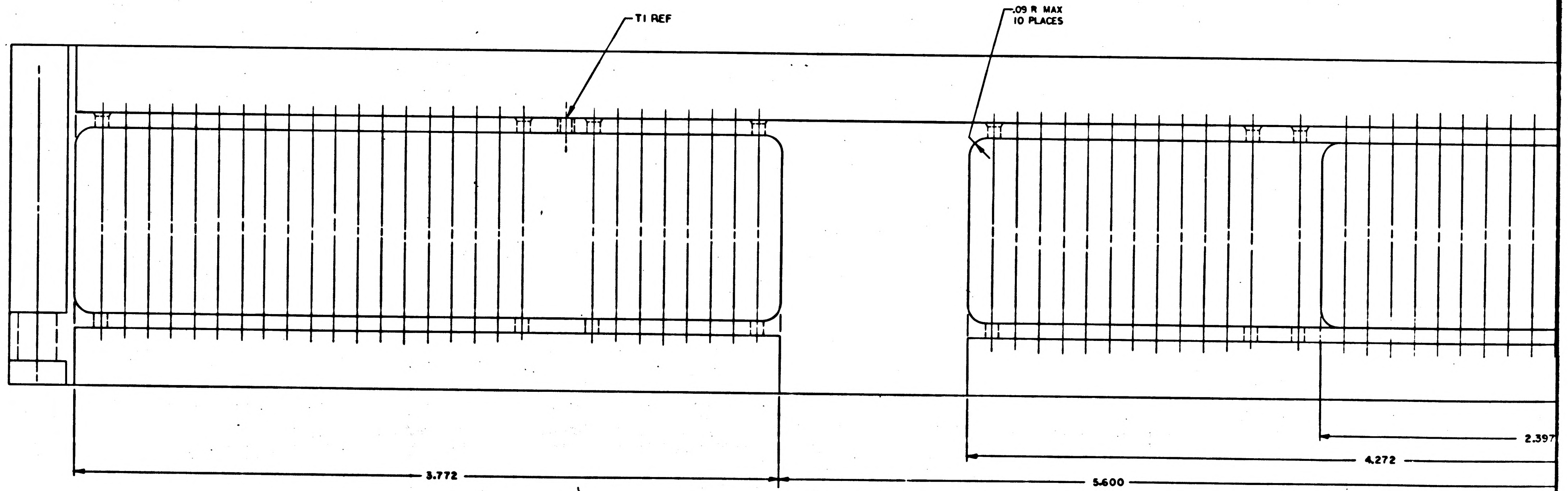
HOLE	X DIM.	Y DIM.	DIA	QTY
H1	6.555	.475	.108 .112	5
H2	1.990	-.075		
H3	1.995	.610		
H4	2.115	.510		
H5	7.220	-.080		
J1	6.920	.690	.669 .676 SEE SECT A-A	2
J2	5.545	.690		
K1	1.470	.600	SEE DETAIL B	1
L1	1.095	.730	SEE DETAIL A	1
M1	2.535	.875	.115 .119 DIA X.30 DP FS&CSK 60°X.155DIA	2
M2	1.540	.530		
N1	.150	.260	.115 .119 DIA X.30 DP & CSK 60°X.155DIA	8
N2	7.260	.405		
N3	6.450	-.060		
N4	5.075	.865		
N5	3.920	.935		
N6	2.090	.935		
N7	1.545	.920		
N8	-.130	.265		
P1	6.045	.360	.058 .062	9
P2	2.485	.735		
P3	1.275	.645		
P4	.370	.260		
P5	5.640	.295		
P6	1.925	.160		
P7	2.220	.830		
P8	2.640	.330		
P9	1.275	.515		
R1	4.400	.420	.435 .442	1
S1	6.240	.715	.321 .328	4
S2	7.595	.645		
S3	3.470	.130		
S4	2.320	.145		
T1	4.981	1.146	NO.2(.086)-56NC-2B X.125 DEEP SEE NOTE 6	3
T2	3.054	.320		
T3	.850	-.093		
U1	2.760	.130	.205 .209	1
V1	2.085	.750	.166 .170	1
W1	2.310	.660	SEE DETAIL C	1
X1	2.590	.570	SEE DETAIL E	1
Y1	2.820	.380	SEE DETAIL D	1



PARTIAL SECTION E-E


A
.200
.06 R
5 PLACES
.250
.19 R
15°
.550 DIA
4 PLACES
S2
REF
S1
REF
A1 REF
B7
REF
E
E
W1
W1
REF
M2
L1 REF
1.00
CHAM 45° X.06
S3 REF
S4 REF
A2 REF
.825
.765
.035
.06 R
2 PLACES
2.655
.730 DIA
.156 R
5 PLACES
⊕.005 DIA
.230
1.120
2.270
3.055
6.720

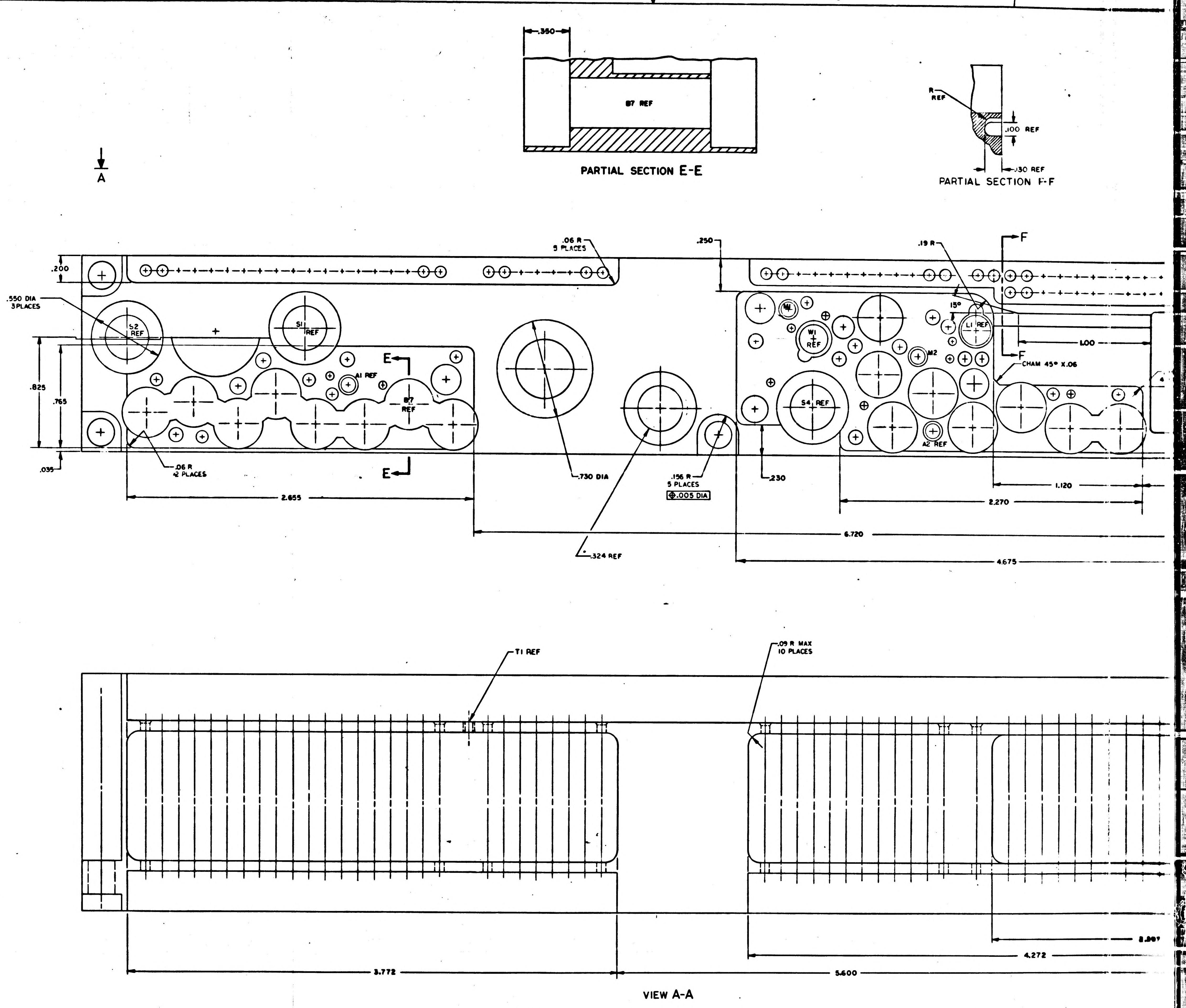
NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. REMOVE BURRS AND SHARP EDGES .005/.015
3. MATERIAL: MAGNESIUM ZK60A-T5 PER QQ-M-31, TEMP T5
4. ANODIZE PER MIL-M-45202, TYPE I, CLASS C
5. ALL SURFACES 125√ UNLESS OTHERWISE SPECIFIED
6. TAP HOLE AFTER ANODIZE. COAT PER ND1002040
7. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .02 MAX
8. IDENTIFY WITH PART NO. PER ND1002019


T1 REF
.09 R MAX
10 PLACES
3.772
5.600
4.272
2.397

VIEW A-A

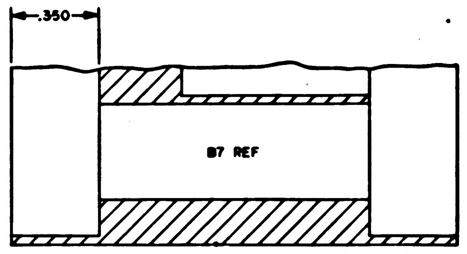
HOLE	X DIM.	Y DIM.	DIA	QTY
A1	5.905	.295	.115 .119 DIA THRU CSK BOTH SIDES 60° X.155 DIA	2
A2	1.420	-.030		
B1	7.445	.085	.368 .375	14
B2	7.085	.165		
B3	6.745	.000		
B4	6.450	.225		
B5	6.155	.000		
B6	5.780	.000		
B7	5.440	.150		
B8	5.100	.000		
B9	1.730	.000		
B10	1.420	.255		
B11	1.115	.000		
B12	.745	.155		
B13	.375	.000		
B14	.000	.000		
C1	5.915	.485	.100 .104	7
C2	2.785	.635		
C3	1.680	.600		
C4	1.430	.820		
C5	1.310	.755		
C6	1.170	.515		
C7	1.040	.515		
D1	5.160	.335	.227 .231	3
D2	2.755	.880		
D3	1.100	.330		
E1	1.605	.820	.346 .353	2
E2	1.840	.395		
F1	6.745	.285	.127 .131	1
G1	6.205	.350	.088 .092	8
G2	.495	.260		
G3	7.375	.330		
G4	7.020	-.095		
G5	6.030	.225		
G6	5.080	.505		
G7	2.395	.925		
G8	.020	.260		

HOLE	X DIM.	Y DIM.	DIA	QTY
H1	6.555	.475	.108 .112	5
H2	1.990	-.075		
H3	1.995	.610		
H4	2.115	.510		
H5	7.220	-.080		
J1	6.920	.690	.669 .676 SEE SECT A-A	2
J2	5.545	.690		
K1	1.470	.600	SEE DETAIL B	1
L1	1.095	.730	SEE DETAIL A	1
M1	2.535	.875	.115 .119 DIA X.30 DP FS&CSK 60° X.155 DIA	2
M2	1.540	.530		
N1	.150	.260	.115 .119 DIA X.30 DP & CSK 60° X.155 DIA	8
N2	7.260	.405		
N3	6.450	-.060		
N4	5.075	.865		
N5	3.920	.935		
N6	2.090	.935		
N7	1.545	.920		
N8	-.130	.265		
P1	6.045	.360	.058 .062	9
P2	2.485	.735		
P3	1.275	.645		
P4	.370	.260		
P5	5.640	.295		
P6	1.925	.160		
P7	2.220	.830		
P8	2.640	.330		
P9	1.275	.515		
R1	4.400	.420	.435 .442	1
S1	6.240	.715	.321 .328	3
S2	7.595	.645		
~~S3~~	~~3.470~~	~~.130~~		
S4	2.320	.145		
T1	4.981	1.146	NO.2(.086)-56NC-2B X.125 DEEP SEE NOTE 6	3
T2	3.054	.320		
T3	.850	-.093		
U1	2.760	.130	.205 .209	1
V1	2.085	.750	.166 .170	1
W1	2.310	.660	SEE DETAIL C	1
X1	2.590	.570	SEE DETAIL E	1
Y1	2.820	.380	SEE DETAIL D	1

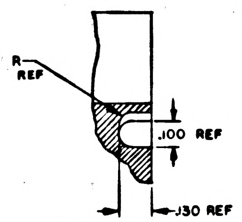


.350
B7 REF
PARTIAL SECTION E-E
R REF
.100 REF
.130 REF
PARTIAL SECTION F-F
A
.06 R 5 PLACES
.250
.19 R
F
.200
.550 DIA 3 PLACES
S2 REF
S1 REF
E
A1 REF
B7 REF
.825
.765
.035
.06 R 4 PLACES
2.655
.730 DIA
.156 R 5 PLACES
.005 DIA
.324 REF
.230
6.720
4.675
W1 REF
M2
L1 REF
S4 REF
A2 REF
15°
1.00
CHAM 45° X.06
1.120
2.270
T1 REF
.09 R MAX 10 PLACES
3.772
5.600
4.272
VIEW A-A

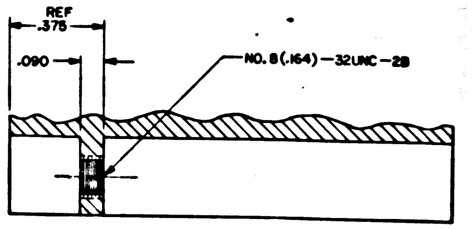
NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. REMOVE BURRS AND SHARP EDGES .005/.015
3. MATERIAL: MAGNESIUM ZK60A-T5 PER QQ-M-31, TEMP T5
4. ANODIZE PER MIL-M-45202, TYPE I, CLASS C
5. ALL SURFACES 125√ UNLESS OTHERWISE SPECIFIED
6. TAP HOLE AFTER ANODIZE. COAT PER ND1002040
7. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .02 MAX
8. IDENTIFY WITH PART NO. PER ND1002019



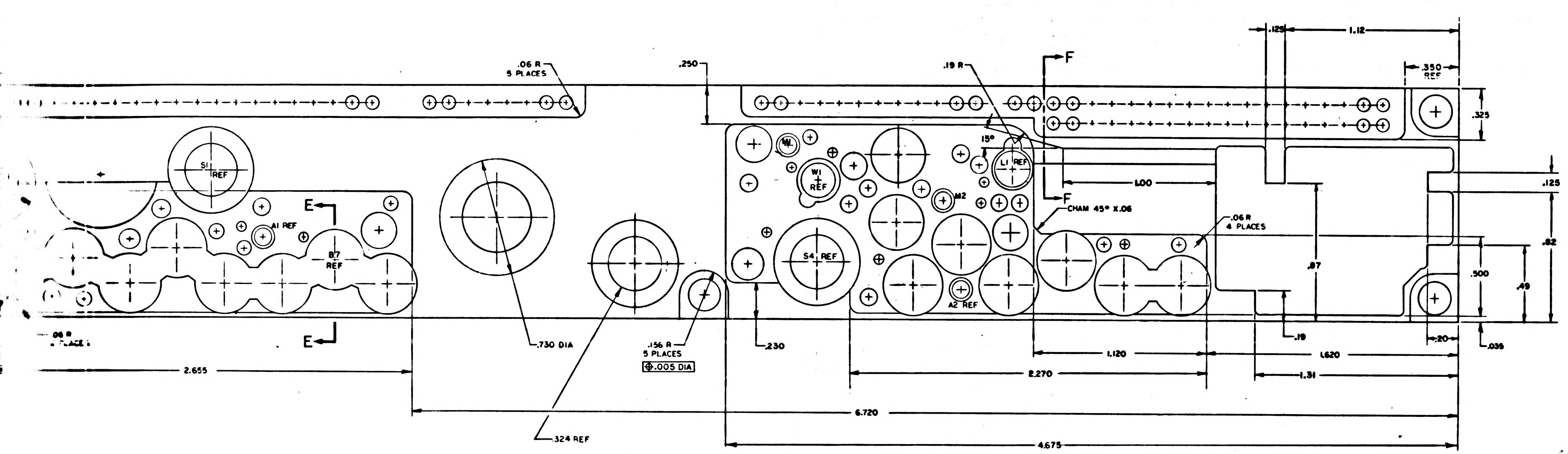
PARTIAL SECTION E-E

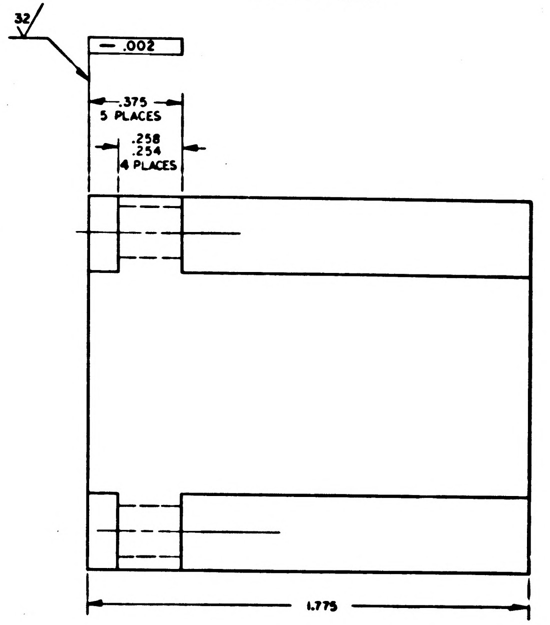

R REF
.100 REF
.130 REF

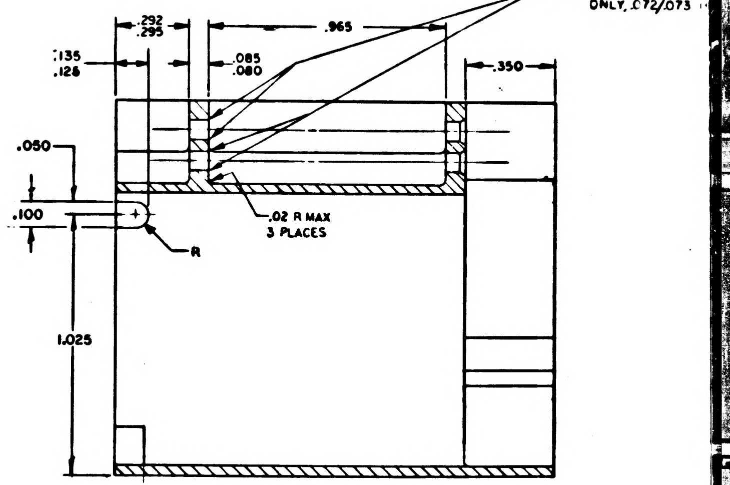
PARTIAL SECTION F-F


REF .375
.090
NO. 8 (.164) – 32UNC – 2B

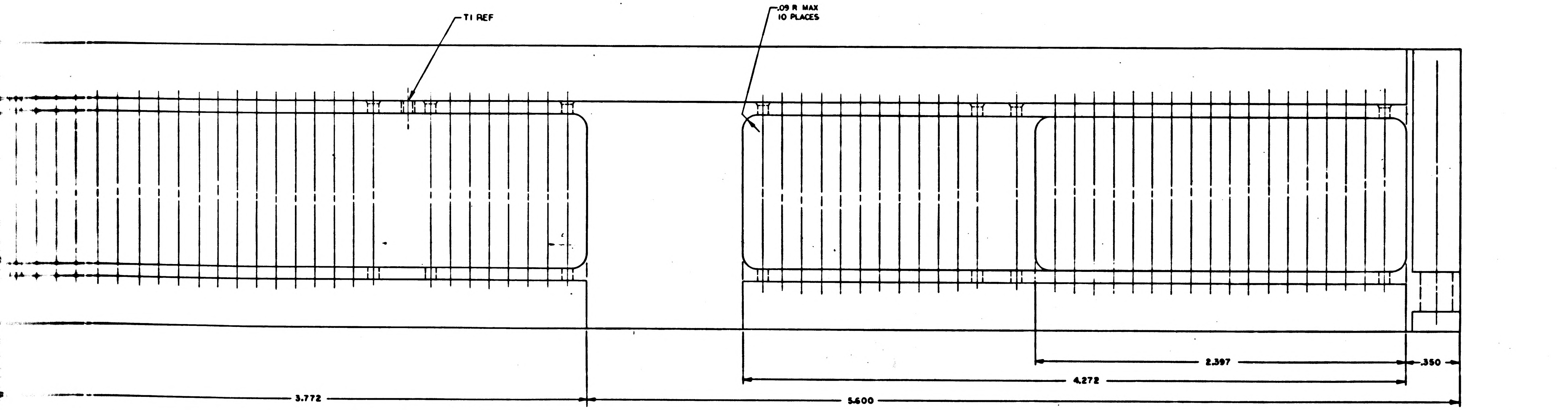
SECTION D-D


A
.125
1.12
.350 REF
.325
.06 R 5 PLACES
.250
.19 R
F
15°
S1 REF
W1 REF
L1 REF
E
A1 REF
B7 REF
M2
1.00
.125
F
CHAM 45° X .06
.06 R 4 PLACES
.87
.82
.500
.49
S4 REF
A2 REF
.06 R 4 PLACES
.730 DIA
.156 R 5 PLACES
.005 DIA
.230
.19
.20
.035
1.120
1.620
2.270
1.31
2.655
6.720
.324 REF
4.675

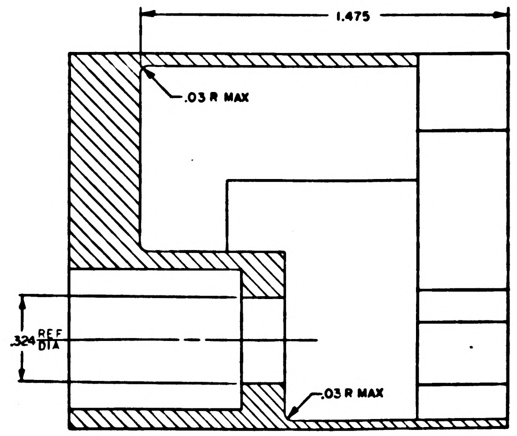

32
.002
.375 5 PLACES
.258 .254 4 PLACES
1.775


.292 .295
.965
.135 .125
.085 .080
.350
DO NOT BREAK ONLY .072/.073
.050
.100
R
.02 R MAX 3 PLACES
1.025

SECTION B-B


T1 REF
.09 R MAX 10 PLACES
2.397
.350
4.272
3.772
5.600

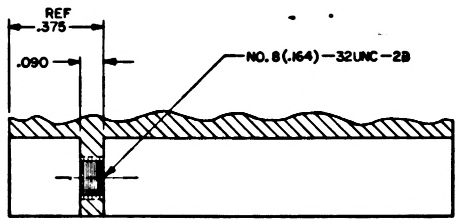
VIEW A-A


1.475
.03 R MAX
.324 REF DIA
.03 R MAX

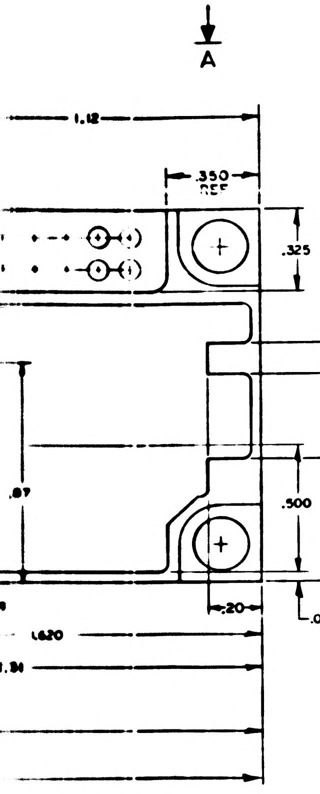
SECTION C-C

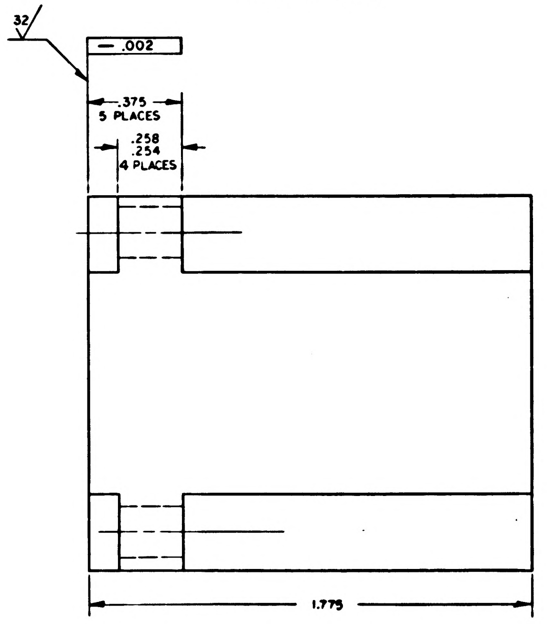
2004888 B

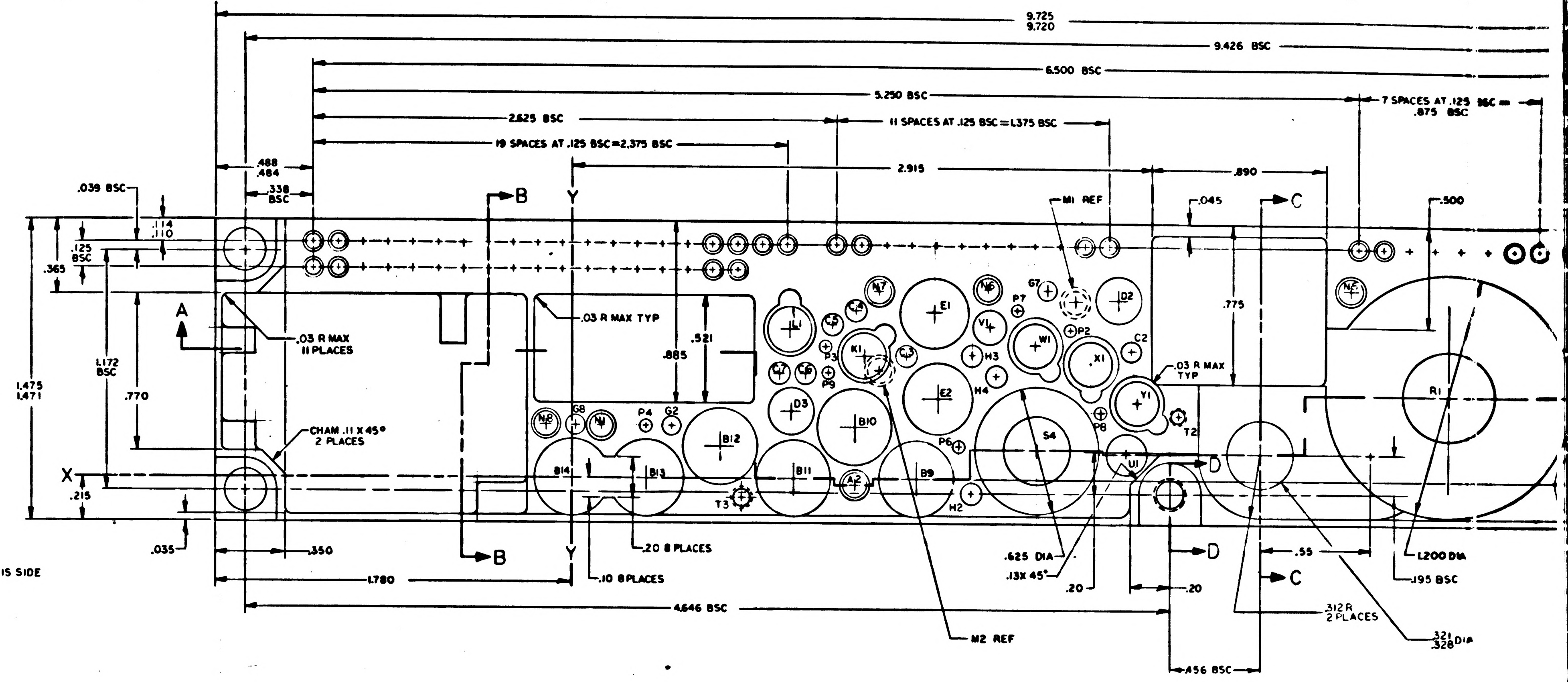
F2/4

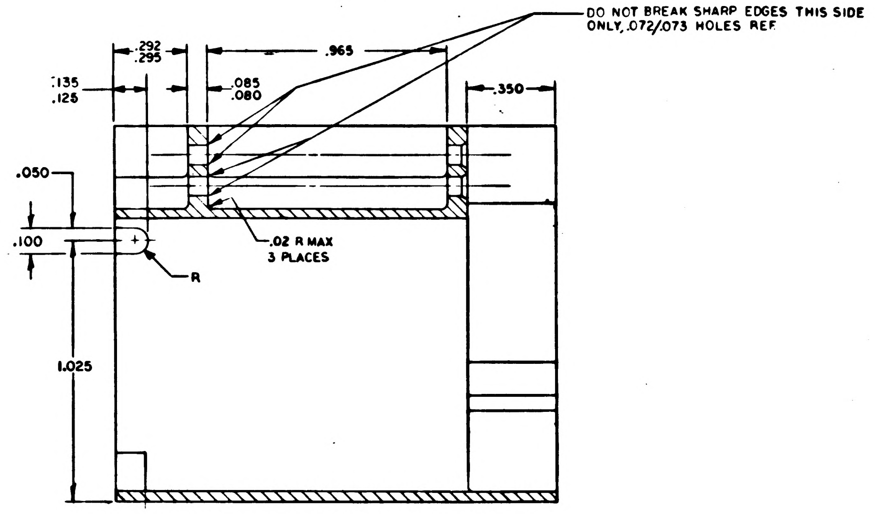

REF
.375
.090
NO. 8 (.164)—32UNC—2B

SECTION D-D

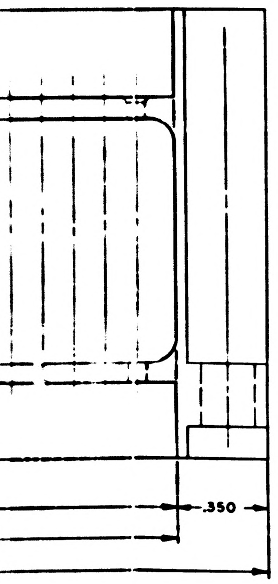

A
1.12
.350 REF
.325
.125
.82
.87
.500
.49
.20
.035
1.620
1.94

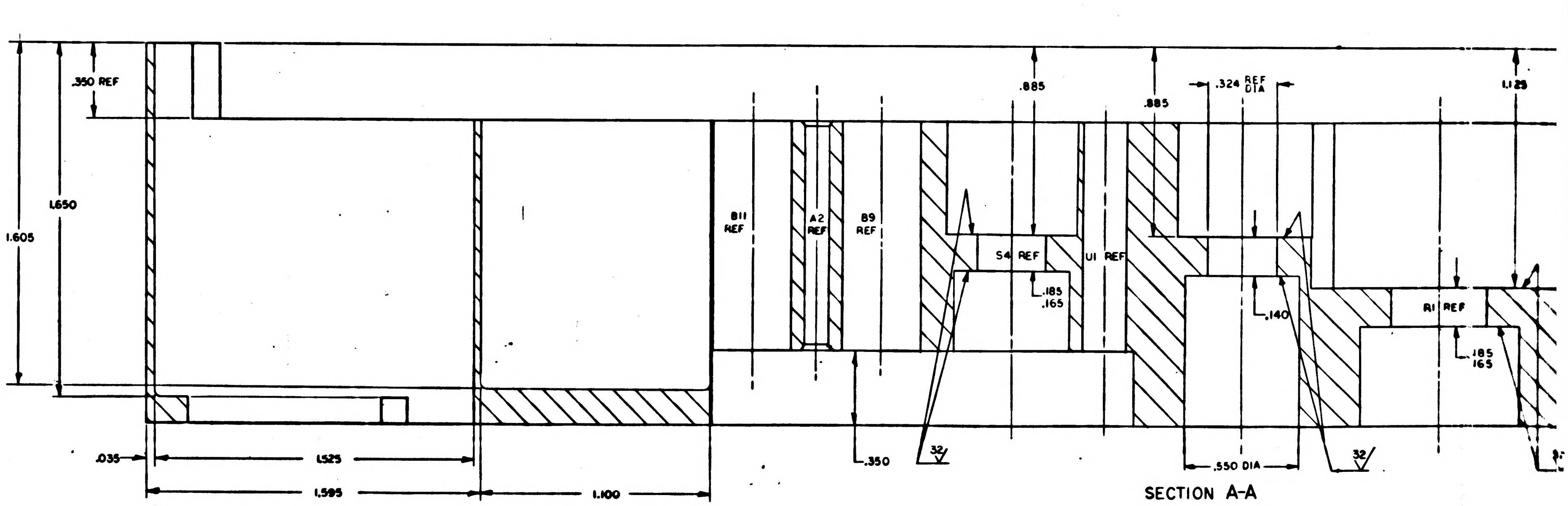

32
.002
.375
5 PLACES
.258
.254
4 PLACES
1.775


9.725
9.720
9.426 BSC
6.500 BSC
5.250 BSC
7 SPACES AT .125 BSC = .875 BSC
2.625 BSC
11 SPACES AT .125 BSC=1.375 BSC
19 SPACES AT .125 BSC=2.375 BSC
2.915
.890
.488
.484
.338
BSC
.039 BSC
.114
.110
.125
BSC
.365
B
Y
C
M1 REF
.045
.500
A
.03 R MAX
11 PLACES
.03 R MAX TYP
.521
.885
1.172
BSC
1.475
1.471
.770
.775
.03 R MAX
TYP
CHAM .11 X 45°
2 PLACES
X
.215
.035
.350
1.780
.10 8 PLACES
.20 8 PLACES
4.646 BSC
.625 DIA
.13X 45°
.20
D
.20
.55
.312 R
2 PLACES
1.200 DIA
.195 BSC
.321
.328 DIA
M2 REF
.456 BSC
L1 E1 N7 N6 G7 P7 D2 N5 C2 K1 P3 P9 C3 H3 H4 V1 W1 P2 X1 Y1 T2 E2 L7 L6 D3 B10 B12 S4 R1 N8 G8 N1 P4 G2 B14 B13 B11 A2 B9 H2 P6 P8 U1 T3

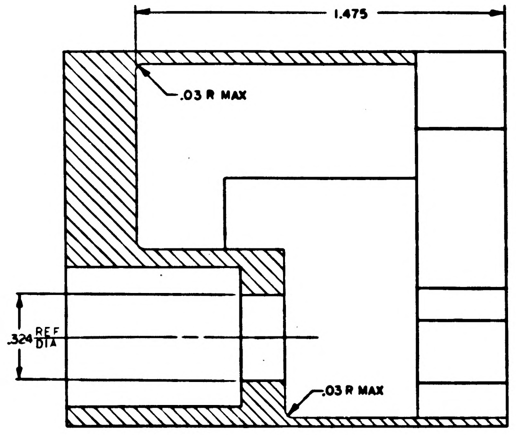

DO NOT BREAK SHARP EDGES THIS SIDE
ONLY, .072/.073 HOLES REF
.292
.295
.965
.135
.125
.085
.080
.350
.050
.100
R
.02 R MAX
3 PLACES
1.025

SECTION B-B



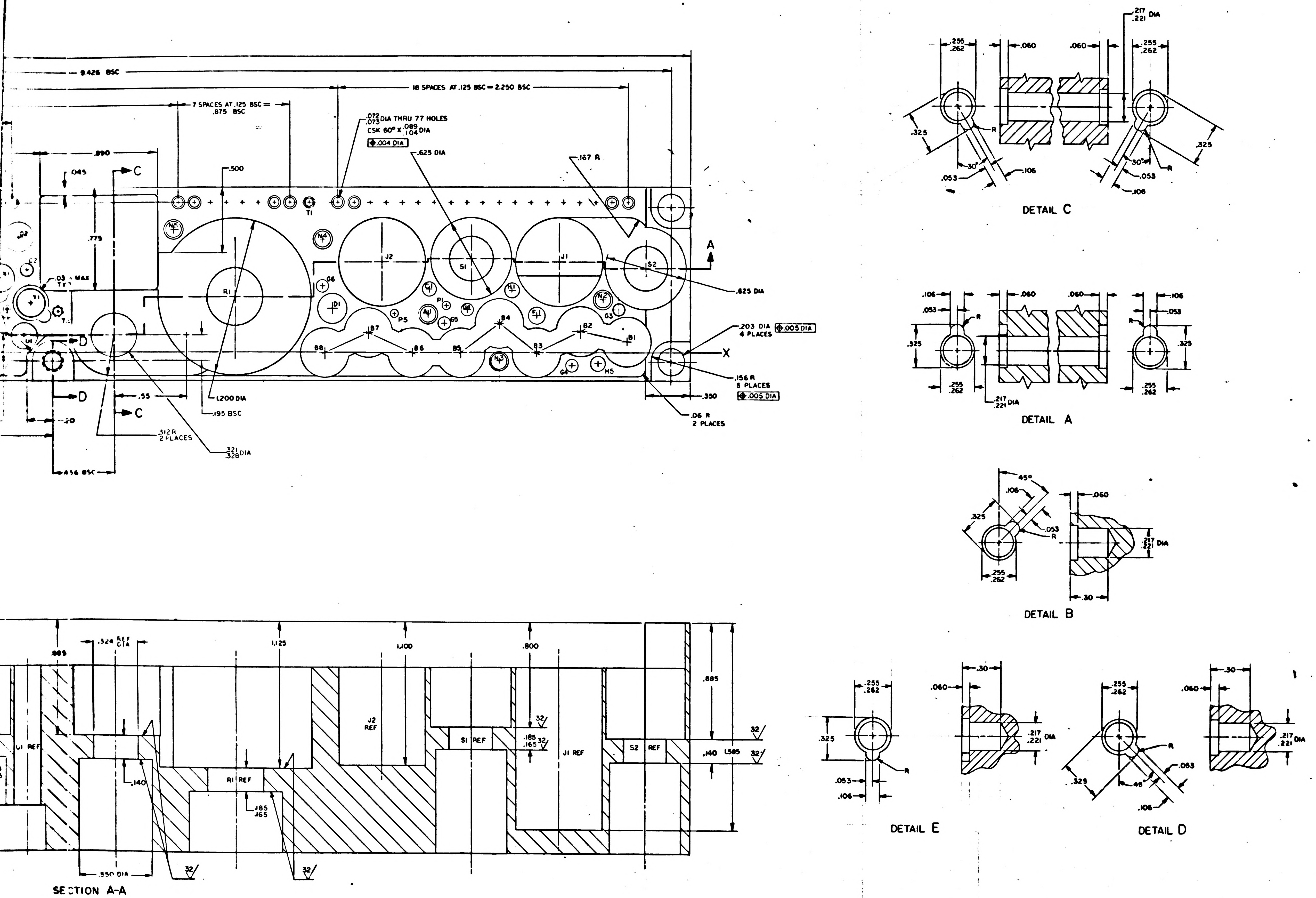

.350 REF
1.650
1.605
.885
.885
.324 REF DIA
1.125
B11 REF
A2 REF
B9 REF
S4 REF
U1 REF
.185
.165
.140
R1 REF
.185
.165
.035
1.525
1.595
1.100
.350
32
.550 DIA
32

SECTION A-A


1.475
.03 R MAX
.324 REF DIA
.03 R MAX

SECTION C-C

REVISIONS 26-97						
SYM	ZONE	DESCRIPTION	BR	CHK	DATE	APPROVED
A		REVISED PER TDRR 27323	DAC	AEB		
B		REVISED PER TDRR 30288				



9.426 BSC
18 SPACES AT .125 BSC = 2.250 BSC
7 SPACES AT .125 BSC = .875 BSC
.072 .073 DIA THRU 77 HOLES
CSK 60° X .089 .104 DIA
.004 DIA
.625 DIA
.167 R
.890
.045
.500
.775
.03 MAX TYP
C
D
A
X
T1
J2
S1
J1
S2
R1
P1
P5
G1
G3
G4
G5
G6
H1
H5
N1
N2
N3
N4
N5
B1
B2
B4
B5
B6
B7
B8
U1
Y1
.625 DIA
.203 DIA 4 PLACES
.005 DIA
.156 R 5 PLACES
.005 DIA
.350
.06 R 2 PLACES
.55
1.200 DIA
.195 BSC
.312 R 2 PLACES
.321 .328 DIA
.436 BSC
.10
.217 .221 DIA
.255 .262
.060
.325
R
30°
.053
.106
DETAIL C
DETAIL A
45°
.30
DETAIL B
DETAIL E
DETAIL D
.885
.324 REF DIA
1.125
1.100
.800
J2 REF
S1 REF
J1 REF
S2 REF
R1 REF
U1 REF
.185 .165
.140
1.585
32
.550 DIA
SECTION A-A

MASTER

2003057	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS.
TOLERANCES ON
FRACTIONS ± — DECIMALS XX ±.01 XXX ±.005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING

MATERIAL —

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN D.A. Clemont 4 FEB 66
CHECKED
APPROVED
APPROVED Edw. C Hall
APPROVED MIT
APPROVED NSC A. C. METZGER
DATE

HEADER HOUSING POWER SUPPLY

CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004888
SCALE 4/1
SHEET 1 OF 1

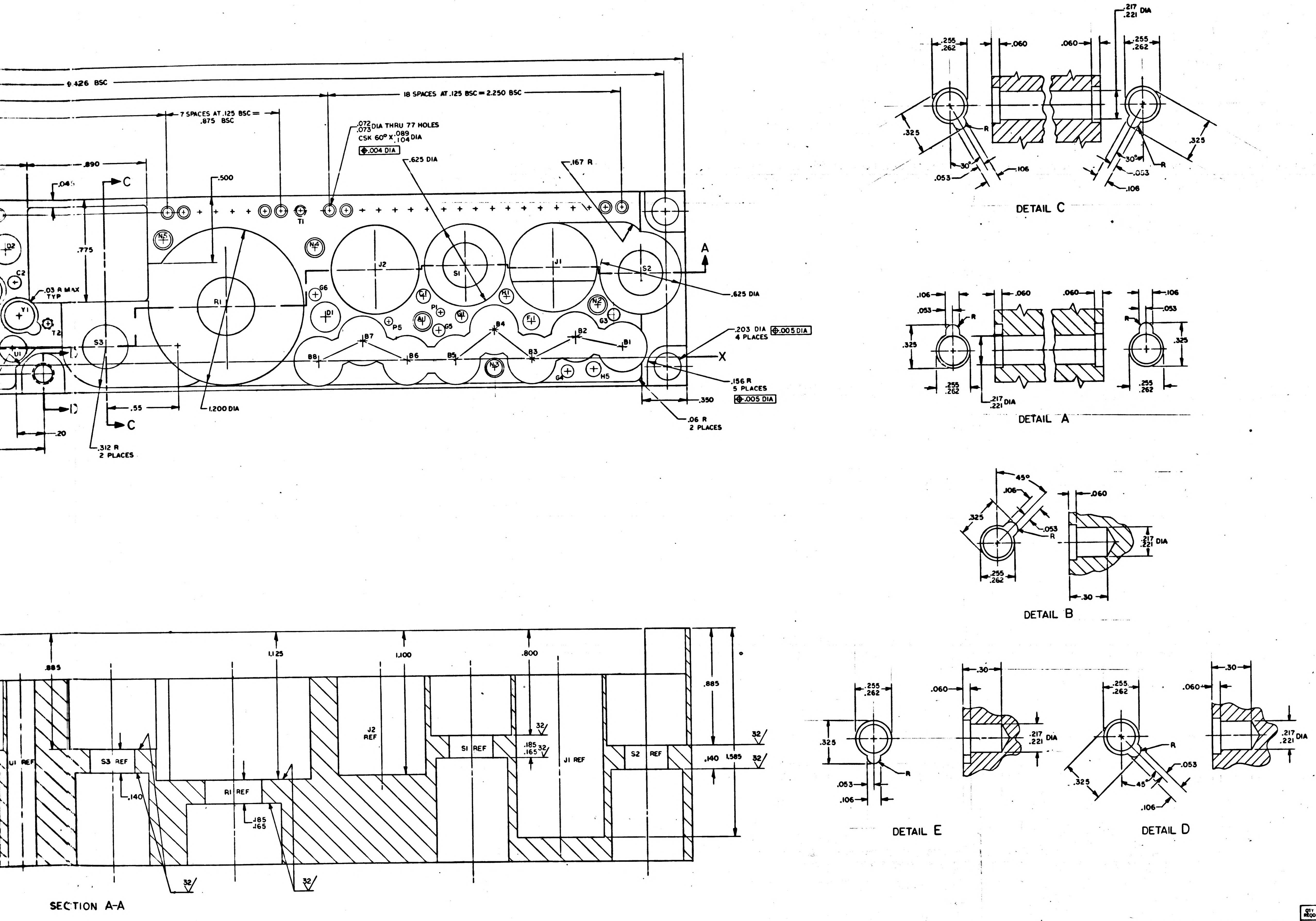
2004888 B

4P

2004888 B

F 4 / 4

SYM	ZONE	REVISIONS DESCRIPTION	DR	CHK	DATE	APPROVED
		2097				



9.426 BSC
18 SPACES AT .125 BSC = 2.250 BSC
7 SPACES AT .125 BSC = .875 BSC
.072 .073 DIA THRU 77 HOLES
CSK 60° X .089 .104 DIA
⊕ .004 DIA
.625 DIA
.167 R
.890
.045
.500
.775
.03 R MAX TYP
C
A
X
D
T1
N5
N4
D2
C2
Y1
T2
U1
S3
R1
J2
S1
J1
S2
G6
D1
C1
P1
A1
G1
G5
P5
H1
F1
N2
G3
B1
B2
B3
B4
B5
B6
B7
B8
N3
G4
H5
.625 DIA
.203 DIA 4 PLACES ⊕ .005 DIA
.156 R 5 PLACES ⊕ .005 DIA
.350
.06 R 2 PLACES
.55
1.200 DIA
.20
.312 R 2 PLACES
.217 .221 DIA
.255 .262
.060
.325
R
30°
.053
.106
DETAIL C
DETAIL A
45°
.30
DETAIL B
DETAIL E
DETAIL D
.885
1.125
1.100
.800
U1 REF
S3 REF
.140
R1 REF
.185 .165
J2 REF
S1 REF
J1 REF
S2 REF
1.585
32
SECTION A-A

4H

2004888

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003057	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS,
TOLERANCES ON
FRACTIONS ± —   DECIMALS .XX ± .01 .XXX ± .005   ANGLES ± 2°
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN D. A. Clement 4 FEB 66
CHECKED R. Shaf 7 Feb 66
APPROVED 7 Feb 66
APPROVED Eldon C Hall 5 Feb 66
APPROVED MIT
APPROVED MSC A. C. METZGER
DATE

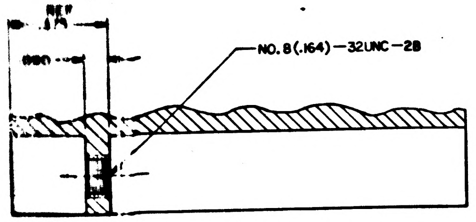
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HEADER HOUSING
POWER SUPPLY

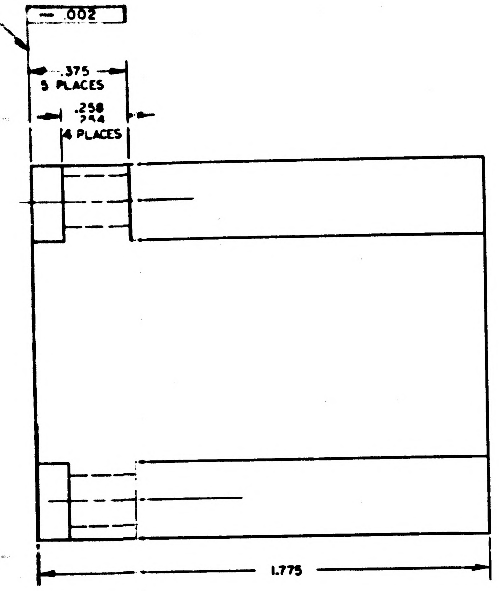
CODE IDENT NO. 80230
SIZE J
DRAWING NO. 2004888
SCALE 4/1
SHEET 1 OF 1

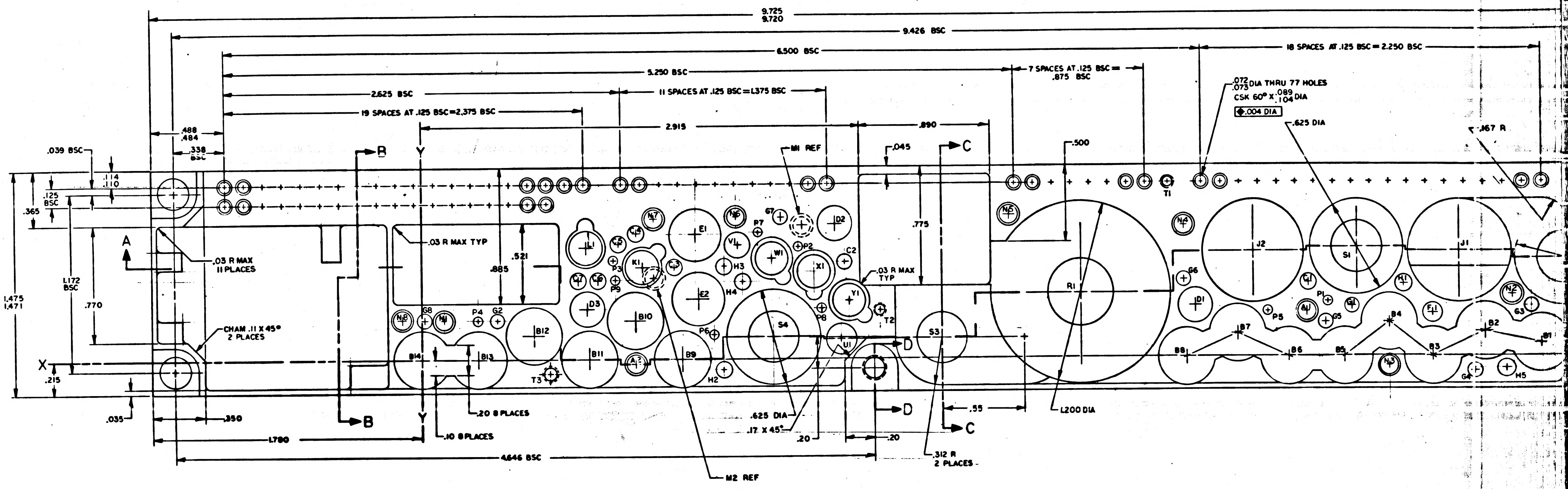
MASTER

2C04888


REF
NO. 8 (.164) — 32UNC — 2B

SECTION D-D


.002
.375
5 PLACES
.258
.254
4 PLACES
1.775


9.725
9.720
9.426 BSC
6.500 BSC
5.250 BSC
2.625 BSC
19 SPACES AT .125 BSC=2.375 BSC
11 SPACES AT .125 BSC=1.375 BSC
7 SPACES AT .125 BSC= .875 BSC
18 SPACES AT .125 BSC= 2.250 BSC
2.915
.890
.488
.484
.338
BSC
.039 BSC
.114
.110
.125
BSC
.365
1.475
1.471
1.172
BSC
.770
.215
.035
.350
1.780
4.646 BSC
.03 R MAX
11 PLACES
CHAM .11 X 45°
2 PLACES
.03 R MAX TYP
.521
.885
.20 8 PLACES
.10 8 PLACES
M1 REF
M2 REF
.045
.775
.03 R MAX
TYP
.625 DIA
.17 X 45°
.20
.20
.312 R
2 PLACES
.55
.500
1.200 DIA
.072
.073
DIA THRU 77 HOLES
CSK 60° X .089
.104
DIA
.004 DIA
.625 DIA
.167 R
A
B
B
Y
Y
X
C
C
D
D
T1
T2
T3
R1
S1
S3
S4
J1
J2
E1
E2
W1
X1
Y1
U1
K1
L1
D1
D2
D3
B1
B2
B3
B4
B5
B6
B7
B8
B9
B10
B11
B12
B13
B14
H2
H3
H4
H5
P1
P2
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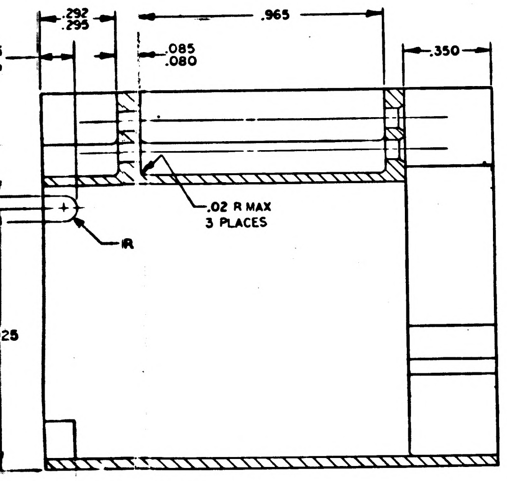
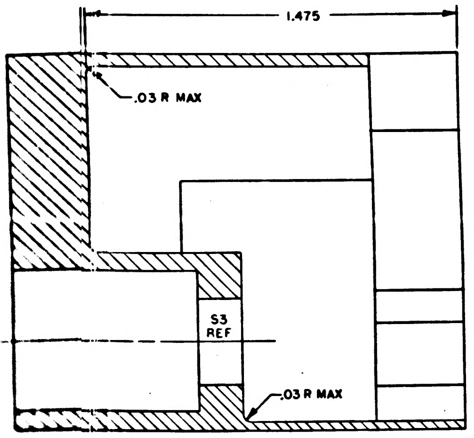
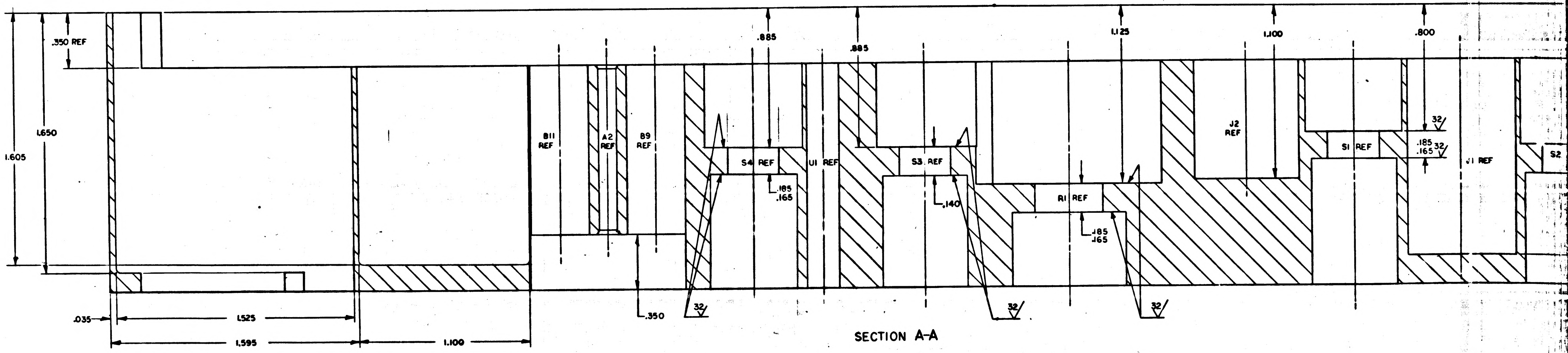
G5
G6
G7
G8
C2


.292
.295
.965
.085
.080
.350
.02 R MAX
3 PLACES
R
.25

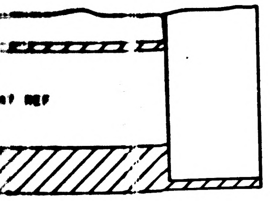
SECTION B-B


1.475
.03 R MAX
S3
REF
.03 R MAX

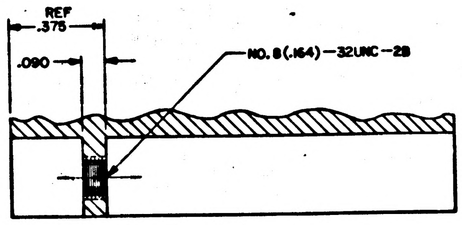
SECTION C-C


.350 REF
1.650
1.605
.035
1.525
1.595
1.100
B11
REF
A2
REF
B9
REF
S4 REF
.185
.165
U1 REF
S3 REF
.140
R1 REF
.185
.165
J2
REF
S1 REF
.185
.165
J1 REF
S2
.885
.885
1.125
1.100
.800
.350
32
32
32
32
32

SECTION A-A

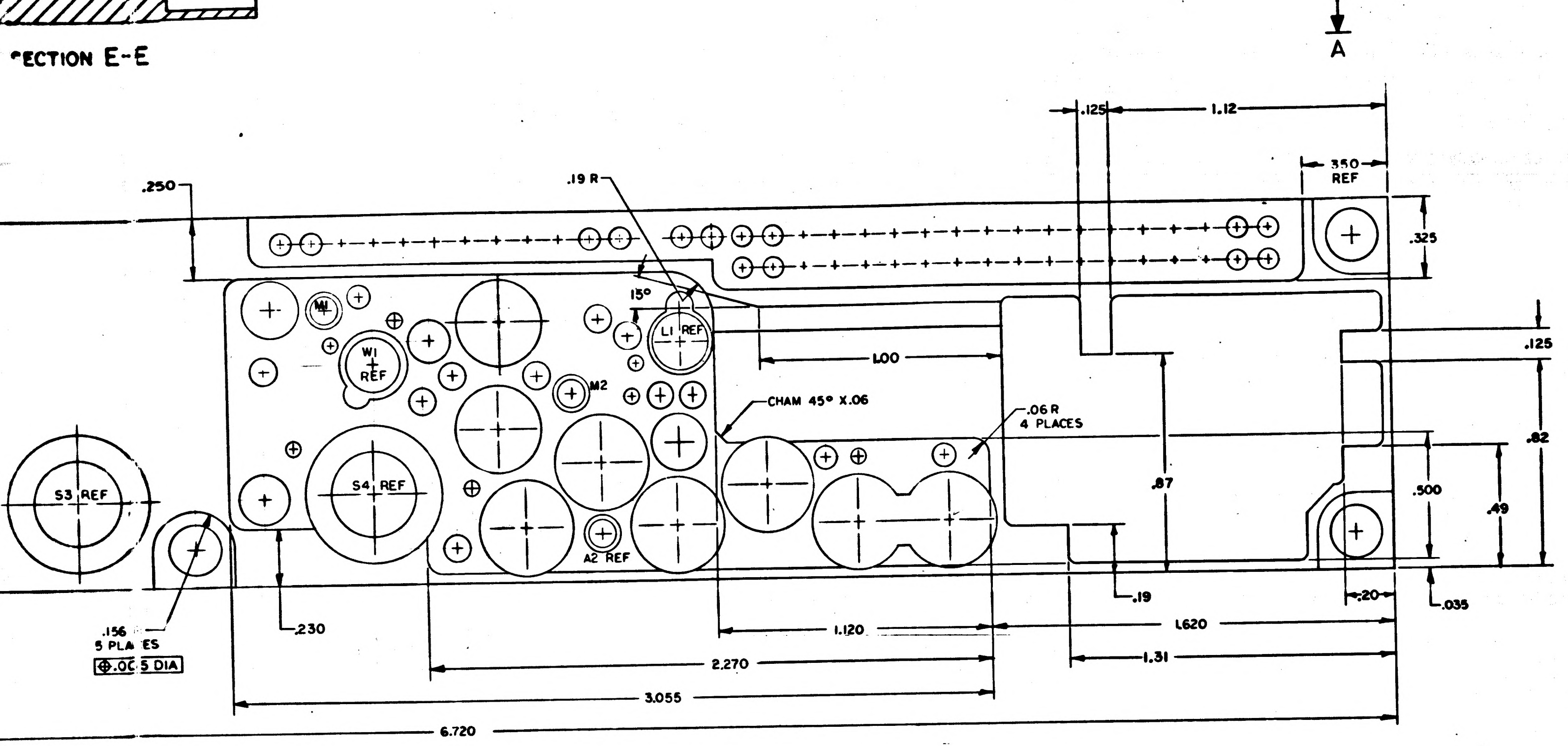


ECTION E-E

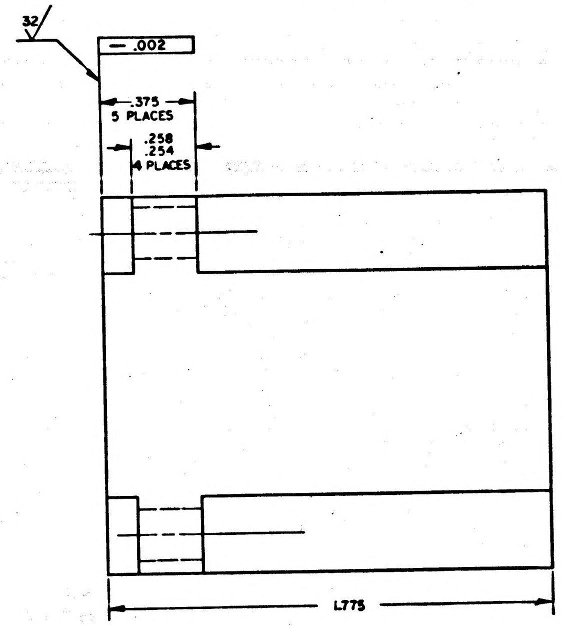


REF
.375
.090
NO. 8(.164)-32UNC-2B

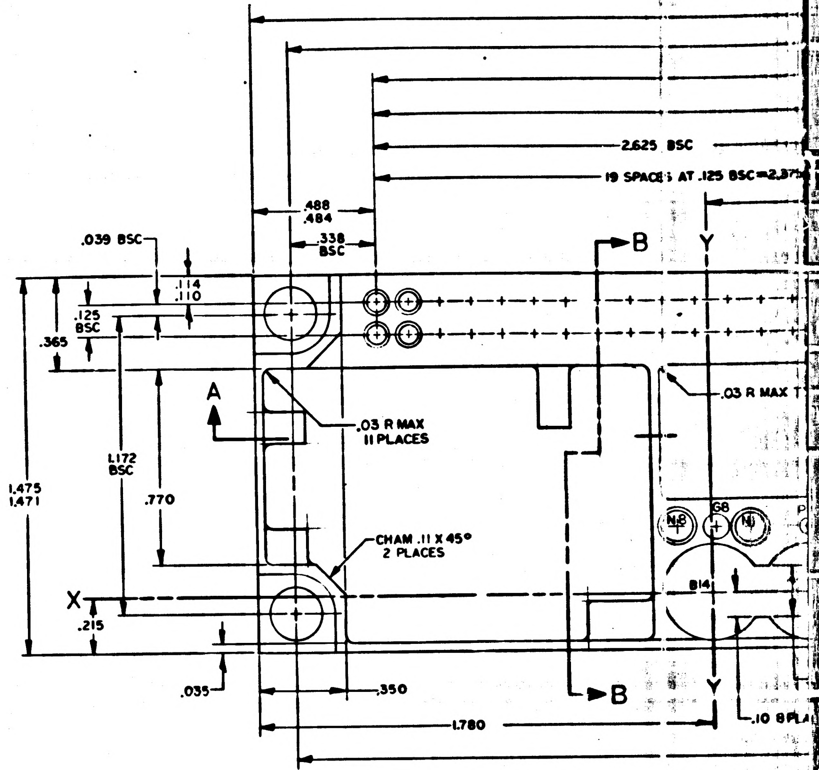
SECTION D-D



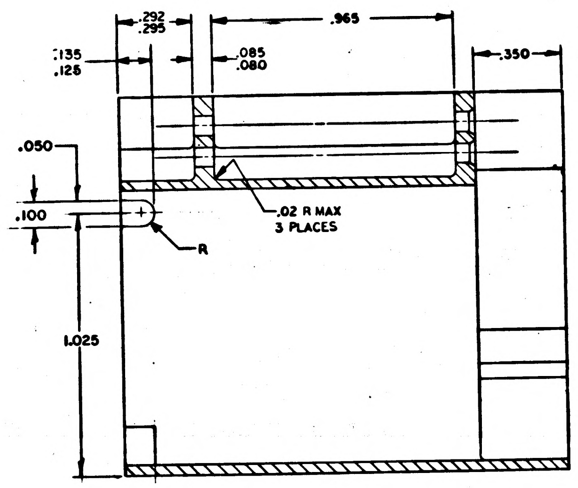
A
.125
1.12
.350 REF
.250
.19 R
.325
13°
L1 REF
W1 REF
M1
M2
.125
1.00
CHAM 45° X.06
.06 R 4 PLACES
.82
.87
.500
.49
S3 REF
S4 REF
A2 REF
.19
.20
.035
.156 5 PLACES
.005 DIA
.230
1.120
1.620
1.31
2.270
3.055
6.720



32
.002
.375 5 PLACES
.258 .254 4 PLACES
1.775

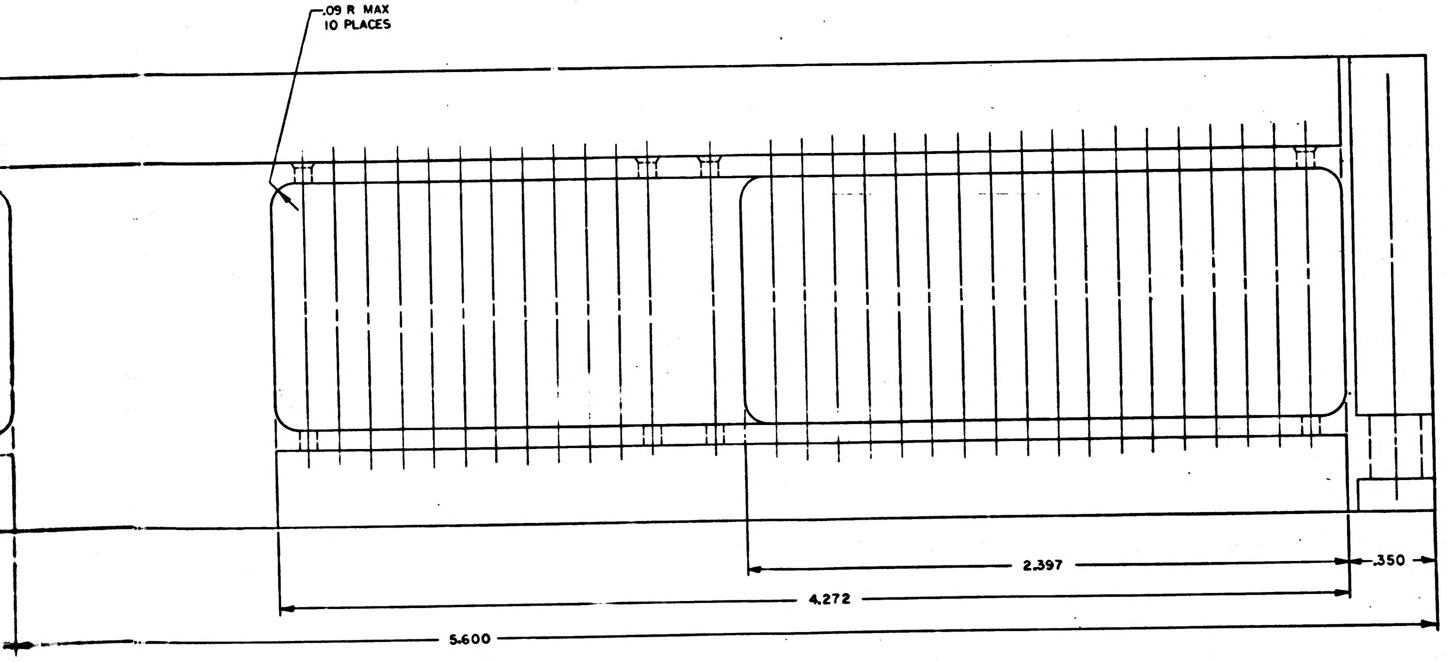


2.625 BSC
19 SPACES AT .125 BSC=2.375
.488 .484
.338 BSC
.039 BSC
.114 .110
.125 BSC
.365
B
Y
A
.03 R MAX 11 PLACES
.03 R MAX
1.475 1.471
1.172 BSC
.770
CHAM .11 X 45° 2 PLACES
M8
M1
X
.215
.035
.350
1.780
B
Y
.10 8 PLACES



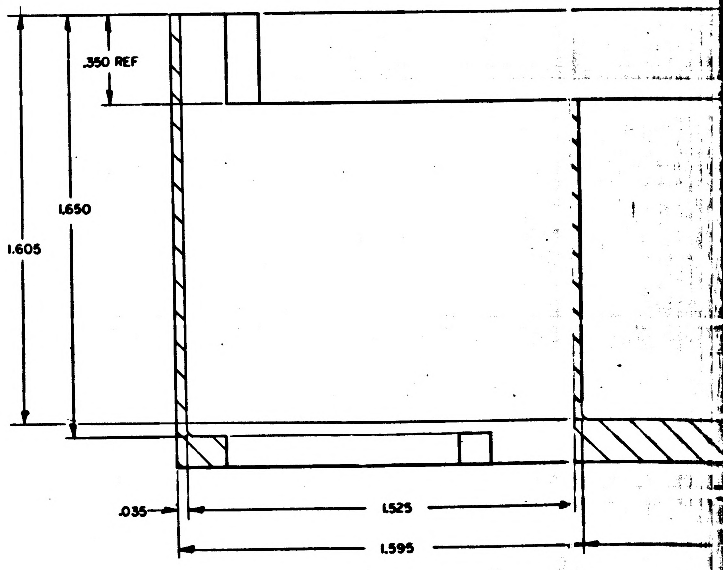
.292 .295
.965
.350
.135 .128
.085 .080
.050
.02 R MAX 3 PLACES
.100
R
1.025

SECTION B-B

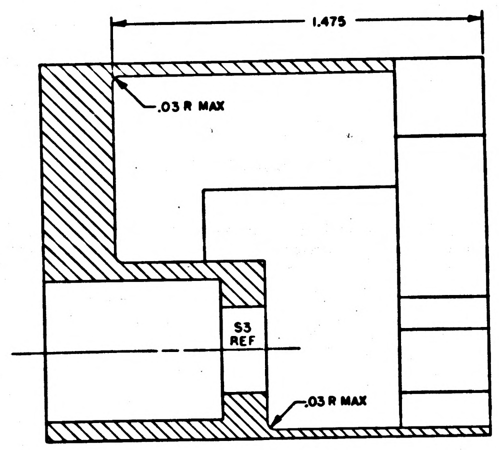


.09 R MAX 10 PLACES
2.397
.350
4.272
5.600

VIEW A-A



.350 REF
1.650
1.605
.035
1.525
1.595



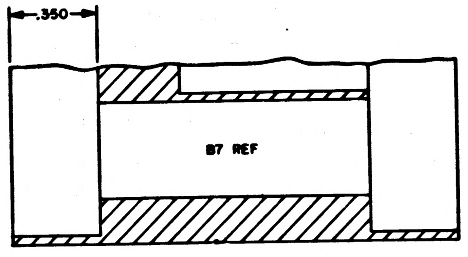
1.475
.03 R MAX
S3 REF
.03 R MAX

SECTION C-C

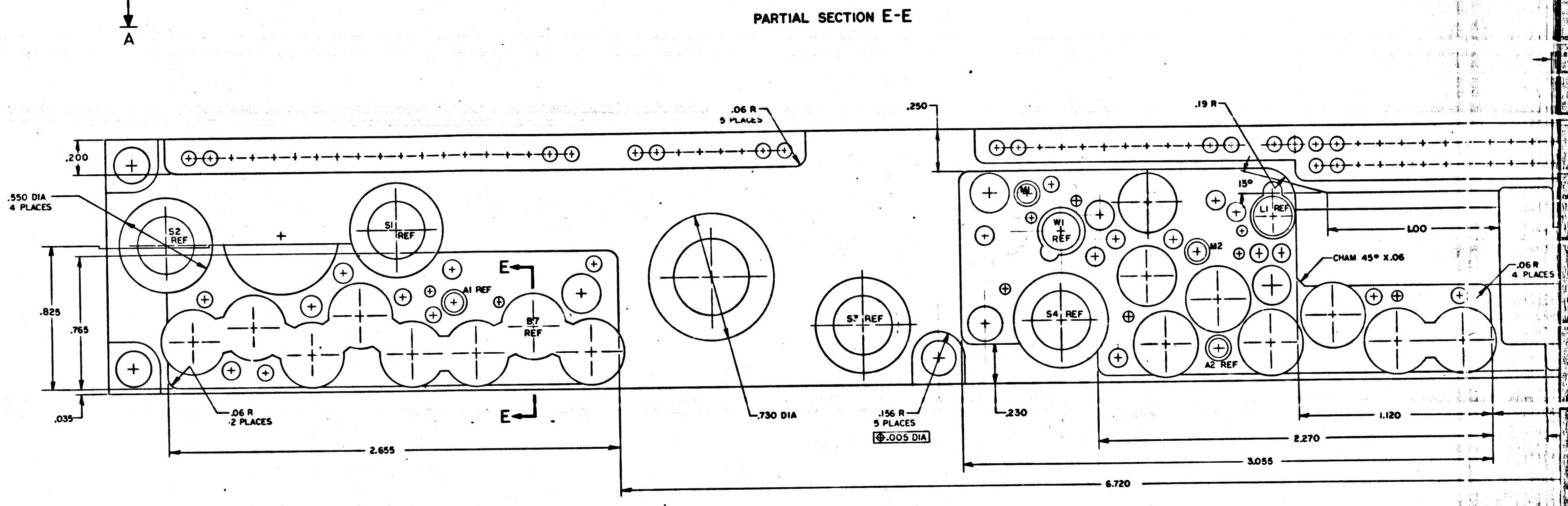
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

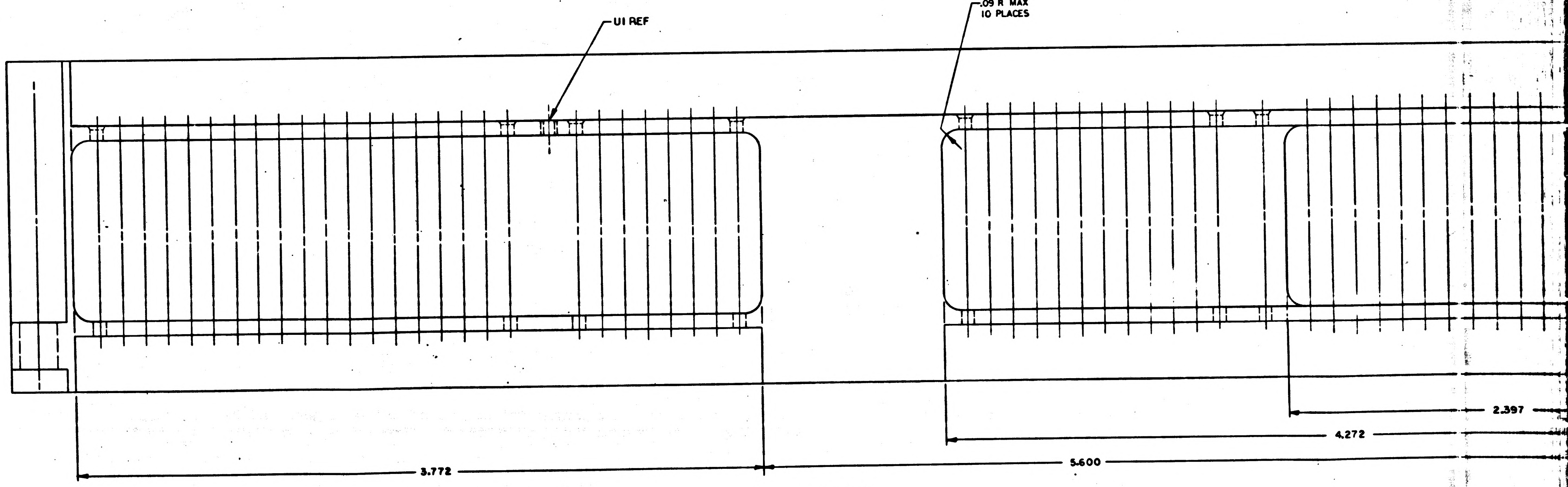
HOLE	X DIM.	Y DIM.	DIA	QTY
A1	5.905	.295	.115 .119 DIA THRU CSK BOTH SIDES 60° X.155 DIA	2
A2	1.420	−.030		
B1	7.445	.085	.368 .375	14
B2	7.085	.165		
B3	6.745	.000		
B4	6.450	.225		
B5	6.155	.000		
B6	5.780	.000		
B7	5.440	.150		
B8	5.100	.000		
B9	1.750	.000		
B10	1.420	.255		
B11	1.115	.000		
B12	.745	.155		
B13	.375	.000		
B14	.000	.000		
C1	5.915	.485	.100 .104	7
C2	2.785	.635		
C3	1.680	.600		
C4	1.430	.820		
C5	1.310	.755		
C6	1.170	.515		
C7	1.040	.515		
D1	5.160	.335	.227 .231	3
D2	2.755	.880		
D3	1.100	.330		
E1	1.805	.820	.346 .353	2
E2	1.840	.395		
F1	6.745	.285	.127 .131	1
G1	6.205	.350	.088 .092	8
G2	.495	.260		
G3	7.375	.330		
G4	7.020	−.095		
G5	6.030	.225		
G6	5.080	.505		
G7	2.395	.925		
G8	.020	.260		

HOLE	X DIM.	Y DIM.	DIA	QTY
H1	6.555	.475	.108 .112	5
H2	1.990	−.075		
H3	1.995	.610		
H4	2.115	.510		
H5	7.220	−.080		
J1	6.920	.690	.669 .676 SEE SECT A-A	2
J2	5.545	.690		
K1	1.470	.600	SEE DETAIL B	1
L1	1.095	.730	SEE DETAIL A	1
M1	2.535	.875	.115 .119 DIA X.30 DP FS&CSK 60°X.155DIA	2
M2	1.540	.530		
N1	.150	.260	.115 .119 DIA X.30 DP & CSK 60°X.155DIA	8
N2	7.260	.405		
N3	6.450	−.060		
N4	5.075	.865		
N5	3.920	.935		
N6	2.090	.935		
N7	1.545	.920		
N8	−.130	.265		
P1	6.045	.360	.058 .062	9
P2	2.485	.735		
P3	1.275	.645		
P4	.370	.260		
P5	5.640	.295		
P6	1.925	.160		
P7	2.220	.830		
P8	2.640	.330		
P9	1.275	.515		
R1	4.400	.420	.435 .442	1
S1	6.240	.715	.321 .328	4
S2	7.595	.645		
S3	3.470	.130		
S4	2.320	.145		
T1	4.981	1.146	NO.2(.086) -56NC-2B X.125 DEEP SEE NOTE 6	3
T2	3.054	.320		
T3	.850	−.093		
U1	2.760	.130	.205 .209	1
V1	2.085	.750	.166 .170	1
W1	2.310	.660	SEE DETAIL C	1
X1	2.590	.570	SEE DETAIL E	1
Y1	2.820	.380	SEE DETAIL D	1



PARTIAL SECTION E-E


A
.06 R
5 PLACES
.250
.19 R
.200
.550 DIA
4 PLACES
S2 REF
S1 REF
A1 REF
B7 REF
E
E
.825
.765
.035
.06 R
2 PLACES
2.655
.730 DIA
S3 REF
.156 R
5 PLACES
.005 DIA
.230
W1
W1 REF
M2
L1 REF
15°
1.00
CHAM 45° X.06
.06 R
4 PLACES
S4 REF
A2 REF
1.120
2.270
3.055
6.720


U1 REF
.09 R MAX
10 PLACES
2.397
4.272
5.600
3.772

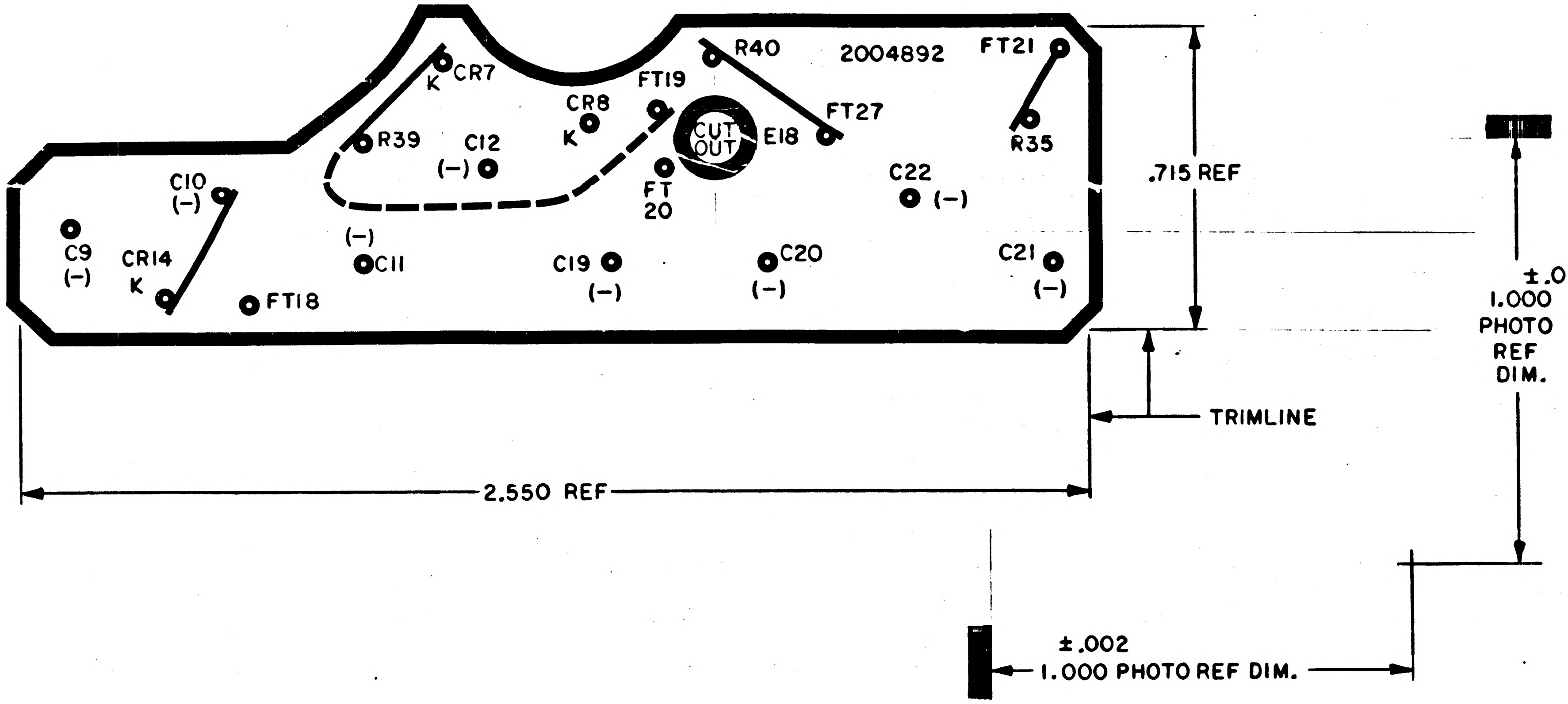
VIEW A-A

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. REMOVE BURRS AND SHARP EDGES .005/.015
3. MATERIAL: MAGNESIUM ZK60A-T5 PER QQ-M-31, TEMP T5
4. ANODIZE PER MIL-M-45202, TYPE I, CLASS C
5. ALL SURFACES 125√ UNLESS OTHERWISE SPECIFIED
6. TAP HOLE AFTER ANODIZE. COAT PER ND1002040
7. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .02 MAX
8. IDENTIFY WITH PART NO. PER ND1002019

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 26197

SYM	DESCRIPTION	DATE	APPROVAL



NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
3. CUT TO WITHIN .010 OF TRIMLINE
4. MAKE MASTER PATTERN POSITIVE FILM TO DIMENSIONS SHOWN
5. BROKEN LINE DENOTES SLEEVING
6. MATERIAL: FILM .006/.008 THK SENSITIZED DIMENSIONALLY STABLE PER L-F-340, TYPE IB, CLASS 2, STYLE IA
7. ● .040/.050 DIA HOLE
8. ◯ .20/.22 DIA HOLE

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003953	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 6
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN E. Wting DATE 7FEB66
CHECKED K Edward 7Feb66
APPROVAL J. M. McGinty 8Feb66
APPROVAL Ellen C Hall 8Feb66
NASA APPROVAL A. C. METZGER
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

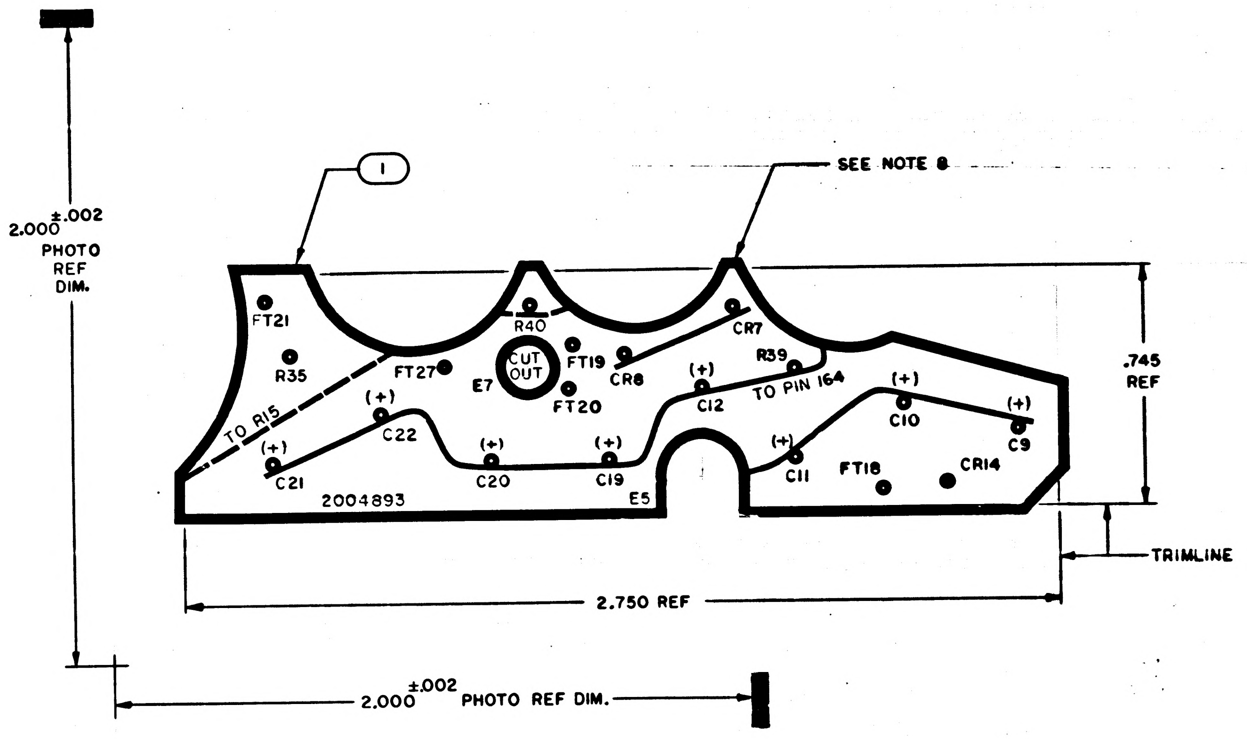
INSULATOR D
PHOTOGRAPHIC MASTER
POWER SUPPLY

CODE IDENT NO. 80230
SIZE C
NASA DRAWING NO. 2004892
SCALE 4/1
WT
SHEET 1 OF 1

2004892

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 26197			
SYM	DESCRIPTION	DATE	APPROVAL



NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
3. CUT TO WITHIN .010 OF TRIMLINE
4. MAKE MASTER PATTERN POSITIVE FILM TO DIMENSIONS SHOWN
5. MATERIAL: FILM .006/.008 THK SENSITIZED DIMENSIONALLY STABLE PER L-F-340, TYPE IB, CLASS 2, STYLE IA
6. ● .040/.050 DIA HOLE
7. BROKEN LINE DENOTES SLEEVING
8. APPLY FIND NO. 2 TO FAR SIDE OF FIND NO. 1
9. ○ .20/.22 DIA HOLE
10. AR DENOTES AS REQUIRED

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006318	ADHESIVE	2
1	2004893-001	INSULATOR A	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003953	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 5
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN E. Wting DATE 4 FEB 66
CHECKED C. Edward 7 Feb 66
APPROVAL J. McG 8 Feb 66
APPROVAL Ellen C Hall 8 Feb 66
NASA APPROVAL E. C. METZGER
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSULATOR A
PHOTOGRAPHIC MASTER
POWER SUPPLY

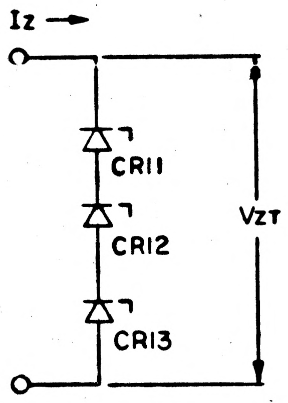
CODE IDENT NO. 80230
SIZE D
NASA DRAWING NO. 2004893
SCALE 4/1
WT
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS TDRR 26197

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 27553			4/4/66	

REF DES	FIND NO.
CR11 CR12 CR13	1



NOTE

1. CR11, CR12 & CR13 SHALL BE SELECTED SUCH THAT WHEN THEY ARE CONNECTED IN SERIES AS SHOWN V_{ZT} SHALL BE 25.95 ± 0.20 VDC WITH I_Z = 5.0 ± 0.2 MA
2. IDENTIFY PER ND 1002019

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
~~1~~	~~2004112-002~~		~~DIODE~~	~~2~~
3	2004112-001		DIODE	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003953	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN E. Ufting 7FEB66
CHECKED R. Edwards 7Feb66
APPROVED 8Feb66
APPROVED Eldon C Hall 8Feb66
APPROVED MIT Feb66
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DIODE SELECTION LIST
POWER SUPPLY

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004897
SCALE NONE
SHEET 1 OF 1

2004897 A

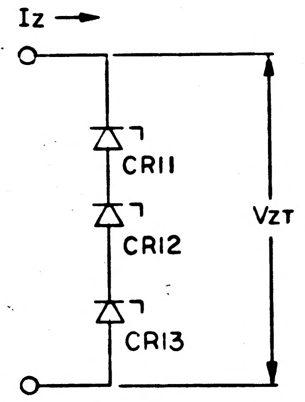
MODERN BLUE PRINT CO. D-19550

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS TDRR 26197

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

REF DES	FIND NO.
CR11	2
CR12 CR13	1



NOTE

1. CR11, CR12 & CR13 SHALL BE SELECTED SUCH THAT WHEN THEY ARE CONNECTED IN SERIES AS SHOWN V_{ZT} SHALL BE 23.75 ± 0.20 VDC WITH I_Z = 5.0 ±0.2 MA
2. IDENTIFY PER ND 1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
1	2004112-002		DIODE	2
2	2004112-001		DIODE	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003953	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN E. Ufting 7FEB66
CHECKED R. Edwards 7Feb66
APPROVED J.M. McGinty 8FEB66
APPROVED Eldon C Hall 8Feb66
APPROVED MIT Feb66
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DIODE SELECTION LIST
POWER SUPPLY

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004897
SCALE NONE
SHEET 1 OF 1

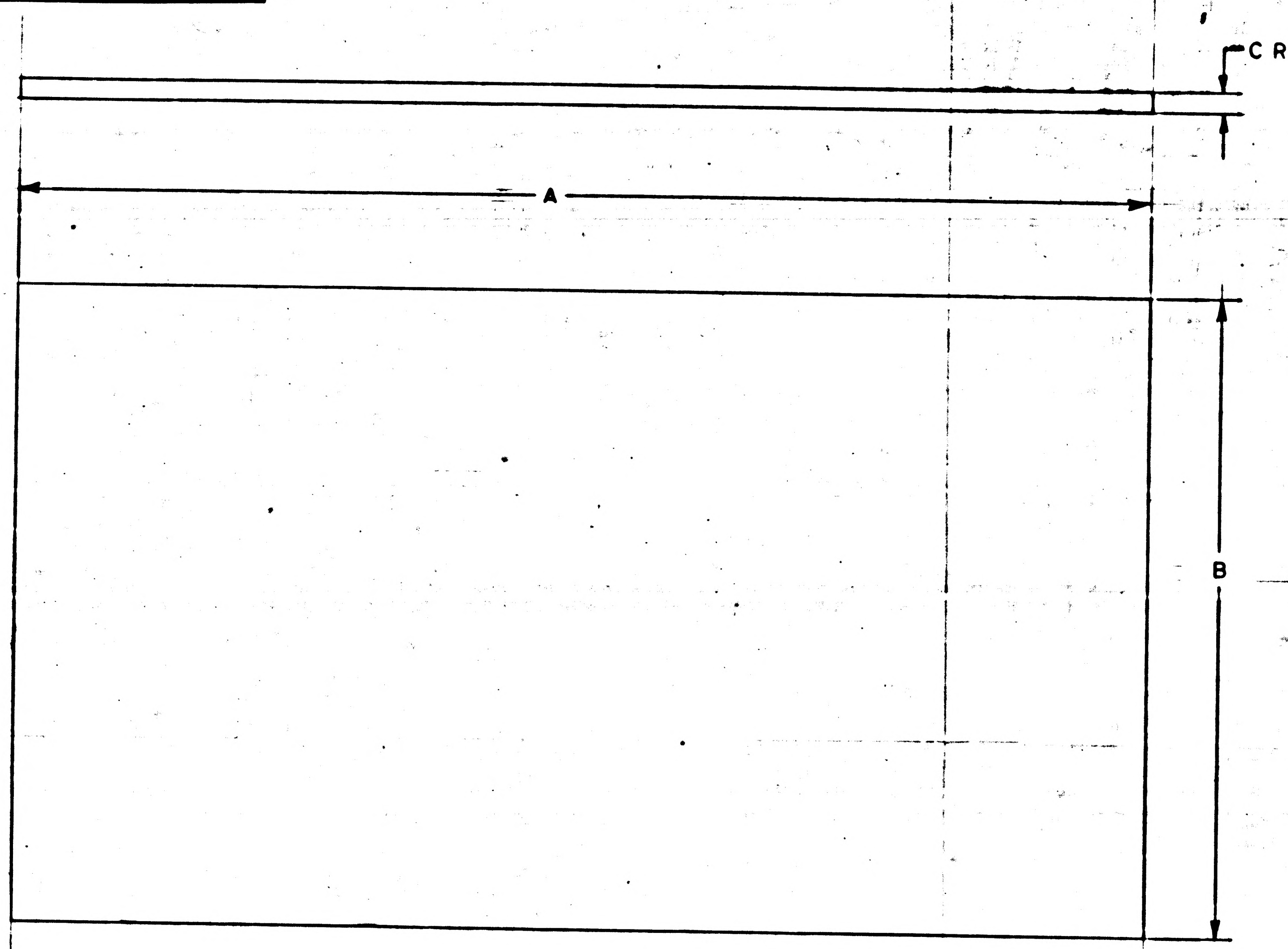
2004897

MODERN BLUE PRINT CO. D-19550

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 26200

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		CHANGE PER TDRR 32351		J.C.	12 JAN 67	1/67



DASH NO.	MATL MAKE FROM	DIM. A ±.01	DIM. B ±.01	DIM. C REF
001	1006370-004	10.75	6.00	.193
002	1006370-005	4.55	1.27	.127
003	1006370-006	10.50	3.94	.085
004	1006370-006	9.00	3.94	.085
005	1006370-006	10.50	2.40	.085

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. MATL: SEE CHART

NEXT ASSY	USED ON
2003977	
2003976	
2003200	
2003970	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN D. G. Clement 9 FEB 66
CHECKED 9 Feb 66
APPROVED 10 Feb 66
APPROVED Eldon C Hall 11 Feb 66
APPROVED MIT 11 Feb 66
D. G. METZGER
APPROVED MSC
DATE

PAD, VIBRATION
AGC

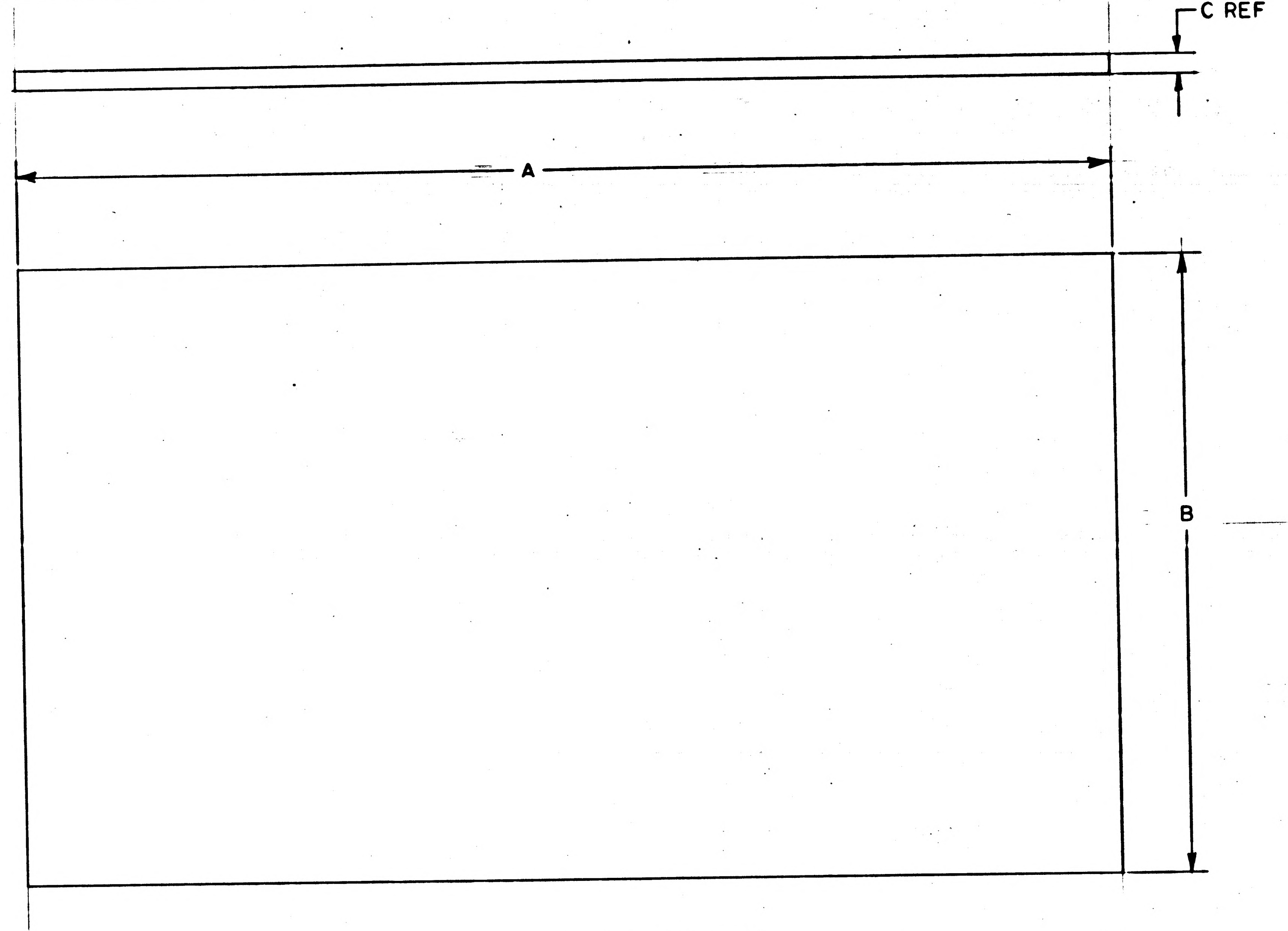
CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004899
SCALE 1/1
SHEET OF

2004899 A

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 26200

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



DASH NO.	MATL MAKE FROM	DIM. A ±.01	DIM. B ±.01	DIM. C REF
001	1006370-004	10.75	6.00	.193
002	1006370-005	4.55	1.27	.127
003	1006370-006	10.50	3.94	.091

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2 MATL: SEE CHART

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003200	
2003970	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN D. G. Clement 9 FEB 66
CHECKED 9 Feb 66
APPROVED 10 FEB 66
APPROVED Eldon C Hall 11 Feb 66
APPROVED MIT 11 Feb 66
C METZGER
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PAD, VIBRATION
AGC

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004899
SCALE 1/1
SHEET OF

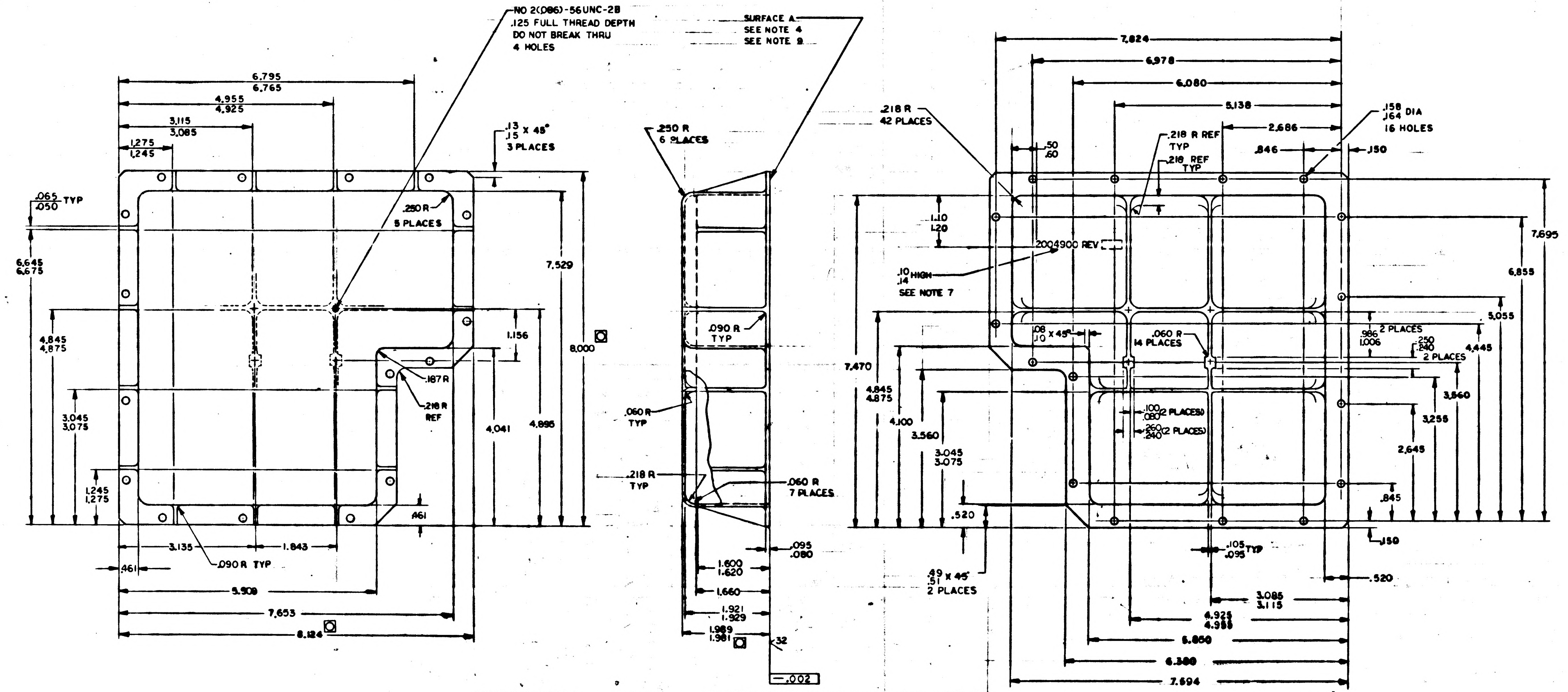
2004899

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

2004900 A

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22781 DR CHK APPD	10/4/65	

REVISIONS 21357


NO 2(.086)-56UNC-2B
.125 FULL THREAD DEPTH
DO NOT BREAK THRU
4 HOLES
6.795
6.765
4.955
4.925
3.115
3.085
1.275
1.245
.13
.15 X 45°
3 PLACES
.065
.050 TYP
.250 R
5 PLACES
6.645
6.675
7.529
4.845
4.875
1.156
8.000
.187 R
.218 R
REF
3.045
3.075
4.041
4.896
1.245
1.275
.461
3.135
1.843
.090 R TYP
.461
5.909
7.653
8.124
SURFACE A
SEE NOTE 4
SEE NOTE 9
.250 R
6 PLACES
.090 R
TYP
.060 R
TYP
.218 R
TYP
.060 R
7 PLACES
.095
.080
1.600
1.620
1.660
1.921
1.929
1.989
1.981
32
.002
7.824
6.978
6.080
5.138
2.686
.158
.164 DIA
16 HOLES
.218 R
42 PLACES
.218 R REF
TYP
.218 REF
TYP
.50
.60
.846
.150
1.10
1.20
2004900 REV
.10
.14 HIGH
SEE NOTE 7
7.695
6.855
5.055
.08
.10 X 45°
.060 R
14 PLACES
.986
1.006 2 PLACES
.250
.240
2 PLACES
4.445
7.470
4.845
4.875
4.100
3.560
3.045
3.075
.100
.080 (2 PLACES)
.260
.240 (2 PLACES)
3.560
3.255
2.645
.845
.520
.150
.105
.095 TYP
.49
.51 X 45°
2 PLACES
.520
3.085
3.115
4.925
4.955
5.850
6.380
7.594

NOTES
1. MATL: 7075-T6 AL PER QQ-A-250/12, TEMP T6
2. REMOVE BURRS AND SHARP EDGES .005/.020
3. SURFACE FINISH 125 EXCEPT WHERE OTHERWISE SHOWN
4. CHROMATE SURFACE A PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
5. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
6. ▢ DIMENSIONS CONTROLLED BY ICD MH01-01305-116
7. MARK AS SHOWN WHITE CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 USING INK 1006271-11
8. ANODIZE PER MIL-A-8625 TYPE II, DYED BLACK EXCEPT SURFACE A AND HOLES
9. NO SCRATCHES PERMISSABLE ON SURFACE A
10. IDENTIFY WITH PART NO. PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003985	
2003900	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 1
HEAT TREATMENT NONE
FINAL FINISH SEE NOTE 4

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN R. [illegible] DATE
CHECKED [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

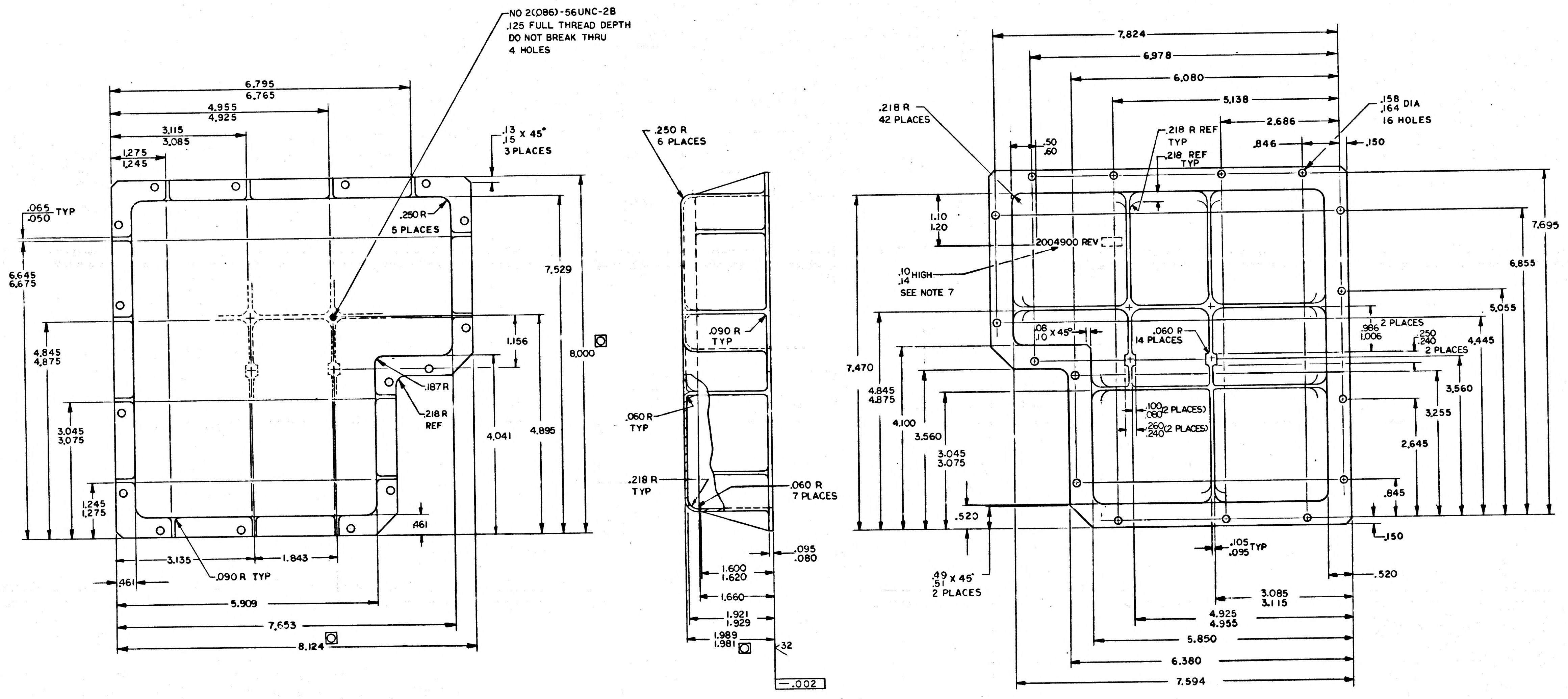
COVER, REAR
AGC DSKY

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 2004900
SCALE 1/1 WT SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

2004900 | —

REVISIONS 21057			
SYM	DESCRIPTION	DATE	APPROVAL


NO 2(.086)-56UNC-2B
.125 FULL THREAD DEPTH
DO NOT BREAK THRU
4 HOLES
6.795
6.765
4.955
4.925
3.115
3.085
1.275
1.245
.13
.15 X 45°
3 PLACES
.065
.050 TYP
.250 R
5 PLACES
6.645
6.675
7.529
8.000
1.156
4.845
4.875
.187 R
.218 R
REF
4.041
4.895
3.045
3.075
1.245
1.275
.461
3.135
1.843
.090 R TYP
.461
5.909
7.653
8.124
.250 R
6 PLACES
.090 R
TYP
.060 R
TYP
.218 R
TYP
.060 R
7 PLACES
.095
.080
1.600
1.620
1.660
1.921
1.929
1.989
1.981
32
.002
7.824
6.978
6.080
5.138
2.686
.846
.150
.158
.164 DIA
16 HOLES
.218 R
42 PLACES
.50
.60
.218 R REF
TYP
.218 REF
TYP
1.10
1.20
2004900 REV
.10
.14 HIGH
SEE NOTE 7
7.695
6.855
5.055
4.445
2 PLACES
.986
1.006
.250
.240
2 PLACES
.08
.10 X 45°
.060 R
14 PLACES
7.470
4.845
4.875
4.100
3.560
3.045
3.075
.100
.060 (2 PLACES)
.260
.240 (2 PLACES)
3.560
3.255
2.645
.845
.520
.150
.49
.51 X 45°
2 PLACES
.105
.095 TYP
.520
3.085
3.115
4.925
4.955
5.850
6.380
7.594

NOTES
1. MATL: 7075-T6 AL PER QQ-A-250/12, TEMP T6
2. REMOVE BURRS AND SHARP EDGES .005/.020
3. SURFACE FINISH 125√ EXCEPT WHERE OTHERWISE SHOWN
4. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
5. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
6. ▢ DIMENSIONS CONTROLLED BY ICD MH01
7. MARK AS SHOWN BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 USING INK IC06271-10

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

2003900	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 1
HEAT TREATMENT NONE
FINAL FINISH SEE NOTE 4

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN R. Guilford DATE
CHECKED Alger Hunter
APPROVAL G. Ur[illegible] 2 Jun 63
APPROVAL Eldon C Hall 12 July 63
NASA APPROVAL W J Rhine
MIT APPROVAL [illegible] 7-13-64
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

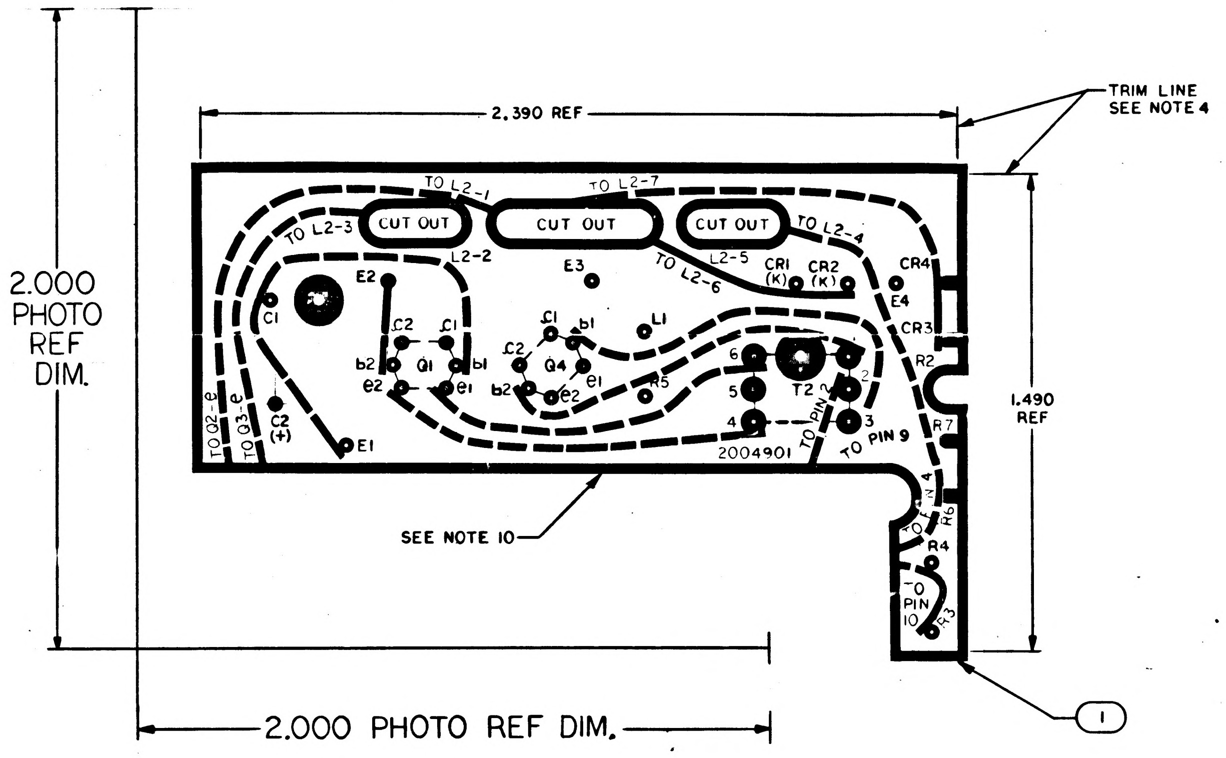
CCVER, REAR
AGC DSKY

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 2004900
SCALE 1/1
WT
SHEET 1 OF 1

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004901 —

REVISIONS 20856			
SYM	DESCRIPTION	DATE	APPROVAL


2.390 REF
TRIM LINE
SEE NOTE 4
2.000
PHOTO
REF
DIM.
1.490
REF
2.000 PHOTO REF DIM.
TO L2-1
TO L2-7
TO L2-3
CUT OUT
CUT OUT
CUT OUT
TO L2-4
L2-2
L2-5
TO L2-6
E2
E3
CR1 (K)
CR2 (K)
CR4
E4
CR3
C1
C2
C1
Q1
b2
b1
e2
e1
C1
b1
C2
Q4
b2
e2
e1
L1
R5
6
5
4
T2
2
3
R2
R7
TO PIN 2
TO PIN 9
TO PIN 4
R6
R4
TO PIN 10
R3
2004901
TO Q2-e
TO Q3-e
C2 (+)
E1
SEE NOTE 10
1

NOTES

1. MATL: FILM, .006/.008 THK SENSITIZED DIMENSIONALLY STABLE PER L-F-340, TYPE IB, CLASS 2, STYLE IA
2. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
3. MAKE MASTER PATTERN POSITIVE FILMS TO DIMENSIONS SHOWN
4. CUT TO WITHIN .010 OF TRIMLINE
5. BROKEN LINE DENOTES SLEEVING
6. ● .040/.050 DIA HOLE
7. ● .180/.190 DIA HOLE
8. ● .090/.100 DIA HOLE
9. IDENTIFY WITH DRAWING NO. & REVISION PER ND1002019
10. APPLY FIND NO. 2 TO FARSIDE OF FIND NO. 1
11. AR DENOTES AS REQUIRED
12. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006318	ADHESIVE	2
1	2004901-001	INSULATOR	1
011	LIST OF MATERIALS		

NEXT ASSY	2003901
USED ON	
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 1
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO
CONTRACT
DRAWN D. Bylong DATE 2 Mar 65
CHECKED R. Edwards 10 Jun 65
APPROVAL 10 Jun 65
APPROVAL Eldon C. Hall 12 Jul 65
NASA APPROVAL W. J. Rhine 7-13-65
MIT APPROVAL 7-13-65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSULATOR, PHOTO MASTER
LOWER LEVEL
POWER SUPPLY MODULE, AGC DSKY

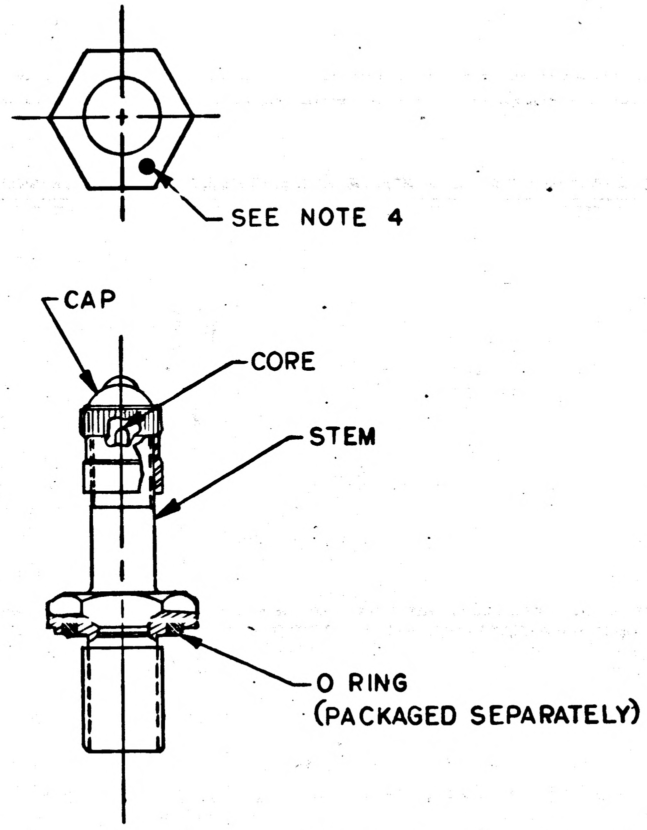
CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	D	2004901
SCALE 4/1	WT	SHEET 1 OF 1

2004901 —

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 22737

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES

1. MAKE FROM SCD 1006345
2. REMOVE VALVE CORE, CLEAN VALVE SEAT AND CORE USING ACETONE, FED SPEC O-A-51 AND DRY COMPRESSED AIR
3. TORQUE FOR VALVE CORE SHALL BE 14.0 TO 16.0 INCH OUNCES
4. TEST PER:
   A. MIL-STD-202, METHOD 112, TEST CONDITION "C", PROCEDURE IIIa, USING HELIUM. THE DIFFERERENTIAL PRESSURE SHALL BE 20 PSIA AND TEMPERATURE SHALL BE 70° F ± 20° F. THE LEAK RATE SHALL NOT EXCEED 1×10^{-5} STD. CC/SEC.
   B. THE ABOVE TEST SHALL BE PERFORMED WITH THE CAP REMOVED
5. AFTER VALVE QUALIFICATION PER NOTE 4 MARK WITH DOT APPROXIMATELY WHERE SHOWN, USING MARKING INK (RED) 1006271-7

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003954	
2003904	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	J. A. Zaffini	10 SEP 65
CHECKED	[illegible]	21 Sept 65
APPROVED	[illegible]	21 Sept 65
APPROVED	Eldon C Hall	24 Sept 65
APPROVED MIT	~~NOT REQUIRED PER LETTER~~ NASA PP7-65-612	28 [illegible]
APPROVED MSC		DATE

VALVE, PNEUMATIC TANK
(LEAK TESTED)
AGC DSKY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004903

SCALE NONE SHEET 1 OF 1

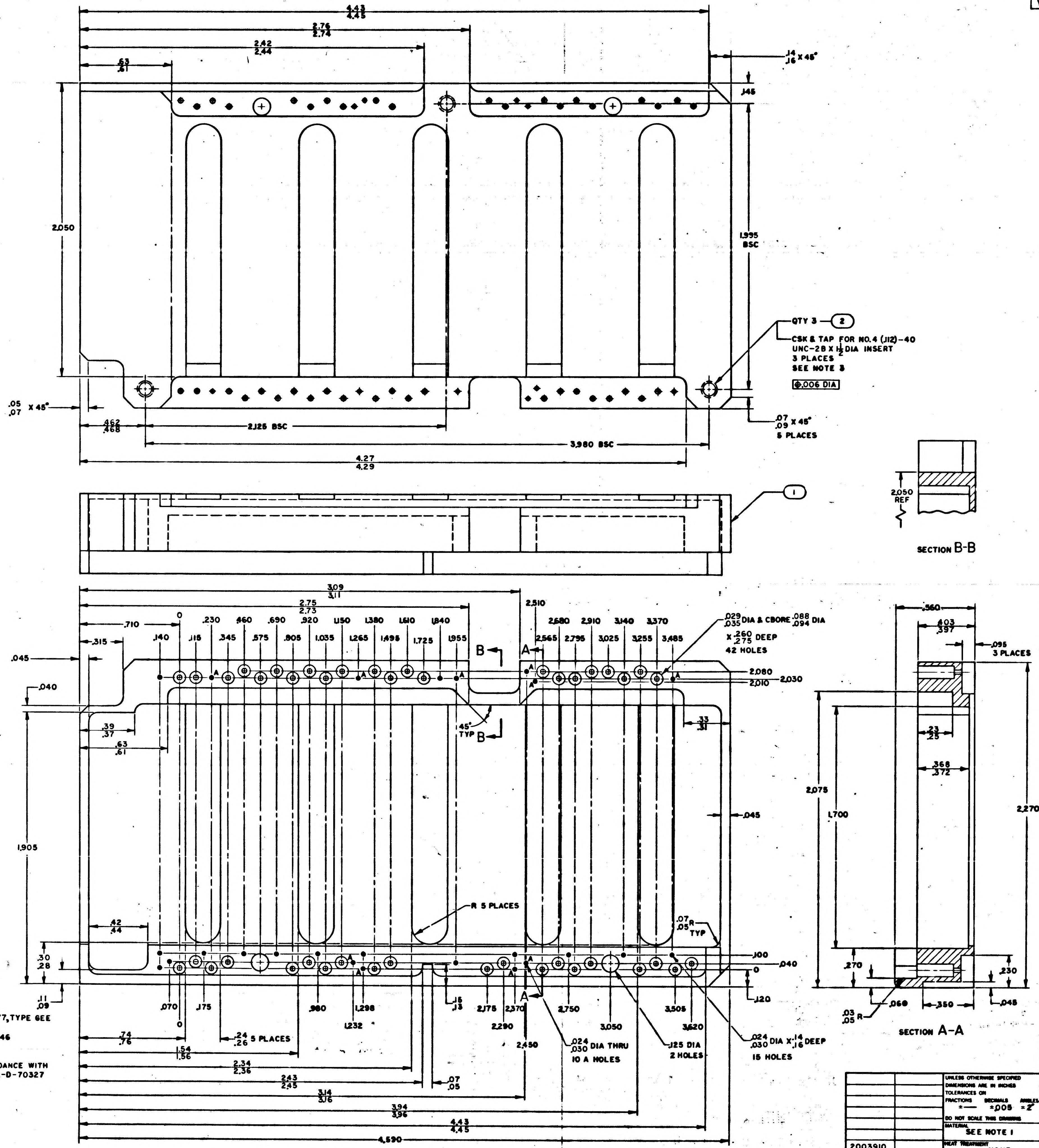
MODERN BLUE PRINT CO. D-19550

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004908 A

REVISIONS 20272

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22162 DR CHK		



4.43
4.45
2.76
2.74
2.42
2.44
.63
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.14
.16 X 45°
.145
2.050
1.995 BSC
QTY 3 — 2
CSK & TAP FOR NO.4 (.112)-40 UNC-2B X 1/2 DIA INSERT
3 PLACES
SEE NOTE 3
⌖ .006 DIA
.05
.07 X 45°
.462
.468
2.125 BSC
3.980 BSC
.07
.09 X 45°
5 PLACES
4.27
4.29
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2.050 REF
SECTION B-B
3.09
3.11
2.75
2.73
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.035 DIA & CBORE .088
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X .260
.275 DEEP
42 HOLES
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10 A HOLES
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2 HOLES
.024
.030 DIA X .14
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15 HOLES
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.26 5 PLACES
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4.590
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3 PLACES
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.060
.350
.045
SECTION A-A

NOTES
1. MATL: PLASTIC PER MIL-P-18177, TYPE GEE
2. REMOVE SHARP EDGES .005/.015
3. INSTALL FIND NO.2 PER MS33646
4. IDENTIFY WITH PART NO. PER ND1002019
5. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
3	MS21209-C0415	INSERT, THREADED, SELF LOCKING	2
1	2004908-001	BLOCK, COMPONENT RELAY	1

011 LIST OF MATERIALS

2003910	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ±2°
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 1
HEAT TREATMENT NONE
FINAL FINISH NONE

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN R. Tinker DATE 26 APR 65
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

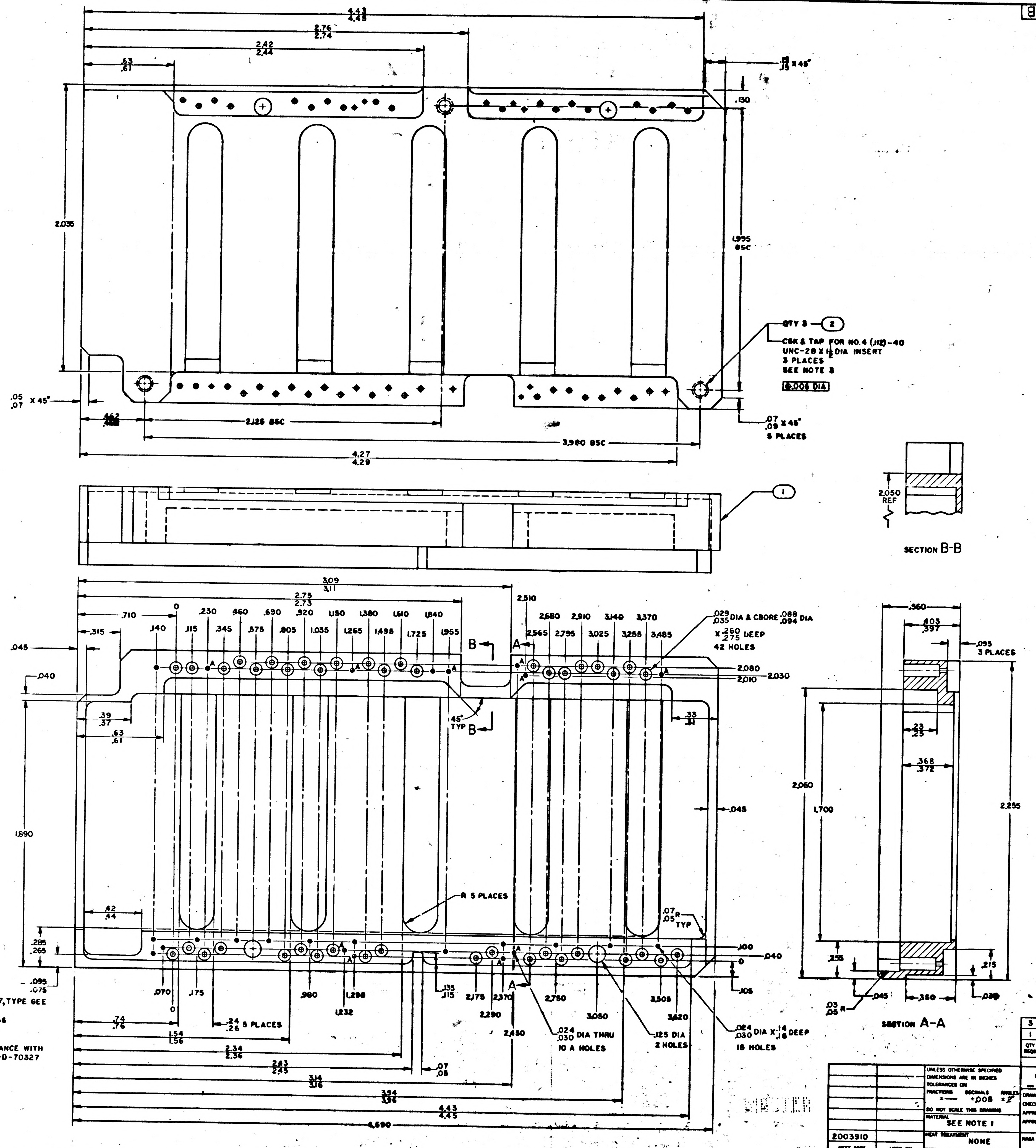
BLOCK, COMPONENT RELAY
INDICATOR DRIVER MODULE
AGC DSKY

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 2004908
SCALE 4/1
WT
SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004908 B

SYM	REVISIONS 20272 DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 72162 DR CHK		
B	REVISED PER TDRR 23956 DR CHK		



4.43
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.15 X 45°
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1.995 BSC
QTY 3 — 2
CSK & TAP FOR NO.4 (.112)-40 UNC-2B X 1/2 DIA INSERT
3 PLACES
SEE NOTE 3
⊕ .006 DIA
.05
.07 X 45°
.462
.07
.09 X 45°
5 PLACES
2.125 BSC
3.980 BSC
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2.050 REF
SECTION B-B
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3 PLACES
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SECTION A-A

NOTES

1. MATL: PLASTIC PER MIL-P-18177, TYPE GEE
2. REMOVE SHARP EDGES .005/.015
3. INSTALL FIND NO.2 PER MS33646
4. IDENTIFY WITH PART NO. PER ND1002019
5. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
3	MS21209-C0415	INSERT, THREADED, SELF LOCKING	2
1	2004908-001	BLOCK, COMPONENT RELAY	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003910	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ±2°
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 1
HEAT TREATMENT NONE
FINAL FINISH NONE

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

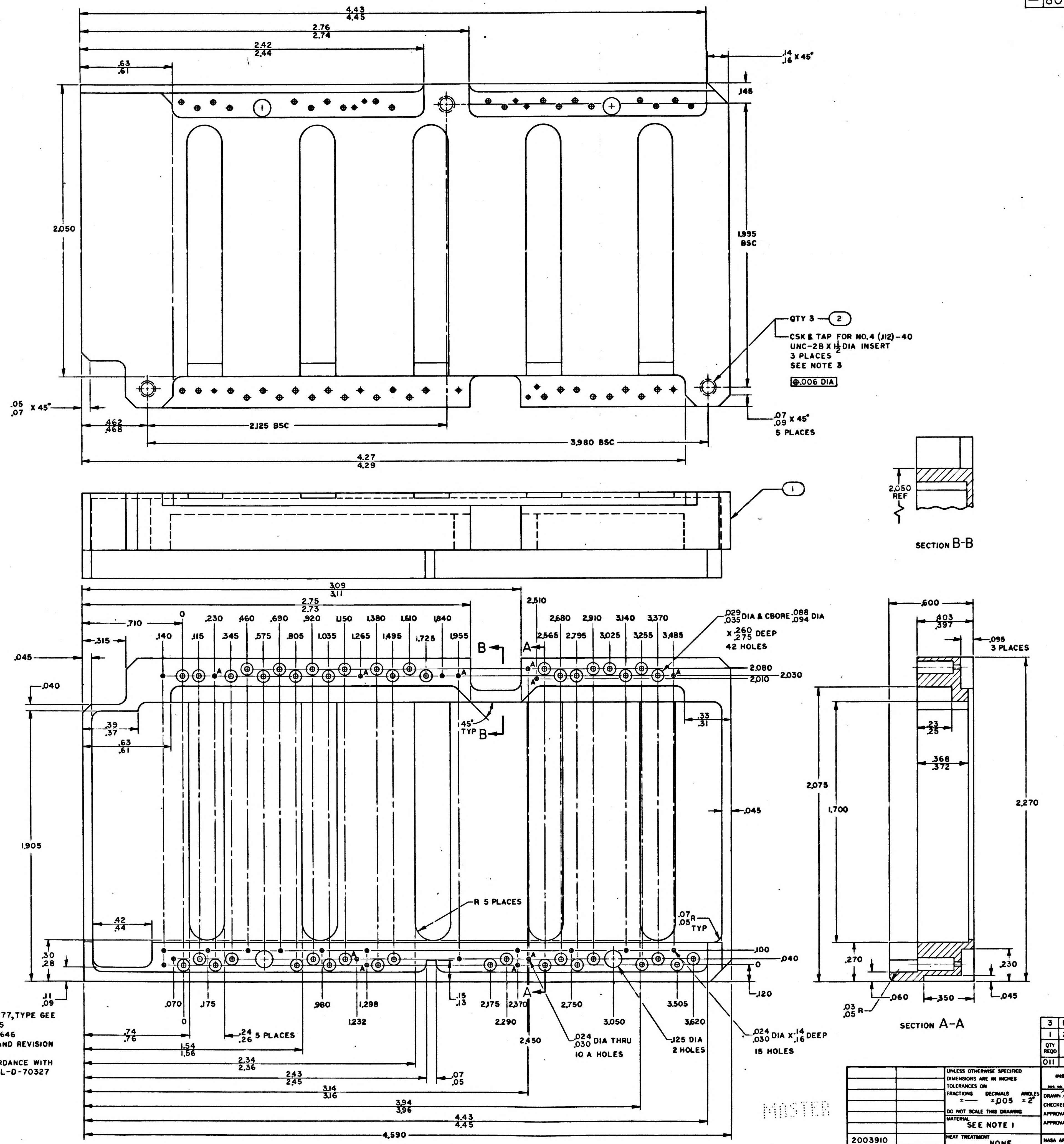
BLOCK, COMPONENT RELAY
INDICATOR DRIVER MODULE
AGC DSKY

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 2004908
SCALE 4/1
WT
SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

2004908 –

REVISIONS 20272			
SYM	DESCRIPTION	DATE	APPROVAL



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QTY 3 – ②
CSK & TAP FOR NO.4 (.112)-40 UNC-2B X 1/2 DIA INSERT
3 PLACES
SEE NOTE 3
⊕.006 DIA
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2.125 BSC
3.980 BSC
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.09 X 45°
5 PLACES
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3 PLACES
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.03
.05 R
SECTION A-A

NOTES
1. MATL: PLASTIC PER MIL-P-18177, TYPE GEE
2. REMOVE SHARP EDGES .005/.015
3. INSTALL FIND NO.2 PER MS33646
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
5. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
3	MS21209-C0415	INSERT, THREADED, SELF LOCKING	2
1	2004908-001	BLOCK, COMPONENT RELAY	1
011	LIST OF MATERIALS		

2003910		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± — DECIMALS ±.005 ANGLES ±2° DO NOT SCALE THIS DRAWING	MIT INSTRUMENTATION LAB CAMBRIDGE, MASS. DWG NO CONTRACT
NEXT ASSY	USED ON	MATERIAL SEE NOTE 1	DRAWN R. Tuchard DATE 30 APR 65 CHECKED Blagre 18 May 65 APPROVAL G. Underkoffler 1 Jun 65 APPROVAL Alan C Hall 21 Jun 65
APPLICATION		HEAT TREATMENT NONE FINAL FINISH NONE	NASA APPROVAL 4/22/6 MIT APPROVAL MIT APPROVAL W Kupfer 22 Jun 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BLOCK, COMPONENT RELAY
INDICATOR DRIVER MODULE
AGC DSKY

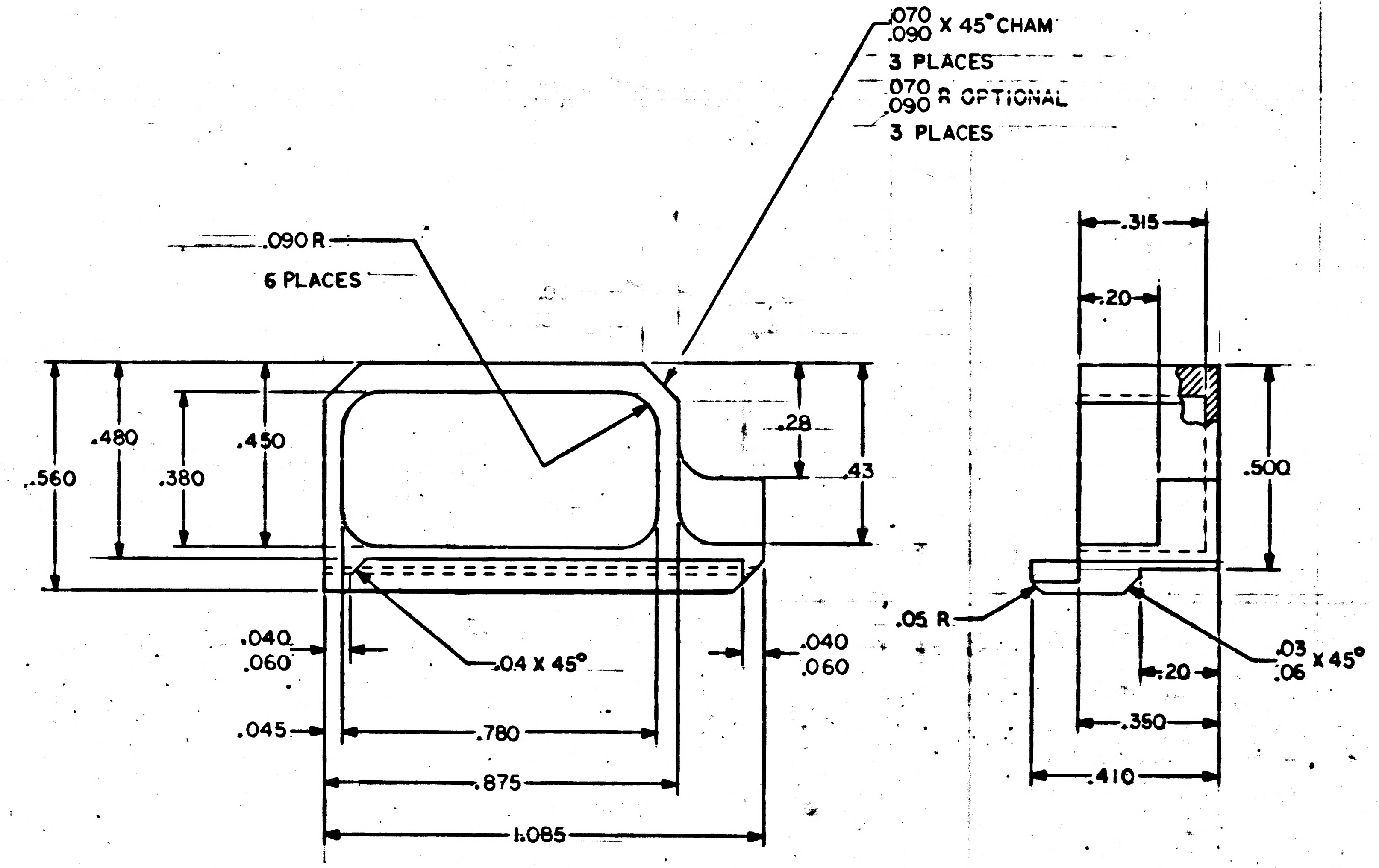
CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	E	2004908
SCALE 4/1	WT	SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004909 A

REVISIONS 20272

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 22546	RBG			



NOTES
1. MATL: PLASTIC PER MIL-P-18177, TYPE GEE
2. REMOVE SHARP EDGES .005/.015
3. IDENTIFY WITH PART NO. PER PER ND 1002019
4. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
5. UNLESS OTHERWISE SPECIFIED ALL RADII TO BE .010 R MAX

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003908	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ±.02 ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC 6/22/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BLOCK, COMPONENT
INDICATOR DRIVER MODULE
AGC DSKY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004909

SCALE 4/1
SHEET 1 OF 1

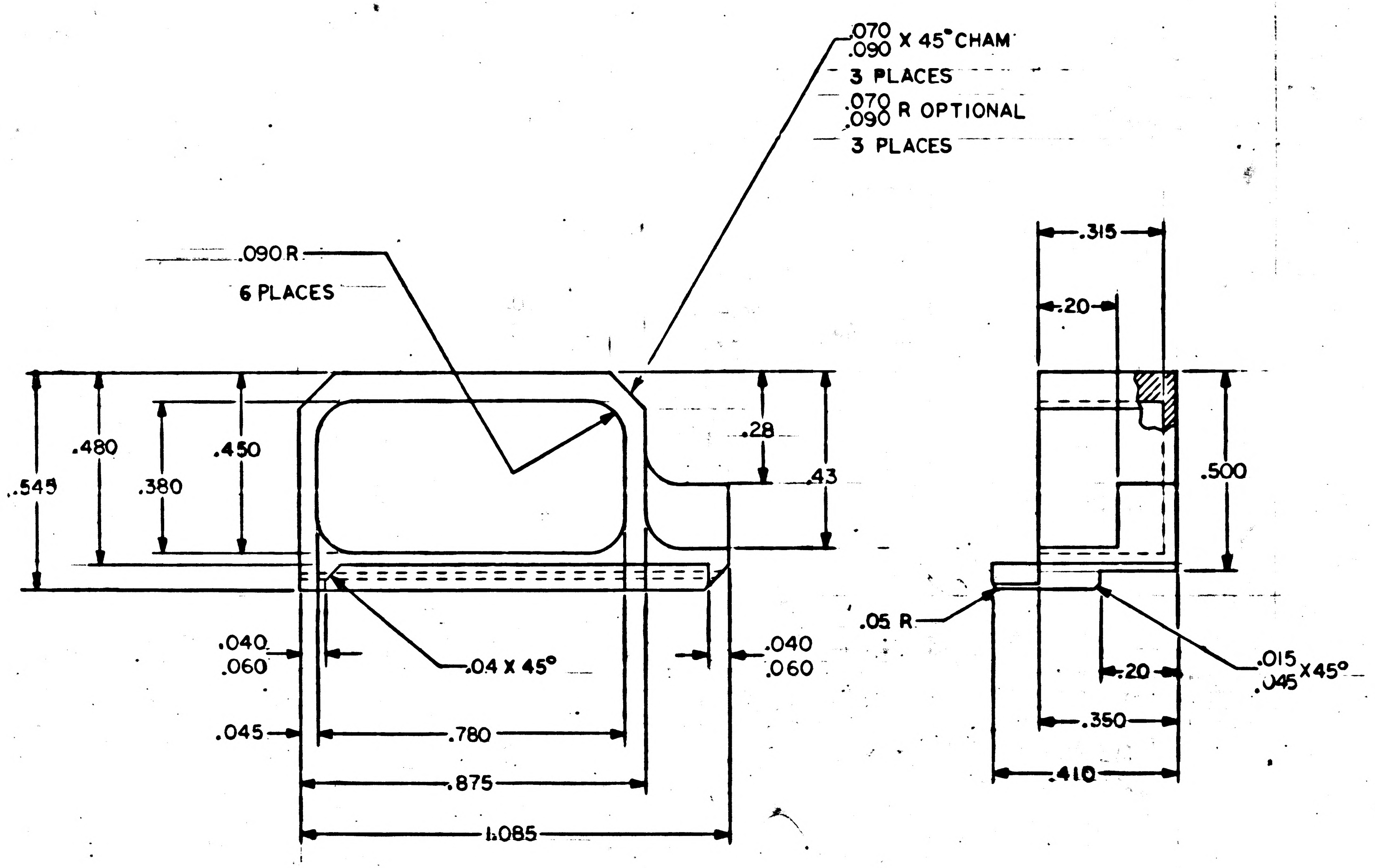
MASTER

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004909 B

REVISIONS 20272

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
Ⓜ A		REVISED PER TDRR 22546	RBG			
Ⓜ B		REVISED PER TDRR 23950			11/16/65	



NOTES
1. MATL: PLASTIC PER MIL-P-18177, TYPE GEE
2. REMOVE SHARP EDGES .005/.015
3. IDENTIFY WITH PART NO. PER
PER ND 1002019
4. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS
PRESCRIBED BY MIL-D-70327
5. UNLESS OTHERWISE SPECIFIED
ALL RADII TO BE .010 R MAX

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003908	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ~~.02~~ .005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN 11MAY65
CHECKED
APPROVED 1June65
APPROVED 21June65
APPROVED MIT 22June65
APPROVED MSC 6/22/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BLOCK, COMPONENT
INDICATOR DRIVER MODULE
AGC DSKY

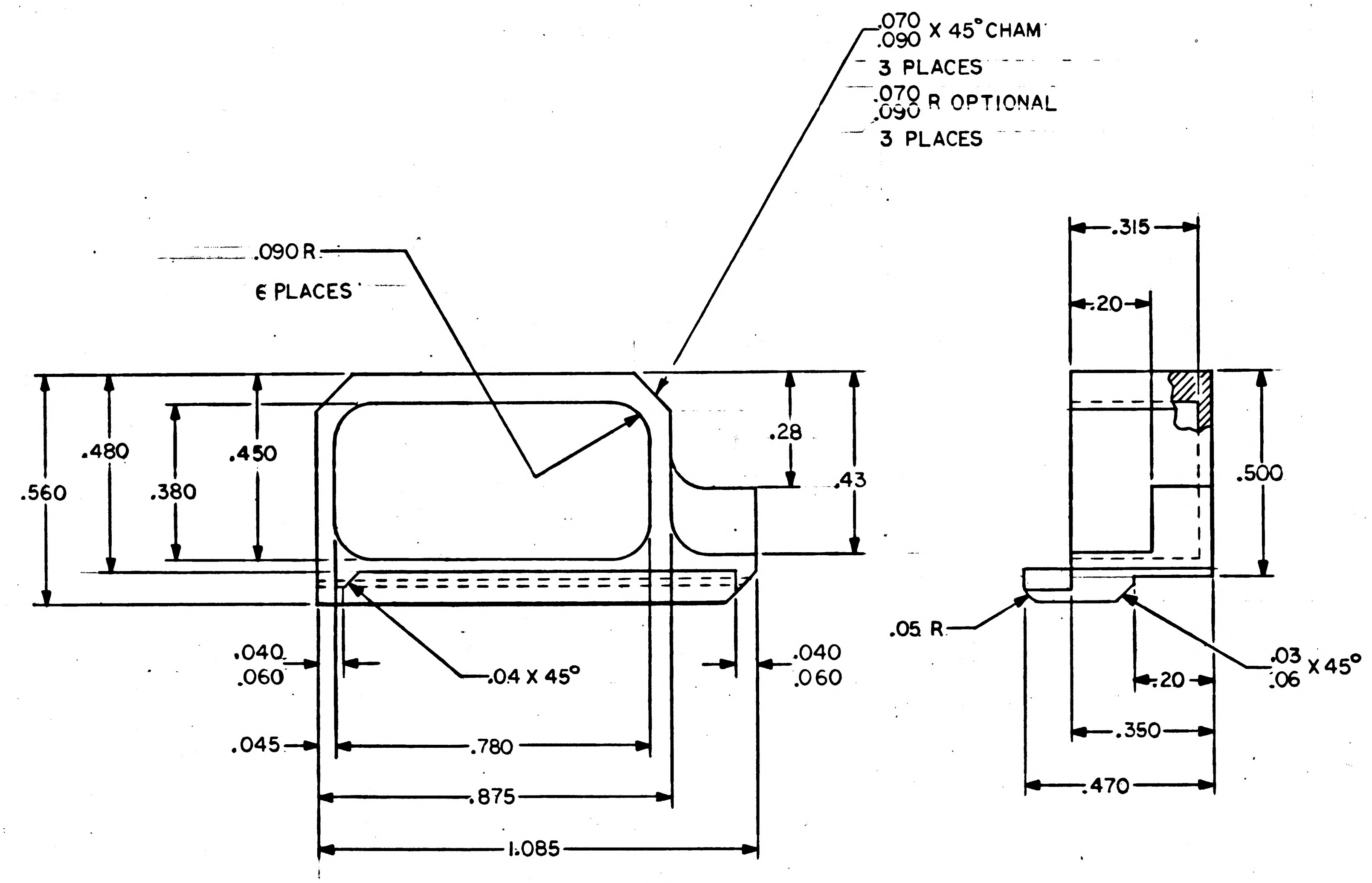
CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004909
SCALE 4/1
SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004909 | -

REVISIONS 20272

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES

1. MATL: PLASTIC PER MIL-P-18177, TYPE GEE
2. REMOVE SHARP EDGES .005/.015
3. IDENTIFY WITH DRAWING NO. & REVISION PER ND 1002019
4. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
5. UNLESS OTHERWISE SPECIFIED ALL RADII TO BE .010 R MAX

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003908	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± .005 .02 ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J.P. Leonard 11MAY65
CHECKED
APPROVED G. Underkoffler 1 Jun 65
APPROVED 21 Jun 65
APPROVED MIT 22 Jun 65
APPROVED MSC 6/22/65
DATE

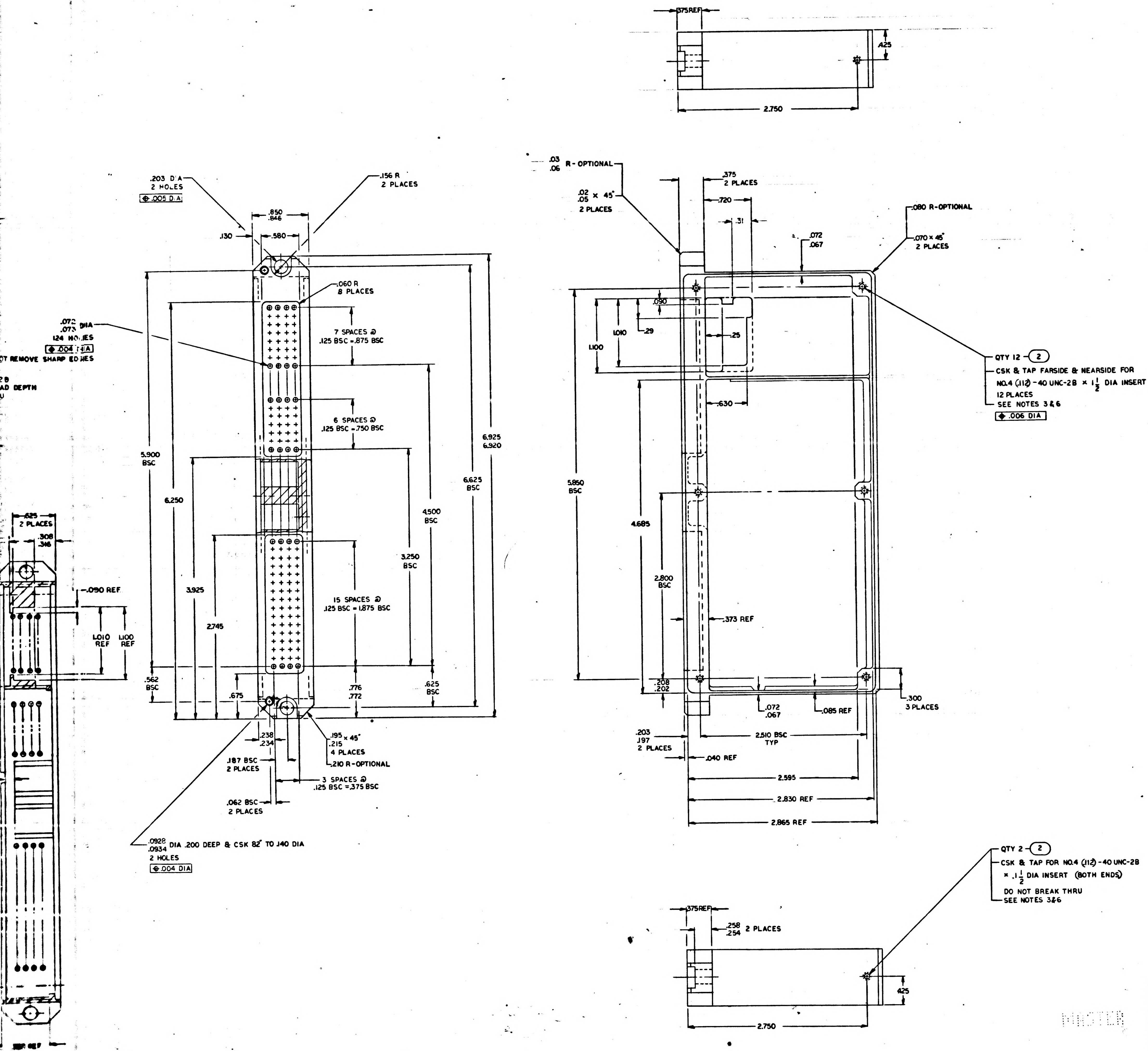
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

BLOCK, COMPONENT
INDICATOR DRIVER MODULE
AGC DSKY

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004909
SCALE 4/1
SHEET 1 OF 1

2004910	–

REVISIONS 20272			
SYM	DESCRIPTION	DATE	APPROVAL



.375REF
.425
2.750
.203 DIA
2 HOLES
⌖ .005 DIA
.156 R
2 PLACES
.850
.846
.130
.580
.060 R
8 PLACES
.072 DIA
.073
124 HOLES
⌖ .004 DIA
DO NOT REMOVE SHARP EDGES
7 SPACES @ .125 BSC = .875 BSC
6 SPACES @ .125 BSC = .750 BSC
15 SPACES @ .125 BSC = 1.875 BSC
5.900 BSC
6.250
3.925
2.745
.562 BSC
.675
4.500 BSC
3.250 BSC
6.625 BSC
6.925
6.920
.776
.772
.625 BSC
.238
.234
.187 BSC
2 PLACES
.062 BSC
2 PLACES
.195 × 45°
.215
4 PLACES
.210 R-OPTIONAL
3 SPACES @ .125 BSC = .375 BSC
.0928
.0934 DIA .200 DEEP & CSK 82° TO .140 DIA
2 HOLES
⌖ .004 DIA
.625
2 PLACES
.308
.316
.090 REF
1.010 REF
1.100 REF
.03
.06 R-OPTIONAL
.02
.05 × 45°
2 PLACES
.375
2 PLACES
.720
.31
.072
.067
.080 R-OPTIONAL
.070 × 45°
2 PLACES
.090
1.010
1.100
.29
.25
.630
5.850 BSC
4.685
2.800 BSC
.373 REF
.208
.202
.072
.067
.085 REF
.300
3 PLACES
.203
.197
2 PLACES
2.510 BSC TYP
.040 REF
2.595
2.830 REF
2.865 REF
QTY 12 – ②
CSK & TAP FARSIDE & NEARSIDE FOR
NO.4 (.112) - 40 UNC-2B × 1 1/2 DIA INSERT
12 PLACES
SEE NOTES 3 & 6
⌖ .006 DIA
QTY 2 – ②
CSK & TAP FOR NO.4 (.112) - 40 UNC-2B
× .1 1/2 DIA INSERT (BOTH ENDS)
DO NOT BREAK THRU
SEE NOTES 3 & 6
.375REF
.258
.254 2 PLACES
.425
2.750

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
14	MS21209-C0415	INSERT, THREADED, SELF LOCKING	2
1	2004910-001	HEADER, HOUSING	1
011	LIST OF MATERIALS		

2003907	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ±.01 ANGLES ± 1/2
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

HEAT TREATMENT

FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN W. Brown DATE 6 May 65
CHECKED P. Edwards 2 May 65
APPROVAL 1 June 65
APPROVAL Eldon Cobb 21 June 65
NASA APPROVAL
MIT APPROVAL W. Kupfer 22 June 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HEADER, HOUSING
INDICATOR DRIVER MODULE
AGC DSKY

CODE IDENT NO.	SIZE	NASA DRAWING NO
80230	J	2004910
SCALE 2/1	WT	SHEET 1 OF 1

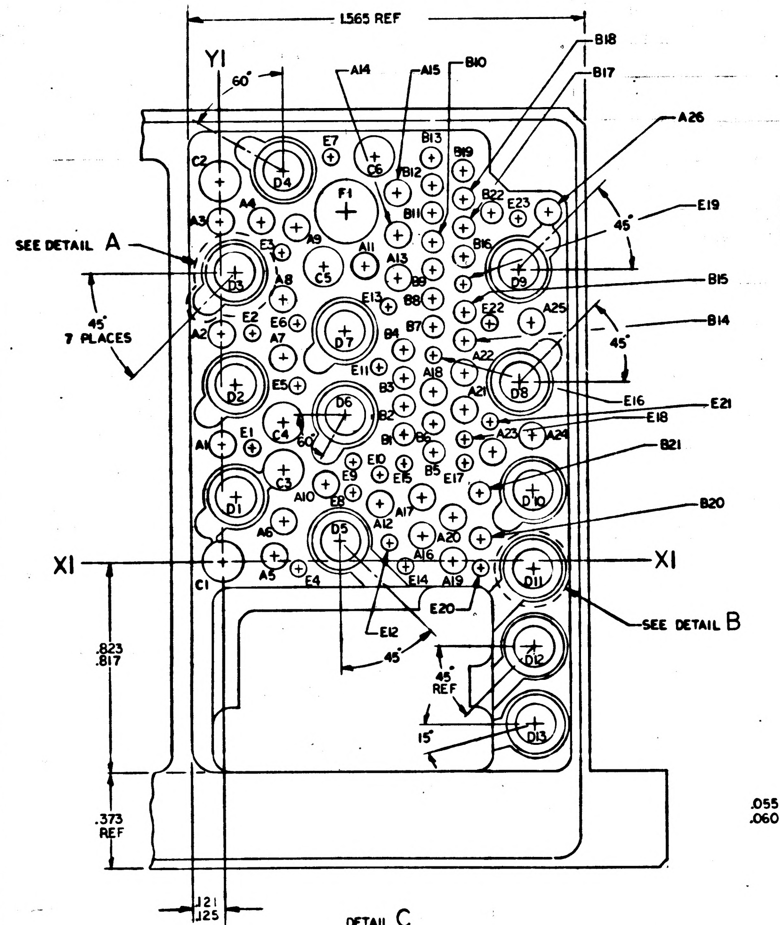
2004910 | 1

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

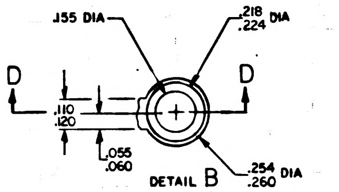
HOLE IDENT	XI BASIC DIM.	YI BASIC DIM.	⌖ DIA	HOLE DIA	QTY
A1	.000	.455	.010	.101 .107	26
A2	.000	.890			
A3	.000	1.325			
A4	.160	1.325			
A5	.200	.020			
A6	.240	.155			
A7	.240	.790			
A8	.240	1.020			
A9	.300	1.300			
A10	.410	.300			
A11	.570	1.145			
A12	.625	.220			
A13	.700	1.100			
A14	.700	1.270			
A15	.700	1.430			
A16	.790	.100			
A17	.790	.250			
A18	.840	.660			
A19	.910	.000			
A20	.910	.170			
A21	.960	.590			
A22	.960	.730			
A23	1.070	.425			
A24	1.228	.490			
A25	1.228	.925			
A26	1.295	1.355			
B1	.720	.490	.010	.086 .090	22
B2	↕	.600			
B3	↕	.710			
B4	.720	.820			
B5	.840	.420			
B6	↕	.530			
B7	↕	.910			
B8	↕	1.020			
B9	↕	1.130			
B10	↕	1.240			
B11	↕	1.350			
B12	↕	1.460			
B13	.840	1.570			
B14	.960	.855			
B15	.960	.965			

HOLE IDENT	XI BASIC DIM.	YI BASIC DIM.	⌖ DIA	HOLE DIA	QTY
B16	.960	1.185	.010	.086 .090	
B17	↕	1.295			
B18	↕	1.405			
B19	.960	1.515			
B20	1.020	.080			
B21	1.020	.260			
B22	1.070	1.350			
C1	.000	.000	.010	.154 .160	6
C2	.000	1.480			
C3	.240	.355			
C4	.240	.540			
C5	.400	1.145			
C6	.610	1.570			
D1	.050	.250	.010	SEE DETAIL A & B	13
D2	.050	.685			
D3	.050	1.120			
D4	.250	1.520			
D5	.460	.080			
D6	.490	.570			
D7	.490	.895			
D8	1.175	.695			
D9	1.175	1.130			
D10	1.228	.275			
D11	↕	−.030			
D12	↕	−.335			
D13	1.228	−.640			
E1	.120	.440	.010	.060 .067	23
E2	.120	.890			
E3	.240	1.200			
E4	.300	−.030			
E5	.300	.680			
E6	.300	.920			
E7	.440	1.570			
E8	.520	.265			
E9	.520	.380			

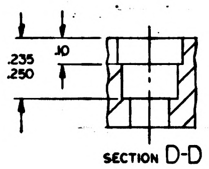
HOLE IDENT	XI BASIC DIM.	YI BASIC DIM.	⌖ DIA	HOLE DIA	QTY
E10	.625	.330	.010	.060 .067	
E11	.625	.750			
E12	.660	.070			
E13	.660	.990			
E14	.720	−.020			
E15	.720	.380			
E16	.840	.800			
E17	.960	.380			
E18	.960	.470			
E19	.960	1.075			
E20	1.020	−.030			
E21	1.060	.540			
E22	1.060	.920			
E23	1.175	1.330			
F1	.500	1.360	.010	.240/.250	1


1.565 REF
YI
60°
A14
A15
B10
B18
B17
A26
E19
B15
B14
E21
E18
B21
B20
E16
A25
SEE DETAIL A
45°
7 PLACES
45°
XI
XI
SEE DETAIL B
.823
.817
.373
REF
.121
.125
YI
45° REF
15°
45°
F1
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D13
C1
C2
C3
C4
C5
C6

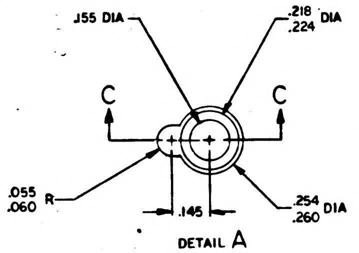
DETAIL C
SCALE 4/1
ROTATED 90° CW


.155 DIA
.218
.224 DIA
D
D
.110
.120
.055
.060
.254
.260 DIA

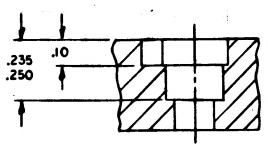
DETAIL B
SCALE 4/1
4 PLACES HOLES D5, D11, D12 & D13
FOR ROTATION OF TAB RELIEF
SEE MAIN VIEW



SECTION D-D
SCALE 4/1

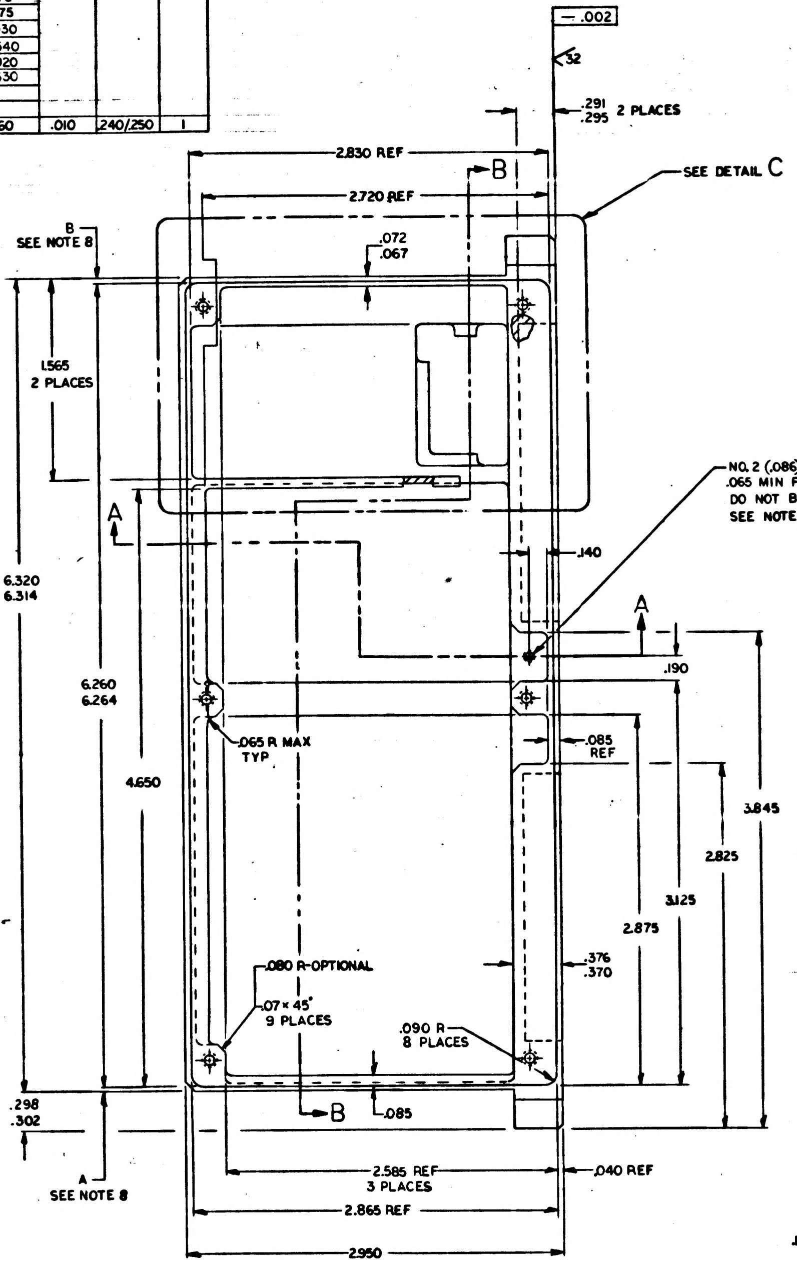

.155 DIA
.218
.224 DIA
C
C
.055
.060 R
.145
.254
.260 DIA

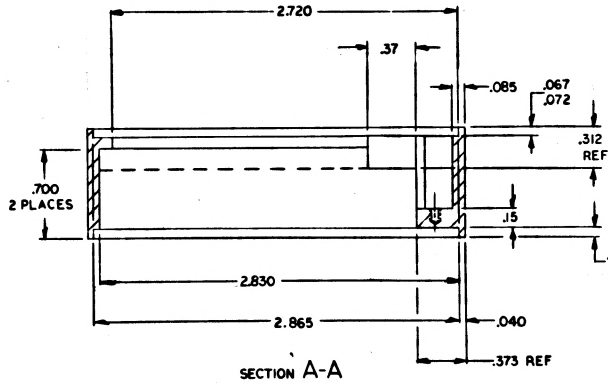
DETAIL A
SCALE 4/1
9 PLACES HOLES D1-D4 & D6-D10
FOR ROTATION OF TAB RELIEF
SEE MAIN VIEW



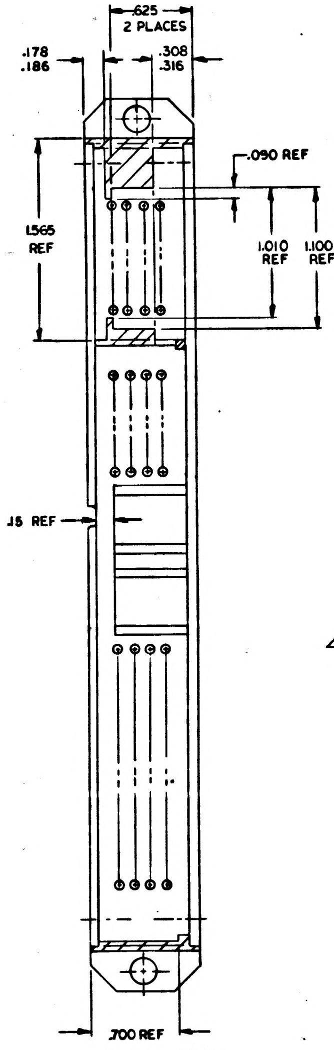
SECTION C-C
SCALE 4/1

NOTES
1. MATL: MAG ZK60A-T5 PER QQ-M-31, TEMP T5
2. ANODIZE PER MIL-M-45202, TYPE II, CLASS D
3. INSTALL FIND NO. 2 PER MS33646
4. ALL SURFACES $\sqrt{125}$ UNLESS OTHERWISE SPECIFIED
5. UNLESS OTHERWISE SPECIFIED ALL FILLETS & RADII TO BE .010 MAX
6. COAT THREADS OF FIND NO. 2 WITH MIL-P-8585, COLOR Y
7. REMOVE BURRS & SHARP EDGES .010/.020 UNLESS OTHERWISE SPECIFIED
8. DIMENSIONS A & B TO BE EQUAL WITHIN .005
9. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
10. TAPPED HOLE TO BE FREE OF ANODIZING
11. IDENTIFY WITH DRAWING NO. & REVISION PER ND1002019

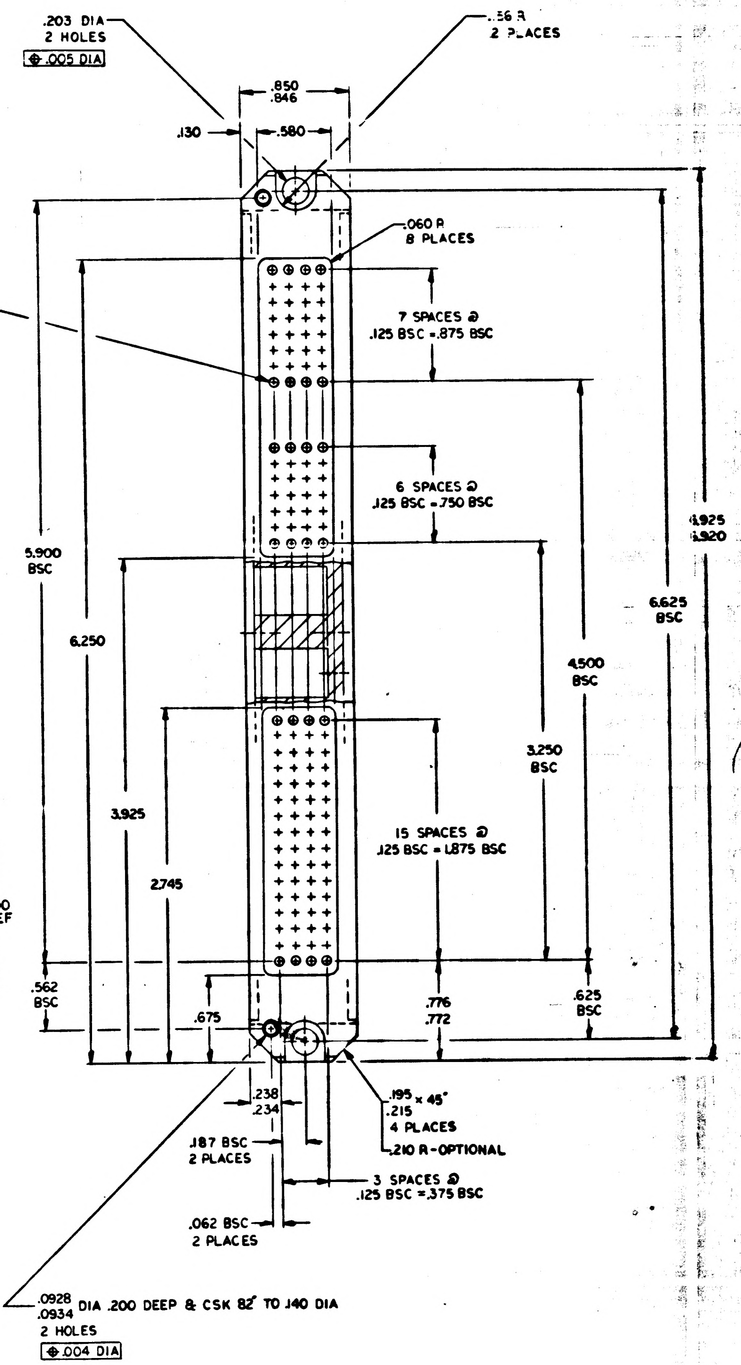

.002
32
.291
.295 2 PLACES
2.830 REF
2.720 REF
B
B
SEE DETAIL C
B
SEE NOTE 8
.072
.067
1.565
2 PLACES
NO. 2 (.086)-56 UNC-2B
.065 MIN FULL THREAD DEPTH
DO NOT BREAK THRU
SEE NOTE 10
A
A
.140
6.320
6.314
6.260
6.264
.190
.085
REF
4.650
.065 R MAX
TYP
3.845
2.825
3.125
2.875
.376
.370
.080 R-OPTIONAL
.07 × 45°
9 PLACES
.090 R
8 PLACES
.298
.302
.085
A
SEE NOTE 8
2.585 REF
3 PLACES
.040 REF
2.865 REF
2.950


2.720
.37
.085
.067
.072
.312
REF
.700
2 PLACES
.15
.067
.072
2.830
2.865
.040
.373 REF

SECTION A-A


.625
2 PLACES
.308
.316
.178
.186
.090 REF
1.565
REF
1.010
REF
1.100
REF
.15 REF
.700 REF

SECTION B-B

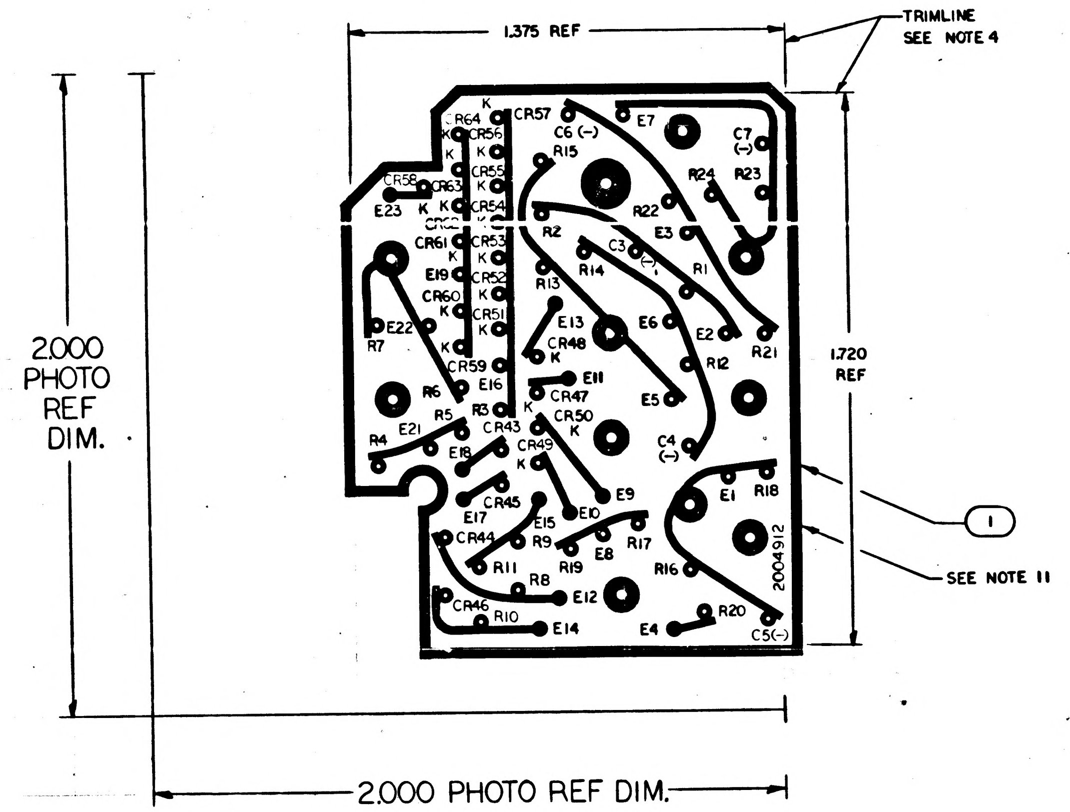

.203 DIA
2 HOLES
⌖ .005 DIA
.56 R
2 PLACES
.850
.846
.130
.580
.060 R
8 PLACES
.072
.073 DIA
124 HOLES
⌖ .004 DIA
DO NOT REMOVE SHARP EDGES
7 SPACES @
.125 BSC = .875 BSC
6 SPACES @
.125 BSC = .750 BSC
5.900
BSC
6.250
1.925
1.920
6.625
BSC
4.500
BSC
3.250
BSC
3.925
2.745
15 SPACES @
.125 BSC = 1.875 BSC
.562
BSC
.675
.776
.772
.625
BSC
.238
.234
.195 × 45°
.215
4 PLACES
.210 R-OPTIONAL
.187 BSC
2 PLACES
3 SPACES @
.125 BSC = .375 BSC
.062 BSC
2 PLACES
.0928
.0934 DIA .200 DEEP & CSK 82° TO .140 DIA
2 HOLES
⌖ .004 DIA

—	2004912		

REVISIONS 20272

SYM	DESCRIPTION	DATE	APPROVAL

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


1.375 REF
TRIMLINE
SEE NOTE 4
2.000 PHOTO REF DIM.
1.720 REF
2.000 PHOTO REF DIM.
1
SEE NOTE 11
2004912
K
CR64
CR56
CR57
C6 (–)
E7
C7 (–)
R15
CR55
CR58
CR63
CR54
E23
R24
R23
R22
CR62
R2
E3
C3 (–)
R1
CR61
CR53
CR52
E19
R14
R13
CR60
CR51
E22
R7
E13
CR48
E6
E2
R21
R12
CR59
E16
E11
CR47
E5
R6
R5
R3
CR43
CR50
R4
E21
E18
CR49
C4 (–)
E1
R18
E9
CR45
E17
E15
E10
CR44
R9
E8
R17
R11
R19
R16
R8
E12
CR46
R10
E14
E4
R20
C5(–)

NOTES
1. MATL: FILM, .006/.008 THK SENSITIZED DIMENSIONALLY STABLE PER L-F-340, TYPE IB, CLASS 2, STYLE IA
2. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
3. MAKE MASTER PATTERN POSITIVE FILMS TO DIMENSIONS SHOWN
4. CUT TO WITHIN .010 OF TRIMLINE
5. BROKEN LINE DENOTES SLEEVING
6. ● .040/.050 DIA HOLE
7. ● .120/.130 DIA HOLE
8. ● .180/.190 DIA HOLE
9. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
10. IDENTIFY WITH DRAWING NO. & REVISION PER ND1002019
11. APPLY FIND NO. 2 TO FARSIDE OF FIND NO. 1
12. AR DENOTES AS REQUIRED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006318	ADHESIVE	2
1	2004912-001	INSULATOR	1
011	LIST OF MATERIALS		

2003902	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 1
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO. CONTRACT

DRAWN W. Brown DATE 16 May 65
CHECKED R. Edwards 16 May 65
APPROVAL 1 Jun 65
APPROVAL 21 Jun 65
NASA APPROVAL 6/21/65
MIT APPROVAL W Kupfer 22 Jun 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSULATOR, PHOTO MASTER
REAR
DECODING CIRCUIT, INDICATOR DRIVER

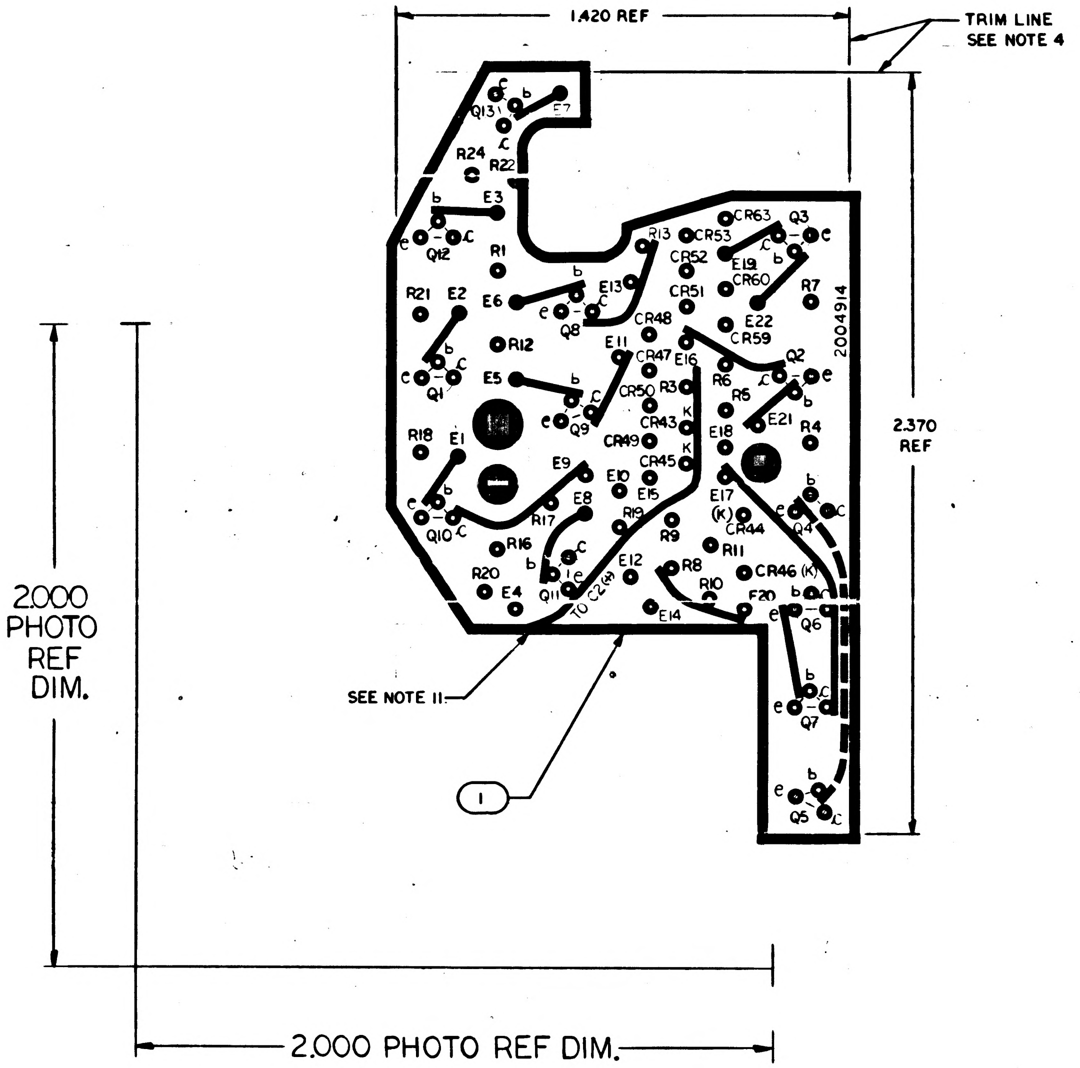
CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	D	2004912
SCALE 4 / 1	WT	SHEET 1 OF 1

2004912

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

-	2004914

REVISIONS 22272			
SYM	DESCRIPTION	DATE	APPROVAL



1.420 REF
TRIM LINE
SEE NOTE 4
2.370
REF
2.000
PHOTO
REF
DIM.
2.000 PHOTO REF DIM.
SEE NOTE 11
1
2004914
Q13
E7
R24
R22
E3
Q12
R1
R21
E2
E6
Q8
E13
R13
CR63
CR53
Q3
CR52
E19
CR60
R7
CR51
E22
CR59
CR48
R12
E11
CR47
E16
Q2
Q1
E5
CR50
R3
R6
R5
E21
Q9
CR43
E18
R4
R18
E1
CR49
CR45
E9
E10
E15
E17
(K)
CR44
Q4
E8
R17
R19
Q10
R16
R9
R11
R20
E4
Q11
TO C2(+)
E12
R8
R10
CR46 (K)
F20
E14
Q6
Q7
Q5

NOTES

1. MATL: FILM, .006/.008 THK SENSITIZED DIMENSIONALLY STABLE PER L-F-340, TYPE IB, CLASS 2, STYLE IA
2. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
3. MAKE MASTER PATTERN POSITIVE FILMS TO DIMENSIONS SHOWN
4. CUT TO WITHIN .010 OF TRIM LINE
5. BROKEN LINE DENOTES SLEEVING
6. ◉ .040/.050 DIA. HOLE
7. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
8. IDENTIFY WITH DRAWING NO. & REVISION PER ND1002019
9. ● .180/.190 DIA HOLE
10. ● .140/.150 DIA HOLE
11. APPLY FIND NO.2 TO FARSIDE OF FIND NO.1
12. AR DENOTES AS REQUIRED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006318	ADHESIVE	2
1	2004914-001	INSULATOR	1
011	LIST OF MATERIALS		

2003902	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 1
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO
CONTRACT

DRAWN W. Baron DATE 11MAY65
CHECKED R. Edward 25 May 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSULATOR, PHOTO MASTER
LOWER LEVEL
DECODING CIRCUIT, INDICATOR DRIVER

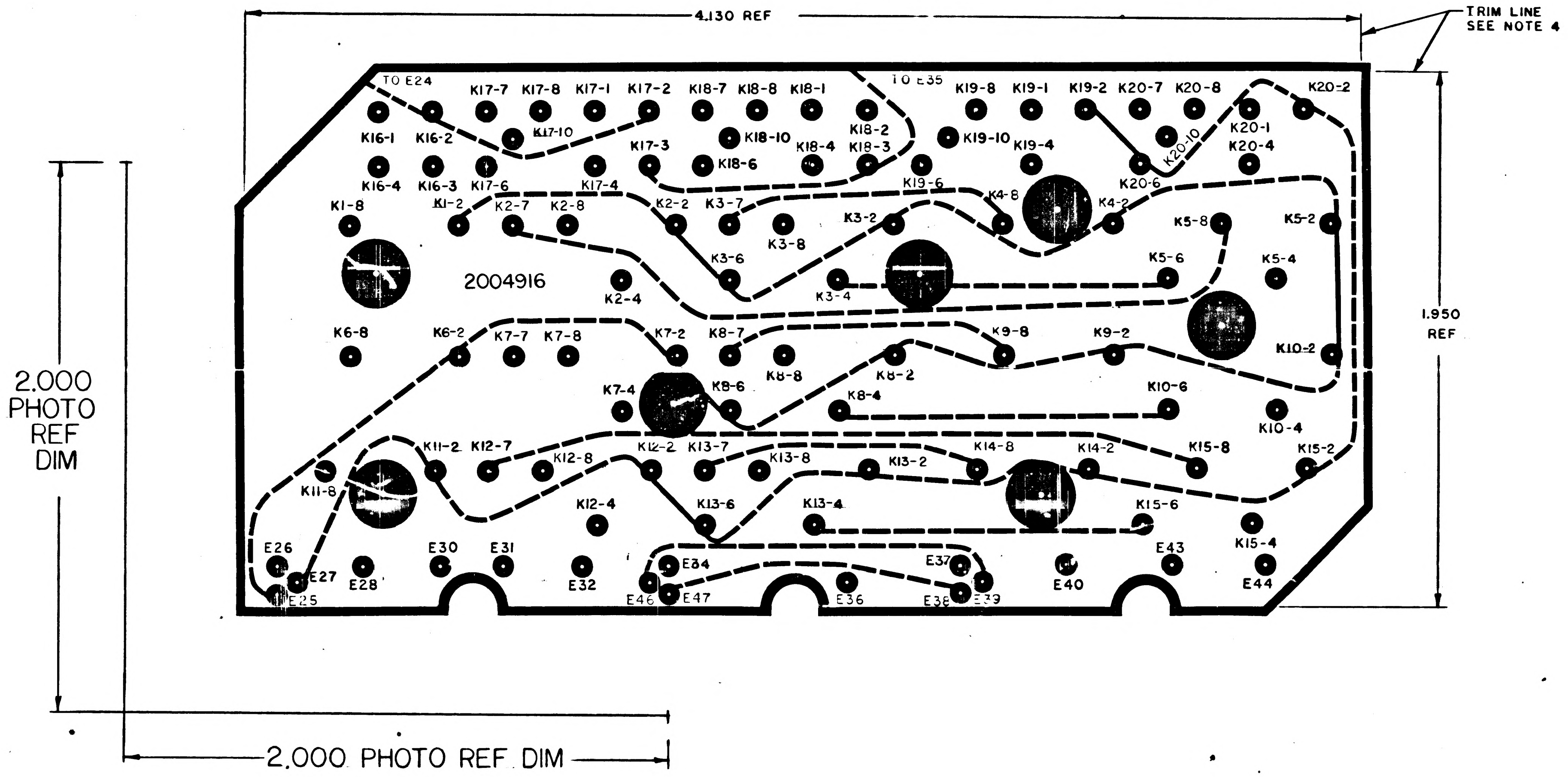
CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	D	2004914

SCALE 4/1 WT SHEET 1 OF 1

1
2004914

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20272						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED


4.130 REF
TRIM LINE
SEE NOTE 4
1.950
REF
2.000
PHOTO
REF
DIM
2.000 PHOTO REF DIM
2004916
TO E24
TO E35
K17-7
K17-8
K17-1
K17-2
K18-7
K18-8
K18-1
K19-8
K19-1
K19-2
K20-7
K20-8
K20-2
K16-1
K16-2
K17-10
K17-3
K18-10
K18-4
K18-2
K18-3
K19-10
K19-4
K20-10
K20-1
K20-4
K16-4
K16-3
K17-6
K17-4
K18-6
K19-6
K20-6
K1-8
K1-2
K2-7
K2-8
K2-2
K3-7
K3-2
K4-8
K4-2
K5-8
K5-2
K3-8
K3-6
K5-6
K5-4
K2-4
K3-4
K6-8
K6-2
K7-7
K7-8
K7-2
K8-7
K9-8
K9-2
K10-2
K8-8
K8-2
K7-4
K8-6
K8-4
K10-6
K10-4
K11-2
K12-7
K12-8
K12-2
K13-7
K13-8
K13-2
K14-8
K14-2
K15-8
K15-2
K11-8
K12-4
K13-6
K13-4
K15-6
K15-4
E26
E27
E25
E28
E30
E31
E32
E34
E46
E47
E36
E37
E38
E39
E40
E43
E44

NOTES

1. MATERIAL: FILM .006/.008 THK SENSITIZED DIMENSIONALLY STABLE PER L-F-340, TYBE IB, CLASS 2, STYLE IA
2. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
3. MAKE MASTER PATTERN POSITIVE FILMS TO DIMENSIONS SHOWN
4. CUT WITHIN .010 OF TRIM LINE
5. BROKEN LINES DENOTES SLEEVING
6. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
7. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
8. ● .080/.084 DIA HOLE
9. ● .240/.260 DIA HOLE

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
			–	

LIST OF MATERIALS

2003910	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL:
SEE NOTE I

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	A Dannutt	15APR65
CHECKED	A. Coger	18 May 65
APPROVED	J. Underhill	1 June 65
APPROVED	Eldon C. Hall	21 June 65
APPROVED MIT	W. Hopper	
APPROVED MSC		
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

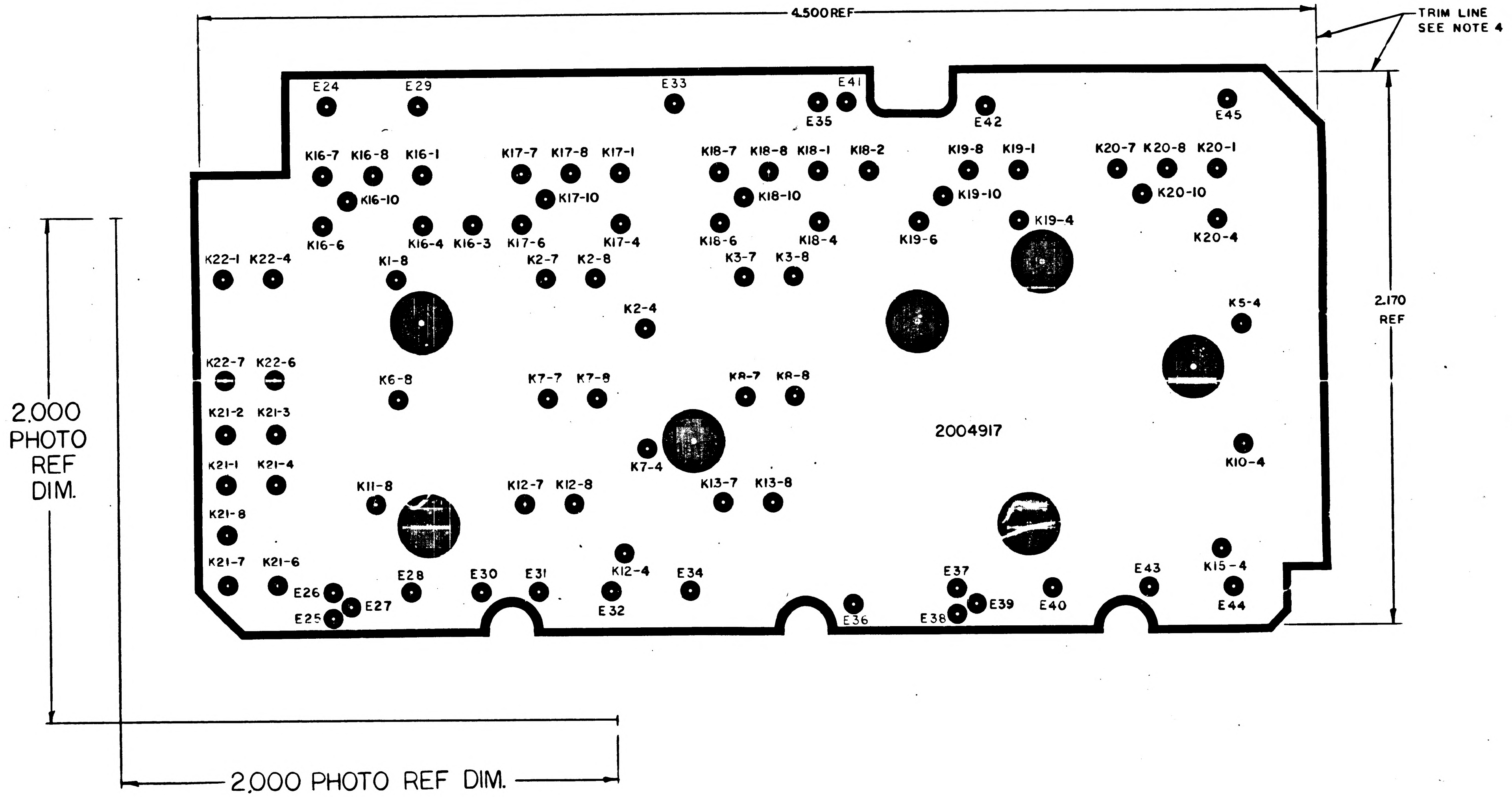
INSULATOR, PHOTOMASTER
UPPER LEVEL
RELAY CIRCUIT, INDICATOR DRIVER

CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2004916
SCALE 4/1		SHEET 1 OF 1

2004916 | —

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20272						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED


4.500 REF
TRIM LINE
SEE NOTE 4
2.170
REF
2.000
PHOTO
REF
DIM.
2.000 PHOTO REF DIM.
E24
E29
E33
E35
E41
E42
E45
K16-7
K16-8
K16-1
K16-10
K16-6
K16-4
K16-3
K17-7
K17-8
K17-1
K17-10
K17-6
K17-4
K18-7
K18-8
K18-1
K18-2
K18-10
K18-6
K18-4
K19-8
K19-1
K19-10
K19-6
K19-4
K20-7
K20-8
K20-1
K20-10
K20-4
K22-1
K22-4
K1-8
K2-7
K2-8
K3-7
K3-8
K2-4
K5-4
K22-7
K22-6
K6-8
K7-7
K7-8
K8-7
K8-8
2004917
K21-2
K21-3
K7-4
K10-4
K21-1
K21-4
K11-8
K12-7
K12-8
K13-7
K13-8
K21-8
K21-7
K21-6
E28
E30
E31
K12-4
E34
E37
E43
K15-4
E26
E27
E25
E32
E36
E38
E39
E40
E44

NOTES
1. MATERIAL: FILM .006/.008 THK SENSITIZED DIMENSIONALLY STABLE PER L-F-340, TYBE IB, CLASS 2, STYLE IA
2. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
3. MAKE MASTER PATTERN POSITIVE FILMS TO DIMENSIONS SHOWN
4. CUT WITHIN .010 OF TRIM LINE
5. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
6. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
7. ● .080/.084 DIA HOLE
8. ● .240/.260 DIA HOLE

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003910	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL: SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN R. Bonneau 16APR65
CHECKED [illegible] 18May65
APPROVED J. Vondrick 1 June 65
APPROVED Ellen Cahill 21 June 65
APPROVED MIT W. Kupfer 22 Jun 65
APPROVED MSC [illegible] 6/24/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

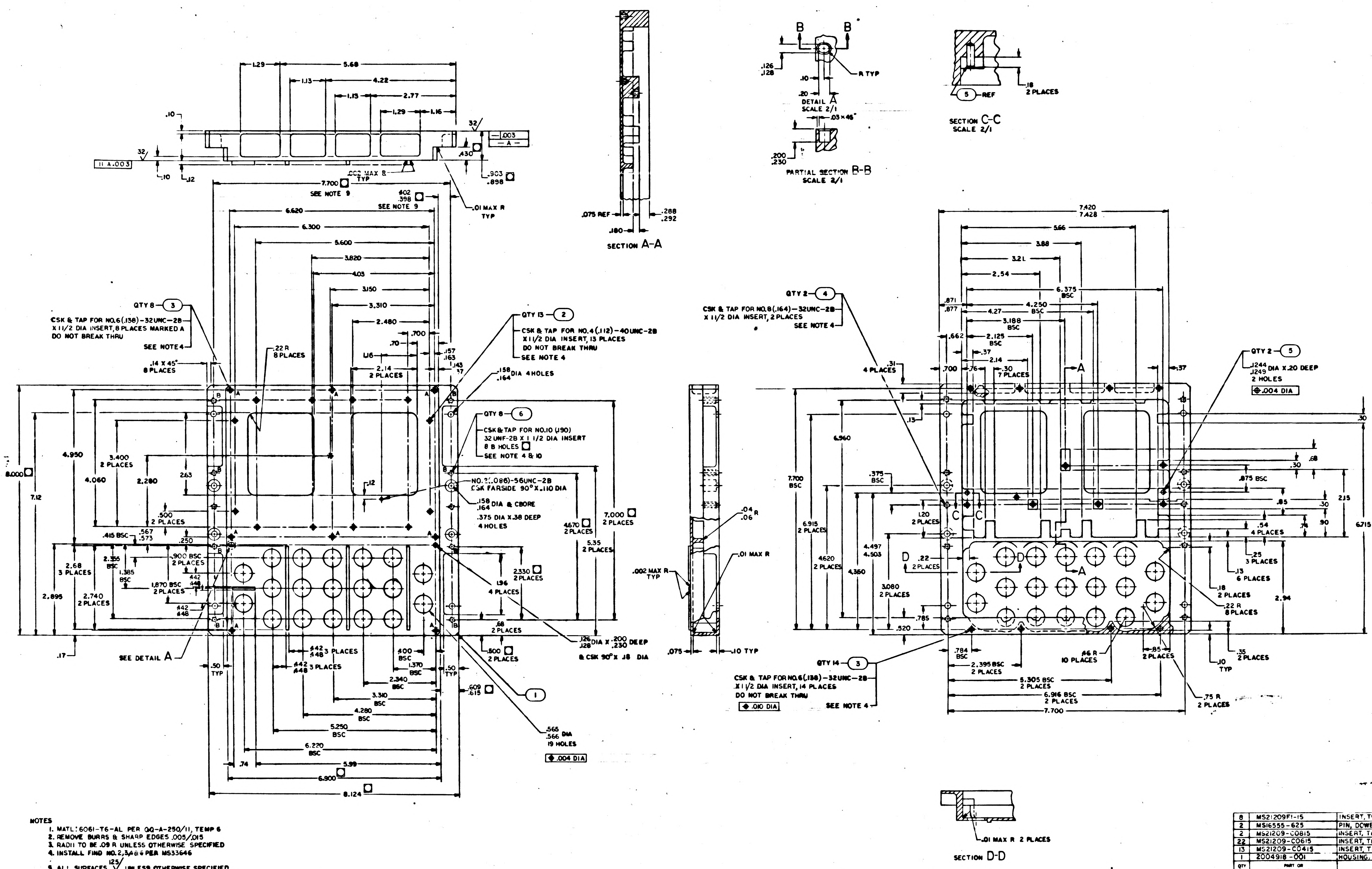
INSULATOR, PHOTOMASTER
SPECIAL LEVEL
RELAY CIRCUIT, INDICATOR DRIVER

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2004917
SCALE 4/1
SHEET 1 OF 1

2004917 | 1

2004918 A

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 21821 DR Ro Smith CHK		



SECTION A-A
DETAIL A SCALE 2/1
PARTIAL SECTION B-B SCALE 2/1
SECTION C-C SCALE 2/1
SECTION D-D
QTY 8 ③ CSK & TAP FOR NO.6(.138)-32UNC-2B X 1 1/2 DIA INSERT, 8 PLACES MARKED A DO NOT BREAK THRU SEE NOTE 4
QTY 13 ② CSK & TAP FOR NO.4(.112)-40UNC-2B X 1 1/2 DIA INSERT, 13 PLACES DO NOT BREAK THRU SEE NOTE 4
QTY 8 ⑥ CSK & TAP FOR NO.10 (.190) 32 UNF-2B X 1 1/2 DIA INSERT 8 B HOLES SEE NOTE 4 & 10
QTY 2 ④ CSK & TAP FOR NO.8(.164)-32UNC-2B X 1 1/2 DIA INSERT, 2 PLACES SEE NOTE 4
QTY 14 ③ CSK & TAP FOR NO.6(.138)-32UNC-2B X 1 1/2 DIA INSERT, 14 PLACES DO NOT BREAK THRU .010 DIA SEE NOTE 4
QTY 2 ⑤ .1244 .1249 DIA X .20 DEEP 2 HOLES .004 DIA
NO.2(.086)-56UNC-2B CSK FARSIDE 90° X .110 DIA
.158 .164 DIA & CBORE .375 DIA X .38 DEEP 4 HOLES
.565 .566 DIA 19 HOLES .004 DIA
.126 .128 DIA X .200 .230 DEEP & CSK 90° X .18 DIA
SEE DETAIL A
SEE NOTE 9
.01 MAX R TYP
.002 MAX R TYP
.01 MAX R 2 PLACES

NOTES
1. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP 6
2. REMOVE BURRS & SHARP EDGES .005/.015
3. RADII TO BE .09 R UNLESS OTHERWISE SPECIFIED
4. INSTALL FIND NO. 2,3,4 & 6 PER MS33646
5. ALL SURFACES $\overset{125}{\surd}$ UNLESS OTHERWISE SPECIFIED
6. CHROMATE PER MIL-C-5541 TYPE II, GRADE C, CLASS 3
7. IDENTIFY WITH PART NO. PER ND1002019
8. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
9. DIMENSION APPLY TO B HOLES ONLY
10. ☐ DIMENSIONS CONTROLLED BY ICD MH01

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION
8	MS21209F1-15	INSERT, THREADED, SELF LOCKING
2	MS16555-625	PIN, DOWEL
2	MS21209-C0815	INSERT, THREADED, SELF LOCKING
22	MS21209-C0615	INSERT, THREADED, SELF LOCKING
13	MS21209-C0415	INSERT, THREADED, SELF LOCKING
1	2004918-001	HOUSING, FRONT
011	LIST OF MATERIALS	

2003903	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ±.01 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 1
HEAT TREATMENT NONE
FINAL FINISH SEE NOTE 6

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL 7-15-
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

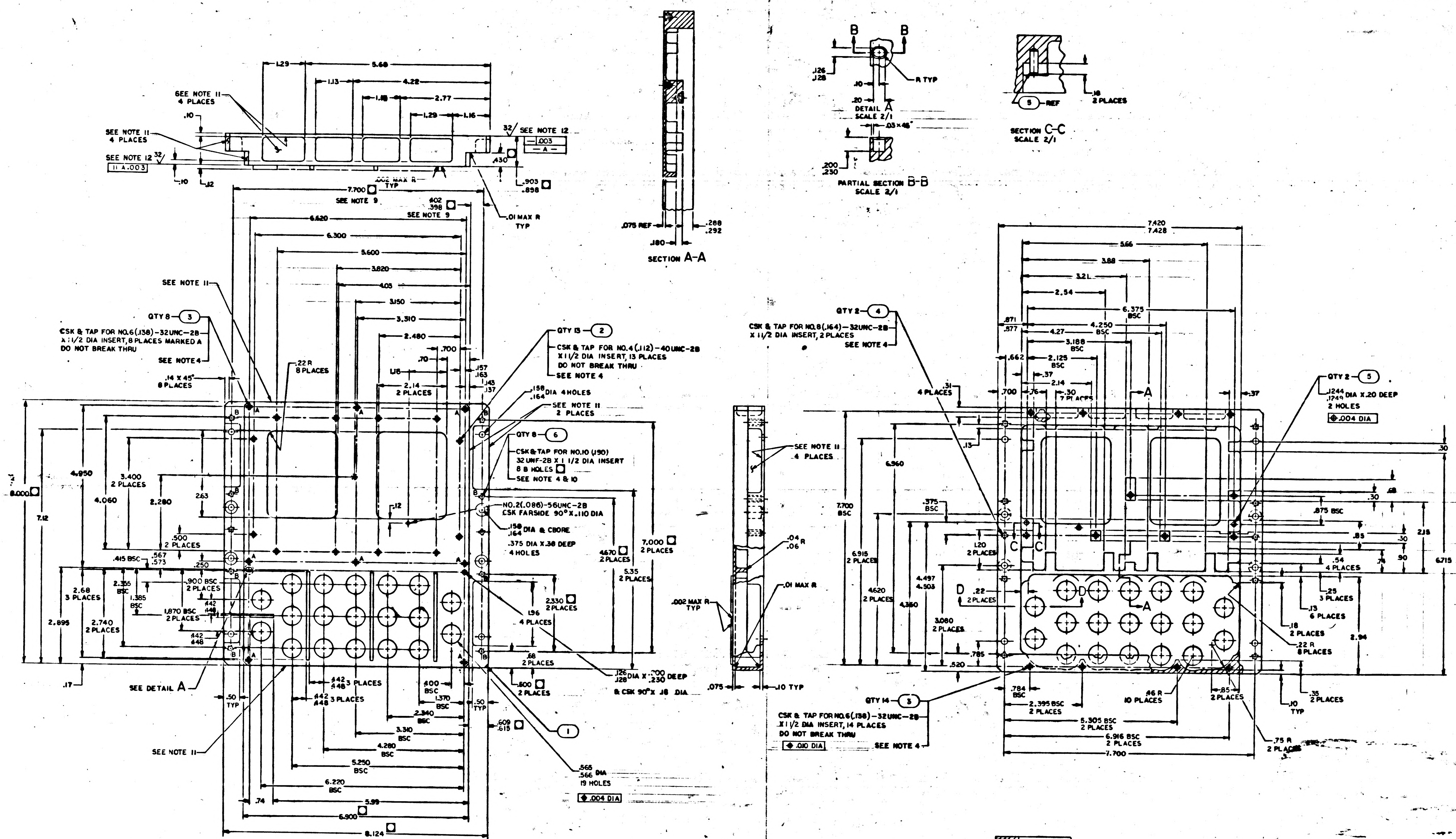
HOUSING, FRONT
AGC DSKY

CODE IDENT NO. 80230 SIZE J NASA DRAWING 2004918
SCALE 1/1 WT SHEET

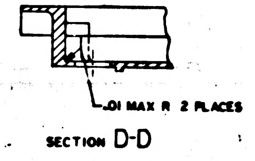
2004918 A

2004918 B

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 21821 DR CHK		
B	REVISED PER TDRR 22544 DR CHK		



SEE NOTE 11 4 PLACES
SEE NOTE 12
SEE DETAIL A
SECTION A-A
DETAIL A SCALE 2/1
PARTIAL SECTION B-B SCALE 2/1
SECTION C-C SCALE 2/1
QTY 8 (3) CSK & TAP FOR NO.6(.138)-32UNC-2B X 1/2 DIA INSERT, 8 PLACES MARKED A DO NOT BREAK THRU
QTY 13 (2) CSK & TAP FOR NO.4(.112)-40UNC-2B X 1 1/2 DIA INSERT, 13 PLACES DO NOT BREAK THRU SEE NOTE 4
QTY 8 (6) CSK & TAP FOR NO.10 (.190) 32UNF-2B X 1 1/2 DIA INSERT 8 B HOLES SEE NOTE 4 & 10
NO.2(.086)-56UNC-2B CSK FARSIDE 90° X .110 DIA
.565 .566 DIA 19 HOLES
QTY 2 (4) CSK & TAP FOR NO.8(.164)-32UNC-2B X 1 1/2 DIA INSERT, 2 PLACES SEE NOTE 4
QTY 2 (5) .1244 .1249 DIA X .20 DEEP 2 HOLES
QTY 14 (3) CSK & TAP FOR NO.6(.138)-32UNC-2B X 1 1/2 DIA INSERT, 14 PLACES DO NOT BREAK THRU SEE NOTE 4
7.700 BSC
8.000
8.124
6.900
7.420 7.428



.01 MAX R 2 PLACES
SECTION D-D

NOTES
1. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP 6
2. REMOVE BURRS & SHARP EDGES .005/.015
3. RADII TO BE .09 R UNLESS OTHERWISE SPECIFIED
4. INSTALL FIND NO.2,3,4 & 6 PER MS33646
5. ALL SURFACES 125√ UNLESS OTHERWISE SPECIFIED
6. CHROMATE PER MIL-C-5541 TYPE II, GRADE C, CLASS 3
7. IDENTIFY WITH PART NO. PER ND1002019
8. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
9. DIMENSION APPLY TO B HOLES ONLY
10. ☐ DIMENSIONS CONTROLLED BY ICD MH01-01305-116
11. PAINT INDICATED SURFACES PER ND1002279 USING MED GRAY PAINT 1008809-1
12. SCRATCHES NOT PERMISSIBLE ON SURFACES WITH 32√ FINISH

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
8	MS21209F1-15	INSERT, THREADED, SELF LOCKING	6
2	MS16555-625	PIN, DOWEL	5
2	MS21209-C0815	INSERT, THREADED, SELF LOCKING	4
22	MS21209-C0615	INSERT, THREADED, SELF LOCKING	3
13	MS21209-C0415	INSERT, THREADED, SELF LOCKING	2
1	2004918-001	HOUSING, FRONT	
011	LIST OF MATERIALS		

2003905	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ±.01 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 1
HEAT TREATMENT NONE
FINAL FINISH SEE NOTE 6

MIT INSTRUMENTATION LAB
Cambridge, Mass.
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HOUSING, FRONT
AGC DSKY

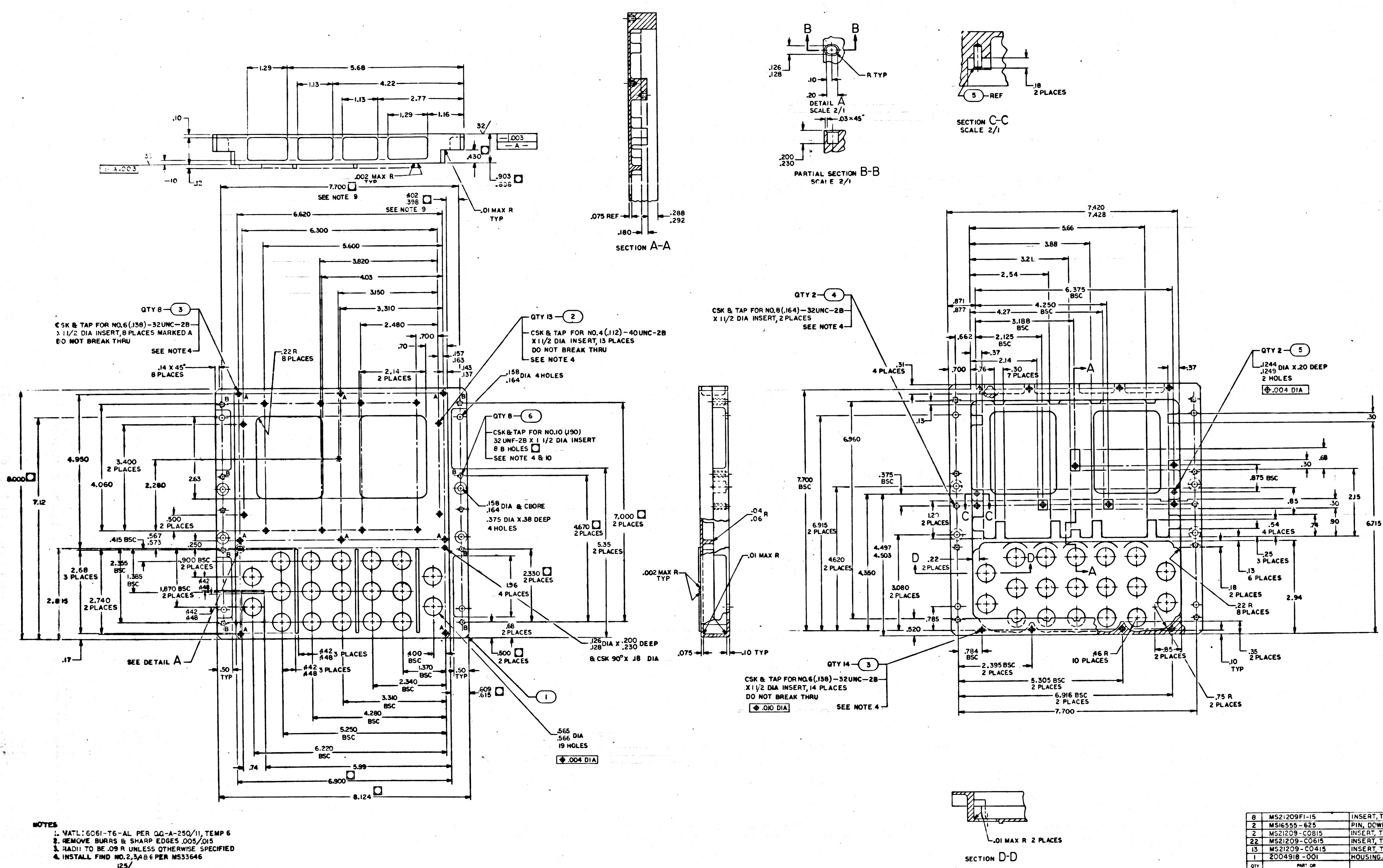
CODE IDENT NO. 80230 SIZE J NASA DRAWING NO. 2004918
SCALE 1/1 WT SHEET 1 OF 1

2004918 B

2004918	—		

REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL



5
4
3
2
D
C
B
A
.10
1.29
5.68
1.13
4.22
1.13
2.77
1.29
1.16
32
.003
A
.430
.002 MAX R TYP
.903
.898
.01 MAX R TYP
7.700
SEE NOTE 9
.402
.398
SEE NOTE 9
6.620
6.300
5.600
3.820
4.03
3.150
3.310
2.480
.700
.70
.157
.163
.143
.137
2.14
2 PLACES
QTY 8 ③
CSK & TAP FOR NO.6 (.138)-32UNC-2B X 1 1/2 DIA INSERT, 8 PLACES MARKED A DO NOT BREAK THRU
SEE NOTE 4
.22 R
8 PLACES
.14 X 45°
8 PLACES
QTY 13 ②
CSK & TAP FOR NO.4 (.112)-40UNC-2B X 1 1/2 DIA INSERT, 13 PLACES DO NOT BREAK THRU
SEE NOTE 4
.158
.164
DIA 4 HOLES
QTY 8 ⑥
CSK & TAP FOR NO.10 (.190) 32 UNF-2B X 1 1/2 DIA INSERT 8 B HOLES
SEE NOTE 4 & 10
.158
.164
DIA & CBORE
.375 DIA X .38 DEEP
4 HOLES
4.950
3.400
2 PLACES
4.060
2.280
2.63
8.000
7.12
.500
2 PLACES
.415 BSC
.567
.573
.250
.900 BSC
2 PLACES
2.355 BSC
1.385 BSC
2.68
3 PLACES
1.870 BSC
2 PLACES
.442
.448
2.740
2 PLACES
2.815
.17
SEE DETAIL A
.50 TYP
.442
.448
3 PLACES
.442
.448
3 PLACES
.400 BSC
1.370 BSC
2.340 BSC
3.310 BSC
4.280 BSC
5.250 BSC
6.220 BSC
.74
5.99
6.900
8.124
.50 TYP
.609
.615
①
.565
.566
DIA 19 HOLES
.004 DIA
4.670
2 PLACES
7.000
2 PLACES
5.35
2 PLACES
2.330
2 PLACES
1.96
4 PLACES
.68
2 PLACES
.500
2 PLACES
.126
.128
DIA X .200
.230
DEEP & CSK 90° X .18 DIA
.075 REF
.180
.288
.292
SECTION A-A
B
B
.126
.128
R TYP
.10
.20
DETAIL A
SCALE 2/1
.03 X 45°
.200
.230
PARTIAL SECTION B-B
SCALE 2/1
⑤ REF
.18
2 PLACES
SECTION C-C
SCALE 2/1
.002 MAX R TYP
.04 R
.06
.01 MAX R
.075
.10 TYP
7.420
7.428
5.66
3.88
3.21
2.54
6.375 BSC
.871
.877
4.250 BSC
4.27
3.188 BSC
.662
2.125 BSC
.37
2.14
.30
7 PLACES
.31
4 PLACES
.700
.76
.37
QTY 2 ④
CSK & TAP FOR NO.8 (.164)-32UNC-2B X 1 1/2 DIA INSERT, 2 PLACES
SEE NOTE 4
QTY 2 ⑤
.1244
.1249
DIA X .20 DEEP
2 HOLES
.004 DIA
.30
.68
.30
.875 BSC
.85
.30
2.15
6.715
.54
4 PLACES
.74
.90
.25
3 PLACES
.13
6 PLACES
.18
2 PLACES
.22 R
8 PLACES
2.94
.13
6.960
7.700 BSC
.375 BSC
1.20
2 PLACES
6.915
2 PLACES
4.620
2 PLACES
4.497
4.503
4.350
D
.22
2 PLACES
3.080
2 PLACES
.785
.520
C
C
A
A
D
A
.784 BSC
.46 R
10 PLACES
.85
2 PLACES
.10 TYP
.35
2 PLACES
QTY 14 ③
CSK & TAP FOR NO.6 (.138)-32UNC-2B X 1 1/2 DIA INSERT, 14 PLACES DO NOT BREAK THRU
.010 DIA
SEE NOTE 4
2.395 BSC
2 PLACES
5.305 BSC
2 PLACES
6.916 BSC
2 PLACES
7.700
.75 R
2 PLACES
.01 MAX R 2 PLACES
SECTION D-D

NOTES
1. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP 6
2. REMOVE BURRS & SHARP EDGES .005/.015
3. RADII TO BE .09 R UNLESS OTHERWISE SPECIFIED
4. INSTALL FIND NO. 2,3,4 & 6 PER MS33646
5. ALL SURFACES $\overset{125}{\surd}$ UNLESS OTHERWISE SPECIFIED
6. CHROMATE PER MIL-C-5541 TYPE II, GRADE C, CLASS 3
7. IDENTIFY WITH DRAWING NO. & REVISION PER ND1002019
8. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
9. DIMENSION APPLY TO B HOLES ONLY
10. ☐ DIMENSIONS CONTROLLED BY ICD MH01

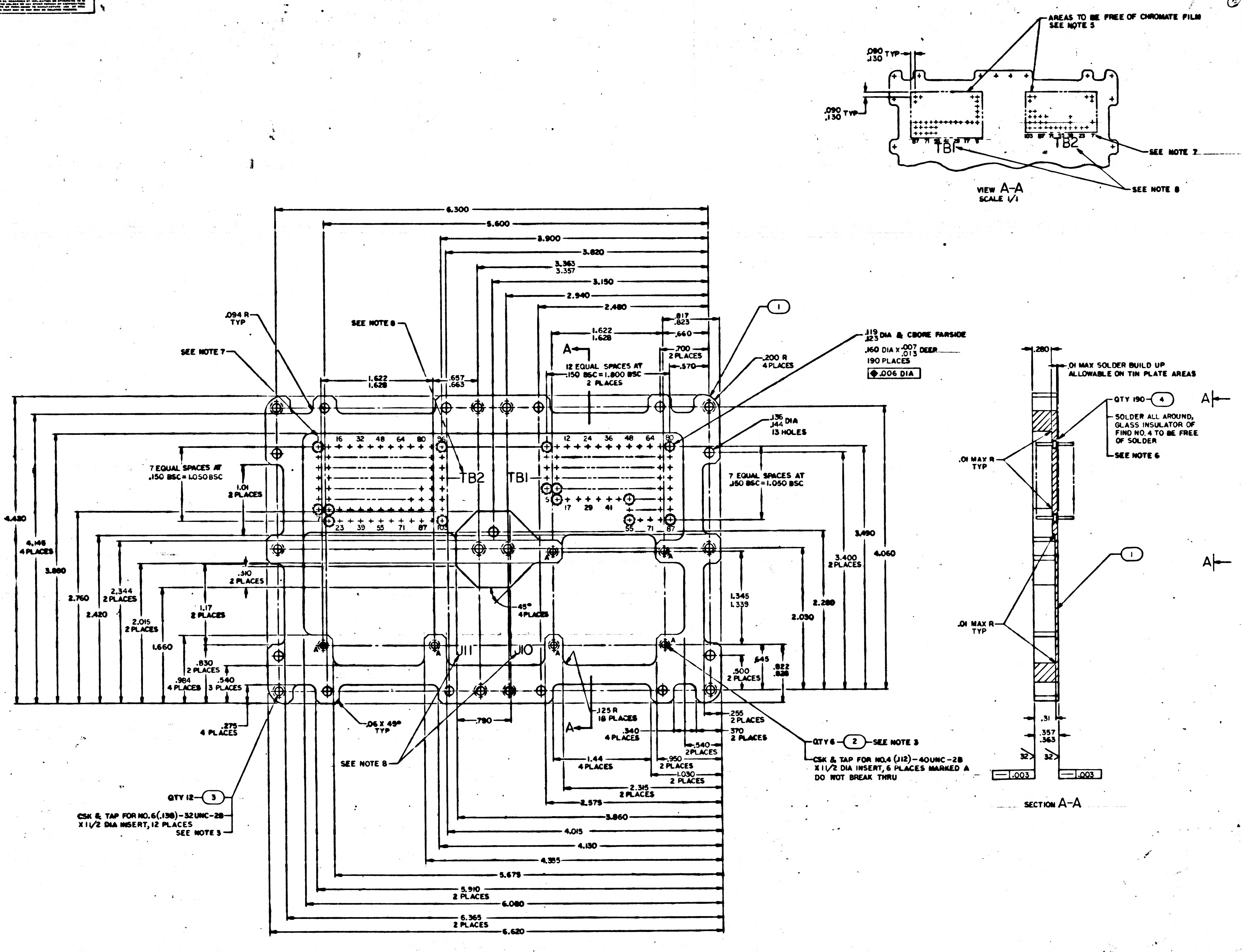
QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
8	MS21209F1-15	INSERT, THREADED, SELF LOCKING	6
2	MS16555-625	PIN, DOWEL	5
2	MS21209-C0815	INSERT, THREADED, SELF LOCKING	4
22	MS21209-C0615	INSERT, THREADED, SELF LOCKING	3
13	MS21209-C0415	INSERT, THREADED, SELF LOCKING	2
1	2004918-001	HOUSING, FRONT	1
011	LIST OF MATERIALS		

2003903		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ±.005 ±.01 ANGLES ±1° DO NOT SCALE THIS DRAWING	M I T INSTRUMENTATION LAB CAMBRIDGE, MASS DWG. NO. CONTRACT	MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
NEXT ASSY	USED ON	MATERIAL SEE NOTE 1	DRAWN DATE 20 Apr 65 CHECKED APPROVAL APPROVAL	HOUSING, FRONT AGC DSKY	
APPLICATION		HEAT TREATMENT NONE	NASA APPROVAL MIT APPROVAL 7-13-65 MIT APPROVAL	CODE IDENT NO. 80230	SIZE J
		FINAL FINISH SEE NOTE 6		NASA DRAWING NO. 2004918	SCALE 1/1 WT SHEET 1 OF 1

2004918	—

F-2

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 21355 DR D.A. Clermont CHK F. Duval		



AREAS TO BE FREE OF CHROMATE FILM SEE NOTE 5
.080 .130 TYP
.090 .130 TYP
TB1
TB2
SEE NOTE 7
SEE NOTE 8
VIEW A-A
SCALE 1/1
6.300
5.600
3.900
3.820
3.363 3.357
3.150
2.940
2.480
.817 .823
.660
.700 2 PLACES
.570
1.622 1.628
12 EQUAL SPACES AT .150 BSC = 1.800 BSC 2 PLACES
.094 R TYP
SEE NOTE 7
SEE NOTE 8
1.622 1.628
.657 .663
.119 .123 DIA & CBORE FARSIDE
.160 DIA X .007 .013 DEEP
190 PLACES
.006 DIA
.200 R 4 PLACES
.136 .144 DIA 13 HOLES
7 EQUAL SPACES AT .150 BSC = 1.050 BSC
1.01 2 PLACES
7 EQUAL SPACES AT .150 BSC = 1.050 BSC
TB2
TB1
4.430
4.146 4 PLACES
3.880
3.490
3.400 2 PLACES
4.060
.310 2 PLACES
2.760
2.344 2 PLACES
2.420
2.015 2 PLACES
1.17 2 PLACES
45° 4 PLACES
1.345 1.339
2.280
2.030
1.660
.830 2 PLACES
.984 4 PLACES
.540 3 PLACES
.645
.500 2 PLACES
.822 .828
J11
J10
.275 4 PLACES
.06 X 45° TYP
.790
.125 R 18 PLACES
.340 4 PLACES
.255 2 PLACES
.370 2 PLACES
.540 2 PLACES
1.44 4 PLACES
.950 2 PLACES
1.030 2 PLACES
2.315 2 PLACES
2.575
3.860
4.015
4.130
4.385
5.679
5.910 2 PLACES
6.080
6.365 2 PLACES
6.620
SEE NOTE 8
QTY 6 (2) SEE NOTE 3
CSK & TAP FOR NO.4 (.112)-40UNC-2B X 1 1/2 DIA INSERT, 6 PLACES MARKED A DO NOT BREAK THRU
QTY 12 (3)
CSK & TAP FOR NO.6 (.138)-32UNC-2B X 1 1/2 DIA INSERT, 12 PLACES
SEE NOTE 3
(1)
A
.280
.01 MAX SOLDER BUILD UP ALLOWABLE ON TIN PLATE AREAS
QTY 190 (4)
SOLDER ALL AROUND, GLASS INSULATOR OF FIND NO. 4 TO BE FREE OF SOLDER
SEE NOTE 6
.01 MAX R TYP
.01 MAX R TYP
.31
.357 .363
32
.003
SECTION A-A

MASTER

NOTES

1. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP 6
2. REMOVE BURRS & SHARP EDGES .010/.015
3. INSTALL FIND NO. 2 & FIND NO. 3 PER MS33646
4. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
5. TIN PLATE INDICATED AREAS .0002/.0005 THK PER MIL-T-10727A, TYPE I
6. SOLDER FIND NO.4 TO FIND NO.1 USING SOLDER PER ND1002071
7. MARK .060/.100 HIGH BLACK CHARACTERS PER ND1002019, LOCATE APPROXIMATELY AS SHOWN
8. MARK .100/.140 HIGH BLACK CHARACTERS PER ND1002019, LOCATE APPROXIMATELY AS SHOWN
9. INDENTIFY WITH DRAWING NO. & REVISION PER ND1002019
10. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
11. ALL SURFACE 125 UNLESS OTHERWISE SPECIFIED
~~12. COMPLETED ASSEMBLY SHALL EXHIBIT A LEAK RATE BETWEEN FIND NO. 1 & FIND NO. 2 OF LESS THAN 8 X 10⁻⁶ ATM CC/SEC OF HELIUM UNDER A PRESSURE DIFFERENTIAL OF ONE ATMOSPHERE, AND A TEMPERATURE OF -18° TO 82°C~~

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
190	1010690-2	TERMINALS	4
12	MS21209-C0615	INSERT, THREADED, SELF LOCKING	3
6	MS21209-C0415	INSERT, THREADED, SELF LOCKING	2
1	2004919-001	PLATE, ADAPTER	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003812	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XXX ±.005 XX ±.01 ANGLES ±2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

HEAT TREATMENT

FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE, MASS

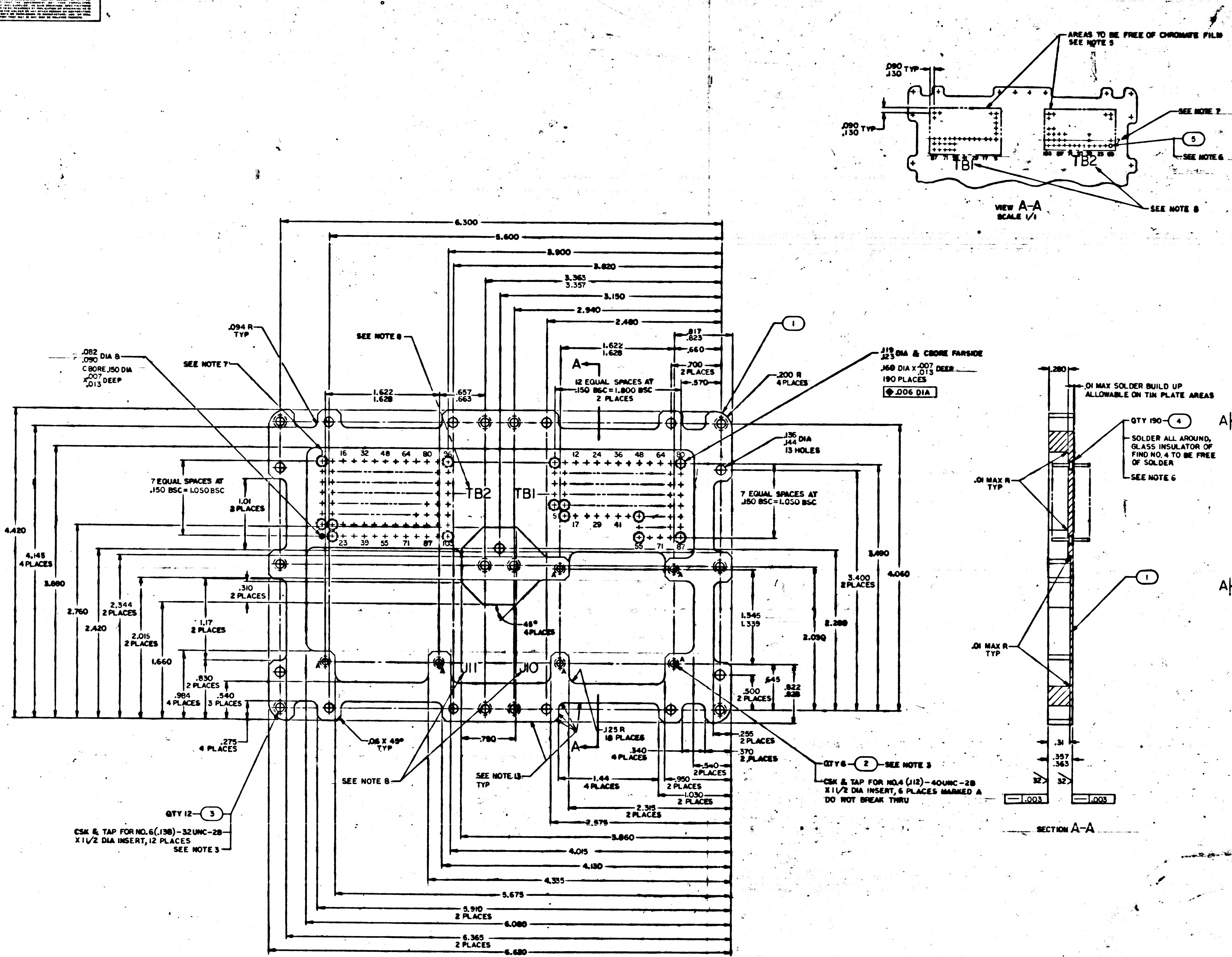
DRAWN DATE 65
CHECKED C. DeVasconi 4 NOV 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PLATE, ADAPTER
AGC DSKY

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 2004919
SCALE 2/1
WT
SHEET 1 OF 1

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 21355 DR CHK		
B	REVISED PER TDRR 22318 DR CHK		



AREAS TO BE FREE OF CHROMATE FILM SEE NOTE 5
.090 .130 TYP
SEE NOTE 7
5
SEE NOTE 6
TB1
TB2
SEE NOTE 8
VIEW A-A SCALE 1/1
6.300
5.600
3.900
3.820
3.363 3.357
3.150
2.940
2.480
1.622 1.628
.817 .823
.660
.700 2 PLACES
.570
.119 .123 DIA & CBORE FARSIDE
.160 DIA X .007 .013 DEEP
190 PLACES
.006 DIA
12 EQUAL SPACES AT .150 BSC=1.800 BSC 2 PLACES
.200 R 4 PLACES
.136 .144 DIA 13 HOLES
1
.094 R TYP
.082 .090 DIA 8
CBORE .150 DIA X .007 .013 DEEP
SEE NOTE 7
SEE NOTE 8
.657 .663
7 EQUAL SPACES AT .150 BSC=1.050 BSC
1.01 2 PLACES
4.420
4.145 4 PLACES
3.880
2.760
2.344 2 PLACES
2.420
2.015 2 PLACES
.310 2 PLACES
1.17 2 PLACES
1.660
.830 2 PLACES
.984 4 PLACES
.540 3 PLACES
.275 4 PLACES
45° 4 PLACES
J11
J10
.06 X 45° TYP
.790
.125 R 18 PLACES
.340 4 PLACES
1.44 4 PLACES
SEE NOTE 13 TYP
SEE NOTE 8
.950 2 PLACES
1.030 2 PLACES
.540 2 PLACES
.255 2 PLACES
.370 2 PLACES
2.315 2 PLACES
2.575
3.860
4.015
4.130
4.335
5.675
5.910 2 PLACES
6.080
6.365 2 PLACES
6.680
QTY 12 3
CSK & TAP FOR NO.6(.138)-32UNC-2B X 1 1/2 DIA INSERT, 12 PLACES SEE NOTE 3
QTY 6 2 SEE NOTE 3
CSK & TAP FOR NO.4 (.112)-40UNC-2B X 1 1/2 DIA INSERT, 6 PLACES MARKED A DO NOT BREAK THRU
7 EQUAL SPACES AT .150 BSC=1.050 BSC
3.400 2 PLACES
3.490
4.060
2.280
2.090
1.345 1.339
.645
.500 2 PLACES
.822 .828
.280
.01 MAX SOLDER BUILD UP ALLOWABLE ON TIN PLATE AREAS
QTY 190 4
SOLDER ALL AROUND, GLASS INSULATOR OF FIND NO. 4 TO BE FREE OF SOLDER
SEE NOTE 6
.01 MAX R TYP
A
1
.01 MAX R TYP
.31
.357 .363
32
.003
SECTION A-A

NOTES
1. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP 6
2. REMOVE BURRS & SHARP EDGES .010/.015
3. INSTALL FIND NO.2 & FIND NO.3 PER MS33646
4. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
5. TIN PLATE INDICATED AREAS .0002/.0005 THK PER MIL-T-10727A, TYPE I
6. SOLDER FIND 4 & 5 TO FIND NO.1 USING SOLDER PER ND1002071
7. MARK .060/.100 HIGH BLACK CHARACTERS PER ND1002019, LOCATE APPROXIMATELY AS SHOWN
8. MARK .100/.140 HIGH BLACK CHARACTERS PER ND1002019, LOCATE APPROXIMATELY AS SHOWN
9. INDENTIFY WITH DRAWING NO. & REVISION PER ND1002019
10. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
11. ALL SURFACE 125 UNLESS OTHERWISE SPECIFIED
12. COMPLETED ASSEMBLY SHALL EXHIBIT A LEAK RATE BETWEEN FIND NO. 1 & FIND NO. 2 OF LESS THAN 8 X 10^{-6} ATM CC/SEC OF HELIUM UNDER A PRESSURE DIFFERENTIAL OF ONE ATMOSPHERE, AND A TEMPERATURE OF -10° TO 82°C
13. PAINT OUTSIDE SURFACES ONLY WITH ND1010729-1 MED GRAY EPOXY ENAMEL PER ND1002110

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
1	1012516	TERMINAL STUD	5
190	1006374	TERMINAL	4
12	MS21209-C0615	INSERT, THREADED, SELF LOCKING	3
6	MS21209-C0415	INSERT, THREADED, SELF LOCKING	2
1	2004919-001	PLATE, ADAPTER	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003812	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XXX±.005 XX±.01 ANGLES ±2°
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 1
HEAT TREATMENT
FINAL FINISH

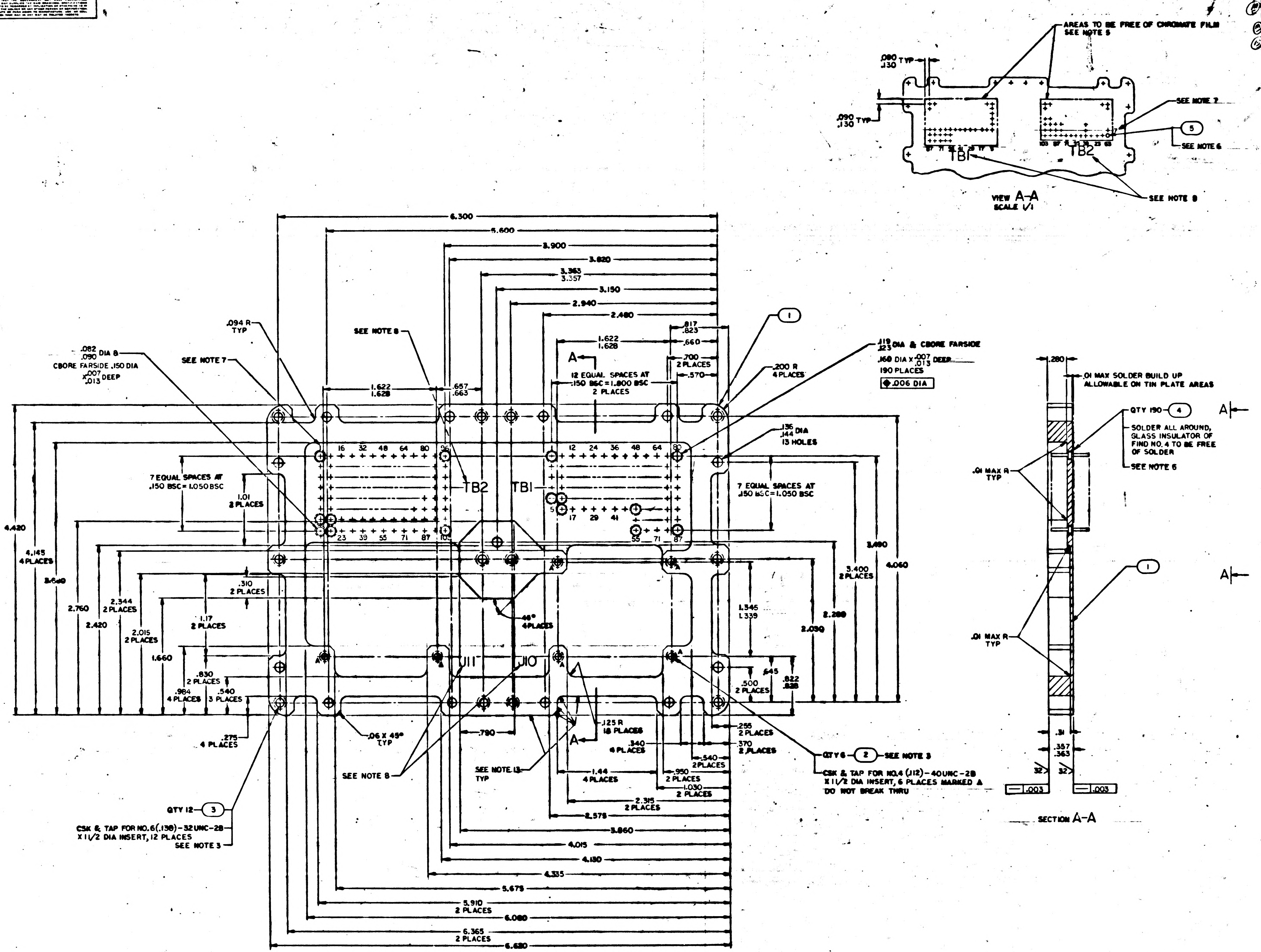
M I T
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN DATE
CHECKED 4 ... 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PLATE, ADAPTER
AGC DSKY

CODE IDENT NO. 80230 SIZE E NASA DRAWING NO 2004919
SCALE 2/1 WT SHEET 1 OF 1

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISEL PER TDRR 21355 DR D.A. Clermont CHK J. D	/65	
B	REVISED PER TDRR 22318 DR J.P. , CHK	/65	
C	REVISED PER TDRR 22543 DR CHK	10/5/65	



AREAS TO BE FREE OF CHROMATE FILM SEE NOTE 5
SEE NOTE 7
SEE NOTE 6
SEE NOTE 8
TB1
TB2
VIEW A-A SCALE 1/1
.080 .130 TYP
.090 .130 TYP
6.300
5.600
3.900
3.820
3.363 3.357
3.150
2.940
2.480
.094 R TYP
SEE NOTE 8
.082 .090 DIA 8 CBORE FARSIDE .150 DIA X .007 .013 DEEP
SEE NOTE 7
1.622 1.628
.657 .663
1.622 1.628
12 EQUAL SPACES AT .150 BSC = 1.800 BSC 2 PLACES
.817 .823
.660
.700 2 PLACES
.570
.119 .123 DIA & CBORE FARSIDE .160 DIA X .007 .013 DEEP 190 PLACES
.006 DIA
.200 R 4 PLACES
.136 .144 DIA 13 HOLES
7 EQUAL SPACES AT .150 BSC = 1.050 BSC
1.01 2 PLACES
7 EQUAL SPACES AT .150 BSC = 1.050 BSC
4.420
4.145 4 PLACES
3.640
2.760
2.344 2 PLACES
2.420
2.015 2 PLACES
1.660
.310 2 PLACES
1.17 2 PLACES
.830 2 PLACES
.984 4 PLACES
.540 3 PLACES
.275 4 PLACES
46° 4 PLACES
J11
J10
3.490
3.400 2 PLACES
4.060
1.345 1.339
2.280
2.090
.645
.500 2 PLACES
.822 .828
.06 X 45° TYP
.790
.125 R 18 PLACES
.340 4 PLACES
1.44 4 PLACES
.950 2 PLACES
1.030 2 PLACES
.540 2 PLACES
.255 2 PLACES
.370 2 PLACES
2.315 2 PLACES
2.575
3.860
4.015
4.130
4.335
5.675
5.910 2 PLACES
6.080
6.365 2 PLACES
6.620
SEE NOTE 8
SEE NOTE 13 TYP
QTY 12 (3)
CSK & TAP FOR NO.6(.138)-32UNC-2B X 1 1/2 DIA INSERT, 12 PLACES SEE NOTE 3
QTY 6 (2) SEE NOTE 3
CSK & TAP FOR NO.4 (.112)-40UNC-2B X 1 1/2 DIA INSERT, 6 PLACES MARKED A DO NOT BREAK THRU
(1)
.280
.01 MAX SOLDER BUILD UP ALLOWABLE ON TIN PLATE AREAS
QTY 190 (4)
SOLDER ALL AROUND, GLASS INSULATOR OF FIND NO. 4 TO BE FREE OF SOLDER
SEE NOTE 6
.01 MAX R TYP
.01 MAX R TYP
.31
.357 .363
32
.003
SECTION A-A

NOTES

1. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP 6
2. REMOVE BURRS & SHARP EDGES .010/.015
3. INSTALL FIND NO.2 & FIND NO.3 PER MS33646
4. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
5. TIN PLATE INDICATED AREAS .0002/.0005 THK PER MIL-T-10727A, TYPE I
6. SOLDER FIND 4 & 5 TO FIND NO.1 USING SOLDER PER ND1002071
7. MARK .060/.100 HIGH BLACK CHARACTERS PER ND1002019, LOCATE APPROXIMATELY AS SHOWN
8. MARK .100/.140 HIGH BLACK CHARACTERS PER ND1002019, LOCATE APPROXIMATELY AS SHOWN
9. INDENTIFY WITH DRAWING NO. & REVISION PER ND1002019
10. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
11. ALL SURFACE 125 UNLESS OTHERWISE SPECIFIED
12. COMPLETED ASSEMBLY SHALL EXHIBIT A LEAK RATE BETWEEN FIND NO. 1 & FIND NO. 2 OF LESS THAN 8 X 10⁻⁶ ATM CC/SEC OF HELIUM UNDER A PRESSURE DIFFERENTIAL OF ONE ATMOSPHERE, AND A TEMPERATURE OF -10° TO 82°C
13. PAINT OUTSIDE SURFACES ONLY WITH 1008809-1 MED GRAY EPOXY ENAMEL PER ND1002279

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
1	1012516-006	TERMINAL, STUD	5
190	1006374	TERMINAL	4
12	MS21209-C0615	INSERT, THREADED, SELF LOCKING	3
6	MS21209-C0415	INSERT, THREADED, SELF LOCKING	2
1	2004919-001	PLATE, ADAPTER	1
011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003812	
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XXX ± .005 XX ± .01 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 1
HEAT TREATMENT
FINAL FINISH

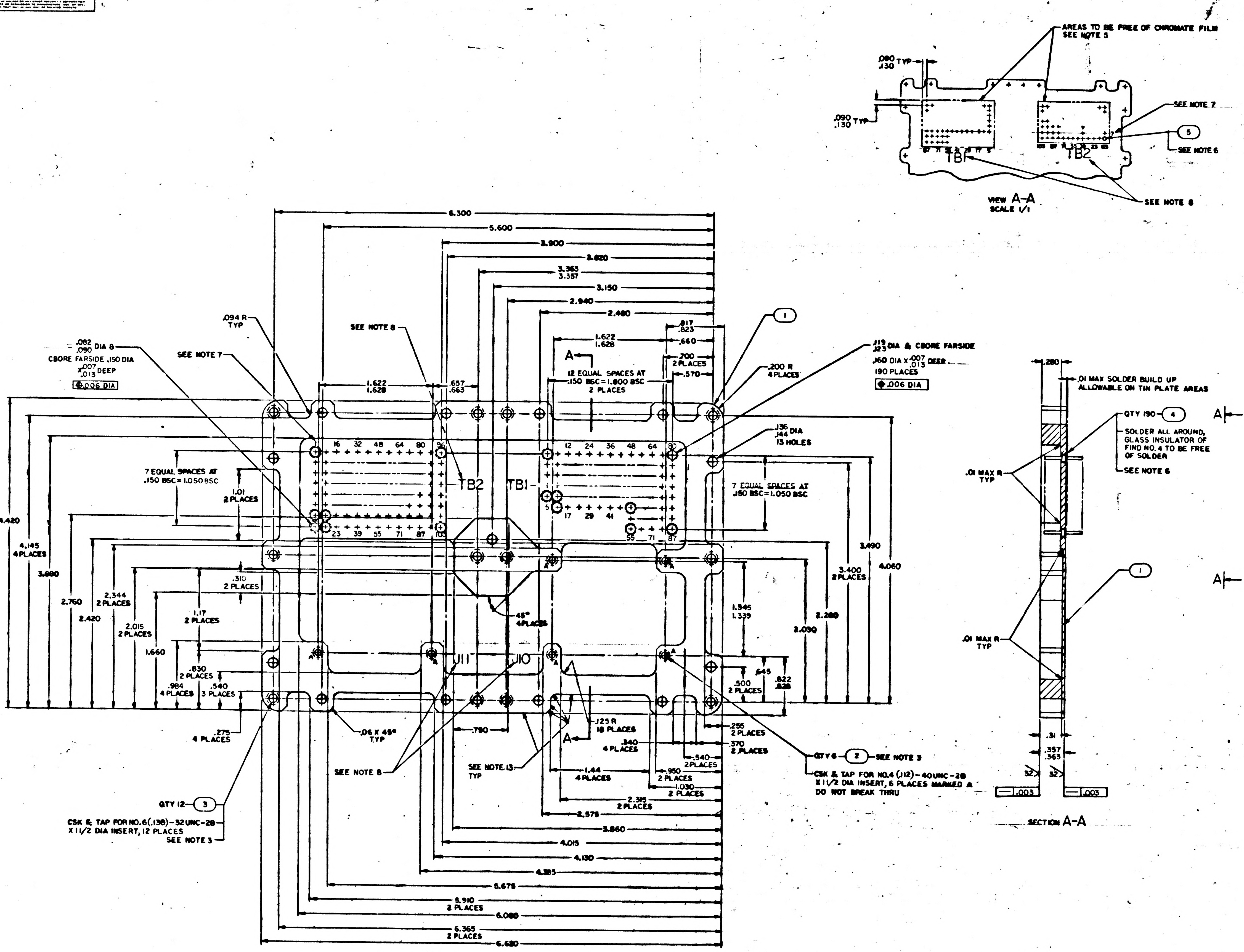
MIT INSTRUMENTATION LAB CAMBRIDGE, MASS
DRAWN DATE
CHECKED C. DeGennaro 4/65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PLATE, ADAPTER
AGC DSKY

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 2004919
SCALE 2/1
WT
SHEET 1 OF 1

LTR	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 21355 DR D.A. Clermont CHK T. D	[illegible]	
B	REVISED PER TDRR 22318 DR J.P. Secord, CHK	[illegible]	
C	REVISED PER TDRR 22543 DR CHK	10/5/65	
D	REVISED PER TDRR 23951 DR CHK	[illegible]	



AREAS TO BE FREE OF CHROMATE FILM SEE NOTE 5
.080 .130 TYP
.090 .130 TYP
SEE NOTE 7
5
SEE NOTE 6
TB1
TB2
VIEW A-A SCALE 1/1
SEE NOTE 8
6.300
5.600
3.900
3.820
3.363 3.357
3.150
2.940
2.480
.817 .823
.660
.700 2 PLACES
.570
1.622 1.628
12 EQUAL SPACES AT .150 BSC=1.800 BSC 2 PLACES
.094 R TYP
.082 .090 DIA 8 CBORE FARSIDE .150 DIA X .007 .013 DEEP
.006 DIA
.657 .663
.119 .123 DIA & CBORE FARSIDE .160 DIA X .007 .013 DEEP 190 PLACES
.006 DIA
.200 R 4 PLACES
.136 .144 DIA 13 HOLES
7 EQUAL SPACES AT .150 BSC=1.050 BSC
1.01 2 PLACES
4.420
4.145 4 PLACES
3.880
2.760
2.344 2 PLACES
2.420
2.015 2 PLACES
1.660
.310 2 PLACES
1.17 2 PLACES
.830 2 PLACES
.984 4 PLACES
.540 3 PLACES
.275 4 PLACES
.06 X 45° TYP
45° 4 PLACES
J11
J10
3.490
4.060
3.400 2 PLACES
2.280
2.030
1.345 1.339
.645
.500 2 PLACES
.822 .828
.285 2 PLACES
.370 2 PLACES
.125 R 18 PLACES
.340 4 PLACES
.540 2 PLACES
.950 2 PLACES
1.030 2 PLACES
1.44 4 PLACES
.790
SEE NOTE 8
SEE NOTE 13 TYP
QTY 6 2 SEE NOTE 3
CSK & TAP FOR NO.4 (.112)-40UNC-2B X 1/2 DIA INSERT, 6 PLACES MARKED A DO NOT BREAK THRU
QTY 12 3
CSK & TAP FOR NO.6 (.138)-32UNC-2B X 1/2 DIA INSERT, 12 PLACES SEE NOTE 3
2.315 2 PLACES
2.575
3.860
4.015
4.130
4.385
5.675
5.910 2 PLACES
6.080
6.365 2 PLACES
6.620
.280
.01 MAX SOLDER BUILD UP ALLOWABLE ON TIN PLATE AREAS
QTY 190 4
SOLDER ALL AROUND, GLASS INSULATOR OF FIND NO. 4 TO BE FREE OF SOLDER
SEE NOTE 6
.01 MAX R TYP
1
.31
.357 .363
32
.003
SECTION A-A

NOTES
1. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP 6
2. REMOVE BURRS & SHARP EDGES .010/.015
3. INSTALL FIND NO.2 & FIND NO.3 PER MS33646
4. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
5. TIN PLATE INDICATED AREAS, BOTH SIDES INCLUDING HOLES .0002/.0005 THK PER MIL-T-10727A, TYPE I
6. SOLDER FIND 4 & 5 TO FIND NO.1 USING SOLDER PER ND1002071
7. MARK .060/.100 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122 TYPE II, CLASS I, USING INK 1006271-11, LOCATE APPROXIMATELY AS SHOWN
8. MARK .100/.140 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122 TYPE II, CLASS I, USING INK 1006271-11, LOCATE APPROXIMATELY AS SHOWN
9. INDENTIFY WITH PART NO. PER ND1002019
10. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
11. ALL SURFACE 125 UNLESS OTHERWISE SPECIFIED
12. COMPLETED ASSEMBLY SHALL EXHIBIT A LEAK RATE BETWEEN FIND NO.1 & FIND NO.2 OF LESS THAN 8 X 10^{-6} ATM CC/SEC OF HELIUM UNDER A PRESSURE DIFFERENTIAL OF ONE ATMOSPHERE, AND A TEMPERATURE OF -10° TO 82°C
13. PAINT OUTSIDE SURFACES ONLY WITH 1008809-1 MED GRAY EPOXY ENAMEL PER ND1002279

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
1	1012516-006	TERMINAL, STUD	5
190	1006379	TERMINAL	4
12	MS21209-C0615	INSERT, THREADED, SELF LOCKING	3
6	MS21209-C0415	INSERT, THREADED, SELF LOCKING	2
1	2004919-001	PLATE, ADAPTER	1
011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003912	
APPLICATION	

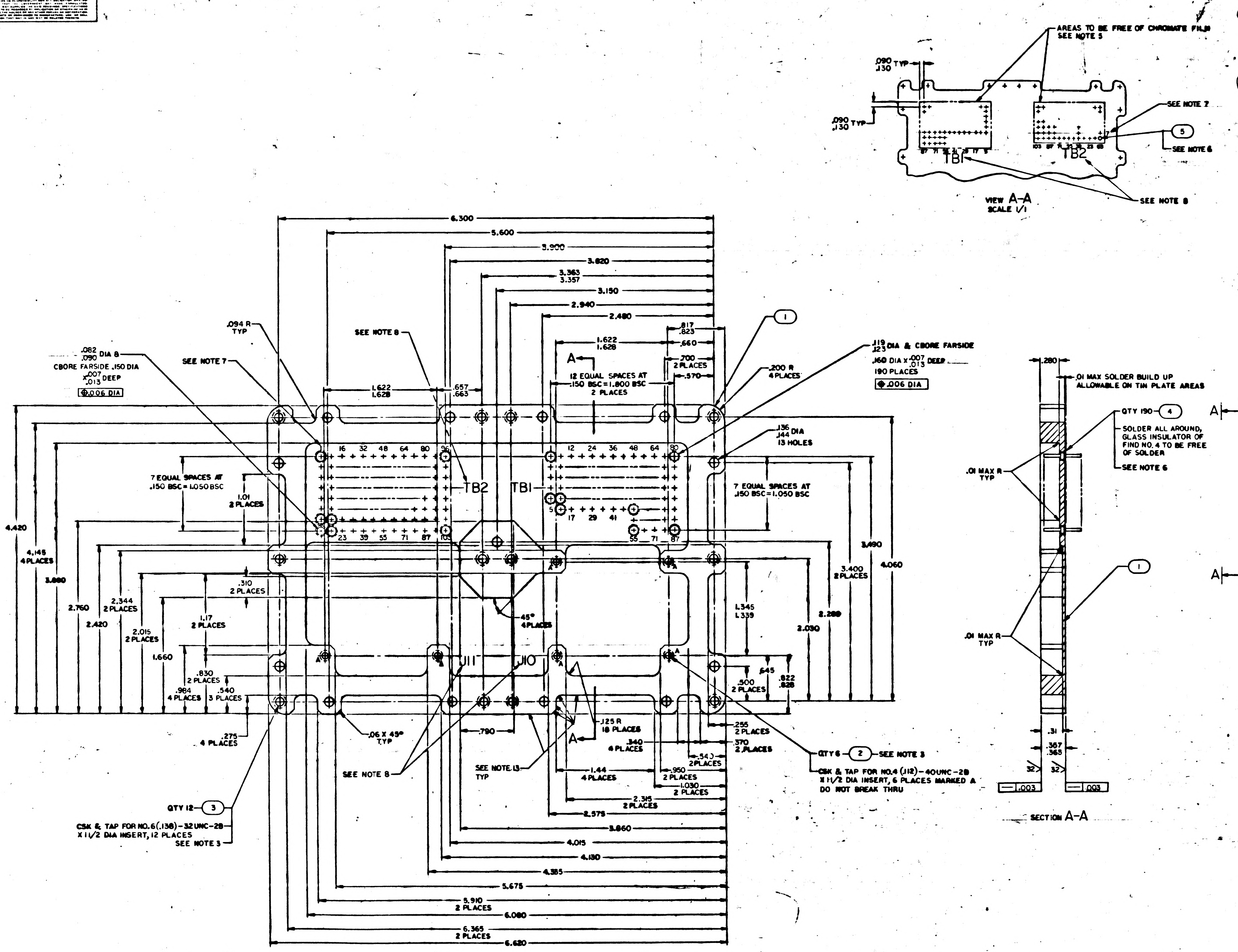
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XXX ±.005 XX ±.01 ANGLES ±2°
DO NOT SCALE THIS DRAWING
MATERIAL
SEE NOTE 1
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN DATE
CHECKED C. DeMasse 4 Jun 65
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PLATE, ADAPTER
AGC DSKY

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO 2004919
SCALE 2/1
SHEET 1 OF 1



AREAS TO BE FREE OF CHROMATE FILM SEE NOTE 5
.090 .130 TYP
SEE NOTE 7
SEE NOTE 6
TB1
TB2
SEE NOTE 8
VIEW A-A SCALE 1/1
6.300
5.600
3.900
3.820
3.363 3.357
3.150
2.940
2.480
.817 .823
.660
1.622 1.628
.700 2 PLACES
.570
12 EQUAL SPACES AT .150 BSC=1.800 BSC 2 PLACES
.094 R TYP
.082 .090 DIA & CBORE FARSIDE .150 DIA .007 .013 DEEP
.006 DIA
SEE NOTE 7
1.622 1.628
.657 .663
.200 R 4 PLACES
.119 .123 DIA & CBORE FARSIDE .160 DIA X .007 .013 DEEP 190 PLACES
.006 DIA
.136 .144 DIA 13 HOLES
7 EQUAL SPACES AT .150 BSC=1.050 BSC
1.01 2 PLACES
7 EQUAL SPACES AT .150 BSC=1.050 BSC
4.420
4.145 4 PLACES
3.880
2.760
2.344 2 PLACES
2.420
.310 2 PLACES
1.17 2 PLACES
2.015 2 PLACES
1.660
.830 2 PLACES
.984 4 PLACES
.540 3 PLACES
.275 4 PLACES
45° 4 PLACES
3.490
3.400 2 PLACES
4.060
2.280
2.030
1.345 1.339
.645
.822 .828
.500 2 PLACES
J11
J10
A
.06 X 45° TYP
.790
.125 R 18 PLACES
.340 4 PLACES
.255 2 PLACES
.370 2 PLACES
.543 2 PLACES
SEE NOTE 13 TYP
1.44 4 PLACES
.950 2 PLACES
1.030 2 PLACES
2.315 2 PLACES
2.575
3.860
4.015
4.130
4.385
5.675
5.910 2 PLACES
6.080
6.365 2 PLACES
6.620
SEE NOTE 8
QTY 12 ③
CSK & TAP FOR NO.6 (.138)-32UNC-2B X 1 1/2 DIA INSERT, 12 PLACES SEE NOTE 3
QTY 6 ② SEE NOTE 3
CSK & TAP FOR NO.4 (.112)-40UNC-2B X 1 1/2 DIA INSERT, 6 PLACES MARKED A DO NOT BREAK THRU
.280
.01 MAX SOLDER BUILD UP ALLOWABLE ON TIN PLATE AREAS
QTY 190 ④
SOLDER ALL AROUND, GLASS INSULATOR OF FIND NO. 4 TO BE FREE OF SOLDER
SEE NOTE 6
.01 MAX R TYP
①
.01 MAX R TYP
.31
.367 .365
32
.003
SECTION A-A

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 23358 DR D.A. Clermont CHK T. D		
B	REVISED PER TDRR 22318 DR J.P. Leonard, CHK		
C	REVISED PER TDRR 22543 DR CHK	10/5/65	
D	REVISED PER TDRR 23951 DR CHK		
E	REVISED PER TDRR 24466 DR D.P. CHK		

NOTES
1. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP 6
2. REMOVE BURRS & SHARP EDGES .010/.015
3. INSTALL FIND NO.2 & FIND NO.3 PER MS33646
4. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
5. TIN PLATE INDICATED AREAS, BOTH SIDES INCLUDING HOLES .0002/.0006 THK PER MIL-T-10727A, TYPE I
6. SOLDER FIND 4 & 5 TO FIND NO.1 USING SOLDER PER ND1002071
7. MARK .060/.100 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122 TYPE II, CLASS I, USING INK 1006271-11, LOCATE APPROXIMATELY AS SHOWN
8. MARK .100/.140 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122 TYPE II, CLASS I, USING INK 1006271-11, LOCATE APPROXIMATELY AS SHOWN
9. INDENTIFY WITH PART NO. PER ND1002019
10. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
11. ALL SURFACE 125/ UNLESS OTHERWISE SPECIFIED
12. COMPLETED ASSEMBLY SHALL EXHIBIT A LEAK RATE BETWEEN FIND NO. 1 & FIND NO. 2 OF LESS THAN 8 X 10^{-6} ATM CC SEC OF HELIUM UNDER A PRESSURE DIFFERENTIAL OF ONE ATMOSPHERE, AND A TEMPERATURE OF -10° TO 82°C
13. PAINT OUTSIDE SURFACES ONLY WITH 1008809-1 MED GRAY EPOXY ENAMEL PER ND1002279

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
1	1012516-006	TERMINAL, STUD	5
190	1010690-2	TERMINAL	4
12	MS21209-C0615	INSERT, THREADED, SELF LOCKING	3
6	MS21209-C0415	INSERT, THREADED, SELF LOCKING	2
1	2004919-001	PLATE, ADAPTER	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003812	

APPLICATION

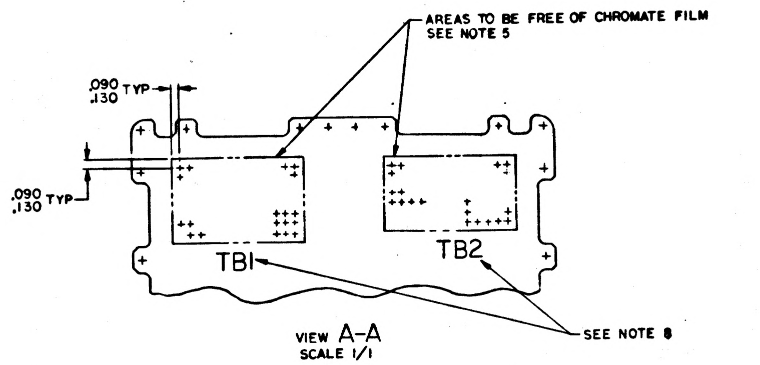
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XXX ±.005 XX ±.01 ANGLES ±2°
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 1
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB CAMBRIDGE, MASS
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

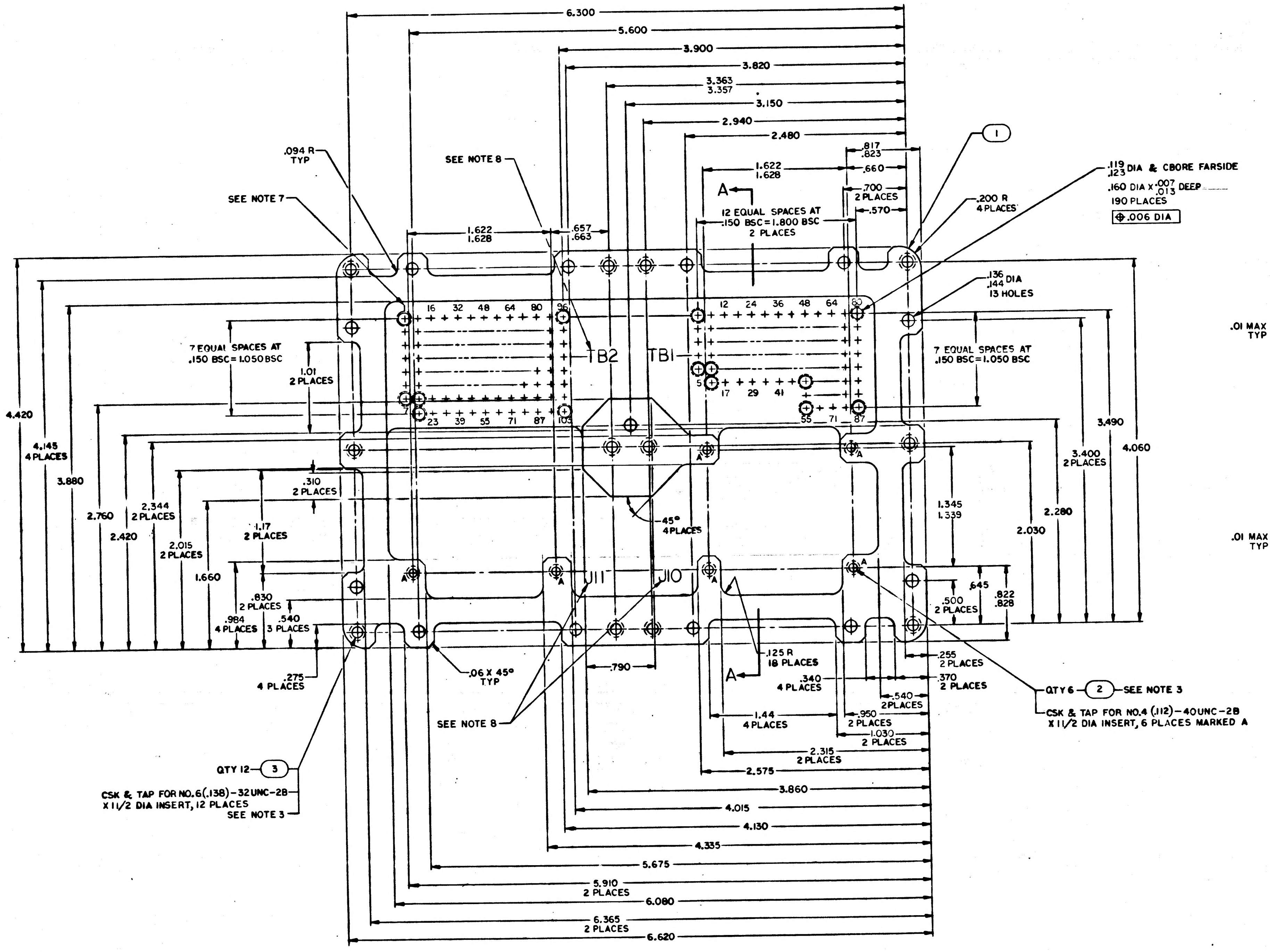
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

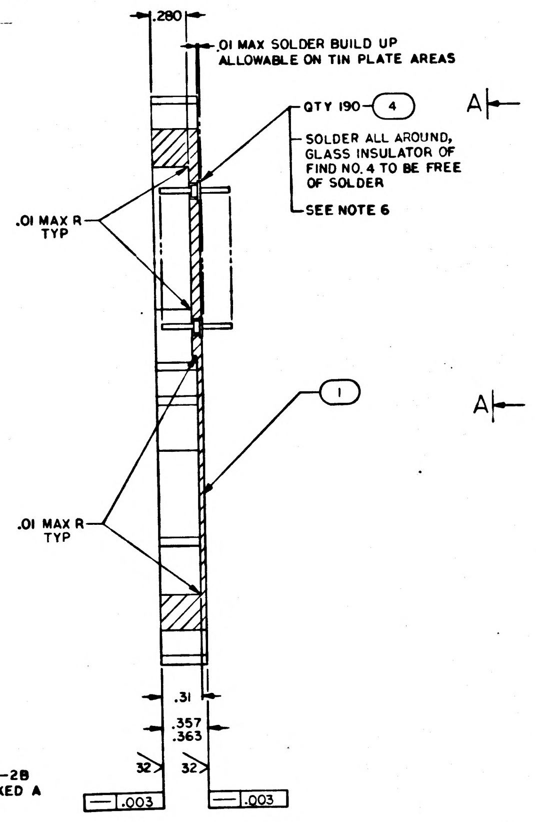
PLATE, ADAPTER
AGC DSKY

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 2004919
SCALE 2/1
WT
SHEET 1 OF 1


AREAS TO BE FREE OF CHROMATE FILM
SEE NOTE 5
.090
.130 TYP
.090
.130 TYP
TB1
TB2
SEE NOTE 8

VIEW A-A
SCALE 1/1


6.300
5.600
3.900
3.820
3.363
3.357
3.150
2.940
2.480
.817
.823
.660
.700
2 PLACES
.570
1.622
1.628
A
12 EQUAL SPACES AT .150 BSC=1.800 BSC
2 PLACES
1
.119
.123 DIA & CBORE FARSIDE
.160 DIA X .007/.013 DEEP
190 PLACES
⊕ .006 DIA
.200 R
4 PLACES
.136
.144 DIA
13 HOLES
.094 R
TYP
SEE NOTE 7
SEE NOTE 8
1.622
1.628
.657
.663
7 EQUAL SPACES AT .150 BSC=1.050 BSC
1.01
2 PLACES
TB2
TB1
7 EQUAL SPACES AT .150 BSC=1.050 BSC
16 32 48 64 80 96
23 39 55 71 87 103
12 24 36 48 64 80
5 17 29 41
55 71 87
4.420
4.145
4 PLACES
3.880
2.760
2.344
2 PLACES
2.420
2.015
2 PLACES
1.660
.310
2 PLACES
1.17
2 PLACES
.830
2 PLACES
.984
4 PLACES
.540
3 PLACES
45°
4 PLACES
3.490
3.400
2 PLACES
4.060
2.280
1.345
1.339
2.030
.645
.500
2 PLACES
.822
.828
J11
J10
A
.275
4 PLACES
.06 X 45°
TYP
.790
.125 R
18 PLACES
.340
4 PLACES
.255
2 PLACES
.370
2 PLACES
.540
2 PLACES
.950
2 PLACES
1.030
2 PLACES
1.44
4 PLACES
2.315
2 PLACES
2.575
3.860
4.015
4.130
4.335
5.675
5.910
2 PLACES
6.080
6.365
2 PLACES
6.620
SEE NOTE 8
QTY 6 – 2 – SEE NOTE 3
CSK & TAP FOR NO.4 (.112)–40UNC–2B X 1 1/2 DIA INSERT, 6 PLACES MARKED A
QTY 12 – 3
CSK & TAP FOR NO.6 (.138)–32UNC–2B X 1 1/2 DIA INSERT, 12 PLACES
SEE NOTE 3


.280
.01 MAX SOLDER BUILD UP ALLOWABLE ON TIN PLATE AREAS
QTY 190 – 4
SOLDER ALL AROUND, GLASS INSULATOR OF FIND NO. 4 TO BE FREE OF SOLDER
SEE NOTE 6
A
.01 MAX R
TYP
1
A
.01 MAX R
TYP
.31
.357
.363
32
32
.003
.003

SECTION A-A

NOTES

1. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP 6
2. REMOVE BURRS & SHARP EDGES .010/.015
3. INSTALL FIND NO.2 & FIND NO.3 PER MS33646
4. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
5. TIN PLATE INDICATED AREAS .0002/.0005 THK PER MIL-T-10727A, TYPE I
6. SOLDER FIND NO.4 TO FIND NO.1 USING SOLDER PER ND1002071
7. MARK NEAR SIDE & FAR SIDE .060/.100 HIGH BLACK CHARACTERS PER ND1002019, LOCATE APPROXIMATELY AS SHOWN
8. MARK .100/.140 HIGH BLACK CHARACTERS PER ND1002019, LOCATE APPROXIMATELY AS SHOWN
9. INDENTIFY WITH DRAWING NO. & REVISION PER ND1002019
10. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
11. ALL SURFACE 125 UNLESS OTHERWISE SPECIFIED

MASTER

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO
190	1010690-2	TERMINAL	4
12	MS21209-C0615	INSERT, THREADED, SELF LOCKING	3
6	MS21209-C0415	INSERT, THREADED, SELF LOCKING	2
1	2004919-001	PLATE, ADAPTER	1
011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003912	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS XXX ± .005 XX ± .01 ANGLES ± 2°
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 1
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN D. Belanger DATE 2 Jun 65
CHECKED C. DeGrasse 4 Jun 65
APPROVAL 9 Jun 65
APPROVAL Ellen C. Hall 13 July 65
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

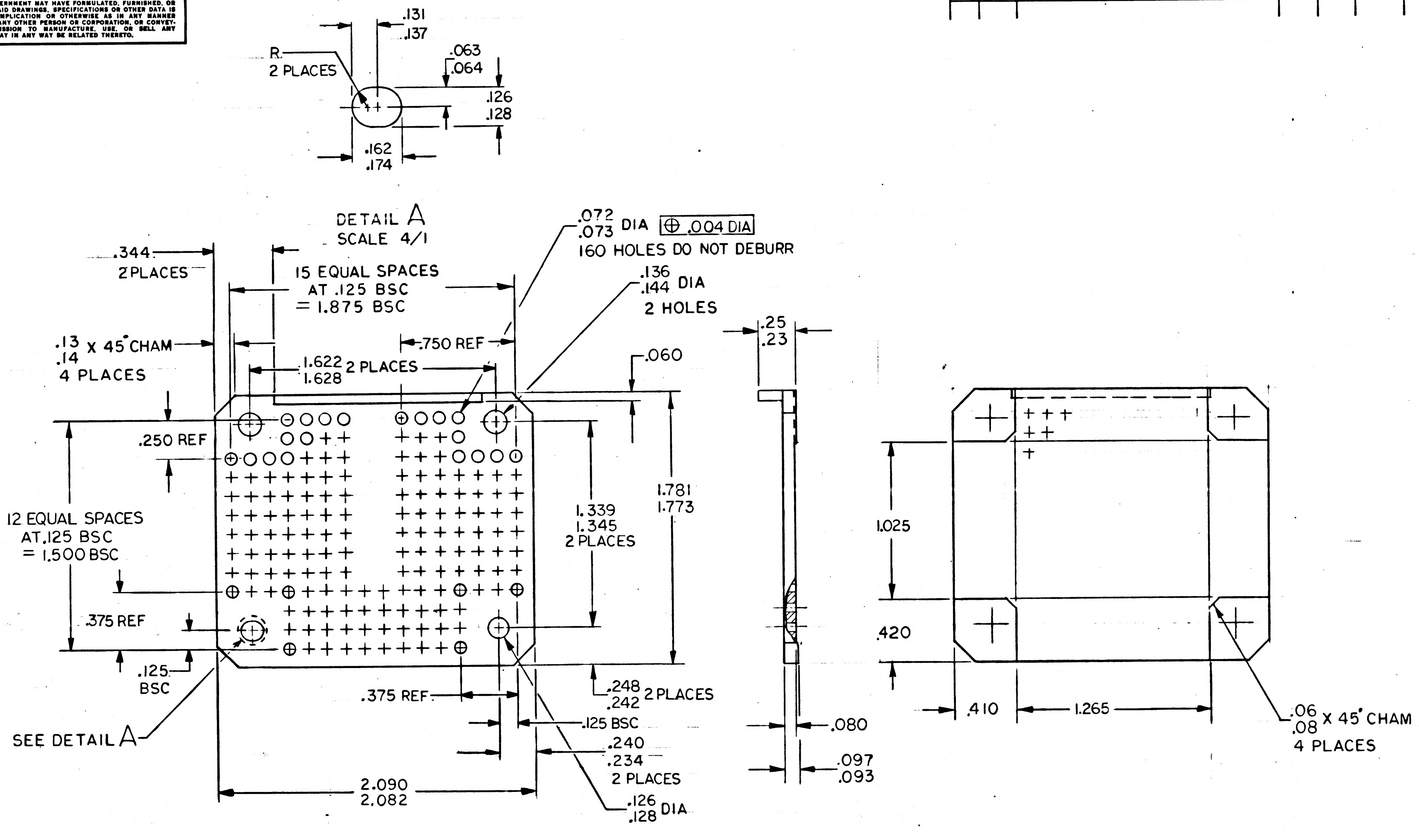
PLATE, ADAPTER
AGC DSKY

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO 2004919
SCALE 2/1
WT
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20855

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



R.
2 PLACES
.131
.137
.063
.064
.126
.128
.162
.174
DETAIL A
SCALE 4/1
.344
2 PLACES
15 EQUAL SPACES
AT .125 BSC
= 1.875 BSC
.072
.073 DIA
⊕ .004 DIA
160 HOLES DO NOT DEBURR
.136
.144 DIA
2 HOLES
.13
.14 X 45° CHAM
4 PLACES
.750 REF
1.622
1.628 2 PLACES
.060
.25
.23
.250 REF
12 EQUAL SPACES
AT .125 BSC
= 1.500 BSC
1.339
1.345
2 PLACES
1.781
1.773
1.025
.375 REF
.420
.125
BSC
SEE DETAIL A
.375 REF
.248
.242 2 PLACES
.125 BSC
.240
.234
2 PLACES
.080
.097
.093
.410
1.265
.06
.08 X 45° CHAM
4 PLACES
2.090
2.082
.126
.128 DIA

NOTES

1. MATL: 6061-T6 AL PER QQ-A-250/11, TEMPER T6
2. REMOVE BURRS AND SHARP EDGES .01/.02 EXCEPT WHERE SHOWN
3. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
4. ALL SURFACES $\sqrt{125}$
5. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
6. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003913	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON

FRACTIONS	DECIMALS	ANGLES
±	±.005	± 2°

DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

		DATE
DRAWN	J. C. Economu	8 Apr 65
CHECKED	C. DeGreenia	4 JUN 65
APPROVED	G. Underhoffler	9 Jun 65
APPROVED	Eldon C Hall	12 July 65
APPROVED MIT	M B Mursky	7-13-65
APPROVED MSC	WJ Rhine	7-13-65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PLATE, CONNECTOR
INDICATOR DIGITAL
AGC DSKY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004920

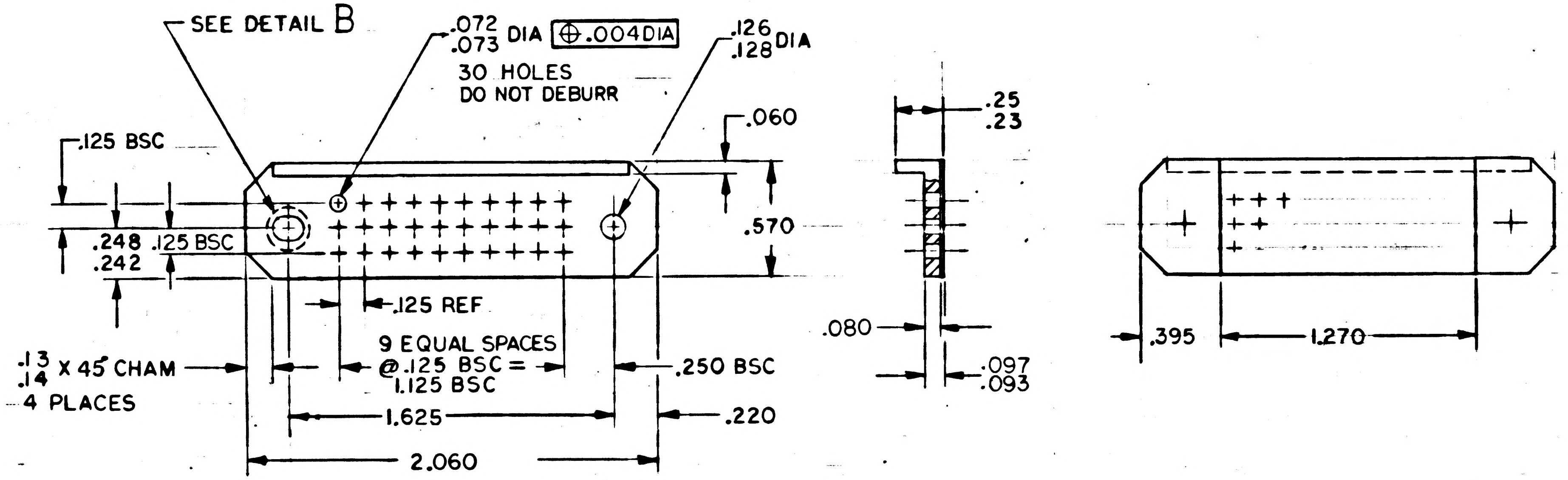
SCALE 2/1 SHEET 1 OF 1

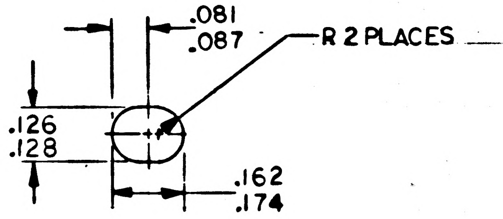
2004920

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20855

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 21398	KWS		9/17/65	


SEE DETAIL B
.072
.073 DIA
⊕ .004 DIA
30 HOLES
DO NOT DEBURR
.126
.128 DIA
.125 BSC
.060
.570
.248
.242
.125 BSC
.125 REF
9 EQUAL SPACES
@ .125 BSC =
1.125 BSC
.13
.14 X 45° CHAM
4 PLACES
.250 BSC
1.625
.220
2.060
.25
.23
.080
.097
.093
.395
1.270


.081
.087
R 2 PLACES
.126
.128
.162
.174

DETAIL B
SCALE 4/1

NOTES

1. MATL: 6061-T6 AL PER QQ-A-250/11, TEMPER T6
2. REMOVE BURRS AND SHARP EDGES .01/.02 EXCEPT AS NOTED
3. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
4. ALL SURFACES $\overset{125}{\checkmark}$
5. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
6. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003914	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN		
CHECKED	C. DeGreenia	4 Jun 65
APPROVED		
APPROVED	Eldon C Hall	12 July 65
APPROVED MIT	M G Murley	7-13-65
APPROVED MSC		7-13-65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

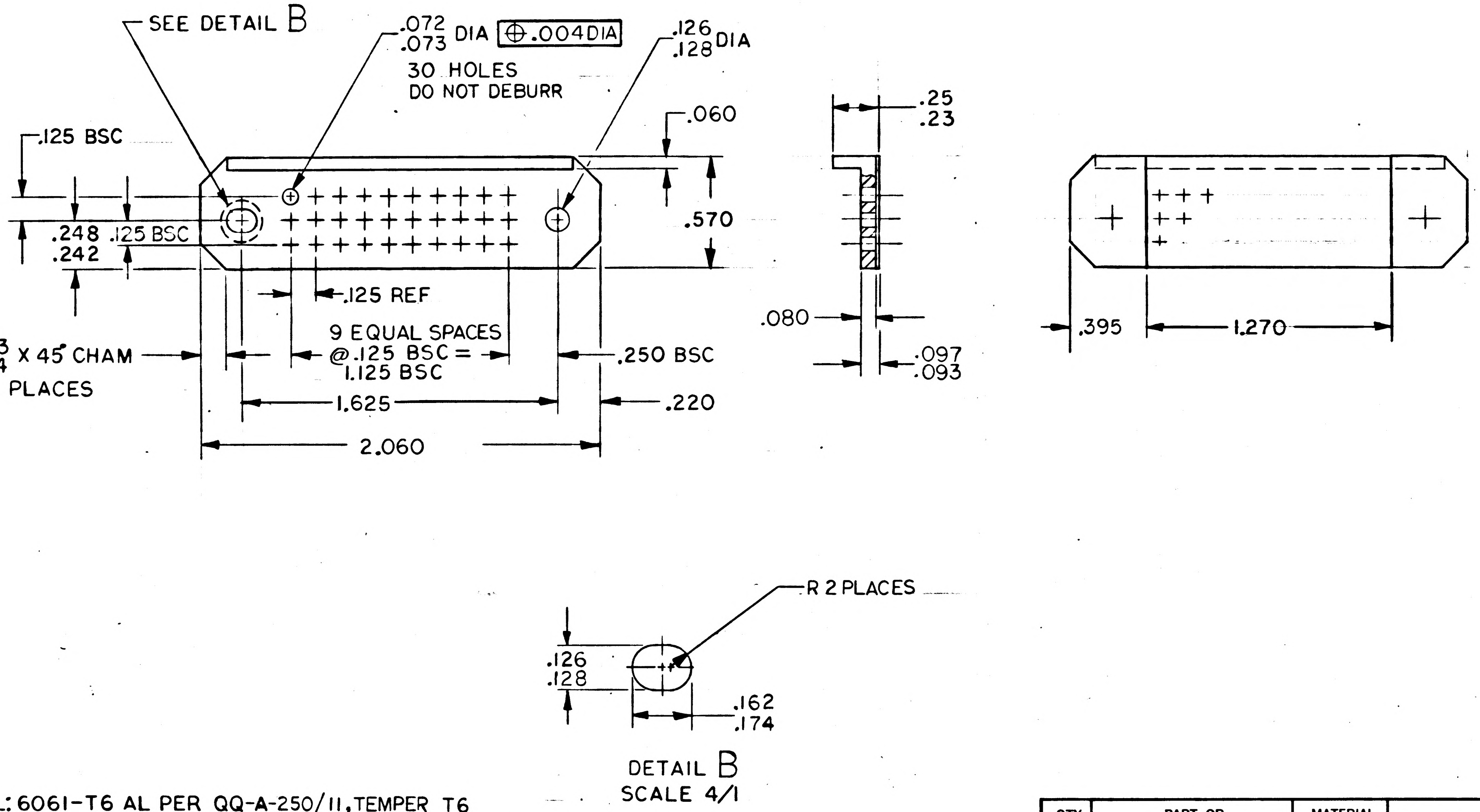
PLATE, CONNECTOR
INDICATOR ALARM
AGC DSKY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004921
SCALE 2/1		SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20255

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED


SEE DETAIL B
.072
.073 DIA ⊕.004DIA
30 HOLES
DO NOT DEBURR
.126
.128 DIA
.060
.125 BSC
.248
.242
.125 BSC
.570
.125 REF
9 EQUAL SPACES
@.125 BSC =
1.125 BSC
.13
.14 X 45° CHAM
4 PLACES
.250 BSC
1.625
.220
2.060
.25
.23
.080
.097
.093
.395
1.270
R 2 PLACES
.126
.128
.162
.174
DETAIL B
SCALE 4/1

NOTES

1. MATL: 6061-T6 AL PER QQ-A-250/11, TEMPER T6
2. REMOVE BURRS AND SHARP EDGES .01/.02 EXCEPT AS NOTED
3. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
4. ALL SURFACES $\sqrt[125]{}$
5. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
6. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

MASTER

NEXT ASSY	USED ON
2003914	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	J.C. Eramo	5 Apr 65
CHECKED	C. DeGreenia	4 JUN 65
APPROVED		4 Jun 65
APPROVED	Eldon C Hall	12 July 65
APPROVED MIT	M G Murley	7-13-65
APPROVED MSC		7-13-65
		DATE

PLATE, CONNECTOR
INDICATOR ALARM
AGC DSKY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004921
SCALE 2/1		SHEET 1 OF 1

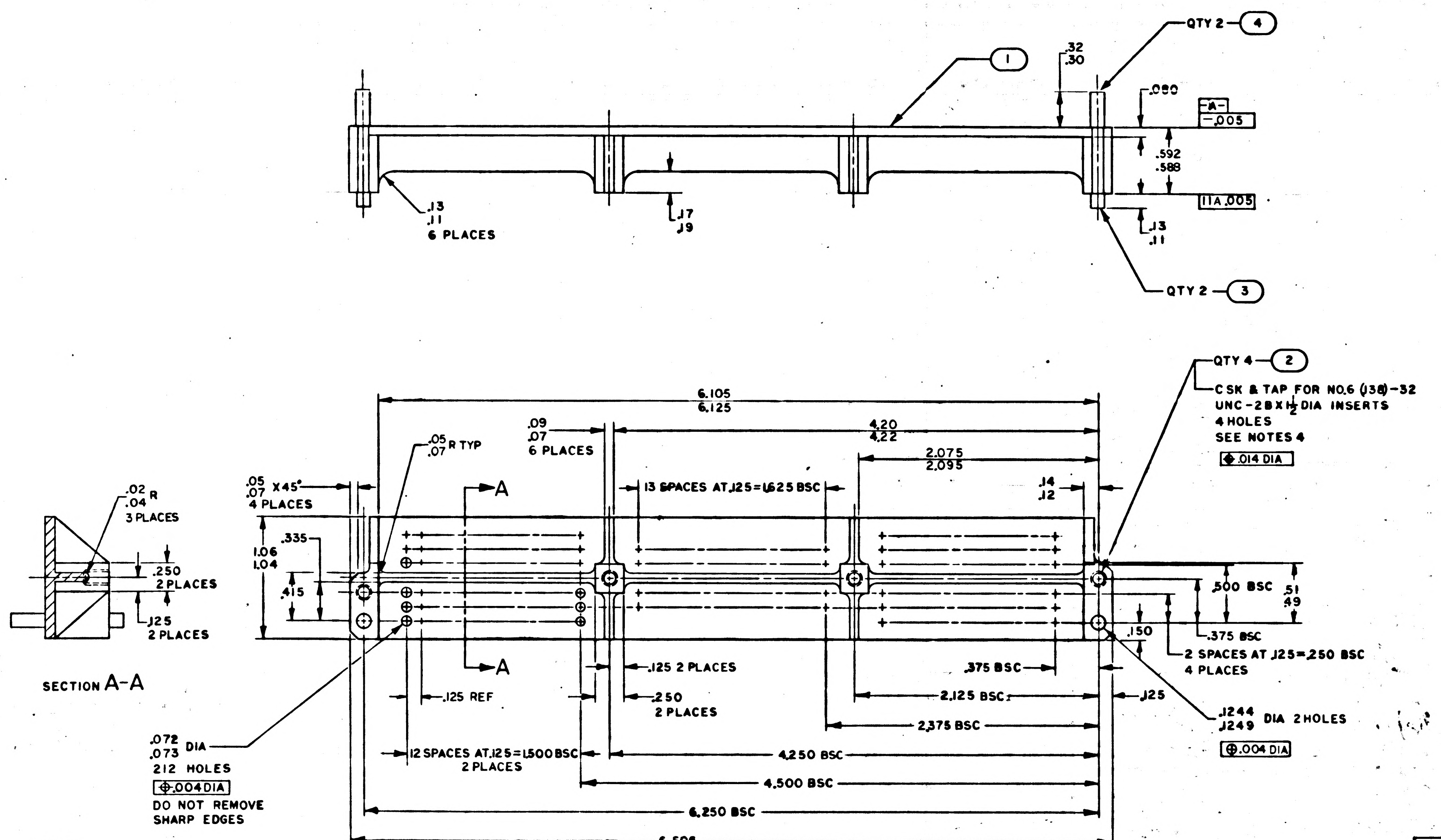
2004921

NOTICE WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004923 A

REVISIONS 23857

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 23428			11/2/65	


QTY 2 — 4
1
.32
.30
.080
-A-
—.005
.592
.588
11A.005
.13
.11
6 PLACES
.17
.19
.13
.11
QTY 2 — 3
QTY 4 — 2
CSK & TAP FOR NO.6 (.138)-32
UNC-2B X 1/2 DIA INSERTS
4 HOLES
SEE NOTES 4
.014 DIA
6.105
6.125
.09
.07
6 PLACES
4.20
4.22
2.075
2.095
.05
.07 R TYP
.05
.07 X45°
4 PLACES
A
13 SPACES AT .125=1.625 BSC
.14
.12
.02
.04 R
3 PLACES
.335
1.06
1.04
.415
.250
2 PLACES
.125
2 PLACES
.500 BSC
.51
.49
.375 BSC
.150
2 SPACES AT .125=.250 BSC
4 PLACES
SECTION A-A
A
.125 2 PLACES
.375 BSC
.125 REF
.250
2 PLACES
2.125 BSC
.125
2.375 BSC
.1244
.1249 DIA 2 HOLES
.004 DIA
.072
.073 DIA
212 HOLES
.004 DIA
DO NOT REMOVE
SHARP EDGES
12 SPACES AT .125=1.500 BSC
2 PLACES
4.250 BSC
4.500 BSC
6.250 BSC
6.505

NOTES
1. MATL: 7075-T6 AL PER QQ-A-250/12 TEMP T6
2. REMOVE BURRS AND SHARP EDGES .005/.015 EXCEPT AS NOTED
3. ALL SURFACES $\overset{125}{\checkmark}$
4. INSTALL FIND NO. 2 PER MS33646
5. UNLESS OTHERWISE SPECIFED ALL RADII TO BE .01 MAX
6. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
7. IDENTIFY WITH PART NO. PER ND1002019
8. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
2	MS16555-626		PIN, DOWEL	4
2	MS16555-625		PIN, DOWEL	3
4	MS21209C0615		INSERT, SCREW THREAD	2
1	2004923-001		PLATE, CONNECTOR	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003916	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN 8 MAR 65
CHECKED
APPROVED
APPROVED Eldon C. Hall
APPROVED MIT 7-23-65
APPROVED MSC 7-15-65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

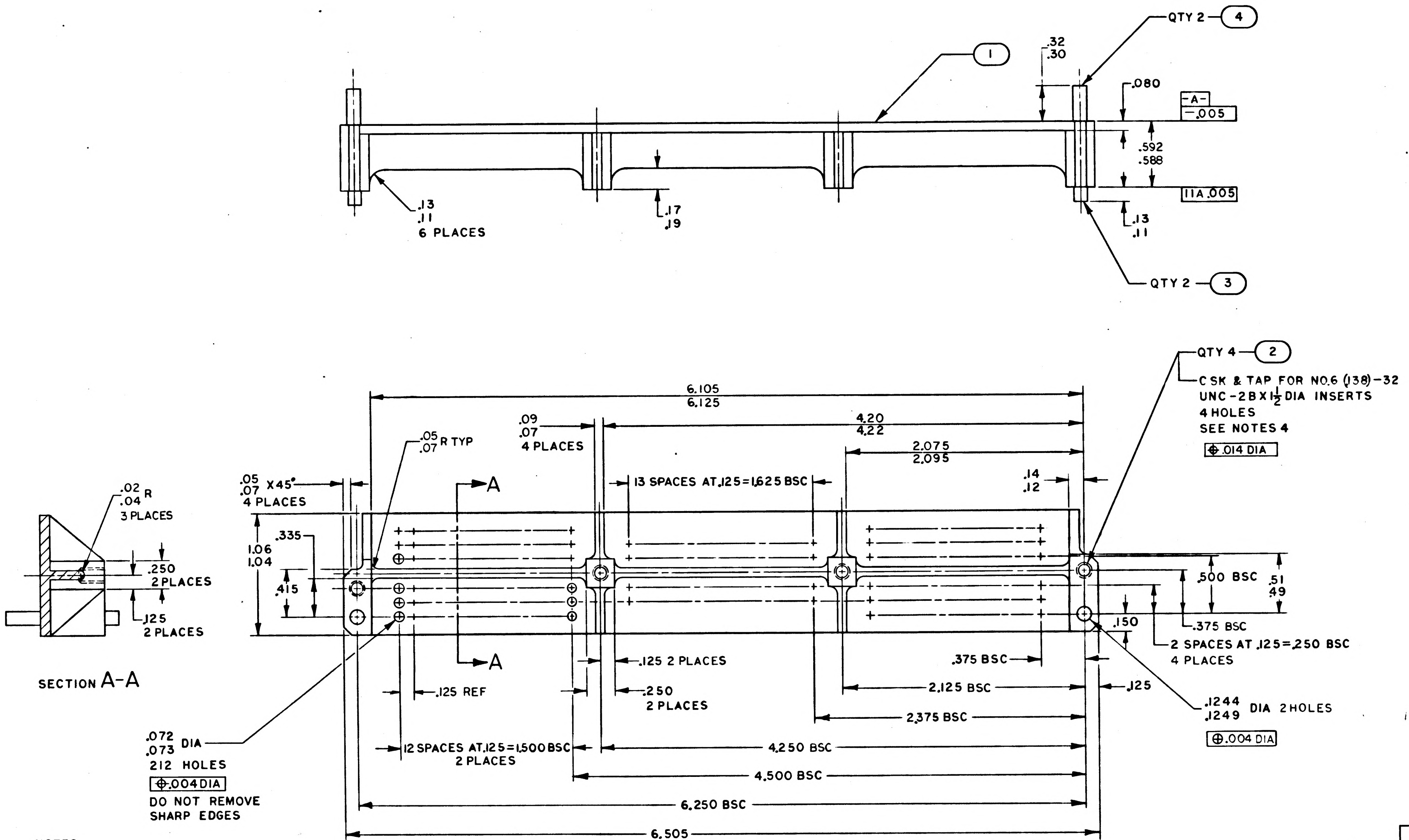
PLATE, CONNECTOR
MAIN HOUSING
AGC DSKY

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2004923
SCALE 2/1
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004923

REVISIONS 23857						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



1
.32
.30
QTY 2 — 4
.080
-A-
.005
.592
.588
11A .005
.13
.11
6 PLACES
.17
.19
.13
.11
QTY 2 — 3
QTY 4 — 2
CSK & TAP FOR NO.6 (138)-32 UNC-2B X 1½ DIA INSERTS
4 HOLES
SEE NOTES 4
⊕ .014 DIA
6.105
6.125
.09
.07
4 PLACES
4.20
4.22
2.075
2.095
.05
.07 R TYP
.05
.07 X45°
4 PLACES
13 SPACES AT .125 = 1.625 BSC
.14
.12
A
A
.02
.04 R
3 PLACES
.250
2 PLACES
.125
2 PLACES
SECTION A-A
.335
1.06
1.04
.415
.500 BSC
.51
.49
.150
.375 BSC
2 SPACES AT .125 = .250 BSC
4 PLACES
.125 2 PLACES
.375 BSC
.125 REF
.250
2 PLACES
2.125 BSC
.125
2.375 BSC
.1244
.1249 DIA 2 HOLES
⊕ .004 DIA
.072
.073 DIA
212 HOLES
⊕ .004 DIA
DO NOT REMOVE SHARP EDGES
12 SPACES AT .125 = 1.500 BSC
2 PLACES
4.250 BSC
4.500 BSC
6.250 BSC
6.505

NOTES

1. MATL: 7075-T6 AL PER QQ-A-250/12 TEMP T6
2. REMOVE BURRS AND SHARP EDGES .005/.015 EXCEPT AS NOTED
3. ALL SURFACES 125√
4. INSTALL FIND NO. 2 PER MS33646
5. UNLESS OTHERWISE SPECIFED ALL RADII TO BE .01 MAX
6. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
7. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
8. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
2	MS16555-626		PIN, DOWEL	4
2	MS16555-625		PIN, DOWEL	3
4	MS21209C0615		INSERT, SCREW THREAD	2
1	2004923-001		PLATE, CONNECTOR	1
011	LIST OF MATERIALS			

NEXT ASSY	USED ON
2003916	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

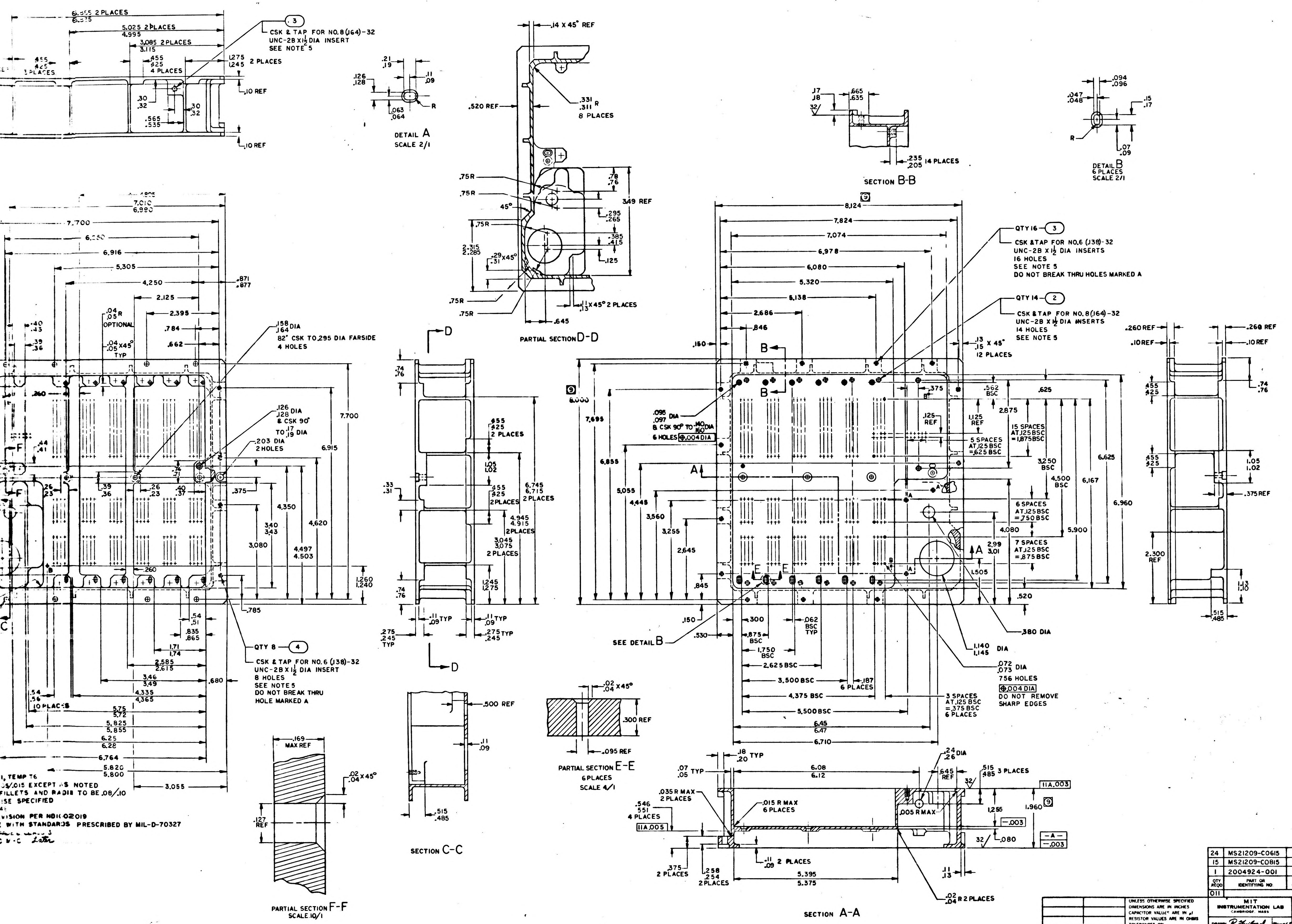
MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN B. Guilbord 8 MAR 65
CHECKED A. Coger 7 June 65
APPROVED
APPROVED Eldon C Hall 12 July 65
APPROVED MIT 7-13-65
APPROVED MSC W J Rhine 7-13-65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PLATE, CONNECTOR
MAIN HOUSING
AGC DSKY

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2004923
SCALE 2/1
SHEET 1 OF 1


4
3
2
1
D
C
B
A
CSK & TAP FOR NO.8 (.164)-32 UNC-2B X 1½ DIA INSERT SEE NOTE 5 ③
DETAIL A SCALE 2/1
PARTIAL SECTION D-D
SECTION B-B
DETAIL B 6 PLACES SCALE 2/1
QTY 16 ③ CSK & TAP FOR NO.6 (.138)-32 UNC-2B X 1½ DIA INSERTS 16 HOLES SEE NOTE 5 DO NOT BREAK THRU HOLES MARKED A
QTY 14 ② CSK & TAP FOR NO. 8 (.164)-32 UNC-2B X 1½ DIA INSERTS 14 HOLES SEE NOTE 5
.158 .164 DIA 82° CSK TO .295 DIA FARSIDE 4 HOLES
.126 .128 DIA & CSK 90° TO .17 .19 DIA
.203 DIA 2 HOLES
QTY 8 ④ CSK & TAP FOR NO. 6 (.138)-32 UNC-2B X 1½ DIA INSERT 8 HOLES SEE NOTE 5 DO NOT BREAK THRU HOLE MARKED A
.095 .097 DIA & CSK 90° TO .140 .160 DIA 6 HOLES ⌖.004 DIA
.072 .073 DIA 756 HOLES ⌖.004 DIA DO NOT REMOVE SHARP EDGES
1.140 1.145 DIA
.380 DIA
SEE DETAIL B
SECTION C-C
PARTIAL SECTION E-E 6 PLACES SCALE 4/1
PARTIAL SECTION F-F SCALE 10/1
SECTION A-A
MASTER

I, TEMP T6
.05/.015 EXCEPT AS NOTED
FILLETS AND RADII TO BE .08/.10
ISE SPECIFIED
VISION PER ND1002019
WITH STANDARDS PRESCRIBED BY MIL-D-70327
C W-C Later

24	MS21209-C0615		INSERT, THREADED, SELF LOCKING	3
15	MS21209-C0815		INSERT, THREADED, SELF LOCKING	2
1	2004924-001		PLATE, IDM	1
QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
011	LIST OF MATERIALS			

NEXT ASSY	USED ON
2003917	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±½°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1 -

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN R. Swiford
CHECKED R. Edward
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC W J R

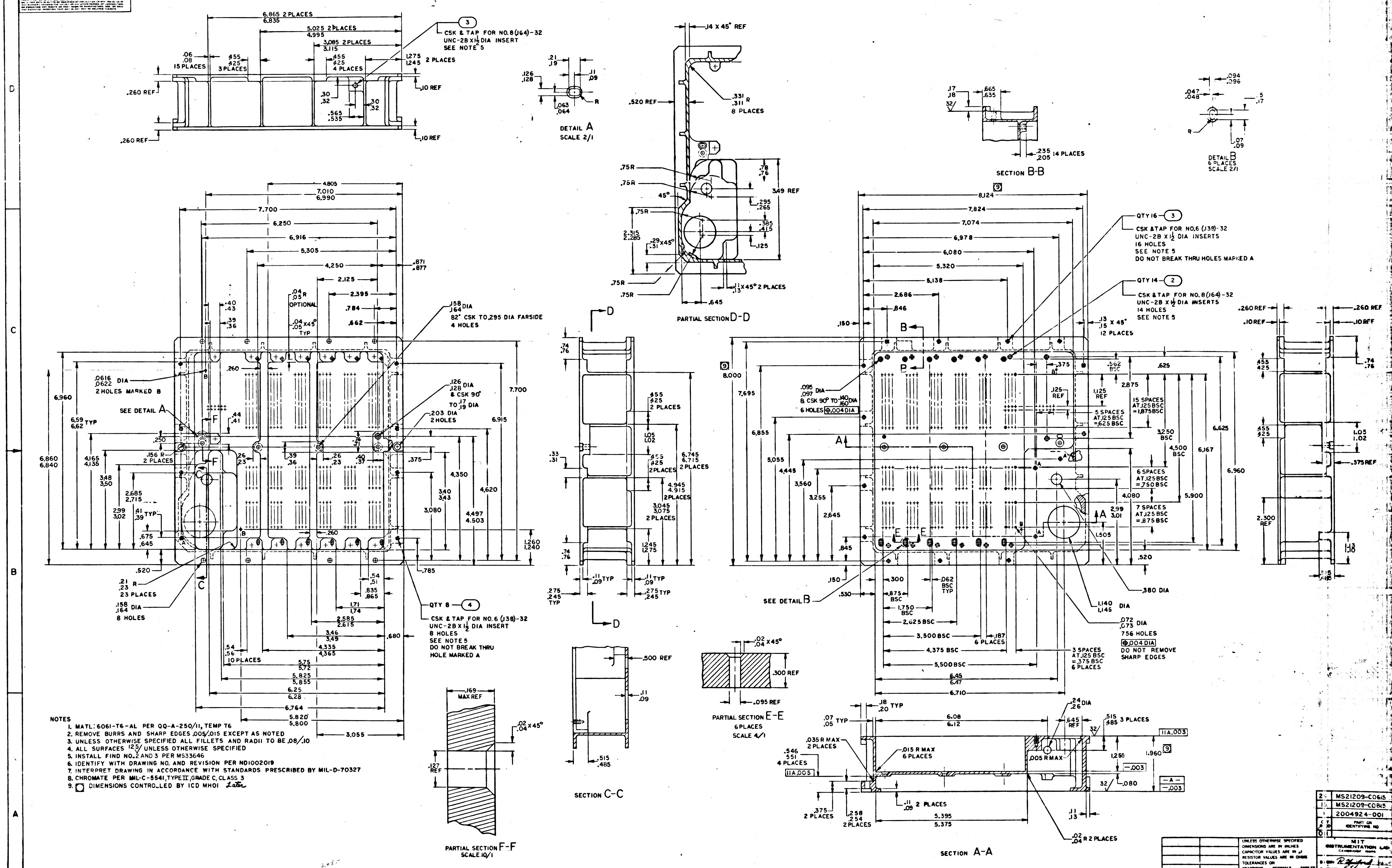
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PLATE, IDM
MAIN HOUSING
AGC DSKY

CODE IDENT NO 80230
SIZE J
DRAWING NO. 2004924
SCALE 1/1
SHEET 1 OF 1

REVISIONS
SYM | ZONE | DESCRIPTION | DR | CHK | DATE | APPROVED

2004924 -



DETAIL A
SCALE 2/1
SECTION B-B
DETAIL B
6 PLACES
SCALE 2/1
PARTIAL SECTION D-D
SECTION C-C
PARTIAL SECTION E-E
6 PLACES
SCALE 4/1
PARTIAL SECTION F-F
SCALE 10/1
SECTION A-A
CSK & TAP FOR NO. 8 (.164)-32 UNC-2B X 1½ DIA INSERT SEE NOTE 5
QTY 16 ③ CSK & TAP FOR NO. 6 (.138)-32 UNC-2B X 1½ DIA INSERTS 16 HOLES SEE NOTE 5 DO NOT BREAK THRU HOLES MARKED A
QTY 14 ② CSK & TAP FOR NO. 8 (.164)-32 UNC-2B X 1½ DIA INSERTS 14 HOLES SEE NOTE 5
QTY 8 ④ CSK & TAP FOR NO. 6 (.138)-32 UNC-2B X 1½ DIA INSERT 8 HOLES SEE NOTE 5 DO NOT BREAK THRU HOLE MARKED A
.158 .164 DIA 82° CSK TO .295 DIA FARSIDE 4 HOLES
.0616 .0622 DIA 2 HOLES MARKED B
.095 .097 DIA & CSK 90° TO .140 .160 DIA 6 HOLES
.072 .073 DIA 756 HOLES .004 DIA DO NOT REMOVE SHARP EDGES
SEE DETAIL A
SEE DETAIL B
9

NOTES

1. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP T6
2. REMOVE BURRS AND SHARP EDGES .005/.015 EXCEPT AS NOTED
3. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .08/.10
4. ALL SURFACES 125√ UNLESS OTHERWISE SPECIFIED
5. INSTALL FIND NO. 2 AND 3 PER MS33646
6. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
7. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
8. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
9. ▢ DIMENSIONS CONTROLLED BY ICD MH01 *Later*

2		MS21209-C0615
1		MS21209-C0815
		2004924-001
QTY REQD		PART OR IDENTIFYING NO

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±½°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1 -

NEXT ASSY	USED ON
2003917	
APPLICATION	

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN R. Fairford
CHECKED P. Edmond
APPROVED
APPROVED
APPROVED
APPROVED

MASTER

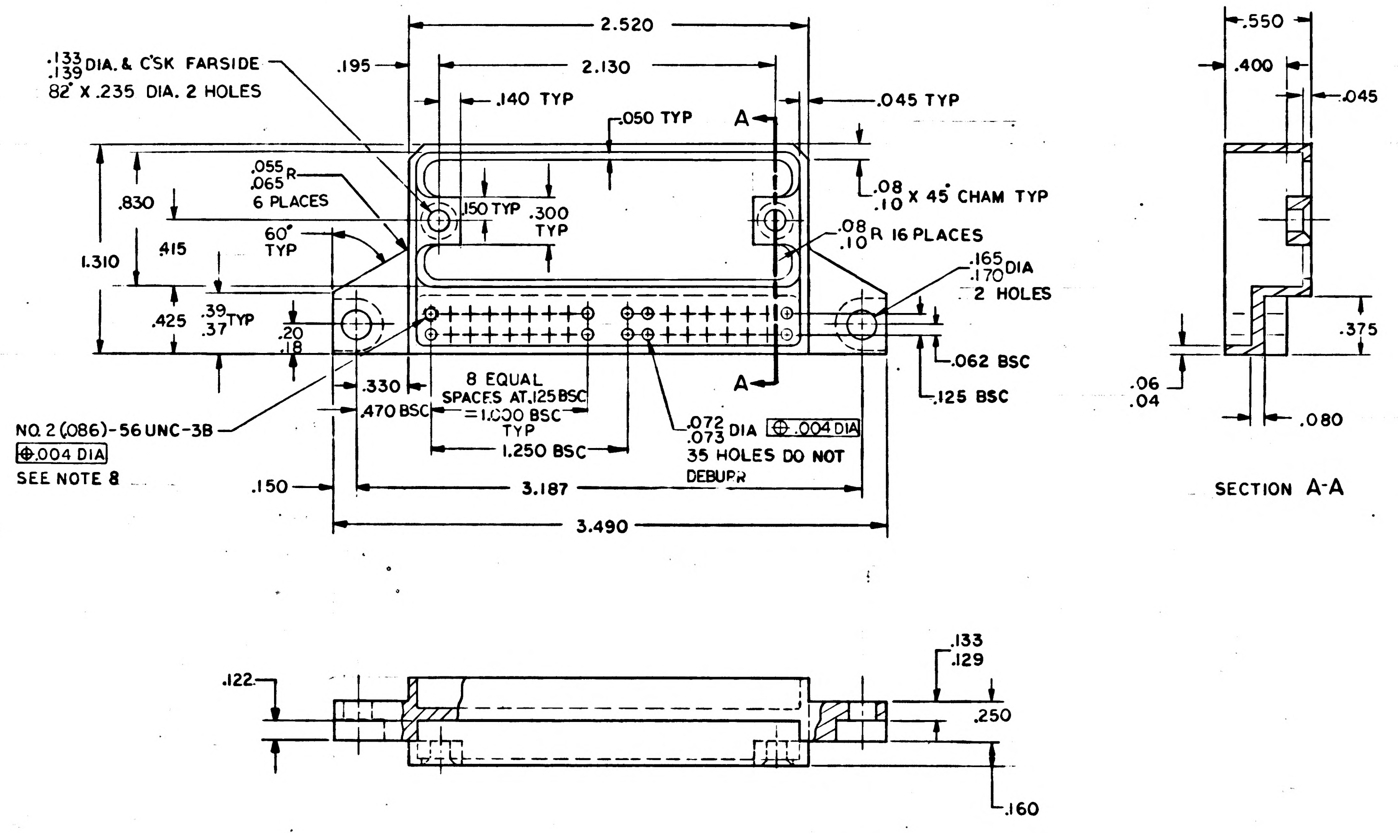
2004924 -

2-F

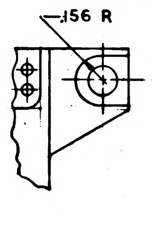
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004925 -

REVISIONS 20273						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



.133 .139 DIA. & C'SK FARSIDE 82° X .235 DIA. 2 HOLES
.195
2.520
2.130
.140 TYP
.050 TYP
A
.045 TYP
.055 .065 R 6 PLACES
.150 TYP
.300 TYP
.08 .10 X 45° CHAM TYP
.830
1.310
.415
60° TYP
.08 .10 R 16 PLACES
.165 .170 DIA 2 HOLES
.425
.39 .37 TYP
.20 .18
.062 BSC
.125 BSC
.330
.470 BSC
8 EQUAL SPACES AT .125 BSC =1.000 BSC TYP
1.250 BSC
.072 .073 DIA ⊕ .004 DIA 35 HOLES DO NOT DEBURR
NO. 2 (.086)-56 UNC-3B ⊕ .004 DIA SEE NOTE 8
.150
3.187
3.490
.550
.400
.045
.375
.06 .04
.080
SECTION A-A
.122
.133 .129
.250
.160



NOTES

1. MATERIAL: MAGNESIUM ZK60A-T5 PER QQ-M-31, TEMP 5
2. REMOVE BURRS AND SHARP EDGES .010 MAX
3. ALL SURFACES 125√
4. ANODIZE PER MIL-M-45202 TYPE II, CLASS D
5. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
6. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
7. RADII TO BE .010 R MAX UNLESS SPECIFIED
8. TAPPED HOLE TO BE FREE OF ANODIZE, COAT PER ND1002040

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003918	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN 10 Jan 65
CHECKED F. Leger 29 Jan 65
APPROVED 1 Jan 65
APPROVED Eldon C Hall 21 Jan 65
APPROVED MIT 22 Jan 65
APPROVED MSC 6/22/65
DATE

HEADER
KEYBOARD MODULE
AGC DSKY

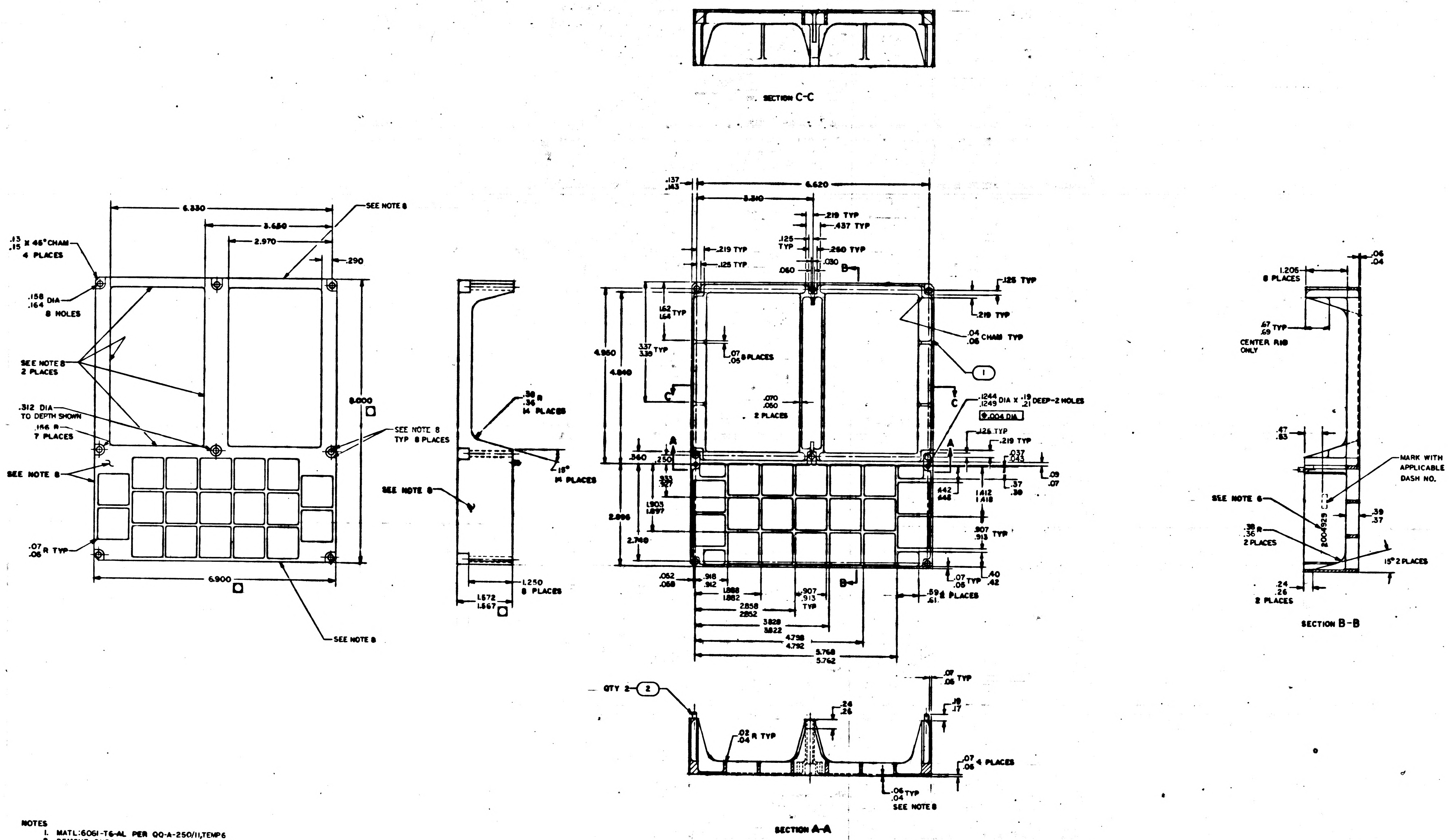
CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2004925
SCALE 2/1
SHEET 1 OF 1

2004925 1

A	2004929			

REVISIONS 20267

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22313 DR K. W. Simpson CHK APPD		



SECTION C-C
6.330
3.650
2.970
.290
SEE NOTE 8
.13 X 45° CHAM
.15 4 PLACES
.158 DIA
.164 8 HOLES
SEE NOTE 8 2 PLACES
.312 DIA TO DEPTH SHOWN
.156 R 7 PLACES
SEE NOTE 8
SEE NOTE 8 TYP 8 PLACES
8.600
.07 R TYP
.05
6.900
.38 R
.36
14 PLACES
15° 14 PLACES
SEE NOTE 8
1.250 8 PLACES
1.572
1.567
.137
.143
6.620
3.310
.219 TYP
.437 TYP
.125 TYP
.250 TYP
.030
.060
B
.125 TYP
.219 TYP
.04 CHAM TYP
.06
1
.162 TYP
.164
3.37 TYP
3.39
.07 8 PLACES
.05
4.860
4.840
C
.070
.050 2 PLACES
.1244 DIA X .19 DEEP-2 HOLES
.1249 .21
.004 DIA
.125 TYP
.219 TYP
.037
.043
.09
.07
A
.360
.250
.331
.327
.442
.446
1.412
1.418
.37
.38
1.903
1.897
2.896
2.740
.907 TYP
.913
.052
.058
.918
.912
1.888
1.882
2.858
2.852
3.828
3.822
4.798
4.792
5.768
5.762
.907
.913 TYP
.07 TYP
.05
.40
.42
.59 8 PLACES
.61
1.205 8 PLACES
.06
.04
.67 TYP
.69 CENTER RIB ONLY
.47
.53
MARK WITH APPLICABLE DASH NO.
2004929
SEE NOTE 6
.38 R
.36
2 PLACES
.39
.37
15° 2 PLACES
.24
.26 2 PLACES
SECTION B-B
QTY 2 2
.07 TYP
.05
.24
.26
.19
.17
.02 R TYP
.04
.07 4 PLACES
.05
.06 TYP
.04
SEE NOTE 8
SECTION A-A

NOTES
1. MATL:6061-T6-AL PER QQ-A-250/11,TEMP6
2. REMOVE BURRS AND SHARP EDGES.005/.015
3. ALL SURFACES 125/
4. CHROMATE PER MIL-C-5541,TYPE II,GRADE C,CLASS B
5. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .09 R MAX
6. MARK .10/.14 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122,TYPE II,CLASS 2 USING INK 1006271-10
7. C DIMENSIONS CONTROLLED BY ICD MH01
8. C PAINT INDICATED SURFACES WITH 1010729-1 MED GRAY EPOXY ENAMEL PER ND1002110
9. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
2	MS16555-625	PIN, DOWEL	2
1	2004929-001	COVER, FRONT	

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003900	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±2°
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 1
HEAT TREATMENT NONE
FINAL FINISH SEE NOTES 4 & 8

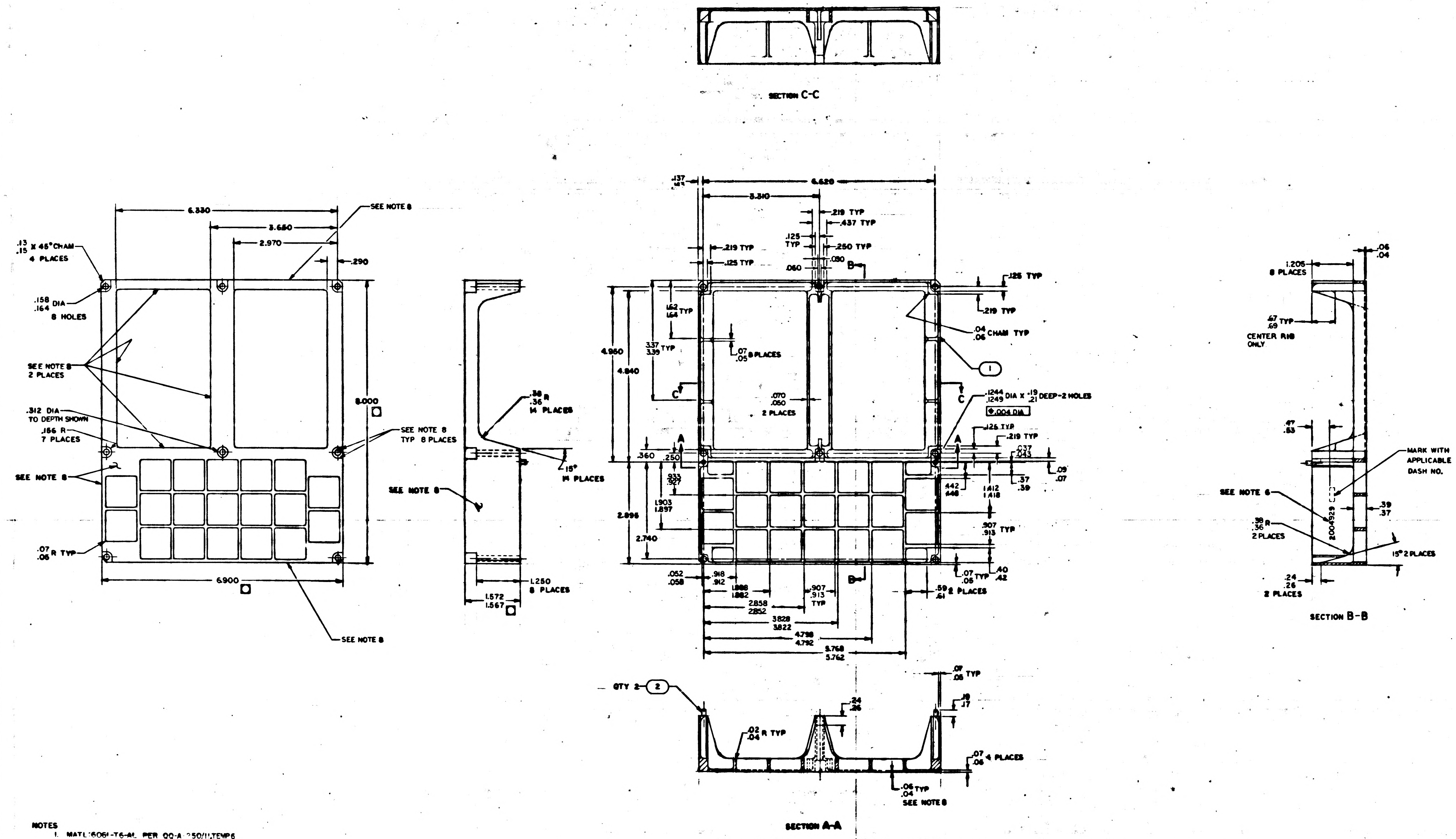
MIT INSTRUMENTATION LAB CAMBRIDGE, MASS.
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COVER, FRONT
AGC DSKY

CODE IDENT NO. 80230 SIZE J NASA DRAWING NO. 2004929
SCALE 1/1 WT SHEET 1 OF 1

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22313 DR K.W. Singer CHK CAP APPD		
B	REVISED PER TDRR 22547 DR R.A. Singer CHK APPD		



SECTION C-C
6.330
3.650
2.970
.290
.13 .15 X 45° CHAM 4 PLACES
.158 .164 DIA 8 HOLES
SEE NOTE 8 2 PLACES
.312 DIA TO DEPTH SHOWN
.156 R 7 PLACES
SEE NOTE 8
8.000
SEE NOTE 8 TYP 8 PLACES
.07 .05 R TYP
6.900
SEE NOTE 8
.38 .36 R 14 PLACES
15° 14 PLACES
1.250 8 PLACES
1.572 1.567
6.620
3.310
.219 TYP
.437 TYP
.125 TYP
.250 TYP
.080
.060
.137 .133
4.960
4.840
3.37 3.39 TYP
1.62 1.64 TYP
.07 .05 8 PLACES
.070 .050 2 PLACES
.04 .06 CHAM TYP
.1244 .1249 DIA X .19 .21 DEEP-2 HOLES
.004 DIA
.360
.250
2.896
2.740
1.903 1.897
.933 .927
.442 .446
1.412 1.418
.907 .913 TYP
.07 .05 TYP
.40 .42
.59 .61 2 PLACES
.052 .058
.918 .912
1.888 1.882
2.858 2.852
3.828 3.822
4.798 4.792
5.768 5.762
1.205 8 PLACES
.06 .04
.67 .69 TYP CENTER RIB ONLY
.47 .53
MARK WITH APPLICABLE DASH NO.
SEE NOTE 6
.38 R .36 2 PLACES
.39 .37
15° 2 PLACES
.24 .26 2 PLACES
2004929
SECTION B-B
QTY 2
.02 .04 R TYP
.24 .26
.07 .05 TYP
.19 .17
.07 .06 4 PLACES
.06 .04 TYP SEE NOTE 8
SECTION A-A

NOTES
1. MATL:6061-T6-AL PER QQ-A-250/11,TEMP6
2. REMOVE BURRS AND SHARP EDGES.005/.015
3. ALL SURFACES 125/
4. CHROMATE PEP MIL-C-5541,TYPE II,GRADE C,CLASS B
5. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .09 R MAX
6. MARK .10/.14 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122,TYPE II,CLASS 2 USING INK 1006271-10
7. C DIMENSIONS CONTROLLED BY ICD MH01
8. C PAINT INDICATED SURFACES WITH 1008809-1 MED GRAY EPOXY ENAMEL PER 1002279
9. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
2	MS16555-625	PIN, DOWEL	2
1	2004929-001	COVER, FRONT	1
011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003985	
2003900	
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±2°
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 1
HEAT TREATMENT NONE
FINAL FINISH SEE NOTES 4 & 8

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

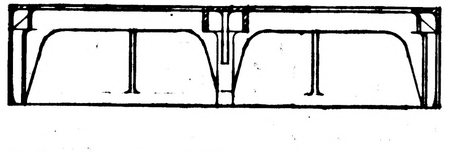
COVER, FRONT
AGC DSKY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO 2004929
SCALE 1/1
WT
SHEET 1 OF 1

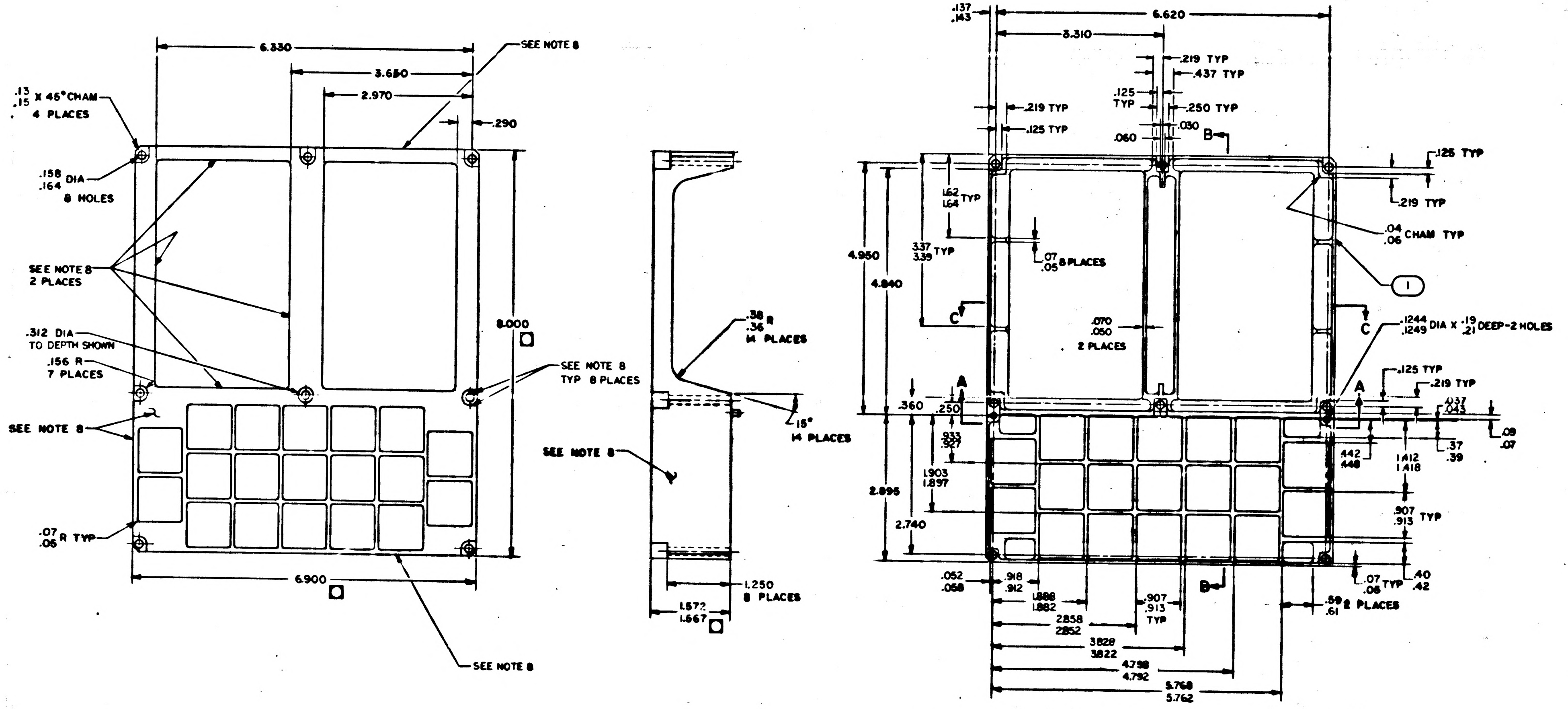
2004929 B

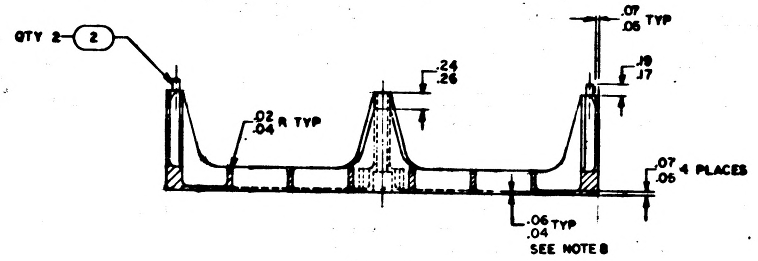
2004929 C

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22313 DR K.W.Simpson CHK C.A.B. APPD		
B	REVISED PER TDRR 22547 DR CHK APPD		
C	REVISED PER TDRR 22738 DR R.B.B. CHK APPD		

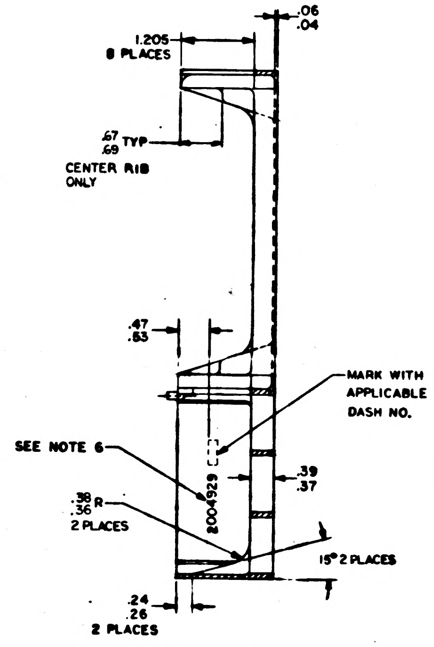


SECTION C-C


6.330
3.650
2.970
SEE NOTE 8
.290
.13 .15 X 45° CHAM 4 PLACES
.158 .164 DIA 8 HOLES
SEE NOTE 8 2 PLACES
.312 DIA TO DEPTH SHOWN
.156 R 7 PLACES
SEE NOTE 8
SEE NOTE 8 TYP 8 PLACES
8.000
.07 .06 R TYP
6.900
SEE NOTE 8
.38 .36 R 14 PLACES
15° 14 PLACES
SEE NOTE 8
1.250 8 PLACES
1.572 1.567
.137 .143
6.620
3.310
.219 TYP
.437 TYP
.125 TYP
.250 TYP
.030
.060
.219 TYP
.125 TYP
B
.125 TYP
.219 TYP
.04 .06 CHAM TYP
1
1.62 1.64 TYP
.337 .339 TYP
.07 .05 8 PLACES
4.950
4.840
C
.070 .050 2 PLACES
C
.1244 .1249 DIA X .19 .21 DEEP-2 HOLES
A
A
.125 TYP
.219 TYP
.037 .043
.09 .07
.360
.250
.933 .927
1.903 1.897
2.896
2.740
442 448
1.412 1.418
.37 .39
.907 .913 TYP
.052 .058
.918 .912
1.888 1.882
2.858 2.852
3.828 3.822
4.798 4.792
5.768 5.762
.907 .913 TYP
B
.07 .06 TYP
.40 .42
.59 .61 2 PLACES


QTY 2
2
.07 .05 TYP
.24 .26
.19 .17
.02 .04 R TYP
.07 .05 4 PLACES
.06 .04 TYP
SEE NOTE 8

SECTION A-A


.06 .04
1.205 8 PLACES
.67 .69 TYP
CENTER RIB ONLY
.47 .53
MARK WITH APPLICABLE DASH NO.
SEE NOTE 6
2004929
.39 .37
.38 .36 R 2 PLACES
15° 2 PLACES
.24 .26 2 PLACES

SECTION B-B

NOTES
1. MATL:6061-T6-AL PER QQ-A-250/11,TEMP6
2. REMOVE BURRS AND SHARP EDGES.005/.015
3. ALL SURFACES 125/
4. CHROMATE PER MIL-C-5541,TYPE II,GRADE C,CLASS B
5. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .09 R MAX
6. MARK .10/.14 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122,TYPE II,CLASS 2 USING INK 1006271-10
7. C DIMENSIONS CONTROLLED BY ICD MH01-01305-116
8. C PAINT INDICATED SURFACES WITH 1008809-1 MED GRAY EPOXY ENAMEL PER 1002279
9. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
2	MS16555-625	PIN, DOWEL	2
1	2004929-001	COVER, FRONT	1
011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003986	
2003900	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±2°
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 1
HEAT TREATMENT NONE
FINAL FINISH SEE NOTES 4 & 8

MIT INSTRUMENTATION LAB CAMBRIDGE, MASS
DRAWN
DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER HOUSTON, TEXAS

COVER, FRONT
AGC DSKY

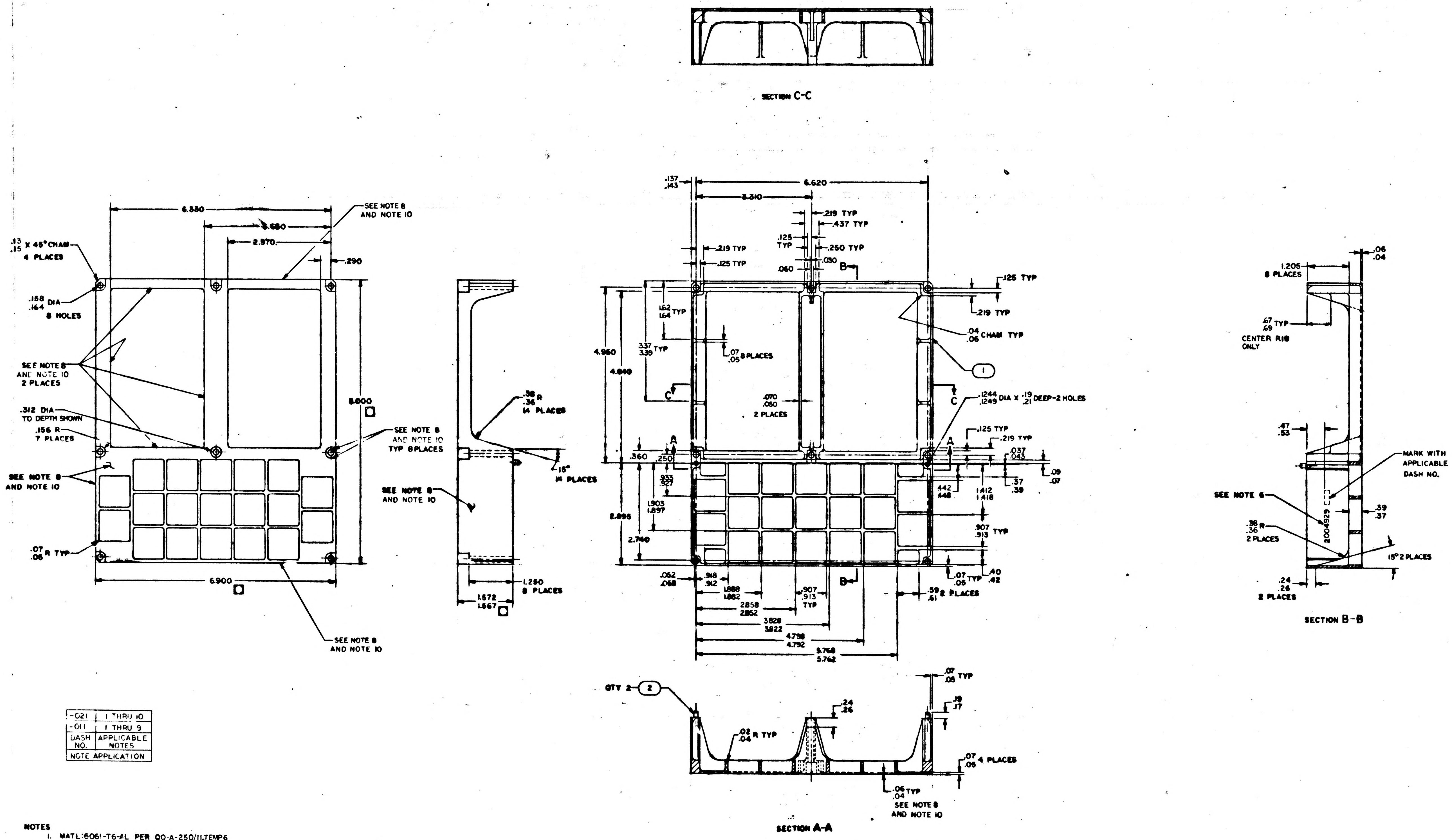
CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2004929
SCALE 1/1 WT SHEET 1 OF 1

MASTER

2004929 C

2004929 D

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22313 DR K.W.Singer CHK CAB APPD		
B	REVISED PER TDRR 22547 DR R.B. CHK APPD		
C	REVISED PER TDRR 22738 DR R.B.S. CHK APPD		
D	REVISED PER TDRR 28178 DR K.L.Singer CHK J-J APPD		


SECTION C-C
6.330
3.660
2.970
.290
.13 .15 X 45° CHAM 4 PLACES
.168 .164 DIA 8 HOLES
SEE NOTE 8 AND NOTE 10
SEE NOTE 8 AND NOTE 10 2 PLACES
.312 DIA TO DEPTH SHOWN
.156 R 7 PLACES
SEE NOTE 8 AND NOTE 10
.07 .05 R TYP
8.000
6.900
SEE NOTE 8 AND NOTE 10 TYP 8 PLACES
.38 .36 R 14 PLACES
15° 14 PLACES
1.280 8 PLACES
1.572 1.567
6.620
3.310
.137 .143
.219 TYP
.437 TYP
.125 TYP
.250 TYP
.030
.060
.219 TYP
.125 TYP
.125 TYP
.219 TYP
.04 .06 CHAM TYP
1
4.960
4.840
.162 .164 TYP
.337 .339 TYP
.07 .05 8 PLACES
.070 .050 2 PLACES
.1244 .1249 DIA X .19 .21 DEEP-2 HOLES
C
A
B
.125 TYP
.219 TYP
.037 .043
.09 .07
.360
.250
.933 .927
1.903 1.897
2.895
2.740
.442 .448
1.412 1.418
.37 .39
.907 .913 TYP
.062 .068
.918 .912
1.888 1.882
.907 .913 TYP
2.858 2.852
3.828 3.822
4.798 4.792
5.768 5.762
.07 .05 TYP
.40 .42
.59 .61 2 PLACES
QTY 2
2
.02 .04 R TYP
.24 .26
.07 .05 TYP
.19 .17
.07 .05 4 PLACES
.06 .04 TYP
SEE NOTE 8 AND NOTE 10
SECTION A-A
1.205 8 PLACES
.06 .04
.67 .69 TYP CENTER RIB ONLY
.47 .53
MARK WITH APPLICABLE DASH NO.
SEE NOTE 6
2004929
.39 .37
.38 .36 R 2 PLACES
15° 2 PLACES
.24 .26 2 PLACES
SECTION B-B

-021	1 THRU 10
-011	1 THRU 9
DASH NO.	APPLICABLE NOTES
NOTE APPLICATION	

NOTES
1. MATL:6061-T6-AL PER QQ-A-250/11,TEMP6
2. REMOVE BURRS AND SHARP EDGES.005/.015
3. ALL SURFACES 125/
4. CHROMATE PER MIL-C-5541,TYPE II,GRADE C,CLASS B
5. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .09 R MAX
6. MARK .10/.14 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122,TYPE II,CLASS 2 USING INK 1006271-10
7. DIMENSIONS CONTROLLED BY ICD MH01- [illegible] 5 -116
8. PAINT INDICATED SURFACES WITH 1008809- [illegible] GRAY EPOXY ENAMEL PER 1002279
9. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
10. FINAL COAT INDICATED SURFACES PER ND1002277 USING 1012343-003

2	2	MS16555-625	PIN, DOWEL	2
1	1	2004929-001	COVER, FRONT	1
QTY REQD	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
021	011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003950	
2003986	
2003900	
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±2°
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 1
HEAT TREATMENT NONE
FINAL FINISH SEE NOTES 4 & 8

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN W.O.Clement DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COVER, FRONT
AGC DSKY

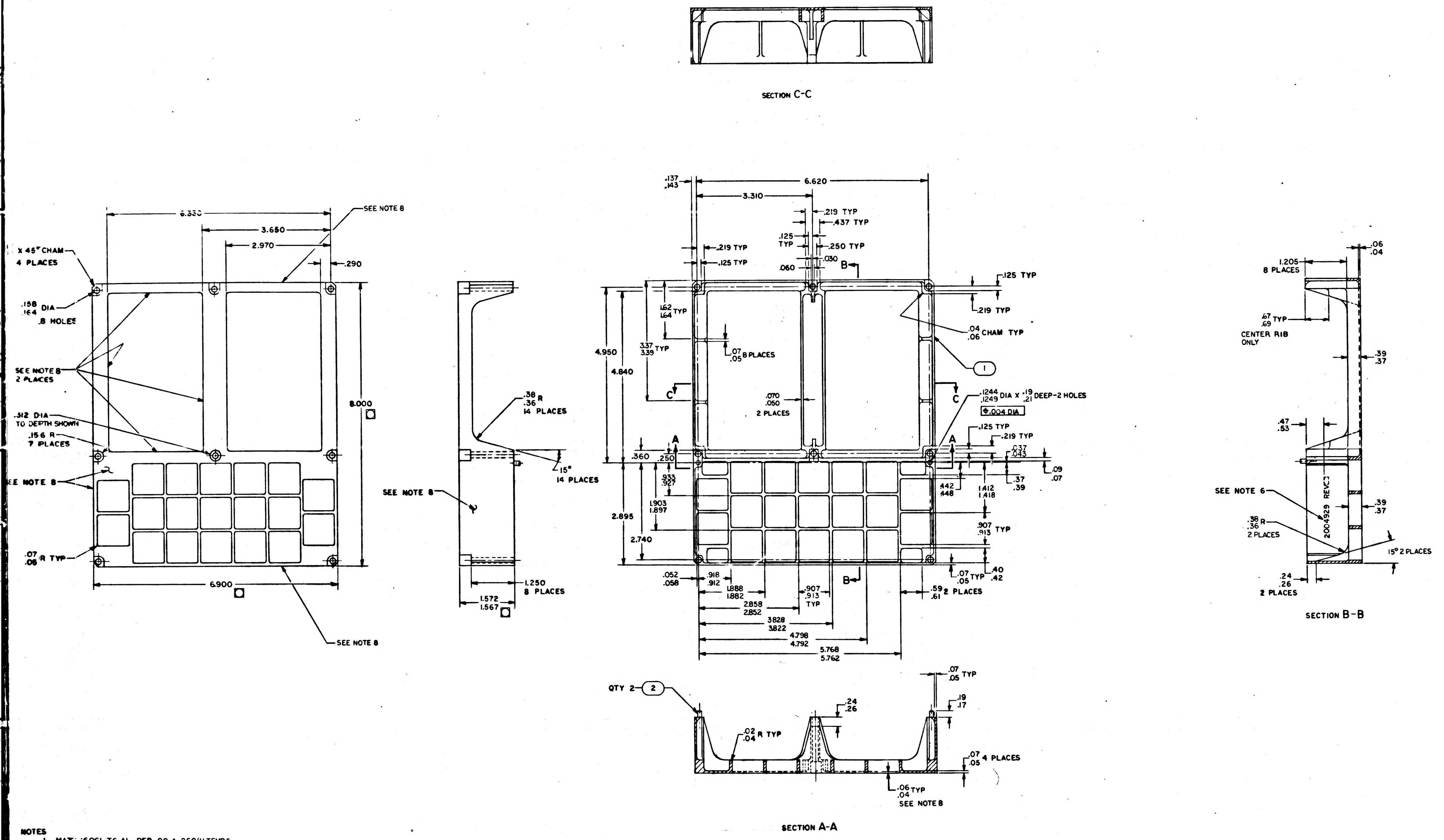
CODE IDENT NO. 80230 SIZE J NASA DRAWING NO. 2004929
SCALE 1/1 WT SHEET 1 OF 1

MASTER

2004929 D

2004929 | -

SYM	REVISIONS DESCRIPTION	DATE	APPROVAL
	20867		



SECTION C-C
6.620
3.310
.137
.143
.219 TYP
.437 TYP
.125 TYP
.250 TYP
.030
.060
.125 TYP
.219 TYP
.04
.06 CHAM TYP
1.62
1.64 TYP
3.37
3.39 TYP
.07
.05 8 PLACES
4.950
4.840
.070
.050
2 PLACES
.1244
.1249 DIA X .19 .21 DEEP-2 HOLES
⌖ .004 DIA
.125 TYP
.219 TYP
.037
.043
.09
.07
.37
.39
.442
.448
1.412
1.418
.907
.913 TYP
.360
.250
.933
.927
1.903
1.897
2.895
2.740
.07
.05 TYP
.40
.42
.052
.058
.918
.912
1.888
1.882
2.858
2.852
.907
.913
TYP
3.828
3.822
4.798
4.792
5.768
5.762
.59
.61 2 PLACES
A
B
C
6.330
3.650
2.970
.290
SEE NOTE 8
X 45° CHAM
4 PLACES
.158
.164 DIA
8 HOLES
SEE NOTE 8
2 PLACES
8.000
.312 DIA
TO DEPTH SHOWN
.156 R
7 PLACES
SEE NOTE 8
.07
.05 R TYP
6.900
SEE NOTE 8
.38
.36 R
14 PLACES
15°
14 PLACES
SEE NOTE 8
1.250
8 PLACES
1.572
1.567
.06
.04
1.205
8 PLACES
.67
.69 TYP
CENTER RIB
ONLY
.39
.37
.47
.53
SEE NOTE 6
2004929 REV.
.39
.37
.38
.36 R
2 PLACES
15° 2 PLACES
.24
.26
2 PLACES
SECTION B-B
QTY 2 ②
①
.02
.04 R TYP
.24
.26
.07
.05 TYP
.19
.17
.07
.05 4 PLACES
.06
.04 TYP
SEE NOTE 8
SECTION A-A

NOTES

1. MATL:6061-T6-AL PER QQ-A-250/11,TEMP6
2. REMOVE BURRS AND SHARP EDGES.005/.015
3. ALL SURFACES 125/
4. CHROMATE PER MIL-C-5541,TYPE II,GRADE C,CLASS B
5. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .09 R MAX
6. MARK .10/.14 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122,TYPE II,CLASS 2 USING INK 1006271-10
7. C DIMENSIONS CONTROLLED BY ICD MH01
8. C PAINT INDICATED SURFACES WITH 1010729-1 MED. GRAY EPOXY ENAMEL PER ND1002110
9. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
2	MS16555-625	PIN, DOWEL	2
1	2004929-001	COVER, FRONT	

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003900	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±2°
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 1
HEAT TREATMENT NONE
FINAL FINISH SEE NOTES 4 & 8

MIT INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN [illegible] DATE [illegible] 65
CHECKED [illegible] June [illegible] 65
APPROVAL [illegible]
APPROVAL [illegible] 12 July 65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible] 7-13-65
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COVER, FRONT
AGC DSKY

CODE IDENT NO. 80230 | SIZE J | NASA DRAWING NO. 2004929
SCALE 1/1 | WT | SHEET 1 OF 1

MASTER

2004929 | 1

2H

E-2

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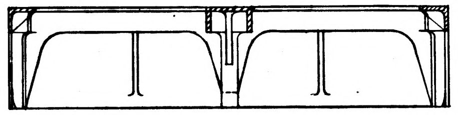
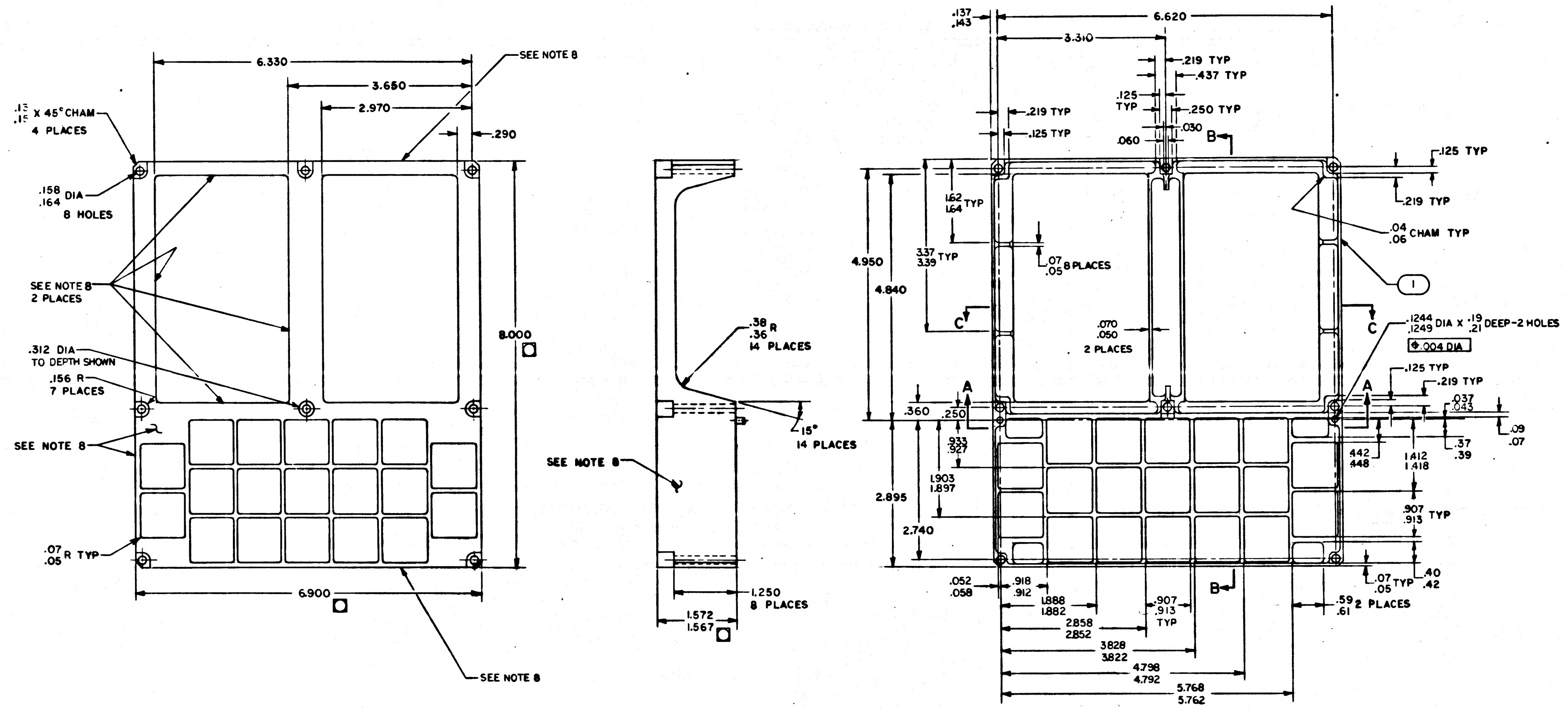
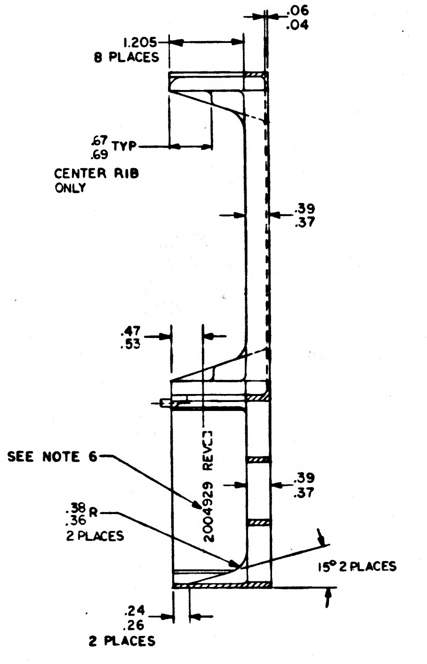
2004929 -

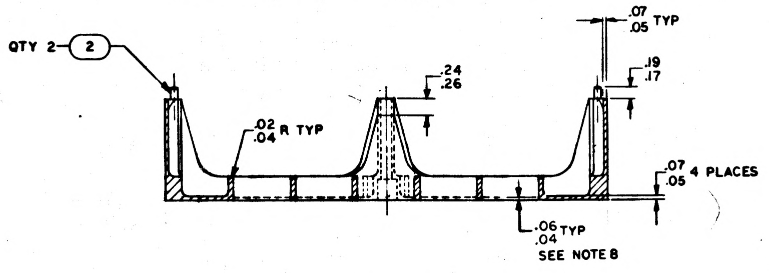


SECTION C-C


6.330
3.650
2.970
.290
SEE NOTE 8
.13 .15 X 45° CHAM 4 PLACES
.158 .164 DIA 8 HOLES
SEE NOTE 8 2 PLACES
.312 DIA TO DEPTH SHOWN
.156 R 7 PLACES
SEE NOTE 8
8.000
.07 .05 R TYP
6.900
SEE NOTE 8
.38 .36 R 14 PLACES
15° 14 PLACES
SEE NOTE 8
1.250 8 PLACES
1.572 1.567
.137 .143
6.620
3.310
.219 TYP
.437 TYP
.125 TYP
.250 TYP
.030
.060
.219 TYP
.125 TYP
B
.125 TYP
.219 TYP
.04 .06 CHAM TYP
1
1.62 1.64 TYP
3.37 3.39 TYP
.07 .05 8 PLACES
4.950
4.840
C
C
.070 .050 2 PLACES
.1244 .1249 DIA X .19 .21 DEEP-2 HOLES
⌖ .004 DIA
A
A
.360
.250
.125 TYP
.219 TYP
.037 .043
.09 .07
.933 .927
1.903 1.897
.442 .448
1.412 1.418
.37 .39
2.895
2.740
.907 .913 TYP
.40 .42
.07 .05 TYP
.052 .058
.918 .912
1.888 1.882
.907 .913 TYP
2.858 2.852
3.828 3.822
4.798 4.792
5.768 5.762
.59 .61 2 PLACES
B


.06 .04
1.205 8 PLACES
.67 .69 TYP
CENTER RIB ONLY
.39 .37
.47 .53
SEE NOTE 6
2004929 REV C1
.38 .36 R 2 PLACES
.39 .37
15° 2 PLACES
.24 .26 2 PLACES

SECTION B-B


QTY 2
2
.07 .05 TYP
.24 .26
.19 .17
.02 .04 R TYP
.07 .05 4 PLACES
.06 .04 TYP
SEE NOTE 8

SECTION A-A

NOTES

1. MATL:6061-T6-AL PER QQ-A-250/11,TEMP6
2. REMOVE BURRS AND SHARP EDGES.005/.015
3. ALL SURFACES 125/
4. CHROMATE PER MIL-C-5541,TYPE II,GRADE C,CLASS B
5. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .09 R MAX
6. MARK .10/.14 HIGH BLACK CHARACTERS PER ND1002019 AND ND1002122, TYPE II, CLASS 2 USING INK 1006271-10
7. ◯ DIMENSIONS CONTROLLED BY ICD MH01
8. ◯ PAINT INDICATED SURFACES WITH 1010729-1 MED GRAY EPOXY ENAMEL PER ND1002110
9. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
2	MS16555-625	PIN, DOWEL
1	2004929-001	COVER, FRONT

LIST OF MATERIALS

NEXT ASSY	USED ON
2003900	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

HEAT TREATMENT
NONE

FINAL FINISH
SEE NOTES 4 & 8

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN D.Q. Clement DATE 14 JUNE 65
CHECKED J. Lopez June 14 65
APPROVAL G. Undelhoffer 9 June 65
APPROVAL Wm C Hall 12 July 65
NASA APPROVAL W.J. Rhine
MIT APPROVAL McWendy 7-13-65
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

COVER, FRONT
AGC DSKY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2004929
SCALE 1/1
WT
SHEET

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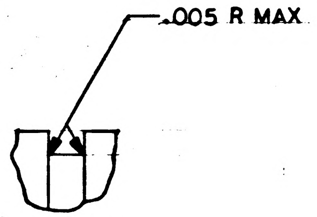
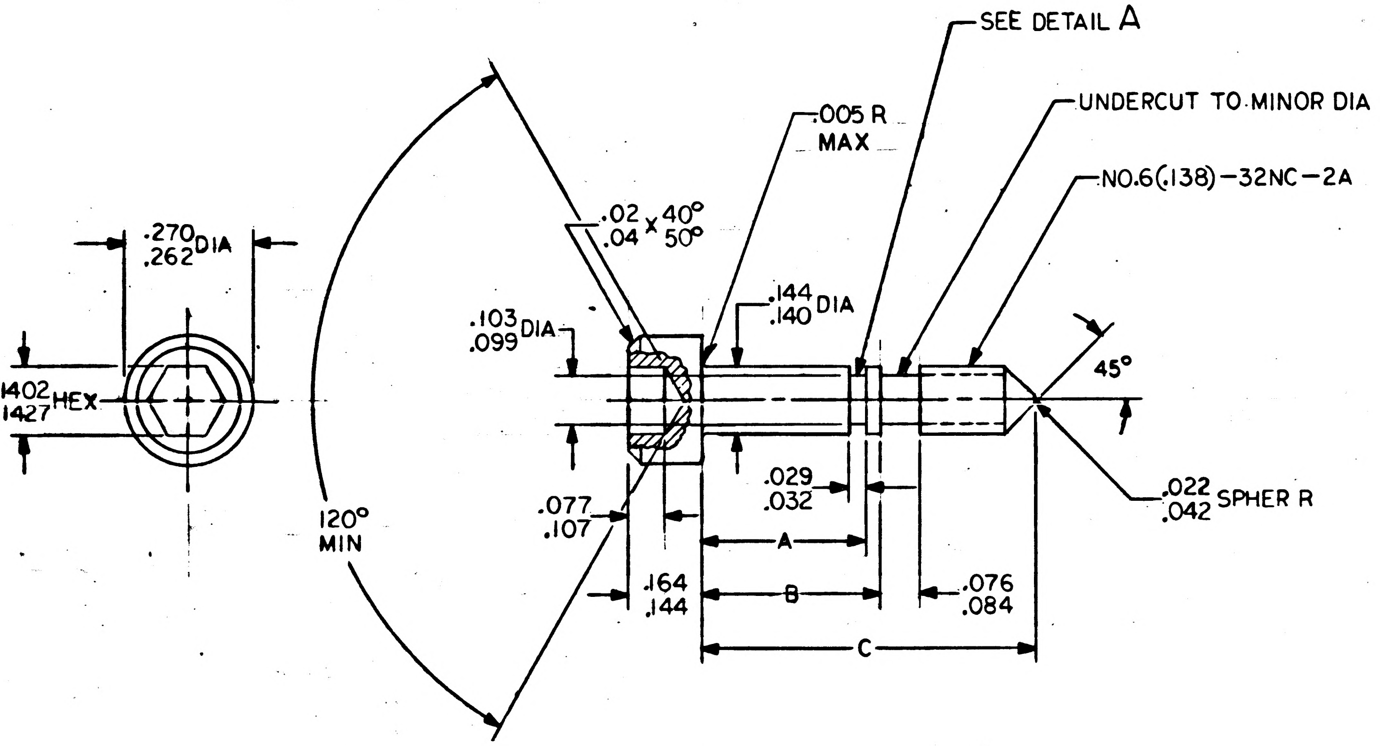
— 2004932

REVISIONS 20273

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



DETAIL A
SCALE 10/1



NOTES
1. MATL: 410 CRES, CLASS 410, COND. A PER QQ-S-763 (HEAD TO BE COLD FORMED)
2. REMOVE BURRS AND SHARP EDGES .005 MAX
3. PASSIVATE PER MIL-F-14072, FINISH E300, TYPE I
4. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
5. HEAT TREAT TO ROCKWELL RC36-43
6. CONCENTRICITY: ALL DIAMETERS MUST BE WITHIN .005 T.I.R.
7. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

DASH NO.	DIM. A	DIM. B	DIM. C
2004932-001	.336 .334	.378 .374	.755 .765
2004932-002	.211 .209	.253 .249	.580 .570

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003909	
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN J.P. Leonard 31MAR65
CHECKED F. Leger 29Apr65
APPROVED G. Underkoffler 1 Jun 65
APPROVED Eldon C Hall 21 Jun 65
APPROVED MIT W Kupfer 22 June 65
APPROVED MSC 6/22/65
DATE

SCREW, JACKING
AGC DSKY

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004932
SCALE 4/1
SHEET 1 OF 1

MASTER

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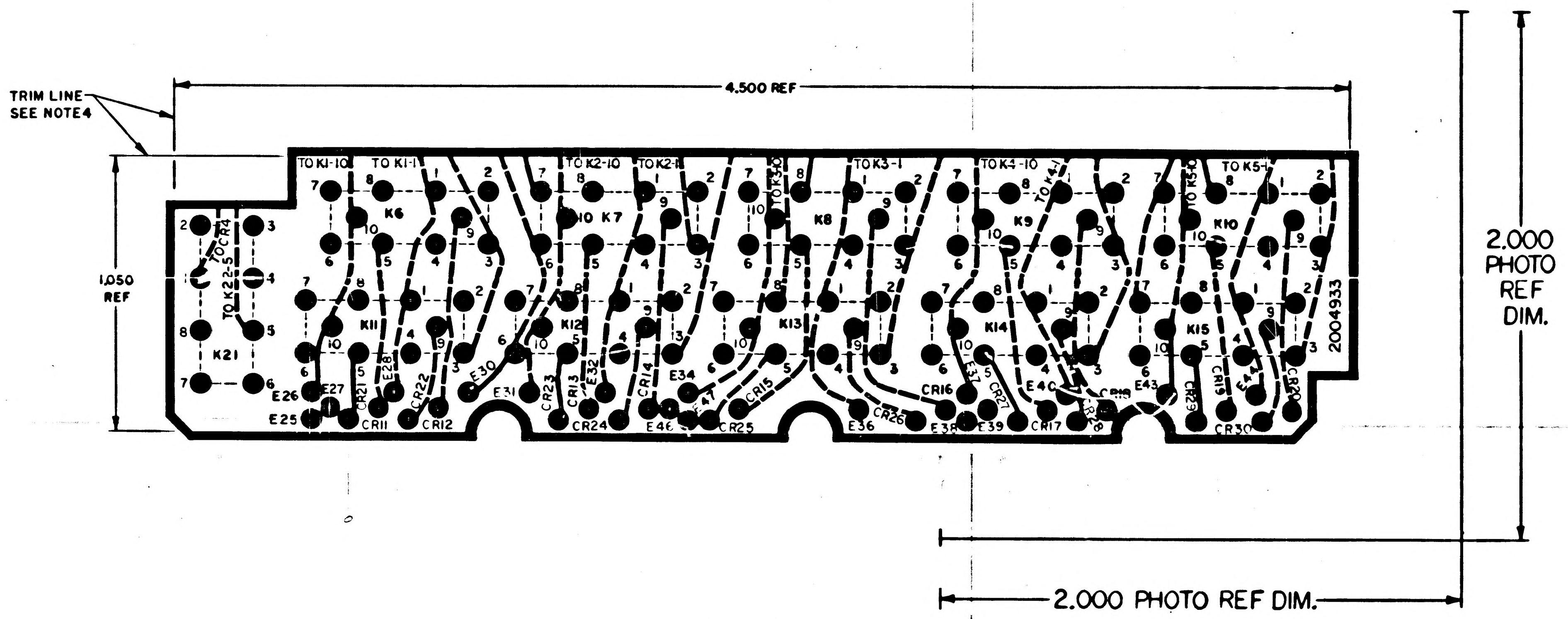
REVISIONS 20272

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22162 DR CHK	9/30/65	


TRIM LINE
SEE NOTE4
4.500 REF
1.050 REF
2.000 PHOTO REF DIM.
2.000 PHOTO REF DIM.
TO K1-10
TO K1-1
TO K2-10
TO K2-1
TO K3-10
TO K3-1
TO K4-10
TO K4-1
TO K5-10
TO K5-1
TO CR4
TO K22-5
K6
K7
K8
K9
K10
K11
K12
K13
K14
K15
K21
E25
E26
E27
E28
E30
E31
E32
E34
E36
E37
E38
E39
E40
E43
E44
E46
E47
CR11
CR12
CR13
CR14
CR15
CR16
CR17
CR18
CR19
CR20
CR21
CR22
CR23
CR24
CR25
CR26
CR27
CR28
CR29
CR30
2004933

NOTES
1. MATERIAL: FILM .006/.008 THK SENSITIZED DIMENSIONALLY STABLE PER L-F-340, TYPE IB, CLASS 2, STYLE 1A
2. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
3. MAKE MASTER PATTERN POSITIVE FILMS TO DIMENSIONS SHOWN
4. CUT TO WITHIN .010 OF TRIM LINE
5. BROKEN LINE DENOTES SLEEVING
6. IDENTIFY WITH PART NO. PER ND1002019
7. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
8. ● .080/.084 DIA HOLE

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
2003910	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 1
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSULATOR, PHOTOMASTER
LOWER LEVEL A
RELAY CIRCUIT, INDICATOR DRIVER

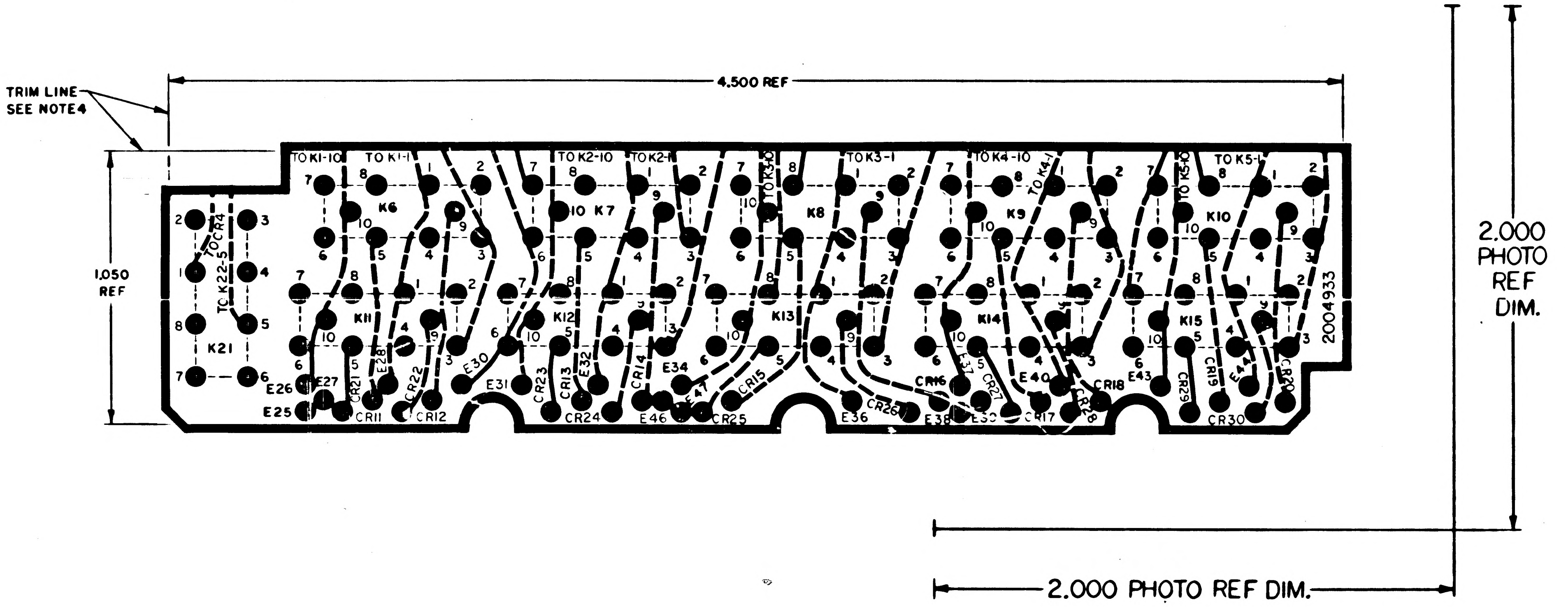
CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	D	2004933

SCALE 4/1 WT SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20272

SYM	DESCRIPTION	DATE	APPROVAL
Ⓜ A	REVISED PER TDRR 22162 DR CHK f.Kaz BM	9/30/65	
Ⓜ B	REVISED PER TDRR 24005 DR D.A.Clermont CHK OAP BM	11/23/65	



TRIM LINE
SEE NOTE4
4.500 REF
1.050 REF
2.000 PHOTO REF DIM.
2.000 PHOTO REF DIM.
TO K1-10
TO K1-1
TO K2-10
TO K2-1
TO K3-10
TO K3-1
TO K4-10
TO K4-1
TO K5-10
TO K5-1
TO CR4
TO K22-5
K6
K7
K8
K9
K10
K11
K12
K13
K14
K15
K21
E25
E26
E27
E28
E30
E31
E32
E34
E36
E38
E39
E40
E43
E46
E47
CR11
CR12
CR13
CR14
CR15
CR16
CR17
CR18
CR19
CR20
CR21
CR22
CR23
CR24
CR25
CR26
CR27
CR28
CR29
CR30
2004933

NOTES
1. MATERIAL: FILM .006/.008 THK SENSITIZED DIMENSIONALLY STABLE PER L-F-340, TYPE IB, CLASS 2, STYLE IA
2. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
3. MAKE MASTER PATTERN POSITIVE FILMS TO DIMENSIONS SHOWN
4. CUT TO WITHIN .010 OF TRIM LINE
5. BROKEN LINE DENOTES SLEEVING
6. IDENTIFY WITH PART NO. PER ND1002019
7. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
8. ● .080/.084 DIA HOLE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

2003910	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE I
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO CONTRACT
DRAWN R.B. DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL 22 Jun 65

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HOUSTON, TEXAS

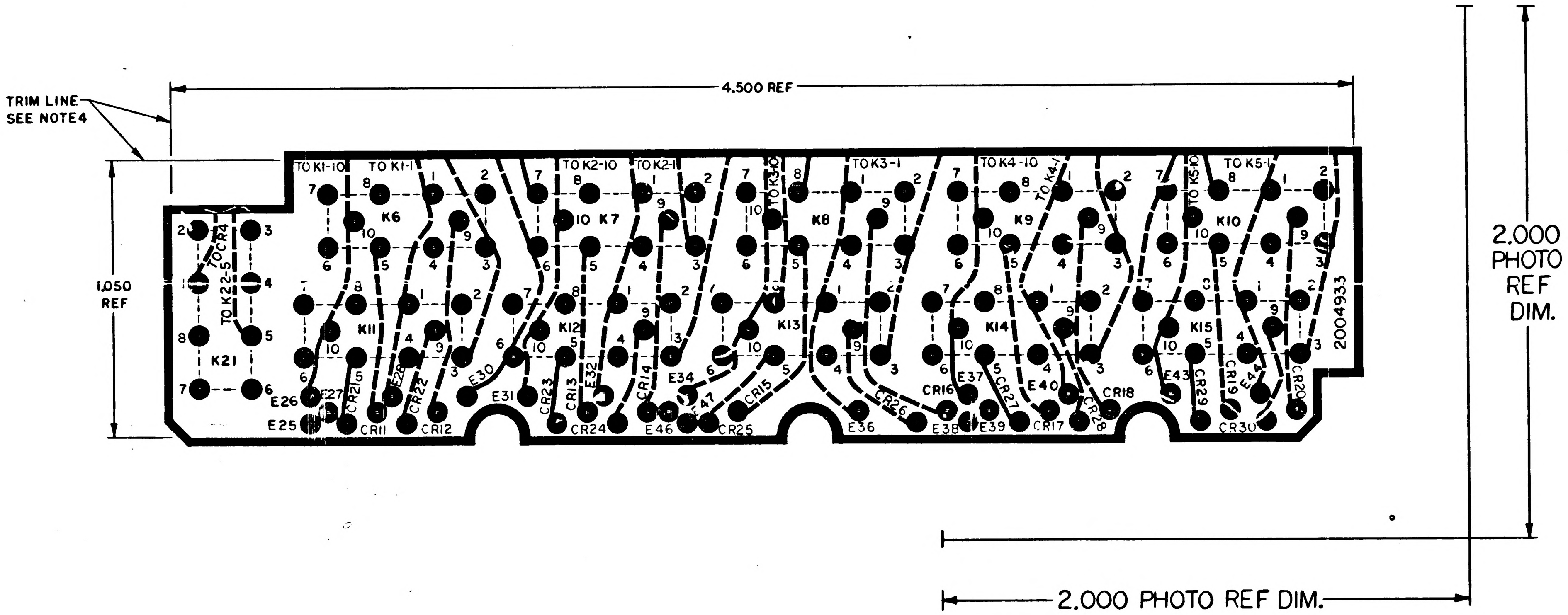
INSULATOR, PHOTOMASTER
LOWER LEVEL A
RELAY CIRCUIT, INDICATOR DRIVER

CODE IDENT NO. 80230
SIZE D
NASA DRAWING NO. 2004933
SCALE 4/1
WT
SHEET 1 OF 1

2004933 B

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20272			
SYM	DESCRIPTION	DATE	APPROVAL


TRIM LINE
SEE NOTE 4
4.500 REF
1.050
REF
2.000
PHOTO
REF
DIM.
2.000 PHOTO REF DIM.
TO K1-10
TO K1-1
TO K2-10
TO K2-1
TO K3-10
TO K3-1
TO K4-10
TO K4-1
TO K5-10
TO K5-1
TO CR3
TO K22-5
K6
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CR28
CR29
CR30
2004933

2004933 | 1

NOTES
1. MATERIAL: FILM .006/.008 THK SENSITIZED DIMENSIONALLY STABLE PER L-F-340, TYPE IB, CLASS 2, STYLE IA
2. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
3. MAKE MASTER PATTERN POSITIVE FILMS TO DIMENSIONS SHOWN
4. CUT TO WITHIN .010 OF TRIM LINE
5. BROKEN LINE DENOTES SLEEVING
6. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
7. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
8. ● .080/.084 DIA HOLE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

2003910	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 1
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO CONTRACT
DRAWN DATE 12 MAY 65
CHECKED 12 May 65
APPROVAL 1 June 65
APPROVAL 21 Jan 65
NASA APPROVAL 6/22/65
MIT APPROVAL 22 Jun 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSULATOR, PHOTOMASTER
LOWER LEVEL A
RELAY CIRCUIT, INDICATOR DRIVER

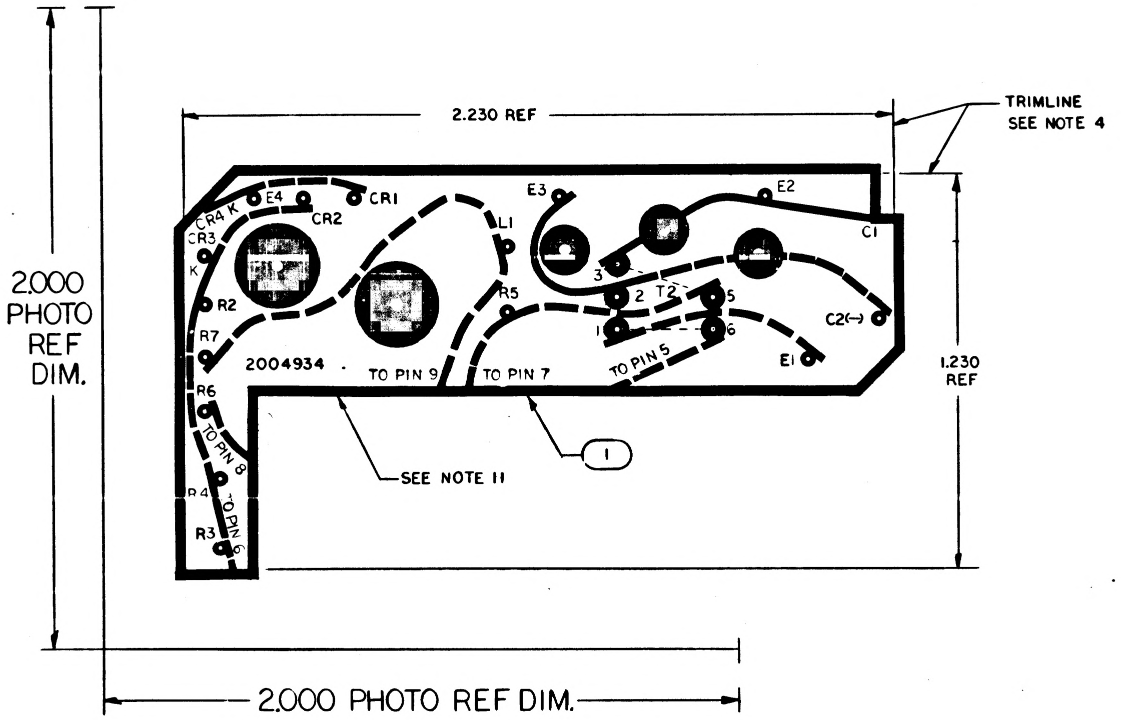
CODE IDENT NO 80230
SIZE D
NASA DRAWING NO. 2004933
SCALE 4/1
WT
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004934 —

REVISIONS 20456

SYM	DESCRIPTION	DATE	APPROVAL



NOTES

1. MATL: FILM, .006/.008 THK SENSITIZED DIMENSIONALLY STABLE PER L-F-340, TYPE IB, CLASS 2, STYLE 1A
2. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
3. MAKE MASTER PATTERN POSITIVE FILMS TO DIMENSIONS SHOWN
4. CUT TO WITHIN .010 OF TRIMLINE
5. BROKEN LINE DENOTES SLEEVING
6. ● .040/.050 DIA HOLE
7. ● .180/.190 DIA HOLE
8. ● .310/.320 DIA HOLE
9. ● .090/.100 DIA HOLE
10. IDENTIFY WITH DRAWING NO. & REVISION PER ND1002019
11. APPLY FIND NO. 2 TO FARSIDE OF FIND NO. 1
12. AR DENOTES AS REQUIRED
13. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
AR	1006318	ADHESIVE	2
1	2004934-001	INSULATOR	1
011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003901	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

HEAT TREATMENT

FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT

DRAWN W. Brown DATE 2 June 65
CHECKED R. Edwards 10 June 65
APPROVAL 10 June 65
APPROVAL 12 July 65
NASA APPROVAL 7-13-65
MIT APPROVAL 7-13-65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSULATOR, PHOTO MASTER
REAR
POWER SUPPLY MODULE, AGC DSKY

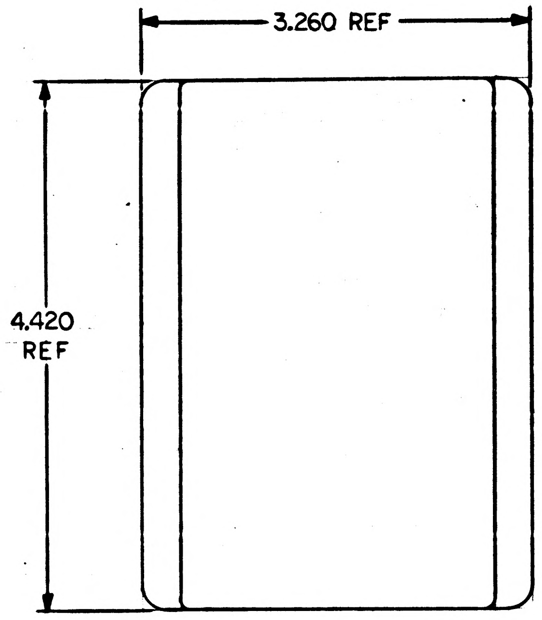
CODE IDENT NO. 80230
SIZE D
NASA DRAWING NO. 2004934
SCALE 4/1
WT
SHEET 1 OF 1

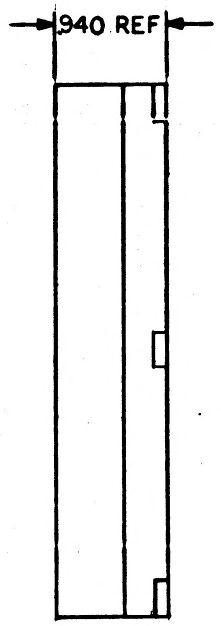
2004934 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 23636

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED





NOTES

1. UNITS PER 1006315 TO HAVE 100 HR BURN-IN REQUIREMENTS COMPLETED BY VENDOR
2. UNITS PER 1006385 WILL HAVE 24 HR BURN-IN BY VENDOR. UNITS AFTER ASSY PER 2003936 TO HAVE ADDITIONAL 26 HR BURN-IN. AFTER BURN-IN UNITS TO HAVE NOT LESS THAN 10 FOOT-LAMBERTS AVERAGE INTENSITY AT 250V, –800 CPS
3. UNITS AFTER BURN-IN TO BE IDENTIFIED WITH PART NO. PER ND1002019
4. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003936	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J.P. Leonard 28OCT65
CHECKED C.A. Prestia 28OCT65
APPROVED
APPROVED Eldon C Hall 2Nov65
APPROVED MIT W Kupfer 2Nov65
APPROVED MSC A. C. METZGER
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

E/L LIGHT (BURN-IN)
INDICATOR, DIGITAL
AGC DSKY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004935
SCALE 1/1		SHEET 1 OF 1

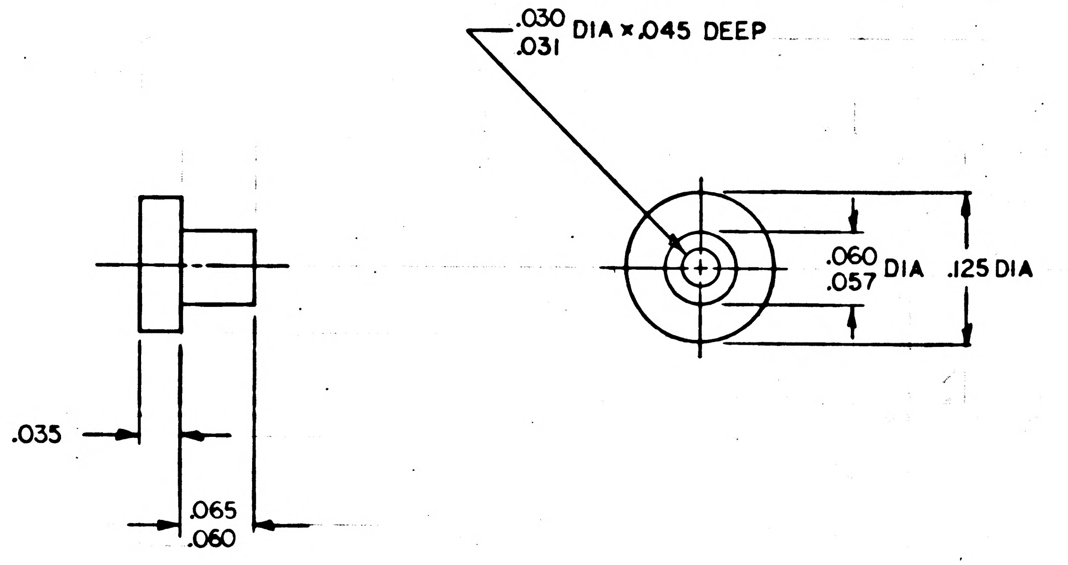
MODERN BLUE PRINT CO. D-19550

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004939 A

REVISIONS 20855

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 23236	[illegible]	[illegible]	[illegible]	[illegible]



NOTES
1. MATL: CRES PER QQ-S-763, CLASS 302, COND. A
2. PASSIVATE PER MIL-F-14072, FINISH E 300, TYPE I
3. REMOVE BURRS AND SHARP EDGES .005 MAX
4. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
5. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
6. ALL SURFACES TO BE 125√

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003936	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN W. Brown 17MAR65
CHECKED E. Lopez 3May65
APPROVED F. J. [illegible] 1June65
APPROVED Eldon C. Hall 22July65
APPROVED MIT M G Mur[illegible] 7-13-65
APPROVED MSC W J [illegible] 7-13-65
DATE

RIVET
SWITCH, PUSH BUTTON
AGC DSKY

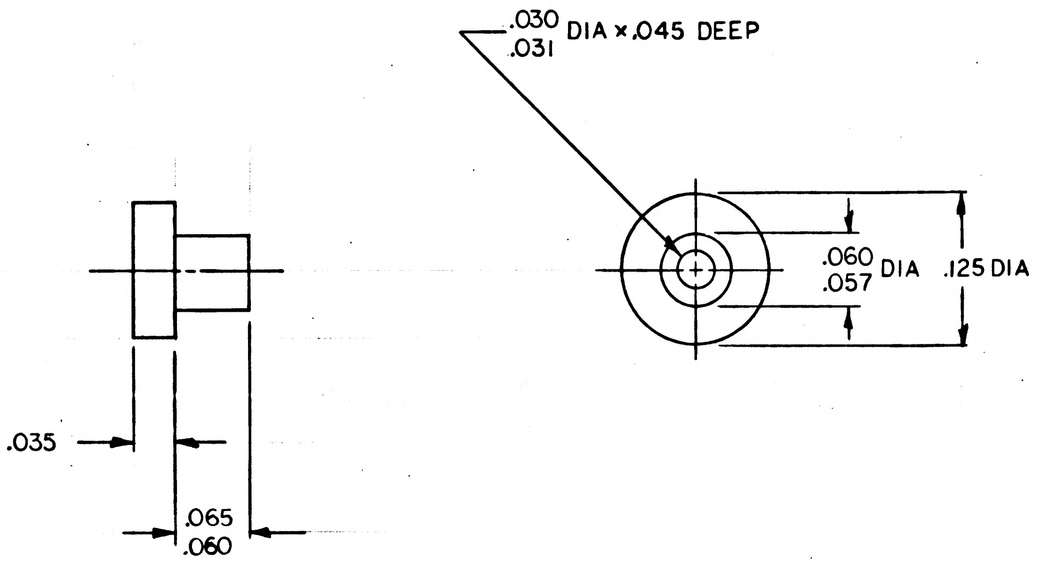
CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004939
SCALE 10/1
SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004939 -

REVISIONS 20855

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES

1. MATL: CRES PER QQ-S-763, CLASS 305, COND. A
2. PASSIVATE PER MIL-F-14072, FINISH E 300, TYPE I
3. REMOVE BURRS AND SHARP EDGES .005 MAX
4. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
5. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
6. ALL SURFACES TO BE $\sqrt[125]{}$

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003936	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	W. Brown	17MAR65
CHECKED		5May65
APPROVED		1June65
APPROVED	Eldon C Hall	12July65
APPROVED MIT		7-13-65
APPROVED MSC		7-13-65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

RIVET
SWITCH, PUSH BUTTON
AGC DSKY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004939

SCALE 10/1
SHEET 1 OF 1

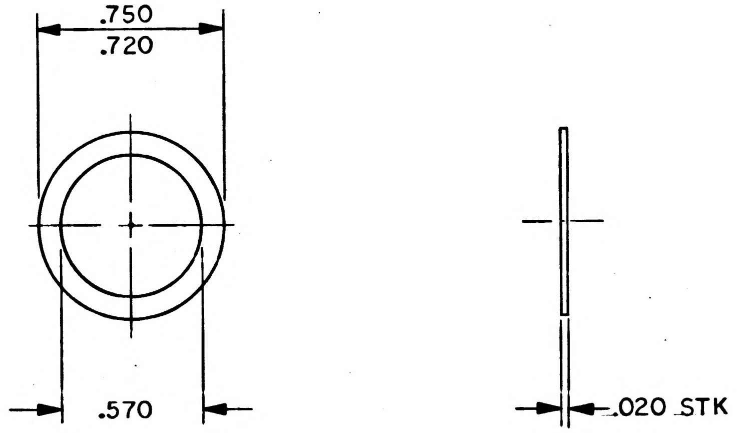
2004939 -

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004940 —

REVISIONS 29855

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES
1. MATL: CRES PER QQ-S-766 CLASS 302, COND A
2. PASSIVATE PER MIL-F-14072, FINISH E300, TYPE I
3. REMOVE SHARP EDGES
4. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
5. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003903	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE I

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

		DATE
DRAWN	K W Simpson	30 MAR 6
CHECKED	F. Alegen	5 May 65
APPROVED	F. J. Munez	1 June 65
APPROVED	Eldon C Hall	12 July 65
APPROVED MIT	M G Murphy	7-13-65
APPROVED MSC	W J Rhine	7-13-65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WASHER, PLAIN
SWITCH, PUSH BUTTON
AGC DSKY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004940

SCALE 2/1 SHEET 1 OF 1

MASTER

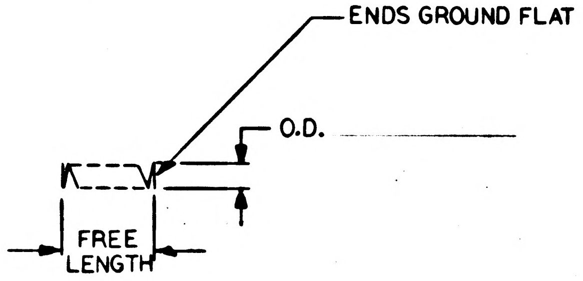
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004941 A

REVISIONS 20855

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 23948	RDZ		11/17/65	

O.D.	TO WORK IN HOLE DIA	WIRE DIA	APPROX LOAD AT SOLID HT	FREE LENGTH	RATE LBS/INCH	MAX.SOLID HEIGHT	TOTAL COILS
.245	.300	.016	1.2 LBS	.500 REF	3 TO 3.5	.100	4 TO 4½



NOTES

1. MATL: CRES PER QQ-W-423, FORM I, COMP 302, COND B
2. PASSIVATE PER MIL-F-14072, FINISH E, 300 TYPE I
3. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
4. REMOVE SHARP EDGES
5. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
6. NO PROJECTION OF SPRING ENDS PERMISSIBLE ON THE INSIDE OF SPRING

2003924	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	W. Brown	17 Mar 65
CHECKED	L. Roger	3 May 65
APPROVED		1 June 65
APPROVED	Eldon C Hall	12 July 65
APPROVED MIT	M G Markey	7-13-65
APPROVED MSC	W J Rhine	7-13-65
		DATE

SPRING, COMPRESSION
SWITCH PUSH BUTTON
AGC DSKY

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004941
SCALE NONE
SHEET 1 OF 1

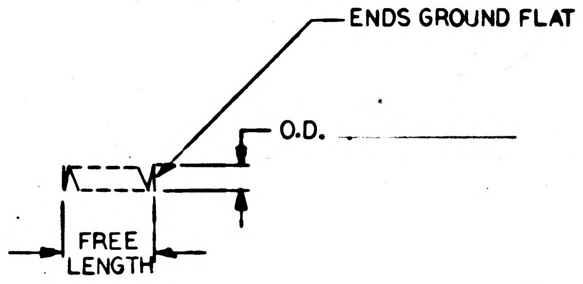
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004941 B

REVISIONS 20855

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
Ⓜ A		REVISED PER TDRR 23948	R.D.G.		11/17/65	
B		REVISED PER TDRR 32720	R.S.J.	W.A.	2/8/67	

O.D.	TO WORK IN HOLE DIA	WIRE DIA	APPROX LOAD AT SOLID HT	FREE LENGTH	RATE LBS/INCH	MAX.SOLID HEIGHT	TOTAL COILS
.245	.300	.016	1.2 LBS	.500 REF	3 TO 3.5	.100	4 TO 4½



NOTES

1. MATL: CRES PER QQ-W-423, FORM I, COMP 302, COND B
2. PASSIVATE PER MIL-F-14072, FINISH E, 300 TYPE I
3. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
4. REMOVE SHARP EDGES AND BURRS
5. IDENTIFY WITH DRAWING NO. PER. ND1002019
6. NO PROJECTION OF SPRING ENDS PERMISSIBLE ON THE INSIDE OR OUTSIDE OF SPRING DIA

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003924	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	W. Brown	17MAR65
CHECKED	E. Leger	5May65
APPROVED		1June65
APPROVED	Eldon C Hall	12July65
APPROVED MIT		7-13-65
APPROVED MSC		7-13-65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SPRING, COMPRESSION
SWITCH PUSH BUTTON
AGC DSKY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004941

SCALE NONE

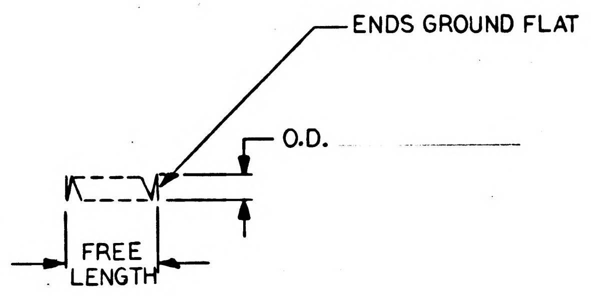
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004941 —

REVISIONS 20855						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

O.D.	TO WORK IN HOLE DIA	WIRE DIA	APPROX LOAD AT SOLID HT	FREE LENGTH	RATE LBS/INCH	SOLID HEIGHT	TOTAL COILS
.240	.300	.016	1 ½ LBS	.500	6	.100	4



NOTES
1. MATL: CRES PER QQ-W-423, FORM I, COMP 302, COND B
2. PASSIVATE PER MIL-F-14072, FINISH E, 300 TYPE I
3. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
4. REMOVE SHARP EDGES
5. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003924	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	W. Brown	17MAR65
CHECKED		5May65
APPROVED		1June'65
APPROVED	Eldon C Hall	12July65
APPROVED MIT		7-13-65
APPROVED MSC		7-13-65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SPRING, COMPRESSION
SWITCH PUSH BUTTON
AGC DSKY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004941
SCALE NONE		SHEET 1 OF 1

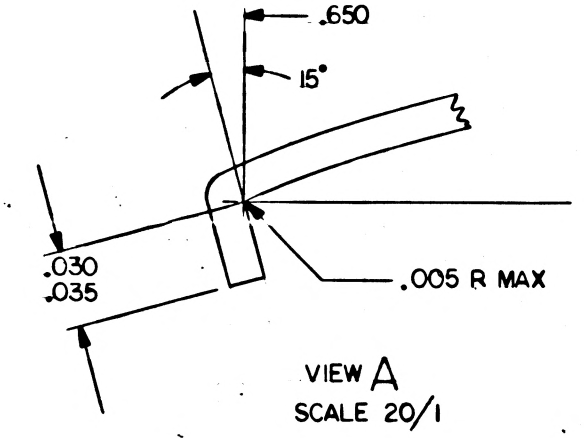
MASTER

2004941-1

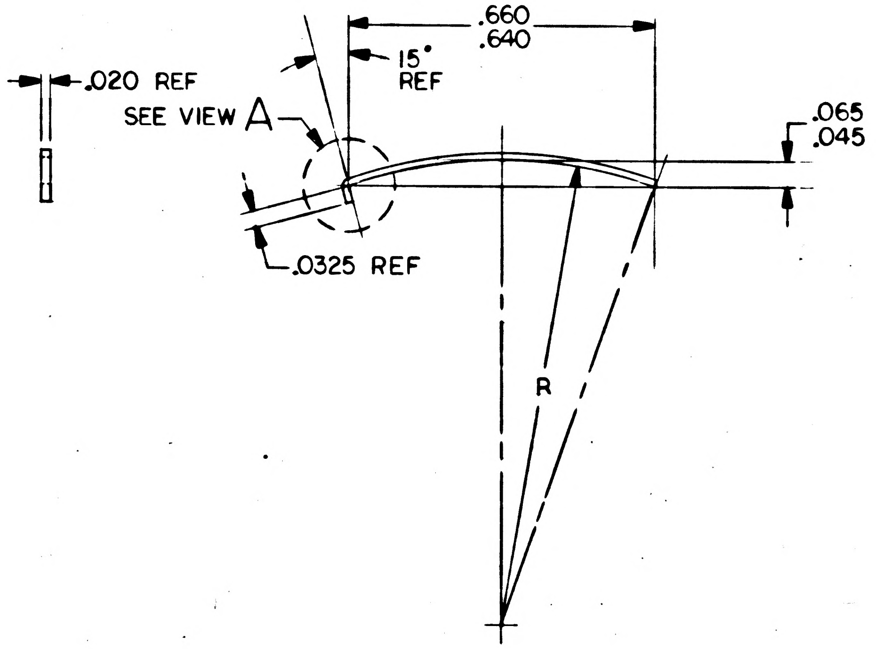
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004944 | A

REVISIONS 20855						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 24467	AWD.		12/13/65	



VIEW A
SCALE 20/1



NOTES
1. MATL:.015 × .020 CRES PER QQ-S-766, CLASS 301, COND. FULL HARD
2. PASSIVATE PER MIL-F-14072, FINISH E 300, TYPE I
3. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
5. REMOVE SHARP EDGES

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003974	
2003924	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.010 ANGLES ±2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	W. Brown	17 MAR 65
CHECKED		10 May 65
APPROVED		1 June 65
APPROVED	Eldon C Hall	12 July 65
APPROVED MIT		7-13-65
APPROVED MSC		7-19-65
		DATE

SPRING, CAP RETAINING
SWITCH, PUSH BUTTON
AGC DSKY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004944

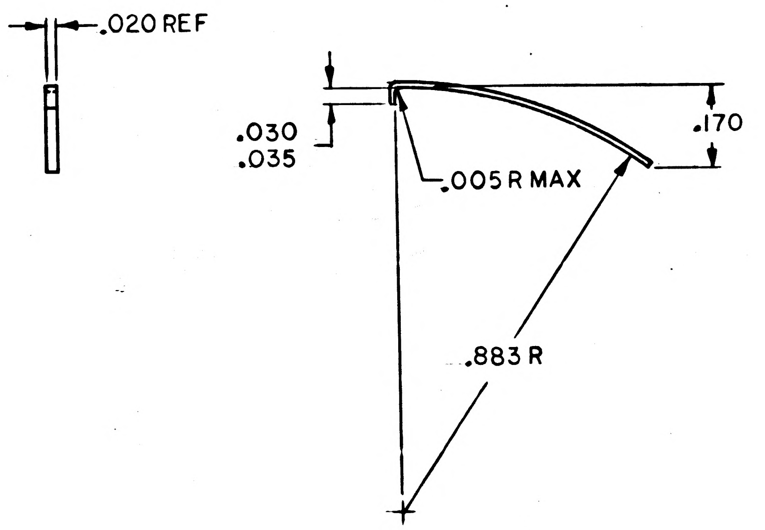
SCALE 4/1
SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004944 —

REVISIONS 20855

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES
1. MATL: .015 × .020 CRES PER QQ-S-766, CLASS 301, COND. FULL HARD
2. PASSIVATE PER MIL-F-14072, FINISH E 300, TYPE I
3. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
4. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
5. REMOVE SHARP EDGES

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003924	
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.010 ANGLES ± 2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	W. Brown	17 MAR 65
CHECKED		10 May 65
APPROVED	F. J. Murray	1 June 65
APPROVED	Eldon C Hall	12 July 65
APPROVED MIT	M6 Hurley	7-13-65
APPROVED MSC	W J Rhine	7-13-65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SPRING, CAP RETAINING
SWITCH, PUSH BUTTON
AGC DSKY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004944

SCALE 4/1 SHEET 1 OF 1

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004947 A

REVISIONS 208JJ

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
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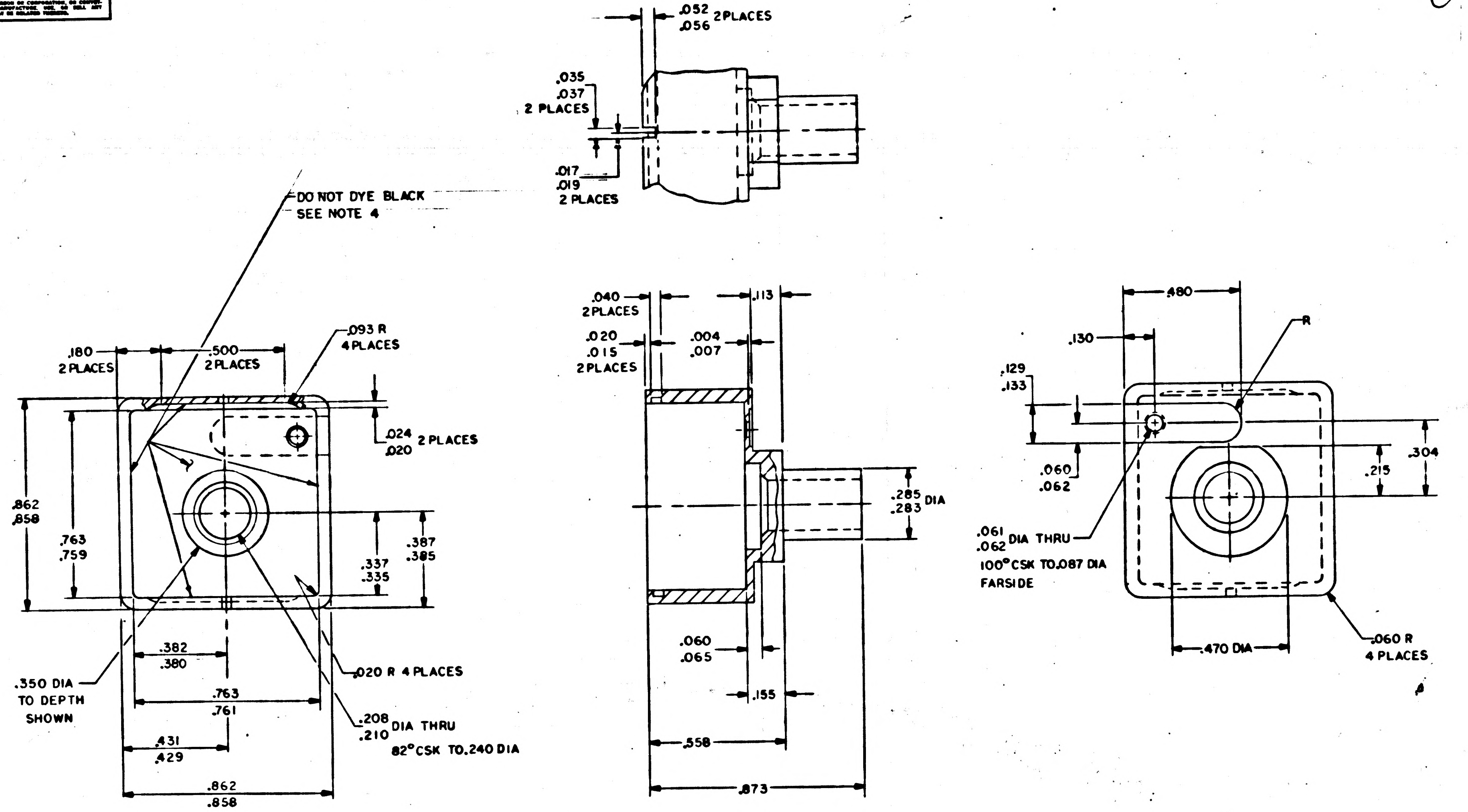

.052
.056 2 PLACES
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2 PLACES
DO NOT DYE BLACK
SEE NOTE 4
.180
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.500
2 PLACES
.093 R
4 PLACES
.024
.020 2 PLACES
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TO DEPTH
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82°CSK TO.240 DIA
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.062 DIA THRU
100°CSK TO.087 DIA
FARSIDE
.470 DIA
.060 R
4 PLACES

NOTES

1. MATL: 6061-T6 PER QQ-A-250/11, TEMP T6
2. REMOVE BURRS AND SHARP EDGES .005 MAX
3. INSIDE RADII TO BE .010 R MAX
4. ANODIZE PER MIL-A-8625, TYPE II, DYED BLACK (THICKNESS OF ANODIC COATING .0003-.0004)
5. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
6. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
7. ALL SURFACES TO BE $\overset{125}{\checkmark}$

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003926	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE I

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

		DATE
DRAWN		31 MAR 65
CHECKED		5 May 65
APPROVED		1 June 65
APPROVED	Ellen C Hall	12 July 65
APPROVED MIT		9/13/65
APPROVED MSC		9/13/65

HOUSING, CAP
SWITCH, PUSH BUTTON
AGC DSKY

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2004947
SCALE 4/1
SHEET 1 OF 1

NOTICE WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004947 B

REVISIONS 208~~

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
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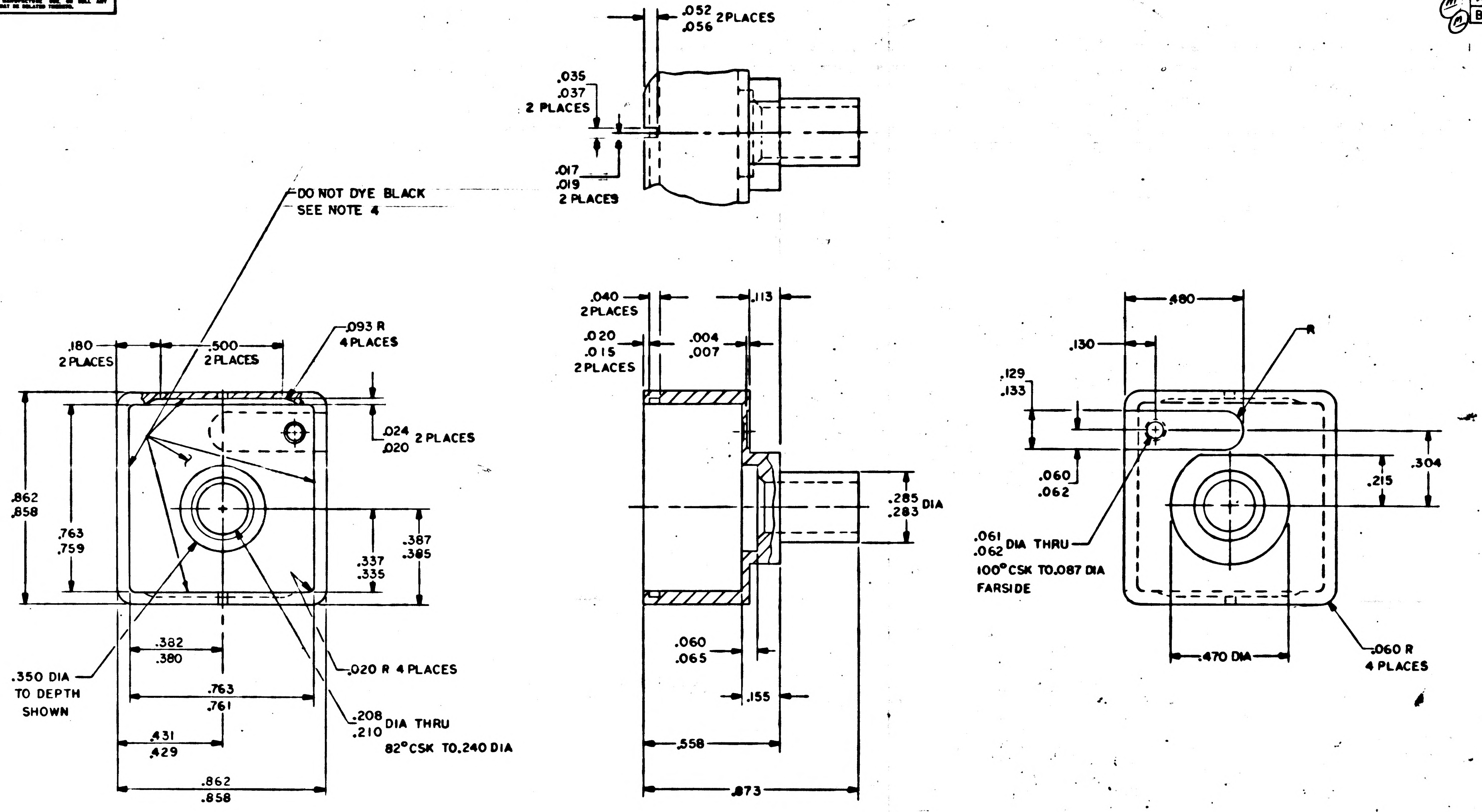
B		REVISED PER TDRR 21818			9/20/65	


.052
.056 2 PLACES
.035
.037
2 PLACES
.017
.019
2 PLACES
DO NOT DYE BLACK
SEE NOTE 4
.180
2 PLACES
.500
2 PLACES
.093 R
4 PLACES
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.020 2 PLACES
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.431
.429
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TO DEPTH
SHOWN
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82° CSK TO .240 DIA
.040
2 PLACES
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.062 DIA THRU
100° CSK TO .087 DIA
FARSIDE
.470 DIA
.060 R
4 PLACES

NOTES

1. MATL: 6061-T6 PER QQ-A-250/11, TEMP T6
2. REMOVE BURRS AND SHARP EDGES .005 MAX
3. INSIDE RADII TO BE .010 R MAX
4. ANODIZE PER MIL-A-8625, TYPE II, DYED BLACK (THICKNESS OF ANODIC COATING .0003-.0004) ALL INTERNAL SURFACES TO BE CLEAR (DO NOT DYE BLACK).
5. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
6. IDENTIFY WITH PART NO. PER ND1002019
7. ALL SURFACES TO BE $\overset{125}{\nabla}$

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003926	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HOUSING, CAP
SWITCH, PUSH BUTTON
AGC DSKY

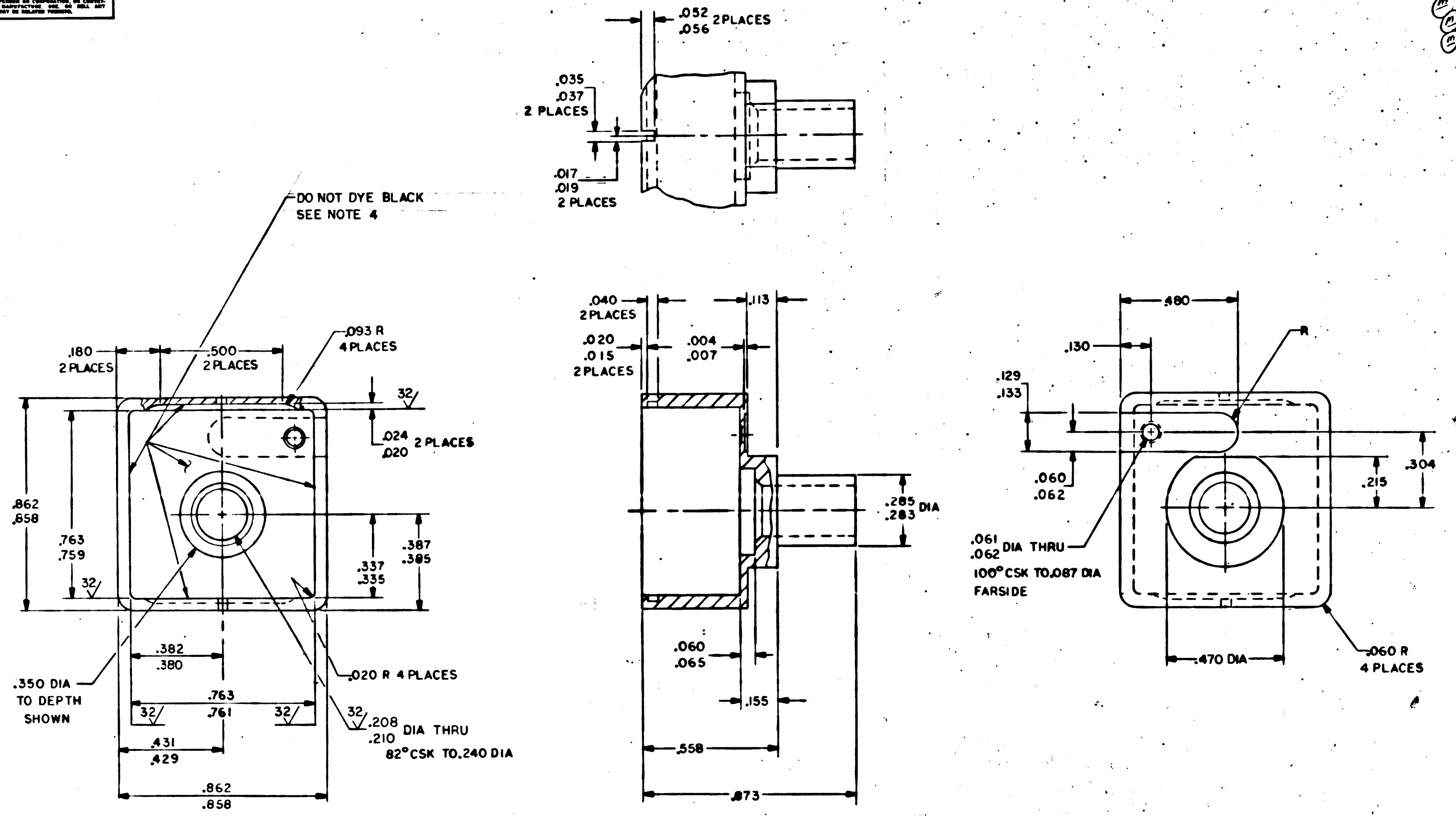
CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2004947
SCALE 4/1
SHEET 1 OF 1

NOTICE WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004947 C

REVISIONS 208

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 21247			8/13/65	
B		REVISED PER TDRR 21818			9/20/65	
C		REVISED PER TDRR 25776	DAC	BM		



.052
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DO NOT DYE BLACK
SEE NOTE 4
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100° CSK TO .087 DIA
FARSIDE
.470 DIA
.060 R
4 PLACES

NOTES

1. MATL: 6061-T6 PER QQ-A-250/11, TEMP T6
2. REMOVE BURRS AND SHARP EDGES .005 MAX
3. INSIDE RADII TO BE .010 R MAX
4. ANODIZE PER MIL-A-8625, TYPE II, DYED BLACK (THICKNESS OF ANODIC COATING .0003-.0004) ALL INTERNAL SURFACES TO BE CLEAR (DO NOT DYE BLACK).
5. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
6. IDENTIFY WITH PART NO. PER ND1002019
7. ALL SURFACES TO BE $\overset{125}{\surd}$ UNLESS OTHERWISE SPECIFIED

M TER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003926	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HOUSING, CAP
SWITCH, PUSH BUTTON
AGC DSKY

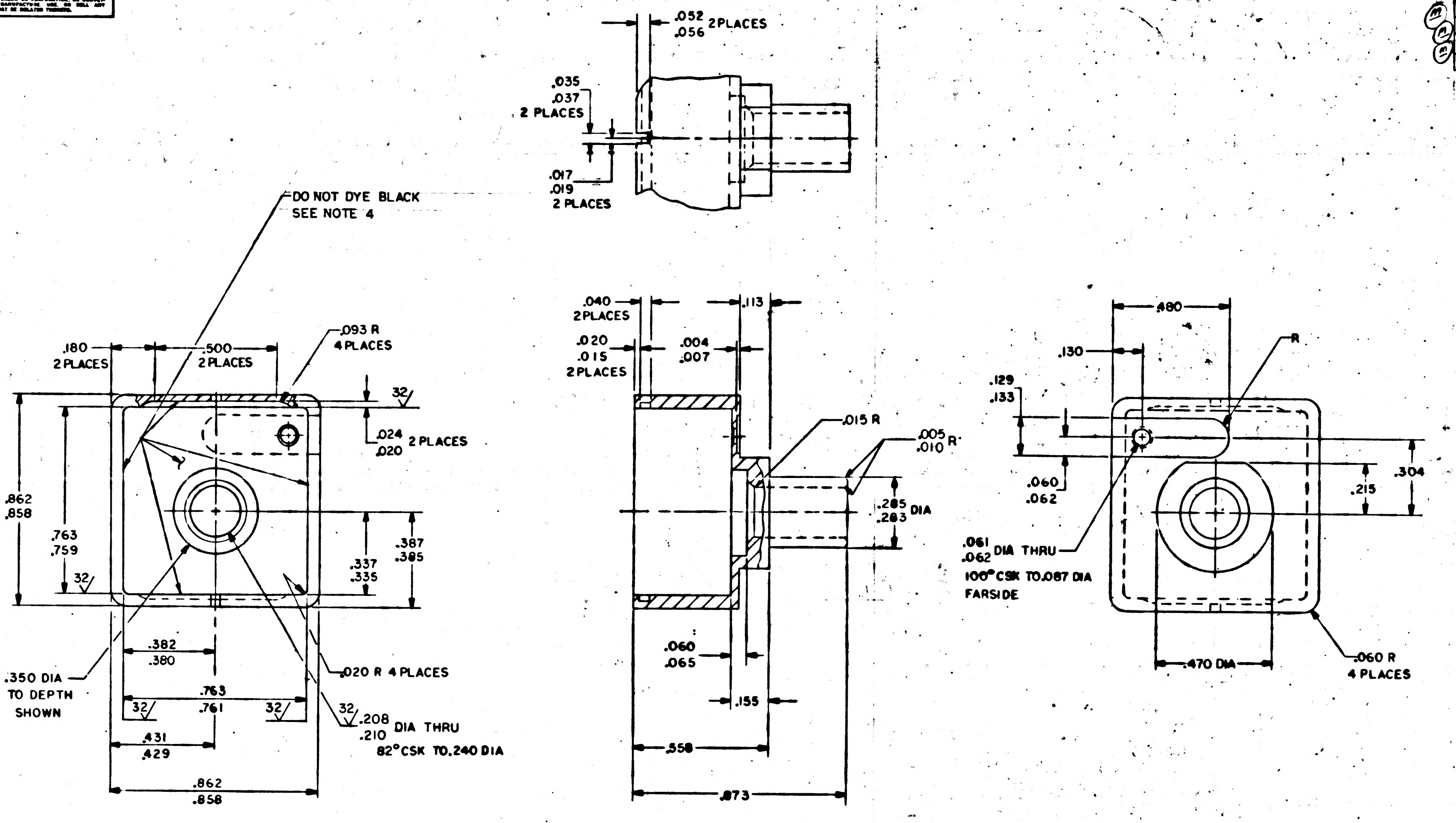
CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2004947
SCALE 4/1
SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004947 D

REVISIONS 208173

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 21247	[illegible]	[illegible]	[illegible]	[illegible]
B		REVISED PER TDRR 21818	[illegible]	[illegible]	[illegible]	[illegible]
C		REVISED PER TDRR 25776	[illegible]	[illegible]	[illegible]	[illegible]
D		REVISED PER TDRR 32720	[illegible]	[illegible]	[illegible]	[illegible]


.052
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DO NOT DYE BLACK
SEE NOTE 4
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100°CSK TO.087 DIA
FARSIDE
.470 DIA
.060 R
4 PLACES

NOTES

1. MATL: 6061-T6 PER QQ-A-250/11, TEMP T6
2. REMOVE BURRS AND SHARP EDGES .005 MAX
3. INSIDE RADII TO BE .010 R MAX
4. ANODIZE PER MIL-A-8625, TYPE II, DYED BLACK (THICKNESS OF ANODIC COATING .0003-.0004) ALL INTERNAL SURFACES TO BE CLEAR (DO NOT DYE BLACK).
5. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
6. IDENTIFY WITH PART NO. PER ND1002019
7. ~~ALL SURFACES TO BE~~ $\overset{125}{\vee}$ UNLESS OTHERWISE SPECIFIED

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003926	
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HOUSING, CAP
SWITCH, PUSH BUTTON
AGC DSKY

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2004947
SCALE 4/1
SHEET 1 OF 1

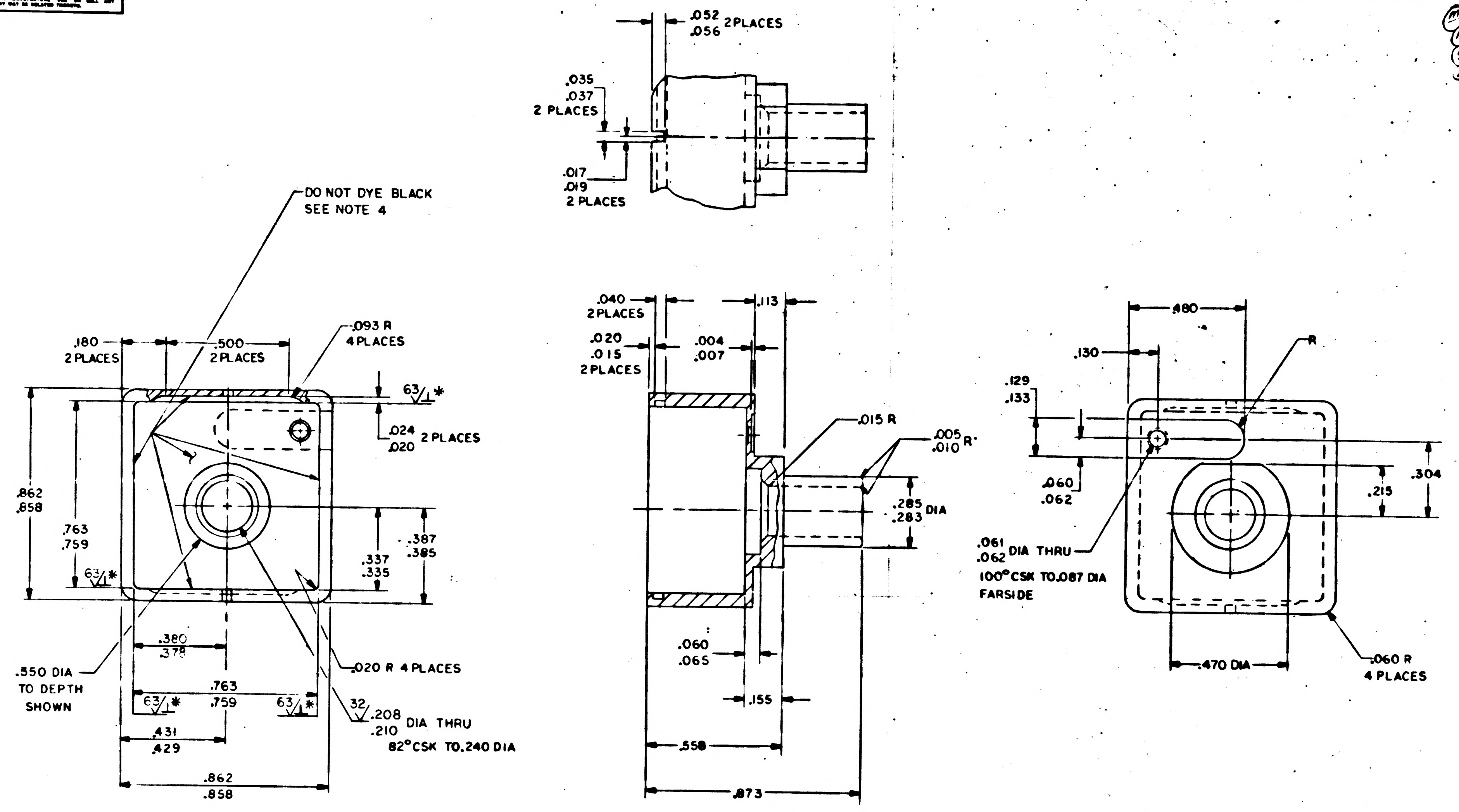
2004947 D

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004947 E

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 21247			8/13/65	
B		REVISED PER TDRR 21818				
C		REVISED PER TDRR 25776				
D		REVISED PER TDRR 32720				
E		REVISED PER TDRR 34034			5-Jul-67	


.052
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2 PLACES
.017
.019
2 PLACES
DO NOT DYE BLACK
SEE NOTE 4
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2 PLACES
.500
2 PLACES
.093 R
4 PLACES
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.759
63/⊥*
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.387
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.550 DIA
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SHOWN
.020 R 4 PLACES
.763
.759
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63/⊥*
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.062 DIA THRU
100°CSK TO.087 DIA
FARSIDE
.304
.215
.470 DIA
.060 R
4 PLACES

NOTES

1. MATL: 6061-T6 PER QQ-A-250/11, TEMP T6
2. REMOVE BURRS AND SHARP EDGES .005 MAX
3. INSIDE RADII TO BE .010 R MAX
4. ANODIZE PER MIL-A-8625, TYPE II, DYED BLACK (THICKNESS OF ANODIC COATING .0003-.0004) ALL INTERNAL SURFACES TO BE CLEAR (DO NOT DYE BLACK).
5. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
6. IDENTIFY WITH PART NO. PER ND1002019
7. ALL SURFACES TO BE $\overset{125}{\surd}$ UNLESS OTHERWISE SPECIFIED
8. * INDICATES SURFACE AS SPECIFIED IN LAY-DIRECTION OF SURFACE PATTERN INDICATED; OTHER THAN LAY-DIRECTION INDICATED PERMISSIBLE, BUT SURFACE SHALL BE $\overset{32}{\surd}$

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003926	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ±
DECIMALS ±.005
ANGLES ±1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
CHECKED
APPROVED 1 June 65
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HOUSING, CAP
SWITCH, PUSH BUTTON
AGC DSKY

CODE IDENT NO 80230
SIZE D
DRAWING NO. 2004947
SCALE 4/1
SHEET 1 OF 1

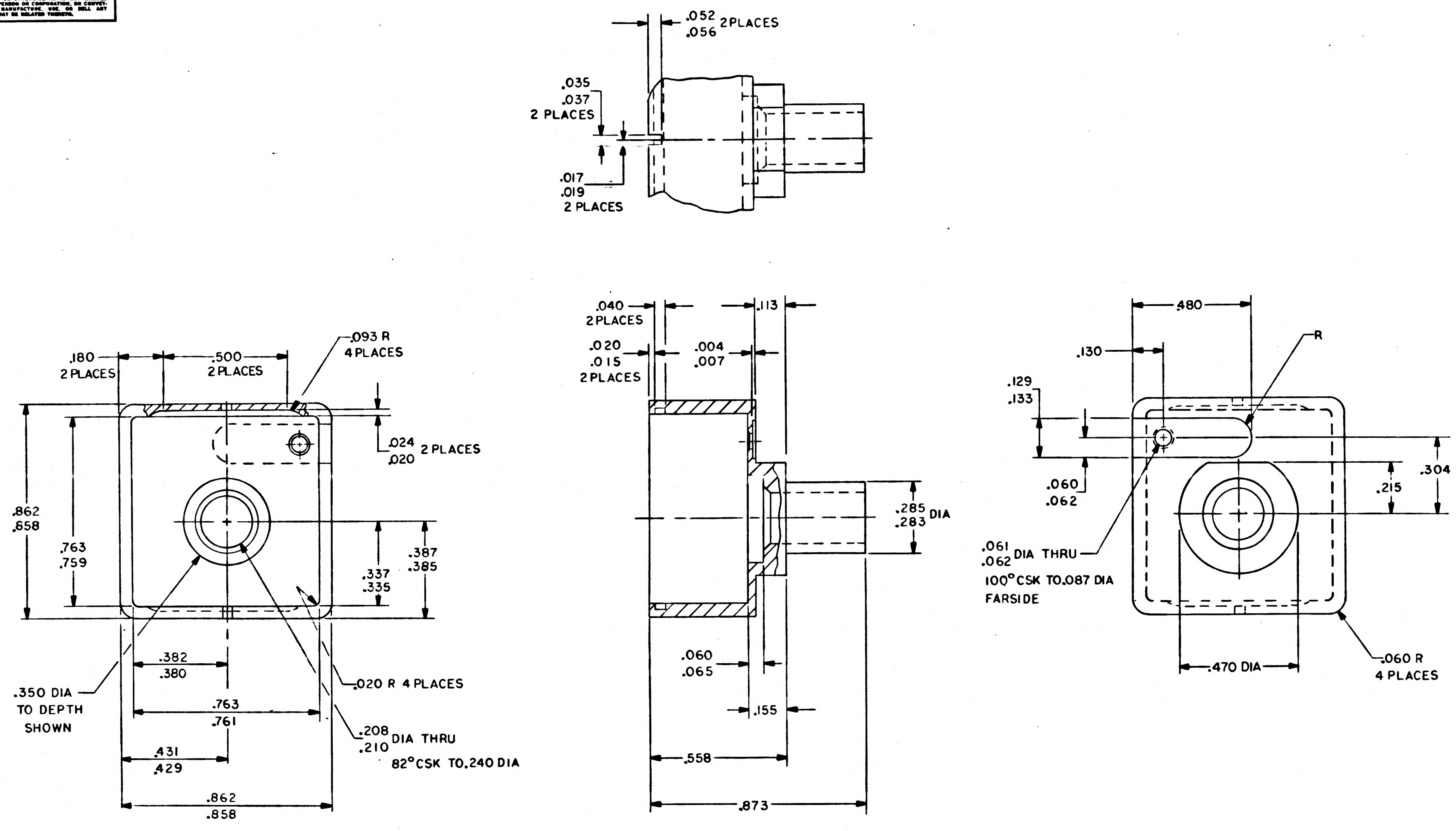
2004947 E

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004947 —

REVISIONS 208UJ

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED


.052
.056 2PLACES
.035
.037
2 PLACES
.017
.019
2 PLACES
.180
2 PLACES
.500
2 PLACES
.093 R
4 PLACES
.024
.020 2 PLACES
.862
.858
.763
.759
.337
.335
.387
.385
.382
.380
.350 DIA
TO DEPTH
SHOWN
.020 R 4 PLACES
.763
.761
.208
.210 DIA THRU
82° CSK TO .240 DIA
.431
.429
.862
.858
.040
2 PLACES
.020
.015
2 PLACES
.004
.007
.113
.285
.283 DIA
.060
.065
.155
.558
.873
.480
.130
R
.129
.133
.060
.062
.061
.062 DIA THRU
100° CSK TO .087 DIA
FARSIDE
.215
.304
.470 DIA
.060 R
4 PLACES

NOTES

1. MATL: 6061-T6 PER QQ-A-250/11, TEMP T6
2. REMOVE BURRS AND SHARP EDGES .005 MAX
3. INSIDE RADII TO BE .010 R MAX
4. ANODIZE PER MIL-A-8625, TYPE II, DYED BLACK (THICKNESS OF ANODIC COATING .0003-.0004)
5. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
6. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
7. ALL SURFACES TO BE $\overset{125}{\surd}$

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003926	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN K. L. Simpson 31 MAR 65
CHECKED A. Hegan 5 May 65
APPROVED F. J. Murray 1 June 65
APPROVED Ellen C. Hall 12 July 65
APPROVED MIT M. G. Murphy 7-13-65
APPROVED MSC W. J. Rhine 7-13-65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HOUSING, CAP
SWITCH, PUSH BUTTON
AGC DSKY

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2004947
SCALE 4/1
SHEET 1 OF 1

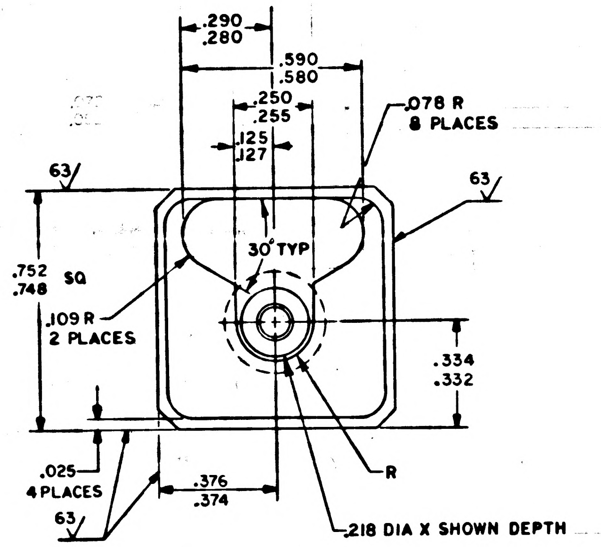
2004947 —

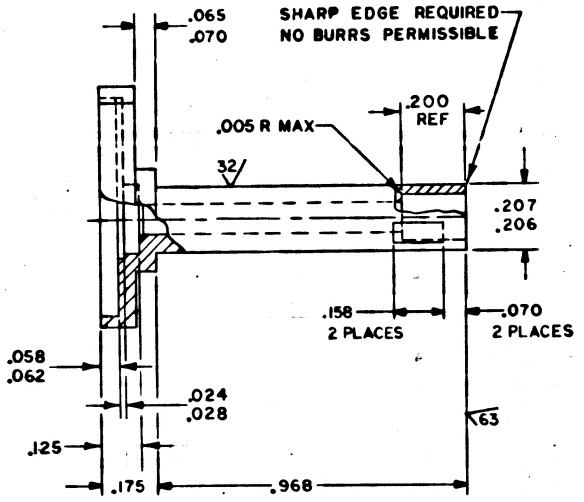
NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

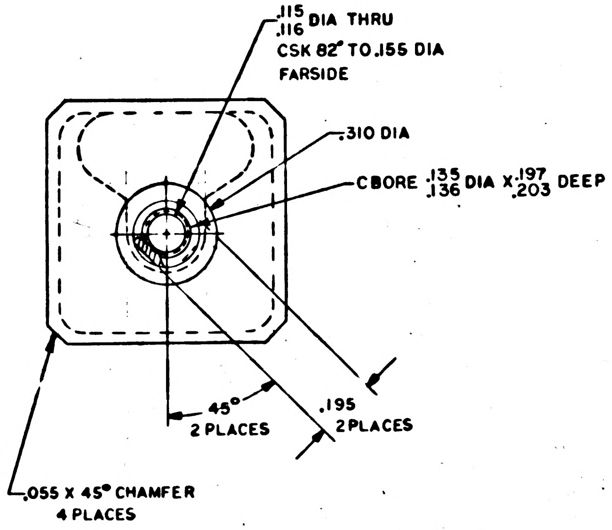
2004948 A

REVISIONS 20455

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 21247	R.D.		3/13/65	


.290
.280
.590
.580
.250
.255
.125
.127
.078 R
8 PLACES
63
63
30° TYP
.752
.748
SQ
.109 R
2 PLACES
.334
.332
.025
4 PLACES
63
.376
.374
R
.218 DIA X SHOWN DEPTH


.065
.070
SHARP EDGE REQUIRED
NO BURRS PERMISSIBLE
.200
REF
.005 R MAX
32
.207
.206
.158
2 PLACES
.070
2 PLACES
.058
.062
.024
.028
63
.125
.175
.968


.115
.116
DIA THRU
CSK 82° TO .155 DIA
FARSIDE
.310 DIA
CBORE .135 .136 DIA X .197 .203 DEEP
45°
2 PLACES
.195
2 PLACES
.055 X 45° CHAMFER
4 PLACES

NOTES

1. MATL: 6061-T6 AL PER QQ-A-250/11, TEMP T6
2. REMOVE BURRS AND SHARP EDGES .005 MAX UNLESS OTHERWISE SPECIFIED
3. INSIDE RADII TO BE .010 R MAX
4. ANODIZE PER MIL-A-8625, TYPE II, NOT DYED (THICKNESS OF ANODIC COATING .0003-.0004)
5. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
6. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
7. ALL SURFACES $\sqrt{}^{125}$ UNLESS OTHERWISE SPECIFIED

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003925	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT 7-13-65
APPROVED MSC 7-13-65
DATE

SHAFT
SWITCH, PUSH BUTTON
AGC DSKY

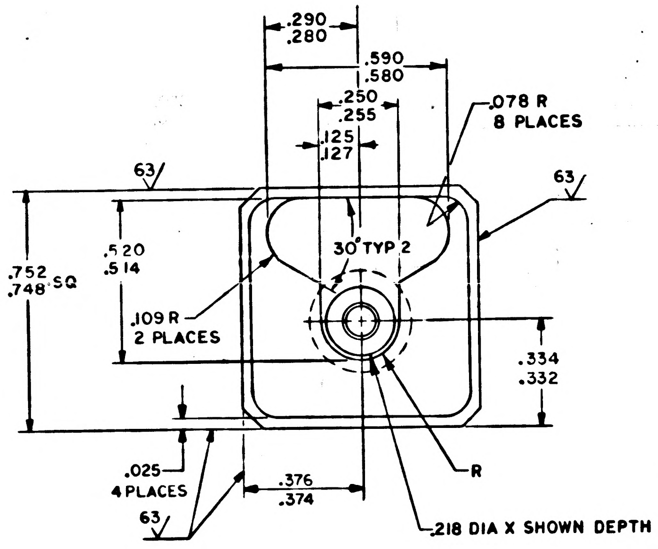
CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2004948
SCALE 4/1
SHEET 1 OF 1

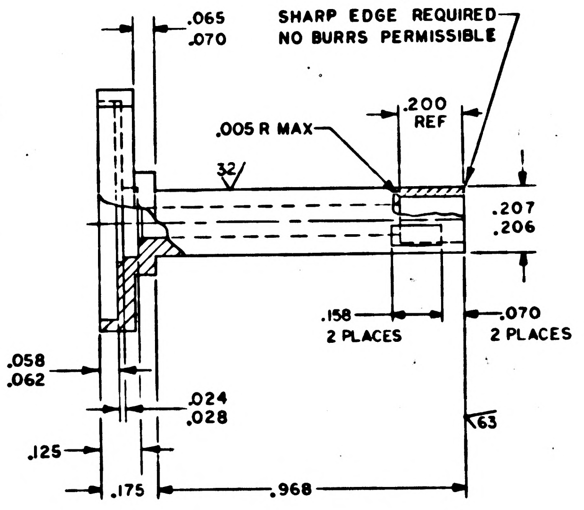
NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

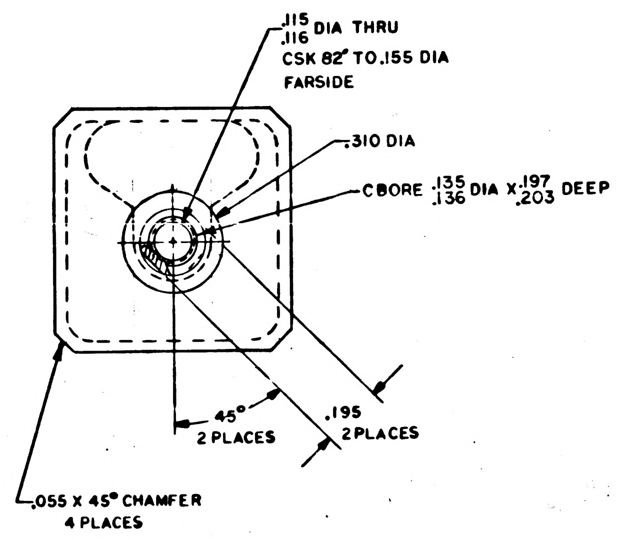
2004948 B

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 21247			8/13/6	
B		REVISED PER TDRR 21400			8/30/6	


.290
.280
.590
.580
.250
.255
.125
.127
.078 R
8 PLACES
63
63
.752
.748 SQ
.520
.514
30° TYP 2
.109 R
2 PLACES
.334
.332
.025
4 PLACES
63
.376
.374
R
.218 DIA X SHOWN DEPTH


.065
.070
SHARP EDGE REQUIRED
NO BURRS PERMISSIBLE
.200
REF
.005 R MAX
32
.207
.206
.158
2 PLACES
.070
2 PLACES
.058
.062
.024
.028
63
.125
.175
.968


.115
.116 DIA THRU
CSK 82° TO .155 DIA
FARSIDE
.310 DIA
CBORE .135
.136 DIA X .197
.203 DEEP
45°
2 PLACES
.195
2 PLACES
.055 X 45° CHAMFER
4 PLACES

NOTES

1. MATL: 6061-T6 AL PER QQ-A-225b/8, TEMP 6
2. REMOVE BURRS AND SHARP EDGES .005 MAX UNLESS OTHERWISE SPECIFIED
3. INSIDE RADII TO BE .010 R MAX
4. ANODIZE PER MIL-A-8625, TYPE II, NOT DYED (THICKNESS OF ANODIC COATING .0003-.0004)
5. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
6. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
7. ALL SURFACES 125 √ UNLESS OTHERWISE SPECIFIED

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003925	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT 7-13-65
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

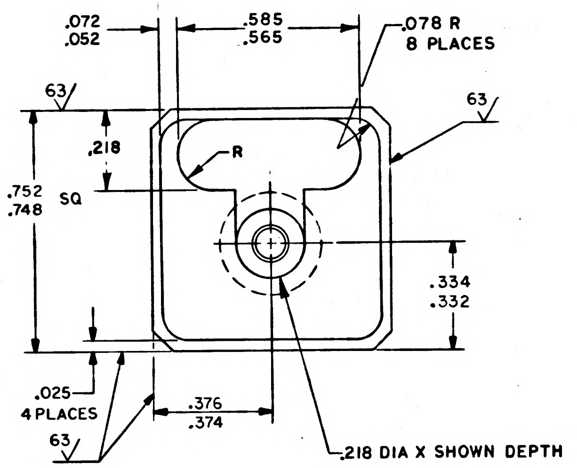
SHAFT
SWITCH, PUSH BUTTON
AGC DSKY

CODE IDENT NO 80230
SIZE D
DRAWING NO. 2004948
SCALE 4/1
SHEET 1 OF 1

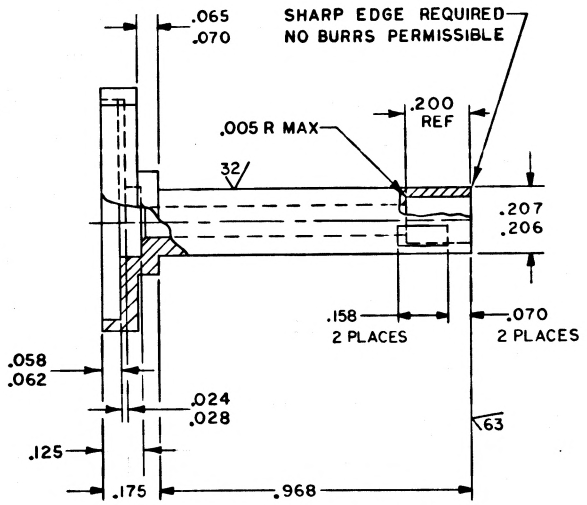
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004948 —

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



.072
.052
.585
.565
.078 R
8 PLACES
63
63
.218
R
.752
.748
SQ
.334
.332
.025
4 PLACES
63
.376
.374
.218 DIA X SHOWN DEPTH



.065
.070
SHARP EDGE REQUIRED
NO BURRS PERMISSIBLE
.200
REF
.005 R MAX
32
.207
.206
.158
2 PLACES
.070
2 PLACES
.058
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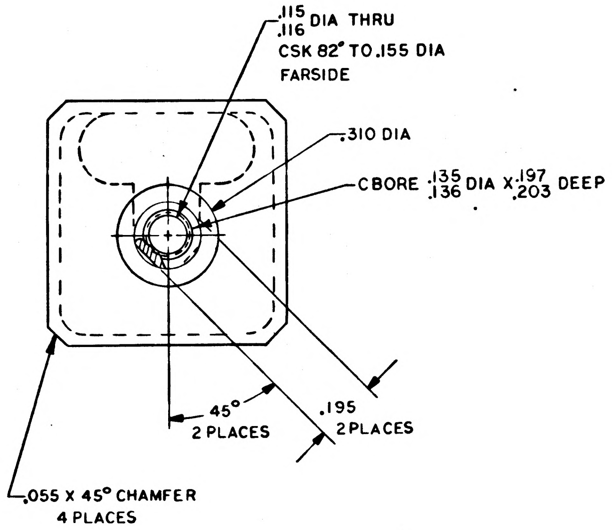
.024
.028
63
.125
.175
.968



.115
.116 DIA THRU
CSK 82° TO .155 DIA
FARSIDE
.310 DIA
CBORE .135 .136 DIA X .197 .203 DEEP
45°
2 PLACES
.195
2 PLACES
.055 X 45° CHAMFER
4 PLACES

NOTES

1. MATL: 6061-T6 AL PER QQ-A-250/11, TEMP T6
2. REMOVE BURRS AND SHARP EDGES .005 MAX UNLESS OTHERWISE SPECIFIED
3. INSIDE RADII TO BE .010 R MAX
4. ANODIZE PER MIL-A-8625, TYPE II, NOT DYED (THICKNESS OF ANODIC COATING .0003-.0004)
5. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
6. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
7. ALL SURFACES $\sqrt{}^{125}$ UNLESS OTHERWISE SPECIFIED

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003925	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

		DATE
DRAWN		31MAR65
CHECKED		5May65
APPROVED		1June65
APPROVED	Eldon C Hall	14July65
APPROVED MIT		7-13-65
APPROVED MSC		7-13-65

SHAFT
SWITCH, PUSH BUTTON
AGC DSKY

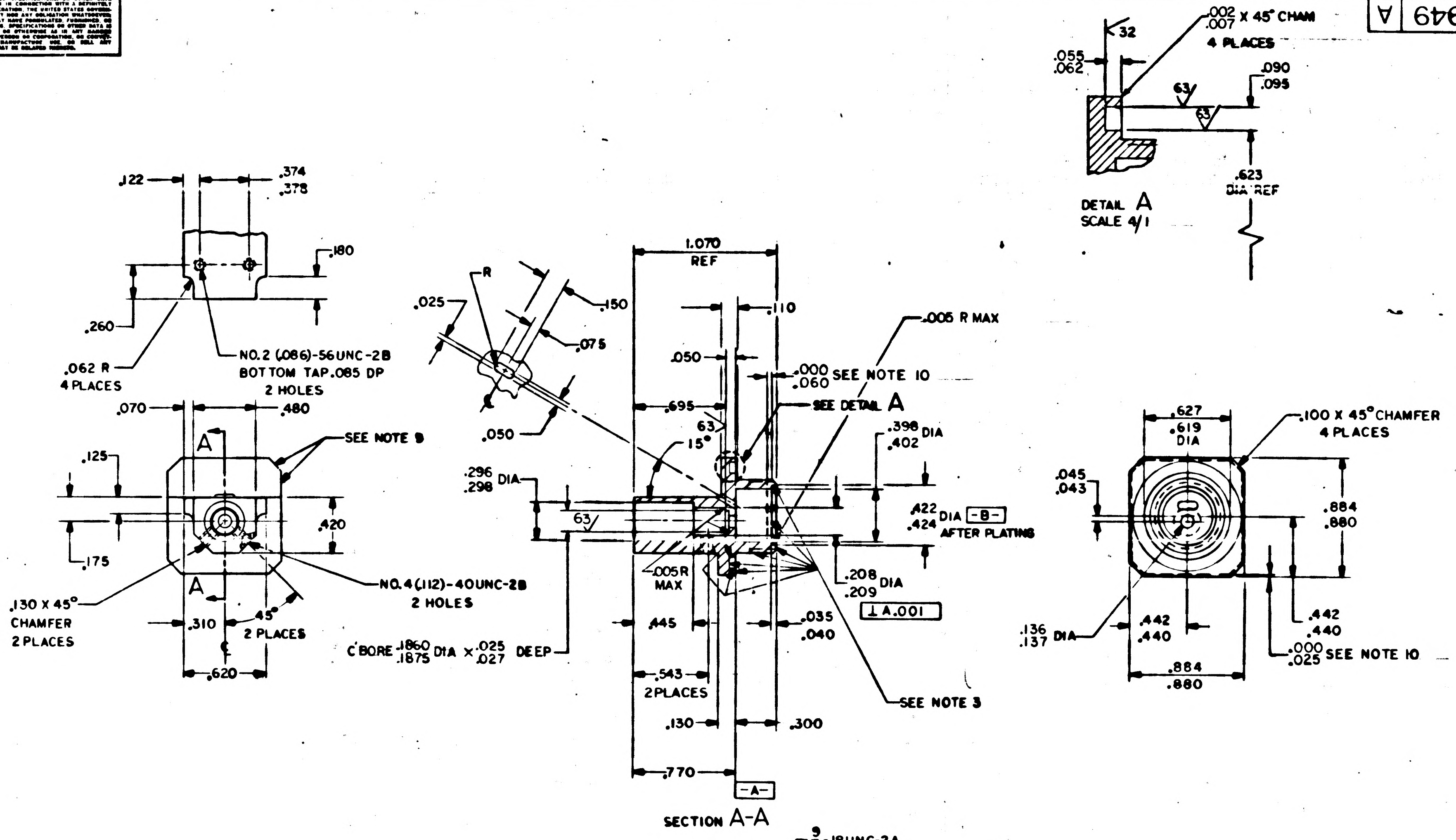
CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2004948
SCALE 4/1
SHEET 1 OF 1

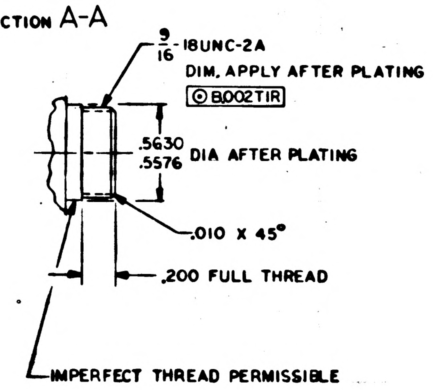
2004948 —

NOTICE WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004949 A

REVISIONS 20855						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 21818				


.002 X 45° CHAM
.007
4 PLACES
32
.055
.062
63
63
.090
.095
.623
DIA REF
DETAIL A
SCALE 4/1
.122
.374
.378
.180
.260
.062 R
4 PLACES
NO.2 (.086)-56UNC-2B
BOTTOM TAP .085 DP
2 HOLES
.070
.480
SEE NOTE 9
.125
A
A
.420
.175
.130 X 45°
CHAMFER
2 PLACES
NO.4(.112)-40UNC-2B
2 HOLES
45°
2 PLACES
.310
.620
C'BORE .1860 .1875 DIA X .025 .027 DEEP
.025
R
.150
.075
.050
1.070
REF
.110
.050
.000
.060
SEE NOTE 10
SEE DETAIL A
.005 R MAX
.695
63
15°
.398
.402
DIA
.296
.298
DIA
63
.422
.424
DIA -B-
AFTER PLATING
.005R
MAX
.208
.209
DIA
⊥ A .001
.445
.035
.040
.543
2 PLACES
SEE NOTE 3
.130
.300
.770
-A-
SECTION A-A
.627
.619
DIA
.100 X 45° CHAMFER
4 PLACES
.045
.043
.884
.880
.136
.137
DIA
.442
.440
.442
.440
.000
.025
SEE NOTE 10
.884
.880


9/16 -18UNC-2A
DIM. APPLY AFTER PLATING
◎ B .002 TIR
.5630
.5576
DIA AFTER PLATING
.010 X 45°
.200 FULL THREAD
IMPERFECT THREAD PERMISSIBLE

NOTES

1. MATL: 6061-T6 AL PER QQ-A-250/11, TEMP T6
2. ANODIZE EXCEPT IN AREA INDICATED PER MIL-A-8625, TYPE II, DYED BLACK (THICKNESS OF ANODIC COATING .0003-.0004)
3. TIN PLATE AREA SHOWN PER MIL-T-10727, TYPE I (THICKNESS OF TIN PLATING .0003-.0005)
4. ALL INSIDE RADII TO BE .010 R MAX
5. REMOVE BURRS AND SHARP EDGES .005 MAX UNLESS OTHERWISE SPECIFIED
6. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
7. IDENTIFY WITH PART NO. PER ND1002019
8. ALL SURFACES $\overset{125}{\surd}$ UNLESS OTHERWISE SPECIFIED
9. SURFACES ALL AROUND TO BE FREE OF TIN PLATING
10. ALLOWABLE FLASH AT INTERFACE OF BLACK ANODIZE & TIN PLATE

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003924	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT 7-13-65
APPROVED MSC 7-13-65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HOUSING, SWITCH MOUNTING
SWITCH, PUSH BUTTON
AGC DSKY

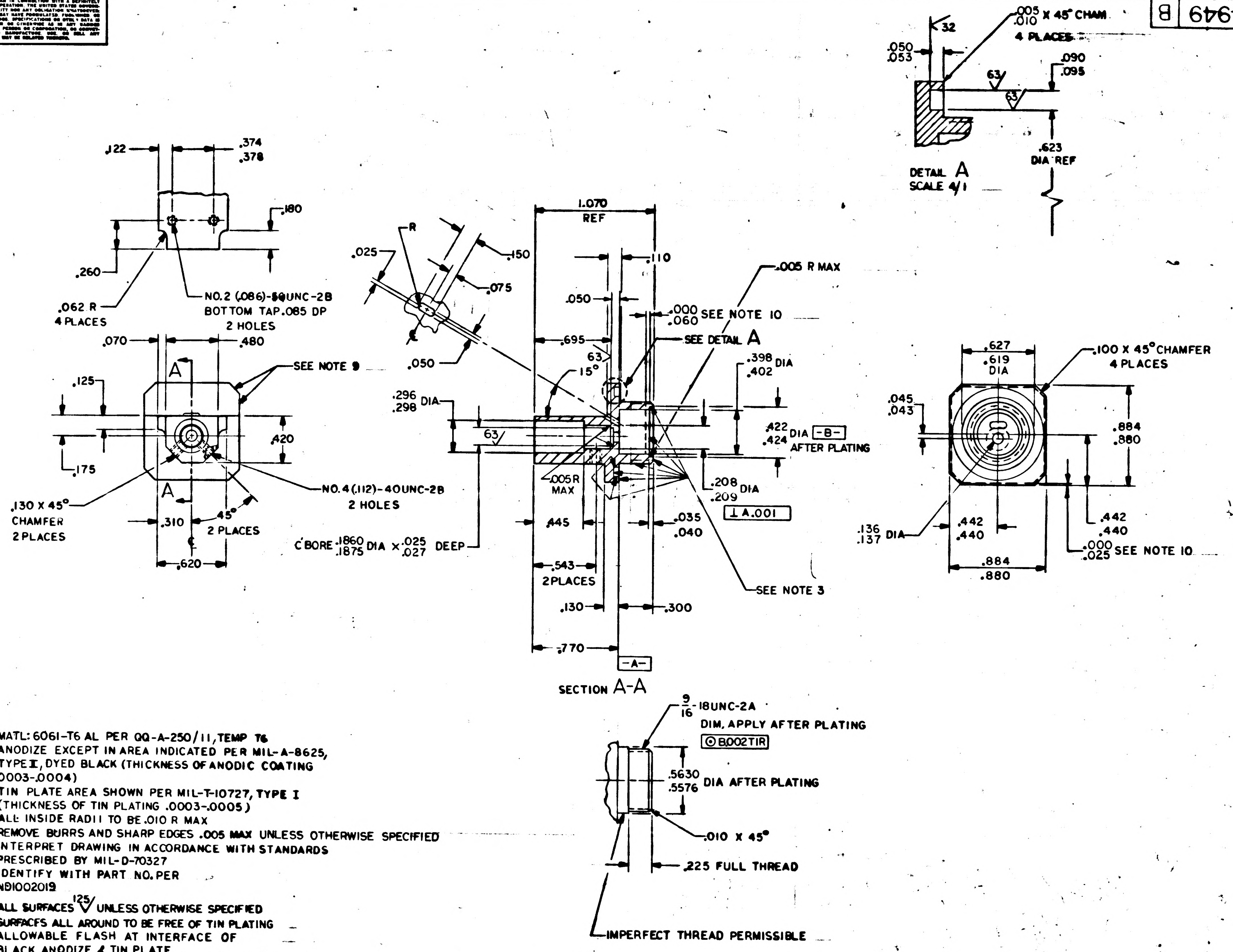
CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2004949
SCALE 2/1
SHEET 1 OF 1

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

B 2004949

REVISIONS 20855

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 21818				
B		REVISED PER TDRR 25148				


.005 X 45° CHAM
.010
4 PLACES
32
.050
.053
63
.090
.095
.623
DIA REF
DETAIL A
SCALE 4/1
.122
.374
.378
.180
.260
.062 R
4 PLACES
NO.2 (.086)-56UNC-2B
BOTTOM TAP .085 DP
2 HOLES
.070
.480
SEE NOTE 9
.125
A
.420
.175
NO.4 (.112)-40UNC-2B
2 HOLES
.130 X 45°
CHAMFER
2 PLACES
.310
45°
2 PLACES
.620
R
.025
.150
.075
.050
1.070
REF
.110
.005 R MAX
.050
.000
.060
SEE NOTE 10
.695
SEE DETAIL A
63
15°
.398
.402
DIA
.296
.298
DIA
63
.422
.424
DIA
-B-
AFTER PLATING
.005R
MAX
.208
.209
DIA
⊥ A .001
.445
.035
.040
C'BORE .1860
.1875
DIA X .025
.027
DEEP
.543
2 PLACES
SEE NOTE 3
.130
.300
.770
-A-
SECTION A-A
.627
.619
DIA
.100 X 45° CHAMFER
4 PLACES
.045
.043
.884
.880
.136
.137
DIA
.442
.440
.442
.440
.000
.025
SEE NOTE 10
.884
.880
9/16-18UNC-2A
DIM, APPLY AFTER PLATING
◎ B .002 TIR
.5630
.5576
DIA AFTER PLATING
.010 X 45°
.225 FULL THREAD
IMPERFECT THREAD PERMISSIBLE

NOTES

1. MATL: 6061-T6 AL PER QQ-A-250/11, TEMP T6
2. ANODIZE EXCEPT IN AREA INDICATED PER MIL-A-8625, TYPE II, DYED BLACK (THICKNESS OF ANODIC COATING .0003-.0004)
3. TIN PLATE AREA SHOWN PER MIL-T-10727, TYPE I (THICKNESS OF TIN PLATING .0003-.0005)
4. ALL INSIDE RADII TO BE .010 R MAX
5. REMOVE BURRS AND SHARP EDGES .005 MAX UNLESS OTHERWISE SPECIFIED
6. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
7. IDENTIFY WITH PART NO. PER ND1002019
8. ALL SURFACES $\overset{125}{\surd}$ UNLESS OTHERWISE SPECIFIED
9. SURFACES ALL AROUND TO BE FREE OF TIN PLATING
10. ALLOWABLE FLASH AT INTERFACE OF BLACK ANODIZE & TIN PLATE

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003933	
2003924	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

HOUSING, SWITCH MOUNTING
SWITCH, PUSH BUTTON
AGC DSKY

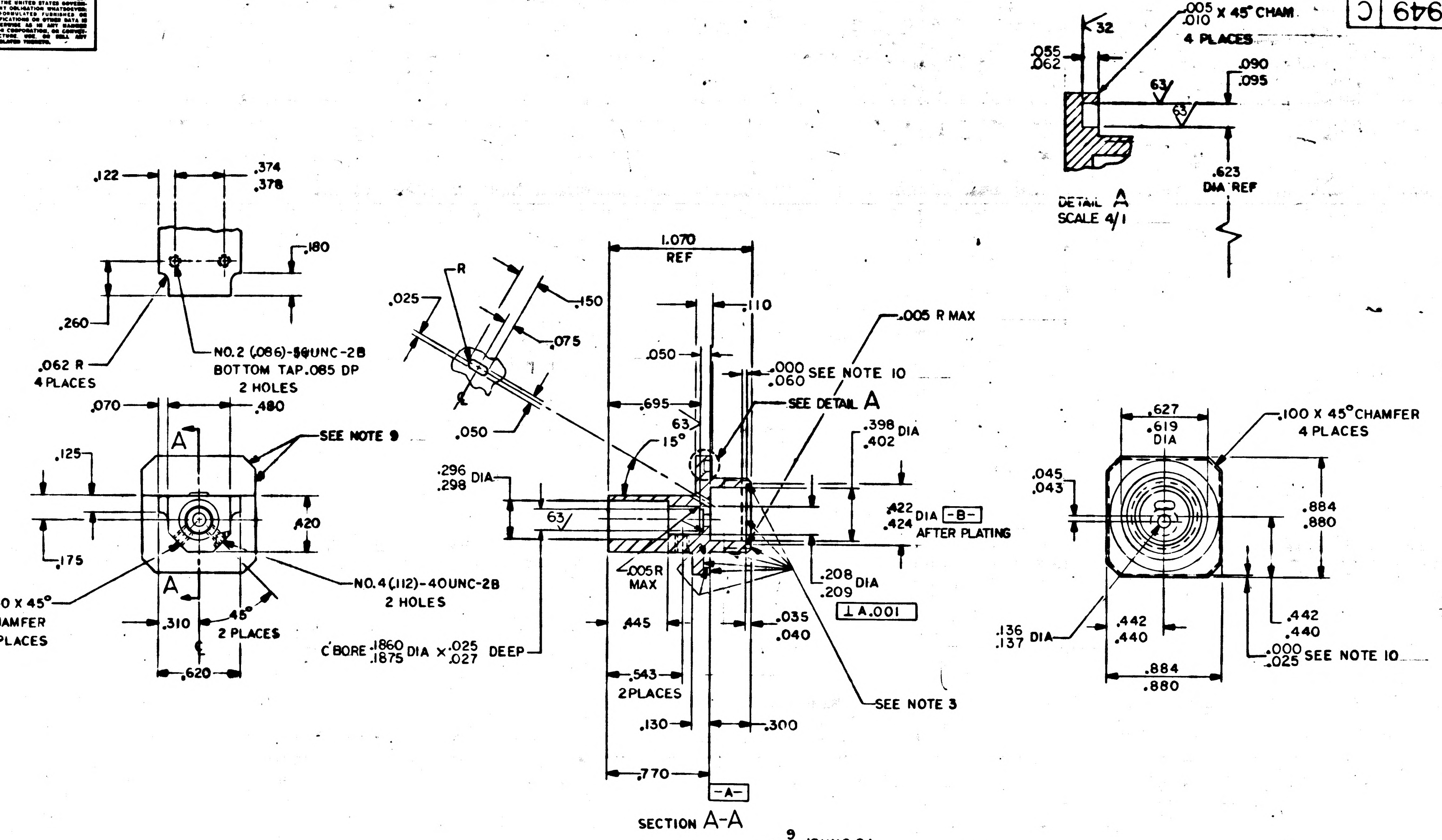
CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2004949
SCALE 2/1
SHEET 1 OF 1

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

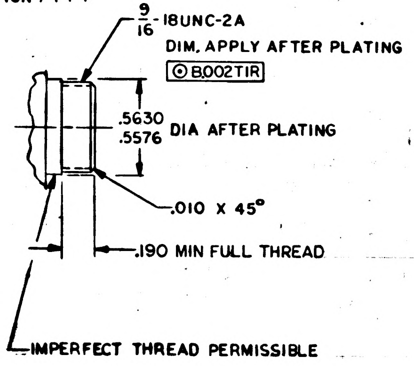
2004949 C

REVISIONS 20855

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 21818				
B		REVISED PER TDRR 25148	RBQ		1/14/66	
C		REVISED PER TDRR 26856			3/ /66	



.005 .010 X 45° CHAM.
4 PLACES
32
.055 .062
63
.090 .095
.623 DIA REF
DETAIL A SCALE 4/1
.122
.374 .378
.180
.260
NO.2 (.086)-56UNC-2B BOTTOM TAP .085 DP 2 HOLES
.062 R 4 PLACES
.070
.480
.125
A
SEE NOTE 9
.420
.175
NO.4 (.112)-40UNC-2B 2 HOLES
.130 X 45° CHAMFER 2 PLACES
.310
45° 2 PLACES
.620
C'BORE .1860 .1875 DIA X .025 .027 DEEP
R
.025
.150
.075
.050
1.070 REF
.110
.005 R MAX
.050
.000 .060 SEE NOTE 10
.695
SEE DETAIL A
63
15°
.398 .402 DIA
.296 .298 DIA
63
.422 .424 DIA -B- AFTER PLATING
.005R MAX
.208 .209 DIA
⊥ A .001
.445
.035 .040
.543 2 PLACES
SEE NOTE 3
.130
.300
.770
-A-
SECTION A-A
.627 .619 DIA
.100 X 45° CHAMFER 4 PLACES
.045 .043
.884 .880
.136 .137 DIA
.442 .440
.442 .440
.000 .025 SEE NOTE 10
.884 .880



9/16-18UNC-2A
DIM. APPLY AFTER PLATING
◎ B .002 TIR
.5630 .5576 DIA AFTER PLATING
.010 X 45°
.190 MIN FULL THREAD
IMPERFECT THREAD PERMISSIBLE

NOTES

1. MATL: 6061-T6 AL PER QQ-A-250/11, TEMP T6
2. ANODIZE EXCEPT IN AREA INDICATED PER MIL-A-8625, TYPE II, DYED BLACK (THICKNESS OF ANODIC COATING .0003-.0004)
3. TIN PLATE AREA SHOWN PER MIL-T-10727, TYPE I (THICKNESS OF TIN PLATING .0003-.0005)
4. ALL INSIDE RADII TO BE .010 R MAX
5. REMOVE BURRS AND SHARP EDGES .005 MAX UNLESS OTHERWISE SPECIFIED
6. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
7. IDENTIFY WITH PART NO. PER ND1002019
8. ALL SURFACES $\overset{125}{\sqrt{}}$ UNLESS OTHERWISE SPECIFIED
9. SURFACES ALL AROUND TO BE FREE OF TIN PLATING
10. ALLOWABLE FLASH AT INTERFACE OF BLACK ANODIZE & TIN PLATE

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
2003933	
2003924	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

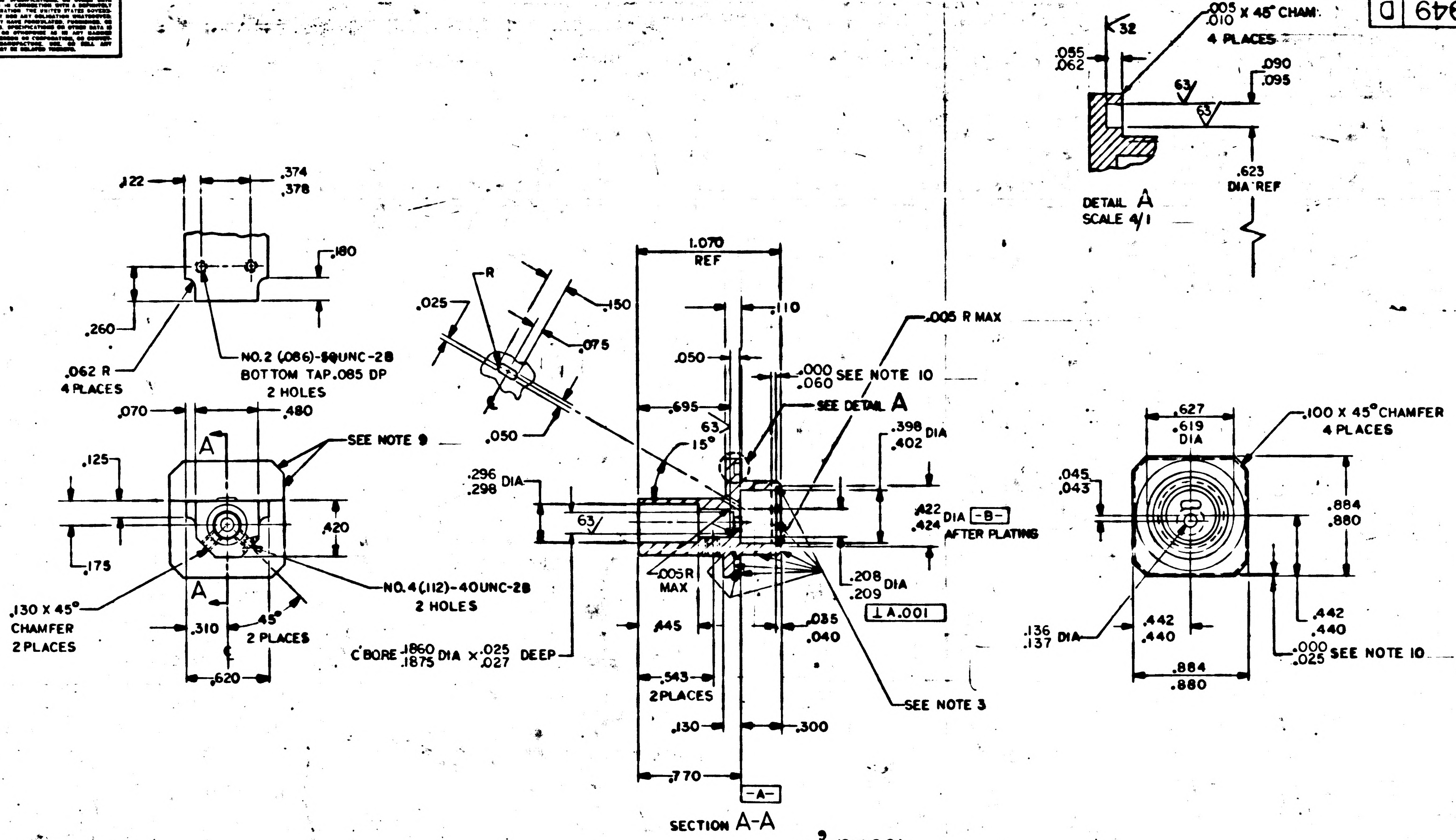
DRAWN K. W. Simpson
CHECKED
APPROVED
APPROVED E. C. Hall
APPROVED MIT 7-13-65
APPROVED MSC 7-13-65
DATE

HOUSING, SWITCH MOUNTING
SWITCH, PUSH BUTTON
AGC DSKY

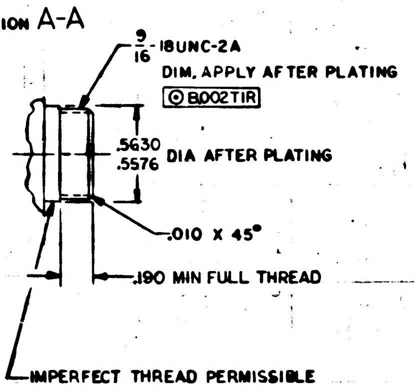
CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2004949
SCALE 2/1
SHEET 1 OF 1

2004949 D

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
REVISIONS 20855						
A		REVISED PER TDRR 21818				
B		REVISED PER TDRR 25148	RBB	JC		
C		REVISED PER TDRR 26856	J.P.L.		3/ /66	
D		REVISED PER TDRR 31830				



.122
.374
.378
.180
.260
.062 R
4 PLACES
NO.2 (.086)-56UNC-2B
BOTTOM TAP .085 DP
2 HOLES
.070
.480
A
SEE NOTE 9
.125
.420
.175
A
NO.4 (.112)-40UNC-2B
2 HOLES
.130 X 45°
CHAMFER
2 PLACES
.310
45°
2 PLACES
.620
R
.025
.150
.075
.050
.296
.298 DIA
63
15°
1.070
REF
.110
.050
.695
.005 R MAX
.000
.060 SEE NOTE 10
SEE DETAIL A
.398
.402 DIA
.422
.424 DIA -B-
AFTER PLATING
.005 R
MAX
.208
.209 DIA
⊥ A .001
.445
.035
.040
C'BORE .1860
.1875 DIA X .025
.027 DEEP
.543
2 PLACES
SEE NOTE 3
.130
.300
.770
-A-
SECTION A-A
.005
.010 X 45° CHAM
4 PLACES
32
.055
.062
.090
.095
63
.623
DIA REF
DETAIL A
SCALE 4/1
.627
.619
DIA
.100 X 45° CHAMFER
4 PLACES
.045
.043
.884
.880
.136
.137 DIA
.442
.440
.442
.440
.000
.025 SEE NOTE 10
.884
.880



9/16-18UNC-2A
DIM. APPLY AFTER PLATING
⊙ B .002 TIR
.5630
.5576 DIA AFTER PLATING
.010 X 45°
.190 MIN FULL THREAD
IMPERFECT THREAD PERMISSIBLE

NOTES

1. MATL: 6061-T6 AL PER QQ-A-250/11, TEMP T6
2. ANODIZE EXCEPT IN AREA INDICATED PER MIL-A-8625, TYPE I, DYED BLACK (THICKNESS OF ANODIC COATING .0003-.0004)
3. TIN PLATE AREA SHOWN PER MIL-T-10727, TYPE I, SOLDERABLE, PRESERVATIVE COATING REQUIRED. (THICKNESS OF TIN PLATING .0001-.0003)
4. ALL INSIDE RADII TO BE .010 R MAX
5. REMOVE BURRS AND SHARP EDGES .005 MAX UNLESS OTHERWISE SPECIFIED
6. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
7. IDENTIFY WITH PART NO. PER ND1002019
8. ALL SURFACES $\overset{125}{\vee}$ UNLESS OTHERWISE SPECIFIED
9. SURFACES ALL AROUND TO BE FREE OF TIN PLATING
10. ALLOWABLE FLASH AT INTERFACE OF BLACK ANODIZE & TIN PLATE

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO
LIST OF MATERIALS				

NEXT ASSY	USED ON
2003933	
2003924	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN K. Simpson
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HOUSING, SWITCH MOUNTING
SWITCH, PUSH BUTTON
AGC DSKY

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2004949
SCALE 2/1
SHEET 1 OF 1

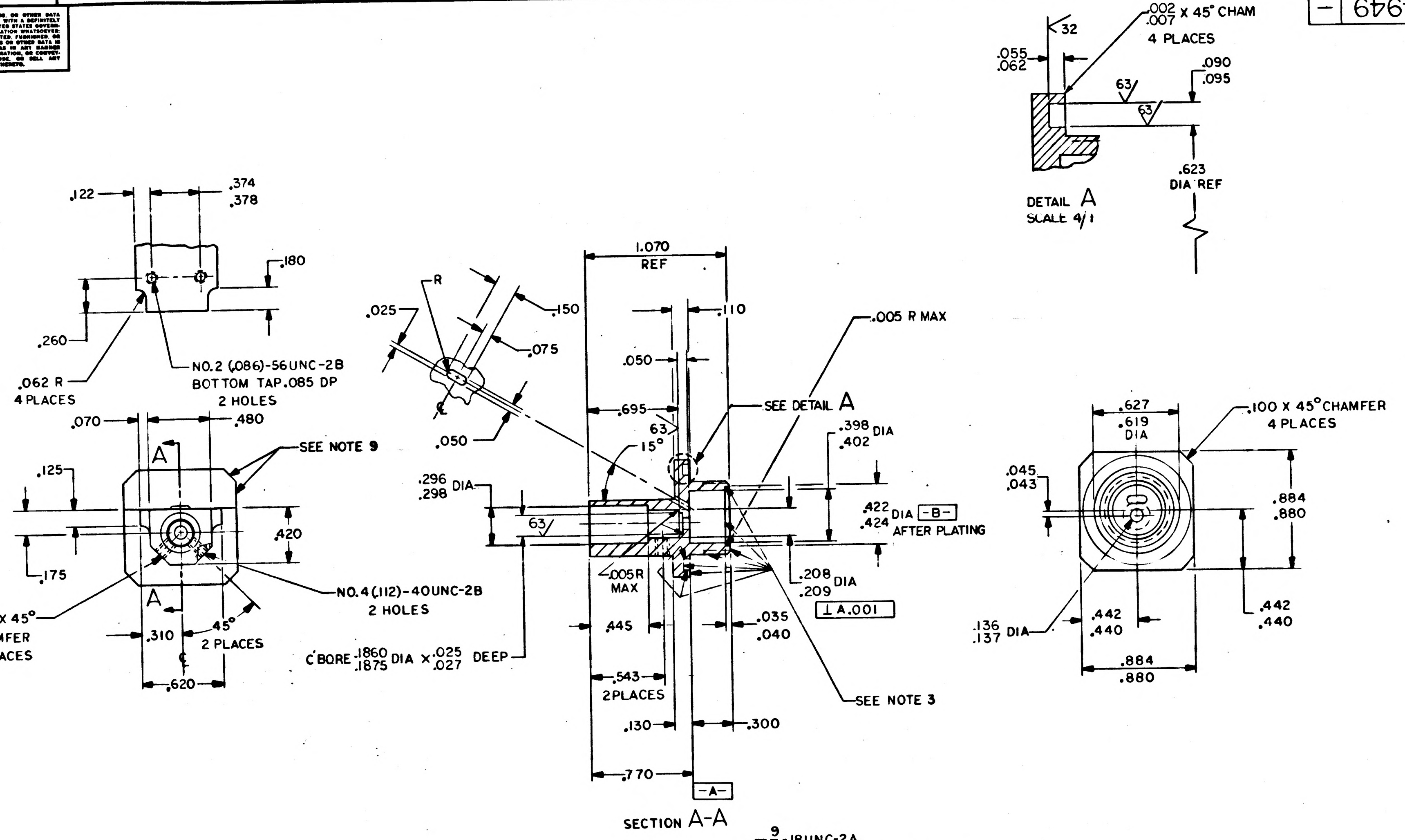
2004949 D

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

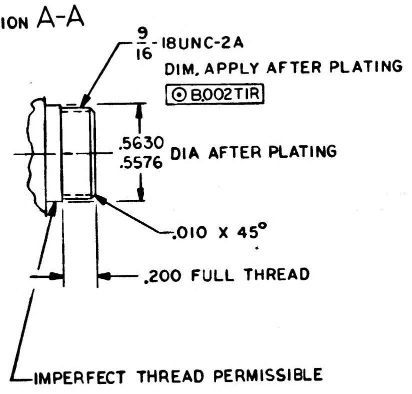
— 2004949

REVISIONS 20855

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



.002 / .007 X 45° CHAM
4 PLACES
32
.055 / .062
63
.090 / .095
.623 DIA REF
DETAIL A
SCALE 4/1
.122
.374 / .378
.180
.260
NO. 2 (.086)-56UNC-2B
BOTTOM TAP .085 DP
2 HOLES
.062 R
4 PLACES
.070
.480
SEE NOTE 9
.125
A
.420
.175
NO. 4 (.112)-40UNC-2B
2 HOLES
.130 X 45°
CHAMFER
2 PLACES
.310
45°
2 PLACES
.620
R
.025
.150
.075
.050
C'BORE .1860 / .1875 DIA X .025 / .027 DEEP
1.070
REF
.110
.050
.005 R MAX
.695
SEE DETAIL A
63
15°
.398 / .402 DIA
.296 / .298 DIA
.422 / .424 DIA -B-
AFTER PLATING
.005R
MAX
.208 / .209 DIA
⊥ A .001
.445
.035 / .040
.543
2 PLACES
SEE NOTE 3
.130
.300
.770
-A-
SECTION A-A
.627 / .619 DIA
.100 X 45° CHAMFER
4 PLACES
.045 / .043
.884 / .880
.136 / .137 DIA
.442 / .440
.442 / .440
.884 / .880



9/16-18UNC-2A
DIM. APPLY AFTER PLATING
⊙ B .002 TIR
.5630 / .5576 DIA AFTER PLATING
.010 X 45°
.200 FULL THREAD
IMPERFECT THREAD PERMISSIBLE

NOTES

1. MATL: 6061-T6 AL PER QQ-A-250/11, TEMP T6
2. ANODIZE EXCEPT IN AREA INDICATED PER MIL-A-8625, TYPE II, DYED BLACK (THICKNESS OF ANODIC COATING .0003-.0004)
3. TIN PLATE AREA SHOWN PER MIL-T-10727, TYPE I (THICKNESS OF TIN PLATING .0003-.0005)
4. ALL INSIDE RADII TO BE .010 R MAX
5. REMOVE BURRS AND SHARP EDGES .005 MAX UNLESS OTHERWISE SPECIFIED
6. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
7. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
8. ALL SURFACES $\overset{125}{\surd}$ UNLESS OTHERWISE SPECIFIED
9. SURFACES ALL AROUND TO BE FREE OF TIN PLATING

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003924	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

		DATE
DRAWN	K.W. Simpson	31MAR65
CHECKED		5 May 65
APPROVED		17 June 65
APPROVED	E.D. C. Hall	12 July 65
APPROVED MIT		7-13-65
APPROVED MSC		7-13-65

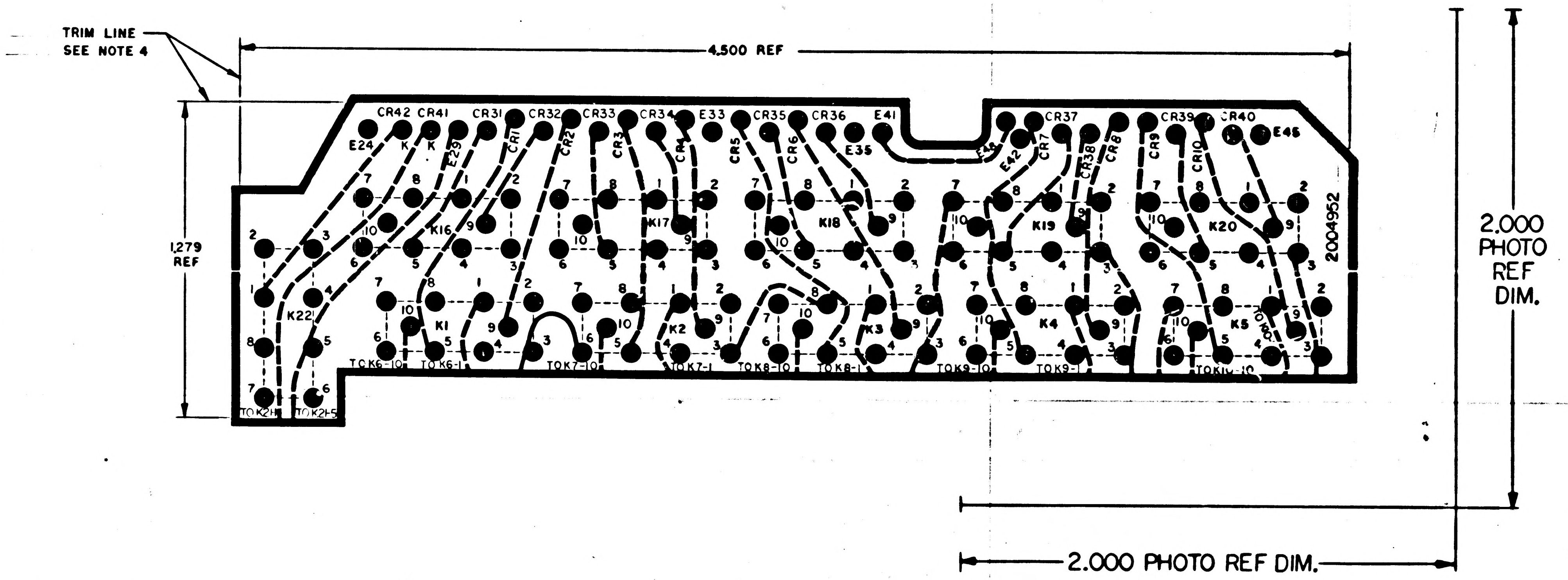
HOUSING, SWITCH MOUNTING
SWITCH, PUSH BUTTON
AGC DSKY

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2004949
SCALE 2/1
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20272

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22162 DR CHK	9/30/63	


TRIM LINE
SEE NOTE 4
4.500 REF
1.279 REF
2.000 PHOTO REF DIM.
2.000 PHOTO REF DIM.
2004952
CR42 CR41 CR31 CR32 CR33 CR34 E33 CR35 CR36 E41 CR37 CR39 CR40
E24 E29 E35 E42 E45
CR1 CR2 CR3 CR4 CR5 CR6 CR7 CR38 CR8 CR9 CR10
K16 K17 K18 K19 K20 K22 K1 K2 K3 K4 K5
TO K2-1 TO K2-5 TO K6-10 TO K6-1 TO K7-10 TO K7-1 TO K8-10 TO K8-1 TO K9-10 TO K9-1 TO K10-10

NOTES

1. MATERIAL: FILM .006/.008 THK SENSITIZED DIMENSIONALLY STABLE PER L-F-340, TYPE IB, CLASS 2, STYLE IA
2. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
3. MAKE MASTER PATTERN POSITIVE FILMS TO DIMENSIONS SHOWN
4. CUT TO WITHIN .010 OF TRIM LINE
5. BROKEN LINE DENOTES SLEEVING
6. IDENTIFY WITH PART NO. PER ND1002019
7. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
8. ● .080/.084 DIA HOLE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003910	
NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 1
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN DATE
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

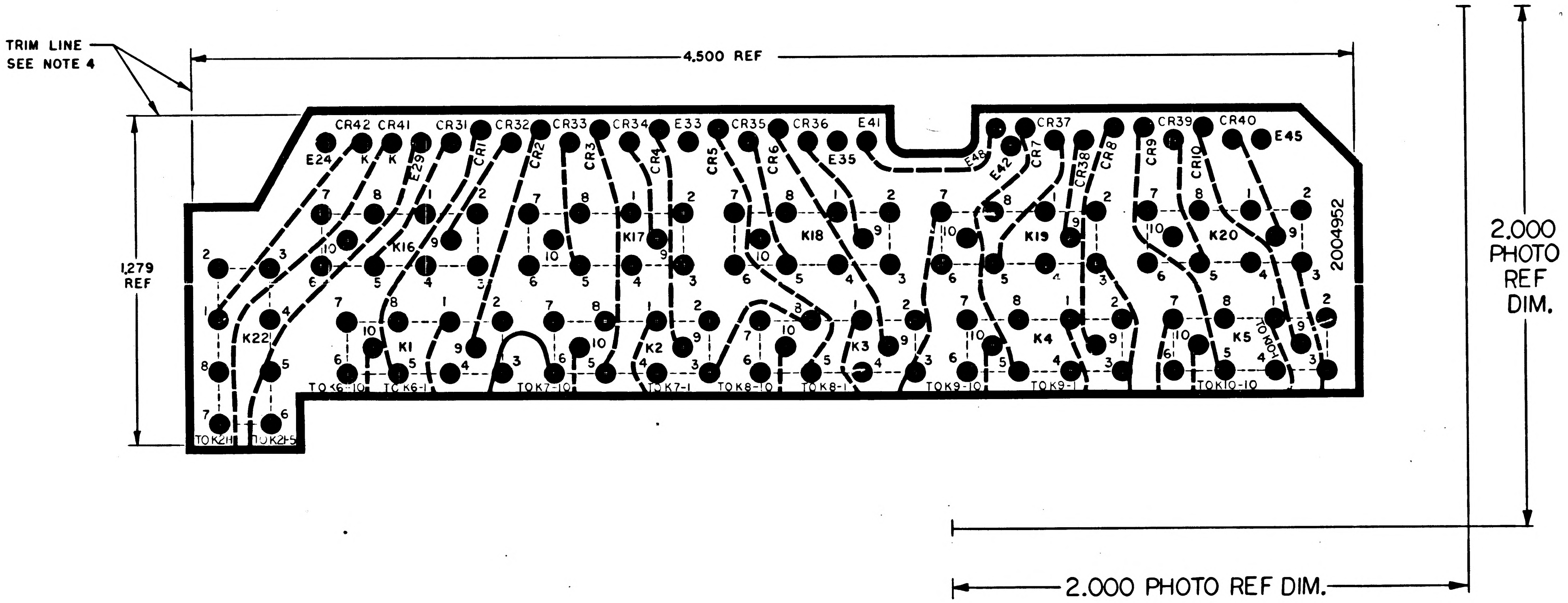
INSULATOR, PHOTOMASTER
LOWER LEVEL B
RELAY CIRCUIT, INDICATOR DRIVER

CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	D	2004952

SCALE 4/1 WT SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20272			
SYM	DESCRIPTION	DATE	APPROVAL



TRIM LINE
SEE NOTE 4
4.500 REF
1.279 REF
2.000 PHOTO REF DIM.
2.000 PHOTO REF DIM.
CR42
CR41
CR31
CR32
CR33
CR34
E33
CR35
CR36
E41
CR37
CR39
CR40
E45
E24
K
K
E29
CR1
CR2
CR3
CR4
CR5
CR6
E35
E48
E42
CR7
CR38
CR8
CR9
CR10
K16
K17
K18
K19
K20
K22
K1
K2
K3
K4
K5
2004952
TO K2H
TO K2-5
TO K6-10
TO K6-1
TO K7-10
TO K7-1
TO K8-10
TO K8-1
TO K9-10
TO K9-1
TO K10-10
TO K10-1

NOTES

1. MATERIAL: FILM .006/.008 THK SENSITIZED DIMENSIONALLY STABLE PER L-F-340, TYPE IB, CLASS 2, STYLE IA
2. ORIGINAL OF THIS DRAWING OR REPRODUCTION MADE BY A PROCESS OR METHOD SHALL INSURE DIMENSIONAL STABILITY
3. MAKE MASTER PATTERN POSITIVE FILMS TO DIMENSIONS SHOWN
4. CUT TO WITHIN .010 OF TRIM LINE
5. BROKEN LINE DENOTES SLEEVING
6. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
7. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
8. ● .080/.084 DIA HOLE

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

2003910	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 1
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG NO
CONTRACT
DRAWN R D Guilford DATE 14 MAY 65
CHECKED Logan 18 May 65
APPROVAL J. Vanderhoff 1 June 65
APPROVAL Eldon C Hall 21 June 65
NASA APPROVAL 6/2/65
MIT APPROVAL W Kupfer 22 June 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

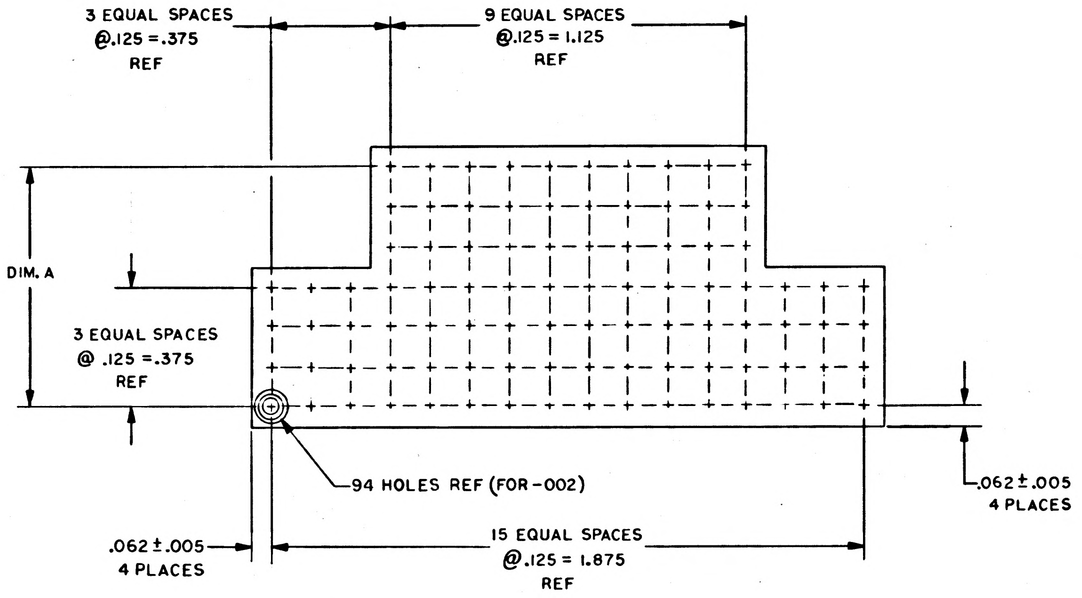
INSULATOR, PHOTOMASTER
LOWER LEVEL B
RELAY CIRCUIT, INDICATOR DRIVER

CODE IDENT NO. 80230
SIZE D
NASA DRAWING NO. 2004952
SCALE 4/1
WT
SHEET 1 OF 1

2004952 —

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20857						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



DASH NO.	DIMENSION A
-001	5 EQUAL SPACES @.125 = .625
-002	6 EQUAL SPACES @.125 = .750

NOTES

1. MATL: MAKE FROM 1004651
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
3. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003900	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE I

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN K W Simpson 15APR65
CHECKED C DeGreenia 10 JUN 65
APPROVED [illegible] 11 Jun 65
APPROVED Eldon C Hall 12 Jul 65
APPROVED MIT M G Mulry 7-13-65
APPROVED MSC W J Rhine 7-13-65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

GASKET,
DIGITAL INDICATOR
AGC DSKY

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2004953
SCALE 4/1
SHEET 1 OF 1

2004953

4 3 2 1

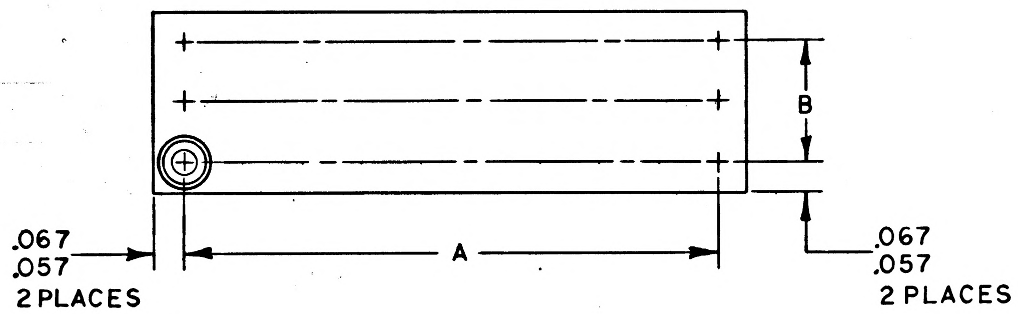
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2004955 —

REVISIONS 20273

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

DASH NO.	DIMENSION	
	A	B
-001	9 SPACES AT .125 =1.125	2 SPACES AT .125 =.250
-002	6 SPACES AT .125 =.750	3 SPACES AT .125 =.375
-003	7 SPACES AT .125 =.875	3 SPACES AT .125 =.375
-004	15 SPACES AT .125 =1.875	3 SPACES AT .125 =.375
-005	18 SPACES AT .125 =2.250	1 SPACE =.125
-006	5 SPACES AT .125 =.625	1 SPACE =.125
-007	12 SPACES AT .125 =1.500	6 SPACES AT .125 =.750
-008	13 SPACES AT .125 =1.625	4 SPACES AT .125 =.500



NOTES
1. MATL: MAKE FROM 1004651
2. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	B Guibord	15 APR 65
CHECKED	C.C.	5 May 65
APPROVED		1 Jun 65
APPROVED	Eldon C Hall	21 Jun 65
APPROVED MIT		22 Jun 65
APPROVED MSC		6/22/65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

GASKET
AGC DSKY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004955

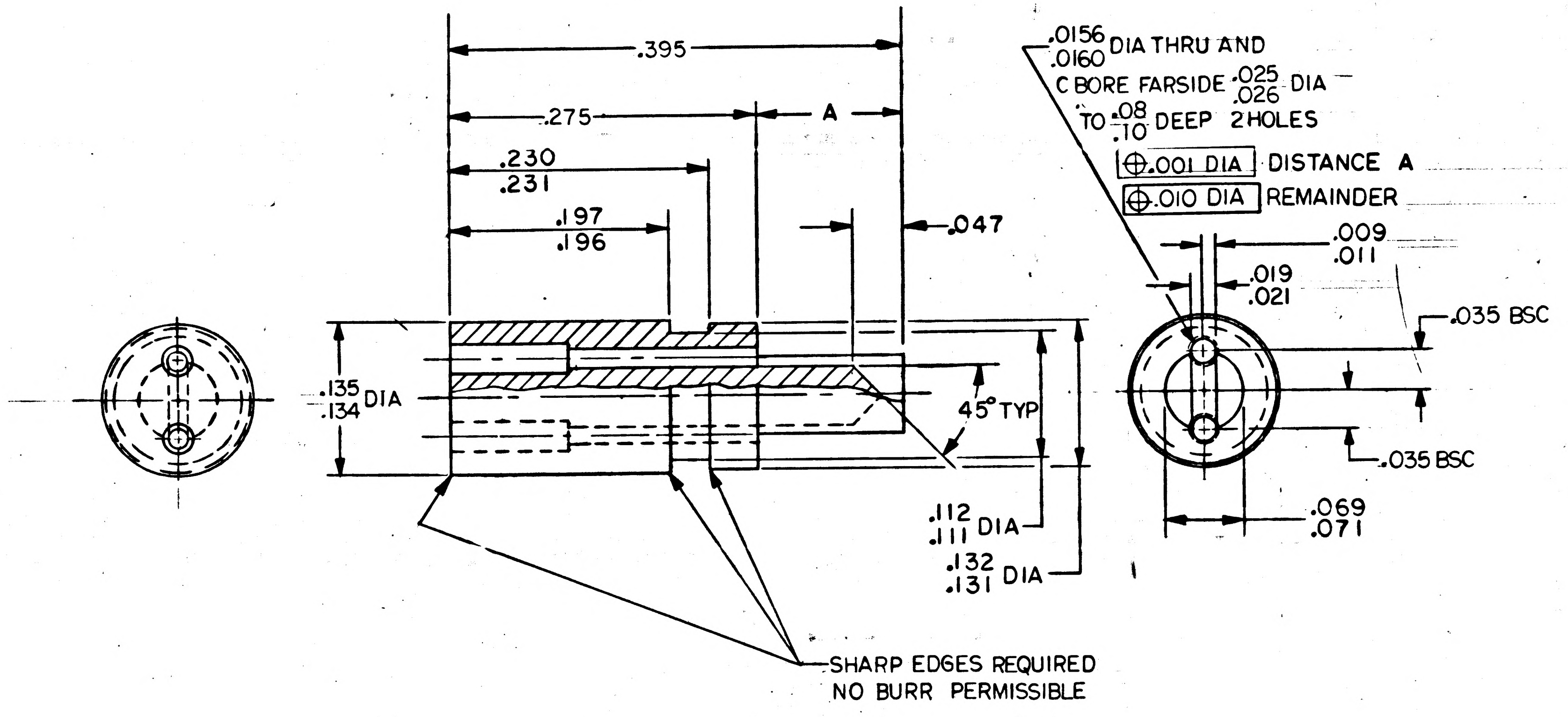
SCALE NONE SHEET 1 OF 1

4 3 2 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 2877

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED


.395
.275
A
.230
.231
.197
.196
.047
.135
.134 DIA
45° TYP
.112
.111 DIA
.132
.131 DIA
SHARP EDGES REQUIRED
NO BURR PERMISSIBLE
.0156
.0160 DIA THRU AND
C BORE FARSIDE .025
.026 DIA
TO .08
.10 DEEP 2 HOLES
⊕ .001 DIA DISTANCE A
⊕ .010 DIA REMAINDER
.009
.011
.019
.021
.035 BSC
.035 BSC
.069
.071

NOTES

1. MATL: PLASTIC PER MIL-P-181771, TYPE GEE
2. REMOVE BURRS AND SHARP EDGES .002/.010 UNLESS OTHERWISE SPECIFIED
3. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
4. IDENTIFY WITH PART NO. PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003932	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ± 1°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

		DATE
DRAWN	J. A. Zaffini	2 JULY 65
CHECKED		10 Aug 65
APPROVED	F. J. Murray	12 Aug 65
APPROVED	Eldon C Hall	24 Aug 65
APPROVED MIT	W. Kupfer	24 Aug 65
APPROVED MSC		

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PLUG
PUSH BUTTON SWITCH
AGC DSKY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004963

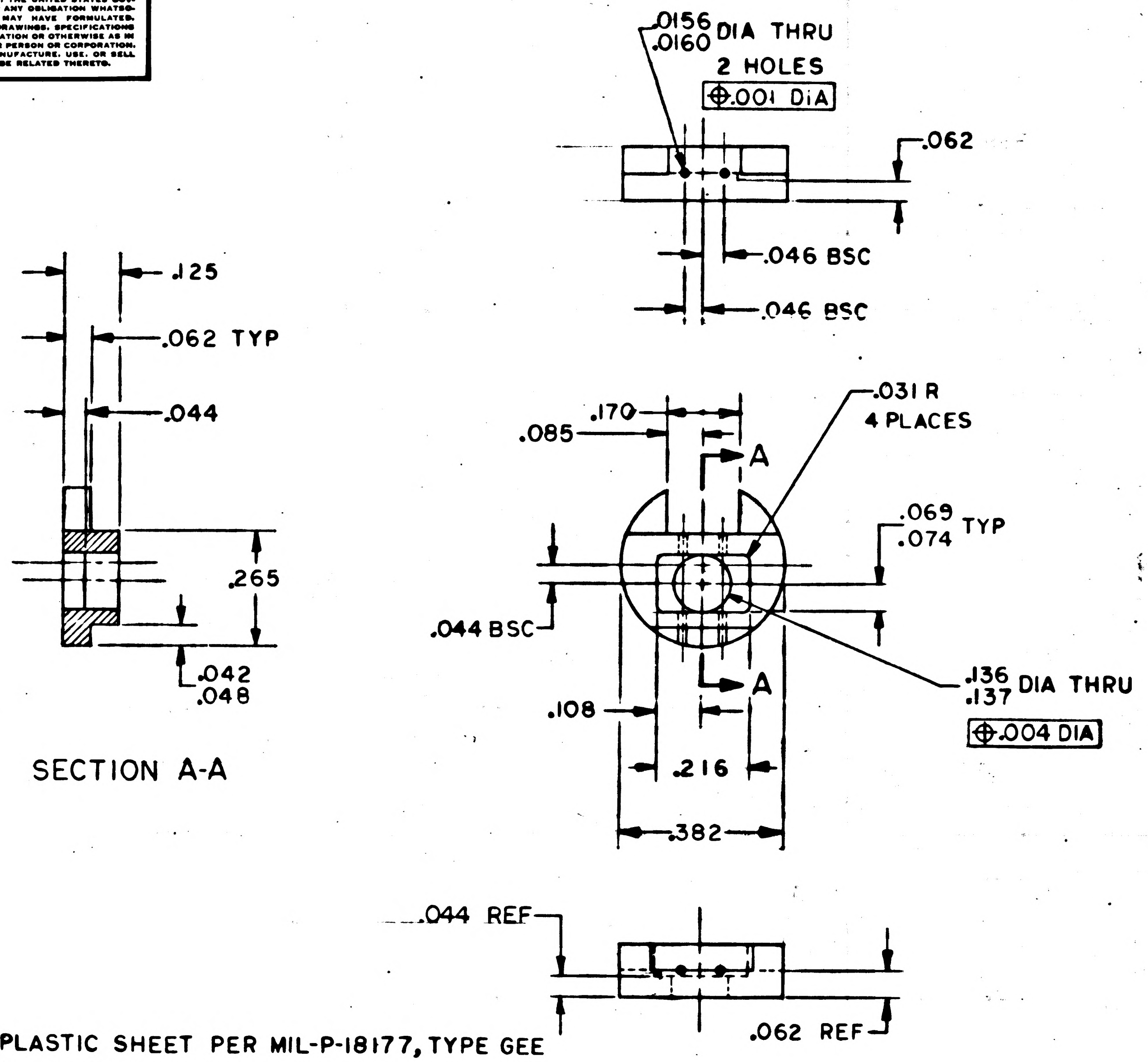
SCALE 10/1
SHEET 1 OF 1

MODERN BLUE PRINT CO. D-19550

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 21877

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 23231				



NOTES
1. MATL: PLASTIC SHEET PER MIL-P-18177, TYPE GEE
2. REMOVE BURRS AND SHARP EDGES .002/.010
3. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
4. IDENTIFY WITH PART NO. PER ND1002019

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003934	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J. A. Zaffini 2JULY65
CHECKED 10Aug65
APPROVED 12Aug65
APPROVED Ellen C Hall 24Aug65
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

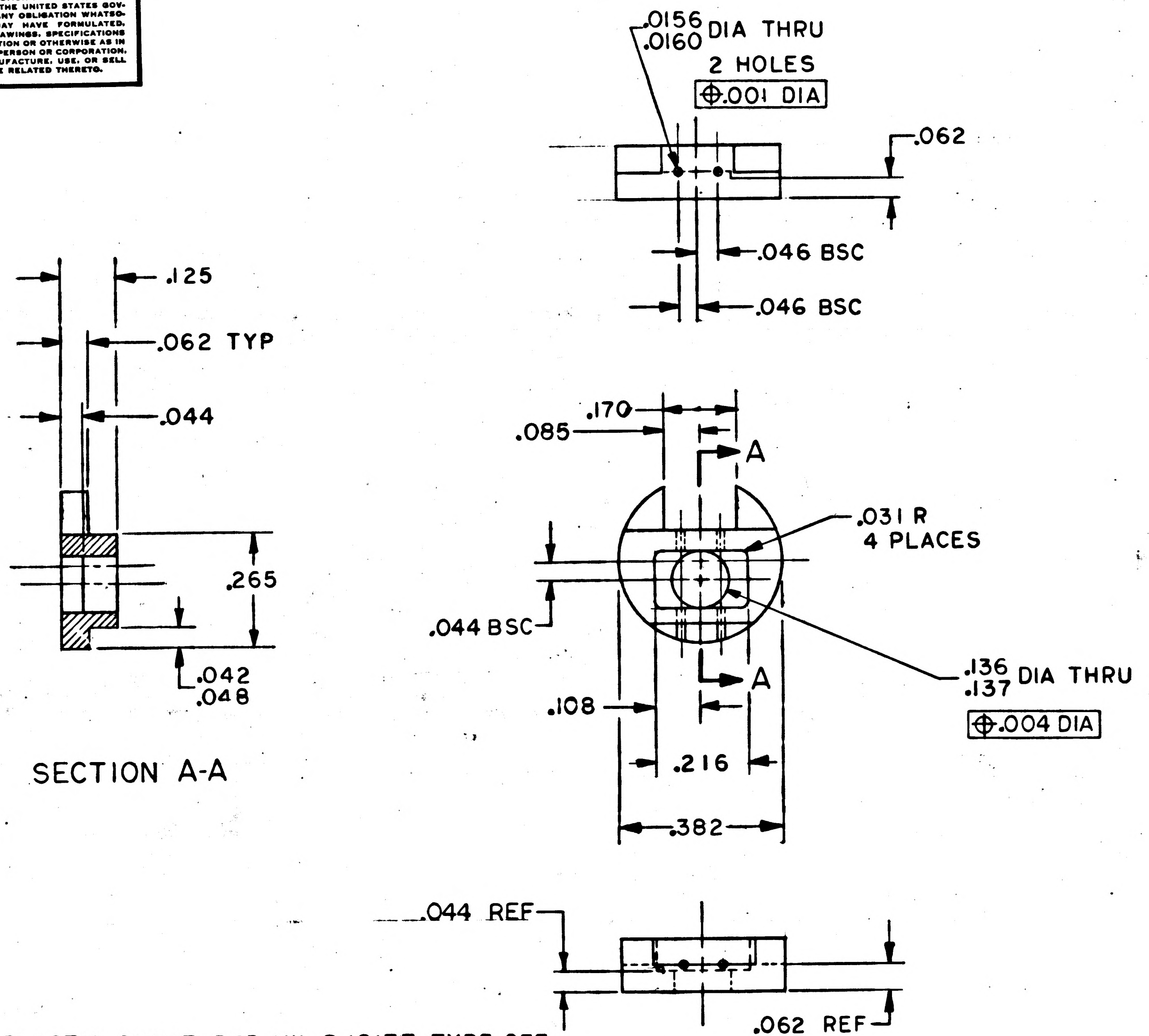
DISK, RECEPTACLE
PUSH BUTTON SWITCH
AGC DSKY

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004964
SCALE 4/1
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 21877

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES

1. MATL: PLASTIC SHEET PER MIL-P-18177, TYPE GEE
2. REMOVE BURRS AND SHARP EDGES .002/.010
3. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
4. IDENTIFY WITH PART NO. PER ND1002019

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003934	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ±.005 ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	J. Q. Zaffini	2 JULY 65
CHECKED		10 Aug 65
APPROVED		12 Aug 65
APPROVED	Eldon C Hall	24 Aug 65
APPROVED MIT		
APPROVED MSC		
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DISK, RECEPTACLE
PUSH BUTTON SWITCH
AGC DSKY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004964
SCALE 4/1		SHEET 1 OF 1

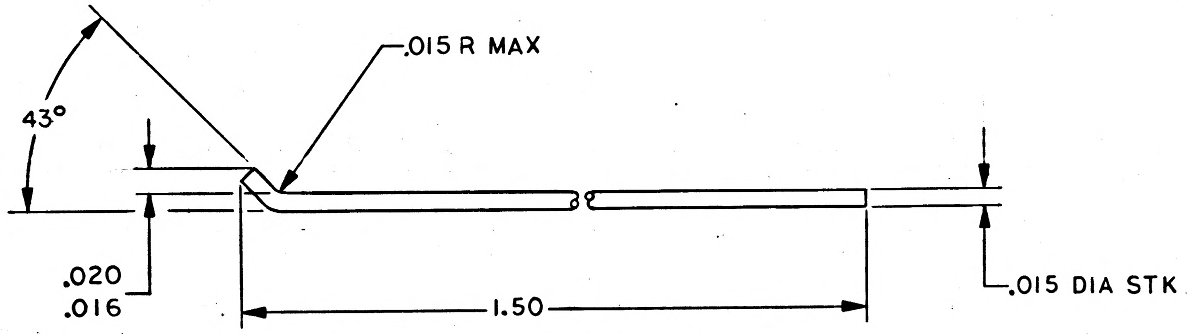
2004964

MODERN BLUE PRINT CO. D-19550

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 21877

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES
1. MATL: COPPER BERYLLIUM PER QQ-C-530, COND 1/2 H
2. GOLD PLATE PER MIL-G-45204, TYPE II, CLASS 2
3. REMOVE BURRS AND SHARP EDGES
4. IDENTIFY WITH PART NO. PER ND1002019
5. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003932	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.03 ANGLES ±2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

		DATE
DRAWN	KW Simpson	15 Jul 65
CHECKED		10 Aug 65
APPROVED		14 Aug 65
APPROVED	Eldon C Hall	24 Aug 65
APPROVED MIT		24 Aug 65
APPROVED MSC		

WIRE, PLUG CONTACT
PUSH BUTTON SWITCH
AGC DSKY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004966

SCALE 10/1

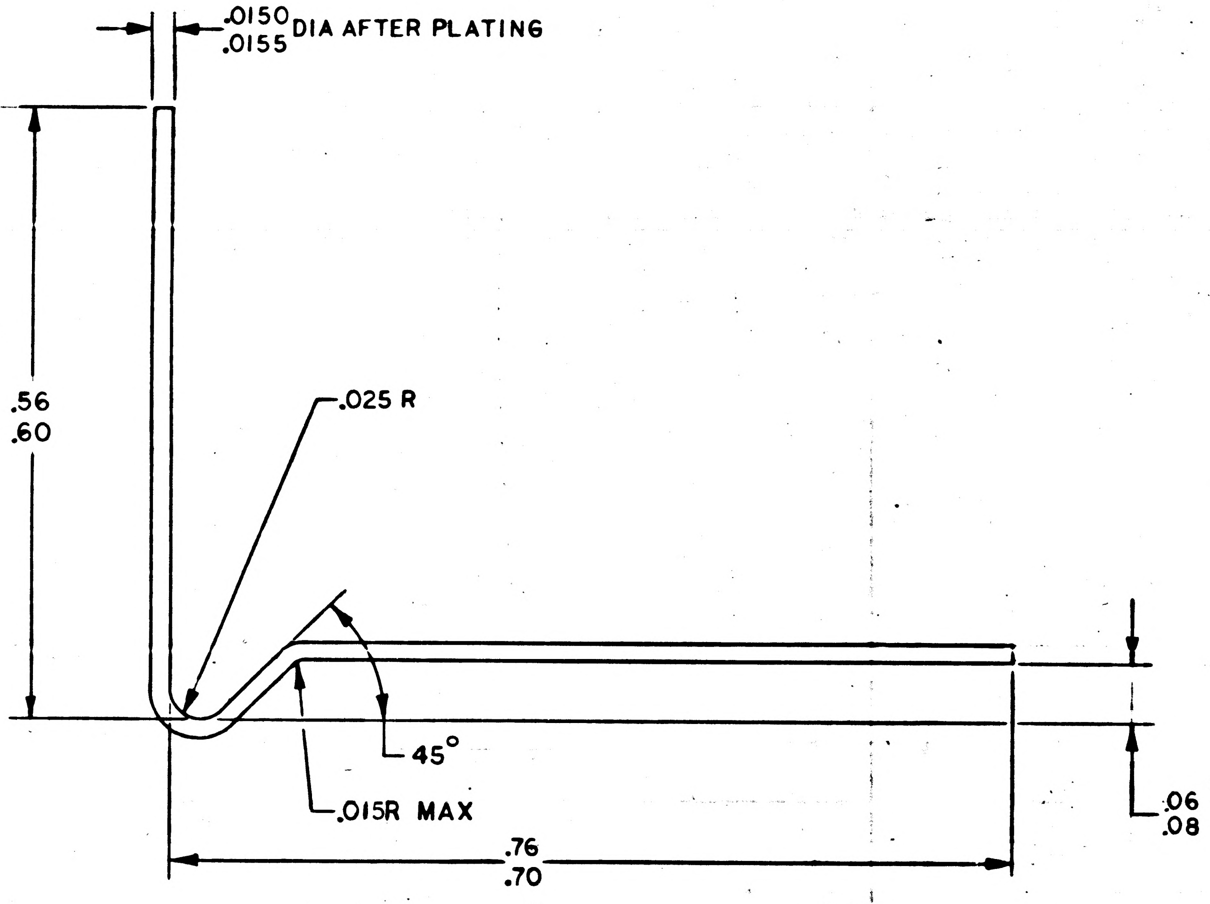
SHEET 1 OF 1

MODERN BLUE PRINT CO. D-19550

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 21877

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 22311	KWS		9/1/65	



NOTES

1. MATL: COPPER BERYLLIUM PER QQ-C-530, COND 1/2 H
2. GOLD PLATE PER MIL-G-45204, TYPE II, CLASS I
3. IDENTIFY WITH PART NO. PER ND1002019
4. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
5. REMOVE BURRS AND SHARP EDGES

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003934	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN K. L. Simpson 9 JUL 65
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

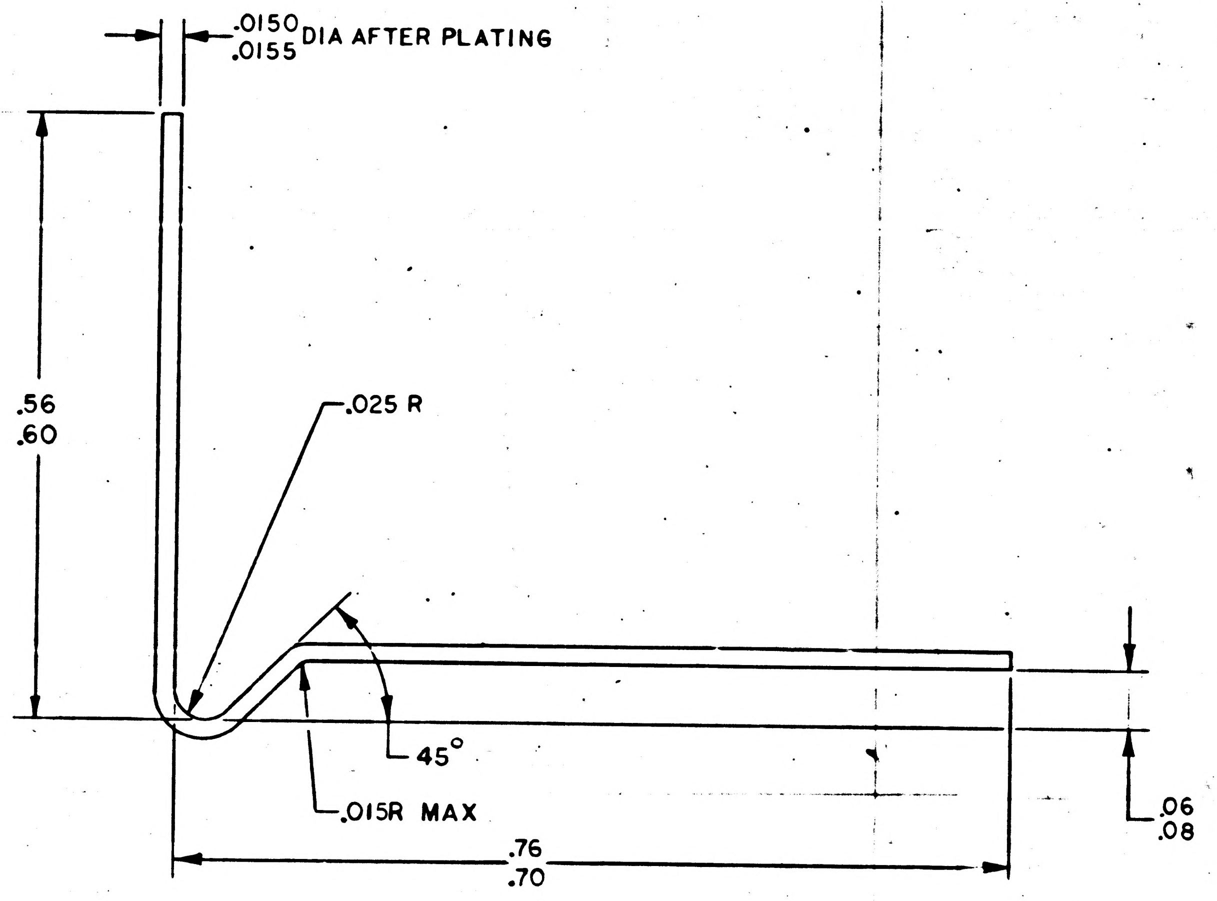
WIRE, SOCKET CONTACT
PUSH BUTTON SWITCH
AGC DSKY

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004967
SCALE 10/1
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 21877

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 22311	KWS		9/21/65	
B		REVISED PER TDRR 32580	R.SS		1/23/67	JSR



NOTES

1. MATL: COPPER BERYLLIUM PER QQ-C-530, COND 1/2 H
2. GOLD PLATE PER MIL-G-45204, TYPE II, CLASS I
3. IDENTIFY WITH PART NO. PER ND1002019
4. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
5. REMOVE BURRS AND SHARP EDGES
6. MATL: SPRING CARBON STEEL PER QQ-W-470
7. GOLD PLATE PER MIL-G-45204, TYPE II, CLASS I, COPPER STRIKE.
8. THE ORIGINAL CONFIGURATION IS IDENTIFIED BY DRAWING NO. AND A-000 SUFFIX.

DASH NO.	APPLICABLE NOTES
-001	3 THRU 8
-000	1 THRU 5 & 8

NOTE APPLICATION

NEXT ASSY	USED ON
2003934	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON

FRACTIONS	DECIMALS	ANGLES
±	±.005	±2°

DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1 & 6

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

		DATE
DRAWN	K.W. Simpson	9JUL65
CHECKED		10 Aug 65
APPROVED		16 Aug 65
APPROVED	Eldon C. Hall	24 Aug 65
APPROVED MIT		30 Aug 65
APPROVED MSC		

WIRE, SOCKET CONTACT
PUSH BUTTON SWITCH
AGC DSKY

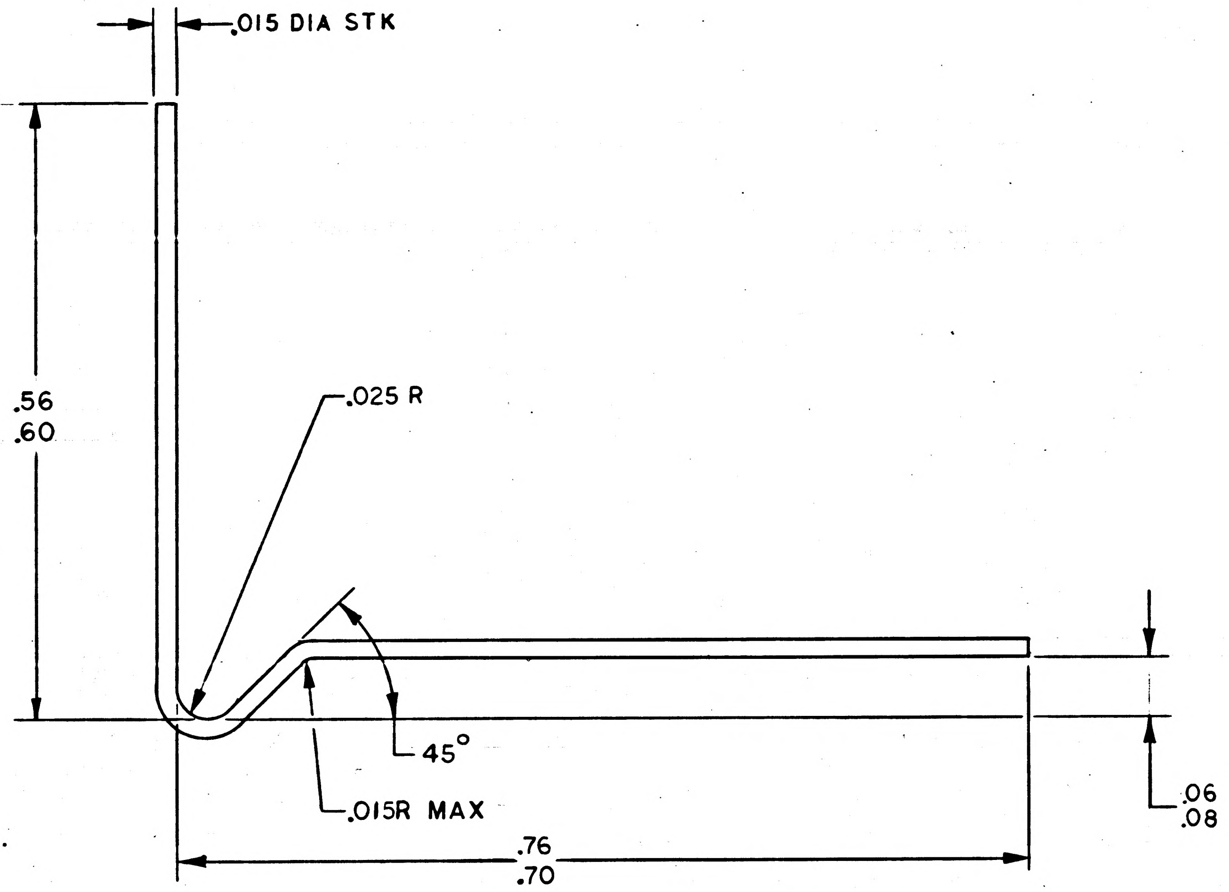
CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004967
SCALE 10/1
SHEET 1 OF 1

2004967 B

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 21877

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES
1. MATL: COPPER BERYLLIUM PER QQ-C-530, COND 1/2 H
2. GOLD PLATE PER MIL-G-45204, TYPE II, CLASS 2
3. IDENTIFY WITH PART NO. PER ND1002019
4. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
5. REMOVE BURRS AND SHARP EDGES

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003934	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN K W Simpson 9JUL65
CHECKED 10Aug65
APPROVED 16Aug65
APPROVED Eldon C Hall 24Aug65
APPROVED MIT 24Aug65
APPROVED MSC 8/24/65
DATE

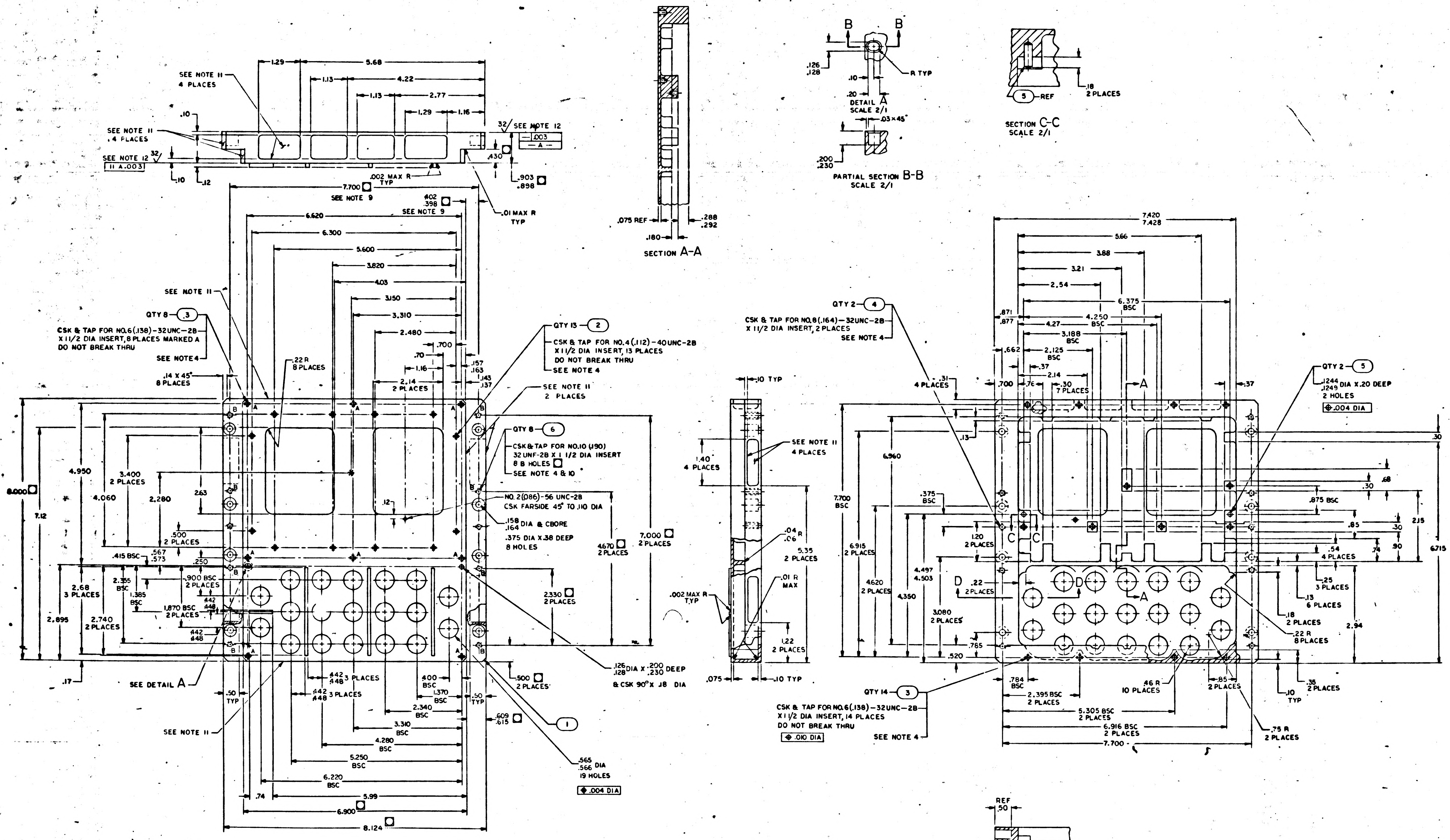
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

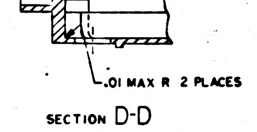
WIRE, SOCKET CONTACT
PUSH BUTTON SWITCH
AGC DSKY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2004967
SCALE 10/1		SHEET 1 OF 1

2004967

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22544 DR RBS CHK		


SECTION A-A
DETAIL A SCALE 2/1
PARTIAL SECTION B-B SCALE 2/1
SECTION C-C SCALE 2/1
SEE DETAIL A
SEE NOTE 11 4 PLACES
SEE NOTE 12
SEE NOTE 9
QTY 8 ③ CSK & TAP FOR NO.6(.138)-32UNC-2B X 1 1/2 DIA INSERT, 8 PLACES MARKED A DO NOT BREAK THRU SEE NOTE 4
QTY 13 ② CSK & TAP FOR NO.4(.112)-40UNC-2B X 1 1/2 DIA INSERT, 13 PLACES DO NOT BREAK THRU SEE NOTE 4
QTY 8 ⑥ CSK & TAP FOR NO.10 (.190) 32 UNF-2B X 1 1/2 DIA INSERT 8 B HOLES SEE NOTE 4 & 10
NO.2(.086)-56 UNC-2B CSK FARSIDE 45° TO .110 DIA
.158 .164 DIA & CBORE .375 DIA X .38 DEEP 8 HOLES
.126 .128 DIA X .200 .230 DEEP & CSK 90° X .18 DIA
.565 .566 DIA 19 HOLES ⊕ .004 DIA
QTY 2 ④ CSK & TAP FOR NO.8(.164)-32UNC-2B X 1 1/2 DIA INSERT, 2 PLACES SEE NOTE 4
QTY 2 ⑤ .1244 .1249 DIA X .20 DEEP 2 HOLES ⊕ .004 DIA
QTY 14 ③ CSK & TAP FOR NO.6(.138)-32UNC-2B X 1 1/2 DIA INSERT, 14 PLACES DO NOT BREAK THRU ⊕ .010 DIA SEE NOTE 4
8.124
7.700
7.420 7.428
8.000
7.000
6.715
.002 MAX R TYP
.01 MAX R TYP


REF .50
.01 MAX R 2 PLACES

SECTION D-D

NOTES

1. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP 6
2. REMOVE BURRS & SHARP EDGES .005/.015
3. RADII TO BE .09 R UNLESS OTHERWISE SPECIFIED
4. INSTALL FIND NO. 2,3,4 & 6 PER MS33646
5. ALL SURFACES 125√ UNLESS OTHERWISE SPECIFIED
6. CHROMATE PER MIL-C-5541 TYPE II, GRADE C, CLASS 3
7. IDENTIFY WITH PART NO PER ND 1002019
8. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
9. DIMENSION APPLY TO B HOLES ONLY
10. ▢ DIMENSIONS CONTROLLED BY ICDMH01-01305-116
11. PAINT INDICATED SURFACES PER ND1002279 USING MED GRAY PAINT 1008805-1
12. SCRATCHES NOT PERMISSIBLE ON SURFACES WITH 32√ FINISH

QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	FIND NO.
8	MS21209F1-15	INSERT, THREADED, SELF LOCKING.	6
2	MS16555-625	PIN, DOWEL	5
2	MS21209-C0815	INSERT, THREADED, SELF LOCKING	4
22	MS21209-C0615	INSERT, THREADED, SELF LOCKING	3
13	MS21209-C0415	INSERT, THREADED, SELF LOCKING	2
1	2004968-001	HOUSING, FRONT	1

011 LIST OF MATERIALS

2003903	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ±.005 ±.01 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 1
HEAT TREATMENT NONE
FINAL FINISH SEE NOTE 6

MIT INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN A. Vora DATE
CHECKED
APPROVAL
APPROVAL
NASA NOT REQ
MIT NASA RQ
MIT APPROVAL

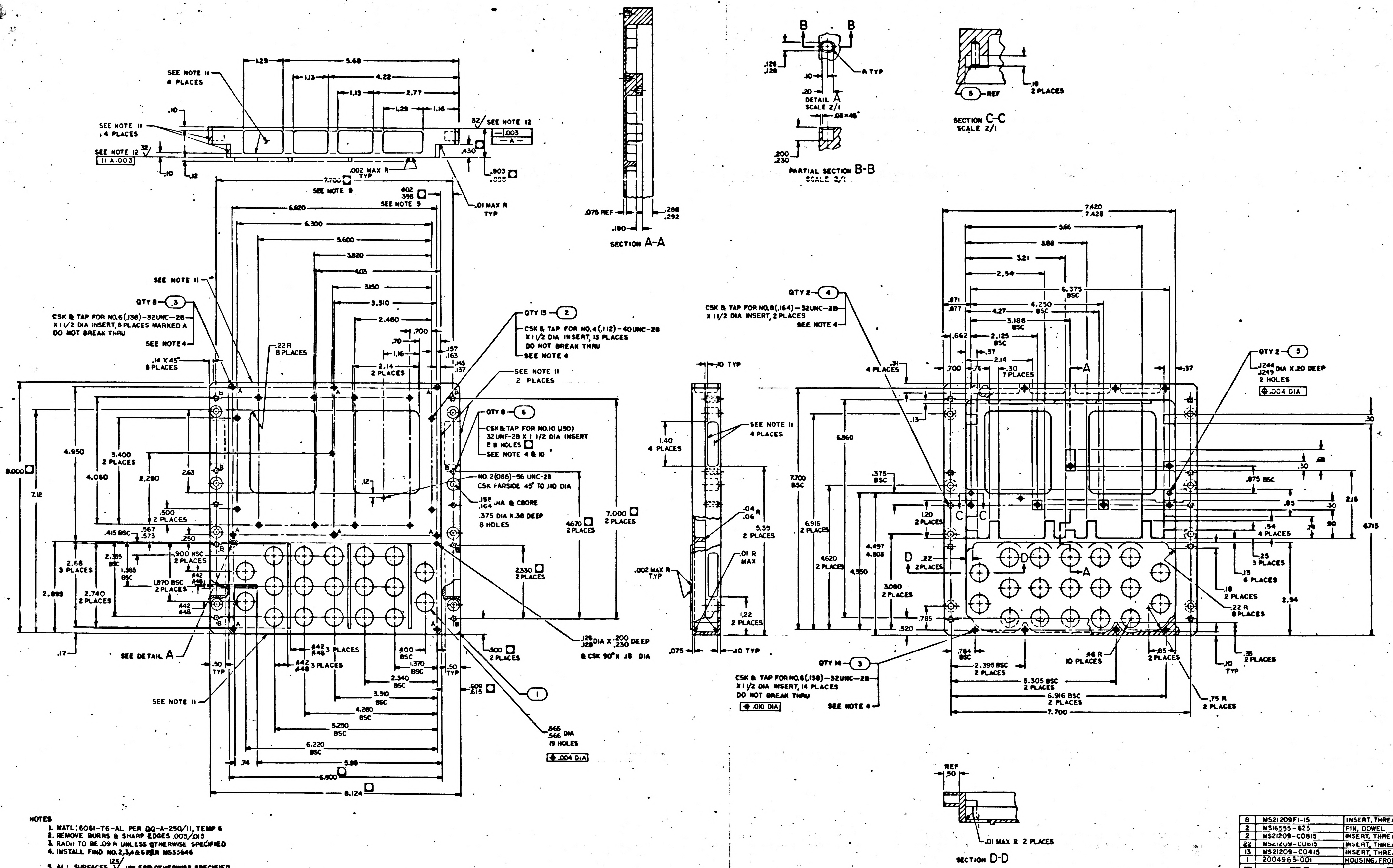
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

HOUSING, FRONT
AGC DSKY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2004968
SCALE 1/1
WT
SHEET 1 OF 1

2004968 A

LTR	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22544 DR [illegible] CHK [illegible]	[illegible]	[illegible]
B	REVISED PER TDRR 22738 DR [illegible] CHK [illegible]	[illegible]	[illegible]



SECTION A-A
DETAIL A SCALE 2/1
PARTIAL SECTION B-B SCALE 2/1
SECTION C-C SCALE 2/1
SECTION D-D
SEE NOTE 11 4 PLACES
SEE NOTE 12
SEE NOTE 9
SEE DETAIL A
QTY 8 ③ CSK & TAP FOR NO.6 (.138)-32UNC-2B X 1 1/2 DIA INSERT, 8 PLACES MARKED A DO NOT BREAK THRU SEE NOTE 4
QTY 13 ② CSK & TAP FOR NO.4 (.112)-40UNC-2B X 1 1/2 DIA INSERT, 13 PLACES DO NOT BREAK THRU SEE NOTE 4
QTY 8 ⑥ CSK & TAP FOR NO.10 (.190) 32 UNF-2B X 1 1/2 DIA INSERT 8 B HOLES SEE NOTE 4 & 10
NO. 2 (.086)-56 UNC-2B CSK FARSIDE 45° TO .110 DIA
.375 DIA X .38 DEEP 8 HOLES
.565 .566 DIA 19 HOLES
.004 DIA
.126 .128 DIA X .200 .230 DEEP & CSK 90° X .18 DIA
QTY 2 ④ CSK & TAP FOR NO.8 (.164)-32UNC-2B X 1 1/2 DIA INSERT, 2 PLACES SEE NOTE 4
QTY 2 ⑤ .1244 .1249 DIA X .20 DEEP 2 HOLES .004 DIA
QTY 14 ③ CSK & TAP FOR NO.6 (.138)-32UNC-2B X 1 1/2 DIA INSERT, 14 PLACES DO NOT BREAK THRU SEE NOTE 4
.010 DIA
.22 R 8 PLACES
.14 X 45° 8 PLACES
7.700
8.000
8.124
6.900
7.420 7.428
.01 MAX R 2 PLACES
.002 MAX R TYP

NOTES

1. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP 6
2. REMOVE BURRS & SHARP EDGES .005/.015
3. RADII TO BE .09 R UNLESS OTHERWISE SPECIFIED
4. INSTALL FIND NO. 2,3,4 & 6 PER MS33646
5. ALL SURFACES 125√ UNLESS OTHERWISE SPECIFIED
6. CHROMATE PER MIL-C-5541 TYPE II, GRADE C, CLASS 3
7. IDENTIFY WITH PART NO PER ND 1002019
8. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
9. DIMENSION APPLY TO B HOLES ONLY
10. ▢ DIMENSIONS CONTROLLED BY ICDMH01-01305-116
11. PAINT INDICATED SURFACES PER ND1002279 USING MED GRAY PAINT 1008809-1
12. SCRATCHES NOT PERMISSIBLE ON SURFACES WITH 32√ FINISH

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
8	MS21209F1-15	INSERT, THREADED, SELF LOCKING	6
2	MS16555-625	PIN, DOWEL	5
2	MS21209-C0815	INSERT, THREADED, SELF LOCKING	4
22	MS21209-C0615	INSERT, THREADED, SELF LOCKING	3
13	MS21209-C0415	INSERT, THREADED, SELF LOCKING	2
1	2004968-001	HOUSING, FRONT	1
011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2005903	
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ±.01 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 1
HEAT TREATMENT NONE
FINAL FINISH SEE NOTE 6

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DRAWN [illegible] DATE [illegible]
CHECKED [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA NOT REQUIRED PER LETTER NASA PP7 65-612
MIT APPROVAL [illegible]

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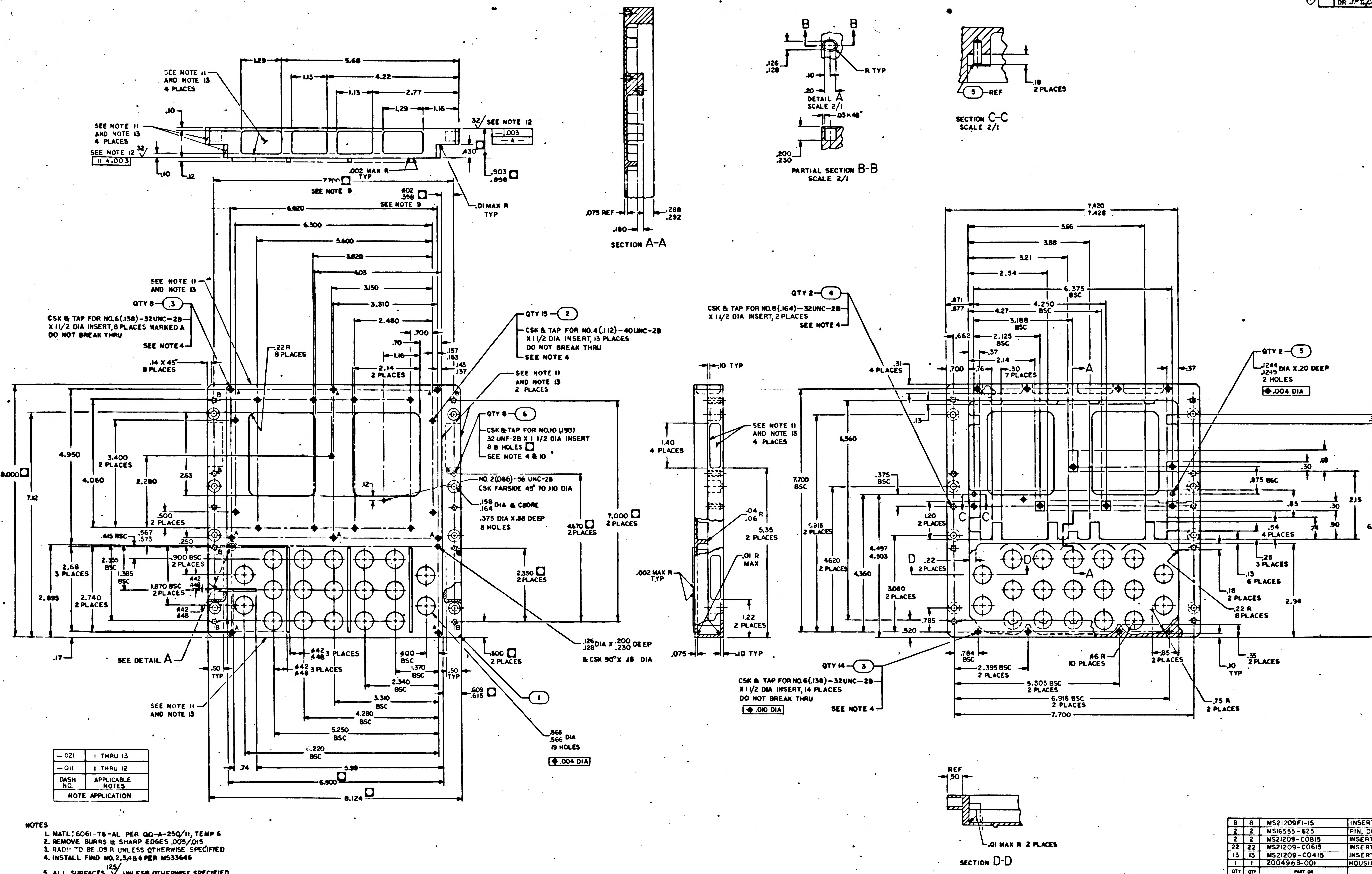
HOUSING, FRONT
AGC DSKY

CODE IDENT NO. 80230 SIZE J NASA DRAWING NO. 2004968
SCALE 1/1 WT SHEET 1 OF 1

2004968 B

2004968 | C

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22544 DR CHK		
B	REVISED PER TDRR 22738 DR R. CHK		
C	REVISED PER TDRR 28178 DR. SP CHK JW		



SEE NOTE 11 AND NOTE 13 4 PLACES
SEE NOTE 12
SEE NOTE 9
SECTION A-A
DETAIL A SCALE 2/1
R TYP
PARTIAL SECTION B-B SCALE 2/1
SECTION C-C SCALE 2/1
QTY 8 ③ CSK & TAP FOR NO.6(.138)-32UNC-2B X 1 1/2 DIA INSERT, 8 PLACES MARKED A DO NOT BREAK THRU SEE NOTE 4
QTY 13 ② CSK & TAP FOR NO.4(.112)-40UNC-2B X 1 1/2 DIA INSERT, 13 PLACES DO NOT BREAK THRU SEE NOTE 4
QTY 8 ⑥ CSK & TAP FOR NO.10 (.190) 32 UNF-2B X 1 1/2 DIA INSERT 8 B HOLES SEE NOTE 4 & 10
NO. 2(.086)-56 UNC-2B CSK FARSIDE 45° TO .110 DIA
.158 .164 DIA & CBORE .375 DIA X .38 DEEP 8 HOLES
.126 .128 DIA X .200 .230 DEEP & CSK 90° X .18 DIA
.566 .566 DIA 19 HOLES .004 DIA
SEE DETAIL A
QTY 2 ④ CSK & TAP FOR NO.8(.164)-32UNC-2B X 1 1/2 DIA INSERT, 2 PLACES SEE NOTE 4
QTY 2 ⑤ .1244 .1249 DIA X .20 DEEP 2 HOLES .004 DIA
QTY 14 ③ CSK & TAP FOR NO.6(.138)-32UNC-2B X 1 1/2 DIA INSERT, 14 PLACES DO NOT BREAK THRU .010 DIA SEE NOTE 4
SECTION D-D
.01 MAX R 2 PLACES

DASH NO.	APPLICABLE NOTES
-021	1 THRU 13
-011	1 THRU 12

NOTE APPLICATION

NOTES

1. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP 6
2. REMOVE BURRS & SHARP EDGES .005/.015
3. RADII TO BE .09 R UNLESS OTHERWISE SPECIFIED
4. INSTALL FIND NO. 2,3,4 & 6 PER MS33646
5. ALL SURFACES $\overset{125}{\surd}$ UNLESS OTHERWISE SPECIFIED
6. CHROMATE PER MIL-C-5541 TYPE II, GRADE C, CLASS 3
7. IDENTIFY WITH PART NO PER ND 1002019
8. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
9. DIMENSION APPLY TO B HOLES ONLY
10. ☐ DIMENSIONS CONTROLLED BY ICD MH01-01305-116
11. PAINT INDICATED SURFACES PER ND1002279 USING DARK GRAY PAINT 1008809-1
12. SCRATCHES NOT PERMISSIBLE ON SURFACES WITH 32√ FINISH
13. FINAL COAT INDICATED SURFACES PER ND1002277 USING 1012543-003

021 QTY REQD	011 QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
8	8	MS21209F1-15	INSERT, THREADED, SELF LOCKING	6
2	2	MS16555-625	PIN, DOWEL	5
2	2	MS21209-C0815	INSERT, THREADED, SELF LOCKING	4
22	22	MS21209-C0615	INSERT, THREADED, SELF LOCKING	3
13	13	MS21209-C0415	INSERT, THREADED, SELF LOCKING	2
1	1	2004968-001	HOUSING, FRONT	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003949	
2003903	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ±.01 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 1
HEAT TREATMENT NONE
FINAL FINISH SEE NOTE 6

MIT
INSTRUMENTATION LAB
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DRAWN De Voss DATE
CHECKED
APPROVAL
APPROVAL
NASA NOT REQUIRED PER LETTER
MIT APPROVAL NASA PP
MIT APPROVAL

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HOUSING, FRONT
AGC DSKY

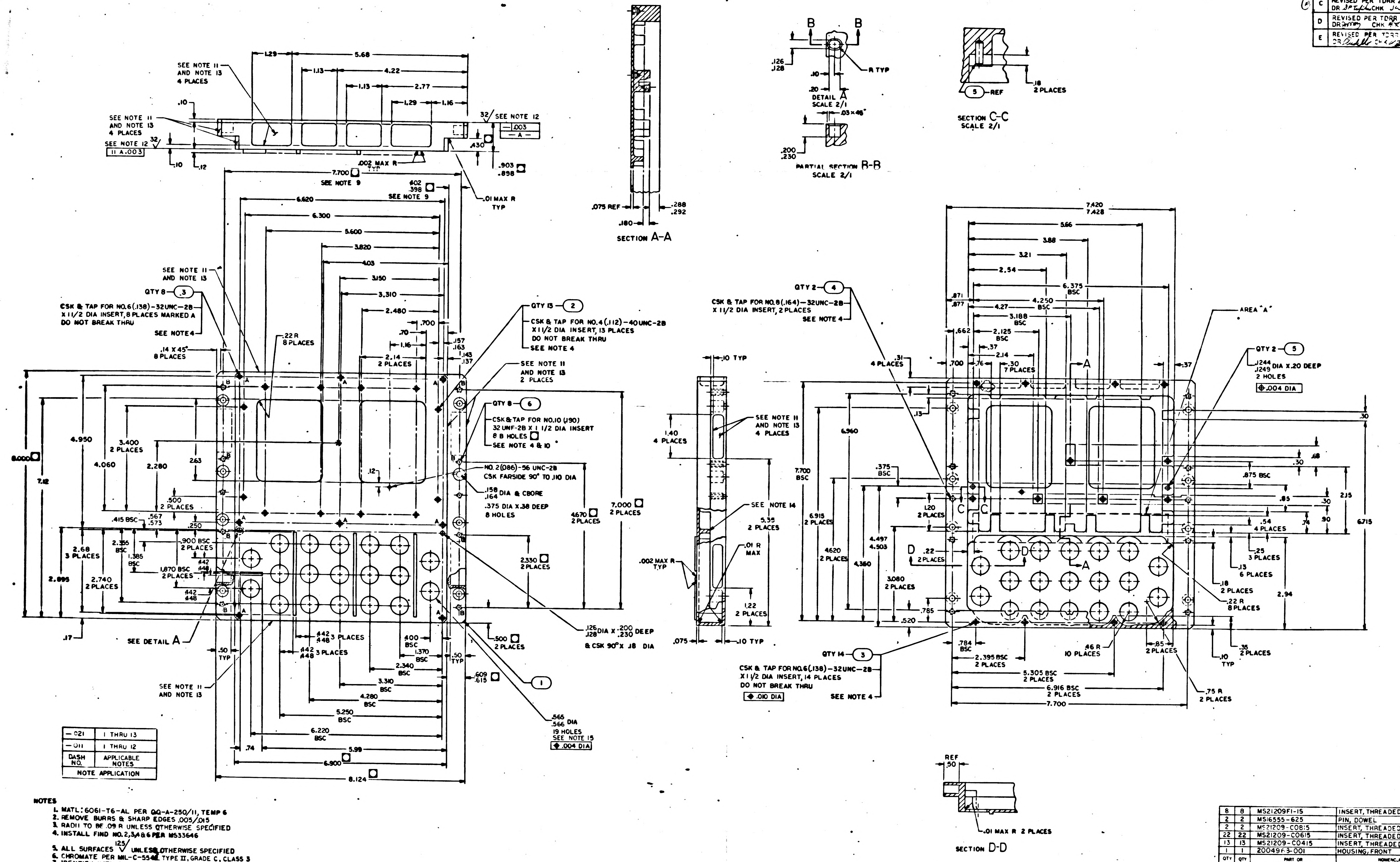
CODE IDENT NO. 80230 SIZE J NASA DRAWING NO. 2004968
SCALE 1/1 WT SHEET 1 OF 1

MASTER

2004968 | C

2004968 E

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 22544 DR [illegible] CHK [illegible]	10/1/65	[illegible]
B	REVISED PER TDRR 22738 DR R. Zeikel CHK [illegible]	[illegible]	[illegible]
C	REVISED PER TDRR 28178 DR S.P. Tufin CHK JW	5/3/66	[illegible]
D	REVISED PER TDRR 30085 DR [illegible] CHK [illegible]	[illegible]	[illegible]
E	REVISED PER TDRR 3 829 DR [illegible] CHK [illegible]	[illegible]	[illegible]


SECTION A-A
DETAIL A SCALE 2/1
PARTIAL SECTION B-B SCALE 2/1
SECTION C-C SCALE 2/1
SECTION D-D
SEE DETAIL A
AREA "A"
QTY 8 ③ CSK & TAP FOR NO.6 (.138)-32UNC-2B X 1 1/2 DIA INSERT, 8 PLACES MARKED A DO NOT BREAK THRU SEE NOTE 4
QTY 13 ② CSK & TAP FOR NO.4 (.112)-40UNC-2B X 1 1/2 DIA INSERT, 13 PLACES DO NOT BREAK THRU SEE NOTE 4
QTY 8 ⑥ CSK & TAP FOR NO.10 (.190) 32 UNF-2B X 1 1/2 DIA INSERT 8 B HOLES SEE NOTE 4 & 10
QTY 2 ④ CSK & TAP FOR NO.8 (.164)-32UNC-2B X 1 1/2 DIA INSERT, 2 PLACES SEE NOTE 4
QTY 2 ⑤ .1244 .1249 DIA X .20 DEEP 2 HOLES
QTY 14 ③ CSK & TAP FOR NO.6 (.138)-32UNC-2B X 1 1/2 DIA INSERT, 14 PLACES DO NOT BREAK THRU SEE NOTE 4
NO.2 (.086)-56 UNC-2B CSK FARSIDE 90° TO .110 DIA
.158 .164 DIA & CBORE .375 DIA X .38 DEEP 8 HOLES
.126 .128 DIA X .200 .230 DEEP & CSK 90° X .18 DIA
.565 .566 DIA 19 HOLES SEE NOTE 15
SEE NOTE 11 AND NOTE 13
SEE NOTE 14
7.700 BSC
8.124
8.000
7.420 7.428
①

DASH NO.	APPLICABLE NOTES
-021	1 THRU 13
-011	1 THRU 12

NOTE APPLICATION

NOTES

1. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP 6
2. REMOVE BURRS & SHARP EDGES .005/.015
3. RADII TO BE .09 R UNLESS OTHERWISE SPECIFIED
4. INSTALL FIND NO. 2,3,4 & 6 PER MS33646
5. ALL SURFACES 125/√ UNLESS OTHERWISE SPECIFIED
6. CHROMATE PER MIL-C-5541 TYPE II, GRADE C, CLASS 3
7. IDENTIFY WITH PART NO PER ND 1002019
8. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
9. DIMENSION APPLY TO B HOLES ONLY
10. ☐ DIMENSIONS CONTROLLED BY ICDMH01-01305-116
11. PAINT INDICATED SURFACES PER ND1002279 USING DARK GRAY PAINT 1008809-1
12. SCRATCHES NOT PERMISSIBLE ON SURFACES WITH 32/√ FINISH
13. FINAL COAT INDICATED SURFACES PER ND1002277 USING 1012543-003
14. .04/.06 R ON RIBS & BOSSES INDICATED BY AREA "A"
15. BREAK SHARP EDGES .010/.020 19 HOLES

021 QTY REQD	011 QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
8	8	MS21209F1-15	INSERT, THREADED, SELF LOCKING	6
2	2	MS16555-625	PIN, DOWEL	5
2	2	MS21209-C0815	INSERT, THREADED, SELF LOCKING	4
22	22	MS21209-C0615	INSERT, THREADED, SELF LOCKING	3
13	13	MS21209-C0415	INSERT, THREADED, SELF LOCKING	2
1	1	2004968-001	HOUSING, FRONT	1

LIST OF MATERIALS

NEXT ASSY	USED ON
2003949	
2003903	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ±.01 ANGLES ±1°
DO NOT SCALE THIS DRAWING

MATERIAL SEE NOTE 1
HEAT TREATMENT NONE
FINAL FINISH SEE NOTE 6

MIT INSTRUMENTATION LAB
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CHECKED [illegible]
APPROVAL [illegible]
APPROVAL [illegible]
NASA NOT REQ'D
MIT NASA PP [illegible]
MIT APPROVAL [illegible]

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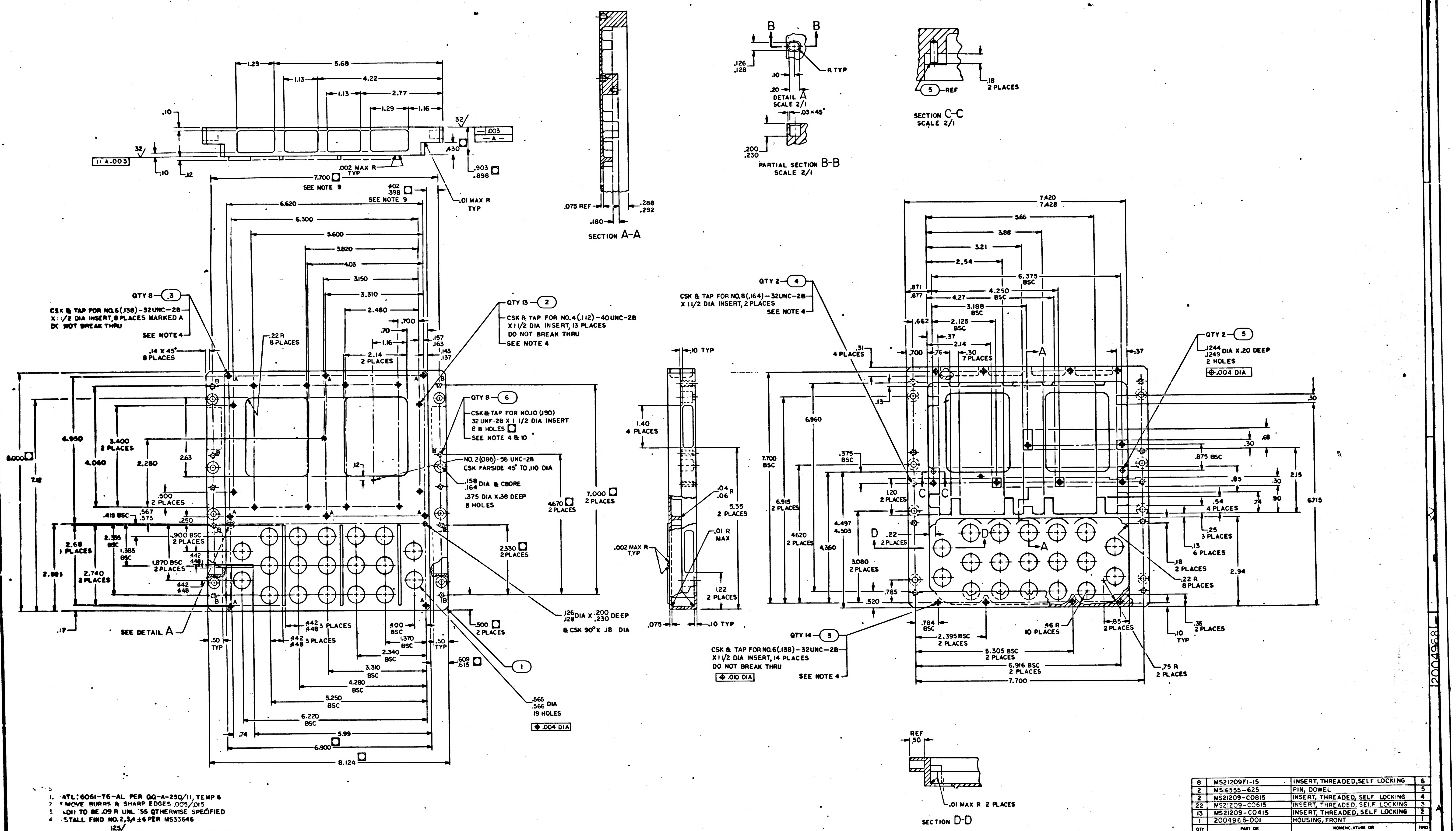
HOUSING, FRONT
AGC DSKY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2004968
SCALE 1/1 WT
SHEET 1 OF 1

2004968 E

2004968	—

REVISIONS



SECTION A-A
DETAIL A SCALE 2/1
PARTIAL SECTION B-B SCALE 2/1
SECTION C-C SCALE 2/1
SECTION D-D
SEE DETAIL A
QTY 8 ③ CSK & TAP FOR NO.6 (.138)-32UNC-2B X 1 1/2 DIA INSERT, 8 PLACES MARKED A DO NOT BREAK THRU SEE NOTE 4
QTY 13 ② CSK & TAP FOR NO.4 (.112)-40UNC-2B X 1 1/2 DIA INSERT, 13 PLACES DO NOT BREAK THRU SEE NOTE 4
QTY 8 ⑥ CSK & TAP FOR NO.10 (.190) 32 UNF-2B X 1 1/2 DIA INSERT 8 B HOLES SEE NOTE 4 & 10
NO. 2 (.086)-56 UNC-2B CSK FARSIDE 45° TO .110 DIA
.158 .164 DIA & CBORE .375 DIA X .38 DEEP 8 HOLES
.125 .128 DIA X .200 .230 DEEP & CSK 90° X .18 DIA
.565 .566 DIA 19 HOLES .004 DIA
QTY 2 ④ CSK & TAP FOR NO.8 (.164)-32UNC-2B X 1 1/2 DIA INSERT, 2 PLACES SEE NOTE 4
QTY 2 ⑤ .1244 .1249 DIA X .20 DEEP 2 HOLES .004 DIA
QTY 14 ③ CSK & TAP FOR NO.6 (.138)-32UNC-2B X 1 1/2 DIA INSERT, 14 PLACES DO NOT BREAK THRU SEE NOTE 4 .010 DIA
8.124
7.700
7.420 7.428

NOTES

1. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP 6
2. REMOVE BURRS & SHARP EDGES .005/.015
3. RADII TO BE .09 R UNLESS OTHERWISE SPECIFIED
4. INSTALL FIND NO. 2,3,4 & 6 PER MS33646
5. ALL SURFACES $\overset{125}{\surd}$ UNLESS OTHERWISE SPECIFIED
6. CHROMATE PER MIL-C-5541 TYPE II, GRADE C, CLASS 3
7. IDENTIFY WITH PART NO. PER ND 1002019
8. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
9. DIMENSION APPLY TO B HOLES ONLY
10. ☐ DIMENSIONS CONTROLLED BY ICDMH01

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
8	MS21209F1-15	INSERT, THREADED, SELF LOCKING	6
2	MS16555-625	PIN, DOWEL	5
2	MS21209-C0815	INSERT, THREADED, SELF LOCKING	4
22	MS21209-C0615	INSERT, THREADED, SELF LOCKING	3
13	MS21209-C0415	INSERT, THREADED, SELF LOCKING	2
1	2004968-001	HOUSING, FRONT	1
011	LIST OF MATERIALS		

NEXT ASSY	USED ON
2003903	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON FRACTIONS ± DECIMALS ±.005 ±.01 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 1
HEAT TREATMENT NONE
FINAL FINISH SEE NOTE 6

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS
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APPROVAL
APPROVAL
NASA NOT REQUIRED PER LETTER
MIT APPROVAL NASA PP 512
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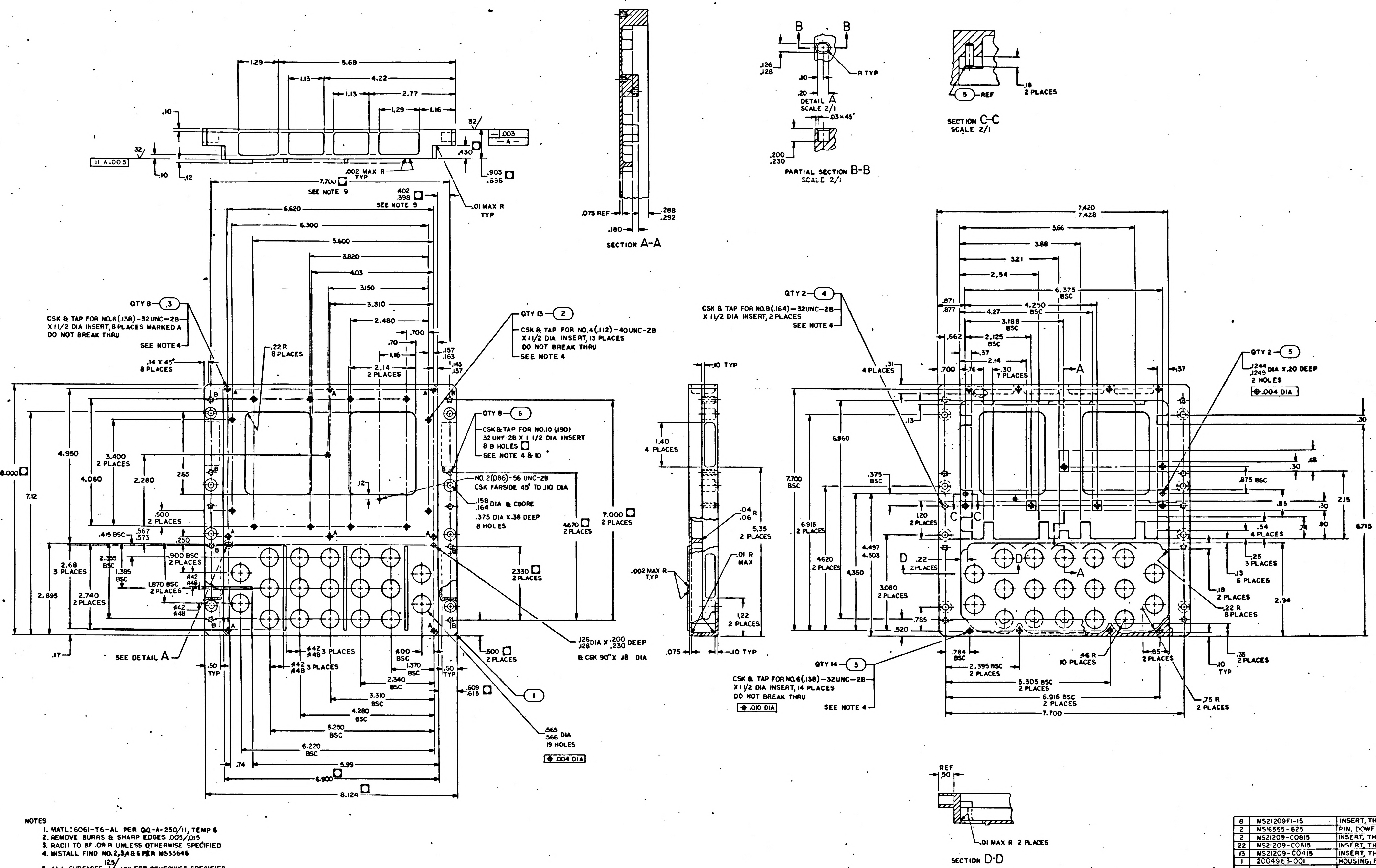
HOUSTON, TEXAS

HOUSING, FRONT
AGC DSKY

CODE IDENT NO. 80230 SIZE J NASA DRAWING NO. 2004968
SCALE 1/1 WT SHEET 1 OF 1

MASTER

2004968	—


SECTION A-A
DETAIL A SCALE 2/1
PARTIAL SECTION B-B SCALE 2/1
SECTION C-C SCALE 2/1
SECTION D-D
QTY 8 ③ CSK & TAP FOR NO.6(.138)-32UNC-2B X 1 1/2 DIA INSERT, 8 PLACES MARKED A DO NOT BREAK THRU SEE NOTE 4
QTY 13 ② CSK & TAP FOR NO.4(.112)-40UNC-2B X 1 1/2 DIA INSERT, 13 PLACES DO NOT BREAK THRU SEE NOTE 4
QTY 8 ⑥ CSK & TAP FOR NO.10 (.190) 32 UNF-2B X 1 1/2 DIA INSERT 8 B HOLES SEE NOTE 4 & 10
NO. 2(.086)-56 UNC-2B CSK FARSIDE 45° TO .110 DIA
.158 .164 DIA & CBORE .375 DIA X .38 DEEP 8 HOLES
.126 .128 DIA X .200 .230 DEEP & CSK 90° X .18 DIA
.565 .566 DIA 19 HOLES
.004 DIA
SEE DETAIL A
SEE NOTE 9
QTY 2 ④ CSK & TAP FOR NO.8(.164)-32UNC-2B X 1 1/2 DIA INSERT, 2 PLACES SEE NOTE 4
QTY 2 ⑤ .1244 .1249 DIA X .20 DEEP 2 HOLES
QTY 14 ③ CSK & TAP FOR NO.6(.138)-32UNC-2B X 1 1/2 DIA INSERT, 14 PLACES DO NOT BREAK THRU SEE NOTE 4
.010 DIA
.01 MAX R 2 PLACES
8.124
7.700
7.420 7.428

NOTES
1. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP 6
2. REMOVE BURRS & SHARP EDGES .005/.015
3. RADII TO BE .09 R UNLESS OTHERWISE SPECIFIED
4. INSTALL FIND NO. 2,3,4 & 6 PER MS33646
5. ALL SURFACES 125√ UNLESS OTHERWISE SPECIFIED
6. CHROMATE PER MIL-C-5541 TYPE II, GRADE C, CLASS 3
7. IDENTIFY WITH PART NO. PER ND 1002019
8. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
9. DIMENSION APPLY TO B HOLES ONLY
10. ☐ DIMENSIONS CONTROLLED BY ICDMH01

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
8	MS21209F1-15	INSERT, THREADED, SELF LOCKING
2	MS16555-625	PIN, DOWEL
2	MS21209-C0815	INSERT, THREADED, SELF LOCKING
22	MS21209-C0615	INSERT, THREADED, SELF LOCKING
13	MS21209-C0415	INSERT, THREADED, SELF LOCKING
1	2004963-001	HOUSING, FRONT

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003903	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON FRACTIONS – DECIMALS ±.005 ±.01 ANGLES ±1°
DO NOT SCALE THIS DRAWING
MATERIAL SEE NOTE 1
HEAT TREATMENT NONE
FINAL FINISH SEE NOTE 6

MIT INSTRUMENTATION LAB CAMBRIDGE MASS
DRAWN A. Voss DATE
CHECKED
APPROVAL
APPROVAL
NASA NOT REQUIRED PER LETTER
MIT APPROVAL
MIT APPROVAL

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HOUSTON TEXAS

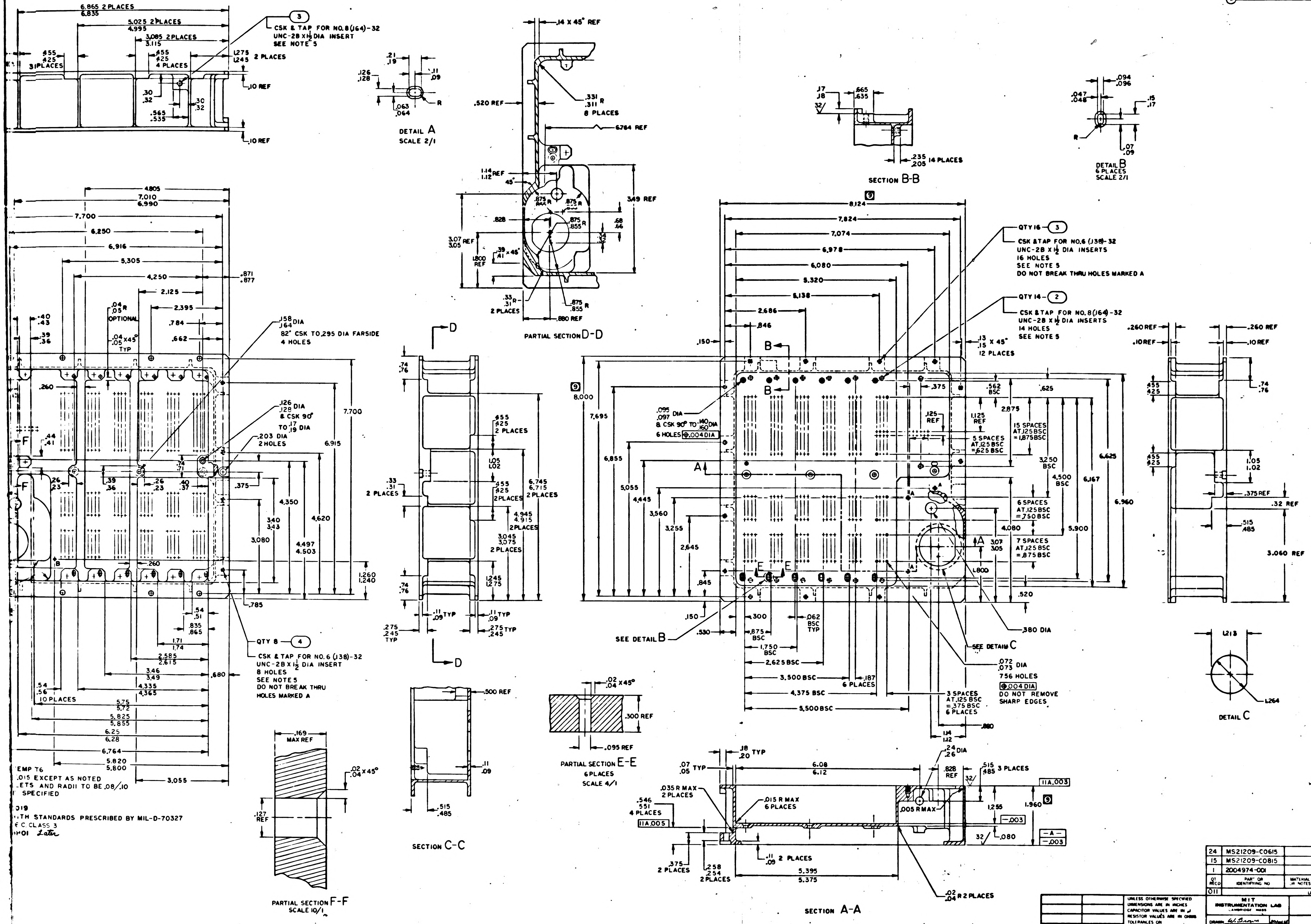
HOUSING, FRONT
AGC DSKY

CODE IDENT NO. 80230 SIZE J 20049
SCALE 1/1 WT

MASTER

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TORR 21819			9/3/65	

REVISIONS 20543



6.865 2 PLACES
6.835
5.025 2 PLACES
4.995
3.085 2 PLACES
3.115
CSK & TAP FOR NO. 8 (.164)-32 UNC-2B X 1½ DIA INSERT SEE NOTE 5
2 PLACES
.10 REF
DETAIL A
SCALE 2/1
.14 X 45° REF
.520 REF
.331 .311 R 8 PLACES
6.764 REF
3.49 REF
PARTIAL SECTION D-D
SECTION B-B
.235 .205 14 PLACES
DETAIL B
6 PLACES
SCALE 2/1
4.805
7.010
6.990
7.700
6.250
6.916
5.305
4.250
2.125
2.395
.158 .164 DIA
82° CSK TO .295 DIA FARSIDE
4 HOLES
.126 .120 DIA & CSK 90° TO .17 .19 DIA
.203 DIA 2 HOLES
7.700
6.915
QTY 8 ④
CSK & TAP FOR NO. 6 (.138)-32 UNC-2B X 1½ DIA INSERT
8 HOLES
SEE NOTE 5
DO NOT BREAK THRU HOLES MARKED A
10 PLACES
5.75 5.72
5.825 5.855
6.25 6.28
6.764
5.820 5.800
3.055
8.124
7.824
7.074
6.978
6.080
5.320
5.138
2.686
.846
QTY 16 ③
CSK & TAP FOR NO. 6 (.138)-32 UNC-2B X 1½ DIA INSERTS
16 HOLES
SEE NOTE 5
DO NOT BREAK THRU HOLES MARKED A
QTY 14 ②
CSK & TAP FOR NO. 8 (.164)-32 UNC-2B X 1½ DIA INSERTS
14 HOLES
SEE NOTE 5
.13 .15 X 45° 12 PLACES
.095 .097 DIA & CSK 90° TO .140 .160 DIA
6 HOLES ⊕ .004 DIA
8.000
15 SPACES AT .125 BSC = 1.875 BSC
5 SPACES AT .125 BSC = .625 BSC
6 SPACES AT .125 BSC = .750 BSC
7 SPACES AT .125 BSC = .875 BSC
3 SPACES AT .125 BSC = .375 BSC 6 PLACES
SEE DETAIL B
SEE DETAIL C
.380 DIA
.072 .073 DIA
756 HOLES
⊕ .004 DIA
DO NOT REMOVE SHARP EDGES
1.750 BSC
2.625 BSC
3.500 BSC
4.375 BSC
5.500 BSC
6 PLACES
DETAIL C
1.213
1.264
3.060 REF
PARTIAL SECTION E-E
6 PLACES
SCALE 4/1
.300 REF
.095 REF
.500 REF
SECTION C-C
PARTIAL SECTION F-F
SCALE 10/1
.169 MAX REF
.127 REF
6.08 6.12
5.395 5.375
.035 R MAX 2 PLACES
.015 R MAX 6 PLACES
.005 R MAX
1.960
.02 .04 R 2 PLACES
SECTION A-A

…EMP T6
….015 EXCEPT AS NOTED
…LETS AND RADII TO BE .08/.10
… SPECIFIED

…019
…TH STANDARDS PRESCRIBED BY MIL-D-70327
…E C. CLASS 3
…01 *Later*

QT RECD	PART OR IDENTIFYING NO	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
24	MS21209-C0615		INSERT, THREADED, SELF LOCKING	3
15	MS21209-C0815		INSERT, THREADED, SELF LOCKING	2
1	2004974-001		PLATE, IDM	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003967	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±½°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN *W. Brown*
CHECKED *R. Edwards*
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC

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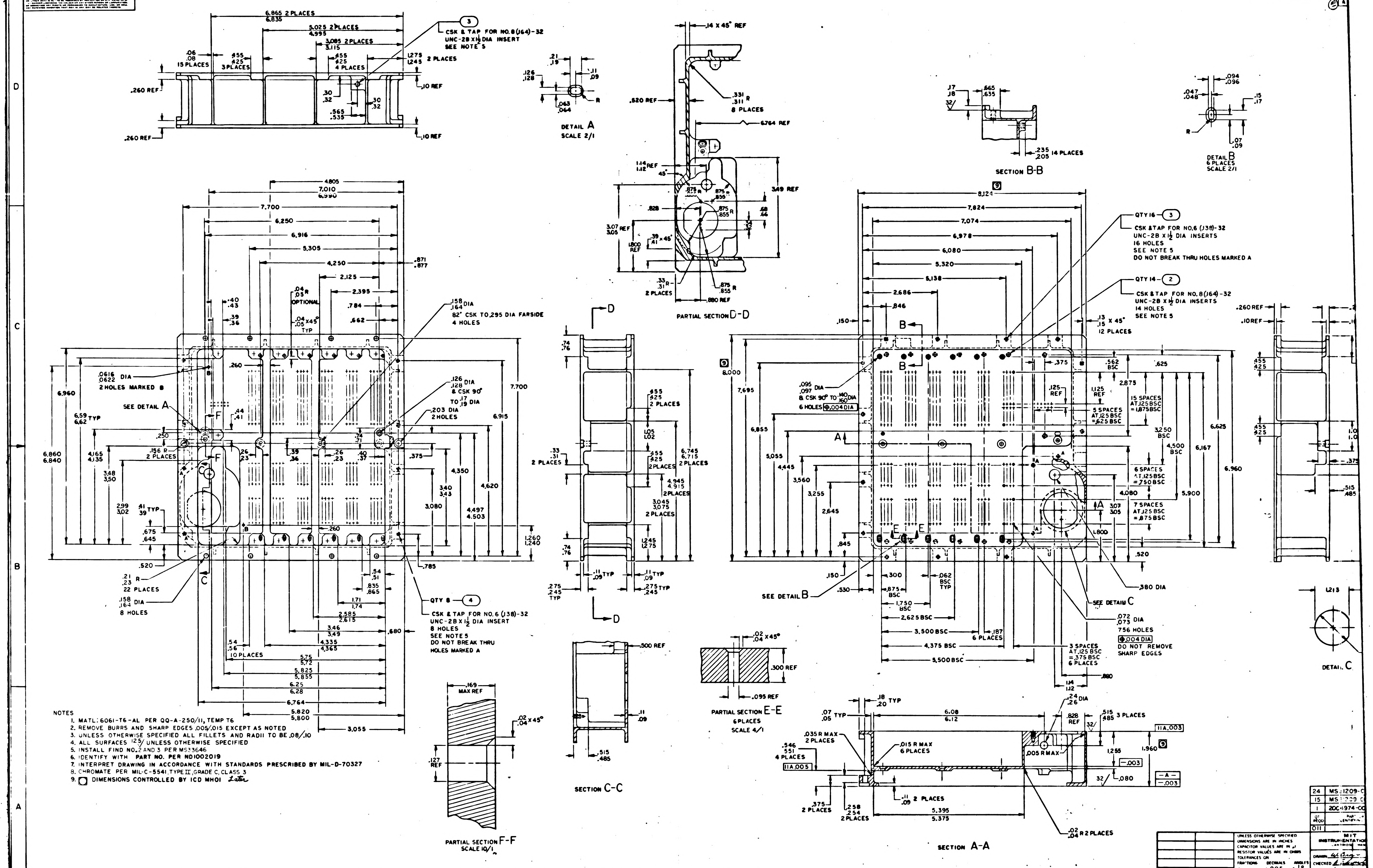
PLATE, IDM
MAIN HOUSING
AGC DSKY

CODE IDENT NO 80230
SIZE J
DRAWING NO. 2004974
SCALE 1/1
SHEET 1 OF 1

F 2/2

2004974 A



CSK & TAP FOR NO.8 (.164)-32 UNC-2B X 1½ DIA INSERT SEE NOTE 5
DETAIL A SCALE 2/1
PARTIAL SECTION D-D
SECTION B-B
DETAIL B 6 PLACES SCALE 2/1
QTY 16 ③ CSK & TAP FOR NO.6 (.138)-32 UNC-2B X 1½ DIA INSERTS 16 HOLES SEE NOTE 5 DO NOT BREAK THRU HOLES MARKED A
QTY 14 ② CSK & TAP FOR NO.8 (.164)-32 UNC-2B X 1½ DIA INSERTS 14 HOLES SEE NOTE 5
.0616 .0622 DIA 2 HOLES MARKED B
SEE DETAIL A
.158 .164 DIA 82° CSK TO .295 DIA FARSIDE 4 HOLES
.126 .128 DIA & CSK 90° TO .17 .19 DIA
.203 DIA 2 HOLES
.21 .23 R 22 PLACES
.158 .164 DIA 8 HOLES
QTY 8 ④ CSK & TAP FOR NO.6 (.138)-32 UNC-2B X 1½ DIA INSERT 8 HOLES SEE NOTE 5 DO NOT BREAK THRU HOLES MARKED A
.095 .097 DIA & CSK 90° TO .140 .160 DIA 6 HOLES ⌖.004 DIA
SEE DETAIL B
SEE DETAIL C
.072 .073 DIA 756 HOLES ⌖.004 DIA DO NOT REMOVE SHARP EDGES
.380 DIA
DETAIL C
SECTION C-C
PARTIAL SECTION E-E 6 PLACES SCALE 4/1
PARTIAL SECTION F-F SCALE 10/1
SECTION A-A

NOTES
1. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP T6
2. REMOVE BURRS AND SHARP EDGES .005/.015 EXCEPT AS NOTED
3. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .08/.10
4. ALL SURFACES 125/ UNLESS OTHERWISE SPECIFIED
5. INSTALL FIND NO. 2 AND 3 PER MS33646
6. IDENTIFY WITH PART NO. PER ND1002019
7. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
8. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
9. ⑨ DIMENSIONS CONTROLLED BY ICD MH01 *Later*

24	MS 1209-C
15	MS 1209 C
1	2004974-00
QT REQD	PART OR IDENTIFYING
011	

2003967	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±1/2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION
CAMBRIDGE

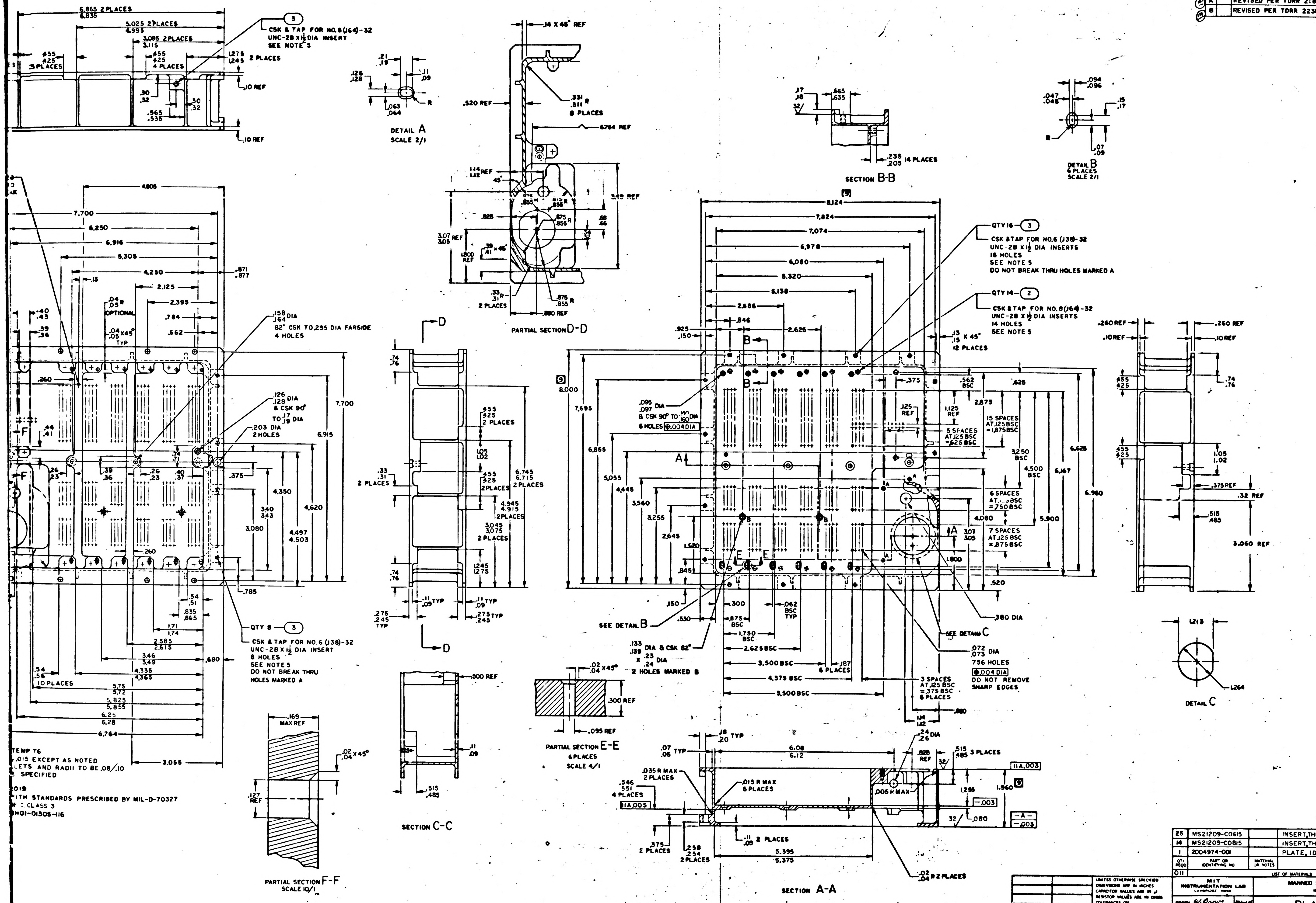
DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC

2004974 A F1/2

2004974 B

REVISIONS 20943

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 21819			9/3/6	
B		REVISED PER TDRR 22314	Dac			


CSK & TAP FOR NO.8 (164)-32 UNC-2B X 1½ DIA INSERT SEE NOTE 5
DETAIL A SCALE 2/1
PARTIAL SECTION D-D
SECTION B-B
DETAIL B 6 PLACES SCALE 2/1
QTY 16 ③ CSK & TAP FOR NO.6 (138)-32 UNC-2B X 1½ DIA INSERTS 16 HOLES SEE NOTE 5 DO NOT BREAK THRU HOLES MARKED A
QTY 14 ② CSK & TAP FOR NO.8 (164)-32 UNC-2B X 1½ DIA INSERTS 14 HOLES SEE NOTE 5
.158 .164 DIA 82° CSK TO .295 DIA FARSIDE 4 HOLES
.126 .128 DIA & CSK 90° TO .17 .19 DIA
.203 DIA 2 HOLES
QTY 8 ③ CSK & TAP FOR NO.6 (138)-32 UNC-2B X 1½ DIA INSERT 8 HOLES SEE NOTE 5 DO NOT BREAK THRU HOLES MARKED A
.095 .097 DIA & CSK 90° TO .140 .160 DIA 6 HOLES ⊕ .004 DIA
.133 .139 DIA & CSK 82° X .23 .24 DIA 2 HOLES MARKED B
.072 .073 DIA 756 HOLES ⊕ .004 DIA DO NOT REMOVE SHARP EDGES
.380 DIA
SEE DETAIL B
SEE DETAIL C
DETAIL C
SECTION C-C
PARTIAL SECTION E-E 6 PLACES SCALE 4/1
PARTIAL SECTION F-F SCALE 10/1
SECTION A-A
.015 R MAX 6 PLACES
.035 R MAX 2 PLACES
.02 .04 R 2 PLACES
15 SPACES AT .125 BSC = 1.875 BSC
5 SPACES AT .125 BSC = .625 BSC
6 SPACES AT .125 BSC = .750 BSC
7 SPACES AT .125 BSC = .875 BSC
3 SPACES AT .125 BSC = .375 BSC 6 PLACES
8.124
7.824
7.074
6.978
6.080
5.320
5.138
8.000
7.700
6.250
6.916
5.305
4.250
2.125
4.805
6.865 2 PLACES
5.025 2 PLACES
3.085 2 PLACES
6.764
3.055
1.960 ⑨

TEMP T6

.015 EXCEPT AS NOTED

LETS AND RADII TO BE .08/.10

SPECIFIED

019

ITH STANDARDS PRESCRIBED BY MIL-D-70327

F C CLASS 3

HO1-01305-116

QTY REQD	PART OR IDENTIFYING NO	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
25	MS21209-C0615		INSERT, THREADED, SELF LOCKING	3
14	MS21209-C0815		INSERT, THREADED, SELF LOCKING	2
1	2004974-001		PLATE, IDM	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003967	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±½°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN W. Brown
CHECKED R. Edwards
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC

PLATE, IDM
MAIN HOUSING
AGC DSKY

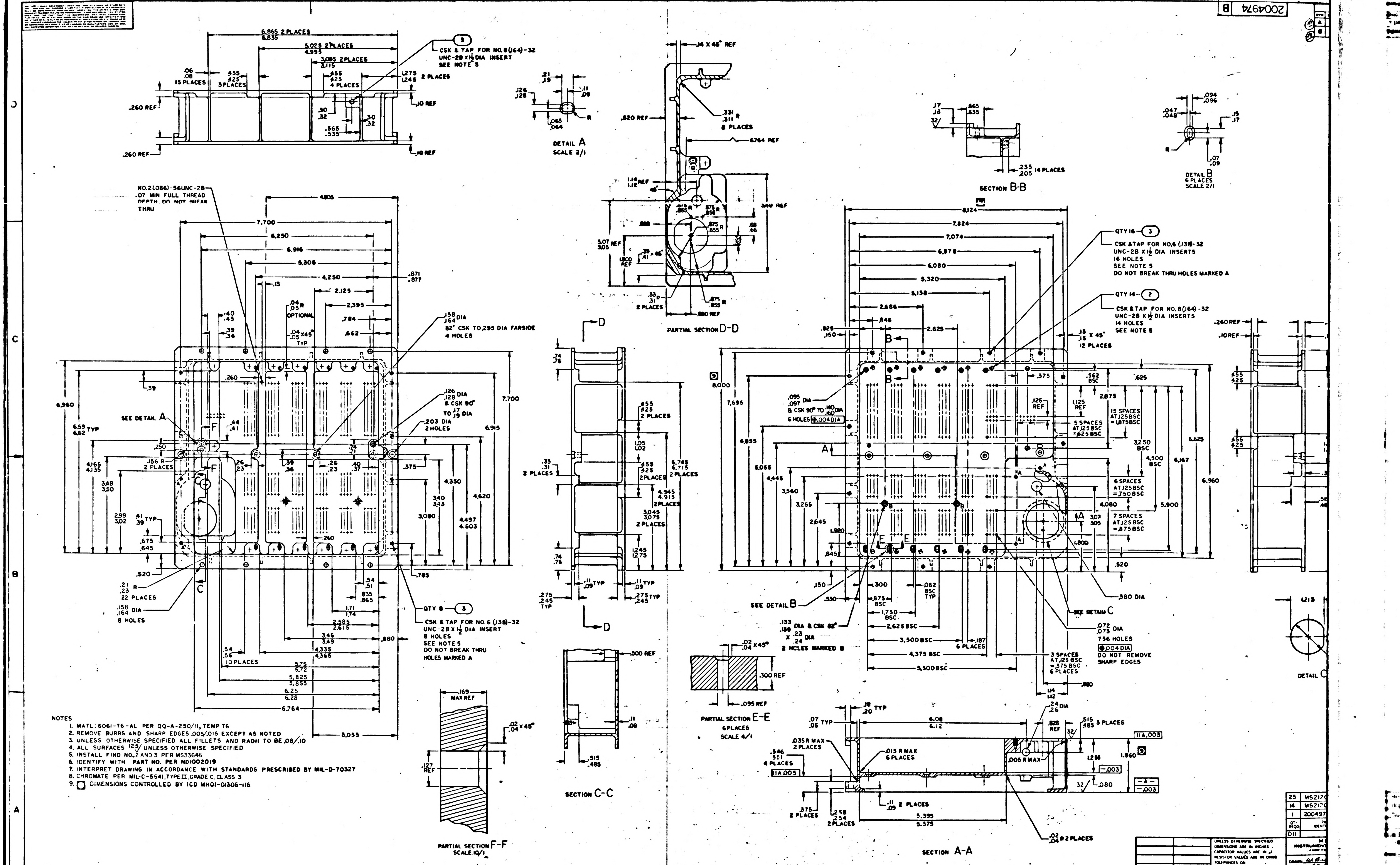
CODE IDENT NO 80230 SIZE J DRAWING NO. 2004974

SCALE 1/1 SHEET 1 OF 1

2004974 B

F 2 / 2

2004974 B



5
4
3
2
D
C
B
A
CSK & TAP FOR NO.8 (164)-32 UNC-2B X 1/2 DIA INSERT SEE NOTE 5
6.865 2 PLACES 6.835
5.025 2 PLACES 4.995
3.085 2 PLACES 3.115
.06 .08 15 PLACES
.455 .425 3 PLACES
.455 .425 4 PLACES
1.275 1.245 2 PLACES
.260 REF
.10 REF
DETAIL A SCALE 2/1
.14 X 45° REF
.331 .311 R 8 PLACES
.520 REF
6.764 REF
PARTIAL SECTION D-D
SECTION B-B
.235 .205 14 PLACES
DETAIL B 6 PLACES SCALE 2/1
NO.2 (.086)-56UNC-2B .07 MIN FULL THREAD DEPTH DO NOT BREAK THRU
SEE DETAIL A
.158 .164 DIA 82° CSK TO .295 DIA FARSIDE 4 HOLES
.126 .128 DIA & CSK 90° TO .17 .19 DIA
.203 DIA 2 HOLES
.21 .23 R 22 PLACES
.158 .164 DIA 8 HOLES
.156 R 2 PLACES
QTY 8 ③ CSK & TAP FOR NO.6 (138)-32 UNC-2B X 1 1/2 DIA INSERT 8 HOLES SEE NOTE 5 DO NOT BREAK THRU HOLES MARKED A
SECTION C-C
PARTIAL SECTION F-F SCALE 10/1
.169 MAX REF
.02 .04 X 45°
.127 REF
PARTIAL SECTION E-E 6 PLACES SCALE 4/1
.300 REF
.095 REF
QTY 16 ③ CSK & TAP FOR NO.6 (138)-32 UNC-2B X 1 1/2 DIA INSERTS 16 HOLES SEE NOTE 5 DO NOT BREAK THRU HOLES MARKED A
QTY 14 ② CSK & TAP FOR NO.8 (164)-32 UNC-2B X 1/2 DIA INSERTS 14 HOLES SEE NOTE 5
.13 .15 X 45° 12 PLACES
.095 .097 DIA & CSK 90° TO .140 .160 DIA 6 HOLES ⊕ .004 DIA
15 SPACES AT .125 BSC = 1.875 BSC
5 SPACES AT .125 BSC = .625 BSC
6 SPACES AT .125 BSC = .750 BSC
7 SPACES AT .125 BSC = .875 BSC
3 SPACES AT .125 BSC = .375 BSC 6 PLACES
SEE DETAIL B
SEE DETAIL C
.380 DIA
.133 .139 DIA & CSK 82° X .23 .24 DIA 2 HOLES MARKED B
.072 .073 DIA 756 HOLES ⊕ .004 DIA DO NOT REMOVE SHARP EDGES
SECTION A-A
.035 R MAX 2 PLACES
.015 R MAX 6 PLACES
.005 R MAX
.546 .551 4 PLACES
11A .005
.515 .485 3 PLACES
1.960 ⑨
-A-
-.003
.02 .04 R 2 PLACES
DETAIL C

NOTES
1. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP T6
2. REMOVE BURRS AND SHARP EDGES .005/.015 EXCEPT AS NOTED
3. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .08/.10
4. ALL SURFACES $^{125}\surd$ UNLESS OTHERWISE SPECIFIED
5. INSTALL FIND NO. 2 AND 3 PER MS33646
6. IDENTIFY WITH PART NO. PER ND1002019
7. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
8. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
9. ▢ DIMENSIONS CONTROLLED BY ICD MH01-01305-116

25	MS212
14	MS212
1	200497
QTY REQD	PA IDENT
011	

2003967	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±1/2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

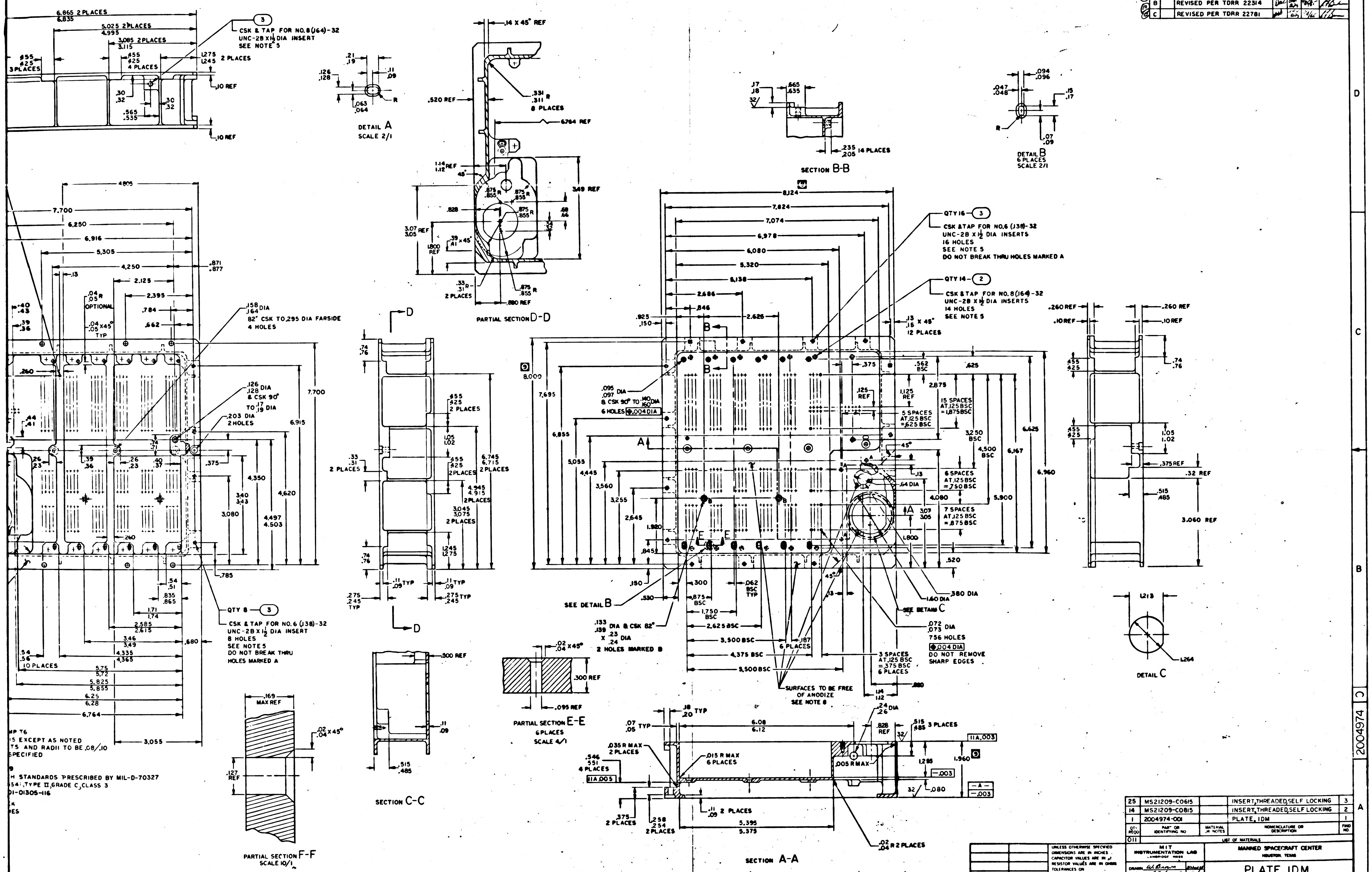
M
INSTRUMENT
CAMBRIDGE

DRAWN W. B
CHECKED R. E
APPROVED
APPROVED
APPROVED MIT
APPROVED NSC

2004974 B F1/2

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 21819				
B		REVISED PER TDRR 22314	Dac			
C		REVISED PER TDRR 22781			3/4/65	

REVISIONS 20943



6.865 2 PLACES 6.835
5.025 2 PLACES 4.995
3.085 2 PLACES 3.115
.455 .425 4 PLACES
1.275 1.245 2 PLACES
.10 REF
.565 .535
3
CSK & TAP FOR NO.8(.164)-32 UNC-2B X 1½ DIA INSERT
SEE NOTE 5
DETAIL A
SCALE 2/1
.14 X 45° REF
.520 REF
.331 .311 R
8 PLACES
6.764 REF
3.49 REF
3.07 3.05 REF
1.800 REF
.39 .41 X 45°
.875 .855 R
2 PLACES
.880 REF
PARTIAL SECTION D-D
SECTION B-B
.235 .205 14 PLACES
DETAIL B
6 PLACES
SCALE 2/1
QTY 16 - 3
CSK & TAP FOR NO.6 (.138)-32 UNC-2B X 1½ DIA INSERTS
16 HOLES
SEE NOTE 5
DO NOT BREAK THRU HOLES MARKED A
QTY 14 - 2
CSK & TAP FOR NO. 8(.164)-32 UNC-2B X 1½ DIA INSERTS
14 HOLES
SEE NOTE 5
.13 .15 X 45°
12 PLACES
.260 REF
.10 REF
.158 .164 DIA
82° CSK TO .295 DIA FARSIDE
4 HOLES
.126 .128 DIA
& CSK 90° TO .17 .19 DIA
.203 DIA
2 HOLES
.04 .05 R
OPTIONAL
.04 .05 X 45°
TYP
QTY 8 - 3
CSK & TAP FOR NO.6 (.138)-32 UNC-2B X 1½ DIA INSERT
8 HOLES
SEE NOTE 5
DO NOT BREAK THRU HOLES MARKED A
.54 .56 10 PLACES
D
D
.655 .625 2 PLACES
.33 .31 2 PLACES
6.745 6.715 2 PLACES
4.945 4.915 2 PLACES
3.045 3.075 2 PLACES
1.245 1.275
.11 .09 TYP
.275 .245 TYP
SECTION C-C
.500 REF
.515 .485
.02 .04 X 45°
.300 REF
.095 REF
PARTIAL SECTION E-E
6 PLACES
SCALE 4/1
.169 MAX REF
.127 REF
PARTIAL SECTION F-F
SCALE 10/1
8.124
7.824
7.074
6.978
6.080
5.320
5.138
2.686
.846
2.626
.925 .150
8.000
7.695
6.855
5.055
4.445
3.560
3.255
2.645
.095 .097 DIA
& CSK 90° TO .140 .160 DIA
6 HOLES .004 DIA
.375
.562 BSC
.625
2.875
1.125 REF
15 SPACES AT .125 BSC = 1.875 BSC
5 SPACES AT .125 BSC = .625 BSC
3.250 BSC
4.500 BSC
6.167
6.625
6.960
45°
.13
.64 DIA
6 SPACES AT .125 BSC = .750 BSC
4.080
5.900
7 SPACES AT .125 BSC = .875 BSC
3.07 3.05
1.800
.520
SEE DETAIL B
.150
.530
.300
.875 BSC
1.750 BSC
2.625 BSC
3.500 BSC
4.375 BSC
5.500 BSC
.062 BSC TYP
.133 .139 DIA & CSK 82° X .23 .24 DIA
2 HOLES MARKED B
.187
6 PLACES
SURFACES TO BE FREE OF ANODIZE
SEE NOTE 8
3 SPACES AT .125 BSC = .375 BSC
6 PLACES
1.60 DIA
.380 DIA
SEE DETAIL C
.072 .073 DIA
756 HOLES
.004 DIA
DO NOT REMOVE SHARP EDGES
.880
.14 .12
.74 .76
.455 .425
1.05 1.02
.375 REF
.32 REF
.515 .485
3.060 REF
1.213
DETAIL C
L264
.18 .20 TYP
.07 .05 TYP
6.08 6.12
.24 .26 DIA
.828 REF
.515 .485 3 PLACES
.035 R MAX 2 PLACES
.015 R MAX 6 PLACES
.005 R MAX
.546 .551 4 PLACES
11A .005
11A .003
1.285
1.960
.003
.080
A
.003
.11 .09 2 PLACES
.375 2 PLACES
.258 .254 2 PLACES
5.395 5.375
.02 .04 R 2 PLACES
SECTION A-A
MP T6
IS EXCEPT AS NOTED
TS AND RADII TO BE .08/.10
SPECIFIED
H STANDARDS PRESCRIBED BY MIL-D-70327
541, TYPE II, GRADE C, CLASS 3
01-01305-116
K
ES

QTY REQD	PART OR IDENTIFYING NO	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
25	MS21209-C0615		INSERT, THREADED, SELF LOCKING	3
14	MS21209-C0815		INSERT, THREADED, SELF LOCKING	2
1	2004974-001		PLATE, IDM	1

011 LIST OF MATERIALS

NEXT ASSY	USED ON
2003967	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±½°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

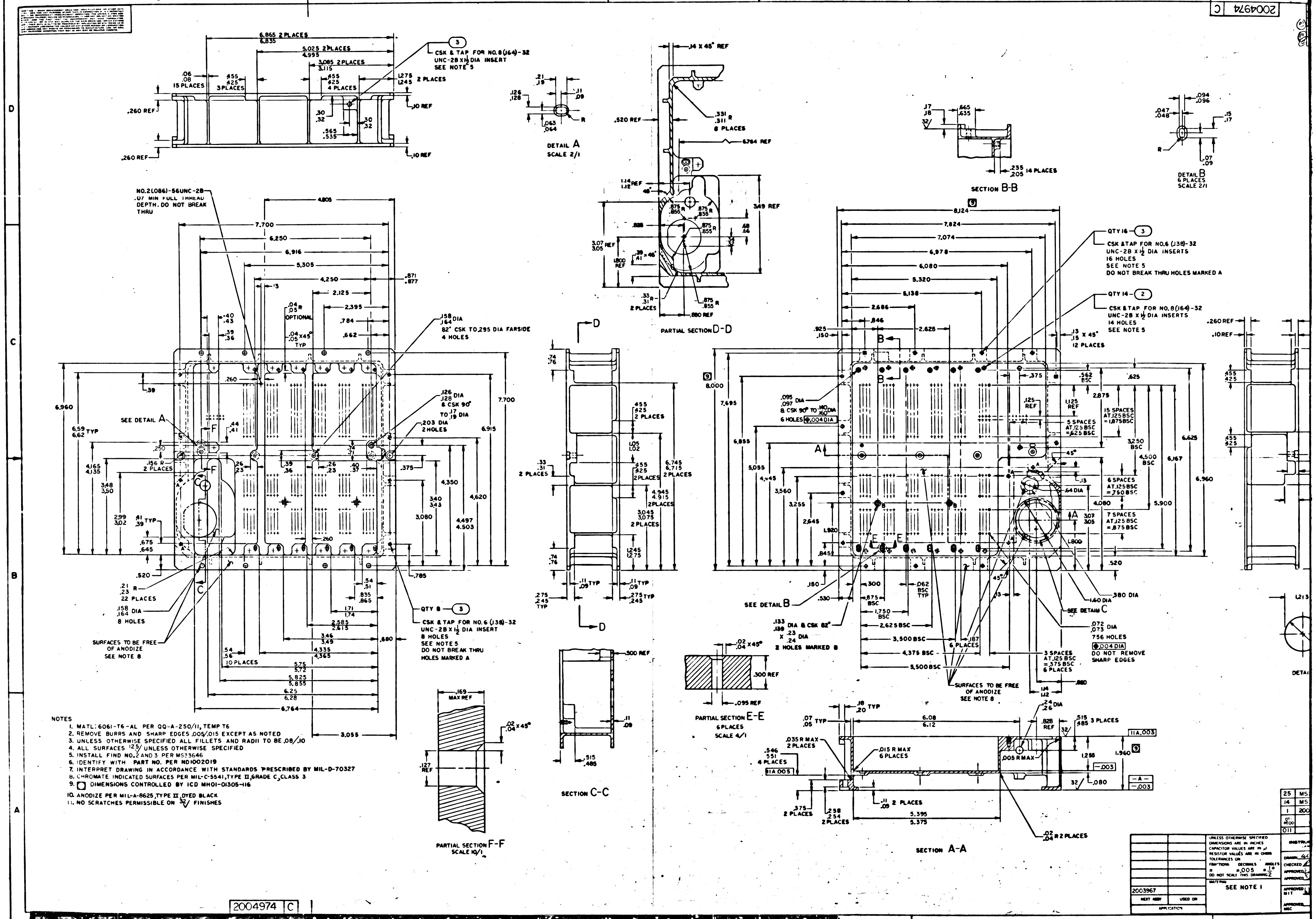
DRAWN W. Brown
CHECKED R. Edmond
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PLATE, IDM
MAIN HOUSING
AGC DSKY

CODE IDENT NO	SIZE	DRAWING NO.
80230	J	2004974

SCALE 1/1 SHEET 1 OF 1



5
4
3
2
D
C
B
A
2004974 C
DETAIL A
SCALE 2/1
PARTIAL SECTION D-D
SECTION B-B
DETAIL B
6 PLACES
SCALE 2/1
SECTION C-C
PARTIAL SECTION F-F
SCALE 10/1
PARTIAL SECTION E-E
6 PLACES
SCALE 4/1
SECTION A-A
SEE DETAIL A
SEE DETAIL B
SEE DETAIL C
CSK & TAP FOR NO.8(.164)-32 UNC-2B X 1½ DIA INSERT
SEE NOTE 5
NO.2(.086)-56UNC-2B
.07 MIN FULL THREAD DEPTH. DO NOT BREAK THRU
QTY 16 ③ CSK & TAP FOR NO.6 (.138)-32 UNC-2B X 1½ DIA INSERTS
16 HOLES
SEE NOTE 5
DO NOT BREAK THRU HOLES MARKED A
QTY 14 ② CSK & TAP FOR NO.8(.164)-32 UNC-2B X 1½ DIA INSERTS
14 HOLES
SEE NOTE 5
QTY 8 ③ CSK & TAP FOR NO.6 (.138)-32 UNC-2B X 1½ DIA INSERT
8 HOLES
SEE NOTE 5
DO NOT BREAK THRU HOLES MARKED A
.158 .164 DIA 82° CSK TO .295 DIA FARSIDE 4 HOLES
.203 DIA 2 HOLES
SURFACES TO BE FREE OF ANODIZE SEE NOTE 8
.072 .073 DIA 756 HOLES
.004 DIA
DO NOT REMOVE SHARP EDGES
.133 .138 DIA & CSK 82° X .23 .24 DIA 2 HOLES MARKED B
7.700
6.960
8.124
8.000
6.764

NOTES
1. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP T6
2. REMOVE BURRS AND SHARP EDGES .005/.015 EXCEPT AS NOTED
3. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .08/.10
4. ALL SURFACES $\sqrt{125}$ UNLESS OTHERWISE SPECIFIED
5. INSTALL FIND NO. 2 AND 3 PER MS33646
6. IDENTIFY WITH PART NO. PER ND1002019
7. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
8. CHROMATE INDICATED SURFACES PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
9. ▢ DIMENSIONS CONTROLLED BY ICD MH01-01305-116
10. ANODIZE PER MIL-A-8625, TYPE II, DYED BLACK
11. NO SCRATCHES PERMISSIBLE ON $\sqrt{32}$ FINISHES

25	MS
14	MS
1	200
QT. REQD	
011	

2003967	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±$\frac{1}{2}$°
DO NOT SCALE THIS DRAWING

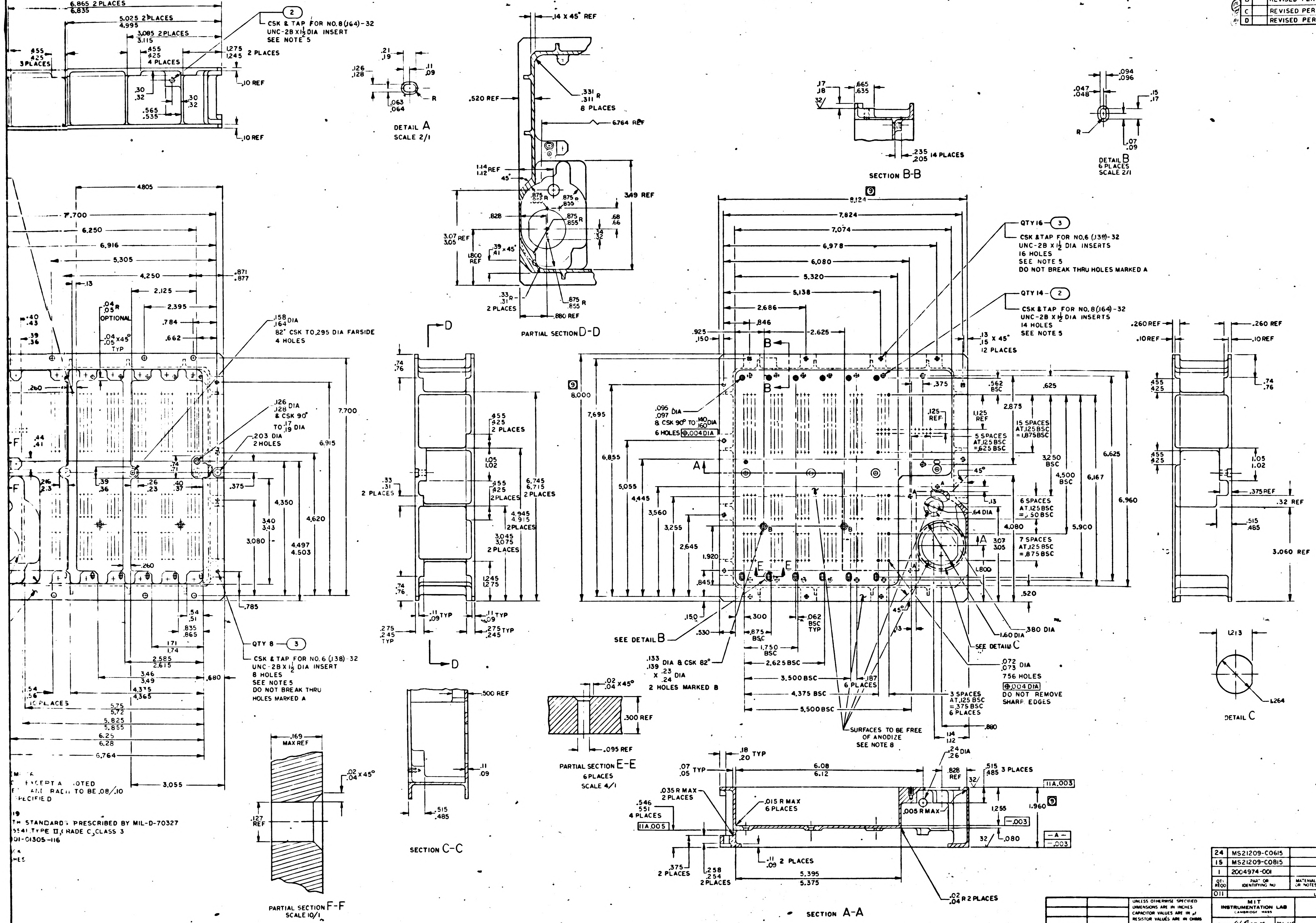
MATERIAL
SEE NOTE 1

INSTRU
DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC

2004974 C

2004974 C

REVISIONS 20943						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 2:.19			9/3/6	
B		REVISED PER TDRR 22314				
C		REVISED PER TDRR 22781				
D		REVISED PER TDRR 23125	RCS	JCJ		


6.865 2 PLACES
6.835
5.025 2 PLACES
4.995
3.085 2 PLACES
3.115
CSK & TAP FOR NO.8(.164)-32 UNC-2B X 1½ DIA INSERT SEE NOTE 5
DETAIL A
SCALE 2/1
PARTIAL SECTION D-D
SECTION B-B
.235 .205 14 PLACES
DETAIL B
6 PLACES
SCALE 2/1
QTY 16 – 3
CSK & TAP FOR NO.6 (.138)-32 UNC-2B X 1½ DIA INSERTS
16 HOLES
SEE NOTE 5
DO NOT BREAK THRU HOLES MARKED A
QTY 14 – 2
CSK & TAP FOR NO.8(.164)-32 UNC-2B X 1½ DIA INSERTS
14 HOLES
SEE NOTE 5
.158 .164 DIA
82° CSK TO .295 DIA FARSIDE
4 HOLES
QTY 8 – 3
CSK & TAP FOR NO.6 (.138)-32 UNC-2B X 1½ DIA INSERT
8 HOLES
SEE NOTE 5
DO NOT BREAK THRU HOLES MARKED A
.095 .097 DIA & CSK 90° TO .140 .160 DIA
6 HOLES ⊕.004 DIA
.133 .139 DIA & CSK 82° X .23 .24 DIA
2 HOLES MARKED B
.072 .073 DIA
756 HOLES
⊕.004 DIA
DO NOT REMOVE SHARP EDGES
SURFACES TO BE FREE OF ANODIZE
SEE NOTE 8
SEE DETAIL B
SEE DETAIL C
DETAIL C
SECTION C-C
PARTIAL SECTION E-E
6 PLACES
SCALE 4/1
PARTIAL SECTION F-F
SCALE 10/1
SECTION A-A
1.960
-A-

M. 6
EXCEPT A NOTED
AND RADII TO BE .08/.10
SPECIFIED

19
TH STANDARDS PRESCRIBED BY MIL-D-70327
5541,TYPE II,GRADE C,CLASS 3
01-01305-116

CA
HES

24	MS21209-C0615		INSERT, THREADED, SELF LOCKING	3
15	MS21209-C0815		INSERT, THREADED, SELF LOCKING	2
1	2004974-001		PLATE, IDM	1
QTY REQD	PART OR IDENTIFYING NO	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO
011	LIST OF MATERIALS			

2003967	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±½°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

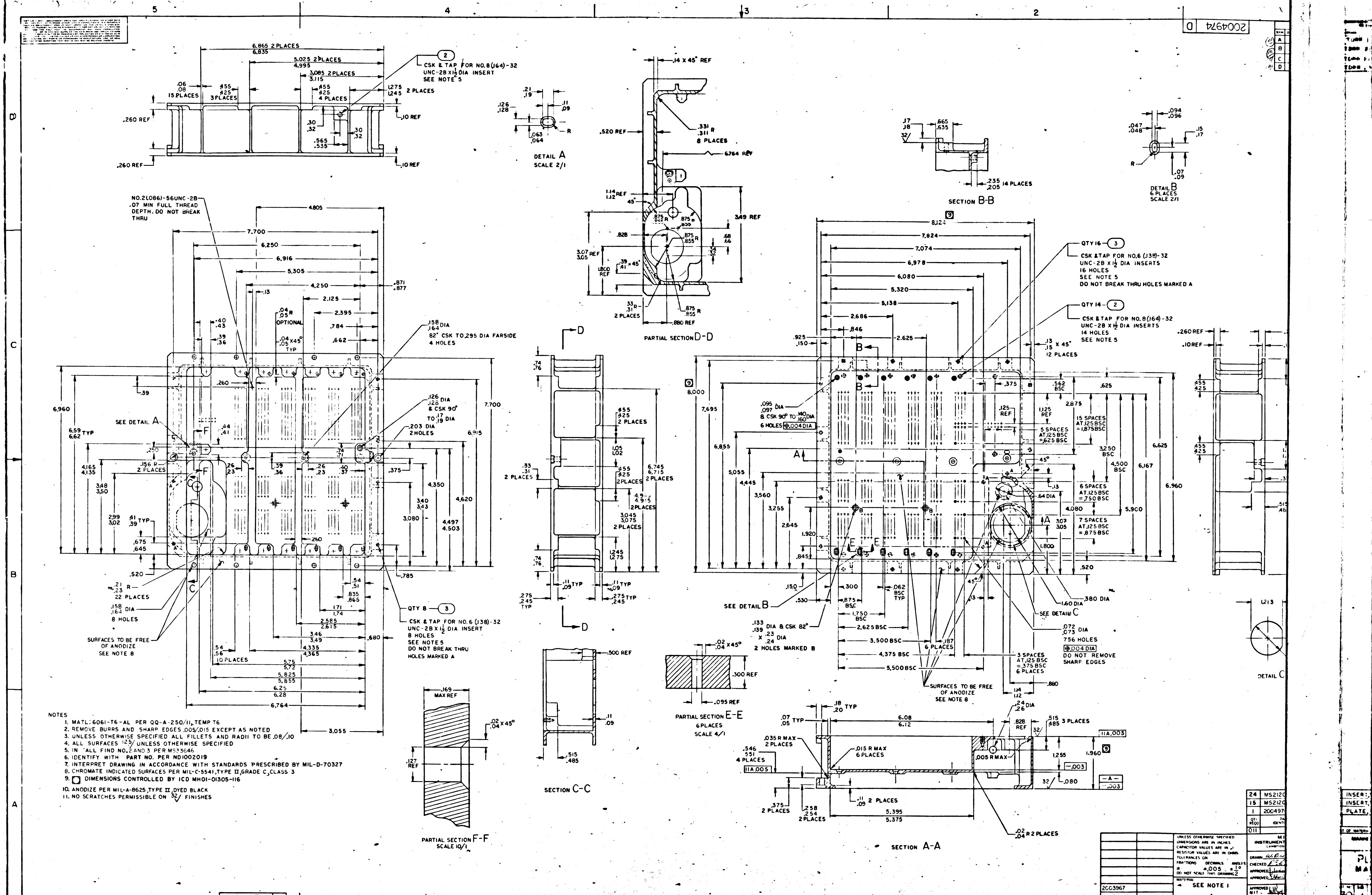
MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN W. Brown 30 Aug 65
CHECKED
APPROVED
APPROVED Ellen C. Hall
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PLATE, IDM
MAIN HOUSING
AGC DSKY

CODE IDENT NO 80230
SIZE J
DRAWING NO. 2004974
SCALE 1/1
SHEET 1 OF 1


2004974 D
DETAIL A
SCALE 2/1
DETAIL B
6 PLACES
SCALE 2/1
SECTION B-B
PARTIAL SECTION D-D
SECTION C-C
PARTIAL SECTION E-E
6 PLACES
SCALE 4/1
PARTIAL SECTION F-F
SCALE 10/1
SECTION A-A
SEE DETAIL A
SEE DETAIL B
SEE DETAIL C
CSK & TAP FOR NO.8(164)-32 UNC-2B X 1½ DIA INSERT
SEE NOTE 5
NO.2(086)-56UNC-2B .07 MIN FULL THREAD DEPTH. DO NOT BREAK THRU
.158 .164 DIA 82° CSK TO .295 DIA FARSIDE 4 HOLES
QTY 8 ③ CSK & TAP FOR NO.6 (138)-32 UNC-2B X 1½ DIA INSERT 8 HOLES SEE NOTE 5 DO NOT BREAK THRU HOLES MARKED A
QTY 16 ③ CSK & TAP FOR NO.6 (138)-32 UNC-2B X 1½ DIA INSERTS 16 HOLES SEE NOTE 5 DO NOT BREAK THRU HOLES MARKED A
QTY 14 ② CSK & TAP FOR NO.8(164)-32 UNC-2B X 1½ DIA INSERTS 14 HOLES SEE NOTE 5
SURFACES TO BE FREE OF ANODIZE SEE NOTE 8
.072 .073 DIA 756 HOLES ⊕.004 DIA DO NOT REMOVE SHARP EDGES
.133 .139 DIA & CSK 82° X .23 .24 DIA 2 HOLES MARKED B
.095 .097 DIA & CSK 90° TO .140 .160 DIA 6 HOLES ⊕.004 DIA
7.700
6.960
8.124
8.000
6.764
5.395 5.375
6.08 6.12

NOTES

1. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP T6
2. REMOVE BURRS AND SHARP EDGES .005/.015 EXCEPT AS NOTED
3. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .08/.10
4. ALL SURFACES $\sqrt{}^{125}$ UNLESS OTHERWISE SPECIFIED
5. IN ALL FIND NO. 2 AND 3 PER MS33646
6. IDENTIFY WITH PART NO. PER ND1002019
7. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
8. CHROMATE INDICATED SURFACES PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
9. ▢ DIMENSIONS CONTROLLED BY ICD MH01-01305-116
10. ANODIZE PER MIL-A-8625, TYPE II, DYED BLACK
11. NO SCRATCHES PERMISSIBLE ON $\sqrt{}^{32}$ FINISHES

24	MS2120	INSERT,
15	MS2120	INSERT,
1	200497	PLATE,
QTY REQD	PA IDENTI	
011		

2003967	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±½°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MI
INSTRUMENT
CAMBRIDG

DRAWN W. Br
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC

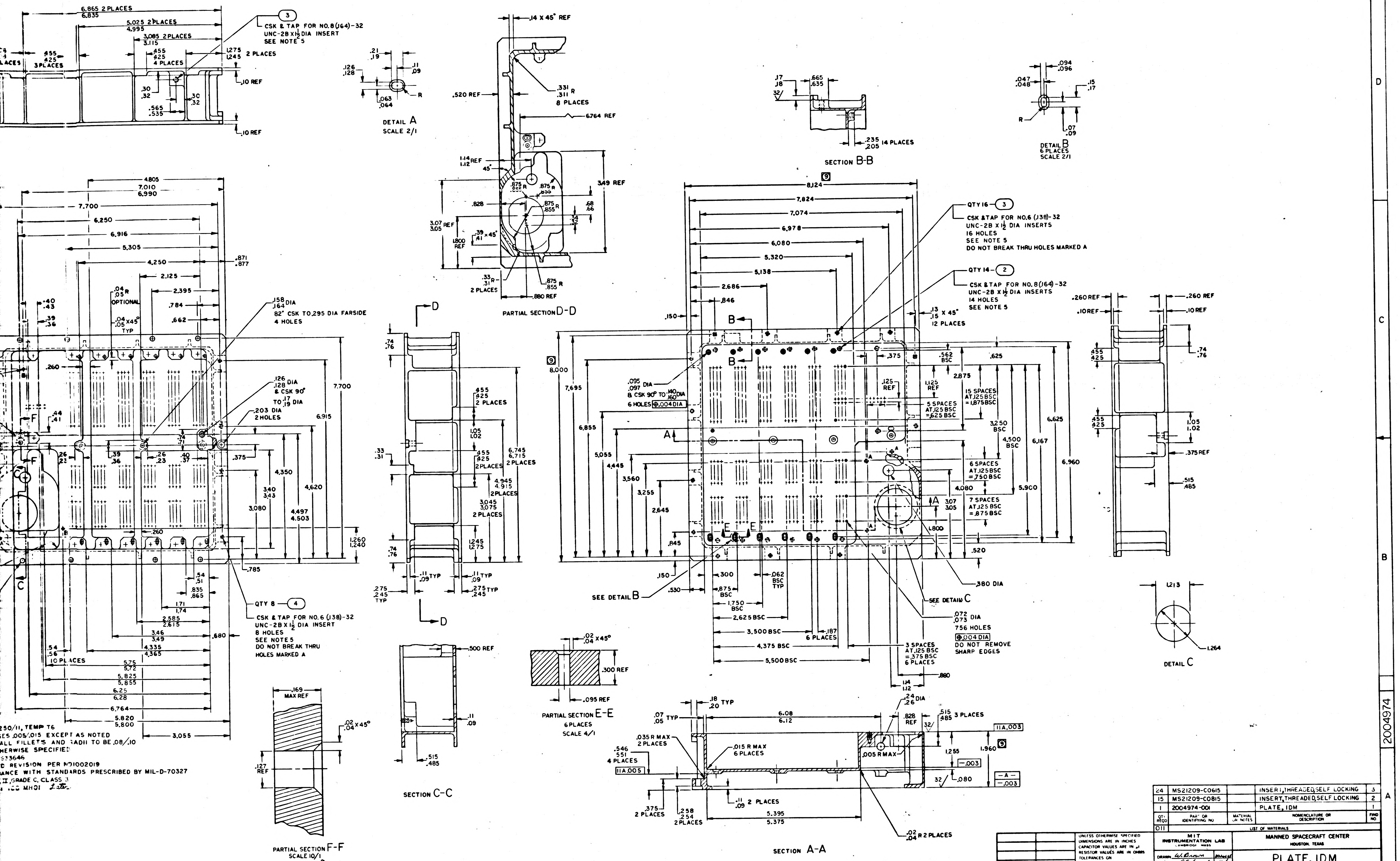
PL
MA

2004974 D

2004974 D R1/2

REVISIONS 20543

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED


CSK & TAP FOR NO.8(164)-32 UNC-2B X 1½ DIA INSERT SEE NOTE 5
DETAIL A SCALE 2/1
PARTIAL SECTION D-D
SECTION B-B
DETAIL B 6 PLACES SCALE 2/1
QTY 16 ③ CSK & TAP FOR NO.6 (138)-32 UNC-2B X 1½ DIA INSERTS 16 HOLES SEE NOTE 5 DO NOT BREAK THRU HOLES MARKED A
QTY 14 ② CSK & TAP FOR NO.8(164)-32 UNC-2B X 1½ DIA INSERTS 14 HOLES SEE NOTE 5
.158/.164 DIA 82° CSK TO .295 DIA FARSIDE 4 HOLES
.126/.128 DIA & CSK 90° TO .17/.19 DIA
.203 DIA 2 HOLES
.095/.097 DIA & CSK 90° TO .140/.160 DIA 6 HOLES ⊕.004 DIA
QTY 8 ④ CSK & TAP FOR NO.6 (138)-32 UNC-2B X 1½ DIA INSERT 8 HOLES SEE NOTE 5 DO NOT BREAK THRU HOLES MARKED A
.072/.073 DIA 756 HOLES ⊕.004 DIA DO NOT REMOVE SHARP EDGES
.380 DIA
SEE DETAIL B
SEE DETAIL C
DETAIL C
SECTION C-C
PARTIAL SECTION E-E 6 PLACES SCALE 4/1
PARTIAL SECTION F-F SCALE 10/1
SECTION A-A
8.124
8.000
7.700
6.865 2 PLACES
3.055

250/11, TEMP T6
ES .005/.015 EXCEPT AS NOTED
ALL FILLETS AND RADII TO BE .08/.10
HERWISE SPECIFIED
S33646
D REVISION PER ND1002019
ANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
II, GRADE C, CLASS 3
.CC MHOI *Later*

QTY REQD	PART OR IDENTIFYING NO	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
24	MS21209-C0615		INSERT, THREADED, SELF LOCKING	3
15	MS21209-C0815		INSERT, THREADED, SELF LOCKING	2
1	2004974-001		PLATE, IDM	1
011	LIST OF MATERIALS			

NEXT ASSY	USED ON
2003967	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±½°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

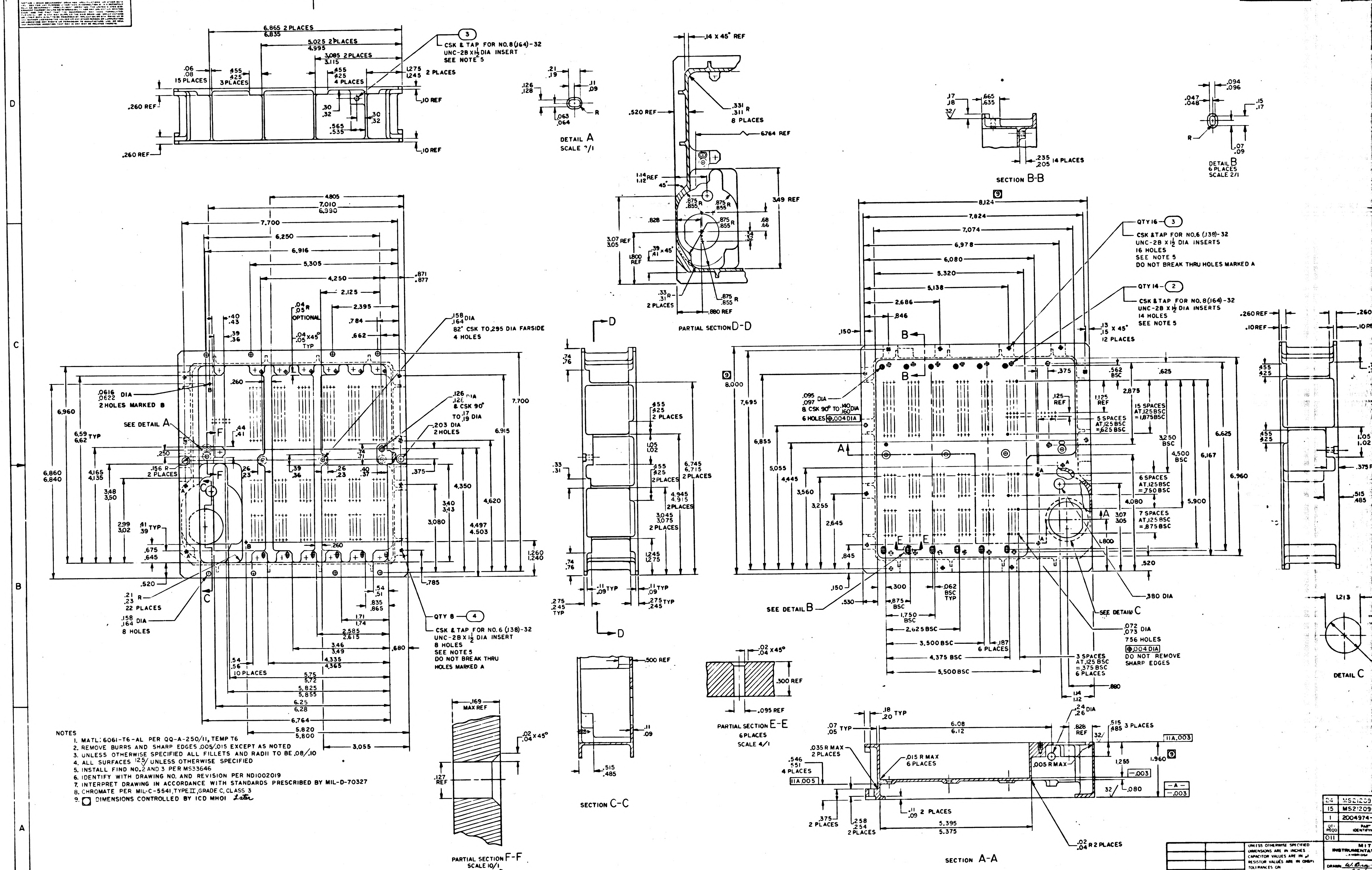
MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN W. Brown 20 Aug 65
CHECKED R. Edwards
APPROVED
APPROVED Elton C Hall
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

PLATE, IDM
MAIN HOUSING
AGC DSKY

CODE IDENT NO 80230
SIZE J
DRAWING NO. 2004974
SCALE 1/1
SHEET 1 OF 1



5
4
3
2
D
C
B
A
6.865 2 PLACES
6.835
5.025 2 PLACES
4.995
3.085 2 PLACES
3.115
CSK & TAP FOR NO. 8 (.164)-32
UNC-2B X 1½ DIA INSERT
SEE NOTE 5
2 PLACES
15 PLACES
3 PLACES
4 PLACES
.260 REF
.10 REF
DETAIL A
SCALE 4/1
.14 X 45° REF
.331 R
.311
8 PLACES
.520 REF
6.764 REF
349 REF
PARTIAL SECTION D-D
SECTION B-B
.235 14 PLACES
.205
DETAIL B
6 PLACES
SCALE 2/1
4.805
7.010
6.990
7.700
6.250
6.916
5.305
4.250
2.125
2.395
.158 DIA
.164
82° CSK TO .295 DIA FARSIDE
4 HOLES
.0616 DIA
.0622
2 HOLES MARKED B
SEE DETAIL A
.126 DIA
.128
& CSK 90°
TO .17
.19 DIA
.203 DIA
2 HOLES
.21 R
.23
22 PLACES
.158 DIA
.164
8 HOLES
QTY 8 ④
CSK & TAP FOR NO. 6 (.138)-32
UNC-2B X 1½ DIA INSERT
8 HOLES
SEE NOTE 5
DO NOT BREAK THRU
HOLES MARKED A
10 PLACES
8.124
7.824
7.074
6.978
6.080
5.320
5.138
2.686
.846
QTY 16 ③
CSK & TAP FOR NO. 6 (.138)-32
UNC-2B X ½ DIA INSERTS
16 HOLES
SEE NOTE 5
DO NOT BREAK THRU HOLES MARKED A
QTY 14 ②
CSK & TAP FOR NO. 8 (.164)-32
UNC-2B X ½ DIA INSERTS
14 HOLES
SEE NOTE 5
.13 X 45°
12 PLACES
.095 DIA
.097
& CSK 90° TO .140 DIA
.160
6 HOLES ⊕ .004 DIA
15 SPACES AT .125 BSC = 1.875 BSC
5 SPACES AT .125 BSC = .625 BSC
6 SPACES AT .125 BSC = .750 BSC
7 SPACES AT .125 BSC = .875 BSC
3 SPACES AT .125 BSC = .375 BSC
6 PLACES
.380 DIA
SEE DETAIL C
SEE DETAIL B
.072 DIA
.073
756 HOLES
⊕ .004 DIA
DO NOT REMOVE
SHARP EDGES
1.750 BSC
2.625 BSC
3.500 BSC
4.375 BSC
5.500 BSC
SECTION C-C
PARTIAL SECTION E-E
6 PLACES
SCALE 4/1
.02 X 45°
.04
.300 REF
.095 REF
PARTIAL SECTION F-F
SCALE 10/1
.169
MAX REF
.127
REF
SECTION A-A
6.08
6.12
5.395
5.375
.015 R MAX
6 PLACES
.035 R MAX
2 PLACES
.005 R MAX
1.960 ⑨
11A .003
11A .005
-A-
.003
.02 R 2 PLACES
.04
DETAIL C

NOTES

1. MATL: 6061-T6-AL PER QQ-A-250/11, TEMP T6
2. REMOVE BURRS AND SHARP EDGES .005/.015 EXCEPT AS NOTED
3. UNLESS OTHERWISE SPECIFIED ALL FILLETS AND RADII TO BE .08/.10
4. ALL SURFACES $\sqrt[125]{}$ UNLESS OTHERWISE SPECIFIED
5. INSTALL FIND NO. 2 AND 3 PER MS33646
6. IDENTIFY WITH DRAWING NO. AND REVISION PER ND1002019
7. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
8. CHROMATE PER MIL-C-5541, TYPE II, GRADE C, CLASS 3
9. ☐ DIMENSIONS CONTROLLED BY ICD MH01 *Later*

24	MS21209
15	MS21209-
1	2004974-
QTY REQD	PART IDENTIFYI
011	

2003967	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±1/2°
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

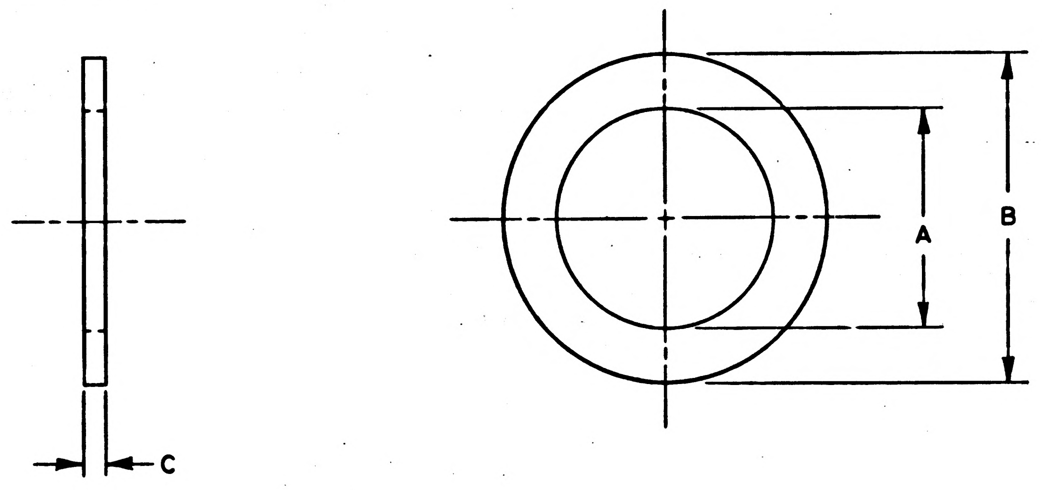
MIT
INSTRUMENTAT
CAMBRIDGE

DRAWN *W. Bra*
CHECKED *R.Eb*
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 26200						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

PART NO.	DIM. A		DIM. B		DIM. C	
	MAX	MIN	MAX	MIN	MAX	MIN
-001	.208	.203	.299	.295	.022	.018
-002	.154	.146	.312	.302	.034	.026
-003	.181	.176	.299	.295	.022	.018
-004	.164	.158	.292	.288	.022	.018
-005	1.145	1.135	1.500	1.475	.034	.026
-006	1.270	1.260	1.567	1.557	.034	.026
-007	.416	.396	.822	.802	.080	.060
-008	.125	.115	.224	.204	.017	.015
-009	.153	.143	.282	.262	.017	.015
-010	.153	.143	.282	.262	.033	.031
-012	.125	.115	.224	.204	.033	.031



NOTES
1. MATL: 5052-H32-AL PER QQ-A-250/8
2. SURFACE QUALITY $\sqrt{63}$
3. REMOVE ALL BURRS & SHARP EDGES
4. CHROMATE PER MIL-C-5541, TYPE II, CLASS 3, GRADE C
5. IDENTIFY WITH PART NO. PER ND1002019
6. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ±.005 ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL
SEE NOTE 1

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	R. D. Guibord	10 FEB 66
CHECKED		10 FEB 66
APPROVED	F. J. London	10 FEB 66
APPROVED	Ellen C Hall	11 Feb 66
APPROVED MIT	A. C. METZGER	11 Feb 66
APPROVED MSC		DATE

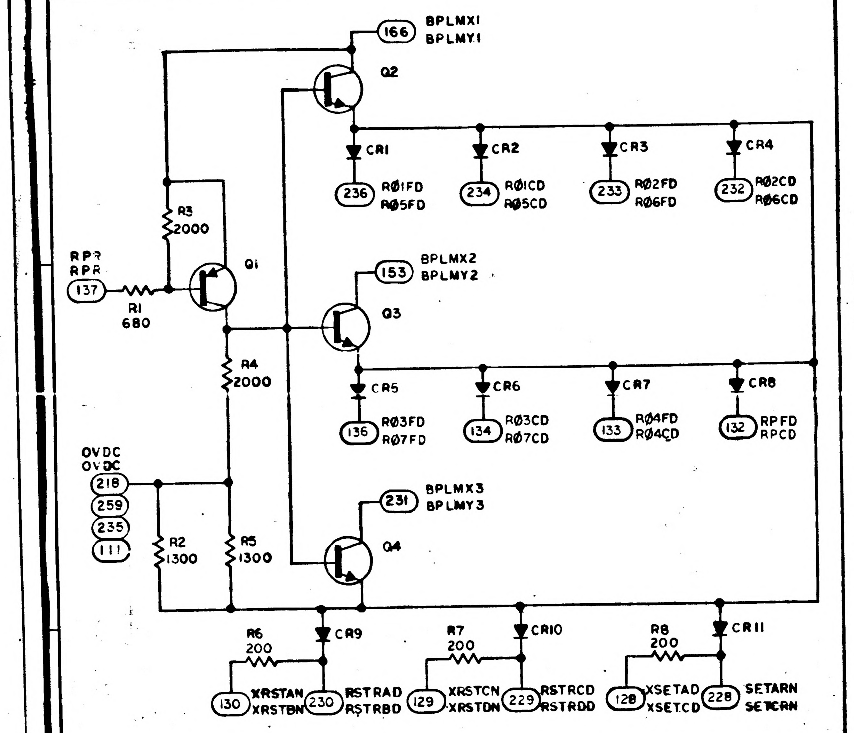
WASHER, FLAT

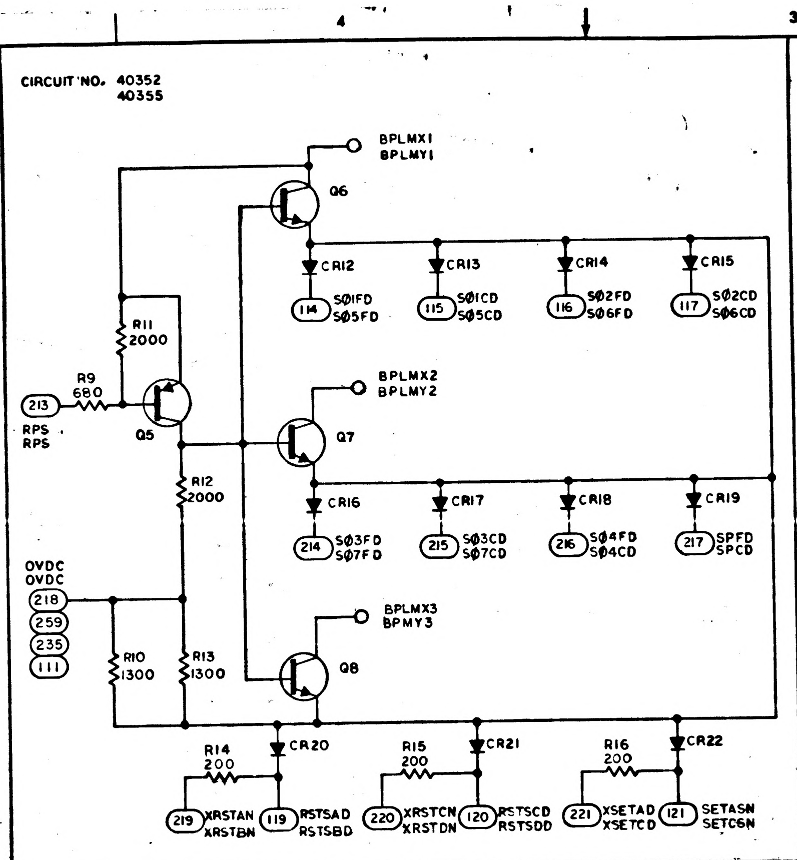
CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2004984
SCALE NONE
SHEET 1 OF 1

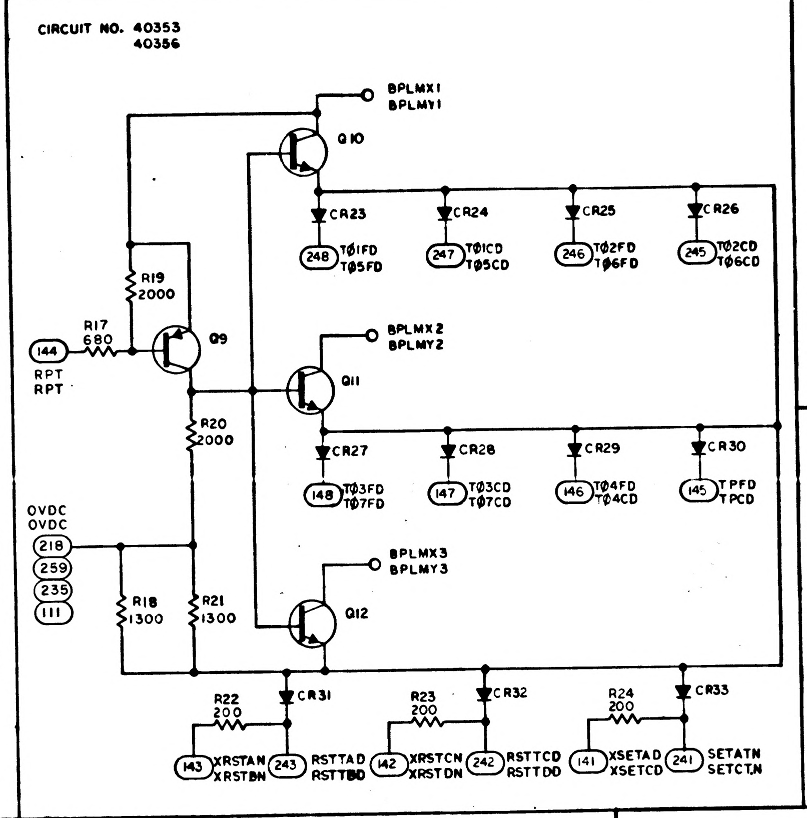
2004984

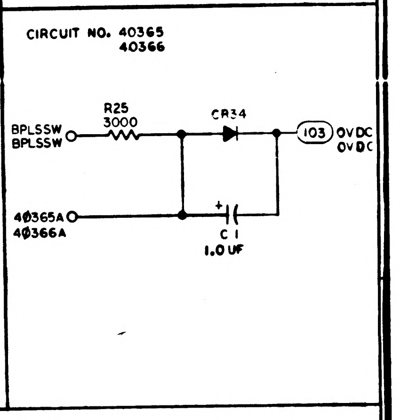
REVISIONS 17740			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 18034		

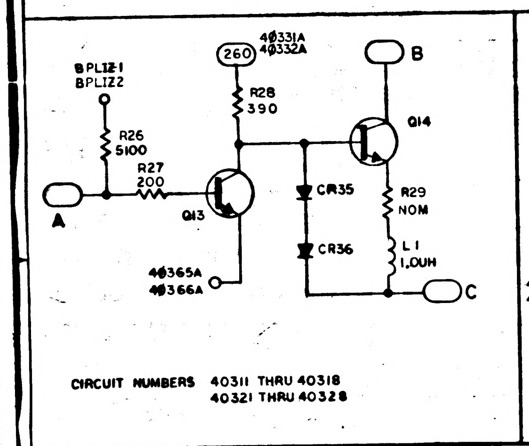
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

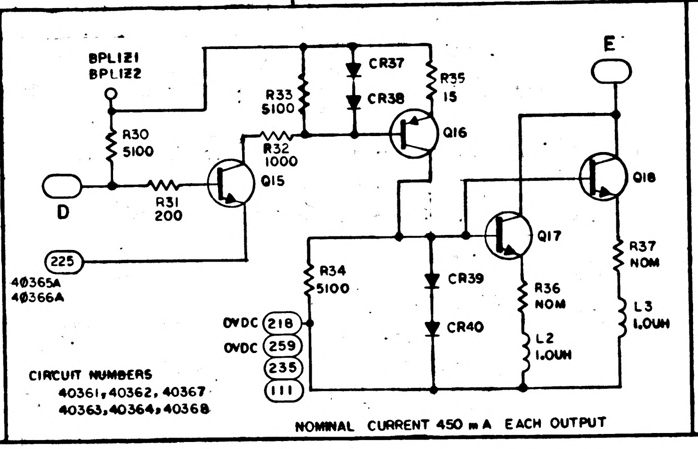

CIRCUIT NO. 40351
40354
166 BPLMX1 BPLMY1
Q2
CR1 CR2 CR3 CR4
236 RØ1FD RØ5FD
234 RØ1CD RØ5CD
233 RØ2FD RØ6FD
232 RØ2CD RØ6CD
R3 2000
RPR RPR
137
R1 680
Q1
153 BPLMX2 BPLMY2
Q3
R4 2000
CR5 CR6 CR7 CR8
136 RØ3FD RØ7FD
134 RØ3CD RØ7CD
133 RØ4FD RØ4CD
132 RPFD RPCD
OVDC OVDC
218 259 235 111
R2 1300
R5 1300
231 BPLMX3 BPLMY3
Q4
R6 200 CR9
R7 200 CR10
R8 200 CR11
130 XRSTAN XRSTBN
230 RSTRAD RSTRBD
129 XRSTCN XRSTDN
229 RSTRCD RSTRDD
128 XSETAD XSETCD
228 SETARN SETCRN

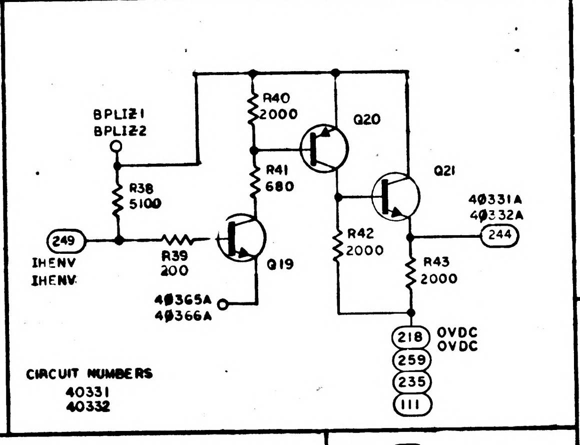

CIRCUIT NO. 40352
40355
BPLMX1 BPLMY1
Q6
CR12 CR13 CR14 CR15
114 SØ1FD SØ5FD
115 SØ1CD SØ5CD
116 SØ2FD SØ6FD
117 SØ2CD SØ6CD
R11 2000
R9 680
213
RPS RPS
Q5
BPLMX2 BPLMY2
Q7
R12 2000
CR16 CR17 CR18 CR19
214 SØ3FD SØ7FD
215 SØ3CD SØ7CD
216 SØ4FD SØ4CD
217 SPFD SPCD
OVDC OVDC
218 259 235 111
R10 1300
R13 1300
BPLMX3 BPMY3
Q8
R14 200 CR20
R15 200 CR21
R16 200 CR22
219 XRSTAN XRSTBN
119 RSTSAD RSTSBD
220 XRSTCN XRSTDN
120 RSTSCD RSTSDD
221 XSETAD XSETCD
121 SETASN SETC6N

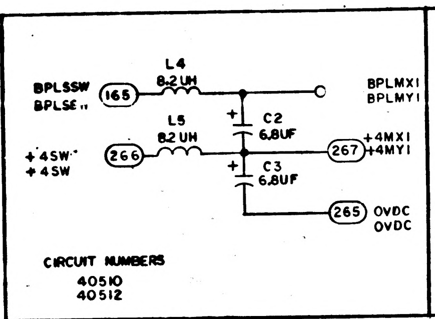

CIRCUIT NO. 40353
40356
BPLMX1 BPLMY1
Q10
CR23 CR24 CR25 CR26
248 TØ1FD TØ5FD
247 TØ1CD TØ5CD
246 TØ2FD TØ6FD
245 TØ2CD TØ6CD
R19 2000
R17 680
144
RPT RPT
Q9
BPLMX2 BPLMY2
Q11
R20 2000
CR27 CR28 CR29 CR30
148 TØ3FD TØ7FD
147 TØ3CD TØ7CD
146 TØ4FD TØ4CD
145 TPFD TPCD
OVDC OVDC
218 259 235 111
R18 1300
R21 1300
BPLMX3 BPLMY3
Q12
R22 200 CR31
R23 200 CR32
R24 200 CR33
143 XRSTAN XRSTBN
243 RSTTAD RSTTBD
142 XRSTCN XRSTDN
242 RSTTCD RSTTDD
141 XSETAD XSETCD
241 SETATN SETCTN

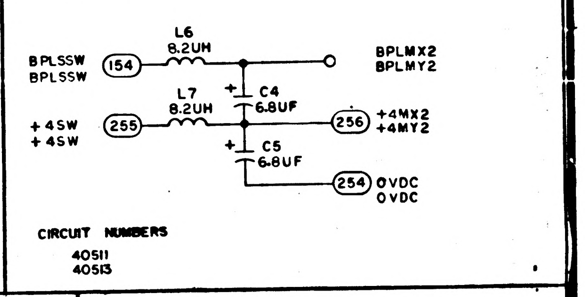

CIRCUIT NO. 40365
40366
BPLSSW BPLSSW
R25 3000
CR34
103 OVDC OVDC
4Ø365A 4Ø366A
C1 1.0 UF

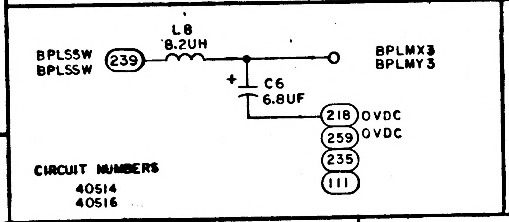

BPLIZ1 BPLIZ2
260 4Ø331A 4Ø332A
B
R28 390
R26 5100
R27 200
Q14
Q13
A
CR35
CR36
R29 NOM
L1 1.0UH
4Ø365A 4Ø366A
C
CIRCUIT NUMBERS 40311 THRU 40318
40321 THRU 40328

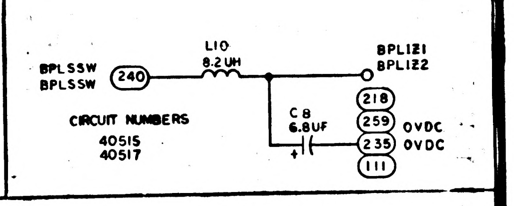

BPLIZ1 BPLIZ2
R30 5100
CR37 CR38
R33 5100
R35 15
E
R32 1000
Q16
Q15
Q18
D
R31 200
225
40365A 40366A
R34 5100
CR39 CR40
Q17
R36 NOM
R37 NOM
L2 1.0UH
L3 1.0UH
OVDC 218
OVDC 259
235 111
CIRCUIT NUMBERS
40361, 40362, 40367
40363, 40364, 40368
NOMINAL CURRENT 450 mA EACH OUTPUT

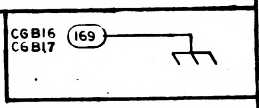

BPLIZ1 BPLIZ2
R40 2000
Q20
R41 680
Q21
R38 5100
249
IHENV IHENV
R39 200
Q19
4Ø365A 4Ø366A
R42 2000
R43 2000
4Ø331A 4Ø332A
244
218 259 235 111 OVDC OVDC
CIRCUIT NUMBERS
40331
40332

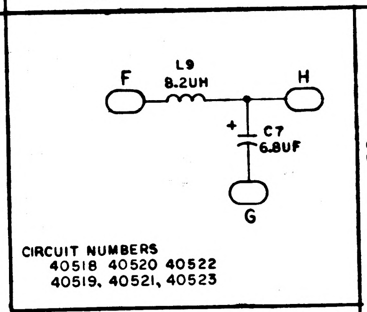

BPLSSW BPLSE
165
L4 8.2UH
BPLMX1 BPLMY1
L5 8.2UH
C2 6.8UF
+4SW +4SW
266
C3 6.8UF
267 +4MX1 +4MY1
265 OVDC OVDC
CIRCUIT NUMBERS
40510
40512

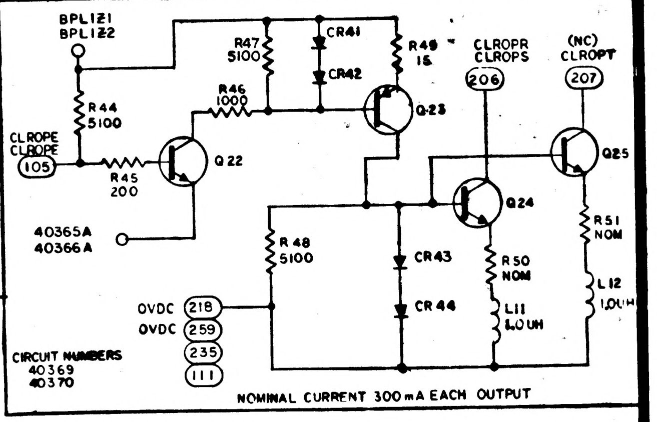

BPLSSW BPLSSW
154
L6 8.2UH
BPLMX2 BPLMY2
L7 8.2UH
C4 6.8UF
+4SW +4SW
255
C5 6.8UF
256 +4MX2 +4MY2
254 OVDC OVDC
CIRCUIT NUMBERS
40511
40513


BPLSSW BPLSSW
239
L8 8.2UH
BPLMX3 BPLMY3
C6 6.8UF
218 OVDC
259 OVDC
235 111
CIRCUIT NUMBERS
40514
40516


BPLSSW BPLSSW
240
L10 8.2UH
BPLIZ1 BPLIZ2
C8 6.8UF
218 259 235 111
OVDC OVDC
CIRCUIT NUMBERS
40515
40517


CGB16 CGB17
169


F
L9 8.2UH
H
C7 6.8UF
G
CIRCUIT NUMBERS
40518 40520 40522
40519, 40521, 40523


BPLIZ1 BPLIZ2
R47 5100
CR41 CR42
R49 15
CLROPR CLROPS
(NC) CLROPT
206 207
R46 1000
Q23
R44 5100
CLROPE CLROPE
105
R45 200
Q22
Q25
Q24
40365A 40366A
R48 5100
CR43 CR44
R50 NOM
R51 NOM
L11 1.0UH
L12 1.0UH
OVDC 218
OVDC 259
235 111
CIRCUIT NUMBERS
40369
40370
NOMINAL CURRENT 300 mA EACH OUTPUT

POSITION	NOMINAL OUTPUT PIN CURRENT	COMPONENT PREFIX (ASSY)	CIRCUIT NO.	A		B		C		D		E		F		G		H	
				SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.
B 16	225 mA	1	40311	ILØ1	269	XØ1FN	168	+4MX1	267										
↓	↓	2	40312	ILØ1 /	167	XØ1CN	268	↕	267										
↓	↓	3	40313	ILØ2	263	XØ2FN	162	↕	267										
↓	↓	4	40314	ILØ2 /	160	XØ2CN	262	+4MX1	267										
↓	↓	5	40315	ILØ3	258	XØ3FN	157	+4MX2	256										
↓	↓	6	40316	ILØ3 /	156	XØ3CN	257	↕	256										
↓	225 mA	7	40317	ILØ4	251	XØ4FN	152	↕	256										
B 16	300 mA	8	40318	ILP	151	XPFN	250	+4MX2	256										
B 17	225 mA	1	40321	ILØ5	269	XØ5FN	168	+4MY1	267										
↓	↓	2	40322	ILØ5 /	167	XØ5CN	268	↕	267										
↓	↓	3	40323	ILØ6	263	XØ6FN	162	↕	267										
↓	↓	4	40324	ILØ6 /	160	XØ6CN	262	+4MY1	267										
↓	↓	5	40325	ILØ7	258	XØ7FN	157	+4MY2	256										
↓	↓	6	40326	ILØ7 /	156	XØ7CN	257	↕	256										
↓	225 mA	7	40327	ILØ4 /	251	XØ4CN	152	↕	256										
B 17	300 mA	8	40328	ILP /	151	XPCN	250	+4MY2	256										
B 16	450 mA	1	40361							SETAB	125	XSETAD	227						
B 17	↓	1	40363							SETCD	125	XSETCD	227						
B 16	↓	2	40362							RESETA	224	XRSTAN	123						
B 17	↓	2	40364							RESETB	224	XRSTBN	123						
B 16	↓	3	40367							RESETC	212	XRSTCN	108						
B 17	450 mA	3	40368							RESETD	212	XRSTDN	108						
B 16		1	40518											BPLSSW	102	OVDC	101	BPLSWX	202
B 16		2	40520											↓	↓	↓	↓	BPLSWY	203
B 16		3	40522											↓	↓	↓	↓	BPLSWZ	204
B 17		1	40519											↓	↓	↓	↓	BPLSWF	202
B 17		2	40521											↓	↓	↓	↓	BPLSW6	203
B 17		3	40523											BPLSSW	102	OVDC	101	BPLSWH	204

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED, RESISTORS VALUES ARE IN OHMS
3. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST R29, R36, R37, R50, AND R51 TO BE SELECTED FROM APPROPRIATE CHART
4. TOP SIGNAL NAME AND CIRCUIT NUMBER APPLY TO POSITION B16, BOTTOM SIGNAL NAME AND CIRCUIT NUMBER APPLY TO POSITION B17 SEE CHARTS

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN A. Di Leo DATE 64
CHECKED A. Lundstrom 17 Feb 65
APPROVAL Albert Hopkins 12 Mar 65
APPROVAL Ralph C. Hall 19 Mar 65
NASA APPROVAL W J Rhine 3-23-65
MIT APPROVAL W Kupfer 23 Mar 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC, ROPE DRIVER MODULE

B16 — B17

CODE IDENT NO. —
SIZE E
NASA DRAWING NO. 2005000
SCALE — WT — SHEET 1 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17740

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 18034		

R36, R37, R50, R51	
PART NO.	VALUE
1006788 — 29	2.5
— 30	2.6
— 31	2.7
— 32	2.8
— 33	2.9
— 34	3.0
— 35	3.1
— 36	3.2
— 37	3.3
— 38	3.4
— 39	3.5
— 40	3.6
— 41	3.7
— 42	3.8
— 43	3.9
— 44	4.0
— 45	4.1
— 46	4.2
— 47	4.3
— 48	4.4
1006788 — 49	4.5

R29	
PART NO.	VALUE
1006788 —51	1.5
—53	1.6
—16	1.7
—18	1.8
—20	1.9
—22	2.0
—24	2.1
—26	2.2
—28	2.3
—15	2.4
—29	2.5
—30	2.6
—31	2.7
1006788 — 32	2.8

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING	CIRCUIT NO. USED ON	
						MODULE NO.	MODULE NO.
R1	1006750 -28	RESISTOR	680	±2%	1/4W	40351	40354
R2	-35		1300				
R3	-39		2000				
R4	-39		2000				
R5	-35		1300				
R6	-15		200				
R7	-15		200				
R8	-15		200				
R9	-28		680			40352	40355
R10	-35		1300				
R11	-39		2000				
R12	-39		2000				
R13	-35		1300				
R14	-15		200				
R15	-15		200				
R16	-15		200				
R17	-28		680			40353	40356
R18	-35		1300				
R19	-39		2000				
R20	-39		2000				
R21	-35		1300				
R22	-15		200				
R23	-15		200				
R24	-15		200				
R25	-43		3000			40365	40366
R26	-49		5100			40311 THRU 40318	40321 THRU 40328
R27	-15		200				
R28	1006750 -22		390	±2%			
R29	SEE NOTE 3		NOM	±1%			
R30	1006750 -49		5100	±2%		40361 40362 40367	40363 40364 40368
R31	-15		200				
R32	-32		1000				
R33	-49		5100				
R34	1006750 -49		5100	±2%			
R35	1006788 -7		15	±1%			
R36	SEE NOTE 3		NOM.	±1%			
R37	SEE NOTE 3		NOM.	±1%			
R38	1006750 -49		5100	±2%		40331	40332
R39	-15		200				
R40	-39		2000				
R41	-28		680				
R42	-39		2000				
R43	-39		2000				
R44	-49		5100			40369	40370
R45	-15		200				
R46	-32		1000				
R47	-49		5100				
R48	1006750 - 49		5100	±2%			
R49	1006788 - 7		15	±1%			
R50	SEE NOTE 3		NOM	±1%			
R51	SEE NOTE 3		NOM	±1%	1/4W		
C1	1006755 -69	CAPACITOR	1.0 UF		35VDC	40365	40366
C2	- 79		6.8UF			40510	40512
C3	- 79						
C4	- 79					40511	40513
C5	- 79						
C6	- 79					40514	40516
C7	- 79					40518 40520 40522	40519 40521 40523
C8	1006755 — 79	CAPACITOR	6.8UF		35VDC	40515	40517
L1	1010406 - 8	INDUCTOR	1.0UH			40311 THRU 40318	40321 THRU 40328
L2	- 8		1.0UH			40361, 40362 40367	40363 40364 40368
L3	- 8		1.0UH				
L4	- 7		8.2 UH			40510	40512
L5	- 7						
L6	- 7					40511	40513
L7	- 7						
L8	- 7					40514	40516
L9	- 7					40518 40520 40522	40519 40521 40523
L10	- 7		8.2 UH			40515	40517
L11	- 8		1.0 UH			40369	40370
L12	1010406 - 8	INDUCTOR	1.0UH				

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING	CIRCUIT NO. USED ON	
						MODULE NO.	MODULE NO.
CR1	1006751	DIODE				40351	40354
CR2							
CR3							
CR4							
CR5							
CR6							
CR7							
CR8							
CR9							
CR10							
CR11							
CR12						40352	40355
CR13							
CR14							
CR15							
CR16							
CR17							
CR18							
CR19							
CR20							
CR21							
CR22							
CR23						40353	40356
CR24							
CR25							
CR26							
CR27							
CR28							
CR29							
CR30							
CR31							
CR32							
CR33							
CR34						40365	40366
CR35						40311 THRU 40318	40321 THRU 40328
CR36							
CR37						40361 40362 40367	40363 40364 40368
CR38							
CR39							
CR40							
CR41						40369	40370
CR42							
CR43							
CR44	1006751	DIODE					
Q1	1006310	TRANSISTOR				40351	40354
Q2	1006323						
Q3	1006323						
Q4	1006323						
Q5	1006310					40352	40355
Q6	1006323						
Q7	1006323						
Q8	1006323						
Q9	1006310					40353	40356
Q10	1006323						
Q11							
Q12							
Q13						40311 THRU 40318	40321 THRU 40328
Q14							
Q15	1006323					40361 40362 40367	40363 40364 40368
Q16	1006310						
Q17	1006323						
Q18	1006323						
Q19	1006323					40331	40332
Q20	1006310						
Q21	1006323						
Q22	1006323					40369	40370
Q23	1006310						
Q24	1006323						
Q25	1006323	TRANSISTOR					

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT

DRAWN A. Di Leo DATE
CHECKED
APPROVAL Albert Hopkins 12 Mar 65
APPROVAL Eldon C Hall 19 Mar 65
NASA APPROVAL W. J. 3-23-65
MIT APPROVAL 23 Mar 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC, ROPE DRIVER MODULE
B16 — B17

CODE IDENT NO. —
SIZE E
NASA DRAWING NO. 2005000
SCALE —
WT —
SHEET 2 OF

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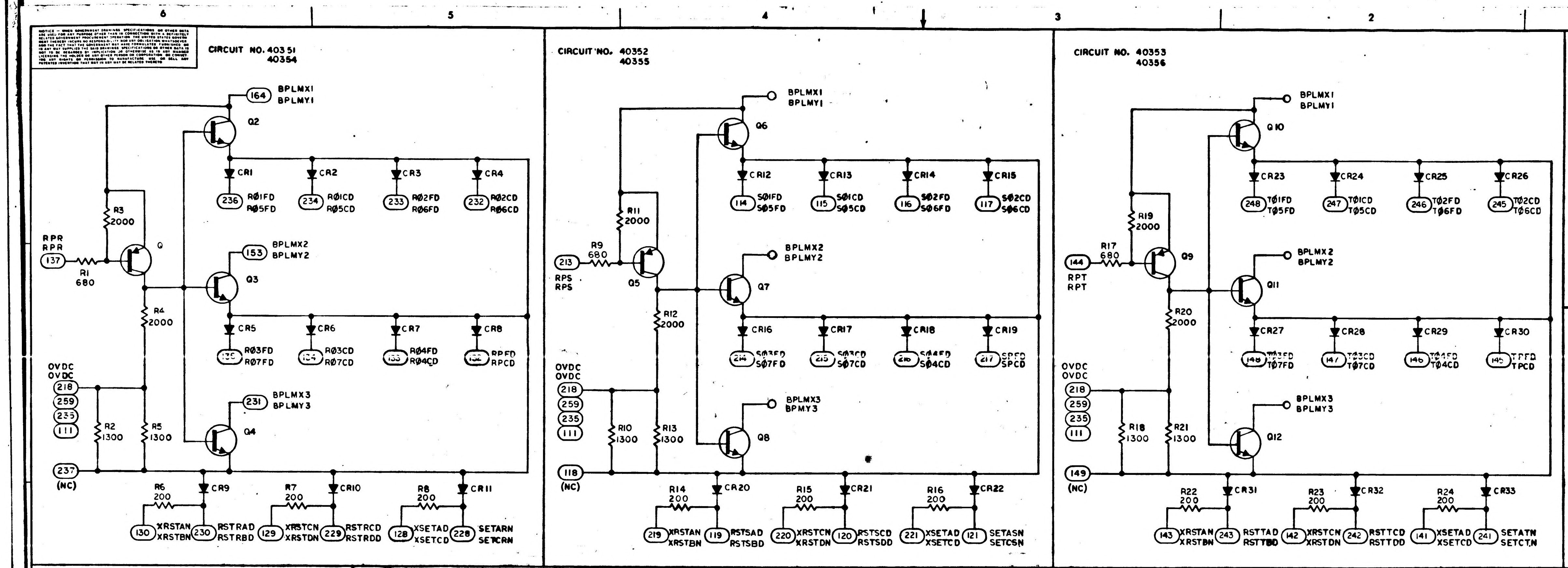
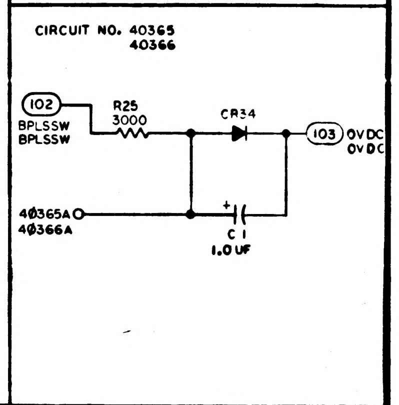
REVISIONS 17740			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 18034		
B	REVISED PER TDRR 19221		


CIRCUIT NO. 40351
40354
CIRCUIT NO. 40352
40355
CIRCUIT NO. 40353
40356
BPLMX1 BPLMY1
BPLMX2 BPLMY2
BPLMX3 BPLMY3
RPR RPS RPT
OVDC
(NC)
XRSTAN XRSTBN RSTRAD RSTRBD
XRSTCN XRSTDN RSTRCD RSTRDD
XSETAD XSETCD SETARN SETCRN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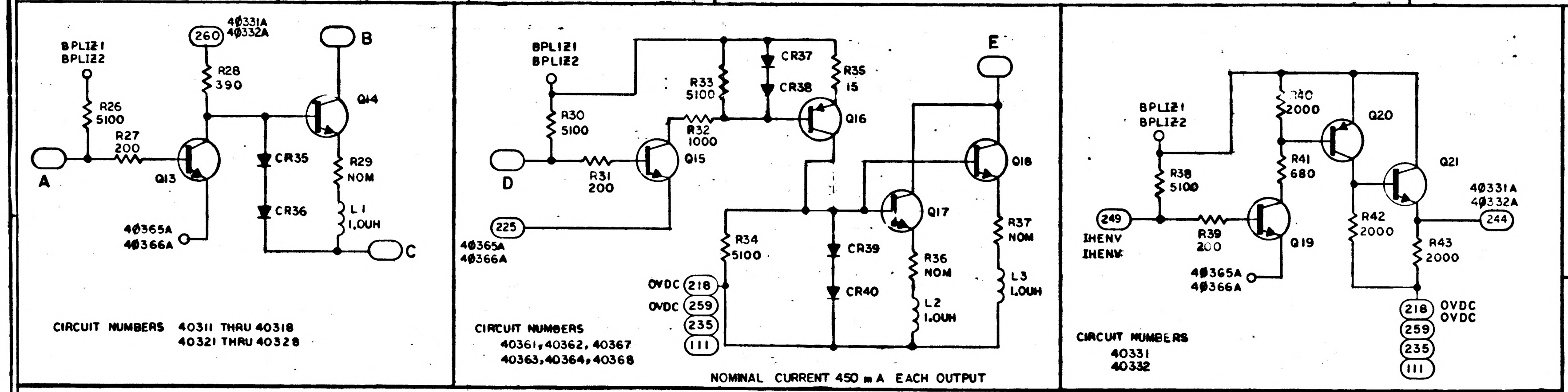
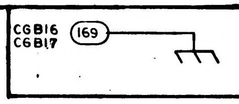
40366
BPLSSW
R25 3000
CR34
OVDC
40365A
40366A
C1 1.0 UF


CIRCUIT NUMBERS 40311 THRU 40318
40321 THRU 40328
CIRCUIT NUMBERS
40361, 40362, 40367
40363, 40364, 40368
NOMINAL CURRENT 450 mA EACH OUTPUT
CIRCUIT NUMBERS
40331
40332
IHENV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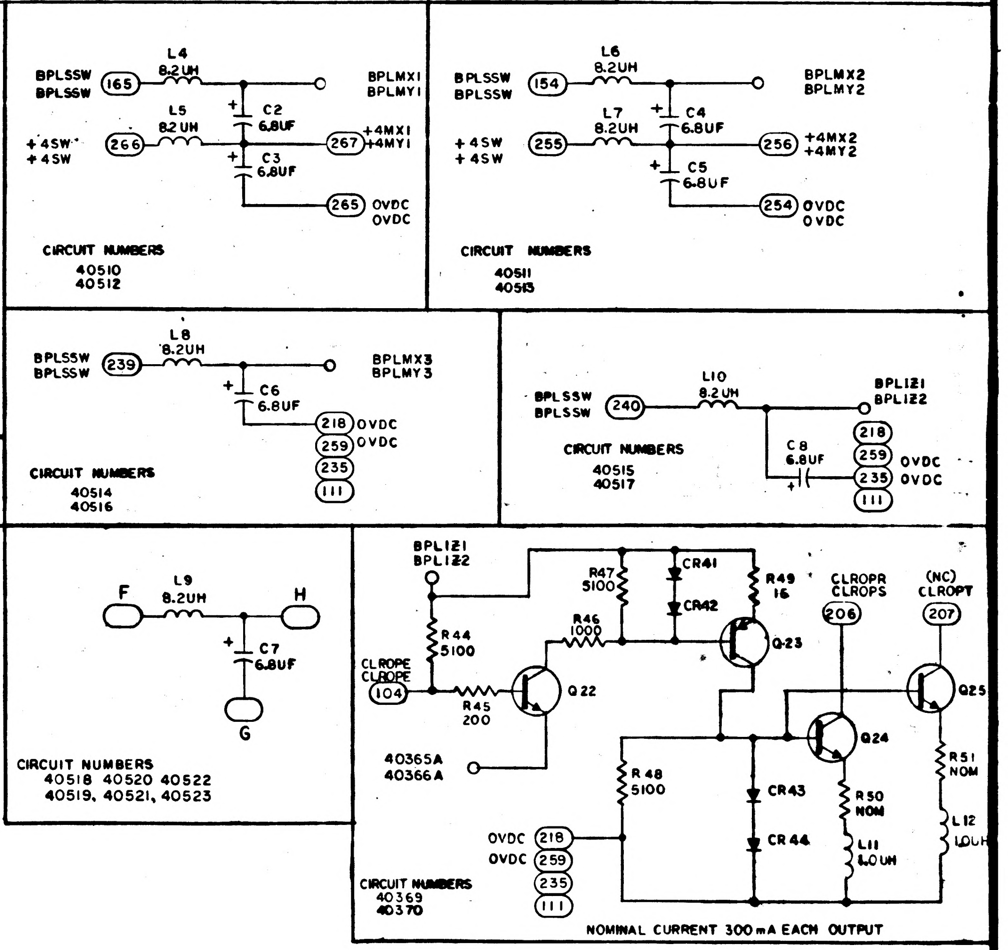
169


CIRCUIT NUMBERS
40510
40512
CIRCUIT NUMBERS
40511
40513
CIRCUIT NUMBERS
40514
40516
CIRCUIT NUMBERS
40515
40517
CIRCUIT NUMBERS
40518 40520 40522
40519, 40521, 40523
CIRCUIT NUMBERS
40369
40370
NOMINAL CURRENT 300 mA EACH OUTPUT
CLROPE
CLROPR CLROPS
(NC) CLROPT

POSITION	NOMINAL OUTPUT PIN CURRENT	COMPONENT PREFIX (ASSY)	CIRCUIT NO.	A		B		C		D		E		F		G		H	
				SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.
B 16	225 mA	1	40311	IL01	269	X01FN	168	+4MX1	267										
		2	40312	IL01 /	167	X01CN	268		267										
		3	40313	IL02	263	X02FN	162		267										
		4	40314	IL02 /	160	X02CN	262	+4MX1	267										
		5	40315	IL03	258	X03FN	157	+4MX2	256										
		6	40316	IL03 /	156	X03CN	257		256										
	225 mA	7	40317	IL04	251	X04FN	152		256										
B 16	300 mA	8	40318	ILP	151	XPFN	250	+4MX2	256										
B 17	225 mA	1	40321	IL05	269	X05FN	168	+4MY1	267										
		2	40322	IL05 /	167	X05CN	268		267										
		3	40323	IL06	263	X06FN	162		267										
		4	40324	IL06 /	160	X06CN	262	+4MY1	267										
		5	40325	IL07	258	X07FN	157	+4MY2	256										
		6	40326	IL07 /	156	X07CN	257		256										
	225 mA	7	40327	IL04 /	251	X04CN	152		256										
B 17	300 mA	8	40328	ILP /	151	XPCN	250	+4MY2	256										
B 16	450 mA	1	40361							SETAB	125	XSETAD	227						
B 17		1	40363							SETCD	125	XSETCD	227						
B 16		2	40362							RESETA	224	XRSTAN	123						
B 17		2	40364							RESETB	224	XRSTBN	123						
B 16		3	40367							RESETC	212	XRSTCN	108						
B 17	450 mA	3	40368							RESETD	212	XRSTDN	108						
B 16		1	40518											BPLSSW	102	OVDC	101	BPLSWX	202
B 16		2	40520															BPLSWY	203
B 16		3	40522															BPLSWZ	204
B 17		1	40519															BPLSWF	202
B 17		2	40521															BPLSW6	203
B 17		3	40523											BPLSSW	102	OVDC	101	BPLSWH	204

REF DWG:
ROPE DRIVER MODULE B16—B17 ASSY
DWG NO. 2003040

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED, RESISTORS VALUES ARE IN OHMS
3. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST R29, R36, R37, R50, AND R51 TO BE SELECTED FROM APPROPRIATE CHART
4. TOP SIGNAL NAME AND CIRCUIT NUMBER APPLY TO POSITION B16, BOTTOM SIGNAL NAME AND CIRCUIT NUMBER APPLY TO POSITION B17 SEE CHARTS

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN A. Di Leo DATE 1 MAR 64
CHECKED A. Lindstrom 17 Feb 65
APPROVAL Albert Hopkins 12 Mar 65
APPROVAL Eldon C. Hall 19 Mar 65
NASA APPROVAL W J Rh 3-23-65
MIT APPROVAL W Kaffe 23 Mar 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC, ROPE DRIVER MODULE
B16 — B17

CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	E	2005000
SCALE —	WT —	SHEET 1 OF 2

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REVISIONS 17?40

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 18034		WR
B	REVISED PER TDRR 19221	29 4 65	WR

R36, R37, R50, R51

PART NO.	VALUE
1006788 — 29	2.5
— 30	2.6
— 31	2.7
— 32	2.8
— 33	2.9
— 34	3.0
— 35	3.1
— 36	3.2
— 37	3.3
— 38	3.4
— 39	3.5
— 40	3.6
— 41	3.7
— 42	3.8
— 43	3.9
— 44	4.0
— 45	4.1
— 46	4.2
— 47	4.3
— 48	4.4
1006788 — 49	4.5

R29

PART NO.	VALUE
1006788 —51	1.5
—53	1.6
—16	1.7
—18	1.8
—20	1.9
—22	2.0
—24	2.1
—26	2.2
—28	2.3
—15	2.4
—29	2.5
—30	2.6
—31	2.7
1006788 — 32	2.8

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING	CIRCUIT NO. USED ON	
						MODULE NO.	MODULE NO.
R1	1006750 -28	RESISTOR	680	±2 %	1/4 W	40351	40354
R2	-35		1300				
R3	-39		2000				
R4	-39		2000				
R5	-35		1300				
R6	-15		200				
R7	-15		200				
R8	-15		200				
R9	-28		680			40352	40355
R10	-35		1300				
R11	-39		2000				
R12	-39		2000				
R13	-35		1300				
R14	-15		200				
R15	-15		200				
R16	-15		200				
R17	-28		680			40353	40356
R18	-35		1300				
R19	-39		2000				
R20	-39		2000				
R21	-35		1300				
R22	-15		200				
R23	-15		200				
R24	-15		200				
R25	-43		3000			40365	40366
R26	-49		5100			40311 THRU 40318	40321 THRU 40328
R27	-15		200				
R28	1006750 -22		300	±2 %			
R29	SEE NOTE 3		NOM	±1 %			
R30	1006750 -49		5100	±2%		40361 40362 40367	40363 40364 40368
R31	-15		200				
R32	-32		1000				
R33	-49		5100				
R34	1006750 -49		5100	±2 %			
R35	1006788 -7		15	±1 %			
R36	SEE NOTE 3		NOM.	±1%			
R37	SEE NOTE 3		NOM.	±1 %			
R38	1006750 -49		5100	±2 %		40331	40332
R39	-15		200				
R40	-39		2000				
R41	-28		680				
R42	-39		2000				
R43	-39		2000				
R44	-49		5100			40369	40370
R45	-15		200				
R46	-32		1000				
R47	-49		5100				
R48	1006750 - 49		5100	±2 %			
R49	1006788 - 7		15	±1 %			
R50	SEE NOTE 3		NOM	±1%			
R51	SEE NOTE 3		NOM	±1%	1/4 W		
C1	1006755 -69	CAPACITOR	1.0 UF		35 VDC	40365	40366
C2	- 79		6.8 UF			40510	40512
C3	- 79						
C4	- 79					40511	40513
C5	- 79						
C6	- 79					40514	40516
C7	- 79					40518 40520 40522	40519 40521 40523
C8	1006755 - 79	CAPACITOR	6.8 UF		35 VDC	40515	40517
L1	1010406 - 8	INDUCTOR	1.0 UH			40311 THRU 40318	40321 THRU 40328
L2	- 8		1.0 UH			40361, 40362 40367	40363 40364 40368
L3	- 8		1.0 UH				
L4	- 7		8.2 UH			40510	40512
L5	- 7						
L6	- 7					40511	40513
L7	- 7						
L8	- 7					40514	40516
L9	- 7					40518 40520 40522	40519 40521 40523
L10	- 7		8.2 UH			40515	40517
L11	- 8		1.0 UH			40369	40370
L12	1010406 - 8	INDUCTOR	1.0 UH				

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING	CIRCUIT NO. USED ON	
						MODULE NO.	MODULE NO.
CR1	2004103 - 001	DIODE				40351	40354
CR2							
CR3							
CR4							
CR5							
CR6							
CR7							
CR8							
CR9							
CR10							
CR11							
CR12						40352	40355
CR13							
CR14							
CR15							
CR16							
CR17							
CR18							
CR19							
CR20							
CR21							
CR22							
CR23						40353	40356
CR24							
CR25							
CR26							
CR27							
CR28							
CR29							
CR30							
CR31							
CR32							
CR33							
CR34						40365	40366
CR35						40311 THRU 40318	40321 THRU 40328
CR36							
CR37						40361 40362 40367	40363 40364 40368
CR38							
CR39							
CR40							
CR41						40369	40370
CR42							
CR43							
CR44	2004103 - 001	DIODE					
Q1	2004004 - 002	TRANSISTOR				40351	40354
Q2	-001						
Q3	-001						
Q4	-001						
Q5	-002					40352	40355
Q6	-001						
Q7	-001						
Q8	-001						
Q9	-002					40353	40356
Q10	-001						
Q11	-001						
Q12	-001						
Q13	-001					40311 THRU 40318	40321 THRU 40328
Q14	-001						
Q15	-001					40361 40362 40367	40363 40364 40368
Q16	-002						
Q17	-001						
Q18	-001						
Q19	-001					40331	40332
Q20	-002						
Q21	-001						
Q22	-001					40369	40370
Q23	-002						
Q24	-001						
Q25	2004004 - 001	TRANSISTOR					

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO CONTRACT

DRAWN A. Di Leo DATE APR 64
CHECKED A. Lindstrom 17 Feb 65
APPROVAL Albert Hopkins 12 Mar 65
APPROVAL Eldon C. Hall 19 Mar 65
NASA APPROVAL W. J. R[illegible] 3-23-65
MIT APPROVAL W[illegible] 23 Mar 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC, ROPE DRIVER MODULE

B16 — B17

CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	E	2005000

SCALE — WT — SHEET 2 OF 2

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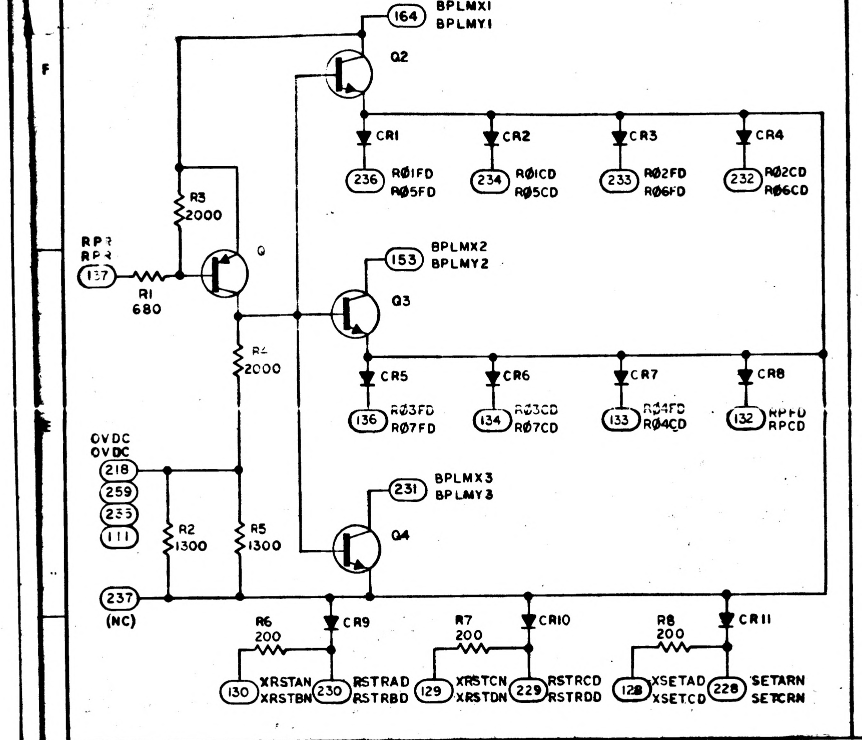
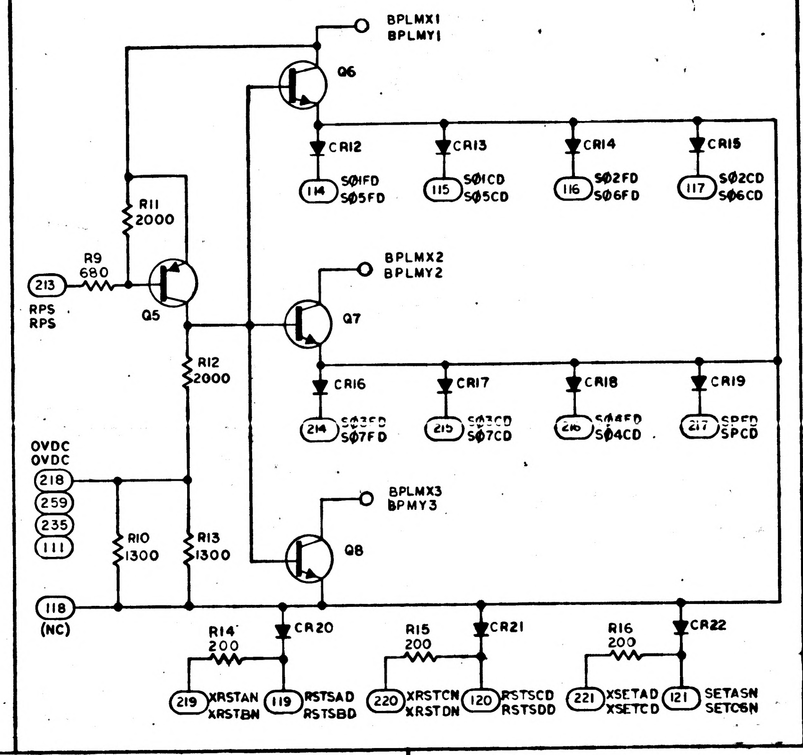
REVISIONS 17748			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 18034		
B	REVISED PER TDRR 19221	20 May 65	KCH
C	REVISED PER TDRR 21342	10-7-65	

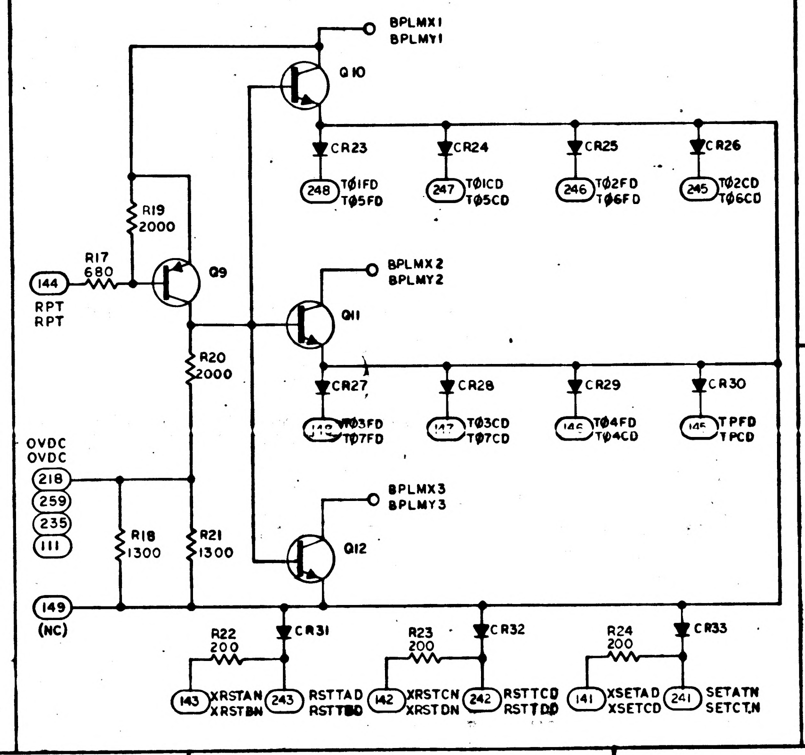
CIRCUIT NO. 40351
40354


164
BPLMX1
BPLMY1
Q2
CR1
CR2
CR3
CR4
236
R01FD
R05FD
234
R01CD
R05CD
233
R02FD
R06FD
232
R02CD
R06CD
R3
2000
RPR
RPR
137
R1
680
Q
153
BPLMX2
BPLMY2
Q3
R4
2000
CR5
CR6
CR7
CR8
136
R03FD
R07FD
134
R03CD
R07CD
133
R04FD
R04CD
132
RPFD
RPCD
OVDC
OVDC
218
259
235
111
R2
1300
R5
1300
231
BPLMX3
BPLMY3
Q4
237
(NC)
R6
200
CR9
R7
200
CR10
R8
200
CR11
130
XRSTAN
XRSTBN
230
RSTRAD
RSTRBD
129
XRSTCN
XRSTDN
229
RSTRCD
RSTRDD
128
XSETAD
XSETCD
228
SETARN
SETCRN

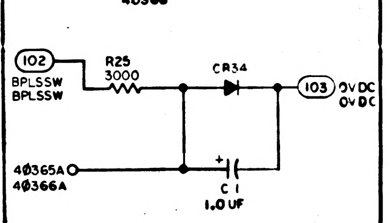
CIRCUIT NO. 40352
40355

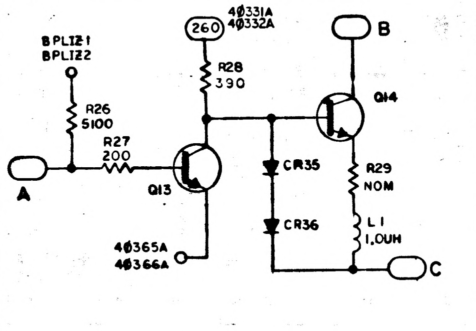

BPLMX1
BPLMY1
Q6
CR12
CR13
CR14
CR15
114
S01FD
S05FD
115
S01CD
S05CD
116
S02FD
S06FD
117
S02CD
S06CD
R11
2000
R9
680
213
RPS
RPS
Q5
BPLMX2
BPLMY2
Q7
R12
2000
CR16
CR17
CR18
CR19
214
S03FD
S07FD
215
S03CD
S07CD
216
S04FD
S04CD
217
SPFD
SPCD
OVDC
OVDC
218
259
235
111
R10
1300
R13
1300
BPLMX3
BPMY3
Q8
118
(NC)
R14
200
CR20
R15
200
CR21
R16
200
CR22
219
XRSTAN
XRSTBN
119
RSTSAD
RSTSBD
220
XRSTCN
XRSTDN
120
RSTSCD
RSTSDD
221
XSETAD
XSETCD
121
SETASN
SETCSN

CIRCUIT NO. 40353
40356

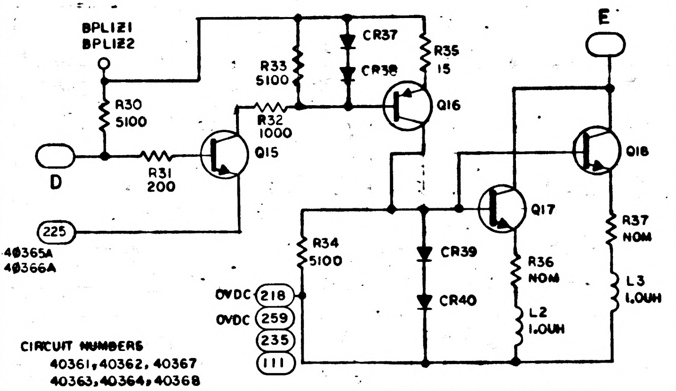

BPLMX1
BPLMY1
Q10
CR23
CR24
CR25
CR26
248
T01FD
T05FD
247
T01CD
T05CD
246
T02FD
T06FD
245
T02CD
T06CD
R19
2000
R17
680
144
RPT
RPT
Q9
BPLMX2
BPLMY2
Q11
R20
2000
CR27
CR28
CR29
CR30
148
T03FD
T07FD
147
T03CD
T07CD
146
T04FD
T04CD
145
TPFD
TPCD
OVDC
OVDC
218
259
235
111
R18
1300
R21
1300
BPLMX3
BPLMY3
Q12
149
(NC)
R22
200
CR31
R23
200
CR32
R24
200
CR33
143
XRSTAN
XRSTBN
243
RSTTAD
RSTTBD
142
XRSTCN
XRSTDN
242
RSTTCD
RSTTDD
141
XSETAD
XSETCD
241
SETATN
SETCTN

CIRCUIT NO. 40365
40366


102
BPLSSW
BPLSSW
R25
3000
CR34
103
OVDC
OVDC
40365A
40366A
C1
1.0 UF

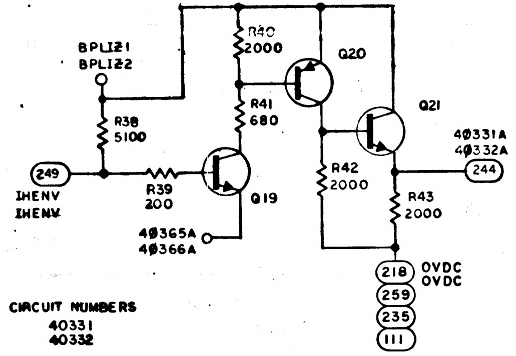

BPLI21
BPLI22
260
40331A
40332A
B
R28
390
Q14
R26
5100
R27
200
A
Q13
CR35
R29
NOM
CR36
L1
1.0UH
40365A
40366A
C

CIRCUIT NUMBERS 40311 THRU 40318
40321 THRU 40328

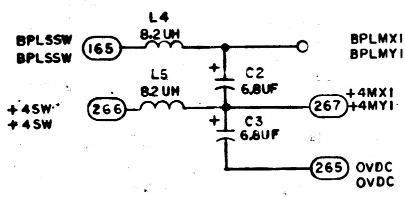

BPLI21
BPLI22
CR37
CR38
R35
15
E
R33
5100
R30
5100
R32
1000
Q16
Q18
D
R31
200
Q15
225
40365A
40366A
R34
5100
CR39
CR40
Q17
R36
NOM
R37
NOM
L3
1.0UH
L2
1.0UH
OVDC
218
OVDC
259
235
111

CIRCUIT NUMBERS
40361, 40362, 40367
40363, 40364, 40368

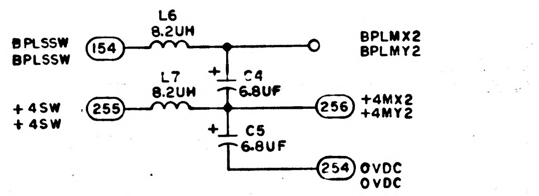
NOMINAL CURRENT 450 mA EACH OUTPUT


R40
2000
Q20
BPLI21
BPLI22
R41
680
Q21
R38
5100
40331A
40332A
244
249
IHENV
IHENV
R39
200
Q19
R42
2000
R43
2000
40365A
40366A
218
OVDC
OVDC
259
235
111

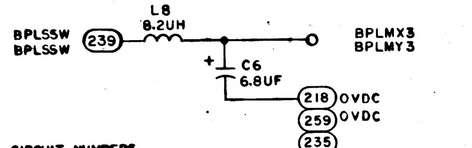
CIRCUIT NUMBERS
40331
40332


BPLSSW
BPLSSW
165
L4
8.2UH
BPLMX1
BPLMY1
L5
8.2 UH
C2
6.8UF
+4SW
+4SW
266
267
+4MX1
+4MY1
C3
6.8UF
265
OVDC
OVDC

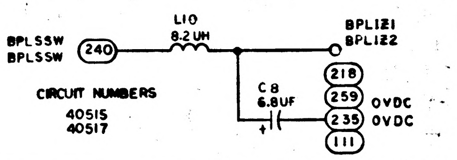
CIRCUIT NUMBERS
40510
40512


L6
8.2UH
BPLSSW
BPLSSW
154
BPLMX2
BPLMY2
L7
8.2UH
C4
6.8UF
+4SW
+4SW
255
256
+4MX2
+4MY2
C5
6.8UF
254
OVDC
OVDC

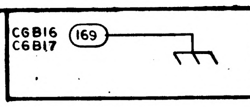
CIRCUIT NUMBERS
40511
40513

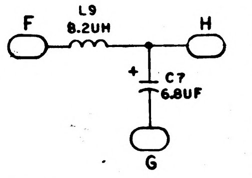

L8
8.2UH
BPLSSW
BPLSSW
239
BPLMX3
BPLMY3
C6
6.8UF
218
OVDC
259
OVDC
235
111

CIRCUIT NUMBERS
40514
40516

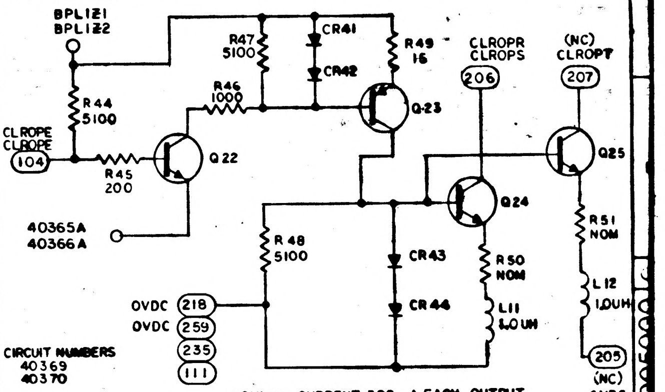

L10
8.2 UH
BPLSSW
BPLSSW
240
BPLI21
BPLI22
C8
6.8UF
218
259
OVDC
235
OVDC
111

CIRCUIT NUMBERS
40515
40517


C6B16
C6B17
169


L9
8.2UH
F
H
C7
6.8UF
G

CIRCUIT NUMBERS
40518 40520 40522
40519, 40521, 40523


BPLI21
BPLI22
R47
5100
CR41
R49
15
CLROPR
CLROPS
(NC)
CLROPT
206
207
CR42
R46
1000
Q23
R44
5100
CLROPE
CLROPE
104
R45
200
Q22
Q25
Q24
40365A
40366A
R48
5100
CR43
R50
NOM
R51
NOM
L12
1.0UH
CR44
L11
1.0 UH
OVDC
218
OVDC
259
235
111
205
(NC)
OVDC

CIRCUIT NUMBERS
40369
40370

NOMINAL CURRENT 300 mA EACH OUTPUT

POSITION	NOMINAL OUTPUT PIN CURRENT	COMPONENT PREFIX (ASSY)	CIRCUIT NO.	A SIGNAL	A PIN NO.	B SIGNAL	B PIN NO.	C SIGNAL	C PIN NO.	D SIGNAL	D PIN NO.	E SIGNAL	E PIN NO.	F SIGNAL	F PIN NO.	G SIGNAL	G PIN NO.	H SIGNAL	H PIN NO.
B 16	225 mA	1	40311	IL01	269	X01FN	168	+4MX1	267										
		2	40312	IL01 /	167	X01CN	268		267										
		3	40313	IL02	263	X02FN	162		267										
		4	40314	IL02 /	160	X02CN	262	+4MX1	267										
		5	40315	IL03	258	X03FN	157	+4MX2	256										
		6	40316	IL03 /	156	X03CN	257		256										
	225 mA	7	40317	IL04	251	X04FN	152		256										
B 16	300 mA	8	40318	ILP	151	XPFN	250	+4MX2	256										
B 17	225 mA	1	40321	IL05	269	X05FN	168	+4MY1	267										
		2	40322	IL05 /	167	X05CN	268		267										
		3	40323	IL06	263	X06FN	162		267										
		4	40324	IL06 /	160	X06CN	262	+4MY1	267										
		5	40325	IL07	258	X07FN	157	+4MY2	256										
		6	40326	IL07 /	156	X07CN	257		256										
	225 mA	7	40327	IL04 /	251	X04CN	152		256										
B 17	300 mA	8	40328	ILP /	151	XPCN	250	+4MY2	256										
B 16	450 mA	1	40361							SETAB	125	XSETAD	227						
B 17		1	40363							SETCD	125	XSETCD	227						
B 16		2	40362							RESETA	224	XRSTAN	123						
B 17		2	40364							RESETB	224	XRSTBN	123						
B 16		3	40367							RESETC	212	XRSTCN	108						
B 17	450 mA	3	40368							RESETD	212	XRSTDN	108						
B 16		1	40518											BPLSSW	102	OVDC	101	BPLSWX	202
B 16		2	40520															BPLSWY	203
B 16		3	40522															BPLSWZ	204
B 17		1	40519															BPLSWF	202
B 17		2	40521															BPLSW6	203
B 17		3	40523											BPLSSW	102	OVDC	101	BPLSWH	204

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED, RESISTORS VALUES ARE IN OHMS
3. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST R29, R36, R37, R50, AND R51 TO BE SELECTED FROM APPROPRIATE CHART
4. TOP SIGNAL NAME AND CIRCUIT NUMBER APPLY TO POSITION B16, BOTTOM SIGNAL NAME AND CIRCUIT NUMBER APPLY TO POSITION B17 SEE CHARTS

REF DWG:
ROPE DRIVER MODULE B16-B17 ASSY
DWG NO. 2003040

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO
CONTRACT

DRAWN A. Di Leo DATE 1 Apr 64
CHECKED A. Lindstrom 17 Feb 65
APPROVAL Albert Hopkins 12 Mar 65
APPROVAL Eldon C Hall 19 Mar 65
NASA APPROVAL W J Rhode 3-23-65
MIT APPROVAL 23 Mar 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC,
ROPE DRIVER MODULE
B16 — B17

CODE IDENT NO	SIZE	NASA DRAWING NO.
80230	E	2005000
SCALE —	WT —	SHEET 1 OF 2

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REVISIONS 17740

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 18034		WK
B	REVISED PER TDRR 19221	65	KCN WK
C	REVISED PER TDRR 21342		WK

R36, R37, R50, R51

PART NO.	VALUE
1006788 — 29	2.5
— 30	2.6
— 31	2.7
— 32	2.8
— 33	2.9
— 34	3.0
— 35	3.1
— 36	3.2
— 37	3.3
— 38	3.4
— 39	3.5
— 40	3.6
— 41	3.7
— 42	3.8
— 43	3.9
— 44	4.0
— 45	4.1
— 46	4.2
— 47	4.3
— 48	4.4
1006788 — 49	4.5

R29

PART NO.	VALUE
1006788 —51	1.5
—53	1.6
—16	1.7
—18	1.8
—20	1.9
—22	2.0
—24	2.1
—26	2.2
—28	2.3
—15	2.4
—29	2.5
—30	2.6
—31	2.7
1006788 — 32	2.8

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING	CIRCUIT NO. USED ON	
						MODULE NO.	MODULE NO.
R1	1006750 -28	RESISTOR	680	±2 %	1/4 W	40351	40354
R2	-35		1300				
R3	-39		2000				
R4	-39		2000				
R5	-35		1300				
R6	-15		200				
R7	-15		200				
R8	-15		200				
R9	-28		680			40352	40355
R10	-35		1300				
R11	-39		2000				
R12	-39		2000				
R13	-35		1300				
R14	-15		200				
R15	-15		200				
R16	-15		200				
R17	-28		680			40353	40356
R18	-35		1300				
R19	-39		2000				
R20	-39		2000				
R21	-35		1300				
R22	-15		200				
R23	-15		200				
R24	-15		200				
R25	-43		3000			40365	40366
R26	-49		5100			40311 THRU 40318	40321 THRU 40328
R27	-15		200				
R28	1006750 -22		390	±2%			
R29	SEE NOTE 3		NOM	±1%			
R30	1006750 -49		5100	±2%		40361 40362 40367	40363 40364 40368
R31	-15		200				
R32	-32		1000				
R33	-49		5100				
R34	1006750 -49		5100	±2 %			
R35	1006788 -7		15	±1%			
R36	SEE NOTE 3		NOM.	±1%			
R37	SEE NOTE 3		NOM.	±1%			
R38	1006750 -49		5100	±2%		40331	40332
R39	-15		200				
R40	-39		2000				
R41	-28		680				
R42	-39		2000				
R43	-39		2000				
R44	-49		5100			40369	40370
R45	-15		200				
R46	-32		1000				
R47	-49		5100				
R48	1006750 - 49		5100	±2 %			
R49	1006788 - 7		15	±1%			
R50	SEE NOTE 3		NOM	±1%			
R51	SEE NOTE 3		NOM	±1%	1/4 W		
C1	1006755 -69	CAPACITOR	1.0 UF		35 VDC	40365	40366
C2	-79		6.8 UF			40510	40512
C3	-79						
C4	-79					40511	40513
C5	-79						
C6	-79					40514	40516
C7	-79					40518 40520 40522	40519 40521 40523
C8	1006755 — 79	CAPACITOR	6.8 UF		35 VDC	40515	40517
L1	1010406 - 8	INDUCTOR	1.0 UH			40311 THRU 40318	40321 THRU 40328
L2	- 8		1.0 UH			40361, 40362 40367	40363 40364 40368
L3	- 8		1.0 UH				
L4	- 7		8.2 UH			40510	40512
L5	- 7						
L6	- 7					40511	40513
L7	- 7						
L8	- 7					40514	40516
L9	- 7					40518 40520 40522	40519 40521 40523
L10	- 7		8.2 UH			40515	40517
L11	- 8		1.0 UH			40369	40370
L12	1010406 - 8	INDUCTOR	1.0 UH				

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING	CIRCUIT NO. USED ON	
						MODULE NO.	MODULE NO.
CR1	2004103 - 001	DIODE				40351	40354
CR2							
CR3							
CR4							
CR5							
CR6							
CR7							
CR8							
CR9							
CR10							
CR11							
CR12						40352	40355
CR13							
CR14							
CR15							
CR16							
CR17							
CR18							
CR19							
CR20							
CR21							
CR22							
CR23						40353	40356
CR24							
CR25							
CR26							
CR27							
CR28							
CR29							
CR30							
CR31							
CR32							
CR33							
CR34						40365	40366
CR35						40311 THRU 40318	40321 THRU 40328
CR36							
CR37						40361 40362 40367	40363 40364 40368
CR38							
CR39							
CR40							
CR41						40369	40370
CR42							
CR43							
CR44	2004103 - 001	DIODE					
Q1	2004004 - 002	TRANSISTOR				40351	40354
Q2	-001						
Q3	-001						
Q4	-001						
Q5	-002					40352	40355
Q6	-001						
Q7	-001						
Q8	-001						
Q9	-002					40353	40356
Q10	-001						
Q11	-001						
Q12	-001						
Q13	-001					40311 THRU 40318	40321 THRU 40328
Q14	-001						
Q15	-001					40361 40362 40367	40363 40364 40368
Q16	-002						
Q17	-001						
Q18	-001						
Q19	-001					40331	40332
Q20	-002						
Q21	-001						
Q22	-001					40369	40370
Q23	-002						
Q24	-001						
Q25	2004004 - 001	TRANSISTOR					

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

M I T
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN A. D. Lao DATE 1964
CHECKED A. Linsletone 17 Feb 65
APPROVAL Albert Hopkins 12 Mar 65
APPROVAL Eldon C Hall 19 Mar 65
NASA APPROVAL W. J. R. 3-23-65
MIT APPROVAL W. 23 Mar 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC,
ROPE DRIVER MODULE
B16—B17

CODE IDENT NO. 80230 SIZE E NASA DRAWING NO. 2005000
SCALE — WT — SHEET 2 OF 2

2005000 C

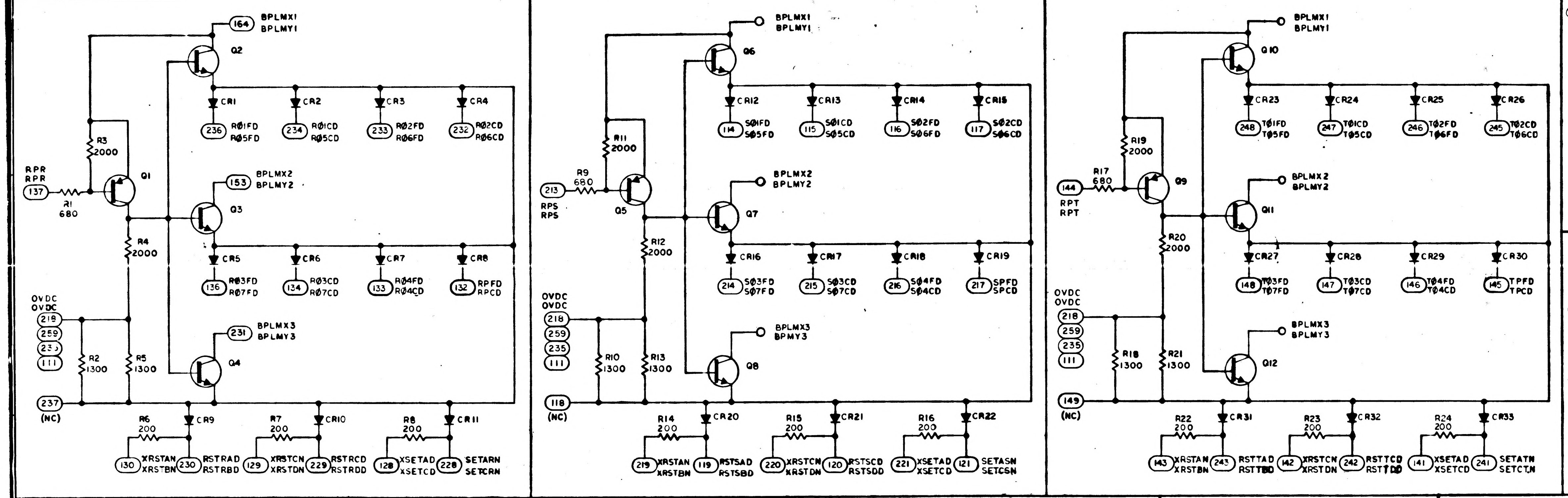
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17720			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 18034		WR
B	REVISED PER TDRR 19221		KCN WR
C	REVISED PER TDRR 21342		WR
D	REVISED PER TDRR 24004	7 DEC 65	

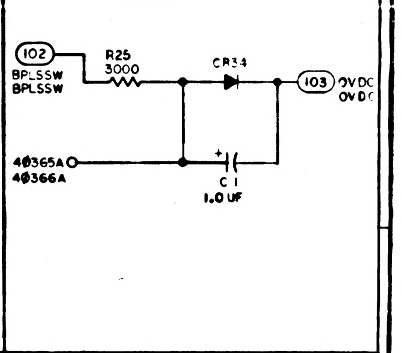
CIRCUIT NO. 40351 40354

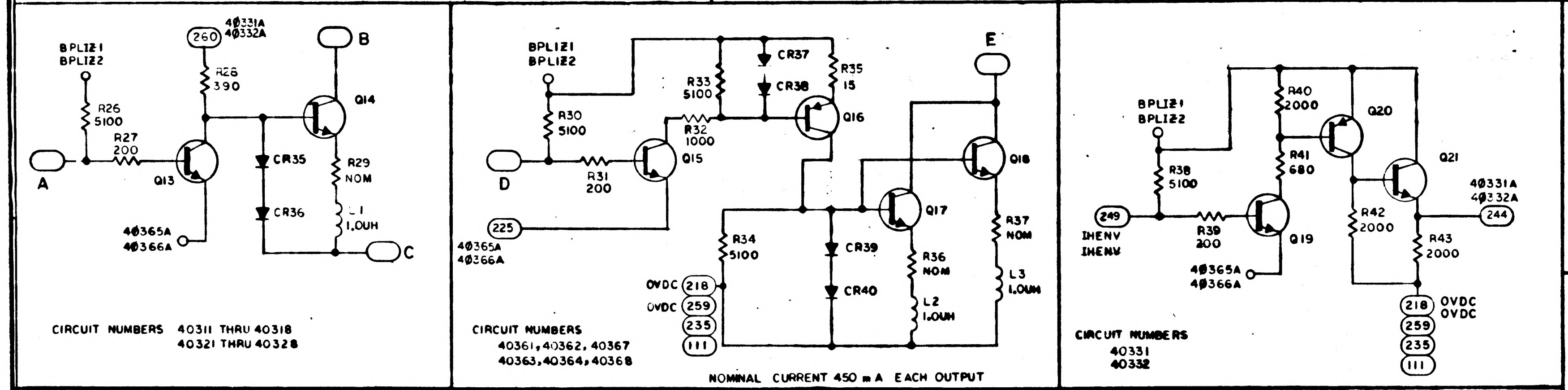
CIRCUIT NO. 40352 40355

CIRCUIT NO. 40353 40356


164 BPLMX1 BPLMY1
Q2
CR1 236 R01FD R05FD
CR2 234 R01CD R05CD
CR3 233 R02FD R06FD
CR4 232 R02CD R06CD
R3 2000
RPR RPR 137 R1 680
Q1
153 BPLMX2 BPLMY2
Q3
R4 2000
CR5 136 R03FD R07FD
CR6 134 R03CD R07CD
CR7 133 R04FD R04CD
CR8 132 RPFD RPCD
0VDC 0VDC 218 259 233 111
R2 1300
R5 1300
231 BPLMX3 BPLMY3
Q4
237 (NC)
R6 200 CR9 130 XRSTAN XRSTBN 230 RSTRAD RSTRBD
R7 200 CR10 129 XRSTCN XRSTDN 229 RSTRCD RSTRDD
R8 200 CR11 128 XSETAD XSETCD 228 SETARN SETCRN
BPLMX1 BPLMY1
Q6
CR12 114 S01FD S05FD
CR13 115 S01CD S05CD
CR14 116 S02FD S06FD
CR15 117 S02CD S06CD
R11 2000
R9 680
213 RPS RPS
Q5
BPLMX2 BPLMY2
Q7
R12 2000
CR16 214 S03FD S07FD
CR17 215 S03CD S07CD
CR18 216 S04FD S04CD
CR19 217 SPFD SPCD
0VDC 0VDC 218 259 235 111
R10 1300
R13 1300
BPLMX3 BPMY3
Q8
118 (NC)
R14 200 CR20 219 XRSTAN XRSTBN 119 RSTSAD RSTSBD
R15 200 CR21 220 XRSTCN XRSTDN 120 RSTSCD RSTSDD
R16 200 CR22 221 XSETAD XSETCD 121 SETASN SETCSN
BPLMX1 BPLMY1
Q10
CR23 248 T01FD T05FD
CR24 247 T01CD T05CD
CR25 246 T02FD T06FD
CR26 245 T02CD T06CD
R19 2000
R17 680
144 RPT RPT
Q9
BPLMX2 BPLMY2
Q11
R20 2000
CR27 148 T03FD T07FD
CR28 147 T03CD T07CD
CR29 146 T04FD T04CD
CR30 145 TPFD TPCD
0VDC 0VDC 218 259 235 111
R18 1300
R21 1300
BPLMX3 BPLMY3
Q12
149 (NC)
R22 200 CR31 143 XRSTAN XRSTBN 243 RSTTAD RSTTBD
R23 200 CR32 142 XRSTCN XRSTDN 242 RSTTCD RSTTDD
R24 200 CR33 141 XSETAD XSETCD 241 SETATN SETCTN

CIRCUIT NO. 40365 40366


102 BPLSSW BPLSSW
R25 3000
CR34
103 0VDC 0VDC
40365A 40366A
C1 1.0 UF

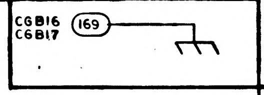

BPL121 BPL122
260 40331A 40332A
B
R26 5100
R28 390
Q14
R27 200
A
Q13
CR35
CR36
R29 NOM
L1 1.0UH
40365A 40366A
C
BPL121 BPL122
R30 5100
D
R31 200
Q15
R33 5100
R32 1000
CR37
CR38
R35 15
Q16
E
225 40365A 40366A
R34 5100
CR39
CR40
Q17
R36 NOM
L2 1.0UH
Q18
R37 NOM
L3 1.0UH
0VDC 218
0VDC 259 235 111
BPL121 BPL122
R40 2000
Q20
R41 680
R38 5100
249 IHENV IHENV
R39 200
Q19
40365A 40366A
R42 2000
Q21
40331A 40332A 244
R43 2000
218 0VDC 0VDC 259 235 111

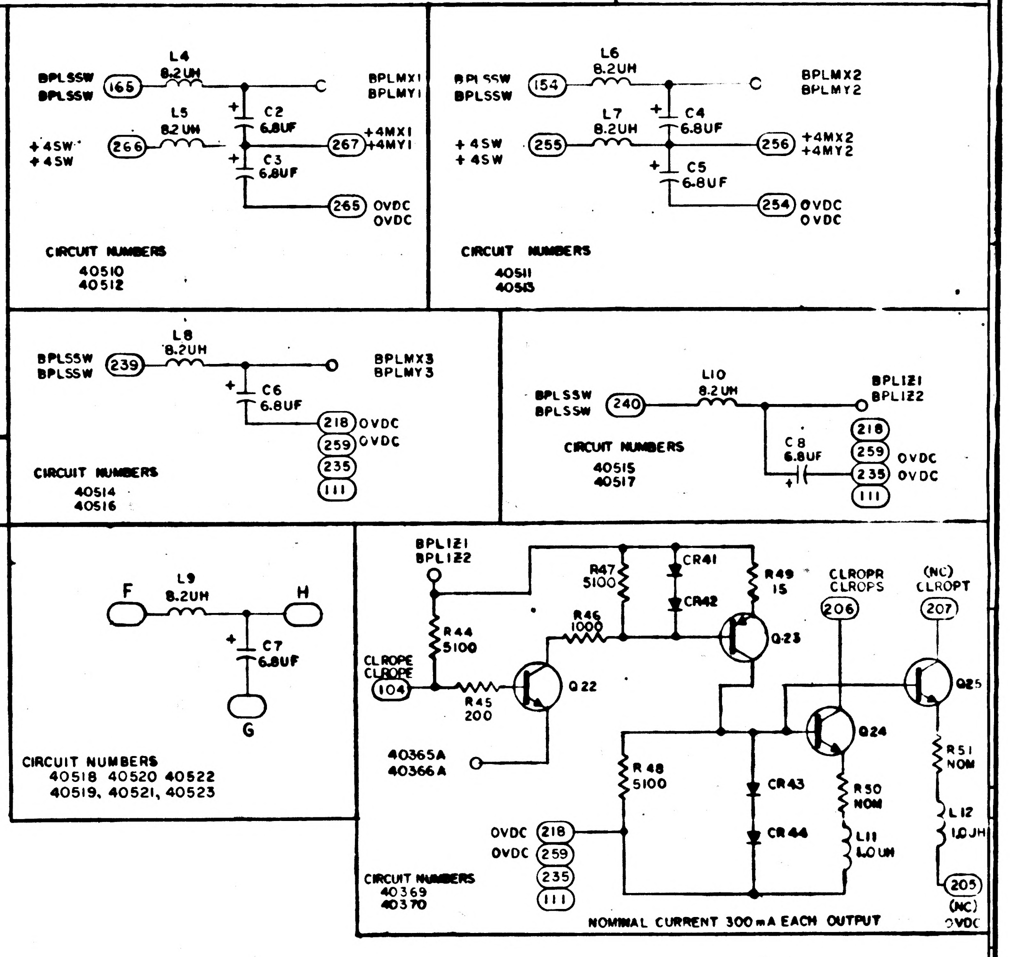
CIRCUIT NUMBERS 40311 THRU 40318
40321 THRU 40328

CIRCUIT NUMBERS
40361, 40362, 40367
40363, 40364, 40368

NOMINAL CURRENT 450 mA EACH OUTPUT

CIRCUIT NUMBERS
40331
40332


CGB16 CGB17 169


BPLSSW BPLSSW 165
L4 8.2UH
BPLMX1 BPLMY1
+4SW +4SW 266
L5 8.2UH
C2 6.8UF
C3 6.8UF
267 +4MX1 +4MY1
265 0VDC 0VDC
BPLSSW BPLSSW 154
L6 8.2UH
BPLMX2 BPLMY2
+4SW +4SW 255
L7 8.2UH
C4 6.8UF
C5 6.8UF
256 +4MX2 +4MY2
254 0VDC 0VDC
BPLSSW BPLSSW 239
L8 8.2UH
BPLMX3 BPLMY3
C6 6.8UF
218 0VDC 259 0VDC 235 111
BPLSSW BPLSSW 240
L10 8.2UH
BPL121 BPL122
C8 6.8UF
218 259 0VDC 235 0VDC 111
F
L9 8.2UH
H
C7 6.8UF
G
BPL121 BPL122
R47 5100
CR41
CR42
R49 15
CLROPR CLROPS 206
(NC) CLROPT 207
R46 1000
Q23
R44 5100
CLROPE CLROPF 104
R45 200
Q22
Q25
Q24
40365A 40366A
R48 5100
CR43
CR44
R50 NOM
L11 1.0UH
R51 NOM
L12 1.0UH
0VDC 218
0VDC 259 235 111
205 (NC) 0VDC

CIRCUIT NUMBERS
40510
40512

CIRCUIT NUMBERS
40511
40513

CIRCUIT NUMBERS
40514
40516

CIRCUIT NUMBERS
40515
40517

CIRCUIT NUMBERS
40518 40520 40522
40519, 40521, 40523

CIRCUIT NUMBERS
40369
40370

NOMINAL CURRENT 300 mA EACH OUTPUT

POSITION	NOMINAL OUTPUT PIN CURRENT	COMPONENT PREFIX (ASSY)	CIRCUIT NO.	A		B		C		D		E		F		G		H	
				SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.
B16	225 mA	1	40311	IL01	269	X01FN	168	+4MX1	267										
↓	↓	2	40312	IL01/	167	X01CN	268	↕	267										
↓	↓	3	40313	IL02	263	X02FN	162	↕	267										
↓	↓	4	40314	IL02/	160	X02CN	262	+4MX1	267										
↓	↓	5	40315	IL03	258	X03FN	157	+4MX2	256										
↓	↓	6	40316	IL03/	156	X03CN	257	↕	256										
↓	225 mA	7	40317	IL04	251	X04FN	152	↕	256										
B16	300 mA	8	40318	ILP	151	XPFN	250	+4MX2	256										
B17	225 mA	1	40321	IL05	269	X05FN	168	+4MY1	267										
↓	↓	2	40322	IL05/	167	X05CN	268	↕	267										
↓	↓	3	40323	IL06	263	X06FN	162	↕	267										
↓	↓	4	40324	IL06/	160	X06CN	262	+4MY1	267										
↓	↓	5	40325	IL07	258	X07FN	157	+4MY2	256										
↓	↓	6	40326	IL07/	156	X07CN	257	↕	256										
↓	225 mA	7	40327	IL04/	251	X04CN	152	↕	256										
B17	300 mA	8	40328	ILP/	151	XPCN	250	+4MY2	256										
B16	450 mA	1	40361							SETAB	125	XSETAD	227						
B17	↓	1	40363							SETCD	125	XSETCD	227						
B16	↓	2	40362							RESETA	224	XRSTAN	123						
B17	↓	2	40364							RESETB	224	XRSTBN	123						
B16	↓	3	40367							RESETC	212	XRSTCN	108						
B17	450 mA	3	40368							RESETD	212	XRSTDN	108						
B16		1	40518											BPLSSW	102	0VDC	101	BPLSWX	202
B16		2	40520											↓	↓	↓	↓	BPLSWY	203
B16		3	40522											↓	↓	↓	↓	BPLSWZ	204
B17		1	40519											↓	↓	↓	↓	BPLSWF	202
B17		2	40521											↓	↓	↓	↓	BPLSW6	203
B17		3	40523											BPLSSW	102	0VDC	101	BPLSWH	204

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED. RESISTORS VALUES ARE IN OHMS
3. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST R29, R36, R37, R50, AND R51 TO BE SELECTED FROM APPROPRIATE CHART
4. TOP SIGNAL NAME AND CIRCUIT NUMBER APPLY TO POSITION B16, BOTTOM SIGNAL NAME AND CIRCUIT NUMBER APPLY TO POSITION B17 SEE CHARTS

REF DWG:
ROPE DRIVER MODULE B16-B17 ASSY
DWG NO. 2003040

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO. CONTRACT

DRAWN A. Di Leo DATE
CHECKED A. Lindstrom 17 Feb 65
APPROVAL Albert Hopkins 18 Mar 65
APPROVAL Eldon C Hall 19 Mar 65
NASA APPROVAL W J Rhine 3-23-65
MIT APPROVAL 23 Mar 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC,
ROPE DRIVER MODULE
B16—B17

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 2005000
SCALE
WT
SHEET 1 OF 2

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REVISIONS 17740

SYM	DESCRIPTION	DATE	APP
A	REVISED PER TDRR 18034		
B	REVISED PER TDRR 19221	[illegible] 65	KCN
C	REVISED PER TDRR 21342	[illegible] 66	
D	REVISED PER TDRR 24004	7 DEC 65	

R36,R37	
PART NO.	VALUE
1006788 — 29	2.5
— 30	2.6
— 31	2.7
— 32	2.8
— 33	2.9
— 34	3.0
— 35	3.1
— 36	3.2
— 37	3.3
— 38	3.4
— 39	3.5
— 40	3.6
— 41	3.7
— 42	3.8
— 43	3.9
— 44	4.0
— 45	4.1
— 46	4.2
— 47	4.3
— 48	4.4
1006788 — 49	4.5

R29,R50,R51	
PART NO.	VALUE
1006788 -51	1.5
-53	1.6
-16	1.7
-18	1.8
-20	1.9
-22	2.0
-24	2.1
-26	2.2
-28	2.3
-15	2.4
-29	2.5
-30	2.6
-31	2.7
-32	2.8
-73	2.75
-72	2.65
-71	2.55
-70	2.45
-69	2.35
-27	2.25
-25	2.15
-23	2.05
-21	1.95
-19	1.85
-17	1.75
-54	1.65
1006788 -52	1.55

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING	CIRCUIT NO. USED ON	
						MODULE NO.	MODULE NO.
R1	1006750 -28	RESISTOR	680	±2 %	1/4W	40351	40354
R2	-35		1300				
R3	-39		2000				
R4	-39		2000				
R5	-35		1300				
R6	-15		200				
R7	-15		200				
R8	-15		200				
R9	-28		680			40352	40355
R10	-35		1300				
R11	-39		2000				
R12	-39		2000				
R13	-35		1300				
R14	-15		200				
R15	-15		200				
R16	-15		200				
R17	-28		680			40353	40356
R18	-35		1300				
R19	-39		2000				
R20	-39		2000				
R21	-35		1300				
R22	-15		200				
R23	-15		200				
R24	-15		200				
R25	-43		3000			40365	40366
R26	-49		5100			40311 THRU 40318	40321 THRU 40328
R27	-15		200				
R28	1006750 -22		390	±2%			
R29	SEE NOTE 3		NOM	±1%			
R30	1006750 -49		5100	±2%		40361 40362 40367	40363 40364 40368
R31	-15		200				
R32	-32		1000				
R33	-49		5100				
R34	1006750 -49		5100	±2 %			
R35	1006788 -7		15	±1%			
R36	SEE NOTE 3		NOM	±1%			
R37	SEE NOTE 3		NOM	±1%			
R38	1006750 -49		5100	±2%		40331	40332
R39	-15		200				
R40	-39		2000				
R41	-28		680				
R42	-39		2000				
R43	-39		2000				
R44	-49		5100			40369	40370
R45	-15		200				
R46	-32		1000				
R47	-49		5100				
R48	1006750 - 49		5100	±2 %			
R49	1006788 - 7		15	±1%			
R50	SEE NOTE 3		NOM	±1%			
R51	SEE NOTE 3		NOM	±1%	1/4 W		
C1	1006755 -69	CAPACITOR	1.0 UF		35VDC	40365	40366
C2	-79		6.8UF			40510	40512
C3	-79						
C4	-79					40511	40513
C5	-79						
C6	-79					40514	40516
C7	-79					40518 40520 40522	40519 40521 40523
C8	1006755 -79	CAPACITOR	6.8UF		35VDC	40515	40517
L1	1010406 - 8	INDUCTOR	1.0UH			40311 THRU 40318 40361.40362 40367	40321 THRU 40328 40363 40364 40368
L2	- 8		1.0UH				
L3	- 8		1.0UH				
L4	- 7		8.2 UH			40510	40512
L5	- 7						
L6	- 7					40511	40513
L7	- 7						
L8	- 7					40514	40516
L9	- 7					40518 40520 40522	40519 40521 40523
L10	- 7		8.2 UH			40515	40517
L11	- 8		1.0 UH			40369	40370
L12	1010406 - 8	INDUCTOR	1.0UH				

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING	CIRCUIT NO. USED ON	
						MODULE NO.	MODULE NO.
CR1	2004103 - 001	DIODE				40351	40354
CR2							
CR3							
CR4							
CR5							
CR6							
CR7							
CR8							
CR9							
CR10							
CR11							
CR12						40352	40355
CR13							
CR14							
CR15							
CR16							
CR17							
CR18							
CR19							
CR20							
CR21							
CR22							
CR23						40353	40356
CR24							
CR25							
CR26							
CR27							
CR28							
CR29							
CR30							
CR31							
CR32							
CR33							
CR34						40365	40366
CR35						40311 THRU 40318	40321 THRU 40328
CR36							
CR37						40361 40362 40367	40363 40364 40368
CR38							
CR39							
CR40							
CR41						40369	40370
CR42							
CR43							
CR44	2004103 - 001	DIODE					
Q1	2004004 - 002	TRANSISTOR				40351	40354
Q2	-001						
Q3	-001						
Q4	-001						
Q5	-002					40352	40355
Q6	-001						
Q7	-001						
Q8	-001						
Q9	-002					40353	40356
Q10	-001						
Q11	-001						
Q12	-001						
Q13	-001					40311 THRU 40318	40321 THRU 40328
Q14	-001						
Q15	-001					40361 40362 40367	40363 40364 40368
Q16	-002						
Q17	-001						
Q18	-001						
Q19	-001					40331	40332
Q20	-002						
Q21	-001						
Q22	-001					40369	40370
Q23	-002						
Q24	-001						
Q25	2004004-001	TRANSISTOR					

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

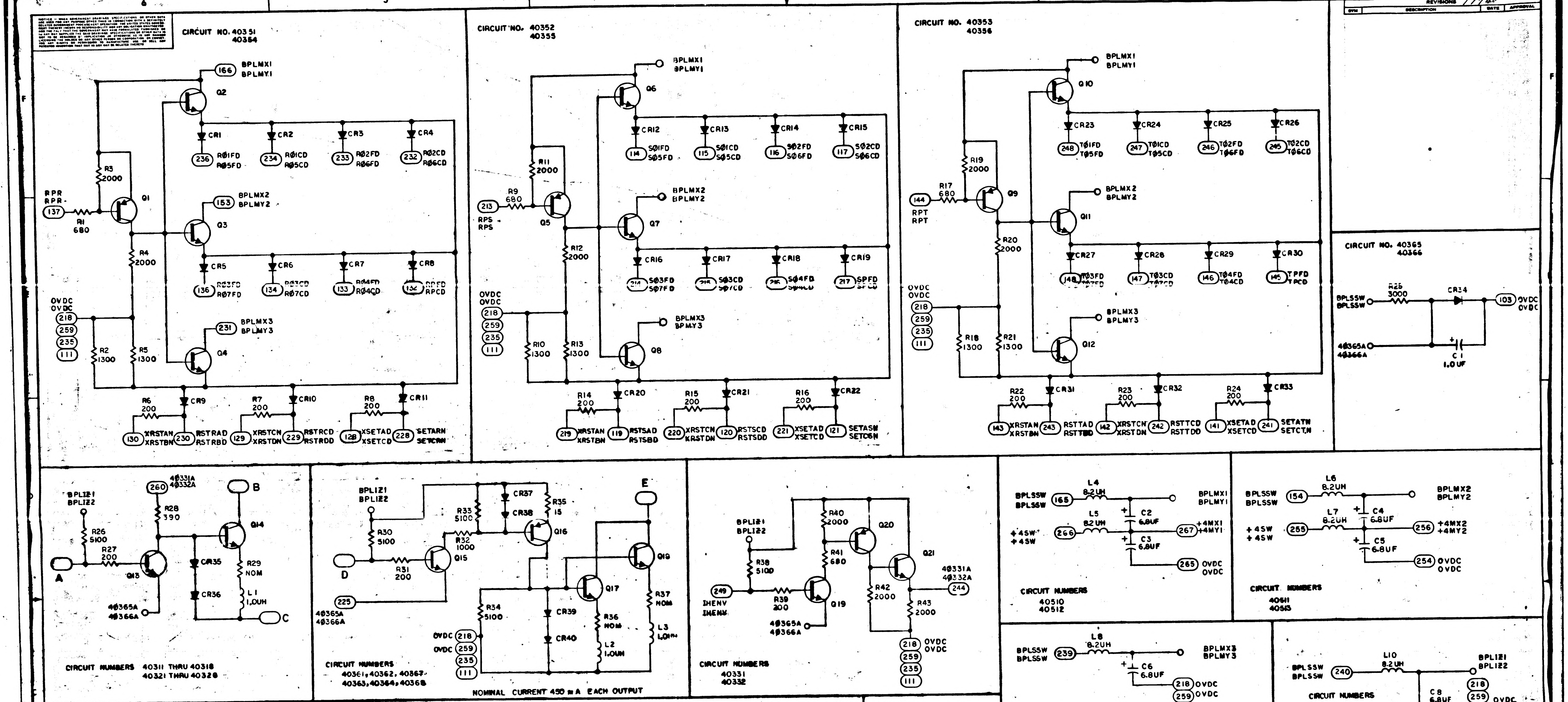
MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

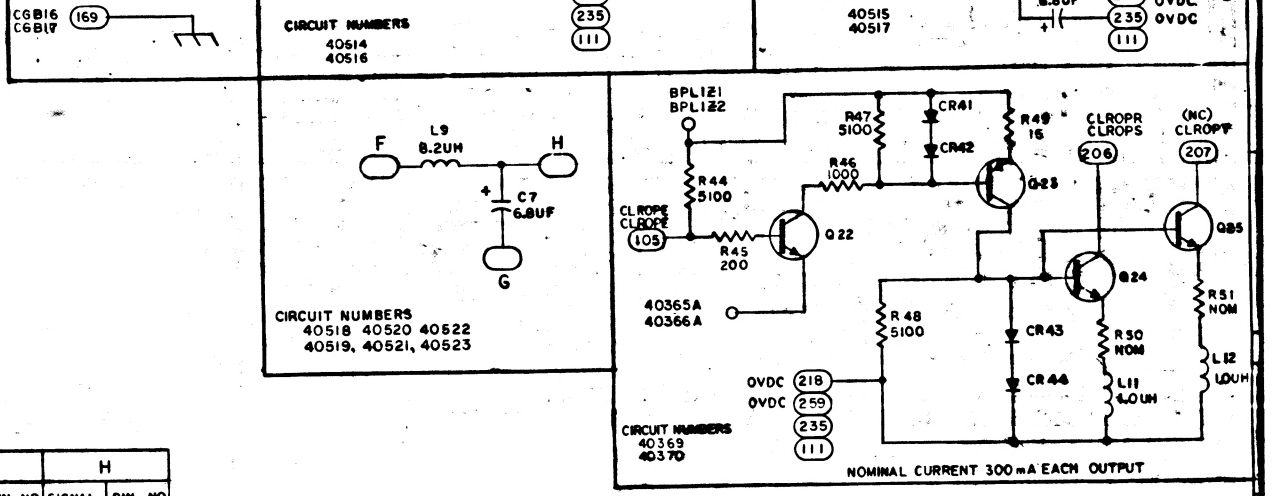
DRAWN A. De Leo DATE [illegible] 64
CHECKED [illegible] 17 Feb 65
APPROVAL [illegible] 12 Mar 65
APPROVAL [illegible] 19 Mar 65
NASA APPROVAL [illegible] 3-23-65
MIT APPROVAL [illegible] 23 Mar 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC,
ROPE DRIVER MODULE
B16 — B17

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 2005000
SCALE —
WT —
SHEET 2 OF 2


CIRCUIT NO. 40351 40354
BPLMX1 BPLMY1
BPLMX2 BPLMY2
BPLMX3 BPLMY3
RPR
OVDC
CIRCUIT NO. 40352 40355
RPS
CIRCUIT NO. 40353 40356
RPT
CIRCUIT NO. 40365 40366
BPLSSW
CIRCUIT NUMBERS 40311 THRU 40318 40321 THRU 40328
BPLI21 BPLI22
CIRCUIT NUMBERS 40361, 40362, 40367 40363, 40364, 40368
NOMINAL CURRENT 450 mA EACH OUTPUT
IHENV
CIRCUIT NUMBERS 40331 40332
+45W
+4MX1 +4MY1
+4MX2 +4MY2
CIRCUIT NUMBERS 40510 40512
CIRCUIT NUMBERS 40511 40513


CGB16 CGB17
BPLSSW BPLSSW
BPLMX3 BPLMY3
CIRCUIT NUMBERS 40614 40516
CIRCUIT NUMBERS 40515 40517
CIRCUIT NUMBERS 40518 40520 40522 40519, 40521, 40523
CLROPE
CLROPR CLROPS
(NC) CLROPT
CIRCUIT NUMBERS 40369 40370
NOMINAL CURRENT 300 mA EACH OUTPUT

POSITION	NOMINAL OUTPUT PIN CURRENT	COMPONENT PREFIX (ASSY)	CIRCUIT NO.	A		B		C		D		E		F		G		H	
				SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.
B16	225 mA	1	40311	IL01	269	X01FN	168	+4MX1	267										
		2	40312	IL01/	167	X01CN	268		267										
		3	40313	IL02	263	X02FN	162		267										
		4	40314	IL02/	160	X02CN	262	+4MX1	267										
		5	40315	IL03	258	X03FN	157	+4MX2	256										
		6	40316	IL03/	156	X03CN	257		256										
	225 mA	7	40317	IL04	251	X04FN	152		256										
B16	300 mA	8	40318	ILP	151	XPFN	250	+4MX2	256										
B17	225 mA	1	40321	IL05	269	X05FN	168	+4MY1	267										
		2	40322	IL05/	167	X05CN	268		267										
		3	40323	IL06	263	X06FN	162		267										
		4	40324	IL06/	160	X06CN	262	+4MY1	267										
		5	40325	IL07	258	X07FN	157	+4MY2	256										
		6	40326	IL07/	156	X07CN	257		256										
	225 mA	7	40327	IL04/	251	X04CN	152		256										
B17	300 mA	8	40328	ILP/	151	XPCN	250	+4MY2	256										
B16	450 mA	1	40361							SETAB	125	XSETAD	227						
B17		1	40363							SETCD	125	XSETCD	227						
B16		2	40362							RESETA	224	XRSTAN	123						
B17		2	40364							RESETB	224	XRSTBN	123						
B16		3	40367							RESETC	212	XRSTCN	108						
B17	450 mA	3	40368							RESETD	212	XRSTDN	108						
B16		1	40518											BPLSSW	102	OVDC	101	BPLSWX	202
B16		2	40520															BPLSWY	203
B16		3	40522															BPLSWZ	204
B17		1	40519															BPLSWF	202
B17		2	40521															BPLSWG	203
B17		3	40523											BPLSSW	102	OVDC	101	BPLSWH	204

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED, RESISTORS VALUES ARE IN OHMS
3. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT ELECTRICAL TEST R29, R36, R37, R50, AND R51 TO BE SELECTED FROM APPROPRIATE CHART
4. TOP SIGNAL NAME AND CIRCUIT NUMBER APPLY TO POSITION B16, BOTTOM SIGNAL NAME AND CIRCUIT NUMBER APPLY TO POSITION B17 SEE CHARTS

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO. CONTRACT

DRAWN A. Di Leo DATE [illegible]
CHECKED A. Lindstrom 17 Feb 65
APPROVAL Albert Hopkins 17 Mar 65
APPROVAL Eldon C Hall 17 Mar 65
NASA APPROVAL W J Rhine 3-23-65
MIT APPROVAL W Kupfer 23 Mar 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC, ROPE DRIVER MODULE
B16 — B17

CODE IDENT NO. — SIZE E NASA DRAWING NO. 2005000
SCALE — WT — SHEET 1 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS 7740			
SYM	DESCRIPTION	DATE	APPROVAL

R36, R37, R50, R51

PART NO.	VALUE
1006788 — 29	2.5
— 30	2.6
— 31	2.7
— 32	2.8
— 33	2.9
— 34	3.0
— 35	3.1
— 36	3.2
— 37	3.3
— 38	3.4
— 39	3.5
— 40	3.6
— 41	3.7
— 42	3.8
— 43	3.9
— 44	4.0
— 45	4.1
— 46	4.2
— 47	4.3
— 48	4.4
1006788 — 49	4.5

R29

PART NO.	VALUE
1006786 —51	1.5
—53	1.6
—16	1.7
—18	1.8
—20	1.9
—22	2.0
—24	2.1
—26	2.2
—28	2.3
—15	2.4
—29	2.5
—30	2.6
—31	2.7
1006788 — 32	2.8

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING	CIRCUIT NO. USED ON MODULE NO.	CIRCUIT NO. USED ON MODULE NO.
R1	1006750 -28	RESISTOR	680	±2 %	1/4 W	40351	40354
R2	-35		1300				
R3	-39		2000				
R4	-39		2000				
R5	-35		1300				
R6	-15		200				
R7	-15		200				
R8	-15		200				
R9	-28		680			40352	40355
R10	-35		1300				
R11	-39		2000				
R12	-39		2000				
R13	-35		1300				
R14	-15		200				
R15	-15		200				
R16	-15		200				
R17	-28		680			40353	40356
R18	-35		1300				
R19	-39		2000				
R20	-39		2000				
R21	-35		1300				
R22	-15		200				
R23	-15		200				
R24	-15		200				
R25	-43		3000			40365	40366
R26	-49		5100			40311 THRU 40318	40321 THRU 40328
R27	-15		200				
R28	1006750 -22		390	±2%			
R29	SEE NOTE 3		NOM	±1%			
R30	1006750 -49		5100	±2%		40361 40362 40367	40363 40364 40368
R31	-15		200				
R32	-32		1000				
R33	-49		5100				
R34	1006750 -49		5100				
R35	1006788 -7		15	±2%			
R36	SEE NOTE 3		NOM.	±1%			
R37	SEE NOTE 3		NOM.	±1%			
R38	1006750 -49		5100	±2%		40331	40332
R39	-15		200				
R40	-39		2000				
R41	-28		680				
R42	-39		2000				
R43	-39		2000				
R44	-49		5100			40369	40370
R45	-15		200				
R46	-32		1000				
R47	-49		5100				
R48	1006750 - 49		5100				
R49	1006788 - 7		15	±2%			
R50	SEE NOTE 3		NOM	±1%			
R51	SEE NOTE 3		NOM	±1%	1/4W		
C1	1006755 -69	CAPACITOR	10 UF		35VDC	40365	40366
C2	-79		6.8UF			40510	40512
C3	-79						
C4	-79					40511	40513
C5	-79						
C6	-79					40514	40516
C7	-79					40518 40520 40522	40519 40521 40523
C8	1006755 — 79	CAPACITOR	6.8UF		35VDC	40515	40517
L1	1010406 - 8	INDUCTOR	1.0UH			40311 thru 40318	40321 thru 40328
L2	- 8		1.0UH			40361, 40362 40367	40363 40364 40368
L3	- 8		1.0UH				
L4	- 7		8.2 UH			40510	40512
L5	- 7						
L6	- 7					40511	40513
L7	- 7						
L8	- 7					40514	40516
L9	- 7					40518 40520 40522	40519 40521 40523
L10	- 7		8.2 UH			40515	40517
L11	- 8		1.0 UH			40369	40370
L12	1010406 - 8	INDUCTOR	1.0UH				

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING	CIRCUIT NO. USED ON MODULE NO.	CIRCUIT NO. USED ON MODULE NO.
CR1	1006751	DIODE				40351	40354
CR2							
CR3							
CR4							
CR5							
CR6							
CR7							
CR8							
CR9							
CR10							
CR11							
CR12						40352	40355
CR13							
CR14							
CR15							
CR16							
CR17							
CR18							
CR19							
CR20							
CR21							
CR22							
CR23						40353	40356
CR24							
CR25							
CR26							
CR27							
CR28							
CR29							
CR30							
CR31							
CR32							
CR33							
CR34						40365	40366
CR35						40311 THRU 40318	40321 THRU 40328
CR36							
CR37						40361 40362 40367	40363 40364 40368
CR38							
CR39							
CR40							
CR41						40369	40370
CR42							
CR43							
CR44	1006751	DIODE					
Q1	1006310	TRANSISTOR				40351	40354
Q2	1006323						
Q3	1006323						
Q4	1006323						
Q5	1006310					40352	40355
Q6	1006323						
Q7	1006323						
Q8	1006323						
Q9	1006310					40353	40356
Q10	1006323						
Q11							
Q12							
Q13						40311 THRU 40318	40321 THRU 40328
Q14							
Q15	1006323					40361 40362 40367	40363 40364 40368
Q16	1006310						
Q17	1006323						
Q18	1006323						
Q19	1006323					40331	40332
Q20	1006310						
Q21	1006323						
Q22	1006323					40369	40370
Q23	1006310						
Q24	1006323						
Q25	1006323	TRANSISTOR					

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO. CONTRACT

DRAWN A. Di Leo DATE 1964
CHECKED A. Lindlestone 17 Feb 65
APPROVAL Albert Hopkins 12 Mar 65
APPROVAL Eldon C. Hall 19 Mar 65
NASA APPROVAL W. J. R. 3-23-65
MIT APPROVAL 23 Mar 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC, ROPE DRIVER MODULE

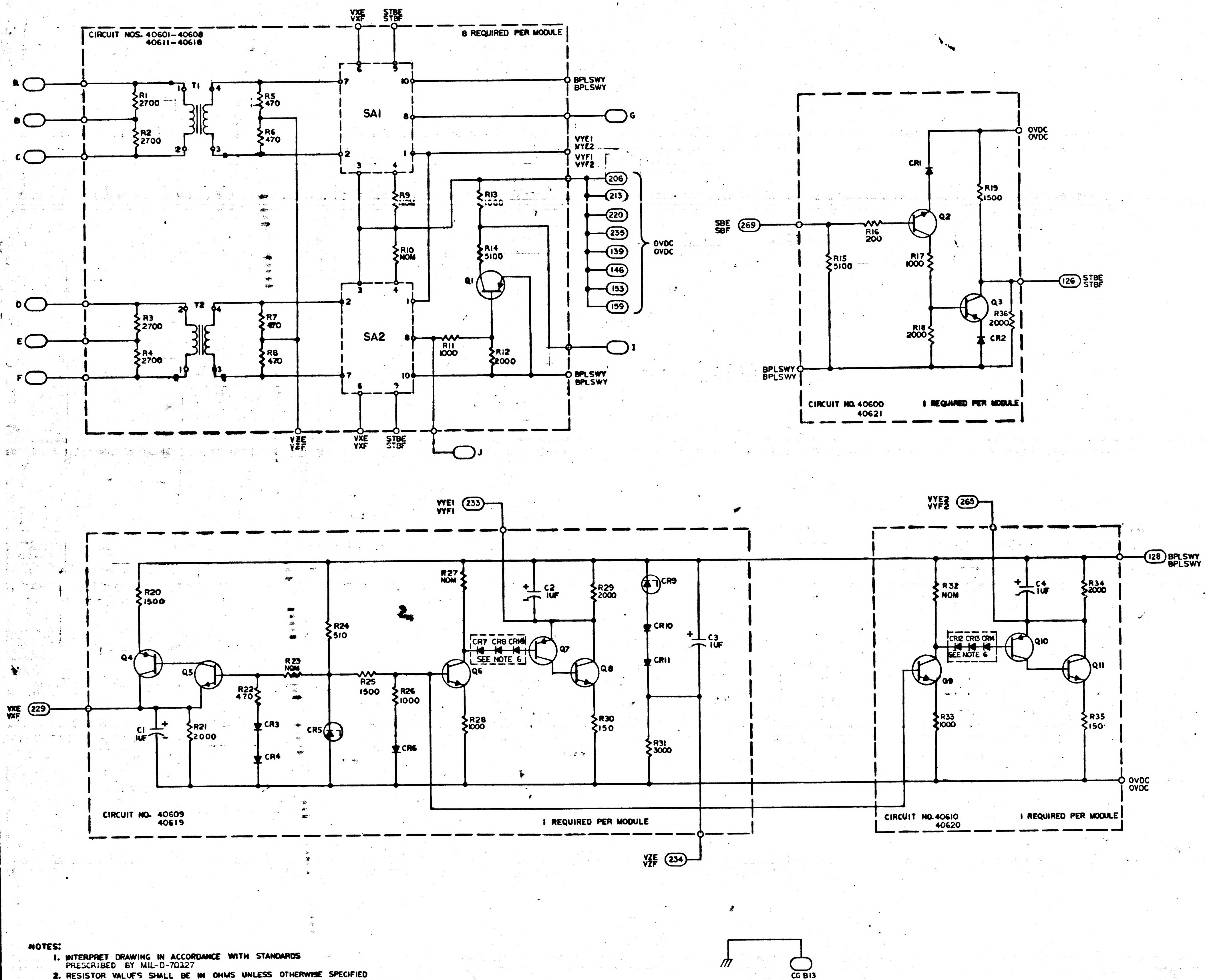
B16 — B17

CODE IDENT NO. —
SIZE E
NASA DRAWING NO. 2005000
SCALE —
WT —
SHEET 2 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS 16564

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 18037	4-14-65	


CIRCUIT NOS. 40601-40608
40611-40618
8 REQUIRED PER MODULE
VXE
VXF
STBE
STBF
A
B
C
D
E
F
G
I
J
R1 2700
R2 2700
R3 2700
R4 2700
R5 470
R6 470
R7 470
R8 470
R9 NOM
R10 NOM
R11 1000
R12 2000
R13 1000
R14 5100
T1
T2
SA1
SA2
Q1
BPLSWY
BPLSWY
VYE1
VYE2
VYF1
VYF2
206
213
220
235
139
146
153
159
0VDC
0VDC
VZE
VZF
SBE
SBF
269
CR1
Q2
R19 1500
R16 200
R15 5100
R17 1000
Q3
126
R36 2000
R18 2000
CR2
CIRCUIT NO. 40600
40621
1 REQUIRED PER MODULE
VYE1
VYF1
233
VYE2
VYF2
265
128
R20 1500
R27 NOM
C2 1UF
R29 2000
CR9
CR10
CR11
C3 1UF
R24 510
CR7 CR8 CR14
SEE NOTE 6
Q7
Q8
Q4
Q5
R23 NOM
R25 1500
R26 1000
Q6
R22 470
CR3
CR4
CR5
CR6
R28 1000
R30 150
R31 3000
VXE
VXF
229
C1 1UF
R21 2000
CIRCUIT NO. 40609
40619
1 REQUIRED PER MODULE
VZE
VZF
234
R32 NOM
C4 1UF
R34 2000
CR12 CR13 CR14
SEE NOTE 6
Q10
Q9
Q11
R33 1000
R35 150
CIRCUIT NO. 40610
40620
1 REQUIRED PER MODULE
CG B13
CG B14

REF DWG:
SENSE AMPLIFIER ASSY DWG NO.

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. RESISTOR VALUES SHALL BE IN OHMS UNLESS OTHERWISE SPECIFIED
3. CAPACITOR VALUES SHALL BE IN MICROFARADS UNLESS OTHERWISE SPECIFIED
4. NOMINAL VALUES ARE TO BE SELECTED BY ELECTRICAL TEST, CHART A AND B
5. TOP SIGNAL NAME AND CIRCUIT NUMBER APPLY IN POSITION B13
   BOTTOM SIGNAL NAME AND CIRCUIT NUMBER APPLY IN POSITION B14
   OR AS SHOWN IN CHART ON SHEET 2
6. ONE TWO OR THREE DIODES TO BE SELECTED BY ELECTRICAL TEST

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
V	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —/— DECIMALS ± —/— ANGLES ± —/—
DO NOT SCALE THIS DRAWING
MATERIAL —/—
HEAT TREATMENT —/—
FINAL FINISH —/—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO. CONTRACT
DRAWN J. F. Walsh DATE 1/24/64
CHECKED 4/7/64
APPROVAL 16 Feb 65
APPROVAL 16 Feb 65
NASA APPROVAL 2/10/65
MIT APPROVAL W Kupfer 17 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC,
SENSE AMPLIFIER MODULE
MODULE NO. B13-14

CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	E	2005002

SCALE NONE WT — SHEET 1 OF 2

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REVISIONS 16550

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 18037	4-14-65	

CHART A

R9, R10, AND R23

PART NO.	VALUE
1006750-25	510
-26	560
-27	620
-28	680
-29	750
-30	820
-31	910
-32	1000
-33	1100
-34	1200
-35	1300
-36	1500
-37	1600
-38	1800
-39	2000
-40	2200
-41	2400
-42	2700
-43	3000
-44	3300
-45	3600
-46	3900
-47	4300
-48	4700
1006750-49	5100

CHART B

R27 AND R32

PART NO.	VALUE
1006750-32	1000
-33	1100
-34	1200
-35	1300
-36	1500
-37	1600
-38	1800
-39	2000
-40	2200
-41	2400
-42	2700
-43	3000
-44	3300
-45	3600
-46	3900
-47	4300
-48	4700
1006750-49	5100

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R1	1006750-42	RESISTOR	2700	± 2 %	1/4 W
R2	-42		2700		
R3	-42		2700		
R4	-42		2700		
R5	-24		470		
R6	-24		470		
R7	-24		470		
R8	1006750-24		470		
R9	SEE CHART A		NOM		
R10	SEE CHART A		NOM		
R11	1006750-32		1000		
R12	-39		2000		
R13	-32		1000		
R14	-49		5100		
R15	-49		5100		
R16	-15		200		
R17	-32		1000		
R18	-39		2000		
R19	-36		1500		
R20	-36		1500		
R21	-39		2000		
R22	1006750-24		470		
R23	SEE CHART A		NOM		
R24	1006750-25		510		
R25	1006750-36		1500		
R26	1006750-32		1000		
R27	SEE CHART B		NOM		
R28	1006750-32		1000		
R29	1006750-39		2000		
R30	1006750-12		150		
R31	1006750-43		3000		
R32	SEE CHART B		NOM		
R33	1006750-32		1000		
R34	1006750-39		2000		
R35	1006750-12		150		
R36	1006750-39	RESISTOR	2000	± 2%	1/4 W
C1	1006755-69	CAPACITOR	1 UF	±10 %	35V DC
C2	1006755-69	CAPACITOR	1 UF	±10 %	35V DC
C3	1006755-69	CAPACITOR	1 UF	±10 %	35V DC
C4	1006755-69	CAPACITOR	1 UF	±10 %	35V DC
CR1	1006751	DIODE			
CR2	1006751				
CR3	1006751				
CR4	1006751				
CR5	1006838				
CR6	1006751				
CR7	1006751				
CR8	1006751				
CR9	1006838				
CR10	1006751				
CR11	1006751				
CR12	1006751				
CR13	1006751				
CR14	1006751				
CR15	1006751	DIODE			
Q1	1006310	TRANSISTOR			
Q2	1006323				
Q3	1006310				
Q4	1006310				
Q5	1006323				
Q6	1006323				
Q7	1006310				
Q8	1006323				
Q9	1006323				
Q10	1006310				
Q11	1006323	TRANSISTOR			
T1	1006293	TRANSFORMER			
T2	1006293	TRANSFORMER			
SA1	1006769	SENSE AMPL			
SA2	1006769	SENSE AMPL			

		A		B		C		D		E		F		G		H		I		J	
	COMP PREFIX NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.
B13	7	SAF 01	255	NC	154	SBF 01	253	SAF 02	152	NC	251	SBF 02	151	40611A	252	VYE 1	233	SA 02	156	40601A	256
	6	SAF 03	248	NC	147	SBF 03	246	SAF 04	145	NC	244	SBF 04	143	40612A	245	VYE 1	233	SA 04	150	40602A	249
	5	SAF 05	241	NC	140	SBF 05	239	SAF 06	138	NC	237	SBF 06	136	40613A	238	VYE 1	233	SA 06	142	40603A	242
	4	SAF 07	225	NC	125	SBF 07	223	SAF 08	123	NC	221	SBF 08	121	40614A	222	VYE 1	233	SA 08	127	40604A	226
	3	SAF 09	218	NC	117	SBF 09	216	SAF 10	116	NC	214	SBF 10	114	40615A	215	VYE 2	265	SA 10	120	40605A	219
	2	SAF 11	210	NC	110	SBF 11	209	SAF 12	109	NC	207	SBF 12	107	40616A	208	VYE 2	265	SA 12	113	40606A	212
	1	SAF 13	204	NC	103	SBF 13	203	SAF 14	102	NC	201	SBF 14	101	40617A	202	VYE 2	265	SA 14	105	40607A	205
	8	SAF 15	263	NC	162	SBF 15	261	SAF 16	158	NC	258	SBF 16	157	40618A	260	VYE 2	265	SA 16	164	40608A	263
B14	7	GAR 02	255	BPLSWX	154	GBR 02	253	GAR 01	152	BPLSWX	251	GBR 01	151	40601A	252	VYF 1	233		156	40611 A	256
	6	GAR 04	248	BPLSWX	147	GBR 04	246	GAR 03	145	BPLSWX	244	GBR 03	143	40602 A	245	VYF 1	233		150	40612 A	249
	5	GAR 06	241	BPLSWX	140	GBR 06	239	GAR 05	138	BPLSWX	237	GBR 05	136	40603A	238	VYF 1	233		142	40613 A	242
	4	GAR 08	225	BPLSWX	125	GBR 08	223	GAR 07	123	BPLSWX	221	GBR 07	121	40604 A	222	VYF 1	233		127	40614 A	226
	3	GAR 10	218	BPLSWX	117	GBR 10	216	GAR 09	116	BPLSWX	214	GBR 09	114	40605 A	215	VYF 2	265		120	40615 A	219
	2	GAR 12	210	BPLSWX	110	GBR 12	209	GAR 11	109	BPLSWX	207	GBR 11	107	40606 A	208	VYF 2	265		113	40616 A	212
	1	GAR 14	204	BPLSWX	103	GBR 14	203	GAR 13	102	BPLSWX	201	GBR 13	101	40607 A	202	VYF 2	265		105	40617 A	205
	8	GAR 16	263	BPLSWX	162	GBR 16	261	GAR 15	158	BPLSWX	258	GBR 15	157	40608 A	260	VYF 2	265		164	40618 A	263

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO. CONTRACT
DRAWN J. F. Walsh DATE 2/21/64
CHECKED cc 4/7/64
APPROVAL Albert Hopkins 16 Feb 65
APPROVAL Eldon C Hall 11 Feb 65
NASA APPROVAL 2/11/65
MIT APPROVAL 11 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

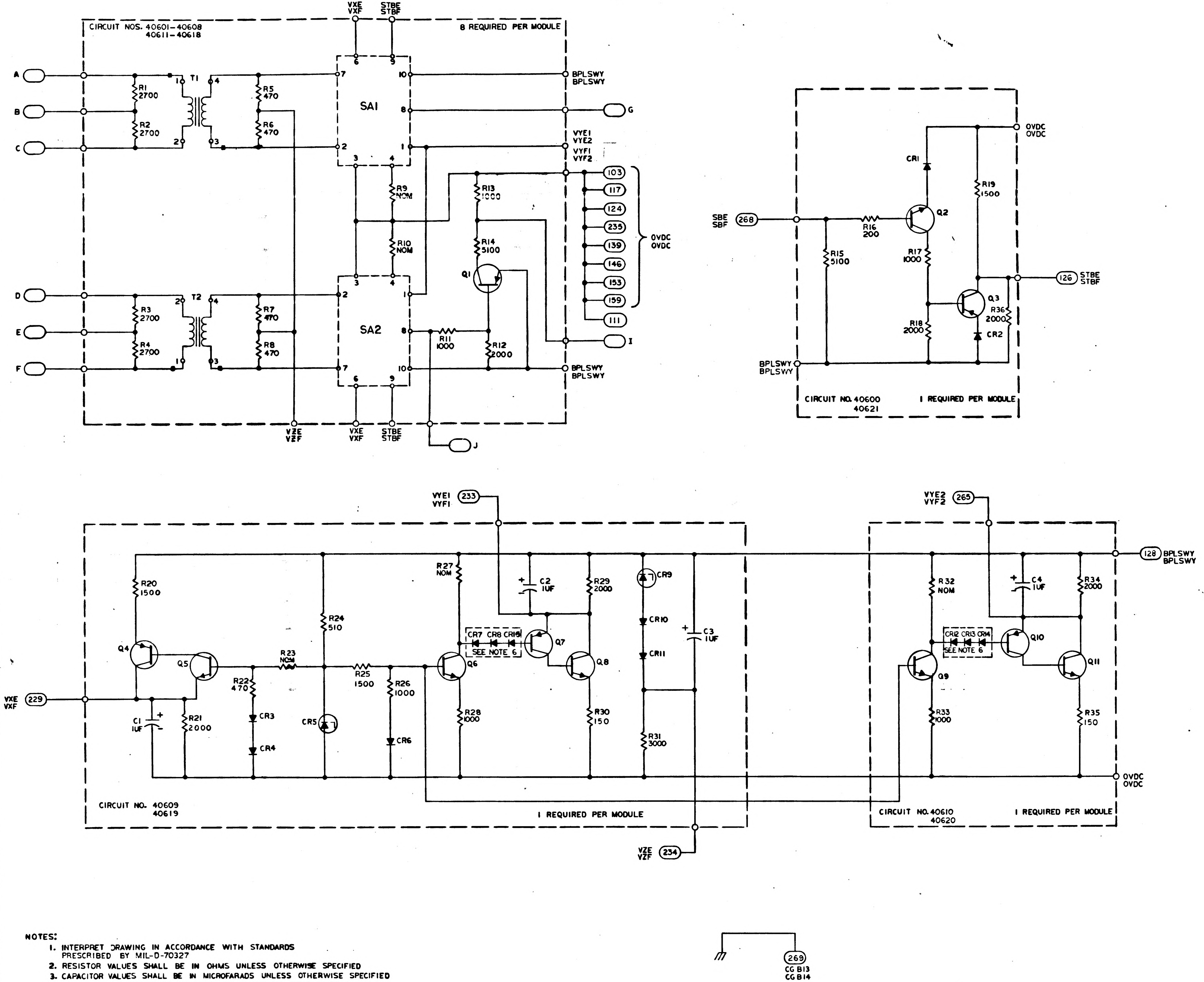
SCHEMATIC, SENSE AMPLIFIER MODULE

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 2005002
SCALE NONE
WT —
SHEET 2 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS 16564

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 18037	4-14-65	WK
B	REVISED PER TDRR 19220	24 Jun 65	WK


CIRCUIT NOS. 40601–40608
40611–40618
8 REQUIRED PER MODULE
VXE
VXF
STBE
STBF
A
B
C
D
E
F
G
I
J
R1
2700
R2
2700
R3
2700
R4
2700
T1
T2
R5
470
R6
470
R7
470
R8
470
SA1
SA2
R9
NOM
R10
NOM
R11
1000
R12
2000
R13
1000
R14
5100
Q1
BPLSWY
BPLSWY
VYE1
VYE2
VYF1
VYF2
103
117
124
235
139
146
153
159
111
OVDC
OVDC
VZE
VZF
SBE
SBF
268
CR1
Q2
R15
5100
R16
200
R17
1000
R18
2000
R19
1500
Q3
R36
2000
CR2
126
CIRCUIT NO. 40600
40621
1 REQUIRED PER MODULE
VYE1
VYF1
233
VYE2
VYF2
265
128
229
R20
1500
Q4
Q5
C1
1UF
R21
2000
R22
470
CR3
CR4
R23
NOM
R24
510
CR5
R25
1500
R26
1000
CR6
R27
NOM
Q6
R28
1000
CR7 CR8 CR15
SEE NOTE 6
Q7
C2
1UF
R29
2000
Q8
R30
150
CR9
CR10
CR11
R31
3000
C3
1UF
CIRCUIT NO. 40609
40619
1 REQUIRED PER MODULE
234
R32
NOM
C4
1UF
R34
2000
CR12 CR13 CR14
SEE NOTE 6
Q9
Q10
Q11
R33
1000
R35
150
CIRCUIT NO. 40610
40620
1 REQUIRED PER MODULE
269
CG B13
CG B14

REF DWG:
SENSE AMPLIFIER ASSY DWG NO. 2003043

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. RESISTOR VALUES SHALL BE IN OHMS UNLESS OTHERWISE SPECIFIED
3. CAPACITOR VALUES SHALL BE IN MICROFARADS UNLESS OTHERWISE SPECIFIED
4. NOMINAL VALUES ARE TO BE SELECTED BY ELECTRICAL TEST, CHART A AND B
5. TOP SIGNAL NAME AND CIRCUIT NUMBER APPLY IN POSITION B13
BOTTOM SIGNAL NAME AND CIRCUIT NUMBER APPLY IN POSITION B14
OR AS SHOWN IN CHART ON SHEET 2
6. ONE TWO OR THREE DIODES TO BE SELECTED BY ELECTRICAL TEST

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO. CONTRACT
DRAWN J.F. Walsh DATE 2/24/64
CHECKED 4/7/64
APPROVAL 16 Feb 65
APPROVAL 16 Feb 65
NASA APPROVAL 2/10/65
MIT APPROVAL W Kupfer 17 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC,
SENSE AMPLIFIER MODULE
MODULE NO. B13-14

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO 2005002
SCALE NONE
WT —
SHEET 1 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 16560

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 18037	4-14-65	
B	REVISED PER TDRR 19220	[illegible] 65	

CHART A

R9, R10, AND R23

PART NO.	VALUE
1006750-25	510
-26	560
-27	620
-28	680
-29	750
-30	820
-31	910
-32	1000
-33	1100
-34	1200
-35	1300
-36	1500
-37	1600
-38	1800
-39	2000
-40	2200
-41	2400
-42	2700
-43	3000
-44	3300
-45	3600
-46	3900
-47	4300
-48	4700
1006750-49	5100

CHART B

R27 AND R32

PART NO.	VALUE
1006750-32	1000
-33	1100
-34	1200
-35	1300
-36	1500
-37	1600
-38	1800
-39	2000
-40	2200
-41	2400
-42	2700
-43	3000
-44	3300
-45	3600
-46	3900
-47	4300
-48	4700
1006750-49	5100

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R1	1006750-42	RESISTOR	2700	± 2 %	1/4 W
R2	-42		2700		
R3	-42		2700		
R4	-42		2700		
R5	-24		470		
R6	-24		470		
R7	-24		470		
R8	1006750-24		470		
R9	SEE CHART A		NOM		
R10	SEE CHART A		NOM		
R11	1006750-32		1000		
R12	-39		2000		
R13	-32		1000		
R14	-49		5100		
R15	-49		5100		
R16	-15		200		
R17	-32		1000		
R18	-39		2000		
R19	-36		1500		
R20	-36		1500		
R21	-39		2000		
R22	1006750-24		470		
R23	SEE CHART A		NOM		
R24	1006750-25		510		
R25	1006750-36		1500		
R26	1006750-32		1000		
R27	SEE CHART B		NOM		
R28	1006750-32		1000		
R29	1006750-39		2000		
R30	1006750-12		150		
R31	1006750-43		3000		
R32	SEE CHART B		NOM		
R33	1006750-32		1000		
R34	1006750-39		2000		
R35	1006750-12		150		
R36	1006750-39	RESISTOR	2000	± 2%	1/4 W
C1	1006755-69	CAPACITOR	1 UF	±10 %	35V DC
C2	1006755-69	CAPACITOR	1 UF	±10 %	35V DC
C3	1006755-69	CAPACITOR	1 UF	±10 %	35V DC
C4	1006755-69	CAPACITOR	1 UF	±10 %	35V DC
CR1	2004103-001	DIODE			
CR2	2004103-001				
CR3	2004103-001				
CR4	2004103-001				
CR5	2004112-002				
CR6	2004103-001				
CR7	2004103-001				
CR8	2004103-001				
CR9	2004112-002				
CR10	2004103-001				
CR11	2004103-001				
CR12	2004103-001				
CR13	2004103-001				
CR14	2004103-001				
CR15	2004103-001	DIODE			
Q1	2004004-002	TRANSISTOR			
Q2	-001				
Q3	-002				
Q4	-002				
Q5	-001				
Q6	-001				
Q7	-002				
Q8	-001				
Q9	-001				
Q10	-002				
Q11	2004004-001	TRANSISTOR			
T1	1006293	TRANSFORMER			
T2	1006293	TRANSFORMER			
SA1	2004003-001	SENSE AMPL			
SA2	2004003-001	SENSE AMPL			

		A		B		C		D		E		F		G		H		I		J	
	COMP PREFIX NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.
B13	7	SAF 01	255	NC	154	SBF 01	253	SAF 02	152	NC	251	SBF 02	151	40611A	252	VYE 1	233	SA 02	156	40601 A	256
	6	SAF 03	248	NC	147	SBF 03	246	SAF 04	145	NC	244	SBF 04	143	40612A	245	VYE 1	233	SA 04	150	40602A	249
	5	SAF 05	241	NC	140	SBF 05	239	SAF 06	138	NC	237	SBF 06	136	40613A	238	VYE 1	233	SA 06	142	40603A	242
	4	SAF 07	225	NC	125	SBF 07	223	SAF 08	123	NC	221	SBF 08	121	40614A	222	VYE 1	233	SA 08	127	40604A	226
	3	SAF 09	218	NC	117	SBF 09	216	SAF 10	116	NC	214	SBF 10	114	40615A	215	VYE 2	265	SA 10	120	40605A	219
	2	SAF 11	210	NC	110	SBF 11	209	SAF 12	109	NC	207	SBF 12	107	40616A	208	VYE 2	265	SA 12	113	40606A	212
	1	SAF 13	204	NC	104	SBF 13	203	SAF 14	102	NC	201	SBF 14	101	40617A	202	VYE 2	265	SA 14	105	40607A	205
	8	SAF 15	262	NC	162	SBF 15	261	SAF 16	158	NC	258	SBF 16	157	40618A	260	VYE 2	265	SA 16	164	40608A	263
B14	7	GAR 02	255	BPLSWX	154	GBR 02	253	GAR 01	152	BPLSWX	251	GBR 01	151	40601A	252	VYF 1	233		156	40611 A	256
	6	GAR 04	248	BPLSWX	147	GBR 04	246	GAR 03	145	BPLSWX	244	GBR 03	143	40602 A	245	VYF 1	233		150	40612 A	249
	5	GAR 06	241	BPLSWX	140	GBR 06	239	GAR 05	138	BPLSWX	237	GBR 05	136	40603A	238	VYF 1	233		142	40613 A	242
	4	GAR 08	225	BPLSWX	125	GBR 08	223	GAR 07	123	BPLSWX	221	GBR 07	121	40604A	222	VYF 1	233		127	40614 A	226
	3	GAR 10	218	BPLSWX	118	GBR 10	216	GAR 09	116	BPLSWX	214	GBR 09	114	40605 A	215	VYF 2	265		120	40615 A	219
	2	GAR 12	210	BPLSWX	110	GBR 12	209	GAR 11	109	BPLSWX	207	GBR 11	107	40606 A	208	VYF 2	265		113	40616 A	212
	1	GAR 14	204	BPLSWX	103	GBR 14	203	GAR 13	102	BPLSWX	201	GBR 13	101	40607 A	202	VYF 2	265		105	40617 A	205
	8	GAR 16	262	BPLSWX	162	GBR 16	261	GAR 15	158	BPLSWX	258	GBR 15	157	40608 A	260	VYF 2	265		164	40618 A	263

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± // DECIMALS ± // ANGLES ± //
DO NOT SCALE THIS DRAWING
MATERIAL //
HEAT TREATMENT //
FINAL FINISH //

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG NO CONTRACT
DRAWN J.F. [illegible] DATE 2/21/64
CHECKED [illegible] 4/7/64
APPROVAL Albert Hopkins [illegible]
APPROVAL Eldon C. Hall 11 Feb 65
NASA APPROVAL [illegible] 2/11/65
MIT APPROVAL [illegible] 11 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

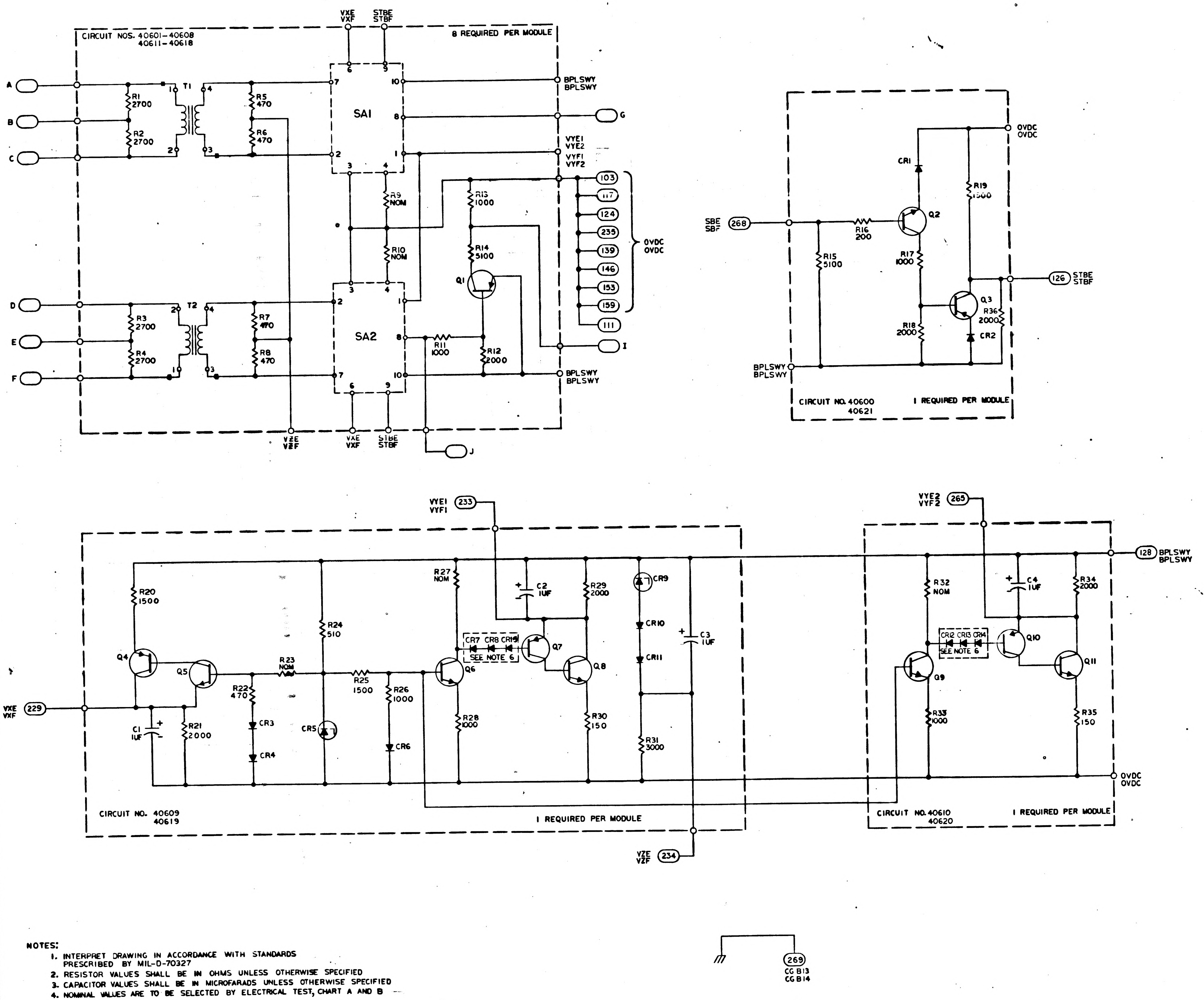
SCHEMATIC, SENSE AMPLIFIER MODULE
MODULE NO. B13-14

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 2005002
SCALE NONE
WT —
SHEET 2 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE USE OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS 16564

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 18037	4-14-65	WK
B	REVISED PER TDRR 19220	26 ... 65	WK
C	REVISED PER TDRR 20098	21JUN65	WK



CIRCUIT NOS. 40601-40608
40611-40618
8 REQUIRED PER MODULE
VXE
VXF
STBE
STBF
A
B
C
D
E
F
G
I
J
T1
T2
R1 2700
R2 2700
R3 2700
R4 2700
R5 470
R6 470
R7 470
R8 470
SA1
SA2
R9 NOM
R10 NOM
R11 1000
R12 2000
R13 1000
R14 5100
Q1
BPLSWY
BPLSWY
VYE1
VYE2
VYF1
VYF2
103
117
124
235
139
146
153
159
111
OVDC
OVDC
VZE
VZF
SBE
SBF
268
CR1
R15 5100
R16 200
R17 1000
R18 2000
R19 1500
Q2
Q3
R36 2000
CR2
126
STBE
STBF
CIRCUIT NO. 40600
40621
1 REQUIRED PER MODULE
VYE1
VYF1
233
VXE
VXF
229
R20 1500
R21 2000
R22 470
R23 NOM
R24 510
R25 1500
R26 1000
R27 NOM
R28 1000
R29 2000
R30 150
R31 3000
C1 1UF
C2 1UF
C3 1UF
Q4
Q5
Q6
Q7
Q8
CR3
CR4
CR5
CR6
CR7 CR8 CR19
SEE NOTE 6
CR9
CR10
CR11
CIRCUIT NO. 40609
40619
1 REQUIRED PER MODULE
VZE
VZF
234
VYE2
VYF2
265
128
BPLSWY
BPLSWY
R32 NOM
R33 1000
R34 2000
R35 150
C4 1UF
CR12 CR13 CR14
SEE NOTE 6
Q9
Q10
Q11
OVDC
OVDC
CIRCUIT NO. 40610
40620
1 REQUIRED PER MODULE
269
CG B13
CG B14

REF DWG:
SENSE AMPLIFIER ASSY DWG NO. 2003043

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. RESISTOR VALUES SHALL BE IN OHMS UNLESS OTHERWISE SPECIFIED
3. CAPACITOR VALUES SHALL BE IN MICROFARADS UNLESS OTHERWISE SPECIFIED
4. NOMINAL VALUES ARE TO BE SELECTED BY ELECTRICAL TEST, CHART A AND B
5. TOP SIGNAL NAME AND CIRCUIT NUMBER APPLY IN POSITION B13
   BOTTOM SIGNAL NAME AND CIRCUIT NUMBER APPLY IN POSITION B14
   OR AS SHOWN IN CHART ON SHEET 2
6. ONE TWO OR THREE DIODES TO BE SELECTED BY ELECTRICAL TEST

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

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DIMENSIONS ARE IN INCHES
TOLERANCES ON
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DO NOT SCALE THIS DRAWING
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DWG NO CONTRACT
DRAWN J.T. Walsh DATE 1/24/64
CHECKED 4/7/64
APPROVAL 16 Feb 65
APPROVAL 16 Feb 65
NASA APPROVAL 2/10/65
MIT APPROVAL W Kupfer 17 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC,
SENSE AMPLIFIER MODULE
MODULE NO. B13-14

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO 2005002
SCALE NONE
WT —
SHEET 1 OF 2

2005002 C

MASTER

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS 16560

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 18037	4-14-65	
B	REVISED PER TDRR 19220	[illegible]	
C	REVISED PER TDRR 20098	2JAN65	

CHART A

R9, R10, AND R23

PART NO.	VALUE
1006750-25	510
-26	560
-27	620
-28	680
-29	750
-30	820
-31	910
-32	1000
-33	1100
-34	1200
-35	1300
-36	1500
-37	1600
-38	1800
-39	2000
-40	2200
-41	2400
-42	2700
-43	3000
-44	3300
-45	3600
-46	3900
-47	4300
-48	4700
1006750-49	5100

CHART B

R27 AND R32

PART NO.	VALUE
1006750-32	1000
-33	1100
-34	1200
-35	1300
-36	1500
-37	1600
-38	1800
-39	2000
-40	2200
-41	2400
-42	2700
-43	3000
-44	3300
-45	3600
-46	3900
-47	4300
-48	4700
1006750-49	5100

		A		B		C		D		E		F		G		H		I		J	
	COMP PREFIX NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.
B13	7	SAF 01	255	NC	154	SBF 01	253	SAF 02	152	NC	251	SBF 02	151	40611A	252	VYE 1	233	SA 02	156	40601A	256
	6	SAF 03	248	NC	147	SBF 03	246	SAF 04	145	NC	244	SBF 04	143	40612A	245	VYE 1	233	SA 04	150	40602A	249
	5	SAF 05	241	NC	140	SBF 05	239	SAF 06	138	NC	237	SBF 06	136	40613A	238	VYE 1	233	SA 06	142	40603A	242
	4	SAF 07	225	NC	125	SBF 07	223	SAF 08	123	NC	221	SBF 08	121	40614A	222	VYE 1	233	SA 08	127	40604A	226
	3	SAF 09	218	NC	118	SBF 09	216	SAF 10	116	NC	214	SBF 10	114	40615A	215	VYE 2	265	SA 10	120	40605A	219
	2	SAF 11	210	NC	110	SBF 11	209	SAF 12	109	NC	207	SBF 12	107	40616A	208	VYE 2	265	SA 12	113	40606A	212
	1	SAF 13	204	NC	104	SBF 13	203	SAF 14	102	NC	201	SBF 14	101	40617A	202	VYE 2	265	SA 14	105	40607A	205
	8	SAF 15	262	NC	162	SBF 15	261	SAF 16	158	NC	258	SBF 16	157	40618A	260	VYE 2	265	SA 16	164	40608A	263
B14	7	GAR 02	255	BPLSWX	154	GBR 02	253	GAR 01	152	BPLSWX	251	GBR 01	151	40601A	252	VYF 1	233		156	40611 A	256
	6	GAR 04	248	BPLSWX	147	GBR 04	246	GAR 03	145	BPLSWX	244	GBR 03	143	40602 A	245	VYF 1	233		150	40612 A	249
	5	GAR 06	241	BPLSWX	140	GBR 06	239	GAR 05	138	BPLSWX	237	GBR 05	136	40603A	238	VYF 1	233		142	40613 A	242
	4	GAR 08	225	BPLSWX	125	GBR 08	223	GAR 07	123	BPLSWX	221	GBR 07	121	40604 A	222	VYF 1	233		127	40614 A	226
	3	GAR 10	218	BPLSWX	118	GBR 10	216	GAR 09	116	BPLSWX	214	GBR 09	114	40605 A	215	VYF 2	265		120	40615 A	219
	2	GAR 12	210	BPLSWX	110	GBR 12	209	GAR 11	109	BPLSWX	207	GBR 11	107	40606 A	208	VYF 2	265		113	40616 A	212
	1	GAR 14	204	BPLSWX	104	GBR 14	203	GAR 13	102	BPLSWX	201	GBR 13	101	40607 A	202	VYF 2	265		105	40617 A	205
	8	GAR 16	262	BPLSWX	162	GBR 16	261	GAR 15	158	BPLSWX	258	GBR 15	157	40608 A	260	VYF 2	265		164	40618 A	263

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R1	1006750-42	RESISTOR	2700	± 2 %	1/4 W
R2	-42		2700		
R3	-42		2700		
R4	-42		2700		
R5	-24		470		
R6	-24		470		
R7	-24		470		
R8	1006750-24		470		
R9	SEE CHART A		NOM		
R10	SEE CHART A		NOM		
R11	1006750-32		1000		
R12	-39		2000		
R13	-32		1000		
R14	-49		5100		
R15	-49		5100		
R16	-15		200		
R17	-32		1000		
R18	-39		2000		
R19	-36		1500		
R20	-36		1500		
R21	-39		2000		
R22	1006750-24		470		
R23	SEE CHART A		NOM		
R24	1006750-25		510		
R25	1006750-36		1500		
R26	1006750-32		1000		
R27	SEE CHART B		NOM		
R28	1006750-32		1000		
R29	1006750-39		2000		
R30	1006750-12		150		
R31	1006750-43		3000		
R32	SEE CHART B		NOM		
R33	1006750-32		1000		
R34	1006750-39		2000		
R35	1006750-12		150		
R36	1006750-39	RESISTOR	2000	± 2%	1/4 W
C1	1006755-69	CAPACITOR	1 UF	±10 %	35V DC
C2	1006755-69	CAPACITOR	1 UF	±10 %	35V DC
C3	1006755-69	CAPACITOR	1 UF	±10%	35V DC
C4	1006755-69	CAPACITOR	1 UF	±10%	35V DC
CR1	2004103-001	DIODE			
CR2	2004103-001				
CR3	2004103-001				
CR4	2004103-001				
CR5	2004112-002				
CR6	2004103-001				
CR7	2004103-001				
CR8	2004103-001				
CR9	2004112-002				
CR10	2004103-001				
CR11	2004103-001				
CR12	2004103-001				
CR13	2004103-001				
CR14	2004103-001				
CR15	2004103-001	DIODE			
Q1	2004004-002	TRANSISTOR			
Q2	-001				
Q3	-002				
Q4	-002				
Q5	-001				
Q6	-001				
Q7	-002				
Q8	-001				
Q9	-001				
Q10	-002				
Q11	2004004-001	TRANSISTOR			
T1	1006293	TRANSFORMER			
T2	1006293	TRANSFORMER			
SA1	2004003-001	SENSE AMPL			
SA2	2004003-001	SENSE AMPL			

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN J. F. Walsh DATE 2/21/64
CHECKED [illegible] 9/1/64
APPROVAL Albert Hopkins 16 Feb 65
APPROVAL Eldon C Hall 11 Feb 65
NASA APPROVAL [illegible] 2/11/65
MIT APPROVAL [illegible] 11 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC, SENSE AMPLIFIER MODULE MODULE NO. B13-14

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO 2005002
SCALE NONE
WT —
SHEET 2 OF 2

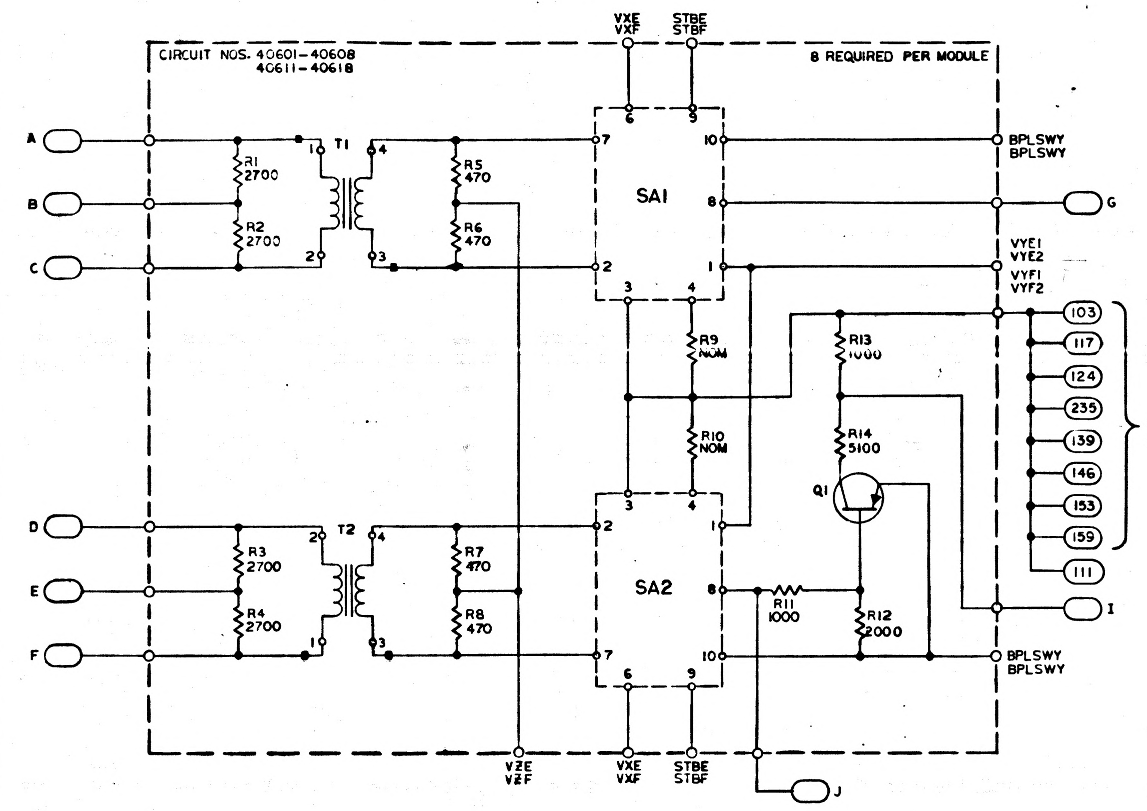
2005002 C

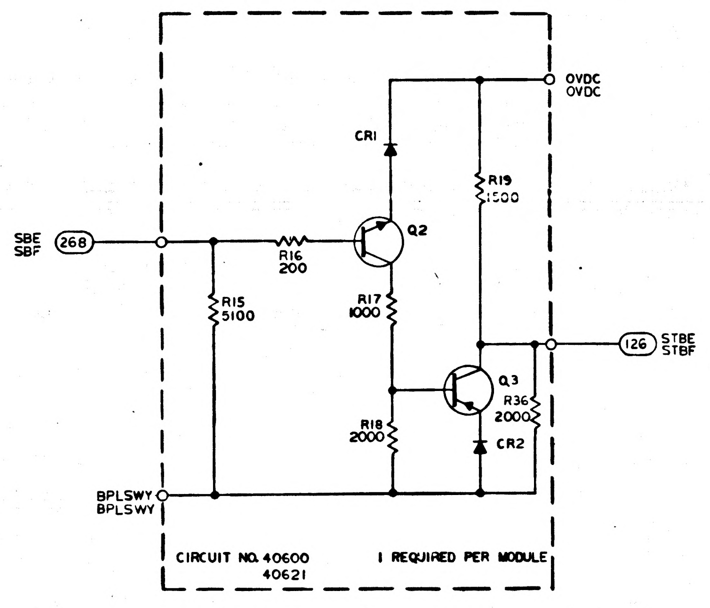
MASTER

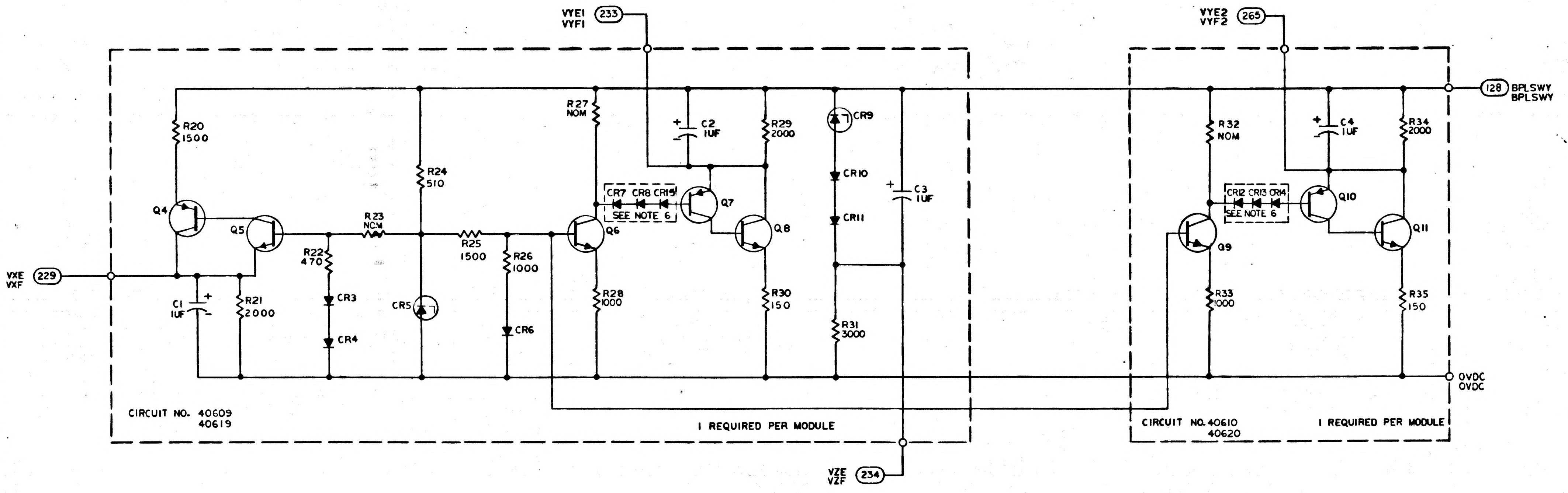
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS 16564

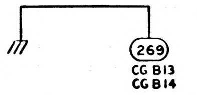
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 18037	4-14-65	WK
B	REVISED PER TDRR 19220	24 May 65	WK
C	REVISED PER TDRR 20098	21JUN65	WK
D	REVISED PER TDRR 21253	[illegible] 65	[illegible]


CIRCUIT NOS. 40601-40608
40611-40618
8 REQUIRED PER MODULE
VXE
VXF
STBE
STBF
A
B
C
D
E
F
R1 2700
R2 2700
R3 2700
R4 2700
T1
T2
R5 470
R6 470
R7 470
R8 470
SA1
SA2
R9 NOM
R10 NOM
R13 1000
R14 5100
Q1
R11 1000
R12 2000
BPLSWY
BPLSWY
G
VYE1
VYE2
VYF1
VYF2
103
117
124
235
139
146
153
159
0VDC
0VDC
111
I
VZE
VZF
J


0VDC
0VDC
SBE
SBF
268
CR1
Q2
R16 200
R15 5100
R17 1000
R18 2000
R19 1500
Q3
R36 2000
CR2
126
STBE
STBF
BPLSWY
BPLSWY
CIRCUIT NO. 40600
40621
1 REQUIRED PER MODULE


VYE1
VYF1
233
VYE2
VYF2
265
128
BPLSWY
BPLSWY
R20 1500
Q4
Q5
VXE
VXF
229
C1 1UF
R21 2000
R22 470
CR3
CR4
R23 NOM
R24 510
CR5
R25 1500
R26 1000
CR6
R27 NOM
Q6
R28 1000
CR7 CR8 CR15
SEE NOTE 6
C2 1UF
Q7
R29 2000
Q8
R30 150
CR9
CR10
CR11
C3 1UF
R31 3000
R32 NOM
C4 1UF
R34 2000
CR12 CR13 CR14
SEE NOTE 6
Q9
Q10
Q11
R33 1000
R35 150
0VDC
0VDC
CIRCUIT NO. 40609
40619
1 REQUIRED PER MODULE
CIRCUIT NO. 40610
40620
1 REQUIRED PER MODULE
VZE
VZF
234

REF DWG:
SENSE AMPLIFIER ASSY DWG NO. 2003043


269
CG B13
CG B14

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. RESISTOR VALUES SHALL BE IN OHMS UNLESS OTHERWISE SPECIFIED
3. CAPACITOR VALUES SHALL BE IN MICROFARADS UNLESS OTHERWISE SPECIFIED
4. NOMINAL VALUES ARE TO BE SELECTED BY ELECTRICAL TEST, CHART A AND B
5. TOP SIGNAL NAME AND CIRCUIT NUMBER APPLY IN POSITION B13
   BOTTOM SIGNAL NAME AND CIRCUIT NUMBER APPLY IN POSITION B14
   OR AS SHOWN IN CHART ON SHEET 2
6. ONE TWO OR THREE DIODES TO BE SELECTED BY ELECTRICAL TEST

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN J.F. Walsh DATE 1/24/64
CHECKED [illegible] 4/7/64
APPROVAL [illegible] 16 Feb 65
APPROVAL Eldon C. Hall 16 Feb 65
NASA APPROVAL [illegible]
MIT APPROVAL W Kupfer 17 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC, SENSE AMPLIFIER MODULE

MODULE NO. B13-14

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 2005002
SCALE NONE
WT —
SHEET 1 OF 2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS 16560

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 18037	4-14-65	WK
B	REVISED PER TDRR 19220	[illegible] 66	WK
C	REVISED PER TDRR 20098	21JAN65	WK
D	REVISED PER TDRR 21253	[illegible] 65	[illegible]

CHART A

R9, R10, AND R23

PART NO.	VALUE
1006750-25	510
-26	560
-27	620
-28	680
-29	750
-30	820
-31	910
-32	1000
-33	1100
-34	1200
-35	1300
-36	1500
-37	1600
-38	1800
-39	2000
-40	2200
-41	2400
-42	2700
-43	3000
-44	3300
-45	3600
-46	3900
-47	4300
-48	4700
1006750-49	5100

CHART B

R27 AND R32

PART NO.	VALUE
1006750-32	1000
-33	1100
-34	1200
-35	1300
-36	1500
-37	1600
-38	1800
-39	2000
-40	2200
-41	2400
-42	2700
-43	3000
-44	3300
-45	3600
-46	3900
-47	4300
-48	4700
1006750-49	5100

		A		B		C		D		E		F		G		H		I		J	
	COMP PREFIX NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.
B13	7	SAF 01	255	NC	154	SBF 01	253	SAF 02	152	NC	251	SBF 02	151	40611A	252	VYE1	233	SA 02	156	40601A	256
	6	SAF 03	248	NC	147	SBF 03	246	SAF 04	145	NC	244	SBF 04	143	40612A	245	VYE1	233	SA 04	150	40602A	249
	5	SAF 05	241	NC	140	SBF 05	239	SAF 06	138	NC	237	SBF 06	136	40613A	238	VYE1	233	SA 06	142	40603A	242
	4	SAF 07	225	NC	125	SBF 07	223	SAF 08	123	NC	221	SBF 08	121	40614A	222	VYE1	233	SA 08	127	40604A	226
	3	SAF 09	218	NC	118	SBF 09	216	SAF 10	116	NC	214	SBF 10	114	40615A	215	VYE2	265	SA 10	120	40605A	219
	2	SAF 11	210	NC	110	SBF 11	209	SAF 12	109	NC	207	SBF 12	107	40616A	208	VYE2	265.	SA 12	113	40606A	212
	1	SAF 13	204	NC	104	SBF 13	203	SAF 14	102	NC	201	SBF 14	101	40617A	202	VYE2	265	SA 14	105	40607A	205
	8	SAF 15	262	NC	162	SBF 15	261	SAF 16	158	NC	258	SBF 16	157	40618A	260	VYE2	265	SA 16	164	40608A	263
B14	7	GAR 02	255	BPLSWX	154	GBR 02	253	GAR 01	152	BPLSWX	251	GBR 01	151	40601A	252	VYF 1	233	SA 01	156	40611 A	256
	6	GAR 04	248	BPLSWX	147	GBR 04	246	GAR 03	145	BPLSWX	244	GBR 03	143	40602 A	245	VYF 1	233	SA 03	150	40612 A	249
	5	GAR 06	241	BPLSWX	140	GBR 06	239	GAR 05	138	BPLSWX	237	GBR 05	136	40603A	238	VYF 1	233	SA 05	142	40613 A	242
	4	GAR 08	225	BPLSWX	125	GBR 08	223	GAR 07	123	BPLSWX	221	GBR 07	121	40604 A	222	VYF 1	233	SA 07	127	40614 A	226
	3	GAR 10	218	BPLSWX	118	GBR 10	216	GAR 09	116	BPLSWX	214	GBR 09	114	40605 A	215	VYF 2	265	SA 09	120	40615 A	219
	2	GAR 12	210	BPLSWX	110	GBR 12	209	GAR 11	109	BPLSWX	207	GBR 11	107	40606 A	208	VYF 2	265	SA 11	113	40616 A	212
	1	GAR 14	204	BPLSWX	104	GBR 14	203	GAR 13	102	BPLSWX	201	GBR 13	101	40607 A	202	VYF 2	265	SA 13	105	40617 A	205
	8	GAR 16	262	BPLSWX	162	GBR 16	261	GAR 15	158	BPLSWX	258	GBR 15	157	40608 A	260	VYF 2	265	SA P	164	40618 A	263

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R1	1006750-42	RESISTOR	2700	± 2 %	1/4 W
R2	-42		2700		
R3	-42		2700		
R4	-42		2700		
R5	-24		470		
R6	-24		470		
R7	-24		470		
R8	1006750-24		470		
R9	SEE CHART A		NOM		
R10	SEE CHART A		NOM		
R11	1006750-32		1000		
R12	-39		2000		
R13	-32		1000		
R14	-49		5100		
R15	-49		5100		
R16	-15		200		
R17	-32		1000		
R18	-39		2000		
R19	-36		1500		
R20	-36		1500		
R21	-39		2000		
R22	1006750-24		470		
R23	SEE CHART A		NOM		
R24	1006750-25		510		
R25	1006750-36		1500		
R26	1006750-32		1000		
R27	SEE CHART B		NOM		
R28	1006750-32.		1000		
R29	1006750-39		2000		
R30	1006750-12		150		
R31	1006750-43		3000		
R32	SEE CHART B		NOM		
R33	1006750-32		1000		
R34	1006750-39		2000		
R35	1006750-12		150		
R36	1006750-39	RESISTOR	2000	± 2%	1/4 W
C1	1006755-69	CAPACITOR	1 UF	±10 %	35V DC
C2	1006755-69	CAPACITOR	1 UF	±10 %	35V DC
C3	1006755-69	CAPACITOR	1 UF	±10%	35V DC
C4	1006755-69	CAPACITOR	1 UF	±10%	35V DC
CR1	2004103-001	DIODE			
CR2	2004103-001				
CR3	2004103-001				
CR4	2004103-001				
CR5	2004112-002				
CR6	2004103-001				
CR7	2004103-001				
CR8	2004103-001				
CR9	2004112-002				
CR10	2004103-001				
CR11	2004103-001				
CR12	2004103-001				
CR13	2004103-001				
CR14	2004103-001				
CR15	2004103-001	DIODE			
Q1	2004004-002	TRANSISTOR			
Q2	-001				
Q3	-002				
Q4	-002				
Q5	-001				
Q6	-001				
Q7	-002				
Q8	-001				
Q9	-001				
Q10	-002				
Q11	2004004-001	TRANSISTOR			
T1	1006293	TRANSFORMER			
T2	1006293	TRANSFORMER			
SA1	2004003-001	SENSE AMPL			
SA2	2004003-001	SENSE AMPL			

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB.
CAMBRIDGE MASS
DWG NO
CONTRACT
DRAWN J. F. Walsh DATE 2/21/64
CHECKED [illegible] 9/7/64
APPROVAL Albert Hopkins 16 Feb 65
APPROVAL Eldon C. Hall 11 Feb 65
NASA APPROVAL [illegible] 2/11/65
MIT APPROVAL [illegible] 11 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC, SENSE AMPLIFIER MODULE
MODULE NO. B13-14

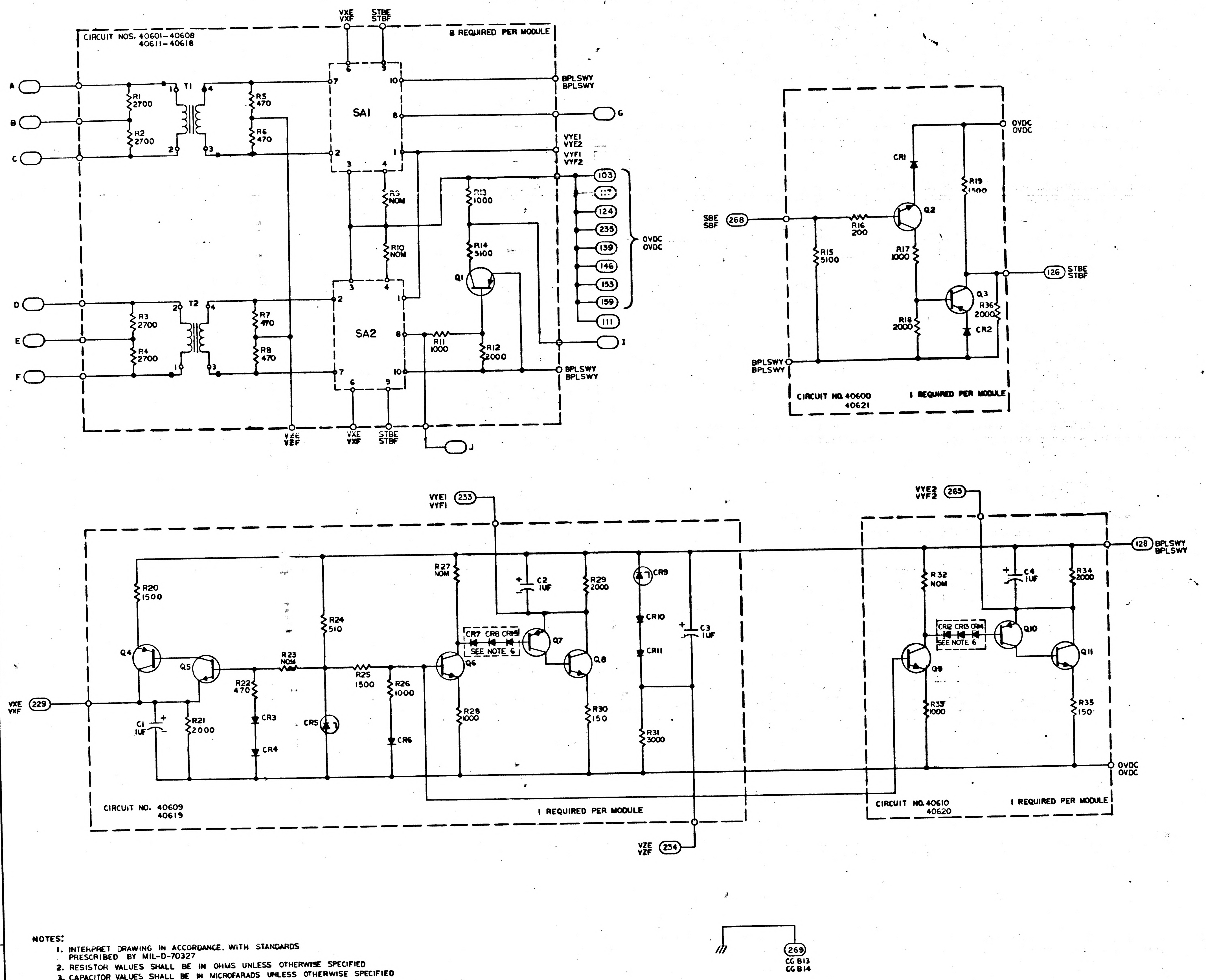
CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 2005002
SCALE NONE
WT —
SHEET 2 OF 2

2005002 D

NOTICE — WHEN GOVERNMENT DRAWINGS SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE USE OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS 16564

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 18037	4-14-65	WK
B	REVISED PER TDRR 19220	24 May 65	WK
C	REVISED PER TDRR 20098	21 JUN 65	WK
D	REVISED PER TDRR 21253	28 Jul 65	LTB WK
E	REVISED PER TDRR 22147	2 Sept 65	[illegible]


CIRCUIT NOS. 40601-40608
40611-40618
8 REQUIRED PER MODULE
VXE
VXF
STBE
STBF
A
B
C
D
E
F
G
I
J
R1
2700
R2
2700
R3
2700
R4
2700
T1
T2
R5
470
R6
470
R7
470
R8
470
SA1
SA2
R9
NOM
R10
NOM
R11
1000
R12
2000
R13
1000
R14
5100
Q1
BPLSWY
BPLSWY
VYE1
VYE2
VYF1
VYF2
103
117
124
235
139
146
153
159
111
OVDC
OVDC
VZE
VZF
SBE
SBF
268
R15
5100
R16
200
R17
1000
R18
2000
R19
1500
R36
2000
CR1
CR2
Q2
Q3
126
STBE
STBF
CIRCUIT NO. 40600
40621
1 REQUIRED PER MODULE
VYE1
VYF1
233
VXE
VXF
229
R20
1500
R21
2000
R22
470
R23
NOM
R24
510
R25
1500
R26
1000
R27
NOM
R28
1000
R29
2000
R30
150
R31
3000
C1
1UF
C2
1UF
C3
1UF
CR3
CR4
CR5
CR6
CR7
CR8
CR15
SEE NOTE 6
CR9
CR10
CR11
Q4
Q5
Q6
Q7
Q8
CIRCUIT NO. 40609
40619
1 REQUIRED PER MODULE
VZE
VZF
234
VYE2
VYF2
265
128
BPLSWY
BPLSWY
R32
NOM
R33
1000
R34
2000
R35
150
C4
1UF
CR12
CR13
CR14
SEE NOTE 6
Q9
Q10
Q11
OVDC
OVDC
CIRCUIT NO. 40610
40620
1 REQUIRED PER MODULE
269
CG B13
CG B14

REF DWG:
SENSE AMPLIFIER ASSY DWG NO. 2003043

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE. WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. RESISTOR VALUES SHALL BE IN OHMS UNLESS OTHERWISE SPECIFIED
3. CAPACITOR VALUES SHALL BE IN MICROFARADS UNLESS OTHERWISE SPECIFIED
4. NOMINAL VALUES ARE TO BE SELECTED BY ELECTRICAL TEST, CHART A AND B
5. TOP SIGNAL NAME AND CIRCUIT NUMBER APPLY IN POSITION B13
BOTTOM SIGNAL NAME AND CIRCUIT NUMBER APPLY IN POSITION B14
OR AS SHOWN IN CHART ON SHEET 2
6 ONE TWO OR THREE DIODES TO BE SELECTED BY ELECTRICAL TEST

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
V	

APPLICATION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± —
DECIMALS ± —
ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO.
CONTRACT
DRAWN J.F. Walsh DATE 2/24/64
CHECKED [illegible] 4/7/64
APPROVAL Albert Hopkins 16 Feb 65
APPROVAL Eldon C. Hall 16 Feb 65
NASA APPROVAL [illegible] 2/4/65
MIT APPROVAL W Kupfer 17 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC, SENSE AMPLIFIER MODULE
MODULE NO. B13-14

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 2005002
SCALE NONE
WT —
SHEET 1 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS 16560

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 18037	4-14-65	WK
B	REVISED PER TDRR 19220	[illegible] 66	WK
C	REVISED PER TDRR 20098	21 JUN 65	WK
D	REVISED PER TDRR 21253	28 JUL 65	WK
E	REVISED PER TDRR 22147	3 SEP 65	[illegible]

CHART A
R9 AND R10

PART NO.	VALUE
1006750-25	510
-26	560
-27	620
-28	680
-29	750
-30	820
-31	910
-32	1000
-33	1100
-34	1200
-35	1300
-36	1500
-37	1600
-38	1800
-39	2000
-40	2200
-41	2400
-42	2700
-43	3000
-44	3300
-45	3600
-46	3900
-47	4300
-48	4700
-49	5100
-16	220
-17	240
-18	270
-19	300
-20	330
-21	360
-22	390
-23	430
1006750-24	470

CHART B
R23, R27 AND R32

PART NO.	VALUE
1006750-32	1000
-33	1100
-34	1200
-35	1300
-36	1500
-37	1600
-38	1800
-39	2000
-40	2200
-41	2400
-42	2700
-43	3000
-44	3300
-45	3600
-46	3900
-47	4300
-48	4700
-49	5100
-119	1400
-121	1700
-122	1900
-123	2100
-124	2300
-125	2550
-126	2850
-127	3150
-128	3450
-129	3750
1006750-130	4100

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R1	1006750-42	RESISTOR	2700	±2%	1/4 W
R2	-42		2700		
R3	-42		2700		
R4	-42		2700		
R5	-24		470		
R6	-24		470		
R7	-24		470		
R8	1006750-24		470		
R9	SEE CHART A		NOM		
R10	SEE CHART A		NOM		
R11	1006750-32		1000		
R12	-39		2000		
R13	-32		1000		
R14	-49		5100		
R15	-49		5100		
R16	-15		200		
R17	-32		1000		
R18	-39		2000		
R19	-36		1500		
R20	-36		1500		
R21	-39		2000		
R22	1006750-24		470		
R23	SEE CHART A		NOM		
R24	1006750-25		510		
R25	1006750-36		1500		
R26	1006750-32		1000		
R27	SEE CHART B		NOM		
R28	1006750-32		1000		
R29	1006750-39		2000		
R30	1006750-12		150		
R31	1006750-43		3000		
R32	SEE CHART B		NOM		
R33	1006750-32		1000		
R34	1006750-39		2000		
R35	1006750-12		150		
R36	1006750-39	RESISTOR	2000	±2%	1/4 W
C1	1006755-69	CAPACITOR	1 UF	±10%	35V DC
C2	1006755-69	CAPACITOR	1 UF	±10%	35V DC
C3	1006755-69	CAPACITOR	1 UF	±10%	35V DC
C4	1006755-69	CAPACITOR	1 UF	±10%	35V DC
CR1	2004103-001	DIODE			
CR2	2004103-001				
CR3	2004103-001				
CR4	2004103-001				
CR5	2004112-002				
CR6	2004103-001				
CR7	2004103-001				
CR8	2004103-001				
CR9	2004112-002				
CR10	2004103-001				
CR11	2004103-001				
CR12	2004103-001				
CR13	2004103-001				
CR14	2004103-001				
CR15	2004103-001	DIODE			
Q1	2004004-002	TRANSISTOR			
Q2	-001				
Q3	-002				
Q4	-002				
Q5	-001				
Q6	-001				
Q7	-002				
Q8	-001				
Q9	-001				
Q10	-002				
Q11	2004004-001	TRANSISTOR			
T1	1006293	TRANSFORMER			
T2	1006293	TRANSFORMER			
SA1	2004003-001	SENSE AMPL			
SA2	2004003-001	SENSE AMPL			

		A		B		C		D		E		F		G		H		I		J	
	COMP PREFIX NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.
B13	7	SAF 01	255	NC	154	SBF 01	253	SAF 02	152	NC	251	SBF 02	151	40611A	252	VYE 1	233	SA 02	156	40601A	256
	6	SAF 03	248	NC	147	SBF 03	246	SAF 04	145	NC	244	SBF 04	143	40612A	245	VYE 1	233	SA 04	150	40602A	249
	5	SAF 05	241	NC	140	SBF 05	239	SAF 06	138	NC	237	SBF 06	136	40613A	238	VYE 1	233	SA 06	142	40603A	242
	4	SAF 07	225	NC	125	SBF 07	223	SAF 08	123	NC	221	SBF 08	121	40614A	222	VYE 1	233	SA 08	127	40604A	226
	3	SAF 09	218	NC	118	SBF 09	216	SAF 10	116	NC	214	SBF 10	114	40615A	215	VYE 2	265	SA 10	120	40605A	219
	2	SAF 11	210	NC	110	SBF 11	209	SAF 12	109	NC	207	SBF 12	107	40616A	208	VYE 2	265	SA 12	113	40606A	212
	1	SAF 13	204	NC	104	SBF 13	203	SAF 14	102	NC	201	SBF 14	101	40617A	202	VYE 2	265	SA 14	105	40607A	205
	8	SAF 15	262	NC	162	SBF 15	261	SAF 16	158	NC	258	SBF 16	157	40618A	260	VYE 2	265	SA 16	164	40608A	263
B14	7	GAR 02	255	BPLSWX	154	GBR 02	253	GAR 01	152	BPLSWX	251	GBR 01	151	40601A	252	VYF 1	233	SA 01	156	40611 A	256
	6	GAR 04	248	BPLSWX	147	GBR 04	246	GAR 03	145	BPLSWX	244	GBR 03	143	40602 A	245	VYF 1	233	SA 03	150	40612 A	249
	5	GAR 06	241	BPLSWX	140	GBR 06	239	GAR 05	138	BPLSWX	237	GBR 05	136	40603A	238	VYF 1	233	SA 05	142	40613 A	242
	4	GAR 08	225	BPLSWX	125	GBR 08	223	GAR 07	123	BPLSWX	221	GBR 07	121	40604 A	222	VYF 1	233	SA 07	127	40614 A	226
	3	GAR 10	218	BPLSWX	118	GBR 10	216	GAR 09	116	BPLSWX	214	GBR 09	114	40605 A	215	VYF 2	265	SA 09	120	40615 A	219
	2	GAR 12	210	BPLSWX	110	GBR 12	209	GAR 11	109	BPLSWX	207	GBR 11	107	40606 A	208	VYF 2	265	SA 11	113	40616 A	212
	1	GAR 14	204	BPLSWX	104	GBR 14	203	GAR 13	102	BPLSWX	201	GBR 13	101	40607 A	202	VYF 2	265	SA 13	105	40617 A	205
	8	GAR 16	262	BPLSWX	162	GBR 16	261	GAR 15	158	BPLSWX	258	GBR 15	157	40608 A	260	VYF 2	265	SA P	164	40618 A	263

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
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TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO. CONTRACT

DRAWN J.F. [illegible] DATE 2/21/64
CHECKED [illegible] 9/7/64
APPROVAL [illegible] 16 Feb 65
APPROVAL Eldon C Hall 11 Feb 65
NASA APPROVAL [illegible] 3/1/65
MIT APPROVAL [illegible] 11 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC, SENSE AMPLIFIER MODULE MODULE NO. B13-14

CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	E	2005002
SCALE NONE	WT —	SHEET 2 OF 2

2005002 E

REVISIONS 16564			
SYM	DESCRIPTION	DATE	APPROVAL

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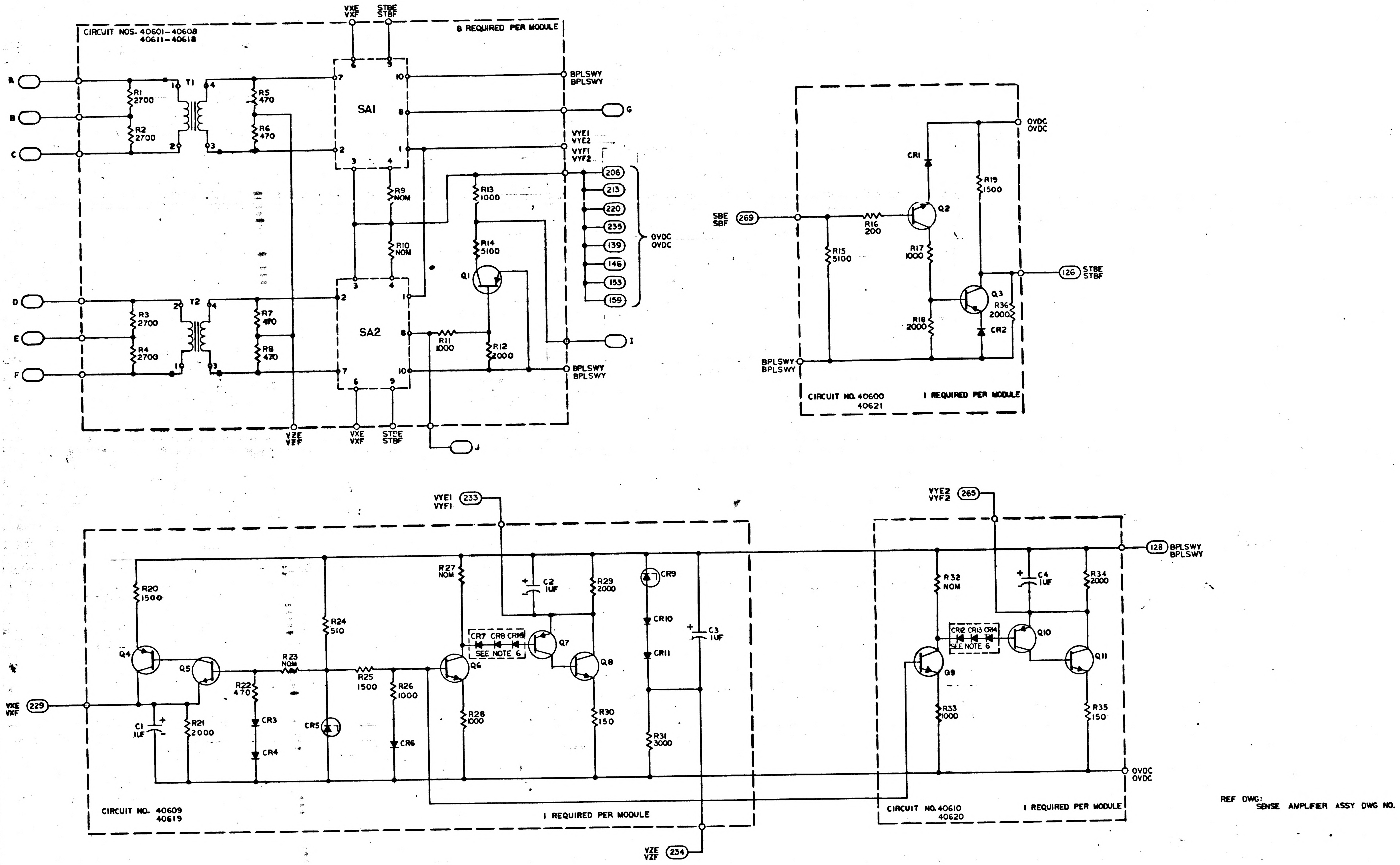
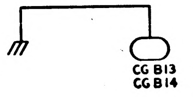

CIRCUIT NOS. 40601-40608
40611-40618
8 REQUIRED PER MODULE
VXE
VXF
STBE
STBF
A
B
C
D
E
F
G
I
J
R1 2700
R2 2700
R3 2700
R4 2700
T1
T2
R5 470
R6 470
R7 470
R8 470
SA1
SA2
R9 NOM
R10 NOM
R11 1000
R12 2000
R13 1000
R14 5100
Q1
BPLSWY
BPLSWY
VYE1
VYE2
VYF1
VYF2
206
213
220
235
139
146
153
159
OVDC
OVDC
VZE
VZF
SBE
SBF
269
R15 5100
R16 200
R17 1000
R18 2000
R19 1500
R36 2000
CR1
CR2
Q2
Q3
126
STBE
STBF
CIRCUIT NO. 40600
40621
1 REQUIRED PER MODULE
VYE1
VYF1
233
VXE
VXF
229
R20 1500
R21 2000
R22 470
R23 NOM
R24 510
R25 1500
R26 1000
R27 NOM
R28 1000
R29 2000
R30 150
R31 3000
C1 1UF
C2 1UF
C3 1UF
CR3
CR4
CR5
CR6
CR7 CR8 CR19
SEE NOTE 6
CR9
CR10
CR11
Q4
Q5
Q6
Q7
Q8
CIRCUIT NO. 40609
40619
1 REQUIRED PER MODULE
VZE
VZF
234
VYE2
VYF2
265
128
BPLSWY
BPLSWY
R32 NOM
R33 1000
R34 2000
R35 150
C4 1UF
CR12 CR13 CR14
SEE NOTE 6
Q9
Q10
Q11
OVDC
OVDC
CIRCUIT NO. 40610
40620
1 REQUIRED PER MODULE

REF DWG:
SENSE AMPLIFIER ASSY DWG NO.


CG B13
CG B14

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. RESISTOR VALUES SHALL BE IN OHMS UNLESS OTHERWISE SPECIFIED
3. CAPACITOR VALUES SHALL BE IN MICROFARADS UNLESS OTHERWISE SPECIFIED
4. NOMINAL VALUES ARE TO BE SELECTED BY ELECTRICAL TEST, CHART A AND B
5. TOP SIGNAL NAME AND CIRCUIT NUMBER APPLY IN POSITION B13
BOTTOM SIGNAL NAME AND CIRCUIT NUMBER APPLY IN POSITION B14
OR AS SHOWN IN CHART ON SHEET 2
6. ONE TWO OR THREE DIODES TO BE SELECTED BY ELECTRICAL TEST

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± // DECIMALS ± // ANGLES ± //
DO NOT SCALE THIS DRAWING
MATERIAL //
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FINAL FINISH //

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO. CONTRACT
DRAWN DATE 2/20/64
CHECKED 4/7/64
APPROVAL Albert Hopkins 16 Feb 65
APPROVAL Eldon C. Hall 16 Feb 65
NASA APPROVAL 2/…/65
MIT APPROVAL 17 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC, SENSE AMPLIFIER MODULE

MODULE NO. B13-14

CODE IDENT NO. —
SIZE E
NASA DRAWING NO 2005002
SCALE NONE
WT —
SHEET 1 OF 2

MASTER

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS 16550

SYM	DESCRIPTION	DATE	APPROVAL

CHART A

R9, R10, AND R23

PART NO.	VALUE
1006750-25	510
-26	560
-27	620
-28	680
-29	750
-30	820
-31	910
-32	1000
-33	1100
-34	1200
-35	1300
-36	1500
-37	1600
-38	1800
-39	2000
-40	2200
-41	2400
-42	2700
-43	3000
-44	3300
-45	3600
-46	3900
-47	4300
-48	4700
1006750-49	5100

CHART B

R27 AND R32

PART NO.	VALUE
1006750-32	1000
-33	1100
-34	1200
-35	1300
-36	1500
-37	1600
-38	1800
-39	2000
-40	2200
-41	2400
-42	2700
-43	3000
-44	3300
-45	3600
-46	3900
-47	4300
-48	4700
1006750-49	5100

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R1	1006750-42	RESISTOR	2700	± 2 %	1/4 W
R2	-42		2700		
R3	-42		2700		
R4	-42		2700		
R5	-24		470		
R6	-24		470		
R7	-24		470		
R8	1006750-24		470		
R9	SEE CHART A		NOM		
R10	SEE CHART A		NOM		
R11	1006750-32		1000		
R12	-39		2000		
R13	-32		1000		
R14	-49		5100		
R15	-49		5100		
R16	-15		200		
R17	-32		1000		
R18	-39		2000		
R19	-36		1500		
R20	-36		1500		
R21	-39		2000		
R22	1006750-24		470		
R23	SEE CHART A		NOM		
R24	1006750-25		510		
R25	1006750-36		1500		
R26	1006750-22		1000		
R27	SEE CHART B		NOM		
R28	1006750-32		1000		
R29	1006750-39		2000		
R30	1006750-12		150		
R31	1006750-43		3000		
R32	SEE CHART B		NOM		
R33	1006750-32		1000		
R34	1006750-39		2000		
R35	1006750-12		150		
R36	1006750-39	RESISTOR	2000	± 2%	1/4 W
C1	1006755-69	CAPACITOR	1 UF	±10%	35V DC
C2	1006755-69	CAPACITOR	1 UF	±10%	35V DC
C3	1006755-69	CAPACITOR	1 UF	±10%	35V DC
C4	1006755-69	CAPACITOR	1 UF	±10%	35V DC
CR1	1006751	DIODE			
CR2	1006751				
CR3	1006751				
CR4	1006751				
CR5	1006838				
CR6	1006751				
CR7	1006751				
CR8	1006751				
CR9	1006838				
CR10	1006751				
CR11	1006751				
CR12	1006751				
CR13	1006751				
CR14	1006751				
CR15	1006751	DIODE			
Q1	1006310	TRANSISTOR			
Q2	1006323				
Q3	1006310				
Q4	1006310				
Q5	1006323				
Q6	1006323				
Q7	1006310				
Q8	1006323				
Q9	1006323				
Q10	1006310				
Q11	1006323	TRANSISTOR			
T1	1006293	TRANSFORMER			
T2	1006293	TRANSFORMER			
SA1	1006769	SENSE AMPL			
SA2	1006769	SENSE AMPL			

		A		B		C		D		E		F		G		H		I		J	
	COMP PREFIX NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.
B13	7	SAF 01	255	NC	154	SBF 01	253	SAF 02	152	NC	251	SBF 02	151	40611A	252	VYE 1	233	SA 02	156	40601A	256
	6	SAF 03	248	NC	147	SBF 03	246	SAF 04	145	NC	244	SBF 04	143	40612A	245	VYE 1	233	SA 04	150	40602A	249
	5	SAF 05	241	NC	140	SBF 05	239	SAF 06	138	NC	237	SBF 06	136	40613A	238	VYE 1	233	SA 06	142	40603A	242
	4	SAF 07	225	NC	125	SBF 07	223	SAF 08	123	NC	221	SBF 08	121	40614A	222	VYE 1	233	SA 08	127	40604A	226
	3	SAF 09	218	NC	117	SBF 09	216	SAF 10	116	NC	214	SBF 10	114	40615A	215	VYE 2	265	SA 10	120	40605A	219
	2	SAF 11	210	NC	110	SBF 11	209	SAF 12	109	NC	207	SBF 12	107	40616A	208	VYE 2	265	SA 12	113	40606A	212
	1	SAF 13	204	NC	103	SBF 13	203	SAF 14	102	NC	201	SBF 14	101	40617A	202	VYE 2	265	SA 14	105	40607A	205
	8	SAF 15	263	NC	162	SBF 15	261	SAF 16	158	NC	258	SBF 16	157	40618A	260	VYE 2	265	SA 16	164	40608A	263
B14	7	GAR 02	255	BPLSWX	154	GBR 02	253	GAR 01	152	BPLSWX	251	GBR 01	151	40601A	252	VYF 1	233		156	40611 A	256
	6	GAR 04	248	BPLSWX	147	GBR 04	246	GAR 03	145	BPLSWX	244	GBR 03	143	40602 A	245	VYF 1	233		150	40612 A	249
	5	GAR 06	241	BPLSWX	140	GBR 06	239	GAR 05	138	BPLSWX	237	GBR 05	136	40603A	238	VYF 1	233		142	40613 A	242
	4	GAR 08	225	BPLSWX	125	GBR 08	223	GAR 07	123	BPLSWX	221	GBR 07	121	40604 A	222	VYF 1	233		127	40614 A	226
	3	GAR 10	218	BPLSWX	117	GBR 10	216	GAR 09	116	BPLSWX	214	GBR 09	114	40605 A	215	VYF 2	265		120	40615 A	219
	2	GAR 12	210	BPLSWX	110	GBR 12	209	GAR 11	109	BPLSWX	207	GBR 11	107	40606 A	208	VYF 2	265		113	40616 A	212
	1	GAR 14	204	BPLSWX	103	GBR 14	203	GAR 13	102	BPLSWX	201	GBR 13	101	40607 A	202	VYF 2	265		105	40617 A	205
	8	GAR 16	263	BPLSWX	162	GBR 16	261	GAR 15	158	BPLSWX	258	GBR 15	157	40608 A	260	VYF 2	265		164	40618 A	263

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
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DO NOT SCALE THIS DRAWING
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HEAT TREATMENT —
FINAL FINISH —

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DWG NO. CONTRACT
DRAWN J.F. Welch DATE 2/21/64
CHECKED 4/7/64
APPROVAL 16 Feb 65
APPROVAL Eldon C Hall 11 Feb 65
NASA APPROVAL 2/11/65
MIT APPROVAL 11 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

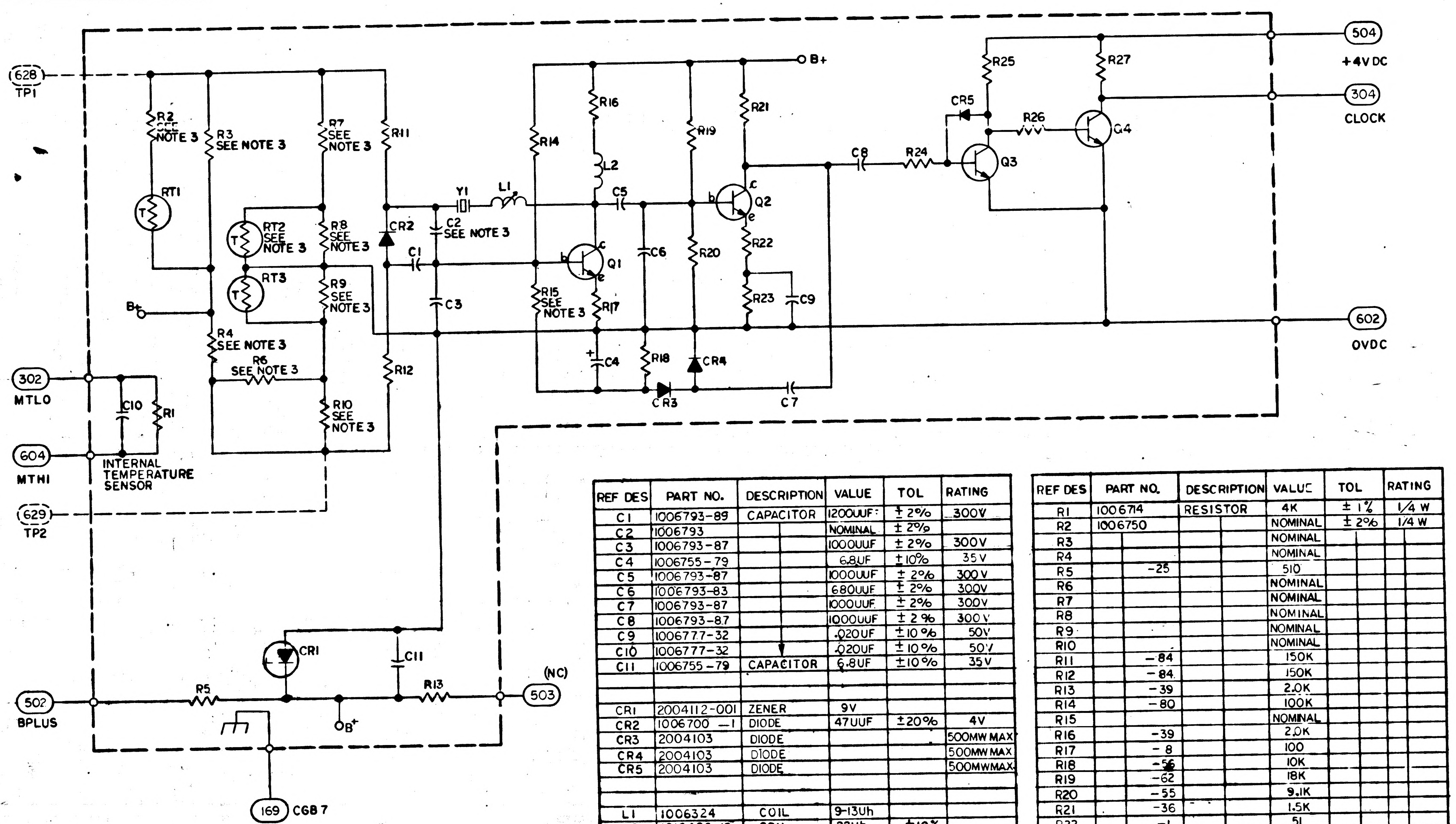
SCHEMATIC, SENSE AMPLIFIER MODULE

CODE IDENT NO. —
SIZE E
NASA DRAWING NO. 2005002
SCALE NONE
SHEET 2 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2005003 A

REVISIONS 16564			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 18681	24 Mar 65	


628
TP1
R2 SEE NOTE 3
R3 SEE NOTE 3
R7 SEE NOTE 3
R11
RT1
RT2 SEE NOTE 3
R8 SEE NOTE 3
RT3
R9 SEE NOTE 3
B+
R4 SEE NOTE 3
R6 SEE NOTE 3
R10 SEE NOTE 3
R12
CR2
C2 SEE NOTE 3
Y1
L1
C1
C3
R14
R16
L2
C5
Q1
C6
R15 SEE NOTE 3
R17
C4
R18
CR3
R19
R20
CR4
Q2
R21
R22
R23
C9
C7
B+
C8
R24
CR5
R25
R26
Q3
R27
Q4
504
+4V DC
304
CLOCK
602
0VDC
302
MTLO
C10
R1
604
MTHI
INTERNAL TEMPERATURE SENSOR
629
TP2
CR1
C11
502
BPLUS
R5
R13
B+
(NC)
503
169
CGB 7

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. RESISTOR VALUES ARE EXPRESSED IN OHMS UNLESS OTHERWISE SPECIFIED
3. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT UNIT TEST: C2, R2, R3, R4 R6, R7, R8, R9, R10, R15 AND RT2 SEE TABLES ON SHEETS 2 AND 3
4. ML DENOTES MICROLOGIC
5. WHEN VALUE OF R6 R8 R9 OR R10 IS ∞ NO COMPONENTS WILL BE USED

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
C1	1006793-89	CAPACITOR	1200UUF	± 2%	300V
C2	1006793		NOMINAL	± 2%	
C3	1006793-87		1000UUF	± 2%	300V
C4	1006755-79		6.8UF	±10%	35V
C5	1006793-87		1000UUF	± 2%	300V
C6	1006793-83		680UUF	± 2%	300V
C7	1006793-87		1000UUF	± 2%	300V
C8	1006793-87		1000UUF	± 2%	300V
C9	1006777-32		.020UF	±10%	50V
C10	1006777-32		.020UF	±10%	50V
C11	1006755-79	CAPACITOR	6.8UF	±10%	35V
CR1	2004112-001	ZENER	9V		
CR2	1006700 —1	DIODE	47UUF	±20%	4V
CR3	2004103	DIODE			500MW MAX
CR4	2004103	DIODE			500MW MAX
CR5	2004103	DIODE			500MW MAX
L1	1006324	COIL	9-13Uh		
L2	1010406-12	COIL	22Uh	±10%	
Y1	1006847	XTAL			
RT1	1006715-1	THERMISTOR			
RT2	1005712	THERMISTOR	NOMINAL		
RT3	1006291	THERMISTOR			
Q1	2004004-003	TRANSISTOR			
Q2	2004004-003	TRANSISTOR			
Q3	2004004-003	TRANSISTOR			
Q4	2004004-003	TRANSISTOR			

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R1	1006714	RESISTOR	4K	± 1%	1/4 W
R2	1006750		NOMINAL	± 2%	1/4 W
R3			NOMINAL		
R4			NOMINAL		
R5	-25		510		
R6			NOMINAL		
R7			NOMINAL		
R8			NOMINAL		
R9			NOMINAL		
R10			NOMINAL		
R11	-84		150K		
R12	-84		150K		
R13	-39		2.0K		
R14	-80		100K		
R15			NOMINAL		
R16	-39		2.0K		
R17	-8		100		
R18	-56		10K		
R19	-62		18K		
R20	-55		9.1K		
R21	-36		1.5K		
R22	-1		51		
R23	-34		1.2K		
R24	-39		2.0K		
R25	-43		3.0K		
R26	-34		1.2K		
R27	1006750 -43	RESISTOR	3.0K	2%	1/4W

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN DATE 3 Aug 64
CHECKED R.H. Edwards 11 Aug 64
APPROVAL Albert Hopkins 16 Feb 65
APPROVAL Eldon C Hall 18 Feb 65
NASA APPROVAL 2/11/65
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC
CLOCK OSCILLATOR
MODULE NO. B7

CODE IDENT NO. 80230
SIZE D
NASA DRAWING NO. 2005003
SCALE NONE
WT
SHEET 1 OF 3

MASTER

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

D 2005003 A

REVISIONS 16564

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 8681	28 Apr 65	WK

R9

DASH NO.	OHMS ±2%	DASH NO.	OHMS ±2%	DASH NO.	OHMS ±2%
1006750 – 25	510	1006750 – 43	3 K	1006750 – 143	14 K
– 109	535	– 127	3.15K	– 60	15 K
– 26	560	– 44	3.3K	– 144	15.5K
– 110	590	– 128	3.45K	– 61	16 K
– 27	620	– 45	3.6K	– 145	17 K
– 111	650	– 129	3.75K	– 62	18 K
– 28	680	– 46	3.9K	– 146	19 K
– 112	715	– 130	4.1K	– 63	20K
– 29	750	– 47	4.3K	– 147	21K
– 113	785	– 131	4.5K	– 64	22K
– 30	820	– 48	4.7K	– 148	23K
– 114	865	– 132	4.9K	– 65	24K
– 31	910	– 49	5.1K	– 149	25.5K
– 115	955	– 133	5.35K	– 66	27K
– 32	1 K	– 50	5.6K	– 150	28.5K
– 116	1.05K	– 134	5.9K	– 67	30K
– 33	1.1 K	– 51	6.2K	– 151	31.5K
– 117	1.15K	– 135	6.5K	– 68	33K
– 34	1.2K	– 52	6.8K	– 152	34.5K
– 118	1.25K	– 136	7.15K	– 69	36K
– 35	1.3K	– 53	7.5K	– 153	37.5K
– 119	1.4K	– 137	7.85K	– 70	39K
– 36	1.5K	– 54	8.2K	– 154	41K
– 120	1.55K	– 138	8.65K	– 71	43K
– 37	1.6K	– 55	9.1K	– 155	45K
– 121	1.7K	– 139	9.55K	– 72	47K
– 38	1.8K	– 56	10K	– 156	49K
– 122	1.9K	– 140	10.5K	– 73	51K
– 39	2.0K	– 57	11 K	– 157	53.5K
– 123	2.1K	– 141	11.5K	– 74	56K
– 40	2.2K	– 58	12 K	– 158	59K
– 124	2.3K	– 142	12.5K	1006750 – 75	62K
– 41	2.4K	1006750 – 59	13K	SEE NOTE 5	∞
– 125	2.55K				
– 42	2.7K				
1006750 – 126	2.85K				

R10

DASH NO.	OHMS ±2%	DASH NO.	OHMS ±2%
1006750 – 32	1 K	1006750 – 51	6.2 K
– 116	1.05K	– 135	6.5 K
– 33	1.1 K	– 52	6.8 K
– 117	1.15K	– 136	7.15 K
– 34	1.2K	– 53	7.5 K
– 118	1.25K	– 137	7.85K
– 35	1.3 K	– 54	8.2K
– 119	1.4 K	– 138	8.65K
– 36	1.5K	– 55	9.1K
– 120	1.55K	– 139	9.55K
– 37	1.6K	– 56	10 K
– 121	1.7K	– 140	10.5K
– 38	1.8K	– 57	11 K
– 122	1.9K	– 141	11.5K
– 39	2.0K	– 58	12 K
– 123	2.1K	– 142	12.5K
– 40	2.2K	– 59	13 K
– 124	2.3K	– 143	14 K
– 41	2.4K	– 60	15 K
– 125	2.55K	– 144	15.5K
– 42	2.7K	– 61	16K
– 126	2.85K	– 145	17K
– 43	3 K	– 62	18K
– 127	3.15K	– 146	19K
– 44	3.3K	– 63	20K
– 128	3.45K	– 147	21K
– 45	3.6K	– 64	22K
– 129	3.75K	– 148	23K
– 46	3.9K	– 65	24K
– 130	4.1K	– 149	25.5K
– 47	4.3K	– 66	27K
– 131	4.5K	– 150	28.5K
– 48	4.7K	– 67	30K
– 132	4.9K	– 151	31.5K
– 49	5.1K	– 68	33K
– 133	5.35K	– 152	34.5K
– 50	5.6K	– 69	36K
1006750 – 134	5.9K	– 153	37.5K
		– 70	39K
		– 154	41K
		– 71	43K
		– 155	45K
		– 72	47K
		– 156	49K
		1006750 – 73	51K
		SEE NOTE 5	∞

R4 AND 6

DASH NO.	OHMS ±2%	DASH NO.	OHMS ±2%
1006750 – 25	510	1006750 – 43	3 K
– 109	535	– 127	3.15 K
– 26	560	– 44	3.3 K
– 110	590	– 128	3.45 K
– 27	620	– 45	3.6 K
– 111	650	– 129	3.75K
– 28	680	– 46	3.9 K
– 112	715	– 130	4.1 K
– 29	750	– 47	4.3K
– 113	785	– 131	4.5K
– 30	820	– 48	4.7K
– 114	865	– 132	4.9K
– 31	910	– 49	5.1K
– 115	955	– 133	5.35K
– 32	1 K	– 50	5.6K
– 116	1.05 K	– 134	5.9K
– 33	1.1 K	– 51	6.2K
– 117	1.15 K	– 135	6.5K
– 34	1.2K	– 52	6.8K
– 118	1.25K	– 136	7.15K
– 35	1.3K	– 53	7.5K
– 119	1.4 K	– 137	7.85K
– 36	1.5K	– 54	8.2K
– 120	1.55K	– 138	8.65K
– 37	1.6 K	– 55	9.1 K
– 121	1.7K	– 139	9.55K
– 38	1.8K	– 56	10K
– 122	1.9K	– 140	10.5K
– 39	2.0K	– 57	11 K
– 123	2.1K	– 141	11.5K
– 40	2.2K	1006750 – 58	12K
– 124	2.3K	1006757 – 8	0
– 41	2.4K	SEE NOTE 5	∞
– 125	2.55K		
– 42	2.7K		
1006750 – 126	2.85K		

MASTER

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DRAWN A. J. Bjion DATE 3 FEB 65
CHECKED 3 Feb 65
APPROVAL Albert Hopkins 16 Feb 65
APPROVAL Eldon C. Hall 18 Feb 65
NASA APPROVAL 2/18/65
MIT APPROVAL
MIT APPROVAL 17 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC
CLOCK OSCILLATOR
MODULE NO. B7

CODE IDENT NO. 80230
SIZE D
NASA DRAWING NO. 2005003
SCALE NONE
WT
SHEET 2 OF 3

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 16564			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 18681	28 Apr. 65	WK

R6 AND R7

DASH NO.	OHMS ±2%
1006750 - 56	10 K
- 140	10.5 K
- 57	11 K
- 141	11.5 K
- 58	12 K
- 142	12.5 K
- 59	13 K
- 143	14 K
- 60	15 K
- 144	15.5 K
- 61	16 K
- 145	17 K
- 62	18 K
- 146	19 K
- 63	20 K
- 147	21 K
- 64	22K
- 148	23K
- 65	24 K
- 149	25.5K
- 66	27 K
- 150	28.5K
- 67	30 K
- 151	31.5 K
- 68	33 K
- 152	34.5 K
- 69	36 K
- 153	37.5 K
- 70	39 K
- 154	41 K
- 71	43K
- 155	45K
- 72	47K
- 156	49K
- 73	51K
- 157	53.5K
- 74	56K
- 158	59K
- 75	62K
- 159	65K
- 76	68K
- 160	71.5K
- 77	75K
- 161	78.5K
- 78	82K
- 162	86.5K
- 79	91K
1006750 - 163	95.5K

R 2

DASH NO.	OHMS ±2%
1006750 - 52	6.8 K
- 136	7.15 K
- 53	7.5 K
- 137	7.85 K
- 54	8.2 K
- 138	8.65K
- 55	9.1 K
- 139	9.55 K
- 56	10 K
- 140	10.5 K
- 57	11 K
- 141	11.5 K
- 58	12 K
- 142	12.5 K
- 59	13 K
- 143	14 K
- 60	15 K
- 144	15.5 K
- 61	16 K
- 145	17 K
- 62	18 K
- 146	19 K
- 63	20K
- 147	21 K
- 64	22K
- 39	2.0K
- 124	2.3K
- 125	2.55K
- 42	2.7K
- 43	3.0K
- 44	3.3K
- 45	3.6K
- 46	3.9K
- 47	4.3K
- 48	4.7K
- 49	5.1K
- 50	5.6K
1006750 - 51	6.2K
SEE NOTE 5	∞

R15

DASH NO.	OHMS ±2%
1006750 - 55	9.1K
- 56	10K
- 57	11K
- 58	12K
- 59	13K
- 143	14K
- 60	15K
- 61	16K
- 145	17K
- 62	18K
- 146	19K
1006750 - 63	20K

R3

DASH NO.	OHMS ±2%
1006750 - 157	53.5 K
- 74	56 K
- 158	59 K
- 75	62 K
- 159	65 K
- 76	68 K
- 160	71.5 K
- 77	75 K
- 161	78.5 K
- 78	82K
- 162	86.5K
- 79	91 K
- 163	95.5K
- 80	100K
- 164	105K
- 81	110K
- 165	115K
- 82	120K
- 166	125K
- 83	130K
- 167	140K
1006750 - 84	150K

RT2

DASH NO.	OHMS ±2%
1006712 - 1	500
1006712 - 2	1000
1006712 - 3	1500

C 2

DASH NO.	VALUE UUF
1006793 - 37	10
- 38	11
- 39	12
- 40	13
- 41	15
- 42	16
- 43	18
- 44	20
- 45	22
- 46	24
- 47	27
- 48	30
- 49	33
- 50	36
- 51	39
- 52	43
- 53	47
- 54	51
- 55	56
- 56	62
- 57	68
- 58	75
- 59	82
- 60	91
1006793 - 61	100

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

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DIMENSIONS ARE IN INCHES
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CONTRACT
DRAWN A. J. Bison DATE 3FEB65
CHECKED S. Smith 3 Feb 65
APPROVAL
APPROVAL Elden C. Hall 15 Feb 65
NASA APPROVAL 2/17/65
MIT APPROVAL
MIT APPROVAL 17 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC
CLOCK OSCILLATOR
MODULE NO. B7

CODE IDENT NO. 80230
SIZE D
NASA DRAWING NO. 2005003
SCALE NONE
WT
SHEET 3 OF 3

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2005003 B

REVISIONS 16564

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR .8681	28 Jan. 65	WK
B	REVISED PER TDRR 19761	7 June 65	WK

R8 AND R7

DASH NO.	OHMS ±2%
1006750-56	10 K
-140	10.5 K
-57	11 K
-141	11.5 K
-58	12 K
-142	12.5 K
-59	13 K
-143	14 K
-60	15 K
-144	15.5 K
-61	16 K
-145	17 K
-62	18 K
-146	19 K
-63	20 K
-147	21 K
-64	22K
-148	23K
-65	24 K
-149	25.5K
-66	27 K
-150	28.5 K
-67	30 K
-151	31.5 K
-68	33 K
-152	34.5 K
-69	36 K
-153	37.5 K
-70	39 K
-154	41 K
-71	43K
-155	45K
-72	47K
-156	49K
-73	51K
-157	53.5K
-74	56K
-158	59K
-75	62K
-159	65K
-76	68K
-160	71.5K
-77	75K
-161	78.5K
-78	82K
-162	86.5K
-79	91K
1006750 -163	95.5K

R 2

DASH NO.	OHMS ±2%
1006750-52	6.8 K
-136	7.15 K
-53	7.5 K
-137	7.85 K
-54	8.2 K
-138	8.65K
-55	9.1 K
-139	9.55 K
-56	10 K
-140	10.5 K
-57	11 K
-141	11.5 K
-58	12 K
-142	12.5 K
-59	13 K
-143	14 K
-60	15 K
-144	15.5 K
-61	16 K
-145	17 K
-62	18 K
-146	19 K
-63	20K
-147	21 K
-64	22K
-39	2.0K
-124	2.3K
-125	2.55K
-42	2.7K
-43	3.0K
-44	3.3K
-45	3.6K
-46	3.9K
-47	4.3K
-48	4.7K
-49	5.1K
-50	5.6K
1006750 - 51	6.2K
SEE NOTE 5	∞

R15

DASH NO.	OHMS ±2%
1006750 - 55	9.1K
-56	10K
-57	11K
-58	12K
-59	13K
-143	14K
-60	15K
-61	16K
-145	17K
-62	18K
-146	19K
1006750 - 63	20K

R3

DASH NO.	OHMS ±2%
1006750 - 157	53.5 K
-74	56 K
-158	59 K
-75	62 K
-159	65 K
-76	68 K
-160	71.5 K
-77	75 K
-161	78.5 K
-78	82K
-162	86.5K
-79	91 K
-163	95.5K
-80	100K
-164	105K
-81	110K
-165	115K
-82	120K
-166	125K
-83	130K
-167	140K
1006750 - 84	150K

RT2

DASH NO.	OHMS ±2%
1006712-1	500
1006712-2	1000
1006712-3	5000

C 2

DASH NO.	VALUE UUF	TOL
1006793-37	10	±.25%
-38	11	±.25%
-39	12	±.25%
-40	13	± 2 %
-41	15	
-42	16	
-43	18	
-44	20	
-45	22	
-46	24	
-47	27	
-48	30	
-49	33	
-50	36	
-51	39	
-52	43	
-53	47	
-54	51	
-55	56	
-56	62	
-57	68	
-58	75	
-59	82	
-60	91	
1006793 -61	100	± 2 %

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

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TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN A. J. Bison DATE 3FEB65
CHECKED S. Smith 3 Feb 65
APPROVAL
APPROVAL Eldon C Hall 15 Feb 65
NASA APPROVAL 2/17/65
MIT APPROVAL
MIT APPROVAL W. Kupfer 17 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC
CLOCK OSCILLATOR
MODULE NO. B7

CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	D	2005003
SCALE NONE	WT	SHEET 3 OF 3

2005003 B

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

D 2005003 B

REVISIONS 16564			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 8681	28 Apr '65	
B	REVISED PER TDRR 9761	7 June '65	

R9

DASH NO.	OHMS ±2%	DASH NO.	OHMS ±2%	DASH NO.	OHMS ±2%
1006750 - 25	510	1006750 - 43	3 K	1006750 - 143	14 K
- 109	535	- 127	3.15K	- 60	15 K
- 26	560	- 44	3.3K	- 144	15.5K
- 110	590	- 128	3.45K	- 61	16 K
- 27	620	- 45	3.6 K	- 145	17 K
- 111	650	- 129	3.75K	- 62	18 K
- 28	680	- 46	3.9 K	- 146	19 K
- 112	715	- 130	4.1 K	- 63	20K
- 29	750	- 47	4.3K	- 147	21K
- 113	785	- 131	4.5K	- 64	22K
- 30	820	- 48	4.7K	- 148	23K
- 114	865	- 132	4.9K	- 65	24K
- 31	910	- 49	5.1K	- 149	25.5K
- 115	955	- 133	5.35K	- 66	27K
- 32	1 K	- 50	5.6K	- 150	28.5K
- 116	1.05K	- 134	5.9K	- 67	30K
- 33	1.1 K	- 51	6.2K	- 151	31.5K
- 117	1.15K	- 135	6.5K	- 68	33K
- 34	1.2K	- 52	6.8K	- 152	34.5K
- 118	1.25K	- 136	7.15K	- 69	36K
- 35	1.3 K	- 53	7.5K	- 153	37.5K
- 119	1.4K	- 137	7.85K	- 70	39K
- 36	1.5K	- 54	8.2K	- 154	41K
- 120	1.55K	- 138	8.65K	- 71	43K
- 37	1.6 K	- 55	9.1 K	- 155	45K
- 121	1.7K	- 139	9.55K	- 72	47K
- 38	1.8K	- 56	10K	- 156	49K
- 122	1.9 K	- 140	10.5K	- 73	51K
- 39	2.0K	- 57	11 K	- 157	53.5K
- 123	2.1K	- 141	11.5K	- 74	56K
- 40	2.2K	- 58	12 K	- 158	59K
- 124	2.3K	- 142	12.5K	1006750 - 75	62K
- 41	2.4K	1006750 - 59	13K	SEE NOTE 5	∞
- 125	2.55K				
- 42	2.7K				
1006750 - 126	2.85K				

R10

DASH NO.	OHMS ±2%	DASH NO.	OHMS ±2%
1006750 - 32	1 K	1006750 - 51	6.2 K
- 116	1.05K	- 135	6.5 K
- 33	1.1 K	- 52	6.8 K
- 117	1.15K	- 136	7.15 K
- 34	1.2 K	- 53	7.5 K
- 118	1.25K	- 137	7.85K
- 35	1.3 K	- 54	8.2K
- 119	1.4 K	- 138	8.65K
- 36	1.5K	- 55	9.1K
- 120	1.55K	- 139	9.55K
- 37	1.6K	- 56	10 K
- 121	1.7K	- 140	10.5K
- 38	1.8K	- 57	11 K
- 122	1.9K	- 141	11.5K
- 39	2.0K	- 58	12 K
- 123	2.1K	- 142	12.5K
- 40	2.2K	- 59	13 K
- 124	2.3K	- 143	14 K
- 41	2.4K	- 60	15K
- 125	2.55K	- 144	15.5K
- 42	2.7K	- 61	16K
- 126	2.85K	- 145	17K
- 43	3 K	- 62	18K
- 127	3.15K	- 146	19K
- 44	3.3K	- 63	20K
- 128	3.45K	- 147	21K
- 45	3.6K	- 64	22K
- 129	3.75K	- 148	23K
- 46	3.9K	- 65	24K
- 130	4.1K	- 149	25.5K
- 47	4.3K	- 66	27K
- 131	4.5K	- 150	28.5K
- 48	4.7K	- 67	30K
- 132	4.9K	- 151	31.5K
- 49	5.1K	- 68	33K
- 133	5.35K	- 152	34.5K
- 50	5.6K	- 69	36K
1006750 - 134	5.9K	- 153	37.5K
		- 70	39K
		- 154	41K
		- 71	43K
		- 155	45K
		- 72	47K
		- 156	49K
		1006750 - 73	51K
		SEE NOTE 5	∞

R4 AND 6

DASH NO.	OHMS ±2%	DASH NO.	OHMS ±2%
1006750 - 25	510	1006750 - 43	3 K
- 109	535	- 127	3.15 K
- 26	560	- 44	3.3 K
- 110	590	- 128	3.45K
- 27	620	- 45	3.6 K
- 111	650	- 129	3.75K
- 28	680	- 46	3.9 K
- 112	715	- 130	4.1 K
- 29	750	- 47	4.3K
- 113	785	- 131	4.5K
- 30	820	- 48	4.7K
- 114	865	- 132	4.9K
- 31	910	- 49	5.1K
- 115	955	- 133	5.35K
- 32	1K	- 50	5.6K
- 116	1.05 K	- 134	5.9K
- 33	1.1 K	- 51	6.2K
- 117	1.15K	- 135	6.5K
- 34	1.2K	- 52	6.8K
- 118	1.25K	- 136	7.15K
- 35	1.3K	- 53	7.5K
- 119	1.4 K	- 137	7.85K
- 36	1.5K	- 54	8.2K
- 120	1.55K	- 138	8.65K
- 37	1.6 K	- 55	9.1 K
- 121	1.7K	- 139	9.55K
- 38	1.8K	- 56	10 K
- 122	1.9K	- 140	10.5K
- 39	2.0K	- 57	11 K
- 123	2.1K	- 141	11.5K
- 40	2.2K	1006750 - 58	12K
- 124	2.3K	1006757 - 8	0
- 41	2.4K	SEE NOTE 5	∞
- 125	2.55K		
- 42	2.7K		
1006750 - 126	2.85K		

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG NO. CONTRACT

DRAWN DATE 3FEB65
CHECKED 3 Feb 65
APPROVAL Albert Hopkins 16 Feb 65
APPROVAL Eldon C Hall 18 Feb 65
NASA APPROVAL 2/17/65
MIT APPROVAL
MIT APPROVAL 17 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC
CLOCK OSCILLATOR
MODULE NO. B7

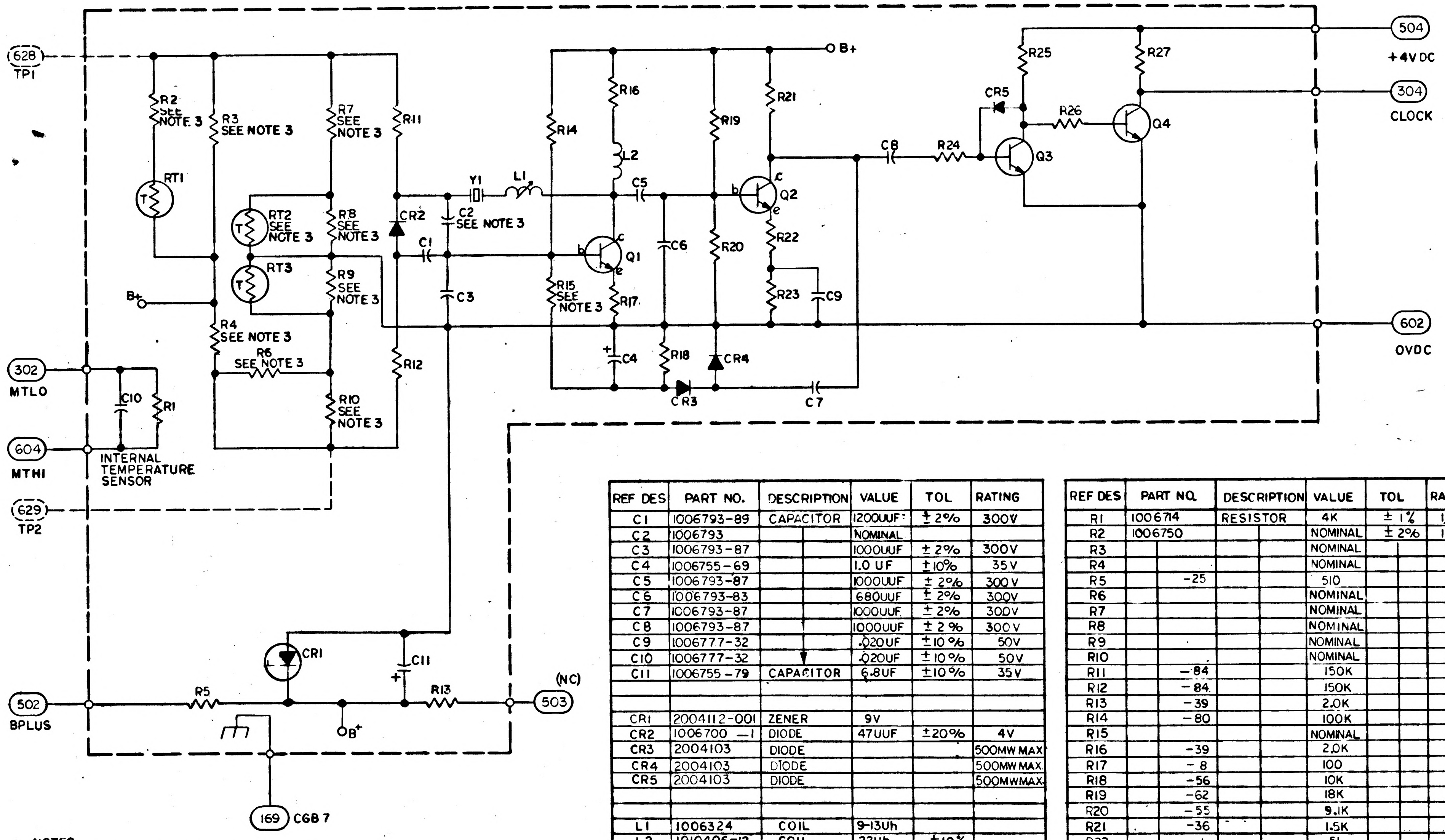
CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	D	2005003
SCALE NONE	WT	SHEET 2 OF 3

2005003 B

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2005003 B

REVISIONS 16564			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 8681	28 Jan 65	WK
B	REVISED PER TDRR 19761	7 Jun 65	WK


628
TP1
R2 SEE NOTE 3
R3 SEE NOTE 3
R7 SEE NOTE 3
R11
RT1
RT2 SEE NOTE 3
RT3
R8 SEE NOTE 3
R9 SEE NOTE 3
B+
R4 SEE NOTE 3
R6 SEE NOTE 3
R10 SEE NOTE 3
R12
CR2
C2 SEE NOTE 3
C1
C3
Y1
L1
R14
R16
L2
C5
R19
R21
Q1
Q2
C6
R20
R22
R15 SEE NOTE 3
R17
R23
C9
C4
R18
CR4
CR3
C7
B+
C8
R24
CR5
R25
R26
R27
Q3
Q4
504
+4V DC
304
CLOCK
602
0VDC
302
MTLO
C10
R1
604
MTHI
INTERNAL TEMPERATURE SENSOR
629
TP2
CR1
C11
502
BPLUS
R5
R13
B+
(NC)
503
169
CGB 7

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
C1	1006793-89	CAPACITOR	1200UUF	± 2%	300V
C2	1006793		NOMINAL		
C3	1006793-87		1000UUF	± 2%	300V
C4	1006755-69		1.0 UF	±10%	35V
C5	1006793-87		1000UUF	± 2%	300V
C6	1006793-83		680UUF	± 2%	300V
C7	1006793-87		1000UUF	± 2%	300V
C8	1006793-87		1000UUF	± 2%	300V
C9	1006777-32		.020UF	±10%	50V
C10	1006777-32		.020UF	±10%	50V
C11	1006755-79	CAPACITOR	6.8UF	±10%	35V
CR1	2004112-001	ZENER	9V		
CR2	1006700 —1	DIODE	47UUF	±20%	4V
CR3	2004103	DIODE			500MW MAX
CR4	2004103	DIODE			500MW MAX.
CR5	2004103	DIODE			500MW MAX.
L1	1006324	COIL	9-13Uh		
L2	1010406-12	COIL	22Uh	±10%	
Y1	1006847	XTAL			
RT1	1006715-1	THERMISTOR	100 K	±1%	
RT2	1006712	THERMISTOR	NOMINAL		
RT3	1006291	THERMISTOR			
Q1	2004004-005	TRANSISTOR			
Q2	2004004-005	TRANSISTOR			
Q3	2004004-005	TRANSISTOR			
Q4	2004004-005	TRANSISTOR			

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R1	1006714	RESISTOR	4K	± 1%	1/4 W
R2	1006750		NOMINAL	± 2%	1/4 W
R3			NOMINAL		
R4			NOMINAL		
R5	-25		510		
R6			NOMINAL		
R7			NOMINAL		
R8			NOMINAL		
R9			NOMINAL		
R10			NOMINAL		
R11	-84		150K		
R12	-84		150K		
R13	-39		2.0K		
R14	-80		100K		
R15			NOMINAL		
R16	-39		2.0K		
R17	-8		100		
R18	-56		10K		
R19	-62		18K		
R20	-55		9.1K		
R21	-36		1.5K		
R22	-1		51		
R23	-34		1.2K		
R24	-39		2.0K		
R25	-39		2.0K		
R26	-27		620		
R27	1006750 -43	RESISTOR	3.0K	2%	1/4W

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. RESISTOR VALUES ARE EXPRESSED IN OHMS UNLESS OTHERWISE SPECIFIED
3. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT UNIT TEST: C2, R2, R3, R4 R6, R7, R8, R9, R10, R15 AND RT2 SEE TABLES ON SHEETS 2 AND 3

5. WHEN VALUE OF R6 R8 R9 OR R10 IS ∞ NO COMPONENTS WILL BE USED

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO.
CONTRACT
DRAWN H. Mattey DATE 3 Aug 64
CHECKED R.W. Edward 11 Aug 64
APPROVAL Albert Hopkins 16 Feb 65
APPROVAL Eldon C. Hall 18 Feb 65
NASA APPROVAL 2/17/65
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

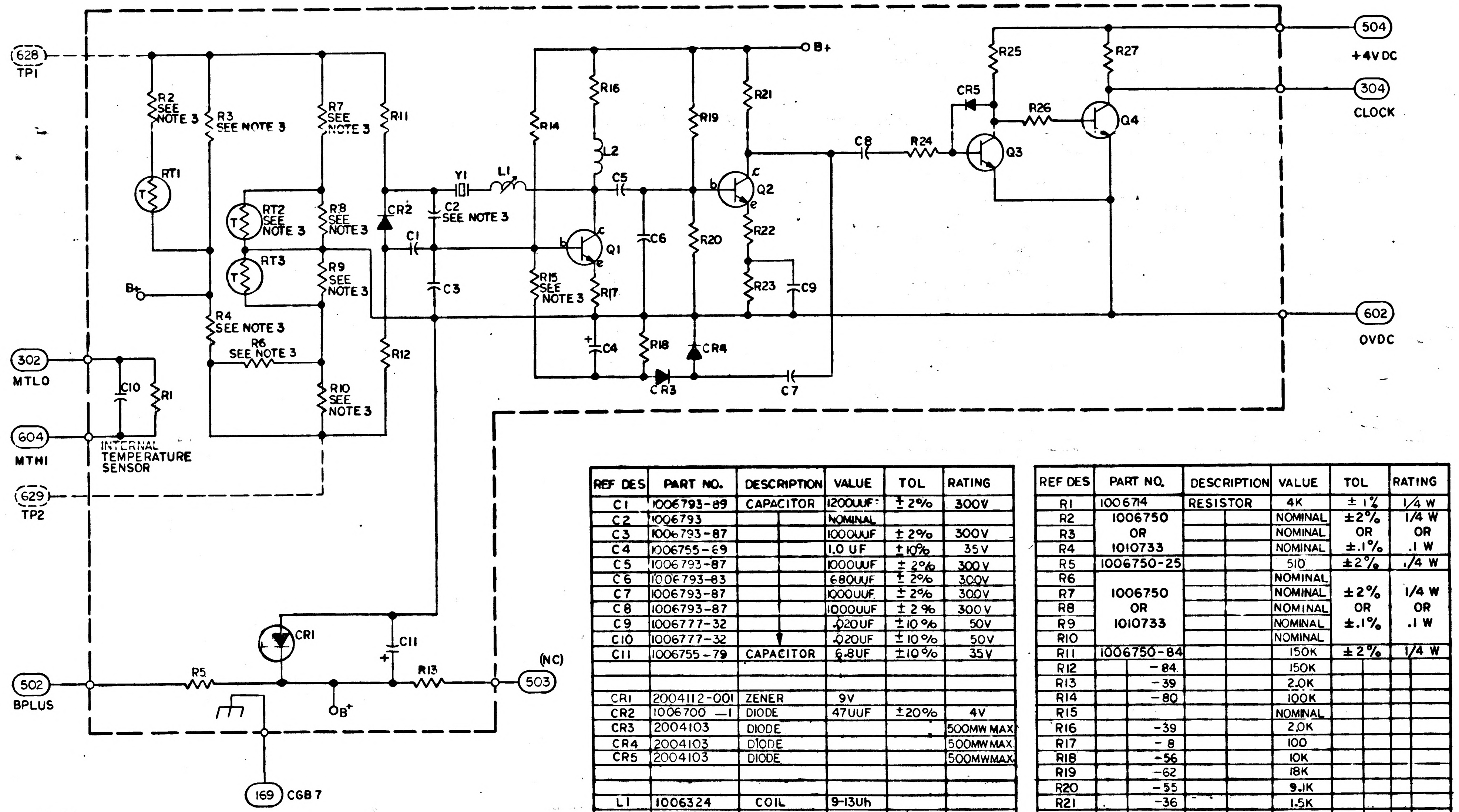
SCHEMATIC
CLOCK OSCILLATOR
MODULE NO. B7

CODE IDENT NO. 80230
SIZE D
NASA DRAWING NO. 2005003
SCALE NONE
WT
SHEET 1 OF 3

2005003 B

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 16564			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 18681	28 Apr '65	WR
B	REVISED PER TDRR 19761	7 June '65	WR
C	REVISED PER TDRR 23218	18-5-65	WR


628
TP1
R2 SEE NOTE 3
R3 SEE NOTE 3
R7 SEE NOTE 3
R11
RT1
RT2 SEE NOTE 3
RT3
R8 SEE NOTE 3
R9 SEE NOTE 3
R4 SEE NOTE 3
R6 SEE NOTE 3
R10 SEE NOTE 3
R12
CR2
C1
C2 SEE NOTE 3
C3
Y1
L1
B+
302
MTLO
C10
R1
604
MTHI
INTERNAL TEMPERATURE SENSOR
629
TP2
R14
R16
L2
C5
C6
Q1
R15 SEE NOTE 3
R17
C4
R18
CR3
CR4
R19
R20
R21
Q2
R22
R23
C9
C7
C8
R24
Q3
CR5
R25
R26
R27
Q4
504
+4V DC
304
CLOCK
602
0VDC
CR1
C11
R5
R13
502
BPLUS
(NC)
503
169
CGB7

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. RESISTOR VALUES ARE EXPRESSED IN OHMS UNLESS OTHERWISE SPECIFIED
3. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT UNIT TEST: C2, R2, R3, R4 R6, R7, R8, R9, R10, R15 AND RT2 SEE TABLES ON SHEETS 2 AND 3
5. WHEN VALUE OF R6 R8 R9 OR R10 IS ∞ NO COMPONENTS WILL BE USED

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
C1	1006793-89	CAPACITOR	1200UUF	±2%	300V
C2	1006793		NOMINAL		
C3	1006793-87		1000UUF	±2%	300V
C4	1006755-69		1.0 UF	±10%	35V
C5	1006793-87		1000UUF	±2%	300V
C6	1006793-83		680UUF	±2%	300V
C7	1006793-87		1000UUF	±2%	300V
C8	1006793-87		1000UUF	±2%	300V
C9	1006777-32		.020UF	±10%	50V
C10	1006777-32		.020UF	±10%	50V
C11	1006755-79	CAPACITOR	6.8UF	±10%	35V
CR1	2004112-001	ZENER	9V		
CR2	1006700 -1	DIODE	47UUF	±20%	4V
CR3	2004103	DIODE			500MW MAX
CR4	2004103	DIODE			500MW MAX.
CR5	2004103	DIODE			500MW MAX
L1	1006324	COIL	9-13Uh		
L2	1010406-12	COIL	22uh	±10%	
Y1	1006847	XTAL			
RT1	1006715-1	THERMISTOR	100 K	±1%	
RT2	1006712	THERMISTOR	NOMINAL		
RT3	1006291	THERMISTOR			
Q1	2004004-005	TRANSISTOR			
Q2	2004004-005	TRANSISTOR			
Q3	2004004-005	TRANSISTOR			
Q4	2004004-005	TRANSISTOR			

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R1	1006714	RESISTOR	4K	±1%	1/4 W
R2	1006750		NOMINAL	±2%	1/4 W
R3	OR		NOMINAL	OR	OR
R4	1010733		NOMINAL	±.1%	.1 W
R5	1006750-25		510	±2%	1/4 W
R6			NOMINAL		
R7	1006750		NOMINAL	±2%	1/4 W
R8	OR		NOMINAL	OR	OR
R9	1010733		NOMINAL	±.1%	.1 W
R10			NOMINAL		
R11	1006750-84		150K	±2%	1/4 W
R12	-84		150K		
R13	-39		2.0K		
R14	-80		100K		
R15			NOMINAL		
R16	-39		2.0K		
R17	-8		100		
R18	-56		10K		
R19	-62		18K		
R20	-55		9.1K		
R21	-36		1.5K		
R22	-1		51		
R23	-34		1.2K		
R24	-39		2.0K		
R25	-39		2.0K		
R26	-27		620		
R27	1006750 -43	RESISTOR	3.0K	2%	1/4W

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN DATE 3 Aug 64
CHECKED R. W. Edward 11 Aug 64
APPROVAL Albert Hopkins 16 Feb 65
APPROVAL Eldon C. Hall 18 Feb 65
NASA APPROVAL 2/1/65
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC
CLOCK OSCILLATOR
MODULE NO. B7

CODE IDENT NO. 80230
SIZE D
NASA DRAWING NO. 2005003
SCALE NONE
WT
SHEET 1 OF 3

MASTER

NOTICE -- WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2005003 C

D

REVISIONS 16564			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 8681	28 Apr '65	WK
B	REVISED PER TDRR 19761	7 June '65	WK
C	REVISED PER TDRR 23218	19 Oct 65	KCH W

R9

DASH NO.	OHMS ±2%	DASH NO.	OHMS ±2%	DASH NO.	OHMS ±2%
1006750 – 25	510	1006750 – 43	3 K	1006750 – 143	14 K
– 109	535	– 127	3.15K	– 60	15 K
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– 114	865	– 132	4.9K	– 65	24K
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– 115	955	– 133	5.35K	– 66	27K
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– 116	1.05K	– 134	5.9K	– 67	30K
– 33	1.1 K	– 51	6.2K	– 151	31.5K
– 117	1.15K	– 135	6.5K	– 68	33K
– 34	1.2K	– 52	6.8K	– 152	34.5K
– 118	1.25K	– 136	7.15K	– 69	36K
– 35	1.3 K	– 53	7.5K	– 153	37.5K
– 119	1.4K	– 137	7.85K	– 70	39K
– 36	1.5K	– 54	8.2K	– 154	41K
– 120	1.55K	– 138	8.65K	– 71	43K
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– 121	1.7K	– 139	9.55K	– 72	47K
– 38	1.8K	– 56	10K	– 156	49K
– 122	1.9K	– 140	10.5K	– 73	51K
– 39	2.0K	– 57	11 K	– 157	53.5K
– 123	2.1K	– 141	11.5K	– 74	56K
– 40	2.2K	– 58	12 K	– 158	59K
– 124	2.3K	– 142	12.5K	1006750 – 75	62K
– 41	2.4K	1006750 – 59	13K	SEE NOTE 5	∞
– 125	2.55K				
– 42	2.7K				
1006750 – 126	2.85K				

R10

DASH NO.	OHMS ±2%	DASH NO.	OHMS ±2%
1006750 – 32	1 K	1006750 – 51	6.2 K
– 116	1.05K	– 135	6.5 K
– 33	1.1 K	– 52	6.8 K
– 117	1.15K	– 136	7.15 K
– 34	1.2K	– 53	7.5 K
– 118	1.25K	– 137	7.85K
– 35	1.3 K	– 54	8.2K
– 119	1.4 K	– 138	8.65K
– 36	1.5K	– 55	9.1 K
– 120	1.55K	– 139	9.55K
– 37	1.6K	– 56	10 K
– 121	1.7K	– 140	10.5K
– 38	1.8K	– 57	11 K
– 122	1.9K	– 141	11.5K
– 39	2.0K	– 58	12 K
– 123	2.1K	– 142	12.5K
– 40	2.2K	– 59	13 K
– 124	2.3K	– 143	14 K
– 41	2.4K	– 60	15 K
– 125	2.55K	– 144	15.5K
– 42	2.7 K	– 61	16K
– 126	2.85K	– 145	17K
– 43	3 K	– 62	18K
– 127	3.15K	– 146	19K
– 44	3.3K	– 63	20K
– 128	3.45K	– 147	21K
– 45	3.6K	– 64	22K
– 129	3.75K	– 148	23K
– 46	3.9K	– 65	24K
– 130	4.1 K	– 149	25.5K
– 47	4.3 K	– 66	27K
– 131	4.5K	– 150	28.5K
– 48	4.7K	– 67	30K
– 132	4.9K	– 151	31.5K
– 49	5.1 K	– 68	33K
– 133	5.35K	– 152	34.5K
– 50	5.6 K	– 69	36K
1006750 – 134	5.9K	– 153	37.5K
		– 70	39K
		– 154	41K
		– 71	43K
		– 155	45K
		– 72	47K
		– 156	49K
		1006750 – 73	51K
		SEE NOTE 5	∞

R4 AND 6

DASH NO.	OHMS ±2%	DASH NO.	OHMS ±2%
1006750 – 25	510	1006750 – 43	3 K
– 109	535	– 127	3.15 K
– 26	560	– 44	3.3 K
– 110	590	– 128	3.45 K
– 27	620	– 45	3.6 K
– 111	650	– 129	3.75K
– 28	680	– 46	3.9 K
– 112	715	– 130	4.1 K
– 29	750	– 47	4.3K
– 113	785	– 131	4.5K
– 30	820	– 48	4.7K
– 114	865	– 132	4.9K
– 31	910	– 49	5.1 K
– 115	955	– 133	5.35K
– 32	1 K	– 50	5.6K
– 116	1.05 K	– 134	5.9K
– 33	1.1 K	– 51	6.2K
– 117	1.15 K	– 135	6.5K
– 34	1.2K	– 52	6.8K
– 118	1.25K	– 136	7.15K
– 35	1.3K	– 53	7.5K
– 119	1.4 K	– 137	7.85K
– 36	1.5K	– 54	8.2K
– 120	1.55K	– 138	8.65K
– 37	1.6 K	– 55	9.1 K
– 121	1.7K	– 139	9.55K
– 38	1.8K	– 56	10 K
– 122	1.9K	– 140	10.5K
– 39	2.0K	– 57	11 K
– 123	2.1 K	– 141	11.5K
– 40	2.2K	1006750 – 58	12 K
– 124	2.3K	1006757 – 8	0
– 41	2.4K	SEE NOTE 5	∞
– 125	2.55K		
– 42	2.7K		
1006750 – 126	2.85K		

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN DATE 3FEB65
CHECKED 3 Feb 65
APPROVAL 16 Feb 65
APPROVAL Eldon C Hall 18 Feb 65
NASA APPROVAL 2/17/65
MIT APPROVAL
MIT APPROVAL 17 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC
CLOCK OSCILLATOR
MODULE NO. B7

CODE IDENT NO. 80230
SIZE D
NASA DRAWING NO. 2005003
SCALE NONE
WT
SHEET 2 OF 3

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2005003 C

REVISIONS 16564			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 18681	28 Jan. 65	WK
B	REVISED PER TDRR 19761	7 June 65	WK
C	REVISED PER TDRR 23218	19 OCT 65	WK

R8 AND R7	
DASH NO.	OHMS ±2%
1006750-56	10 K
-140	10.5 K
-57	11 K
-141	11.5 K
-58	12 K
-142	12.5 K
-59	13 K
-143	14 K
-60	15 K
-144	15.5 K
-61	16 K
-145	17 K
-62	18 K
-146	19 K
-63	20 K
-147	21 K
-64	22K
-148	23K
-65	24K
-149	25.5K
-66	27 K
-150	28.5K
-67	30 K
-151	31.5 K
-68	33 K
-152	34.5 K
-69	36 K
-153	37.5 K
-70	39 K
-154	41 K
-71	43K
-155	45K
-72	47K
-156	49K
-73	51K
-157	53.5K
-74	56K
-158	59K
-75	62K
-159	65K
-76	68K
-160	71.5K
-77	75K
-161	78.5K
-78	82K
-162	86.5K
-79	91K
1006750 -163	95.5K

R 2	
DASH NO.	OHMS ±2%
1006750-52	6.8 K
-136	7.15 K
-53	7.5 K
-137	7.85 K
-54	8.2 K
-138	8.65K
-55	9.1 K
-139	9.55K
-56	10 K
-140	10.5K
-57	11 K
-141	11.5K
-58	12 K
-142	12.5 K
-59	13 K
-143	14 K
-60	15 K
-144	15.5 K
-61	16 K
-145	17 K
-62	18 K
-146	19 K
-63	20K
-147	21 K
-64	22K
-39	2.0K
-124	2.3K
-125	2.55K
-42	2.7K
-43	3.0K
-44	3.3K
-45	3.6K
-46	3.9K
-47	4.3K
-48	4.7K
-49	5.1K
-50	5.6K
1006750 - 51	6.2K
SEE NOTE 5	∞

R15	
DASH NO.	OHMS ±2%
1006750-55	9.1K
-56	10K
-57	11K
-58	12K
-59	13K
-143	14K
-60	15K
-61	16K
-145	17K
-62	18K
-146	19K
1006750 -63	20K

R3	
DASH NO.	OHMS ±2%
1006750-157	53.5K
-74	56 K
-158	59 K
-75	62 K
-159	65 K
-76	68 K
-160	71.5 K
-77	75 K
-161	78.5 K
-78	82K
-162	86.5K
-79	91 K
-163	95.5K
-80	100K
-164	105K
-81	110K
-165	115K
-82	120K
-166	125K
-83	130K
-167	140K
1006750 - 84	150K

RT2	
DASH NO.	OHMS ±2%
1006712-1	500
1006712-2	1000
1006712-3	5000

R2, R3, R4, R6, R7, R8, R9 AND R10					
PART NO.	Ω ±.1%	PART NO.	Ω ±.1%	PART NO.	Ω ±.1%
1010733-121	511	1010733-313	5110	1010733-490	42700
-125	536	-317	5360	-494	44800
-128	556	-320	5560	-497	46400
-133	590	-323	5760	-499	47500
-136	612	-325	5900	-501	48700
-141	649	-328	6120	-503	49900
-144	673	-330	6260	-505	51100
-149	715	-333	6490	-507	52300
-153	750	-336	6730	-509	53600
-156	777	-341	7150	-512	55600
-160	816	-345	7500	-515	57600
-165	866	-348	7770	-517	59000
-169	909	-352	8160	-520	61200
-173	953	-355	8450	-522	62600
-176	988	-357	8660	-525	64900
-178	1010	-361	9090	-528	67300
-181	1050	-365	9530	-530	69000
-185	1100	-368	9880	-533	71500
-189	1150	-370	10100	-535	73200
-192	1200	-373	10500	-537	75000
-195	1240	-377	11000	-540	77700
-199	1300	-381	11500	-542	79600
-204	1330	-384	12000	-544	81600
-209	1470	-387	12400	-546	83500
-213	1540	-391	13000	-549	86600
-216	1600	-396	13800	-551	88700
-221	1690	-401	14700	-553	90900
-225	1780	-405	15400	-555	93100
-230	1890	-408	16000	-557	95300
-234	1980	-413	16900	-560	98800
-239	2100	-417	17800	-562	101000
-243	2210	-420	18400	-565	105000
-246	2290	-422	18900	-569	110000
-250	2400	-426	19800	-573	115000
-254	2520	-428	20300	-576	120000
-259	2670	-431	21000	-579	124000
-264	2840	-435	22100	-583	130000
-269	3010	-438	22900	-588	138000
-273	3160	-442	24000	-593	147000
-277	3320	-446	25200	-597	154000
-280	3440	-451	26700	1010733-600	160000
-284	3610	-456	28400		
-287	3740	-461	30100		
-291	3920	-465	31600		
-295	4120	-469	33200		
-298	4270	-472	34400		
-302	4480	-476	36100		
-305	4640	-479	37400		
-308	4810	-483	39200		
1010733-310	4930	1010733-487	41200		

C 2		
DASH NO.	VALUE UUF	TOL
1006793-37	10	±.25%
-38	11	±.25%
-39	12	±.25%
-40	13	± 2%
-41	15	
-42	16	
-43	18	
-44	20	
-45	22	
-46	24	
-47	27	
-48	30	
-49	33	
-50	36	
-51	39	
-52	43	
-53	47	
-54	51	
-55	56	
-56	62	
-57	68	
-58	75	
-59	82	
-60	91	
1006793 -61	100	± 2%

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

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FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN A.J. Bisson DATE 3FEB65
CHECKED S.L. Smith 3 Feb 65
APPROVAL
APPROVAL Eldon C Hall 15 Feb 65
NASA APPROVAL 2/17/65
MIT APPROVAL
MIT APPROVAL 17 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

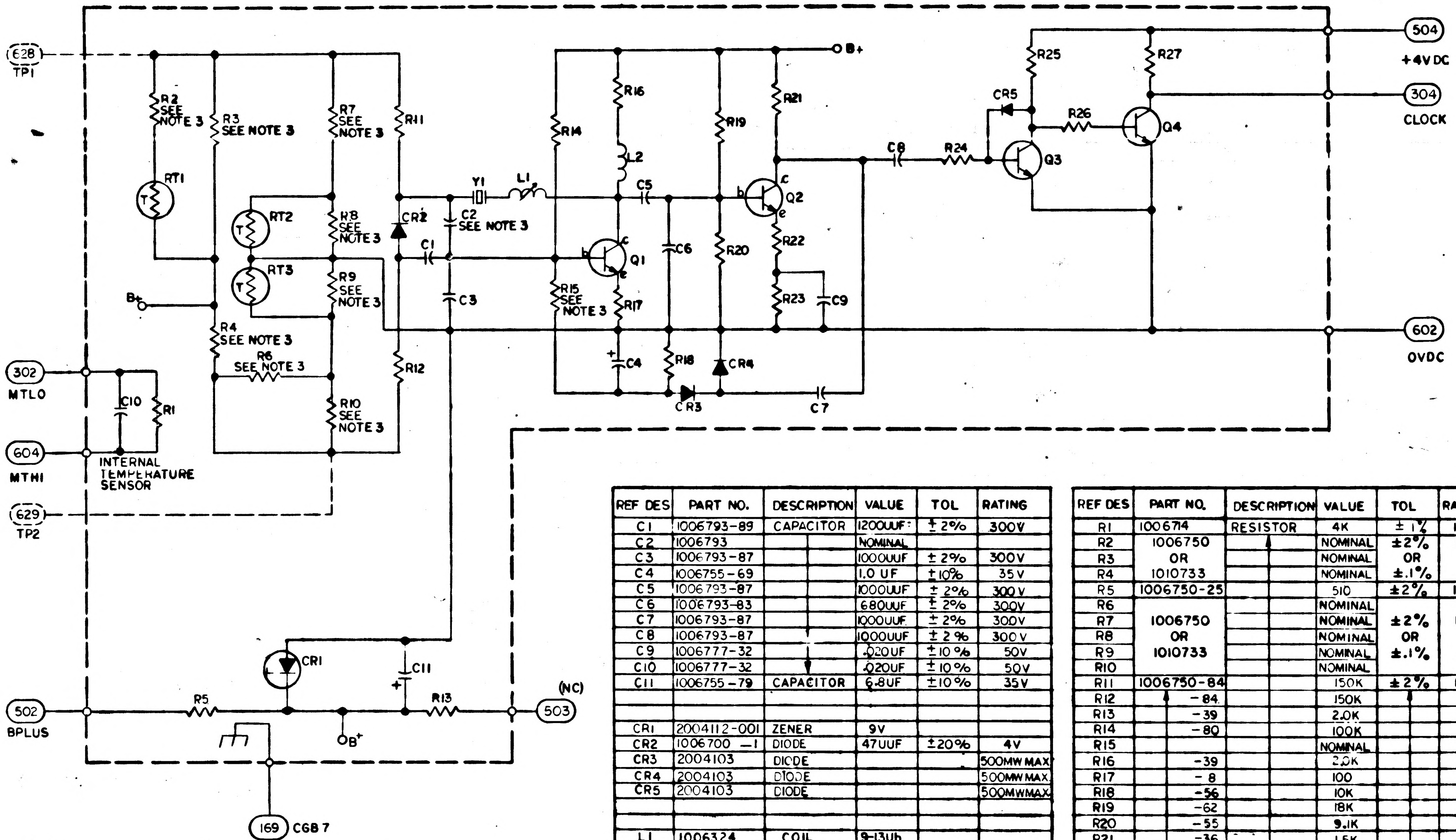
SCHEMATIC
CLOCK OSCILLATOR
MODULE NO. B7

CODE IDENT NO. 80230
SIZE D
NASA DRAWING NO. 2005003
SCALE NONE
WT
SHEET 3 OF 3

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2005003 D

REVISIONS 16564			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 18681	28 Apr 65	
B	REVISED PER TDRR 19761	7 June 65	
C	REVISED PER TDRR 23218	18 Oct 65	
D	REVISED PER TDRR 23956 DR CHK	11/-/65	


628
TP1
R2 SEE NOTE 3
R3 SEE NOTE 3
R7 SEE NOTE 3
R11
RT1
T
RT2
RT3
R8 SEE NOTE 3
R9 SEE NOTE 3
CR2
C1
C2 SEE NOTE 3
C3
Y1
L1
B+
R4 SEE NOTE 3
R6 SEE NOTE 3
R10 SEE NOTE 3
R12
302
MTLO
C10
R1
604
MTHI
INTERNAL TEMPERATURE SENSOR
629
TP2
R14
R15 SEE NOTE 3
R16
L2
C5
Q1
R17
C4
C6
R18
CR3
R19
R20
CR4
Q2
R21
R22
R23
C9
C7
C8
R24
Q3
CR5
R25
R26
R27
Q4
504
+4V DC
304
CLOCK
602
0VDC
CR1
C11
R5
R13
502
BPLUS
(NC)
503
169
CGB7

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
C1	1006793-89	CAPACITOR	1200UUF	± 2%	300V
C2	1006793		NOMINAL		
C3	1006793-87		1000UUF	± 2%	300V
C4	1006755-69		1.0 UF	± 10%	35V
C5	1006793-87		1000UUF	± 2%	300V
C6	1006793-83		680UUF	± 2%	300V
C7	1006793-87		1000UUF	± 2%	300V
C8	1006793-87		1000UUF	± 2%	300V
C9	1006777-32		.020UF	± 10%	50V
C10	1006777-32		.020UF	± 10%	50V
C11	1006755-79	CAPACITOR	6.8UF	± 10%	35V
CR1	2004112-001	ZENER	9V		
CR2	1006700 -1	DIODE	47UUF	± 20%	4V
CR3	2004103	DIODE			500MW MAX
CR4	2004103	DIODE			500MW MAX
CR5	2004103	DIODE			500MW MAX
L1	1006324	COIL	9-13Uh		
L2	1010406-12	COIL	22Uh	± 10%	
Y1	1006847	XTAL			
RT1	1006715-1	THERMISTOR	100 K	± 1%	
RT2	1006712-3	THERMISTOR	5 K	± 1%	
RT3	1006291	THERMISTOR			
Q1	2004004-005	TRANSISTOR			
Q2	2004004-005	TRANSISTOR			
Q3	2004004-005	TRANSISTOR			
Q4	2004004-005	TRANSISTOR			

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R1	1006714	RESISTOR	4K	± 1%	1/4 W
R2	1006750		NOMINAL	±2%	1/4 W
R3	OR		NOMINAL	OR	OR
R4	1010733		NOMINAL	±.1%	.1 W
R5	1006750-25		510	±2%	1/4 W
R6			NOMINAL		
R7	1006750		NOMINAL	±2%	1/4 W
R8	OR		NOMINAL	OR	OR
R9	1010733		NOMINAL	±.1%	.1 W
R10			NOMINAL		
R11	1006750-84		150K	±2%	1/4 W
R12	-84		150K		
R13	-39		2.0K		
R14	-80		100K		
R15			NOMINAL		
R16	-39		2.0K		
R17	-8		100		
R18	-56		10K		
R19	-62		18K		
R20	-55		9.1K		
R21	-36		1.5K		
R22	-1		51		
R23	-34		1.2K		
R24	-39		2.0K		
R25	-39		2.0K		
R26	-27		620		
R27	1006750 -43	RESISTOR	3.0K	2%	1/4W

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. RESISTOR VALUES ARE EXPRESSED IN OHMS UNLESS OTHERWISE SPECIFIED
3. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT UNIT TEST: C2, R2, R3, R4 R6, R7, R8, R9, R10 AND R15 SEE TABLES ON SHEETS 2 AND 3 PART NO. 1006750 ±2% OR 1010733 ±1%
5. WHEN VALUE OF R6 R8 R9 OR R10 IS ∞ NO COMPONENTS WILL BE USED

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

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TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN DATE 24 Aug 64
CHECKED R. W. Edward 11 Aug 64
APPROVAL Albert Hopkins 16 Feb 65
APPROVAL 18 Feb 65
NASA APPROVAL 2/10/65
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC
CLOCK OSCILLATOR
MODULE NO. B7

CODE IDENT NO. 80230
SIZE D
NASA DRAWING NO. 2005003
SCALE NONE
WT
SHEET 1 OF 3

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2005003 D

REVISIONS 16564

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 8681	22 Apr '65	WK
B	REVISED PER TDRR 19761	3 June '65	WK
C	REVISED PER TDRR 23218	19 Oct 65	KCH WK
D	REVISED PER TDRR 23956 DR CHK REO	11/17/65	

R9

DASH NO.	OHMS ±2%	DASH NO.	OHMS ±2%	DASH NO.	OHMS ±2%
1006750 − 25	510	1006750 − 43	3 K	1006750 − 143	14 K
− 109	535	− 127	3.15K	− 60	15 K
− 26	560	− 44	3.3K	− 144	15.5K
− 110	590	− 128	3.45K	− 61	16 K
− 27	620	− 45	3.6 K	− 145	17 K
− 111	650	− 129	3.75K	− 62	18 K
− 28	680	− 46	3.9 K	− 146	19 K
− 112	715	− 130	4.1 K	− 63	20K
− 29	750	− 47	4.3K	− 147	21K
− 113	785	− 131	4.5K	− 64	22K
− 30	820	− 48	4.7K	− 148	23K
− 114	865	− 132	4.9K	− 65	24K
− 31	910	− 49	5.1K	− 149	25.5K
− 115	955	− 133	5.35K	− 66	27K
− 32	1 K	− 50	5.6K	− 150	28.5K
− 116	1.05K	− 134	5.9K	− 67	30K
− 33	1.1 K	− 51	6.2K	− 151	31.5K
− 117	1.15K	− 135	6.5K	− 68	33K
− 34	1.2K	− 52	6.8K	− 152	34.5K
− 118	1.25K	− 136	7.15K	− 69	36K
− 35	1.3 K	− 53	7.5K	− 153	37.5K
− 119	1.4K	− 137	7.85K	− 70	39K
− 36	1.5K	− 54	8.2K	− 154	41K
− 120	1.55K	− 138	8.65K	− 71	43K
− 37	1.6 K	− 55	9.1 K	− 155	45K
− 121	1.7K	− 139	9.55K	− 72	47K
− 38	1.8K	− 56	10K	− 156	49K
− 122	1.9 K	− 140	10.5K	− 73	51K
− 39	2.0K	− 57	11 K	− 157	53.5K
− 123	2.1K	− 141	11.5K	− 74	56K
− 40	2.2K	− 58	12 K	− 158	59K
− 124	2.3K	− 142	12.5K	1006750 − 75	62K
− 41	2.4K	1006750 − 59	13K	SEE NOTE 5	∞
− 125	2.55K				
− 42	2.7K				
1006750 − 126	2.85K				

R10

DASH NO.	OHMS ±2%	DASH NO.	OHMS ±2%
1006750 − 32	1 K	1006750 − 51	6.2 K
− 116	1.05K	− 135	6.5 K
− 33	1.1 K	− 52	6.8 K
− 117	1.15K	− 136	7.15 K
− 34	1.2K	− 53	7.5 K
− 118	1.25K	− 137	7.85K
− 35	1.3 K	− 54	8.2K
− 119	1.4 K	− 138	8.65K
− 36	1.5K	− 55	9.1 K
− 120	1.55K	− 139	9.55K
− 37	1.6K	− 56	10 K
− 121	1.7K	− 140	10.5K
− 38	1.8K	− 57	11 K
− 122	1.9K	− 141	11.5K
− 39	2.0K	− 58	12 K
− 123	2.1K	− 142	12.5K
− 40	2.2K	− 59	13 K
− 124	2.3K	− 143	14 K
− 41	2.4K	− 60	15 K
− 125	2.55K	− 144	15.5K
− 42	2.7 K	− 61	16K
− 126	2.85K	− 145	17 K
− 43	3 K	− 62	18K
− 127	3.15K	− 146	19K
− 44	3.3K	− 63	20K
− 128	3.45K	− 147	21K
− 45	3.6K	− 64	22K
− 129	3.75K	− 148	23K
− 46	3.9K	− 65	24K
− 130	4.1 K	− 149	25.5K
− 47	4.3 K	− 66	27K
− 131	4.5K	− 150	28.5K
− 48	4.7K	− 67	30K
− 132	4.9K	− 151	31.5K
− 49	5.1 K	− 68	33K
− 133	5.35K	− 152	34.5K
− 50	5.6 K	− 69	36K
1006750 − 134	5.9K	− 153	37.5K
		− 70	39K
		− 154	41K
		− 71	43K
		− 155	45K
		− 72	47K
		− 156	49K
		1006750 − 73	51K
		SEE NOTE 5	∞

R4 AND6

DASH NO.	OHMS ±2%	DASH NO.	OHMS ±2%
1006750 − 25	510	1006750 − 43	3 K
− 109	535	− 127	3.15 K
− 26	560	− 44	3.3 K
− 110	590	− 128	3.45 K
− 27	620	− 45	3.6 K
− 111	650	− 129	3.75K
− 28	680	− 46	3.9 K
− 112	715	− 130	4.1 K
− 29	750	− 47	4.3K
− 113	785	− 131	4.5K
− 30	820	− 48	4.7K
− 114	865	− 132	4.9K
− 31	910	− 49	5.1K
− 115	955	− 133	5.35K
− 32	1 K	− 50	5.6K
− 116	1.05 K	− 134	5.9K
− 33	1.1 K	− 51	6.2K
− 117	1.15K	− 135	6.5K
− 34	1.2K	− 52	6.8K
− 118	1.25K	− 136	7.15K
− 35	1.3K	− 53	7.5K
− 119	1.4K	− 137	7.85K
− 36	1.5K	− 54	8.2K
− 120	1.55K	− 138	8.65K
− 37	1.6 K	− 55	9.1 K
− 121	1.7K	− 139	9.55K
− 38	1.8K	− 56	10 K
− 122	1.9K	− 140	10.5K
− 39	2.0K	− 57	11 K
− 123	2.1K	− 141	11.5K
− 40	2.2K	1006750 − 58	12K
− 124	2.3K	1006757 − 8	0
− 41	2.4K	SEE NOTE 5	∞
− 125	2.55K		
− 42	2.7K		
1006750 − 126	2.85K		

2005003 D

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY | USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT

DRAWN A.J. Tison DATE 3 FEB 65
CHECKED 3 Feb 65
APPROVAL 16 Feb 65
APPROVAL 18 Feb 65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 17 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC
CLOCK OSCILLATOR
MODULE NO. B7

CODE IDENT NO. 80230
SIZE D
NASA DRAWING NO. 2005003
SCALE NONE
WT
SHEET 2 OF 3

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2005003 D

REVISIONS 16566			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 18681	28 Apr. 65	WK
B	REVISED PER TDRR 19761	7 June 65	WK
C	REVISED PER TDRR 23218	19 OCT 65	KCH WK
D	REVISED PER TDRR 23956 DR [illegible] CHK [illegible] RB	11/7/65	[illegible]

R8 AND R7	
DASH NO.	OHMS ±2%
1006750 - 56	10 K
- 140	10.5 K
- 57	11 K
- 141	11.5 K
- 58	12 K
- 142	12.5 K
- 59	13 K
- 143	14 K
- 60	15 K
- 144	15.5 K
- 61	16 K
- 145	17 K
- 62	18 K
- 146	19 K
- 63	20 K
- 147	21 K
- 64	22 K
- 148	23 K
- 65	24 K
- 149	25.5 K
- 66	27 K
- 150	28.5 K
- 67	30 K
- 151	31.5 K
- 68	33 K
- 152	34.5 K
- 69	36 K
- 153	37.5 K
- 70	39 K
- 154	41 K
- 71	43 K
- 155	45 K
- 72	47 K
- 156	49 K
- 73	51 K
- 157	53.5 K
- 74	56 K
- 158	59 K
- 75	62 K
- 159	65 K
- 76	68 K
- 160	71.5 K
- 77	75 K
- 161	78.5 K
- 78	82 K
- 162	86.5 K
- 79	91 K
1006750 - 163	95.5 K

R 2	
DASH NO.	OHMS ±2%
1006750 - 52	6.8 K
- 136	7.15 K
- 53	7.5 K
- 137	7.85 K
- 54	8.2 K
- 138	8.65 K
- 55	9.1 K
- 139	9.55 K
- 56	10 K
- 140	10.5 K
- 57	11 K
- 141	11.5 K
- 58	12 K
- 142	12.5 K
- 59	13 K
- 143	14 K
- 60	15 K
- 144	15.5 K
- 61	16 K
- 145	17 K
- 62	18 K
- 146	19 K
- 63	20 K
- 147	21 K
- 64	22 K
- 39	2.0 K
- 124	2.3 K
- 125	2.55 K
- 42	2.7 K
- 43	3.0 K
- 44	3.3 K
- 45	3.6 K
- 46	3.9 K
- 47	4.3 K
- 48	4.7 K
- 49	5.1 K
- 50	5.6 K
1006750 - 51	6.2 K
SEE NOTE 5	∞

R15	
DASH NO.	OHMS ±2%
1006750 - 55	9.1 K
- 56	10 K
- 57	11 K
- 58	12 K
- 59	13 K
- 143	14 K
- 60	15 K
- 61	16 K
- 145	17 K
- 62	18 K
- 146	19 K
1006750 - 63	20 K

R3	
DASH NO.	OHMS ±2%
1006750 - 157	53.5 K
- 74	56 K
- 158	59 K
- 75	62 K
- 159	65 K
- 76	68 K
- 160	71.5 K
- 77	75 K
- 161	78.5 K
- 78	82 K
- 162	86.5 K
- 79	91 K
- 163	95.5 K
- 80	100 K
- 164	105 K
- 81	110 K
- 165	115 K
- 82	120 K
- 166	125 K
- 83	130 K
- 167	140 K
1006750 - 84	150 K

~~RT2~~	
~~DASH NO.~~	~~OHMS ±2%~~
~~1006712 - 1~~	~~500~~
~~1006712 - 2~~	~~1000~~
~~1006712 - 3~~	~~5000~~

R2, R3, R4, R6, R7, R8, R9 AND R10					
PART NO.	Ω ±.1%	PART NO.	Ω ±.1%	PART NO.	Ω ±.1%
1010733 - 121	511	1010733 - 313	5110	1010733 - 490	42700
- 125	536	- 317	5360	- 494	44800
- 128	556	- 320	5560	- 497	46400
- 133	590	- 323	5760	- 499	47500
- 136	612	- 325	5900	- 501	48700
- 141	649	- 328	6120	- 503	49900
- 144	673	- 330	6260	- 505	51100
- 149	715	- 333	6490	- 507	52300
- 153	750	- 336	6730	- 509	53600
- 156	777	- 341	7150	- 512	55600
- 160	816	- 345	7500	- 515	57600
- 165	866	- 348	7770	- 517	59000
- 169	909	- 352	8160	- 520	61200
- 173	953	- 355	8450	- 522	62600
- 176	988	- 357	8660	- 525	64900
- 178	1010	- 361	9090	- 528	67300
- 181	1050	- 365	9530	- 530	69000
- 185	1100	- 368	9880	- 533	71500
- 189	1150	- 370	10100	- 535	73200
- 192	1200	- 373	10500	- 537	75000
- 195	1240	- 377	11000	- 540	77700
- 199	1300	- 381	11500	- 542	79600
- 204	1380	- 384	12000	- 544	81600
- 209	1470	- 387	12400	- 546	83500
- 213	1540	- 391	13000	- 549	86600
- 216	1600	- 396	13800	- 551	88700
- 221	1690	- 401	14700	- 553	90900
- 225	1780	- 405	15400	- 555	93100
- 230	1890	- 408	16000	- 557	95300
- 234	1980	- 413	16900	- 560	98800
- 239	2100	- 417	17800	- 562	101000
- 243	2210	- 420	18400	- 565	105000
- 246	2290	- 422	18900	- 569	110000
- 250	2400	- 426	19800	- 573	115000
- 254	2520	- 428	20300	- 576	120000
- 259	2670	- 431	21000	- 579	124000
- 264	2840	- 435	22100	- 583	130000
- 269	3010	- 438	22900	- 588	138000
- 273	3160	- 442	24000	- 593	147000
- 277	3320	- 446	25200	- 597	154000
- 280	3440	- 451	26700	1010733 - 600	160000
- 284	3610	- 456	28400		
- 287	3740	- 461	30100		
- 291	3920	- 465	31600		
- 295	4120	- 469	33200		
- 298	4270	- 472	34400		
- 302	4480	- 476	36100		
- 305	4640	- 479	37400		
- 308	4810	- 483	39200		
1010733 - 310	4930	1010733 - 487	41200		

C 2		
DASH NO.	VALUE UUF	TOL
1006793 - 37	10	±.25%
- 38	11	±.25%
- 39	12	±.25%
- 40	13	± 2 %
- 41	15	
- 42	16	
- 43	18	
- 44	20	
- 45	22	
- 46	24	
- 47	27	
- 48	30	
- 49	33	
- 50	36	
- 51	39	
- 52	43	
- 53	47	
- 54	51	
- 55	56	
- 56	62	
- 57	68	
- 58	75	
- 59	82	
- 60	91	
1006793 - 61	100	± 2 %

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN [illegible] DATE 3FEB65
CHECKED [illegible] 3 Feb 65
APPROVAL
APPROVAL [illegible] 15 Feb 65
NASA APPROVAL [illegible]
MIT APPROVAL
MIT APPROVAL [illegible] 17 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

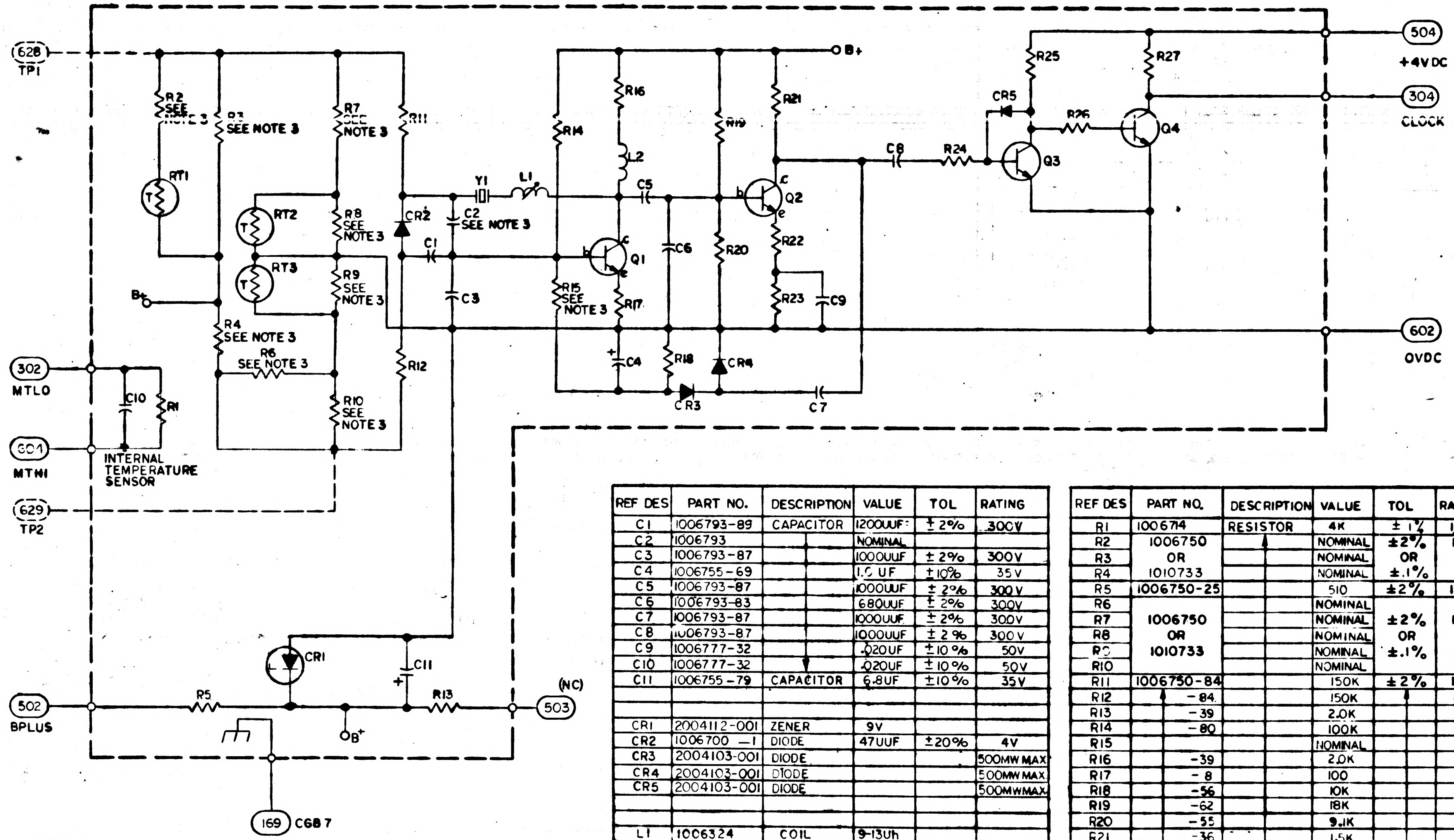
SCHEMATIC
CLOCK OSCILLATOR
MODULE NO. B7

CODE IDENT NO. 80230
SIZE D
NASA DRAWING NO. 2005003
SCALE NONE
WT
SHEET 3 OF 3

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2005003 E

REVISIONS 16364			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 18681	24 Jun '65	WR
B	REVISED PER TDRR 19761	7 June 65	WR
C	REVISED PER TDRR 23218	18 '65	KCH WR
D	REVISED PER TDRR 23956 DR CHK	11/1/65	
E	REVISED PER TDRR 26764 DR CHK JcJ	3/8/66	


628
TP1
R2 SEE NOTE 3
R3 SEE NOTE 3
R7 SEE NOTE 3
R11
RT1
RT2
RT3
R8 SEE NOTE 3
R9 SEE NOTE 3
CR2
B+
R4 SEE NOTE 3
R6 SEE NOTE 3
R10 SEE NOTE 3
R12
302
MTLO
C10
R1
301
MTHI
INTERNAL TEMPERATURE SENSOR
629
TP2
Y1
L1
C2 SEE NOTE 3
C1
C3
R14
R16
L2
C5
R15 SEE NOTE 3
Q1
R17
C6
C4
R18
CR3
CR4
R19
R20
R21
Q2
R22
R23
C9
C7
B+
C8
R24
Q3
CR5
R25
R26
Q4
R27
504
+4VDC
304
CLOCK
602
0VDC
CR1
C11
502
BPLUS
R5
R13
(NC)
503
B+
169
CG87

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. RESISTOR VALUES ARE EXPRESSED IN OHMS UNLESS OTHERWISE SPECIFIED
3. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT UNIT TEST: C2,R2,R3,R4 R6,R7, R8,R9,R10 AND R15 SEE TABLES ON SHEETS 2 AND 3 PART NO.1006750 ±2% OR 1010733 ±1%
5. WHEN VALUE OF R6 R8 R9 OR R10 IS ∞ NO COMPONENTS WILL BE USED

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
C1	1006793-89	CAPACITOR	1200UUF	±2%	300V
C2	1006793		NOMINAL		
C3	1006793-87		1000UUF	±2%	300V
C4	1006755-69		1.0 UF	±10%	35V
C5	1006793-87		1000UUF	±2%	300V
C6	1006793-83		680UUF	±2%	300V
C7	1006793-87		1000UUF	±2%	300V
C8	1006793-87		1000UUF	±2%	300V
C9	1006777-32		.020UF	±10%	50V
C10	1006777-32		.020UF	±10%	50V
C11	1006755-79	CAPACITOR	6.8UF	±10%	35V
CR1	2004112-001	ZENER	9V		
CR2	1006700 -1	DIODE	47UUF	±20%	4V
CR3	2004103-001	DIODE			500MW MAX
CR4	2004103-001	DIODE			500MW MAX.
CR5	2004103-001	DIODE			500MW MAX.
L1	1006324	COIL	9-13Uh		
L2	1010406-12	COIL	22uh	±10%	
Y1	1006847	XTAL			
RT1	1006715-1	THERMISTOR	100 K	±1%	
RT2	1006712-3	THERMISTOR	5 K	±1%	
RT3	1006291	THERMISTOR			
Q1	2004004-005	TRANSISTOR			
Q2	2004004-005	TRANSISTOR			
Q3	2004004-005	TRANSISTOR			
Q4	2004004-005	TRANSISTOR			

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R1	1006714	RESISTOR	4K	±1%	1/4 W
R2	1006750		NOMINAL	±2%	1/4 W
R3	OR		NOMINAL	OR	OR
R4	1010733		NOMINAL	±.1%	.1 W
R5	1006750-25		510	±2%	1/4 W
R6			NOMINAL		
R7	1006750		NOMINAL	±2%	1/4 W
R8	OR		NOMINAL	OR	OR
R9	1010733		NOMINAL	±.1%	.1 W
R10			NOMINAL		
R11	1006750-84		150K	±2%	1/4 W
R12	-84		150K		
R13	-39		2.0K		
R14	-80		100K		
R15			NOMINAL		
R16	-39		2.0K		
R17	-8		100		
R18	-56		10K		
R19	-62		18K		
R20	-55		9.1K		
R21	-36		1.5K		
R22	-1		51		
R23	-34		1.2K		
R24	-39		2.0K		
R25	-39		2.0K		
R26	-27		620		
R27	1006750 -43	RESISTOR	3.0K	2%	1/4W

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN DATE
CHECKED R.W. Edward
APPROVAL Albert Hopkins 16 Feb 65
APPROVAL 11 Feb 65
NASA APPROVAL 2/11/65
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC
CLOCK OSCILLATOR
MODULE NO. B7

CODE IDENT NO. 80230
SIZE D
NASA DRAWING NO. 2005003
SCALE NONE
WT
SHEET 1 OF 3

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2005003 E

REVISIONS 16564			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 8681	28 Apr '65	WK
B	REVISED PER TDRR 19761	3 June '65	WK
C	REVISED PER TDRR 23218	19 Oct 65	WK
D	REVISED PER TDRR 23956 DR CHK RE	11/17/65	
E	REVISED PER 26764 DR CHK JCJ	3/8/66	

R9					
DASH NO.	OHMS ± 2%	DASH NO.	OHMS ± 2%	DASH NO.	OHMS ± 2%
1006750 - 25	510	1006750 - 43	3 K	1006750 - 143	14 K
- 109	535	- 127	3.15K	- 60	15 K
- 26	560	- 44	3.3K	- 144	15.5K
- 110	590	- 128	3.45K	- 61	16 K
- 27	620	- 45	3.6 K	- 145	17 K
- 111	650	- 129	3.75K	- 62	18 K
- 28	680	- 46	3.9 K	- 146	19 K
- 112	715	- 130	4.1 K	- 63	20K
- 29	750	- 47	4.3K	- 147	21K
- 113	785	- 131	4.5K	- 64	22K
- 30	820	- 48	4.7K	- 148	23K
- 114	865	- 132	4.9K	- 65	24K
- 31	910	- 49	5.1K	- 149	25.5K
- 115	955	- 133	5.35K	- 66	27K
- 32	1 K	- 50	5.6K	- 150	28.5K
- 116	1.05K	- 134	5.9K	- 67	30K
- 33	1.1 K	- 51	6.2K	- 151	31.5K
- 117	1.15K	- 135	6.5K	- 68	33K
- 34	1.2K	- 52	6.8K	- 152	34.5K
- 118	1.25K	- 136	7.15K	- 69	36K
- 35	1.3 K	- 53	7.5K	- 153	37.5K
- 119	1.4K	- 137	7.85K	- 70	39K
- 36	1.5K	- 54	8.2K	- 154	41K
- 120	1.55K	- 138	8.65K	- 71	43K
- 37	1.6 K	- 55	9.1 K	- 155	45K
- 121	1.7K	- 139	9.55K	- 72	47K
- 38	1.8K	- 56	10K	- 156	49K
- 122	1.9K	- 140	10.5K	- 73	51K
- 39	2.0K	- 57	11 K	- 157	53.5K
- 123	2.1K	- 141	11.5K	- 74	56K
- 40	2.2K	- 58	12 K	- 158	59K
- 124	2.3K	- 142	12.5K	1006750 - 75	62K
- 41	2.4K	1006750 - 59	13K	SEE NOTE 5	∞
- 125	2.55K				
- 42	2.7K				
1006750 - 126	2.85K				

R10			
DASH NO.	OHMS ± 2%	DASH NO.	OHMS ± 2%
1006750 - 32	1 K	1006750 - 51	6.2 K
- 116	1.05K	- 135	6.5 K
- 33	1.1 K	- 52	6.8 K
- 117	1.15K	- 136	7.15 K
- 34	1.2K	- 53	7.5 K
- 118	1.25K	- 137	7.85K
- 35	1.3 K	- 54	8.2K
- 119	1.4K	- 138	8.65K
- 36	1.5K	- 55	9.1 K
- 120	1.55K	- 139	9.55K
- 37	1.6K	- 56	10 K
- 121	1.7K	- 140	10.5K
- 38	1.8K	- 57	11 K
- 122	1.9K	- 141	11.5K
- 39	2.0K	- 58	12 K
- 123	2.1K	- 142	12.5K
- 40	2.2K	- 59	13 K
- 124	2.3K	- 143	14 K
- 41	2.4K	- 60	15K
- 125	2.55K	- 144	15.5K
- 42	2.7K	- 61	16K
- 126	2.85K	- 145	17K
- 43	3 K	- 62	18K
- 127	3.15K	- 146	19K
- 44	3.3K	- 63	20K
- 128	3.45K	- 147	21K
- 45	3.6K	- 64	22K
- 129	3.75K	- 148	23K
- 46	3.9K	- 65	24K
- 130	4.1K	- 149	25.5K
- 47	4.3K	- 66	27K
- 131	4.5K	- 150	28.5K
- 48	4.7K	- 67	30K
- 132	4.9K	- 151	31.5K
- 49	5.1K	- 68	33K
- 133	5.35K	- 152	34.5K
- 50	5.6K	- 69	36K
1006750 - 134	5.9K	- 153	37.5K
		- 70	39K
		- 154	41K
		- 71	43K
		- 155	45K
		- 72	47K
		- 156	49K
		1006750 - 73	51K
		SEE NOTE 5	∞

R4 AND6			
DASH NO.	OHMS ± 2%	DASH NO.	OHMS ± 2%
1006750 - 25	510	1006750 - 43	3 K
- 109	535	- 127	3.15 K
- 26	560	- 44	3.3 K
- 110	590	- 128	3.45 K
- 27	620	- 45	3.6 K
- 111	650	- 129	3.75K
- 28	680	- 46	3.9 K
- 112	715	- 130	4.1 K
- 29	750	- 47	4.3K
- 113	785	- 131	4.5K
- 30	820	- 48	4.7K
- 114	865	- 132	4.9K
- 31	910	- 49	5.1K
- 115	955	- 133	5.35K
- 32	1K	- 50	5.6K
- 116	1.05 K	- 134	5.9K
- 33	1.1 K	- 51	6.2K
- 117	1.15K	- 135	6.5K
- 34	1.2K	- 52	6.8K
- 118	1.25K	- 136	7.15K
- 35	1.3K	- 53	7.5K
- 119	1.4 K	- 137	7.85K
- 36	1.5K	- 54	8.2K
- 120	1.55K	- 138	8.65K
- 37	1.6 K	- 55	9.1 K
- 121	1.7K	- 139	9.55K
- 38	1.8K	- 56	10 K
- 122	1.9K	- 140	10.5K
- 39	2.0K	- 57	11 K
- 123	2.1K	- 141	11.5K
- 40	2.2K	1006750 - 58	12K
- 124	2.3K	1006757 - 8	0
- 41	2.4K	SEE NOTE 5	∞
- 125	2.55K		
- 42	2.7K		
1006750 - 126	2.85K		

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
REQ. NO. CONTRACT
DRAWN a.g. Bjion DATE 3FEB65
CHECKED 3 Feb 65
APPROVAL 16 Feb 65
APPROVAL 18 Feb 65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 17 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC
CLOCK OSCILLATOR
MODULE NO. B7

CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	D	2005003
SCALE NONE	WT	SHEET 2 OF 3

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2005003 E

REVISIONS 16568			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 18681	28 Apr. 65	WK
B	REVISED PER TDRR 19761	7 June 65	WK
C	REVISED PER TDRR 23218	19 Oct 65	KCH WK
D	REVISED PER TDRR 23956 DR CHK	11/17/65	
E	REVISED PER TDRR 26764 DR CHK JCJ	3/8/66	

R8 AND R7	
DASH NO.	OHMS ±2%
1006750 - 56	10 K
- 140	10.5 K
- 57	11 K
- 141	11.5 K
- 58	12 K
- 142	12.5 K
- 59	13 K
- 143	14 K
- 60	15 K
- 144	15.5 K
- 61	16 K
- 145	17 K
- 62	18 K
- 146	19 K
- 63	20 K
- 147	21 K
- 64	22K
- 148	23K
- 65	24 K
- 149	25.5K
- 66	27 K
- 150	28.5 K
- 67	30 K
- 151	31.5 K
- 68	33 K
- 152	34.5 K
- 69	36 K
- 153	37.5 K
- 70	39 K
- 154	41 K
- 71	43K
- 155	45K
- 72	47K
- 156	49K
- 73	51K
- 157	53.5K
- 74	56K
- 158	59K
- 75	62K
- 159	65K
- 76	68K
- 160	71.5K
- 77	75K
- 161	78.5K
- 78	82K
- 162	86.5K
- 79	91K
1006750 - 163	95.5K

R 2	
DASH NO.	OHMS ±2%
1006750 - 52	6.8 K
- 136	7.15 K
- 53	7.5 K
- 137	7.85 K
- 54	8.2 K
- 138	8.65 K
- 55	9.1 K
- 139	9.55 K
- 56	10 K
- 140	10.5 K
- 57	11 K
- 141	11.5 K
- 58	12 K
- 142	12.5 K
- 59	13 K
- 143	14 K
- 60	15 K
- 144	15.5 K
- 61	16 K
- 145	17 K
- 62	18 K
- 146	19 K
- 63	20K
- 147	21 K
- 64	22K
- 39	2.0K
- 124	2.3K
- 125	2.55K
- 42	2.7K
- 43	3.0K
- 44	3.3K
- 45	3.6K
- 46	3.9K
- 47	4.3K
- 48	4.7K
- 49	5.1K
- 50	5.6K
1006750 - 51	6.2K
SEE NOTE 5	∞

R15	
DASH NO.	OHMS ±2%
1006750 - 55	9.1K
- 56	10K
- 57	11 K
- 58	12K
- 59	13K
- 143	14K
- 60	15K
- 61	16K
- 145	17K
- 62	18K
- 146	19K
1006750 - 63	20K

R3	
DASH NO.	OHMS ±2%
1006750 - 157	53.5 K
- 74	56 K
- 158	59 K
- 75	62 K
- 159	65 K
- 76	68 K
- 160	71.5 K
- 77	75 K
- 161	78.5 K
- 78	82K
- 162	86.5K
- 79	91 K
- 163	95.5K
- 80	100K
- 164	105K
- 81	110K
- 165	115 K
- 82	120K
- 166	125K
- 83	130K
- 167	140K
1006750 - 84	150K

~~RT2~~	
~~DASH NO.~~	~~OHMS ±2%~~
~~1006712-1~~	~~500~~
~~1006712-2~~	~~1000~~
~~1006712-3~~	~~5000~~

R2, R3, R4, R6, R7, R8, R9 AND R10					
PART NO.	Ω ±.1%	PART NO.	Ω ±.1%	PART NO.	Ω ±.1%
1010733 - 121	511	1010733 - 313	5110	1010733 - 490	42700
- 125	536	- 317	5360	- 494	44800
- 128	556	- 320	5560	- 497	46400
- 133	590	- 323	5760	- 499	47500
- 136	612	- 325	5900	- 501	48700
- 141	649	- 328	6120	- 503	49900
- 144	673	- 330	6260	- 505	51100
- 149	715	- 333	6490	- 507	52300
- 153	750	- 336	6730	- 509	53600
- 156	777	- 341	7150	- 512	55600
- 160	816	- 345	7500	- 515	57600
- 165	866	- 348	7770	- 517	59000
- 169	909	- 352	8160	- 520	61200
- 173	953	- 355	8450	- 522	62600
- 176	988	- 357	8660	- 525	64900
- 178	1010	- 361	9090	- 528	67300
- 181	1050	- 365	9530	- 530	69000
- 185	1100	- 368	9880	- 533	71500
- 189	1150	- 370	10100	- 535	73200
- 192	1200	- 373	10500	- 537	75000
- 195	1240	- 377	11000	- 540	77700
- 199	1300	- 381	11500	- 542	79600
- 204	1380	- 384	12000	- 544	81600
- 209	1470	- 387	12400	- 546	83500
- 213	1540	- 391	13000	- 549	86600
- 216	1600	- 396	13800	- 551	88700
- 221	1690	- 401	14700	- 553	90900
- 225	1780	- 405	15400	- 555	93100
- 230	1890	- 408	16000	- 557	95300
- 234	1980	- 413	16900	- 560	98800
- 239	2100	- 417	17800	- 562	101000
- 243	2210	- 420	18400	- 565	105000
- 246	2290	- 422	18900	- 569	110000
- 250	2400	- 426	19800	- 573	115000
- 254	2520	- 428	20300	- 576	120000
- 259	2670	- 431	21000	- 579	124000
- 264	2840	- 435	22100	- 583	130000
- 269	3010	- 438	22900	- 588	138000
- 273	3160	- 442	24000	- 593	147000
- 277	3320	- 446	25200	- 597	154000
- 280	3440	- 451	26700	1010733 - 600	160000
- 284	3610	- 456	28400		
- 287	3740	- 461	30100		
- 291	3920	- 465	31600		
- 295	4120	- 469	33200		
- 298	4270	- 472	34400		
- 302	4480	- 476	36100		
- 305	4640	- 479	37400		
- 308	4810	- 483	39200		
1010733 - 310	4930	1010733 - 487	41200		

C2		
DASH NO.	VALUE UUF	TOL
1006793 - 37	10	±.25%
- 38	11	±.25%
- 39	12	±.25%
- 40	13	± 2 %
- 41	15	
- 42	16	
- 43	18	
- 44	20	
- 45	22	
- 46	24	
- 47	27	
- 48	30	
- 49	33	
- 50	36	
- 51	39	
- 52	43	
- 53	47	
- 54	51	
- 55	56	
- 56	62	
- 57	68	
- 58	75	
- 59	82	
- 60	91	
1006793 - 61	100	± 2 %

C2 (CONT)		
DASH NO.	VALUE UUF	TOL
1006793 - 91	0.5	±0.25%
- 92	1.5	
- 93	2.2	
- 94	3.0	
- 95	3.9	
- 96	4.7	
- 97	5.6	
- 98	6.8	
- 99	7.5	
- 100	8.2	
1006793 - 101	9.1	±0.25%

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
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TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN A. J. Bisen DATE 3 FEB 65
CHECKED 3 Feb 65
APPROVAL
APPROVAL 15 Feb 65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 17 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

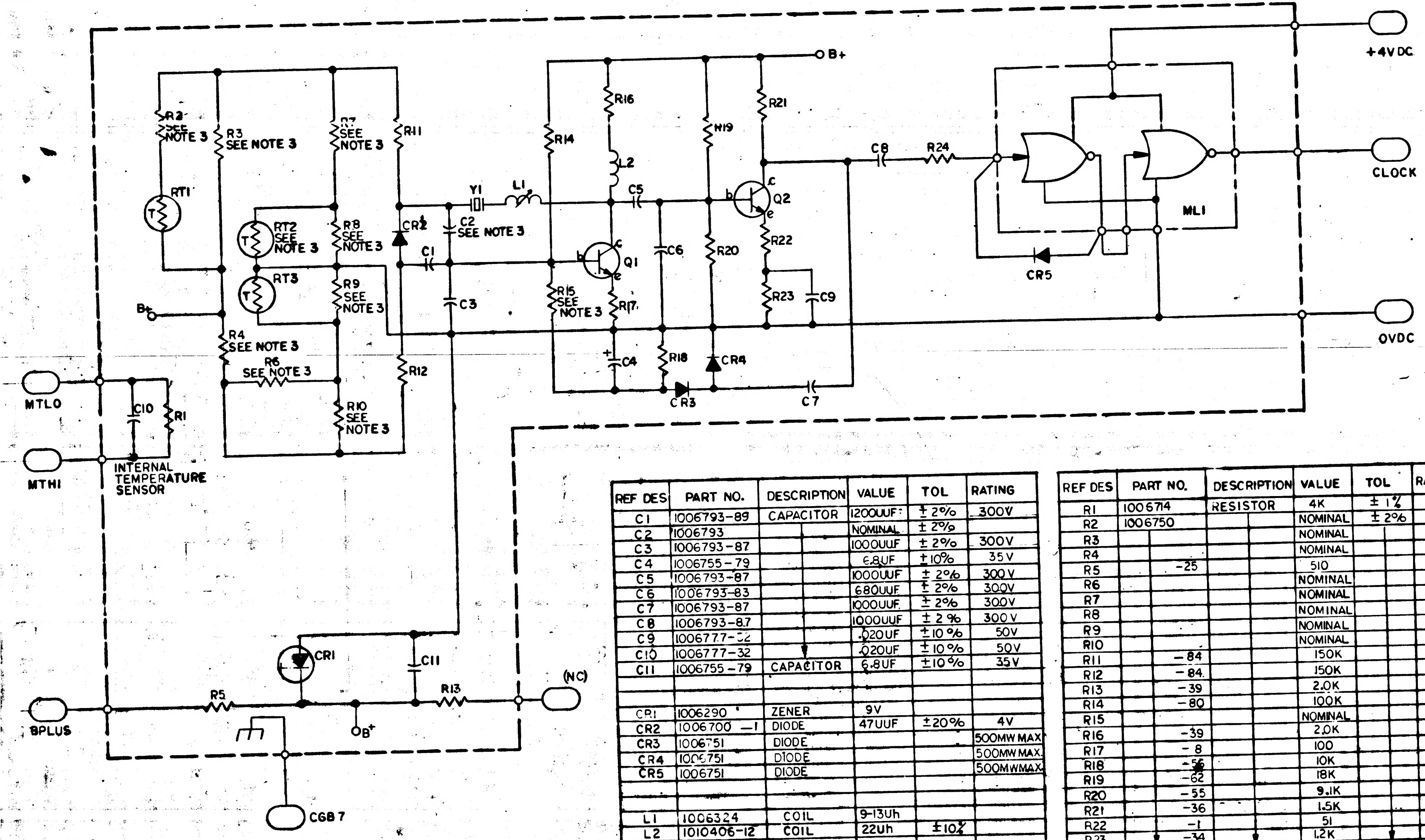
SCHEMATIC
CLOCK OSCILLATOR
MODULE NO. B7

CODE IDENT NO. 80230
SIZE D
NASA DRAWING NO. 2005003
SCALE NONE
WT
SHEET 3 OF 3

2005003 —

SYM	DESCRIPTION	DATE	APPROVAL
	REVISIONS 16364		

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


+4VDC
CLOCK
OVDC
B+
R2 SEE NOTE 3
R3 SEE NOTE 3
R7 SEE NOTE 3
R11
RT1
RT2 SEE NOTE 3
RT3
R8 SEE NOTE 3
R9 SEE NOTE 3
B+
R4 SEE NOTE 3
R6 SEE NOTE 3
R10 SEE NOTE 3
R12
CR2
C1
C2 SEE NOTE 3
C3
Y1
L1
R14
R15 SEE NOTE 3
R16
L2
C5
Q1
R17
C4
R18
CR3
C6
R19
R20
CR4
C7
R21
Q2
R22
R23
C9
C8
R24
ML1
CR5
MTLO
MTHI
C10
R1
INTERNAL TEMPERATURE SENSOR
CR1
C11
R5
R13
(NC)
BPLUS
B+
CGB7

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. RESISTOR VALUES ARE EXPRESSED IN OHMS UNLESS OTHERWISE SPECIFIED
3. THE VALUE OF THE FOLLOWING COMPONENTS TO BE DETERMINED AT UNIT TEST: C2, R2, R3, R4 R6, R7, R8, R9, R10, R15 AND RT2 SEE TABLES ON SHEETS 2 AND 3
4. ML DENOTES MICROLOGIC
5. WHEN VALUE OF R6 R8 R9 OR R10 IS ∞Ω NO COMPONENTS WILL BE USED

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
C1	1006793-89	CAPACITOR	1200UUF	± 2%	300V
C2	1006793		NOMINAL	± 2%	
C3	1006793-87		1000UUF	± 2%	300V
C4	1006755-79		6.8UF	±10%	35V
C5	1006793-87		1000UUF	± 2%	300V
C6	1006793-83		680UUF	± 2%	300V
C7	1006793-87		1000UUF	± 2%	300V
C8	1006793-87		1000UUF	± 2%	300V
C9	1006777-32		.020UF	±10%	50V
C10	1006777-32		.020UF	±10%	50V
C11	1006755-79	CAPACITOR	6.8UF	±10%	35V
CR1	1006290	ZENER	9V		
CR2	1006700 -1	DIODE	47UUF	±20%	4V
CR3	1006751	DIODE			500MW MAX
CR4	1006751	DIODE			500MW MAX.
CR5	1006751	DIODE			500MW MAX.
L1	1006324	COIL	9-13Uh		
L2	1010406-12	COIL	22Uh	±10%	
Y1	1006847	XTAL			
RT1	1006715-1	THERMISTOR			
RT2	1006712	THERMISTOR	NOMINAL		
RT3	1006291	THERMISTOR			
Q1	1006323	TRANSISTOR			
Q2	1006323	TRANSISTOR			

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R1	1006714	RESISTOR	4K	± 1%	1/4 W
R2	1006750		NOMINAL	± 2%	1/4 W
R3			NOMINAL		
R4			NOMINAL		
R5	-25		510		
R6			NOMINAL		
R7			NOMINAL		
R8			NOMINAL		
R9			NOMINAL		
R10			NOMINAL		
R11	-84		150K		
R12	-84		150K		
R13	-39		2.0K		
R14	-80		100K		
R15			NOMINAL		
R16	-39		2.0K		
R17	-8		100		
R18	-56		10K		
R19	-62		18K		
R20	-55		9.1K		
R21	-36		1.5K		
R22	-1		51		
R23	-34		1.2K		
R24	1006750 -39	RESISTOR	2.0K	2%	1/4W
ML1	1004301	MICROLOGIC			

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

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TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
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MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN H. Mathy DATE 3 Aug 64
CHECKED R.W. Edmond 11 Aug 64
APPROVAL Albert Hopkins 16 Feb 65
APPROVAL Eldon C. Hall 18 Feb 65
NASA APPROVAL 2/11/65
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC
CLOCK OSCILLATOR
MODULE NO. B7

CODE IDENT NO. —
SIZE D
NASA DRAWING NO. 2005003
SCALE NONE
WT
SHEET 1 OF 3

MASTER

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REVISIONS 16564			
SYM	DESCRIPTION	DATE	APPROVAL

R9

DASH NO.	OHMS ±2%	DASH NO.	OHMS ±2%	DASH NO.	OHMS ±2%
1006750 – 25	510	1006750 – 43	3 K	1006750 – 143	14 K
– 109	535	– 127	3.15K	– 60	15 K
– 26	560	– 44	3.3K	– 144	15.5K
– 110	590	– 128	3.45K	– 61	16 K
– 27	620	– 45	3.6K	– 145	17 K
– 111	650	– 129	3.75K	– 62	18 K
– 28	680	– 46	3.9K	– 146	19 K
– 112	715	– 130	4.1K	– 63	20K
– 29	750	– 47	4.3K	– 147	21K
– 113	785	– 131	4.5K	– 64	22K
– 30	820	– 48	4.7K	– 148	23K
– 114	865	– 132	4.9K	– 65	24K
– 31	910	– 49	5.1K	– 149	25.5K
– 115	955	– 133	5.35K	– 66	27K
– 32	1 K	– 50	5.6K	– 150	28.5K
– 116	1.05K	– 134	5.9K	– 67	30K
– 33	1.1 K	– 51	6.2K	– 151	31.5K
– 117	1.15K	– 135	6.5K	– 68	33K
– 34	1.2K	– 52	6.8K	– 152	34.5K
– 118	1.25K	– 136	7.15K	– 69	36K
– 35	1.3K	– 53	7.5K	– 153	37.5K
– 119	1.4K	– 137	7.85K	– 70	39K
– 36	1.5K	– 54	8.2K	– 154	41K
– 120	1.55K	– 138	8.65K	– 71	43K
– 37	1.6K	– 55	9.1 K	– 155	45K
– 121	1.7K	– 139	9.55K	– 72	47K
– 38	1.8K	– 56	10K	– 156	49K
– 122	1.9K	– 140	10.5K	– 73	51K
– 39	2.0K	– 57	11 K	– 157	53.5K
– 123	2.1K	– 141	11.5K	– 74	56K
– 40	2.2K	– 58	12 K	– 158	59K
– 124	2.3K	– 142	12.5K	1006750 – 75	62K
– 41	2.4K	1006750 – 59	13K	SEE NOTE 5	∞
– 125	2.55K				
– 42	2.7K				
1006750 – 126	2.85K				

R10

DASH NO.	OHMS ±2%	DASH NO.	OHMS ±2%
1006750 – 32	1 K	1006750 – 51	6.2 K
– 116	1.05K	– 135	6.5 K
– 33	1.1 K	– 52	6.8 K
– 117	1.15K	– 136	7.15 K
– 34	1.2 K	– 53	7.5 K
– 118	1.25K	– 137	7.85K
– 35	1.3 K	– 54	8.2 K
– 119	1.4 K	– 138	8.65K
– 36	1.5K	– 55	9.1 K
– 120	1.55K	– 139	9.55K
– 37	1.6 K	– 56	10 K
– 121	1.7K	– 140	10.5K
– 38	1.8K	– 57	11 K
– 122	1.9K	– 141	11.5K
– 39	2.0K	– 58	12 K
– 123	2.1K	– 142	12.5K
– 40	2.2K	– 59	13 K
– 124	2.3K	– 143	14 K
– 41	2.4K	– 60	15 K
– 125	2.55K	– 144	15.5K
– 42	2.7 K	– 61	16K
– 126	2.85K	– 145	17 K
– 43	3 K	– 62	18K
– 127	3.15K	– 146	19K
– 44	3.3K	– 63	20K
– 128	3.45K	– 147	21K
– 45	3.6K	– 64	22K
– 129	3.75K	– 148	23K
– 46	3.9K	– 65	24K
– 130	4.1 K	– 149	25.5K
– 47	4.3 K	– 66	27 K
– 131	4.5K	– 150	28.5K
– 48	4.7K	– 67	30K
– 132	4.9K	– 151	31.5K
– 49	5.1 K	– 68	33 K
– 133	5.35K	– 152	34.5K
– 50	5.6 K	– 69	36K
1006750 – 134	5.9K	– 153	37.5K
		– 70	39K
		– 154	41K
		– 71	43K
		– 155	45K
		– 72	47K
		– 156	49K
		1006750 – 73	51K
		SEE NOTE 5	∞

R4 AND 6

DASH NO.	OHMS ±2%	DASH NO.	OHMS ±2%
1006750 – 25	510	1006750 – 43	3 K
– 109	535	– 127	3.15 K
– 26	560	– 44	3.3 K
– 110	590	– 128	3.45 K
– 27	620	– 45	3.6 K
– 111	650	– 129	3.75K
– 28	680	– 46	3.9 K
– 112	715	– 130	4.1 K
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– 30	820	– 48	4.7K
– 114	865	– 132	4.9K
– 31	910	– 49	5.1 K
– 115	955	– 133	5.35K
– 32	1 K	– 50	5.6K
– 116	1.05 K	– 134	5.9K
– 33	1.1 K	– 51	6.2K
– 117	1.15 K	– 135	6.5K
– 34	1.2K	– 52	6.8K
– 118	1.25K	– 136	7.15K
– 35	1.3K	– 53	7.5K
– 119	1.4 K	– 137	7.85K
– 36	1.5K	– 54	8.2 K
– 120	1.55 K	– 138	8.65K
– 37	1.6 K	– 55	9.1 K
– 121	1.7K	– 139	9.55K
– 38	1.8K	– 56	10 K
– 122	1.9K	– 140	10.5K
– 39	2.0K	– 57	11 K
– 123	2.1K	– 141	11.5K
– 40	2.2K	1006750 – 58	12 K
– 124	2.3K	1006757 – 8	0
– 41	2.4K	SEE NOTE 5	∞
– 125	2.55K		
– 42	2.7K		
1006750 – 126	2.85K		

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN a.g. [illegible] DATE 3FEB65
CHECKED [illegible] 3 Feb 65
APPROVAL [illegible] 16 Feb 65
APPROVAL [illegible] 18 Feb 65
NASA APPROVAL [illegible]
MIT APPROVAL
MIT APPROVAL [illegible] 17 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC
CLOCK OSCILLATOR
MODULE NO. B7

CODE IDENT NO. —
SIZE D
NASA DRAWING NO. 2005003
SCALE NONE
WT
SHEET 2 OF 3

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

2005003 —

REVISIONS 16564			
SYM	DESCRIPTION	DATE	APPROVAL

R8 AND R7	
DASH NO.	OHMS±2%
1006750-56	10 K
-140	10.5 K
-57	11 K
-141	11.5 K
-58	12 K
-142	12.5 K
-59	13 K
-143	14 K
-60	15 K
-144	15.5 K
-61	16 K
-145	17 K
-62	18 K
-146	19 K
-63	20 K
-147	21 K
-64	22K
-148	23K
-65	24K
-149	25.5K
-66	27 K
-150	28.5K
-67	30 K
-151	31.5 K
-68	33 K
-152	34.5 K
-69	36 K
-153	37.5 K
-70	39 K
-154	41 K
-71	43K
-155	45K
-72	47K
-156	49K
-73	51K
-157	53.5K
-74	56K
-158	59K
-75	62K
-159	65K
-76	68K
-160	71.5K
-77	75K
-161	78.5K
-78	82K
-162	86.5K
-79	91K
1006750 -163	95.5K

R 2	
DASH NO.	OHMS±2%
1006750-52	6.8 K
-136	7.15 K
-53	7.5 K
-137	7.85 K
-54	8.2 K
-138	8.65K
-55	9.1 K
-139	9.55K
-56	10 K
-140	10.5K
-57	11 K
-141	11.5K
-58	12 K
-142	12.5K
-59	13 K
-143	14 K
-60	15 K
-144	15.5 K
-61	16 K
-145	17 K
-62	18 K
-146	19 K
-63	20K
-147	21 K
-64	22K
-39	2.0K
-124	2.3K
-125	2.55K
-42	2.7K
-43	3.0K
-44	3.3K
-45	3.6K
-46	3.9K
-47	4.3K
-48	4.7K
-49	5.1K
-50	5.6K
1006750 - 51	6.2K
SEE NOTE 5	∞

R15	
DASH NO.	OHMS±2%
1006750-55	9.1K
-56	10K
-57	11K
-58	12K
-59	13K
-143	14K
-60	15K
-61	16K
-145	17K
-62	18K
-146	19K
1006750 -63	20K

R3	
DASH NO.	OHMS±2%
1006750-157	53.5K
-74	56 K
-158	59 K
-75	62 K
-159	65 K
-76	68 K
-160	71.5 K
-77	75 K
-161	78.5 K
-78	82K
-162	86.5K
-79	91 K
-163	95.5K
-80	100K
-164	105K
-81	110K
-165	115 K
-82	120K
-166	125K
-83	130K
-167	140K
1006750 - 84	150K

RT2	
DASH NO.	OHMS±2%
1006712-1	500
1006712-2	1000
1006712-3	1500

C 2	
DASH NO.	VALUE UUF
1006793-37	10
-38	11
-39	12
-40	13
-41	15
-42	16
-43	18
-44	20
-45	22
-46	24
-47	27
-48	30
-49	33
-50	36
-51	39
-52	43
-53	47
-54	51
-55	56
-56	62
-57	68
-58	75
-59	82
-60	91
1006793 -61	100

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
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DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN A. J. Bisson DATE 3FEB65
CHECK'D S. L. Smith 3 Feb 65
APPROVAL
APPROVAL Eldon C Hall 15 Feb 65
NASA APPROVAL [illegible] 2/10/65
MIT APPROVAL
MIT APPROVAL [illegible] 17 Feb 65

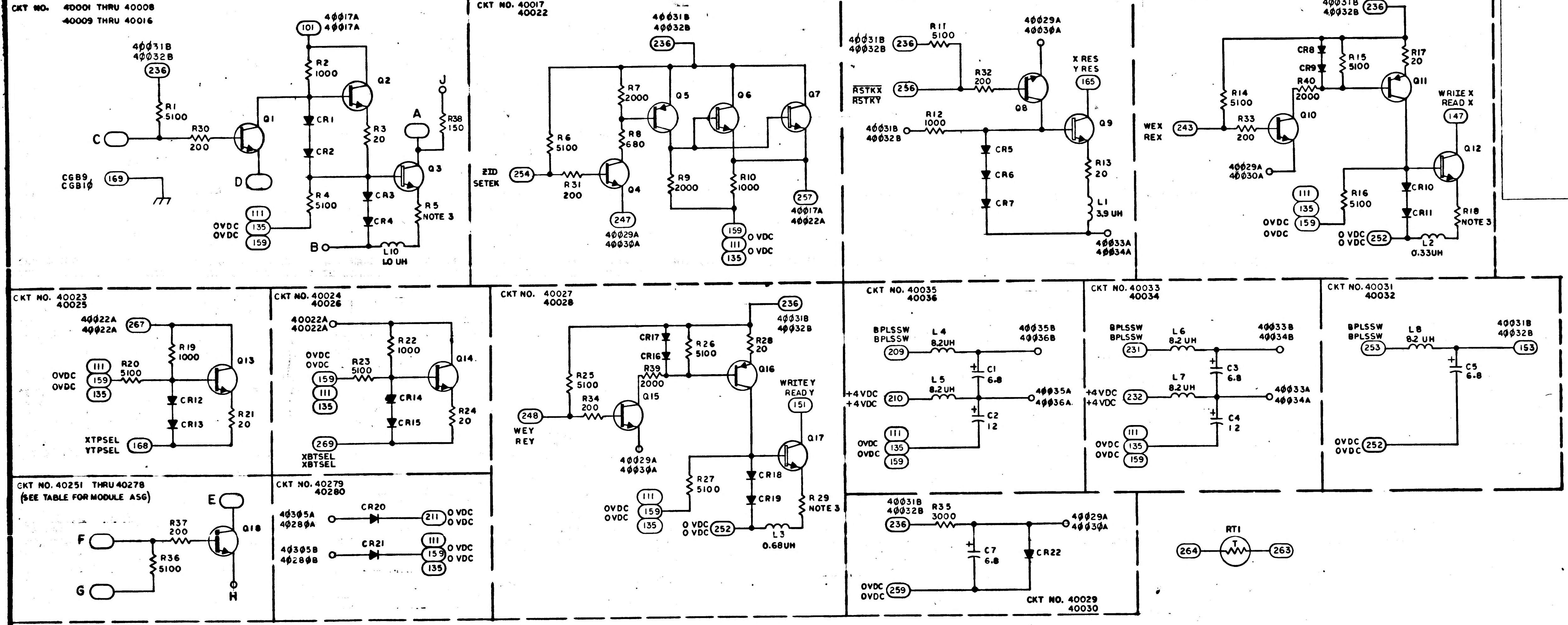
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC
CLOCK OSCILLATOR
MODULE NO. B7

CODE IDENT NO. —
SIZE D
NASA DRAWING NO. 2005003
SCALE NONE
WT
SHEET 3 OF 3

NOTICE — WHEN GOVERNMENT DRAWINGS SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE USE OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS 16091			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17269	15 Jan 65	
B	REVISED PER TDRR 17744	Apr 65	WK


CKT NO. 40001 THRU 40008
40009 THRU 40016
40031B
40032B
236
R1 5100
R30 200
C
Q1
D
CGB9
CGB10
169
101
40017A
40017A
R2 1000
Q2
CR1
CR2
R3 20
R4 5100
CR3
CR4
A
J
R38 150
Q3
R5 NOTE 3
OVDC
OVDC
111
135
159
B
L10 1.0 UH
CKT NO. 40017
40022
40031B
40032B
236
R7 2000
Q5
Q6
Q7
R6 5100
R8 680
2ID
SETEK
254
R31 200
Q4
R9 2000
R10 1000
247
40029A
40030A
159
111
135
0 VDC
0 VDC
257
40017A
40022A
CKT NO. 40018
40019
40031B
40032B
236
R11 5100
40029A
40030A
RSTKX
RSTKY
256
R32 200
Q8
X RES
Y RES
165
40031B
40032B
R12 1000
Q9
CR5
CR6
CR7
R13 20
L1 3.9 UH
40033A
40034A
CKT NO. 40020
40021
40031B
40032B
236
CR8
CR9
R15 5100
R17 20
R40 2000
Q11
R14 5100
WEX
REX
243
R33 200
Q10
WRITE X
READ X
147
40029A
40030A
Q12
111
135
159
R16 5100
CR10
CR11
R18 NOTE 3
OVDC
OVDC
0 VDC
0 VDC
252
L2 0.33UH
CKT NO. 40023
40025
40022A
40022A
267
R19 1000
OVDC
OVDC
111
159
135
R20 5100
Q13
CR12
CR13
R21 20
XTPSEL
YTPSEL
168
CKT NO. 40024
40026
40022A
40022A
R22 1000
OVDC
OVDC
159
111
135
R23 5100
Q14
CR14
CR15
R24 20
269
XBTSEL
XBTSEL
CKT NO. 40027
40028
236
40031B
40032B
CR17
CR16
R26 5100
R28 20
R39 2000
Q16
R25 5100
R34 200
Q15
WRITE Y
READ Y
151
248
WEY
REY
40029A
40030A
Q17
R27 5100
CR18
CR19
R 29 NOTE 3
OVDC
OVDC
111
159
135
0 VDC
0 VDC
252
L3 0.68UH
CKT NO. 40035
40036
BPLSSW
BPLSSW
209
L4 8.2UH
40035B
40036B
C1 6.8
+4 VDC
+4 VDC
210
L5 8.2 UH
40035A
40036A
C2 12
OVDC
OVDC
111
135
159
CKT NO. 40033
40034
BPLSSW
BPLSSW
231
L6 8.2 UH
40033B
40034B
C3 6.8
+4VDC
+4VDC
232
L7 8.2UH
40033A
40034A
C4 12
OVDC
OVDC
111
135
159
CKT NO. 40031
40032
BPLSSW
BPLSSW
253
L8 8.2 UH
40031B
40032B
153
C5 6.8
OVDC
OVDC
252
CKT NO. 40251 THRU 40278
(SEE TABLE FOR MODULE ASG)
E
R37 200
F
Q18
R36 5100
G
H
CKT NO. 40279
40280
40305A
40280A
CR20
211
0 VDC
0 VDC
40305B
40280B
CR21
111
159
135
0 VDC
0 VDC
40031B
40032B
236
R35 3000
40029A
40030A
C7 6.8
CR22
OVDC
OVDC
259
CKT NO. 40029
40030
RT1
264
263

	COMPONENT PREFIX (ASSY)	CIRCUIT NO.	A		B		C		D		E		F		G		H		J	
			SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.
B9	1	40001	DBF16	104	40035A		GEM 16	201	40029A	204									40035B	
	2	40002	DBF14	109			GEM 14	205		204										
	3	40003	DBF13	116	↓		GEM 13	212		216									↓	INTERNALLY CONNECTED
	4	40004	DBF12	121	40035A	INTERNALLY CONNECTED	GEM 12	217		216									40035B	
	5	40005	DBF11	126	40033A		GEM 11	221		225									40033B	
	6	40006	DBF10	130			GEM 10	226		225										
	7	40007	DBF07	137	↓		GEM 07	233	↓	237									↓	
	8	40008	DBF06	142	40033A		GEM 06	238	40029A	237									40033B	
B10	1	40009	DBF15	104	40036A		GEM 15	201	40030A	204									40036B	
	2	40010	DBF01	109			GEM 01	205		204										
	3	40011	DBF02	116	↓		GEM 02	212		216									↓	
	4	40012	DBF03	121	40036A		GEM 03	217		216									40036B	
	5	40013	DBF04	126	40034A		GEM 04	221		225									40034B	
	6	40014	DBF05	130			GEM 05	226		225										
	7	40015	DBF08	137	↓		GEM 08	233	↓	237									↓	
	8	40016	DBF09	142	40034A		GEM 09	238	40030A	237									40034B	
B9	1	40271									40271A	103	YT0E	202	40031B	208	40305A			
	2	40273									40273A	108	YT2E	206						
	3	40263									40263A	115	YB0E	213				INTERNALLY CONNECTED		
	4	40269									40269A	120	YB6E	218						
	5	40268									40268A	124	YB5E	222						
	6	40270									40270A	129	YB7E	227		↓	↓			
	7	40253									40253A	136	XB2E	234		208	40305A			
	8	40257									40257A	141	XB6E	239		251	40305B			
	9	40256									40256A	146	XB5E	244						
	10	40258									40258A	150	XB7E	249						
	11	40261									40261A	156	XT4E	255						
	12	40262									40262A	160	XT5E	258						
	13	40276									40276A	164	XT2E	262	↓	↓	↓			
	14	40278									40278A	167	XT0E	265	40031B	251	40305B			
B10	1	40277									40277A	103	XT3E	202	40032B	208	40280A			
	2	40275									40275A	108	XT1E	206						
	3	40259									40259A	115	XT7E	213						
	4	40260									40260A	120	XT6E	218				INTERNALLY CONNECTED		
	5	40254									40254A	124	XB3E	222						
	6	40252									40252A	129	XB1E	227		↓	↓			
	7	40255									40255A	136	XB4E	234		208	40280A			
	8	40251									40251A	141	XB0E	239		251	40280B			
	9	40266									40266A	146	YB3E	244						
	10	40264									40264A	150	YB1E	249						
	11	40267									40267A	156	YB4E	255						
	12	40265									40265A	160	YB2E	258						
	13	40274									40274A	164	YT3E	262	↓	↓	↓			
		40272									40272A	167	YT1E	265	40032B	251	40280B			

REF DWG:
ERASABLE DRIVERS MODULE ASSY
DWG NO. 2003014

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED:
   - A. RESISTOR VALUES ARE EXPRESSED IN OHMS
   - B. CAPACITOR VALUES ARE EXPRESSED IN MICROFARADS
3. THE VALUE OF R5, R18, R29, TO BE SELECTED AT FINAL TEST. PART TO BE SELECTED FROM CHART A
4. TOP SIGNAL NAME AND CIRCUIT NO. APPLY IN POSITION B9 BOTTOM SIGNAL NAME AND CIRCUIT NO. APPLY IN POSITION B10 OR AS SHOWN IN CHART

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO. CONTRACT
DRAWN A. D. Lee DATE 14 Jan 65
CHECKED Kupferberg 1 Feb 65
APPROVAL Albert Hopkins 2-1-65
APPROVAL Eldon Hall 2 Feb 65
NASA APPROVAL 2/4/65
MIT APPROVAL 2 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC,
ERASABLE DRIVER MODULE
MODULE NO. B9 AND B10

CODE IDENT NO. | SIZE E | NASA DRAWING NO. 2005004
SCALE — | WT — | SHEET 1 OF

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REVISIONS 16091

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17269	[illegible]	[illegible]
B	REVISED PER TDRR 17744	[illegible]	W.K.

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R1	1006750 -49	RESISTOR	5100	±2%	1/4 W
R2	1006750 -32		1000	±2%	
R3	1006788 -8		20	±1%	
R4	1006750 -49		5100	±2%	
R5	SEE NOTE 3				
R6	1006750 -49		5100		
R7	-39		2000		
R8	-28		680		
R9	-39		2000		
R10	-32		1000		
R11	-49		5100		
R12	1006750 -32		1000	±2%	
R13	1006788 -8		20	±1%	
R14	1006750 -49		5100	±2%	
R15	1006750 -49		5100	±2%	
R16	1006750 -49		5100	±2%	
R17	1006788 -8		20	±1%	
R18	SEE NOTE 3				
R19	1006750 -32		1000	±2%	
R20	1006750 -49		5100	±2%	
R21	1006788 -8		20	+1%	
R22	1006750 -32		1000	±2%	
R23	1006750 -49		5100	±2%	
R24	1006788 -8		20	±1%	
R25	1006750 -49		5100	±2%	
R26	1006750 -49		5100		
R27	1006750 -49		5100		
R28	1006788 -8		20		
R29	SEE NOTE 3				
R30	1006750 -15		200		
R31	-15		200		
R32	-15		200		
R33	-15		200		
R34	-15		200		
R35	-43		3000		
R36	-49		5100		
R37	-15		200		
R38	-12		150		
R39	-39		2000		
R40	1006750 -39		2000	±2%	1/4 W
RT1	1006712 -3		5000		
C1	1006755 - 79	CAPACITOR	6.8 UF	±10%	35 VDC
C2	- 32		12		20
C3	- 79		6.8		35
C4	- 32		12		20
C5	1006755 - 79		6.8 UF	±10%	35 VDC
C7	1006755 - 79	CAPACITOR	6.8 UF	±10%	35 VDC
L1	1010406 -11	INDUCTOR	3.9 UH		
L2	-17		0.33		
L3	-19		0.68		
L4	-7		8.2		
L5	-7		8.2		
L6	-7		8.2		
L7	-7		8.2		
L8	1010406 -7		8.2 UH		
L10	1010406 -8	INDUCTOR	1.0 UH		

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
CR1	1006751	DIODE			
CR2					
CR3					
CR4					
CR5					
CR6					
CR7					
CR8					
CR9					
CR10					
CR11					
CR12					
CR13					
CR14					
CR15					
CR16					
CR17					
CR18					
CR19					
CR20					
CR21					
CR22	1006751				
Q1	1006323	TRANSISTOR			
Q2	1006323				
Q3	1006323				
Q4	1006323				
Q5	1006310				
Q6	1006323				
Q7	1006323				
Q8	1006323				
Q9	1006323				
Q10	1006323				
Q11	1006310				
Q12	1006323				
Q13	1006323				
Q14	1006323				
Q15	1006323				
Q16	1006310				
Q17	1006323				
Q18	1006323				

CHART A

R5 R18 R29 ± 1% 1/4W

PART NO.	VALUE
1006788 -16	1.7
-17	1.75
-18	1.8
-19	1.85
-20	1.9
-21	1.95
-22	2.0
-23	2.05
-24	2.1
-25	2.15
-26	2.2
-27	2.25
-28	2.3
-29	2.5
-30	2.6
-31	2.7
-32	2.8
-33	2.9
-34	3.0
1006788 -35	3.1

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

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TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO.
CONTRACT

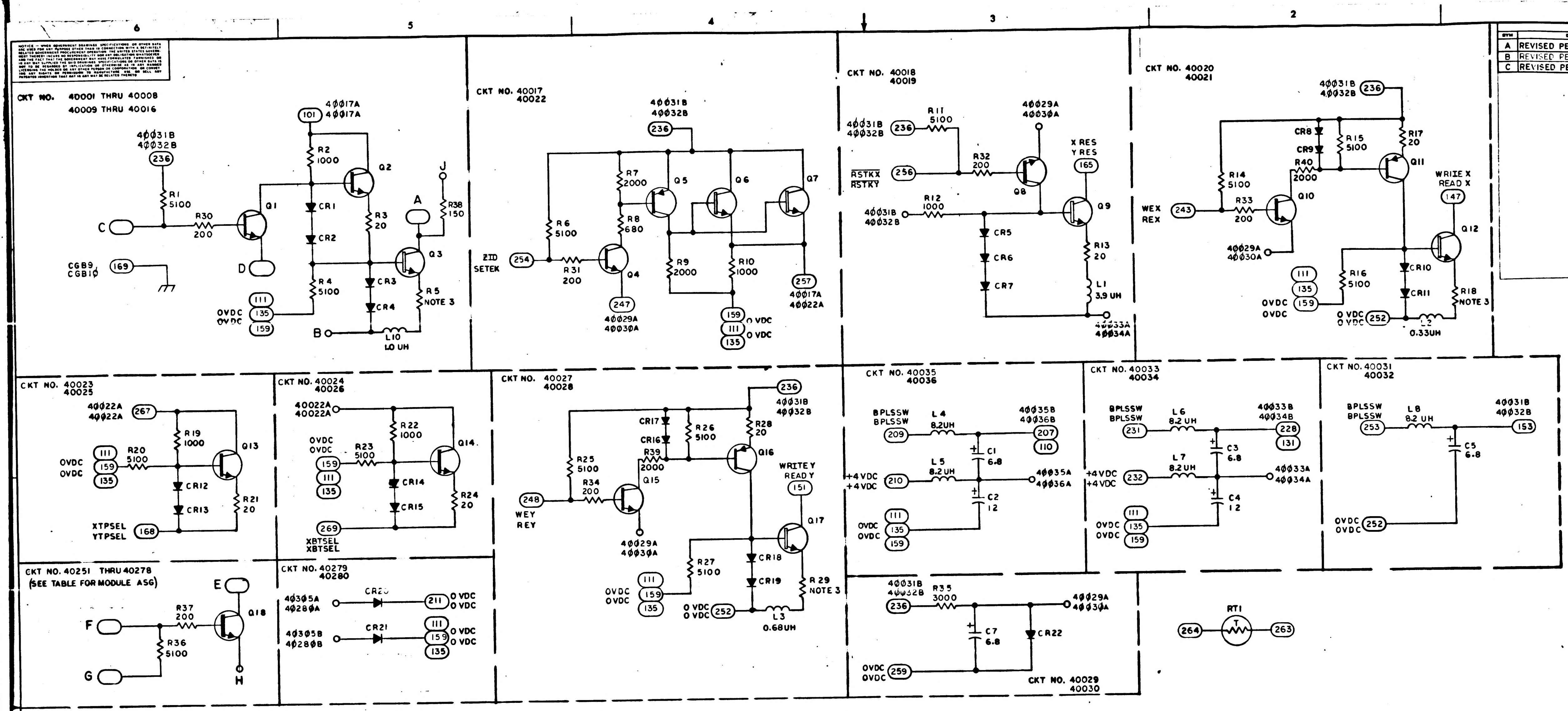
DRAWN [illegible] DATE [illegible]
CHECKED [illegible] 1 Feb 65
APPROVAL Albert Hopkins 2·1·65
APPROVAL Eldon C Hall 2 Feb 65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible] 2 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC,
ERASABLE DRIVERS MODULE
MODULE NO. B9 AND B10

CODE IDENT NO. —
SIZE E
NASA DRAWING NO. 2005004
SCALE —
WT —
SHEET 2 OF 2

REVISIONS 16091			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17269	15 Mar 65	
B	REVISED PER TDRR 17744	APR 65	WK
C	REVISED PER TDRR 18029	12 APR 65	WK


CKT NO. 40001 THRU 40008
40009 THRU 40016
CKT NO. 40017
40022
CKT NO. 40018
40019
CKT NO. 40020
40021
CKT NO. 40023
40025
CKT NO. 40024
40026
CKT NO. 40027
40028
CKT NO. 40035
40036
CKT NO. 40033
40034
CKT NO. 40031
40032
CKT NO. 40251 THRU 40278
(SEE TABLE FOR MODULE ASG)
CKT NO. 40279
40280
CKT NO. 40029
40030
NOTE 3
XRES
YRES
WRITE X
READ X
WRITE Y
READY
WEX
REX
WEY
REY
ZID
SETEK
CGB9
CGB10
XTPSEL
YTPSEL
XBTSEL
BPLSSW
+4 VDC
0 VDC
RT1

	COMPONENT PREFIX (ASSY)	CIRCUIT NO.	A		B		C		D		E		F		G		H		J	
			SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.
B9	1	40001	DBF16	104	40035A	INTERNALLY CONNECTED	GEM 16	201	40029A	204									40035B	INTERNALLY CONNECTED
	2	40002	DBF14	109	↓		GEM 14	205	↓	204									↓	
	3	40003	DBF13	116	↓		GEM 13	212	↓	216									↓	
	4	40004	DBF12	121	40035A		GEM 12	217	↓	216									40035B	
	5	40005	DBF11	126	40033A		GEM 11	221	↓	225									40033B	
	6	40006	DBF10	130	↓		GEM 10	226	↓	225									↓	
	7	40007	DBF07	137	↓		GFM 07	233	↓	237									↓	
	8	40008	DBF06	142	40033A		GEM 06	238	40029A	237									40033B	
B10	1	40009	DBF15	104	40036A		GEM 15	201	40030A	204									40036B	
	2	40010	DBF01	109	↓		GEM 01	205	↓	204									↓	
	3	40011	DBF02	116	↓		GEM 02	212	↓	216									↓	
	4	40012	DBF03	121	40036A		GEM 03	217	↓	216									40036B	
	5	40013	DBF04	126	40034A		GEM 04	221	↓	225									40034B	
	6	40014	DBF05	130	↓		GEM 05	226	↓	225									↓	
	7	40015	DBF08	137	↓		GEM 08	233	↓	237									↓	
	8	40016	DBF09	142	40034A		GEM 09	238	40030A	237									40034B	
B9	1	40271									40271A	103	YT0E	202	40031B	208	40305A	INTERNALLY CONNECTED		
	2	40273									40273A	108	YT2E	206	↓	↓	↓			
	3	40263									40263A	115	YB0E	213	↓	↓	↓			
	4	40269									40269A	120	YB6E	218	↓	↓	↓			
	5	40268									40268A	124	YB5E	222	↓	↓	↓			
	6	40270									40270A	129	YB7E	227	↓	↓	↓			
	7	40253									40253A	136	XB2E	234	↓	208	40305A			
	8	40257									40257A	141	XB6E	239	↓	251	40305B			
	9	40256									40256A	146	XB5E	244	↓	↓	↓			
	10	40258									40258A	150	XB7E	249	↓	↓	↓			
	11	40261									40261A	156	XT4E	255	↓	↓	↓			
	12	40262									40262A	160	XT5E	258	↓	↓	↓			
	13	40276									40276A	164	XT2E	262	↓	↓	↓			
	14	40278									40278A	167	XT0E	265	40031B	251	40305B			
B10	1	40277									40277A	103	XT3E	202	40032B	208	40280A	INTERNALLY CONNECTED		
	2	40275									40275A	108	XT1E	206	↓	↓	↓			
	3	40259									40259A	115	XT7E	213	↓	↓	↓			
	4	40260									40260A	120	XT6E	218	↓	↓	↓			
	5	40254									40254A	124	XB3E	222	↓	↓	↓			
	6	40252									40252A	129	XB1E	227	↓	↓	↓			
	7	40255									40255A	136	XB4E	234	↓	208	40280A			
	8	40251									40251A	141	XB0E	239	↓	251	40280B			
	9	40266									40266A	146	YB3E	244	↓	↓	↓			
	10	40264									40264A	150	YB1E	249	↓	↓	↓			
	11	40267									40267A	156	YB4E	255	↓	↓	↓			
	12	40265									40265A	160	YB2E	258	↓	↓	↓			
	13	40274									40274A	164	YT3E	262	↓	↓	↓			
		40272									40272A	167	YT1E	265	40032B	251	40280B			

REF DWG:
ERASABLE DRIVERS MODULE ASSY
DWG NO. 2003014

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED:
   - A. RESISTOR VALUES ARE EXPRESSED IN OHMS
   - B. CAPACITOR VALUES ARE EXPRESSED IN MICROFARADS
3. THE VALUE OF R5, R18, R29, TO BE SELECTED AT FINAL TEST. PART TO BE SELECTED FROM CHART A
4. TOP SIGNAL NAME AND CIRCUIT NO. APPLY IN POSITION B9 BOTTOM SIGNAL NAME AND CIRCUIT NO. APPLY IN POSITION B10 OR AS SHOWN IN CHART

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT

DRAWN A. D. Lee DATE 1 MAY 64
CHECKED 1 Feb 65
APPROVAL Albert Hopkins 2 2 65
APPROVAL 2 Feb 65
NASA APPROVAL
MIT APPROVAL 2 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC,
ERASABLE DRIVER MODULE
MODULE NO. B9 AND B10

CODE IDENT NO.	SIZE	NASA DRAWING NO
80230	E	2005004
SCALE —	WT —	SHEET 1 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS 16091

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17269	15 Mar 65	
B	REVISED PER TDRR 17744	1 APR	WR
C	REVISED PER TDRR 18029	12 APR 65	WR

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R1	1006750 - 49	RESISTOR	5100	±2%	1/4 W
R2	1006750 - 32		1000	±2 %	
R3	1006788 - 8		20	±1 %	
R4	1006750 - 49		5100	±2 %	
R5	SEE NOTE 3				
R6	1006750 - 49		5100		
R7	-39		2000		
R8	-28		680		
R9	-39		2000		
R10	-32		1000		
R11	-49		5100		
R12	1006750 - 32		1000	±2 %	
R13	1006788 - 8		20	±1 %	
R14	1006750 - 49		5100	±2 %	
R15	1006750 - 49		5100	±2 %	
R16	1006750 - 49		5100	±2 %	
R17	1006788 - 8		20	±1 %	
R18	SEE NOTE 3				
R19	1006750 - 32		1000	±2 %	
R20	1006750 - 49		5100	±2 %	
R21	1006788 - 8		20	+1 %	
R22	1006750 - 32		1000	±2 %	
R23	1006750 - 49		5100	±2 %	
R24	1006788 - 8		20	±1 %	
R25	1006750 - 49		5100	±2 %	
R26	1006750 - 49		5100		
R27	1006750 - 49		5100		
R28	1006788 - 8		20		
R29	SEE NOTE 3				
R30	1006750 - 15		200		
R31	-15		200		
R32	-15		200		
R33	-15		200		
R34	-15		200		
R35	-43		3000		
R36	-49		5100		
R37	-15		200		
R38	-12		150		
R39	-39		2000		
R40	1006750 - 39		2000	±2%	1/4 W
RT1	1006712 - 3		5000		
C1	1006755 - 79	CAPACITOR	6.8 UF	±10%	35 VDC
C2	- 32		12		20
C3	- 79		6.8		35
C4	- 32		12		20
C5	1006755 - 79		6.8 UF	±10%	35 VDC
C7	1006755 - 79	CAPACITOR	6.8 UF	±10%	35 VDC
L1	1010406 - 11	INDUCTOR	3.9 UH		
L2	-17		0.33		
L3	-19		0.68		
L4	-7		8.2		
L5	-7		8.2		
L6	-7		8.2		
L7	-7		8.2		
L8	1010406 - 7		8.2 UH		
L10	1010406 - 8	INDUCTOR	1.0 UH		

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
CR1	1006751	DIODE			
CR2					
CR3					
CR4					
CR5					
CR6					
CR7					
CR8					
CR9					
CR10					
CR11					
CR12					
CR13					
CR14					
CR15					
CR16					
CR17					
CR18					
CR19					
CR20					
CR21					
CR22	1006751				
Q1	1006323	TRANSISTOR			
Q2	1006323				
Q3	1006323				
Q4	1006323				
Q5	1006310				
Q6	1006323				
Q7	1006323				
Q8	1006323				
Q9	1006323				
Q10	1006323				
Q11	1006310				
Q12	1006323				
Q13	1006323				
Q14	1006323				
Q15	1006323				
Q16	1006310				
Q17	1006323				
Q18	1006323				

CHART A

R5 R18 R29 ± 1% 1/4W

PART NO.	VALUE
1006788-16	1.7
-17	1.75
-18	1.8
-19	1.85
-20	1.9
-21	1.95
-22	2.0
-23	2.05
-24	2.1
-25	2.15
-26	2.2
-27	2.25
-28	2.3
-29	2.5
-30	2.6
-31	2.7
-32	2.8
-33	2.9
-34	3.0
1006788-35	3.1

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT

DRAWN A. A. Lee DATE 1 MAY 64
CHECKED 1 FEB 65
APPROVAL Albert Hopkins 2-1-65
APPROVAL Eldon C Hall 2 Feb 65
NASA APPROVAL
MIT APPROVAL 2 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC,
ERASABLE DRIVERS MODULE
MODULE NO. B9 AND B10

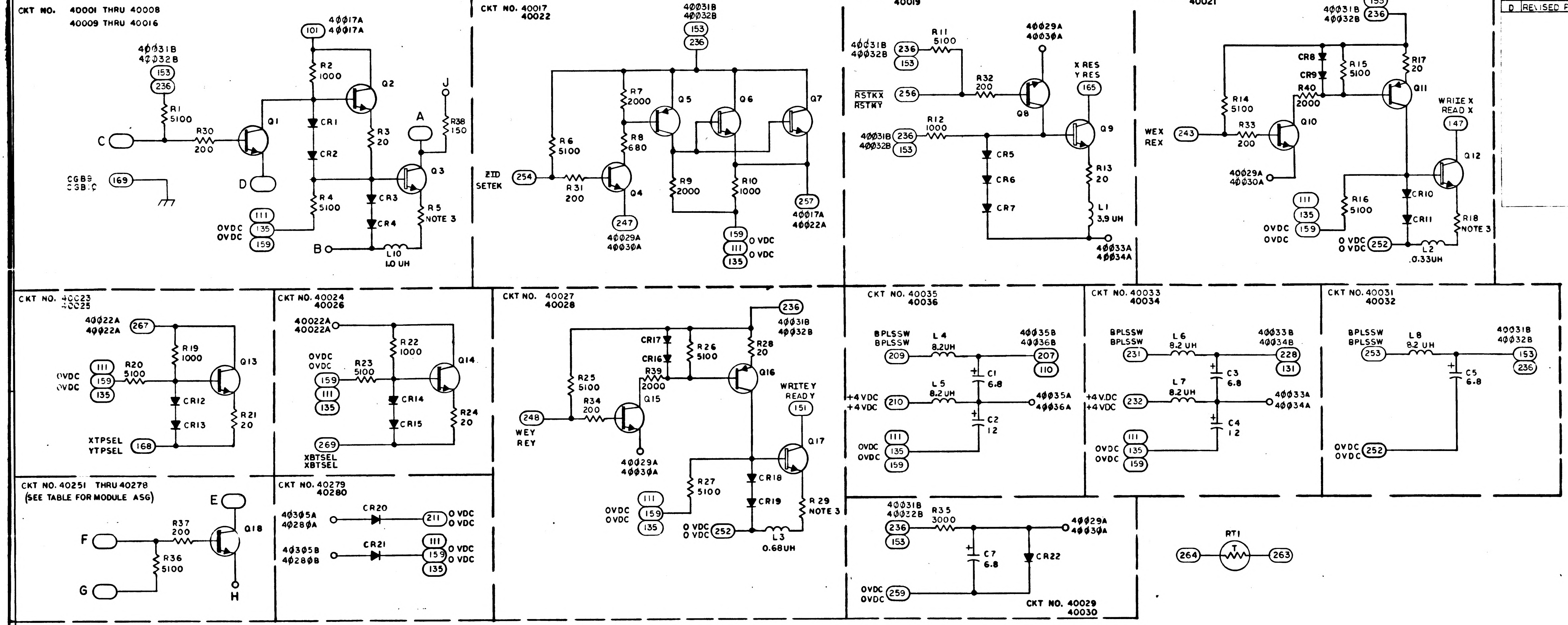
CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	E	2005004

SCALE — WT — SHEET 2 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS 16091

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17269	5 Mar 65	
B	REVISED PER TDRR 17744	1 APR 65	WK
C	REVISED PER TDRR 18029	12 APR 65	WK
D	REVISED PER TDRR 18662	3 MAY 65	WK



6
5
4
3
2
1
CKT NO. 40001 THRU 40008
40009 THRU 40016
40031B
40032B
153
236
R1
5100
R30
200
C
Q1
D
CGB9
CGB10
169
101
40017A
40017A
R2
1000
CR1
CR2
Q2
R3
20
A
J
R38
150
Q3
R4
5100
CR3
CR4
R5
NOTE 3
111
135
159
0VDC
0VDC
B
L10
1.0 UH
CKT NO. 40017
40022
40031B
40032B
153
236
R7
2000
Q5
Q6
Q7
R6
5100
R8
680
ZID
SETEK
254
R31
200
Q4
R9
2000
R10
1000
257
40017A
40022A
247
40029A
40030A
159
111
135
0 VDC
0 VDC
CKT NO. 40018
40019
40031B
40032B
236
153
R11
5100
40029A
40030A
R32
200
Q8
RSTKX
RSTKY
256
R12
1000
XRES
YRES
165
Q9
236
153
CR5
CR6
CR7
R13
20
L1
3.9 UH
40033A
40034A
CKT NO. 40020
40021
40031B
40032B
153
236
CR8
CR9
R40
2000
R15
5100
R17
20
Q11
R14
5100
R33
200
Q10
WEX
REX
243
WRITE X
READ X
147
Q12
40029A
40030A
CR10
CR11
R16
5100
R18
NOTE 3
L2
0.33UH
0 VDC
0 VDC
252
CKT NO. 40023
40025
40022A
40022A
267
R19
1000
R20
5100
Q13
0VDC
0VDC
CR12
CR13
R21
20
XTPSEL
YTPSEL
168
CKT NO. 40024
40026
40022A
40022A
R22
1000
R23
5100
Q14
CR14
CR15
R24
20
269
XBTSEL
CKT NO. 40027
40028
236
40031B
40032B
CR17
CR16
R39
2000
R26
5100
R28
20
Q16
R25
5100
R34
200
Q15
WEY
REY
248
WRITE Y
READ Y
151
Q17
40029A
40030A
R27
5100
CR18
CR19
R29
NOTE 3
L3
0.68UH
0VDC
0VDC
0 VDC
0 VDC
252
CKT NO. 40035
40036
BPLSSW
BPLSSW
209
L4
8.2UH
40035B
40036B
207
110
C1
6.8
+4VDC
+4VDC
210
L5
8.2UH
40035A
40036A
C2
12
CKT NO. 40033
40034
BPLSSW
BPLSSW
231
L6
8.2 UH
40033B
40034B
228
131
C3
6.8
+4VDC
+4VDC
232
L7
8.2UH
40033A
40034A
C4
12
CKT NO. 40031
40032
BPLSSW
BPLSSW
253
L8
8.2 UH
40031B
40032B
153
236
C5
6.8
CKT NO. 40251 THRU 40278
(SEE TABLE FOR MODULE ASG)
E
R37
200
Q18
F
R36
5100
G
H
CKT NO. 40279
40280
40305A
40280A
CR20
211
0 VDC
0 VDC
40305B
40280B
CR21
40031B
40022B
R35
3000
40029A
40030A
C7
6.8
CR22
259
CKT NO. 40029
40030
RT1
264
263

	COMPONENT PREFIX (ASSY)	CIRCUIT NO.	A		B		C		D		E		F		G		H		J	
			SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.
B9	1	40001	DBF16	104	40035A		GEM 16	201	40029A	204									40035B	
	2	40002	DBF14	109			GEM 14	205		204										
	3	40003	DBF13	116	↓		GEM 13	212		216									↓	
	4	40004	DBF12	121	40035A	INTERNALLY CONNECTED	GEM 12	217		216									40035B	INTERNALLY CONNECTED
	5	40005	DBF11	126	40033A		GEM 11	221		225									40033B	
	6	40006	DBF10	130			GEM 10	226		225										
	7	40007	DBF07	137	↓		GEM 07	233	↓	237									↓	
	8	40008	DBF06	142	40033A		GEM 06	238	40029A	237									40033B	
B10	1	40009	DBF15	104	40036A		GEM 15	201	40030A	204									40036B	
	2	40010	DBF01	109			GEM 01	205		204										
	3	40011	DBF02	116	↓		GEM 02	212		216									↓	
	4	40012	DBF03	121	40036A		GEM 03	217		216									40036B	
	5	40013	DBF04	126	40034A		GEM 04	221		225									40034B	
	6	40014	DBF05	130			GEM 05	226		225										
	7	40015	DBF08	137	↓		GEM 08	233	↓	237									↓	
	8	40016	DBF09	142	40034A		GEM 09	238	40030A	237									40034B	
B9	1	40271									40271A	103	YT0E	202	40031B	208	40305A			
	2	40273									40273A	108	YT2E	206						
	3	40263									40263A	115	YB0E	213				INTERNALLY CONNECTED		
	4	40269									40269A	120	YB6E	218						
	5	40268									40268A	124	YB5E	222						
	6	40270									40270A	129	YB7E	227		↓	↓			
	7	40253									40253A	136	XB2E	234		208	40305A			
	8	40257									40257A	141	XB6E	239		251	40305B			
	9	40256									40256A	146	XB5E	244						
	10	40258									40258A	150	XB7E	249						
	11	40261									40261A	156	XT4E	255						
	12	40262									40262A	160	XT5E	258						
	13	40276									40276A	164	XT2E	262	↓	↓	↓			
	14	40278									40278A	167	YT0E	265	40031B	251	40305B			
B10	1	40277									40277A	103	XT3E	202	40032B	208	40280A			
	2	40275									40275A	108	XT1E	206						
	3	40259									40259A	115	XT7E	213				INTERNALLY CONNECTED		
	4	40260									40260A	120	XT6E	218						
	5	40254									40254A	124	XB3E	222						
	6	40252									40252A	129	XB1E	227		↓	↓			
	7	40255									40255A	136	XB4E	234		208	40280A			
	8	40251									40251A	141	XB0E	239		251	40280B			
	9	40266									40266A	146	YB3E	244						
	10	40264									40264A	150	YB1E	249						
	11	40267									40267A	156	YB4E	255						
	12	40265									40265A	160	YB2E	258						
	13	40274									40274A	164	YT3E	262	↓	↓	↓			
	14	40272									40272A	167	YT1E	265	40032B	251	40280B			

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED:
   - A. RESISTOR VALUES ARE EXPRESSED IN OHMS
   - B. CAPACITOR VALUES ARE EXPRESSED IN MICROFARADS
3. THE VALUE OF R5, R18, R29, TO BE SELECTED AT FINAL TEST. PART TO BE SELECTED FROM CHART A
4. TOP SIGNAL NAME AND CIRCUIT NO. APPLY IN POSITION B9 BOTTOM SIGNAL NAME AND CIRCUIT NO. APPLY IN POSITION B10 OR AS SHOWN IN CHART

REF DWG:
ERASABLE DRIVERS MODULE ASSY
DWG NO. 2003014

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS

DRAWN A. D. Lee DATE 1 MAY 64
CHECKED 1 FEB 65
APPROVAL Albert Hopkins 2 2 65
APPROVAL 2 Feb 65
NASA APPROVAL 2/4/65
MIT APPROVAL 2 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC,
ERASABLE DRIVER MODULE
MODULE NO. B9 AND B10

CODE IDENT NO. 80230 SIZE E NASA DRAWING NO. 2005004
SCALE — WT — SHEET 1 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 16091

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17269	15 Mar 65	
B	REVISED PER TDRR 17744	1 APR 65	WK
C	REVISED PER TDRR 18029	12 APR 65	KCH LK
D	REVISED PER TDRR 18682	3 MAY 65	LK

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R1	1006750 - 49	RESISTOR	5100	±2 %	1/4 W
R2	1006750 - 32		1000	±2 %	
R3	1006788 - 8		20	±1 %	
R4	1006750 - 49		5100	±2 %	
R5	SEE NOTE 3				
R6	1006750 - 49		5100		
R7	- 39		2000		
R8	- 28		680		
R9	- 39		2000		
R10	- 32		1000		
R11	- 49		5100		
R12	1006750 - 32		1000	±2 %	
R13	1006788 - 8		20	±1 %	
R14	1006750 - 49		5100	±2 %	
R15	1006750 - 49		5100	±2 %	
R16	1006750 - 49		5100	±2 %	
R17	1006788 - 8		20	±1 %	
R18	SEE NOTE 3				
R19	1006750 - 32		1000	±2 %	
R20	1006750 - 49		5100	±2 %	
R21	1006788 - 8		20	+1 %	
R22	1006750 - 32		1000	±2 %	
R23	1006750 - 49		5100	±2 %	
R24	1006788 - 8		20	±1 %	
R25	1006750 - 49		5100	±2 %	
R26	1006750 - 49		5100		
R27	1006750 - 49		5100		
R28	1006788 - 8		20		
R29	SEE NOTE 3				
R30	1006750 - 15		200		
R31	- 15		200		
R32	- 15		200		
R33	- 15		200		
R34	- 15		200		
R35	- 43		3000		
R36	- 49		5100		
R37	- 15		200		
R38	- 12		150		
R39	- 39		2000		
R40	1006750 - 39		2000	±2 %	1/4 W
RT1	1006712 - 3		5000		
C1	1006755 - 79	CAPACITOR	6.8 UF	±10%	35 VDC
C2	- 32		12		20
C3	- 79		6.8		35
C4	- 32		12		20
C5	1006755 - 79		6.8 UF	±10%	35 VDC
C7	1006755 - 79	CAPACITOR	6.8 UF	±10%	35 VDC
L1	1010406 - 11	INDUCTOR	3.9 UH		
L2	- 17		0.33		
L3	- 19		0.68		
L4	- 7		8.2		
L5	- 7		8.2		
L6	- 7		8.2		
L7	- 7		8.2		
L8	1010406 - 7		8.2 UH		
L10	1010406 - 8	INDUCTOR	1.0 UH		

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
CR1	1006751	DIODE			
CR2					
CR3					
CR4					
CR5					
CR6					
CR7					
CR8					
CR9					
CR10					
CR11					
CR12					
CR13					
CR14					
CR15					
CR16					
CR17					
CR18					
CR19					
CR20					
CR21					
CR22	1006751				
Q1	1006323	TRANSISTOR			
Q2	1006323				
Q3	1006323				
Q4	1006323				
Q5	1006310				
Q6	1006323				
Q7	1006323				
Q8	1006323				
Q9	1006323				
Q10	1006323				
Q11	1006310				
Q12	1006323				
Q13	1006323				
Q14	1006323				
Q15	1006323				
Q16	1006310				
Q17	1006323				
Q18	1006323				

CHART A

R5 R18 R29 ± 1% 1/4W

PART NO.	VALUE
1006788 - 16	1.7
- 17	1.75
- 18	1.8
- 19	1.85
- 20	1.9
- 21	1.95
- 22	2.0
- 23	2.05
- 24	2.1
- 25	2.15
- 26	2.2
- 27	2.25
- 28	2.3
- 29	2.5
- 30	2.6
- 31	2.7
- 32	2.8
- 33	2.9
- 34	3.0
1006788 - 35	3.1

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG NO CONTRACT
DRAWN A. A. Lee DATE 1 May 64
CHECKED
APPROVAL Albert Hopkins 2-1-65
APPROVAL Eldon C Hall 2 Feb 65
NASA APPROVAL
MIT APPROVAL 2 Feb 65

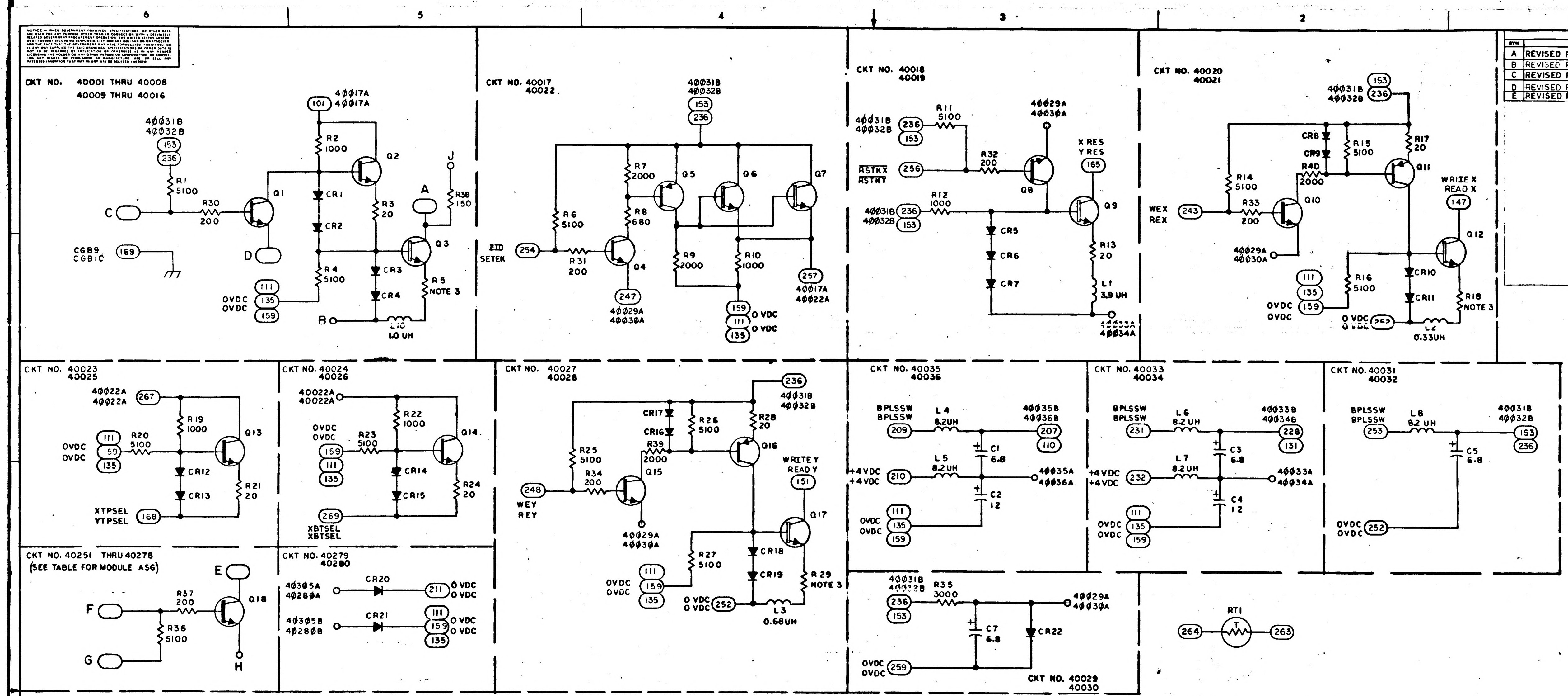
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC,
ERASABLE DRIVERS MODULE
MODULE NO. B9 AND B10

CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	E	2005004

SCALE — WT — SHEET 2 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.


CKT NO. 40001 THRU 40008
40009 THRU 40016
40031B
40032B
153
236
R1 5100
C
R30 200
Q1
D
CGB9
CGB10
169
101
40017A
40017A
R2 1000
Q2
CR1
CR2
R3 20
J
R38 150
A
Q3
R4 5100
CR3
CR4
R5 NOTE 3
OVDC
OVDC
111
135
159
B
L10 1.0 UH
CKT NO. 40017
40022
40031B
40032B
153
236
R7 2000
Q5
Q6
Q7
R6 5100
R8 680
ZID
SETEK
254
R31 200
Q4
247
40029A
40030A
R9 2000
R10 1000
159
111
135
0 VDC
0 VDC
257
40017A
40022A
CKT NO. 40018
40019
40031B
40032B
236
153
R11 5100
40029A
40030A
X RES
Y RES
165
RSTKX
RSTKY
256
R32 200
Q8
R12 1000
Q9
CR5
CR6
CR7
R13 20
L1 3.9 UH
40033A
40034A
CKT NO. 40020
40021
40031B
40032B
153
236
CR8
CR9
R15 5100
R17 20
R40 2000
Q11
R14 5100
WEX
REX
243
R33 200
Q10
WRITE X
READ X
147
40029A
40030A
Q12
111
135
159
OVDC
OVDC
R16 5100
CR10
CR11
R18 NOTE 3
0 VDC
0 VDC
252
L2 0.33UH
CKT NO. 40023
40025
40022A
40022A
267
R19 1000
Q13
OVDC
OVDC
111
159
135
R20 5100
CR12
CR13
R21 20
XTPSEL
YTPSEL
168
CKT NO. 40024
40026
40022A
40022A
R22 1000
Q14
OVDC
OVDC
159
111
135
R23 5100
CR14
CR15
R24 20
269
XBTSEL
XBTSEL
CKT NO. 40251 THRU 40278
(SEE TABLE FOR MODULE ASG)
E
F
R37 200
Q18
R36 5100
G
H
CKT NO. 40279
40280
40305A
40280A
CR20
211
0 VDC
0 VDC
40305B
40280B
CR21
111
159
135
0 VDC
0 VDC
CKT NO. 40027
40028
236
40031B
40032B
CR17
CR16
R26 5100
R28 20
R39 2000
Q16
R25 5100
R34 200
Q15
248
WEY
REY
WRITE Y
READ Y
151
40029A
40030A
Q17
R27 5100
CR18
CR19
R29 NOTE 3
OVDC
OVDC
111
159
135
0 VDC
0 VDC
252
L3 0.68UH
CKT NO. 40035
40036
BPLSSW
BPLSSW
209
L4 8.2UH
40035B
40036B
207
110
C1 6.8
+4 VDC
+4 VDC
210
L5 8.2 UH
40035A
40036A
C2 12
OVDC
OVDC
111
135
159
CKT NO. 40033
40034
BPLSSW
BPLSSW
231
L6 8.2 UH
40033B
40034B
228
131
C3 6.8
+4 VDC
+4 VDC
232
L7 8.2 UH
40033A
40034A
C4 12
OVDC
OVDC
111
135
159
CKT NO. 40031
40032
BPLSSW
BPLSSW
253
L8 8.2 UH
40031B
40032B
153
236
C5 6.8
OVDC
OVDC
252
40031B
40032B
236
153
R35 3000
40029A
40030A
C7 6.8
CR22
OVDC
OVDC
259
CKT NO. 40029
40030
RT1
264
263

	REVISIONS 16091		
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17269	15 Mar 65	
B	REVISED PER TDRR 17744	1 APR 65	WR
C	REVISED PER TDRR 18029	12 APR 65	WR
D	REVISED PER TDRR 18662	3 MAY 65	WR
E	REVISED PER TDRR 22160	3	MGM

	COMPONENT PREFIX (ASSY)	CIRCUIT NO.	A		B		C		D		E		F		G		H		J	
			SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.
B9	1	40001	DBF16	104	40035A		GEM 16	201	40029A	204									40035B	
	2	40002	DBF14	109			GEM 14	205		204										
	3	40003	DBF13	116	↓		GEM 13	212		216									↓	
	4	40004	DBF12	121	40035A	INTERNALLY CONNECTED	GEM 12	217		216									40035B	INTERNALLY CONNECTED
	5	40005	DBF11	126	40033A		GEM 11	221		225									40033B	
	6	40006	DBF10	130			GEM 10	226		225										
	7	40007	DBF07	137	↓		GEM 07	233	↓	237									↓	
	8	40008	DBF06	142	40033A		GEM 06	238	40029A	237									40033B	
B10	1	40009	DBF15	104	40036A		GEM 15	201	40030A	204									40036B	
	2	40010	DBF01	109			GEM 01	205		204										
	3	40011	DBF02	116	↓		GEM 02	212		216									↓	
	4	40012	DBF03	121	40036A		GEM 03	217		216									40036B	
	5	40013	DBF04	126	40034A		GEM 04	221		225									40034B	
	6	40014	DBF05	130			GEM 05	226		225										
	7	40015	DBF08	137	↓		GEM 08	233	↓	237									↓	
	8	40016	DBF09	142	40034A		GEM 09	238	40030A	237									40034B	
B9	1	40271									40271A	103	YT0E	202	40031B	208	40305A			
	2	40273									40273A	108	YT2E	206						
	3	40263									40263A	115	YB0E	213				INTERNALLY CONNECTED		
	4	40269									40269A	120	YB6E	218						
	5	40268									40268A	124	YB5E	222						
	6	40270									40270A	129	YB7E	227		↓	↓			
	7	40253									40253A	136	XB2E	234		208	40305A			
	8	40257									40257A	141	XB6E	239		251	40305B			
	9	40256									40256A	146	XB5E	244						
	10	40258									40258A	150	XB7E	249						
	11	40261									40261A	156	XT4E	255						
	12	40262									40262A	160	XT5E	258						
	13	40276									40276A	164	XT2E	262	↓	↓	↓			
	14	40278									40278A	167	XT0E	265	40031B	251	40305B			
B10	1	40277									40277A	103	XT3E	202	40032B	208	40280A			
	2	40275									40275A	108	XT1E	206						
	3	40259									40259A	115	XT7E	213						
	4	40260									40260A	120	XT6E	218				INTERNALLY CONNECTED		
	5	40254									40254A	124	XB3E	222						
	6	40252									40252A	129	XB1E	227		↓	↓			
	7	40255									40255A	136	XB4E	234		208	40280A			
	8	40251									40251A	141	XB0E	239		251	40280B			
	9	40266									40266A	146	YB3E	244						
	10	40264									40264A	150	YB1E	249						
	11	40267									40267A	156	YB4E	255						
	12	40265									40265A	160	YB2E	258						
	13	40274									40274A	164	YT3E	262	↓	↓	↓			
	14	40272									40272A	167	YT1E	265	40032B	251	40280B			

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED:
   A. RESISTOR VALUES ARE EXPRESSED IN OHMS
   B. CAPACITOR VALUES ARE EXPRESSED IN MICROFARADS
3. THE VALUE OF R5, R18, R29, TO BE SELECTED AT FINAL TEST. PART TO BE SELECTED FROM CHART A
4. TOP SIGNAL NAME AND CIRCUIT NO. APPLY IN POSITION B9 BOTTOM SIGNAL NAME AND CIRCUIT NO. APPLY IN POSITION B10 OR AS SHOWN IN CHART

REF DWG:
ERASABLE DRIVERS MODULE ASSY
DWG NO. 2003014

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO. CONTRACT

DRAWN A. D. Lee DATE 1 MAY 64
CHECKED FEB 65
APPROVAL Albert Hopkins 2-1-65
APPROVAL Eldon Hall 2 Feb 65
NASA APPROVAL 2/4/65
MIT APPROVAL 2 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC,
ERASABLE DRIVER MODULE
MODULE NO. B9 AND B10

CODE IDENT NO. 80230 SIZE E NASA DRAWING NO. 2005004
SCALE — WT — SHEET 1 OF 2

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REVISIONS 16091

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17269	15 Mar 65	
B	REVISED PER TDRR 17744	1 APR 65	WK
C	REVISED PER TDRR 18029	12 APR 65	WK
D	REVISED PER TDRR 18682	3 MAY 65	WK
E	REVISED PER TDRR 22160		

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R1	1006750 - 49	RESISTOR	5100	±2 %	1/4 W
R2	1006750 - 32		1000	±2 %	
R3	1006788 - 8		20	±1 %	
R4	1006750 - 49		5100	±2 %	
R5	SEE NOTE 3				
R6	1006750 - 49		5100		
R7	-39		2000		
R8	-28		680		
R9	-39		2000		
R10	-32		1000		
R11	↓ -49		5100	↓	
R12	1006750 - 32		1000	±2 %	
R13	1006788 - 8		20	±1 %	
R14	1006750 - 49		5100	±2 %	
R15	1006750 - 49		5100	±2 %	
R16	1006750 - 49		5100	±2 %	
R17	1006788 - 8		20	±1 %	
R18	SEE NOTE 3				
R19	1006750 - 32		1000	±2 %	
R20	1006750 - 49		5100	±2 %	
R21	1006788 - 8		20	±1 %	
R22	1006750 - 32		1000	±2 %	
R23	1006750 - 49		5100	±2 %	
R24	1006788 - 8		20	±1 %	
R25	1006750 - 49		5100	±2 %	
R26	1006750 - 49		5100		
R27	1006750 - 49		5100		
R28	1006788 - 8		20		
R29	SEE NOTE 3				
R30	1006750 - 15		200		
R31	-15		200		
R32	-15		200		
R33	-15		200		
R34	-15		200		
R35	-43		3000		
R36	-49		5100		
R37	-15		200		
R38	-12		150		
R39	↓ -39		2000	↓	↓
R40	1006750 - 39		2000	±2 %	1/4 W
RT1	1006712 - 3	↓	5000		
C1	1006755 - 79	CAPACITOR	6.8 UF	±10%	35 VDC
C2	- 32		12		20
C3	- 79		6.8		35
C4	↓ - 32		12 ↓	↓	20 ↓
C5	1006755 - 79	↓	6.8 UF	±10%	35 VDC
C7	1006755 - 79	CAPACITOR	6.8 UF	±10%	35 VDC
L1	1010406 - 11	INDUCTOR	3.9 UH		
L2	- 17		0.33		
L3	- 19		0.68		
L4	- 7		8.2		
L5	- 7		8.2		
L6	- 7		8.2		
L7	↓ - 7		8.2 ↓		
L8	1010406 - 7	↓	8.2 UH		
L10	1010406 - 8	INDUCTOR	1.0 UH		

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
CR1	1006751	DIODE			
CR2					
CR3					
CR4					
CR5					
CR6					
CR7					
CR8					
CR9					
CR10					
CR11					
CR12					
CR13					
CR14					
CR15					
CR16					
CR17					
CR18					
CR19					
CR20					
CR21	↓				
CR22	1006751	↓			
Q1	1006323	TRANSISTOR			
Q2	1006323				
Q3	1006323				
Q4	1006323				
Q5	1006310				
Q6	1006323				
Q7	1006323				
Q8	1006323				
Q9	1006323				
Q10	1006323				
Q11	1006310				
Q12	1006323				
Q13	1006323				
Q14	1006323				
Q15	1006323				
Q16	1006310				
Q17	1006323				
Q18	1006323	↓			

CHART A

R5 R18 R29 ±0.5% 1/4W

PART NO.	VALUE
1006788 -118	1.69
-119	1.72
-120	1.74
-121	1.76
-122	1.78
-123	1.80
-124	1.82
-125	1.84
-126	1.87
-127	1.89
-128	1.91
-129	1.93
-130	1.96
-131	1.98
-132	2.00
-133	2.03
-134	2.05
-135	2.08
-136	2.10
-137	2.13
-138	2.15
-139	2.18
-140	2.21
-141	2.23
-142	2.26
↓ -143	2.29
1006788 -144	2.32

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG. NO. CONTRACT

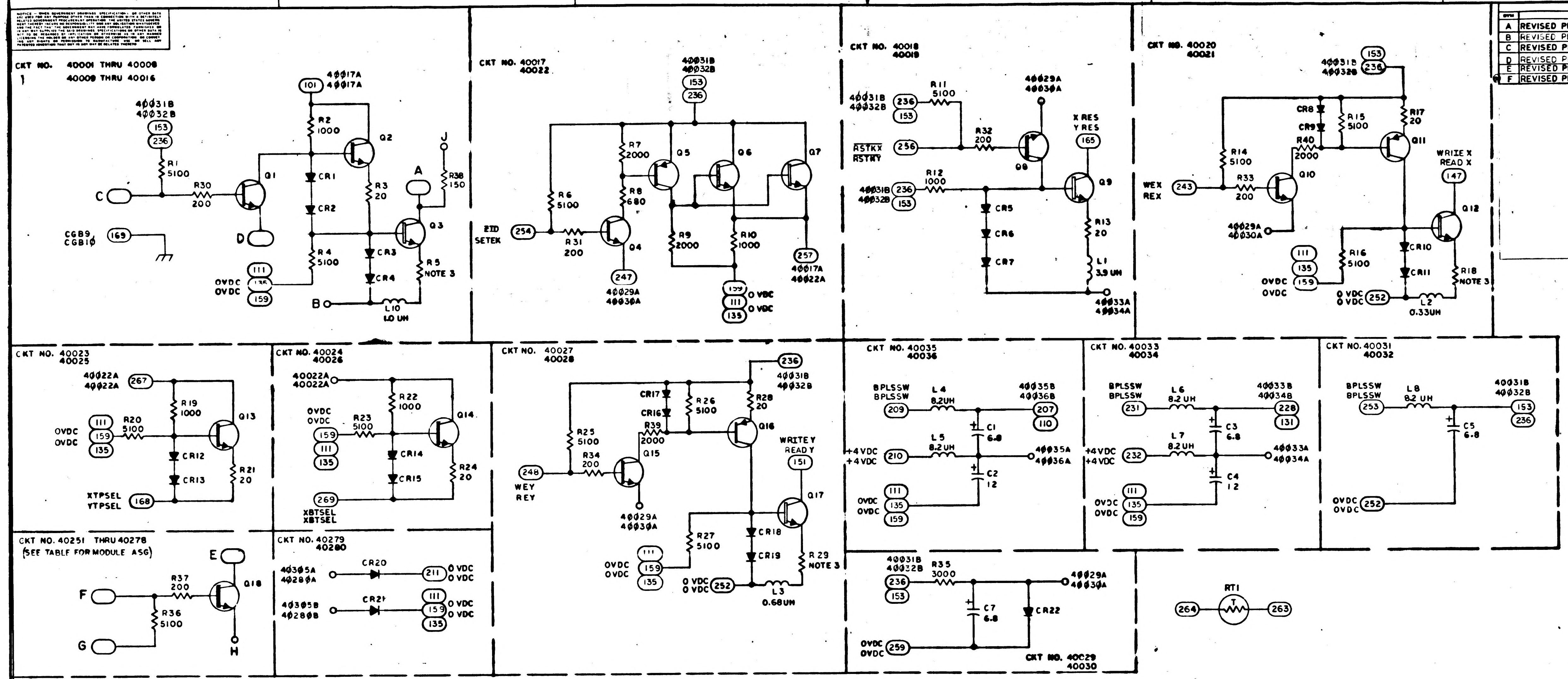
DRAWN A. B. Lee DATE 1 MAY 64
CHECKED 1 Feb 65
APPROVAL Albert Hopkins 2-1-65
APPROVAL Eldon C Hall 2 Feb 65
NASA APPROVAL
MIT APPROVAL 2 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC,
ERASABLE DRIVERS MODULE
MODULE NO. B9 AND B10.

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 2005004
SCALE —
WT —
SHEET 2 OF 2

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17269	16 Mar 65	
B	REVISED PER TDRR 17744	Apr 65	WK
C	REVISED PER TDRR 18029	13 Apr 65	WK
D	REVISED PER TDRR 18662	3 May 65	WK
E	REVISED PER TDRR 22160	65	
F	REVISED PER TDRR 24697	5 Jan 66	



CKT NO. 40001 THRU 40008
40009 THRU 40016
40031B 40032B
153
236
R1 5100
R30 200
Q1
C
D
CGB9 CGB10
169
101
40017A 40017A
R2 1000
Q2
CR1
CR2
R3 20
R4 5100
CR3
CR4
Q3
R5 NOTE 3
A
J
R38 150
OVDC OVDC
111
135
159
B
L10 1.0 UH
CKT NO. 40017 40022
40031B 40032B
R7 2000
Q5
Q6
Q7
R6 5100
R8 680
R9 2000
R10 1000
ZID SETEK
254
R31 200
Q4
247
40029A 40030A
257
40017A 40022A
0 VDC
CKT NO. 40018 40019
R11 5100
40029A 40030A
R32 200
RSTKX RSTKY
256
R12 1000
Q8
Q9
X RES Y RES
165
CR5
CR6
CR7
R13 20
L1 3.9 UH
40033A 40034A
CKT NO. 40020 40021
CR8
CR9
R15 5100
R17 20
R14 5100
R40 2000
R33 200
Q10
Q11
WEX REX
243
WRITE X READ X
147
Q12
40029A 40030A
R16 5100
CR10
CR11
R18 NOTE 3
L2 0.33UH
252
CKT NO. 40023 40025
40022A 40022A
267
R19 1000
Q13
R20 5100
CR12
CR13
R21 20
XTPSEL YTPSEL
168
CKT NO. 40024 40026
40022A 40022A
R22 1000
Q14
R23 5100
CR14
CR15
R24 20
XBTSEL XBTSEL
269
CKT NO. 40027 40028
CR17
CR16
R26 5100
R28 20
R25 5100
R39 2000
Q16
R34 200
Q15
WEY REY
248
40029A 40030A
WRITE Y READ Y
151
Q17
CR18
CR19
R27 5100
R29 NOTE 3
L3 0.68UH
CKT NO. 40035 40036
BPLSSW BPLSSW
209
L4 8.2UH
40035B 40036B
207
110
C1 6.8
L5 8.2UH
+4VDC +4VDC
210
40035A 40036A
C2 12
CKT NO. 40033 40034
231
L6 8.2 UH
40033B 40034B
228
131
C3 6.8
232
L7 8.2UH
40033A 40034A
C4 12
CKT NO. 40031 40032
253
L8 8.2 UH
40031B 40032B
C5 6.8
CKT NO. 40251 THRU 40278
(SEE TABLE FOR MODULE ASG)
E
R37 200
Q18
F
R36 5100
G
H
CKT NO. 40279 40280
40305A 40280A
CR20
211
40305B 40280B
CR21
R35 3000
40029A 40030A
C7 6.8
CR22
259
CKT NO. 40C29 40030
RT1
264
263

COMPONENT PREFIX (ASSY)	CIRCUIT NO.	A		B		C		D		E		F		G		H		J	
		SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.
B9 1	40001	DBF16	104	40035A	INTERNALLY CONNECTED	GEM 16	201	40029A	204									40035B	INTERNALLY CONNECTED
2	40002	DBF14	109			GEM 14	205		204										
3	40003	DBF13	116	↓		GEM 13	212		216									↓	
4	40004	DBF12	121	40035A		GEM 12	217		216									40035B	
5	40005	DBF11	126	40033A		GEM 11	221		225									40033B	
6	40006	DBF10	130			GEM 10	226		225										
7	40007	DBF07	137	↓		GEM 07	233	↓	237									↓	
8	40008	DBF06	142	40033A		GEM 06	238	40029A	237									40033B	
B10 1	40009	DBF15	104	40036A		GEMP	201	40030A	204									40036B	
2	40010	DBF01	109			GEM 01	205		204										
3	40011	DBF02	116	↓		GEM 02	212		216									↓	
4	40012	DBF03	121	40036A		GEM 03	217		216									40036B	
5	40013	DBF04	126	40034A		GEM 04	221		225									40034B	
6	40014	DBF05	130			GEM 05	226		225										
7	40015	DBF08	137	↓		GEM 08	233	↓	237									↓	
8	40016	DBF09	142	40034A		GEM 09	238	40030A	237									40034B	
B9 1	40271									40271A	103	YT0E	202	40031B	208	40305A	INTERNALLY CONNECTED		
2	40273									40273A	108	YT2E	206						
3	40263									40263A	115	YB0E	213						
4	40269									40269A	120	YT6E	218						
5	40268									40268A	124	YT5E	222						
6	40270									40270A	129	YT7E	227		↓	↓			
7	40253									40253A	136	XB2E	234		208	40305A			
8	40257									40257A	141	XB6E	239		251	40305B			
9	40256									40256A	146	XB5E	244						
10	40258									40258A	150	XB7E	249						
11	40261									40261A	156	XT4E	255						
12	40262									40262A	160	XT5E	258						
13	40276									40276A	164	XT2E	262	↓	↓	↓			
14	40278									40278A	167	XT0E	265	40031B	251	40305B			
B10 1	40277									40277A	103	XT3E	202	40032B	208	40280A	INTERNALLY CONNECTED		
2	40275									40275A	108	XT1E	206						
3	40259									40259A	115	XT7E	213						
4	40260									40260A	120	XT6E	218						
5	40254									40254A	124	XB3E	222						
6	40252									40252A	129	XB1E	227		↓	↓			
7	40255									40255A	136	XB4E	234		208	40280A			
8	40251									40251A	141	XB0E	239		251	40280B			
9	40266									40266A	146	YB3E	244						
10	40264									40264A	150	YB1E	249						
11	40267									40267A	156	YT4E	255						
12	40265									40265A	160	YB2E	258						
13	40274									40274A	164	YT3E	262	↓	↓	↓			
14	40272									40272A	167	YT1E	265	40032B	251	40280B			

REF DWG:
ERASABLE DRIVERS MODULE ASSY
DWG NO. 2003014

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED:
   - A. RESISTOR VALUES ARE EXPRESSED IN OHMS
   - B. CAPACITOR VALUES ARE EXPRESSED IN MICROFARADS
3. THE VALUE OF R5, R18, R29, TO BE SELECTED AT FINAL TEST. PART TO BE SELECTED FROM CHART A
4. TOP SIGNAL NAME AND CIRCUIT NO. APPLY IN POSITION B9 BOTTOM SIGNAL NAME AND CIRCUIT NO. APPLY IN POSITION B10 OR AS SHOWN IN CHART

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN A. D. Lee DATE
CHECKED
APPROVAL Albert Hopkins 2-1-65
APPROVAL 2 Feb 65
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC, ERASABLE DRIVER MODULE
MODULE NO. B9 AND B10

CODE IDENT NO. 80230 SIZE E NASA DRAWING NO. 2005004
SCALE — WT — SHEET 1 OF 2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS 16081

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17269	[illegible]	[illegible]
B	REVISED PER TDRR 17744	APR 65	WK
C	REVISED PER TDRR 18029	12 APR 65	WK
D	REVISED PER TDRR 18682	31 MAY 65	WK
E	REVISED PER TDRR 22160	[illegible] 65	[illegible]
F	REVISED PEP TDRR 24697	5 JAN 66	[illegible]

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R1	1006750 - 49	RESISTOR	5100	±2%	1/4 W
R2	1006750 - 32		1000	±2%	
R3	1006788 - 8		20	±1%	
R4	1006750 - 49		5100	±2%	
R5	SEE NOTE 3				
R6	1006750 - 49		5100		
R7	- 39		2000		
R8	- 28		680		
R9	- 39		2000		
R10	- 32		1000		
R11	- 49		5100		
R12	1006750 - 32		1000	±2%	
R13	1006788 - 8		20	±1%	
R14	1006750 - 49		5100	±2%	
R15	1006750 - 49		5100	±2%	
R16	1006750 - 49		5100	±2%	
R17	1006788 - 8		20	±1%	
R18	SEE NOTE 3				
R19	1006750 - 32		1000	±2%	
R20	1006750 - 49		5100	±2%	
R21	1006788 - 8		20	+1%	
R22	1006750 - 32		1000	±2%	
R23	1006750 - 49		5100	±2%	
R24	1006788 - 8		20	±1%	
R25	1006750 - 49		5100	±2%	
R26	1006750 - 49		5100		
R27	1006750 - 49		5100		
R29	1006788 - 8		20		
R29	SEE NOTE 3				
R30	1006750 - 15		200		
R31	- 15		200		
R32	- 15		200		
R33	- 15		200		
R34	- 15		200		
R35	- 43		3000		
R36	- 49		5100		
R37	- 15		200		
R38	- 12		150		
R39	- 39		2000		
R40	1006750 - 39		2000	±2%	1/4 W
RT1	1006712 - 3		5000		
C1	1006755 - 79	CAPACITOR	6.8 UF	±10%	35 VDC
C2	- 32		12		20
C3	- 79		6.8		35
C4	- 32		12		20
C5	1006755 - 79		6.8 UF	±10%	35 VDC
C7	1006755 - 79	CAPACITOR	6.8 UF	±10%	35 VDC
L1	1010406 - 11	INDUCTOR	3.9 UH		
L2	- 17		0.33		
L3	- 19		0.68		
L4	- 7		8.2		
L5	- 7		8.2		
L6	- 7		8.2		
L7	- 7		8.2		
L8	1010406 - 7		8.2 UH		
L10	1010406 - 8	INDUCTOR	1.0 UH		

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
CR1	1006751	DIODE			
CR2					
CR3					
CR4					
CR5					
CR6					
CR7					
CR8					
CR9					
CR10					
CR11					
CR12					
CR13					
CR14					
CR15					
CR16					
CR17					
CR18					
CR19					
CR20					
CR21					
CR22	1006751				
Q1	1006323	TRANSISTOR			
Q2	1006323				
Q3	1006323				
Q4	1006323				
Q5	1006310				
Q6	1006323				
Q7	1006323				
Q8	1006323				
Q9	1006323				
Q10	1006323				
Q11	1006310				
Q12	1006323				
Q13	1006323				
Q14	1006323				
Q15	1006323				
Q16	1006310				
Q17	1006323				
Q18	1006323				

CHART A

R5 R18 R29 ±0.5% 1/4W

PART NO.	VALUE
1006788 -118	1.69
-119	1.72
-120	1.74
-121	1.76
-122	1.78
-123	1.80
-124	1.82
-125	1.84
-126	1.87
-127	1.89
-128	1.91
-129	1.93
-130	1.96
-131	1.98
-132	2.00
-133	2.03
-134	2.05
-135	2.08
-136	2.10
-137	2.13
-138	2.15
-139	2.18
-140	2.21
-141	2.23
-142	2.26
-143	2.29
1006788 -144	2.32

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

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CAMBRIDGE, MASS

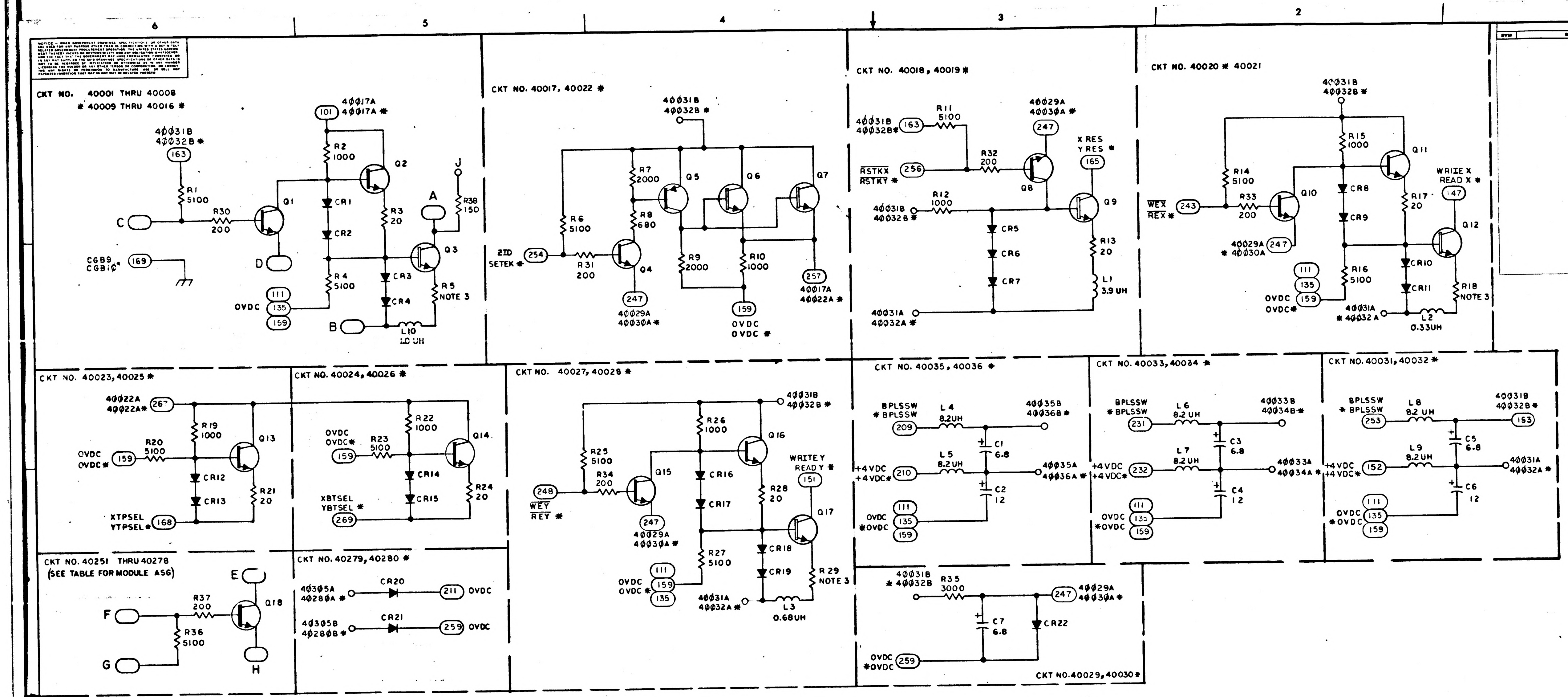
DRAWN Q. B. Lee DATE [illegible] 64
CHECKED [illegible] 1 Feb 65
APPROVAL Albert Hopkins 2-1-65
APPROVAL Eldon C Hall 2 Feb 65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible] 2 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC, ERASABLE DRIVERS MODULE MODULE NO. B9 AND B10

CODE IDENT NO. 80230 SIZE E NASA DRAWING NO. 2005004

SCALE — WT — SHEET 2 OF 2


CKT NO. 40001 THRU 40008
* 40009 THRU 40016 *
40031B
40032B *
163
R1
5100
R30
200
C
CGB9
CGB10*
169
Q1
D
101
40017A
40017A *
R2
1000
Q2
CR1
CR2
R4
5100
OVDC
111
135
159
R3
20
CR3
CR4
B
L10
1.0 UH
A
J
R38
150
Q3
R5
NOTE 3
CKT NO. 40017, 40022 *
40031B
40032B *
R7
2000
R8
680
R6
5100
Q5
Q6
Q7
ZID
SETEK *
254
R31
200
Q4
247
40029A
40030A *
R9
2000
R10
1000
159
OVDC
OVDC *
257
40017A
40022A *
CKT NO. 40018, 40019 *
40031B
40032B*
163
R11
5100
RSTKX
RSTKY *
256
R32
200
40029A
40030A *
247
Q8
X RES
Y RES *
165
40031B
40032B *
R12
1000
CR5
CR6
CR7
Q9
R13
20
L1
3.9 UH
40031A
40032A *
CKT NO. 40020 * 40021
40031B
40032B *
R15
1000
Q11
R14
5100
WEX
REX *
243
R33
200
Q10
CR8
CR9
40029A
* 40030A
247
R17
20
WRITE X
READ X *
147
Q12
111
135
OVDC
OVDC*
159
R16
5100
CR10
CR11
R18
NOTE 3
40031A
* 40032 A
L2
0.33UH
CKT NO. 40023, 40025 *
40022A
40022A*
267
R19
1000
OVDC
OVDC*
159
R20
5100
Q13
CR12
CR13
R21
20
XTPSEL
YTPSEL*
168
CKT NO. 40024, 40026 *
R22
1000
OVDC
OVDC*
159
R23
5100
Q14
CR14
CR15
R24
20
XBTSEL
YBTSEL *
269
CKT NO. 40027, 40028 *
40031B
40032B *
R26
1000
R25
5100
Q16
248
WEY
REY *
R34
200
Q15
CR16
CR17
247
40029A
40030A *
R28
20
WRITE Y
READ Y *
151
Q17
R27
5100
CR18
CR19
OVDC
OVDC *
111
159
135
40031A
40032A *
L3
0.68UH
R 29
NOTE 3
CKT NO. 40035, 40036 *
BPLSSW
* BPLSSW
209
L4
8.2UH
40035B
40036B *
C1
6.8
+4 VDC
+4 VDC*
210
L5
8.2UH
40035A
40036A *
C2
12
OVDC
*OVDC
111
135
159
CKT NO. 40033, 40034 *
BPLSSW
* BPLSSW
231
L6
8.2 UH
40033B
40034B *
C3
6.8
+4 VDC
+4 VDC*
232
L7
8.2 UH
40033A
40034A *
C4
12
OVDC
*OVDC
111
135
159
CKT NO. 40031, 40032 *
BPLSSW
* BPLSSW
253
L8
8.2 UH
40031B
40032B *
153
C5
6.8
+4 VDC
+4 VDC*
152
L9
8.2 UH
40031A
40032A *
C6
12
OVDC
* OVDC
111
135
159
CKT NO. 40251 THRU 40278
(SEE TABLE FOR MODULE ASG)
E
F
R37
200
Q18
R36
5100
G
H
CKT NO. 40279, 40280 *
40305A
40280A *
CR20
211
OVDC
40305B
40280B *
CR21
259
OVDC
40031B
* 40032B
R35
3000
247
40029A
40030A *
C7
6.8
CR22
OVDC
*OVDC
259
CKT NO. 40029, 40030 *

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL

	COMPONENT PREFIX * (ASSY)	CIRCUIT NO.	A		B		C		D		E		F		G		H		J	
			SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.
MODULE NO.1	1	40001	DBF16	104	40035A		GEM 16	201	40029A	204									40035B	
	2	40002	DBF14	109			GEM 14	205		204										
	3	40003	DBF13	116	↓		GEM 13	212		216									↓	
	4	40004	DBF12	121	40035A	INTERNALLY CONNECTED	GEM 12	217		216									40035B	INTERNALLY CONNECTED
	5	40005	DBF11	126	40033A		GEM 11	221		225									40033B	
	6	40006	DBF10	130			GEM 10	226		225										
	7	40007	DBF07	137	↓		GEM 07	233	↓	237									↓	
	8	40008	DBF06	142	40033A		GEM 06	238	40029A	237									40033B	
MODULE NO.2	1	40009	DBF15	104	40036A		GEM 15	201	40030A	204									40036B	
	2	40010	DBF01	109			GEM 01	205		204										
	3	40011	DBF02	116	↓		GEM 02	212		216									↓	
	4	40012	DBF03	121	40036A		GEM 03	217		216									40036B	
	5	40013	DBF04	126	40034A		GEM 04	221		225									40034B	
	6	40014	DBF05	130			GEM 05	226		225										
	7	40015	DBF08	137	↓		GEM 08	233	↓	237									↓	
	8	40016	DBF09	142	40034A		GEM 09	238	40030A	237									40034B	
MODULE NO. 1	1	40271									40271A	103	YT0E	202	40031B	208	40305A	INTERNALLY CONNECTED		
	2	40273									40273A	108	YT2E	206						
	3	40263									40263A	115	YB0E	213						
	4	40269									40269A	120	YB6E	218						
	5	40268									40268A	124	YB5E	222						
	6	40270									40270A	129	YB7E	227		↓	↓			
	7	40253									40253A	136	XB2E	234		208	40305A			
	8	40257									40257A	141	XB6E	239		251	40305B			
	9	40256									40256A	146	XB5E	244						
	10	40258									40258A	150	XB7E	249						
	11	40261									40261A	156	XT4E	255						
	12	40262									40262A	160	XT5E	258						
	13	40276									40276A	164	XT2E	262	↓	↓	↓			
	14	40278									40278A	167	YT0E	265	40031B	251	40305B			
MODULE NO.2	1	40277									40277A	103	XT3E	202	40032B	208	40280A	INTERNALLY CONNECTED		
	2	40275									40275A	108	XT1E	206						
	3	40259									40259A	115	XT7E	213						
	4	40260									40260A	120	XT6E	218						
	5	40254									40254A	124	XB3E	222						
	6	40252									40252A	129	XB1E	227		↓	↓			
	7	40255									40255A	136	XB4E	234		208	40280A			
	8	40251									40251A	141	XB0E	239		251	40280B			
	9	40266									40266A	146	YB3E	244						
	10	40264									40264A	150	YB1E	249						
	11	40267									40267A	156	YB4E	255						
	12	40265									40265A	160	YB2E	258						
	13	40274									40274A	164	YT3E	262	↓	↓	↓			
		40272									40272A	167	YT1E	265	40032B	251	40280B			

REF DWG:
ERASABLE DRIVERS MODULE ASSY
DWG NO. 2003014

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. UNLESS OTHERWISE SPECIFIED:
   - A. RESISTOR VALUES ARE EXPRESSED IN OHMS
   - B. CAPACITOR VALUES ARE EXPRESSED IN MICROFARADS
3. THE VALUE OF R5, R18, R29, TO BE SELECTED AT FINAL TEST. PART TO BE SELECTED FROM CHART A
4. CIRCUIT NUMBERS AND SIGNAL NAMES INDICATED BY AN ASTERISK (*) ARE IN MODULE NO. 10

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO
CONTRACT
DRAWN A. D. Lee DATE 1 MAY 64
CHECKED 1 FEB 65
APPROVAL Albert Hopkins 2 2 65
APPROVAL 2 Feb 65
NASA APPROVAL 4/1/65
MIT APPROVAL 2 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC,
ERASABLE DRIVER MODULE
MODULE NO. B9 AND B10

CODE IDENT NO.
SIZE E
NASA DRAWING NO 2005004
SCALE —
WT —
SHEET 1 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE USE OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS 608			
SYM	DESCRIPTION	DATE	APPROVAL

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R1	1006750 - 49	RESISTOR	5100	±2%	1/4 W
R2	1006750 - 32		1000	±2%	
R3	1006788 - 8		20	±1%	
R4	1006750 - 49		5100	±2%	
R5	SEE NOTE 3				
R6	1006750 - 49		5100		
R7	- 39		2000		
R8	- 28		680		
R9	- 39		2000		
R10	- 32		1000		
R11	- 49		5100		
R12	1006750 - 32		1000	±2%	
R13	1006788 - 8		20	±1%	
R14	1006750 - 49		5100	±2%	
R15	1006750 - 32		1000	±2%	
R16	1006750 - 49		5100	±2%	
R17	1006788 - 8		20	±1%	
R18	SEE NOTE 3				
R19	1006750 - 32		1000	±2%	
R20	1006750 - 49		5100	±2%	
R21	1006788 - 8		20	±1%	
R22	1006750 - 32		1000	±2%	
R23	1006750 - 49		5100	±2%	
R24	1006788 - 8		20	±1%	
R25	1006750 - 49		5100	±2%	
R26	- 32		1000		
R27	- 49		5100		
R28	1006788 - 8		20		
R29	SEE NOTE 3				
R30	1006750 - 15		200		
R31	- 15		200		
R32	- 15		200		
R33	- 15		200		
R34	- 15		200		
R35	- 43		3000		
R36	- 39		5100		
R37	- 15		200		
R38	1006750 - 12		150	±2%	1/4 W
C1	1006755 - 79	CAPACITOR	6.8 UF	±10%	35 VDC
C2	- 32		12		20
C3	- 79		6.8		35
C4	- 32		12		20
C5	- 79		6.8		35
C6	- 32		12		20
C7	1006755 - 79		6.8 UF	±10%	35 VDC
L1	1010406 - 11	INDUCTOR	3.9 UH		
L2	- 17		0.33		
L3	- 19		0.69		
L4	- 7		8.2		
L5	- 7		8.2		
L6	- 7		8.2		
L7	- 7		8.2		
L8	- 7		8.2		
L9	- 7		8.2		
L10	1010406 - 8		1.0 UH		

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
CR1	1006751	DIODE			
CR2					
CR3					
CR4					
CR5					
CR6					
CR7					
CR8					
CR9					
CR10					
CR11					
CR12					
CR13					
CR14					
CR15					
CR16					
CR17					
CR18					
CR19					
CR20					
CR21					
CR22	1006751				
Q1	1006323	TRANSISTOR			
Q2	1006323				
Q3	1006323				
Q4	1006323				
Q5	1006310				
Q6	1006323				
Q7	1006323				
Q8	1006323				
Q9	1006323				
Q10	1006323				
Q11	1006323				
Q12	1006323				
Q13	1006323				
Q14	1006323				
Q15	1006323				
Q16	1006323				
Q17	1006323				
Q18	1006323				

CHART A	
R5 R18 R29 ± 1% 1/4W	
PART NO.	VALUE
1006788 - 16	1.7
- 17	1.75
- 18	1.85
- 19	1.85
- 20	1.9
- 21	1.95
- 22	2.0
- 23	2.05
- 24	2.1
- 25	2.15
- 26	2.2
- 27	2.25
- 28	2.3
- 29	2.5
- 30	2.6
- 31	2.7
- 32	2.8
- 33	2.9
- 34	3.0
1006788 - 35	3.1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO. CONTRACT
DRAWN A. B. Lee DATE 1 Nov 64
CHECKED [illegible] 1 Feb 65
APPROVAL Albert Hopkins 2·1·65
APPROVAL Eldon C Hall 2 Feb 65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible] 2 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

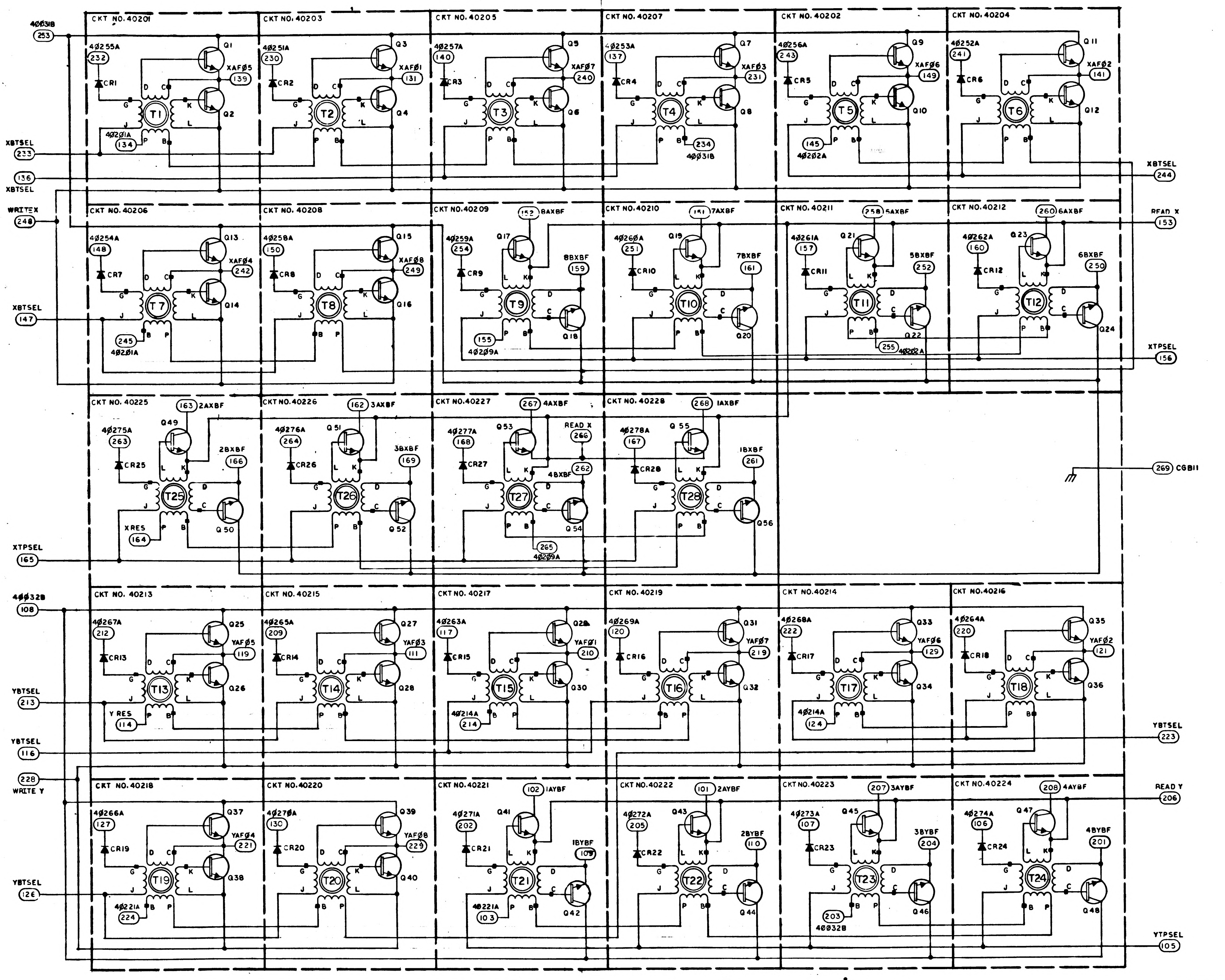
SCHEMATIC,
ERASABLE DRIVERS MODULE
MODULE NO. B9 AND B10

CODE IDENT NO. —
SIZE E
NASA DRAWING NO. 2005004
SCALE — WT — SHEET 2 OF 2

2005004

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS 16091			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17907	5 APR 65	N.S.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CKT NO. 40224
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XBTSEL
233
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XBTSEL
WRITEX
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XBTSEL
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XTPSEL
165
40032B
108
YBTSEL
213
YBTSEL
116
228
WRITE Y
YBTSEL
126
XBTSEL
244
READ X
153
XTPSEL
156
269 CGB11
YBTSEL
223
READ Y
206
YTPSEL
105
T1
T2
T3
T4
T5
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T27
T28
XAF05 139
XAF01 131
XAF07 240
XAF03 231
XAF06 149
XAF02 141
XAF04 242
XAF08 249
8AXBF 152
8BXBF 159
7AXBF 151
7BXBF 161
5AXBF 258
5BXBF 252
6AXBF 260
6BXBF 250
2AXBF 163
2BXBF 166
3AXBF 162
3BXBF 169
4AXBF 267
4BXBF 262
READ X 266
1AXBF 268
1BXBF 261
XRES 164
YAF05 119
YAF03 111
YAF01 210
YAF07 219
YAF06 129
YAF02 121
Y RES 114
YAF04 221
YAF08 229
1AYBF 102
1BYBF 109
2AYBF 101
2BYBF 110
3AYBF 207
3BYBF 204
4AYBF 208
4BYBF 201

REF DWG:
CURRENT SWITCH MODULE ASSY
DWG NO. 2003026

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

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TOLERANCES ON
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MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

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INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO. CONTRACT
DRAWN A. P. Lay DATE 6 MAY 64
CHECKED
APPROVAL Albert Hopkins 2.2.65
APPROVAL Eldon C Hall 2 Feb 65
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC,
CURRENT SWITCH MODULE
MODULE NO. B11

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO. 2005005
SCALE —
WT —
SHEET 1 OF 2

2005005 A

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS /6091			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17907	5 APR 65	

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
Q 1	1006323	TRANSISTOR			
Q 2					
Q 3					
Q 4					
Q 5					
Q 6					
Q 7					
Q 8					
Q 9					
Q 10					
Q 11					
Q 12					
Q 13					
Q 14					
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Q 22					
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Q 42					
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Q 48					
Q 49					
Q 50					
Q 51					
Q 52					
Q 53					
Q 54					
Q 55	↓				
Q 56	1006323	↓			

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
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CR3					
CR4					
CR5					
CR6					
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CR25					
CR26					
CR27					
CR28	↓	↓			
T 1	1003084	K CORE ASSEMBLY			
T 2					
T 3					
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2005005 A

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

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MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO
CONTRACT

DRAWN A. Di Leo DATE 6 MAY 64
CHECKED
APPROVAL Albert Hopkins 2-2-65
APPROVAL 2 Feb 65
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC, CURRENT SWITCH MODULE
MODULE NO. B11

CODE IDENT NO.	SIZE	NASA DRAWING NO.
80230	E	2005005
SCALE —	WT —	SHEET 2 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 16091			
SYM	DESCRIPTION	DATE	APPROVAL
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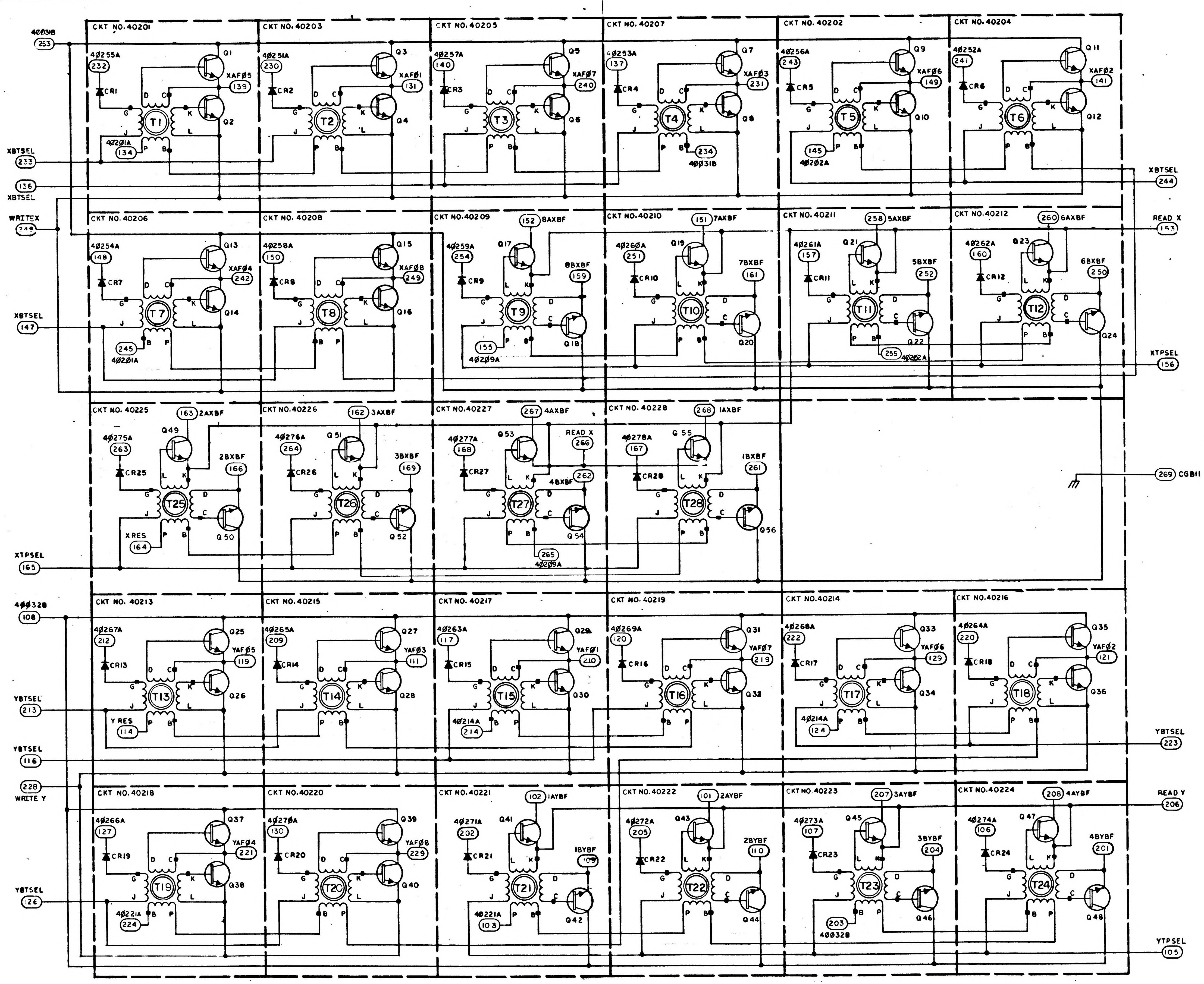
B	REVISED PER TDRR 20409	[illegible]	[illegible]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40032B 108
YBTSEL 213
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228 WRITE Y
YBTSEL 126
XBTSEL 244
READ X 153
XTPSEL 156
269 CGB11
YBTSEL 223
READ Y 206
YTPSEL 105
XAF05 139
XAF01 131
XAF07 240
XAF03 231
XAF06 149
XAF02 141
XAF04 242
XAF08 249
YAF05 119
YAF03 111
YAF01 210
YAF07 219
YAF06 129
YAF02 121
YAF04 221
YAF08 229
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258 5AXBF
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7BXBF 161
5BXBF 252
6BXBF 250
163 2AXBF
162 3AXBF
267 4AXBF
268 1AXBF
2BXBF 166
3BXBF 169
READ X 266
4BXBF 262
1BXBF 261
XRES 164
102 1AYBF
101 2AYBF
207 3AYBF
208 4AYBF
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2BYBF 110
3BYBF 204
4BYBF 201
Y RES 114
T1
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T27
T28

REF DWG:
CURRENT SWITCH MODULE ASSY
DWG NO. 2003026

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

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TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
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MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO. CONTRACT
DRAWN A. P. Lee DATE 6 MAY 64
CHECKED [illegible]
APPROVAL Albert Hopkins 2-2-65
APPROVAL Eldon C Hall 3 Feb 65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible]

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC,
CURRENT SWITCH MODULE
MODULE NO. B11

CODE IDENT NO. 80230
SIZE E
NASA DRAWING NO 2005005
SCALE —
WT —
SHEET 1 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE USE OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS 16091			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17907	6 APR 65	
B	REVISED PER TDRR 20409		

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
Q 1	1006323	TRANSISTOR			
Q 2					
Q 3					
Q 4					
Q 5					
Q 6					
Q 7					
Q 8					
Q 9					
Q 10					
Q 11					
Q 12					
Q 13					
Q 14					
Q 15					
Q 16					
Q 17					
Q 18					
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Q 49					
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Q 51					
Q 52					
Q 53					
Q 54					
Q 55	↓				
Q 56	1006323	↓			

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
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CR3					
CR4					
CR5					
CR6					
CR7					
CR8					
CR9					
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CR20					
CR21					
CR22					
CR23					
CR24					
CR25					
CR26					
CR27					
CR28	↓	↓			
T 1	1003084-011	K CORE ASSEMBLY			
T 2					
T 3					
T 4					
T 5					
T 6					
T 7					
T 8					
T 9					
T 10					
T 11					
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T 28	↓	↓			

MASTER

2005005 B

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO. CONTRACT
DRAWN A. DiLeo DATE 6 MAY 64
CHECKED
APPROVAL Albert Hopkins 2-2-65
APPROVAL 2 Feb 65
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC,
CURRENT SWITCH MODULE
MODULE NO. B11

CODE IDENT NO. 80230 | SIZE E | NASA DRAWING NO. 2005005
SCALE — | WT — | SHEET 2 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE USE OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS 16091			
SYM	DESCRIPTION	DATE	APPROVAL
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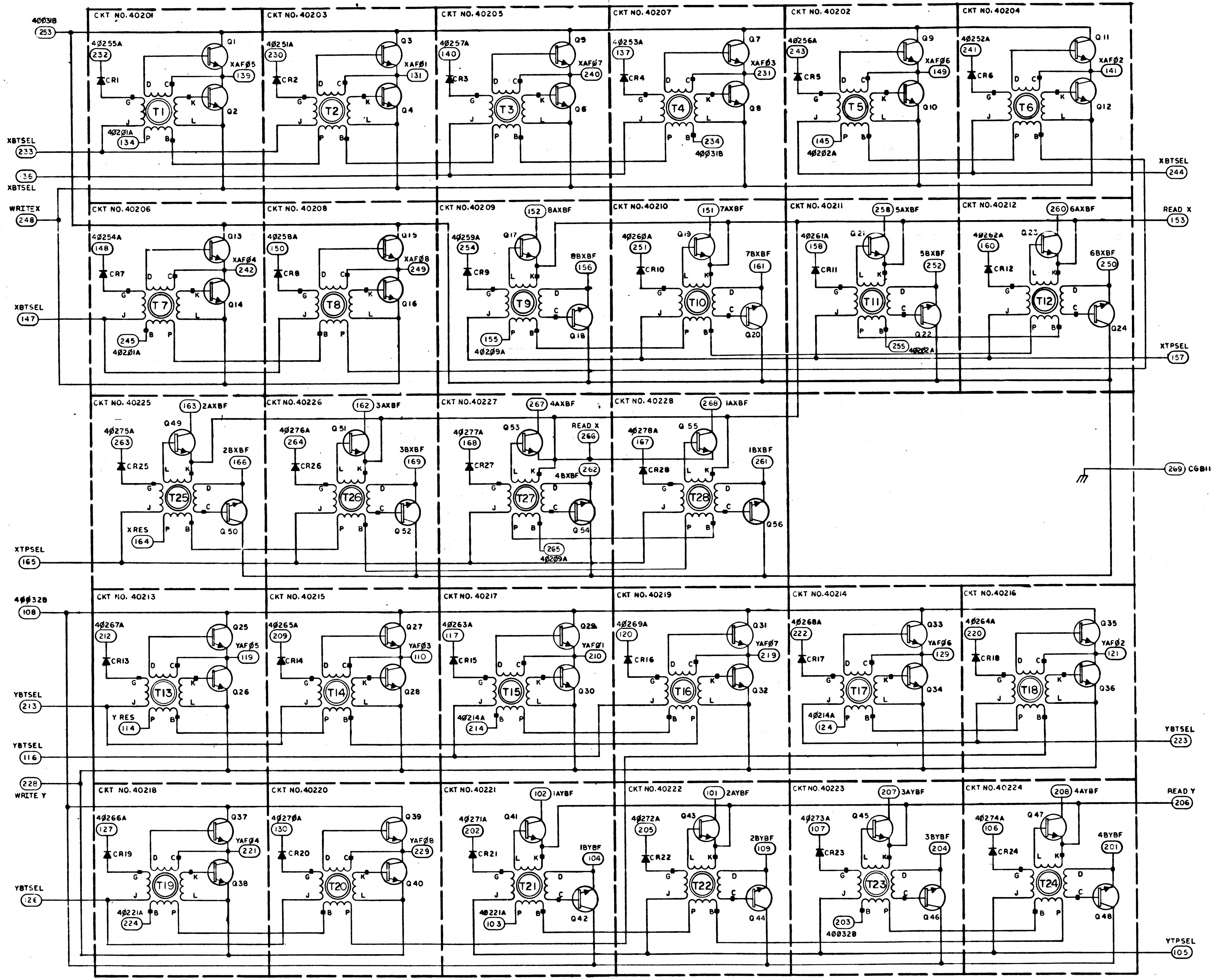
B	REVISED PER TDRR 20409		WK
C	REVISED PER TDRR 21252		WK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5
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3
2
1
D
C
B
A
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253
XBTSEL
233
36
XBTSEL
WRITEX
248
XBTSEL
147
XTPSEL
165
40032B
108
YBTSEL
213
YBTSEL
116
228
WRITE Y
YBTSEL
126
XBTSEL
244
READ X
153
XTPSEL
157
269 CGB11
YBTSEL
223
READ Y
206
YTPSEL
105
CKT NO. 40201
40255A
232
CR1
Q1
Q2
XAF05
139
T1
40201A
134
CKT NO. 40203
40251A
230
CR2
Q3
Q4
XAF01
131
T2
CKT NO. 40205
40257A
140
CR3
Q5
Q6
XAF07
240
T3
CKT NO. 40207
40253A
137
CR4
Q7
Q8
XAF03
231
T4
234
40031B
CKT NO. 40202
40256A
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CR5
Q9
Q10
XAF06
149
T5
145
40202A
CKT NO. 40204
40252A
241
CR6
Q11
Q12
XAF02
141
T6
CKT NO. 40206
40254A
148
CR7
Q13
Q14
XAF04
242
T7
245
40201A
CKT NO. 40208
40258A
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CR8
Q15
Q16
XAF08
249
T8
CKT NO. 40209
40259A
254
152 8AXBF
Q17
8BXBF
156
CR9
T9
Q18
155
40209A
CKT NO. 40210
40260A
251
151 7AXBF
Q19
7BXBF
161
CR10
T10
Q20
CKT NO. 40211
40261A
158
258 5AXBF
Q21
5BXBF
252
CR11
T11
Q22
255
40202A
CKT NO. 40212
40262A
160
260 6AXBF
Q23
6BXBF
250
CR12
T12
Q24
CKT NO. 40225
163 2AXBF
40275A
263
Q49
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166
CR25
T25
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164
Q50
CKT NO. 40226
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40276A
264
Q51
3BXBF
169
CR26
T26
Q52
CKT NO. 40227
267 4AXBF
40277A
168
Q53
READ X
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4BXBF
262
CR27
T27
Q54
265
40209A
CKT NO. 40228
268 1AXBF
40278A
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Q55
1BXBF
261
CR28
T28
Q56
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CR13
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Q26
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T13
Y RES
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CKT NO. 40215
40265A
209
CR14
Q27
Q28
YAF03
110
T14
CKT NO. 40217
40263A
117
CR15
Q29
Q30
YAF01
210
T15
40214A
214
CKT NO. 40219
40269A
120
CR16
Q31
Q32
YAF07
219
T16
CKT NO. 40214
40268A
222
CR17
Q33
Q34
YAF06
129
T17
40214A
124
CKT NO. 40216
40264A
220
CR18
Q35
Q36
YAF02
121
T18
CKT NO. 40218
40266A
127
CR19
Q37
Q38
YAF04
221
T19
40221A
224
CKT NO. 40220
40270A
130
CR20
Q39
Q40
YAF08
229
T20
CKT NO. 40221
102 1AYBF
40271A
202
Q41
1BYBF
104
CR21
T21
40221A
103
Q42
CKT NO. 40222
101 2AYBF
40272A
205
Q43
2BYBF
109
CR22
T22
Q44
CKT NO. 40223
207 3AYBF
40273A
107
Q45
3BYBF
204
CR23
T23
203
40032B
Q46
CKT NO. 40224
208 4AYBF
40274A
106
Q47
4BYBF
201
CR24
T24
Q48
G
J
D
C
K
L
P
B

REF DWG:
CURRENT SWITCH MODULE ASSY
DWG NO. 2003026

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT

DRAWN A. Di Leo DATE 6 MAY 64
CHECKED
APPROVAL Albert Hopkins 2.2.65
APPROVAL Eldon C Hall 2 Feb 65
NASA APPROVAL
MIT APPROVAL 2 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC,
CURRENT SWITCH MODULE
MODULE NO. B11

CODE IDENT NO.	SIZE	NASA DRAWING NO
80230	E	2005005
SCALE —	WT —	SHEET 1 OF 2

2005005 C

NOTICE - WHEN GOVERNMENT DRAWINGS SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE USE OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS 16091

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 17907	6 APR 65	
B	REVISED PER TDRR 20409		
C	REVISED PER TDRR 21252	7/29/65	

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
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Q 2					
Q 3					
Q 4					
Q 5					
Q 6					
Q 7					
Q 8					
Q 9					
Q 10					
Q 11					
Q 12					
Q 13					
Q 14					
Q 15					
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Q 26					
Q 27					
Q 28					
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Q 32					
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Q 38					
Q 39					
Q 40					
Q 41					
Q 42					
Q 43					
Q 44					
Q 45					
Q 46					
Q 47					
Q 48					
Q 49					
Q 50					
Q 51					
Q 52					
Q 53					
Q 54					
Q 55	↓				
Q 56	1006323	↓			

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
CR1	1006751	DIODE			
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CR3					
CR4					
CR5					
CR6					
CR7					
CR8					
CR9					
CR10					
CR11					
CR12					
CR13					
CR14					
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CR18					
CR19					
CR20					
CR21					
CR22					
CR23					
CR24					
CR25					
CR26					
CR27					
CR28	↓	↓			
T 1	1003084-011	K CORE ASSEMBLY			
T 2					
T 3					
T 4					
T 5					
T 6					
T 7					
T 8					
T 9					
T 10					
T 11					
T 12					
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T 18					
T 19					
T 20					
T 21					
T 22					
T 23					
T 24					
T 25					
T 26					
T 27					
T 28	↓	↓			

2005005 C

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO CONTRACT
DRAWN A. Di Leo DATE 6 MAY 64
CHECKED
APPROVAL Albert Hopkins 2.2.65
APPROVAL 2 Feb 65
NASA APPROVAL
MIT APPROVAL

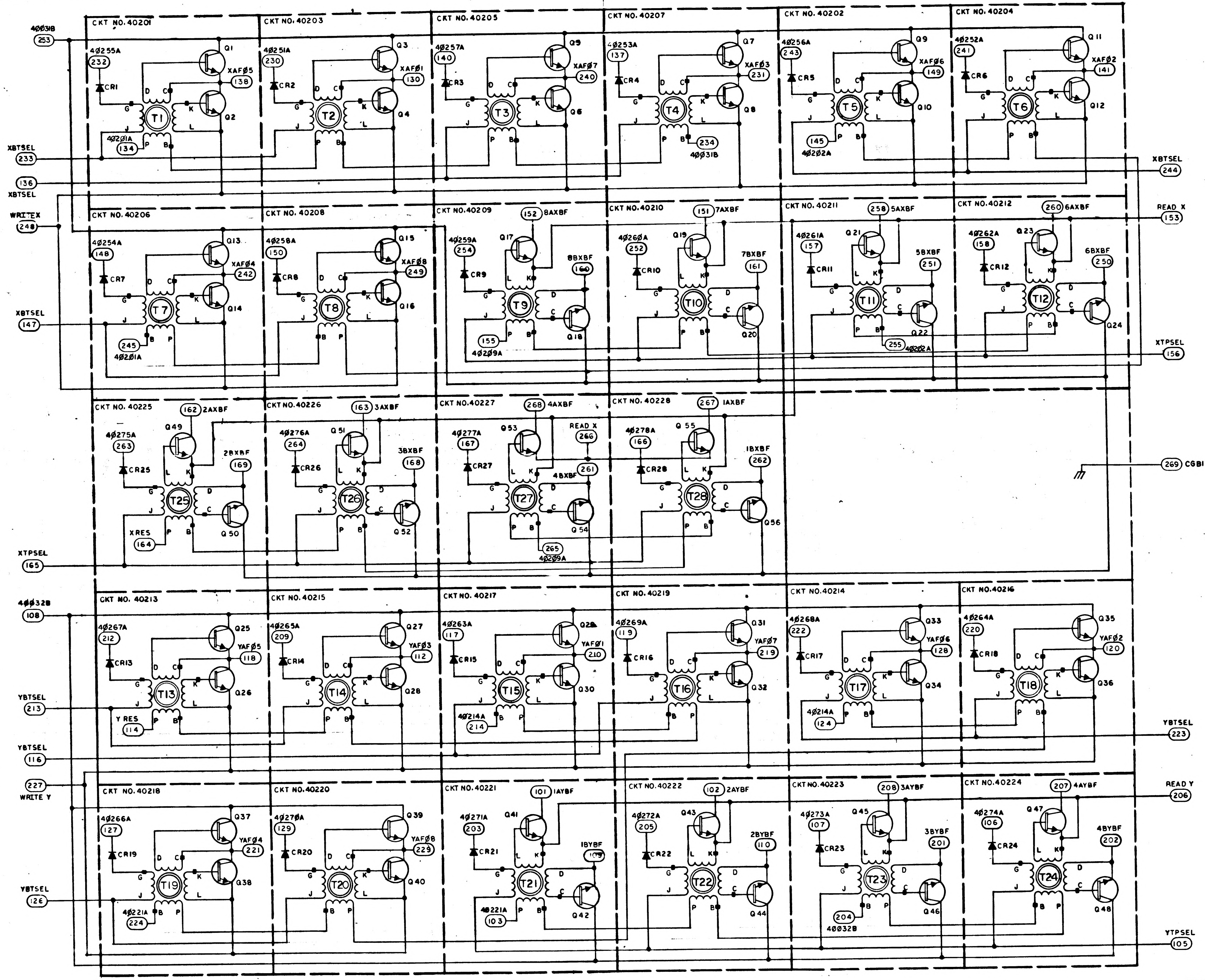
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC,
CURRENT SWITCH MODULE
MODULE NO. B11

CODE IDENT NO 80230
SIZE E
NASA DRAWING NO 2005005
SCALE — WT — SHEET 2 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS 16091			
SYM	DESCRIPTION	DATE	APPROVAL



CKT NO. 40201
CKT NO. 40203
CKT NO. 40205
CKT NO. 40207
CKT NO. 40202
CKT NO. 40204
CKT NO. 40206
CKT NO. 40208
CKT NO. 40209
CKT NO. 40210
CKT NO. 40211
CKT NO. 40212
CKT NO. 40225
CKT NO. 40226
CKT NO. 40227
CKT NO. 40228
CKT NO. 40213
CKT NO. 40215
CKT NO. 40217
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CKT NO. 40214
CKT NO. 40216
CKT NO. 40218
CKT NO. 40220
CKT NO. 40221
CKT NO. 40222
CKT NO. 40223
CKT NO. 40224
40031B 253
XBTSEL 233
136 XBTSEL
WRITE X 248
XBTSEL 147
XTPSEL 165
40032B 108
YBTSEL 213
YBTSEL 116
227 WRITE Y
YBTSEL 126
XBTSEL 244
READ X 153
XTPSEL 156
269 CGB11
YBTSEL 223
READ Y 206
YTPSEL 105
40255A 232
40201A 134
XAF05 138
40251A 230
XAF01 130
40257A 140
XAF07 240
40253A 137
XAF03 231
234 40031B
40256A 243
XAF06 149
145 40202A
40252A 241
XAF02 141
40254A 148
XAF04 242
245 40201A
40258A 150
XAF08 249
40259A 254
152 8AXBF
8BXBF 160
155 40209A
40260A 252
151 7AXBF
7BXBF 161
40261A 157
258 5AXBF
5BXBF 251
255 40202A
40262A 158
260 6AXBF
6BXBF 250
40275A 263
162 2AXBF
2BXBF 169
XRES 164
40276A 264
163 3AXBF
3BXBF 168
40277A 167
268 4AXBF
READ X 266
4BXBF 261
265 40209A
40278A 166
267 1AXBF
1BXBF 262
40267A 212
YAF05 118
Y RES 114
40265A 209
YAF03 112
40263A 117
YAF01 210
40214A 214
40269A 119
YAF07 219
40268A 222
YAF06 128
40214A 124
40264A 220
YAF02 120
40266A 127
YAF04 221
40221A 224
40270A 129
YAF08 229
40271A 203
101 1AYBF
1BYBF 109
40221A 103
40272A 205
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40273A 107
208 3AYBF
3BYBF 201
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T1
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REF DWG:
CURRENT SWITCH MODULE ASSY
DWG NO. 2003026

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION
LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO. CONTRACT
DRAWN A. D. Lee DATE 6MAY64
CHECKED
APPROVAL Albert Hopkins 2.2.65
APPROVAL Edw C Hall 2 Feb 65
NASA APPROVAL
MIT APPROVAL 2 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC,
CURRENT SWITCH MODULE
MODULE NO. B11

CODE IDENT NO. —
SIZE E
NASA DRAWING NO. 2005005
SCALE —
WT —
SHEET 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

SYM	REVISIONS 609 DESCRIPTION	DATE	APPROVAL

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
Q 1	1006323	TRANSISTOR			
Q 2					
Q 3					
Q 4					
Q 5					
Q 6					
Q 7					
Q 8					
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Q 11					
Q 12					
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Q 49					
Q 50					
Q 51					
Q 52					
Q 53					
Q 54					
Q 55	↓				
Q 56	1006323	↓			

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
CR1	1006751	DIODE			
CR2					
CR3					
CR4					
CR5					
CR6					
CR7					
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CR11					
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CR17					
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CR19					
CR20					
CR21					
CR22					
CR23					
CR24					
CR25					
CR26					
CR27					
CR28	↓	↓			
T 1	1003084	K CORE ASSEMBLY			
T 2					
T 3					
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T 10					
T 11					
T 12					
T 13					
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T 15					
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T 18					
T 19					
T 20					
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T 24					
T 25					
T 26					
T 27					
T 28	↓	↓			

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO. CONTRACT
DRAWN A. Di Leo DATE 6 MAY 64
CHECKED
APPROVAL Albert Hopkins 2-2-65
APPROVAL 2 Feb 65
NASA APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC,
CURRENT SWITCH MODULE
MODULE NO. B

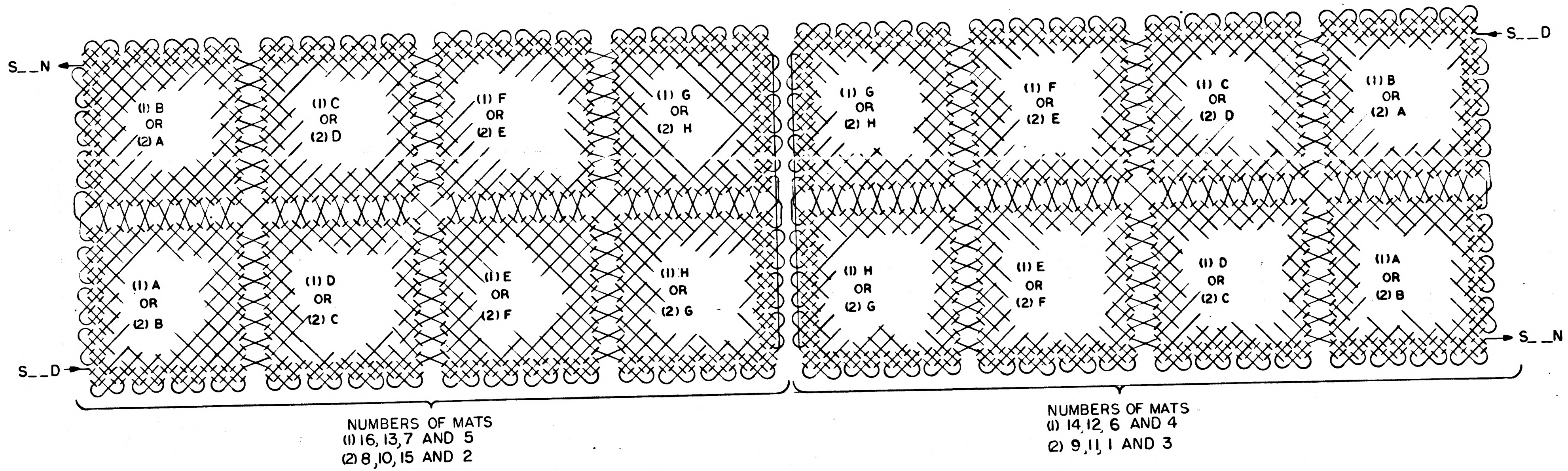
CODE IDENT NO. —
SIZE E
NASA DRAWING NO. 2005005
SCALE —
WT —
SHEET 2 OF 2

2005005

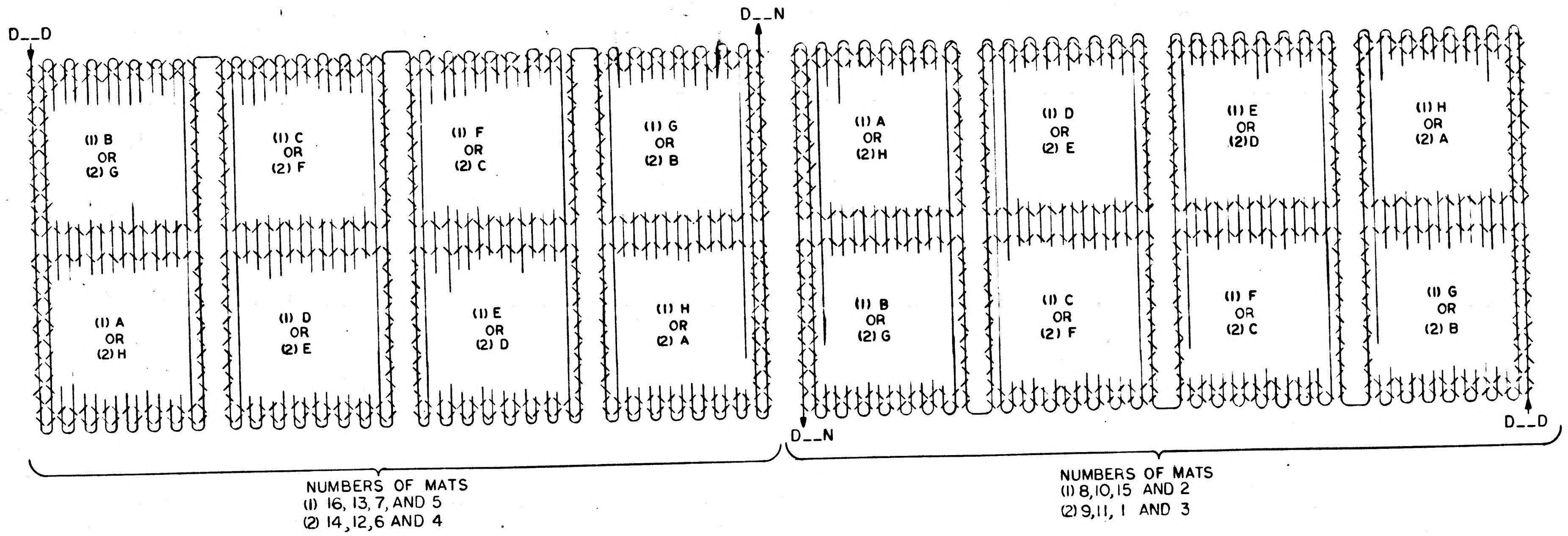
NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

SYM	DESCRIPTION	DATE	APPROVAL
REVISIONS 1609			

TYP SENSE WINDINGS


S__N
S__D
S__D
S__N
(1) B OR (2) A
(1) C OR (2) D
(1) F OR (2) E
(1) G OR (2) H
(1) A OR (2) B
(1) D OR (2) C
(1) E OR (2) F
(1) H OR (2) G
(1) G OR (2) H
(1) F OR (2) E
(1) C OR (2) D
(1) B OR (2) A
(1) H OR (2) G
(1) E OR (2) F
(1) D OR (2) C
(1) A OR (2) B
NUMBERS OF MATS
(1) 16, 13, 7 AND 5
(2) 8, 10, 15 AND 2
NUMBERS OF MATS
(1) 14, 12, 6 AND 4
(2) 9, 11, 1 AND 3

TYP INHIBIT WINDINGS


D__D
D__N
D__N
D__D
(1) B OR (2) G
(1) C OR (2) F
(1) F OR (2) C
(1) G OR (2) B
(1) A OR (2) H
(1) D OR (2) E
(1) E OR (2) D
(1) H OR (2) A
(1) A OR (2) H
(1) D OR (2) E
(1) E OR (2) D
(1) H OR (2) A
(1) B OR (2) G
(1) C OR (2) F
(1) F OR (2) C
(1) G OR (2) B
NUMBERS OF MATS
(1) 16, 13, 7, AND 5
(2) 14, 12, 6 AND 4
NUMBERS OF MATS
(1) 8, 10, 15 AND 2
(2) 9, 11, 1 AND 3

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH MIL-D-70327
2. S__D, S__N, D__N, D__D DENOTES SIGNAL NAME S16N, S07N, ETC. D16N, D07N, ETC.

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± ___ DECIMALS ± ___ ANGLES ± ___
DO NOT SCALE THIS DRAWING
MATERIAL ___
HEAT TREATMENT ___
FINAL FINISH ___

MIT INSTRUMENTATION LAB
CAMBRIDGE MASS
DWG NO
CONTRACT
DRAWN RD Glass DATE
CHECKED Oderschenko
APPROVAL
APPROVAL Eldon C Hall 2 Feb 65
NASA APPROVAL [illegible]
MIT APPROVAL [illegible] 9 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING & FOLDING DIAGRAM
ERASABLE MEMORY CORE STACK ASSY

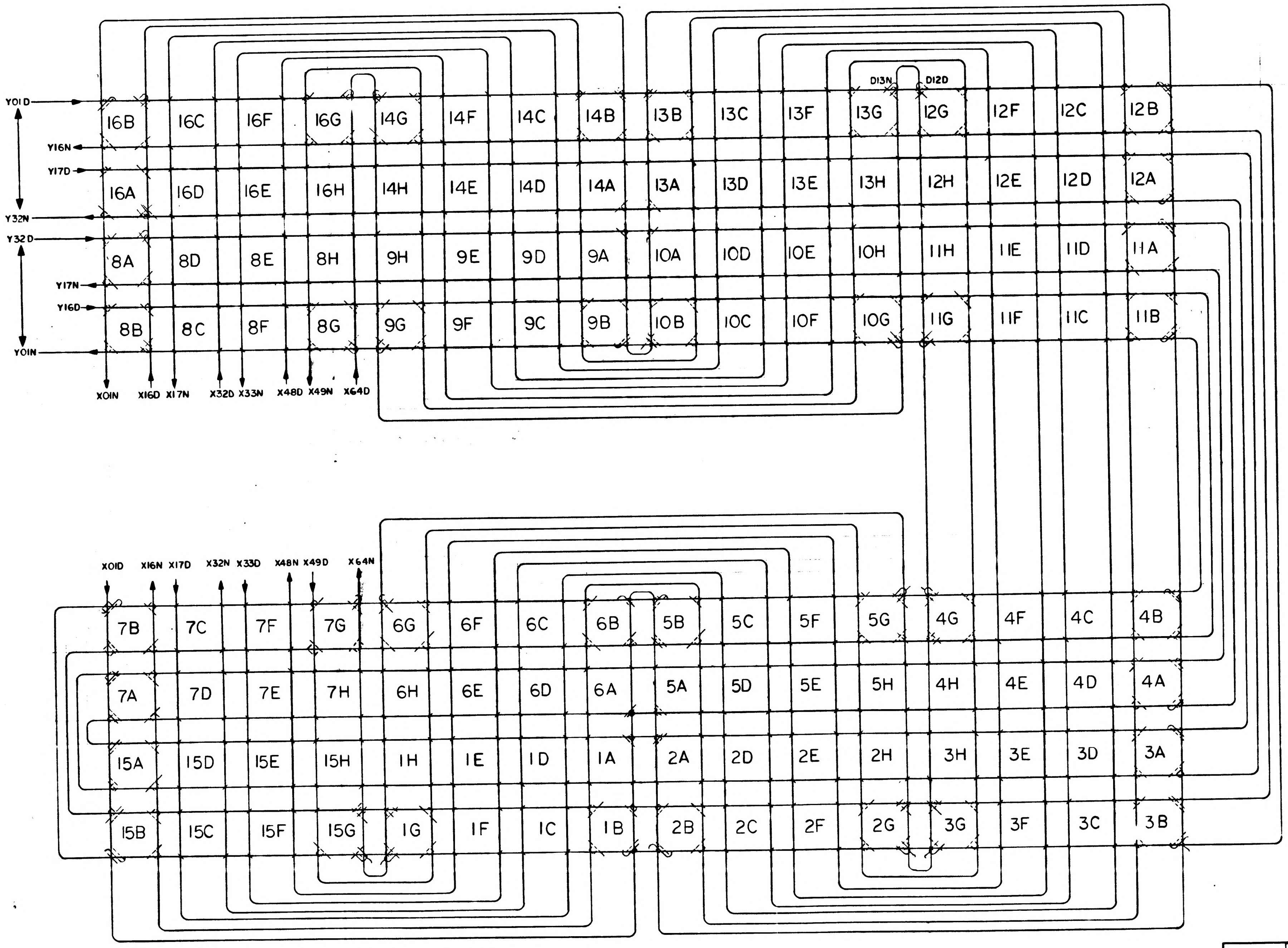
CODE IDENT NO.	SIZE	NASA DRAWING NO.
—	E	2005007

SCALE — WT — SHEET 1 OF 3

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS 1600			
SYM	DESCRIPTION	DATE	APPROVAL

X AND Y LINE WIRING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D12D
Y01D
Y16N
Y17D
Y32N
Y32D
Y17N
Y16D
Y01N
16B 16C 16F 16G 14G 14F 14C 14B 13B 13C 13F 13G 12G 12F 12C 12B
16A 16D 16E 16H 14H 14E 14D 14A 13A 13D 13E 13H 12H 12E 12D 12A
8A 8D 8E 8H 9H 9E 9D 9A 10A 10D 10E 10H 11H 11E 11D 11A
8B 8C 8F 8G 9G 9F 9C 9B 10B 10C 10F 10G 11G 11F 11C 11B
X01N X16D X17N X32D X33N X48D X49N X64D
X01D X16N X17D X32N X33D X48N X49D X64N
7B 7C 7F 7G 6G 6F 6C 6B 5B 5C 5F 5G 4G 4F 4C 4B
7A 7D 7E 7H 6H 6E 6D 6A 5A 5D 5E 5H 4H 4E 4D 4A
15A 15D 15E 15H 1H 1E 1D 1A 2A 2D 2E 2H 3H 3E 3D 3A
15B 15C 15F 15G 1G 1F 1C 1B 2B 2C 2F 2G 3G 3F 3C 3B

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS
DWG NO
CONTRACT
DRAWN R.D. [illegible] DATE [illegible]
CHECKED P. Odarchenko
APPROVAL
APPROVAL Eldon C. Hall 2 Feb 65
NASA APPROVAL [illegible] 2/4/65
MIT APPROVAL [illegible] 2 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING & FOLDING DIAGRAM
ERASABLE MEMORY CORE STACK ASSY

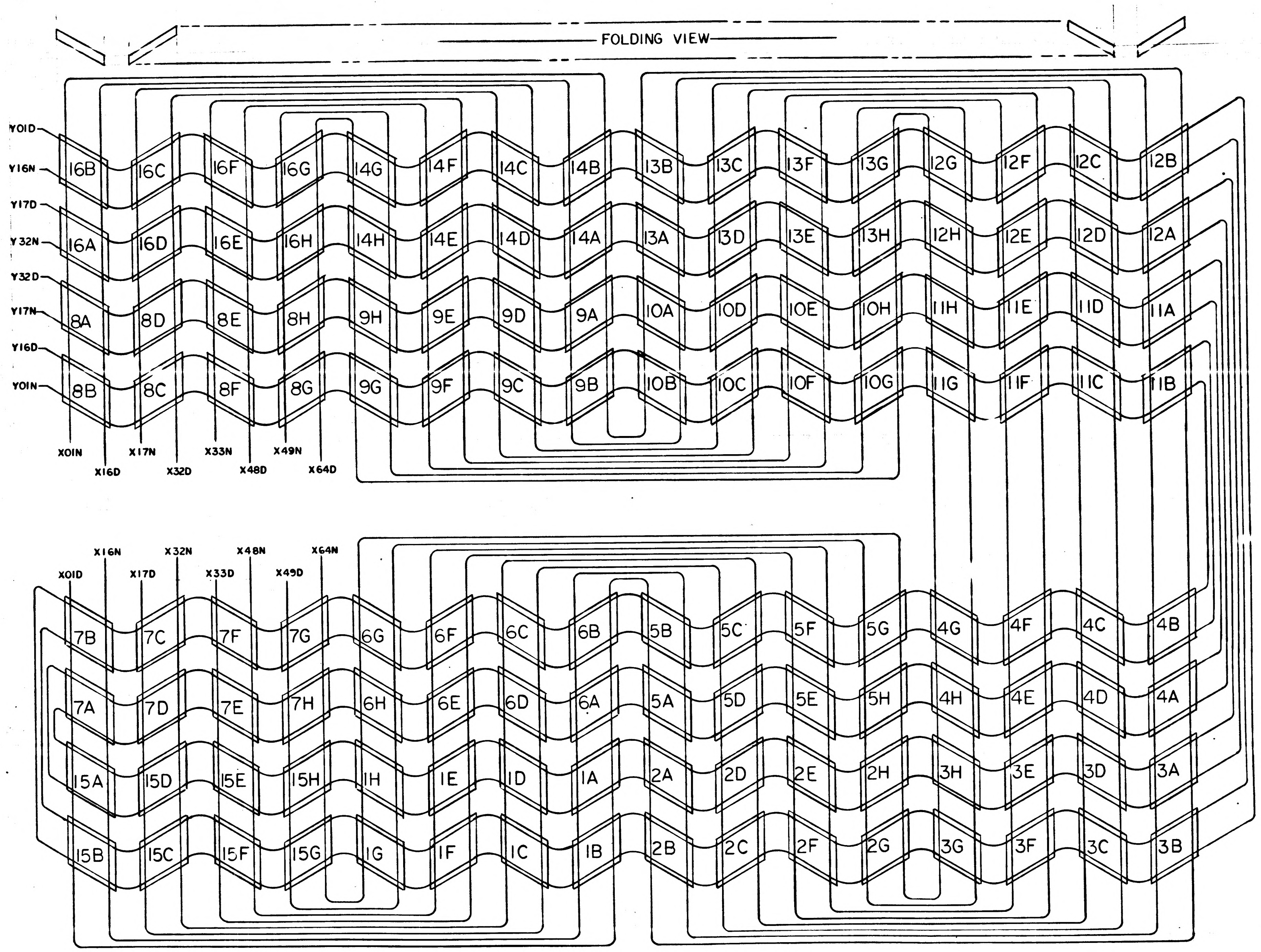
CODE IDENT NO. —
SIZE E
NASA DRAWING NO 2005007
SCALE —
WT —
SHEET 2 OF 3

2005007

NOTICE — WHEN GOVERNMENT DRAWINGS SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE USE OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL

FOLDING DIAGRAM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Y16N
Y17D
Y32N
Y32D
Y17N
Y16D
Y01N
16B 16C 16F 16G 14G 14F 14C 14B 13B 13C 13F 13G 12G 12F 12C 12B
16A 16D 16E 16H 14H 14E 14D 14A 13A 13D 13E 13H 12H 12E 12D 12A
8A 8D 8E 8H 9H 9E 9D 9A 10A 10D 10E 10H 11H 11E 11D 11A
8B 8C 8F 8G 9G 9F 9C 9B 10B 10C 10F 10G 11G 11F 11C 11B
X01N
X16D
X17N
X32D
X33N
X48D
X49N
X64D
X16N
X32N
X48N
X64N
X01D
X17D
X33D
X49D
7B 7C 7F 7G 6G 6F 6C 6B 5B 5C 5F 5G 4G 4F 4C 4B
7A 7D 7E 7H 6H 6E 6D 6A 5A 5D 5E 5H 4H 4E 4D 4A
15A 15D 15E 15H 1H 1E 1D 1A 2A 2D 2E 2H 3H 3E 3D 3A
15B 15C 15F 15G 1G 1F 1C 1B 2B 2C 2F 2G 3G 3F 3C 3B

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

HEAT TREATMENT

FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DWG NO
CONTRACT

DRAWN RD DATE
CHECKED
APPROVAL
APPROVAL Ellen C Hall 2 Feb 65
NASA APPROVAL
MIT APPROVAL 2 Feb 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING & FOLDING DIAGRAM
ERASABLE MEMORY CORE STACK ASSY

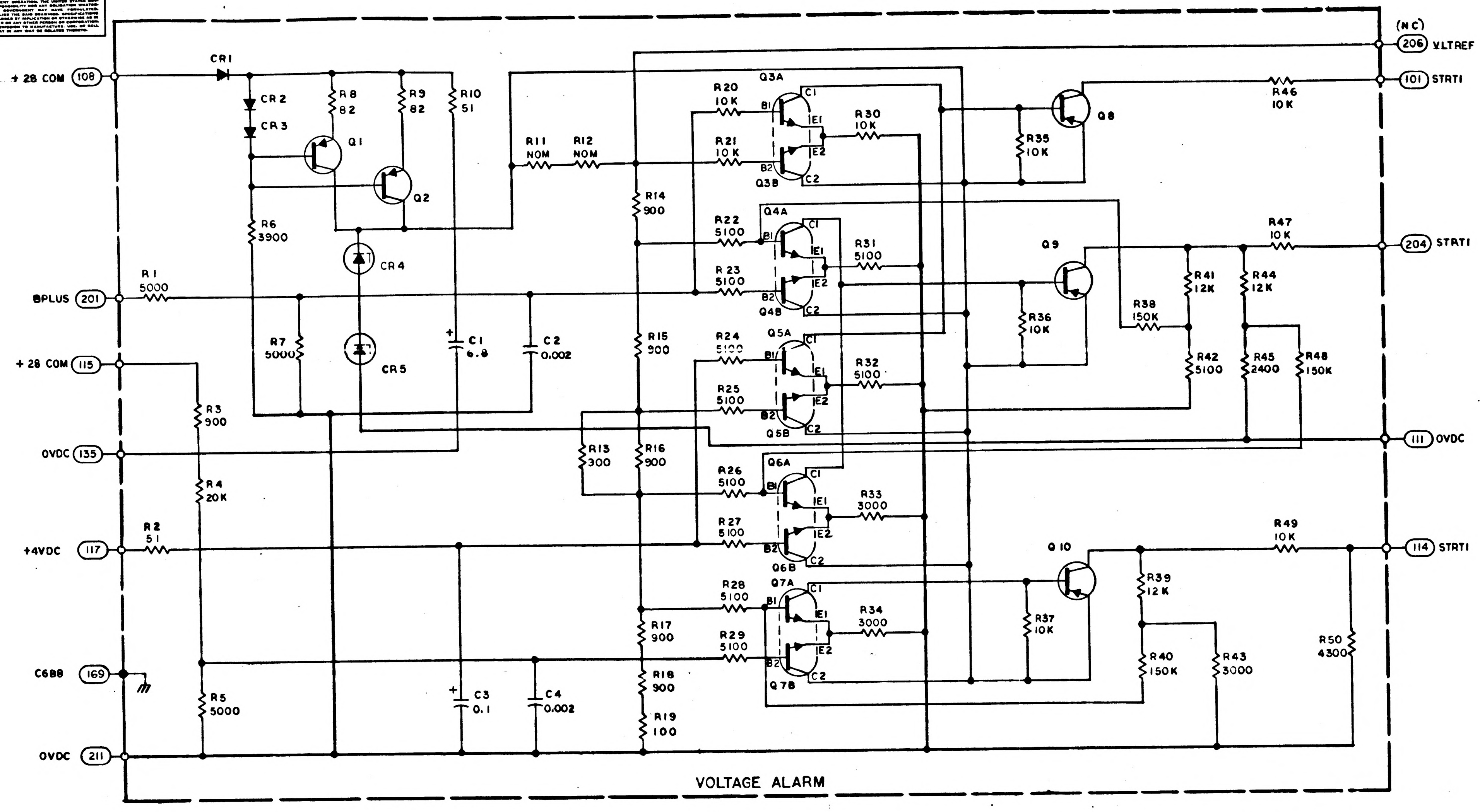
CODE IDENT NO.	SIZE	NASA DRAWING NO.
—	E	2005007

SCALE — WT — SHEET 3 OF 3

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19002

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20863				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BPLUS 201
+ 28 COM 115
OVDC 135
+4VDC 117
C688 169
OVDC 211
CR1
CR2
CR3
CR4
CR5
R8 82
R9 82
R10 51
Q1
Q2
R6 3900
R7 5000
C1 6.8
C2 0.002
R1 5000
R2 51
R3 900
R4 20K
R5 5000
C3 0.1
C4 0.002
R11 NOM
R12 NOM
R13 300
R14 900
R15 300
R16 900
R17 900
R18 900
R19 100
R20 10K
R21 10K
R22 5100
R23 5100
R24 5100
R25 5100
R26 5100
R27 5100
R28 5100
R29 5100
Q3A
Q3B
Q4A
Q4B
Q5A
Q5B
Q6A
Q6B
Q7A
Q7B
B1
B2
C1
C2
E1
E2
R30 10K
R31 5100
R32 5100
R33 3000
R34 3000
R35 10K
R36 10K
R37 10K
Q8
Q9
Q10
R38 150K
R39 12K
R40 150K
R41 12K
R42 5100
R43 3000
R44 12K
R45 2400
R46 10K
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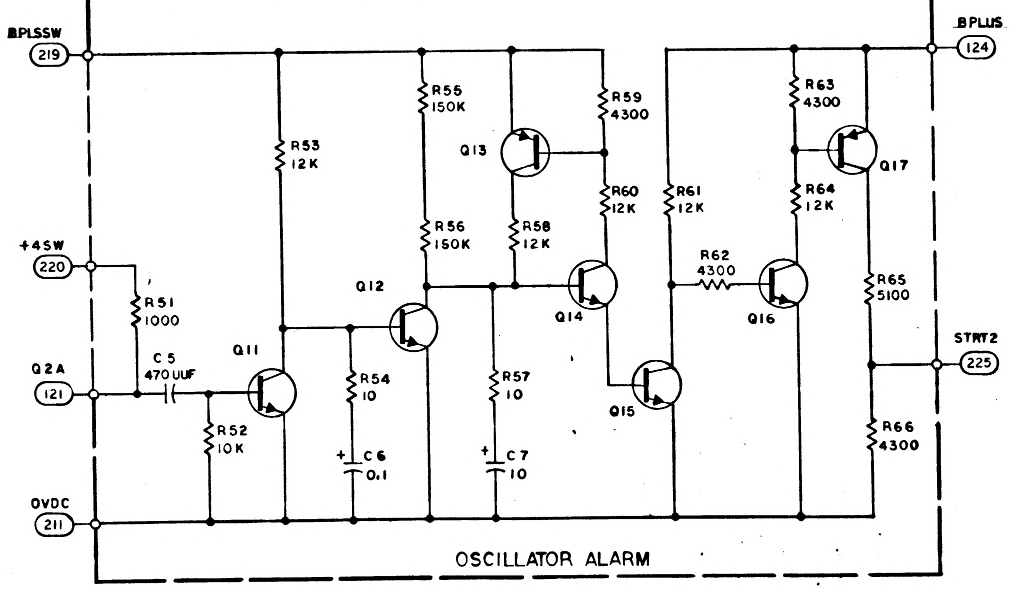
R48 150K
R49 10K
R50 4300
(NC)
206 VLTREF
101 STRTI
204 STRTI
111 OVDC
114 STRTI

VOLTAGE ALARM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OVDC 211
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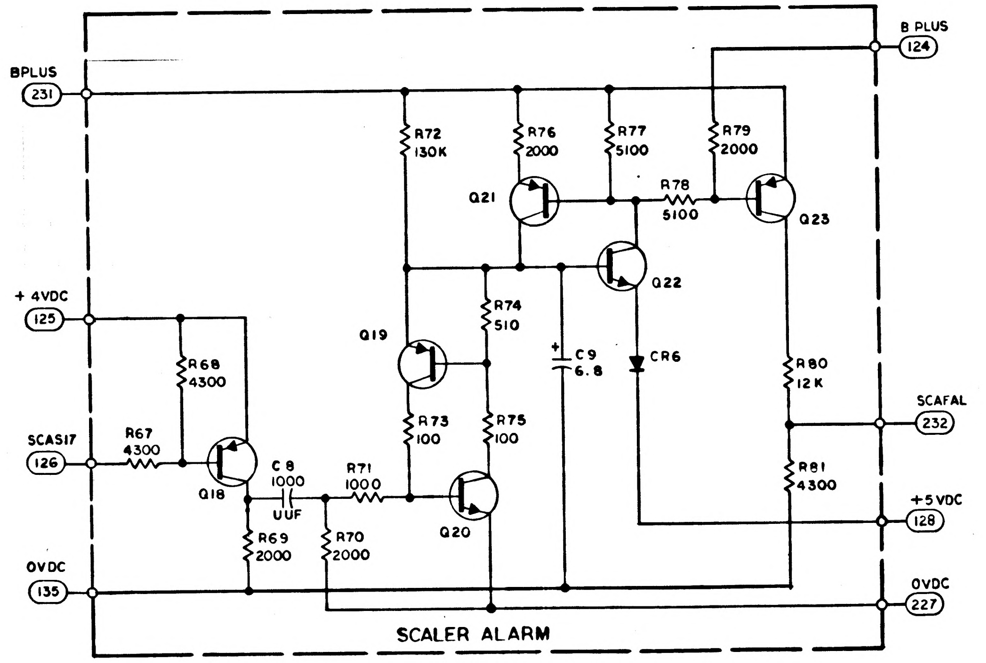
Q12
R54 10
C6 0.1
R55 150K
R56 150K
R57 10
C7 10
Q13
R58 12K
R59 4300
R60 12K
Q14
Q15
R61 12K
R62 4300
Q16
R63 4300
R64 12K
Q17
R65 5100
R66 4300

OSCILLATOR ALARM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+ 4VDC 125
SCAS17 126
OVDC 135
B PLUS 124
SCAFAL 232
+5VDC 128
OVDC 227
R67 4300
R68 4300
Q18
C8 1000 UUF
R69 2000
R70 2000
R71 1000
Q19
Q20
R72 130K
R73 100
R74 510
R75 100
R76 2000
R77 5100
R78 5100
R79 2000
Q21
Q22
Q23
C9 6.8
CR6
R80 12K
R81 4300

SCALER ALARM

REF DWG:
ALARM MODULE ASSY
DWG NO. 2003069

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. SELECT R11, R12, R93, R94 PER APPLICABLE PS FROM APPROPRIATE CHART

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ± —— ANGLES ± ——
DO NOT SCALE THIS DRAWING
MATERIAL ——

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN A. D. Loo
CHECKED
APPROVED D. N. Buikle
APPROVED Eldon C. Hall
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

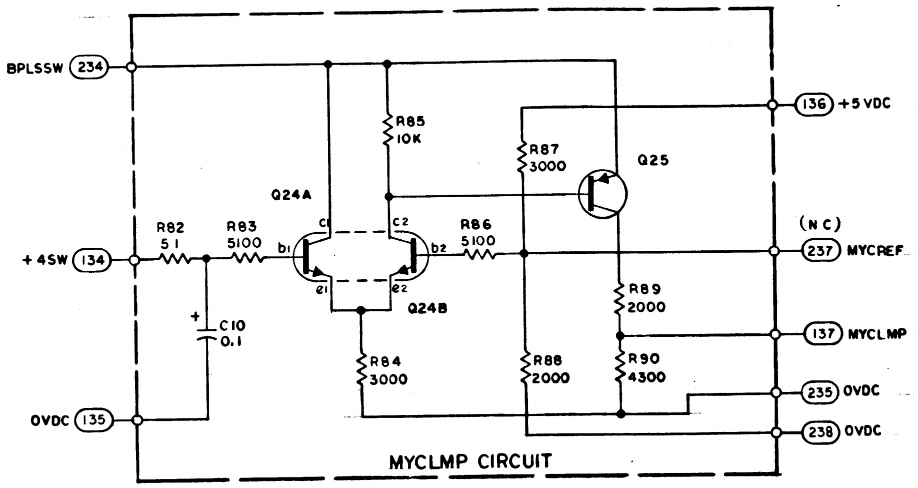
SCHEMATIC,
ALARM B8

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005008
SCALE ——
SHEET 1 OF 3

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 1900V

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20863				WK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OVDC 135
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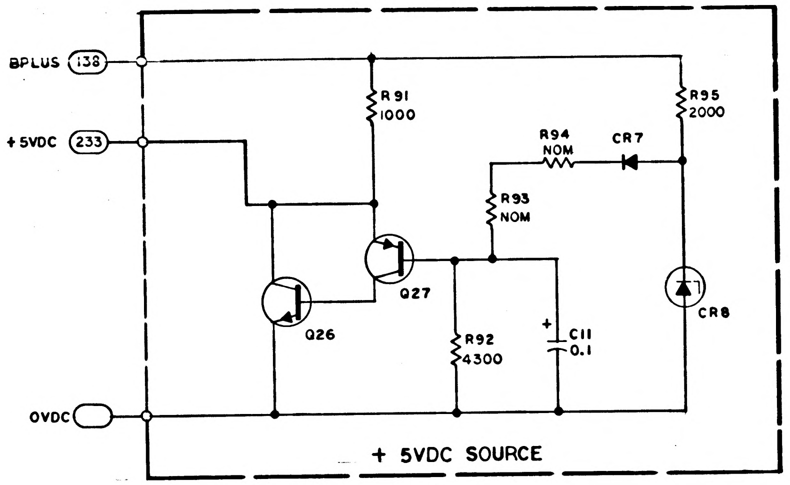
R83 5100
C10 0.1
Q24A
Q24B
b1
c1
e1
c2
b2
e2
R84 3000
R85 10K
R86 5100
R87 3000
R88 2000
R89 2000
R90 4300
Q25
136 +5 VDC
(NC)
237 MYCREF
137 MYCLMP
235 OVDC
238 OVDC

MYCLMP CIRCUIT


BPLUS 138
+5VDC 233
OVDC
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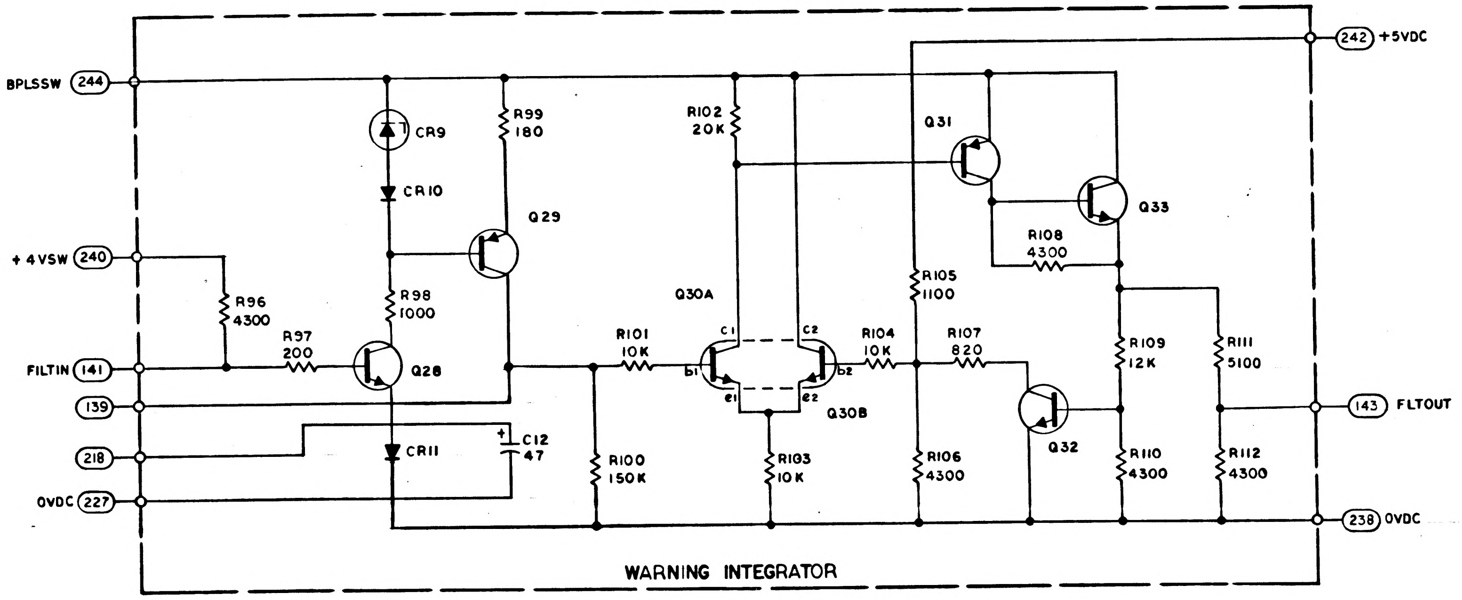
R92 4300
R93 NOM
R94 NOM
R95 2000
CR7
CR8
C11 0.1
Q26
Q27

+ 5VDC SOURCE


BPLSSW 244
+4VSW 240
FILTIN 141
139
218
OVDC 227
242 +5VDC
143 FLTOUT
238 OVDC
CR9
CR10
CR11
C12 47
R96 4300
R97 200
R98 1000
R99 180
R100 150K
R101 10K
R102 20K
R103 10K
R104 10K
R105 1100
R106 4300
R107 820
R108 4300
R109 12K
R110 4300
R111 5100
R112 4300
Q28
Q29
Q30A
Q30B
b1
c1
e1
c2
b2
e2
Q31
Q32
Q33

WARNING INTEGRATOR

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN A. Di Leo 28 APR 65
CHECKED 6 May 65
APPROVED D. M. Reith 29 APR 65
APPROVED 10 May 65
APPROVED MIT
APPROVED MSC 5/11/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC,
ALARM B8

CODE IDENT NO 80230
SIZE E
DRAWING NO. 2005008
SCALE —
SHEET 2 OF 3

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19002

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20863			65	

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R 1	1010377 - 51	RESISTOR	5000	±1.0%	1/10 W
R 2	1006750 - 1		51	± 2%	1/4 W
R 3	1010377 - 227		900	± 0.1%	1/10 W
R 4	1010377 - 50		20K	±1.0 %	1/10 W
R 5	1010377 - 51		5000	±1.0 %	1/10 W
R 6	1006750 - 46		3900	± 2%	1/4 W
R 7	1010377 - 51		5000	±1.0 %	1/10 W
R 8	1006750 - 6		82	± 2%	1/4 W
R 9	1006750 - 6		82	± 2%	1/4 W
R 10	1006750 - 1		51	± 2%	1/4 W
R 11	SEE NOTE 2		NOM	——	1/4 W
R 12	SEE NOTE 2		NOM	± 2%	1/4 W
R 13	1010377 - 227		900	±0.1%	1/10 W
R 14	- 227		900		
R 15	- 227		900		
R 16	- 227		900		
R 17	- 227		900		
R 18	1010377 - 227		900	±0.1%	1/10 W
R 19	1006750 - 8		100	± 2%	1/4 W
R20	- 56		10K		
R21	- 56		10K		
R22	- 49		5100		
R23	- 49		5100		
R24	- 49		5100		
R25	- 49		5100		
R26	- 49		5100		
R27	- 49		5100		
R28	- 49		5100		
R29	- 49		5100		
R30	- 56		10K		
R31	- 49		5100		
R32	- 49		5100		
R33	- 43		3000		
R34	- 43		3000		
R35	- 56		10K		
R36	- 56		10K		
R37	- 56		10K		
R38	- 84		150K		
R39	- 58		12K		
R40	- 84		150K		
R41	- 58		12K		
R42	- 49		5100		
R43	- 43		3000		
R44	- 58		12K		
R45	- 41		2400		
R46	- 56		10K		
R47	- 56		10K		
R48	- 84		150K		
R49	- 56		10K		
R50	- 47		4300		
R51	- 32		1000		
R52	- 56		10K		
R53	1006750 - 58		12K	± 2%	
R54	1006788 - 6		10	± 1%	
R55	1006750 - 84		150K	± 2%	
R56	1006750 - 84		150K	± 2%	
R57	1006788 - 6		10	± 1%	
R58	1006750 - 58		12K	± 2%	
R59	- 47		4300		
R60	- 58		12K		
R61	- 58		12K		
R62	- 47		4300		
R63	- 47		4300		
R64	- 58		12K		
R65	- 49		5100		
R66	- 47		4300		
R67	- 47		4300		
R68	- 47		4300		
R69	- 39		2000		
R70	- 39		2000		
R71	- 32		1000		
R72	- 83		130K		
R73	- 8		100		
R74	- 25		510		
R75	- 8		100		
R76	- 39		2000		
R77	- 49		5100		
R78	- 49		5100		
R79	- 39		2000		
R80	- 58		12K		
R81	- 47		4300		
R82	- 1		51		
R83	- 49		5100		
R84	- 43		3000		
R85	- 56		10K		
R86	- 49		5100		
R87	- 43		3000		
R88	- 39		2000		
R89	- 39		2000		
R90	- 47		4300		
R91	- 32		1000		
R92	1006750 - 47		4300	± 2%	1/4 W
R93	SEE NOTE 2		NOM	——	1/4 W
R94	SEE NOTE 2		NOM	± 2%	1/4 W
R95	1006750 - 39		2000		
R96	- 47		4300		
R97	- 15		200		
R98	- 32		1000		
R99	- 14		180		
R100	- 84		150K		
R101	- 56		10K		
R102	- 63		20K		
R103	- 56		10K		
R104	- 56		10K		
R105	- 33		1100		
R106	- 47		4300		
R107	- 30		820		
R108	- 47		4300		
R109	- 58		12K		
R110	- 47		4300		
R111	- 49		5100		
R112	1006750 - 47	RESISTOR	4300	± 2%	1/4 W

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
C 1	1006755 - 128	CAPACITOR	6.8	±10%	50 VDC
C 2	1006777 - 25		.002	±10%	100
C 3	1006755 - 57		0.1	±10%	35
C 4	1006777 - 25		.002	±10%	100
C 5	1006777 - 20		470 UUF	±10%	100
C 6	1006755 - 57		0.1	±10%	35
C 7	1006755 - 31		10	±10%	20
C 8	1006777 - 24		1000 UUF	±10%	100
C 9	1006755 - 79		6.8	±10%	35
C10	1006755 - 57		0.1	±10%	35
C11	1006755 - 57		0.1	±10%	35
C12	1006755 - 36	CAPACITOR	47	±10%	20 VDC
CR1	2004103-001	DIODE			
CR2	2004103-001				
CR3	2004103-001				
CR4	1006838				
CR5	1006838				
CR6	2004103-001				
CR7	2004103-001				
CR8	1006838				
CR9	1006838				
CR10	2004103-001				
CR11	2004103-001	DIODE			
Q 1	2004004-002	TRANSISTOR			
Q 2	2004004-002				
Q 3	1010376-1				
Q 4	-1				
Q 5	-1				
Q 6	-1				
Q 7	1010376-1				
Q 8	2004004-002				
Q 9	-002				
Q10	-002				
Q11	-001				
Q12	-001				
Q13	-002				
Q14	-001				
Q15	-001				
Q16	-001				
Q17	-002				
Q18	-002				
Q19	-002				
Q20	-001				
Q21	-002				
Q22	-001				
Q23	2004004-002				
Q24	1010376-1				
Q25	2004004-002				
Q26	-001				
Q27	-002				
Q28	-001				
Q29	2004004-002				
Q30	1010376-1				
Q31	2004004-002				
Q32	2004004-001				
Q33	2004004-001	TRANSISTOR			

R11, R93			
PART NO.	VALUE	TOL	RATING
1006788 - 6	10	± 1%	1/4 W
1006788 - 9	27	± 1%	
1006750 - 1	51	± 2%	
- 4	68		
- 7	91		
- 9	110		
- 11	130		
- 12	150		
- 13	160		
- 14	180		
- 15	200		
- 16	220		
1006750 - 17	240	± 2%	1/4 W

R12	
PART NO.	VALUE
1006750 - 36	1500
- 37	1600
- 38	1800
- 39	2000
- 40	2200
1006750 - 41	2400

R94	
PART NO.	VALUE
1006750 - 27	620
- 30	820
- 32	1000
- 34	1200
- 35	1300
- 36	1500
- 37	1600
1006750 - 38	1800

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

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DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± —— ± —— ± ——
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN A. Di Leo 28 APR 65
CHECKED A. Lindstrom 5 May 65
APPROVED 28 APR 65
APPROVED Eldon C Hall 10 May 65
APPROVED MIT 11 May 65
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC,
ALARM B8

CODE IDENT NO 80230
SIZE E
DRAWING NO. 2005008
SCALE ——
SHEET 3 OF 3

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19002

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
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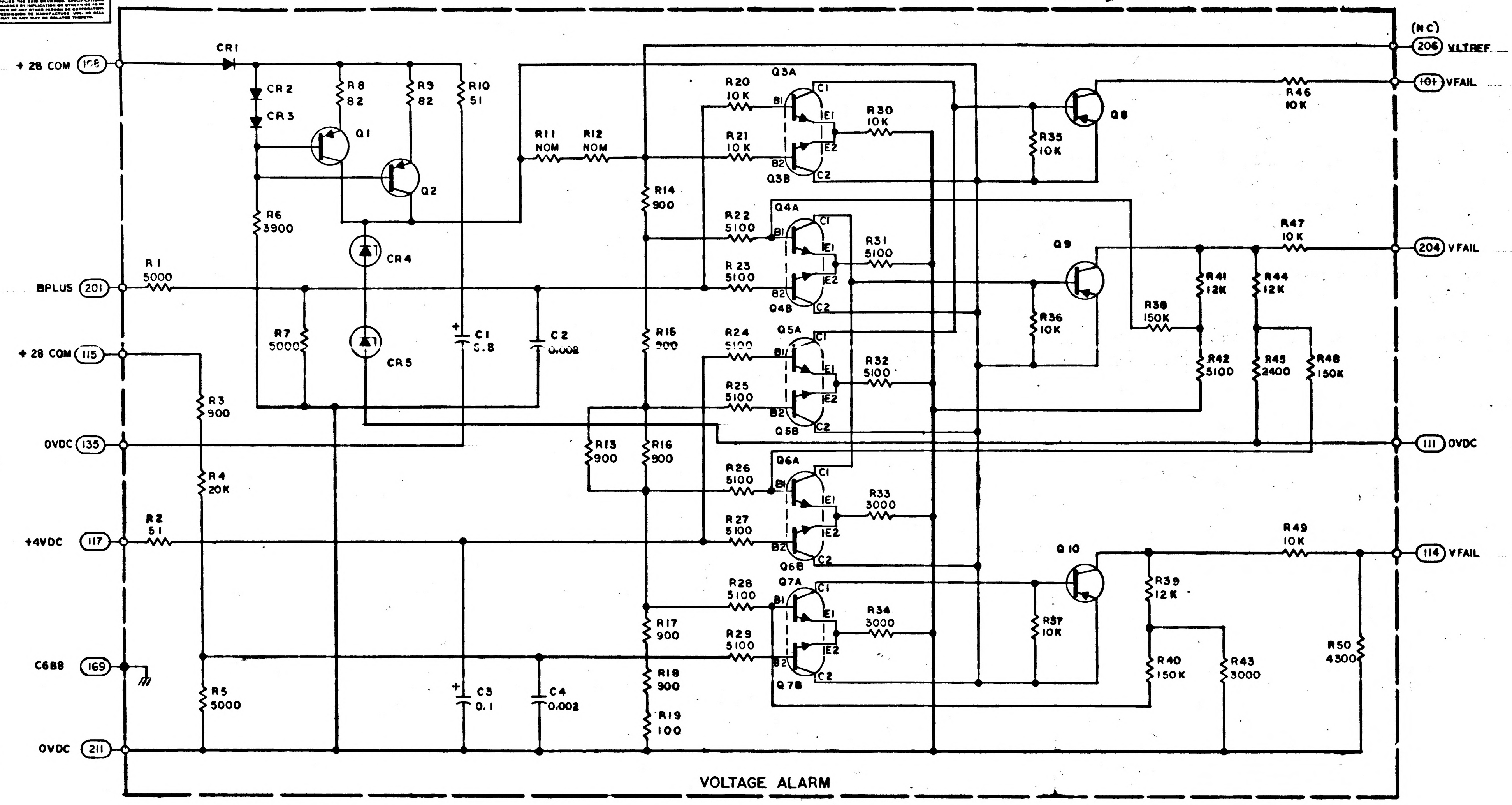
B		REVISED PER TDRR 21656				



+ 28 COM 108
BPLUS 201
+ 28 COM 115
OVDC 135
+4VDC 117
C688 169
OVDC 211
CR1
CR2
CR3
CR4
CR5
Q1
Q2
R8 82
R9 82
R10 51
R6 3900
R7 5000
R1 5000
R2 51
R3 900
R4 20K
R5 5000
C1 6.8
C2 0.002
C3 0.1
C4 0.002
R11 NOM
R12 NOM
R13 900
R14 900
R15 900
R16 900
R17 900
R18 900
R19 100
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R21 10K
R22 5100
R23 5100
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R28 5100
R29 5100
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Q6B
Q7A
Q7B
B1
B2
C1
C2
E1
E2
R30 10K
R31 5100
R32 5100
R33 3000
R34 3000
R35 10K
R36 10K
R37 10K
Q8
Q9
Q10
R38 150K
R39 12K
R40 150K
R41 12K
R42 5100
R43 3000
R44 12K
R45 2400
R46 10K
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R48 150K
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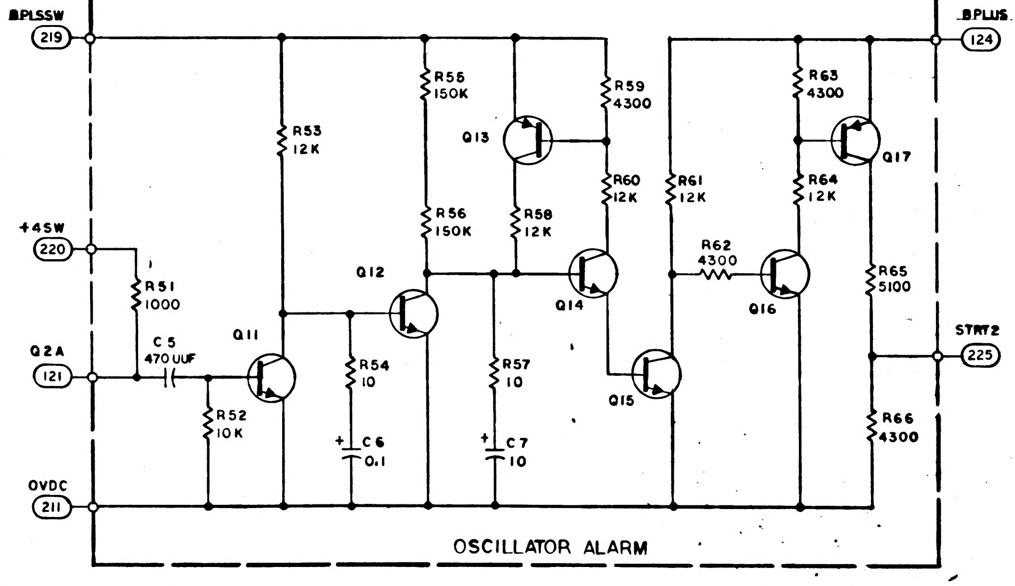
R50 4300
(NC)
206 VLTREF
101 VFAIL
204 VFAIL
111 OVDC
114 VFAIL
VOLTAGE ALARM



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OVDC 211
BPLUS 124
STRT2 225
C5 470UUF
R51 1000
R52 10K
R53 12K
R54 10
R55 150K
R56 150K
R57 10
R58 12K
R59 4300
R60 12K
R61 12K
R62 4300
R63 4300
R64 12K
R65 5100
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C6 0.1
C7 10
Q11
Q12
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Q15
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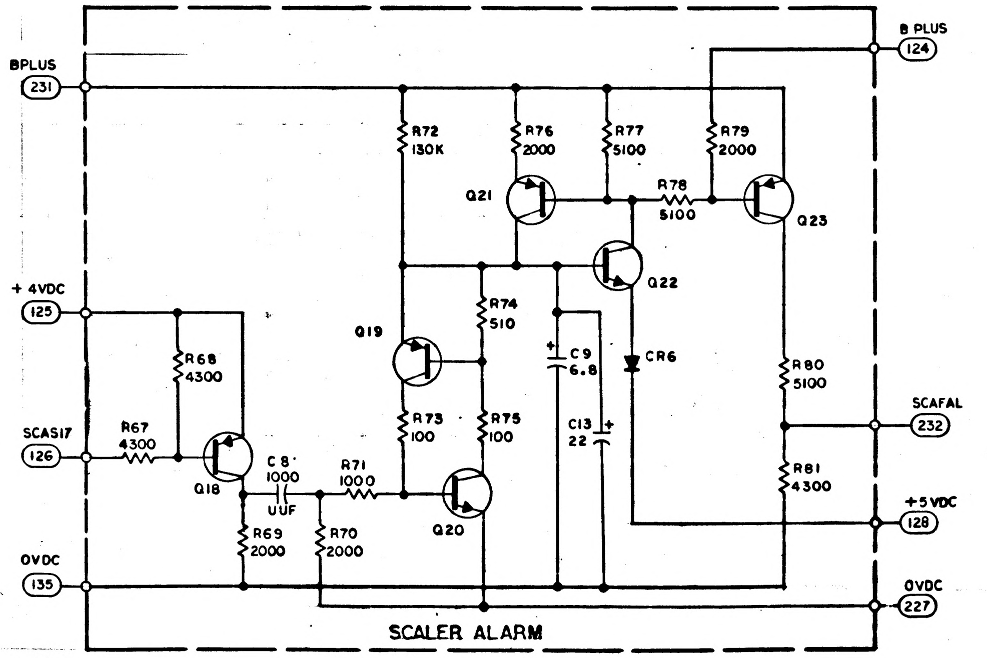
Q17
OSCILLATOR ALARM



BPLUS 231
+ 4VDC 125
SCASI7 126
OVDC 135
B PLUS 124
SCAFAL 232
+5VDC 128
OVDC 227
R67 4300
R68 4300
R69 2000
R70 2000
R71 1000
R72 130K
R73 100
R74 510
R75 100
R76 2000
R77 5100
R78 5100
R79 2000
R80 5100
R81 4300
C8 1000 UUF
C9 6.8
C13 22
CR6
Q18
Q19
Q20
Q21
Q22
Q23
SCALER ALARM

REF DWG:
ALARM MODULE ASSY
DWG NO. 2003069

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. SELECT R11, R12, R93, R94 PER APPLICABLE P.S. FROM APPROPRIATE CHART

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN A. D. Loo 65
CHECKED
APPROVED D. D. Biddle 65
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC,
ALARM B8

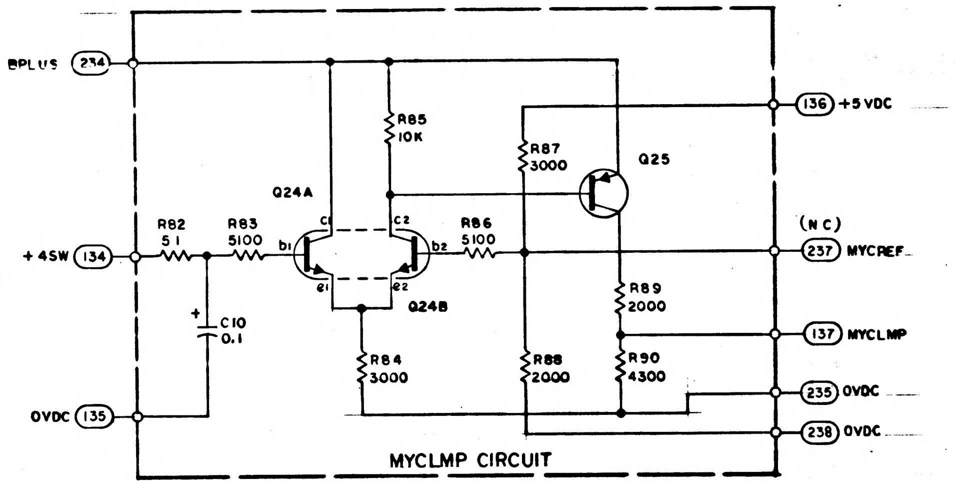
CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2005008

SCALE — SHEET 1 OF 3

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 1900 V

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20863				WK
B		REVISED PER TDRR 21856			2 Sep 65	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+4SW
134
OVDC
135
R82
51
R83
5100
C10
0.1
Q24A
c1
c2
b1
b2
e1
e2
Q24B
R85
10K
R84
3000
R86
5100
R87
3000
R88
2000
Q25
R89
2000
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136
+5VDC
(NC)
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MYCLMP
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OVDC
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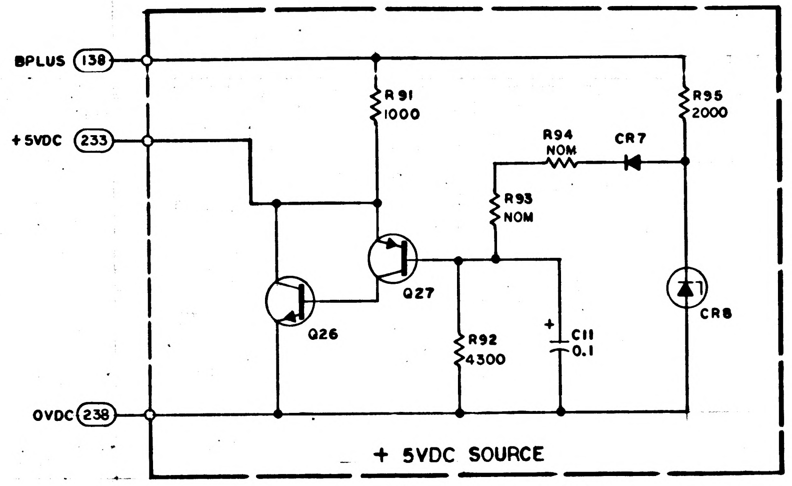
OVDC

MYCLMP CIRCUIT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OVDC
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R94
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R92
4300
C11
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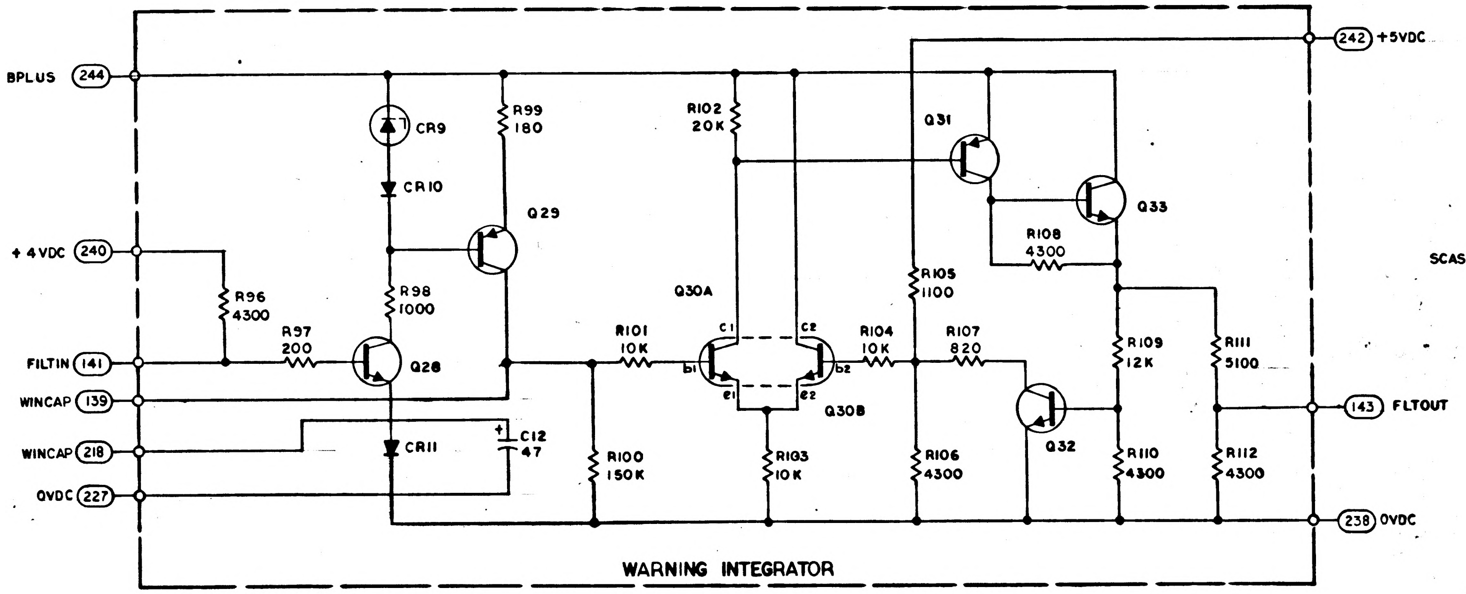
CR8

+ 5VDC SOURCE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WINCAP
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WINCAP
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OVDC
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Q28
CR9
CR10
R98
1000
R99
180
Q29
CR11
C12
47
R100
150K
R101
10K
R102
20K
Q30A
c1
c2
b1
b2
e1
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Q30B
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10K
R104
10K
R105
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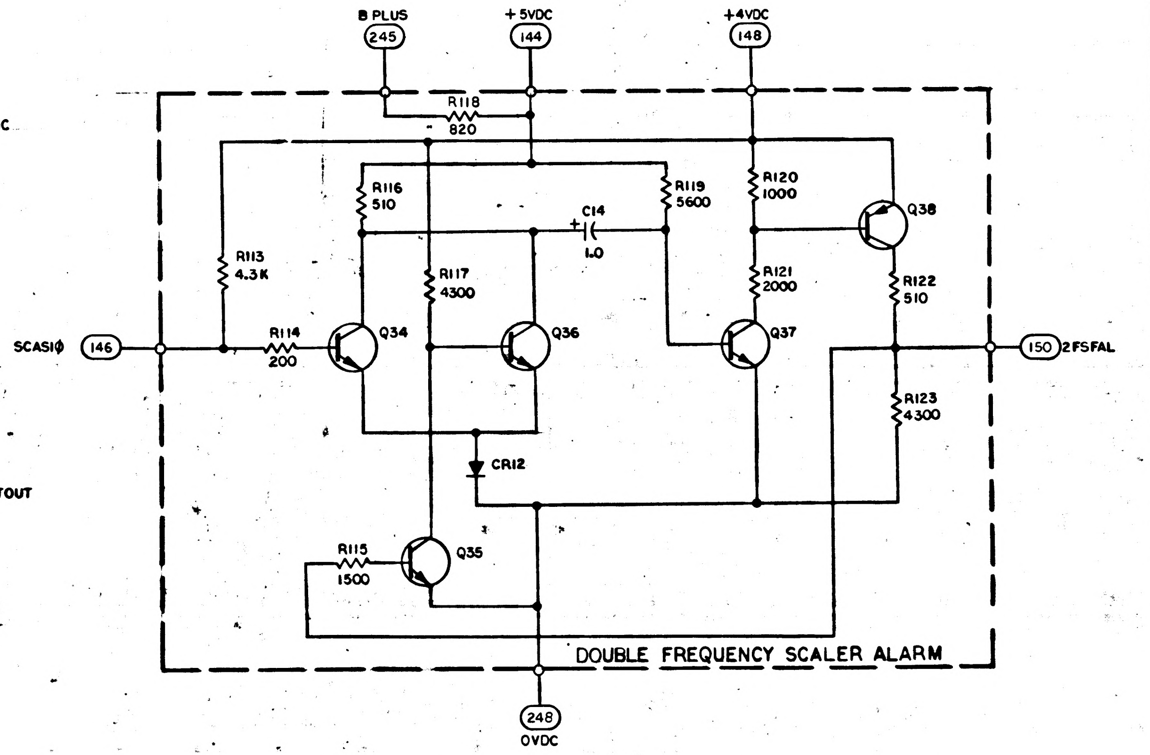
R106
4300
R107
820
Q31
Q33
R108
4300
Q32
R109
12K
R110
4300
R111
5100
R112
4300
242
+5VDC
143
FLTOUT
238
OVDC

WARNING INTEGRATOR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245
+5VDC
144
+4VDC
148
R118
820
R116
510
R119
5600
C14
1.0
R120
1000
Q38
R113
4.3K
R117
4300
R121
2000
R122
510
SCASIϕ
146
R114
200
Q34
Q36
Q37
150
2FSFAL
R123
4300
CR12
R115
1500
Q35
248
OVDC

DOUBLE FREQUENCY SCALER ALARM

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

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CAPACITOR VALUES ARE IN µf
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TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING
MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	A. Di Leo	28 APR 65
CHECKED		
APPROVED	D. G. Riddle	29 APR 65
APPROVED		
APPROVED MIT		
APPROVED MSC		7/1/65
		DATE

SCHEMATIC, ALARM B8

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2005008
SCALE —		SHEET 2 OF 3

2005008 B

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19002

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20863				
B		REVISED PER TDRR 21856				

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R1	1010377-51	RESISTOR	5000	±1.0%	1/10 W
R2	1006750-1		51	± 2%	1/4 W
R3	1010377-227		900	±0.1%	1/10 W
R4	1010377-50		20K	±1.0 %	1/10 W
R5	1010377-51		5000	±1.0 %	1/10 W
R6	1006750-46		3900	± 2%	1/4 W
R7	1010377-51		5000	±1.0 %	1/10 W
R8	1006750-6		82	± 2%	1/4 W
R9	1006750-6		82	± 2%	1/4 W
R10	1006750-1		51	± 2%	1/4 W
R11	SEE NOTE 2		NOM	—	1/4 W
R12	SEE NOTE 2		NOM	± 2%	1/4 W
R13	1010377-227		900	±0.1%	1/10 W
R14	-227		900		
R15	-227		900		
R16	-227		900		
R17	-227		900		
R18	1010377-227		900	±0.1%	1/10 W
R19	1006750-8		100	± 2%	1/4 W
R20	-56		10K		
R21	-56		10K		
R22	-49		5100		
R23	-49		5100		
R24	-49		5100		
R25	-49		5100		
R26	-49		5100		
R27	-49		5100		
R28	-49		5100		
R29	-49		5100		
R30	-56		10K		
R31	-49		5100		
R32	-49		5100		
R33	-43		3000		
R34	-43		3000		
R35	-56		10K		
R36	-56		10K		
R37	-56		10K		
R38	-84		150K		
R39	-58		12K		
R40	-84		150K		
R41	-58		12K		
R42	-49		5100		
R43	-43		3000		
R44	-58		12K		
R45	-41		2400		
R46	-56		10K		
R47	-56		10K		
R48	-84		150K		
R49	-56		10K		
R50	-47		4300		
R51	-32		1000		
R52	-56		10K		
R53	1006750-58		12K	± 2%	
R54	1006788-6		10	± 1%	
R55	1006750-84		150K	± 2%	
R56	1006750-84		150K	± 2%	
R57	1006788-6		10	± 1%	
R58	1006750-58		12K	± 2%	
R59	-47		4300		
R60	-58		12K		
R61	-58		12K		
R62	-47		4300		
R63	-47		4300		
R64	-58		12K		
R65	-49		5100		
R66	-47		4300		
R67	-47		4300		
R68	-47		4300		
R69	-39		2000		
R70	-39		2000		
R71	-32		1000		
R72	-83		130K		
R73	-8		100		
R74	-25		510		
R75	-8		100		
R76	-39		2000		
R77	-49		5100		
R78	-49		5100		
R79	-39		2000		
R80	-49		5100		
R81	-47		4300		
R82	-1		51		
R83	-49		5100		
R84	-43		3000		
R85	-56		10K		
R86	-49		5100		
R87	-43		3000		
R88	-39		2000		
R89	-39		2000		
R90	-47		4300		
R91	-32		1000		
R92	1006750-47		4300	± 2%	1/4 W
R93	SEE NOTE 2		NOM	—	1/4 W
R94	SEE NOTE 2		NOM	± 2%	1/4 W
R95	1006750-39		2000		
R96	-47		4300		
R97	-15		200		
R98	-32		1000		
R99	-14		180		
R100	-84		150K		
R101	-56		10K		
R102	-63		20K		
R103	-56		10K		
R104	-56		10K		
R105	-33		1100		
R106	-47		4300		
R107	-30		820		
R108	-47		4300		
R109	-58		12K		
R110	-47		4300		
R111	-49		5100		
R112	1006750-47	RESISTOR	4300	± 2%	1/4 W

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
C1	1006755-128	CAPACITOR	6.8	±10%	50 VDC
C2	1006777-25		.002	±10%	100
C3	1006755-57		0.1	±10%	35
C4	1006777-25		.002	±10%	100
C5	1006777-20		470 UUF	±10%	100
C6	1006755-57		0.1	±10%	35
C7	1006755-31		10	±10%	20
C8	1006777-24		1000 UUF	±10%	100
C9	1006755-79		6.8	±10%	35
C10	1006755-57		0.1	±10%	35
C11	1006755-57		0.1	±10%	35
[illegible]	[illegible]	CAPACITOR	[illegible]	[illegible]	[illegible]
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CR2	2004103-001				
CR3	2004103-001				
CR4	2004112-002				
CR5	2004112-002				
CR6	2004103-001				
CR7	2004103-001				
CR8	2004112-002				
CR9	2004112-002				
CR10	2004103-001				
CR11	2004103-001				
CR12	2004103-001	DIODE			
Q1	2004004-002	TRANSISTOR			
Q2	2004004-002				
Q3	1010376-1				
Q4	-1				
Q5	-1				
Q6	-1				
Q7	1010376-1				
Q8	2004004-002				
Q9	-002				
Q10	-002				
Q11	-001				
Q12	-001				
Q13	-002				
Q14	-001				
Q15	-001				
Q16	-001				
Q17	-002				
Q18	-002				
Q19	-002				
Q20	-001				
Q21	-002				
Q22	-001				
Q23	2004004-002				
Q24	1010376-1				
Q25	2004004-002				
Q26	-001				
Q27	-002				
Q28	-001				
Q29	2004004-002				
Q30	1010376-1				
Q31	2004004-002				
Q32	-001				
Q33	-001				
Q34	-001				
Q35	-001				
Q36	-001				
Q37	-001				
Q38	2004004-002	TRANSISTOR			

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R113	1006750-47	RESISTOR	4300	± 2%	1/4 W
R114	-15		200		
R115	-36		1500		
R116	-25		510		
R117	-47		4300		
R118	-30		820		
R119	-50		5600		
R120	-32		1000		
R121	-39		2000		
R122	-25		510		
R123	1006750-47	RESISTOR	4300	± 2%	1/4 W
C13	1006755-21	CAPACITOR	22UF	±10%	15VDC
C14	1006755-69	CAPACITOR	1.0UF	±10%	35VDC

R11, R93

PART NO.	VALUE	TOL	RATING
1006788-6	10	± 1%	1/4 W
1006788-9	27	± 1%	
1006750-1	51	± 2%	
-4	68		
-7	91		
-9	110		
-11	130		
-12	150		
-13	160		
-14	180		
-15	200		
-16	220		
1006750-17	240	± 2%	1/4 W

R12

PART NO.	VALUE
1006750-36	1500
-37	1600
-38	1800
-39	2000
-40	2200
1006750-41	2400

R94

PART NO.	VALUE
1006750-27	620
-30	820
-32	1000
-34	1200
-35	1300
-36	1500
-37	1600
1006750-38	1800

MASTER

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LIST OF MATERIALS

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FRACTIONS DECIMALS ANGLES
± —— ± —— ± ——
DO NOT SCALE THIS DRAWING

MATERIAL
——

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN A. Di Leo 28 APR 65
CHECKED
APPROVED D. J. Rabbe
APPROVED
APPROVED MIT
APPROVED MSC
DATE

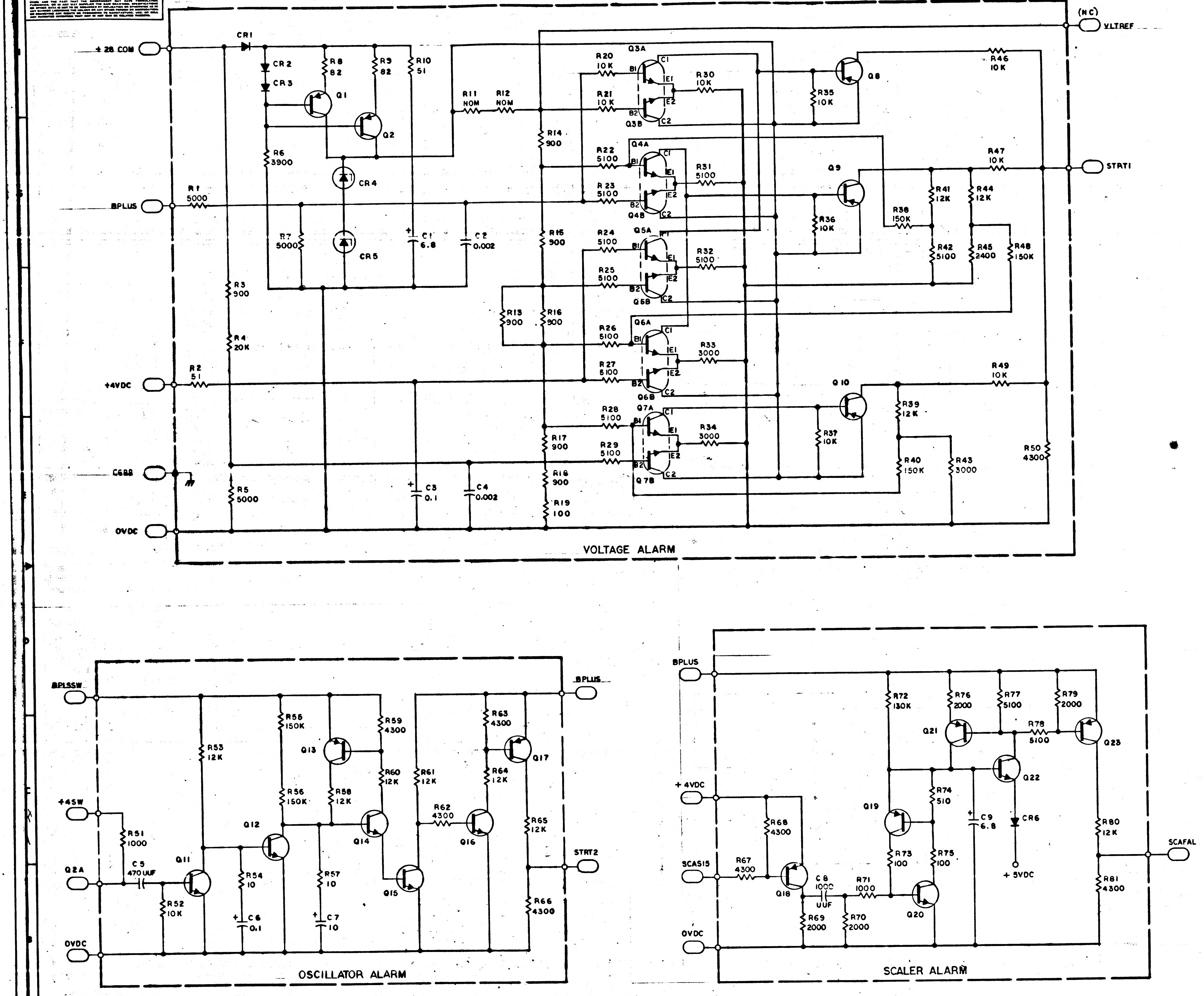
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC,
ALARM BB

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005008
SCALE ——
SHEET 3 OF 3

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

REVISIONS 19002



VOLTAGE ALARM
+28 COM
BPLUS
+4VDC
CGND
0VDC
(NC) VLTREF
STRT1
CR1
CR2
CR3
CR4
CR5
Q1
Q2
R1 5000
R2 51
R3 900
R4 20K
R5 5000
R6 3900
R7 5000
R8 82
R9 82
R10 51
R11 NOM
R12 NOM
R13 900
R14 900
R15 900
R16 900
R17 900
R18 900
R19 100
C1 6.8
C2 0.002
C3 0.1
C4 0.002
Q3A Q3B
Q4A Q4B
Q5A Q5B
Q6A Q6B
Q7A Q7B
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R21 10K
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R27 5100
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R29 5100
R30 10K
R31 5100
R32 5100
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Q10
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R39 12K
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R41 12K
R42 5100
R43 3000
R44 12K
R45 2400
R46 10K
R47 10K
R48 150K
R49 10K
R50 4300
OSCILLATOR ALARM
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BPLUS
+4SW
Q2A
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STRT2
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R53 12K
R54 10
R55 150K
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R57 10
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R59 4300
R60 12K
R61 12K
R62 4300
R63 4300
R64 12K
R65 12K
R66 4300
C5 470UUF
C6 0.1
C7 10
Q11
Q12
Q13
Q14
Q15
Q16
Q17
SCALER ALARM
BPLUS
+4VDC
SCASIS
0VDC
SCAFAL
+5VDC
R67 4300
R68 4300
R69 2000
R70 2000
R71 1000
R72 130K
R73 100
R74 510
R75 100
R76 2000
R77 5100
R78 5100
R79 2000
R80 12K
R81 4300
C8 1000 UUF
C9 6.8
CR6
Q18
Q19
Q20
Q21
Q22
Q23

REF DWG:
ALARM MODULE ASSY
DWG NO.

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. SELECT R11, R12, R93, R94 PER APPLICABLE PS FROM APPROPRIATE CHART

MASTER

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DO NOT SCALE THIS DRAWING

MATERIAL

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INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN A. DiLeo 28 Apr 65
CHECKED A. Lindstrom 4 May 65
APPROVED D. N. Hoag 30 Apr 65
APPROVED Eldon C. Hall 10 May 65
APPROVED MIT 11 May 65
APPROVED MSC 5/4/65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC,
ALARM B8

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005008
SCALE —
SHEET 1 OF 3

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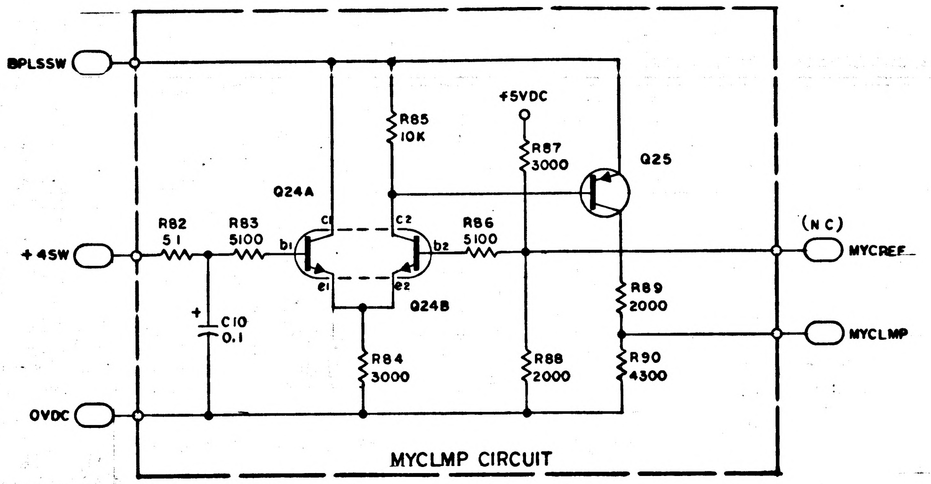
REVISIONS 19002

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED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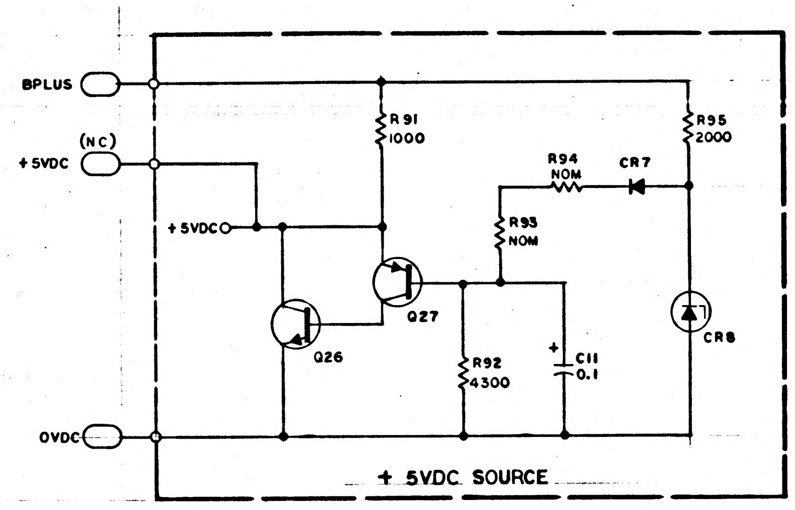
+4SW
OVDC
R82
51
R83
5100
C10
0.1
Q24A
c1
c2
b1
b2
e1
e2
Q24B
R84
3000
R85
10K
+5VDC
R87
3000
Q25
R86
5100
R88
2000
R89
2000
R90
4300
(NC)
MYCREF
MYCLMP

MYCLMP CIRCUIT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(NC)
+5VDC
+5VDC
R91
1000
Q26
Q27
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NOM
CR7
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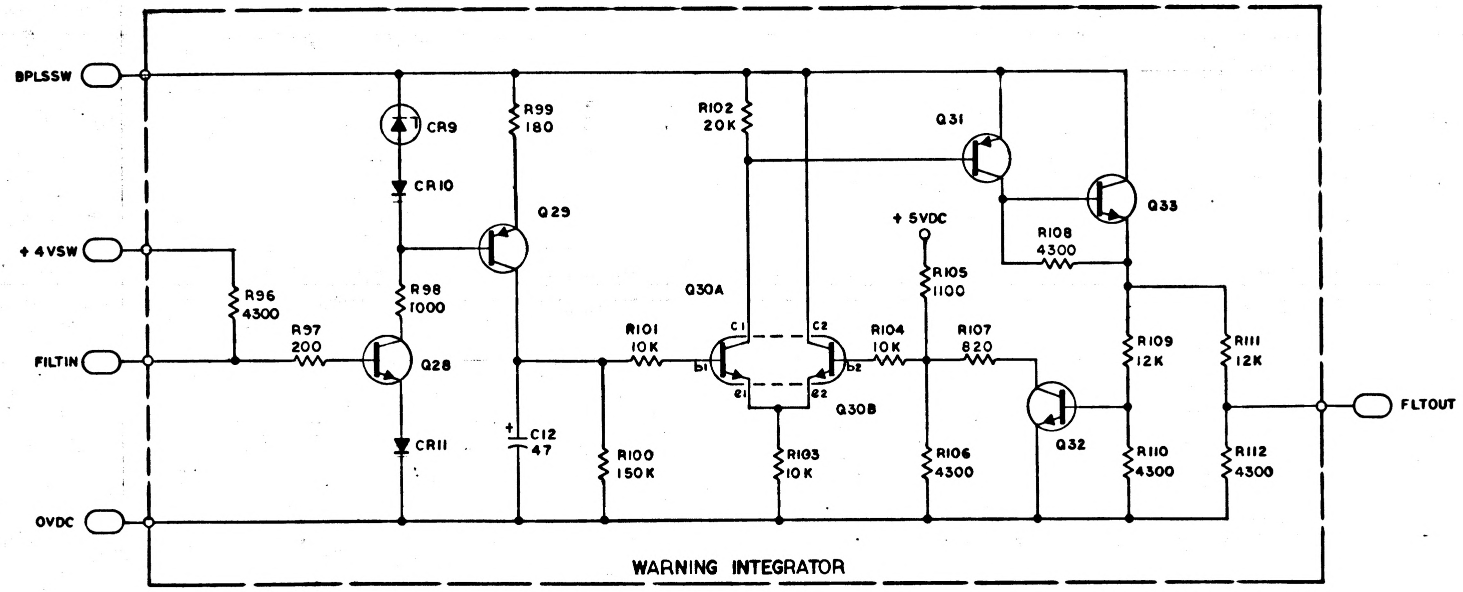
C11
0.1
CR8
OVDC

+ 5VDC SOURCE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OVDC
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4300
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Q28
CR9
CR10
CR11
R98
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Q29
C12
47
R100
150K
R101
10K
Q30A
c1
c2
b1
b2
e1
e2
Q30B
R102
20K
R103
10K
R104
10K
+5VDC
R105
1100
R106
4300
R107
820
Q31
Q32
Q33
R108
4300
R109
12K
R110
4300
R111
12K
R112
4300
FLTOUT

WARNING INTEGRATOR

MASTER

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± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN A. Di Leo 28 APR 65
CHECKED [illegible] 6 May 65
APPROVED D. M. [illegible] 29 APR 65
APPROVED [illegible] 10 May 65
APPROVED MIT [illegible] 11 May 65
APPROVED MSC [illegible] 5/11/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC,
ALARM B8

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005008
SCALE —
SHEET 2 OF 3

2005008

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 7002

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R1	1010377-51	RESISTOR	5000	±1.0%	1/10 W
R2	1006750-1		51	± 2%	1/4 W
R3	1010377-227		900	±0.1%	1/10 W
R4	1010377-50		20K	±1.0 %	1/10 W
R5	1010377-51		5000	±1.0 %	1/10 W
R6	1006750-46		3900	± 2%	1/4 W
R7	1010377-51		5000	±1.0 %	1/10 W
R8	1006750-6		82	± 2%	1/4 W
R9	1006750-6		82	± 2%	1/4 W
R10	1006750-1		51	± 2%	1/4 W
R11	SEE NOTE 2		NOM	—	1/4 W
R12	SEE NOTE 2		NOM	± 2%	1/4 W
R13	1010377-227		900	±0.1%	1/10 W
R14	-227		900		
R15	-227		900		
R16	-227		900		
R17	-227		900		
R18	1010377-227		900	±0.1%	1/10 W
R19	1006750-8		100	± 2%	1/4 W
R20	-56		10K		
R21	-56		10K		
R22	-49		5100		
R23	-49		5100		
R24	-49		5100		
R25	-49		5100		
R26	-49		5100		
R27	-49		5100		
R28	-49		5100		
R29	-49		5100		
R30	-56		10K		
R31	-49		5100		
R32	-49		5100		
R33	-43		3000		
R34	-43		3000		
R35	-56		10K		
R36	-56		10K		
R37	-56		10K		
R38	-84		150K		
R39	-58		12K		
R40	-84		150K		
R41	-58		12K		
R42	-49		5100		
R43	-43		3000		
R44	-58		12K		
R45	-41		2400		
R46	-56		10K		
R47	-56		10K		
R48	-84		150K		
R49	-56		10K		
R50	-47		4300		
R51	-32		1000		
R52	-56		10K		
R53	1006750-58		12K	± 2%	
R54	1006788-6		10	± 1%	
R55	1006750-84		150K	± 2%	
R56	1006750-84		150K	± 2%	
R57	1006788-6		10	± 1%	
R58	1006750-58		12K	± 2%	
R59	-47		4300		
R60	-58		12K		
R61	-58		12K		
R62	-47		4300		
R63	-47		4300		
R64	-58		12K		
R65	-58		12K		
R66	-47		4300		
R67	-47		4300		
R68	-47		4300		
R69	-39		2000		
R70	-39		2000		
R71	-32		1000		
R72	-83		130K		
R73	-8		100		
R74	-25		510		
R75	-8		100		
R76	-39		2000		
R77	-49		5100		
R78	-49		5100		
R79	-39		2000		
R80	-58		12K		
R81	-47		4300		
R82	-1		51		
R83	-49		5100		
R84	-43		3000		
R85	-56		10K		
R86	-49		5100		
R87	-43		3000		
R88	-39		2000		
R89	-39		2000		
R90	-47		4300		
R91	-32		1000		
R92	1006750-47		4300	± 2%	1/4 W
R93	SEE NOTE 2		NOM	—	1/4 W
R94	SEE NOTE 2		NOM	± 2%	1/4 W
R95	1006750-39		2000		
R96	-47		4300		
R97	-15		200		
R98	-32		1000		
R99	-14		180		
R100	-84		150K		
R101	-56		10K		
R102	-63		20K		
R103	-56		10K		
R104	-56		10K		
R105	-33		1100		
R106	-47		4300		
R107	-30		820		
R108	-47		4300		
R109	-58		12K		
R110	-47		4300		
R111	-58		12K		
R112	1006750-47	RESISTOR	4300	± 2%	1/4 W

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
C1	1006755-128	CAPACITOR	6.8	±10%	50 VDC
C2	1006777-25		.002	±10%	100
C3	1006755-57		0.1	±10%	35
C4	1006777-25		.002	±10%	100
C5	1006777-20		470 UUF	±10%	100
C6	1006755-57		0.1	±10%	35
C7	1006755-31		10	±10%	20
C8	1006777-24		1000 UUF	±10%	100
C9	1006755-79		6.8	±10%	35
C10	1006755-57		0.1	±10%	35
C11	1006755-57		0.1	±10%	35
C12	1006755-38	CAPACITOR	47	±10%	20 VDC
CR1	2004103-001	DIODE			
CR2	2004103-001				
CR3	2004103-001				
CR4	1006838				
CR5	1006838				
CR6	2004103-001				
CR7	2004103-001				
CR8	1006838				
CR9	1006838				
CR10	2004103-001				
CR11	2004103-001	DIODE			
Q1	2004004-002	TRANSISTOR			
Q2	2004004-002				
Q3	1010376-1				
Q4	-1				
Q5	-1				
Q6	-1				
Q7	1010376-1				
Q8	2004004-002				
Q9	-002				
Q10	-002				
Q11	-001				
Q12	-001				
Q13	-002				
Q14	-001				
Q15	-001				
Q16	-001				
Q17	-002				
Q18	-002				
Q19	-002				
Q20	-001				
Q21	-002				
Q22	-001				
Q23	2004004-002				
Q24	1010376-1				
Q25	2004004-002				
Q26	-001				
Q27	-002				
Q28	-001				
Q29	2004004-002				
Q30	1010376-1				
Q31	2004004-002				
Q32	2004004-001				
Q33	2004004-001	TRANSISTOR			

R11, R93

PART NO.	VALUE	TOL	RATING
1006788-6	10	± 1 %	1/4 W
1006788-9	27	± 1 %	
1006750-1	51	± 2 %	
-4	68		
-7	91		
-9	110		
-11	130		
-12	150		
-13	160		
-14	180		
-15	200		
-16	220		
1006750-17	240	± 2 %	1/4 W

R12

PART NO.	VALUE
1006750-36	1500
-37	1600
-38	1800
-39	2000
-40	2200
1006750-41	2400

R94

PART NO.	VALUE
1006750-27	620
-30	820
-32	1000
-34	1200
-35	1300
-36	1500
-37	1600
1006750-38	1800

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN A. Di Leo 28 APR 65
CHECKED A. Lindstrom 6 May 65
APPROVED D. A. Ruble 27 APR 65
APPROVED Eldon C. Hall 10 May 65
APPROVED MIT 11 May 65
APPROVED MSC 5/4/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

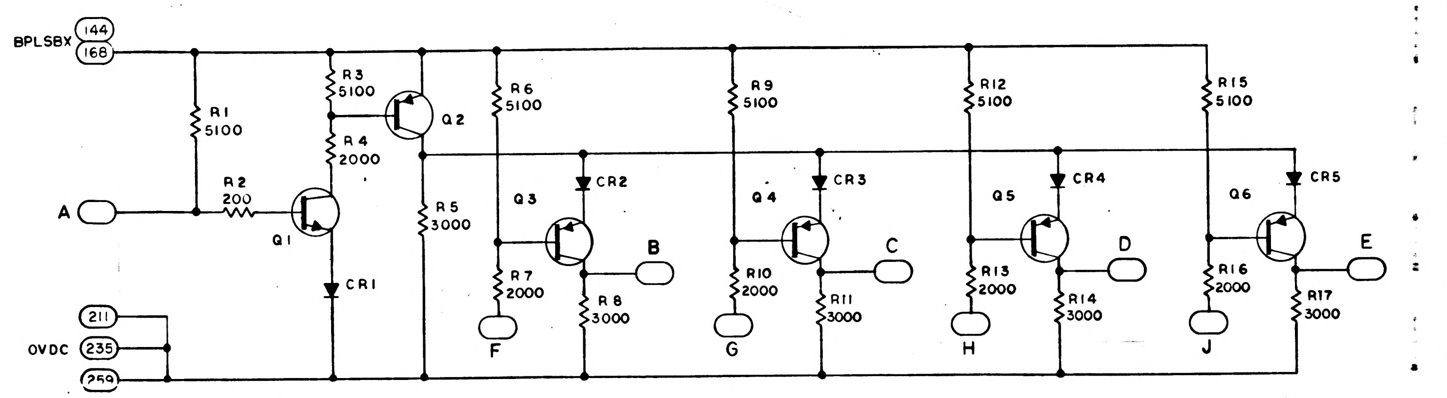
SCHEMATIC,
ALARM B8

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005008
SCALE
SHEET 3 OF 3

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

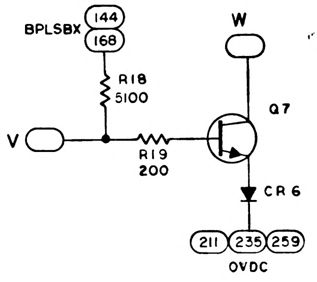
REVISIONS 1608						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

CKT NO. 40601
40602
40603



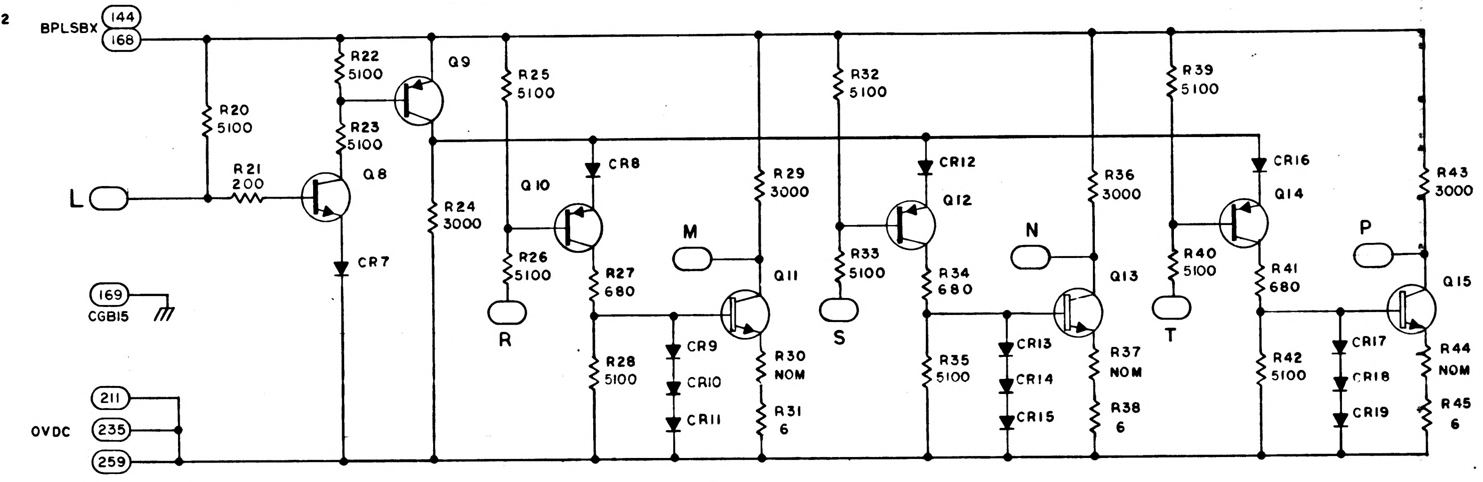
BPLSBX 144 168
R1 5100
R2 200
R3 5100
R4 2000
R5 3000
R6 5100
R7 2000
R8 3000
R9 5100
R10 2000
R11 3000
R12 5100
R13 2000
R14 3000
R15 5100
R16 2000
R17 3000
Q1
Q2
Q3
Q4
Q5
Q6
CR1
CR2
CR3
CR4
CR5
A
B
C
D
E
F
G
H
J
OVDC 211 235 259

CKT NO. 40611 THRU 40617



BPLSBX 144 168
R18 5100
R19 200
V
W
Q7
CR6
211 235 259
OVDC

CKT NO. 40631, 40632



BPLSBX 144 168
R20 5100
R21 200
R22 5100
R23 5100
R24 3000
R25 5100
R26 5100
R27 680
R28 5100
R29 3000
R30 NOM
R31 6
R32 5100
R33 5100
R34 680
R35 5100
R36 3000
R37 NOM
R38 6
R39 5100
R40 5100
R41 680
R42 5100
R43 3000
R44 NOM
R45 6
Q8
Q9
Q10
Q11
Q12
Q13
Q14
Q15
CR7
CR8
CR9
CR10
CR11
CR12
CR13
CR14
CR15
CR16
CR17
CR18
CR19
L
M
N
P
R
S
T
169 CGB15
OVDC 211 235 259

CIRCUIT NO.	A		B		C		D		E		F		G		H		J	
	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.
40601	STR14	261	STR01	164	STR02	160	STR03	154	STR04	150	SE19	161	SE210	155	SE311	151	SE412	146
40602	STR58	165	STR05	264	STR06	258	STR07	254	STR08	249	SE19	161	SE210	155	SE311	151	SE412	146
40603	STR912	266	STP09	162	STR10	156	STR11	152	STR12	147	SE19	161	SE210	155	SE311	151	SE412	146

CIRCUIT NO.	L		M		N		P		R		S		T	
	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.	SIGNAL	PIN NO.
40631	LOMOD	245	MODR1	131	MODS1	123	MODT1	115	RPR	239	RPS	229	RPT	221
40632	HIMOD	242	MODR2	134	MODS2	125	MODT2	117	RPR	239	RPS	229	RPT	221

CIRCUIT NO.	V		W	
	SIGNAL	PIN NO.	SIGNAL	PIN NO.
40611	STR19	163	SE19	161
40612	STR210	157	SE210	155
40613	STR311	153	SE311	151
40614	STR412	148	SE412	146
40615	ROPER	138	RPR	239
40616	ROPES	129	RPS	229
40617	ROPET	120	RPT	221

R30, R37, R44	
PART NO.	VALUE
1006788-34	3.0
-36	3.2
-38	3.4
-40	3.6
-42	3.8
-44	4.0
-46	4.2
-48	4.4
-50	4.6
-2	4.8
-4	5.0
-55	5.2
-56	5.4
-57	5.6
-58	5.8
-59	6.0
-60	6.3
-61	6.6
-62	6.9
-63	7.2
-64	7.5
-65	8.0
-66	8.5
-67	9.0
-68	9.5
1006788-6	10

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R1	1006750-49	RESISTOR	5100	± 2%	1/4 W
R2	-15		200		
R3	-49		5100		
R4	-39		2000		
R5	-43		3000		
R6	-49		5100		
R7	-39		2000		
R8	-43		3000		
R9	-49		5100		
R10	-39		2000		
R11	-43		3000		
R12	-49		5100		
R13	-39		2000		
R14	-43		3000		
R15	-49		5100		
R16	-39		2000		
R17	-43		3000		
R18	-49		5100		
R19	-15		200		
R20	-49		5100		
R21	-15		200		
R22	-49		5100		
R23	-49		5100		
R24	-43		3000		
R25	-49		5100		
R26	-49		5100		
R27	-28		680		
R28	-49		5100		
R29	1006750-43		3000	± 2%	
R30	SEE NOTE 2		NOM	± 1%	
R31	1006788-59		6	± 1%	
R32	1006750-49		5100	± 2%	
R33	-49		5100		
R34	-28		680		
R35	-49		5100		
R36	1006750-43		3000	± 2%	
R37	SEE NOTE 2		NOM	± 1%	
R38	1006788-59		6	± 1%	
R39	1006750-49		5100	± 2%	
R40	-49		5100		
R41	-28		680		
R42	-49		5100		
R43	1006750-43		3000	± 2%	
R44	SEE NOTE 2		NOM	± 1%	
R45	1006788-59	RESISTOR	6	± 1%	1/4 W
CR1	1006751	DIODE			
CR2					
CR3					
CR4					
CR5					
CR6					
CR7					
CR8					
CR9					
CR10					
CR11					
CR12					
CR13					
CR14					
CR15					
CR16					
CR17					
CR18					
CR19	1006751	DIODE			
Q1	1006323	TRANSISTOR			
Q2	1006310				
Q3					
Q4					
Q5					
Q6	1006310				
Q7	1006323				
Q8	1006323				
Q9	1006310				
Q10	1006310				
Q11	1006323				
Q12	1006310				
Q13	1006323				
Q14	1006310				
Q15	1006323	TRANSISTOR			

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. SELECT R30, R37 & R44 PER APPLICABLE P.S. FROM APPROPRIATE CHART

REF DWG:
STRAND SELECT ASSY
DWG NO. 2003027

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN R. D. Leo 2 DEC 64
CHECKED [illegible] [illegible]
APPROVED Albert Hopkins 2-2-65
APPROVED [illegible] [illegible]
APPROVED MIT [illegible] [illegible]
APPROVED MSC [illegible] [illegible]
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

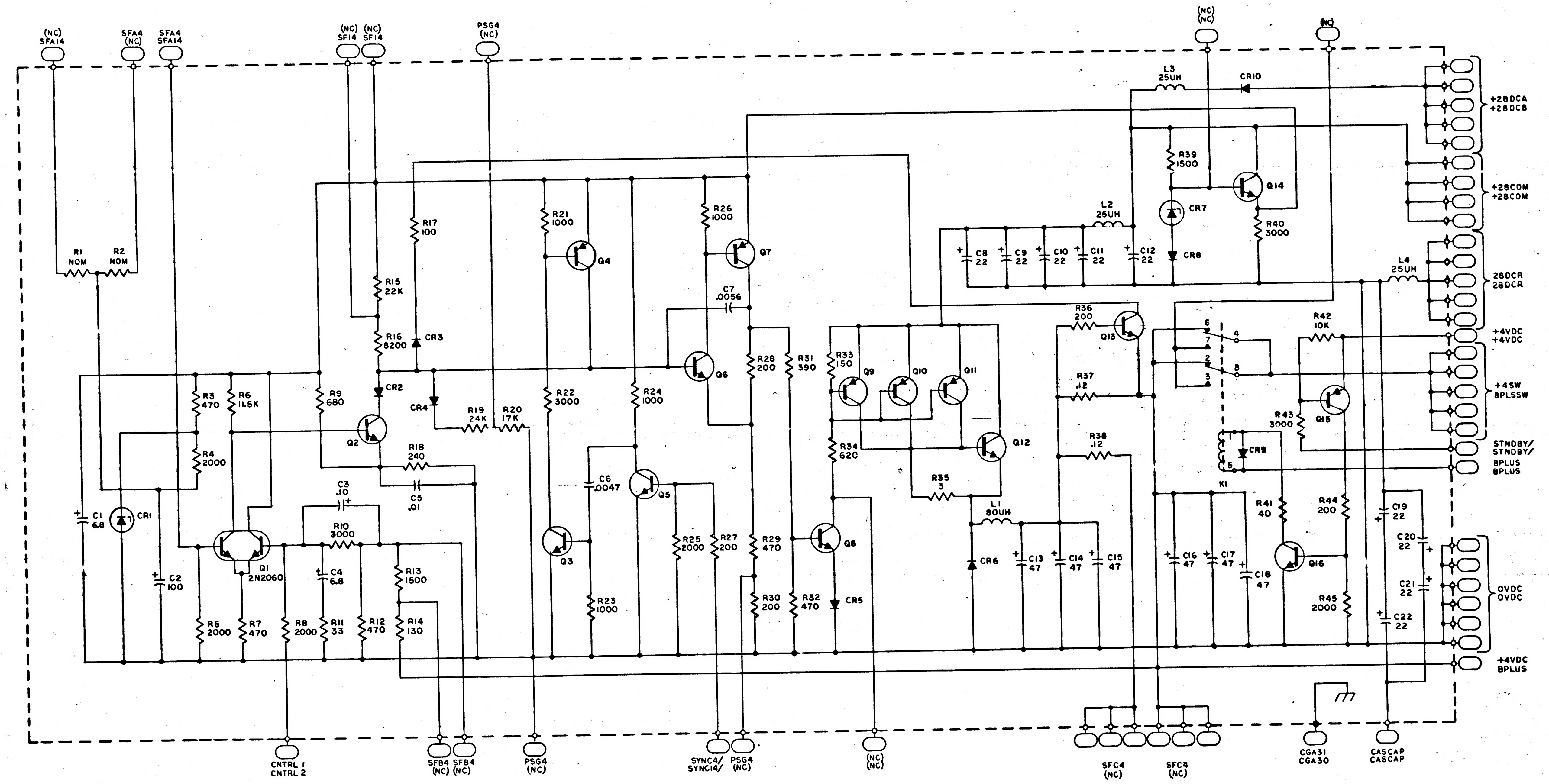
SCHEMATIC, STRAND SELECT MODULE NO. B15

CODE IDENT NO. —
SIZE E
DRAWING NO. 2005009
SCALE —
SHEET 1 OF 1

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 16564

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 17467				


(NC) SFA14
SFA4 (NC)
SFA4 SFA14
(NC) SF14
(NC) SF14
PSG4 (NC)
(NC) (NC)
(NC)
R1 NOM
R2 NOM
R3 470
R4 2000
R5 2000
R6 11.5K
R7 470
R8 2000
R9 680
R10 3000
R11 33
R12 470
R13 1500
R14 130
R15 22K
R16 8200
R17 100
R18 240
R19 24K
R20 17K
R21 1000
R22 3000
R23 1000
R24 1000
R25 2000
R26 1000
R27 200
R28 200
R29 470
R30 200
R31 390
R32 470
R33 150
R34 620
R35 3
R36 200
R37 .12
R38 .12
R39 1500
R40 3000
R41 40
R42 10K
R43 3000
R44 200
R45 2000
C1 6.8
C2 100
C3 .10
C4 6.8
C5 .01
C6 .0047
C7 .0056
C8 22
C9 22
C10 22
C11 22
C12 22
C13 47
C14 47
C15 47
C16 47
C17 47
C18 47
C19 22
C20 22
C21 22
C22 22
CR1
CR2
CR3
CR4
CR5
CR6
CR7
CR8
CR9
CR10
L1 80UH
L2 25UH
L3 25UH
L4 25UH
Q1 2N2060
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13
Q14
Q15
Q16
K1
1
2
3
4
5
6
7
8
+28DCA +28DCB
+28COM +28COM
28DCR 28DCR
+4VDC +4VDC
+4SW BPLSSW
STNDBY/ STNDBY/
BPLUS BPLUS
OVDC OVDC
+4VDC BPLUS
CNTRL 1 CNTRL 2
SFB4 (NC)
SFB4 (NC)
PSG4 (NC)
SYNC4/ SYNC14/
PSG4 (NC)
(NC) (NC)
SFC4 (NC)
SFC4 (NC)
CGA31 CGA30
CASCAP CASCAP

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. FINAL VALUES TO BE DETERMINED BY ELECTRICAL TEST COMPONENTS TO BE SUPPLIED PER TABLE
3. TOP SIGNAL NAME AND CIRCUIT NUMBER APPLY IN POSITION 31
4. BOTTOM SIGNAL NAME AND CIRCUIT NUMBER APPLY IN POSITION 30

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN		1/5/65
CHECKED		
APPROVED		
APPROVED		
APPROVED MIT	W Kupfer	
APPROVED MSC		2/11/65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC
AGC POWER SUPPLY
A30-A31

CODE IDENT NO.
SIZE E
DRAWING NO. 2005010
SCALE
SHEET 1 OF 2

2005010 A

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 16564

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 17467			22 MAR 65	

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R1	1006750-	RESISTOR	NOTE 2	2%	1/4W
R2	1006750-		NOTE 2		
R3	-24		470		
R4	-39		2000		
R5	-39		2000		
R6	-141		11.5K		
R7	-24		470		
R8	-39		2000		
R9	-28		680		
R10	1006750 -43		3000	2%	
R11	1006788 -10		33	1%	
R12	1006750 -24		470	2%	
R13	-36		1500		
R14	-11		130		
R15	-64		22K		
R16	-54		8200		
R17	-8		100		
R18	-17		240		
R19	-65		24K		
R20	-145		17K		
R21	-32		1000		
R22	-43		3000		
R23	-32		1000		
R24	-32		1000		
R25	-39		2000		
R26	-32		1000		
R27	-15		200		
R28	-15		200		
R29	-24		470		
R30	-15		200		
R31	-22		390		
R32	-24		470		
R33	1006750-12		150	2%	1/4W
R34	1010389 -51		620	1%	3W
R35	1010389 -113		3	1%	3W
R36	1006750-15		200	2%	1/4W
R37	1006330		0.12	1%	10W
R38	1006330		0.12	1%	10W
R39	1010604 -50		1500	1%	1W
R40	1006750-43		3000	2%	1/4W
R41	1010604 -49		40	1%	1W
R42	1006750-56		10K	2%	1/4W
R43	1006750-43		3000	2%	1/4W
R44	1006750-15		200	2%	1/4W
R45	1006750-39	RESISTOR	2000	2%	1/4W

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
C1	1006755-79	CAPACITOR	6.8UF	10%	35V
C2	1006755-14		100UF		10V
C3	1006755-57		0.10UF		35V
C4	1006755-79		6.8UF		35V
C5	1006777-31		0.01UF		100V
C6	1006777-28		.0047UF	10%	100V
C7	1006793-30		.0056UF	2%	500V
C8	1006755 -134		22UF	10%	50V
C9	-134				
C10	-134				
C11	-134				
C12	-134		22UF		50V
C13	-89		47UF		35V
C14	-89				
C15	-89				
C16	-89				
C17	-89				
C18	-89		47UF		35V
C19	-134		22UF		50V
C20	-134		22UF		50V
C21	-134		22UF		50V
C22	1006755 -134	CAPACITOR	22UF	10%	50V
CR1	1006838	DIODE			
CR2	1006751				
CR3	1006751				
CR4	1006751				
CR5	1006751				
CR6	1006329				
CR7	1006290				
CR8	1006751				
CR9	1006751				
CR10	1006329	DIODE			
Q1	1010376 -1	TRANSISTOR			
Q2	1006323				
Q3	1006323				
Q4	1006310				
Q5	1006323				
Q6	1006323				
Q7	1006310				
Q8	1006323				
Q9	1006310				
Q10	1006310				
Q11	1006310				
Q12	1006317				
Q13	1006323				
Q14	1010269-3				
Q15	1006310				
Q16	1006323	TRANSISTOR			
K1	1006304-001	RELAY			
L1	1006327	INDUCTOR	80UH		7 AMP
L2	1006328	INDUCTOR	25UH		6 AMP
L3	1006328	INDUCTOR	25UH		6 AMP
L4	1006328	INDUCTOR	25UH		6 AMP

SELECTION CHART FOR R1 & R2

PART NO.	VALUE
1006750 -1	51
-2	56
-3	62
-4	68
-5	75
-6	82
-7	91
-8	100
-9	110
-10	120
-11	130
-12	150
-13	160
-14	180
-15	200
-16	220
-17	240
-18	270
-19	300
-20	330
-21	360
-22	390
-23	430
-24	470
1006750 -25	510

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN 2/10/65
CHECKED CC
APPROVED Albert Hopkins 16 Feb 65
APPROVED
APPROVED MIT W Kupfer 17 Feb 65
APPROVED MSC 2/17/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC
AGC POWER SUPPLY
A30-A31

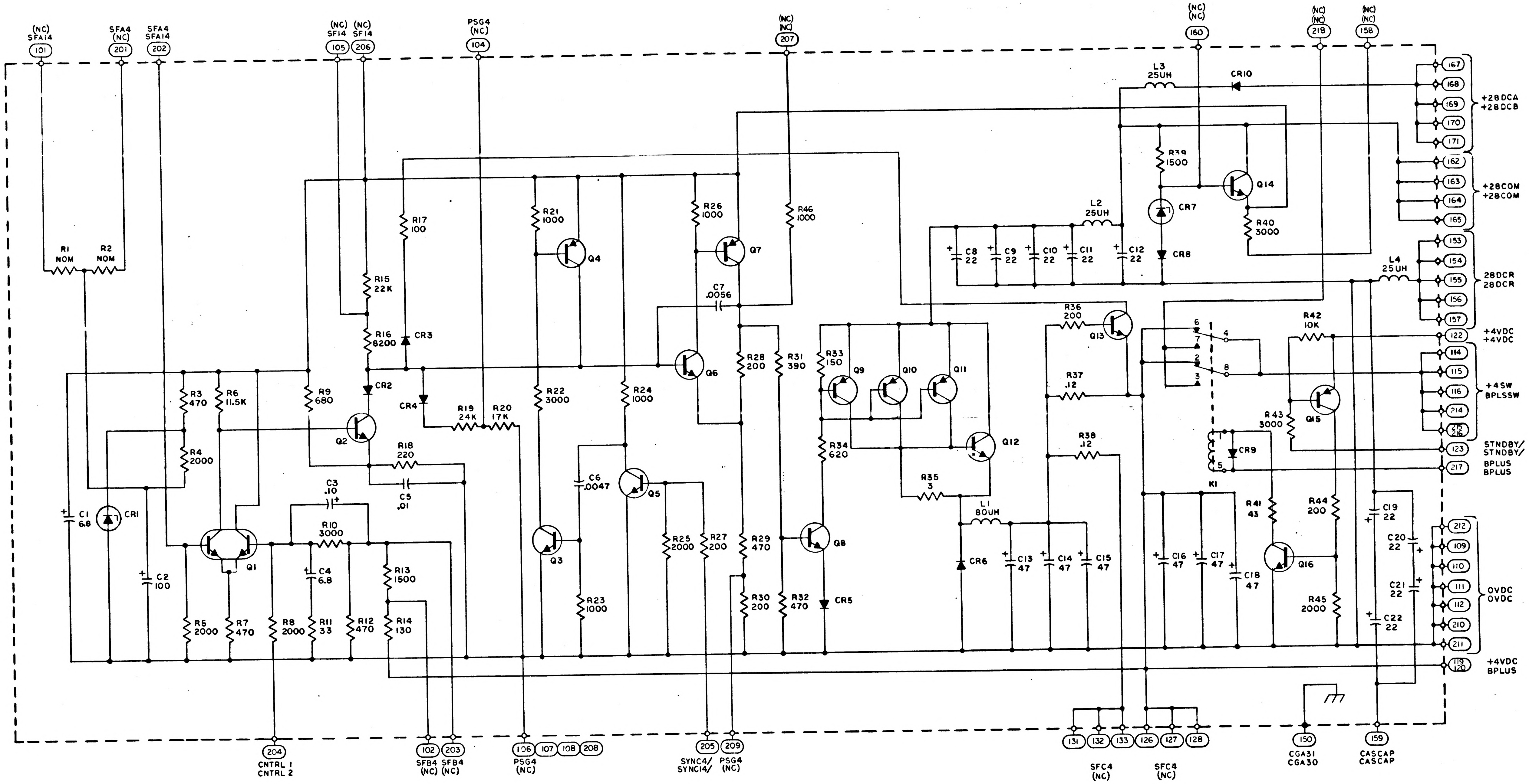
CODE IDENT NO.
SIZE E
DRAWING NO. 2005010
SCALE —
SHEET 2 OF 2

2005010 A

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 16564

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 17467		RK	22 MAR 65	
B		REVISED PER TDRR 19760		CAP	8 JUN 65	



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SFA4 (NC) 201
SFA4 SFA14 202
(NC) SF14 105
(NC) SF14 206
PSG4 (NC) 104
(NC) (NC) 207
(NC) (NC) 160
(NC) 218
(NC) (NC) 158
167
168
169
170
171
+28DCA
+28DCB
162
163
164
165
+28COM
+28COM
153
154
155
156
157
28DCR
28DCR
122
+4VDC
+4VDC
114
115
116
214
215
216
+4SW
BPLSSW
123
STNDBY/
STNDBY/
217
BPLUS
BPLUS
212
109
110
111
112
210
211
0VDC
0VDC
119
120
+4VDC
BPLUS
R1 NOM
R2 NOM
R3 470
R4 2000
R5 2000
R6 11.5K
R7 470
R8 2000
R9 680
R10 3000
R11 33
R12 470
R13 1500
R14 130
R15 22K
R16 8200
R17 100
R18 220
R19 24K
R20 17K
R21 1000
R22 3000
R23 1000
R24 1000
R25 2000
R26 1000
R27 200
R28 200
R29 470
R30 200
R31 390
R32 470
R33 150
R34 620
R35 3
R36 200
R37 .12
R38 .12
R39 1500
R40 3000
R41 43
R42 10K
R43 3000
R44 200
R45 2000
R46 1000
C1 6.8
C2 100
C3 .10
C4 6.8
C5 .01
C6 .0047
C7 .0056
C8 22
C9 22
C10 22
C11 22
C12 22
C13 47
C14 47
C15 47
C16 47
C17 47
C18 47
C19 22
C20 22
C21 22
C22 22
CR1
CR2
CR3
CR4
CR5
CR6
CR7
CR8
CR9
CR10
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13
Q14
Q15
Q16
L1 80UH
L2 25UH
L3 25UH
L4 25UH
K1
1
2
3
4
5
6
7
8
204
CNTRL 1
CNTRL 2
102
203
SFB4 (NC)
SFB4 (NC)
106
107
108
208
PSG4 (NC)
205
209
SYNC4/ SYNC14/
PSG4 (NC)
131
132
133
126
127
128
SFC4 (NC)
SFC4 (NC)
150
CGA31
CGA30
159
CASCAP
CASCAP

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. FINAL VALUES TO BE DETERMINED BY ELECTRICAL TEST COMPONENTS TO BE SUPPLIED PER TABLE
3. TOP SIGNAL NAME AND CIRCUIT NUMBER APPLY IN POSITION 31
4. BOTTOM SIGNAL NAME AND CIRCUIT NUMBER APPLY IN POSITION 30

REF DWG:
AGC POWER SUPPLY A30-31
DWG NO. 2005056

2005010 B

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J. Brigham 1/5/65
CHECKED 16 FEB 65
APPROVED 16 Feb 65
APPROVED Ellen C. Hall 17 Feb 65
APPROVED MIT W. Kupfer 17 Feb 65
APPROVED MSC 2/17/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC
AGC POWER SUPPLY
A30-31

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005010
SCALE —
SHEET 1 OF 2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 16564

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 17467			22MAR65	
B		REVISED PER TDRR 19760	WM	CAP	3JUN65	

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R1	1006750–	RESISTOR	NOM	2%	1/4W
R2	1006750–		NOM		
R3	–24		470		
R4	–39		2000		
R5	–39		2000		
R6	–141		11.5K		
R7	–24		470		
R8	–39		2000		
R9	–28		680		
R10	1006750 –43		3000	2%	
R11	1006788 –10		33	1%	
R12	1006750 –24		470	2%	
R13	–36		1500		
R14	–11		130		
R15	–64		22K		
R16	–54		8200		
R17	–8		100		
R18	–16		220		
R19	–65		24K		
R20	–145		17K		
R21	–32		1000		
R22	–43		3000		
R23	–32		1000		
R24	–32		1000		
R25	–39		2000		
R26	–32		1000		
R27	–15		200		
R28	–15		200		
R29	–24		470		
R30	1006750 – 15		200	2%	1/4W
R31	1006760 –22		390	5%	1/2 W
R32	1006750 –24		470	2%	1/4 W
R33	1006750 –12		150	2%	1/4W
R34	1010389 –51		620	1%	3W
R35	1010389 –113		3	1%	3W
R36	1006750 –15		200	2%	1/4W
R37	1006330		0.12	1%	10W
R38	1006330		0.12	1%	10W
R39	1010604 –50		1500	1%	1W
R40	1006750 – 43		3000	2%	1/4W
R41	1010389 – 23		43	1%	3W
R42	1006750 - 56		10K	2%	1/4W
R43	1006750 –43		3000	2%	1/4W
R44	1006750 – 15		200	2%	1/4W
R45	1006750 –39		2000	2%	1/4W
R46	1006750 – 32	RESISTOR	1000	2%	1/4 W

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
C1	1006755–79	CAPACITOR	6.8UF	10%	35V
C2	1006755 – 14		100UF		10V
C3	1006755 – 57		0.10UF		35V
C4	1006755 – 79		6.8UF		35V
C5	1006777 – 31		0.01UF		100V
C6	1006777 – 28		.0047UF	10%	100V
C7	1006793 – 30		.0056UF	2%	500V
C8	1006755 –134		22UF	10%	50V
C9	–134				
C10	–134				
C11	–134				
C12	–134		22UF		50V
C13	–89		47UF		35V
C14	–89				
C15	–89				
C16	–89				
C17	–89				
C18	–89		47UF		35V
C19	–134		22UF		50V
C20	–134		22UF		50V
C21	–134		22UF		50V
C22	1006755 –134	CAPACITOR	22UF	10%	50V
CR1	2004112-002	DIODE			
CR2	2004103-001				
CR3	2004103-001				
CR4	2004103-001				
CR5	2004103-001				
CR6	1006329				
CR7	2004112-001				
CR8	2004103-001				
CR9	2004103-001				
CR10	1006329	DIODE			
Q1	1010376 –3	TRANSISTOR			
Q2	2004004-003				
Q3	-003				
Q4	-004				
Q5	-003				
Q6	-003				
Q7	-004				
Q8	-003				
Q9	-004				
Q10	-004				
Q11	2004004-004				
Q12	1006317				
Q13	2004004-001				
Q14	1010269 – 3				
Q15	2004004-002				
Q16	2004004-001	TRANSISTOR			
K1	1006304—002	RELAY			
L1	1006328	INDUCTOR	80UH		7 AMP
L2	1006327	INDUCTOR	25UH		6AMP
L3	1006327	INDUCTOR	25UH		6AMP
L4	1006327	INDUCTOR	25UH		6AMP

SELECTION CHART FOR R1 & R2

PART NO.	VALUE
1006750 – 1	51
–2	56
–3	62
–4	68
–5	75
–6	82
–7	91
–8	100
–9	110
–10	120
–11	130
–12	150
–13	160
–14	180
–15	200
–16	220
–17	240
–18	270
–19	300
–20	330
–21	360
–22	390
–23	430
–24	470
1006750 – 25	510

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± —— ± —— ± ——
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN 2/10/65
CHECKED CC 16FEB65
APPROVED 16Feb65
APPROVED 19Feb65
APPROVED MIT 17Feb65
APPROVED MSC 4/1/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC
AGC POWER SUPPLY
A30-31

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2005010

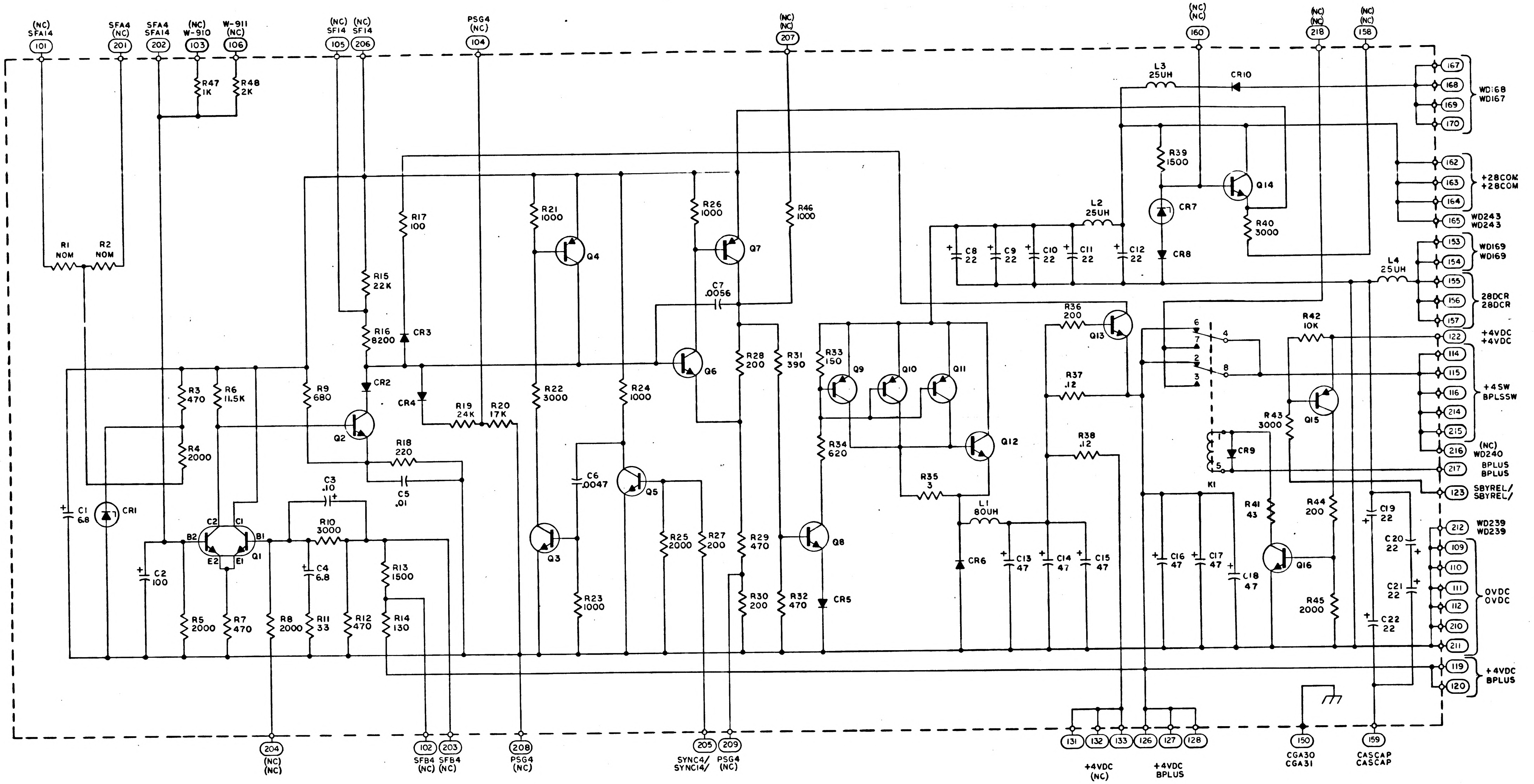
SCALE ——
SHEET 2 OF 2

MASTER

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 16564

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 17467		RK	22 MAR 65	
B		REVISED PER TDRR 19760		CAP	8 JUN 65	
C		REVISED PER TDRR 20951	KCH		30 Jul 65	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(NC)
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(NC)
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(NC)
SF14
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PSG4
(NC)
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(NC)
(NC)
207
(NC)
(NC)
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(NC)
(NC)
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(NC)
(NC)
158
R47
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R48
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R2
NOM
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470
R4
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R5
2000
R6
11.5K
R7
470
R8
2000
R9
680
R10
3000
R11
33
R12
470
R13
1500
R14
130
R15
22K
R16
8200
R17
100
R18
220
R19
24K
R20
17K
R21
1000
R22
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R24
1000
R25
2000
R26
1000
R27
200
R28
200
R29
470
R30
200
R31
390
R32
470
R33
150
R34
620
R35
3
R36
200
R37
.12
R38
.12
R39
1500
R40
3000
R41
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R42
10K
R43
3000
R44
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R45
2000
R46
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C2
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C3
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C6
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C7
.0056
C8
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C9
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C10
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C11
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C17
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C18
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C19
22
C20
22
C21
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C22
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CR1
CR2
CR3
CR4
CR5
CR6
CR7
CR8
CR9
CR10
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Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
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Q15
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L2
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25UH
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WD168
WD167
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163
164
+28COM
+28COM
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WD243
WD243
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154
WD169
WD169
155
156
157
28DCR
28DCR
122
+4VDC
+4VDC
114
115
116
214
215
+4SW
BPLSSW
216
(NC)
WD240
217
BPLUS
BPLUS
123
SBYREL/
SBYREL/
212
WD239
WD239
109
110
111
112
210
211
0VDC
0VDC
119
120
+4VDC
BPLUS
204
(NC)
(NC)
102
203
SFB4
(NC)
SFB4
(NC)
208
PSG4
(NC)
205
209
SYNC4/
SYNC14/
PSG4
(NC)
131
132
133
+4VDC
(NC)
126
127
128
+4VDC
BPLUS
150
CGA30
CGA31
159
CASCAP
CASCAP

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. FINAL VALUES TO BE DETERMINED BY ELECTRICAL TEST COMPONENTS TO BE SUPPLIED PER TABLE
3. TOP SIGNAL NAME AND CIRCUIT NUMBER APPLY IN POSITION 30
4. BOTTOM SIGNAL NAME AND CIRCUIT NUMBER APPLY IN POSITION 31

REF DWG:
AGC POWER SUPPLY A30-31
DWG NO. 2003056

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	J. Brigham	1/5/65
CHECKED		6 FEB 65
APPROVED		16 Feb 65
APPROVED	Ellen C Hall	15 Feb 65
APPROVED MIT	W Kupfer	17 Feb 65
APPROVED MSC		2/17/65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC
AGC POWER SUPPLY
A30-31

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005010
SCALE —
SHEET 1 OF 2

2005010 C

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REVISIONS 16564

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 17467	JFW	RL	22 MAR 65	
B		REVISED PER TDRR 19760	WM	CAP	8 JUN 65	
C		REVISED PER TDRR 20951	KCH		30 Jul 65	

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R1	1006750-	RESISTOR	NOM	2%	1/4W
R2	1006750-		NOM		
R3	-24		470		
R4	-39		2000		
R5	-39		2000		
R6	-141		11.5K		
R7	-24		470		
R8	-39		2000		
R9	-28		680		
R10	1006750 -43		3000	2%	
R11	1006788 -10		33	1%	
R12	1006750 -24		470	2%	
R13	-36		1500		
R14	-11		130		
R15	-64		22K		
R16	-54		8200		
R17	-8		100		
R18	-16		220		
R19	-65		24K		
R20	-145		17K		
R21	-32		1000		
R22	-43		3000		
R23	-32		1000		
R24	-32		1000		
R25	-39		2000		
R26	-32		1000		
R27	-15		200		
R28	-15		200		
R29	-24		470		
R30	1006750 -15		200	2%	1/4W
R31	1006760 -22		390	5%	1/2W
R32	1006750 -24		470	2%	1/4W
R33	1006750-12		150	2%	1/4W
R34	1010389 -51		620	1%	3W
R35	1010389 -113		3	1%	3W
R36	1006750-15		200	2%	1/4W
R37	1006330 -001		0.12	1%	10W
R38	1006330 -001		0.12	1%	10W
R39	1010604 -50		1500	1%	1W
R40	1006750- 43		3000	2%	1/4W
R41	1010389 - 23		43	1%	3W
R42	1006750 - 56		10K	2%	1/4W
R43	1006750-43		3000	2%	1/4W
R44	1006750-15		200	2%	1/4W
R45	1006750-39		2000	2%	1/4W
R46	1006750- 32		1000	2%	1/4 W
R47	1006750-32		1000	2%	1/4W
R48	1006750 - 39	RESISTOR	2000	2%	1/4 W

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
C1	1006755-79	CAPACITOR	6.8UF	10%	35V
C2	1006755-14		100UF		10V
C3	1006755-57		0.10UF		35V
C4	1006755-79		6.8UF		35V
C5	1006777-31		0.01UF		100V
C6	1006777-28		.0047UF	10%	100V
C7	1006793-30		.0056UF	2%	500V
C8	1006755 -134		22UF	10%	50V
C9	-134				
C10	-134				
C11	-134				
C12	-134		22UF		50V
C13	-89		47UF		35V
C14	-89				
C15	-89				
C16	-89				
C17	-89				
C18	-89		47UF		35V
C19	-134		22UF		50V
C20	-134		22UF		50V
C21	-134		22UF		50V
C22	1006755 -134	CAPACITOR	22UF	10%	50V
CR1	2004112-002	DIODE			
CR2	2004103-001				
CR3	2004103-001				
CR4	2004103-001				
CR5	2004103-001				
CR6	1006329				
CR7	2004112-001				
CR8	2004103-001				
CR9	2004103-001				
CR10	1006329	DIODE			
Q1	1010376 -3	TRANSISTOR			
Q2	2004004-003				
Q3	-003				
Q4	-004				
Q5	-003				
Q6	-003				
Q7	-004				
Q8	-003				
Q9	-004				
Q10	-004				
Q11	2004004-004				
Q12	1006317				
Q13	2004004-001				
Q14	1010269-3				
Q15	2004004-002				
Q16	2004004-001	TRANSISTOR			
K1	1006304-002	RELAY			
L1	1006328	INDUCTOR	80UH		7 AMP
L2	1006327	INDUCTOR	25UH		6AMP
L3	1006327	INDUCTOR	25UH		6AMP
L4	1006327	INDUCTOR	25UH		6AMP

SELECTION CHART FOR R1 & R2

PART NO.	VALUE
1006750 -1	51
-2	56
-3	62
-4	68
-5	75
-6	82
-7	91
-8	100
-9	110
-10	120
-11	130
-12	150
-13	160
-14	180
-15	200
-16	220
-17	240
-18	270
-19	300
-20	330
-21	360
-22	390
-23	430
-24	470
1006750 - 25	510

2005010 C

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± —— ± —— ± ——
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN		2/10/65
CHECKED	CC	
APPROVED	Albert Hopkins	16 Feb 65
APPROVED		16 Feb 65
APPROVED MIT		17 Feb 65
APPROVED MSC		4/17/65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC
AGC POWER SUPPLY
A30-31

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2005010

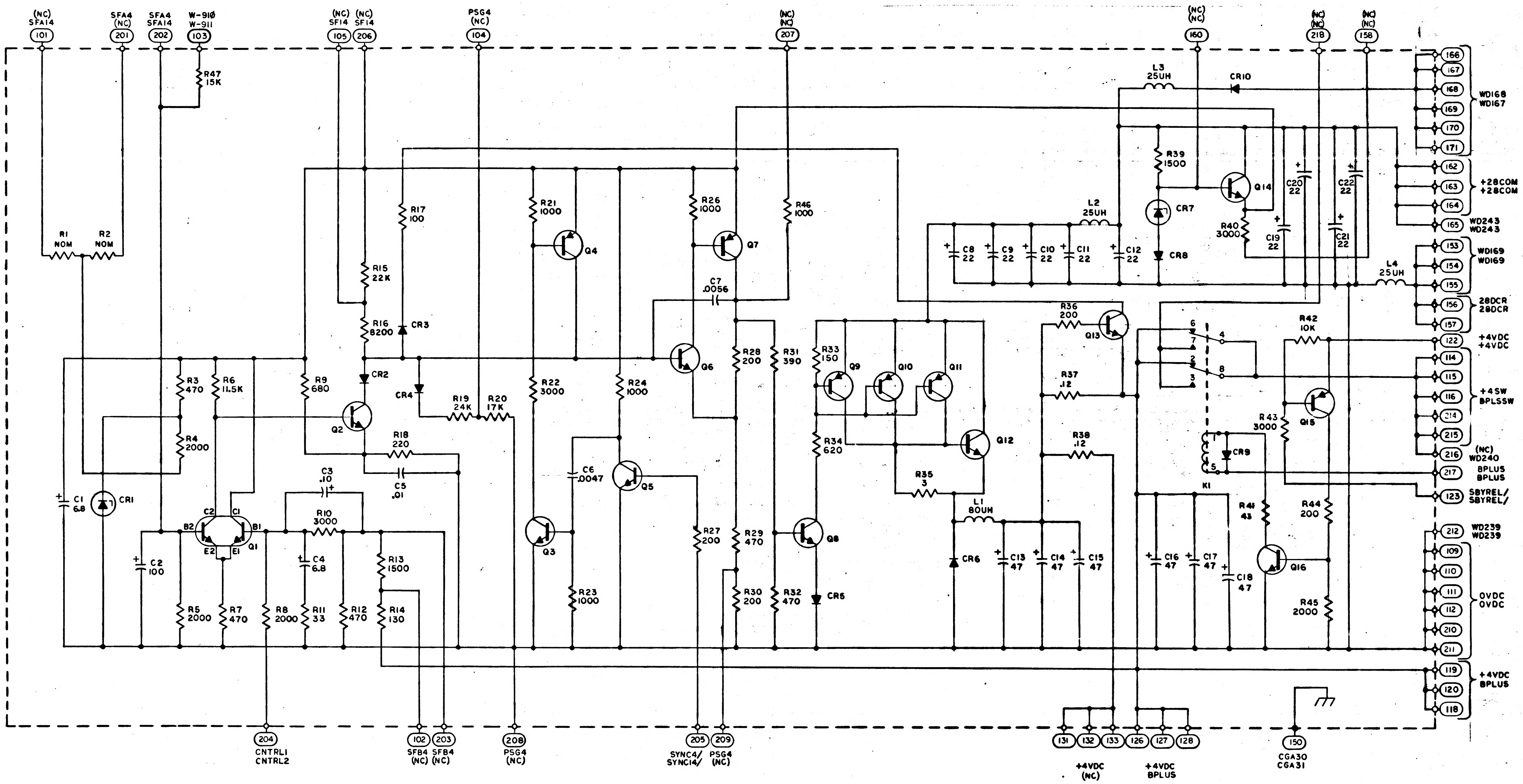
SCALE ——

SHEET 2 OF 2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 16564

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 17467				
B		REVISED PER TDRR 19760			8 JUN 65	
C		REVISED PER TDRR 20951	KCH			
D		REVISED PER TDRR 22564				


(NC)
SFA14
101
SFA4
(NC)
201
SFA4
SFA14
202
W-910
W-911
103
(NC)
SF14
105
(NC)
SF14
206
PSG4
(NC)
104
(NC)
(NC)
207
(NC)
(NC)
160
(NC)
(NC)
218
(NC)
(NC)
158
R47
15K
R1
NOM
R2
NOM
R17
100
R15
22K
R16
8200
CR3
R21
1000
Q4
R26
1000
Q7
R46
1000
C7
.0056
L3
25UH
CR10
R39
1500
Q14
C20
22
C22
22
L2
25UH
CR7
R40
3000
C19
22
C21
22
C8
22
C9
22
C10
22
C11
22
C12
22
CR8
L4
25UH
166
167
168
169
170
171
WD168
WD167
162
163
164
+28COM
+28COM
165
WD243
WD243
153
154
155
WD169
WD169
156
157
28DCR
28DCR
122
+4VDC
+4VDC
114
115
116
214
215
+4SW
BPLSSW
216
(NC)
WD240
217
BPLUS
BPLUS
123
SBYREL/
SBYREL/
212
WD239
WD239
109
110
111
112
210
211
OVDC
OVDC
119
120
118
+4VDC
BPLUS
R3
470
R6
11.5K
R4
2000
R9
680
CR2
Q2
CR4
R19
24K
R20
17K
R18
220
C5
.01
R22
3000
R24
1000
Q6
R28
200
R31
390
R33
150
Q9
Q10
Q11
R34
620
Q12
R35
3
R36
200
Q13
R37
.12
R38
.12
6
7
2
3
4
8
1
5
K1
CR9
R42
10K
R43
3000
Q15
R41
43
R44
200
Q16
R45
2000
C1
6.8
CR1
C2
100
C2
C1
B2
B1
E2
E1
Q1
C3
.10
R10
3000
C4
6.8
R5
2000
R7
470
R8
2000
R11
33
R12
470
R13
1500
R14
130
C6
.0047
Q5
Q3
R23
1000
R27
200
R29
470
R30
200
R32
470
Q8
CR5
L1
80UH
CR6
C13
47
C14
47
C15
47
C16
47
C17
47
C18
47
204
CNTRL1
CNTRL2
102
SFB4
(NC)
203
SFB4
(NC)
208
PSG4
(NC)
205
SYNC4/
SYNC14/
209
PSG4
(NC)
131
132
133
126
127
128
+4VDC
(NC)
+4VDC
BPLUS
150
CGA30
CGA31

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. FINAL VALUES TO BE DETERMINED BY ELECTRICAL TEST COMPONENTS TO BE SUPPLIED PER TABLE
3. TOP SIGNAL NAME AND CIRCUIT NUMBER APPLY IN POSITION 30
4. BOTTOM SIGNAL NAME AND CIRCUIT NUMBER APPLY IN POSITION 31

REF DWG:
AGC POWER SUPPLY A30-31
DWG NO. 2003056

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN 1/5/65
CHECKED CC
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC 2/11/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC
AGC POWER SUPPLY
A30-31

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005010
SCALE —
SHEET 1 OF 2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 16568

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 17467	JFW	CL	22MAR65	
B		REVISED PER TDRR 19760	WM	CAP	3JUN65	
C		REVISED PER TDRR 20951	KCH	EAK	30 Jul 65	
D		REVISED PER TDRR 22564	WFH	GL	[illegible]	

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R1	1006750 −	RESISTOR	NOM	2%	1/4W
R2	1006750 −		NOM		
R3	−24		470		
R4	−39		2000		
R5	−39		2000		
R6	−141		11.5K		
R7	−24		470		
R8	−39		2000		
R9	↓ −28		680	↓	
R10	1006750 −43		3000	2%	
R11	1006788 −10		33	1%	
R12	1006750 −24		470	2%	
R13	−36		1500		
R14	−11		130		
R15	−64		22K		
R16	−54		8200		
R17	−8		100		
R18	−16		220		
R19	−65		24K		
R20	−145		17K		
R21	−32		1000		
R22	−43		3000		
R23	↓ −32		1000	↓	↓
R24	1006750 −32		1000	2%	1/4W
R26	1006750 −32		1000	2%	1/4W
R27	−15		200		
R28	−15		200		
R29	↓ −24		470	↓	↓
R30	1006750 −15		200	2%	1/4W
R31	1006760 −22		390	5%	1/2W
R32	1006750 −24		470	2%	1/4W
R33	1006750 −12		150	2%	1/4W
R34	1010389 −51		620	1%	3W
R35	1010389 −113		3	1%	3W
R36	1006750 −15		200	2%	1/4W
R37	1006330 −001		0.12	1%	10W
R38	1006330 −001		0.12	1%	10W
R39	1010604 −50		1500	1%	1W
R40	1006750 −43		3000	2%	1/4W
R41	1010389 −23		43	1%	3W
R42	1006750 −56		10K	2%	1/4W
R43	1006750 −43		3000	2%	1/4W
R44	1006750 −15		200	2%	1/4W
R45	1006750 −39		2000	2%	1/4W
R46	1006750 −60	↓	1000	2%	1/4W
R47	1006750 −60	RESISTOR	15K	2%	1/4W

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
C1	1006755−79	CAPACITOR	6.8UF	10%	35V
C2	1006755 −14		100UF		10V
C3	1006755 −57		0.10UF		35V
C4	1006755 −79		6.8UF		35V
C5	1006777 −31		0.01UF	↓	100V
C6	1006777 −28		.0047UF	10%	100V
C7	1006793 −30		.0056UF	2%	500V
C8	1006755 −134		22UF	10%	50V
C9	−134				
C10	−134				
C11	−134		↓		↓
C12	−134		22UF		50V
C13	−89		47UF		35V
C14	−89				
C15	−89				
C16	−89				
C17	−89		↓		↓
C18	−89		47UF		35V
C19	−134		22UF		50V
C20	−134		22UF		50V
C21	↓ −134	↓	22UF	↓	50V
C22	1006755 −134	CAPACITOR	22UF	10%	50V
CR1	2004112-002	DIODE			
CR2	2004103-001				
CR3	2004103-001				
CR4	2004103-001				
CR5	2004103-001				
CR6	1006329				
CR7	2004112-001				
CR8	2004103-001				
CR9	2004103-001	↓			
CR10	1006329	DIODE			
Q1	1010376 −3	TRANSISTOR			
Q2	2004004-003				
Q3	−003				
Q4	−004				
Q5	−003				
Q6	−003				
Q7	−004				
Q8	−003				
Q9	−004				
Q10	↓ −004				
Q11	2004004-004				
Q12	1006317				
Q13	2004004-001				
Q14	1006363 −1				
Q15	2004004-002	↓			
Q16	2004004-001	TRANSISTOR			
K1	1006304−002	RELAY			
L1	1006328	INDUCTOR	80UH		
L2	1006327	INDUCTOR	25UH		
L3	1006327	INDUCTOR	25UH		
L4	1006327	INDUCTOR	25UH		

SELECTION CHART FOR R1 & R2

PART NO.	VALUE
1006750 −1	51
↑ −2	56
−3	62
−4	68
−5	75
−6	82
−7	91
−8	100
−9	110
−10	120
−11	130
−12	150
−13	160
−14	180
−15	200
−16	220
−17	240
−18	270
−19	300
−20	330
−21	360
−22	390
−23	430
↓ −24	470
1006750 −25	510

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN F. Brahan 2/10/65
CHECKED CC/[illegible]
APPROVED Albert Hopkins 16 Feb 65
APPROVED [illegible] 11 Feb 65
APPROVED MIT W. Kupfer 17 Feb 65
APPROVED MSC [illegible] 2/17/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

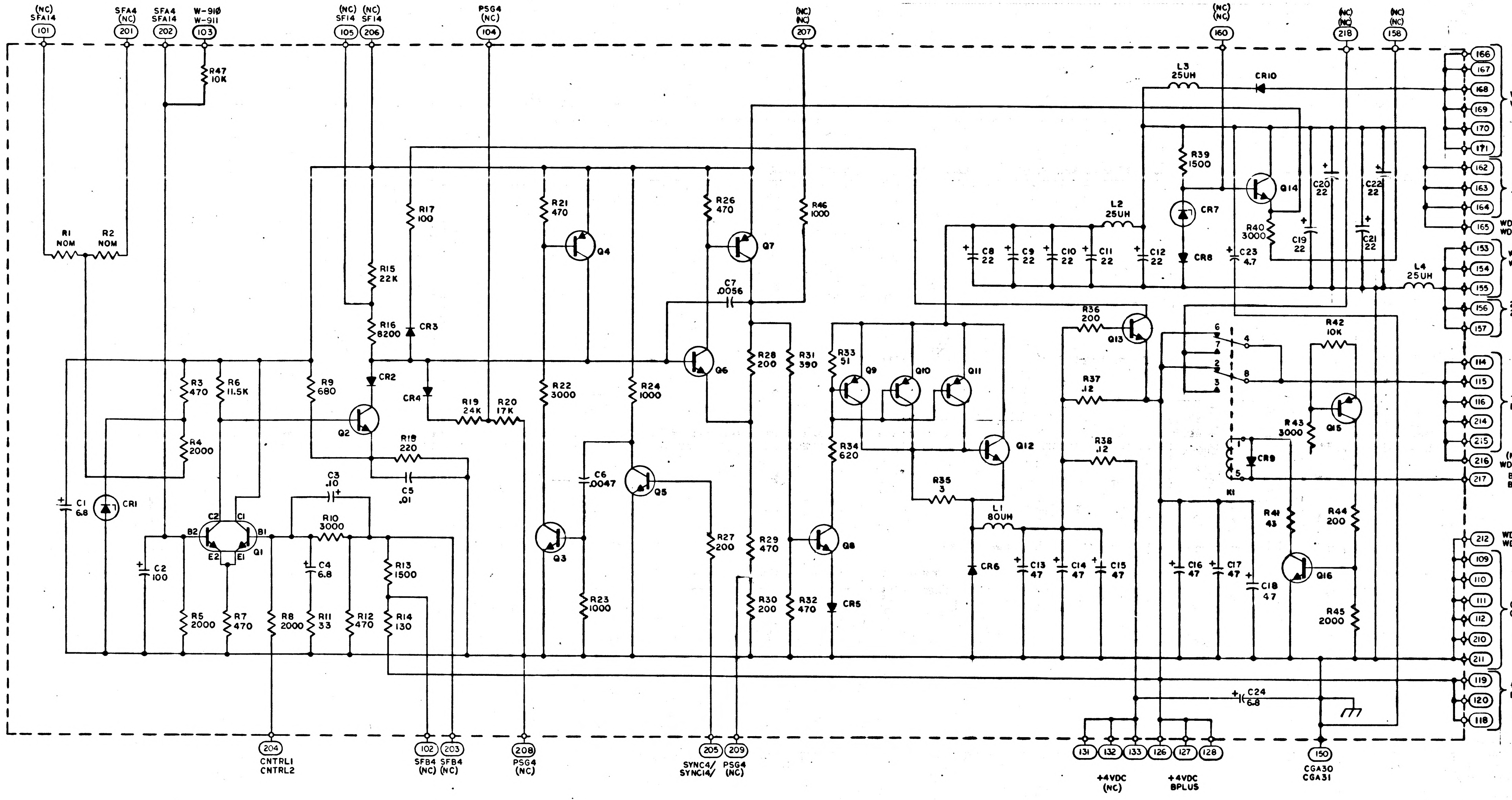
SCHEMATIC
AGC POWER SUPPLY
A30-31

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005010
SCALE —
SHEET 2 OF 2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 16565

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED	
A		REVISED PER TDRR 17467			22 MAR 65		WK
B		REVISED PER TDRR 19760		CAP	8 JUN 65		WK
C		REVISED PER TDRR 20951	KCH		30 Jul 65		
D		REVISED PER TDRR 22564	WFH				WK
E		REVISED PER TDRR 23611			65		WK
F		REVISED PER TDRR 24192			65		WK


(NC) SFA14 101
SFA4 (NC) 201
SFA4 SFA14 202
W-910 W-911 103
(NC) SF14 105
(NC) SF14 206
PSG4 (NC) 104
(NC) (NC) 207
(NC) (NC) 160
(NC) (NC) 218
(NC) (NC) 158
R47 10K
R1 NOM
R2 NOM
R17 100
R15 22K
R16 8200
CR3
CR2
CR4
R19 24K
R20 17K
R21 470
Q4
R26 470
Q7
R46 1000
C7 .0056
R22 3000
R24 1000
Q6
R28 200
R31 390
C6 .0047
Q5
Q3
R23 1000
R27 200
R29 470
R30 200
R32 470
Q8
CR5
R3 470
R6 11.5K
R9 680
Q2
R4 2000
R18 220
C3 .10
C5 .01
R10 3000
C1 6.8
CR1
C2 100
B2 C2 C1 B1
E2 E1
Q1
C4 6.8
R13 1500
R14 130
R5 2000
R7 470
R8 2000
R11 33
R12 470
R33 51
Q9 Q10 Q11
R34 620
Q12
R35 3
L1 80UH
CR6
C13 47
C14 47
C15 47
L3 25UH
CR10
R39 1500
CR7
Q14
C20 22
C22 22
R40 3000
C19 22
C21 22
L2 25UH
C8 22
C9 22
C10 22
C11 22
C12 22
CR8
C23 4.7
L4 25UH
R36 200
Q13
R37 .12
R38 .12
R42 10K
R43 3000
Q15
CR9
K1
R41 43
R44 200
Q16
C16 47
C17 47
C18 47
R45 2000
C24 6.8
166 167 168 169 170 171 WD168 WD167
162 163 164 +28COM +28COM
165 WD243 WD243
153 154 155 WD169 WD159
156 157 28DCR 28DCR
114 115 116 214 215 +4SW BPLSSW
216 (NC) WD240
217 BPLUS BPLUS
212 WD239 WD239
109 110 111 112 210 211 0VDC 0VDC
119 120 118 +4VDC BPLUS
204 CNTRL1 CNTRL2
102 203 SFB4 (NC) SFB4 (NC)
208 PSG4 (NC)
205 209 SYNC4/ SYNC14/ PSG4 (NC)
131 132 133 +4VDC (NC)
126 127 128 +4VDC BPLUS
150 CGA30 CGA31

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. FINAL VALUES TO BE DETERMINED BY ELECTRICAL TEST COMPONENTS TO BE SUPPLIED PER TABLE
3. TOP SIGNAL NAME AND CIRCUIT NUMBER APPLY IN POSITION 30
4. BOTTOM SIGNAL NAME AND CIRCUIT NUMBER APPLY IN POSITION 31

REF DWG:
AGC POWER SUPPLY A30-31
DWG NO. 2003056

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN		1/5/65
CHECKED		16 FEB 65
APPROVED		16 Feb 65
APPROVED		16 Feb 65
APPROVED MIT	W Kaufman	17 Feb 65
APPROVED MSC		3/17/65
		DATE

SCHEMATIC
AGC POWER SUPPLY
A30-31

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2005010
SCALE —		SHEET 1 OF 2

2005010

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 16534

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 17467		RL	22 MAR 65	
B		REVISED PER TDRR 19760	WM	CAP	8 JUN 65	
C		REVISED PER TDRR 20951	KCH			
D		REVISED PER TDRR 22564			1 OCT 65	
E		REVISED PER TDRR 23611			9 NOV 65	
F		REVISED PER TDRR 24192			26 NOV 65	

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R1	1006750 –	RESISTOR	NOM	2%	1/4W
R2	1006750 –		NOM		
R3	–24		470		
R4	–39		2000		
R5	–39		2000		
R6	–141		11.5K		
R7	–24		470		
R8	–39		2000		
R9	–28		680		
R10	1006750 –43		3000	2%	
R11	1006788 –10		33	1%	
R12	1006750 –24		470	2%	
R13	–36		1500		
R14	–11		130		
R15	–64		22K		
R16	–54		8200		
R17	–8		100		
R18	–16		220		
R19	–65		24K		
R20	–145		17K		
R21	–24		470		
R22	–43		3000		
R23	–32		1000		
R24	1006750 –32		1000	2%	1/4W
R26	1006750 –24		470	2%	1/4W
R27	–15		200		
R28	–15		200		
R29	–24		470		
R30	1006750 –15		200	2%	1/4W
R31	1006760 –22		390	5%	1/2W
R32	1006750 24		470	2%	1/4W
R33	1006750 –1		51	2%	1/4W
R34	1010389 –51		620	1%	3W
R35	1010389 –113		3	1%	3W
R36	1006750 –15		200	2%	1/4W
R37	1006330 –001		0.12	1%	10W
R38	1006330 –001		0.12	1%	10W
R39	1010604 –50		1500	1%	1W
R40	1006750 –43		3000	2%	1/4W
R41	1010389 –23		43	1%	3W
R42	1006750 –56		10K	2%	1/4W
R43	1006750 –43		3000	2%	1/4W
R44	1006750 –15		200	2%	1/4W
R45	1006750 –39		2000	2%	1/4W
R46	1006750 –32		1000	2%	1/4 W
R47	1006750 –56	RESISTOR	10K	2%	1/4W

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
C1	1006755 –79	CAPACITOR	6.8UF	10%	35V
C2	1006755 –14		100UF		10V
C3	1006755 –57		0.10UF		35V
C4	1006755 –79		6.8UF		35V
C5	1006777 –31		0.01UF		100V
C6	1006777 –28		.0047UF	10%	100V
C7	1006793 –30		.0056UF	2%	500V
C8	1006755 –134		22UF	10%	50V
C9	–134				
C10	–134				
C11	–134				
C12	–134		22UF		50V
C13	–89		47UF		35V
C14	–89				
C15	–89				
C16	–89				
C17	–89				
C18	–89		47UF		35V
C19	–134		22UF		50V
C20	–134		22UF		50V
C21	–134		22UF		50V
C22	–134		22UF		50V
C23	–126		4.7UF		50V
C24	1006755 –79	CAPACITOR	6.8UF	10%	35V
CR1	2004112-002	DIODE			
CR2	2004103-001				
CR3	2004103-001				
CR4	2004103-001				
CR5	2004103-001				
CR6	1006329				
CR7	2004112-001				
CR8	2004103-001				
CR9	2004103-001				
CR10	1006329	DIODE			
Q1	1010376 –3	TRANSISTOR			
Q2	2004004-003				
Q3	-003				
Q4	-004				
Q5	-003				
Q6	-003				
Q7	-004				
Q8	-003				
Q9	-004				
Q10	-004				
Q11	2004004-004				
Q12	1006317				
Q13	2004004-001				
Q14	1006363 - 1				
Q15	2004004-002				
Q16	2004004-001	TRANSISTOR			
K1	1006304–002	RELAY			
L1	1006328	INDUCTOR	80UH		
L2	1006327	INDUCTOR	25UH		
L3	1006327	INDUCTOR	25UH		
L4	1006327	INDUCTOR	25UH		

SELECTION CHART FOR R1 & R2

PART NO.	VALUE
1006750 –1	51
–2	56
–3	62
–4	68
–5	75
–6	82
–7	91
–8	100
–9	110
–10	120
–11	130
–12	150
–13	160
–14	180
–15	200
–16	220
–17	240
–18	270
–19	300
–20	330
–21	360
–22	390
–23	430
–24	470
1006750 –25	510

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL

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CAMBRIDGE, MASS.

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CHECKED CC
APPROVED
APPROVED
APPROVED MIT
APPROVED DISC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC
AGC POWER SUPPLY
A30-31

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2005010

SCALE —
SHEET 2 OF 2

MASTER

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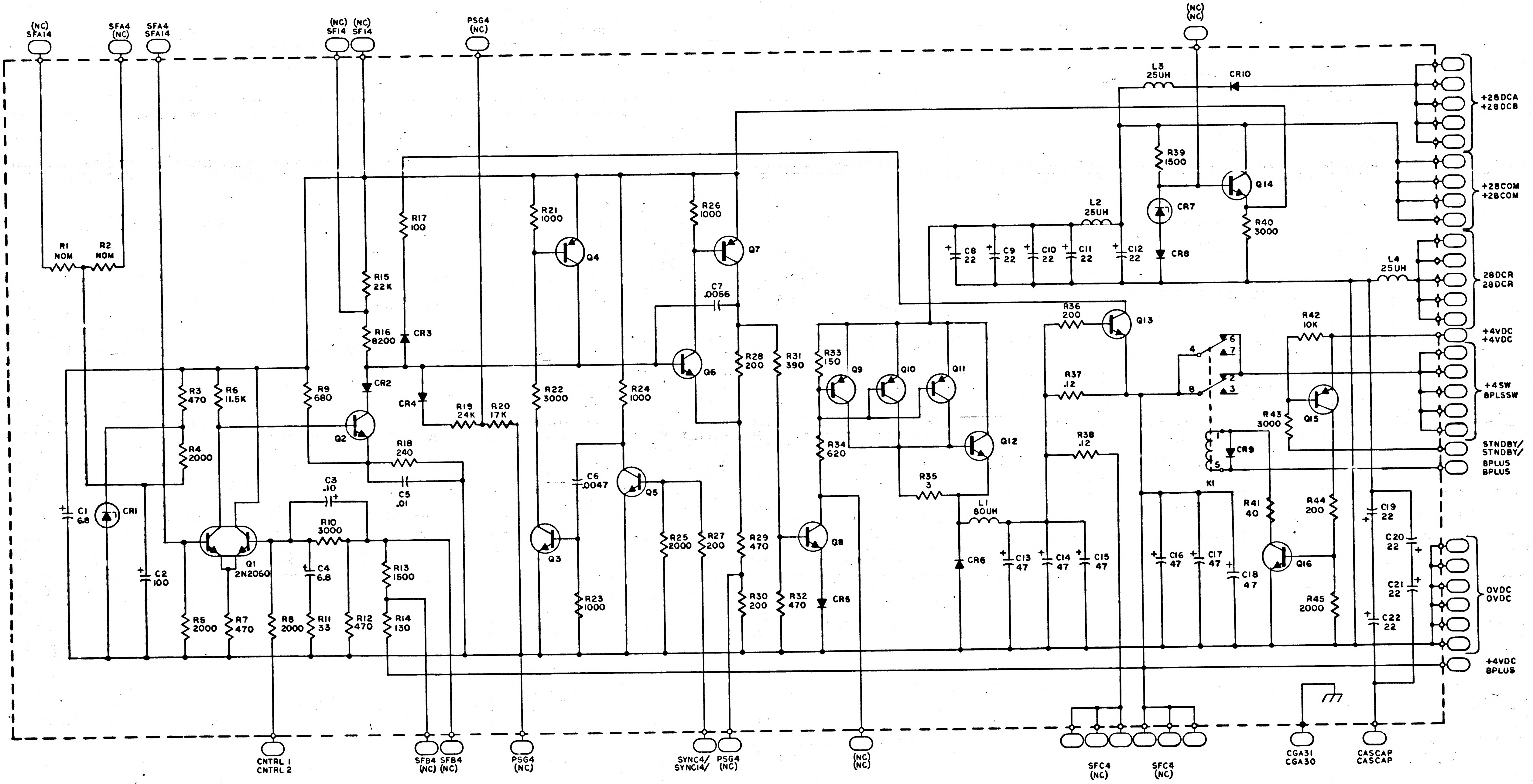
REVISIONS 16564						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



(NC) SFA14
SFA4 (NC)
SFA4 SFA14
(NC) SF14
(NC) SF14
PSG4 (NC)
(NC) (NC)
R1 NOM
R2 NOM
R3 470
R4 2000
R5 2000
R6 11.5K
R7 470
R8 2000
R9 680
R10 3000
R11 33
R12 470
R13 1500
R14 130
R15 22K
R16 8200
R17 100
R18 240
R19 24K
R20 17K
R21 1000
R22 3000
R23 1000
R24 1000
R25 2000
R26 1000
R27 200
R28 200
R29 470
R30 200
R31 390
R32 470
R33 150
R34 620
R35 3
R36 200
R37 .12
R38 .12
R39 1500
R40 3000
R41 40
R42 10K
R43 3000
R44 200
R45 2000
C1 6.8
C2 100
C3 .10
C4 6.8
C5 .01
C6 .0047
C7 .0056
C8 22
C9 22
C10 22
C11 22
C12 22
C13 47
C14 47
C15 47
C16 47
C17 47
C18 47
C19 22
C20 22
C21 22
C22 22
CR1
CR2
CR3
CR4
CR5
CR6
CR7
CR8
CR9
CR10
Q1 2N2060
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13
Q14
Q15
Q16
L1 80UH
L2 25UH
L3 25UH
L4 25UH
K1
+28DCA +28DCB
+28COM +28COM
28DCR 28DCR
+4VDC +4VDC
+4SW BPLSSW
STNDBY/ STNDBY/
BPLUS BPLUS
0VDC 0VDC
+4VDC BPLUS
CNTRL 1 CNTRL 2
SFB4 (NC)
SFB4 (NC)
PSG4 (NC)
SYNC4/ SYNC14/
PSG4 (NC)
(NC) (NC)
SFC4 (NC)
SFC4 (NC)
CGA31 CGA30
CASCAP CASCAP

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. FINAL VALUES TO BE DETERMINED BY ELECTRICAL TEST COMPONENTS TO BE SUPPLIED PER TABLE
3. TOP SIGNAL NAME AND CIRCUIT NUMBER APPLY IN POSITION 31
4. BOTTOM SIGNAL NAME AND CIRCUIT NUMBER APPLY IN POSITION 30

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
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MATERIAL

NEXT ASSY	USED ON
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HOUSTON, TEXAS

DRAWN	J. Brigham	1/5/65
CHECKED	CC / E. Lodgmi	16 FEB 65
APPROVED	Albert Hopkins	16 Feb 65
APPROVED	Eldon C. Hall	16 Feb 65
APPROVED MIT	W. Kupfer	17 Feb 65
APPROVED MSC		2/17/65
	DATE	

SCHEMATIC AGC POWER SUPPLY A30-A31

CODE IDENT NO. | SIZE E | DRAWING NO. 20050[illegible]

SCALE — | SHEET 1 OF 2

MASTER

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REVISIONS 16 5 64

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R1	1006750 –	RESISTOR	NOTE 2	2%	1/4W
R2	1006750 –		NOTE 2		
R3	-24		470		
R4	-39		2000		
R5	-39		2000		
R6	-141		11.5K		
R7	-24		470		
R8	-39		2000		
R9	-28		680		
R10	1006750 -43		3000	2%	
R11	1006788 -10		33	1%	
R12	1006750 -24		470	2%	
R13	-36		1500		
R14	-11		130		
R15	-64		22K		
R16	-54		8200		
R17	-8		100		
R18	-17		240		
R19	-65		24K		
R20	-145		17K		
R21	-32		1000		
R22	-43		3000		
R23	-32		1000		
R24	-32		1000		
R25	-39		2000		
R26	-32		1000		
R27	-15		200		
R28	-15		200		
R29	-24		470		
R30	-15		200		
R31	-22		300		
R32	-24		470		
R33	1006750-12		150	2%	1/4W
R34	1010389 -51		620	1%	3W
R35	1010389 -113		3	1%	3W
R36	1006750-15		200	2%	1/4W
R37	1006330		0.12	1%	10W
R38	1006330		0.12	1%	10W
R39	1010604 -50		1500	1%	1W
R40	1006750-43		3000	2%	1/4W
R41	1010604 -49		40	1%	1W
R42	1006750-56		10K	2%	1/4W
R43	1006750-43		3000	2%	1/4W
R44	1006750-15		200	2%	1/4W
R45	1006750-39	RESISTOR	2000	2%	1/4W

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
C1	1006755-79	CAPACITOR	6.8UF	10%	35V
C2	1006755-14		100UF		10V
C3	1006755-57		0.10UF		35V
C4	1006755-79		6.8UF		35V
C5	1006777-31		0.01UF		100V
C6	1006777-28		.0047UF	10%	100V
C7	1006793-30		.0056UF	2%	500V
C8	1006755 -134		22UF	10%	50V
C9	-134				
C10	-134				
C11	-134				
C12	-134		22UF		50V
C13	-89		47UF		35V
C14	-89				
C15	-89				
C16	-89				
C17	-89				
C18	-89		47UF		35V
C19	-134		22UF		50V
C20	-134		22UF		50V
C21	-134		22UF		50V
C22	1006755 -134	CAPACITOR	22UF	10%	50V
CR1	1006838	DIODE			
CR2	1006751				
CR3	1006751				
CR4	1006751				
CR5	1006751				
CR6	1006329				
CR7	1006290				
CR8	1006751				
CR9	1006751				
CR10	1006329	DIODE			
Q1	1010376 -1	TRANSISTOR			
Q2	1006323				
Q3	1006323				
Q4	1006310				
Q5	1006323				
Q6	1006323				
Q7	1006310				
Q8	1006323				
Q9	1006310				
Q10	1006310				
Q11	1006310				
Q12	1006317				
Q13	1006323				
Q14	1010269-3				
Q15	1006310				
Q16	1006323	TRANSISTOR			
K1	1006304-001	RELAY			
L1	1006327	INDUCTOR	80UH		7 AMP
L2	1006328	INDUCTOR	25UH		6 AMP
L3	1006328	INDUCTOR	25UH		6 AMP
L4	1006328	INDUCTOR	25UH		6 AMP

SELECTION CHART FOR R1 & R2

PART NO.	VALUE
1006750 -1	51
-2	56
-3	62
-4	68
-5	75
-6	82
-7	91
-8	100
-9	110
-10	120
-11	130
-12	150
-13	160
-14	180
-15	200
-16	220
-17	240
-18	270
-19	300
-20	330
-21	360
-22	390
-23	430
-24	470
1006750 -25	510

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
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MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Brophan 2/10/65
CHECKED CC Yelinski 16 FEB 65
APPROVED Albert Hopkins 16 Feb 65
APPROVED E. Hall 19 Feb 65
APPROVED MIT W Kupfer 17 Feb 65
APPROVED MSC 4/1/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

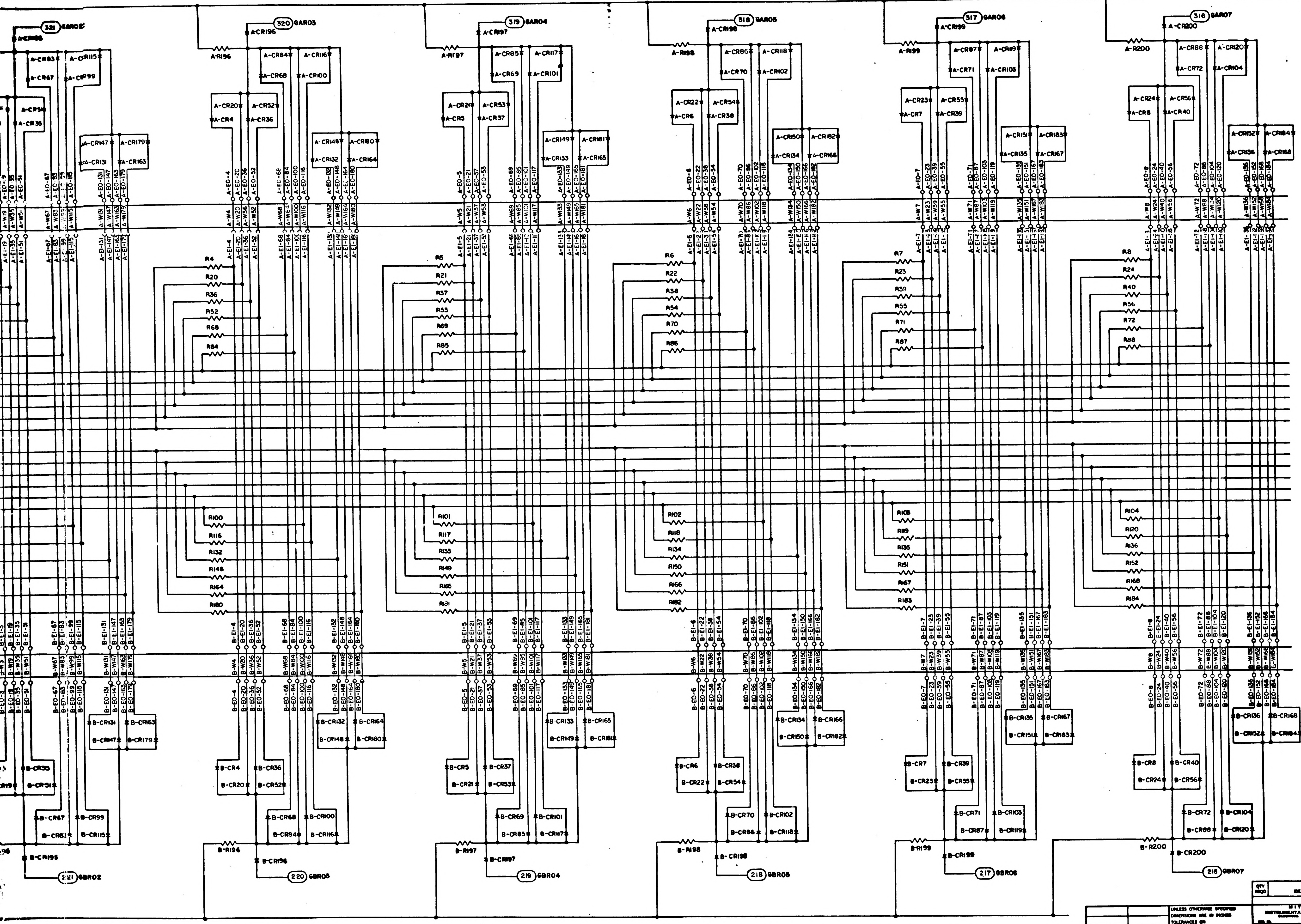
SCHEMATIC
AGC POWER SUPPLY
A30-A31

CODE IDENT NO. SIZE E DRAWING NO. 2005010

SCALE —— SHEET 2 OF 2

2005012 A

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 20045		



321 GAR02
320 GAR03
319 GAR04
318 GAR05
317 GAR06
316 GAR07
A-R196
A-R197
A-R198
A-R199
A-R200
A-CR196
A-CR197
A-CR198
A-CR199
A-CR200
R4
R20
R36
R52
R68
R84
R100
R116
R132
R148
R164
R180
B-R196
B-R197
B-R198
B-R199
B-R200
B-CR195
B-CR196
B-CR197
B-CR198
B-CR199
B-CR200
221 GBR02
220 GBR03
219 GBR04
218 GBR05
217 GBR06
216 GBR07

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± // DECIMALS ± // ANGLES ± //
DO NOT SCALE THIS DRAWING
MATERIAL //
HEAT TREATMENT //
FINAL FINISH //

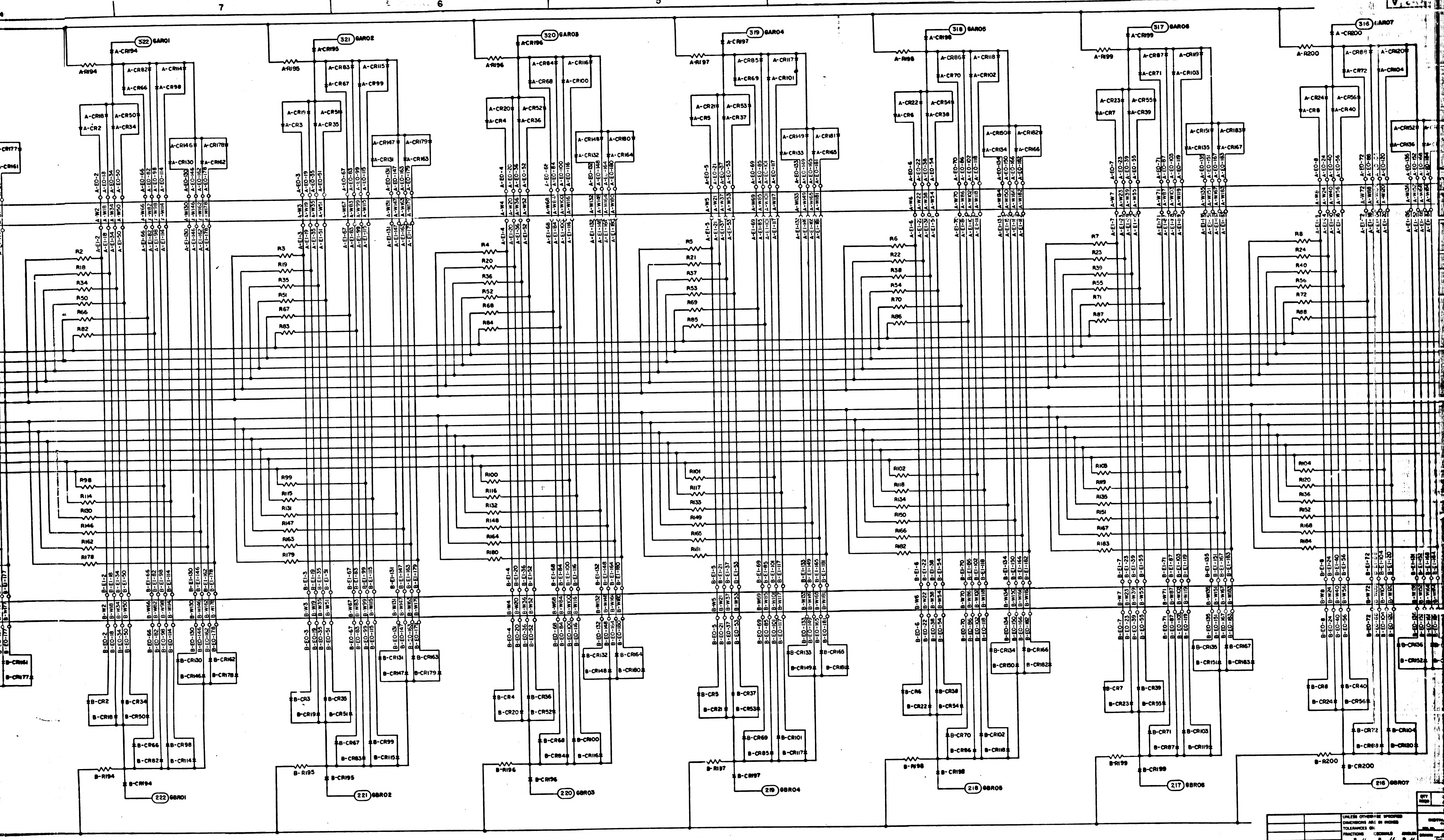
MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN DATE 5 FEB 65
CHECKED 23 FEB 65
APPROVAL
APPROVAL Eldon C Hall 8 Mar 65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 3-9-65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC
FIXED MEMORY MODULE
B1—6

CODE IDENT NO. — SIZE J NASA DRAWING NO. 2005012
SCALE NONE WT — SHEET 1 OF 2

2005012 A 3



322 GAR01
321 GAR02
320 GAR03
319 GAR04
318 GAR05
317 GAR06
316 GAR07
222 GBR01
221 GBR02
220 GBR03
219 GBR04
218 GBR05
217 GBR06
216 GBR07
A-R194
A-R195
A-R196
A-R197
A-R198
A-R199
A-R200
B-R194
B-R195
B-R196
B-R197
B-R198
B-R199
B-R200

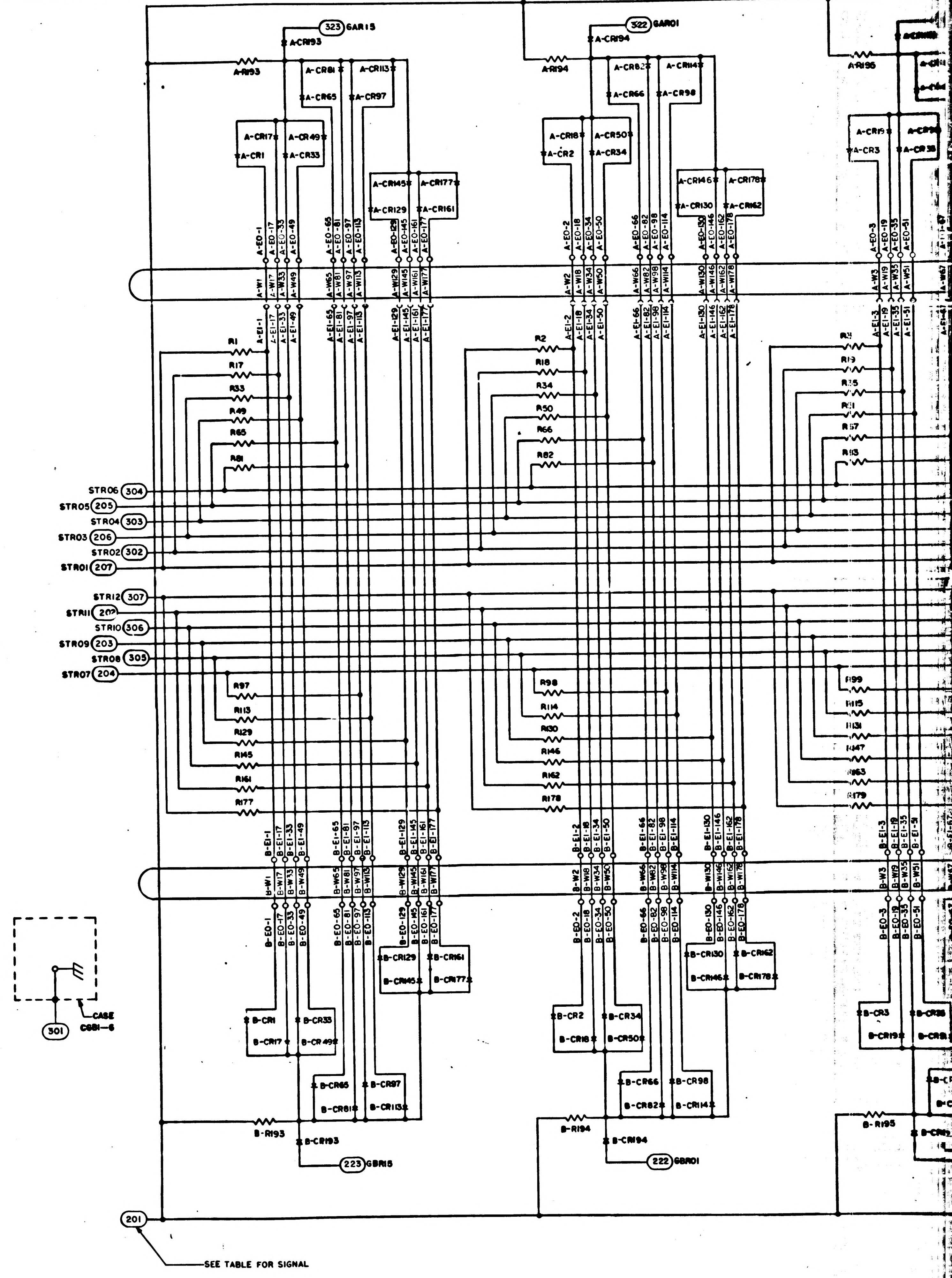
MASTER

2005012 A

REF DESIGNATION	PART NO.	DESCRIPTION	VALUE	TOL	RATING
RI THRU RI92	1006750-32	RESISTOR	1000	±2%	1/4W
A-RI93 THRU A-R208	1006750-32	RESISTOR	1000	±2%	1/4W
B-RI93 THRU B-R208	1006750-32	RESISTOR	1000	±2%	1/4W
A-CRI THRU A-CR208	2004103-001	DIODE			
B-CRI THRU B-CR208					
I THRU 512	1006320-1	CORE			

SIGNAL IDENTIFICATION CHART

	MODULE NUMBER					
PIN NO.	B1	B2	B3	B4	B5	B6
124	XRSTAN	INTAR	XRSTAN	INTAS	XRSTAN	INTAT
123	INTAR	RSTRAD	INTAS	RSTSAD	INTAT	RSTTAD
122	XRSTBN	INTBR	XRSTBN	INTBS	XRSTBN	INTBT
121	INTBR	RSTRBD	INTBS	RSTSBD	INTBT	RSTTBD
120	XO7FN	INO7FR	XO7FN	INO7FS	XO7FN	INO7FT
119	XO7CN	INO7CR	XO7CN	INO7CS	XO7CN	INO7CT
118	XO6FN	INO6FR	XO6FN	INO6FS	XO6FN	INO6FT
117	XO6CN	INO6CR	XO6CN	INO6CS	XO6CN	INO6CT
116	XO5FN	INO5FR	XO5FN	INO5FS	XO5FN	INO5FT
115	XO5CN	INO5CR	XO5CN	INO5CS	XO5CN	INO5CT
114	XO4FN	INO4FR	XO4FN	INO4FS	XO4FN	INO4FT
113	XO4CN	INO4CR	XO4CN	INO4CS	XO4CN	INO4CT
112	XO3FN	INO3FR	XO3FN	INO3FS	XO3FN	INO3FT
111	XO3CN	INO3CR	XO3CN	INO3CS	XO3CN	INO3CT
110	XO2FN	INO2FR	XO2FN	INO2FS	XO2FN	INO2FT
109	XO2CN	INO2CR	XO2CN	INO2CS	XO2CN	INO2CT
108	XO1FN	INO1FR	XO1FN	INO1FS	XO1FN	INO1FT
107	XO1CN	INO1CR	XO1CN	INO1CS	XO1CN	INO1CT
106	XPFN	INOPFR	XPFN	INOPFS	XPFN	INOPFT
105	XPCN	INOPCR	XPCN	INOPCS	XPCN	INOPCT
104	INTABR	SETARN	INTABS	SETASN	INTABT	SETATN
103	XSETAB	INTABR	XSETAB	INTABS	XSETAB	INTABT
102	CLRO[illegible]	INTCLR	CLROPS	INTCLS	CLROPT	INTCLT
101	TEST					
424	XRSTCN	INTCR	XRSTCN	INTCS	XRSTCN	INTCT
423	INTCR	RSTRCD	INTCS	RSTSCD	INTCT	RSTTCD
422	XRSTDN	INTDR	XRSTDN	INTDS	XRSTDN	INTDT
421	INTDR	RSTRDD	INTDS	RSTSDD	INTDT	RSTTDD
420	INO7FR	RO7FD	INO7FS	SO7FD	INO7FT	TO7FD
419	INO7CR	RO7CD	INO7CS	SO7CD	INO7CT	TO7CD
418	INO6FR	RO6FD	INO6FS	SO6FD	INO6FT	TO6FD
417	INO6CR	RO6CD	INO6CS	SO6CD	INO6CT	TO6CD
416	INO5FR	RO5FD	INO5FS	SO5FD	INO5FT	TO5FD
415	INO5CR	RO5CD	INO5CS	SO5CD	INO5CT	TO5CD
414	INO4FR	RO4FD	INO4FS	SO4FD	INO4FT	TO4FD
413	INO4CR	RO4CD	INO4CS	SO4CD	INO4CT	TO4CD
412	INO3FR	RO3FD	INO3FS	SO3FD	INO3FT	TO3FD
411	INO3CR	RO3CD	INO3CS	SO3CD	INO3CT	TO3CD
410	INO2FR	RO2FD	INO2FS	SO2FD	INO2FT	TO2FD
409	INO2CR	RO2CD	INO2CS	SO2CD	INO2CT	TO2CD
408	INO1FR	RO1FD	INO1FS	SO1FD	INO1FT	TO1FD
407	INO1CR	RO1CD	INO1CS	SO1CD	INO1CT	TO1CD
406	INOPFR	RPFD	INOPFS	SPFD	INOPFT	TPFD
405	INOPCR	RPCD	INOPCS	SPCD	INOPCT	TPCD
404	INTCDR	SETCRN	INTCDS	SETCSN	INTCDT	SETCSN
403	XSETCD	INTCDR	XSETCD	INTCDS	XSETCD	INTCDT
402	INTCLR	BPLSWF	INTCLS	BPLSWG	INTCLT	BPLSWH
401	TEST					
224 & 324	SPARE					
201	MODR1	MODR2	MODS1	MODS2	MODT1	MODT2
301	CASE GROUND					

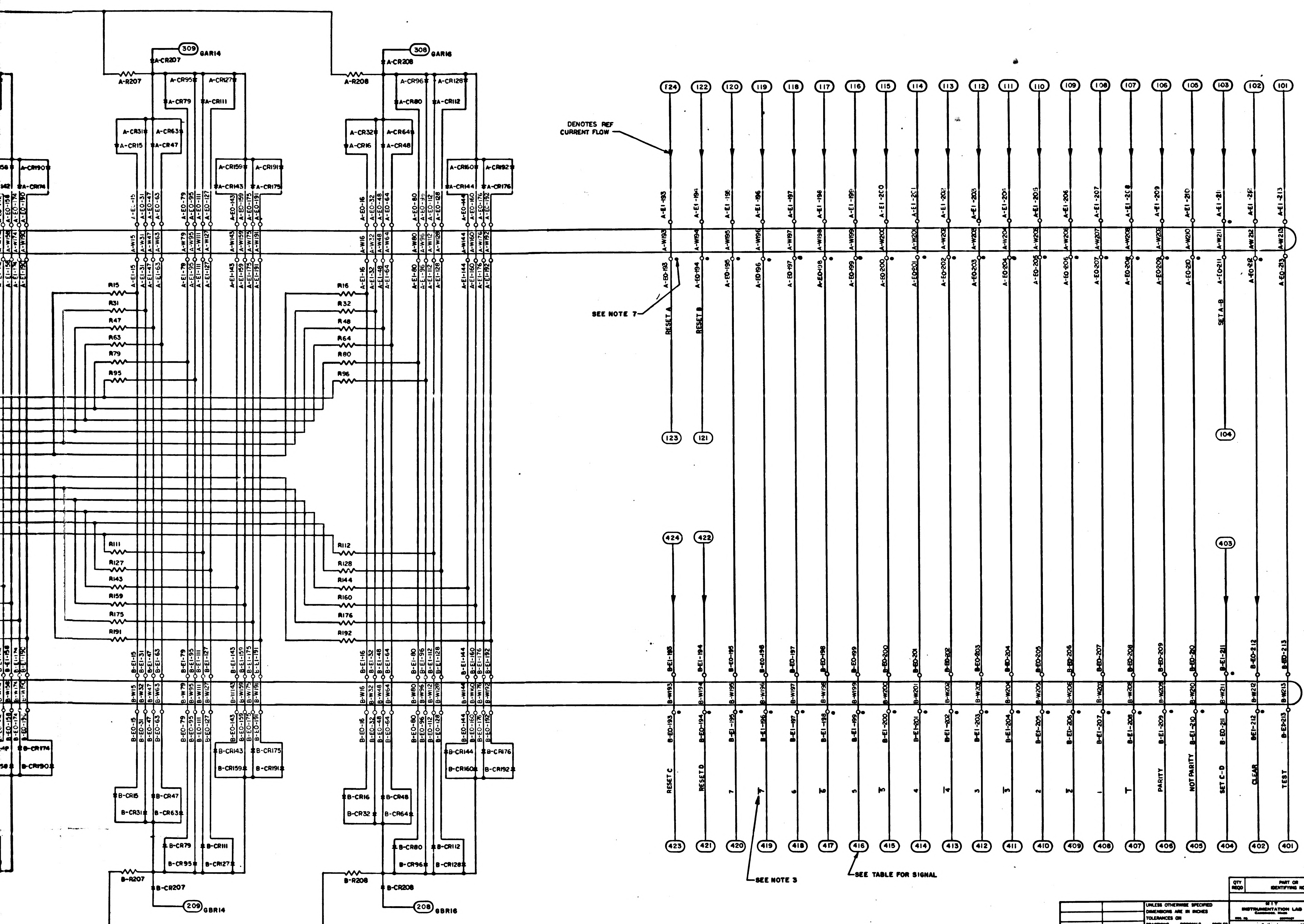


NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. PREFIX LETTER OF REFERENCE DESIGNATIONS OF DIODES DENOTES STRING NUMBER
3. "BAR" WIRES (SEE INHIBIT WIRING) DO NOT THREAD FIRST CORE AND DO THREAD LAST CORE
4. A AND B DIODES OF THE SAME REF DESIGNATION NUMBER MUST BE MATCHED PAIRS
5. SENSE WIRING THRU CORES IN ACCORDANCE WITH APPLICABLE MODULE DECK
6. INHIBIT WIRING THRU CORES PER DWG 2005017
7. ● DENOTES RELATIVE WIRE DIRECTION

3H

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 20045		

2005012 A



309 GAR14
308 GAR16
A-R207
A-R208
A-CR207
A-CR208
DENOTES REF CURRENT FLOW
SEE NOTE 7
RESET A
RESET B
SET A-B
124
122
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NOT PARITY
SET C-D
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401
SEE NOTE 3
SEE TABLE FOR SIGNAL
B-R207
B-R208
B-CR207
B-CR208
209 GBR14
208 GBR16

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

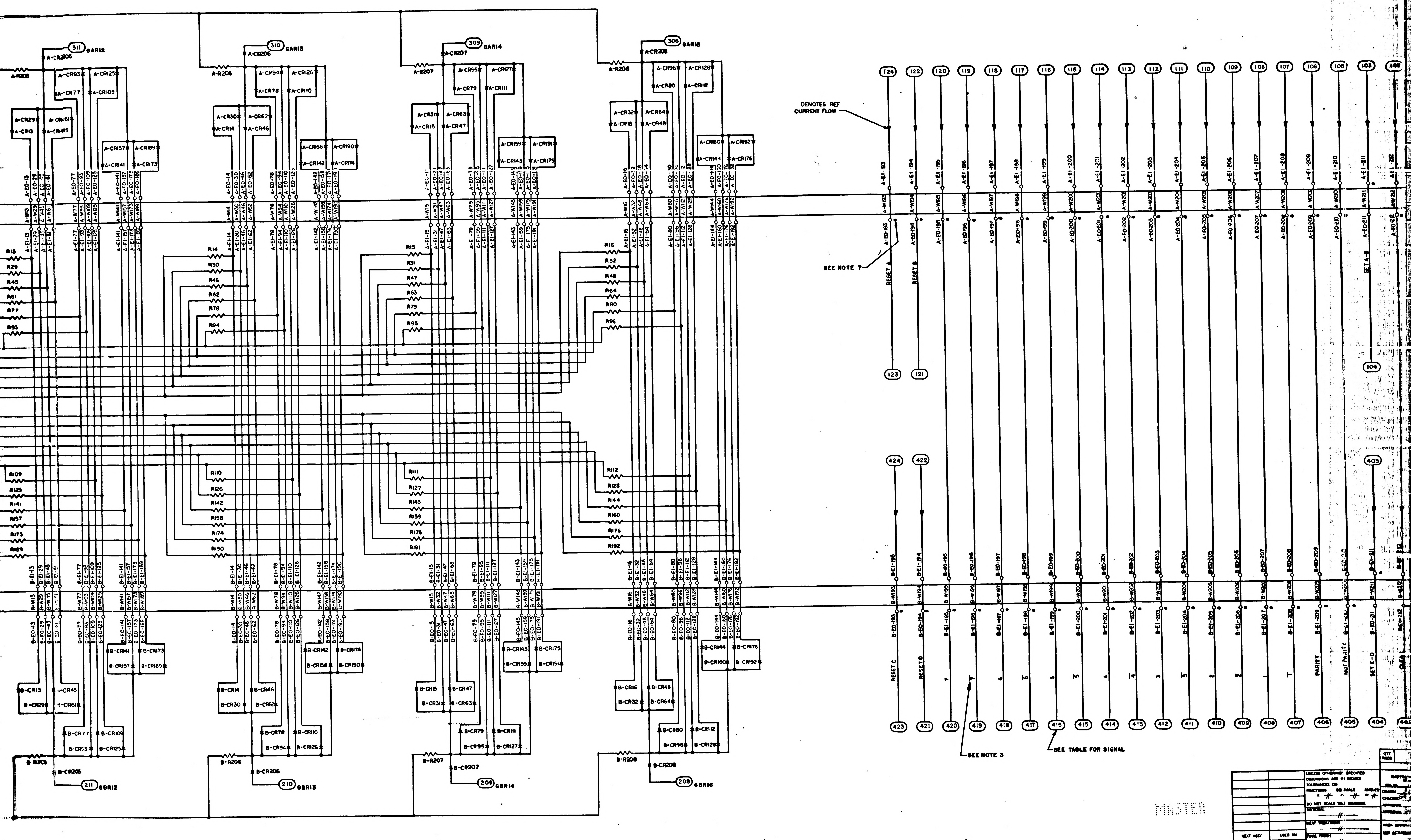
DRAWN J A Bickley DATE 15 FEB 65
CHECKED
APPROVAL
APPROVAL Allan C Hall 3 Mar 65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 2-9-65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC FIXED MEMORY MODULE B1–6

CODE IDENT NO. —
SIZE J
NASA DRAWING NO. 2005012
SCALE NONE
WT —
SHEET 2 OF 2

2005012 A



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309 GAR14
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A-R207
A-R208
A-CR206
A-CR207
A-CR208
DENOTES REF CURRENT FLOW
SEE NOTE 7
RESET A
RESET B
SET A-B
124 122 120 119 118 117 116 115 114 113 112 111 110 109 108 107 106 105 103
123 121 104
424 422 403
RESET C
RESET D
PARITY
NOT PARITY
SET C-D
423 421 420 419 418 417 416 415 414 413 412 411 410 409 408 407 406 405 404
SEE NOTE 3
SEE TABLE FOR SIGNAL
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B-R208
B-CR205
B-CR206
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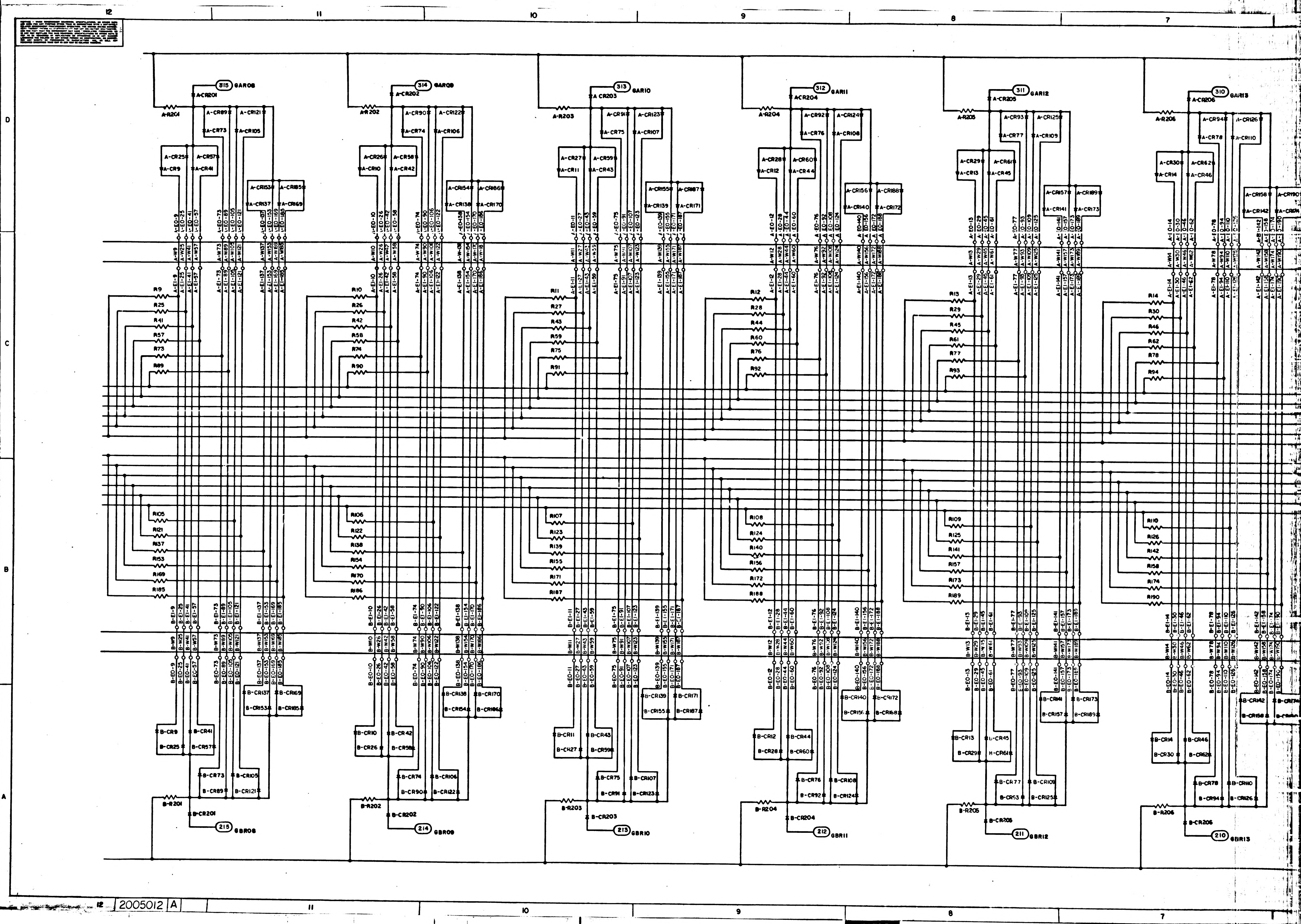
B-CR208
211 GBR12
210 GBR13
209 GBR14
208 GBR16

MASTER

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH
NEXT ASSY USED ON
APPLICATION

F32



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311 GAR12
310 GAR13
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A-R205
A-R206
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A-CR205
A-CR206
R9
R25
R41
R57
R73
R89
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R110
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2005012
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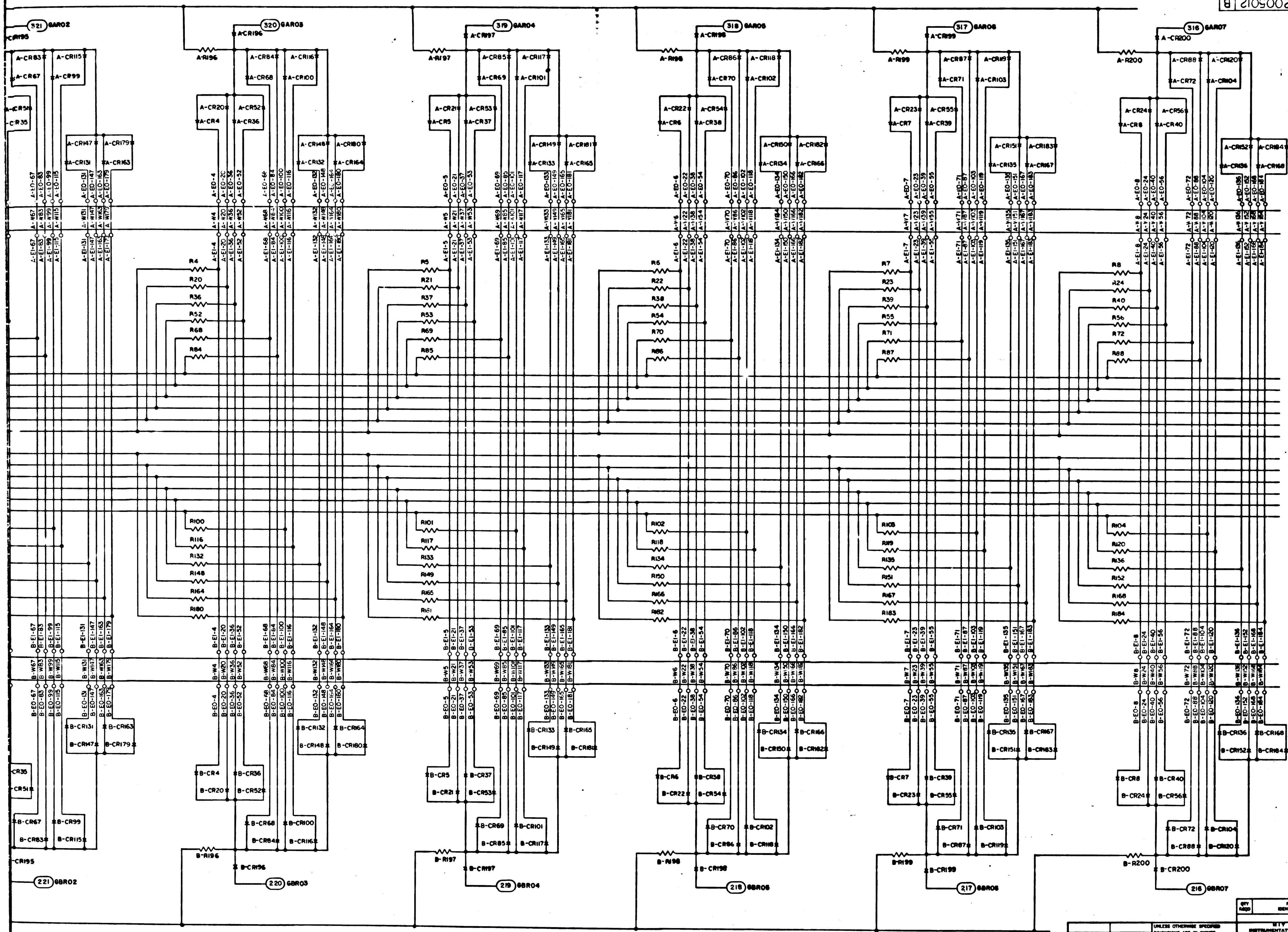
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 20045		
B	REVISED PER TDRR 24006 DR D.A. Clement CHK		

2005012 B



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216 6BR07
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B-R197
B-R198
B-R199
B-R200
B-CR195
B-CR196
B-CR197
B-CR198
B-CR199
B-CR200
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R20
R36
R52
R68
R84
R100
R116
R132
R148
R164
R180
R8
R24
R40
R56
R72
R88
R104
R120
R136
R152
R168
R184

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± # DECIMALS ± # ANGLES ± #
DO NOT SCALE THIS DRAWING

MATERIAL #

HEAT TREATMENT #

FINAL FINISH #

NEXT ASSY	USED ON
APPLICATION	

MIT
INSTRUMENTATION LAB
Cambridge, Mass.

DRAWN D.A. Clement DATE 5 FEB 65
CHECKED Arthur Bogos 23 Feb 65
APPROVAL
APPROVAL [illegible] 1 Mar 65
NASA APPROVAL [illegible]
MIT APPROVAL
MIT APPROVAL [illegible] 3-9-65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

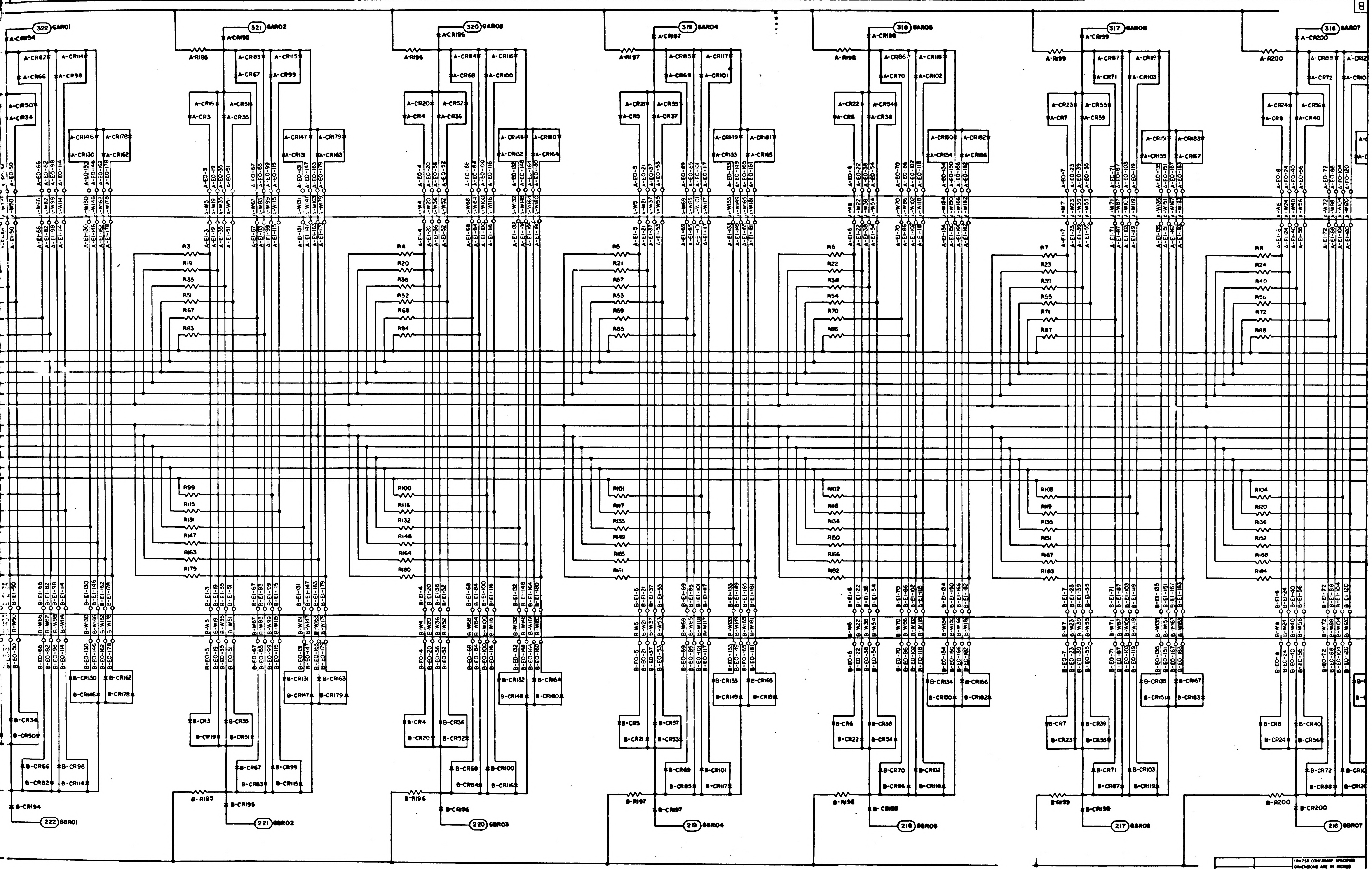
SCHEMATIC
FIXED MEMORY MODULE
B1—6

CODE IDENT NO. —— SIZE J NASA DRAWING NO. 2005012

SCALE NONE WT —— SHEET 1 OF 2

2005012 B 6

E3/3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316 GAR07
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221 GBR02
220 GBR03
219 GBR04
218 GBR05
217 GBR06
216 GBR07
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A-R197
A-R198
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A-R200
B-R195
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A-CR198
A-CR199
A-CR200
B-CR194
B-CR195
B-CR196
B-CR197
B-CR198
B-CR199
B-CR200

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH
NEXT ASSY USED ON
APPLICATION

3 2

2005012 B F2/3

SHEET 1

12 11 10 9 8 7

REF DESIGNATION	PART NO.	DESCRIPTION	VALUE	TOL	RATING
RI THRU RI92	1006750-32	RESISTOR	1000	±2%	1/4W
A-RI93 THRU A-R208	1006750-32	RESISTOR	1000	±2%	1/4W
B-RI93 THRU B-R208	1006750-32	RESISTOR	1000	±2%	1/4W
A-CRI THRU A-CR208	2004103-001	DIODE			
B-CRI THRU B-CR208					
I THRU 512	1006320-1	CORE			

SIGNAL IDENTIFICATION CHART

	MODULE NUMBER					
PIN NO.	B1	B2	B3	B4	B5	B6
124	XRSTAN	INTAR	XRSTAN	INTAS	XRSTAN	INTAT
123	INTAR	RSTRAD	INTAS	RSTSAD	INTAT	RSTTAD
122	XRSTBN	INTBR	XRSTBN	INTBS	XRSTBN	INTBT
121	INTBR	RSTRBD	INTBS	RSTSBD	INTBT	RSTTBD
120	XO7FN	INO7FR	XO7FN	INO7FS	XO7FN	INO7FT
119	XO7CN	INO7CR	XO7CN	INO7CS	XO7CN	INO7CT
118	XO6FN	INO6FR	XO6FN	INO6FS	XO6FN	INO6FT
117	XO6CN	INO6CR	XO6CN	INO6CS	XO6CN	INO6CT
116	XO5FN	INO5FR	XO5FN	INO5FS	XO5FN	INO5FT
115	XO5CN	INO5CR	XO5CN	INO5CS	XO5CN	INO5CT
114	XO4FN	INO4FR	XO4FN	INO4FS	XO4FN	INO4FT
113	XO4CN	INO4CR	XO4CN	INO4CS	XO4CN	INO4CT
112	XO3FN	INO3FR	XO3FN	INO3FS	XO3FN	INO3FT
111	XO3CN	INO3CR	XO3CN	INO3CS	XO3CN	INO3CT
110	XO2FN	INO2FR	XO2FN	INO2FS	XO2FN	INO2FT
109	XO2CN	INO2CR	XO2CN	INO2CS	XO2CN	INO2CT
108	XO1FN	INO1FR	XO1FN	INO1FS	XO1FN	INO1FT
107	XO1CN	INO1CR	XO1CN	INO1CS	XO1CN	INO1CT
106	XPFN	INOPFR	XPFN	INOPFS	XPFN	INOPFT
105	XPCN	INOPCR	XPCN	INOPCS	XPCN	INOPCT
103	INTABR	SETARN	INTABS	SETASN	INTABT	SETATN
104	XSETAB	INTABR	XSETAB	INTABS	XSETAB	INTABT
102	CLROPR	INTCLR	CLROPS	INTCLS	CLROPT	INTCLT
101	TEST					
423	XRSTCN	INTCR	XRSTCN	INTCS	XRSTCN	INTCT
424	INTCR	RSTRCD	INTCS	RSTSCD	INTCT	RSTTCD
421	XRSTDN	INTDR	XRSTDN	INTDS	XRSTDN	INTDT
422	INTDR	RSTRDD	INTDS	RSTSDD	INTDT	RSTTDD
420	INO7FR	RO7FD	INO7FS	SO7FD	INO7FT	TO7FD
419	INO7CR	RO7CD	INO7CS	SO7CD	INO7CT	TO7CD
418	INO6FR	RO6FD	INO6FS	SO6FD	INO6FT	TO6FD
417	INO6CR	RO6CD	INO6CS	SO6CD	INO6CT	TO6CD
416	INO5FR	RO5FD	INO5FS	SO5FD	INO5FT	TO5FD
415	INO5CR	RO5CD	INO5CS	SO5CD	INO5CT	TO5CD
414	INO4FR	RO4FD	INO4FS	SO4FD	INO4FT	TO4FD
413	INO4CR	RO4CD	INO4CS	SO4CD	INO4CT	TO4CD
412	INO3FR	RO3FD	INO3FS	SO3FD	INO3FT	TO3FD
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410	INO2FR	RO2FD	INO2FS	SO2FD	INO2FT	TO2FD
409	INO2CR	RO2CD	INO2CS	SO2CD	INO2CT	TO2CD
408	INO1FR	RO1FD	INO1FS	SO1FD	INO1FT	TO1FD
407	INO1CR	RO1CD	INO1CS	SO1CD	INO1CT	TO1CD
406	INOPFR	RPFD	INOPFS	SPFD	INOPFT	TPFD
405	INOPCR	RPCD	INOPCS	SPCD	INOPCT	TPCD
404	INTCDR	SETCRN	INTCDS	SETCSN	INTCDT	SETCSN
403	XSETCD	INTCDR	XSETCD	INTCDS	XSETCD	INTCDT
402	INTCLR	BPLSWF	INTCLS	BPLSWG	INTCLT	BPLSWH
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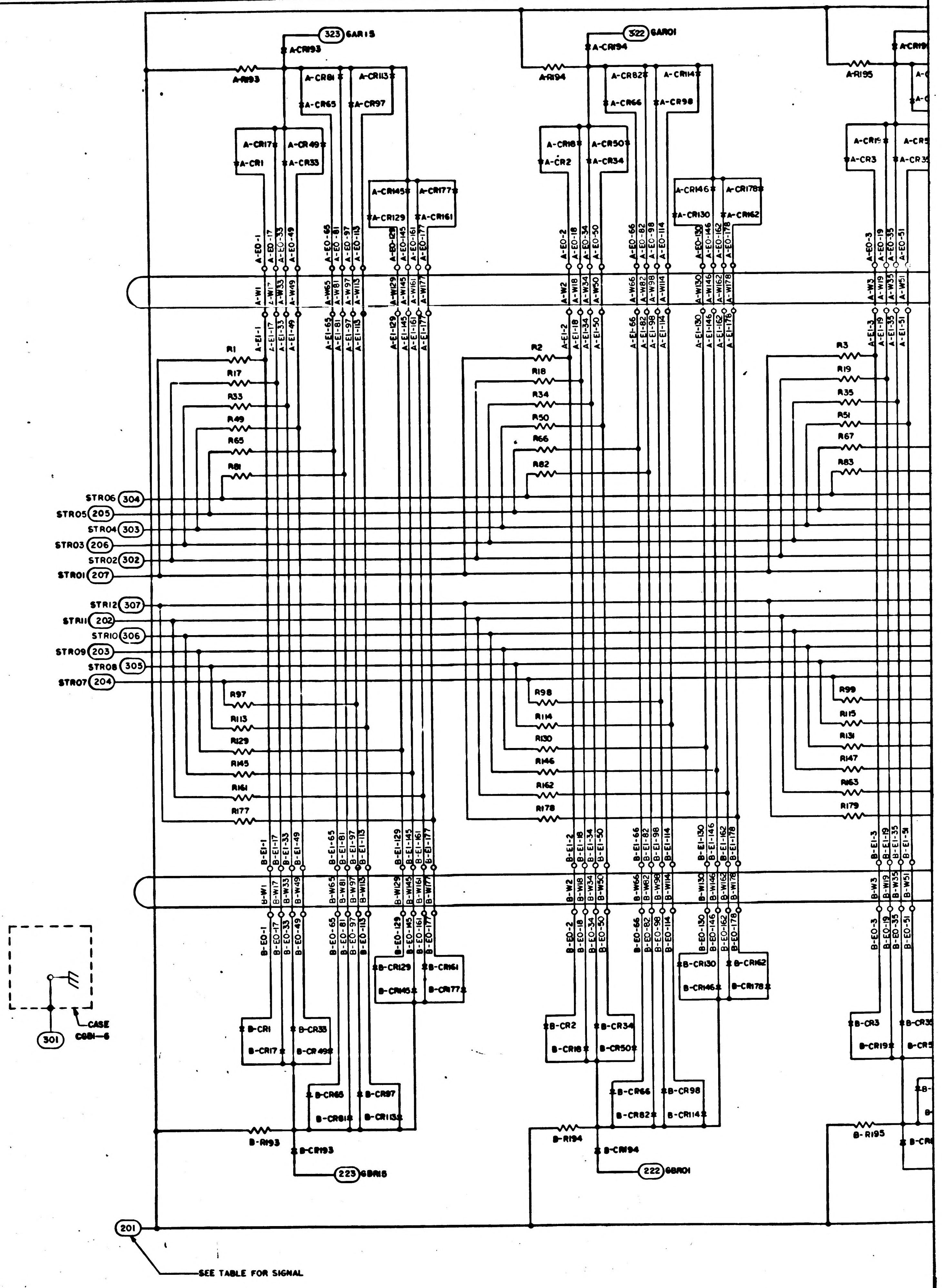
224 & 324	SPARE					
201	MODR1	MODR2	MODS1	MODS2	MODT1	MODT2
301	CASE GROUND					



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223 6BR15
222 6BR01
301
CASE
C6B1-6
201
SEE TABLE FOR SIGNAL

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. PREFIX LETTER OF REFERENCE DESIGNATIONS OF DIODES DENOTES STRING NUMBER
3. "BAR" WIRES (SEE INHIBIT WIRING) DO NOT THREAD FIRST CORE AND DO THREAD LAST CORE
4. A AND B DIODES OF THE SAME REF DESIGNATION NUMBER MUST BE MATCHED PAIRS
5. SENSE WIRING THRU CORES IN ACCORDANCE WITH APPLICABLE MODULE DECK
6. INHIBIT WIRING THRU CORES PER DWG 2005017
7. ● DENOTES RELATIVE WIRE DIRECTION

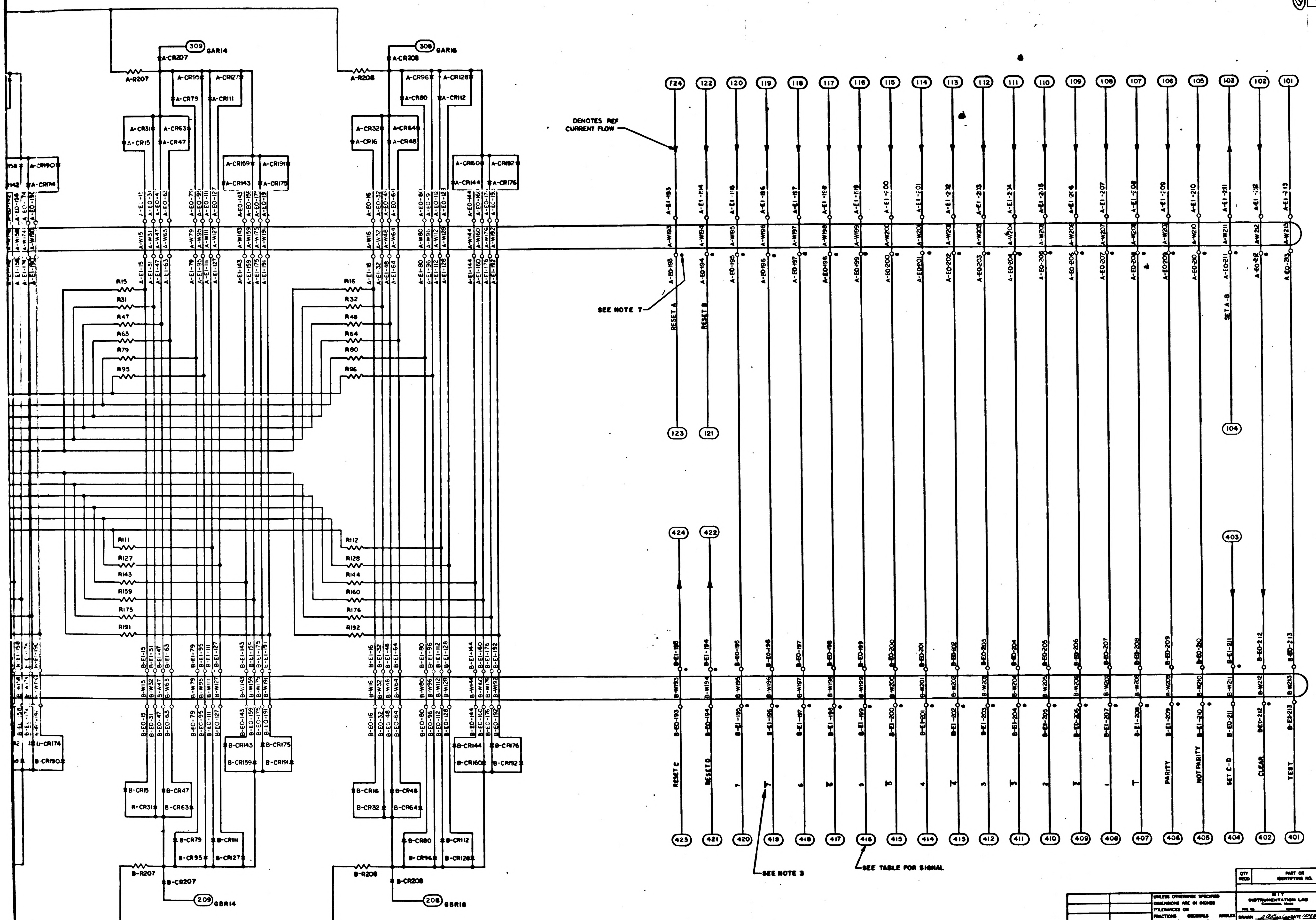
2005012 B F1/3

SHEET 1

8 7

2005012 B

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 20045	[illegible]	[illegible]
B	REVISED PER TDRR 24006 DR S.A. Clermont CHK [illegible]	7/1/65	[illegible]



309 GAR14
308 GAR16
A-R207
A-R208
A-CR207
A-CR208
DENOTES REF CURRENT FLOW
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SEE NOTE 7
RESET A
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SET A-B
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RESET C
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PARITY
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SEE NOTE 3
SEE TABLE FOR SIGNAL
B-R207
B-R208
B-CR207
B-CR208
209 GBR14
208 GBR16

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± // DECIMALS ± // ANGLES ± //
DO NOT SCALE THIS DRAWING
MATERIAL //
HEAT TREATMENT //
FINAL FINISH //

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS

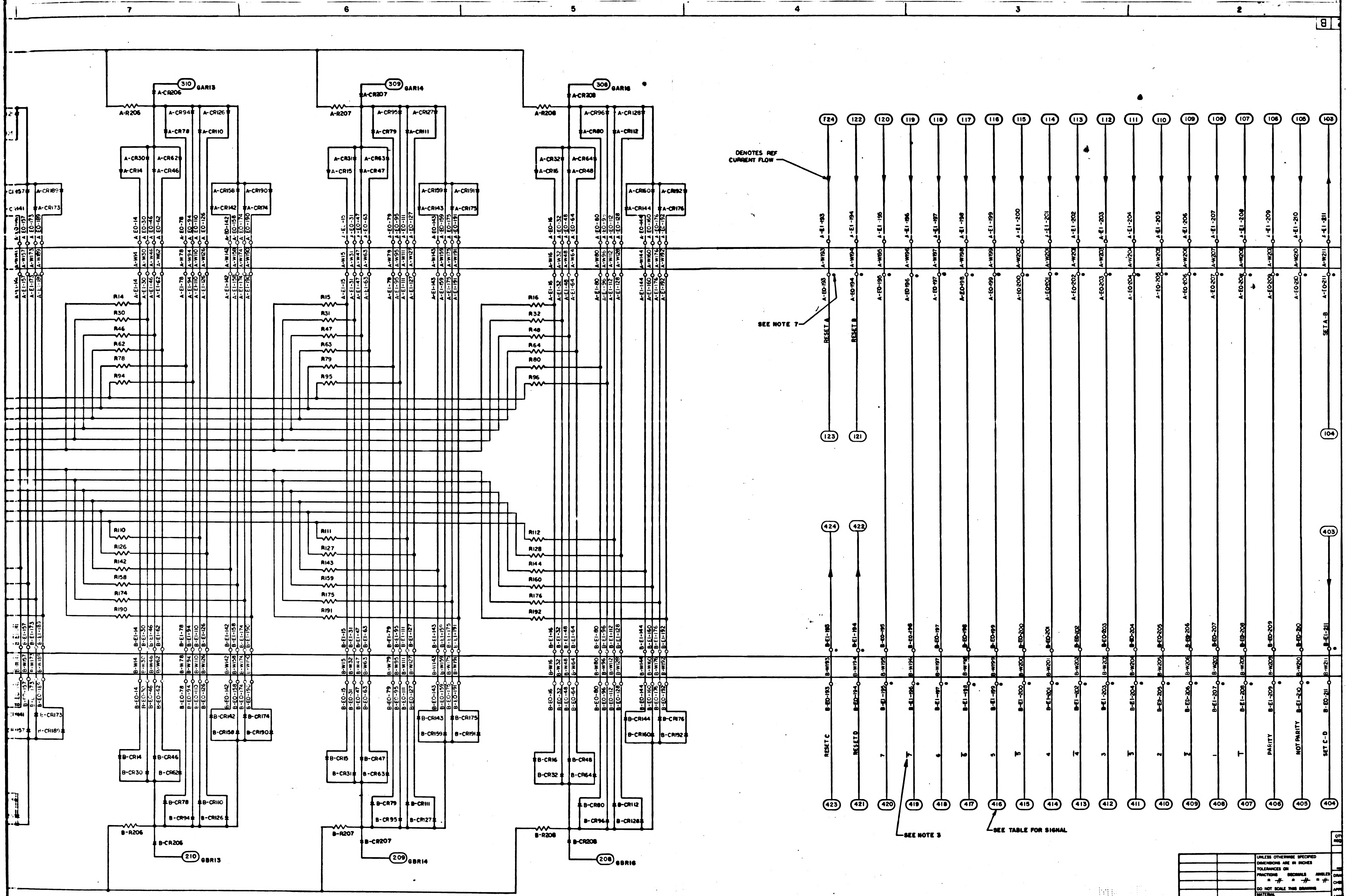
DRAWN J.A. Bigelow DATE 15FEB65
CHECKED [illegible] 23FEB65
APPROVAL
APPROVAL [illegible] 3 Mar 65
NASA APPROVAL [illegible]
MIT APPROVAL
MIT APPROVAL [illegible] 2-9-65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC
FIXED MEMORY MODULE
B1—6

CODE IDENT NO.	SIZE	NASA DRAWING NO.
—	J	2005012
SCALE NONE	WT —	SHEET 2 OF 2

E3/3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A-R207
308
GAR16
A-CR208
A-R208
DENOTES REF CURRENT FLOW
SEE NOTE 7
RESET A
RESET B
SET A-B
F24
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403
RESET C
RESET D
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PARITY
NOT PARITY
SET C-D
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SEE NOTE 3
SEE TABLE FOR SIGNAL
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GBR13
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GBR14
B-R208
B-CR208
208
GBR16

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS DECIMALS ANGLES ± // ± // ± // DO NOT SCALE THIS DRAWING
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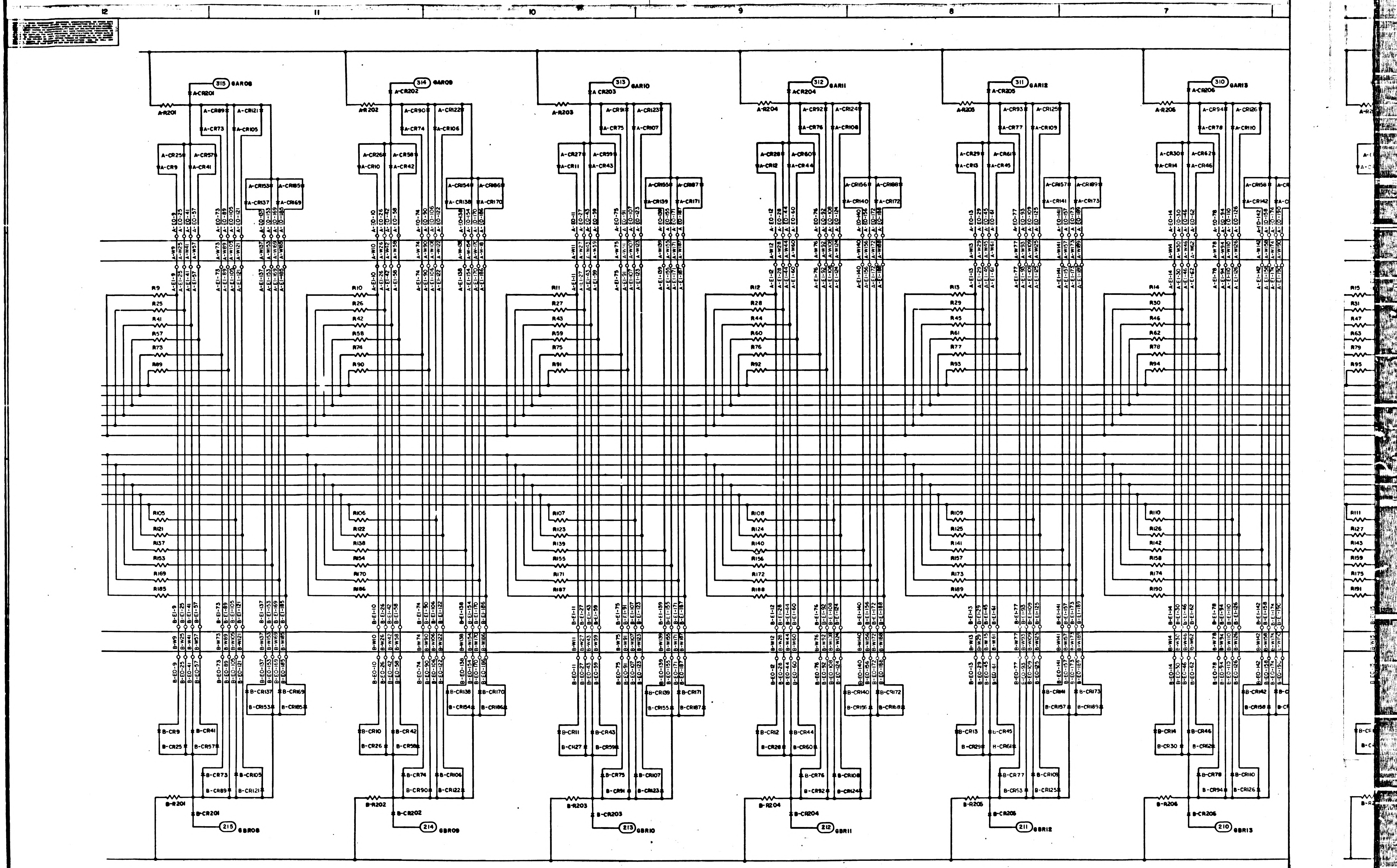
		HEAT TREATMENT //
NEXT ASSY	USED ON	FINAL FINISH //
APPLICATION		

2

SHEET 2

2005012 B F2/3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B-R206
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B-CR205
B-CR206

2005012 B F1/3

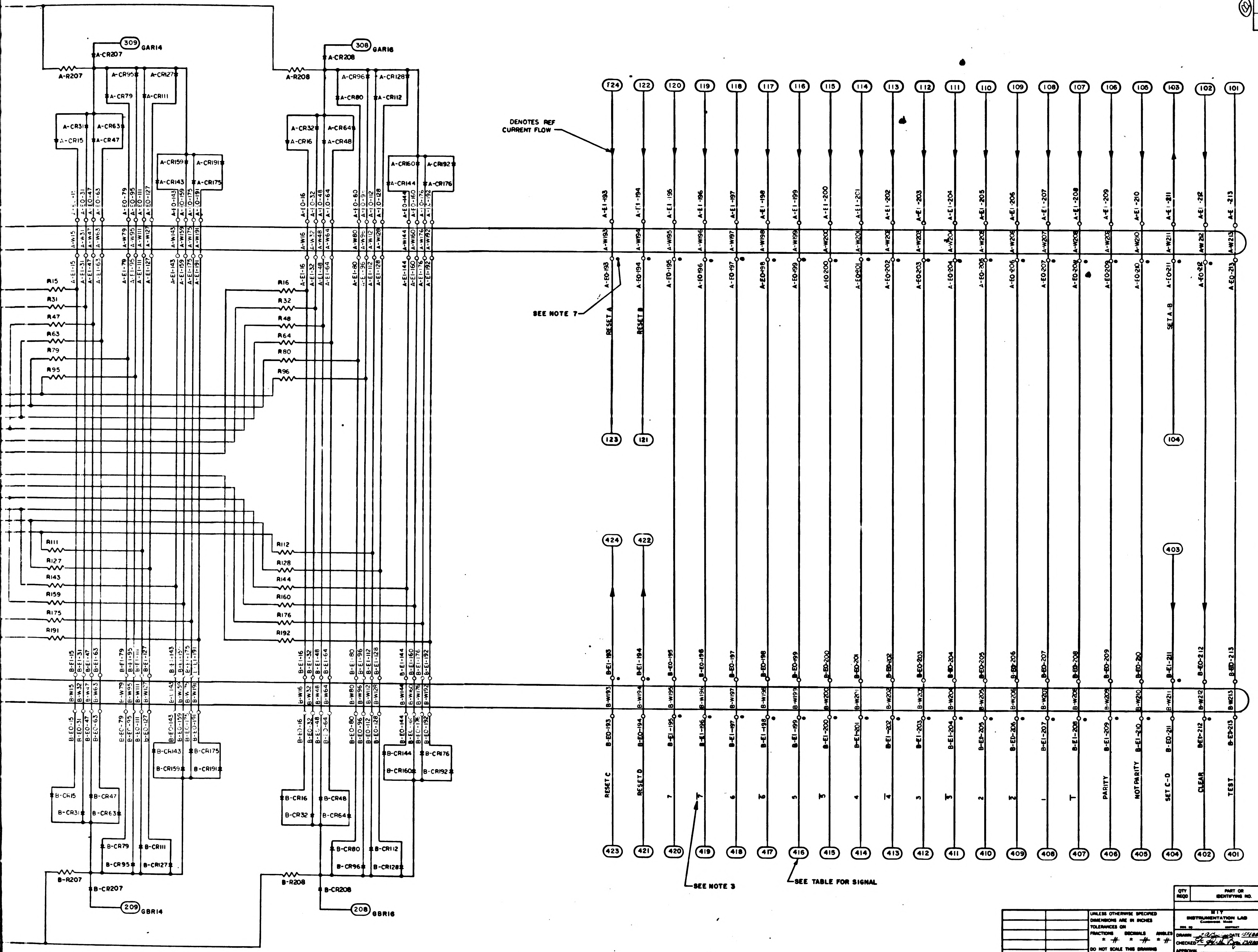
SHEET 2

8 7

12 E

2005012 C

SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 20045		
B	REVISED PER TDRR 24006 DR D.A Clermont CHK	7/7/65	
C	REVISED PER TDRR 30068 DR CHK	7/24/68	



309 GAR14
A-CR207
A-R207
308 GAR16
A-CR208
A-R208
DENOTES REF CURRENT FLOW
SEE NOTE 7
RESET A
RESET B
SET A-B
F24 122 120 119 118 117 116 115 114 113 112 111 110 109 108 107 106 105 103 102 101
123 121 104
424 422 403
RESET C
RESET D
7
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1
PARITY
NOT PARITY
SET C-D
CLEAR
TEST
423 421 420 419 418 417 416 415 414 413 412 411 410 409 408 407 406 405 404 402 401
SEE NOTE 3
SEE TABLE FOR SIGNAL
B-R207
B-CR207
209 GBR14
B-R208
B-CR208
208 GBR16

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —
HEAT TREATMENT —
FINAL FINISH —

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS
DRAWN DATE 15 FEB
CHECKED
APPROVAL
APPROVAL 3 Mar 65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

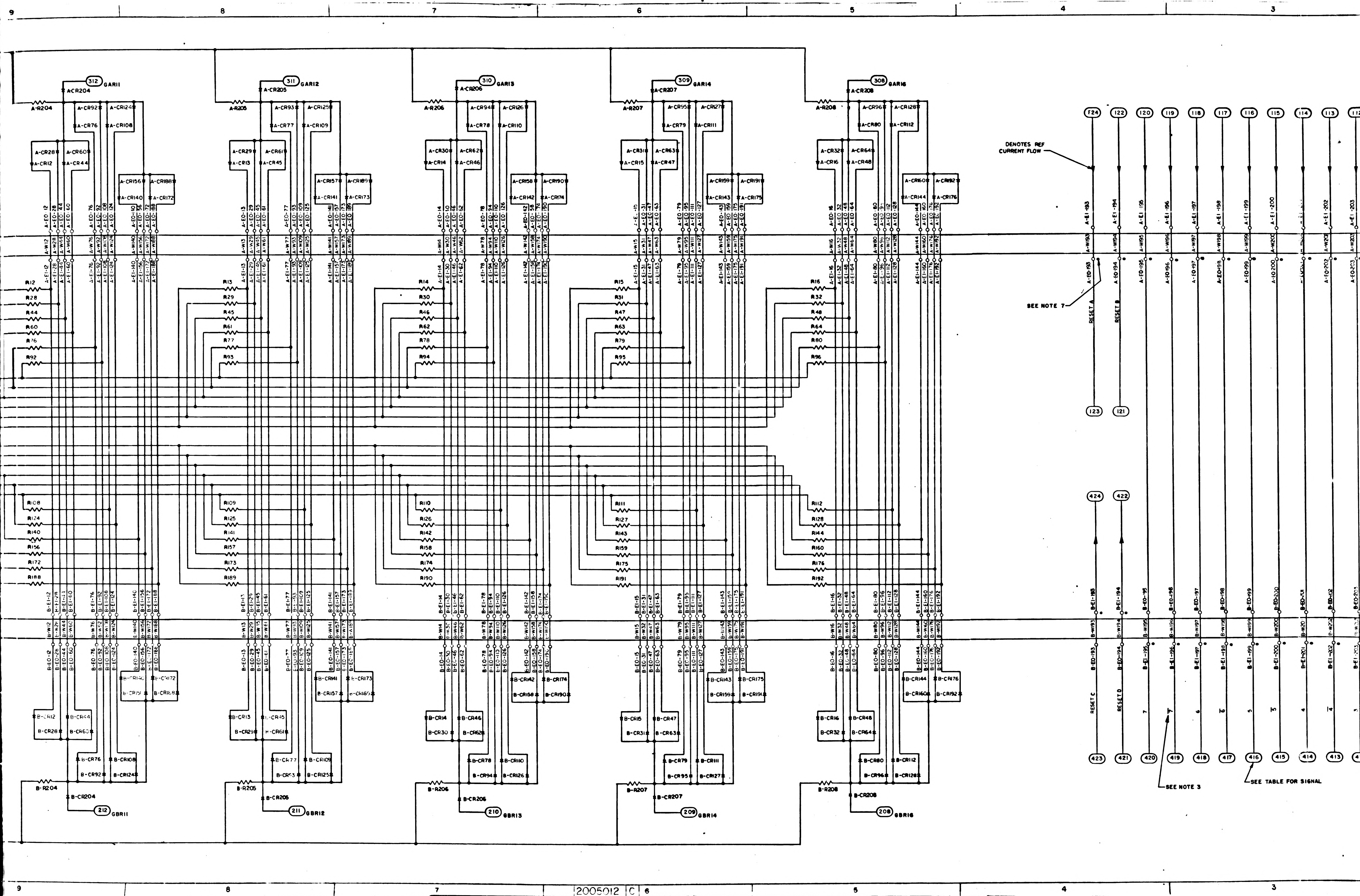
SCHEMATIC FIXED MEMORY MODULE B1—6

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2005012
SCALE NONE
WT —
SHEET 2 OF 2

2005012 C

3H

F3/3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DENOTES REF CURRENT FLOW
SEE NOTE 7
RESET A
RESET B
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RESET C
RESET D
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SEE NOTE 3
SEE TABLE FOR SIGNAL
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B-R206
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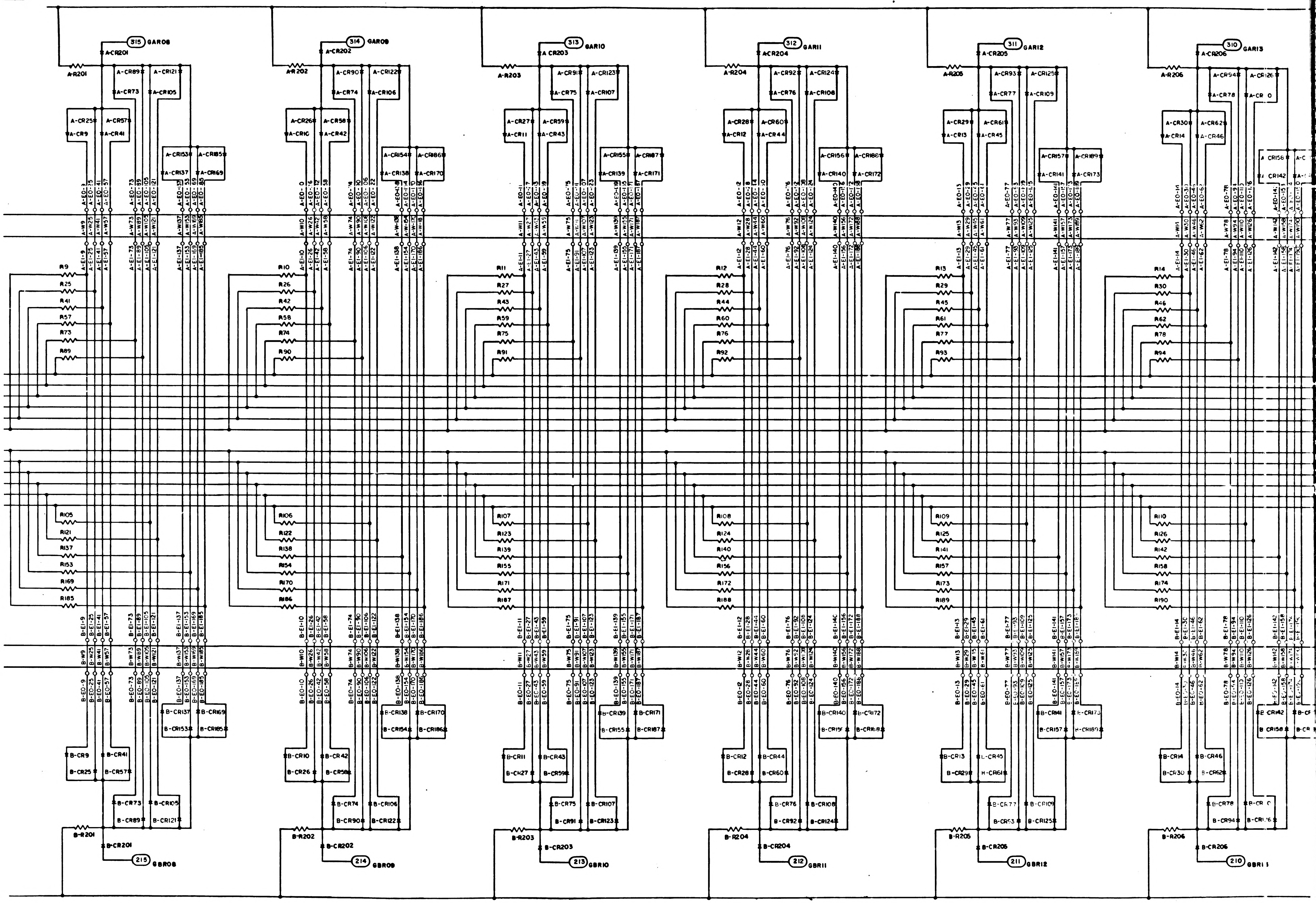
2005012 C

F2/3 SH2/2



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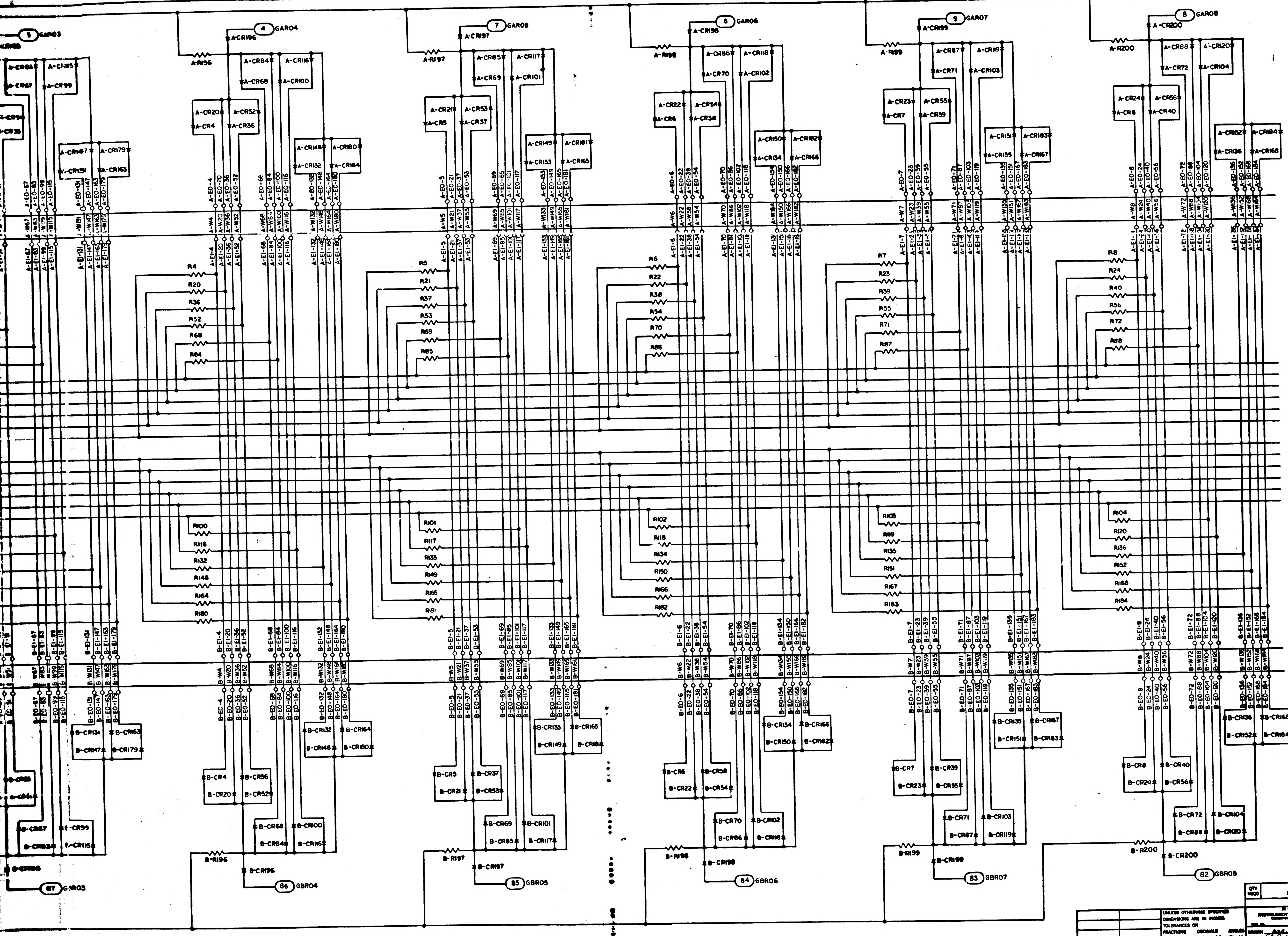
12 | 2005012 | C |

SH 2/2

F 1/3

2005012 —

REVISIONS



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B-R196
B-R197
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B-R200
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QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± # DECIMALS ± # ANGLES ± #
DO NOT SCALE THIS DRAWING
MATERIAL #
HEAT TREATMENT #
FINAL FINISH #

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN DATE 5 FEB 65
CHECKED Arthur Boyer 23 Feb 65
APPROVAL
APPROVAL Eldon C. Hall 9 Mar 65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL 2-9-65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC
ROPE MEMORY MODULE
BI—6

CODE IDENT NO. —— SIZE J NASA DRAWING NO. 2005012
SCALE NONE WT —— SHEET 1 OF 2

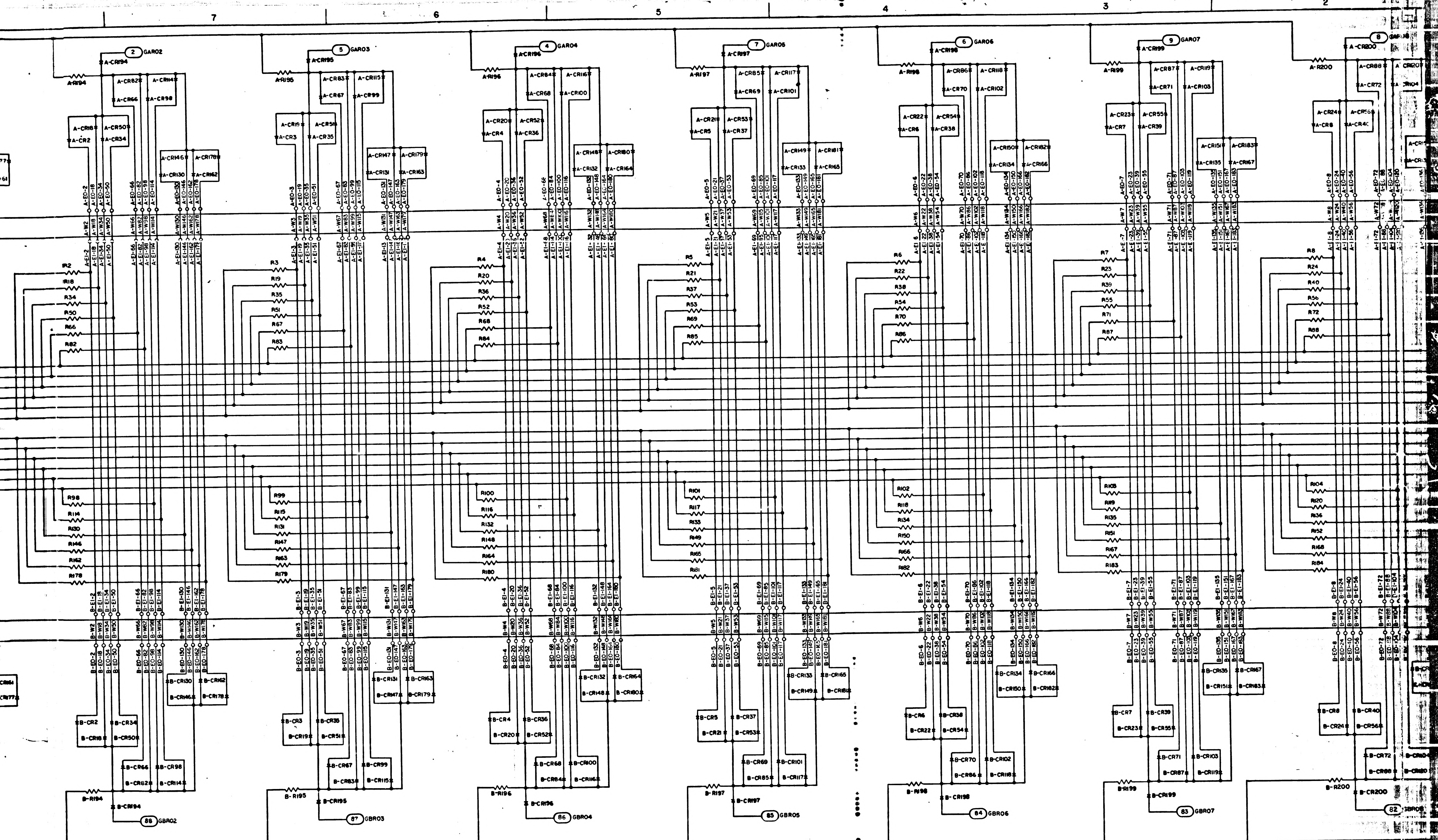
MASTER

2005012 — 6

2005012 — 1

3

E3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A-R196
A-R197
A-R198
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87 GBR03
86 GBR04
85 GBR05
84 GBR06
83 GBR07
82 GBR08

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING
MATERIAL
—
HEAT TREATMENT
—
FINAL FINISH
—

NEXT ASSY	USED ON
APPLICATION	

MASTER

2005012 — 6

F-2

REF DESIGNATION	PART NO.	DESCRIPTION	VALUE	TOL	RATING
RI THRU RI92	1006750-32	RESISTOR	1000	± 5%	1/4W
A-RI93 THRU A-R208	1006750-32	RESISTOR	1000	± 5%	1/4W
B-RI93 THRU B-R208	1006750-32	RESISTOR	1000	± 5%	1/4W
A-CRI THRU A-CR208	1006751	DIODE			
B-CR THRU B-CR208	1006751	DIODE			
I THRU 512	1006320-1	CORE			

SIGNAL IDENTIFICATION CHART

	MODULE NUMBER					
PIN NO.	B1	B2	B3	B4	B5	B6
25	XRSTAN	INTAR	XRSTAN	INTAS	XRSTAN	INTAT
26	INTAR	RSTRAD	INTAS	RSTSAD	INTAT	RSTTAD
27	XRSTBN	INTBR	XRSTBN	INTBS	XRSTBN	INTBT
28	INTBR	RSTRBD	INTBS	RSTSBD	INTBT	RSTTBD
29	XO7FN	INO7FR	XO7FN	INO7FS	XO7FN	INO7FT
30	XO7CN	INO7CR	XO7CN	INO7CS	XO7CN	INO7CT
31	XO6FN	INO6FR	XO6FN	INO6FS	XO6FN	INO6FT
32	XO6CN	INO6CR	XO6CN	INO6CS	XO6CN	INO6CT
33	XO5FN	INO5FR	XO5FN	INO5FS	XO5FN	INO5FT
34	XO5CN	INO5CR	XO5CN	INO5CS	XO5CN	INO5CT
35	XO4FN	INO4FR	XO4FN	INO4FS	XO4FN	INO4FT
36	XO4CN	INO4CR	XO4CN	INO4CS	XO4CN	INO4CT
37	XO3FN	INO3FR	XO3FN	INO3FS	XO3FN	INO3FT
38	XO3CN	INO3CR	XO3CN	INO3CS	XO3CN	INO3CT
39	XO2FN	INO2FR	XO2FN	INO2FS	XO2FN	INO2FT
40	XO2CN	INO2CR	XO2CN	INO2CS	XO2CN	INO2CT
41	XO1FN	INO1FR	XO1FN	INO1FS	XO1FN	INO1FT
42	XO1CN	INO1CR	XO1CN	INO1CS	XO1CN	INO1CT
43	XOPFN	INOPFR	XOPFN	INOPFS	XOPFN	INOPFT
44	XOPCN	INOPCR	XOPCN	INOPCS	XOPCN	INOPCT
45	INTABR	SETARN	INTABS	SETASN	INTABT	SETATN
46	XSETAB	INTABR	XSETAB	INTABS	XSETAB	INTABT
47	BPLSSW	INTCLR	BPLSSW	INTCLS	BPLSSW	INTCLT
48	TEST					
49	XRSTCN	INTCR	XRSTCN	INTCS	XRSTCN	INTCT
50	INTCR	RSTRCD	INTCS	RSTSCD	INTCT	RSTTCD
51	XRSTDN	INTDR	XRSTDN	INTDS	XRSTDN	INTDT
52	INTDR	RSTRDD	INTDS	RSTSDD	INTDT	RSTTDD
53	INO7FR	RO7FD	INO7FS	SO7FD	INO7FT	TO7FD
54	INO7CR	RO7CD	INO7CS	SO7CD	INO7CT	TO7CD
55	INO6FR	RO6FD	INO6FS	SO6FD	INO6FT	TO6FD
56	INO6CR	RO6CD	INO6CS	SO6CD	INO6CT	TO6CD
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60	INO4CR	RO4CD	INO4CS	SO4CD	INO4CT	TO4CD
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62	INO3CR	RO3CD	INO3CS	SO3CD	INO3CT	TO3CD
63	INO2FR	RO2FD	INO2FS	SO2FD	INO2FT	TO2FD
64	INO2CR	RO2CD	INO2CS	SO2CD	INO2CT	TO2CD
65	INO1FR	RO1FD	INO1FS	SO1FD	INO1FT	TO1FD
66	INO1CR	RO1CD	INO1CS	SO1CD	INO1CT	TO1CD
67	INOPFR	ROPFD	INOPFS	SOPFD	INOPFT	TOPFD
68	INOPCR	ROPCD	INOPCS	SOPCD	INOPCT	TOPCD
69	INTCDR	SETCRN	INTCDS	SETCSN	INTCDT	SETCSN
70	XSETCD	INTCDR	XSETCD	INTCDS	XSETCD	INTCDT
71	INTCLR	CLROPR	INTCLS	CLROPS	INTCLT	CLROPT
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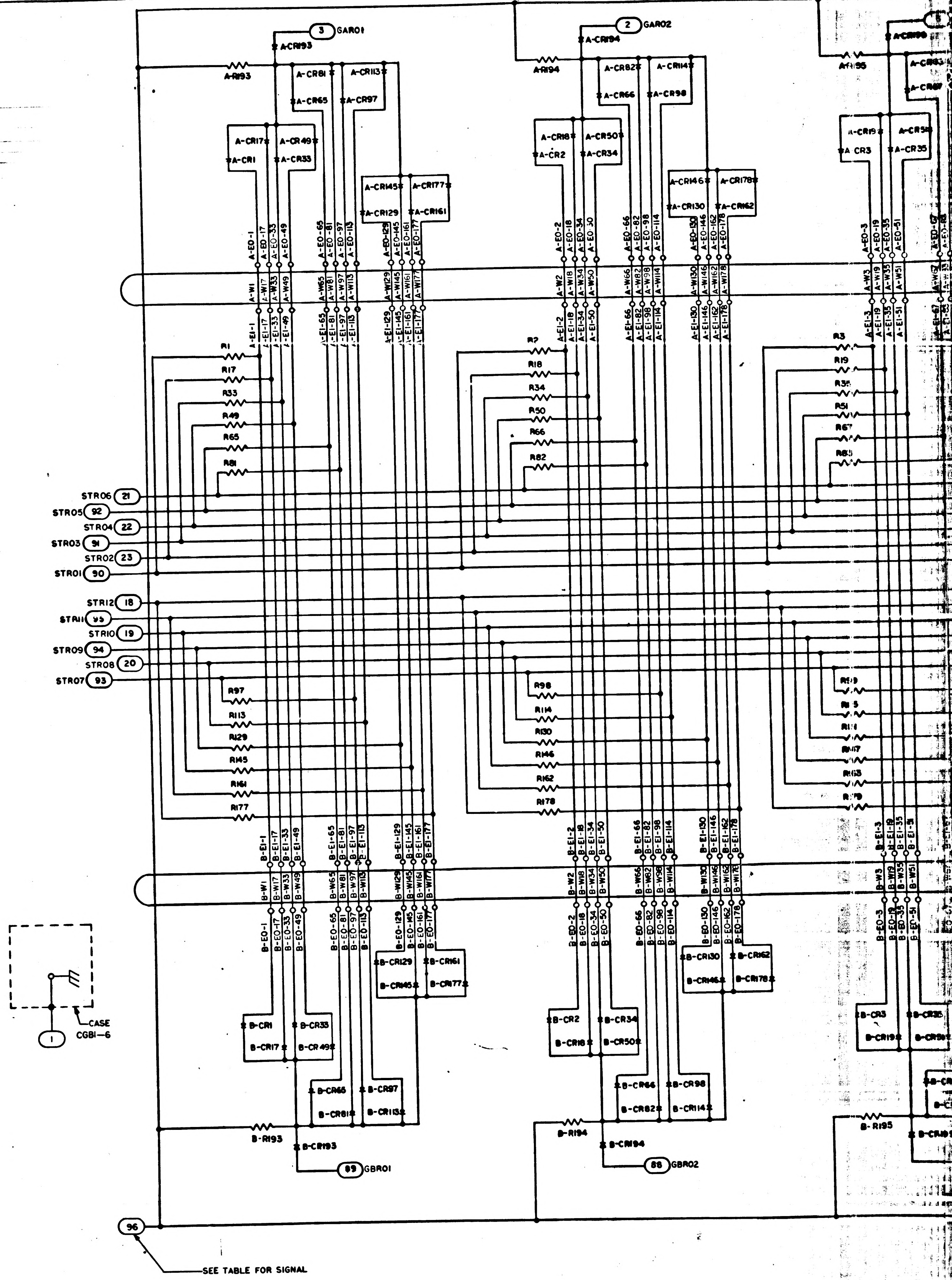
24&73	SPARE					
96	MODR1	MODR2	MODS1	MODS2	MODT1	MODT2

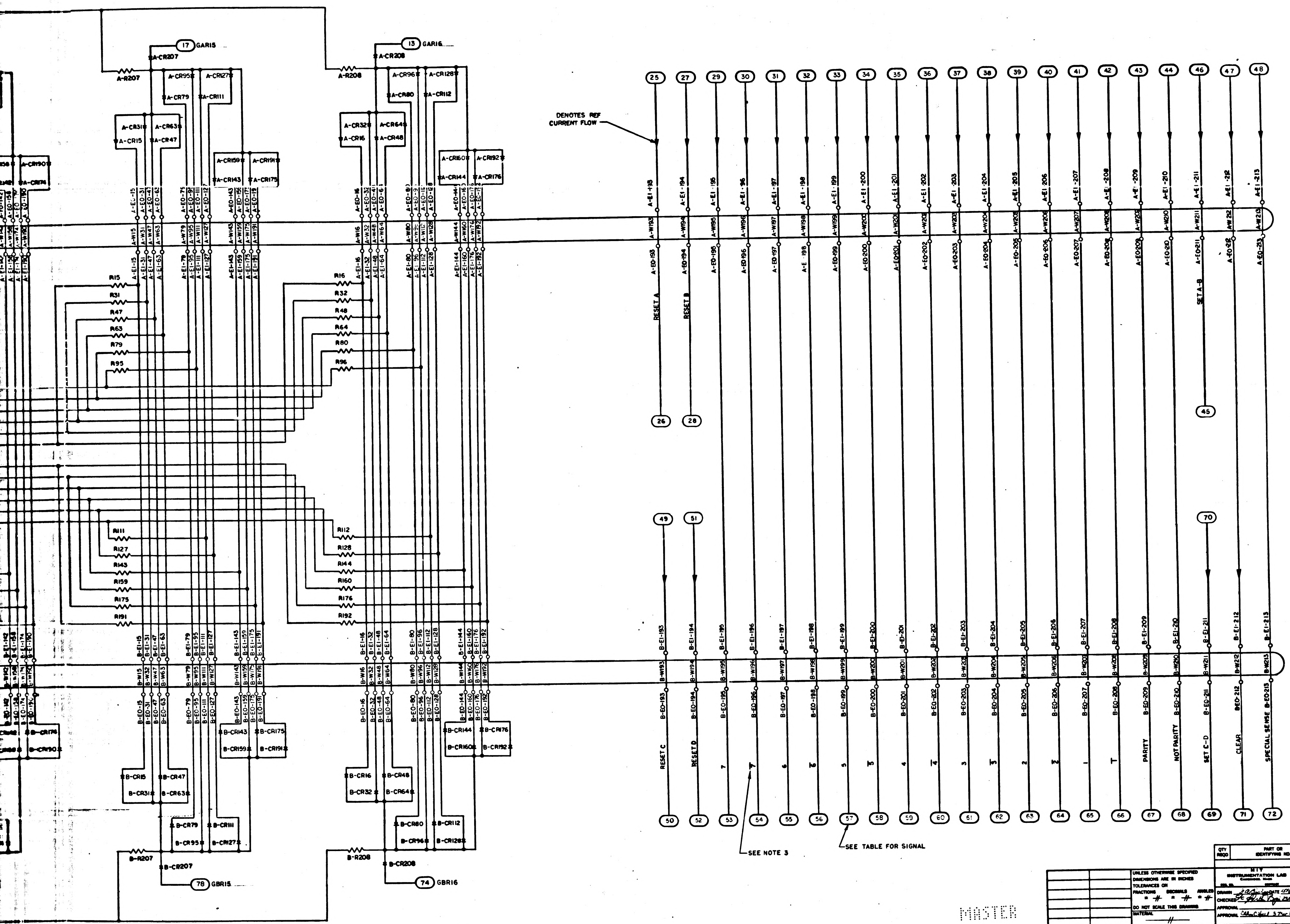


NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. PREFIX LETTER OF REFERENCE DESIGNATIONS OF DIODES DENOTES STRING NUMBER
3. "BAR" WIRES (SEE INHIBIT WIRING) DO NOT THREAD FIRST CORE AND DO THREAD LAST CORE
4. A AND B DIODES OF THE SAME REF DESIGNATION NUMBER MUST BE MATCHED PAIRS
5. SENSE WIRING THRU CORES IN ACCORDANCE WITH APPLICABLE MODULE DECK
6. INHIBIT WIRING THRU CORES PER DWG

3H

SYM	DESCRIPTION	DATE	APPROVAL



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D
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A
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DENOTES REF CURRENT FLOW
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A-EI-193
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A-EO-193
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A-W213
A-EO-213
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RESET B
SET A-B
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B-W193
B-EO-193
B-EI-213
B-W213
B-EO-213
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RESET D
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PARITY
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SPECIAL SENSE
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SEE NOTE 3
SEE TABLE FOR SIGNAL
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74 GBR16

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± // DECIMALS ± // ANGLES ± //
DO NOT SCALE THIS DRAWING
MATERIAL //
HEAT TREATMENT //
FINAL FINISH //

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN J A Bi... DATE 15 FEB 65
CHECKED ... 23 FEB 65
APPROVAL
APPROVAL Eldon C Hall 3 Mar 65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL ... 3-9-65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC
ROPE MEMORY MODULE
BI—6

CODE IDENT NO. —
SIZE J
NASA DRAWING NO. 2005012
SCALE NONE
WT —
SHEET 2 OF 2

2005012 —

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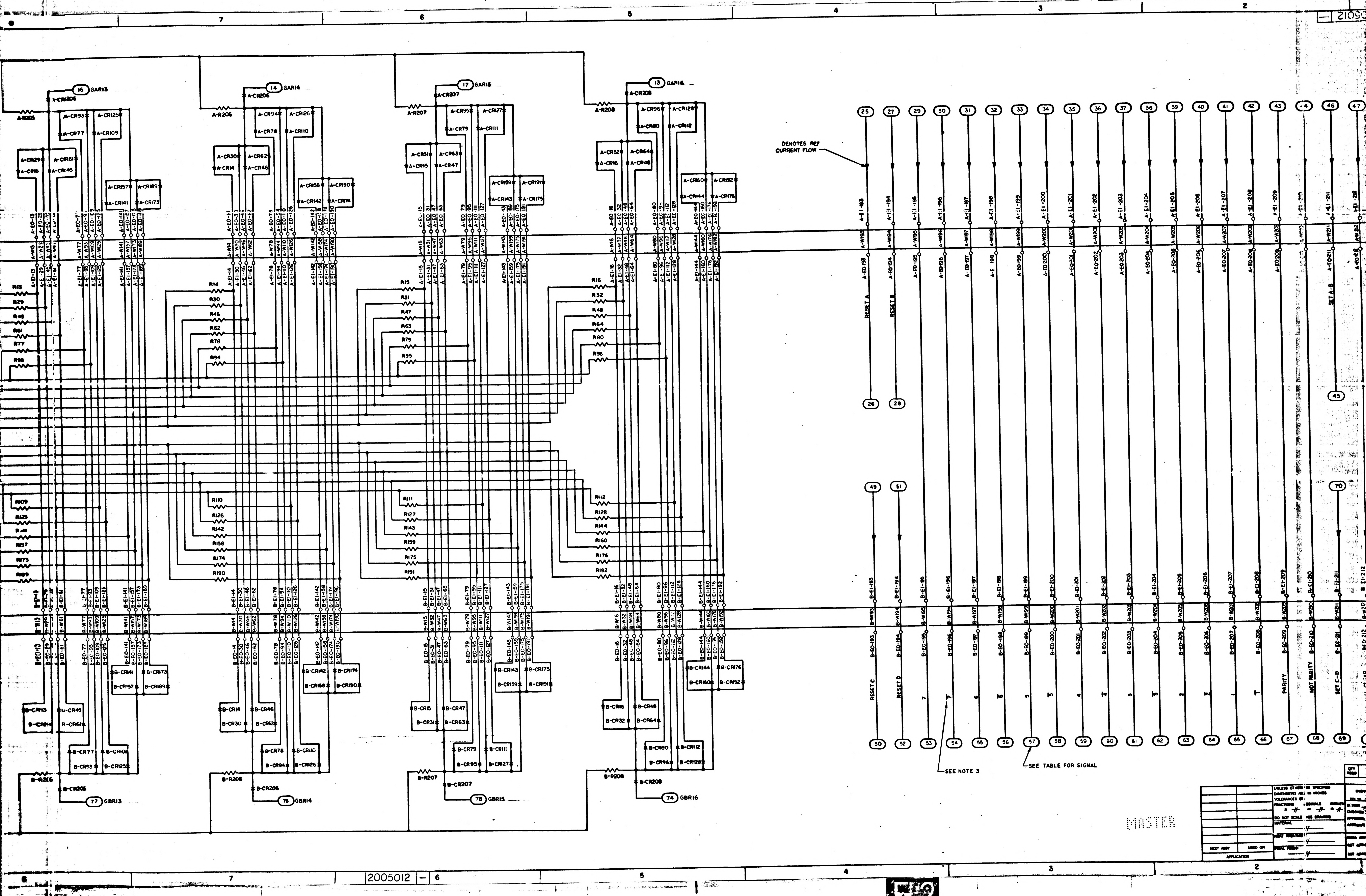

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DENOTES REF CURRENT FLOW
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A-EI-193
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B-EO-193
RESET C
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RESET D
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NOT PARITY
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CLEAR
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74 GBR16
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON:
FRACTIONS
DECIMALS
ANGLES
DO NOT SCALE THIS DRAWING
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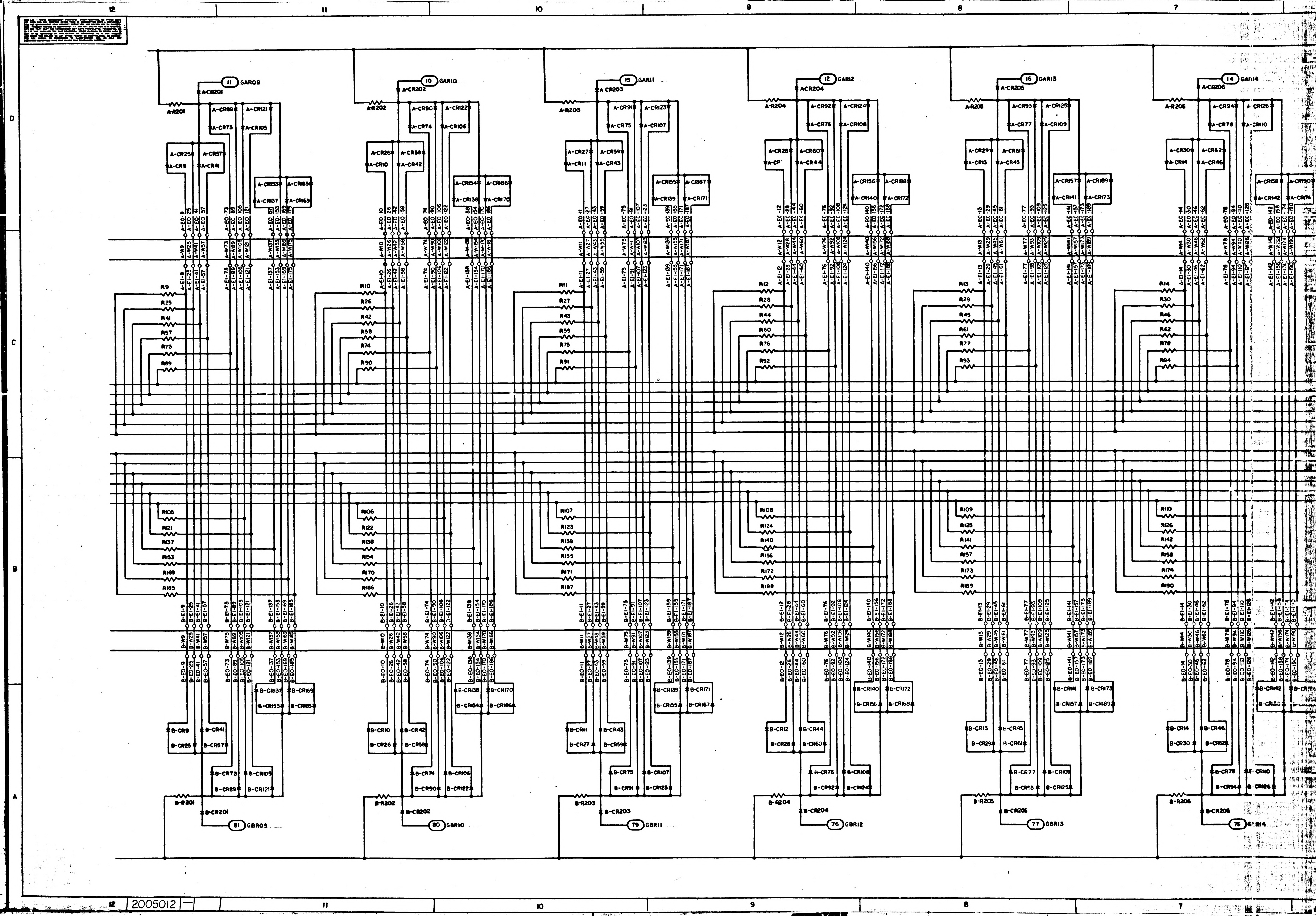
HEAT TREATMENT
FINAL FINISH
NEXT ASSY
USED ON
APPLICATION

MASTER

2005012 — 6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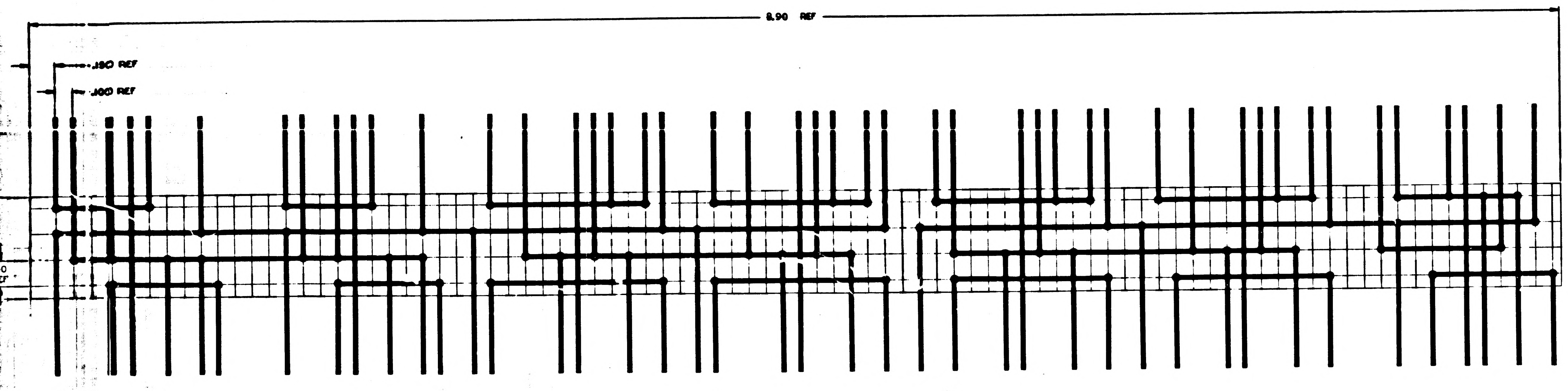
2005012

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

NEXT ASSY	USED ON
2003031	
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL ———

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	E W [illegible]	3/10/65
CHECKED	[illegible]	[illegible]
APPROVED		
APPROVED	Eldon C Hall	[illegible]
APPROVED MIT	[illegible]	[illegible]
APPROVED MSC	W J [illegible]	[illegible]
		DATE

WIRING DIAGRAM
CURRENT SWITCH MATRIX

CODE IDENT NO.	SIZE	DRAWING NO.
———	J	2005013
SCALE 4/1		SHEET 1 OF 1

2005013

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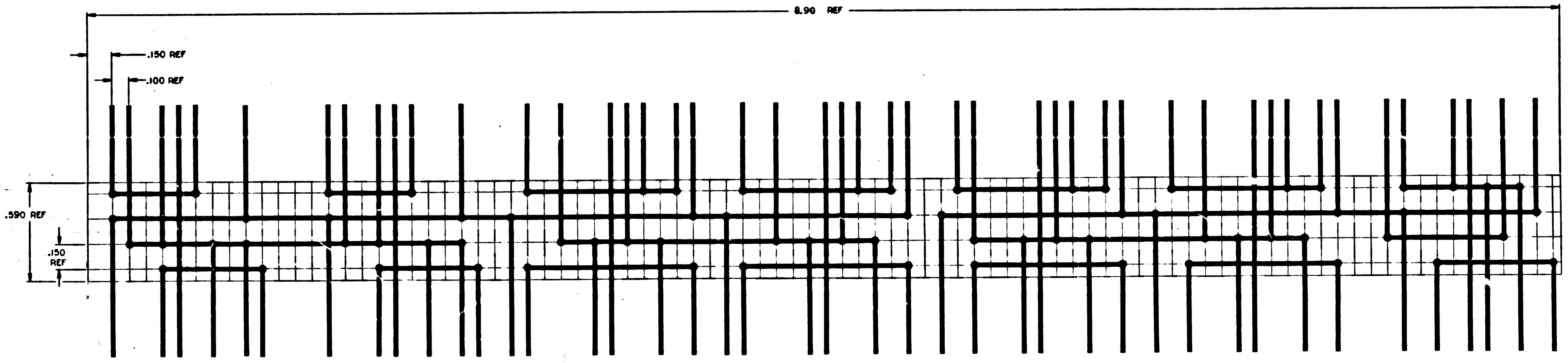


NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

3H

MASTER

2003031	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

QTY REQD | PART OR IDENTIFYING NO.

MIT
INSTRUMENTATION
CAMBRIDGE [illegible]

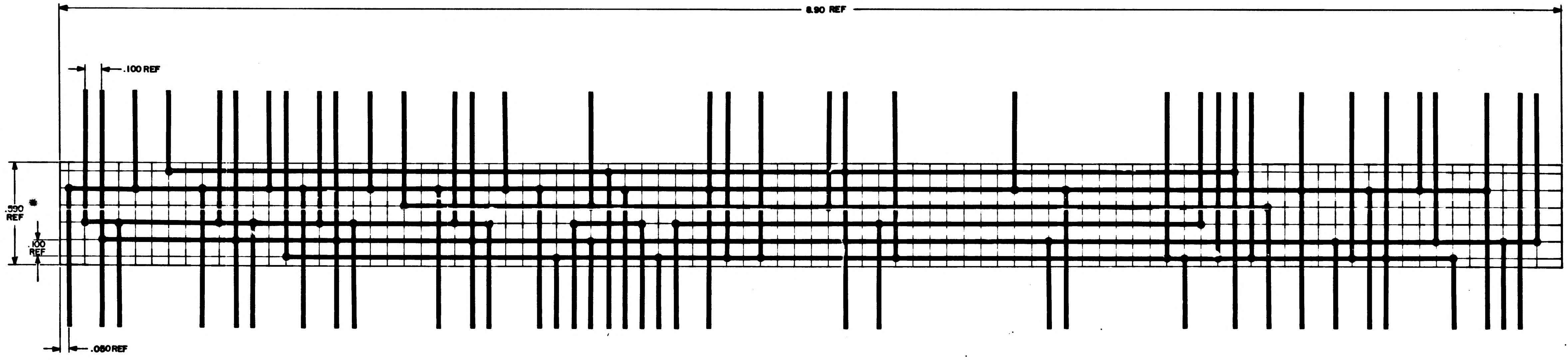
DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED NASC

2005013

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 1921G

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTE:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

2003042	
NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
CHECKED
APPROVED
APPROVED Eldon C. Hall
APPROVED MIT
APPROVED MSC
DATE

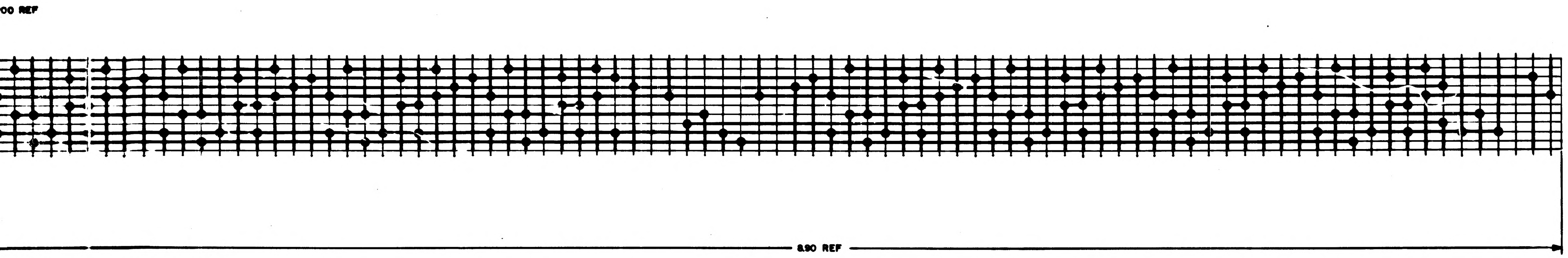
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING DIAGRAM
ROPE DRIVER MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2005014

SCALE 4/1 SHEET 1 OF 1

REVISIONS 19215			
SYM	DESCRIPTION	DATE	APPROVAL
A	REVISED PER TDRR 20092	3 SEPT 65	



REF:
MATRIX ASSY,SENSE AMPLIFIER MODULE 2003005

STANDARDS

2005016 A

24

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

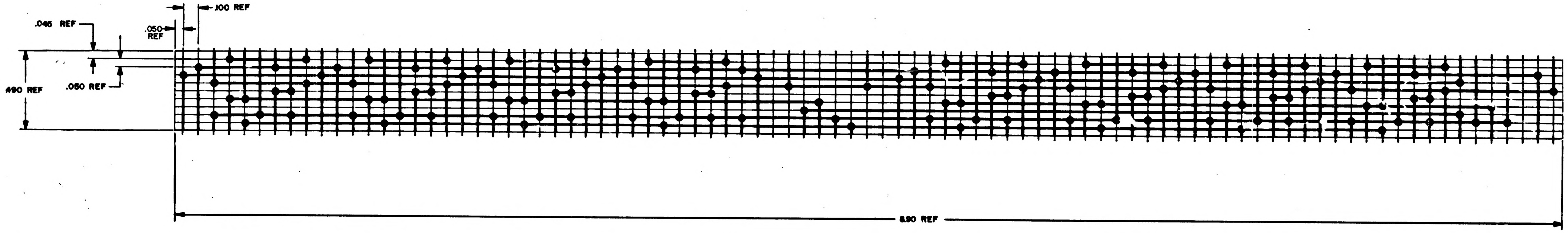
MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DWG. NO. CONTRACT
DRAWN J. F. Walsh DATE
CHECKED 10 MAY 65
APPROVAL J. M. 12 MAY 65
APPROVAL Eldon C. Hall 12 May
NASA APPROVAL
MIT APPROVAL McMorley 12 May

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING DIAGRAM
SENSE AMPLIFIER MATRIX

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2005016
SCALE 4/1
WT —
SHEET 1 OF 1

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.



REF:
MATRIX ASSY, SENSE AMPLIFIER MODULE 2003006

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± ___ DECIMALS ± ___ ANGLES ± ___
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

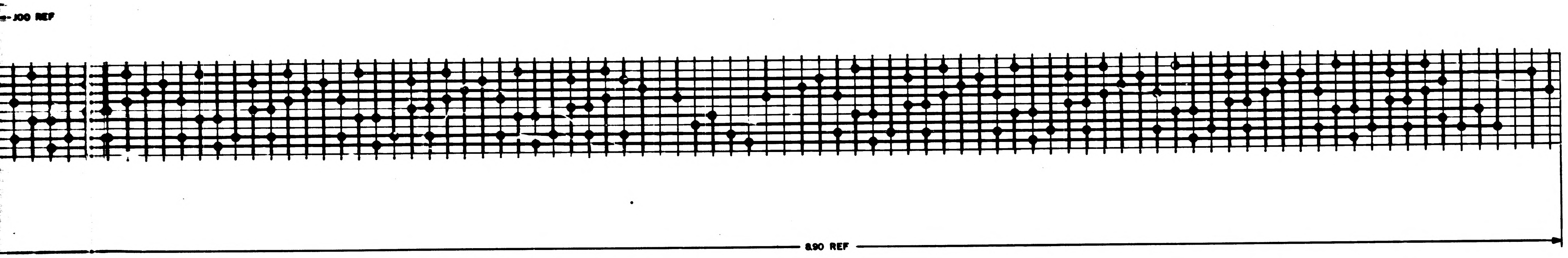
QTY REQD
PART OR IDENTIFYING NO.

MIT
INSTRUMENTATION LAB
Cambridge, Mass

DR J. F. [illegible]
CHKD [illegible]
DESIGN [illegible]
DESIGN [illegible]

MASTER

REVISIONS 19215			
SYM	DESCRIPTION	DATE	APPROVAL



WITH STANDARDS

REF:
MATRIX ASSY, SENSE AMPLIFIER MODULE 2003005

2005016 2H

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

NEXT ASSY	USED ON
APPLICATION	

M I T
INSTRUMENTATION LAB
CAMBRIDGE MASS
DRAWN J. F. Walsh DATE 5 May 65
CHECKED K. S. [illegible] 10 MAY 65
APPROVAL J. M. [illegible] 12 May 65
APPROVAL Eldon C. Hall 17 May 65
NASA APPROVAL [illegible]
MIT APPROVAL McMurtry 18 May 65

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRING DIAGRAM
SENSE AMPLIFIER MATRIX

CODE IDENT NO. 80230 SIZE J NASA DRAWING NO. 2005016
SCALE 4/1 WT — SHEET 1 OF 1

F2 2005016

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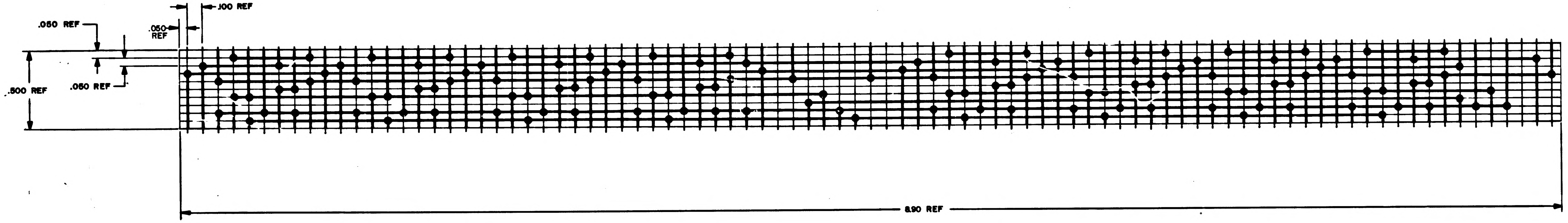


24

REF:
MATRIX ASSY, SENSE AMPLIFIER MODULE 2003 306

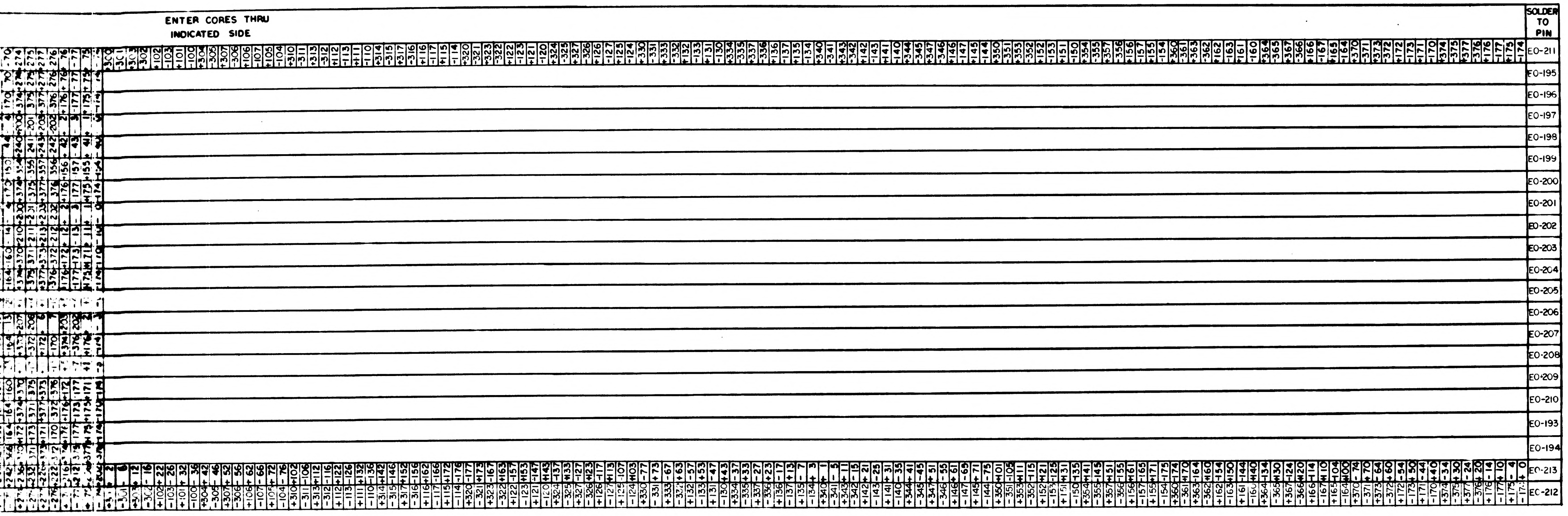
NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON FRACTIONS ± DECIMALS ± ANGLES ± DO NOT SCALE THIS DRAWING
		MATERIAL
		HEAT TREATMENT
NEXT ASSY	USED ON	FINAL FINISH
APPLICATION		

QTY REQD | PART OR IDENTIFYING

INSTRUMENTATION LAB
DRAWN
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
INT APPROVAL

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20950				


ENTER CORES THRU INDICATED SIDE
SOLDER TO PIN
EO-211
EO-195
EO-196
EO-197
EO-198
EO-199
EO-200
EO-201
EO-202
EO-203
EO-204
EO-205
EO-206
EO-207
EO-208
EO-209
EO-210
EO-193
EO-194
EC-213
EC-212

REF DWG:
1. SCHEMATIC 2005012
2. 2003040 CORE HOLDER ASSY SIDE B
3. 2003049 CORE HOLDER ASSY SIDE A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN E. J. Tanko DATE 22 APR 65
CHECKED
APPROVAL
APPROVAL Eldon C. Hall
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INHIBIT WIRING
FIXED MEMORY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2005017
SCALE NONE
WT
SHEET 1 OF 2

2005017 A

SYM	ZONE	DESCRIPTION
A		REVISED PER TCRR 20950

ENTER CORES THRU INDICATED SIDE	SOLDER TO PIN
[illegible] +260 -261 +263 -262 +62 -63 +61 -60 +264 -265 +267 -266 +66 -67 +65 -64 +270 -271 +273 -272 +72 -73 +71 -70 +274 -275 +277 -276 +76 -77 +75 -74 +300 -301 +303 -302 +102 -103 +101 -100 +304 -305 +307 -306 +106 -107 +105 -104 +310 -311 +313 -312 +112 -113 +111 -110 +314 -315 +317 -316 +116 -117 +115 -114 +320 -321 +323 -322 +122 -123 +121 -120 +324 -325 +327 -326 +126 -127 +125 -124 +330 -331 +333 -332 +132 -133 +131 -130 +334 -335 +337 -336 +136 -137 +135 -134 +340 -341 +343 -342 +142 -143 +141 -140 +344 -345 +347 -346 +146 -147 +145 -144 +350 -351 +353 -352 +152 -153 +151 -150 +354 -355 +357 -356 +156 -157 +155 -154 +360 -361 +363 -362 +162 -163 +161 -160 +364 -365 +367 -366 +166 -167 +165 -164 +370 -371 +373 -372 +172 -173 +171 -170 +374 -375 +377 -376 +176 -177 +175 -174	EO-211
[illegible] +260 -261 +263 -262 +62 -63 +61 -60 +264 -265 +267 -266 +66 -67 +65 -64 +270 -271 +273 -272 +72 -73 +71 -70 +274 -275 +277 -276 +76 -77 +75 -74	EO-195
[illegible] +360 -361 +363 -362 +162 -163 +161 -160 +364 -365 +367 -366 +166 -167 +165 -164 +370 -371 +373 -372 +172 -173 +171 -170 +374 -375 +377 -376 +176 -177 +175 -174	EO-196
[illegible] +214 -215 +217 -216 +16 -17 +15 -14 +210 -211 +213 -212 +12 -13 +11 -10 +204 -205 +207 -206 +6 -7 +5 -4 +200 -201 +203 -202 +2 -3 +1 -0	EO-197
[illegible] +254 -255 +257 -256 +56 -57 +55 -54 +250 -251 +253 -252 +52 -53 +51 -50 +244 -245 +247 -246 +46 -47 +45 -44 +240 -241 +243 -242 +42 -43 +41 -40	EO-198
[illegible] +340 -341 +343 -342 +142 -143 +141 -140 +344 -345 +347 -346 +146 -147 +145 -144 +350 -351 +353 -352 +152 -153 +151 -150 +354 -355 +357 -356 +156 -157 +155 -154	EO-199
[illegible] +360 -361 +363 -362 +162 -163 +161 -160 +364 -365 +367 -366 +166 -167 +165 -164 +370 -371 +373 -372 +172 -173 +171 -170 +374 -375 +377 -376 +176 -177 +175 -174	EO-200
[illegible] +224 -225 +227 -226 +26 -27 +25 -24 +220 -221 +223 -222 +22 -23 +21 -20 +204 -205 +207 -206 +6 -7 +5 -4 +200 -201 +203 -202 +2 -3 +1 -0	EO-201
[illegible] +234 -235 +237 -236 +36 -37 +35 -34 +230 -231 +233 -232 +32 -33 +31 -30 +214 -215 +217 -216 +16 -17 +15 -14 +210 -211 +213 -212 +12 -13 +11 -10	EO-202
[illegible] +340 -341 +343 -342 +142 -143 +141 -140 +350 -351 +353 -352 +152 -153 +151 -150 +360 -361 +363 -362 +162 -163 +161 -160 +370 -371 +373 -372 +172 -173 +171 -170	EO-203
[illegible] +344 -345 +347 -346 +146 -147 +145 -144 +354 -355 +357 -356 +156 -157 +155 -154 +364 -365 +367 -366 +166 -167 +165 -164 +374 -375 +377 -376 +176 -177 +175 -174	EO-204
[illegible] +71 -70 +65 -64 +61 -60 +55 -54 +51 -50 +45 -44 +41 -40 +35 -34 +31 -30 +25 -24 +21 -20 +15 -14 +11 -10 +5 -4 +1 -0	EO-205
[illegible] +237 -236 +36 -37 +233 -232 +32 -33 +227 -226 +26 -27 +223 -222 +22 -23 +217 -216 +16 -17 +213 -212 +12 -13 +207 -206 +6 -7 +203 -202 +2 -3	EO-206
[illegible] +340 -342 +142 -140 +344 -346 +146 -144 +350 -352 +152 -150 +354 -356 +156 -154 +360 -362 +162 -160 +364 -366 +166 -164 +370 -372 +172 -170 +374 -376 +176 -174	EO-207
[illegible] +71 -73 +65 -67 +61 -63 +55 -57 +51 -53 +45 -47 +41 -43 +35 -37 +31 -33 +25 -27 +21 -23 +15 -17 +11 -13 +5 -7 +1 -3	EO-208
[illegible] +343 [illegible] +142 -147 +141 -144 +354 -351 +357 -352 +156 -153 +155 -150 +364 -361 +367 -362 +166 -163 +165 -160 +370 -375 +373 -376 +172 -177 +171 -174	EO-209
[illegible] +344 -341 +347 -342 +146 -143 +145 -140 +350 -355 +353 -356 +152 -157 +151 -154 +360 -365 +363 -366 +162 -167 +161 -164 +374 -371 +377 -372 +176 -173 +175 -170	EO-210
[illegible] +142 -143 +141 -140 +146 -147 +145 -144 +152 -153 +151 -150 +156 -157 +155 -154 +162 -163 +161 -160 +166 -167 +165 -164 +172 -173 +171 -170 +176 -177 +175 -174	EO-193
[illegible] +340 -341 +343 -342 +344 -345 +347 -346 +350 -351 +353 -352 +354 -355 +357 -356 +360 -361 +363 -362 +364 -365 +367 -366 +370 -371 +373 -372 +374 -375 +377 -376	EO-194
[illegible] -376 +372 -366 +362 -356 +352 -346 +342 -336 +332 -326 +322 -316 +312 -306 +302 -276 +272 -266 +262 -256 +252 -246 +242 -236 +232 -226 +222 -216 +212 -206 +202 +2 -6 +12 -16 +22 -26 +32 -36 +42 -46 +52 -56 +62 -66 +72 -76 +102 -106 +112 -116 +122 -126 +132 -136 +142 -146 +152 -156 +162 -166 +172 -176 -177 +173 -167 +163 -157 +153 -147 +143 -137 +133 -127 +123 -117 +113 -107 +103 -77 +73 -67 +63 -57 +53 -47 +43 -37 +33 -27 +23 -17 +13 -7 +3 +1 -5 +11 -15 +21 -25 +31 -35 +41 -45 +51 -55 +61 -65 +71 -75 +101 -105 +111 -115 +121 -125 +131 -135 +141 -145 +151 -155 +161 -165 +171 -175 -174 +170 -164 +160 -154 +150 -144 +140 -134 +130 -124 +120 -114 +110 -104 +100 -74 +70 -64 +60 -54 +50 -44 +40 -34 +30 -24 +20 -14 +10 -4 +0	EO-213
[illegible] +260 -261 +263 -262 +62 -63 +61 -60 +264 -265 +267 -266 +66 -67 +65 -64 +270 -271 +273 -272 +72 -73 +71 -70 +274 -275 +277 -276 +76 -77 +75 -74 +300 -301 +303 -302 +102 -103 +101 -100 +304 -305 +307 -306 +106 -107 +105 -104 +310 -311 +313 -312 +112 -113 +111 -110 +314 -315 +317 -316 +116 -117 +115 -114 +320 -321 +323 -322 +122 -123 +121 -120 +324 -325 +327 -326 +126 -127 +125 -124 +330 -331 +333 -332 +132 -133 +131 -130 +334 -335 +337 -336 +136 -137 +135 -134 +340 -341 +343 -342 +142 -143 +141 -140 +344 -345 +347 -346 +146 -147 +145 -144 +350 -351 +353 -352 +152 -153 +151 -150 +354 -355 +357 -356 +156 -157 +155 -154 +360 -361 +363 -362 +162 -163 +161 -160 +364 -365 +367 -366 +166 -167 +165 -164 +370 -371 +373 -372 +172 -173 +171 -170 +374 -375 +377 -376 +176 -177 +175 -174	EO-212

REF DWG:
1. SCHEMATIC 2005012
2. 2003040 CORE HOLDER ASSY SIDE B
3. 2003049 CORE HOLDER ASSY SIDE A

QTY REQD	PART OR IDENTIFYING NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

NEXT ASSY	USED ON
APPLICATION	

M I T
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN ______ DATE ______
CHECKED ______
APPROVAL ______
APPROVAL Ella C Hall
NASA APPROVAL ______
MIT APPROVAL ______
MIT APPROVAL ______

MANNED

INHIB

FIX

CODE IDENT NO. 80230 SIZE J

SCALE NONE WT

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2005017

D

C

B

A

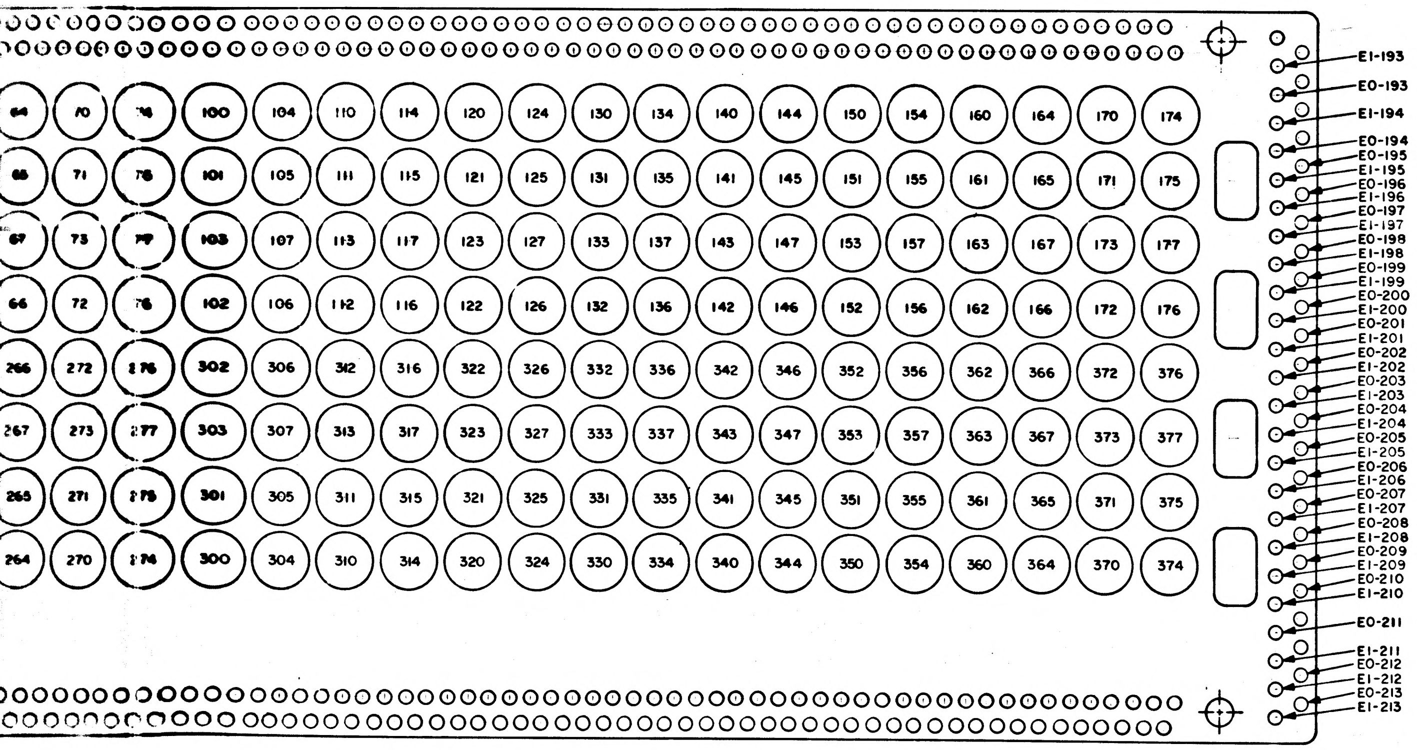
INHIBIT WIRING TABLE

WIRE NO.	SOLDER TO PIN																																																																																																																																																						ENTER CORES THRU INDICATED SIDE													
211	E1-211	+200	-201	+203	-202	+2	-3	+1	-0	+204	-205	+207	-206	+6	-7	+5	-4	+210	-211	+213	-212	+12	-13	+11	-10	+214	-215	+217	-216	+16	-17	+15	-14	+220	-221	+223	-222	+22	-23	+21	-20	+224	-225	+227	-226	+26	-27	+25	-24	+230	-231	+233	-232	+32	-33	+31	-30	+234	-235	+237	-236	+36	-37	+35	-34	+240	-241	+243	-242	+42	-43	+41	-40	+244	-245	+247	-246	+46	-47	+45	-44	+250	-251	+253	-252	+52	-53	+51	-50	+254	-255	+257	-256	+56	-57	+55	-54	+260	-261	+263	-262	+62	-63	+61	-60	+264	-265	+267	-266	+66	-67	+65	-64	+270	-271	+273	-272	+72	-73	+71	-70	+274	-275	+277	-276	+76	-77	+75	-74	+300	-301	+303	-302	+102	-103	+101	-100	+304	-305	+307	-306	+106	-107	+105	[illegible]	+310	-311	+313	-312	+112	-113	+111	-110	+314
195	E1-195	+200	-201	+203	-202	+2	-3	+1	-0	+204	-205	+207	-206	+6	-7	+5	-4	+210	-211	+213	-212	+12	-13	+11	-10	+214	-215	+217	-216	+16	-17	+15	-14	+220	-221	+223	-222	+22	-23	+21	-20	+224	-225	+227	-226	+26	-27	+25	-24	+230	-231	+233	-232	+32	-33	+31	-30	+234	-235	+237	-236	+36	-37	+35	-34	+240	-241	+243	-242	+42	-43	+41	-40	+244	-245	+247	-246	+46	-47	+45	-44	+250	-251	+253	-252	+52	-53	+51	-50	+254	-255	+257	-256	+56	-57	+55	-54	+260	-261	+263	-262	+62	-63	+61	-60	+264	-265	+267	-266	+66	-67	+65	-64	+270	-271	+273	-272	+72	-73	+71	-70	+274	-275	+277	-276	+76	-77	+75	-74																									
196	E1-196	+300	-301	+303	-302	+102	-103	+101	-100	+304	-305	+307	-306	+106	-107	+105	-104	+310	-311	+313	-312	+112	-113	+111	-110	+314	-315	+317	-316	+116	-117	+115	-114	+320	-321	+323	-322	+122	-123	+121	-120	+324	-325	+327	-326	+126	-127	+125	-124	+330	-331	+333	-332	+132	-133	+131	-130	+334	-335	+337	-336	+136	-137	+135	-134	+340	-341	+343	-342	+142	-143	+141	-140	+344	-345	+347	-346	+146	-147	+145	-144	+350	-351	+353	-352	+152	-153	+151	-150	+354	-355	+357	-356	+156	-157	+155	-154	+360	-361	+363	-362	+162	-163	+161	-160	+364	-365	+367	-366	+166	-167	+165	-164	+370	-371	+373	-372	+172	-173	+171	-170	+374	-375	+377	-376	+176	-177	+175	-174																									
197	E1-197	+334	-335	+337	-336	+136	-137	+135	-134	+330	-331	+333	-332	+132	-133	+131	-130	+324	-325	+327	-326	+126	-127	+125	-124	+320	-321	+323	-322	+122	-123	+121	-120	+314	-315	+317	-316	+116	-117	+115	-114	+310	-311	+313	-312	+112	-113	+111	-110	+304	-305	+307	-306	+106	-107	+105	-104	+300	-301	+303	-302	+102	-103	+101	-100	+234	-235	+237	-236	+36	-37	+35	-34	+230	-231	+233	-232	+32	-33	+31	-30	+224	-225	+227	-226	+26	-27	+25	-24	+220	-221	+223	-222	+22	-23	+21	-20	+214	-215	+217	-216	+16	-17	+15	-14	+210	-211	+213	-212	+12	-13	+11	-10	+204	-205	+207	-206	+6	-7	+5	-4	+200	-201	+203	-202	+2	-3	+1	-0																									
198	E1-198	+374	-375	+377	-376	+176	-177	+175	-174	+370	-371	+373	-372	+172	-173	+171	-170	+364	-365	+367	-366	+166	-167	+165	-164	+360	-361	+363	-362	+162	-163	+161	-160	+354	-355	+357	-356	+156	-157	+155	-154	+350	-351	+353	-352	+152	-153	+151	-150	+344	-345	+347	-346	+146	-147	+145	-144	+340	-341	+343	-342	+142	-143	+141	-140	+274	-275	+277	-276	+76	-77	+75	-74	+270	-271	+273	-272	+72	-73	+71	-70	+264	-265	+267	-266	+66	-67	+65	-64	+260	-261	+263	-262	+62	-63	+61	-60	+254	-255	+257	-256	+56	-57	+55	-54	+250	-251	+253	-252	+52	-53	+51	-50	+244	-245	+247	-246	+46	-47	+45	-44	+240	-241	+243	-242	+42	-43	+41	-40																									
199	E1-199	+200	-201	+203	-202	+2	-3	+1	-0	+204	-205	+207	-206	+6	-7	+5	-4	+210	-211	+213	-212	+12	-13	+11	-10	+214	-215	+217	-216	+16	-17	+15	-14	+240	-241	+243	-242	+42	-43	+41	-40	+244	-245	+247	-246	+46	-47	+45	-44	+250	-251	+253	-252	+52	-53	+51	-50	+254	-255	+257	-256	+56	-57	+55	-54	+300	-301	+303	-302	+102	-103	+101	-100	+304	-305	+307	-306	+106	-107	+105	-104	+310	-311	+313	-312	+112	-113	+111	-110	+314	-315	+317	-316	+116	-117	+115	-114	+340	-341	+343	-342	+142	-143	+141	-140	+344	-345	+347	-346	+146	-147	+145	-144	+350	-351	+353	-352	+152	-153	+151	-150	+354	-355	+357	-356	+156	-157	+155	-154																									
200	E1-200	+220	-221	+223	-222	+22	-23	+21	-20	+224	-225	+227	-226	+26	-27	+25	-24	+230	-231	+233	-232	+32	-33	+31	-30	+234	-235	+237	-236	+36	-37	+35	-34	+260	-261	+263	-262	+62	-63	+61	-60	+264	-265	+267	-266	+66	-67	+65	-64	+270	-271	+273	-272	+72	-73	+71	-70	+274	-275	+277	-276	+76	-77	+75	-74	+320	-321	+323	-322	+122	-123	+121	-120	+324	-325	+327	-326	+126	-127	+125	-124	+330	-331	+333	-332	+132	-133	+131	-130	+334	-335	+337	-336	+136	-137	+135	-134	+360	-361	+363	-362	+162	-163	+161	-160	+364	-365	+367	-366	+166	-167	+165	-164	+370	-371	+373	-372	+172	-173	+171	-170	+374	-375	+377	-376	+176	-177	+175	-174																									
201	E1-201	+364	-365	+367	-366	+166	-167	+165	-164	+360	-361	+363	-362	+162	-163	+161	-160	+344	-345	+347	-346	+146	-147	+145	-144	+340	-341	+343	-342	+142	-143	+141	-140	+324	-325	+327	-326	+126	-127	+125	-124	+320	-321	+323	-322	+122	-123	+121	-120	+304	-305	+307	-306	+106	-107	+105	-104	+300	-301	+303	-302	+102	-103	+101	-100	+264	-265	+267	-266	+66	-67	+65	-64	+260	-261	+263	-262	+62	-63	+61	-60	+244	-245	+247	-246	+46	-47	+45	-44	+240	-241	+243	-242	+42	-43	+41	-40	+224	-225	+227	-226	+26	-27	+25	-24	+220	-221	+223	-222	+22	-23	+21	-20	+204	-205	+207	-206	+6	-7	+5	-4	+200	-201	+203	-202	+2	-3	+1	-0																									
202	E1-202	+374	-375	+377	-376	+176	-177	+175	-174	+370	-371	+373	-372	+172	-173	+171	-170	+354	-355	+357	-356	+156	-157	+155	-154	+350	-351	+353	-352	+152	-153	+151	-150	+334	-335	+337	-336	+136	-137	+135	-134	+330	-331	+333	-332	+132	-133	+131	-130	+314	-315	+317	-316	+116	-117	+115	-114	+310	-311	+313	-312	+112	-113	+111	-110	+274	-275	+277	-276	+76	-77	+75	-74	+270	-271	+273	-272	+72	-73	+71	-70	+254	-255	+257	-256	+56	-57	+55	-54	+250	-251	+253	-252	+52	-53	+51	-50	+234	-235	+237	-236	+36	-37	+35	-34	+230	-231	+233	-232	+32	-33	+31	-30	+214	-215	+217	-216	+16	-17	+15	-14	+210	-211	+213	-212	+12	-13	+11	-10																									
203	E1-203	+200	-201	+203	-202	+2	-3	+1	-0	+210	-211	+213	-212	+12	-13	+11	-10	+220	-221	+223	-222	+22	-23	+21	-20	+230	-231	+233	-232	+32	-33	+31	-30	+240	-241	+243	-242	+42	-43	+41	-40	+250	-251	+253	-252	+52	-53	+51	-50	+260	-261	+263	-262	+62	-63	+61	-60	+270	-271	+273	-272	+72	-73	+71	-70	+300	-301	+303	-302	+102	-103	+101	-100	+310	-311	+313	-312	+112	-113	+111	-110	+320	-321	+323	-322	+122	-123	+121	-120	+330	-331	+333	-332	+132	-133	+131	-130	+340	-341	+343	-342	+142	-143	+141	-140	+350	-351	+353	-352	+152	-153	+151	-150	+360	-361	+363	-362	+162	-163	+161	-160	+370	-371	+373	-372	+172	-173	+171	-170																									
204	E1-204	+204	-205	+207	-206	+6	-7	+5	-4	+214	-215	+217	-216	+16	-17	+15	-14	+224	-225	+227	-226	+26	-27	+25	-24	+234	-235	+237	-236	+36	-37	+35	-34	+244	-245	+247	-246	+46	-47	+45	-44	+254	-255	+257	-256	+56	-57	+55	-54	+264	-265	+267	-266	+66	-67	+65	-64	+274	-275	+277	-276	+76	-77	+75	-74	+304	-305	+307	-306	+106	-107	+105	-104	+314	-315	+317	-316	+116	-117	+115	-114	+324	-325	+327	-326	+126	-127	+125	-124	+334	-335	+337	-336	+136	-137	+135	-134	+344	-345	+347	-346	+146	-147	+145	-144	+354	-355	+357	-356	+156	-157	+155	-154	+364	-365	+367	-366	+166	-167	+165	-164	+374	-375	+377	-376	+176	-177	+175	-174																									
205	E1-205	+374	-375	+370	-371	+364	-365	+360	-361	+354	-355	+350	-351	+344	-345	+340	-341	+334	-335	+330	-331	+324	-325	+320	-321	+314	-315	+310	-311	+304	-305	+300	-301	+274	-275	+270	-271	+264	-265	+260	-261	+254	-255	+250	-251	+244	-245	+240	-241	+234	-235	+230	-231	+224	-225	+220	-221	+214	-215	+210	-211	+204	-205	+200	-201	+175	-174	+171	-170	+165	-164	+161	-160	+155	-154	+151	-150	+145	-144	+141	-140	+135	-134	+131	-130	+125	-124	+121	-120	+115	-114	+111	-110	+105	-104	+101	-100	+75	-74	+71	-70	+65	-64	+61	-60	+55	-54	+51	-50	+45	-44	+41	-40	+35	-34	+31	-30	+25	-24	+21	-20	+15	-14	+11	-10	+5	-4	+1	-0																									
206	E1-206	+377	-376	+176	-177	+373	-372	+172	-173	+367	-366	+166	-167	+363	-362	+162	-163	+357	-356	+156	-157	+353	-352	+152	-153	+347	-346	+146	-147	+343	-342	+142	-143	+337	-336	+136	-137	+333	-332	+132	-133	+327	-326	+126	-127	+323	-322	+122	-123	+317	-316	+116	-117	+313	-312	+112	-113	+307	-306	+106	-107	+303	-302	+102	-103	+277	-276	+76	-77	+273	-272	+72	-73	+267	-266	+66	-67	+263	-262	+62	-63	+257	-256	+56	-57	+253	-252	+52	-53	+247	-246	+46	-47	+243	-242	+42	-43	+237	-236	+36	-37	+233	-232	+32	-33	+227	-226	+26	-27	+223	-222	+22	-23	+217	-216	+16	-17	+213	-212	+12	-13	+207	-206	+6	-7	+203	-202	+2	-3																									
207	E1-207	+200	-202	+2	-0	+204	-206	+6	-4	+210	-212	+12	-10	+214	-216	+16	-14	+220	-222	+22	-20	+224	-226	+26	-24	+230	-232	+32	-30	+234	-236	+36	-34	+240	-242	+42	-40	+244	-246	+46	-44	+250	-252	+52	-50	+254	-256	+56	-54	+260	-262	+62	-60	+264	-266	+66	-64	+270	-272	+72	-70	+274	-276	+76	-74	+300	-302	+102	-100	+304	-306	+106	-104	+310	-312	+112	-110	+314	-316	+116	-114	+320	-322	+122	-120	+324	-326	+126	-124	+330	-332	+132	-130	+334	-336	+136	-134	+340	-342	+142	-140	+344	-346	+146	-144	+350	-352	+152	-150	+354	-356	+156	-154	+360	-362	+162	-160	+364	-366	+166	-164	+370	-372	+172	-170	+374	-376	+176	-174																									
208	E1-208	+377	-375	+373	-371	+367	-365	+363	-361	+357	-355	+353	-351	+347	-345	+343	-341	+337	-335	+333	-331	+327	-325	+323	-321	+317	-315	+313	-311	+307	-305	+303	-301	+277	-275	+273	-271	+267	-265	+263	-261	+257	-255	+253	-251	+247	-245	+243	-241	+237	-235	+233	-231	+227	-225	+223	-221	+217	-215	+213	-211	+207	-205	+203	-201	+175	-177	+171	-173	+165	-167	+161	-163	+155	-157	+151	-153	+145	-147	+141	-143	+135	-137	+131	-133	+125	-127	+121	-123	+115	-117	+111	-113	+105	-107	+101	-103	+75	-77	+71	-73	+65	-67	+61	-63	+55	-57	+51	-53	+45	-47	+41	-43	+35	-37	+31	-33	+25	-27	+21	-23	+15	-17	+11	-13	+5	-7	+1	-3																									
209	E1-209	+200	-205	+203	-206	+2	-7	+1	-4	+214	-211	+217	-212	+16	-13	+15	-10	+224	-221	+227	-222	+26	-23	+25	-20	+230	-235	+233	-236	+32	-37	+31	-34	+244	-241	+247	-242	+46	-43	+45	-40	+250	-255	+253	-256	+52	-57	+51	-54	+260	-265	+263	-266	+62	-67	+61	-64	+274	-271	+277	-272	+76	-73	+75	-70	+304	-301	+307	-302	+106	-103	+105	-100	+310	-315	+313	-316	+112	-117	+111	-114	+320	-325	+323	-326	+122	-127	+121	-124	+334	-331	+337	-332	+136	-133	+135	-130	+340	-345	+343	-346	+142	-147	+141	-144	+354	-351	+357	-352	+156	-153	+155	-150	+364	-361	+367	-362	+166	-163	+165	-160	+370	-375	+373	-376	+172	-177	+171	-174																									
210	E1-210	+204	-201	+207	-202	+6	-3	+5	-0	+210	-215	+213	-216	+12	-17	+11	-14	+220	-225	+223	-226	+22	-27	+21	-24	+234	-231	+237	-232	+36	-33	+35	-30	+240	-245	+243	-246	+42	-47	+41	-44	+254	-251	+257	-252	+56	-53	+55	-50	+264	-261	+267	-262	+66	-63	+65	-60	+270	-275	+273	-276	+72	-77	+71	-74	+300	-305	+303	-306	+102	-107	+101	-104	+314	-311	+317	-312	+116	-113	+115	-110	+324	-321	+327	-322	+126	-123	+125	-120	+330	-335	+333	-336	+132	-137	+131	-134	+344	-341	+347	-342	+146	-143	+145	-140	+350	-355	+353	-356	+152	-157	+151	-154	+360	-365	+363	-366	+162	-167	+161	-164	+374	-371	+377	-372	+176	-173	+175	-170																									
193	E1-193	+2	-3	+1	-0	+6	-7	+5	-4	+12	-13	+11	-10	+16	-17	+15	-14	+22	-23	+21	-20	+26	-27	+25	-24	+32	-33	+31	-30	+36	-37	+35	-34	+42	-43	+41	-40	+46	-47	+45	-44	+52	-53	+51	-50	+56	-57	+55	-54	+62	-63	+61	-60	+66	-67	+65	-64	+72	-73	+71	-70	+76	-77	+75	-74	+102	-103	+101	-100	+106	-107	+105	-104	+112	-113	+111	-110	+116	-117	+115	-114	+122	-123	+121	-120	+126	-127	+125	-124	+132	-133	+131	-130	+136	-137	+135	-134	+142	-143	+141	-140	+146	-147	+145	-144	+152	-153	+151	-150	+156	-157	+155	-154	+162	-163	+161	-160	+166	-167	+165	-164	+172	-173	+171	-170	+176	-177	+175	-174																									
194	E1-194	+200	-201	+203	-202	+204	-205	+207	-206	+210	-211	+213	-212	+214	-215	+217	-216	+220	-221	+223	-222	+224	-225	+227	-226	+230	-231	+233	-232	+234	-235	+237	-236	+240	-241	+243	-242	+244	-245	+247	-246	+250	-251	+253	-252	+254	-255	+257	-256	+260	-261	+263	-262	+264	-265	+267	-266	+270	-271	+273	-272	+274	-275	+277	-276	+300	-301	+303	-302	+304	-305	+307	-306	+310	-311	+313	-312	+314	-315	+317	-316	+320	-321	+323	-322	+324	-325	+327	-326	+330	-331	+333	-332	+334	-335	+337	-336	+340	-341	+343	-342	+344	-345	+347	-346	+350	-351	+353	-352	+354	-355	+357	-356	+360	-361	+363	-362	+364	-365	+367	-366	+370	-371	+373	-372	+374	-375	+377	-376																									
213	E1-213	+200	-204	+210	-214	+220	-224	+230	-234	+240	-244	+250	-254	+260	-264	+270	-274	+300	-304	+310	-314	+320	-324	+330	-334	+340	-344	+350	-354	+360	-364	+370	-374	-375	+371	-365	+361	-355	+351	-345	+341	-335	+331	-325	+321	-315	+311	-305	+301	-275	+271	-265	+261	-255	+251	-245	+241	-235	+231	-225	+221	-215	+211	-205	+201	+203	-207	+213	-217	+223	-227	+233	-237	+243	-247	+253	-257	+263	-267	+273	-277	+303	-307	+313	-317	+323	-327	+333	-337	+343	-347	+353	-357	+363	-367	+373	-377	-376	+372	-366	+362	-356	+352	-346	+342	-336	+332	-326	+322	-316	+312	-306	+302	-276	+272	-266	+262	-256	+252	-246	+242	-236	+232	-226	+222	-216	+212	-206	+202	+2	-6	+12	-16	+22	-26	+32	-36	+42	-46	+52	-56	+62	-66	+72	[illegible]	+102	-106	+112	-116	+122	-126	+132	-136	[illegible]
212	E1-212	+200	-201	+203	-202	+2	-3	+1	-0	+204	-205	+207	-206	+6	-7	+5	-4	+210	-211	+213	-212	+12	-13	+11	-10	+214	-215	+217	-216	+16	-17	+15	-14	+220	-221	+223	-222	+22	-23	+21	-20	+224	-225	+227	-226	+26	-27	+25	-24	+230	-231	+233	-232	+32	-33	+31	-30	+234	-235	+237	-236	+36	-37	+35	-34	+240	-241	+243	-242	+42	-43	+41	-40	+244	-245	+247	-246	+46	-47	+45	-44	+250	-251	+253	-252	+52	-53	+51	-50	+254	-255	+257	-256	+56	-57	+55	-54	+260	-261	+263	-262	+62	-63	+61	-60	+264	-265	+267	-266	+66	-67	+65	-64	+270	-271	+273	-272	+72	-73	+71	-70	+274	-275	+277	-276	+76	-77	+75	-74	+300	-301	+303	-302	+102	-103	+101	-100	+304	-305	+307	-306	+106	-107	+105	[illegible]	+310	-311	+313	-312	+112	-113	+111	-110	[illegible]

NOTES

1. INTERPPET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REVISIONS 20043						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20950			6/3/65	WK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MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL ——

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN L. J. Thorka 22APR65
CHECKED
APPROVED
APPROVED Eldon C. Hall
APPROVED MIT W Kupfer
APPROVED MSC
DATE

INHIBIT WIRING
FIXED MEMORY

CODE IDENT NO.	SIZE	DRAWING NO.
80230	J	2005017

SCALE 4/1 SHEET 2 OF 2

E3

SYM	ZONE	DESCRIPTION
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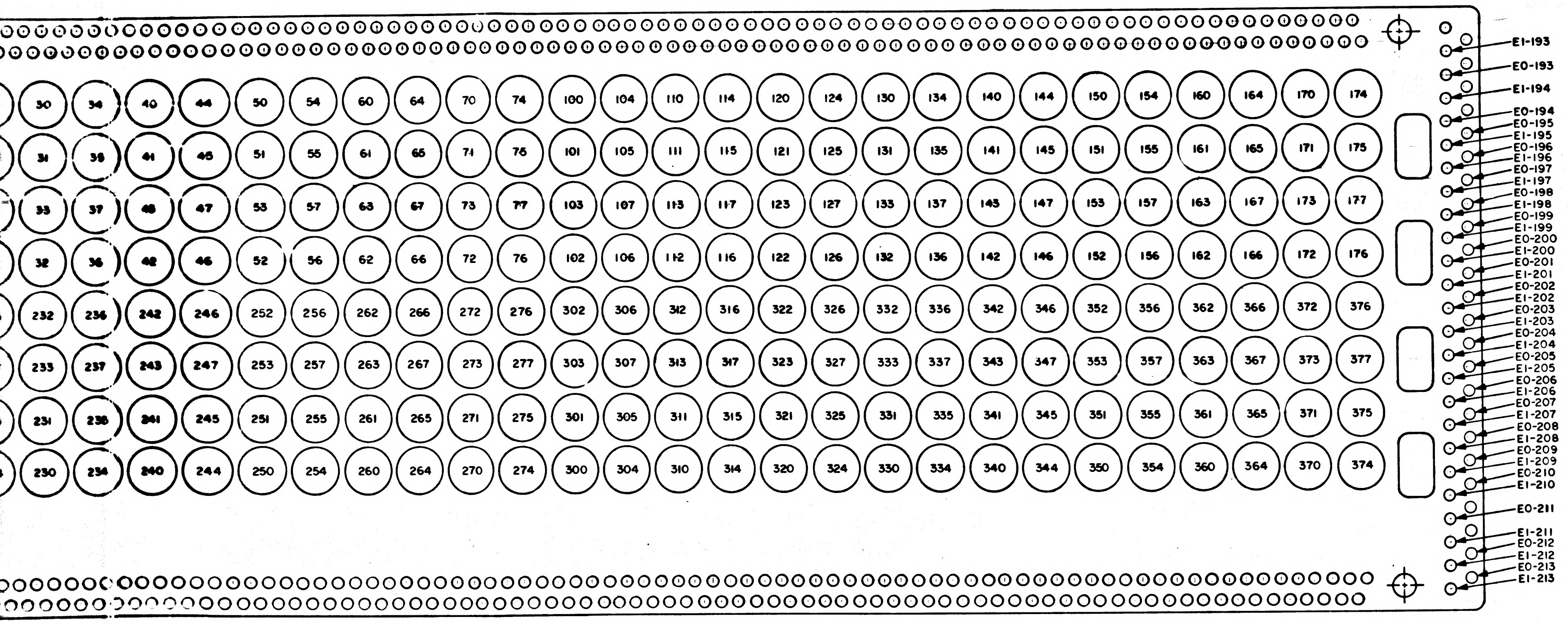
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32 36 42 46 52 56 62 66 72 76 102 106 112 116 122 126 132 136 142 146 152 156 162 166 172 176
232 236 242 246 252 256 262 266 272 276 302 306 312 316 322 326 332 336 342 346 352 356 362 366 372 376
233 237 243 247 253 257 263 267 273 277 303 307 313 317 323 327 333 337 343 347 353 357 363 367 373 377
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MASTER

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL ——

QTY REQD	PART OR IDENTIFYING NO

LIST OF MATERIALS

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACE

DRAWN L. J. Burke 29 APR 63
CHECKED
APPROVED
APPROVED Eldon C. Hall 3 June
APPROVED MIT
APPROVED MSC
DATE

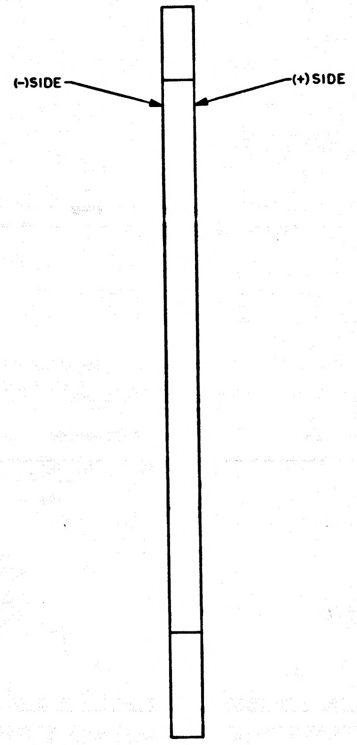
NHIBIT
FIXED

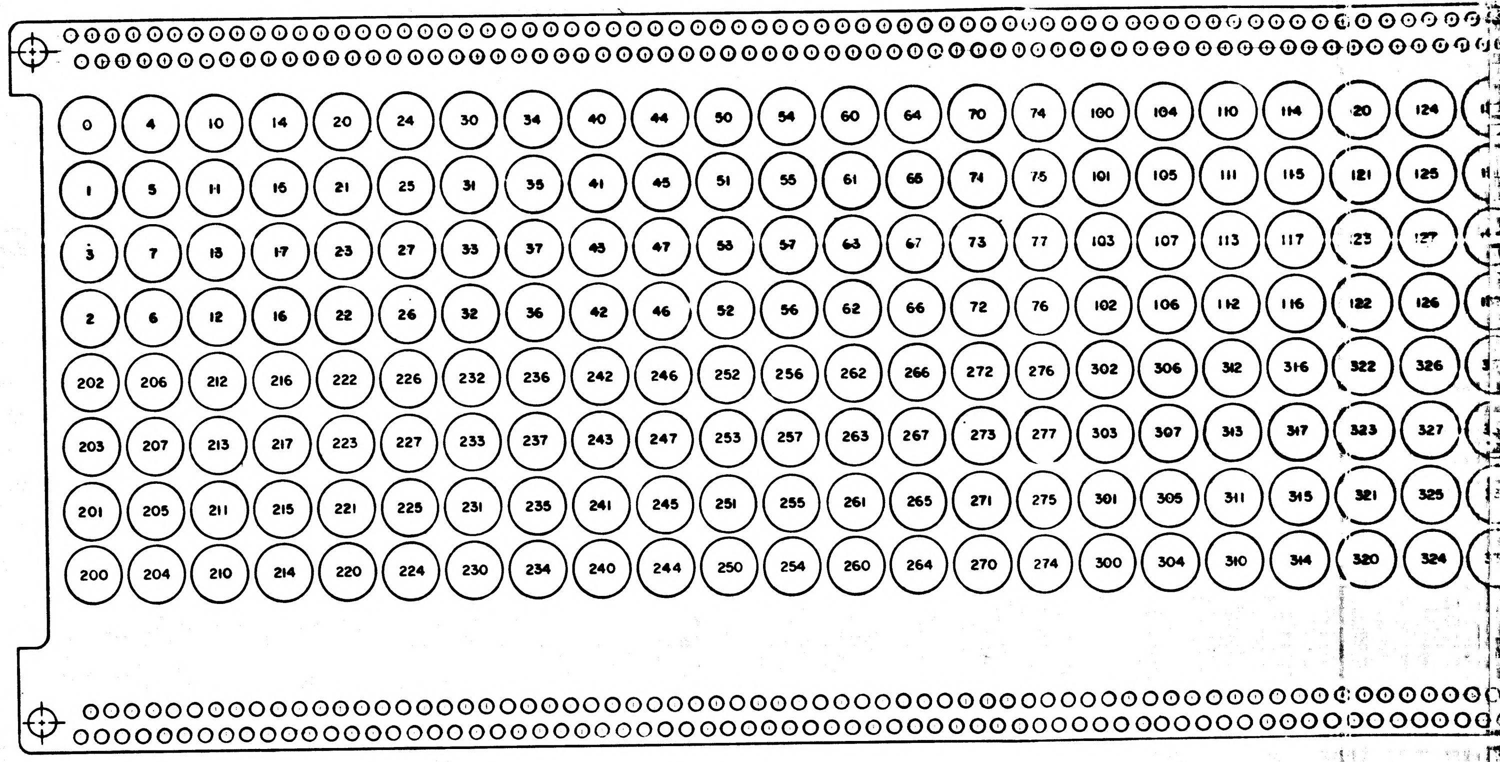
CODE IDENT NO 80230
SIZE
SCALE

2005017	A

F2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

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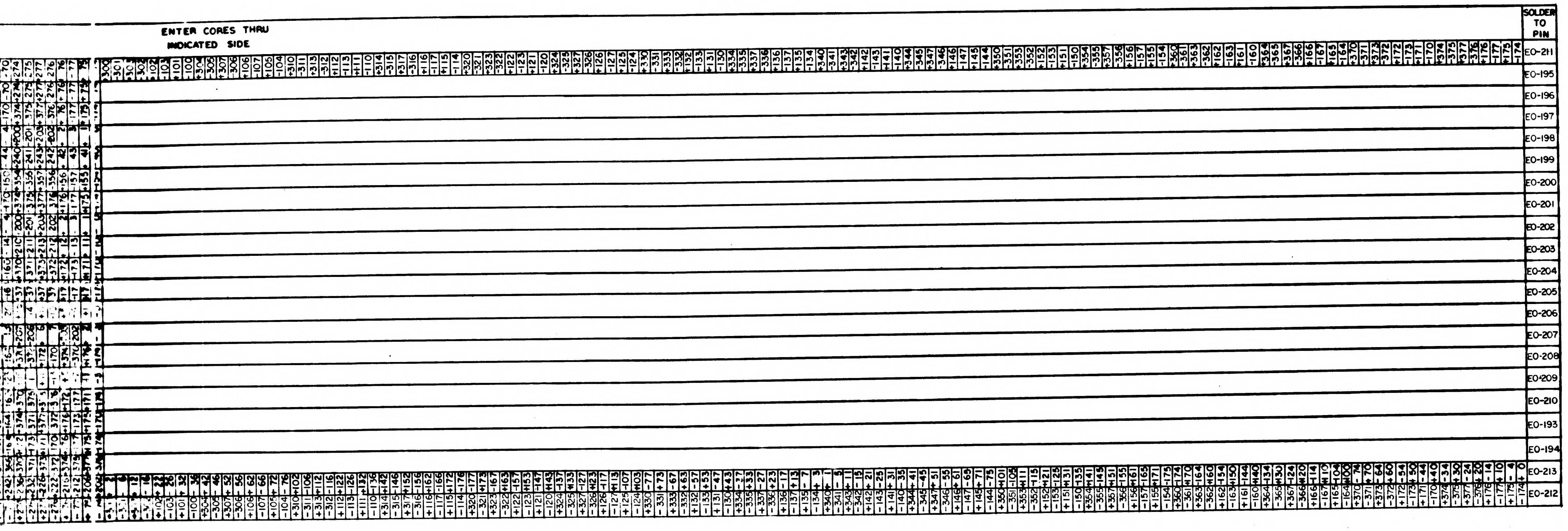
203 207 213 217 223 227 233 237 243 247 253 257 263 267 273 277 303 307 313 317 323 327
201 205 211 215 221 225 231 235 241 245 251 255 261 265 271 275 301 305 311 315 321 325
200 204 210 214 220 224 230 234 240 244 250 254 260 264 270 274 300 304 310 314 320 324

2005617	A

REVISIONS 20043

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20950				
B		REVISED PER TDRR 22159			3 SEPT	


ENTER CORES THRU INDICATED SIDE
SOLDER TO PIN
E0-211
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E0-194
E0-213
E0-212

REF DWG:
1. SCHEMATIC 2005012
2. 2003040 CORE HOLDER ASSY SIDE B
3. 2003049 CORE HOLDER ASSY SIDE A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN DATE 22 APR 65
CHECKED
APPROVAL
APPROVAL
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INHIBIT WIRING
FIXED MEMORY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2005017
SCALE NONE
WT
SHEET 1 OF 2

2005017 B

MASTER

ENTER CORES THRU
INDICATED SIDE

SOLDER TO PIN

EO-212	EO-213	EO-194	EO-193	EO-210	EO-209	EO-208	EO-207	EO-206	EO-205	EO-204	EO-203	EO-202	EO-201	EO-200	EO-199	EO-198	EO-197	EO-196	EO-195	EO-211
-246	257	-312	-110	-312	316	[illegible]	-110	-67	-150	316	-312	-272	-262	-326	-306	-272	-233	-346	246	-246
+46	+263	+314	+116	+116	+112	+145	+314	+263	+145	116	+112	+72	+62	+126	+106	+72	+32	+146	+46	+46
-47	-267	-315	-117	-113	-117	-147	-316	-262	-144	117	-113	73	-63	-127	-107	-73	-33	-147	-47	-47
+45	+273	+317	+115	+115	+111	+141	+116	+62	+141	115	+111	+71	+61	+125	+105	+71	+31	+145	+45	+45
-44	-277	316	-114	-110	114	-143	-114	-63	-140	114	-110	-70	-60	-124	-104	-70	-30	-144	-44	-44
[illegible]	+303	[illegible]	+122	+324	+320	[illegible]	+320	+257	+135	324	+320	+254	+244	+330	+310	+264	+224	+350	+250	+250
-251	-307	[illegible]	123	-321	325	[illegible]	-322	-256	-134	325	321	-256	245	331	-311	-265	225	351	251	-251
+253	+313	+323	+121	+327	+323	[illegible]	+122	[illegible]	[illegible]	327	+323	+257	+247	+333	+313	+267	+227	+353	+253	+253
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
+52	+323	+324	+126	+26	+122	[illegible]	+324	[illegible]	+125	126	+122	+56	+46	+132	+112	+66	+26	+152	+52	+52
-53	327	-325	-127	-23	127	[illegible]	326	252	-124	127	123	57	-47	-133	-113	-67	-27	153	-53	-53
+51	+333	+327	[illegible]	[illegible]	+121	[illegible]	+126	+52	+121	125	+121	+55	+45	+131	+111	+65	+25	+151	+51	+51
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-256	-357	-332	-130	-336	332	113	-130	[illegible]	-110	336	332	252	-242	-336	316	262	222	356	-256	-256
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-57	-367	-335	-137	-137	-133	-107	-336	-242	104	137	-133	-53	-43	-137	-117	-63	-23	-157	-57	-57
+55	+373	+337	+135	+131	+135	+101	+136	+42	+101	135	+131	+51	+41	+135	+115	+61	+21	+155	+55	+55
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+263	-366	+343	+141	+347	+343	+71	+142	+36	+71	347	+343	+237	+227	+363	+343	+257	+217	+363	+263	+263
-262	+362	-342	-140	-342	-346	-73	-140	-37	-70	346	-342	-236	-226	-362	-342	-256	-216	-362	-262	-262
+62	-356	+344	+146	+146	+142	+65	+344	+233	+65	146	+142	+36	+26	+162	+142	+56	+16	+162	+62	+62
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+270	-276	+360	+162	+360	+364	+35	+360	+217	+35	364	+360	+214	+204	+370	+350	+244	+204	+370	+270	+270
-271	+272	-361	-163	-365	361	-37	-362	-216	-34	365	-361	-215	-205	-371	-351	-245	-205	-371	-271	-271
+273	-266	+363	+161	+363	+367	+31	+162	+16	+31	367	+363	+217	+207	+373	+353	+247	+207	+373	+273	+273
-272	+262	-362	-160	-366	362	-33	-160	-17	-30	366	-362	-216	-206	-372	-352	-246	-206	-372	-272	-272
+72	-256	+364	+166	+162	+166	+25	+364	+213	+25	166	+162	+16	+6	+172	+152	+46	+6	+172	+72	+72
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+277	-226	+373	+171	377	373	+11	+172	+6	+11	377	+373	+213	+203	+377	+357	+243	+203	+377	+277	+277
-276	+222	-372	-170	-372	-376	-13	-170	-7	-10	376	-372	-212	-202	-376	-356	-242	-202	-376	-276	-276
+76	-216	+374	+176	+176	+172	+5	+374	+203	+5	+176	+172	+12	+2	+176	+156	+42	+2	+176	+76	+76
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REF DWG:
1. SCHEMATIC 2005012
2. 2003040 CORE HOLD
3. 2003049 CORE HOLD

MASTER

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

DRAWN
CHECKED
APPROVED
APPROVED
NASA APPROVAL
MIT APPROVAL

2005017 B

INHIBIT WIRING TABLE

WIRE NO.	211	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	193	194	213	212
SOLDER TO PIN	E1-211	E1-195	E1-196	E1-197	E1-198	E1-199	E1-200	E1-201	E1-202	E1-203	E1-204	E1-205	E1-206	E1-207	E1-208	E1-209	E1-210	E1-193	E1-194	F1-213	E1-212
	+200	+200	+300	+334	+374	+200	+220	+364	+374	+200	+204	+374	+377	+200	+377	+200	+204	+2	+200	+200	+200
	-201	-201	-301	-335	-375	-201	-221	-365	-375	-201	-205	-375	-376	-202	-375	-205	-201	-3	-201	-204	-201
	+203	+203	+303	+337	+377	+203	+223	+367	+377	+203	+207	+370	+176	+2	+373	+203	+207	+1	+203	+210	+203
	-202	-202	-302	-336	-376	-202	-222	-366	-376	-202	-206	-371	-177	-0	-371	-206	-202	-0	-202	-214	-202
	+2	+2	+102	+136	+176	+2	+22	+166	+176	+2	+6	+364	+373	+204	+367	+2	+6	+6	+204	+220	+2
	-3	-3	-103	-137	-177	-3	-23	-167	-177	-3	-7	-365	-372	-206	-365	-7	-3	-7	-205	-224	-3
	+1	+1	+101	+135	+175	+1	+21	+165	+175	+1	+5	+360	+172	+6	+363	+1	+5	+5	+207	+230	+1
	-0	-0	-100	-134	-174	-0	-20	-164	-174	-0	-4	-361	-173	-4	-361	-4	-0	-4	-206	-234	-0
	+204	+204	+304	+330	+370	+204	+224	+360	+370	+210	+214	+354	+367	+210	+357	+214	+210	+12	+210	+240	+204
	-205	-205	-305	-331	-371	-205	-225	-361	-371	-211	-215	-355	-366	-212	-355	-211	-215	-13	-211	-244	-205
	+207	+207	+307	+333	+373	+207	+227	+363	+373	+213	+217	+350	+166	+12	+353	+217	+213	+11	+213	+250	+207
	-206	-206	-306	-332	-372	-206	-226	-362	-372	-212	-216	-351	-167	-10	-351	-212	-216	-10	-212	-254	-206
	+6	+6	+106	+132	+172	+6	+26	+162	+172	+12	+16	+344	+363	+214	+347	+16	+12	+16	+214	+260	+6
	-7	-7	-107	-133	-173	-7	-27	-163	-173	-13	-17	-345	-362	-216	-345	-13	-17	-17	-215	-264	-7
	+5	+5	+105	+131	+171	+5	+25	+161	+171	+11	+15	+340	+162	+16	+343	+15	+11	+15	+217	+270	+5
	-4	-4	-104	-130	-170	-4	-24	-160	-170	-10	-14	-341	-163	-14	-341	-10	-14	-14	-216	-274	-4
	+210	+210	+310	+324	+364	+210	+230	+344	+354	+220	+224	+334	+357	+220	+337	+224	+220	+22	+220	+300	+210
	-211	-211	-311	-325	-365	-211	-231	-345	-355	-221	-225	-335	-356	-222	-335	-221	-225	-23	-221	-304	-211
	+213	+213	+313	+327	+367	+213	+233	+347	+357	+223	+227	+330	+156	+22	+333	+227	+223	+21	+223	+310	+213
	-212	-212	-312	-326	-366	-212	-232	-346	-356	-222	-226	-331	-157	-20	-331	-222	-226	-20	-222	-314	-212
	+12	+12	+112	+126	+166	+12	+32	+146	+156	+22	+26	+324	+353	+224	+327	+26	+22	+26	+224	+320	+12
	-13	-13	-113	-127	-167	-13	-33	-147	-157	-23	-27	-325	-352	-226	-325	-23	-27	-27	-225	-324	-13
	+11	+11	+111	+125	+165	+11	+31	+145	+155	+21	+25	+320	+152	+26	+323	+25	+21	+25	+227	+330	+11
	-10	-10	-110	-124	-164	-10	-30	-144	-154	-20	-24	-321	-153	-24	-321	-20	-24	-24	-226	-334	-10
	+214	+214	+314	+320	+360	+214	+234	+340	+350	+230	+234	+314	+347	+230	+317	+230	+234	+32	+230	+340	+214
	-215	-215	-315	-321	-361	-215	-235	-341	-351	-231	-235	-315	-346	-232	-315	-235	-231	-33	-231	-344	-215
	+217	+217	+317	+323	+363	+217	+237	+343	+353	+233	+237	+310	+146	+32	+313	+233	+237	+31	+233	+350	+217
	-216	-216	-316	-322	-362	-216	-236	-342	-352	-232	-236	-311	-147	-30	-311	-236	-232	-30	-232	-354	-216
	+16	+16	+116	+122	+162	+16	+36	+142	+152	+32	+36	+304	+343	+234	+307	+32	+36	+36	+234	+360	+16
	-17	-17	-117	-123	-163	-17	-37	-143	-153	-33	-37	-305	-342	-236	-305	-37	-33	-37	-235	-364	-17
	+15	+15	+115	+121	+161	+15	+35	+141	+151	+31	+35	+300	+142	+36	+303	+31	+35	+35	+237	+370	+15
	-14	-14	-114	-120	-160	-14	-34	-140	-150	-30	-34	-301	-143	-34	-301	-34	-30	-34	-236	-374	-14
	+220	+220	+320	+314	+354	+240	+260	+324	+334	+240	+244	+274	+337	+240	+277	+244	+240	+42	+240	-375	+220
	-221	-221	-321	-315	-355	-241	-261	-325	-335	-241	-245	-275	-336	-242	-275	-241	-245	-43	-241	+371	-221
	+223	+223	+323	+317	+357	+243	+263	+327	+337	+243	+247	+270	+136	+42	+273	+247	+243	+41	+243	-365	+223
	-222	-222	-322	-316	-356	-242	-262	-326	-336	-242	-246	-271	-137	-40	-271	-242	-246	-40	-242	+361	-222
	+22	+22	+122	+116	+156	+42	+62	+126	+136	+42	+46	+264	+333	+244	+267	+46	+42	+46	+244	-355	+22
	-23	-23	-123	-117	-157	-43	-63	-127	-137	-43	-47	-265	-332	-246	-265	-43	-47	-47	-245	+351	-23
	+21	+21	+121	+115	+155	+41	+61	+125	+135	+41	+45	+260	+132	+46	+263	+45	+41	+45	+247	-345	+21
	-20	-20	-120	-114	-154	-40	-60	-124	-134	-40	-44	-261	-133	-44	-261	-40	-44	-44	-246	+341	-20
	+224	+224	+324	+310	+350	+244	+264	+320	+330	+250	+254	+254	+327	+250	+257	+250	+254	+52	+250	-335	+224
	-225	-225	-325	-311	-351	-245	-265	-321	-331	-251	-255	-255	-326	-252	-255	-255	-251	-53	-251	+331	-225
	+227	+227	+327	+313	+353	+247	+267	+323	+333	+253	+257	+250	+126	+52	+253	+253	+257	+51	+253	-325	+227
	-226	-226	-326	-312	-352	-246	-266	-322	-332	-252	-256	-251	-127	-50	-251	-256	-252	-50	-252	+321	-226
	+26	+26	+126	+112	+152	+46	+66	+122	+132	+52	+56	+244	+323	+254	+247	+52	+56	+56	+254	-315	+26
	-27	-27	-127	-113	-153	-47	-67	-123	-133	-53	-57	-245	-322	-256	-245	-57	-53	-57	-255	+311	-27
	+25	+25	+125	+111	+151	+45	+65	+121	+131	+51	+55	+240	+122	+56	+243	+51	+55	+55	+257	-305	+25
	-24	-24	-124	-110	-150	-44	-64	-120	-130	-50	-54	-241	-123	-54	-241	-54	-50	-54	-256	+301	-24
	+230	+230	+330	+304	+344	+250	+270	+304	+314	+260	+264	+234	+317	+260	+237	+260	+264	+62	+260	-275	+230
	-231	-231	-331	-305	-345	-251	-271	-305	-315	-261	-265	-235	-316	-262	-235	-265	-261	-63	-261	+271	-231
	+233	+233	+333	+307	+347	+253	+273	+307	+317	+263	+267	+230	+116	+62	+233	+263	+267	+61	+263	-265	+233
	-232	-232	-332	-306	-346	-252	-272	-306	-316	-262	-266	-231	-117	-60	-231	-266	-262	-60	-262	+261	-232
	+32	+32	+132	+106	+146	+52	+72	+106	+116	+62	+66	+224	+313	+264	+227	+62	+66	+66	+264	-255	+32
	-33	-33	-133	-107	-147	-53	-73	-107	-117	-63	-67	-225	-312	-266	-225	-67	-63	-67	-265	+251	-33
	+31	+31	+131	+105	+145	+51	+71	+105	+115	+61	+65	+220	+112	+66	+223	+61	+65	+65	+267	-245	+31
	-30	-30	-130	-104	-144	-50	-70	-104	-114	-60	-64	-221	-113	-64	-221	-64	-60	-64	-266	+241	-30
	+234	+234	+334	+300	+340	+254	+274	+300	+310	+270	+274	+214	+307	+270	+217	+274	+270	+72	+270	-235	+234
	-235	-235	-335	-301	-341	-255	-275	-301	-311	-271	-275	-215	-306	-272	-215	-271	-275	-73	-271	+231	-235
	+237	+237	+337	+303	+343	+257	+277	+303	+313	+273	+277	+210	+106	+72	+213	+277	+273	+71	+273	-225	+237
	-236	-236	-336	-302	-342	-256	-276	-302	-312	-272	-276	-211	-107	-70	-211	-272	-276	-70	-272	+221	-236
	+36	+36	+136	+102	+142	+56	+76	+102	+112	+72	+76	+204	+303	+274	+207	+76	+72	+76	+274	-215	+36
	-37	-37	-137	-103	-143	-57	-77	-103	-113	-73	-77	-205	-302	-276	-205	-73	-77	-77	-275	+211	-37
	+35	+35	+135	+101	+141	+55	+75	+101	+111	+71	+75	+200	+102	+76	+203	+75	+71	+75	+277	-205	+35
	-34	-34	-134	-100	-140	-54	-74	-100	-110	-70	-74	-201	-103	-74	-201	-70	-74	-74	-276	+201	-34
	+240	+240	+340	+234	+274	+300	+320	+264	+274	+300	+304	+175	+277	+300	+175	+304	+300	+102	+300	+203	+240
	-241	-241	-341	-235	-275	-301	-321	-265	-275	-301	-305	-174	-276	-302	-177	-301	-305	-103	-301	-207	-241
	+243	+243	+343	+237	+277	+303	+323	+267	+277	+303	+307	+171	+76	+102	+171	+307	+303	+101	+303	+213	+243
	-242	-242	-342	-236	-276	-302	-322	-266	-276	-302	-306	-170	-77	-100	-173	-302	-306	-100	-302	-217	-242
	+42	+42	+142	+36	+76	+102	+122	+66	+76	+102	+106	+165	+273	+304	+165	+106	+102	+106	+304	+223	+42
	-43	-43	-143	-37	-77	-103	-123	-67	-77	-103	-107	-164	-272	-306	-167	-103	-107	-107	-305	-227	-43
	+41	+41	+141	+35	+75	+101	+121	+65	+75	+101	+105	+161	+72	+106	+161	+105	+101	+105	+307	+233	+41
	-40	-40	-140	-34	-74	-100	-120	-64	-74	-100	-104	-160	-73	-104	-163	-100	-104	-104	-306	-237	-40
	+244	+244	+344	+230	+270	+304	+324	+260	+270	+310	+314	+155	+267	+310	+155	+310	+314	+112	+310	+243	+244
	-245	-245	-345	-231	-271	-305	-325	-261	-271	-311	-315	-154	-266	-312	-157	-315	-311	-113	-311	-247	-245
	+247	+247	+347	+233	+273	+307	+327	+263	+273	+313	+317	+151	+66	+112	+151	+313	+317	+111	+313	+253	+247
	-246	-246	-346	-232	-272	-306	-326	-262	-272	-312	-316	-150	-67	-110	-153	-316	-312	-110	-312	-257	-246
	+46	+46	+146	+32	+72	+106	+126	+62	+72	+112	+116	+145	+263	+314	+145	+112	+116	+116	+314	+263	+46
	-47	-47	-147	-33	-73	-107	-127	-63	-73	-113	-117	-144	-262	-316	-147	-117	-113	-117	-315	-267	-47
	+45	+45	+145	+31	+71	+105	+125	+61	+71	+111	+115	+141	+62	+116	+141	+111	+115	+115	+317	+273	+45
	-44	-44	-144	-30	-70	-104	-124	-60	-70	-110	-114	-140	-63	-114	-143	-114	-110	-114	-316	-277	-44
	+250	+250	+350	+224	+264	+310	+330	+244	+254	+320	+324	+135	+257	+320	+135	+320	+324	+122	+320	+303	+250
	-251	-251	-351	-225	-265	-311	-331	-245	-255	-321	-325	-134	-256	-322	-137	-325	-321	-123	-321	-307	-251
	+253	+253	+353	+227	+267	+313	+333	+247	+257	+323	+327	+131	+56	+122	+131	+323	+327	+121	+323	+313	+253
	-252	-252	-352	-226	-266	-312	-332	-246	-256	-322	-326	-130	-57	-120	-133	-326	-322	-120	-322	-317	-252
	+52	+52	+152	+26	+66	+112	+132	+46	+56	+122	+126	+125	+253	+324	+125	+122	+126	+126	+324	+323	+52
	-53	-53	-153	-27	-67	-113	-133	-47	-57	-123	-127	-124	-252	-326	-127	-127	-123	-127	-325	-327	-53
	+51	+51	+151	+25	+65	+111	+131	+45	+55	+121	+125	+121	+52	+126	+121	+121	+125	+125	+327	+333	+51
	-50	-50	-150	-24	-64	-110	-130	-44	-54	-120	-124	-120	-53	-124	-123	-124	-120	-124	-326	-337	-50
	+254	+254	+354	+220	+260	+314	+334	+240	+250	+330	+334	+115	+247	+330	+115	+334	+330	+132	+330	+343	+254
	-255	-255	-355	-221	-261	-315	-335	-241	-251	-331	-335	-114	-246	-332	-117	-331	-335	-133	-331	-347	-255
	+257	+257	+357	+223	+263	+317	+337	+243	+253	+333	+337	+111	+46	+132	+111	+337	+333	+131	+333	+353	+257
	-256	-256	-356	-222	-262	-316	-336	-242	-252	-332	-336	-110	-47	-130	-113	-332	-336	-130	-332	-357	-256
	+56	+56	+156	+22	+62	+116	+136	+42	+52	+132	+136	+105	+243	+334	+105	+136	+132	+136	+334	+363	+56
	-57	-57	-157	-23	-63	-117	-137	-43	-53	-133	-137	-104	-242	-336	-107	-133	-137	-137	-335	-367	-57
	+55	+55	+155	+21	+61	+115	+135	+41	+51	+131	+135	+101	+42	+136	+101	+135	+131	+135	+337	+373	+55
	-54	-54	-154	-20	-60	-114	-134	-40	-50	-130	-134	-100	-43	-134	-103	-130	-134	-134	-336	-377	-54
	+260	+260	+360	+214	+254	+340	+360	+224	+234	+340	+344	+75	+237	+340	+75	+340	+344	+142	+340	-376	+260
	-261	-261	-361	-215	-255	-341	-361	-225	-235	-341	-345	-74	-236	-342	-77	-345	-341	-143	-341	+372	-261
	+263	+263	+363	+217	+257	+343	+363	+227	+237	+343	+347	+71	+36	+142	+71	+343	+347	+141	+343	-366	+263
	-262	-262	-362	-216	-256	-342	-362	-226	-236	-342	-346	-70	-37	-140	-73	-346	-342	-140	-342	+362	-262
	+62	+62	+162	+16	+56	+142	+162	+26	+36	+142	+146	+65	+233	+344	+65	+142	+146	+146	+344	-356	+62
	-63	-63	-163	-17	-57	-143	-163	-27	-37	-143	-147	-64	-232	-346	-67	-147	-143	-147	-345	+352	-63
	+61	+61	+161	+15	+55	+141	+161	+25	+35	+141	+145	+61	+32	+146	+61	+141	+145	+145	+347	-346	+61
	-60	-60	-160	-14	-54	-140	-160	-24	-34	-140	-144	-60	-33	-144	-63	-144	-140	-144	-346	+342	-60
	+264	+264	+364	+210	+250	+344	+364	+220	+230	+350	+354	+55	+227	+350	+55	+354	+350	+152	+350	-336	+264
	-265	-265	-365	-211	-251	-345	-365	-221	-231	-351	-355	-54	-226	-352	-57	-351	-355	-153	-351	+332	-265
	+267	+267	+367	+213	+253	+347	+367	+223	+233	+353	+357	+51	+26	+152	+51	+357	+353	+151	+353	-326	+267
	-266	-266	-366	-212	-252	-346	-366	-222	-232	-352	-356	-50	-27	-150	-53	-352	-356	-150	-352	+322	-266
	+66	+66	+166	+12	+52	+146	+166	+22	+32	+152	+156	+45	+223	+354	+45	+156	+152	+156	+354	-316	+66
	-67	-67	-167	-13	-53	-147	-167	-23	-33	-153	-157	-44	-222	-356	-47	-153	-157	-157	-355	+312	-67
	+65	+65	+165	+11	+51	+145	+165	+21	+31	+151	+155	+41	+22	+156	+41	+155	+151	+155	+357	-306	+65
	-64	-64	-164	-10	-50	-144	-164	-20	-30	-150	-154	-40	-23	-154	-43	-150	-154	-154	-356	+302	-64
	+270	+270	+370	+204	+244	+350	+370	+204	+214	+360	+364	+35	+217	+360	+35	+364	+360	+162	+360	-276	+270
	-271	-271	-371	-205	-245	-351	-371	-205	-215	-361	-365	-34	-216	-362	-37	-361	-365	-163	-361	+272	-271
	+273	+273	+373	+207	+247	+353	+373	+207	+217	+363	+367	+31	+16	+162	+31	+367	+363	+161	+363	-266	+273
	-272	-272	-372	-206	-246	-352	-372	-206	-216	-362	-366	-30	-17	-160	-33	-362	-366	-160	-362	+262	-272
	+72	+72	+172	+6	+46	+152	+172	+6	+16	+162	+166	+25	+213	+364	+25	+166	+162	+166	+364	-256	+72
	-73	-73	-173	-7	-47	-153	-173	-7	-17	-163	-167	-24	-212	-366	-27	-163	-167	-167	-365	+252	-73
	+71	+71	+171	+5	+45	+151	+171	+5	+15	+161	+165	+21	+12	+166	+21	+165	+161	+165	+367	-246	+71
	-70	-70	-170	-4	-44	-150	-170	-4	-14	-160	-164	-20	-13	-164	-23	-160	-164	-164	-366	+242	-70
	+274	+274	+374	+200	+240	+354	+374	+200	+210	+370	+374	+15	+207	+370	+15	+370	+374	+172	+370	-236	+274
	-275	-275	-375	-201	-241	-355	-375	-201	-211	-371	-375	-14	-206	-372	-17	-375	-371	-173	-371	+232	-275
	+277	+277	+377	+203	+243	+357	+377	+203	+213	+373	+377	+11	+6	+172	+11	+373	+377	+171	+373	-226	+277
	-276	-276	-376	-202	-242	-356	-376	-202	-212	-372	-376	-10	-7	-170	-13	-376	-372	-170	-372	+222	-276
	+76	+76	+176	+2	+42	+156	+176	+2	+12	+172	+176	+5	+203	+374	+5	+172	+176	+176	+374	-216	+76
	-77	-77	-177	-3	-43	-157	-177	-3	-13	-173	-177	-4	-202	-376	-7	-177	-173	-177	-375	+212	-77
	+75	+75	+175	+1	+41	+155	+175	+1	+11	+171	+175	+1	+2	+176	+1	+171	+175	+175	+377	-206	+75
	-74	-74	-174	-0	-40	-154	-174	-0	-10	-170	-174	-0	-3	-174	-3	-174	-170	-174	-376	+202	-74
ENTER CORES THRU INDICATED SIDE																					
+300																				+2	+300
-301																				-6	-301
+303																				+12	+303
-302																				-16	-302
+102																				+22	+102
-103																				-26	-103
+101																				+32	+101
-100																				-36	-100
+304																				+42	+304
-305																				-46	-305
+307																				+52	+307
-306																				-56	-306
+106																				+62	+106
-107																				-66	-107
+105																				+72	+105
-104																				-76	-104
+310																				+102	+310
-311																				-106	-311
+313																				+112	+313
-312																				-116	-312
+112																				+122	+112
-113																				-126	-113
+111																				+132	+111
-110																				-136	-110
+314																				+142	+314
-315																				-146	-315
+317																				[illegible]	+317

NOTES
1. INTERPPET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

8 7 6 5

D C B A

2005017 B

ENTER CORES THRU INDICATED SIDE

EO-212	EO-213	EO-194	EO-193	EO-210	EO-209	EO-208	EO-207	EO-206	EO-205	EO-204	EO-203	EO-202	EO-201	EO-200	EO-199	EO-198	EO-197	EO-196	EO-195	EO-211
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
-262	+362	349	40	-342	346	+141	-140	-37	-34	46	-342	236	226	362	342	256	-216	362	262	262
+63	-356	+344	+146	+146	+142	348	+344	+233	+230	46	+142	+36	+26	+162	+142	+56	+16	+162	+62	+62
-63	+352	345	147	-143	-147	+347	346	-232	-231	47	-143	-37	27	-163	-143	-57	-17	-163	-63	-63
+61	-346	+347	+145	+145	+141	-147	+146	+32	+31	45	+141	+35	+25	+161	+141	+55	+15	+161	+61	+61
-60	+342	341	144	-140	144	+145	-144	-33	-30	44	-140	-34	24	160	-140	-54	-14	-160	60	-60
+264	-336	+350	+152	+350	354	-351	+350	+227	+224	54	+350	+230	+220	+364	+344	+250	+210	+364	+264	+264
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-351	-231	-221	-365	-345	-251	-211	-365	-265	-265
+267	-326	+353	+151	+353	+357	-153	+152	+26	+25	57	+353	+233	+223	+367	+347	+253	+213	+367	+267	+267
-266	+322	-352	150	-356	352	+151	-150	-27	-24	56	-352	232	-222	-366	-346	-252	-212	-366	-266	-266
+66	-316	+354	+156	+152	+156	-355	+354	+223	+220	56	+152	+32	+22	+166	+146	+52	+12	+166	+66	+66
-67	+312	-355	-157	-157	-153	+357	-356	-222	-221	57	-153	-33	-23	-167	-147	-53	-13	-167	-67	-67
+65	-308	+357	+155	+151	+155	-157	+156	+22	+21	55	+151	+31	+21	+165	+145	+51	+11	+165	+65	+65
-64	+302	-356	-154	-154	-150	+155	-154	-23	-20	54	-150	-30	-20	-164	-144	-50	-10	-164	-64	-64
+270	-276	+360	+162	+360	+364	-361	+360	+217	+214	364	+360	+214	+204	+370	+350	+244	+204	+370	+270	+270
-271	+272	-361	-163	365	-361	+363	-362	-216	-215	365	-361	-215	-205	-371	-351	-245	-205	-371	-271	-271
+273	-266	+363	+161	363	+367	-163	+162	+16	+15	367	+363	+217	+207	+373	+353	+247	+207	+373	+273	+273
-272	+262	-362	-160	366	-362	+161	-160	-17	-14	366	362	216	-206	-372	-352	-246	206	372	272	-272
+72	-256	+364	+166	+162	+166	-365	+364	+213	+210	66	+162	+16	+6	+172	+152	+46	+6	+172	+72	+72
-73	+252	-365	-167	-167	163	+367	-366	-212	-211	67	-163	-17	-7	-173	-153	-47	-7	-173	-73	-73
+71	-246	+367	+165	+161	+165	-167	+166	+12	+11	65	+161	+15	+5	+171	+151	+45	+5	+171	+71	+71
-70	+242	-366	-164	-164	-160	+165	-164	-13	-10	64	-160	-14	-4	-170	-150	-44	-4	-170	-70	-70
+274	-236	+370	+172	+374	+370	-371	+370	+207	+204	374	+370	+210	+200	+374	+354	+240	+200	+374	+274	+274
-275	+232	-371	-173	-371	-375	+373	-372	-206	-205	375	-371	-211	-201	-375	-355	-241	-201	-375	-275	-275
+277	-226	+373	+171	+377	+373	-173	+172	+6	+5	377	+373	+213	+203	+377	+357	+243	+203	+377	+277	+277
-276	+222	-372	-170	-372	-376	+171	-170	-7	-4	376	-372	-212	-202	-376	-356	-242	-202	-376	-276	-276
+76	-216	+374	+176	+176	+172	-375	+374	+203	+200	76	+172	+12	+2	+176	+156	+42	+2	+176	+76	+76
-77	+212	-375	77	-173	-177	+377	-376	-202	-201	77	-173	-13	-3	-177	-157	-43	-3	-177	-77	-77
+75	-206	+37	+175	+175	+171	-177	+176	+2	+1	75	+171	+11	+1	+175	+155	+41	+1	+175	+75	+75
-74	+202	-376	-174	-170	-174	+175	-174	-3	-0	174	-170	-10	-0	-174	-154	-40	-0	-174	-74	-74
+300	+2																			+300
-301	-6																			-301
+303	+12																			+303
-302	-16																			-302
+102	+22																			+102
-103	-26																			-103
+101	+32																			+101
-100	-36																			-100
+304	+42																			+304
-305	-46																			-305
+307	+52																			+307
-306	-56																			-306
+106	+62																			+106
-107	-66																			-107
+105	+72																			+105
-104	-76																			-104
+310	+102																			+310
-311	-106																			-311
+313	+112																			+313
-312	-116																			-312
+112	+122																			+112
-113	-126																			-113
+111	+132																			+111
-110	-136																			-110
+314	+142																			+314
-315	-146																			-315
+317	+152																			+317
-316	-156																			-316
+116	+162																			+116
-117	-166																			-117
+115	+172																			+115
-114	-176																			-114
+320	-177																			+320
-321	+173																			-321
+323	-167																			+323
-322	+163																			-322
+122	-157																			+122
-123	+153																			-123
+121	-147																			+121
-120	+143																			-120
+324	-137																			+324
-325	+133																			-325
+327	-127																			+327
-326	+123																			-326
+126	-117																			+126
-127	+113																			-127
+125	-107																			+125
-124	+103																			-124
+330	-77																			+330
-331	+73																			-331
+333	-67																			+333
-332	+63																			-332
+132	-57																			+132
-133	+53																			-133
+131	-47																			+131
-130	+43																			-130
+334	-37																			+334
-335	+33																			-335
+337	-27																			+337
-336	+23																			-336
+136	-17																			+136
-137	+13																			-137
+135	-7																			+135
-134	+3																			-134
+340	+1																			+340
-341	-5																			-341
+343	+11																			+343
-342	-15																			-342
+142	+21																			+142
-143	-25																			-143
+141	+31																			+141
-140	-35																			-140
+344	+41																			+344
-345	-45																			-345
+347	+51																			+347
-346	-55																			-346
+146	+61																			+146
-147	-65																			-147
+145	+71																			+145
-144	-75																			-144
+350	+101																			+350
-351	-105																			-351
+353	+111																			+353
-352	-115																			-352
+152	+121																			+152
-153	-125																			-153
+151	+131																			+151
-150	-135																			-150
+354	+141																			+354
-355	-145																			-355
+357	+151																			+357
-356	-155																			-356
+156	+161																			+156
-157	-165																			-157
+155	+171																			+155
-154	-175																			-154
+360	-174																			+360
-361	+170																			-361
+363	-164																			+363
-362	+160																			-362
+162	-154																			+162
-163	+150																			-163
+161	-144																			+161
-160	+140																			-160
+364	-134																			+364
-365	+130																			-365
+367	-124																			+367
-366	+120																			-366
+166	-114																			+166
-167	+110																			-167
+165	-104																			+165
-164	+100																			-164
+370	-74																			+370
-371	+70																			-371
+373	-64																			+373
-372	+60																			-372
+172	-54																			+172
-173	+50																			-173
+171	-44																			+171
-170	+40																			-170
+374	-34																			+374
-375	+30																			-375
+377	-24																			+377
-376	+20																			-376
+176	-14																			+176
-177	+10																			-177
+175	-4																			+175
-174	+0																			-174

SOLDER TO PIN

REF DWG:
1. SCHEMATIC 2005012
2. 2003040 CORE HOLDER ASSY SIDE B
3. 2003049 CORE HOLDER ASSY SIDE A

SYM	ZONE	DESCRIPTION	DATE	APPROVED

REVISIONS

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

NEXT ASSY | USED ON
APPLICATION

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.
DRAWN
CHECKED
APPROVED
APPROVED
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INHIBIT WIRING
FIXED MEMORY

CODE IDENT NO. 80230
SIZE J
NASA DRAWING NO. 2005017
SCALE NONE
SHEET 1 OF 2

2005017

2005017

D

INHIBIT WIRING TABLE

C

WIRE NO.	SOLDER TO PIN																												
211	E1-211	+200	-201	+203	-202	+2	-3	+1	-0	+204	-205	+207	-206	+6	-7	+5	-4	+210	-211	+213	-212	+12	-13	+11	-10	+214	-215	+217	-216
195	E1-195	+200	-201	+203	-202	+2	-3	+1	-0	+204	-205	+207	-206	+6	-7	+5	-4	+210	-211	+213	-212	+12	-13	+11	-10	+214	-215	+217	-216
196	E1-196	+300	-301	+303	-302	+102	-103	+101	-100	+304	-305	+307	-306	+106	-107	+105	-104	+310	-311	+313	-312	+112	-113	+111	-110	+314	-315	+317	-316
197	E1-197	+334	-335	+337	-336	+136	-137	+135	-134	+330	-331	+333	-332	+132	-133	+131	-130	+324	-325	+327	-326	+126	-127	+125	-124	+320	-321	+323	-322
198	E1-198	+374	-375	+377	-376	+176	-177	+175	-174	+370	-371	+373	-372	+172	-173	+171	-170	+364	-365	+367	-366	+166	-167	+165	-164	+360	-361	+363	-362
199	E1-199	+200	-201	+203	-202	+2	-3	+1	-0	+204	-205	+207	-206	+6	-7	+5	-4	+210	-211	+213	-212	+12	-13	+11	-10	+214	-215	+217	-216
200	E1-200	+220	-221	+223	-222	+22	-23	+21	-20	+224	-225	+227	-226	+26	-27	+25	-24	+230	-231	+233	-232	+32	-33	+31	-30	+234	-235	+237	-236
201	E1-201	+364	-365	+367	-366	+166	-167	+165	-164	+360	-361	+363	-362	+162	-163	+161	-160	+344	-345	+347	-346	+146	-147	+145	-144	+340	-341	+343	-342
202	E1-202	+374	-375	+377	-376	+176	-177	+175	-174	+370	-371	+373	-372	+172	-173	+171	-170	+354	-355	+357	-356	+156	-157	+155	-154	+350	-351	+353	-352
203	E1-203	+200	-201	+203	-202	+2	-3	+1	-0	+210	-211	+213	-212	+12	-13	+11	-10	+220	-221	+223	-222	+22	-23	+21	-20	+230	-231	+233	-232
204	E1-204	+204	-205	+207	-206	+6	-7	+5	-4	+214	-215	+217	-216	+16	-17	+15	-14	+224	-225	+227	-226	+26	-27	+25	-24	+234	-235	+237	-236
205	E1-205	+374	-375	+175	-174	+370	-371	+171	-170	+364	-365	+165	-164	+360	-361	+161	-160	+354	-355	+155	-154	+350	-351	+151	-150	+344	-345	+145	-144
206	E1-206	+377	-376	+176	-177	+373	-372	+172	-173	+367	-366	+166	-167	+363	-362	+162	-163	+357	-356	+156	-157	+353	-352	+152	-153	+347	-346	+146	-147
207	E1-207	+200	-202	+2	-0	+204	-206	+6	-4	+210	-212	+12	-10	+214	-216	+16	-14	+220	-222	+22	-20	+224	-226	+26	-24	+230	-232	+32	-30
208	E1-208	-201	+203	-3	+1	-205	+207	-7	+5	-211	+213	-13	+11	-215	+217	-17	+15	-221	+223	-23	+21	-225	+227	-27	+25	-231	+233	-33	+31
209	E1-209	+200	-205	+203	-206	+2	-7	+1	-4	+214	-211	+217	-212	+16	-13	+15	-10	+224	-221	+227	-222	+26	-23	+25	-20	+230	-235	+233	-236
210	E1-210	+204	-201	+207	-202	+6	-3	+5	-0	+210	-215	+213	-216	+12	-17	+11	-14	+220	-225	+223	-226	+22	-27	+21	-24	+234	-231	+237	-232
193	E1-193	+2	-3	+1	-0	+6	-7	+5	-4	+12	-13	+11	-10	+16	-17	+15	-14	+22	-23	+21	-20	+26	-27	+25	-24	+32	-33	+31	-30
194	E1-194	+200	-201	+203	-202	+204	-205	+207	-206	+210	-211	+213	-212	+214	-215	+217	-216	+220	-221	+223	-222	+224	-225	+227	-226	+230	-231	+233	-232
213	E1-213	+200	-204	+210	-214	+220	-224	+230	-234	+240	-244	+250	-254	+260	-264	+270	-274	+300	-304	+310	-314	+320	-324	+330	-334	+340	-344	+350	-354
212	E1-212	+200	-201	+203	-202	+2	-3	+1	-0	+204	-205	+207	-206	+6	-7	+5	-4	+210	-211	+213	-212	+12	-13	+11	-10	+214	-215	+217	-216

WIRE NO.	SOLDER TO PIN																								
211	E1-211	+16	-17	+15	-14	+220	-221	+223	-222	+22	-23	+21	-20	+224	-225	+227	-226	+26	-27	+25	-24	+230	-231	+233	-232
195	E1-195	+16	-17	+15	-14	+220	-221	+223	-222	+22	-23	+21	-20	+224	-225	+227	-226	+26	-27	+25	-24	+230	-231	+233	-232
196	E1-196	+116	-117	+115	-114	+320	-321	+323	-322	+122	-123	+121	-120	+324	-325	+327	-326	+126	-127	+125	-124	+330	-331	+333	-332
197	E1-197	+122	-123	+121	-120	+314	-315	+317	-316	+116	-117	+115	-114	+310	-311	+313	-312	+112	-113	+111	-110	+304	-305	+307	-306
198	E1-198	+162	-163	+161	-160	+354	-355	+357	-356	+156	-157	+155	-154	+350	-351	+353	-352	+152	-153	+151	-150	+344	-345	+347	-346
199	E1-199	+16	-17	+15	-14	+240	-241	+243	-242	+42	-43	+41	-40	+244	-245	+247	-246	+46	-47	+45	-44	+250	-251	+253	-252
200	E1-200	+36	-37	+35	-34	+260	-261	+263	-262	+62	-63	+61	-60	+264	-265	+267	-266	+66	-67	+65	-64	+270	-271	+273	-272
201	E1-201	+142	-143	+141	-140	+324	-325	+327	-326	+126	-127	+125	-124	+320	-321	+323	-322	+122	-123	+121	-120	+304	-305	+307	-306
202	E1-202	+152	-153	+151	-150	+334	-335	+337	-336	+136	-137	+135	-134	+330	-331	+333	-332	+132	-133	+131	-130	+314	-315	+317	-316
203	E1-203	+32	-33	+31	-30	+240	-241	+243	-242	+42	-43	+41	-40	+250	-251	+253	-252	+52	-53	+51	-50	+260	-261	+263	-262
204	E1-204	+36	-37	+35	-34	+244	-245	+247	-246	+46	-47	+45	-44	+254	-255	+257	-256	+56	-57	+55	-54	+264	-265	+267	-266
205	E1-205	+340	-341	+141	-140	+334	-335	+135	-134	+330	-331	+131	-130	+324	-325	+125	-124	+320	-321	+121	-120	+314	-315	+115	-114
206	E1-206	+343	-342	+142	-143	+337	-336	+136	-137	+333	-332	+132	-133	+327	-326	+126	-127	+323	-322	+122	-123	+317	-316	+116	-117
207	E1-207	+234	-236	+36	-34	+240	-242	+42	-40	+244	-246	+46	-44	+250	-252	+52	-50	+254	-256	+56	-54	+260	-262	+62	-60
208	E1-208	-235	+237	-37	+35	-241	+243	-43	+41	-245	+247	-47	+45	-251	+253	-53	+51	-255	+257	-57	+55	-261	+263	-63	+61
209	E1-209	+32	-37	+31	-34	+244	-241	+247	-242	+46	-43	+45	-40	+250	-255	+253	-256	+52	-57	+51	-54	+260	-265	+263	-266
210	E1-210	+36	-33	+35	-30	+240	-245	+243	-246	+42	-47	+41	-44	+254	-251	+257	-252	+56	-53	+55	-50	+264	-261	+267	-262
193	E1-193	+36	-37	+35	-34	+42	-43	+41	-40	+46	-47	+45	-44	+52	-53	+51	-50	+56	-57	+55	-54	+62	-63	+61	-60
194	E1-194	+234	-235	+237	-236	+240	-241	+243	-242	+244	-245	+247	-246	+250	-251	+253	-252	+254	-255	+257	-256	+260	-261	+263	-262
213	E1-213	+360	-364	+370	-374	-375	+371	-365	+361	-355	+351	-345	+341	-335	+331	-325	+321	-315	+311	-305	+301	-275	+271	-265	+261
212	E1-212	+16	-17	+15	-14	+220	-221	+223	-222	+22	-23	+21	-20	+224	-225	+227	-226	+26	-27	+25	-24	+230	-231	+233	-232

WIRE NO.	SOLDER TO PIN																								
211	E1-211	+32	-33	+31	-30	+234	-235	+237	-236	+36	-37	+35	-34	+240	-241	+243	-242	+42	-43	+41	-40	+244	-245	+247	-246
195	E1-195	+32	-33	+31	-30	+234	-235	+237	-236	+36	-37	+35	-34	+240	-241	+243	-242	+42	-43	+41	-40	+244	-245	+247	-246
196	E1-196	+132	-133	+131	-130	+334	-335	+337	-336	+136	-137	+135	-134	+340	-341	+343	-342	+142	-143	+141	-140	+344	-345	+347	-346
197	E1-197	+106	-107	+105	-104	+300	-301	+303	-302	+102	-103	+101	-100	+234	-235	+237	-236	+36	-37	+35	-34	+230	-231	+233	-232
198	E1-198	+146	-147	+145	-144	+340	-341	+343	-342	+142	-143	+141	-140	+274	-275	+277	-276	+76	-77	+75	-74	+270	-271	+273	-272
199	E1-199	+52	-53	+51	-50	+254	-255	+257	-256	+56	-57	+55	-54	+300	-301	+303	-302	+102	-103	+101	-100	+304	-305	+307	-306
200	E1-200	+72	-73	+71	-70	+274	-275	+277	-276	+76	-77	+75	-74	+320	-321	+323	-322	+122	-123	+121	-120	+324	-325	+327	-326
201	E1-201	+106	-107	+105	-104	+300	-301	+303	-302	+102	-103	+101	-100	+264	-265	+267	-266	+66	-67	+65	-64	+260	-261	+263	-262
202	E1-202	+116	-117	+115	-114	+310	-311	+313	-312	+112	-113	+111	-110	+274	-275	+277	-276	+76	-77	+75	-74	+270	-271	+273	-272
203	E1-203	+62	-63	+61	-60	+270	-271	+273	-272	+72	-73	+71	-70	+300	-301	+303	-302	+102	-103	+101	-100	+310	-311	+313	-312
204	E1-204	+66	-67	+65	-64	+274	-275	+277	-276	+76	-77	+75	-74	+304	-305	+307	-306	+106	-107	+105	-104	+314	-315	+317	-316
205	E1-205	+310	-311	+111	-110	+304	-305	+105	-104	+300	-301	+101	-100	+274	-275	+75	-74	+270	-271	+71	-70	+264	-265	+65	-64
206	E1-206	+313	-312	+112	-113	+307	-306	+106	-107	+303	-302	+102	-103	+277	-276	+76	-77	+273	-272	+72	-73	+267	-266	+66	-67
207	E1-207	+264	-266	+66	-64	+270	-272	+72	-70	+274	-276	+76	-74	+300	-302	+102	-100	+304	-306	+106	-104	+310	-312	+112	-110
208	E1-208	-265	+267	-67	+65	-271	+273	-73	+71	-275	+277	-77	+75	-301	+303	-103	+101	-305	+307	-107	+105	-311	+313	-113	+111
209	E1-209	+62	-67	+61	-64	+274	-271	+277	-272	+76	-73	+75	-70	+304	-301	+307	-302	+106	-103	+105	-100	+310	-315	+313	-316
210	E1-210	+66	-63	+65	-60	+270	-275	+273	-276	+72	-77	+71	-74	+300	-305	+303	-306	+102	-107	+101	-104	+314	-311	+317	-312
193	E1-193	+66	-67	+65	-64	+72	-73	+71	-70	+76	-77	+75	-74	+102	-103	+101	-100	+106	-107	+105	-104	+112	-113	+111	-110
194	E1-194	+264	-265	+267	-266	+270	-271	+273	-272	+274	-275	+277	-276	+300	-301	+303	-302	+304	-305	+307	-306	+310	-311	+313	-312
213	E1-213	-255	+251	-245	+241	-235	+231	-225	+221	-215	+211	-205	+201	+203	-207	+213	-217	+223	-227	+233	-237	+243	-247	+253	-257
212	E1-212	+32	-33	+31	-30	+234	-235	+237	-236	+36	-37	+35	-34	+240	-241	+243	-242	+42	-43	+41	-40	+244	-245	+247	-246

WIRE NO.	SOLDER TO PIN																								
211	E1-211	+46	-47	+45	-44	+250	-251	+253	-252	+52	-53	+51	-50	+254	-255	+257	-256	+56	-57	+55	-54	+260	-261	+263	-262
195	E1-195	+46	-47	+45	-44	+250	-251	+253	-252	+52	-53	+51	-50	+254	-255	+257	-256	+56	-57	+55	-54	+260	-261	+263	-262
196	E1-196	+146	-147	+145	-144	+350	-351	+353	-352	+152	-153	+151	-150	+354	-355	+357	-356	+156	-157	+155	-154	+360	-361	+363	-362
197	E1-197	+32	-33	+31	-30	+224	-225	+227	-226	+26	-27	+25	-24	+220	-221	+223	-222	+22	-23	+21	-20	+214	-215	+217	-216
198	E1-198	+72	-73	+71	-70	+264	-265	+267	-266	+66	-67	+65	-64	+260	-261	+263	-262	+62	-63	+61	-60	+254	-255	+257	-256
199	E1-199	+106	-107	+105	-104	+310	-311	+313	-312	+112	-113	+111	-110	+314	-315	+317	-316	+116	-117	+115	-114	+340	-341	+343	-342
200	E1-200	+126	-127	+125	-124	+330	-331	+333	-332	+132	-133	+131	-130	+334	-335	+337	-336	+136	-137	+135	-134	+360	-361	+363	-362
201	E1-201	+62	-63	+61	-60	+244	-245	+247	-246	+46	-47	+45	-44	+240	-241	+243	-242	+42	-43	+41	-40	+224	-225	+227	-226
202	E1-202	+72	-73	+71	-70	+254	-255	+257	-256	+56	-57	+55	-54	+250	-251	+253	-252	+52	-53	+51	-50	+234	-235	+237	-236
203	E1-203	+112	-113	+111	-110	+320	-321	+323	-322	+122	-123	+121	-120	+330	-331	+333	-332	+132	-133	+131	-130	+340	-341	+343	-342
204	E1-204	+116	-117	+115	-114	+324	-325	+327	-326	+126	-127	+125	-124	+334	-335	+337	-336	+136	-137	+135	-134	+344	-345	+347	-346
205	E1-205	+260	-261	+61	-60	+254	-255	+55	-54	+250	-251	+51	-50	+244	-245	+45	-44	+240	-241	+41	-40	+234	-235	+35	-34
206	E1-206	+263	-262	+62	-63	+257	-256	+56	-57	+253	-252	+52	-53	+247	-246	+46	-47	+243	-242	+42	-43	+237	-236	+36	-37
207	E1-207	+314	-316	+116	-114	+320	-322	+122	-120	+324	-326	+126	-124	+330	-332	+132	-130	+334	-336	+136	-134	+340	-342	+142	-140
208	E1-208	-315	+317	-117	+115	-321	+323	-123	+121	-325	+327	-127	+125	-331	+333	-133	+131	-335	+337	-137	+135	-341	+343	-143	+141
209	E1-209	+112	-117	+111	-114	+320	-325	+323	-326	+122	-127	+121	-124	+334	-331	+337	-332	+136	-133	+135	-130	+340	-345	+343	-346
210	E1-210	+116	-113	+115	-110	+324	-321	+327	-322	+126	-123	+125	-120	+330	-335	+333	-336	+132	-137	+131	-134	+344	-341	+347	-342
193	E1-193	+116	-117	+115	-114	+122	-123	+121	-120	+126	-127	+125	-124	+132	-133	+131	-130	+136	-137	+135	-134	+142	-143	+141	-140
194	E1-194	+314	-315	+317	-316	+320	-321	+323	-322	+324	-325	+327	-326	+330	-331	+333	-332	+334	-335	+337	-336	+340	-341	+343	-342
213	E1-213	+263	-267	+273	-277	+303	-307	+313	-317	+323	-327	+333	-337	+343	-347	+353	-357	+363	-367	+373	-377	-376	+372	-366	+362
212	E1-212	+46	-47	+45	-44	+250	-251	+253	-252	+52	-53	+51	-50	+254	-255	+257	-256	+56	-57	+55	-54	+260	-261	+263	-262

WIRE NO.	SOLDER TO PIN																												
211	E1-211	+62	-63	+61	-60	+264	-265	+267	-266	+66	-67	+65	-64	+270	-271	+273	-272	+72	-73	+71	-70	+274	-275	+277	-276	+76	-77	+75	-74
195	E1-195	+62	-63	+61	-60	+264	-265	+267	-266	+66	-67	+65	-64	+270	-271	+273	-272	+72	-73	+71	-70	+274	-275	+277	-276	+76	-77	+75	-74
196	E1-196	+162	-163	+161	-160	+364	-365	+367	-366	+166	-167	+165	-164	+370	-371	+373	-372	+172	-173	+171	-170	+374	-375	+377	-376	+176	-177	+175	-174
197	E1-197	+16	-17	+15	-14	+210	-211	+213	-212	+12	-13	+11	-10	+204	-205	+207	-206	+6	-7	+5	-4	+200	-201	+203	-202	+2	-3	+1	-0
198	E1-198	+56	-57	+55	-54	+250	-251	+253	-252	+52	-53	+51	-50	+244	-245	+247	-246	+46	-47	+45	-44	+240	-241	+243	-242	+42	-43	+41	-40
199	E1-199	+142	-143	+141	-140	+344	-345	+347	-346	+146	-147	+145	-144	+350	-351	+353	-352	+152	-153	+151	-150	+354	-355	+357	-356	+156	-157	+155	-154
200	E1-200	+162	-163	+161	-160	+364	-365	+367	-366	+166	-167	+165	-164	+370	-371	+373	-372	+172	-173	+171	-170	+374	-375	+377	-376	+176	-177	+175	-174
201	E1-201	+26	-27	+25	-24	+220	-221	+223	-222	+22	-23	+21	-20	+204	-205	+207	-206	+6	-7	+5	-4	+200	-201	+203	-202	+2	-3	+1	-0
202	E1-202	+36	-37	+35	-34	+230	-231	+233	-232	+32	-33	+31	-30	+214	-215	+217	-216	+16	-17	+15	-14	+210	-211	+213	-212	+12	-13	+11	-10
203	E1-203	+142	-143	+141	-140	+350	-351	+353	-352	+152	-153	+151	-150	+360	-361	+363	-362	+162	-163	+161	-160	+370	-371	+373	-372	+172	-173	+171	-170
204	E1-204	+146	-147	+145	-144	+354	-355	+357	-356	+156	-157	+155	-154	+364	-365	+367	-366	+166	-167	+165	-164	+374	-375	+377	-376	+176	-177	+175	-174
205	E1-205	+230	-231	+31	-30	+224	-225	+25	-24	+220	-221	+21	-20	+214	-215	+15	-14	+210	-211	+11	-10	+204	-205	+5	-4	+200	-201	+1	-0
206	E1-206	+233	-232	+32	-33	+227	-226	+26	-27	+223	-222	+22	-23	+217	-216	+16	-17	+213	-212	+12	-13	+207	-206	+6	-7	+203	-202	+2	-3
207	E1-207	+344	-346	+146	-144	+350	-352	+152	-150	+354	-356	+156	-154	+360	-362	+162	-160	+364	-366	+166	-164	+370	-372	+172	-170	+374	-376	+176	-174
208	E1-208	-345	+347	-147	+145	-351	+353	-153	+151	-355	+357	-157	+155	-361	+363	-163	+161	-365	+367	-167	+165	-371	+373	-173	+171	-375	+377	-177	+175
209	E1-209	+142	-147	+141	-144	+354	-351	+357	-352	+156	-153	+155	-150	+364	-361	+367	-362	+166	-163	+165	-160	+370	-375	+373	-376	+172	-177	+171	-174
210	E1-210	+146	-143	+145	-140	+350	-355	+353	-356	+152	-157	+151	-154	+360	-365	+363	-366	+162	-167	+161	-164	+374	-371	+377	-372	+176	-173	+175	-170
193	E1-193	+146	-147	+145	-144	+152	-153	+151	-150	+156	-157	+155	-154	+162	-163	+161	-160	+166	-167	+165	-164	+172	-173	+171	-170	+176	-177	+175	-174
194	E1-194	+344	-345	+347	-346	+350	-351	+353	-352	+354	-355	+357	-356	+360	-361	+363	-362	+364	-365	+367	-366	+370	-371	+373	-372	+374	-375	+377	-376
213	E1-213	-356	+352	-346	+342	-336	+332	-326	+322	-316	+312	-306	+302	-276	+272	-266	+262	-256	+252	-246	+242	-236	+232	-226	+222	-216	+212	-206	+202
212	E1-212	+62	-63	+61	-60	+264	-265	+267	-266	+66	-67	+65	-64	+270	-271	+273	-272	+72	-73	+71	-70	+274	-275	+277	-276	+76	-77	+75	-74

WIRE NO.	SOLDER TO PIN									ENTER CORES THRU INDICATED SIDE															
211	E1-211	+300	-301	+303	-302	+102	-103	+101	-100	+304	-305	+307	-306	+106	-107	-104	+310	-311	+313	-312	+112	-113	+111	-110	+314
195	E1-195																								
196	E1-196																								
197	E1-197																								
198	E1-198																								
199	E1-199																								
200	E1-200																								
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208	E1-208																								
209	E1-209																								
210	E1-210																								
193	E1-193																								
194	E1-194																								
213	E1-213	+2	-6	+12	-16	+22	-26	+32	-36	+42	-46	+52	-56	+62	-66	-76	+102	-106	+112	-116	+122	-126	+132	-136	+142
212	E1-212	+300	-301	+303	-302	+102	-103	+101	-100	+304	-305	+307	-306	+106	-107	-104	+310	-311	+313	-312	+112	-113	+111	-110	+314

B

NOTES

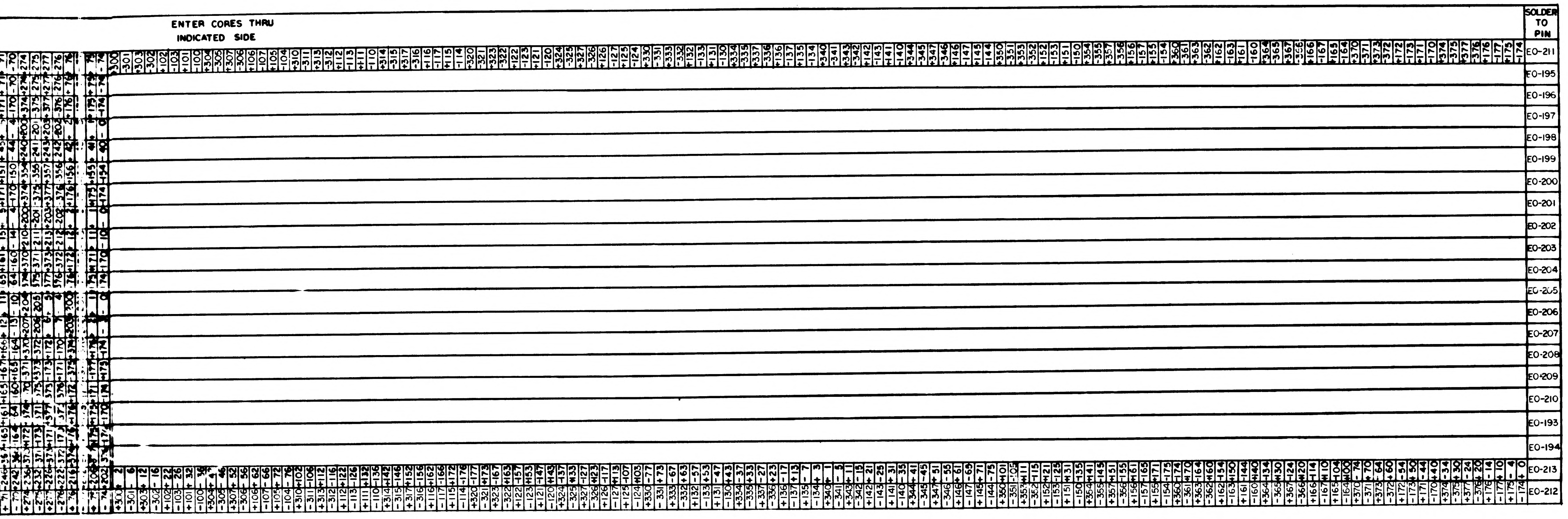
1. INTEPPPET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

A

2005017

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED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SOLDER TO PIN
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E0-196
E0-197
E0-198
E0-199
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E0-202
E0-203
E0-204
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E0-193
E0-194
E0-213
E0-212

REF DWG:
1. SCHEMATIC 2005012
2. 2003040 CORE HOLDER ASSY SIDE B
3. 2003049 CORE HOLDER ASSY SIDE A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

NEXT ASSY | USED ON
APPLICATION

MIT INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN E.J. Pavko DATE 22 APR 65
CHECKED
APPROVAL
APPROVAL Eldon C. Hall 3 Jun 65
NASA APPROVAL
MIT APPROVAL
MIT APPROVAL

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INHIBIT WIRING
FIXED MEMORY

CODE IDENT NO. 80230 | SIZE J | NASA DRAWING NO. 2005017
SCALE NONE | WT | SHEET 1 OF 2

2005017

3H

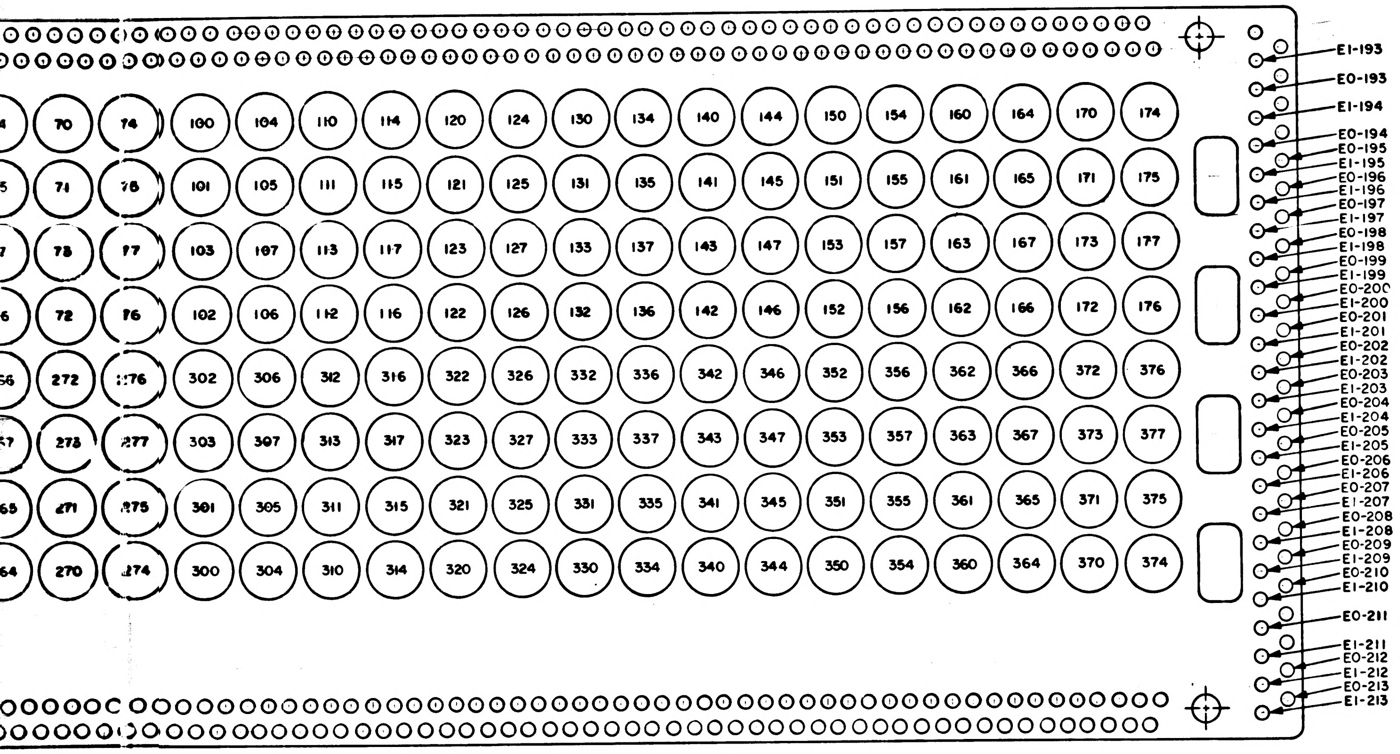
MASTER

4 3 2 1

SYM	ZONE	REVISIONS 2043 DESCRIPTION	DR	CHK	DATE	APPROVED

D

C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72 76 102 106 112 116 122 126 132 136 142 146 152 156 162 166 172 176
272 276 302 306 312 316 322 326 332 336 342 346 352 356 362 366 372 376
273 277 303 307 313 317 323 327 333 337 343 347 353 357 363 367 373 377
271 275 301 305 311 315 321 325 331 335 341 345 351 355 361 365 371 375
270 274 300 304 310 314 320 324 330 334 340 344 350 354 360 364 370 374

B

2005017

A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN E.J. Bowke 22APR66
CHECKED [illegible]
APPROVED [illegible]
APPROVED Eldon C. Hall 3 June 66
APPROVED MIT W Kupfer
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INHIBIT WIRING
FIXED MEMORY

CODE IDENT NO.	SIZE	DRAWING NO.
80230		2005017
SCALE 4/1		SHEET 2 OF 2

MASTER

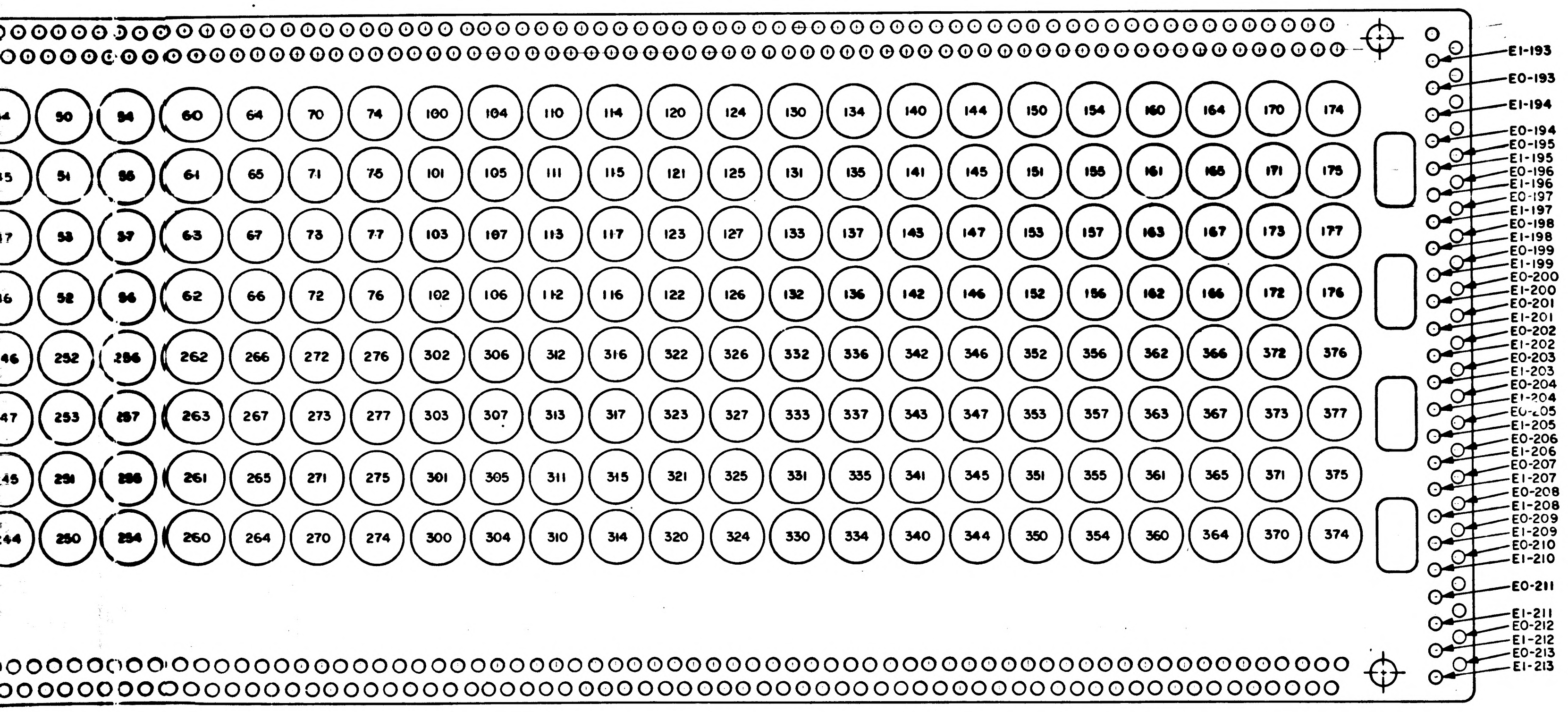
34

2005017

4 3 2 1

F3

REVISIONS					
SYM	ZONE	DESCRIPTION	BY	CHK	APPROVED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52 56 62 66 72 76 102 106 112 116 122 126 132 136 142 146 152 156 162 166 172 176
252 256 262 266 272 276 302 306 312 316 322 326 332 336 342 346 352 356 362 366 372 376
253 257 263 267 273 277 303 307 313 317 323 327 333 337 343 347 353 357 363 367 373 377
251 255 261 265 271 275 301 305 311 315 321 325 331 335 341 345 351 355 361 365 371 375
250 254 260 264 270 274 300 304 310 314 320 324 330 334 340 344 350 354 360 364 370 374
E1-193
E0-193
E1-194
E0-194
E0-195
E1-195
E0-196
E1-196
E0-197
E1-197
E0-198
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E1-209
E0-210
E1-210
E0-211
E1-211
E0-212
E1-212
E0-213
E1-213

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL ——

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	L. J. Tranks	22 APR 65
CHECKED	[illegible]	22 MAY 65
APPROVED	[illegible]	22 MAY 65
APPROVED	Eldon C. Hall	3 June 65
APPROVED MIT	W. Kupfer	[illegible]
APPROVED MSC	[illegible]	DATE

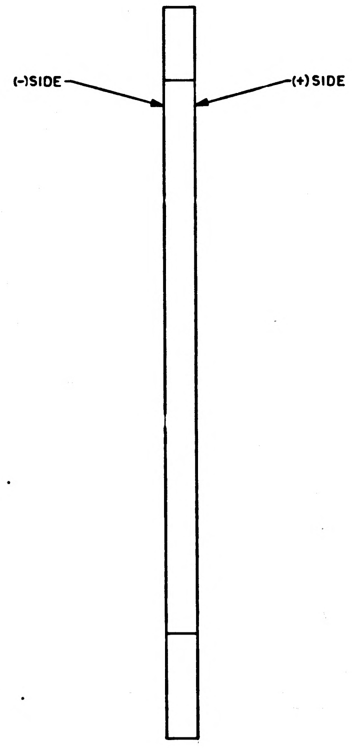
INHIBIT WIRING
FIXED MEMORY

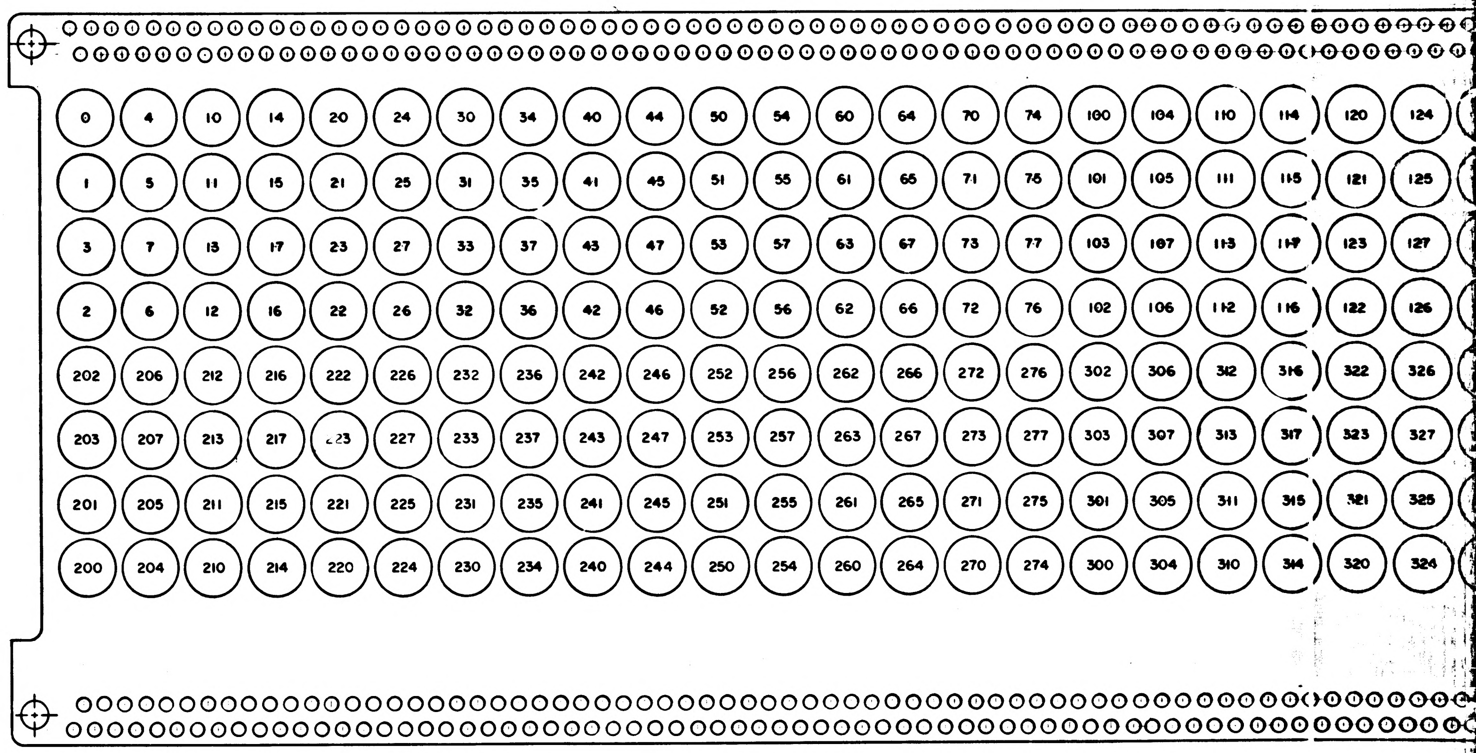
CODE IDENT NO.	SIZE	DRAWING NO.
80230		2005017
SCALE 4/1		SHEET 2 OF 2

2005017

2005017

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

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1 5 11 15 21 25 31 35 41 45 51 55 61 65 71 75 101 105 111 115 121 125
3 7 13 17 23 27 33 37 43 47 53 57 63 67 73 77 103 107 113 117 123 127
2 6 12 16 22 26 32 36 42 46 52 56 62 66 72 76 102 106 112 116 122 126
202 206 212 216 222 226 232 236 242 246 252 256 262 266 272 276 302 306 312 316 322 326
203 207 213 217 223 227 233 237 243 247 253 257 263 267 273 277 303 307 313 317 323 327
201 205 211 215 221 225 231 235 241 245 251 255 261 265 271 275 301 305 311 315 321 325
200 204 210 214 220 224 230 234 240 244 250 254 260 264 270 274 300 304 310 314 320 324

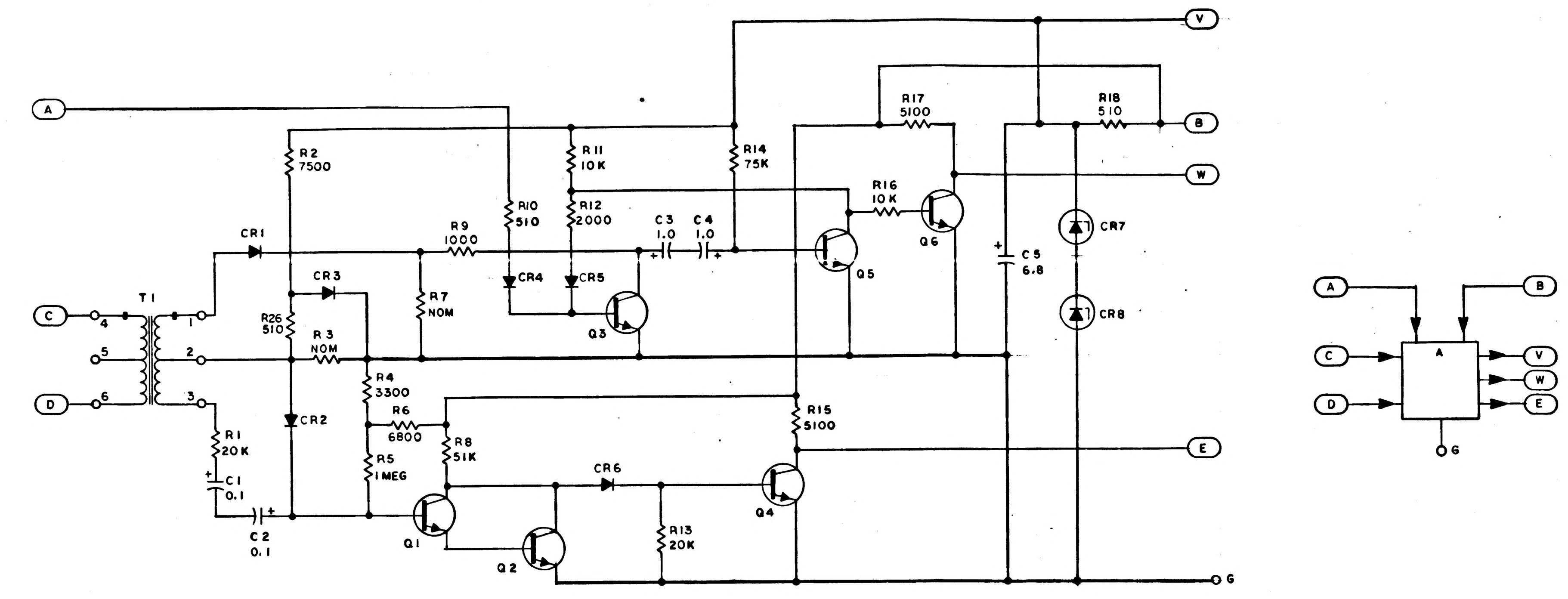
3H

2005017

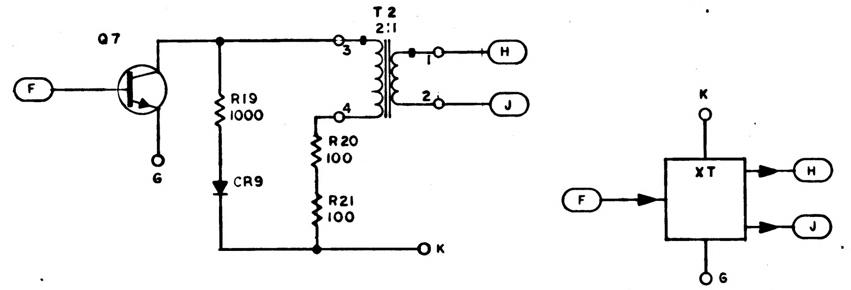
REVISIONS 20615

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 21344			65	WK

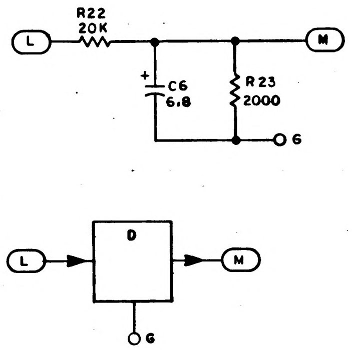
A CIRCUIT


A
B
V
W
C
D
E
G
T1
R1 20K
C1 0.1
C2 0.1
R2 7500
CR1
CR2
CR3
R26 510
R3 NOM
R4 3300
R5 1MEG
R6 6800
R7 NOM
R8 51K
R9 1000
R10 510
R11 10K
R12 2000
R13 20K
R14 75K
R15 5100
R16 10K
R17 5100
R18 510
C3 1.0
C4 1.0
C5 6.8
CR4
CR5
CR6
CR7
CR8
Q1
Q2
Q3
Q4
Q5
Q6

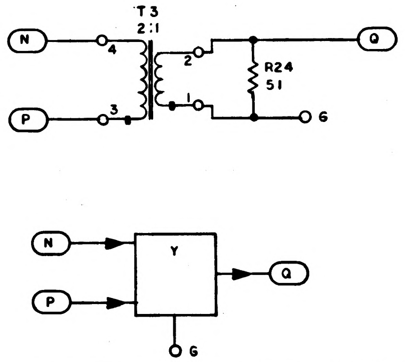
XT CIRCUIT


Q7
F
G
T2 2:1
R19 1000
CR9
R20 100
R21 100
K
H
J
XT

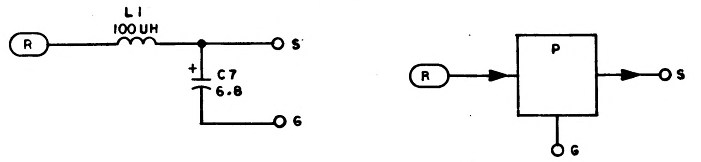
D CIRCUIT


R22 20K
L
M
C6 6.8
R23 2000
G
D

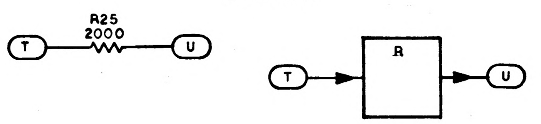
Y CIRCUIT


T3 2:1
N
P
R24 51
Q
G
Y

P CIRCUIT


L1 100UH
R
S
C7 6.8
G
P

R CIRCUIT


R25 2000
T
U
R

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R1	1006750-63	RESISTOR	20 K	± 2 %	1/4W
R2	1006750-53		7500		
R3	SEE NOTE 2		NOM		
R4	1006750-44		3300	± 2 %	1/4W
R5	1010768-29		1 MEG	± 1 %	1/8W
R6	1006750-52		6800	± 2 %	1/4W
R7	SEE NOTE 2		NOM	± 1 %	1/8W
R8	1006750-73		51K	± 2 %	1/4W
R9	-32		1000		
R10	-25		510		
R11	-56		10 K		
R12	-39		2000		
R13	-63		20K		
R14	-77		75K		
R15	-49		5100		
R16	-56		10K		
R17	-49		5100		
R18	-25		510		
R19	-32		1000		
R20	-8		100		
R21	-8		100		
R22	-63		20 K		
R23	-39		2000		
R24	-1		51		
R25	-39		2000		
R26	1006750 25	RESISTOR	510	2 %	1/4W
C1	1006755-57	CAPACITOR	0.1	± 10%	35VDC
C2	-57		0.1		
C3	-69		1.0		
C4	-69		1.0		
C5	-79		6.8		
C6	-79		6.8		
C7	1006755-79	CAPACITOR	6.8	± 10%	35VDC
L1	1010406-6	COIL, RF CHOKE	100 UH		
CR1	2004103-001	DIODE			
CR2					
CR3					
CR4					
CR5					
CR6	2004103-001				
CR7	2004112-002	ZENER			
CR8	2004112-002	ZENER			
CR9	2004103-001	DIODE			
Q1	2004004-001	TRANSISTOR			
Q2					
Q3					
Q4					
Q5					
Q6					
Q7	2004004-001	TRANSISTOR			
T1	1010291-4	TRANSFORMER			
T2	1006319	TRANSFORMER			
T3	1006319	TRANSFORMER			

R3	
PART NO.	VALUE
1006750-22	390
-23	430
-24	470
-25	510
-26	560
-27	620
-28	680
-29	750
-30	820
-31	910
-32	1000
-33	1100
-34	1200
-35	1300
-36	1500
-37	1600
-38	1800
1006750-39	2000

R7	
PART NO.	VALUE
1010364-611	75K
-621	84.4K
-629	93.1K
-635	100K
-643	110K
-651	121K
-657	130K
-669	150K
-675	162K
-685	182K
-693	200K
-701	221K
-709	243K
1010364-719	274K

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. SELECT R3 & R7 PER APPLICABLE PS FROM APPROPRIATE CHART
3. TOP SIGNAL CORRESPONDS TO A29 MODULE
   MIDDLE SIGNAL CORRESPONDS TO A28 MODULE
   BOTTOM SIGNAL CORRESPONDS TO A27 MODULE
4. NUMERALS WITHIN THE CONFINES OF THE CIRCUIT REPRESENTATIONAL BLOCK ARE HOMOLOGOUS WITH COMPONENT PREFIXES

REF DWG:
INTERFACE MODULE ASSY
DWG NO. 2003067

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN A. D. Lee 22 APR 65
CHECKED
APPROVED
APPROVED Ellen C. Hall 28 Jun
APPROVED MIT W. Cuff 7/65
APPROVED MSC 7/7
DATE

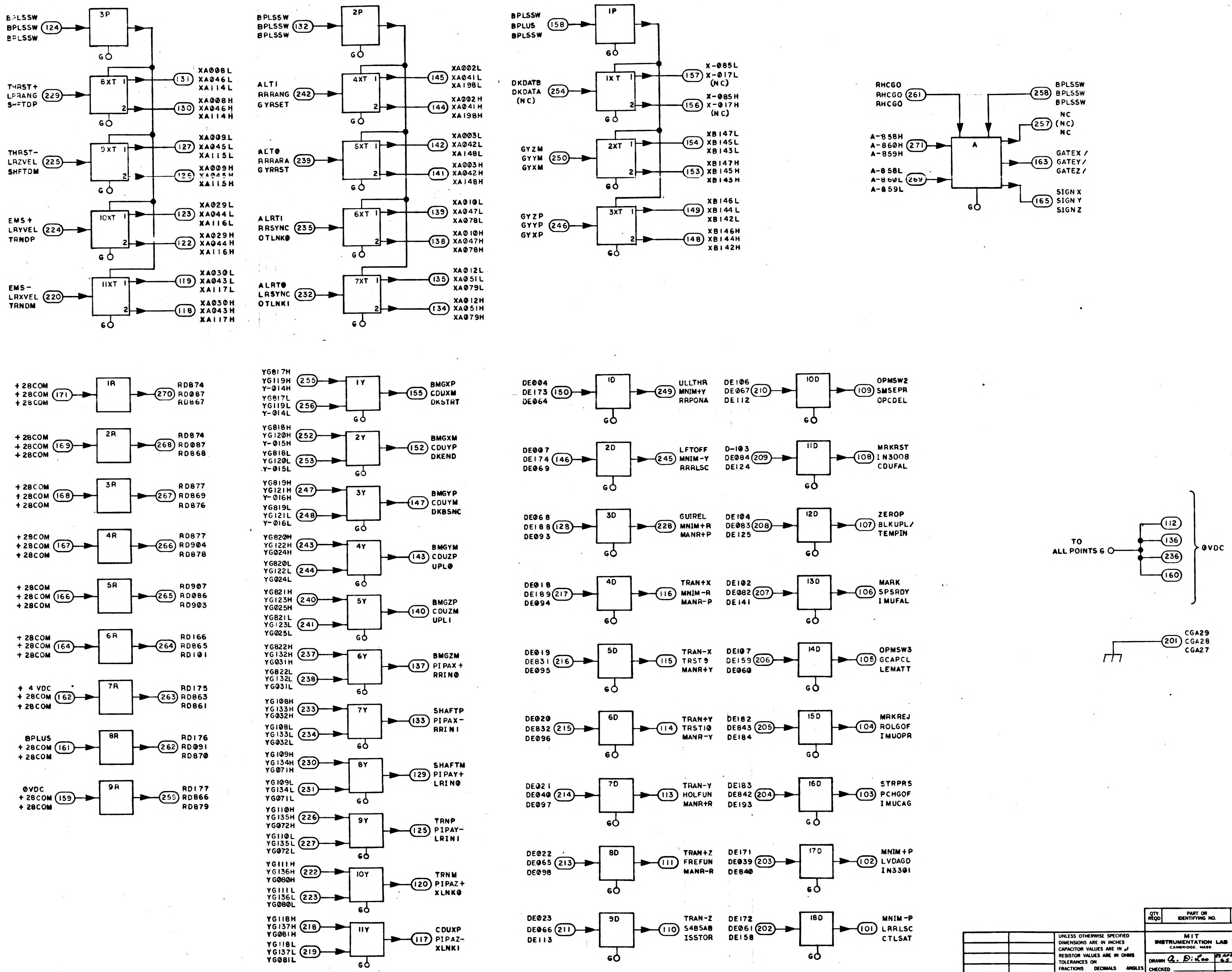
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC & WIRING DIAGRAM
INTERFACE A27 - 29

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005020
SCALE —
SHEET 1 OF 2

2005020 A

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 21344				



BPLSSW
BPLSSW 124
BPLSSW
3P
G
THRST+
LRRANG 229
SHFTDP
8XT
131 XA008L XA046L XA114L
130 XA008H XA046H XA114H
THRST-
LRZVEL 225
SHFTDM
9XT
127 XA009L XA045L XA115L
126 XA009H XA045H XA115H
EMS+
LRYVEL 224
TRNDP
10XT
123 XA029L XA044L XA116L
122 XA029H XA044H XA116H
EMS-
LRXVEL 220
TRNDM
11XT
119 XA030L XA043L XA117L
118 XA030H XA043H XA117H
BPLSSW
BPLSSW 132
BPLSSW
2P
ALTI
ARRANG 242
GYRSET
4XT
145 XA002L XA041L XA198L
144 XA002H XA041H XA198H
ALT0
RRRARA 239
GYRRST
5XT
142 XA003L XA042L XA148L
141 XA003H XA042H XA148H
ALRTI
RRSYNC 235
OTLNK0
6XT
139 XA010L XA047L XA078L
138 XA010H XA047H XA078H
ALRT0
LRSYNC 232
OTLNKI
7XT
135 XA012L XA051L XA079L
134 XA012H XA051H XA079H
BPLSSW
BPLUS 158
BPLSSW
1P
DKDATB
DKDATA 254
(NC)
1XT
157 X-085L X-017L (NC)
156 X-085H X-017H (NC)
GYZM
GYYM 250
GYXM
2XT
154 XB147L XB145L XB143L
153 XB147H XB145H XB143H
GYZP
GYYP 246
GYXP
3XT
149 XB146L XB144L XB142L
148 XB146H XB144H XB142H
RHCGO
RHCGO 261
RHCGO
A-858H
A-860H 271
A-859H
A-858L
A-860L 269
A-859L
A
258 BPLSSW BPLSSW BPLSSW
257 NC (NC) NC
163 GATEX/ GATEY/ GATEZ/
165 SIGNX SIGNY SIGNZ
+28COM +28COM 171 +28COM
1R
270 RD874 RD087 RD867
+28COM +28COM 169 +28COM
2R
268 RD874 RD087 RD868
+28COM +28COM 168 +28COM
3R
267 RD877 RD869 RD876
+28COM +28COM 167 +28COM
4R
266 RD877 RD904 RD878
+28COM +28COM 166 +28COM
5R
265 RD907 RD086 RD903
+28COM +28COM 164 +28COM
6R
264 RD166 RD865 RD101
+4VDC +28COM 162 +28COM
7R
263 RD175 RD863 RD861
BPLUS +28COM 161 +28COM
8R
262 RD176 RD091 RD870
0VDC +28COM 159 +28COM
9R
259 RD177 RD866 RD879
YG817H YG119H Y-014H 255
YG817L YG119L Y-014L 256
1Y
155 BMGXP CDUXM DKSTRT
YG818H YG120H Y-015H 252
YG818L YG120L Y-015L 253
2Y
152 BMGXM CDUYP DKEND
YG819H YG121H Y-016H 247
YG819L YG121L Y-016L 248
3Y
147 BMGYP CDUYM DKBSNC
YG820M YG122H YG024H 243
YG820L YG122L YG024L 244
4Y
143 BMGYM CDUZP UPL0
YG821H YG123H YG025H 240
YG821L YG123L YG025L 241
5Y
140 BMGZP CDUZM UPLI
YG822H YG132H YG031H 237
YG822L YG132L YG031L 238
6Y
137 BMGZM PIPAX+ RRIN0
YG108H YG133H YG032H 233
YG108L YG133L YG032L 234
7Y
133 SHAFTP PIPAX- RRINI
YG109H YG134H YG071H 230
YG109L YG134L YG071L 231
8Y
129 SHAFTM PIPAY+ LRIN0
YG110H YG135H YG072H 226
YG110L YG135L YG072L 227
9Y
125 TRNP PIPAY- LRINI
YG111H YG136H YG080H 222
YG111L YG136L YG080L 223
10Y
120 TRNM PIPAZ+ XLNK0
YG118H YG137H YG081H 218
YG118L YG137L YG081L 219
11Y
117 CDUXP PIPAZ- XLNKI
DE004 DE173 150 DE064
1D
249 ULLTHR MNIM+Y RRPONA
DE007 DE174 146 DE069
2D
245 LFTOFF MNIM-Y RRRLSC
DE068 DE188 128 DE093
3D
228 GUIREL MNIM+R MANR+P
DE018 DE189 217 DE094
4D
116 TRAN+X MNIM-R MANR-P
DE019 DE831 216 DE095
5D
115 TRAN-X TRST9 MANR+Y
DE020 DE832 215 DE096
6D
114 TRAN+Y TRSTI0 MANR-Y
DE021 DE040 214 DE097
7D
113 TRAN-Y HOLFUN MANR+R
DE022 DE065 213 DE098
8D
111 TRAN+Z FREFUN MANR-R
DE023 DE066 211 DE113
9D
110 TRAN-Z S4BSAB ISSTOR
DE106 DE067 210 DE112
10D
109 OPMSW2 SMSEPR OPCDEL
D-103 DE084 209 DE124
11D
108 MRKRST IN3008 CDUFAL
DE104 DE083 208 DE125
12D
107 ZEROP BLKUPL/ TEMPIN
DE102 DE082 207 DE141
13D
106 MARK SPSRDY IMUFAL
DE107 DE159 206 DE060
14D
105 OPMSW3 GCAPCL LEMATT
DE182 DE843 205 DE184
15D
104 MRKREJ ROLGOF IMUOPR
DE183 DE842 204 DE193
16D
103 STRPRS PCHGOF IMUCAG
DE171 DE039 203 DE840
17D
102 MNIM+P LVDAGD IN3301
DE172 DE061 202 DE158
18D
101 MNIM-P LRRLSC CTLSAT
TO ALL POINTS G
112 136 236 160
0VDC
201 CGA29 CGA28 CGA27

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± —— ± —— ± ——
DO NOT SCALE THIS DRAWING

MATERIAL
——

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN A. DiLeo 22 APR 65
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

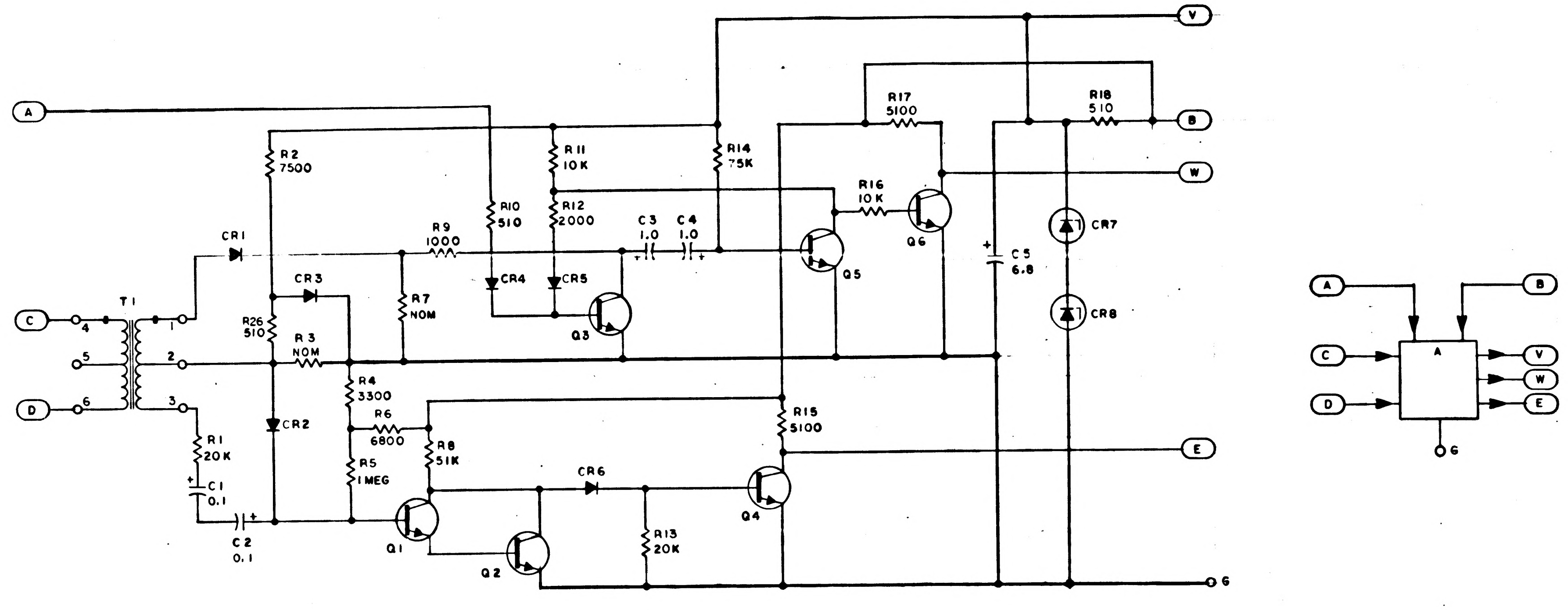
SCHEMATIC & WIRING DIAGRAM
INTERFACE A27-29

CODE IDENT NO. 80230 SIZE E DRAWING NO. 2005020
SCALE —— SHEET 2 OF 2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20615						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 21344				
B		REVISED PER TDRR 24500			/65	

A CIRCUIT


A
B
V
W
E
G
C
D
T1
1
2
3
4
5
6
CR1
CR2
CR3
CR4
CR5
CR6
CR7
CR8
R1 20K
R2 7500
R3 NOM
R4 3300
R5 1MEG
R6 6800
R7 NOM
R8 51K
R9 1000
R10 510
R11 10K
R12 2000
R13 20K
R14 75K
R15 5100
R16 10K
R17 5100
R18 510
R26 510
C1 0.1
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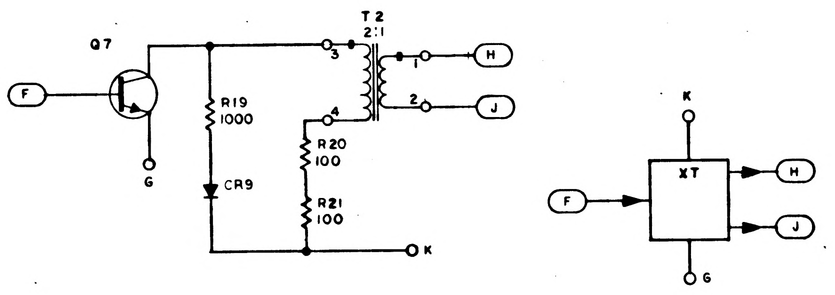
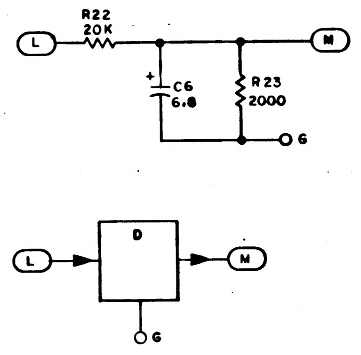
Q3
Q4
Q5
Q6
A

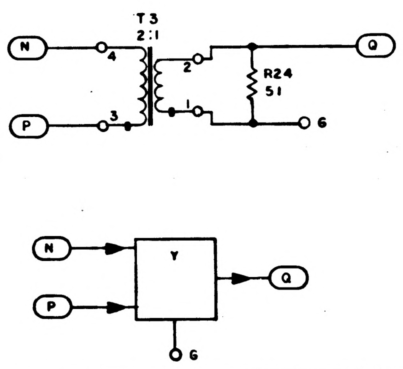
XT CIRCUIT


Q7
F
G
R19 1000
CR9
T2 2:1
3
4
1
2
H
J
R20 100
R21 100
K
XT

D CIRCUIT


L
R22 20K
C6 6.8
R23 2000
M
G
D

Y CIRCUIT


N
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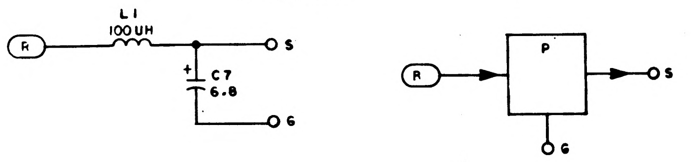
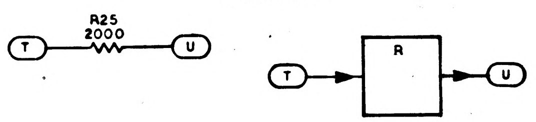
4
3
2
1
R24 51
Q
G
Y

P CIRCUIT


R
L1 100UH
C7 6.8
S
G
P

R CIRCUIT


T
R25 2000
U
R

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R1	1006750-63	RESISTOR	20K	± 2%	1/4W
R2	1006750-53		7500		
R3	SEE NOTE 2		NOM		
R4	1006750-44		3300	± 2%	1/4W
R5	1010768-29		1MEG	± 1%	1/8W
R6	1006750-52		6800	± 2%	1/4W
R7	SEE NOTE 2		NOM	± 1%	1/8W
R8	1006750-73		51K	± 2%	1/4W
R9	-32		1000		
R10	-25		510		
R11	-56		10K		
R12	-39		2000		
R13	-63		20K		
R14	-77		75K		
R15	-49		5100		
R16	-56		10K		
R17	-49		5100		
R18	-25		510		
R19	-32		1000		
R20	-8		100		
R21	-8		100		
R22	-63		20K		
R23	-39		2000		
R24	-1		51		
R25	-39		2000		
R26	1006750 25	RESISTOR	510	2%	1/4W
C1	1006755-57	CAPACITOR	0.1	± 10%	35VDC
C2	-57		0.1		
C3	-69		1.0		
C4	-69		1.0		
C5	-79		6.8		
C6	-79		6.8		
C7	1006755-79	CAPACITOR	6.8	± 10%	35VDC
L1	1010406-6	COIL, RF CHOKE	100 UH		
CR1	2004103-001	DIODE			
CR2					
CR3					
CR4					
CR5					
CR6	2004103-001				
CR7	2004112-002	ZENER			
CR8	2004112-002	ZENER			
CR9	2004103-001	DIODE			
Q1	2004004-001	TRANSISTOR			
Q2					
Q3					
Q4					
Q5					
Q6					
Q7	2004004-001	TRANSISTOR			
T1	1010291-4	TRANSFORMER			
T2	1006319	TRANSFORMER			
T3	1006319	TRANSFORMER			

R3	
PART NO.	VALUE
1006750-22	390
-23	430
-24	470
-25	510
-26	560
-27	620
-28	680
-29	750
-30	820
-31	910
-32	1000
-33	1100
-34	1200
-35	1300
-36	1500
-37	1600
-38	1800
1006750-39	2000

R7	
PART NO.	VALUE
1010364-611	75K
-621	84.4K
-629	93.1K
-635	100K
-643	110K
-651	121K
-657	130K
-669	150K
-675	162K
-685	182K
-693	200K
-701	221K
-709	243K
1010364-719	274K

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. SELECT R3 & R7 PER APPLICABLE PS FROM APPROPRIATE CHART
3. TOP SIGNAL CORRESPONDS TO A29 MODULE
   MIDDLE SIGNAL CORRESPONDS TO A28 MODULE
   BOTTOM SIGNAL CORRESPONDS TO A27 MODULE
4. NUMERALS WITHIN THE CONFINES OF THE CIRCUIT REPRESENTATIONAL BLOCK ARE HOMOLOGOUS WITH COMPONENT PREFIXES

REF DWG:
INTERFACE MODULE ASSY
DWG NO. 2003067

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS				

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

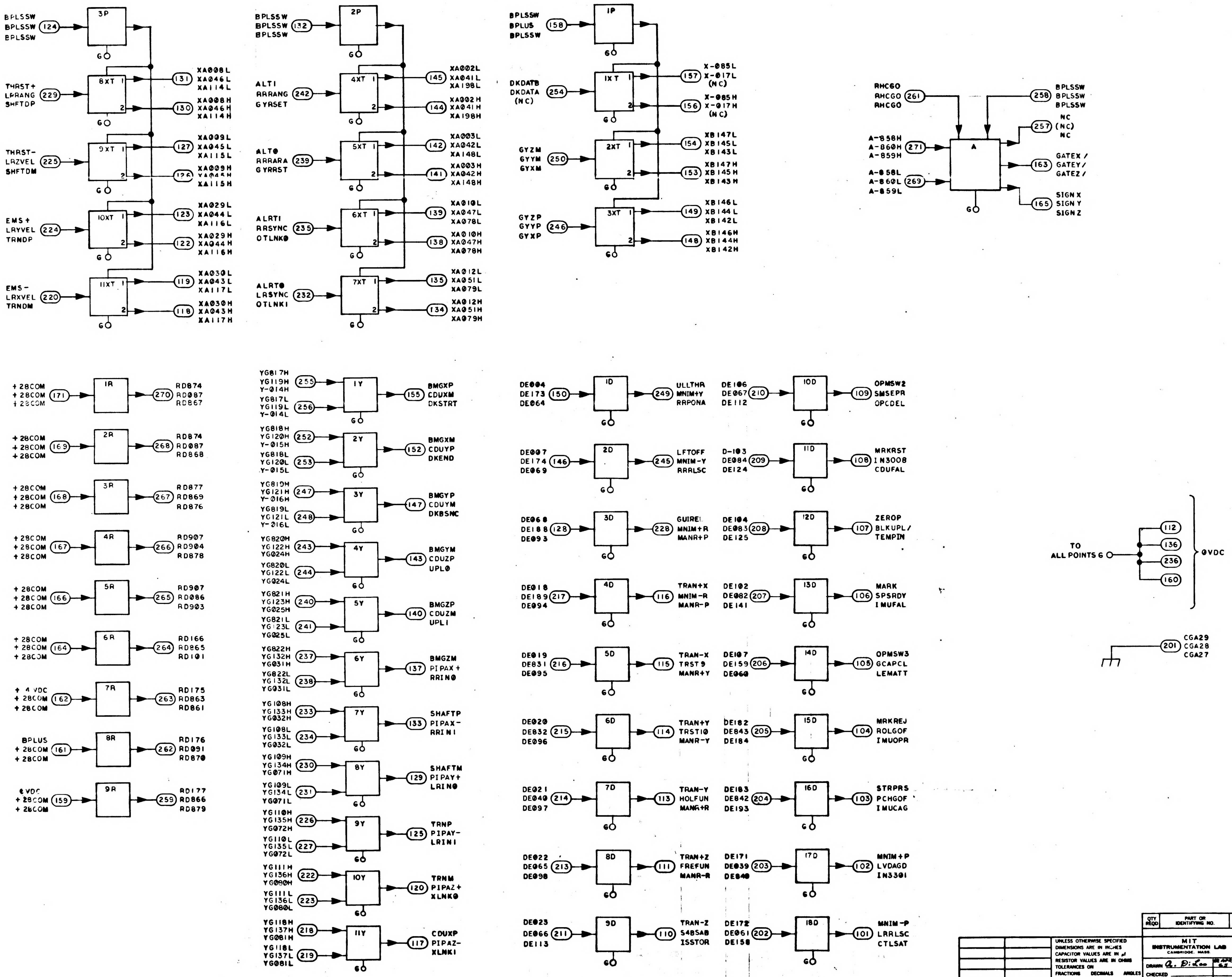
DRAWN 22 APR 65
CHECKED
APPROVED
APPROVED
APPROVED MIT 7/65
APPROVED MSC 7/9
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC & WIRING DIAGRAM
INTERFACE A27 - 29

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005020
SCALE —
SHEET 1 OF 2

REVISIONS 2065						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 21344				
B		REVISED PER TDRR 24500				


BPLSSW
BPLSSW
BPLSSW
124
3P
G
THRST+
LPRANG
SHFTDP
229
8XT
1
2
131
XA008L
XA046L
XA114L
130
XA008H
XA046H
XA114H
THRST-
LRZVEL
SHFTDM
225
9XT
127
XA009L
XA045L
XA115L
126
XA009H
XA045H
XA115H
EMS+
LRYVEL
TRNDP
224
10XT
123
XA029L
XA044L
XA116L
122
XA029H
XA044H
XA116H
EMS-
LRXVEL
TRNDM
220
11XT
119
XA030L
XA043L
XA117L
118
XA030H
XA043H
XA117H
BPLSSW
BPLSSW
BPLSSW
132
2P
ALTI
RRRANG
GYRSET
242
4XT
145
XA002L
XA041L
XA198L
144
XA002H
XA041H
XA198H
ALT0
RRRARA
GYRRST
239
5XT
142
XA003L
XA042L
XA148L
141
XA003H
XA042H
XA148H
ALRTI
RRSYNC
OTLNK0
235
6XT
139
XA010L
XA047L
XA078L
138
XA010H
XA047H
XA078H
ALRT0
LRSYNC
OTLNKI
232
7XT
135
XA012L
XA051L
XA079L
134
XA012H
XA051H
XA079H
BPLSSW
BPLUS
BPLSSW
158
1P
DKDATB
DKDATA
(NC)
254
1XT
157
X-085L
X-017L
(NC)
156
X-085H
X-017H
(NC)
GYZM
GYYM
GYXM
250
2XT
154
XB147L
XB145L
XB143L
153
XB147H
XB145H
XB143H
GYZP
GYYP
GYXP
246
3XT
149
XB146L
XB144L
XB142L
148
XB146H
XB144H
XB142H
RHCGO
RHCGO
RHCGO
261
258
BPLSSW
BPLSSW
BPLSSW
A-858H
A-860H
A-859H
271
A-858L
A-860L
A-859L
269
A
257
NC
(NC)
NC
163
GATEX/
GATEY/
GATEZ/
165
SIGN X
SIGN Y
SIGN Z
+28COM
+28COM
+28COM
171
1R
270
RD874
RD087
RD867
169
2R
268
RD874
RD087
RD868
168
3R
267
RD877
RD869
RD876
167
4R
266
RD907
RD904
RD878
166
5R
265
RD907
RD086
RD903
164
6R
264
RD166
RD865
RD101
+4 VDC
+28COM
+28COM
162
7R
263
RD175
RD863
RD861
BPLUS
+28COM
+28COM
161
8R
262
RD176
RD091
RD870
0VDC
+28COM
+28COM
159
9R
259
RD177
RD866
RD879
YG817H
YG119H
Y-014H
255
YG817L
YG119L
Y-014L
256
1Y
155
BMGXP
CDUXM
DKSTRT
YG818H
YG120H
Y-015H
252
YG818L
YG120L
Y-015L
253
2Y
152
BMGXM
CDUYP
DKEND
YG819H
YG121H
Y-016H
247
YG819L
YG121L
Y-016L
248
3Y
147
BMGYP
CDUYM
DKBSNC
YG820H
YG122H
YG024H
243
YG820L
YG122L
YG024L
244
4Y
143
BMGYM
CDUZP
UPL0
YG821H
YG123H
YG025H
240
YG821L
YG123L
YG025L
241
5Y
140
BMGZP
CDUZM
UPL1
YG822H
YG132H
YG031H
237
YG822L
YG132L
YG031L
238
6Y
137
BMGZM
PIPAX+
RRIN0
YG108H
YG133H
YG032H
233
YG108L
YG133L
YG032L
234
7Y
133
SHAFTP
PIPAX-
RRIN1
YG109H
YG134H
YG071H
230
YG109L
YG134L
YG071L
231
8Y
129
SHAFTM
PIPAY+
LRIN0
YG110H
YG135H
YG072H
226
YG110L
YG135L
YG072L
227
9Y
125
TRNP
PIPAY-
LRIN1
YG111H
YG136H
YG080H
222
YG111L
YG136L
YG080L
223
10Y
120
TRNM
PIPAZ+
XLNK0
YG118H
YG137H
YG081H
218
YG118L
YG137L
YG081L
219
11Y
117
CDUXP
PIPAZ-
XLNK1
DE004
DE173
DE064
150
1D
249
ULLTHR
MNIM+Y
RRPONA
DE007
DE174
DE069
146
2D
245
LFTOFF
MNIM-Y
RRRLSC
DE068
DE188
DE093
128
3D
228
GUIREL
MNIM+R
MANR+P
DE018
DE189
DE094
217
4D
116
TRAN+X
MNIM-R
MANR-P
DE019
DE831
DE095
216
5D
115
TRAN-X
TRST9
MANR+Y
DE020
DE832
DE096
215
6D
114
TRAN+Y
TRST10
MANR-Y
DE021
DE040
DE097
214
7D
113
TRAN-Y
HOLFUN
MANR+R
DE022
DE065
DE098
213
8D
111
TRAN+Z
FREFUN
MANR-R
DE023
DE066
DE113
211
9D
110
TRAN-Z
S4BSAB
ISSTOR
DE106
DE067
DE112
210
10D
109
OPMSW2
SMSEPR
OPCDEL
D-103
DE084
DE124
209
11D
108
MRKRST
IN3008
CDUFAL
DE104
DE083
DE125
208
12D
107
ZEROP
BLKUPL/
TEMPIN
DE102
DE082
DE141
207
13D
106
MARK
SPSRDY
IMUFAL
DE107
DE159
DE060
206
14D
105
OPMSW3
GCAPCL
LEMATT
DE182
DE843
DE184
205
15D
104
MRKREJ
ROLGOF
IMUOPR
DE183
DE842
DE193
204
16D
103
STRPRS
PCHGOF
IMUCAG
DE171
DE039
DE840
203
17D
102
MNIM+P
LVDAGD
IN3301
DE172
DE061
DE158
202
18D
101
MNIM-P
LRRLSC
CTLSAT
TO ALL POINTS G
112
136
236
160
0VDC
201
CGA29
CGA28
CGA27

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ± —— ANGLES ± ——
DO NOT SCALE THIS DRAWING
MATERIAL
——

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN A. DiLeo APR 65
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

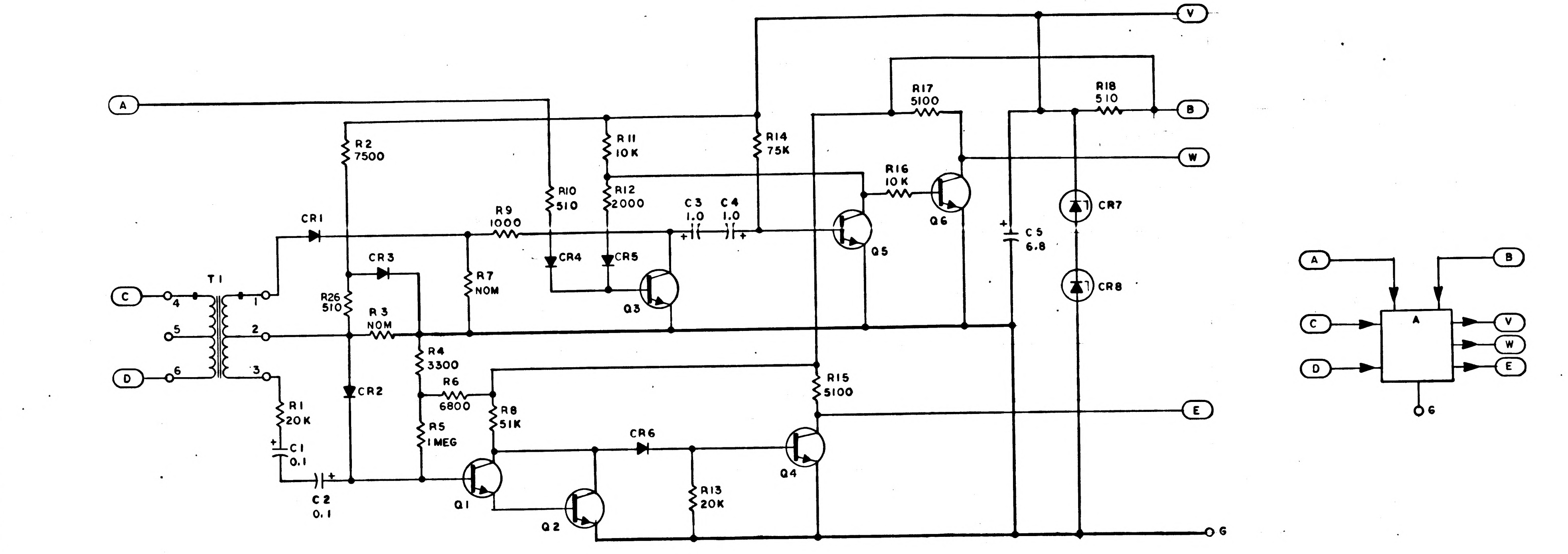
SCHEMATIC & WIRING DIAGRAM
INTERFACE A27-29

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2005020
SCALE ——		SHEET 2 OF 2

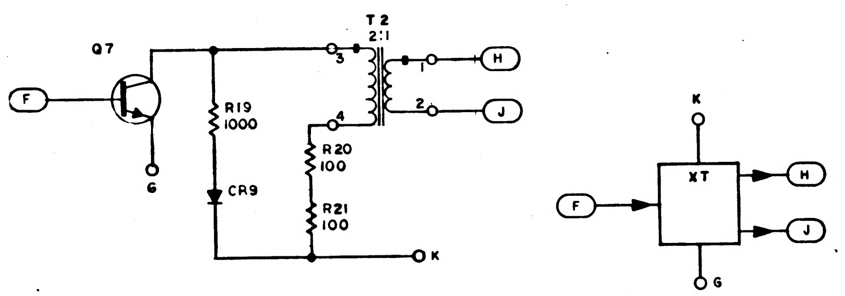
NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 2005						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

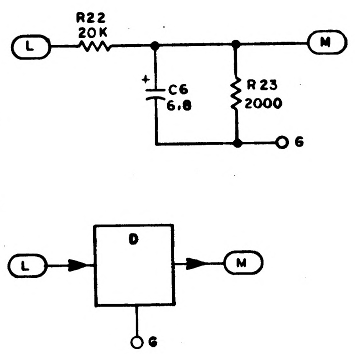
A CIRCUIT


V
A
B
W
R17
5100
R18
510
R2
7500
R11
10K
R14
75K
R16
10K
Q6
R10
510
R12
2000
C3
1.0
C4
1.0
R9
1000
CR1
CR7
C5
6.8
Q5
CR3
CR4
CR5
R7
NOM
CR8
C
T1
R26
510
R3
NOM
Q3
D
R4
3300
R6
6800
R15
5100
E
CR2
R1
20K
R8
51K
R5
1MEG
CR6
C1
0.1
Q4
R13
20K
C2
0.1
Q1
Q2
G
A
B
C
V
W
D
E
G

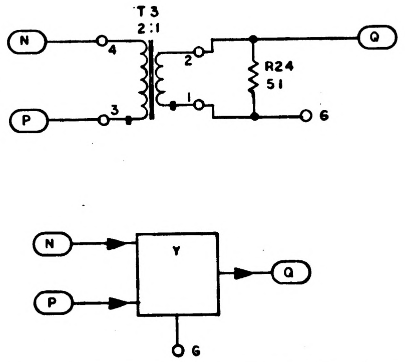
XT CIRCUIT


Q7
T2
2:1
H
F
R19
1000
J
R20
100
CR9
G
R21
100
K
K
F
XT
H
J
G

D CIRCUIT

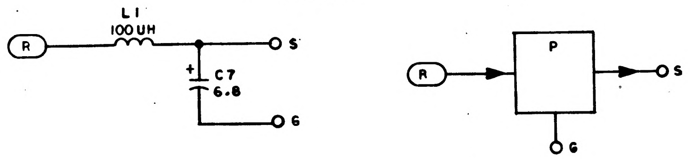

R22
20K
L
M
C6
6.8
R23
2000
G
L
D
M
G

Y CIRCUIT

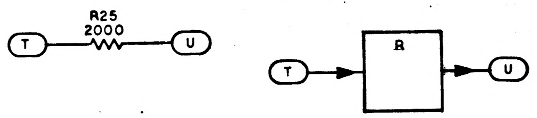

T3
2:1
N
Q
R24
51
P
G
N
Y
Q
P
G

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R1	1006750-63	RESISTOR	20K	± 2 %	1/4W
R2	1006750-53		7500		
R3	SEE NOTE 2		NOM		
R4	1006750-44		3300	± 2 %	1/4W
R5	1010768-29		1MEG	± 1 %	1/8W
R6	1006750-52		6800	± 2 %	1/4W
R7	SEE NOTE 2		NOM	± 1 %	1/8W
R8	1006750-73		51K	± 2 %	1/4W
R9	-32		1000		
R10	-25		510		
R11	-56		10K		
R12	-39		2000		
R13	-63		20K		
R14	-77		75K		
R15	-49		5100		
R16	-56		10K		
R17	-49		5100		
R18	-25		510		
R19	-32		1000		
R20	-8		100		
R21	-8		100		
R22	-63		20K		
R23	-39		2000		
R24	-1		51		
R25	-39		2000		
R26	1006750 25	RESISTOR	510	2 %	1/4W
C1	1006755-57	CAPACITOR	0.1	± 10%	35VDC
C2	-57		0.1		
C3	-69		1.0		
C4	-69		1.0		
C5	-79		6.8		
C6	-79		6.8		
C7	1006755-79	CAPACITOR	6.8	± 10%	35VDC
L1	1010406-6	COIL, RF CHOKE	100 UH		
CR1	2004103-001	DIODE			
CR2					
CR3					
CR4					
CR5					
CR6	2004103-001	ZENER			
CR7	2004112-002	ZENER			
CR8	2004112-002				
CR9	2004103-001	DIODE			
Q1	2004004-001	TRANSISTOR			
Q2					
Q3					
Q4					
Q5					
Q6					
Q7	2004004-001	TRANSISTOR			
T1	1010291-4	TRANSFORMER			
T2	1006319	TRANSFORMER			
T3	1006319	TRANSFORMER			

P CIRCUIT


L1
100UH
R
S
C7
6.8
G
R
P
S
G

R CIRCUIT


R25
2000
T
U
T
R
U

R3	
PART NO.	VALUE
1006750-22	390
-23	430
-24	470
-25	510
-26	560
-27	620
-28	680
-29	750
-30	820
-31	910
-32	1000
-33	1100
-34	1200
-35	1300
-36	1500
-37	1600
-38	1800
1006750-39	2000

R7	
PART NO.	VALUE
1010364-611	75K
-621	84.4K
-629	93.1K
-635	100K
-643	110K
-651	121K
-657	130K
-669	150K
-675	162K
-685	182K
-693	200K
-701	221K
-709	243K
1010364-719	274K

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. SELECT R3 & R7 PER APPLICABLE PS FROM APPROPRIATE CHART
3. TOP SIGNAL CORRESPONDS TO A29 MODULE
   MIDDLE SIGNAL CORRESPONDS TO A28 MODULE
   BOTTOM SIGNAL CORRESPONDS TO A27 MODULE
4. NUMERALS WITHIN THE CONFINES OF THE CIRCUIT REPRESENTATIONAL BLOCK ARE HOMOLOGOUS WITH COMPONENT PREFIXES

REF DES:
INTERFACE MODULE ASSY
DWG NO. 2003067

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± ___ DECIMALS ± ___ ANGLES ± ___
DO NOT SCALE THIS DRAWING

MATERIAL ___

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN a D. Lee 22 APR 65
CHECKED
APPROVED
APPROVED Ellen C Hall 24 June
APPROVED MIT W Keefer 7/...65
APPROVED MSC 7/7
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

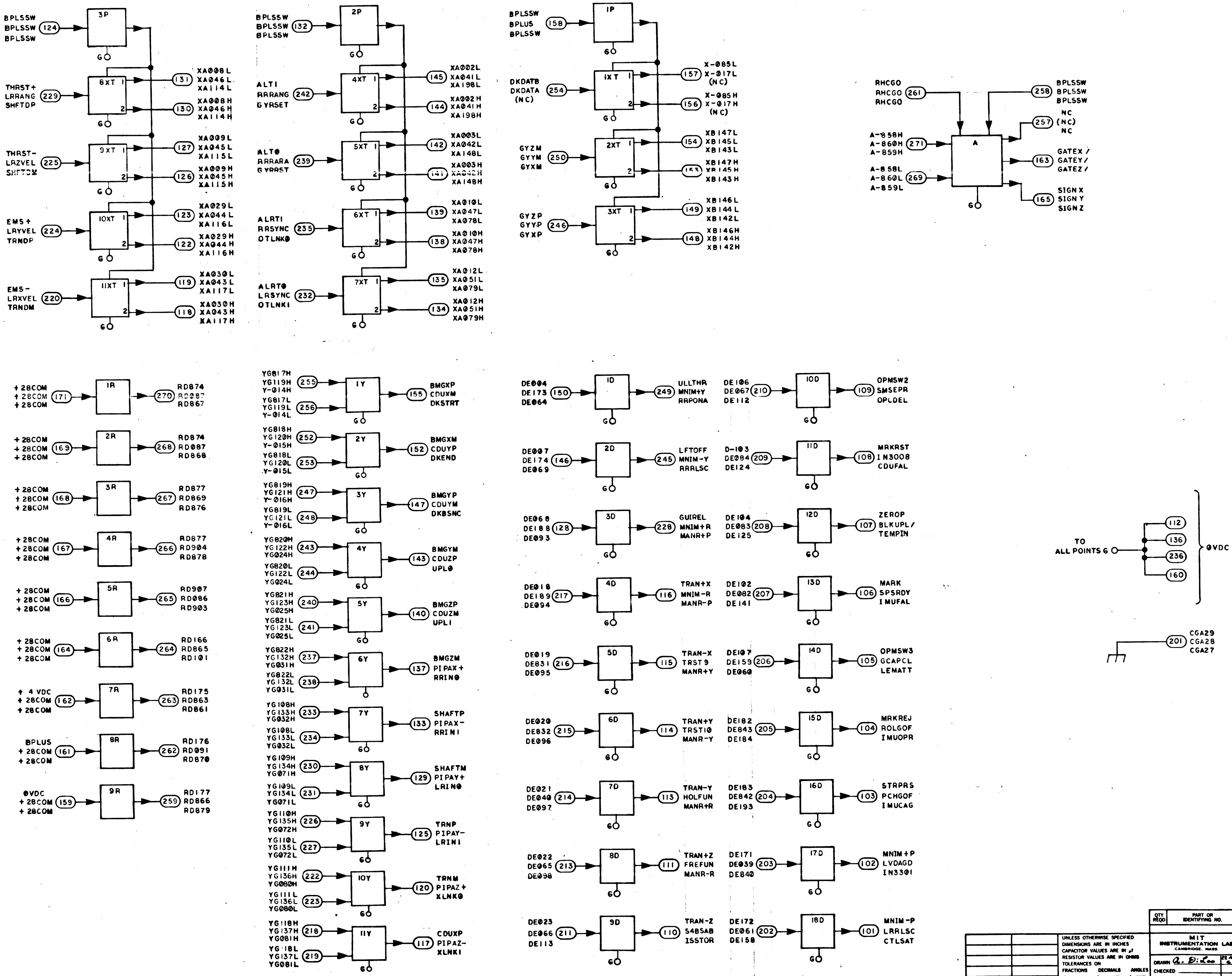
SCHEMATIC & WIRING DIAGRAM
INTERFACE A27 - 29

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005020
SCALE —
SHEET 1 OF 2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



BPLSSW BPLSSW BPLSSW 124 3P G
THRST+ LRRANG SHFTDP 229 8XT 1 2 G 131 XA008L XA046L XA114L 130 XA008H XA046H XA114H
THRST- LRZVEL SHFTDM 225 9XT 1 2 G 127 XA009L XA045L XA115L 126 XA009H XA045H XA115H
EMS+ LRYVEL TRNDP 224 10XT 1 2 G 123 XA029L XA044L XA116L 122 XA029H XA044H XA116H
EMS- LRXVEL TRNDM 220 11XT 1 2 G 119 XA030L XA043L XA117L 118 XA030H XA043H XA117H
BPLSSW BPLSSW BPLSSW 132 2P G
ALTI RRRANG GYRSET 242 4XT 1 2 G 145 XA002L XA041L XA198L 144 XA002H XA041H XA198H
ALT0 RRRARA GYRRST 239 5XT 1 2 G 142 XA003L XA042L XA148L 141 XA003H XA042H XA148H
ALRTI RRSYNC OTLNK0 235 6XT 1 2 G 139 XA010L XA047L XA078L 138 XA010H XA047H XA078H
ALRT0 LRSYNC OTLNKI 232 7XT 1 2 G 135 XA012L XA051L XA079L 134 XA012H XA051H XA079H
BPLSSW BPLUS BPLSSW 158 1P G
DKDATB DKDATA (NC) 254 1XT 1 2 G 157 X-085L X-017L (NC) 156 X-085H X-017H (NC)
GYZM GYYM GYXM 250 2XT 1 2 G 154 XB147L XB145L XB143L 153 XB147H XB145H XB143H
GYZP GYYP GYXP 246 3XT 1 2 G 149 XB146L XB144L XB142L 148 XB146H XB144H XB142H
RHCGO RHCGO RHCGO 261
258 BPLSSW BPLSSW BPLSSW
A-858H A-860H A-859H 271
A-858L A-860L A-859L 269
A G
257 NC (NC) NC
163 GATEX/ GATEY/ GATEZ/
165 SIGN X SIGN Y SIGN Z
+28COM +28COM +28COM 171 1R 270 RD874 RD087 RD867
+28COM +28COM +28COM 169 2R 268 RD874 RD087 RD868
+28COM +28COM +28COM 168 3R 267 RD877 RD869 RD876
+28COM +28COM +28COM 167 4R 266 RD877 RD904 RD878
+28COM +28COM +28COM 166 5R 265 RD907 RD086 RD903
+28COM +28COM +28COM 164 6R 264 RD166 RD865 RD101
+ 4 VDC +28COM +28COM 162 7R 263 RD175 RD863 RD861
BPLUS +28COM +28COM 161 8R 262 RD176 RD091 RD870
0VDC +28COM +28COM 159 9R 259 RD177 RD866 RD879
YG817H YG119H Y-014H 255 YG817L YG119L Y-014L 256 1Y G 155 BMGXP CDUXM DKSTRT
YG818H YG120H Y-015H 252 YG818L YG120L Y-015L 253 2Y G 152 BMGXM CDUYP DKEND
YG819H YG121H Y-016H 247 YG819L YG121L Y-016L 248 3Y G 147 BMGYP CDUYM DKBSNC
YG820H YG122H YG024H 243 YG820L YG122L YG024L 244 4Y G 143 BMGYM CDUZP UPL0
YG821H YG123H YG025H 240 YG821L YG123L YG025L 241 5Y G 140 BMGZP CDUZM UPLI
YG822H YG132H YG031H 237 YG822L YG132L YG031L 238 6Y 137 BMGZM PIPAX+ RRIN0
YG108H YG133H YG032H 233 YG108L YG133L YG032L 234 7Y G 133 SHAFTP PIPAX- RRINI
YG109H YG134H YG071H 230 YG109L YG134L YG071L 231 8Y G 129 SHAFTM PIPAY+ LRIN0
YG110H YG135H YG072H 226 YG110L YG135L YG072L 227 9Y G 125 TRNP PIPAY- LRINI
YG111H YG136H YG080H 222 YG111L YG136L YG080L 223 10Y G 120 TRNM PIPAZ+ XLNK0
YG118H YG137H YG081H 218 YG118L YG137L YG081L 219 11Y G 117 CDUXP PIPAZ- XLNKI
DE004 DE173 DE064 150 1D G 249 ULLTHR MNIM+Y RRPONA
DE007 DE174 DE069 146 2D G 245 LFTOFF MNIM-Y RRRLSC
DE068 DE188 DE093 128 3D G 228 GUIREL MNIM+R MANR+P
DE018 DE189 DE094 217 4D G 116 TRAN+X MNIM-R MANR-P
DE019 DE831 DE095 216 5D G 115 TRAN-X TRST9 MANR+Y
DE020 DE832 DE096 215 6D G 114 TRAN+Y TRST10 MANR-Y
DE021 DE040 DE097 214 7D G 113 TRAN-Y HOLFUN MANR+R
DE022 DE065 DE098 213 8D G 111 TRAN+Z FREFUN MANR-R
DE023 DE066 DE113 211 9D G 110 TRAN-Z S4BSAB ISSTOR
DE106 DE067 DE112 210 10D G 109 OPMSW2 SMSEPR OPCDEL
D-103 DE084 DE124 209 11D G 108 MRKRST IN3008 CDUFAL
DE104 DE083 DE125 208 12D G 107 ZEROP BLKUPL/ TEMPIN
DE102 DE082 DE141 207 13D G 106 MARK SPSRDY IMUFAL
DE107 DE159 DE060 206 14D G 105 OPMSW3 GCAPCL LEMATT
DE182 DE843 DE184 205 15D G 104 MRKREJ ROLGOF IMUOPR
DE183 DE842 DE193 204 16D G 103 STRPRS PCHGOF IMUCAG
DE171 DE039 DE840 203 17D G 102 MNIM+P LVDAGD IN3301
DE172 DE061 DE158 202 18D G 101 MNIM-P LRRLSC CTLSAT
TO ALL POINTS G 112 136 236 160 0VDC
201 CGA29 CGA28 CGA27

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN A. DiLeo 22 APR 65
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

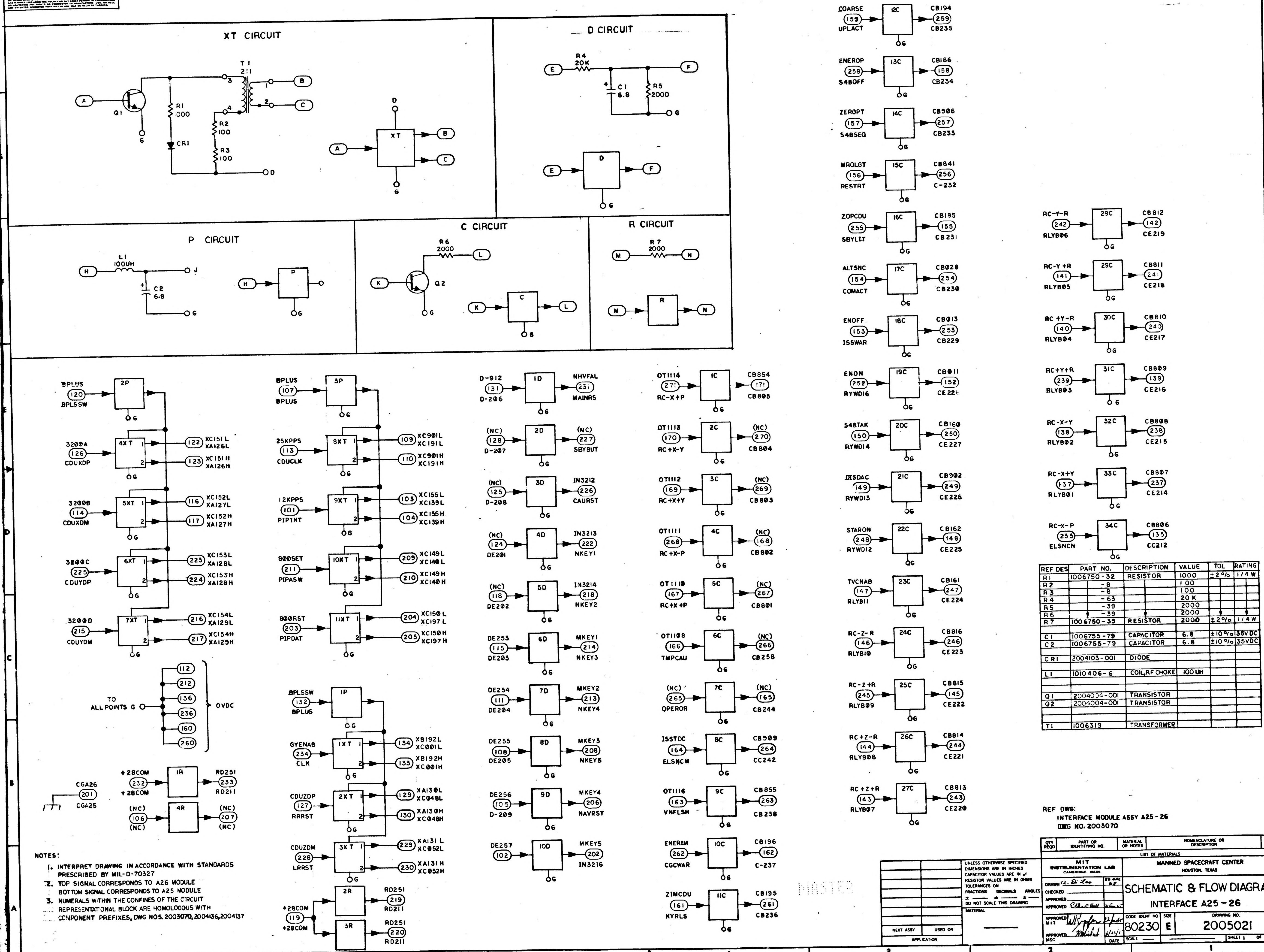
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC & FLOW DIAGRAM
INTERFACE A27-29

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005020
SCALE —
SHEET 2 OF 2

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 21853				

REVISIONS 20276



XT CIRCUIT
Q1
R1 1000
CR1
T1 2:1
R2 100
R3 100
A
B
C
D
G
XT
D CIRCUIT
R4 20K
C1 6.8
R5 2000
E
F
P CIRCUIT
L1 100UH
C2 6.8
H
J
P
C CIRCUIT
R6 2000
Q2
K
L
R CIRCUIT
R7 2000
M
N
R
BPLUS 120 BPLSSW 2P
3200A 126 CDUXDP 4XT 122 XC151L XA126L 123 XC151H XA126H
3200B 114 CDUXDM 5XT 116 XC152L XA127L 117 XC152H XA127H
3200C 225 CDUYDP 6XT 223 XC153L XA128L 224 XC153H XA128H
3200D 215 CDUYDM 7XT 216 XC154L XA129L 217 XC154H XA129H
TO ALL POINTS G 112 212 136 236 160 260 OVDC
+28COM 232 +28COM 1R RD251 233 RD211
CGA26 201 CGA25
(NC) 106 (NC) 4R (NC) 207 (NC)
BPLUS 107 BPLUS 3P
25KPPS 113 CDUCLK 8XT 109 XC901L XC191L 110 XC901H XC191H
12KPPS 101 PIPINT 9XT 103 XC155L XC139L 104 XC155H XC139H
800SET 211 PIPASW 10XT 209 XC149L XC140L 210 XC149H XC140H
800RST 203 PIPDAT 11XT 204 XC150L XC197L 205 XC150H XC197H
BPLSSW 132 BPLUS 1P
GYENAB 234 CLK 1XT 134 XB192L XC001L 133 XB192H XC001H
CDUZDP 127 RRRST 2XT 129 XA130L XC048L 130 XA130H XC048H
CDUZDM 228 LRRST 3XT 229 XA131L XC052L 230 XA131H XC052H
+28COM 119 +28COM 2R RD251 219 RD211 3R RD251 220 RD211
D-912 131 D-206 1D NHVFAL 231 MAINRS
(NC) 128 D-207 2D (NC) 227 SBYBUT
(NC) 125 D-208 3D IN3212 226 CAURST
(NC) 124 DE201 4D IN3213 222 NKEY1
(NC) 118 DE202 5D IN3214 218 NKEY2
DE253 115 DE203 6D MKEY1 214 NKEY3
DE254 111 DE204 7D MKEY2 213 NKEY4
DE255 108 DE205 8D MKEY3 208 NKEY5
DE256 105 D-209 9D MKEY4 206 NAVRST
DE257 102 10D MKEY5 202 IN3216
OT1114 271 RC-X+P 1C CB854 171 CB805
OT1113 170 RC+X-Y 2C (NC) 270 CB804
OT1112 169 RC+X+Y 3C (NC) 269 CB803
OT1111 268 RC+X-P 4C (NC) 168 CB802
OT1110 167 RC+X+P 5C (NC) 267 CB801
OT1108 166 TMPCAU 6C (NC) 266 CB258
(NC) 265 OPEROR 7C (NC) 165 CB244
ISSTDC 164 ELSNCM 8C CB509 264 CC242
OT1116 163 VNFLSH 9C CB855 263 CB238
ENERIM 262 CGCWAR 10C CB196 162 C-237
ZIMCDU 161 KYRLS 11C CB195 261 CB236
COARSE 159 UPLACT 12C CB194 259 CB235
ENEROP 258 S4BOFF 13C CB186 158 CB234
ZEROPT 157 S4BSEQ 14C CB906 257 CB233
MROLGT 156 RESTRT 15C CB841 256 C-232
ZOPCDU 255 SBYLIT 16C CB185 155 CB231
ALTSNC 154 COMACT 17C CB028 254 CB230
ENOFF 153 ISSWAR 18C CB013 253 CB229
ENON 252 RYWD16 19C CB011 152 CE22
S4BTAK 150 RYWD14 20C CB160 250 CE227
DISDAC 149 RYWD13 21C CB902 249 CE226
STARON 248 RYWD12 22C CB162 148 CE225
TVCNAB 147 RLYB11 23C CB161 247 CE224
RC-Z-R 146 RLYB10 24C CB816 246 CE223
RC-Z+R 245 RLYB09 25C CB815 145 CE222
RC+Z-R 144 RLYB08 26C CB814 244 CE221
RC+Z+R 143 RLYB07 27C CB813 243 CE220
RC-Y-R 242 RLYB06 28C CB812 142 CE219
RC-Y+R 141 RLYB05 29C CB811 241 CE218
RC+Y-R 140 RLYB04 30C CB810 240 CE217
RC+Y+R 239 RLYB03 31C CB809 139 CE216
RC-X-Y 138 RLYB02 32C CB808 238 CE215
RC-X+Y 137 RLYB01 33C CB807 237 CE214
RC-X-P 235 ELSNCN 34C CB806 135 CC212

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R1	1006750-32	RESISTOR	1000	±2%	1/4 W
R2	-8		100		
R3	-8		100		
R4	-63		20 K		
R5	-39		2000		
R6	-39		2000		
R7	1006750-39	RESISTOR	2000	±2%	1/4 W
C1	1006755-79	CAPACITOR	6.8	±10%	35VDC
C2	1006755-79	CAPACITOR	6.8	±10%	35VDC
CR1	2004103-001	DIODE			
L1	1010406-6	COIL, RF CHOKE	100 UH		
Q1	2004004-001	TRANSISTOR			
Q2	2004004-001	TRANSISTOR			
T1	1006319	TRANSFORMER			

REF DWG:
INTERFACE MODULE ASSY A25-26
DWG NO. 2003070

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. TOP SIGNAL CORRESPONDS TO A26 MODULE BOTTOM SIGNAL CORRESPONDS TO A25 MODULE
3. NUMERALS WITHIN THE CONFINES OF THE CIRCUIT REPRESENTATIONAL BLOCK ARE HOMOLOGOUS WITH COMPONENT PREFIXES, DWG NOS. 2003070, 2004136, 2004137

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

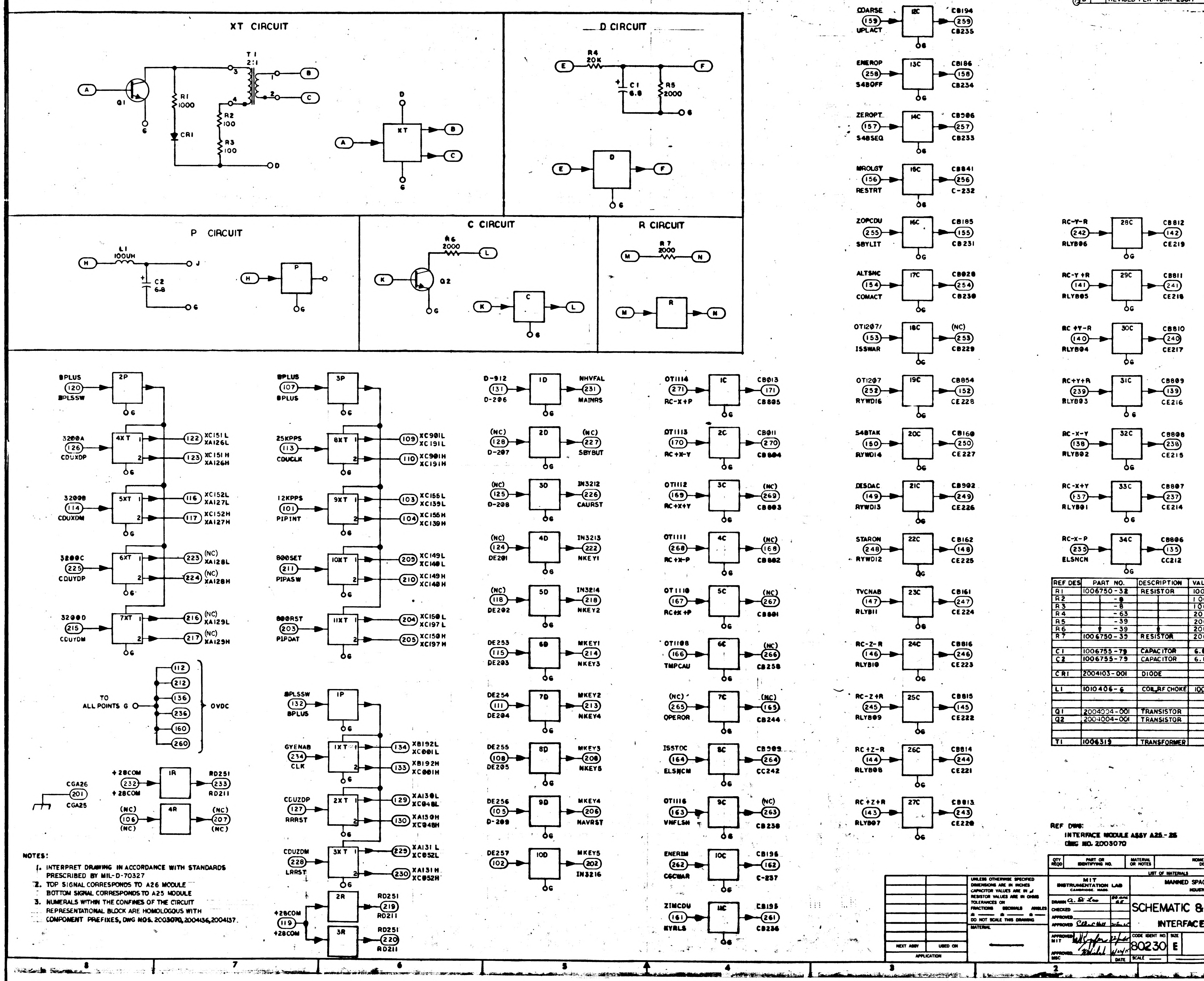
MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN A. Di Leo 30 APR 65
CHECKED
APPROVED
APPROVED Ellen C Hall 21 [illegible] 65
APPROVED MIT W [illegible] 22 [illegible] 65
APPROVED MSC [illegible] 6/22/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC & FLOW DIAGRAM
INTERFACE A25-26

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005021
SCALE —
SHEET 1 OF 1


XT CIRCUIT
A
Q1
G
R1 1000
CR1
T1 2:1
3
4
1
2
B
C
R2 100
R3 100
D
XT
D CIRCUIT
R4 20K
C1 6.8
R5 2000
E
F
P CIRCUIT
L1 100UH
C2 6-8
H
J
P
C CIRCUIT
R6 2000
Q2
K
L
R CIRCUIT
R7 2000
M
N
R
BPLUS 120 BPLSSW 2P
3200A 126 CDUXDP 4XT 122 XC151L XA126L 123 XC151H XA126H
3200B 114 CDUXDM 5XT 116 XC152L XA127L 117 XC152H XA127H
3200C 225 CDUYDP 6XT 223 (NC) XA128L 224 (NC) XA128H
3200D 215 CDUYDM 7XT 216 (NC) XA129L 217 (NC) XA129H
TO ALL POINTS G 112 212 136 236 160 260 OVDC
+28COM 232 +28COM 1R RD251 233 RD211
CGA26 201 CGA25
(NC) 106 (NC) 4R (NC) 207 (NC)
BPLUS 107 BPLUS 3P
25KPPS 113 CDUCLK 8XT 109 XC901L XC191L 110 XC901H XC191H
12KPPS 101 PIPINT 9XT 103 XC155L XC139L 104 XC155H XC139H
800SET 211 PIPASW 10XT 209 XC149L XC140L 210 XC149H XC140H
800RST 203 PIPDAT 11XT 204 XC150L XC197L 205 XC150H XC197H
BPLSSW 132 BPLUS 1P
GYENAB 234 CLK 1XT 134 XB192L XC001L 133 XB192H XC001H
CDUZDP 127 RRRST 2XT 129 XA130L XC048L 130 XA130H XC048H
CDUZDM 228 LRRST 3XT 229 XA131L XC052L 230 XA131H XC052H
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(NC) 124 DE201 4D IN3213 222 NKEY1
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OT1112 169 RC+X+Y 3C (NC) 269 CB803
OT1111 268 RC+X-P 4C (NC) 168 CB802
OT1110 167 RC+X+P 5C (NC) 267 CB801
OT1108 166 TMPCAU 6C (NC) 266 CB258
(NC) 265 OPEROR 7C (NC) 165 CB244
ISSTOC 164 ELSNCM 8C CB909 264 CC242
OT1116 163 VNFLSH 9C (NC) 263 CB238
ENERIM 262 C6CWAR 10C CB196 162 C-237
ZIMCDU 161 KYRLS 11C CB195 261 CB236
COARSE 159 UPLACT 12C CB194 259 CB235
ENEROP 258 S4BOFF 13C CB186 158 CB234
ZEROPT 157 S4BSEQ 14C CB906 257 CB233
MROLGT 156 RESTRT 15C CB841 256 C-232
ZOPCDU 255 SBYLIT 16C CB185 155 CB231
ALTSMC 154 COMACT 17C CB028 254 CB230
OT1207/ 153 ISSWAR 18C (NC) 253 CB229
OT1207 252 RYWD16 19C CB854 152 CE228
S4BTAK 150 RYWD14 20C CB160 250 CE227
DESDAC 149 RYWD13 21C CB902 249 CE226
STARON 248 RYWD12 22C CB162 148 CE225
TVCNAB 147 RLYB11 23C CB161 247 CE224
RC-Z-R 146 RLYB10 24C CB816 246 CE223
RC-Z+R 245 RLYB09 25C CB815 145 CE222
RC+Z-R 144 RLYB08 26C CB814 244 CE221
RC+Z+R 143 RLYB07 27C CB813 243 CE220
RC-Y-R 242 RLYB06 28C CB812 142 CE219
RC-Y+R 141 RLYB05 29C CB811 241 CE218
RC+Y-R 140 RLYB04 30C CB810 240 CE217
RC+Y+R 239 RLYB03 31C CB809 139 CE216
RC-X-Y 138 RLYB02 32C CB808 238 CE215
RC-X+Y 137 RLYB01 33C CB807 237 CE214
RC-X-P 235 ELSNCN 34C CB806 135 CC212
G

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R1	1006750-32	RESISTOR	1000	±2%	1/4 W
R2	-8		100		
R3	-8		100		
R4	-63		20 K		
R5	-39		2000		
R6	-39		2000		
R7	1006750-39	RESISTOR	2000	±2%	1/4 W
C1	1006755-79	CAPACITOR	6.8	±10%	35VDC
C2	1006755-79	CAPACITOR	6.8	±10%	35VDC
CR1	2004103-001	DIODE			
L1	1010406-6	COIL,RF CHOKE	100UH		
Q1	2004004-001	TRANSISTOR			
Q2	2004004-001	TRANSISTOR			
T1	1006319	TRANSFORMER			

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. TOP SIGNAL CORRESPONDS TO A26 MODULE BOTTOM SIGNAL CORRESPONDS TO A25 MODULE
3. NUMERALS WITHIN THE CONFINES OF THE CIRCUIT REPRESENTATIONAL BLOCK ARE HOMOLOGOUS WITH COMPONENT PREFIXES, DWG NOS. 2003070, 2004136, 2004137.

REVISIONS 20276

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 21853				
B		REVISED PER TDRR 25017				

REF DWG:
INTERFACE MODULE ASSY A25-26
DWG NO. 2003070

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN a. Di Leo
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

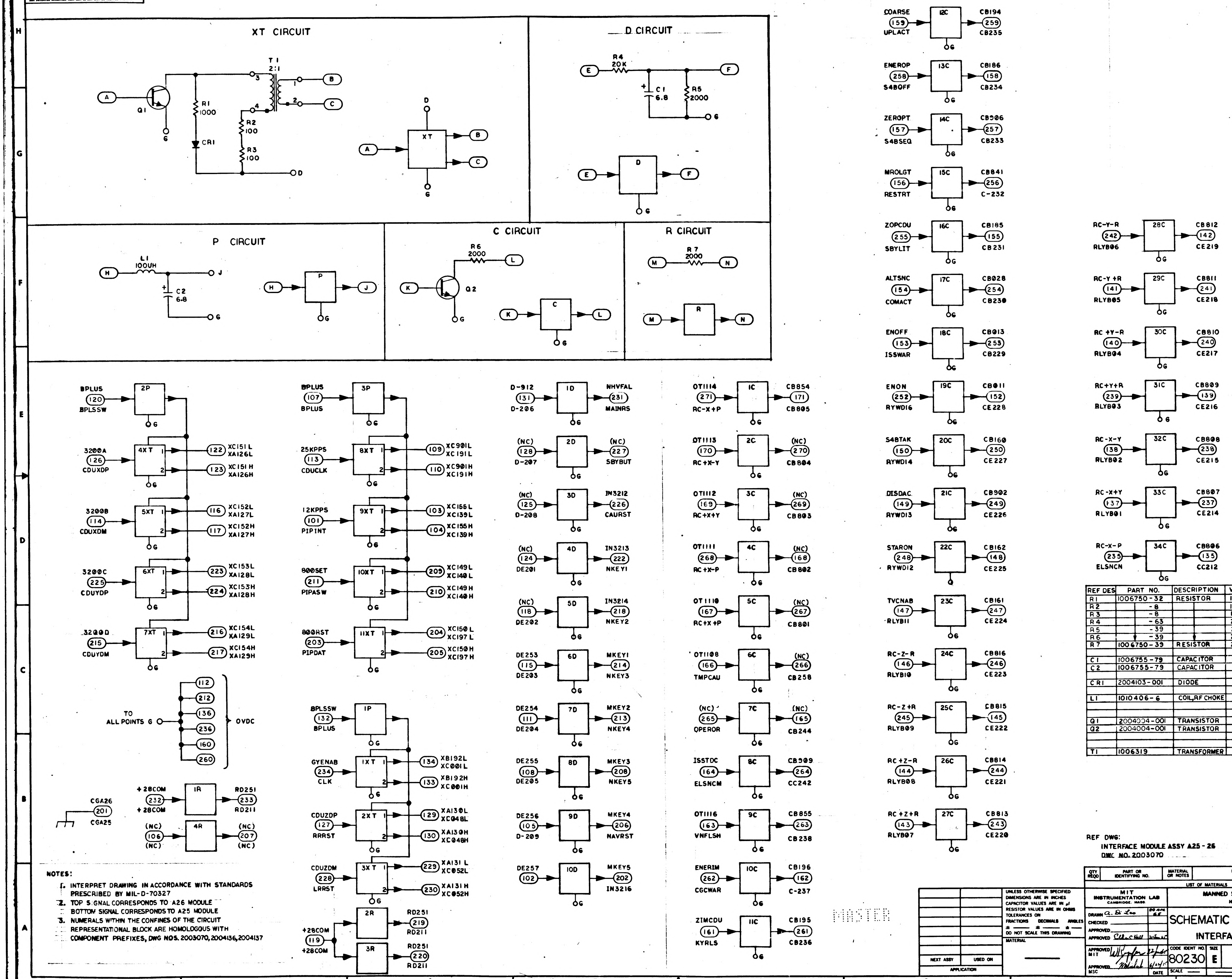
SCHEMATIC & FLOW DIAGRAM
INTERFACE A25-26

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2005021

SCALE — SHEET 1 OF 1

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

REVISIONS 20276



XT CIRCUIT
A
Q1
G
R1
1000
CR1
R2
100
R3
100
T1
2:1
3
4
1
2
B
C
D
XT
D CIRCUIT
R4
20K
E
F
C1
6.8
R5
2000
G
P CIRCUIT
L1
100UH
H
J
C2
6.8
P
C CIRCUIT
R6
2000
K
L
Q2
C
R CIRCUIT
R7
2000
M
N
R
BPLUS
120
BPLSSW
2P
3200A
126
CDUXDP
4XT
122
XC151L
XA126L
123
XC151H
XA126H
3200B
114
CDUXDM
5XT
116
XC152L
XA127L
117
XC152H
XA127H
3200C
225
CDUYDP
6XT
223
XC153L
XA128L
224
XC153H
XA128H
3200D
215
CDUYDM
7XT
216
XC154L
XA129L
217
XC154H
XA129H
TO
ALL POINTS G
112
212
136
236
160
260
OVDC
+28COM
232
+28COM
1R
RD251
233
RD211
CGA26
201
CGA25
(NC)
106
(NC)
4R
(NC)
207
(NC)
BPLUS
107
BPLUS
3P
25KPPS
113
CDUCLK
8XT
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XC901L
XC191L
110
XC901H
XC191H
12KPPS
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PIPINT
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103
XC155L
XC139L
104
XC155H
XC139H
800SET
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PIPASW
10XT
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XC149L
XC140L
210
XC149H
XC140H
800RST
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XC001H
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XC048H
CDUZDM
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LRRST
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XC052L
230
XA131H
XC052H
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RD211
3R
RD251
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RD211
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D-206
1D
NHVFAL
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MAINRS
(NC)
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D-207
2D
(NC)
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SBYBUT
(NC)
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D-208
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IN3213
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5D
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DE204
7D
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DE205
8D
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208
NKEY5
DE256
105
D-209
9D
MKEY4
206
NAVRST
DE257
102
10D
MKEY5
202
IN3216
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RC-X+P
1C
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171
CB805
OT1113
170
RC+X-Y
2C
(NC)
270
CB804
OT1112
169
RC+X+Y
3C
(NC)
269
CB803
OT1111
268
RC+X-P
4C
(NC)
168
CB802
OT1110
167
RC+X+P
5C
(NC)
267
CB801
OT1108
166
TMPCAU
6C
(NC)
266
CB258
(NC)
265
OPEROR
7C
(NC)
165
CB244
ISSTDC
164
ELSNCM
8C
CB909
264
CC242
OT1116
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VNFLSH
9C
CB855
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CB238
ENERIM
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CGCWAR
10C
CB196
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KYRLS
11C
CB195
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CB236
COARSE
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UPLACT
12C
CB194
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CB235
ENEROP
258
S4BOFF
13C
CB186
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CB234
ZEROPT
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S4BSEQ
14C
CB906
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CB233
MROLGT
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RESTRT
15C
CB841
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C-232
ZOPCDU
255
SBYLIT
16C
CB185
155
CB231
ALTSNC
154
COMACT
17C
CB028
254
CB230
ENOFF
153
ISSWAR
18C
CB013
253
CB229
ENON
252
RYWD16
19C
CB011
152
CE228
S4BTAK
150
RYWD14
20C
CB160
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CE227
DISDAC
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RYWD13
21C
CB902
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CE226
STARON
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RYWD12
22C
CB162
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CE225
TVCNAB
147
RLYB11
23C
CB161
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CE224
RC-Z-R
146
RLYB10
24C
CB816
246
CE223
RC-Z+R
245
RLYB09
25C
CB815
145
CE222
RC+Z-R
144
RLYB08
26C
CB814
244
CE221
RC+Z+R
143
RLYB07
27C
CB813
243
CE220
RC-Y-R
242
RLYB06
28C
CB812
142
CE219
RC-Y+R
141
RLYB05
29C
CB811
241
CE218
RC+Y-R
140
RLYB04
30C
CB810
240
CE217
RC+Y+R
239
RLYB03
31C
CB809
139
CE216
RC-X-Y
138
RLYB02
32C
CB808
238
CE215
RC-X+Y
137
RLYB01
33C
CB807
237
CE214
RC-X-P
235
ELSNCN
34C
CB806
135
CC212

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R1	1006750-32	RESISTOR	1000	±2%	1/4 W
R2	-8		100		
R3	-8		100		
R4	-63		20 K		
R5	-39		2000		
R6	-39		2000		
R7	1006750-39	RESISTOR	2000	±2%	1/4 W
C1	1006755-79	CAPACITOR	6.8	±10%	35VDC
C2	1006755-79	CAPACITOR	6.8	±10%	35VDC
CR1	2004103-001	DIODE			
L1	1010406-6	COIL,RF CHOKE	100 UH		
Q1	2004004-001	TRANSISTOR			
Q2	2004004-001	TRANSISTOR			
T1	1006319	TRANSFORMER			

REF DWG:
INTERFACE MODULE ASSY A25-26
DWG NO. 2003070

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. TOP SIGNAL CORRESPONDS TO A26 MODULE
   BOTTOM SIGNAL CORRESPONDS TO A25 MODULE
3. NUMERALS WITHIN THE CONFINES OF THE CIRCUIT REPRESENTATIONAL BLOCK ARE HOMOLOGOUS WITH COMPONENT PREFIXES, DWG NOS. 2003070, 2004136, 2004137

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

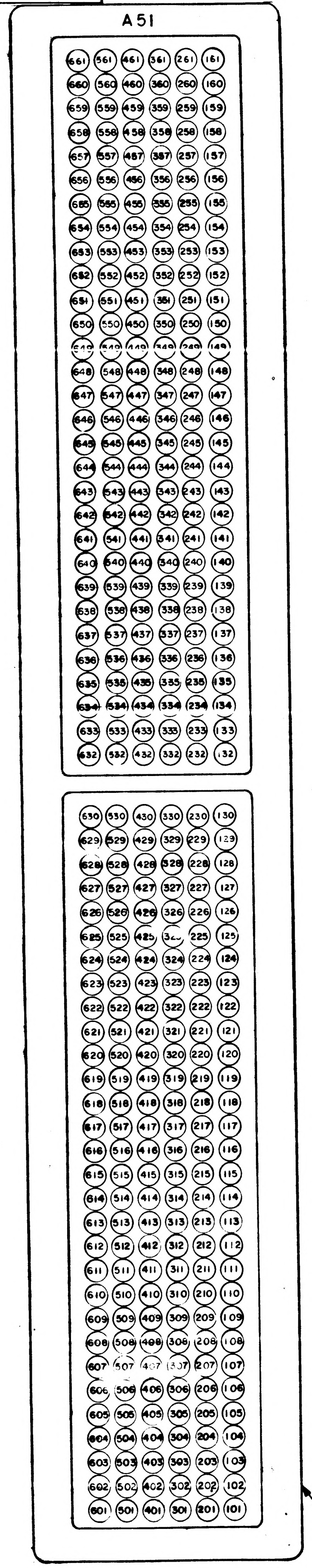
DRAWN a. Di Leo 30 APR 65
CHECKED
APPROVED
APPROVED Ellen C Hall
APPROVED MIT
APPROVED MSC 6/22/65
DATE

SCHEMATIC & FLOW DIAGRAM
INTERFACE A25-26

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005021
SCALE —
SHEET 1 OF 1

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 20276						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 22467		LJB	15 SEPT 65	



VIEW FROM MODULE SIDE OF TRAY A-A51 CONNECTOR

661	WD167	561	WD167	461	WD167	361	WD167	261	WD167	161	WD167
660	WD169	560	WD169	460	WD169	360	WD169	260	WD169	160	WD169
659	WD168	559	WD168	459	WD168	359	WD168	259	WD168	159	WD168
658	RD874	558	DE004	458	XA002L	358	XA002H	258	YG817L	158	YG817H
657	DE007	557	DE068	457	XA003L	357	XA003H	257	YG818L	157	YG818H
656	RD877	556	RD907	456	XA010L	356	XA010H	256	YG819L	156	YG819H
655	DE018	555	DE019	455	XA012L	355	XA012H	255	YG820L	155	YG820H
654	DE020	554	DE021	454	XA008L	354	XA008H	254	YG821L	154	YG821H
653	DE022	553	DE023	453	XA009L	353	XA009H	253	YG822L	153	YG822H
652	RD166	552	RD175	452	X-017L	352	X-017H	252	YG108L	152	YG108H
651	RD176	551	RD177	451	X-085L	351	X-085H	251	YG109L	151	YG109H
650	DE106	550	D-103	450	XA029L	350	XA029H	250	YG110L	150	YG110H
649	DE104	549	DE102	449	XA030L	349	XA030H	249	YG111L	149	YG111H
648	DE107	548	DE182	448	XA041L	348	XA041H	248	YG118L	148	YG118H
647	RD087	547	DE183	447	XA042L	347	XA042H	247	YG119L	147	YG119H
646	DE171	546	DE172	446	XA047L	346	XA047H	246	YG120L	146	YG120H
645	DE173	545	DE174	445	XC048L	345	XC048H	245	YG121L	145	YG121H
644	DE188	544	DE189	444	XA043L	344	XA043H	244	YG122L	144	YG122H
643	DE831	543	DE832	443	XA044L	343	XA044H	243	YG123L	143	YG123H
642	RD869	542	RD904	442	XA045L	342	XA045H	242	A-858L	142	A-858H
641	DE040	541	DE065	441	XA046L	341	XA046H	241	A-859L	141	A-859H
640	DE066	540	DE067	440	XA051L	340	XA051H	240	A-860L	140	A-860H
639	RD086	539	RD865	439	XC052L	339	XC052H	239	YG132L	139	YG132H
639	DE084	538	DE083	438	XA114L	338	XA114H	238	YG133L	138	YG133H
637	RD863	537	RD091	437	XA115L	337	XA115H	237	YG134L	137	YG134H
636	DE082	536	DE159	436	XA116L	336	XA116H	236	YG135L	136	YG135H
635	RD866	535	RD867	435	XA117L	335	XA117H	235	YG136L	135	YG136H
634	RD868	534	DE158	434	XA126L	334	XA126H	234	YG137L	134	YG137H
633	RD876	533	RD878	433	XA127L	333	XA127H	233	Y-014L	133	Y-014H
632	DE843	532	DE842	432	XA128L	332	XA128H	232	Y-015L	132	Y-015H
630	DE039	530	DE061	430	XA129L	330	XA129H	230	Y-016L	130	Y-016H
629	DE064	529	DE069	429	XA130L	329	XA130H	229	YG024L	129	YG024H
628	DE093	528	DE094	428	XA131L	328	XA131H	228	YG025L	128	YG025H
627	DE095	527	DE096	427	XC139L	327	XC139H	227	YG031L	127	YG031H
626	DE097	526	DE098	426	XC140L	326	XC140H	226	YG032L	126	YG032H
625	DE113	525	DE112	425	XC197L	325	XC197H	225	YG071L	125	YG071H
624	DE124	524	DE125	424	XC901L	324	XC901H	224	YG072L	124	YG072H
623	DE141	523	DE060	423	XC149L	323	XC149H	223	YG080L	123	YG080H
622	DE184	522	DE193	422	XC150L	322	XC150H	222	YG081L	122	YG081H
621	DE840	521	RD903	421	XB146L	321	XB146H	221	XB142L	121	XB142H
620	RD101	520	RD861	420	XB147L	320	XB147H	220	XB143L	120	XB143H
619	CB854	519	RD879	419	XA198L	319	XA198H	219	XB144L	119	XB144H
618	XA078L	518	XA078H	418	XA148L	318	XA148H	216	XB145L	118	XB145H
617	XA079L	517	XA079H	417	XB192L	317	XB192H	217	XC155L	117	XC155H
616	XC001L	516	XC001H	416	XC151L	316	XC151H	216	W-910	116	W-241
615	XC191L	515	XC191H	415	XC152L	315	XC152H	215	W-911	115	W-210
614	CB186	514	CB194	414	CB195	314	CB196	214	D-912	114	CB909
613	CB011	513	CB013	413	CB028	313	CB185	213	CB841	113	CB906
612	CB815	512	CB816	412	CB161	312	CB162	212	CB902	112	CB160
611	CB809	511	CB810	411	CB811	311	CB812	211	CB813	111	CB814
610	CB803	510	CB804	410	CB805	310	CB806	210	CB807	110	CB808
609	CB238	509	CC242	409	CB244	309	CB258	209	CB801	109	CB802
608	C-232	508	CB233	408	CB234	308	CB235	208	CB236	108	WD240
607	CE227	507	CE228	407	CB229	307	CB230	207	CB231	107	WD243
606	CE222	506	CE223	406	CE224	306	CE225	206	CE226	106	WD243
605	CE217	505	CE218	405	CE219	305	CE220	205	CE221	105	WD239
604	C-237	504	CC212	404	CE214	304	CE215	204	CE216	104	WD239
603	DE253	503	DE254	403	DE255	303	DE256	203	DE257	103	D-206
602	RD251	502	D-207	402	D-208	302	RD211	202	RD199L	102	RD199H
601	DE201	501	DE202	401	DE203	301	DE204	201	DE205	101	D-209

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

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CAPACITOR VALUES ARE IN μf
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FRACTIONS ± — DECIMALS ± — ANGLES ± —
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MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN A. Di Leo 11 JUNE 65
CHECKED
APPROVED
APPROVED Eldon C Hall
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SIGNAL PIN ASSIGNMENT
INTERFACE CONNECTOR (05A5J1)

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005023
SCALE —
SHEET 1 OF 1

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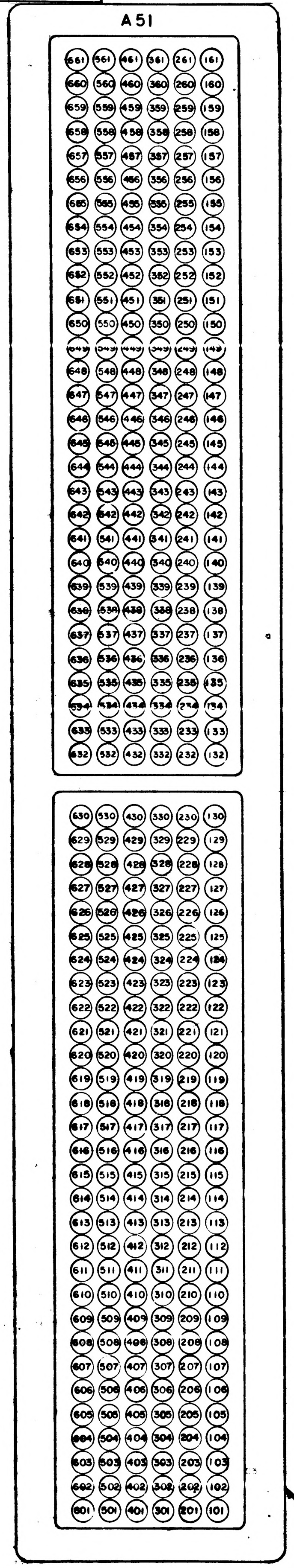
REVISIONS 20276					
SYM	ZONE	DESCRIPTION	DR	CHK	DATE / APPROVED



VIEW FROM MODULE SIDE OF TRAY A-A51 CONNECTOR

661	W-910	561	W-241	461	WD167	361	WD167	261	WD167	161	WD167
660	W-911	560	W-210	460	WD169	360	WD169	260	WD169	160	WD169
659	D-912	559	CB854	459	WD168	359	WD168	259	WD168	159	WD168
658	RD874	558	DE004	458	XA002L	358	XA002H	258	YG817L	158	YG817H
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653	DE022	553	DE023	453	XA009L	353	XA009H	253	YG822L	153	YG822H
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651	RD176	551	RD177	451	X-085L	351	X-085H	251	YG109L	151	YG109H
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635	RD866	535	RD867	435	XA117L	335	XA117H	235	YG136L	135	YG136H
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629	DE064	529	DE069	429	XA130L	329	XA130H	229	YG024L	129	YG024H
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623	DE141	523	DE060	423	XC149L	323	XC149H	223	YG080L	123	YG080H
622	DE184	522	DE193	422	XC150L	322	XC150H	222	YG081L	122	YG081H
621	DE840	521	RD903	421	XB146L	321	XB146H	221	XB142L	121	XB142H
620	RD101	520	RD861	420	XB147L	320	XB147H	220	XB143L	120	XB143H
619	RD870	519	RD879	419	XA198L	319	XA198H	219	XB144L	119	XB144H
618	XA078L	518	XA078H	418	XA148L	318	XA148H	218	XB145L	118	XB145H
617	XA079L	517	XA079H	417	XC192L	317	XC192H	217	XC155L	117	XC155H
616	XC001L	516	XC001H	416	XC151L	316	XC151H	216	XC153L	116	XC153H
615	XC191L	515	XC191H	415	XC152L	315	XC152H	215	XC154L	115	XC154H
614	CB186	514	CB194	414	CB195	314	CB196	214	CB855	114	CB909
613	CB011	513	CB013	413	CB028	313	CB185	213	CB841	113	CB906
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604	C-237	504	CC212	404	CE214	304	CE215	204	CE216	104	WD239
603	DE253	503	DE254	403	DE255	303	DE256	203	DE257	103	D-206
602	RD251	502	D-207	402	D-208	302	RD211	202	RD199L	102	RD199H
601	DE201	501	DE202	401	DE203	301	DE204	201	DE205	101	D-209

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS				

NEXT ASSY	USED ON
APPLICATION	

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TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN A. Di Leo 11 JUNE 65
CHECKED
APPROVED
APPROVED Ellen C. Hall
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SIGNAL PIN ASSIGNMENT
INTERFACE CONNECTOR (05A5J1)

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005023
SCALE —
SHEET 1 OF 1

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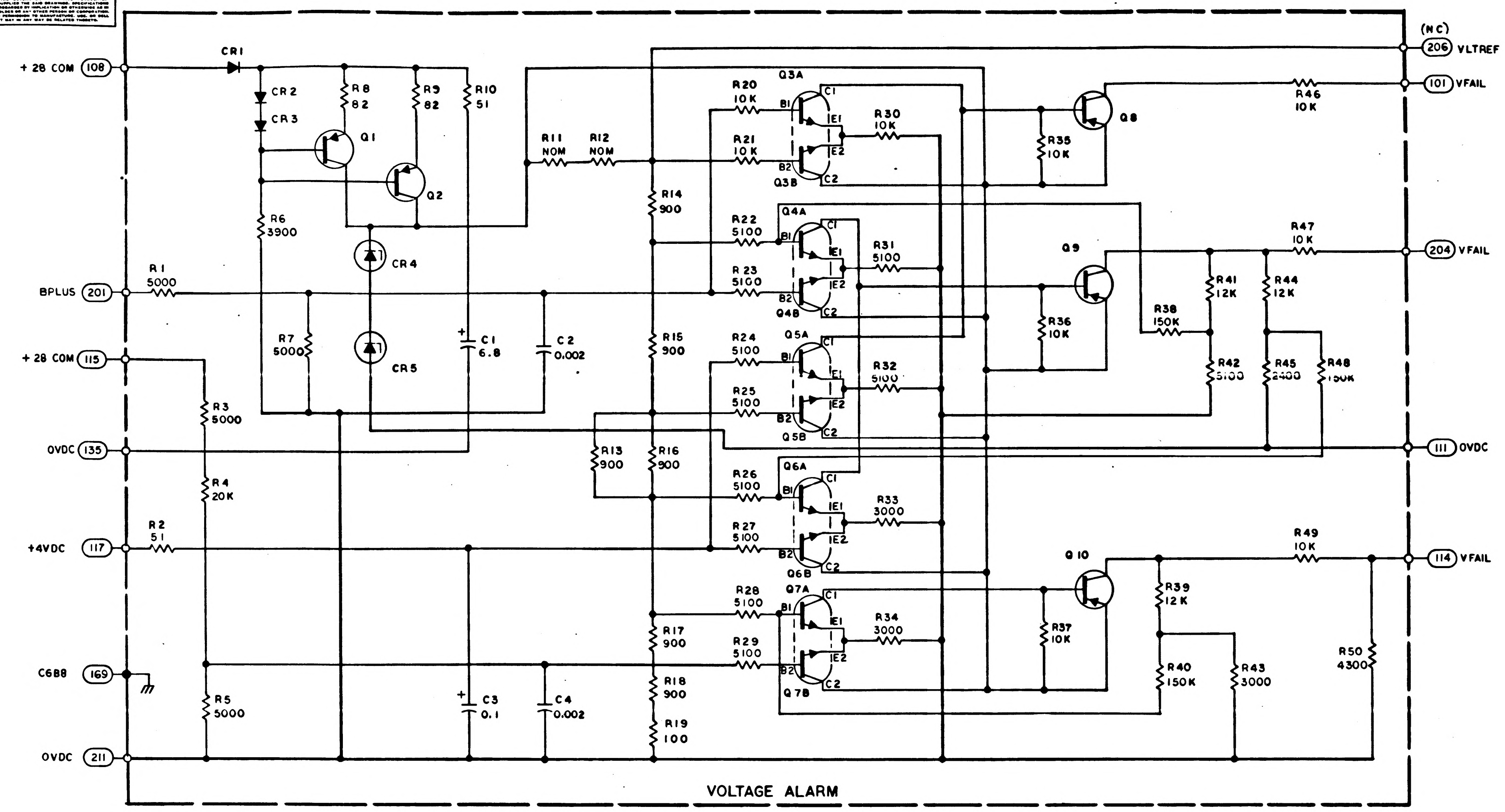
REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
—		RELEASED PER TDRR 2515				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+ 28 COM 115
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OVDC 211
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CR2
CR3
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Q2
R6 3900
CR4
R1 5000
R7 5000
CR5
C1 6.8
C2 0.002
R3 5000
R4 20K
R2 51
R5 5000
C3 0.1
C4 0.002
R11 NOM
R12 NOM
R14 900
R15 900
R13 900
R16 900
R17 900
R18 900
R19 100
R20 10K
R21 10K
R22 5100
R23 5100
R24 5100
R25 5100
R26 5100
R27 5100
R28 5100
R29 5100
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Q3B
Q4A
Q4B
Q5A
Q5B
Q6A
Q6B
Q7A
Q7B
B1
B2
C1
C2
E1
E2
R30 10K
R31 5100
R32 5100
R33 3000
R34 3000
Q8
Q9
Q10
R35 10K
R36 10K
R37 10K
R38 150K
R39 12K
R40 150K
R41 12K
R42 5100
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R46 10K
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101 VFAIL
204 VFAIL
111 OVDC
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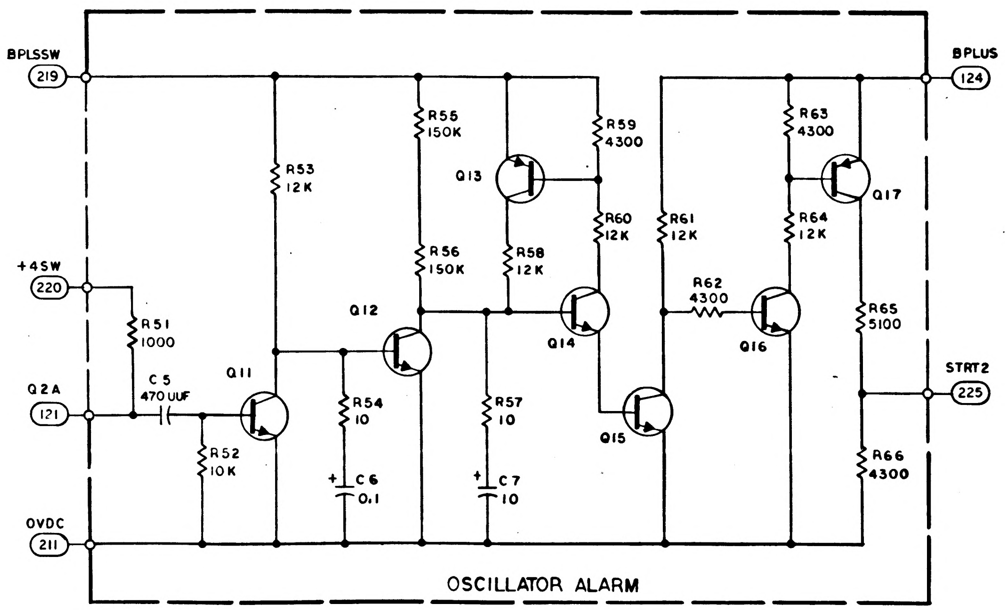
VOLTAGE ALARM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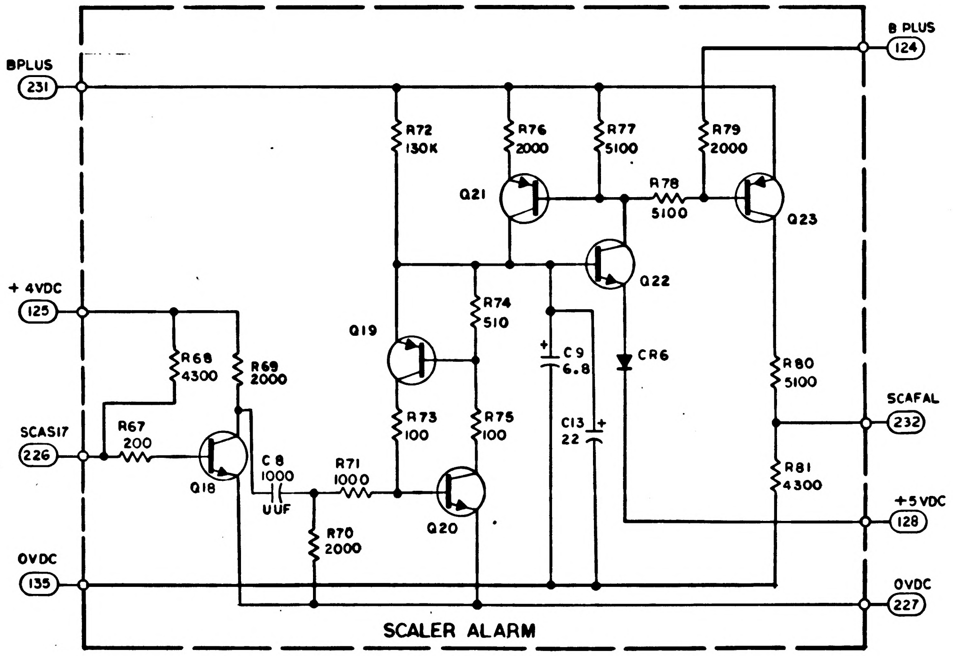
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OVDC 135
B PLUS 124
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+5VDC 128
OVDC 227
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R69 2000
Q18
C8 1000 UUF
R70 2000
R71 1000
Q19
R72 130K
R73 100
Q20
R74 510
R75 100
C9 6.8
C13 22
R76 2000
R77 5100
Q21
R78 5100
Q22
CR6
R79 2000
Q23
R80 5100
R81 4300
SCALER ALARM

REF DWG:
ALARM MODULE ASSY
DWG NO. 2003169

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. SELECT R11, R12, R93, R94 PER APPLICABLE PS FROM APPROPRIATE CHART

MASTER

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MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J.P. Tuzzolino 6 JAN 66
CHECKED Bob Hanna 6 JAN 66
APPROVED
APPROVED Eldon C Hall 7 Jan 66
APPROVED MIT A. C. METZGER
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC,
ALARM B8

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005028
SCALE —
SHEET 1 OF 3

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

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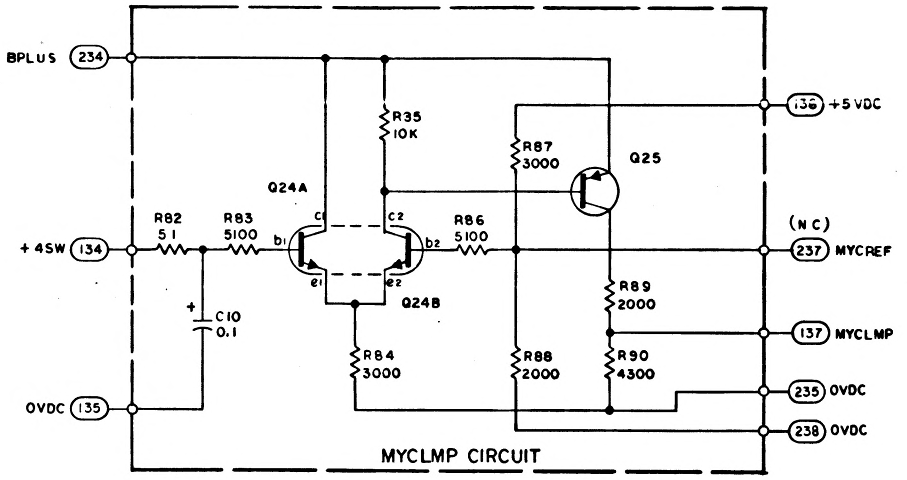
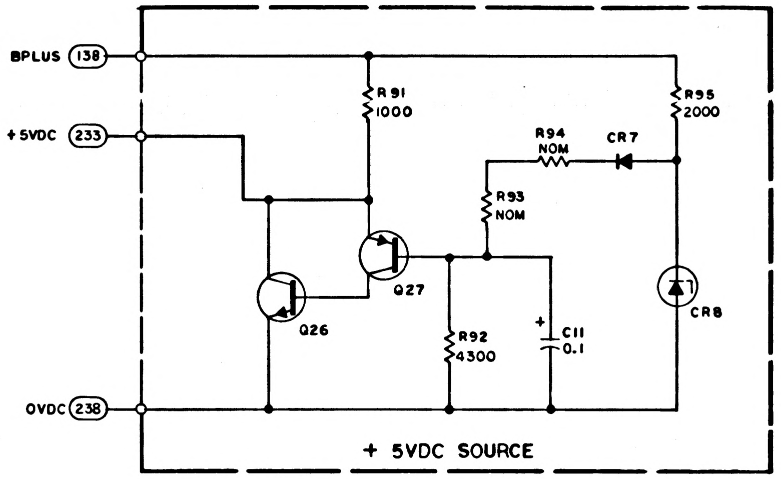
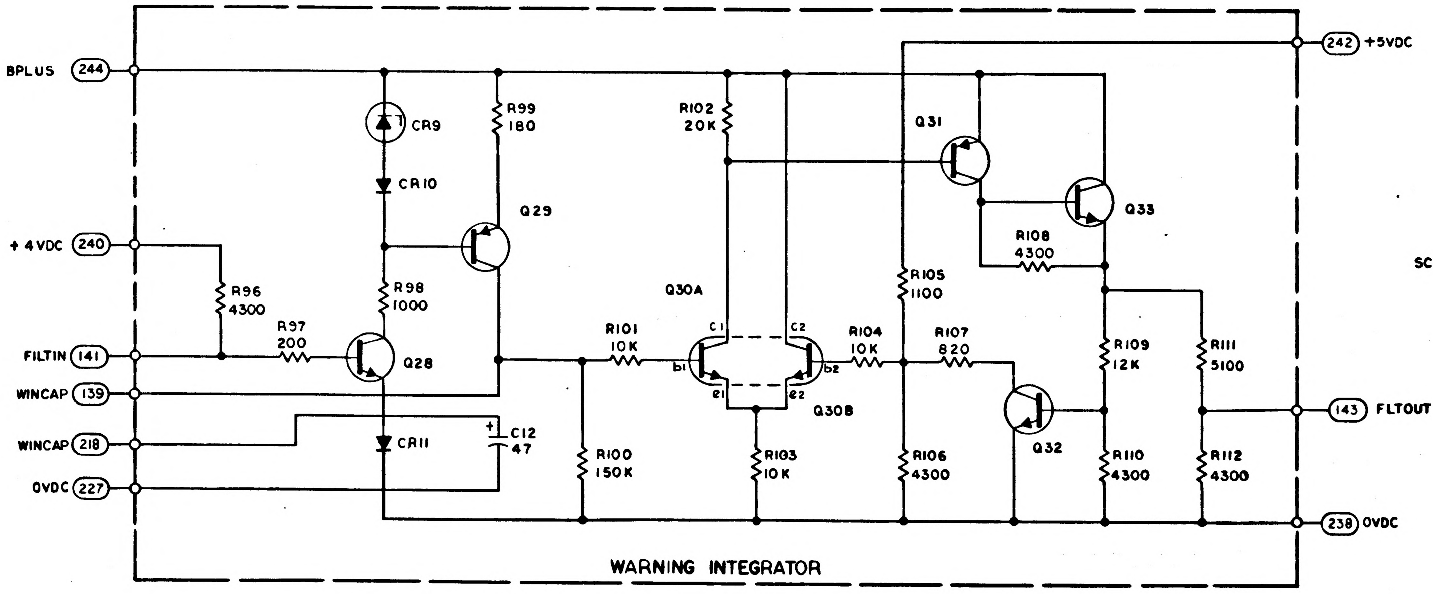
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
—		RELEASED PER TORR				


BPLUS
234
+4SW
134
OVDC
135
R82
51
R83
5100
C10
0.1
Q24A
c1
c2
b1
b2
e1
e2
Q24B
R35
10K
R84
3000
R86
5100
R87
3000
R88
2000
Q25
R89
2000
R90
4300
136
+5 VDC
(NC)
237
MYCREF
137
MYCLMP
235
OVDC
238
OVDC

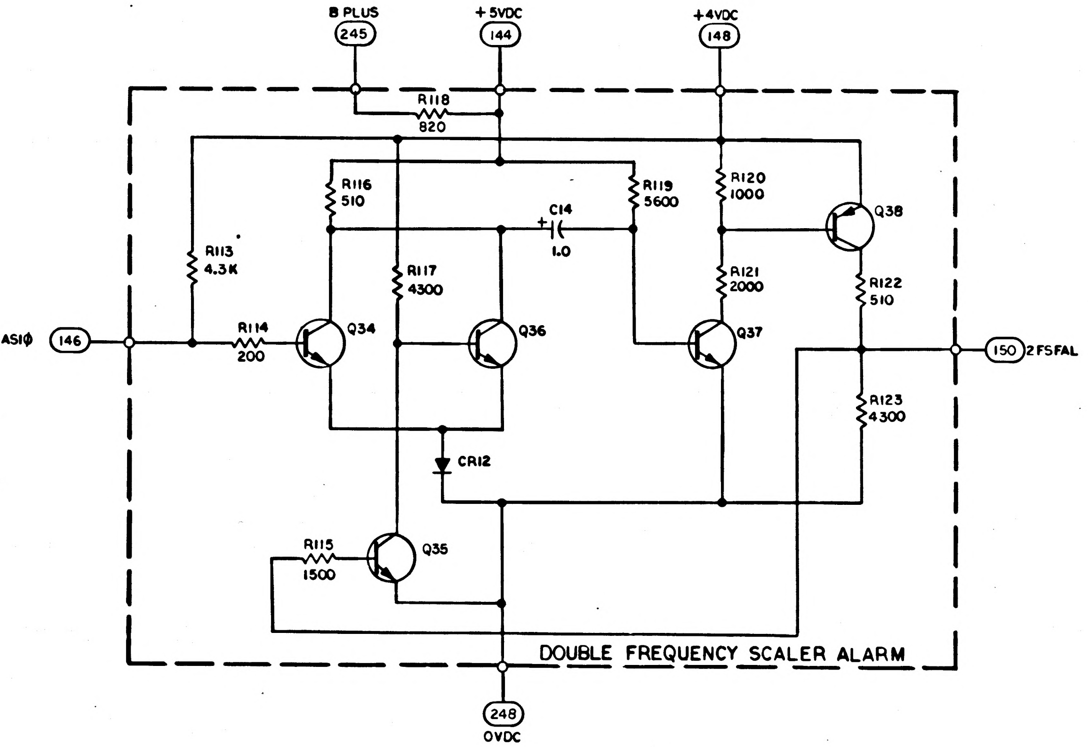
MYCLMP CIRCUIT


BPLUS
138
+5VDC
233
OVDC
238
R91
1000
Q26
Q27
R92
4300
R93
NOM
R94
NOM
CR7
C11
0.1
R95
2000
CR8

+ 5VDC SOURCE


BPLUS
244
+4VDC
240
FILTIN
141
WINCAP
139
WINCAP
218
OVDC
227
R96
4300
R97
200
Q28
CR9
CR10
CR11
R98
1000
R99
180
Q29
C12
47
R100
150K
R101
10K
R102
20K
Q30A
c1
c2
b1
b2
e1
e2
Q30B
R103
10K
R104
10K
R105
1100
R106
4300
R107
820
Q31
Q32
Q33
R108
4300
R109
12K
R110
4300
R111
5100
R112
4300
242
+5VDC
143
FLTOUT
238
OVDC

WARNING INTEGRATOR


B PLUS
245
+5VDC
144
+4VDC
148
R118
820
R113
4.3K
R114
200
R116
510
R117
4300
C14
1.0
R119
5600
R120
1000
R121
2000
R122
510
R123
4300
Q34
Q35
Q36
Q37
Q38
R115
1500
CR12
SCASIΦ
146
150
2FSFAL
248
OVDC

DOUBLE FREQUENCY SCALER ALARM

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN G. P. Ingraham
CHECKED Bob Moran
APPROVED
APPROVED Eldon C. Hall 7 Sept 66
APPROVED MIT
A. C. METZGER
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC,
ALARM B8

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005028
SCALE —
SHEET 2 OF 3

2005028 —

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
—		RELEASED PER TDRR 25152				

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R 1	1010377 - 51	RESISTOR	5000	±1.0%	1/10 W
R 2	1006750 - 1		51	± 2%	1/4 W
R 3	1010377 - 51		5000	±1.0%	1/10 W
R 4	1010377 - 50		20K	±1.0%	1/10 W
R 5	1010377 - 51		5000	±1.0%	1/10 W
R 6	1006750 - 46		3900	± 2%	1/4 W
R 7	1010377 - 51		5000	±1.0%	1/10 W
R 8	1006750 - 6		82	± 2%	1/4 W
R 9	1006750 - 6		82	± 2%	1/4 W
R 10	1006750 - 1		51	± 2%	1/4 W
R 11	SEE NOTE 2		NOM	——	1/4 W
R 12	SEE NOTE 2		NOM	± 2%	1/4 W
R 13	1010377 - 227		900	±0.1%	1/10 W
R 14	- 227		900		
R 15	- 227		900		
R 16	- 227		900		
R 17	↓ - 227		900	↓	↓
R 18	1010377 - 227		900	±0.1%	1/10 W
R 19	1006750 - 8		100	± 2%	1/4 W
R 20	- 56		10K		
R 21	- 56		10K		
R 22	- 49		5100		
R 23	- 49		5100		
R 24	- 49		5100		
R 25	- 49		5100		
R 26	- 49		5100		
R 27	- 49		5100		
R 28	- 49		5100		
R 29	- 49		5100		
R 30	- 56		10K		
R 31	- 49		5100		
R 32	- 49		5100		
R 33	- 43		3000		
R 34	- 43		3000		
R 35	- 56		10K		
R 36	- 56		10K		
R 37	- 56		10K		
R 38	- 84		150K		
R 39	- 58		12K		
R 40	- 84		150K		
R 41	- 58		12K		
R 42	- 49		5100		
R 43	- 43		3000		
R 44	- 58		12K		
R 45	- 41		2400		
R 46	- 56		10K		
R 47	- 56		10K		
R 48	- 84		150K		
R 49	- 56		10K		
R 50	- 47		4300		
R 51	- 32		1000		
R 52	↓ - 56		10K	↓	
R 53	1006750 - 58		12K	± 2%	
R 54	1006788 - 6		10	± 1%	
R 55	1006750 - 84		150K	± 2%	
R 56	1006750 - 84		150K	± 2%	
R 57	1006788 - 6		10	± 1%	
R 58	1006750 - 58		12K	± 2%	
R 59	- 47		4300		
R 60	- 58		12K		
R 61	- 58		12K		
R 62	- 47		4300		
R 63	- 47		4300		
R 64	- 58		12K		
R 65	- 49		5100		
R 66	- 47		4300		
R 67	- 15		200		
R 68	- 47		4300		
R 69	- 39		2000		
R 70	- 39		2000		
R 71	- 32		1000		
R 72	- 83		130K		
R 73	- 8		100		
R 74	- 25		510		
R 75	- 8		100		
R 76	- 39		2000		
R 77	- 49		5100		
R 78	- 49		5100		
R 79	- 39		2000		
R 80	- 49		5100		
R 81	- 47		4300		
R 82	- 1		51		
R 83	- 49		5100		
R 84	- 43		3000		
R 85	- 56		10K		
R 86	- 49		5100		
R 87	- 43		3000		
R 88	- 39		2000		
R 89	- 39		2000		
R 90	- 47		4300		
R 91	↓ - 32		1000	↓	↓
R 92	1006750 - 47		4300	± 2%	1/4 W
R 93	SEE NOTE 2		NOM	——	1/4 W
R 94	SEE NOTE 2		NOM	± 2%	1/4 W
R 95	1006750 - 39		2000		
R 96	- 47		4300		
R 97	- 15		200		
R 98	- 32		1000		
R 99	- 14		180		
R 100	- 84		150K		
R 101	- 56		10K		
R 102	- 63		20K		
R 103	- 56		10K		
R 104	- 56		10K		
R 105	- 33		1100		
R 106	- 47		4300		
R 107	- 30		820		
R 108	- 47		4300		
R 109	- 58		12K		
R 110	- 47		4300		
R 111	↓ - 49	↓	5100	↓	↓
R 112	1006750 - 47	RESISTOR	4300	± 2%	1/4 W

REF DES	PART NO.	DESCRIPTION	VALUE	TOL	RATING
C 1	1006755 - 128	CAPACITOR	6.8	±10%	50 VDC
C 2	1006777 - 25		.002	±10%	100
C 3	1006755 - 57		0.1	±10%	35
C 4	1006777 - 25		.002	±10%	100
C 5	1006777 - 20		470 UUF	±10%	100
C 6	1006755 - 57		0.1	±10%	35
C 7	1006755 - 31		10	±10%	20
C 8	1006777 - 24		1000 UUF	±10%	100
C 9	1006755 - 79		6.8	±10%	35
C 10	1006755 - 57		0.1	±10%	35
C 11	1006755 - 57	↓	0.1	±10%	35 ↓
C 12	1006755 - 36	CAPACITOR	47	±10%	20 VDC
CR 1	2004103 - 001	DIODE			
CR 2	2004103 - 001				
CR 3	2004103 - 001				
CR 4	2004112 - 002				
CR 5	2004112 - 002				
CR 6	2004103 - 001				
CR 7	2004103 - 001				
CR 8	2004112 - 002				
CR 9	2004112 - 002				
CR 10	2004103 - 001				
CR 11	2004103 - 001	↓			
CR 12	2004103 - 001	DIODE			
Q 1	2004004 - 002	TRANSISTOR			
Q 2	2004004 - 002				
Q 3	1010376 - 1				
Q 4	- 1				
Q 5	- 1				
Q 6	↓ - 1				
Q 7	1010376 - 1				
Q 8	2004004 - 002				
Q 9	- 002				
Q 10	- 002				
Q 11	- 001				
Q 12	- 001				
Q 13	- 002				
Q 14	- 001				
Q 15	- 001				
Q 16	- 001				
Q 17	- 002				
Q 18	- 001				
Q 19	- 002				
Q 20	- 001				
Q 21	- 002				
Q 22	↓ - 001				
Q 23	2004004 - 002				
Q 24	1010376 - 1				
Q 25	2004004 - 002				
Q 26	- 001				
Q 27	- 002				
Q 28	↓ - 001				
Q 29	2004004 - 002				
Q 30	1010376 - 1				
Q 31	2004004 - 002				
Q 32	- 001				
Q 33	- 001				
Q 34	- 001				
Q 35	- 001				
Q 36	- 001				
Q 37	↓ - 001	↓			
Q 38	2004004 - 002	TRANSISTOR			

REF DES.	PART NO.	DESCRIPTION	VALUE	TOL	RATING
R113	1006750 - 47	RESISTOR	4300	± 2%	1/4 W
R114	- 15		200		
R115	- 36		1500		
R116	- 25		510		
R117	- 47		4300		
R118	- 30		820		
R119	- 50		5600		
R120	- 32		1000		
R121	- 39		2000		
R122	↓ - 25	↓	510	↓	↓
R123	1006750 - 47	RESISTOR	4300	± 2%	1/4 W
C13	1006755 - 21	CAPACITOR	22UF	±10%	15VDC
C14	1006755 - 69	CAPACITOR	1.0UF	±10%	35VDC

R11, R93

PART NO.	VALUE	TOL	RATING
1006788 - 6	10	± 1%	1/4 W
1006788 - 9	27	± 1%	
1006750 - 1	51	± 2%	
- 4	68		
- 7	91		
- 9	110		
- 11	130		
- 12	150		
- 13	160		
- 14	180		
- 15	200		
↓ - 16	220	↓	↓
1006750 - 17	240	± 2%	1/4 W

R12

PART NO.	VALUE
1006750 - 36	1500
- 37	1600
- 38	1800
- 39	2000
↓ - 40	2200
1006750 - 41	2400

R94

PART NO.	VALUE
1006750 - 27	620
- 30	820
- 32	1000
- 34	1200
- 35	1300
- 36	1500
↓ - 37	1600
1006750 - 38	1800

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ± —— ANGLES ± ——
DO NOT SCALE THIS DRAWING

MATERIAL
——

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN [illegible] 5 JAN 66
CHECKED [illegible] 6 JAN 66
APPROVED
APPROVED Eldon C Hall 7 Jan 66
APPROVED MIT W. [illegible] 11 Jan 66
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SCHEMATIC,
ALARM B8

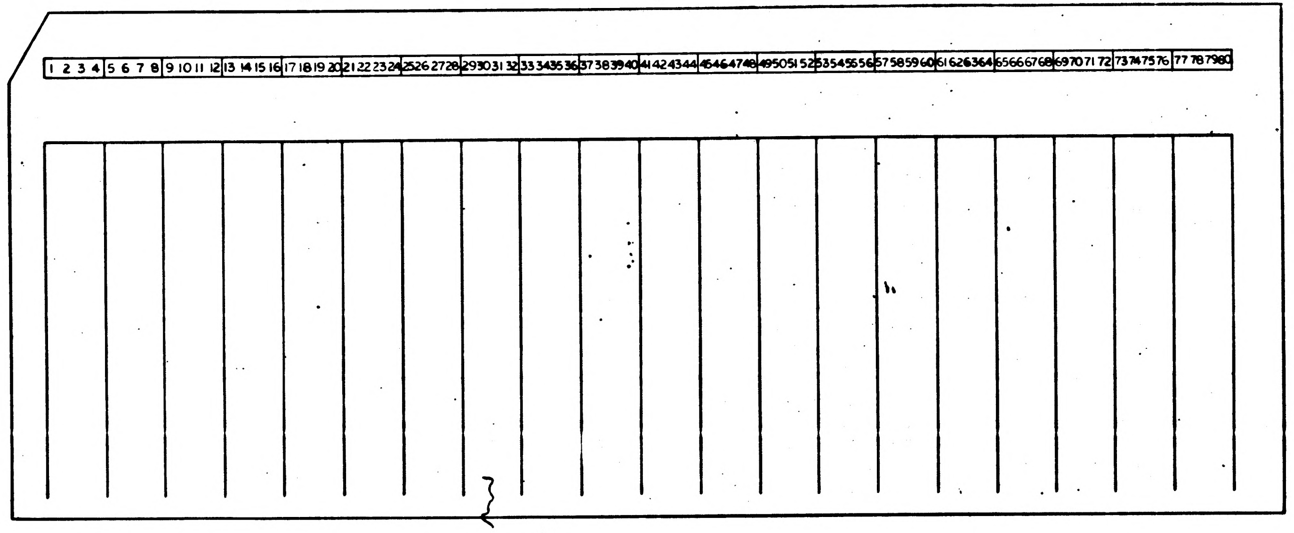
CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005028
SCALE ——
SHEET 3 OF 3

2005028

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 24448

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 24941			29 Dec 65	



NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. CARD COLUMNS — USAGE

CARD COLUMNS	USAGE
2 – 7	CARD SEQUENCE NUMBER, IN DECIMAL
9 – 22	BINARY MACHINE DATA, IN THE FORMAT DESCRIBED BY A GARDNER-DENVER CO. DRAWING NUMBER 800384, REVISION A, FOR THEIR MODEL 14F-22X22X.025 WIRE WRAP MACHINE
27 – 33	SIGNAL NAME
34 – 35	WIRE NUMBER IN CHAIN FOR SIGNAL
36 – 42	NAME OF PIN WRAPPED BY A TOOL
43 – 49	NAME OF PIN WRAPPED BY B TOOL
50	WIRE PATTERN CODE NUMBER
51	TABLE ROTATIONAL POSITION
52	PALLET LONGITUDINAL POSITION
53	A TOOL Z LEVEL
54	B TOOL Z LEVEL
55 – 57	A TOOL X, IN DECIMAL
58 – 60	Y1, IN DECIMAL
61 – 63	B TOOL X, IN DECIMAL
64 – 66	Y2, IN DECIMAL
67 – 69	Y3, IN DECIMAL
70 – 72	Y4, IN DECIMAL
73 – 79	NASA DRAWING NUMBER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003074	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED
APPROVED
APPROVED Elton C. Hall 30 Nov 65
APPROVED MIT 30 Nov 65
A.C. METZGER
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIREWRAP CARD-DECK
TRAY A

CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2005033

SCALE — —

SHEET 1 OF 1

2005033 A

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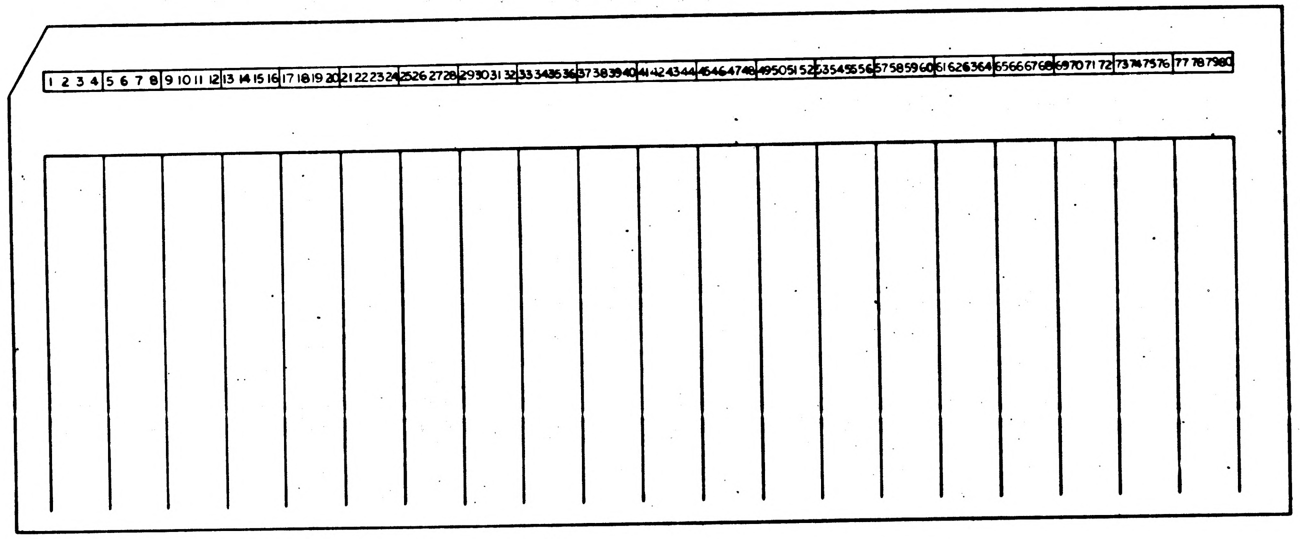
REVISIONS 24448

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 24941			29 Dec 65	
B		REVISED PER TDRR 25424		RPK	28 Jan 66	



NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. CARD COLUMNS / USAGE

CARD COLUMNS	USAGE
2 – 7	CARD SEQUENCE NUMBER, IN DECIMAL
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61 – 63	B TOOL X, IN DECIMAL
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67 – 69	Y3, IN DECIMAL
70 – 72	Y4, IN DECIMAL
73 – 79	NASA DRAWING NUMBER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003074	

APPLICATION

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TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN [illegible] Nov 65
CHECKED R. P. [illegible] Nov 65
APPROVED
APPROVED Eldon C. Hall 30 Nov 65
APPROVED MIT [illegible] 30 Nov 65
A. C. METZGER
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIREWRAP CARD-DECK
TRAY A

CODE IDENT NO 80230 | SIZE D | DRAWING NO. 2005033

SCALE — | — | SHEET 1 OF 1

2005033 B

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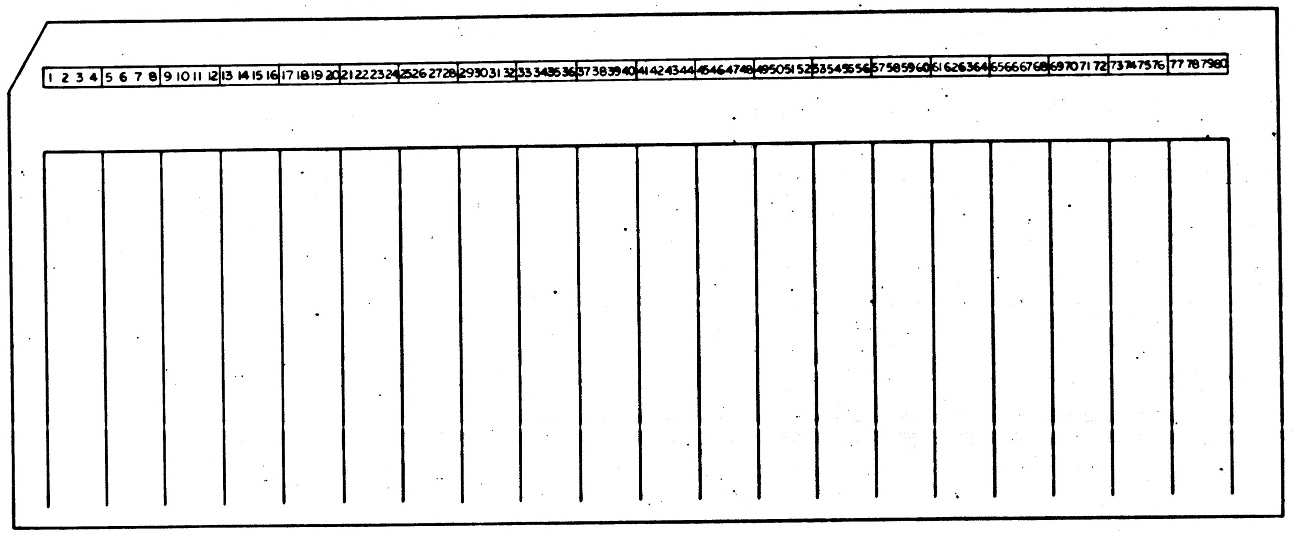
REVISIONS 24448

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 24941	[illegible]	[illegible]	29 Dec 65	[illegible]
B		REVISED PER TDRR 25424	[illegible]	RPK	24 Jan 66	[illegible]
C		REVISED PER TDRR 25914	LAL	RPK	4 Feb 66	[illegible]



NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. CARD COLUMNS USAGE

CARD COLUMNS	USAGE
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70 – 72	Y4, IN DECIMAL
73 – 79	NASA DRAWING NUMBER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003074	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ± —— ANGLES ± ——
DO NOT SCALE THIS DRAWING
MATERIAL
——

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN [illegible]
CHECKED R. P. [illegible]
APPROVED
APPROVED [illegible] 30 Nov 65
APPROVED MIT [illegible] A. C. METZGER
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIREWRAP CARD-DECK
TRAY A

CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2005033

SCALE —— SHEET 1 OF 1

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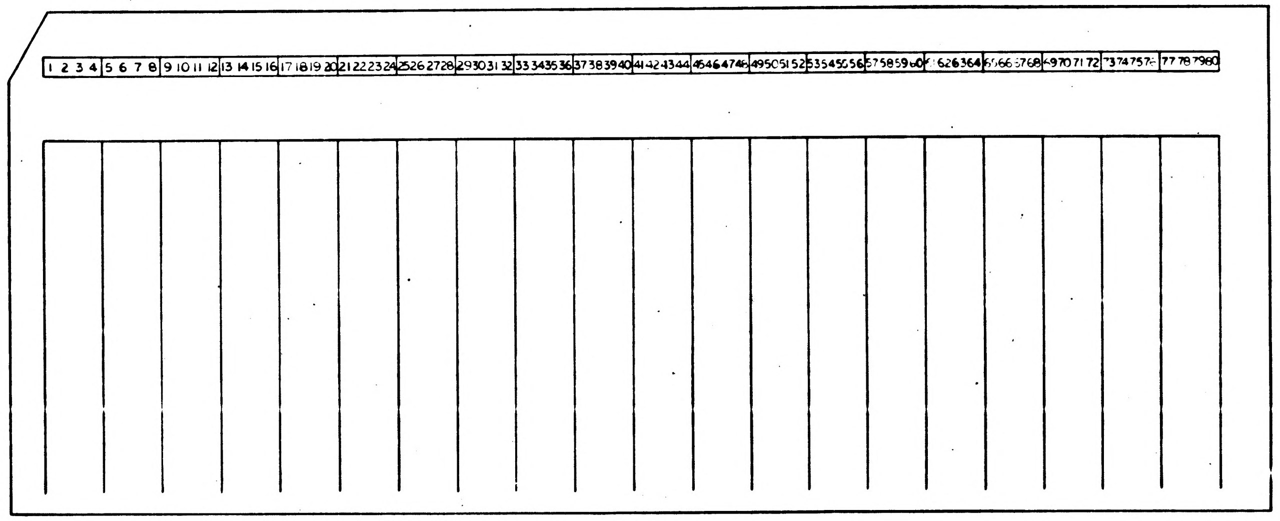
REVISIONS 24448

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 24941	RJB	[illegible]	29 Dec 65	WK
B		REVISED PER TDRR 25424	EK	FPK	24 Jan 66	[illegible]
C		REVISED PER TDRR 25914	LAL	FPK	4 Feb 66	WK
D		REVISED PER TDRR 26860	W.B	[illegible]	3/8/66	[illegible]



NOTES:

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2. CARD COLUMNS — USAGE

CARD COLUMNS	USAGE
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34 – 35	WIRE NUMBER IN CHAIN FOR SIGNAL
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43 – 49	NAME OF PIN WRAPPED BY B TOOL
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52	PALLET LONGITUDINAL POSITION
53	A TOOL Z LEVEL
54	B TOOL Z LEVEL
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61 – 63	B TOOL X, IN DECIMAL
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67 – 69	Y3, IN DECIMAL
70 – 72	Y4, IN DECIMAL
73 – 79	NASA DRAWING NUMBER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2005074	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ± —— ANGLES ± ——
DO NOT SCALE THIS DRAWING

MATERIAL ——

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN A. Addams Jr. 26 Nov 65
CHECKED K. P. Kingsbury 26 Nov 65
APPROVED
APPROVED Eldon C. Hall 30 Nov 65
APPROVED MIT 30 Nov 65
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIREWRAP CARD-DECK
TRAY A

CODE IDENT NO	SIZE	DRAWING NO.
80230	D	2005033

SCALE —— —— SHEET 1 OF 1

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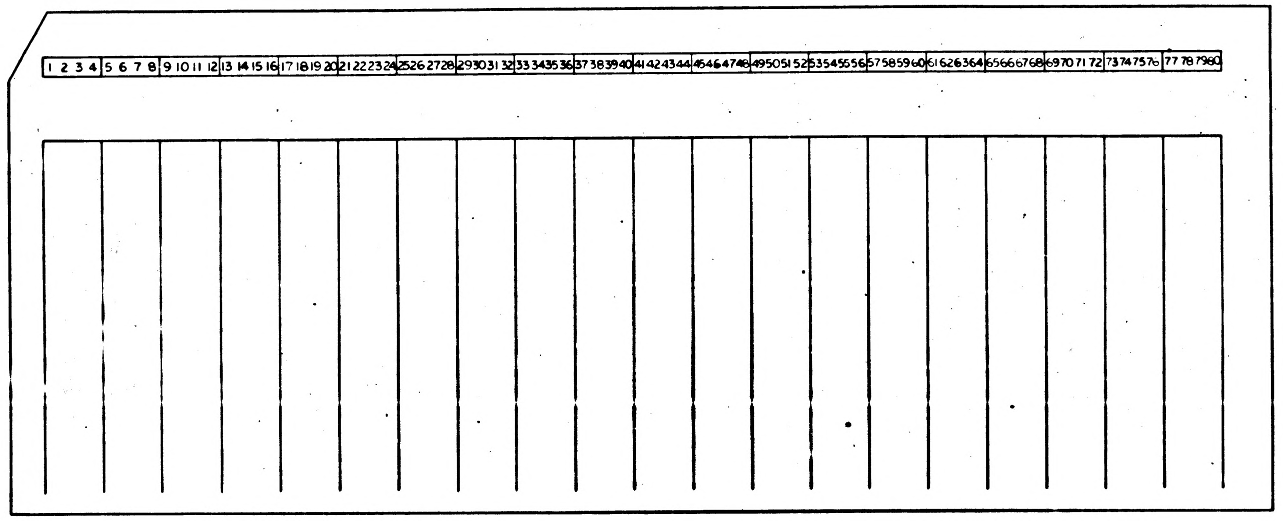
E		REVISED PER TDRR 27077	[illegible]	[illegible]	3/24/66	[illegible]



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INSTRUMENTATION LAB
CAMBRIDGE, MASS.

		DATE
DRAWN	A Addams Jr.	26 Nov 65
CHECKED	R. P. Kingsbury	26 Nov 65
APPROVED		
APPROVED	[illegible]	30 Nov 65
APPROVED MIT	[illegible]	30 Nov 65
APPROVED MSC		

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HOUSTON, TEXAS

WIREWRAP CARD-DECK
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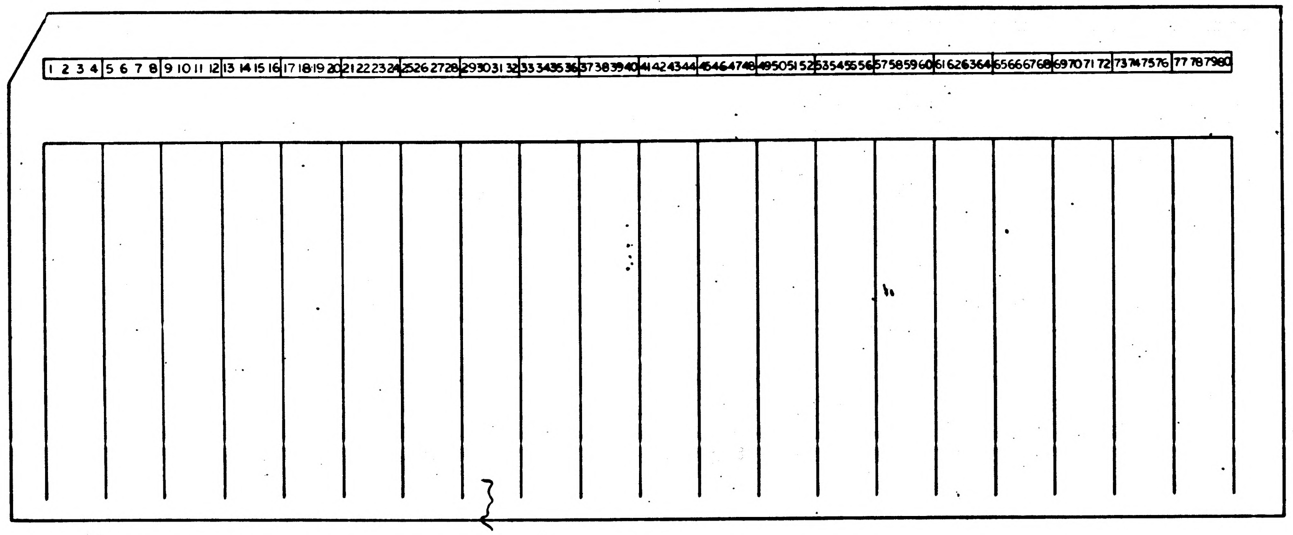

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MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN A. Adams Jr.
CHECKED R. L. Kings
APPROVED
APPROVED Eldon C. Hall 30 Nov 65
APPROVED MIT 30 Nov 65
A. C. METZGER
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIREWRAP CARD-DECK
TRAY A

CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2005033

SCALE — — SHEET 1 OF 1

2005033

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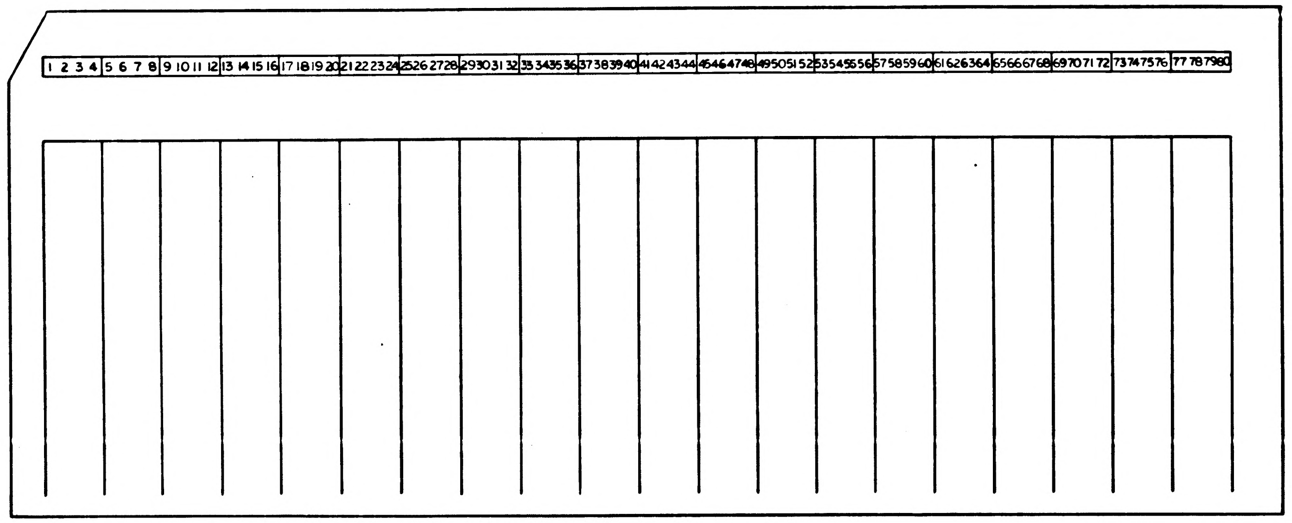
REVISIONS 24448

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 24942				WE



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MASTER

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LIST OF MATERIALS

NEXT ASSY	USED ON
2003075	

APPLICATION

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MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN 26 Nov 65
CHECKED
APPROVED
APPROVED 30 Nov 65
APPROVED MIT 30 Nov 65
A. C. METZGER
APPROVED MSC
DATE

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WIREWRAP CARD-DECK
TRAY B

CODE IDENT NO.	SIZE	DRAWING NO.
80230	D	2005034

SCALE — SHEET 1 OF 1

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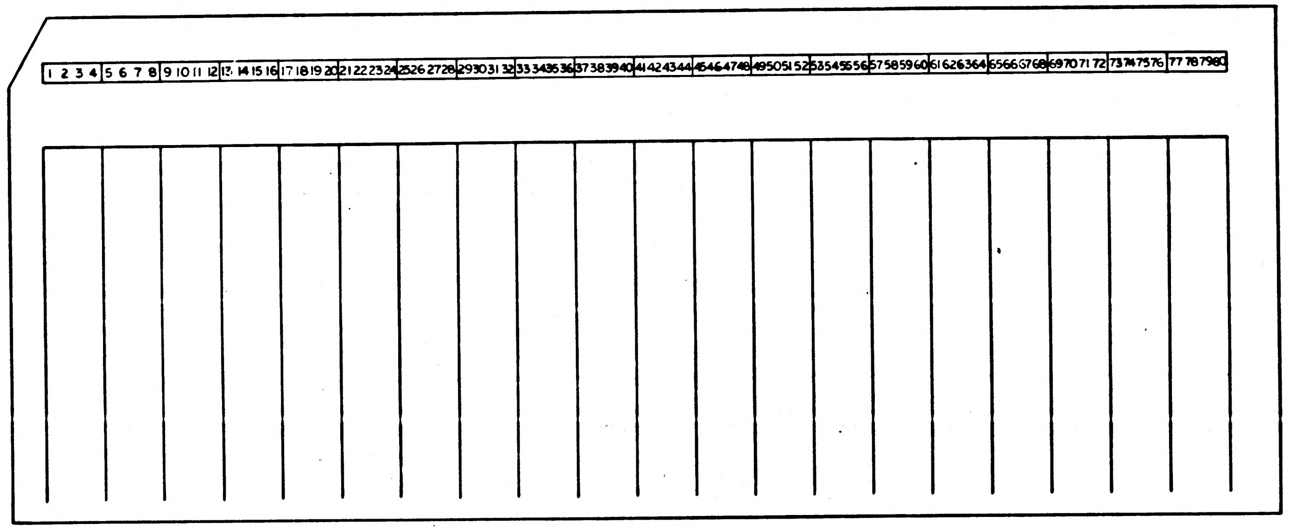
B		REVISED PER TDRR 25010	KCH		21 JAN 66	
C		REVISED PER TDRR 25423	KCH		21 JAN 66	



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LIST OF MATERIALS

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DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT A. C. METZGER
APPROVED MSC
DATE

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HOUSTON, TEXAS

WIREWRAP CARD-DECK
TRAY B

CODE IDENT NO	SIZE	DRAWING NO.
80230	D	2005034

SCALE — — SHEET 1 OF 1

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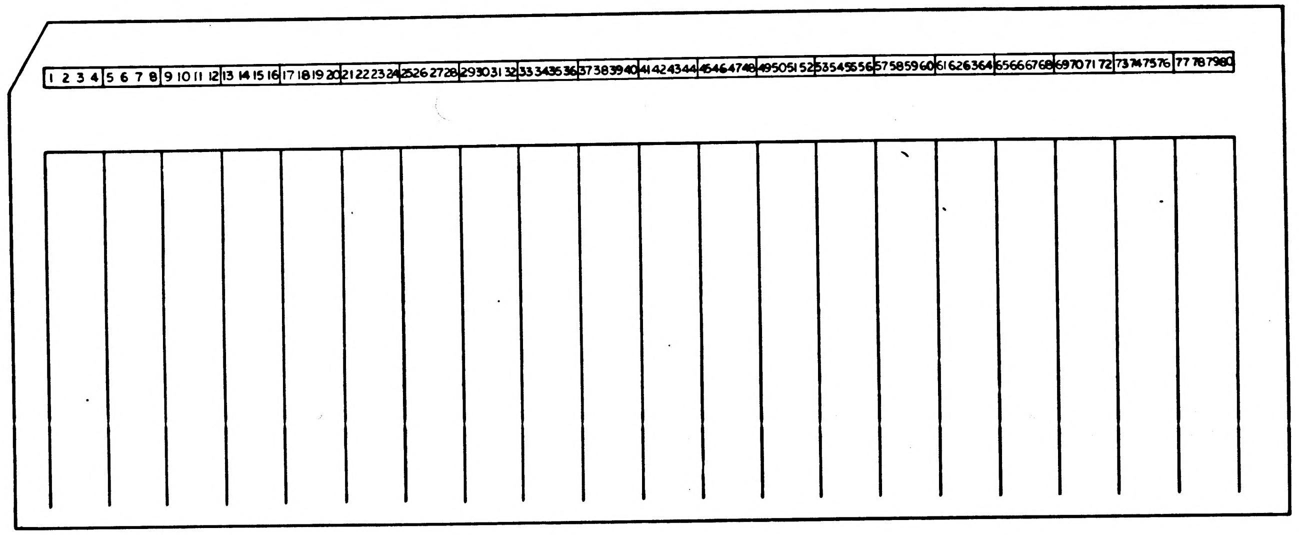

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HOUSTON, TEXAS

WIREWRAP CARD-DECK
TRAY B

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SCALE —— SHEET 1 OF 1

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REVISIONS 24449

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A		REVISED PER TDRR 25019	L.T.B.	EPK	5JAN66	WK

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NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESRIBED BY MIL-D-70327

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HOUSTON, TEXAS

DRAWN		26Nov65
CHECKED		29Nov65
APPROVED		
APPROVED	Eldon C Hall	30Nov65
APPROVED MIT	A. G. METZGER	30Nov65
APPROVED MSC		DATE

AGC WIRELIST

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2005035
SCALE ——		SHEET 1 OF ——

2005035A

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B		REVISED PER TDRR 25418			21JAN66	

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MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC WIRELIST

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80230	C	2005035

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DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC WIRELIST

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2005035
SCALE ———
SHEET 1 OF ——

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 24449

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 25019	L.T.B.	PPK	5 JAN 66	WK
B		REVISED PER TDRR 25418		PPK	21 JAN 66	
C		REVISED PER TDRR 25913	LAL	PPK	4 FEB 66	WK
D		REVISED PER TDRR 26868	DAL		3/8/66	

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NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESRIBED BY MIL-D-70327

REF DWG: 2003100 (AGC ASSEMBLY)

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN 26 Nov 65
CHECKED 29 Nov 65
APPROVED
APPROVED 30 Nov 65
APPROVED MIT 30 Nov 65
A. G. METZGER
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC WIRELIST

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2005035
SCALE
SHEET 1 OF

2005035 D

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REVISIONS 24449

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 25019	L.J.B.	RRK	5 Jan 66	WK
B		REVISED PER TDRR 25418		RRK	21 Jan 66	
C		REVISED PER TDRR 25913	LAL	RRK	4 Feb 66	WK
D		REVISED PER TDRR 26868	DAL		3/8/66	
E		REVISED PER TDRR 27078	SPS	DM	3/29/66	

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INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN 26 Nov 65
CHECKED 29 Nov 65
APPROVED
APPROVED Eldon C Hall 30 Nov 65
APPROVED MIT 30 Nov 65
A. G. METZGER
APPROVED MSC
DATE

AGC WIRELIST

CODE IDENT NO. 80230
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SCALE ———
SHEET 1 OF ——

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REVISIONS 24449

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MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

		DATE
DRAWN		26Nov65
CHECKED		29Nov65
APPROVED		
APPROVED	Eldon C Hall	30Nov65
APPROVED MIT	A. C. METZGER	30Nov65
APPROVED MSC		

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

AGC WIRELIST

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2005035

SCALE ——— SHEET 1 OF ___

2005035

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 25981

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED	
—		RELEASED PER TDRR					
A		REVISED PER TDRR 28865		C.D.			6-10-66

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NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327

REF DWG: 2003200 (AGC ASSEMBLY)

2005036 A

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

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TOLERANCES ON
FRACTIONS DECIMALS ANGLES
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CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN Ken Healy 7 FEB 66
CHECKED 7 Feb 66
APPROVED
APPROVED 8 Feb 66
APPROVED MIT 8 Feb 66
A. C. METZGER
APPROVED MSC
DATE

AGC WIRELIST

CODE IDENT NO. 80230
SIZE C
DRAWING NO. 2005036
SCALE —
SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 25981

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REF DWG: 2003200 (AGC ASSEMBLY)

MASTER

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FRACTIONS DECIMALS ANGLES
± ± ±
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MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Ken Healy 7 FEB 66
CHECKED 7 Feb 66
APPROVED
APPROVED Eldon C Hall 8 Feb 66
APPROVED MIT 8 Feb 66
A. C. METZGER
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

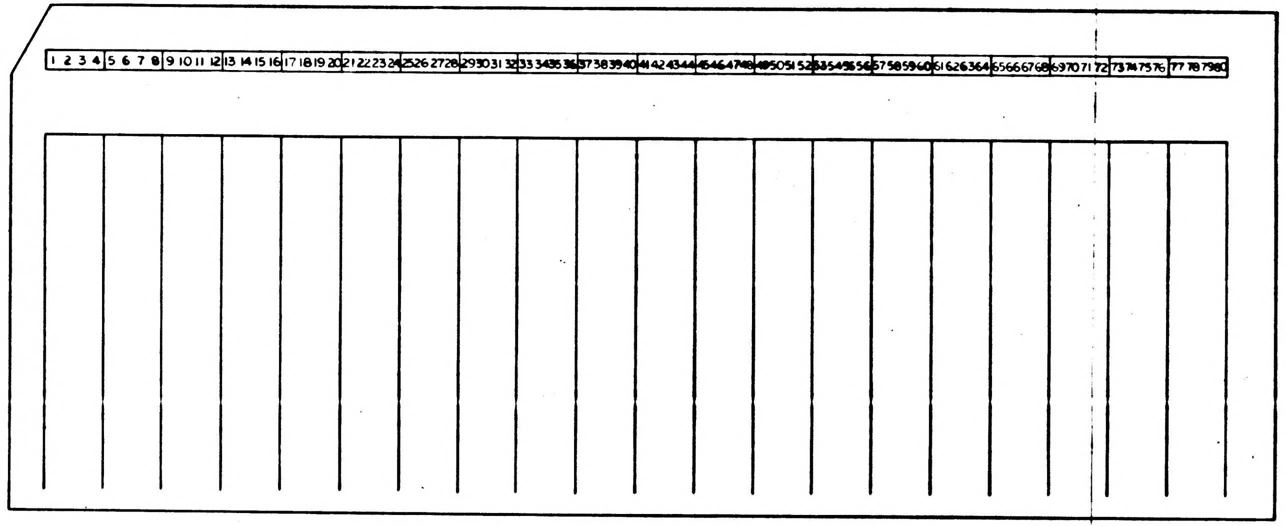
AGC WIRELIST

CODE IDENT NO.	SIZE	DRAWING NO.
80230	C	2005036
SCALE —		SHEET 1 OF 1

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 25981

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		CHANGED PER TDRR 29704				



NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. CARD COLUMNS / USAGE

CARD COLUMNS	USAGE
2 - 7	CARD SEQUENCE NUMBER, IN DECIMAL
9 - 22	BINARY MACHINE DATA, IN THE FORMAT DESCRIBED BY A GARDNER-DENVER CO. DRAWING NUMBER 800384, REVISION A, FOR THEIR MODEL 14F-22X22X.025 WIRE WRAP MACHINE
27 - 33	SIGNAL NAME
34 - 35	WIRE NUMBER IN CHAIN FOR SIGNAL
36 - 42	NAME OF PIN WRAPPED BY A TOOL
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50	WIRE PATTERN CODE NUMBER
51	TABLE ROTATIONAL POSITION
52	PALLET LONGITUDINAL POSITION
53	A TOOL Z LEVEL
54	B TOOL Z LEVEL
55 - 57	A TOOL X, IN DECIMAL
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61 - 63	B TOOL X, IN DECIMAL
64 - 66	Y2, IN DECIMAL
67 - 69	Y3, IN DECIMAL
70 - 72	Y4, IN DECIMAL
73 - 79	NASA DRAWING NUMBER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
2003092	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN Van Healy 7 FEB 66
CHECKED R.T. Kingsbury 7 Feb 66
APPROVED
APPROVED Eldon C. Hall 8 Feb 66
APPROVED MIT 8 Feb 66
APPROVED MSC A. C. METZGER
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIREWRAP CARD-DECK
TRAY A

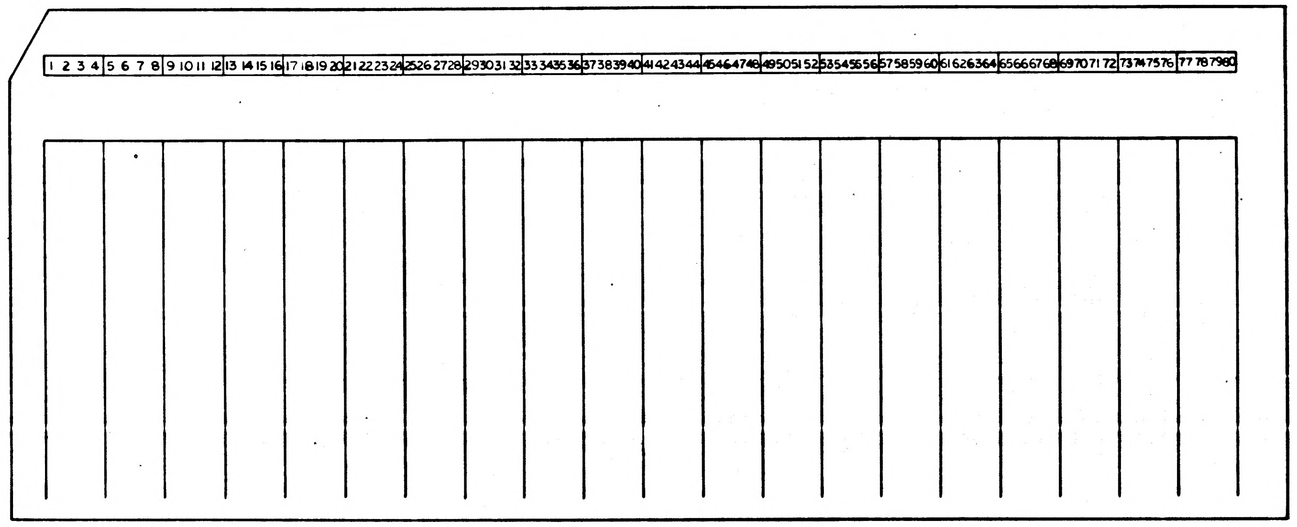
CODE IDENT NO 80230
SIZE D
DRAWING NO. 2005037
SCALE —
SHEET 1 OF 1

2005037

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 25981

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
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CARD COLUMNS	USAGE
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70 - 72	Y4, IN DECIMAL
73 - 79	NASA DRAWING NUMBER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
2003092	

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Van Healy 7 Feb 66
CHECKED
APPROVED
APPROVED Eldon C. Hall 8 Feb 66
APPROVED MIT
APPROVED MSC A. C. METZGER
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIREWRAP CARD-DECK
TRAY A

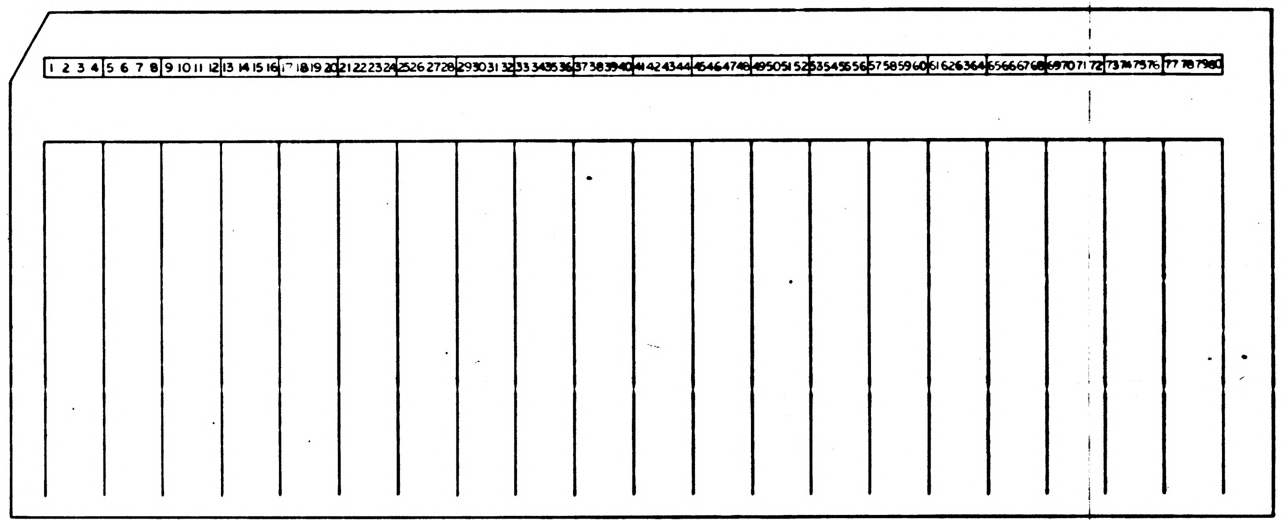
CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2005037
SCALE —
SHEET 1 OF 1

2005037

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 25981

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED	
—		RELEASED PER TDRR					
A		REVISED PER TDRR 28866		C.D.			6-10-66



NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
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CARD COLUMNS	USAGE
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LIST OF MATERIALS

NEXT ASSY	USED ON
2003093	

APPLICATION

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FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN Ken Healy 7 Feb 66
CHECKED
APPROVED
APPROVED Eldon C. Hall 9 Feb 66
APPROVED MIT A. C. METZGER
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIREWRAP CARD-DECK
TRAY B

CODE IDENT NO	SIZE	DRAWING NO.
80230	D	2005038

SCALE — SHEET 1 OF 1

2005038 A

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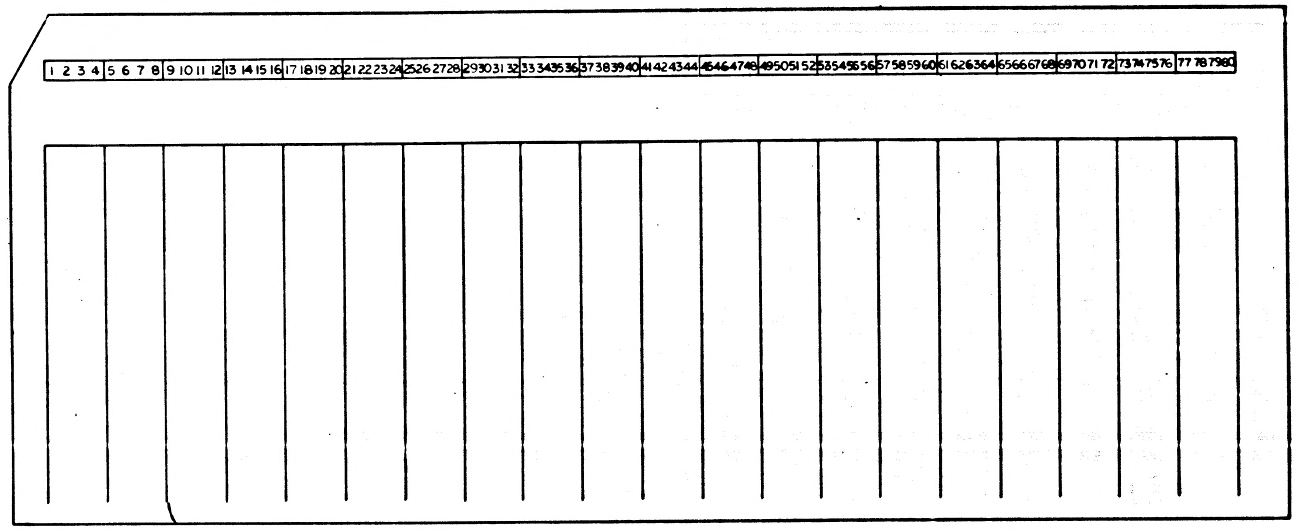
REVISIONS 25981

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



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73 – 79	NASA DRAWING NUMBER

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MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Ken Healy 7 Feb 66
CHECKED 7 Feb 66
APPROVED
APPROVED Eldon C. Hall 8 Feb 66
APPROVED MIT A. C. METZGER 8 Feb 66
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

WIRWRAP CARD-DECK
TRAY B

CODE IDENT NO. 80230
SIZE D
DRAWING NO. 2005038
SCALE —
SHEET 1 OF 1

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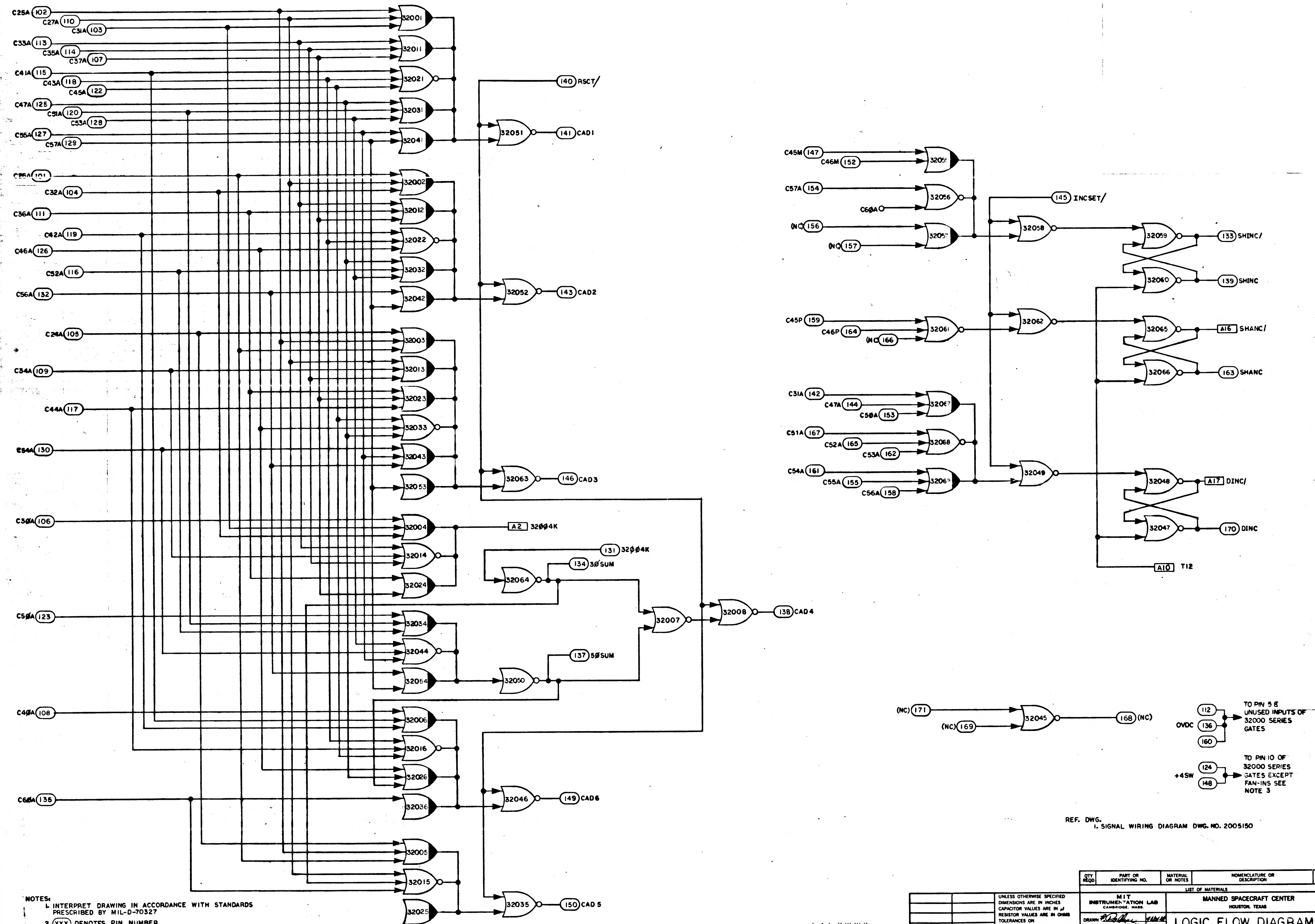
REVISIONS 17723

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 18032	JFW			



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C52A 116
C56A 132
C24A 105
C34A 109
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C46P 164
(NC) 166
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32066
A16 SHANC/
163 SHANC
C31A 142
C47A 144
C50A 153
C51A 167
C52A 165
C53A 162
C54A 161
C55A 155
C56A 158
32067
32068
32069
32049
32048
32047
A17 DINC/
170 DINC
A10 T12
(NC) 171
(NC) 169
32045
168 (NC)
OVDC
112
136
160
TO PIN 5 8 UNUSED INPUTS OF 32000 SERIES GATES
+4SW
124
148
TO PIN 10 OF 32000 SERIES GATES EXCEPT FAN-INS SEE NOTE 3

REF. DWG.
1. SIGNAL WIRING DIAGRAM DWG. NO. 2005150

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
[XXX] DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG. NO. 2005011 FOR LOGIC DESIGN CRITERIA

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED 3/11/65
APPROVED
APPROVED

APPROVED MIT 23 Mar 65
APPROVED MSC 3-23-65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A21
COUNTER CELL II

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2005050

SCALE NONE
SHEET 1 OF 3

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17-23

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
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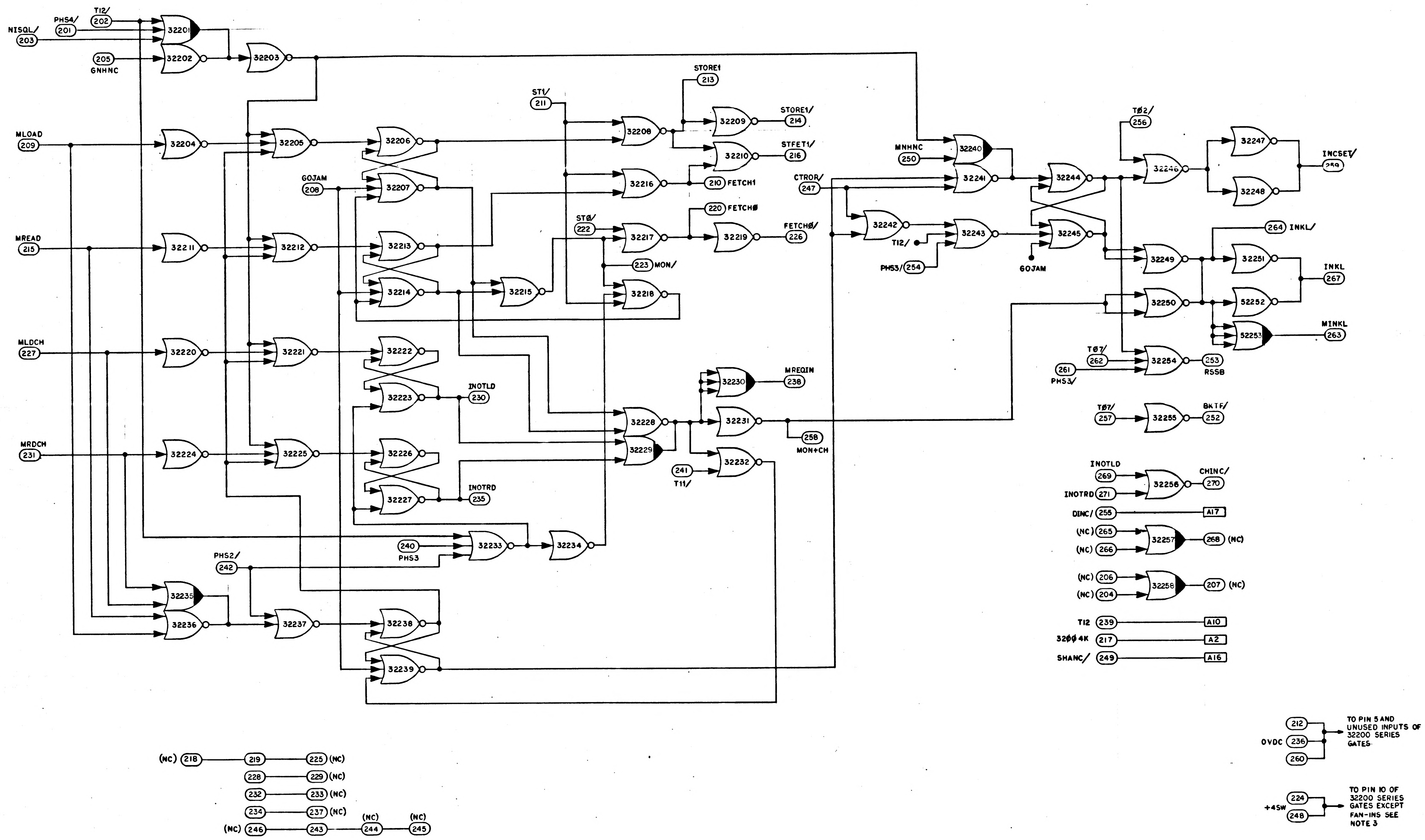

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PHS4/
201
T12/
202
32201
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MLOAD
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32205
32206
GOJAM
208
32207
MREAD
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32211
32212
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32214
32215
ST1/
211
32208
STORE1
213
32209
STORE1/
214
32210
STFET1/
216
32216
210 FETCH1
220 FETCHØ
STØ/
222
32217
32219
FETCHØ/
226
223 MON/
32218
MLDCH
227
32220
32221
32222
32223
INOTLD
230
MRDCH
231
32224
32225
32226
32227
INOTRD
235
32228
32229
32230
MREQIN
238
32231
258
MON+CH
241
T11/
32232
240
PHS3
32233
32234
PHS2/
242
32235
32236
32237
32238
32239
MNHNC
250
32240
CTROR/
247
32241
32242
T12/
PHS3/ 254
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32244
32245
GOJAM
TØ2/
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32248
INCSET/
259
264 INKL/
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52253
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PHS3/
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RSSB
TØ7/
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BKTF/
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INOTRD 271
32256
CHINC/
270
DINC/ 255
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(NC) 266
32257
268 (NC)
(NC) 206
(NC) 204
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207 (NC)
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A10
32ØØ 4K 217
A2
SHANC/ 249
A16
(NC) 218
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225 (NC)
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229 (NC)
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233 (NC)
234
237 (NC)
(NC) 246
243
(NC)
244
(NC)
245
212
OVDC 236
260
TO PIN 5 AND UNUSED INPUTS OF 32200 SERIES GATES
224
+4SW
248
TO PIN 10 OF 32200 SERIES GATES EXCEPT FAN-INS SEE NOTE 3

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL
———

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	W. Horgan	10 MAR 65
CHECKED		19 Mar 65
APPROVED		19 Mar 65
APPROVED	Eldon C Hall	19 Mar 65
APPROVED MIT		23 Mar 65
APPROVED MSC		3-23-65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

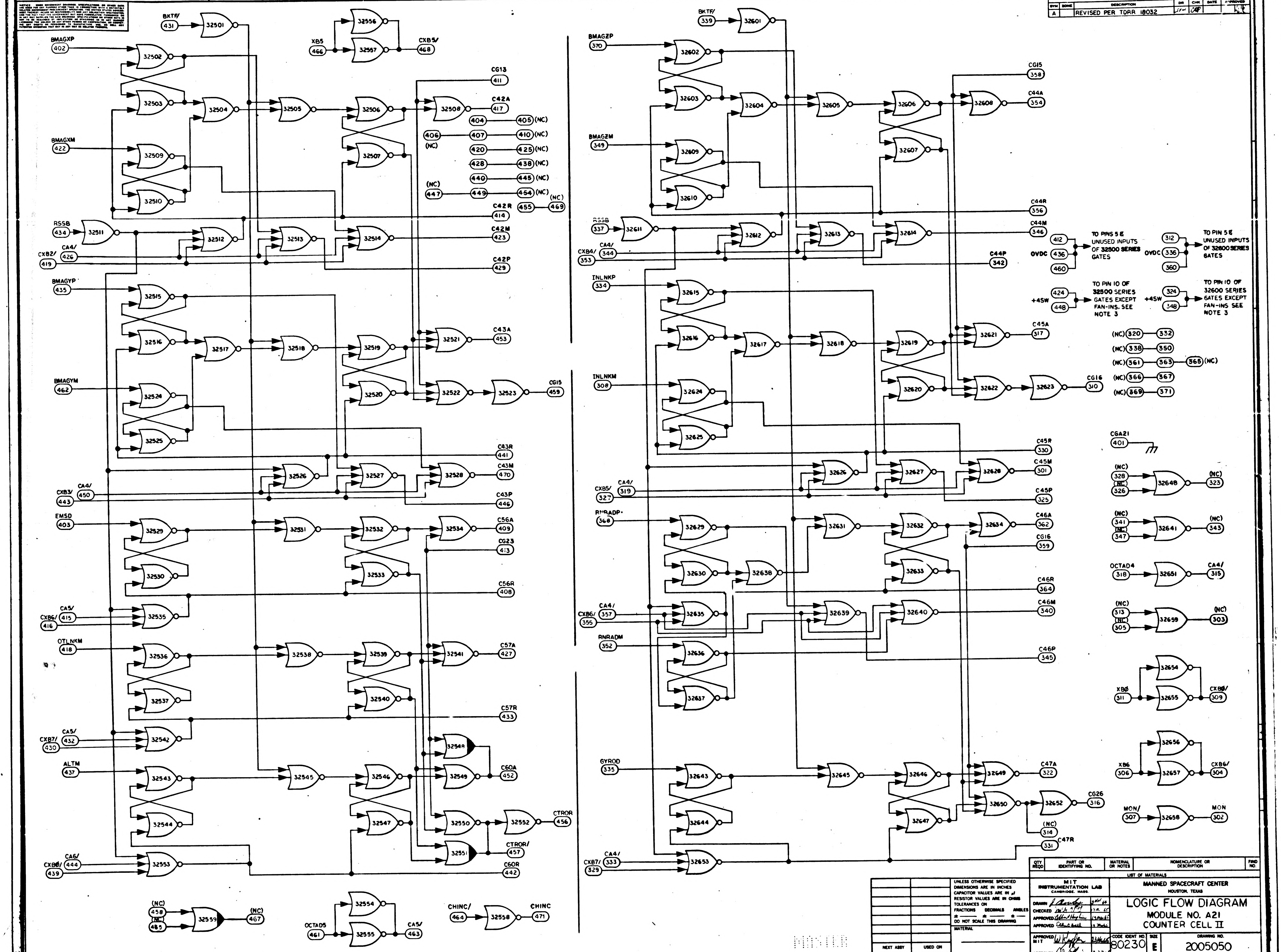
LOGIC FLOW DIAGRAM
MODULE NO. A21
COUNTER CELL II

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2005050
SCALE —		SHEET 2 OF

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 18032	JFW	CAP		

REVISIONS 17723

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.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CXB5/ 468
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440 445 (NC)
(NC) 447 449 454 (NC)
455 469 (NC)
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C42R 414
RSSB 434
C42M 423
CA4/ 426
CXB2/ 419
C42P 429
BMAGYP 435
C43A 453
BMAGYM 462
CG15 459
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C43M 470
CXB3/ 443
CA4/ 450
C43P 446
EMSD 403
C56A 409
CG23 413
C56R 408
CA5/ 415
CXB6/ 416
OTLNKM 418
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CA5/ 432
CXB7/ 430
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C60A 452
CTROR 456
CTROR/ 457
CA6/ 444
CXB0/ 439
C60R 442
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(NC) 465
(NC) 467
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CA5/ 463
CHINC/ 464
CHINC 471
BKTF/ 339
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CG15 358
C44A 354
BMAGZM 349
C44R 356
RSSB 337
C44M 346
CA4/ 344
CXB4/ 353
C44P 342
INLNKP 334
C45A 317
INLNKM 308
CG16 310
C45R 330
C45M 301
CA4/ 319
CXB5/ 327
C45P 325
RNRADP 368
C46A 362
CG16 359
C46R 364
CA4/ 357
CXB6/ 355
C46M 340
RNRADM 352
C46P 345
GYROD 335
C47A 322
CG26 316
(NC) 314
C47R 331
CA4/ 333
CXB7/ 329
412
OVDC 436
460
TO PINS 5 & UNUSED INPUTS OF 32500 SERIES GATES
312
OVDC 336
360
TO PIN 5 & UNUSED INPUTS OF 32600 SERIES GATES
+4SW 424 448
TO PIN 10 OF 32500 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 324 348
TO PIN 10 OF 32600 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
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(NC) 366 367
(NC) 369 371
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(NC) 326
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CXB0/ 309
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CXB6/ 304
MON/ 307
32658
MON 302

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

NEXT ASSY | USED ON

APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	J Bowly	9 Nov 64
CHECKED		9 M. 65
APPROVED	Albert Hopkins	19 Mar 65
APPROVED		
APPROVED MIT	W. Kupfer	23 Mar 65
APPROVED MSC		

LOGIC FLOW DIAGRAM
MODULE NO. A21
COUNTER CELL II

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005050
SCALE NONE
SHEET 3 OF 3

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17723

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
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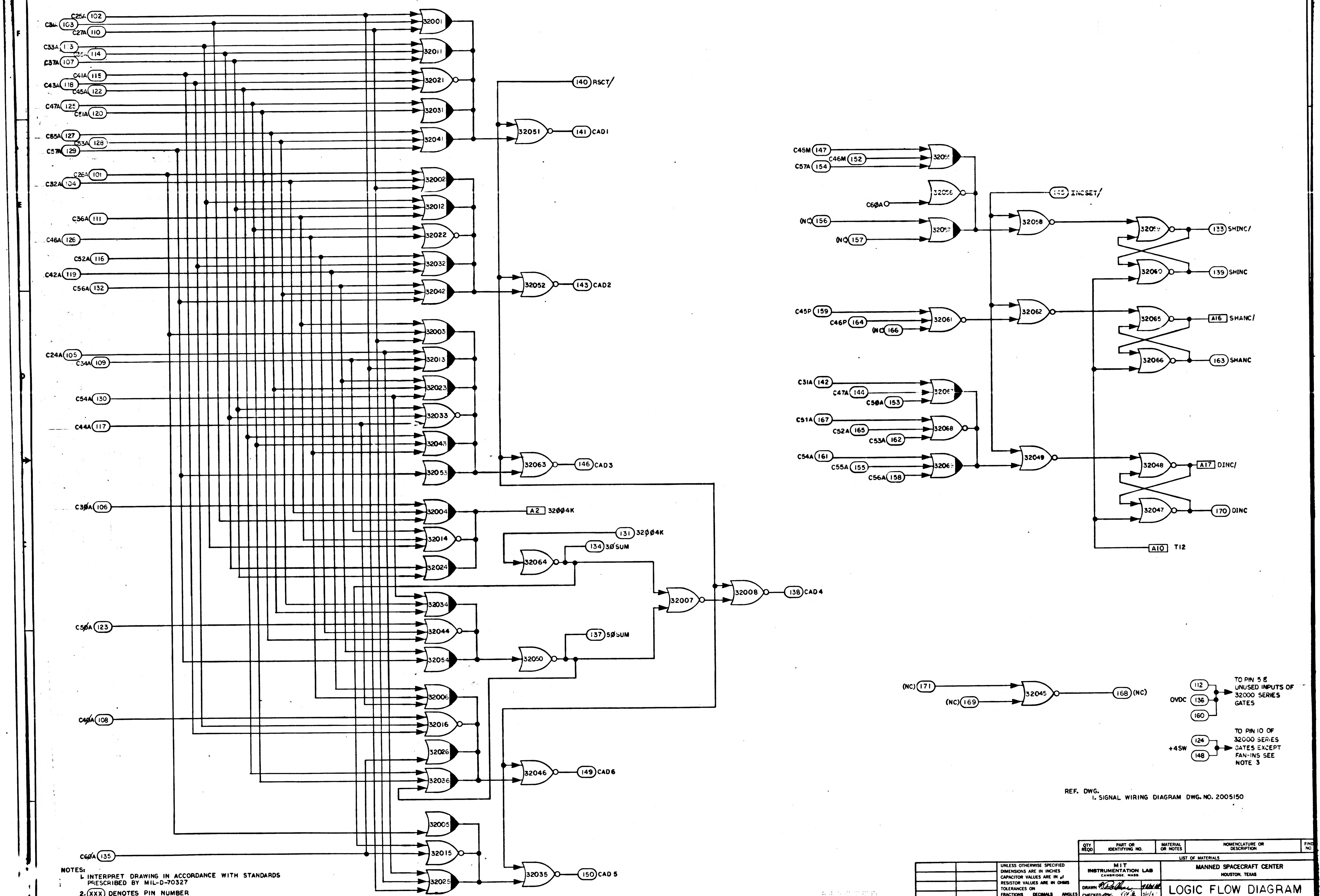
B		REVISED PER TDRR 18508				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C60A 135
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137 50SUM
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150 CAD 5
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139 SHINC
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C46P 164
(NC) 166
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163 SHANC
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C47A 144
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C51A 167
C52A 165
C53A 162
C54A 161
C55A 155
C56A 158
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A17 DINC/
170 DINC
A10 T12
(NC) 171
(NC) 169
32045
168 (NC)
OVDC
112
136
160
TO PIN 5 & UNUSED INPUTS OF 32000 SERIES GATES
+4SW
124
148
TO PIN 10 OF 32000 SERIES GATES EXCEPT FAN-INS SEE NOTE 3

REF. DWG.
1. SIGNAL WIRING DIAGRAM DWG. NO. 2005150

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
XXX DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG. NO. 2005011 FOR LOGIC DESIGN CRITERIA

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A21
COUNTER CELL II

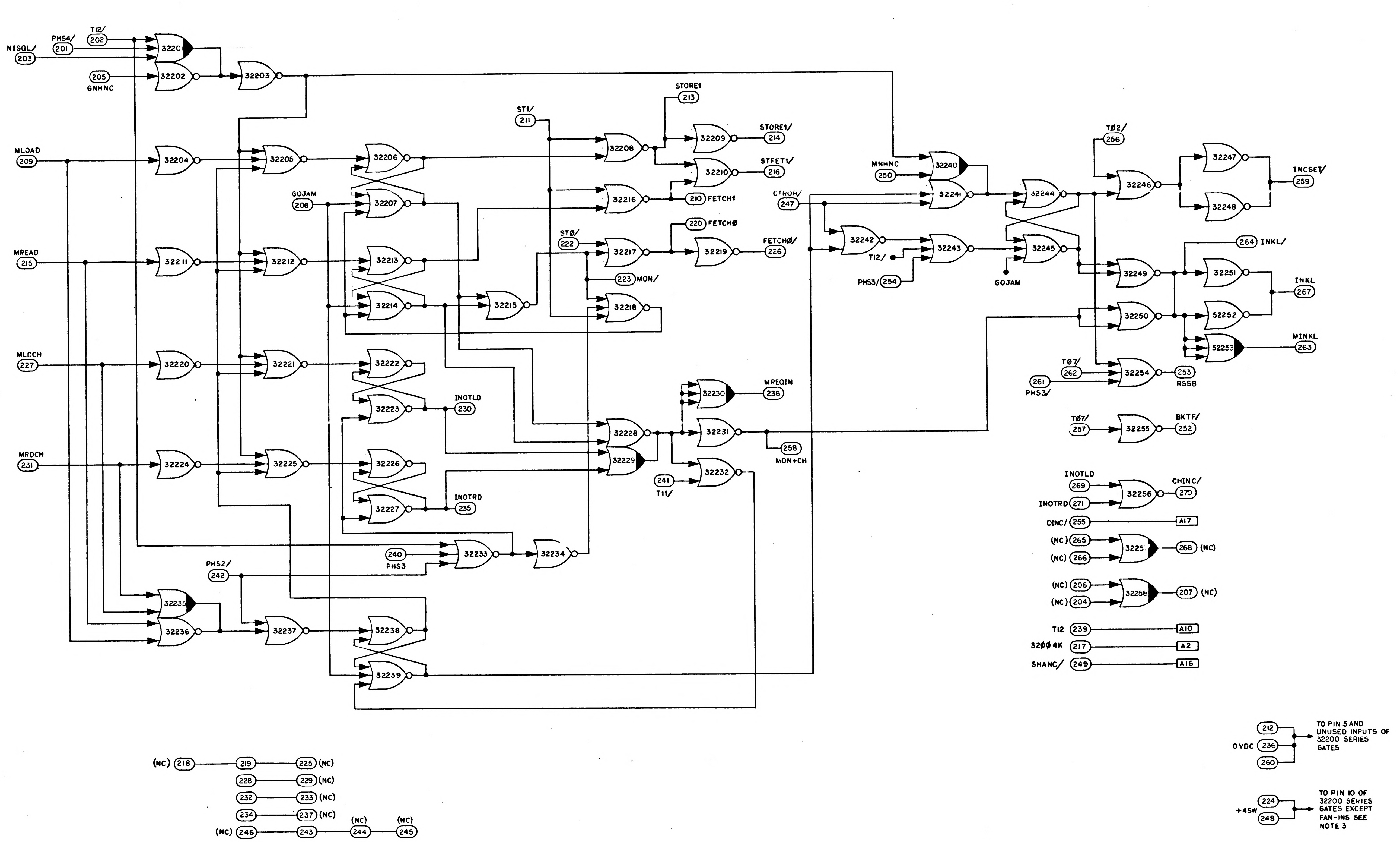
CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2005050

SCALE NONE
SHEET 1 OF 3

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17723

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 18032				
B		REVISED PER TDRR 18508			23 ... 65	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STORE1/ 214
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ST1/ 211
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FETCHØ/ 226
ST0/ 222
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GOJAM 208
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MREAD 215
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MLDCH 227
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MREQIN 238
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32231
258 MON+CH
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32232
241 T11/
MRDCH 231
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32226
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INOTRD 235
240 PHS3
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PHS2/ 242
32235
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32237
32238
32239
MNHNC 250
32240
32241
CTROR/ 247
32242
32243
T12/
PHS3/ 254
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32245
GOJAM
TØ2/ 256
32246
32247
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INCSET/ 259
264 INKL/
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INKL 267
32250
52252
52253
MINKL 263
TØ7/ 262
261 PHS3/
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253 RSSB
TØ7/ 257
32255
BKTF/ 252
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INOTRD 271
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CHINC/ 270
DINC/ 255 A17
(NC) 265
(NC) 266
3225
268 (NC)
(NC) 206
(NC) 204
32258
207 (NC)
T12 239 A10
32ØØ4K 217 A2
SHANC/ 249 A16
(NC) 218 219 225 (NC)
228 229 (NC)
232 233 (NC)
234 237 (NC)
(NC) 246 243 (NC) 244 (NC) 245
0VDC 212 236 260
TO PIN 5 AND UNUSED INPUTS OF 32200 SERIES GATES
+4SW 224 248
TO PIN 10 OF 32200 SERIES GATES EXCEPT FAN-INS SEE NOTE 3

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ± —— ANGLES ± ——
DO NOT SCALE THIS DRAWING

MATERIAL ——

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN W. Horgan 10 Mar 65
CHECKED 19 Mar 65
APPROVED 19 Mar 65
APPROVED Eldon C Hall 19 Mar 65
APPROVED MIT 23 Mar 65
APPROVED MSC 23 Mar 65
DATE

LOGIC FLOW DIAGRAM
MODULE NO. A21
COUNTER CELL II

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005050
SCALE ——
SHEET 2 OF 3

NOTICE WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17722

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
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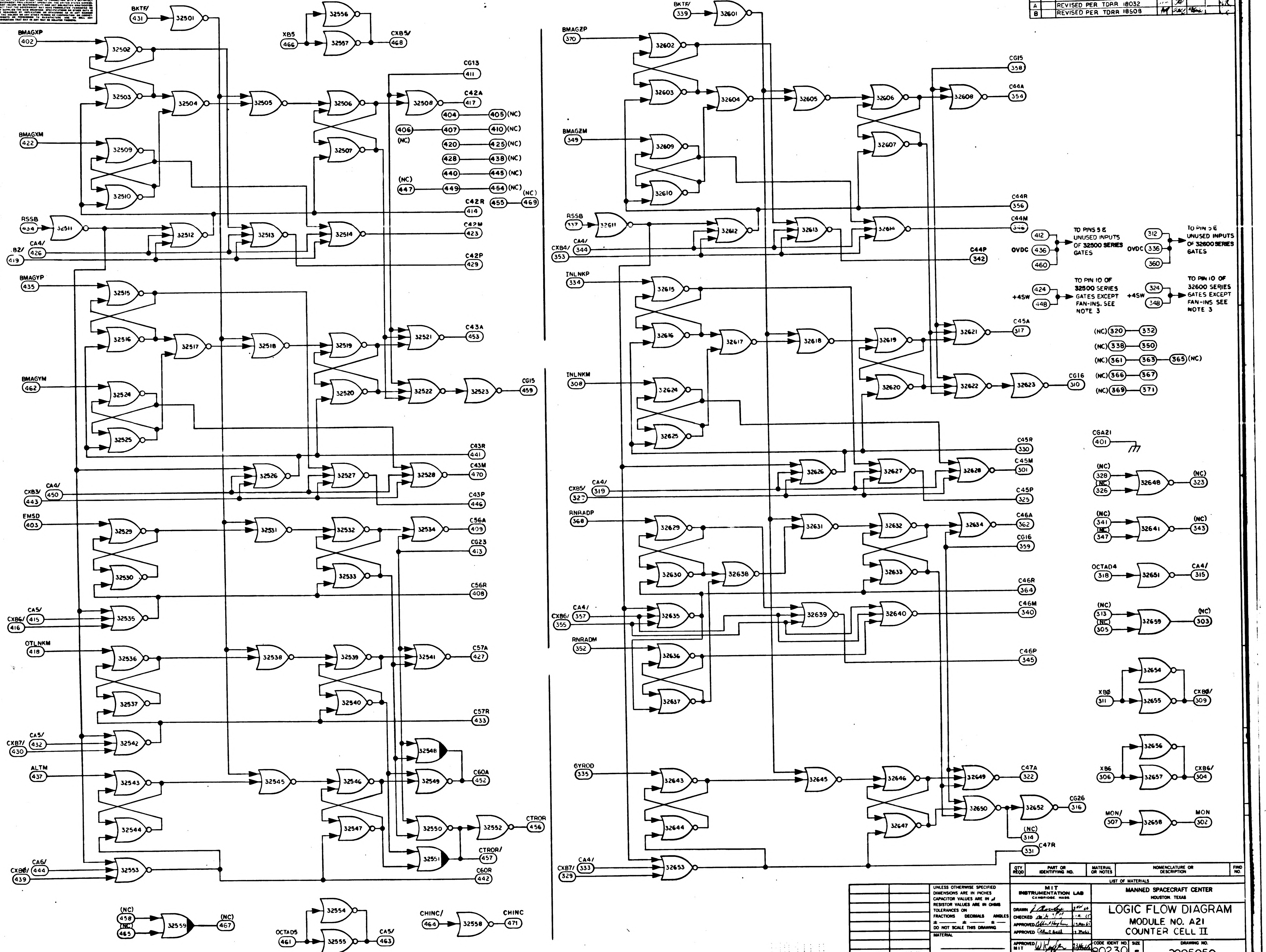
B		REVISED PER TDRR 18508			28 Jan	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(NC) 447 449 454 (NC)
455 (NC) 469
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CA4/ 426
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CA4/ 450
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C60R 442
CA6/ 444
CXB0/ 439
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(NC) 467
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CA5/ 463
CHINC/ 464
32558
CHINC 471
BKTF/ 339
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32606
32607
32608
CG15 358
C44A 354
BMAGZM 349
32609
32610
C44R 356
RSSB 337
32611
32612
32613
32614
C44M 346
CXB4/ 353
CA4/ 344
C44P 342
TO PINS 5 & UNUSED INPUTS OF 32500 SERIES GATES
0VDC 412 436 460
TO PIN 5 & UNUSED INPUTS OF 32600 SERIES GATES
0VDC 312 336 360
TO PIN 10 OF 32500 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 424 448
TO PIN 10 OF 32600 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 324 348
INLNKP 334
32615
32616
32617
32618
32619
32620
32621
C45A 317
32622
32623
CG16 310
INLNKM 308
32624
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(NC) 320 332
(NC) 338 350
(NC) 361 363 365 (NC)
(NC) 366 367
(NC) 369 371
C45R 330
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C45M 301
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CA4/ 319
C45P 325
CGA21 401
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32648
(NC) 323
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32638
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CG16 359
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32641
(NC) 343
C46R 364
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CA4/ 315
CXB6/ 355
CA4/ 357
32635
32639
32640
C46M 340
(NC) 313 (NC) 305
32659
(NC) 303
RNRADM 352
32636
32637
C46P 345
XB0 311
32654
32655
CXB0/ 309
GYROD 335
32643
32644
32645
32646
32647
32649
C47A 322
32650
32652
CG26 316
(NC) 314
C47R 331
XB6 306
32656
32657
CXB6/ 304
MON/ 307
32658
MON 302
CXB7/ 329
CA4/ 333
32653

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J Bowley 3 Nov 64
CHECKED 11 Mar 65
APPROVED Albert Hopkins 19 Mar 65
APPROVED
APPROVED MIT W Kupfer 23 Mar 65
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A21
COUNTER CELL II

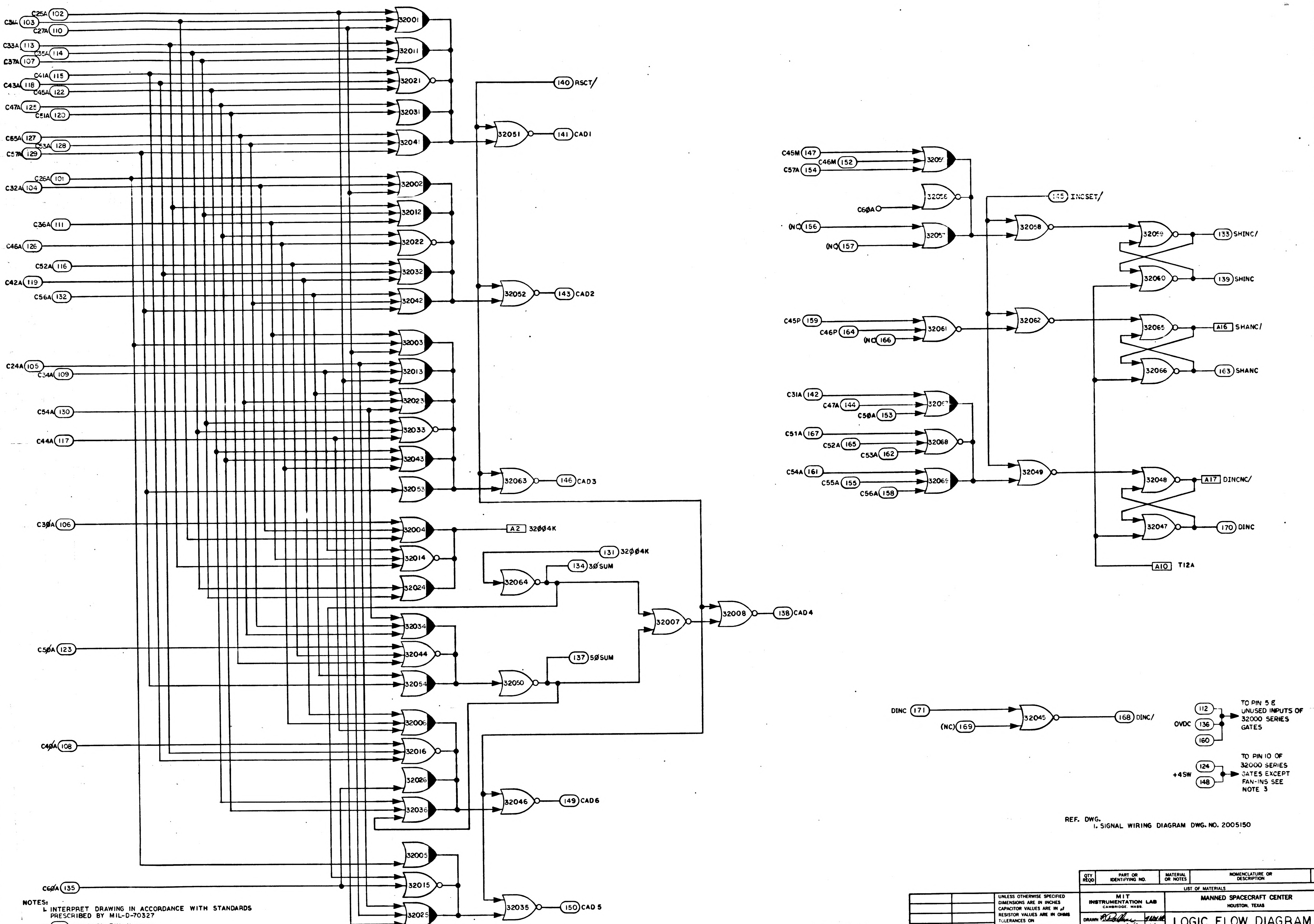
CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005050
SCALE NONE
SHEET 3 OF 3

3 of 3

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17723

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 18032	JFW			WR
B		REVISED PER TDRR 18508				WR
C		REVISED PER TDRR 20987				WR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A10 T12A
DINC 171
(NC) 169
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168 DINC/
OVDC
112
136
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TO PIN 5 & UNUSED INPUTS OF 32000 SERIES GATES
+4SW
124
148
TO PIN 10 OF 32000 SERIES GATES EXCEPT FAN-INS SEE NOTE 3

REF. DWG.
1. SIGNAL WIRING DIAGRAM DWG. NO. 2005150

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
XXX DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG. NO. 2005011 FOR LOGIC DESIGN CRITERIA

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A21
COUNTER CELL II

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005050
SCALE NONE
SHEET 1 OF 3

2005050 C

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

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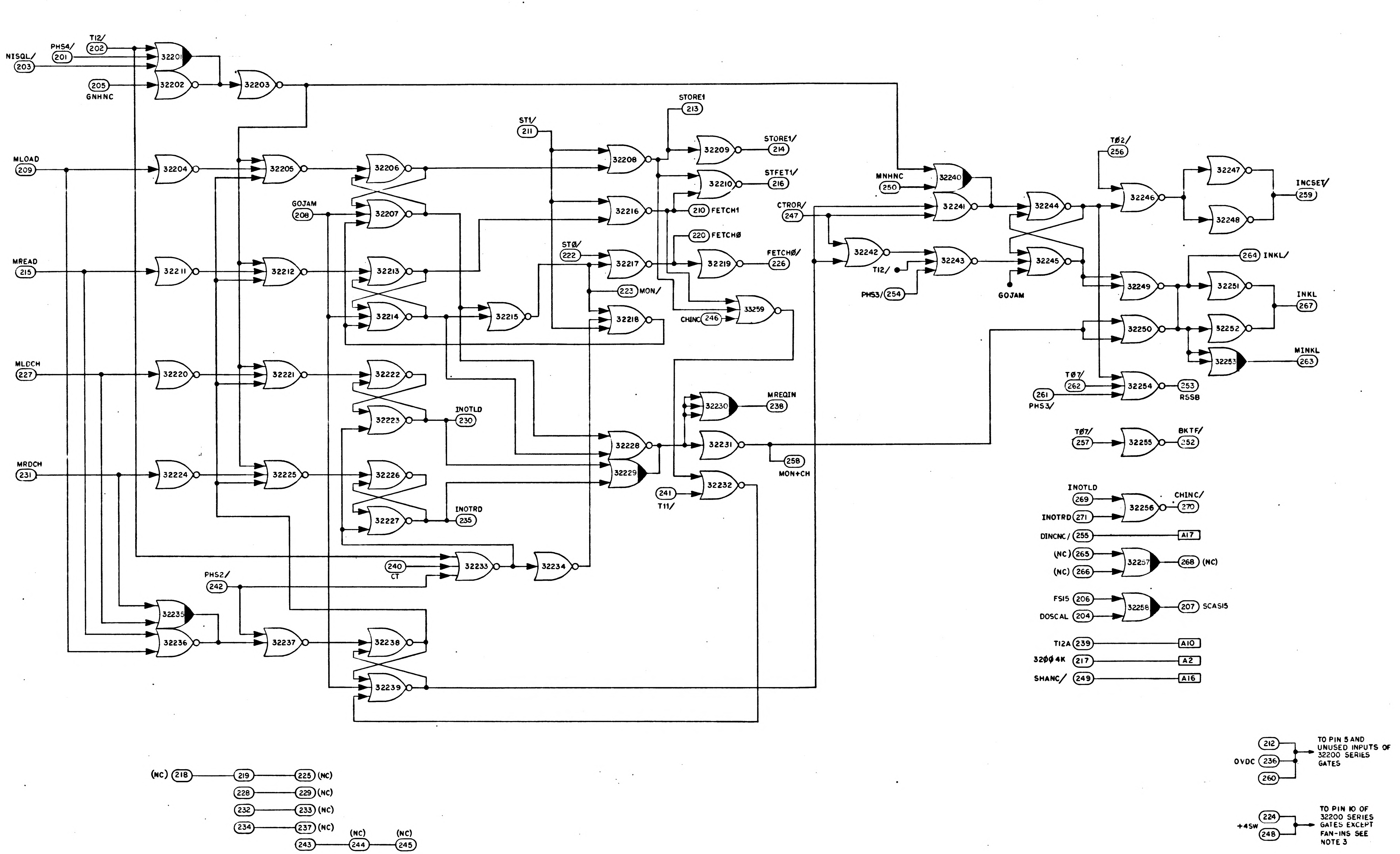

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STORE1/ 214
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220 FETCHØ
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FETCHØ/ 226
223 MON/
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TO PIN 5 AND UNUSED INPUTS OF 32200 SERIES GATES
+4SW 224 248
TO PIN 10 OF 32200 SERIES GATES EXCEPT FAN-INS SEE NOTE 3

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

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TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN W. Horgan 10 MAR 65
CHECKED 19 Mar 65
APPROVED 19 Mar 65
APPROVED Eldon C Hall 19 Mar 65
APPROVED MIT 23 Mar 65
APPROVED MSC 23 Mar 65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A21
COUNTER CELL II

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005050
SCALE —
SHEET 2 OF 3

2005050 C

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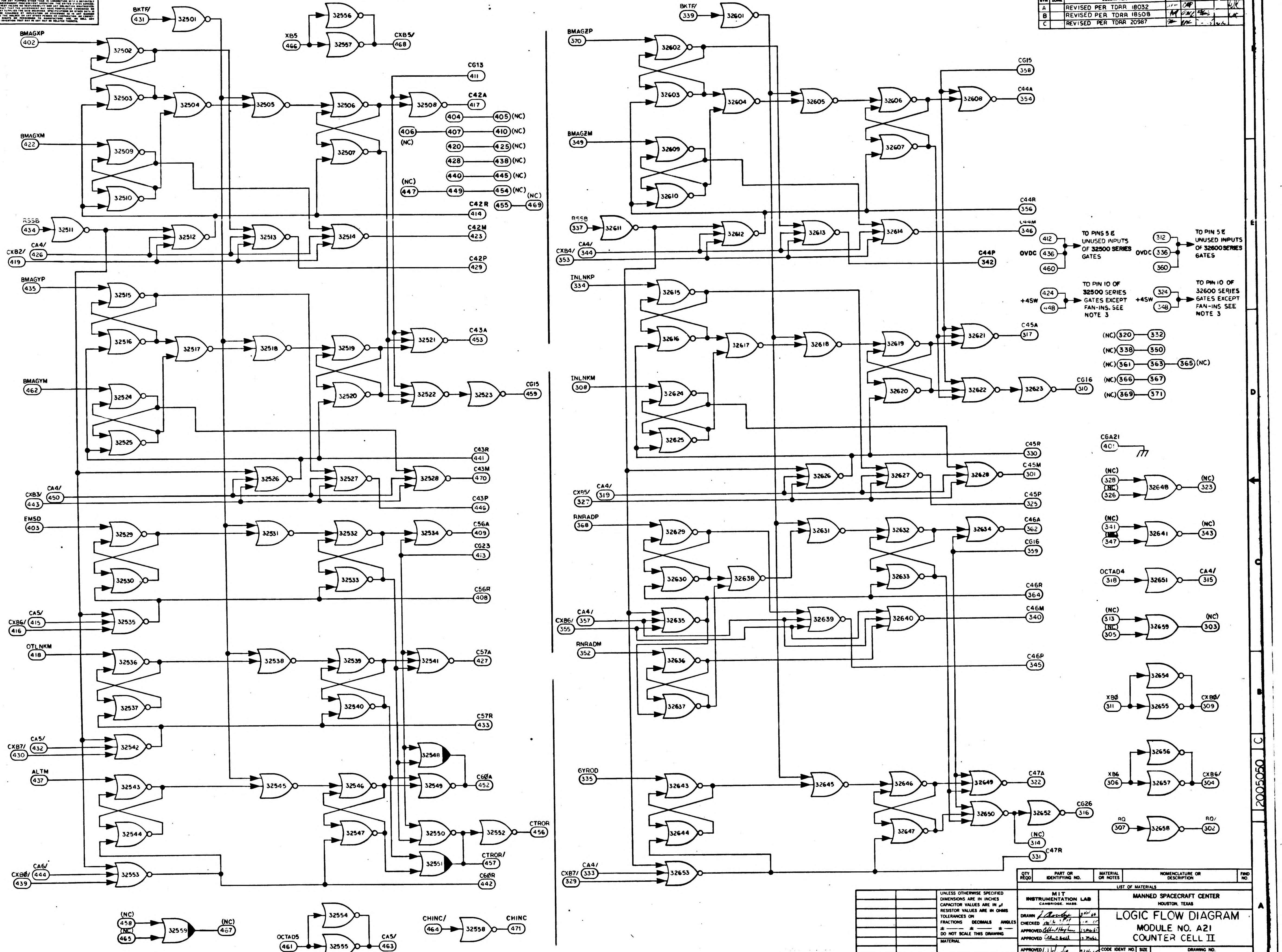
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C56R 408
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C44M 346
CXB4/ 353
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CA4/ 319
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TO PINS 5 & UNUSED INPUTS OF 32500 SERIES GATES
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TO PIN 5 & UNUSED INPUTS OF 32600 SERIES GATES
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TO PIN 10 OF 32500 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
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RQ/ 302

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

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MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J. Bowley 3 Nov 64
CHECKED
APPROVED Albert Hopkins
APPROVED
APPROVED MIT 23 Mar 65
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A21
COUNTER CELL II

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005050
SCALE NONE
SHEET 3 OF 3

2005050 C

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19723

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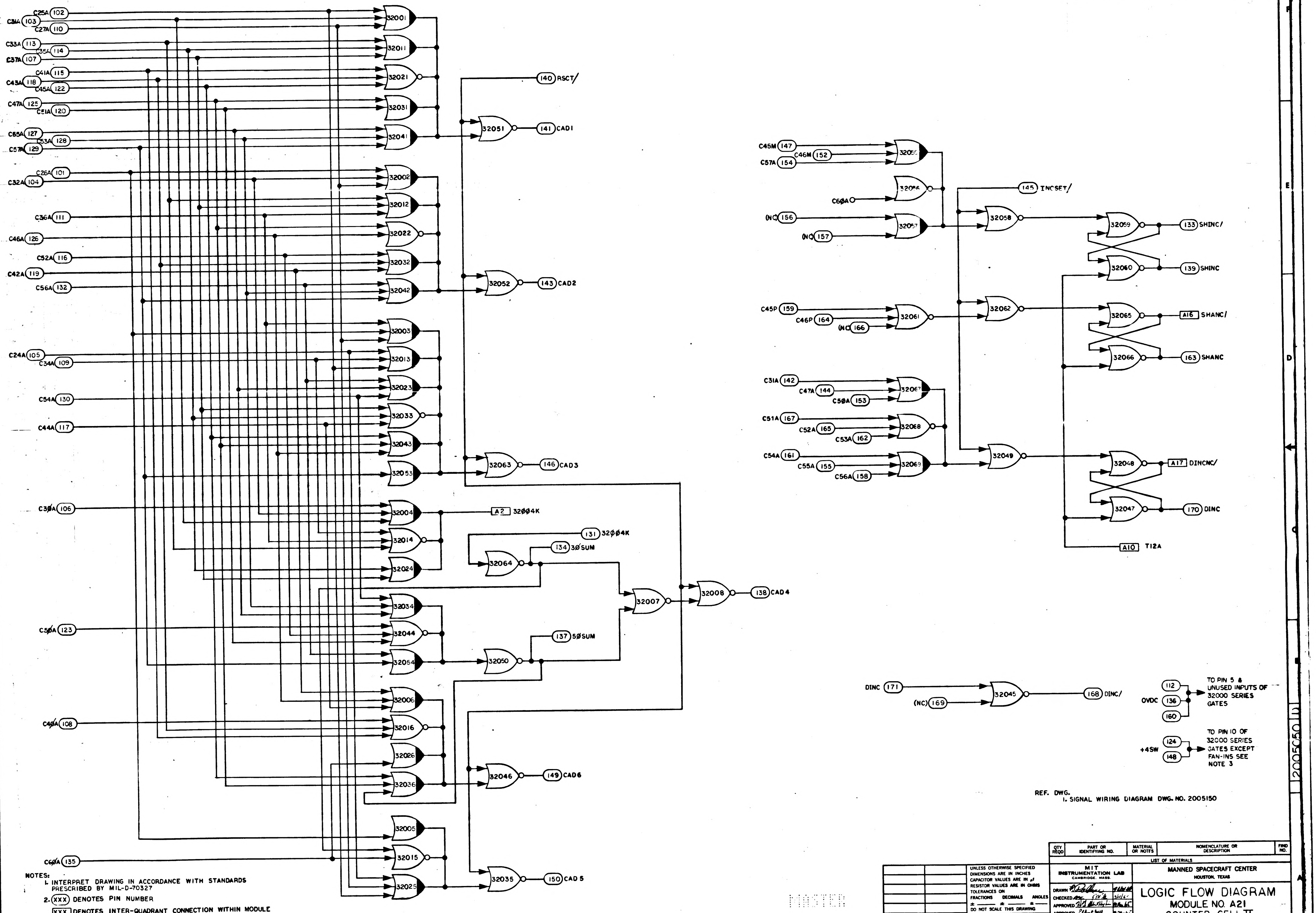
B		REVISED PER TDRR 18508				
C		REVISED PER TDRR 20987			7/27/65	WK
D		REVISED PER TDRR 21403	KCH			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TO PIN 5 & UNUSED INPUTS OF 32000 SERIES GATES
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TO PIN 10 OF 32000 SERIES GATES EXCEPT FAN-INS SEE NOTE 3

REF. DWG.
1. SIGNAL WIRING DIAGRAM DWG. NO. 2005150

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
   [XXX] DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG. NO. 2005011 FOR LOGIC DESIGN CRITERIA

MASTER

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TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
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MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED 3/11/65
APPROVED
APPROVED
APPROVED MIT 23 Mar 65
APPROVED MSC 3-23-65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A21
COUNTER CELL II

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005050
SCALE NONE
SHEET 1 OF 3

2005050 D

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

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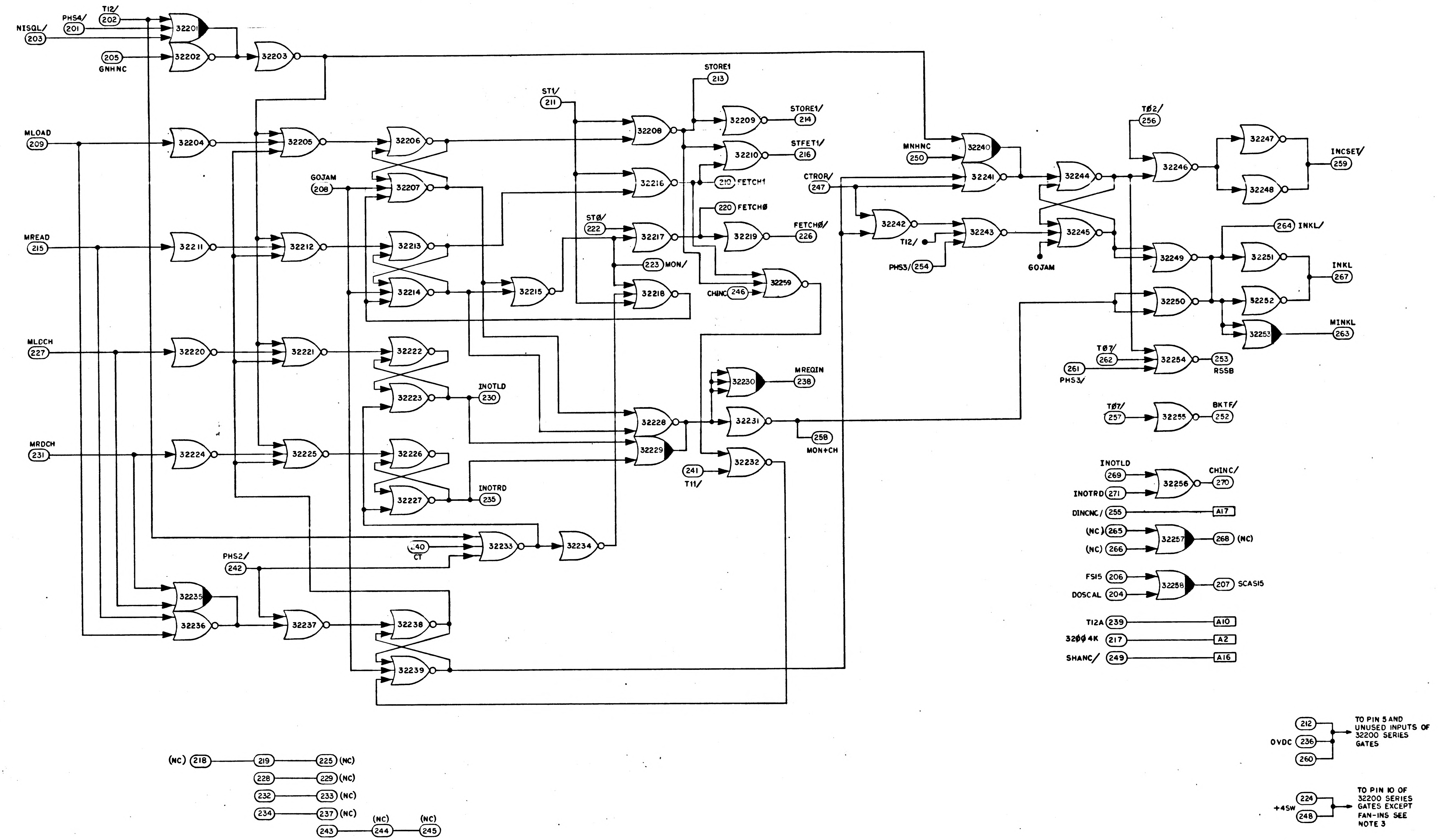
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MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A21
COUNTER CELL II

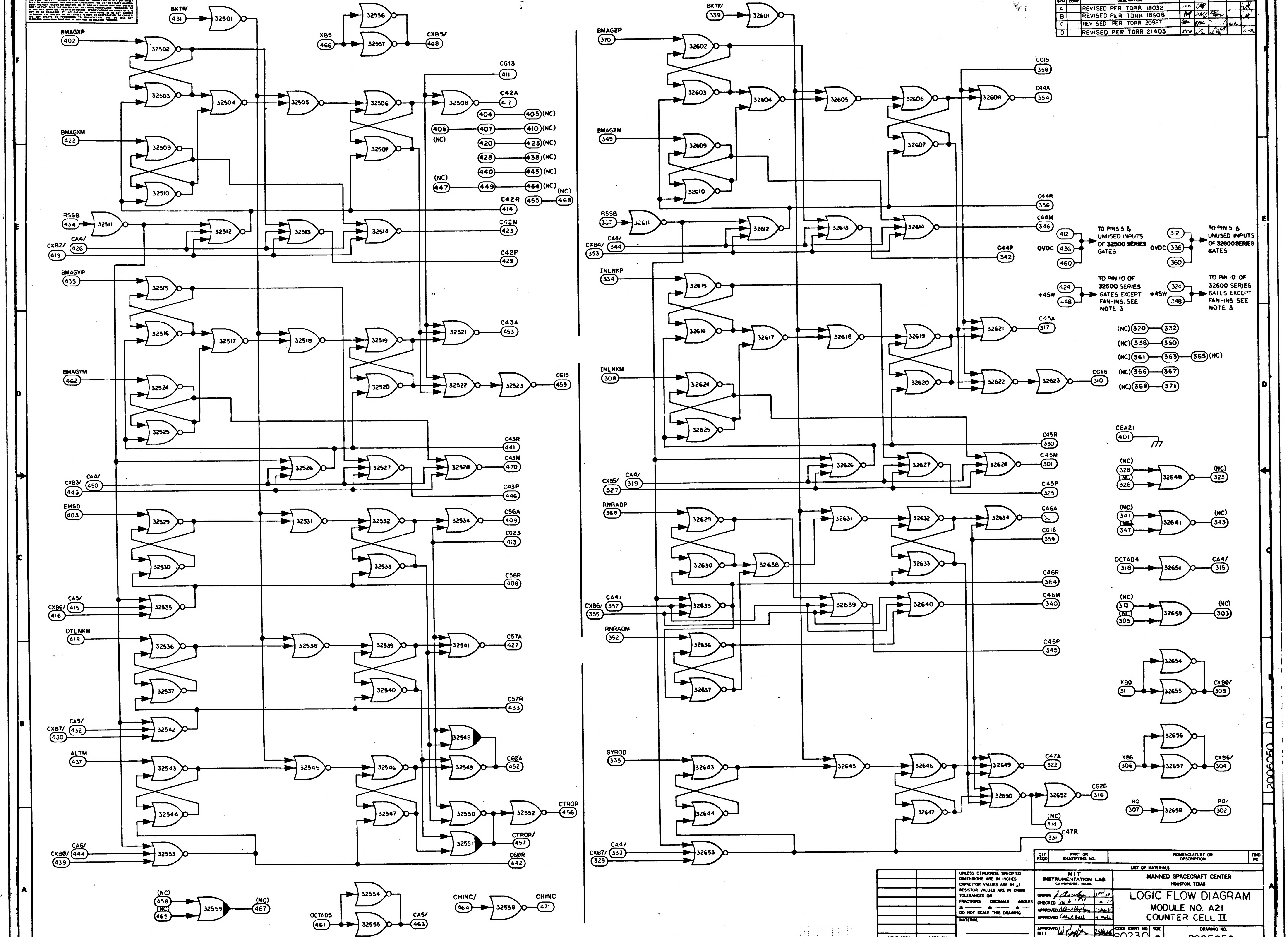
CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005050
SCALE ——
SHEET 2 OF 3

MASTER

NOTICE WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17723

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 18032	JFW	CAP		
B		REVISED PER TDRR 18508				
C		REVISED PER TDRR 20987				
D		REVISED PER TDRR 21403	KCH		12 Aug 65	



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CXB5/ 468
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406 (NC) 407 410 (NC)
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440 445 (NC)
(NC) 447 449 454 (NC)
455 469 (NC)
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C42R 414
RSSB 434
32511
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C42M 423
CA4/ 426
CXB2/ 419
C42P 429
BMAGYP 435
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CG15 459
BMAGYM 462
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C43R 441
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32527
32528
C43M 470
CA4/ 450
CXB3/ 443
C43P 446
EMSD 403
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CG23 413
C56R 408
CA5/ 415
CXB6/ 416
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OTLNKM 418
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C57R 433
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CXB0/ 439
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(NC) 465
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(NC) 467
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CHINC/ 464
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CHINC 471
BKTF/ 339
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CXB4/ 353
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CA4/ 319
CXB5/ 327
C45P 325
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C46R 364
CA4/ 357
CXB6/ 355
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RNRADM 352
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C46P 345
GYROD 335
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C47A 322
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(NC) 314
C47R 331
CA4/ 333
CXB7/ 329
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OVDC 412 436 460
TO PINS 5 & UNUSED INPUTS OF 32500 SERIES GATES
OVDC 312 336 360
TO PIN 5 & UNUSED INPUTS OF 32600 SERIES GATES
+4SW 424 448
TO PIN 10 OF 32500 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 324 348
TO PIN 10 OF 32600 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
(NC) 320 332
(NC) 338 350
(NC) 361 363 365 (NC)
(NC) 366 367
(NC) 369 371
CGA21 401
(NC) 328
(NC) 326
32648
(NC) 323
(NC) 341
(NC) 347
32641
(NC) 343
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32651
CA4/ 315
(NC) 313
(NC) 305
32659
(NC) 303
XB0 311
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32655
CXB0/ 309
XB6 306
32656
32657
CXB6/ 304
RQ 307
32658
RQ/ 302

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J. Bowley 3 Nov 64
CHECKED
APPROVED Albert Hopkins 19 Mar 65
APPROVED
APPROVED MIT 23 Mar 65
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A21
COUNTER CELL II

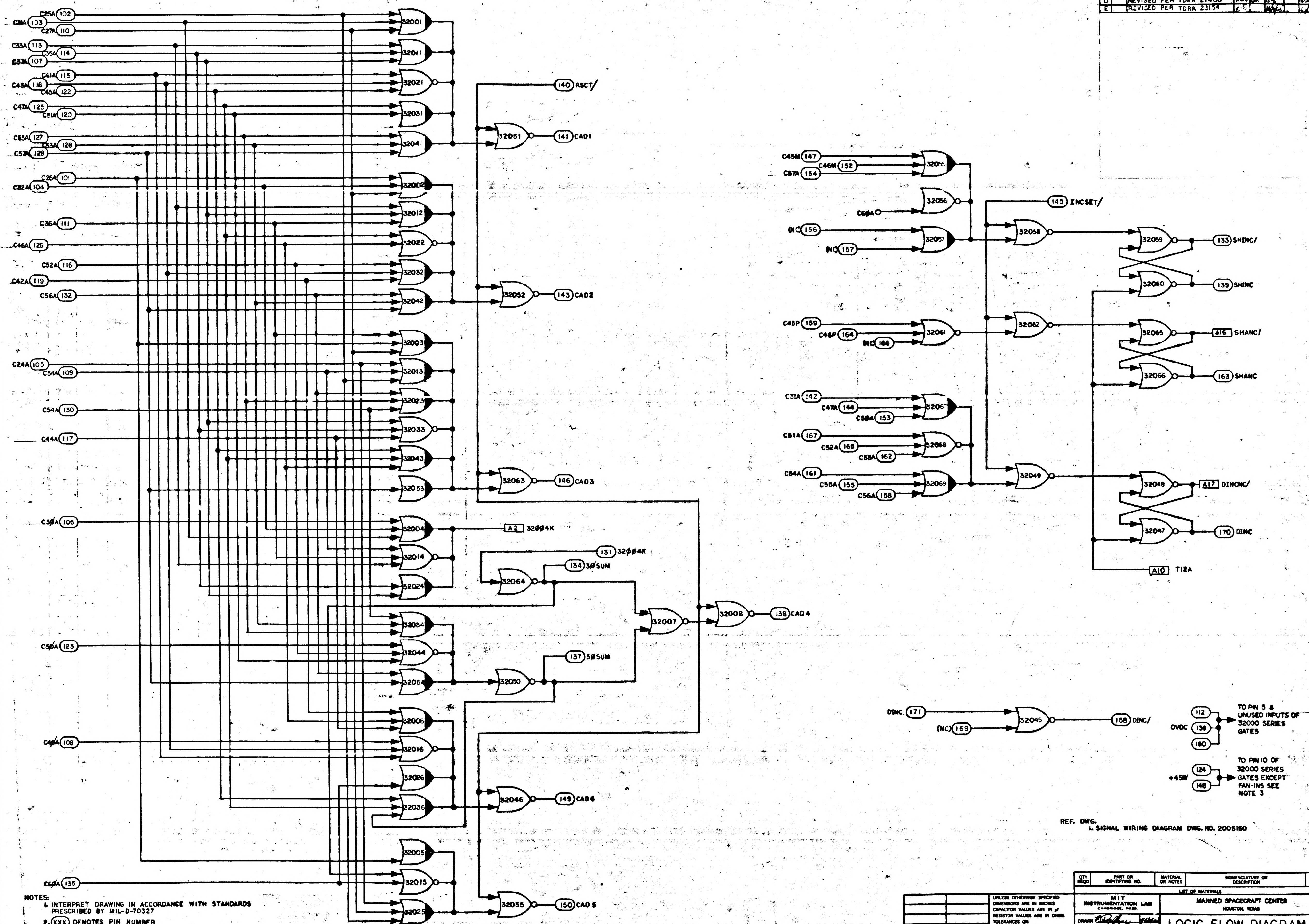
CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005050
SCALE NONE
SHEET 3 OF 3

2005050 D

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17723

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 18032	JFW			
B		REVISED PER TDRR 18508				
C		REVISED PER TDRR 20987			7/27/65	
D		REVISED PER TDRR 21403	KCH			
E		REVISED PER TDRR 23154				



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C36A 111
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C57A 154
C60A
NC 156
NC 157
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133 SHINC/
139 SHINC
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C46P 164
NC 166
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32066
A16 SHANC/
163 SHANC
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C47A 144
C50A 153
C51A 167
C52A 165
C53A 162
C54A 161
C55A 155
C56A 158
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A17 DINCNC/
170 DINC
A10 T12A
DINC 171
(NC) 169
32045
168 DINC/
112
OVDC 136
160
TO PIN 5 & UNUSED INPUTS OF 32000 SERIES GATES
124
+4SW 148
TO PIN 10 OF 32000 SERIES GATES EXCEPT FAN-INS SEE NOTE 3

REF. DWG.
1. SIGNAL WIRING DIAGRAM DWG. NO. 2005150

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
[XXX] DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG. NO. 2005011 FOR LOGIC DESIGN CRITERIA

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT W Kuyke
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

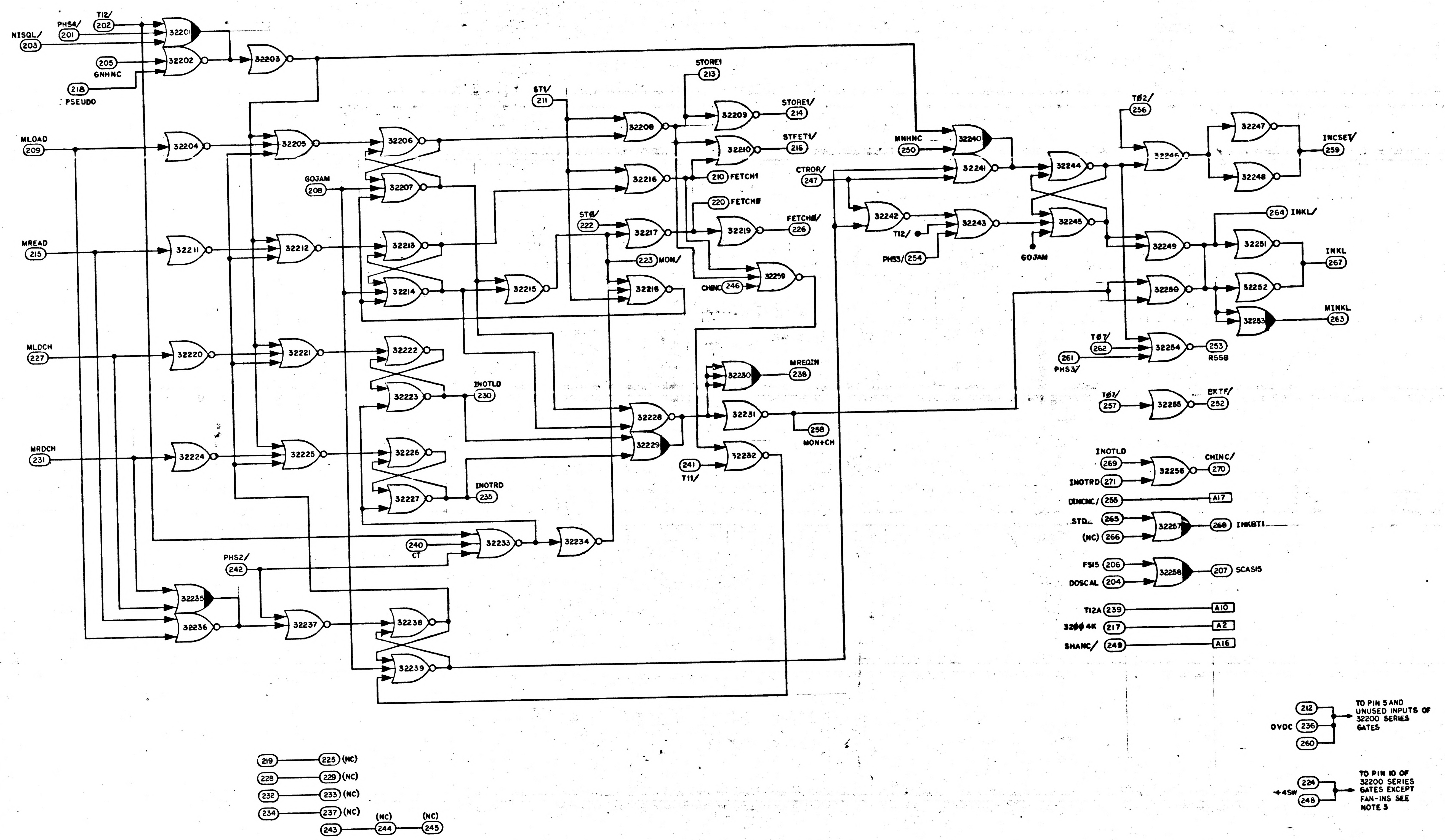
LOGIC FLOW DIAGRAM
MODULE NO. A21
COUNTER CELL II

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005050
SCALE NONE
SHEET 1 OF 3

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19723

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 18032	JFW	CAP		
B		REVISED PER TDRR 18508				WK
C		REVISED PER TDRR 20987		OK	7/2 7/65	WK
D		REVISED PER TDRR 21403	KCH		13 65	
E		REVISED PER TDRR 2'154				WK



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PHS4/
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GOJAM
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MREAD
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CT
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32234
PHS2/
242
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ST1/
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STFET1/
216
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FETCH1
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FETCH0
ST0/
222
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32219
FETCH0/
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MON/
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CHINC
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MON+CH
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T11/
32232
MNHNC
250
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T12/
PHS3/
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GOJAM
T02/
256
32246
32247
32248
INCSET/
259
264
INKL/
32249
32251
INKL
267
32250
32252
32253
MINKL
263
T07/
262
32254
253
RSSB
261
PHS3/
T07/
257
32255
BKTF/
252
INOTLD
269
32256
CHINC/
270
INOTRD
271
DINCNC/
255
A17
STD.
265
(NC)
266
32257
268
INKBT1
FS15
206
32258
207
SCAS15
DOSCAL
204
T12A
239
A10
32004K
217
A2
SHANC/
249
A16
212
OVDC
236
260
TO PIN 5 AND UNUSED INPUTS OF 32200 SERIES GATES
+4SW
224
248
TO PIN 10 OF 32200 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
219
225
(NC)
228
229
(NC)
232
233
(NC)
234
237
(NC)
243
244
(NC)
245
(NC)

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN W. Morgan
CHECKED
APPROVED
APPROVED Eldon C Hall
APPROVED MIT W Kupfer
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

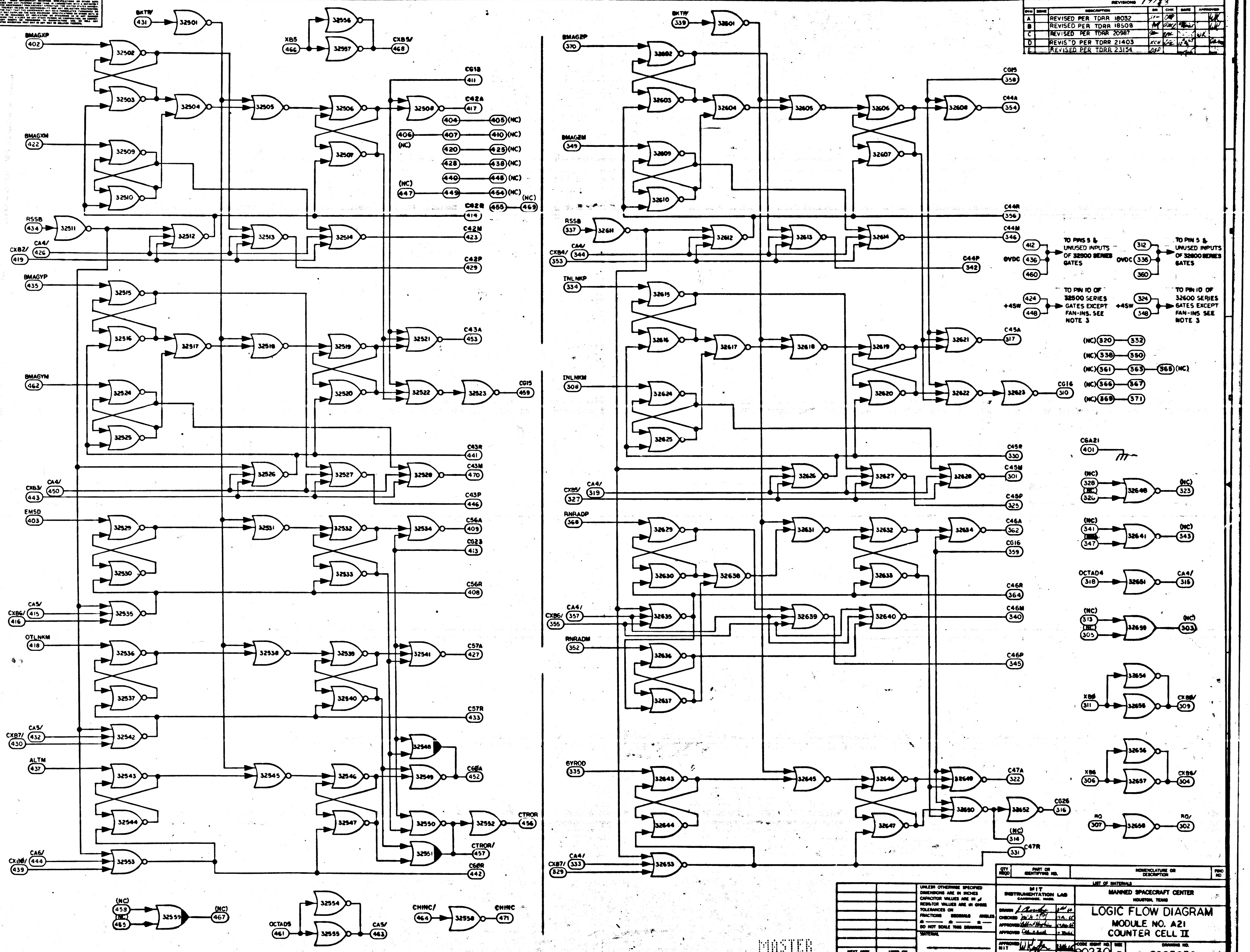
LOGIC FLOW DIAGRAM
MODULE NO. A21
COUNTER CELL II

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005050
SCALE —
SHEET 2 OF 3

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19783

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 18032	JFW	CAP		WK
B		REVISED PER TDRR 18508				WK
C		REVISED PER TDRR 20987				WK
D		REVIS_D PER TDRR 21403	KCH			
E		REVISED PER TDRR 23154	DSD			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BMAGXM 422
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XB5 466
CXB5/ 468
CG13 411
C42A 417
C42R 414
C42M 423
C42P 429
RSSB 434
CA4/ 426
CXB2/ 419
BMAGYP 435
BMAGYM 462
C43A 453
CG15 459
C43R 441
C43M 470
C43P 446
CXB3/ 443
CA4/ 450
EMSD 403
C56A 409
CG23 413
C56R 408
CA5/ 415
CXB6/ 416
OTLNKM 418
C57A 427
C57R 433
CA5/ 432
CXB7/ 430
ALTM 437
C60A 452
CTROR 456
CTROR/ 457
C60R 442
CA6/ 444
CXB8/ 439
(NC) 459 465 467
OCTAD5 461
CA5/ 463
CHINC/ 464
CHINC 471
BMAGZP 370
BMAGZM 349
BKTR/ 339
CG15 358
C44A 354
C44R 356
C44M 346
C44P 342
RSSB 337
CA4/ 344
CXB4/ 353
INLNKP 334
INLNKM 308
C45A 317
CG16 310
C45R 330
C45M 301
C45P 325
CXB5/ 327
CA4/ 319
RNRADP 368
C46A 362
CG16 359
C46R 364
C46M 340
C46P 345
CXB6/ 355
CA4/ 357
RNRADM 352
GYROD 335
C47A 322
CG26 316
C47R 331
CXB7/ 329
CA4/ 333
0VDC
TO PINS 5 & UNUSED INPUTS OF 32500 SERIES GATES
TO PINS 5 & UNUSED INPUTS OF 32600 SERIES GATES
+4SW
TO PIN 10 OF 32500 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
TO PIN 10 OF 32600 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
CGA21 401
OCTAD4 318
CA4/ 316
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CXB6/ 309
XB6 306
CXB6/ 304
RQ 307
RQ/ 302
MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT W Kupfer
APPROVED MSC
DATE

LOGIC FLOW DIAGRAM
MODULE NO. A21
COUNTER CELL II

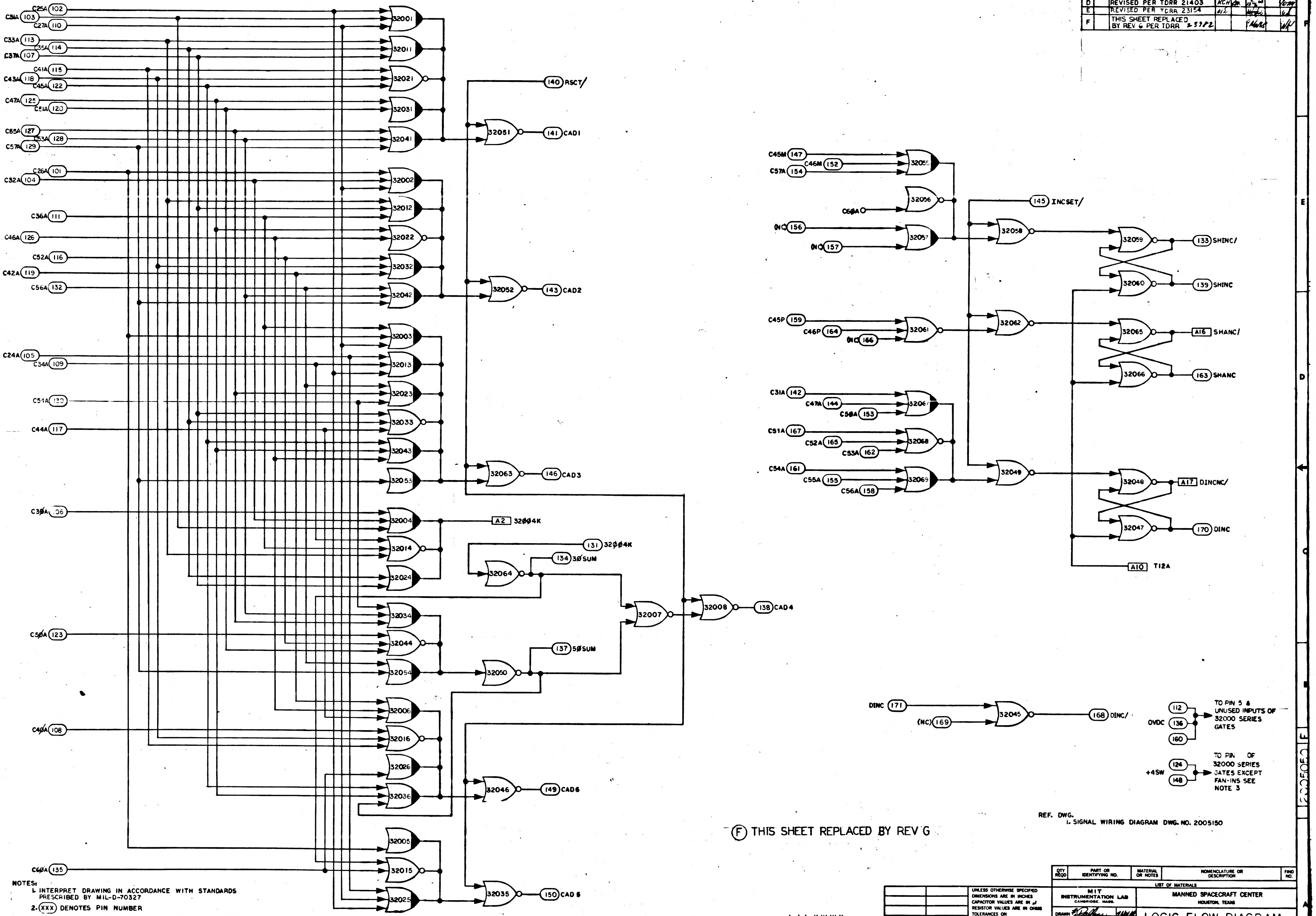
CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2005050

SCALE NONE
SHEET 3 OF 3

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17723

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 18032	JFW			
B		REVISED PER TDRR 18508				
C		REVISED PER TDRR 20987			7/27/65	
D		REVISED PER TDRR 21403	KCH			
E		REVISED PER TDRR 23154				
F		THIS SHEET REPLACED BY REV 6 PER TDRR 23982				



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163 SHANC
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170 DINC
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DINC 171
(NC) 169
32045
168 DINC/
OVDC
112
136
160
TO PIN 5 & UNUSED INPUTS OF 32000 SERIES GATES
+4SW
124
148
TO PIN OF 32000 SERIES GATES EXCEPT FAN-INS SEE NOTE 3

Ⓕ THIS SHEET REPLACED BY REV G

REF. DWG.
1. SIGNAL WIRING DIAGRAM DWG. NO. 2005150

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
   [XXX] DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG. NO. 2005011 FOR LOGIC DESIGN CRITERIA

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
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CAPACITOR VALUES ARE IN µf
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TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

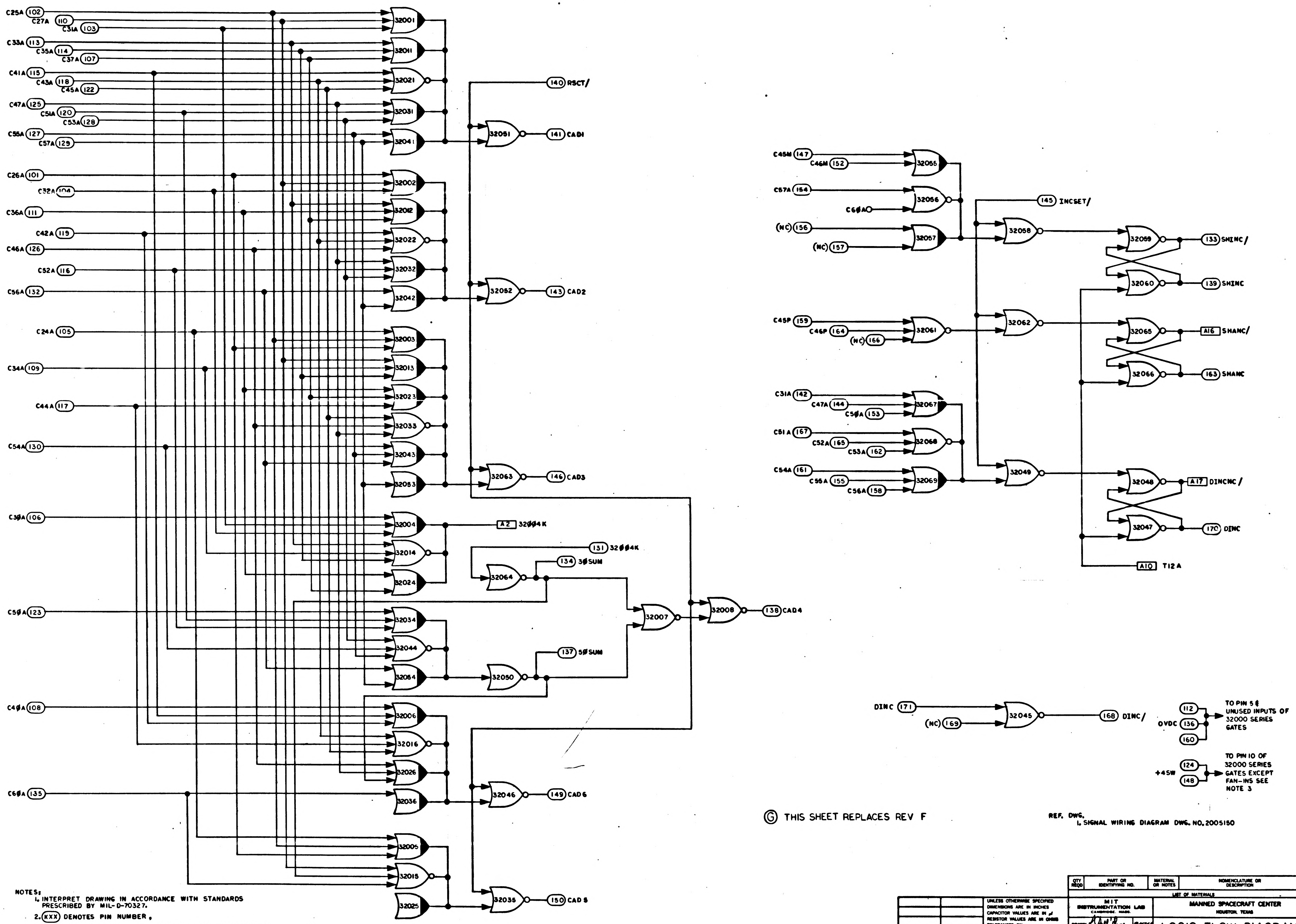
LOGIC FLOW DIAGRAM
MODULE NO. A21
COUNTER CELL II

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005050
SCALE NONE
SHEET 1 OF

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

	SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
Ⓜ	G		THIS SHEET REPLACES REV F PER TDRR 23982				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133 SHINC/
139 SHINC
A16 SHANC/
163 SHANC
A17 DINCNC/
170 DINC
A10 T12A
DINC 171
(NC) 169
32045
168 DINC/
OVDC
112
136
160
TO PIN 5 & UNUSED INPUTS OF 32000 SERIES GATES
+4SW
124
148
TO PIN 10 OF 32000 SERIES GATES EXCEPT FAN-INS SEE NOTE 3

Ⓖ THIS SHEET REPLACES REV F

REF. DWG.
1. SIGNAL WIRING DIAGRAM DWG. NO. 2005150

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. (XXX) DENOTES PIN NUMBER,
XXX DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE.
3. SEE DWG. NO. 2005011 FOR LOGIC DESIGN CRITERIA.

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± ___ DECIMALS ± ___ ANGLES ± ___
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	[illegible]	
CHECKED		
APPROVED		
APPROVED	Eldon C. Hall	
APPROVED MIT	A. C. Metzger	
APPROVED MSC		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

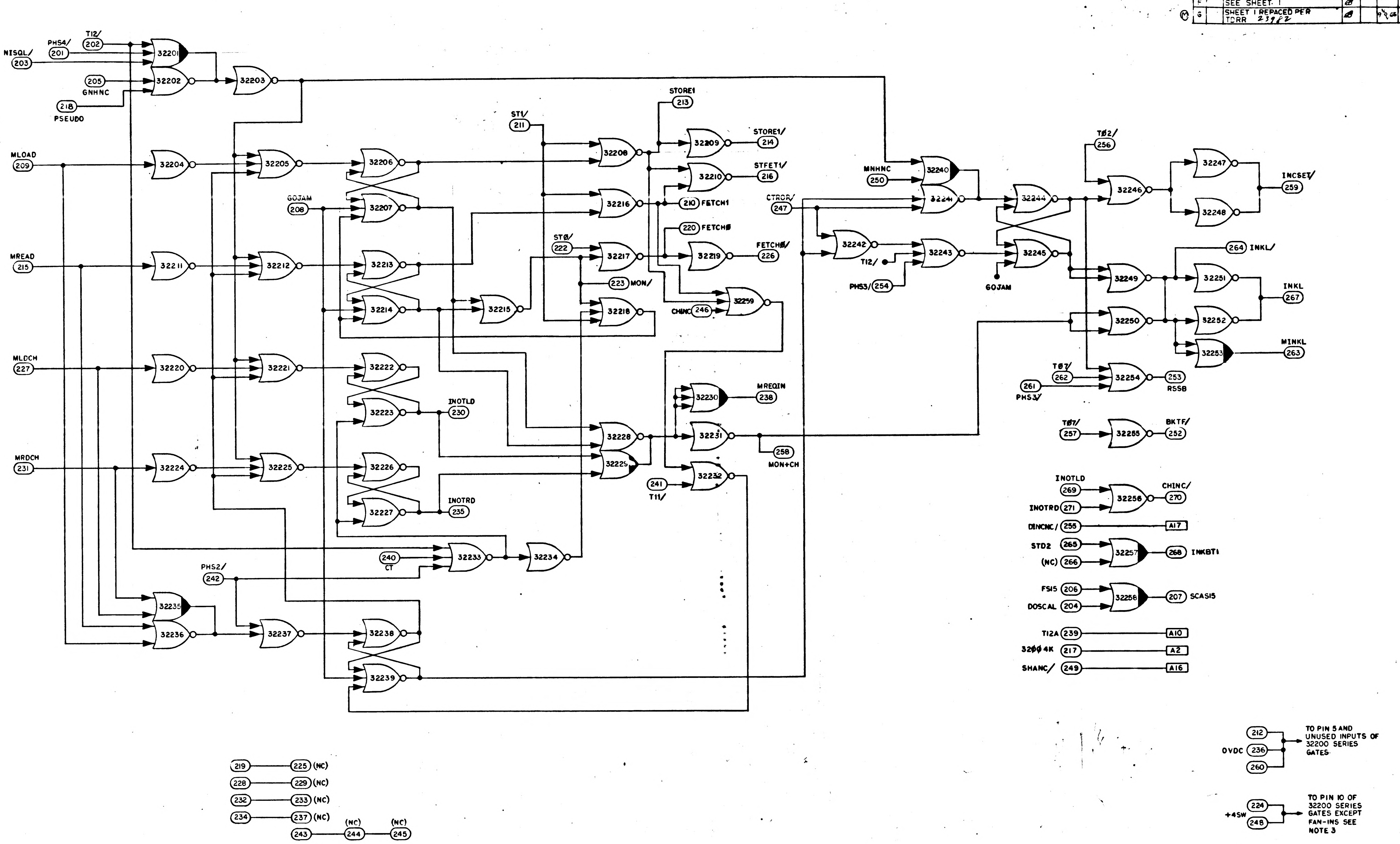
LOGIC FLOW DIAGRAM
MODULE NO. A21
COUNTER CELL II

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2005050
SCALE NONE		SHEET 1 OF 2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17723

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 18032	JFW			
B		REVISED PER TDRR 18508				
C		REVISED PER TDRR 20987		EPK	7/27/65	WK
D		REVISED PER TDRR 21403	KCH			
E		REVISED PER TDRR 23154				WK
F		SEE SHEET 1				
G		SHEET 1 REPACED PER TDRR 23982				WK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GOJAM 208
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STORE1/ 214
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T07/ 257
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DINCNC/ 255
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DOSCAL 204
32258
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A16
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228 229 (NC)
232 233 (NC)
234 237 (NC)
243 (NC) 244 (NC) 245
0VDC 212 236 260
TO PIN 5 AND UNUSED INPUTS OF 32200 SERIES GATES
+4SW 224 248
TO PIN 10 OF 32200 SERIES GATES EXCEPT FAN-INS SEE NOTE 3

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
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DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN W. Horgan 10 Mar 65
CHECKED 19 Mar 65
APPROVED 19 Mar 65
APPROVED Eldon C Hall 19 Mar 65
APPROVED MIT W Kupfer 23 Mar 65
APPROVED MSC 23 Mar 65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A21
COUNTER CELL II

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005050
SCALE ——
SHEET 2 OF 3

NOTICE WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17783

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 18032	JFW	CAP		WK
B		REVISED PER TDRR 18508	[illegible]	[illegible]	[illegible]	WK
C		REVISED PER TDRR 20987	[illegible]	[illegible]	[illegible]	WK
D		REVISED PER TDRR 21403	KCH	[illegible]	12 Aug 65	[illegible]
E		REVISED PER TDRR 23154	DSD		[illegible]	[illegible]
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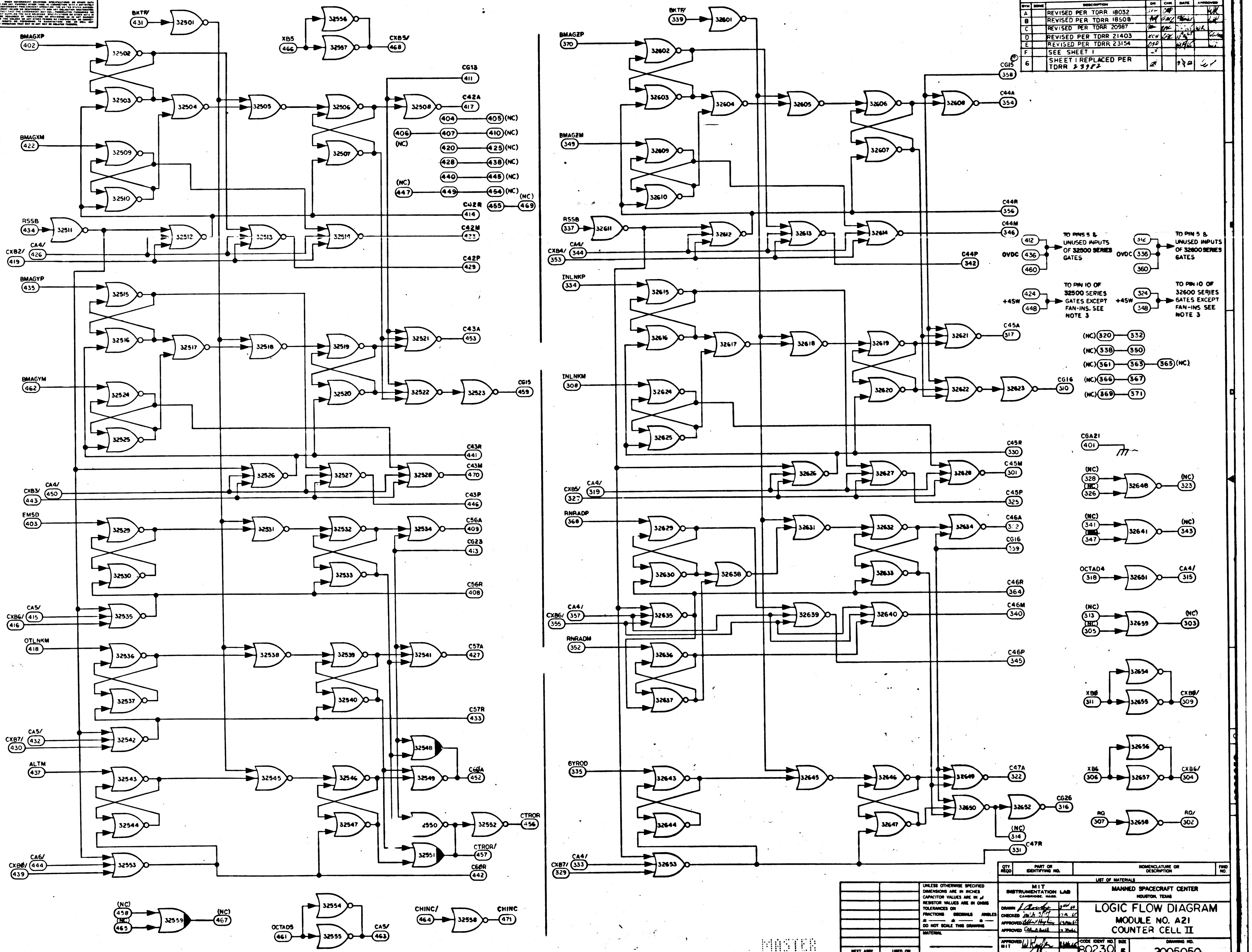
6		SHEET 1 REPLACED PER TDRR 23982	[illegible]		[illegible]	[illegible]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C43P
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CG15
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TO PINS 5 & UNUSED INPUTS OF 32500 SERIES GATES
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TO PINS 5 & UNUSED INPUTS OF 32600 SERIES GATES
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TO PIN 10 OF 32500 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
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TO PIN 10 OF 32600 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
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MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	J Brodeur	9 Nov 64
CHECKED	[illegible]	17 Jan 65
APPROVED	Albert Hopkins	19 Mar 65
APPROVED	[illegible]	[illegible]
APPROVED MIT	W Kupfer	[illegible]
APPROVED MSC	[illegible]	[illegible]
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A21
COUNTER CELL II

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2005050

SCALE NONE SHEET 3 OF

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED	
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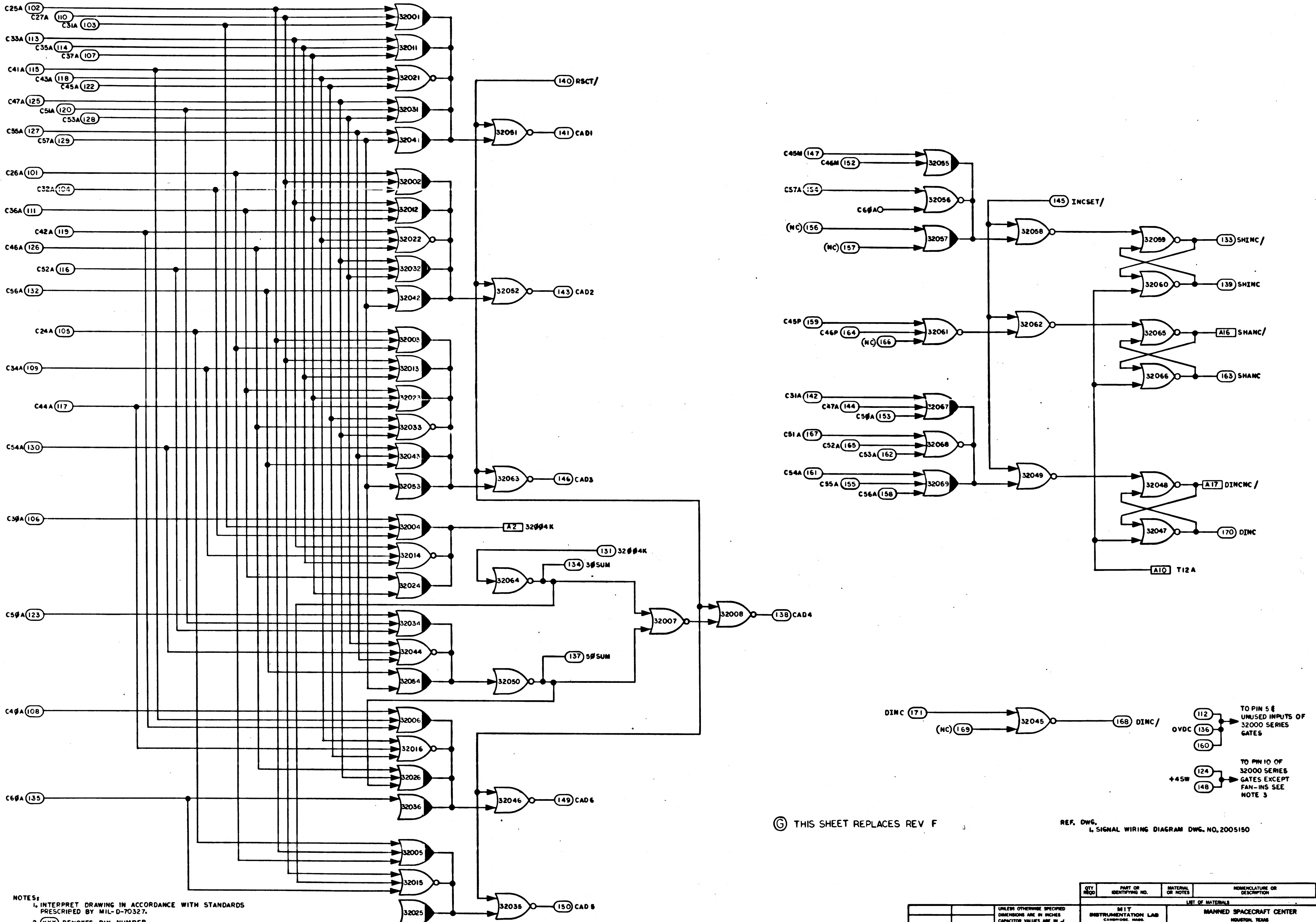
H		REVISED PER TDRR 25422					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A16 SHANC/
163 SHANC
A17 DINCNC/
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TO PIN 5 & UNUSED INPUTS OF 32000 SERIES GATES
+4SW
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TO PIN 10 OF 32000 SERIES GATES EXCEPT FAN-INS SEE NOTE 3

Ⓖ THIS SHEET REPLACES REV F

REF. DWG.
1. SIGNAL WIRING DIAGRAM DWG. NO. 2005150

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
2. (XXX) DENOTES PIN NUMBER.
   XXX DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE.
3. SEE DWG. NO. 2005011 FOR LOGIC DESIGN CRITERIA.

MASTER

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± ___ ± ___ ± ___
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A21
COUNTER CELL II

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2005050

SCALE NONE
SHEET 1 OF

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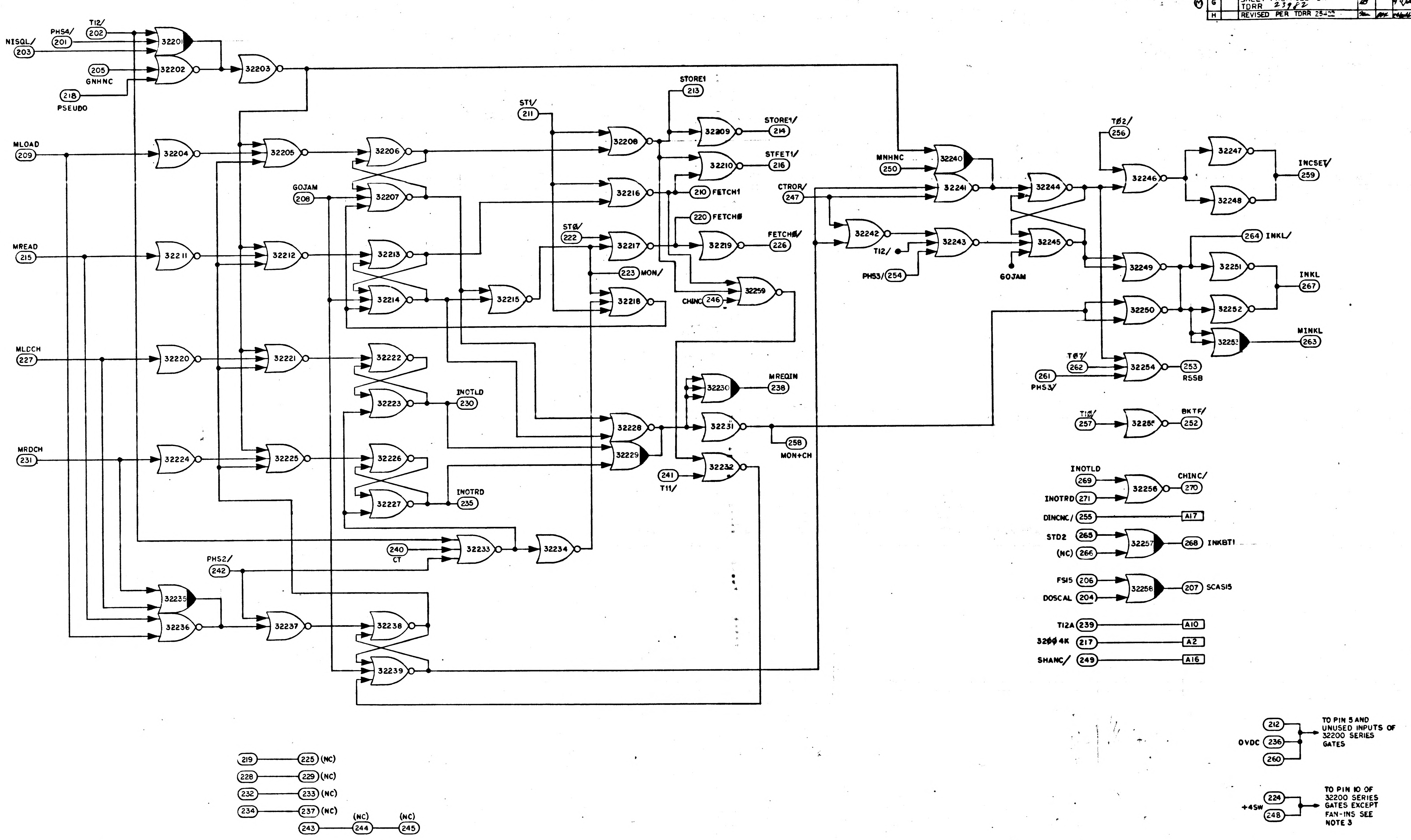
REVISIONS 19723

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 18032	JFW	CAP		WK
B		REVISED PER TDRR 18508	[illegible]	[illegible]	[illegible]	WK
C		REVISED PER TDRR 20987	[illegible]	EPK	7/27/65	WK
D		REVISED PER TDRR 21403	KCH	[illegible]	13 Aug 65	[illegible]
E		REVISED PER TDRR 23154	[illegible]		[illegible]	WK
F		SEE SHEET 1	[illegible]			
G		SHEET 1 REPACED PER TDRR 23982	[illegible]		9 Nov 65	WK
H		REVISED PER TDRR 25422	[illegible]	[illegible]	[illegible]	[illegible]



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STØ/ 222
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FSI5 206
DOSCAL 204
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207 SCASI5
T12A 239
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32004K 217
A2
SHANC/ 249
A16
212
OVDC 236
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TO PIN 5 AND UNUSED INPUTS OF 32200 SERIES GATES
224
+4SW 248
TO PIN 10 OF 32200 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
219 225 (NC)
228 229 (NC)
232 233 (NC)
234 237 (NC)
243 244 (NC) 245 (NC)

MASTER

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NEXT ASSY	USED ON

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MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN H. Horgan 10 Mar 65
CHECKED [illegible] 19 Mar 65
APPROVED Albert Hopkins 19 Mar 65
APPROVED Eldon C Hall 19 Mar 65
APPROVED MIT W Kupfer [illegible]
APPROVED MSC W J Rhine [illegible]
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

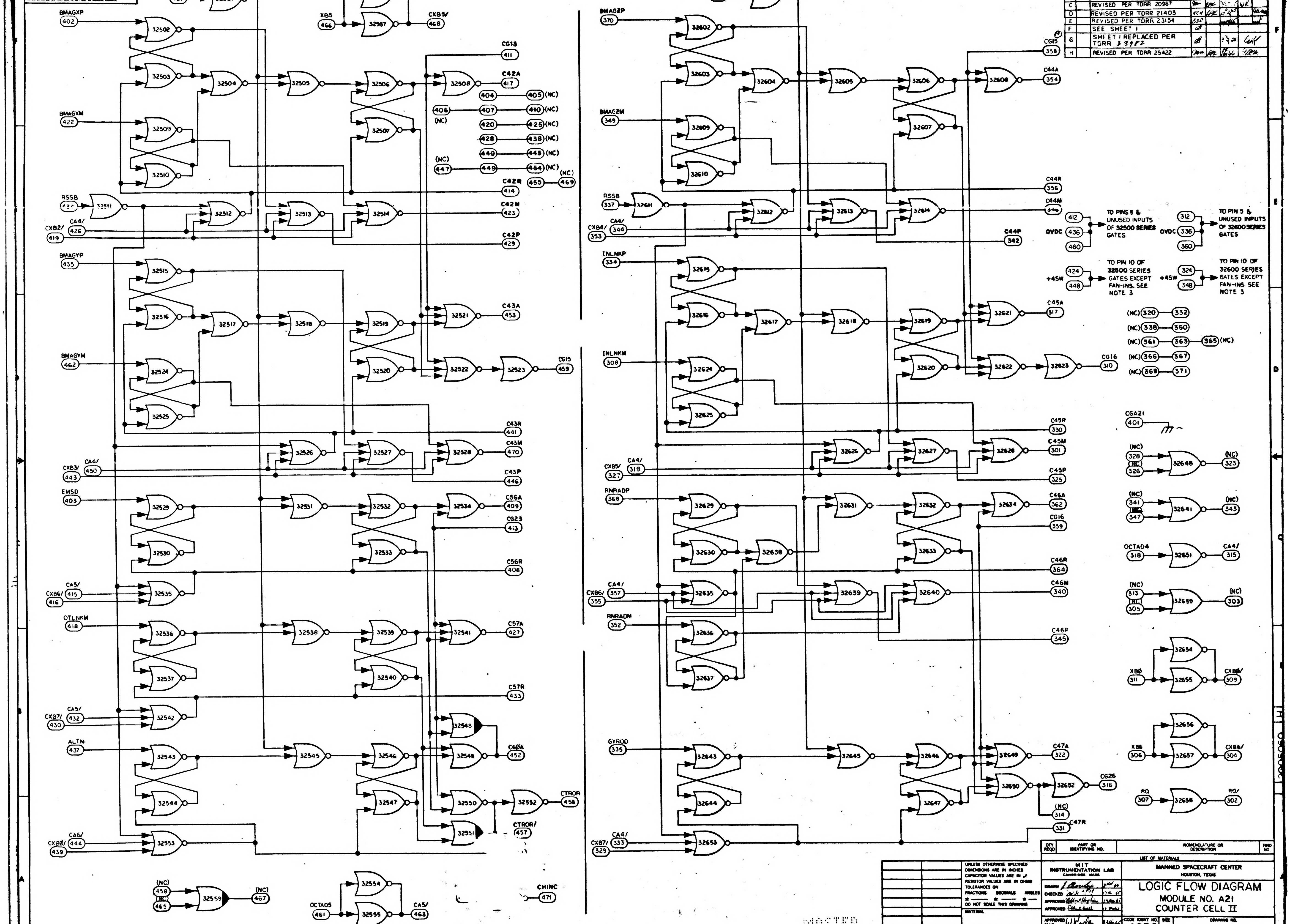
LOGIC FLOW DIAGRAM
MODULE NO. A21
COUNTER CELL II

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005050
SCALE
SHEET 2 OF 3

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19723

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 18032	JFW			
B		REVISED PER TDRR 18508				
C		REVISED PER TDRR 20987				WK
D		REVISED PER TDRR 21403	KCH		12 Aug 65	
E		REVISED PER TDRR 23154	DSD			
F		SEE SHEET 1				
G		SHEET 1 REPLACED PER TDRR 23982				
H		REVISED PER TDRR 25422			Jan 66	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TO PIN 5 & UNUSED INPUTS OF 32600 SERIES GATES
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TO PIN 10 OF 32500 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
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MASTER
H
2005050

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± —— ± —— ± ——
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN 9 Nov 64
CHECKED 1 Jan 65
APPROVED Albert Hopkins 19 Mar 65
APPROVED 19 Mar 65
APPROVED MIT W Kupfer 23 Mar 65
APPROVED MSC
DATE

LOGIC FLOW DIAGRAM
MODULE NO. A21
COUNTER CELL II

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2005050

SCALE NONE
SHEET 3 OF 4

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 19723						
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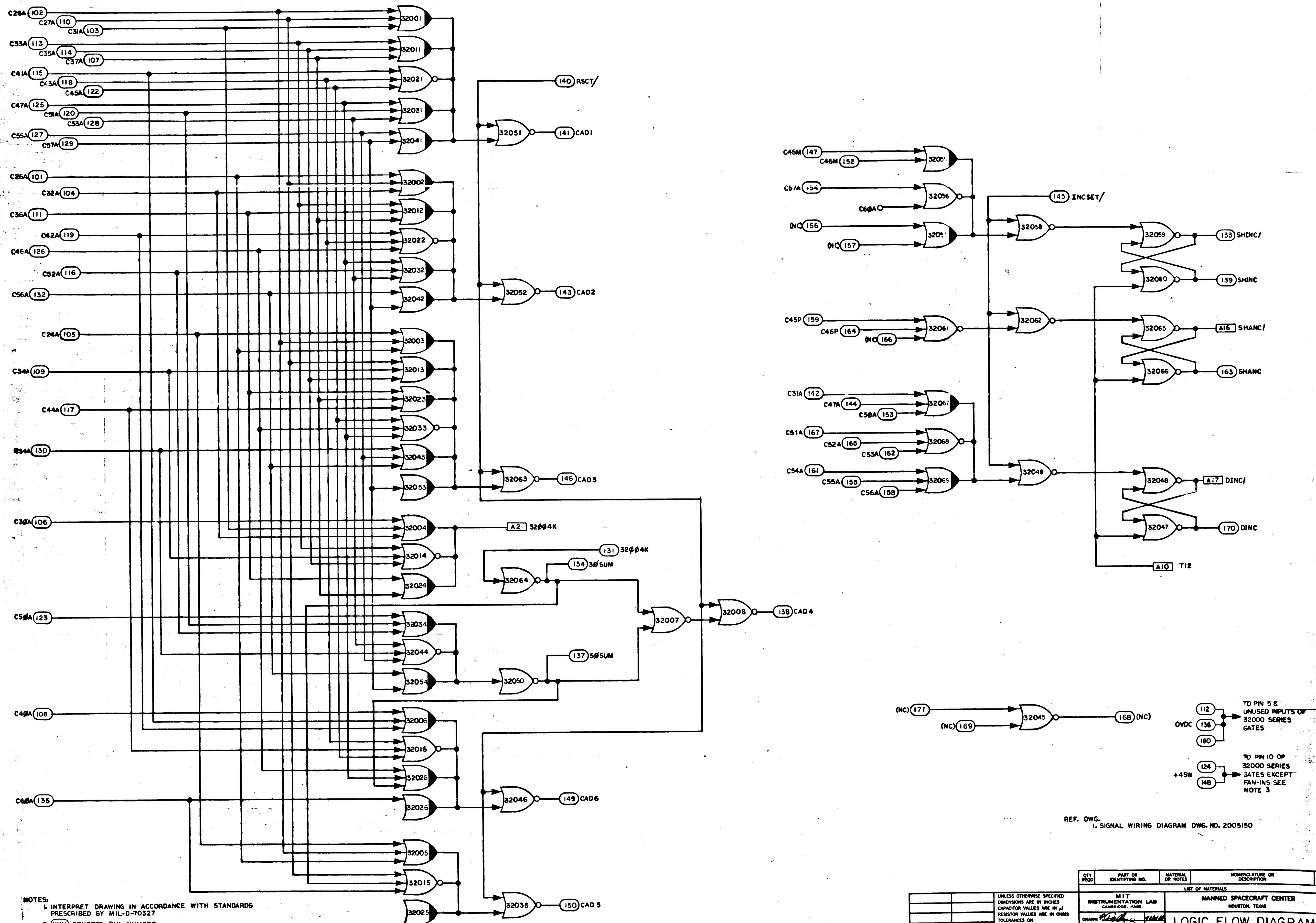
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C53A 162
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C55A 155
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168 (NC)
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112
136
160
TO PIN 5 & UNUSED INPUTS OF 32000 SERIES GATES
+4SW
124
148
TO PIN 10 OF 32000 SERIES GATES EXCEPT FAN-INS SEE NOTE 3

REF. DWG.
1. SIGNAL WIRING DIAGRAM DWG. NO. 2005150

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
XXX DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG. NO. 2005011 FOR LOGIC DESIGN CRITERIA

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED 3/11/65
APPROVED
APPROVED
APPROVED MIT 23 Mar 65
APPROVED MSC 3-23-65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

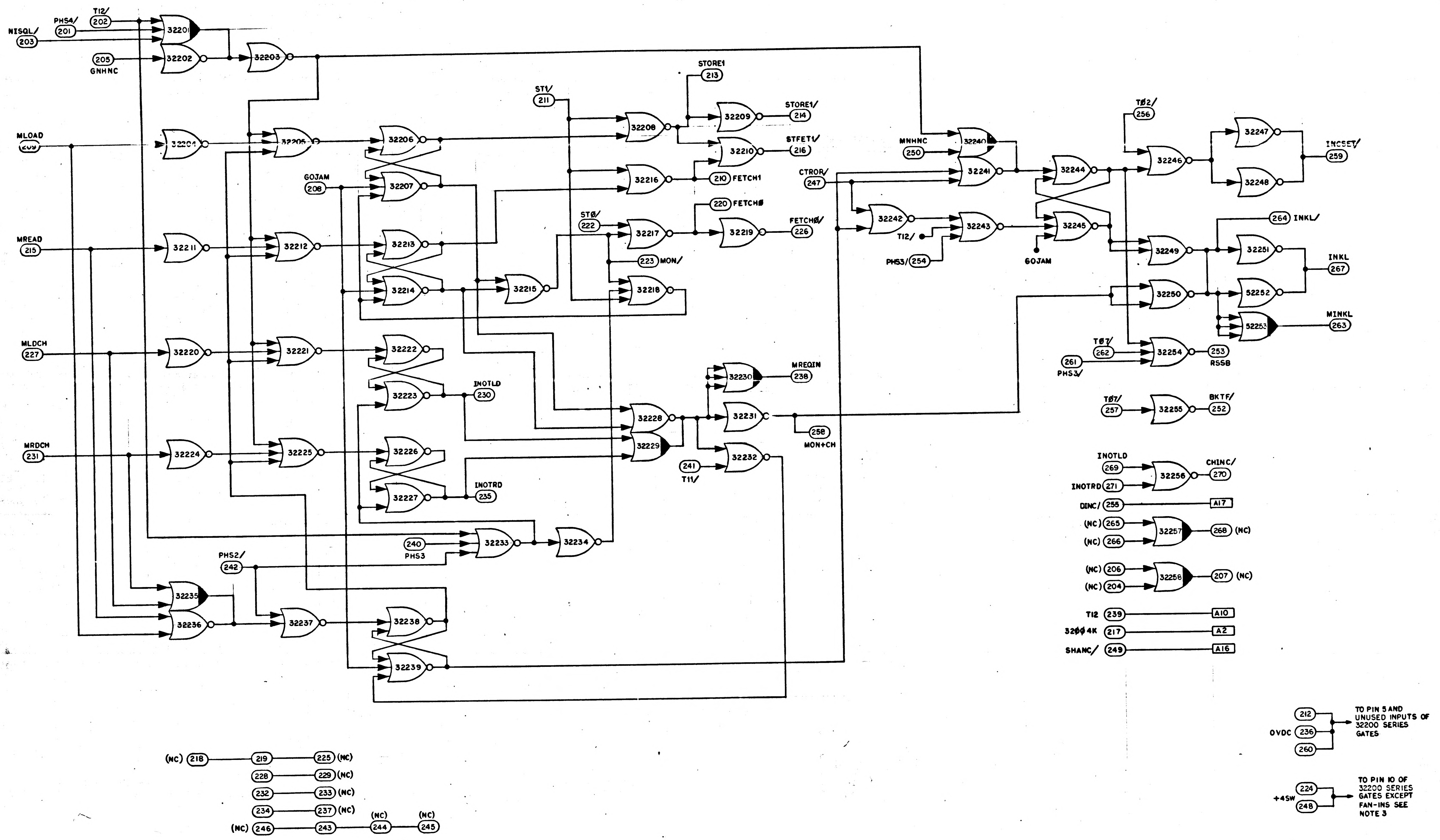
LOGIC FLOW DIAGRAM
MODULE NO. A21
COUNTER CELL II

CODE IDENT NO.
SIZE E
DRAWING NO. 2005050
SCALE NONE
SHEET 1 OF 3

2005050

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17723						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



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TO PIN 5 AND UNUSED INPUTS OF 32200 SERIES GATES
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TO PIN 10 OF 32200 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
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MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION		FIND NO.
LIST OF MATERIALS				

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	W. Horgan	10 Mar 65
CHECKED		19 Mar 65
APPROVED	Albert Hopkins	19 Mar 65
APPROVED	Eldon C Hall	15 Mar 65
APPROVED MIT	W Kupfer	23 Mar 65
APPROVED MSC	W J Rhine	4-23-65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

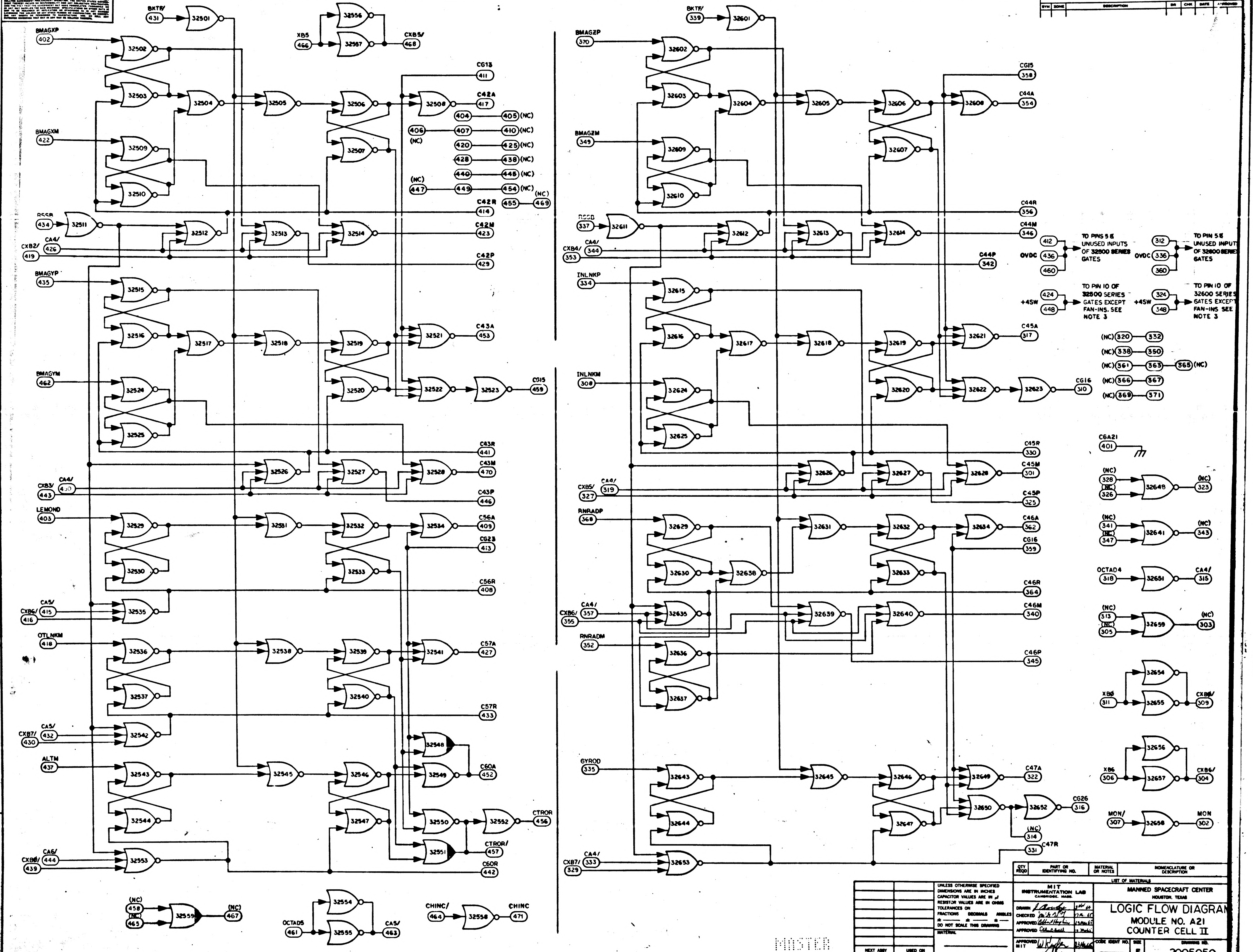
LOGIC FLOW DIAGRAM
MODULE NO. A21
COUNTER CELL II

CODE IDENT NO.	SIZE	DRAWING NO.
—	E	2005050
SCALE —		SHEET 2 OF 3

NOTICE WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17723

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED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CA5/ 415
CXB6/ 416
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CA4/ 357
CXB6/ 355
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C44P 342
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CG16 310
C45R 330
C45M 301
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OVDC 336
360
TO PIN 5 & UNUSED INPUTS OF 32600 SERIES GATES
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TO PIN 10 OF 32500 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
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TO PIN 10 OF 32600 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
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MON/ 307 32658 MON 302
MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ± —— ANGLES ± ——
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J. Bowley 9 Nov 64
CHECKED [illegible] 17 Mar 65
APPROVED Albert Hopkins 19 Mar 65
APPROVED [illegible] 19 Mar 65
APPROVED MIT W Kupfer 23 Mar 65
APPROVED MSC [illegible] 2 27 65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A21
COUNTER CELL II

CODE IDENT NO. ——
SIZE E
DRAWING NO. 2005050
SCALE NONE
SHEET 3

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17905

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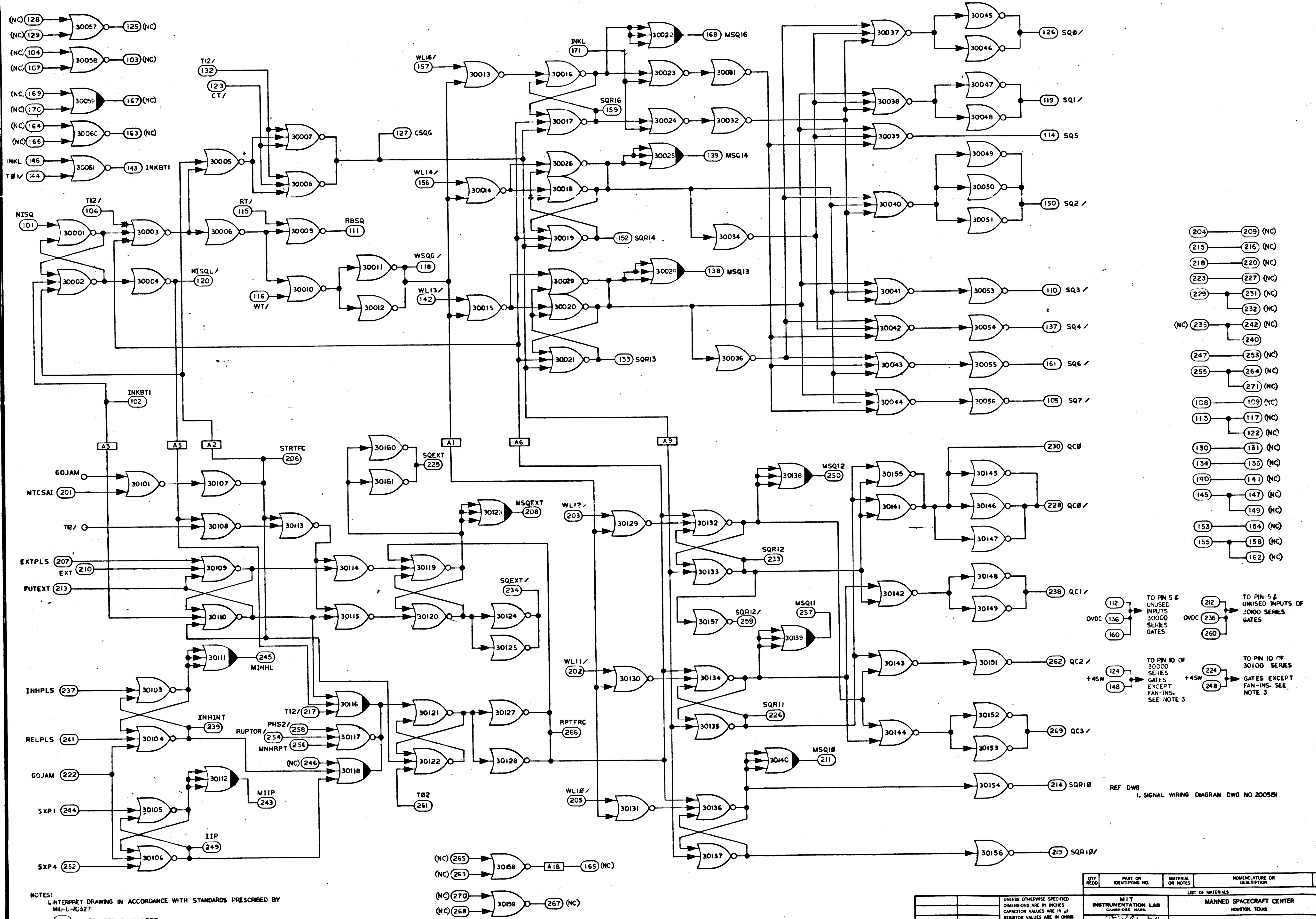
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219 SQR10/
OVDC
112
136
160
TO PIN 5 & UNUSED INPUTS 30000 SERIES GATES
212
236
260
TO PIN 5 & UNUSED INPUTS OF 30100 SERIES GATES
+4SW
124
148
TO PIN 10 OF 30000 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
224
248
TO PIN 10 OF 30100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
(NC) 265
(NC) 263
30158
A18
165 (NC)
(NC) 270
(NC) 268
30159
267 (NC)
6
5
4
3
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1
A

REF DWG
1. SIGNAL WIRING DIAGRAM DWG NO 2005151

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
XX DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG NO 2005011 FOR LOGIC DESIGN CRITERIA

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J.F. Walsh 2 Nov 64
CHECKED R. McG
APPROVED
APPROVED
APPROVED MIT W. Cyler
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A3
S Q REGISTER AND DECODING

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005051
SCALE NONE
SHEET 1 OF 2

MASTER

2005051 A

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17905

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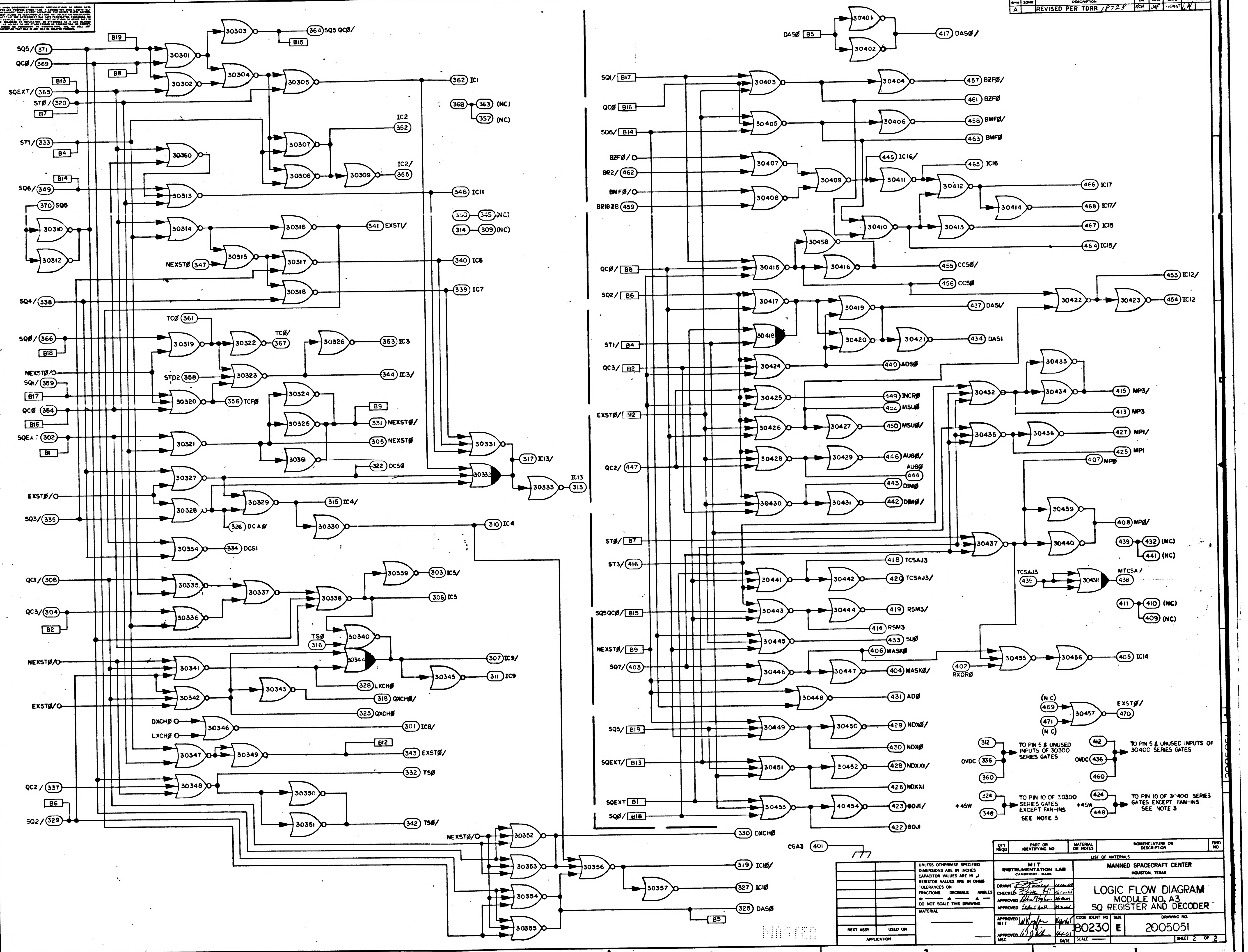
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ST1/ 333
SQ6/ 349
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SQ4/ 338
SQØ/ 366
NEXSTØ/
SQ1/ 359
QCØ 354
SQEXT 302
EXSTØ/
SQ3/ 335
QC1/ 308
QC3/ 304
NEXSTØ/
EXSTØ/
DXCHØ
LXCHØ
QC2/ 337
SQ2/ 329
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B15
362 IC1
368
363 (NC)
357 (NC)
IC2 352
IC2/ 355
346 IC11
350 345 (NC)
314 309 (NC)
341 EXST1/
NEXSTØ 347
340 IC6
339 IC7
TCØ 361
TCØ/ 367
353 IC3
STD2 358
344 IC3/
356 TCFØ
B9
331 NEXSTØ/
305 NEXSTØ
322 DCSØ
317 IC13/
IC13 313
315 IC4/
326 DCAØ
310 IC4
334 DCS1
303 IC5/
306 IC5
TSØ 316
307 IC9/
311 IC9
328 LXCHØ
318 QXCHØ/
323 QXCHØ
301 IC8/
B12
343 EXSTØ/
332 TSØ
342 TSØ/
NEXSTØ/
330 DXCHØ
319 IC1Ø/
327 IC1Ø
325 DASØ
B5
DASØ B5
30401
30402
417 DASØ/
SQ1/ B17
QCØ B16
SQ6/ B14
BZFØ/
BR2/ 462
BMFØ/
BR1B2B 459
QCØ/ B8
SQ2/ B6
ST1/ B4
QC3/ B2
EXSTØ/ B12
QC2/ 447
STØ/ B7
ST3/ 416
SQ5QCØ/ B15
NEXSTØ/ B9
SQ7/ 403
SQ5/ B19
SQEXT/ B13
SQEXT B1
SQØ/ B18
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458 BMFØ/
463 BMFØ
445 IC16/
465 IC16
466 IC17
468 IC17/
467 IC15
464 IC15/
455 CCSØ/
456 CCSØ
453 IC12/
454 IC12
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434 DAS1
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449 INCRØ
452 MSUØ
450 MSUØ/
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AUGØ 444
443 DIMØ
442 DIMØ/
415 MP3/
413 MP3
427 MP1/
425 MP1
407 MPØ
408 MPØ/
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441 (NC)
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420 TCSAJ3/
TCSAJ3 435
MTCSA/ 438
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410 (NC)
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426 NDXX1
423 GOJ1/
422 GOJ1
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312
336
360
TO PIN 5 & UNUSED INPUTS OF 30300 SERIES GATES
412
436
460
TO PIN 5 & UNUSED INPUTS OF 30400 SERIES GATES
+4SW
324
348
TO PIN 10 OF 30300 SERIES GATES EXCEPT FAN-INS
SEE NOTE 3
424
448
TO PIN 10 OF 30400 SERIES GATES EXCEPT FAN-INS
SEE NOTE 3
CGA3 401
MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± —— ± —— ± ——
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

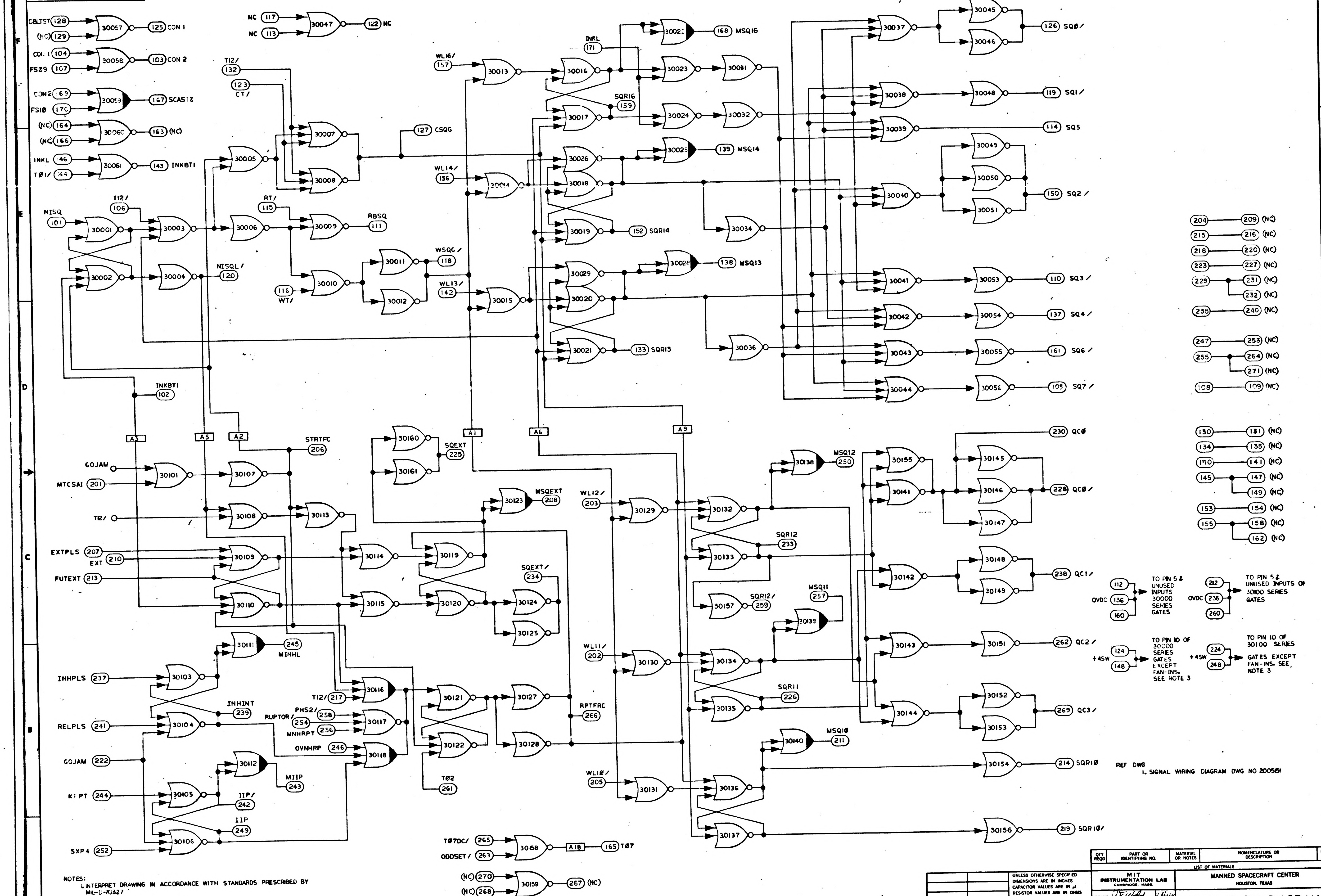
LOGIC FLOW DIAGRAM
MODULE NO. A3
SQ REGISTER AND DECODER

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005051
SCALE ——
SHEET 2 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17905

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 18728	KCH	CAP	2 MAY 65	WR
B		REVISED PER TDRR 20983	ES			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20058
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(NC) 166
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163 (NC)
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30061
143 INKBT1
NC 117
NC 113
30047
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30008
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T12/ 106
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NISQL/ 120
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30009
RBSQ 111
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A5
A2
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IIP 249
30106
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30122
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WL10/ 205
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MSQ12 250
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SQR12/ 259
MSQ11 257
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30134
30135
SQR11 226
30140
MSQ10 211
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214 SQR10
30156
219 SQR10/
30155
30141
30145
30146
30147
230 QC0
228 QC0/
30142
30148
30149
238 QC1/
30143
30151
262 QC2/
30144
30152
30153
269 QC3/
OVDC 112 136 160
TO PIN 5 & UNUSED INPUTS 30000 SERIES GATES
OVDC 212 236 260
TO PIN 5 & UNUSED INPUTS OF 30100 SERIES GATES
+4SW 124 148
TO PIN 10 OF 30000 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 224 248
TO PIN 10 OF 30100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
TØ7DC/ 265
ODDSET/ 263
30158
A18
165 TØ7
(NC) 270
(NC) 268
30159
267 (NC)

REF DWG
1. SIGNAL WIRING DIAGRAM DWG NO 2005151

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
XX DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG NO 2005011 FOR LOGIC DESIGN CRITERIA

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J.F. Walsh 2 Nov 64
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A3
S Q REGISTER AND DECODING

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005051
SCALE NONE
SHEET 1 OF 2

2005051 B

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17905

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
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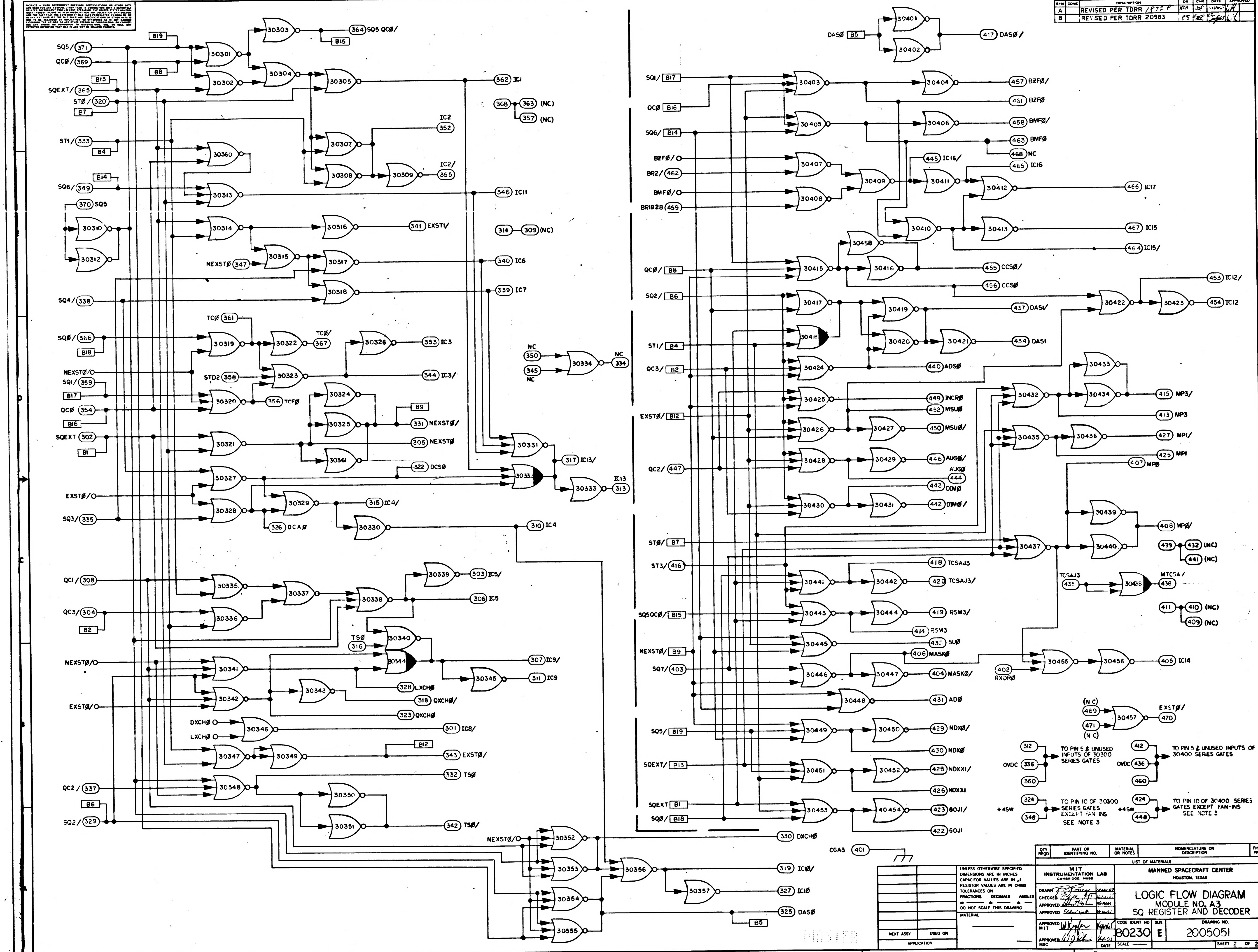
B		REVISED PER TDRR 20983	ES		22	



SQ5/ 371
QC0/ 369
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SQ0/ 366
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TC0/ 367
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SQ1/ 359
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SQ3/ 335
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QC3/ 304
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BMF0/
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BR1B2B 459
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TCSAJ3 435
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MTCSA/ 438
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430 NDX0
SQEXT/ B13
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30452
428 NDXX1/
426 NDXX1
312
OVDC 336
360
TO PIN 5 & UNUSED INPUTS OF 30300 SERIES GATES
412
OVDC 436
460
TO PIN 5 & UNUSED INPUTS OF 30400 SERIES GATES
SQEXT B1
SQ0/ B18
30453
40454
423 GOJ1/
422 GOJ1
+4SW
324
348
TO PIN 10 OF 30300 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
+4SW
424
448
TO PIN 10 OF 30400 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
CGA3 401

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN
CHECKED
APPROVED Albert Hopkins
APPROVED Eldon Hall
APPROVED MIT
APPROVED MSC
DATE

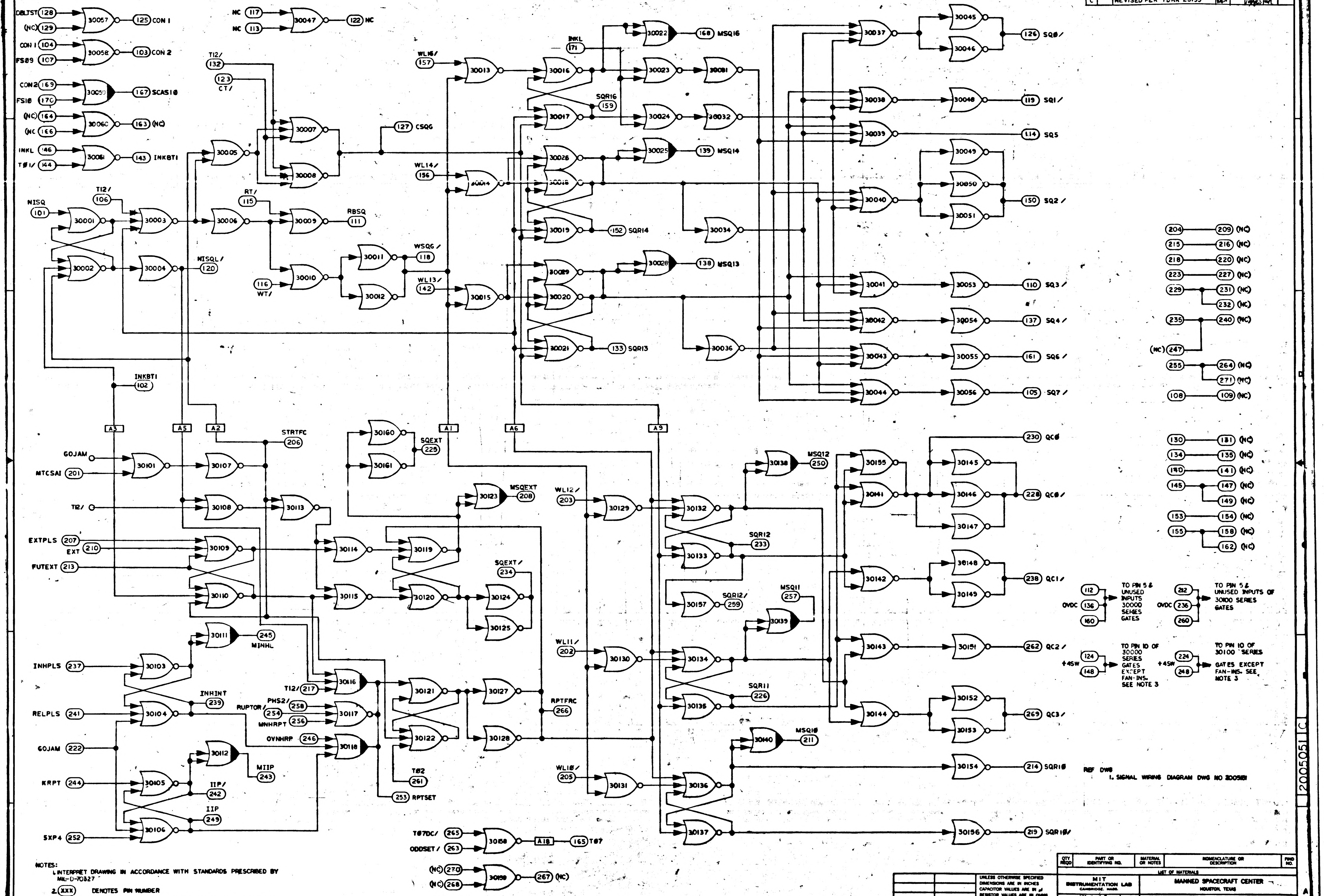
LOGIC FLOW DIAGRAM
MODULE NO. A3
SQ REGISTER AND DECODER

CODE IDENT NO 80230
SIZE E
DRAWING NO. 2005051
SCALE —
SHEET 2 OF 2

2005051 B

REVISIONS 17905

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 18728	RCH	CAP	3 MAY 65	WK
B		REVISED PER TDRR 20983	PTS		25 65	WK
C		REVISED PER TDRR 23155	WRS		65	WK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(NC) 166
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NC 113
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RT/ 115
30009
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116 WT/
30011
30012
WSQG/ 118
NISQL/ 120
WL16/ 157
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WL14/ 156
30014
WL13/ 142
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A2
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155 158 (NC)
162 (NC)
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RELPLS 241
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GOJAM 222
30112
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KRPT 244
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IIP 249
SXP4 252
30106
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PHS2/ 258
RUPTOR/ 254
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253 RPTSET
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MSQ11 257
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MSQ10 211
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228 QC0/
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30149
238 QC1/
30143
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262 QC2/
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30152
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269 QC3/
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214 SQR10
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219 SQR10/
T07DC/ 265
ODDSET/ 263
30158
A18
165 T07
(NC) 270
(NC) 268
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267 (NC)
0VDC 112 136 160
TO PIN 5 & UNUSED INPUTS 30000 SERIES GATES
0VDC 212 236 260
TO PIN 5 & UNUSED INPUTS OF 30100 SERIES GATES
+4SW 124 148
TO PIN 10 OF 30000 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 224 248
TO PIN 10 OF 30100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
REF DWG
1. SIGNAL WIRING DIAGRAM DWG NO 2005181

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER

   XX DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG NO 2005011 FOR LOGIC DESIGN CRITERIA

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J.F. 2 Mar 64
CHECKED mcD
APPROVED
APPROVED
APPROVED MIT W. Cooper
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A3
S Q REGISTER AND DECODING

CODE IDENT NO. 80230 SIZE E DRAWING NO. 2005051

SCALE NONE SHEET 1 OF 2

2005051 C

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REVISIONS 17905

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
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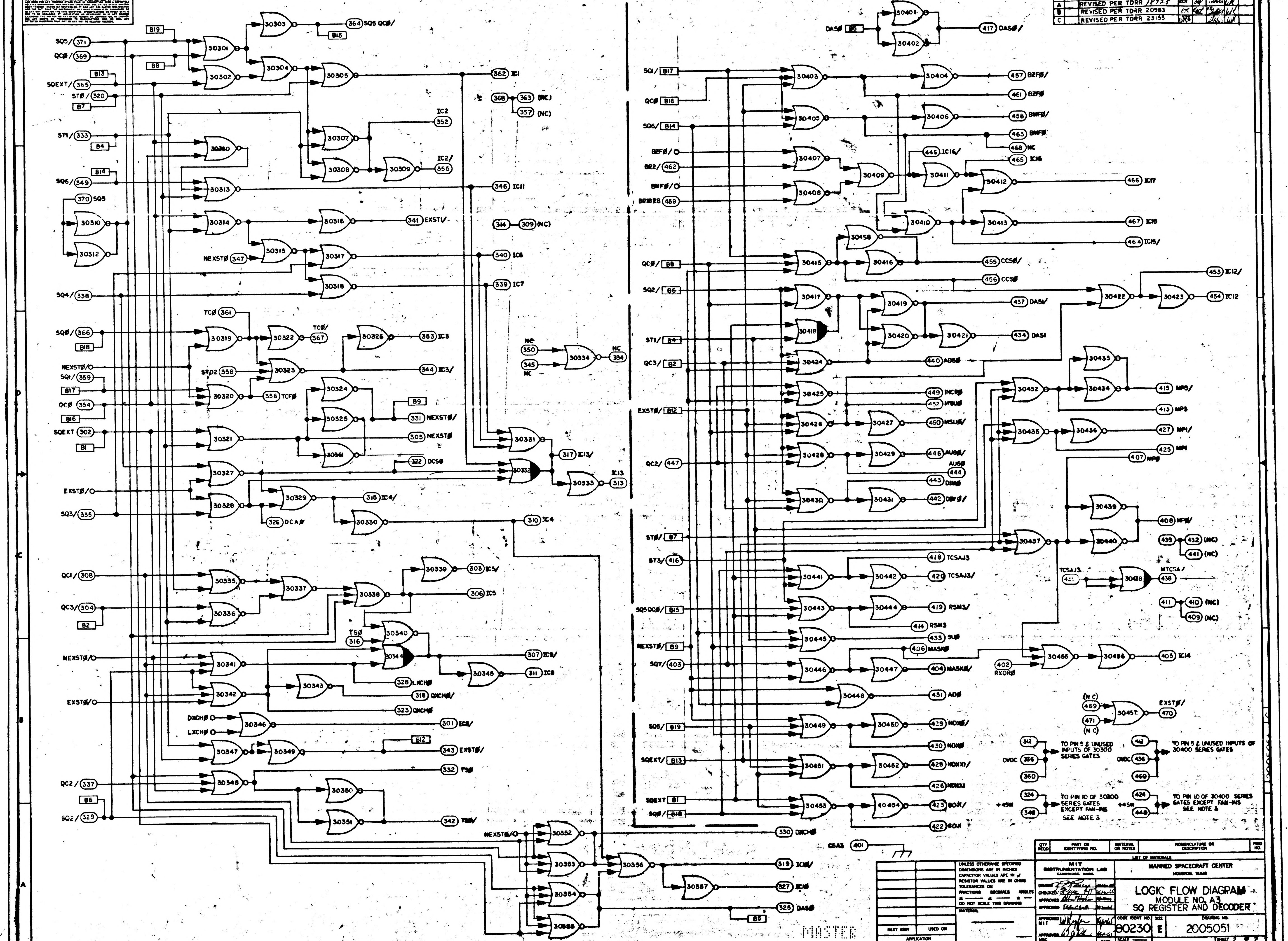
B		REVISED PER TDRR 20983				
C		REVISED PER TDRR 23155				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357 (NC)
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TC0/ 367
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QC0 354
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B9
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NC 334
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IC13 313
EXST0/
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326 DCA0
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303 IC5/
306 IC5
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323 QXCH0
DXCH0
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343 EXST0/
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342 TS0/
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330 DXCH0
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30356
319 IC10/
30354
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327 IC10
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DAS0 B5
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417 DAS0/
SQ1/ B17
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461 BZF0
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468 NC
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456 CCS0
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312
TO PIN 5 & UNUSED INPUTS OF 30300 SERIES GATES
OVDC 336
360
412
TO PIN 5 & UNUSED INPUTS OF 30400 SERIES GATES
OVDC 436
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30452
428 NDXX1/
426 NDXX1
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TO PIN 10 OF 30300 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
424
448
+4SW
TO PIN 10 OF 30400 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
SQEXT B1
SQ0/ B18
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423 GOJ1/
422 GOJ1
GSA3 401
MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN
CHECKED 26 Mar 65
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

LOGIC FLOW DIAGRAM
MODULE NO. A3
SQ REGISTER AND DECODER

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005051
SCALE
SHEET 2 OF 2

REVISIONS 7905

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

6 5 4 3 2 1

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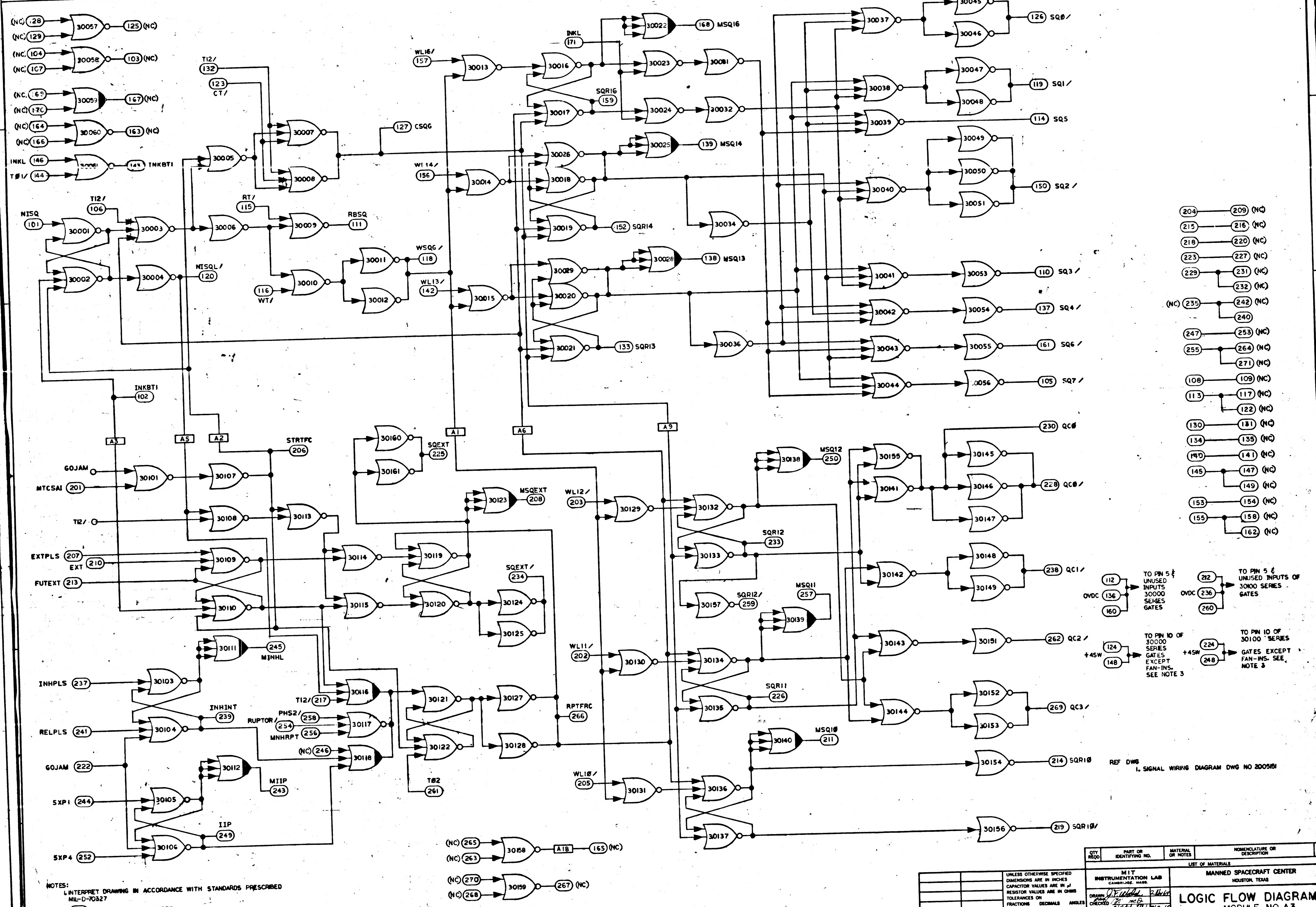
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SQR11 226
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219 SQR10/
112
OVDC 136
160
TO PIN 5 & UNUSED INPUTS 30000 SERIES GATES
212
OVDC 236
260
TO PIN 5 & UNUSED INPUTS OF 30100 SERIES GATES
+4SW 124 148
TO PIN 10 OF 30000 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 224 248
TO PIN 10 OF 30100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

REF DWG
1. SIGNAL WIRING DIAGRAM DWG NO 2005151

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED MIL-D-70327
2. ⬭ DENOTES PIN NUMBER
▭ DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG NO 2005011 FOR LOGIC DESIGN CRITERIA

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

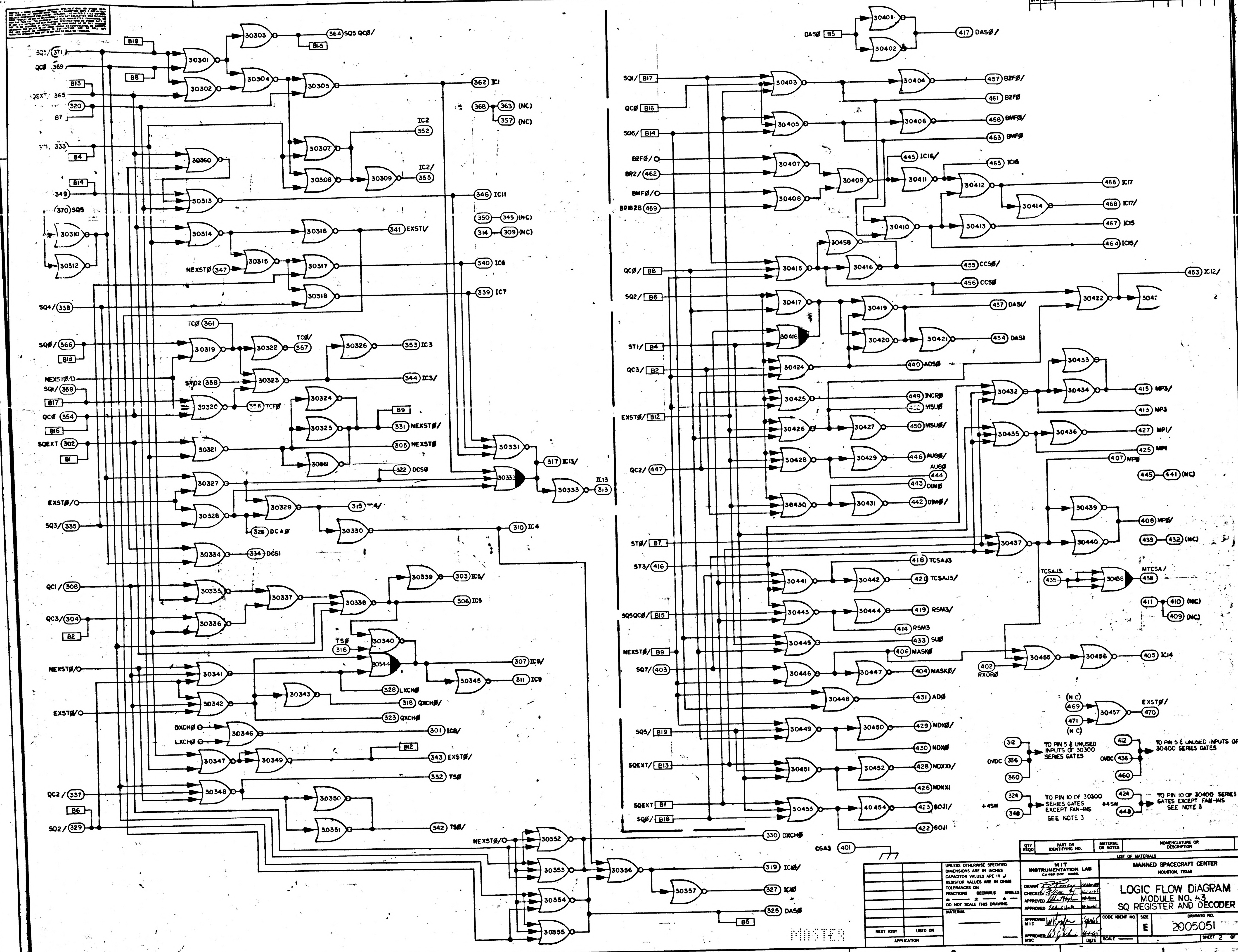
DRAWN J.F. Whitaker 2 Nov 64
CHECKED E. McD
APPROVED 31 Mar 65
APPROVED
APPROVED MIT W. Taylor 1 Apr 65
APPROVED MSC 4-1-65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A3
S Q REGISTER AND DECODING

CODE IDENT NO. —
SIZE E
DRAWING NO. 2005051
SCALE NONE
SHEET 1 OF 2

6 5 4 3 2 1


REVISIONS 17905
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MTCSA/
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423 GOJ1/
422 GOJ1
CSA3 401
OVDC 312 336 360
TO PIN 5 & UNUSED INPUTS OF 30300 SERIES GATES
OVDC 412 436 460
TO PIN 5 & UNUSED INPUTS OF 30400 SERIES GATES
+4SW 324 348
TO PIN 10 OF 30300 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
+4SW 424 448
TO PIN 10 OF 30400 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

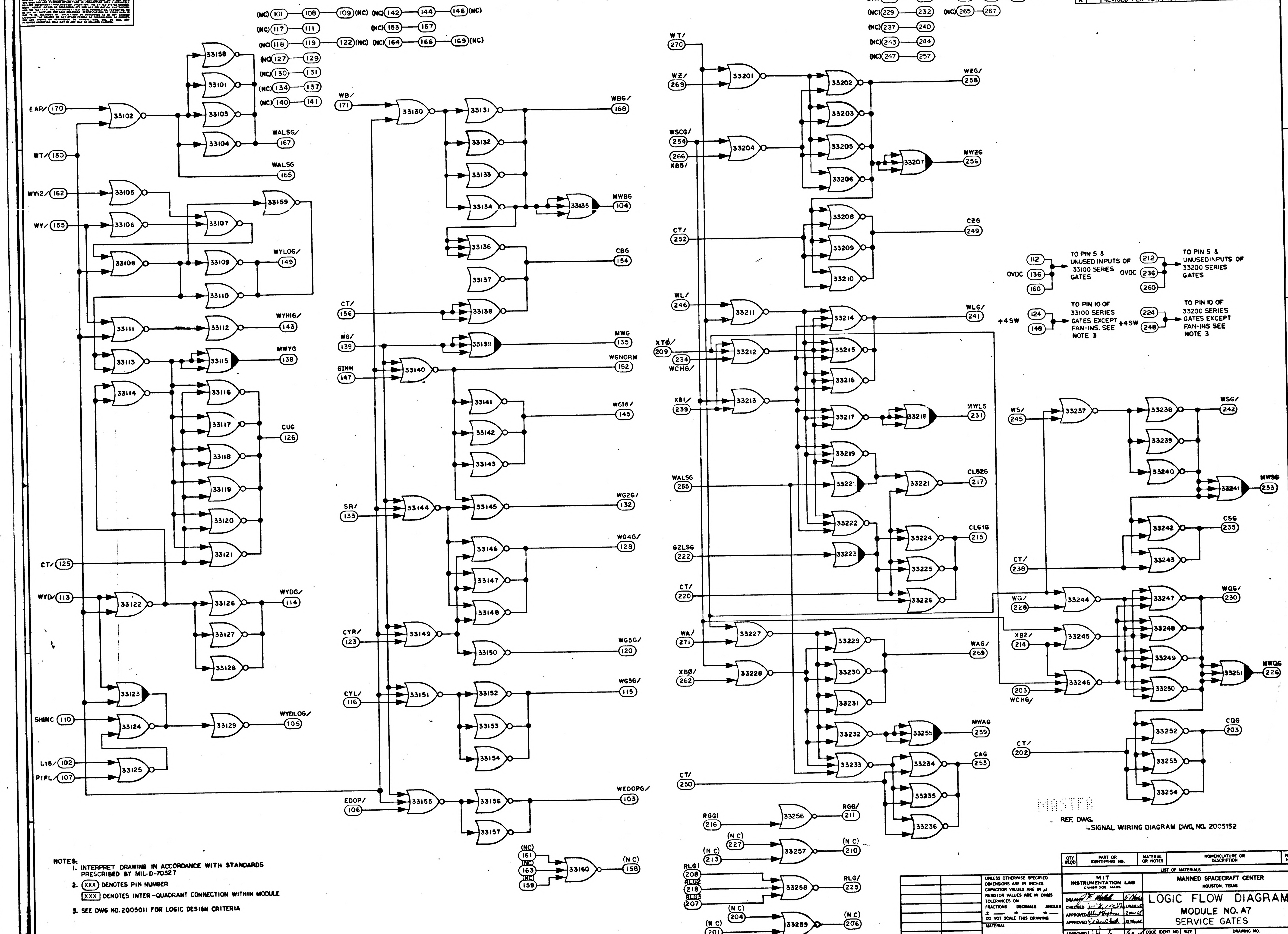
DRAWN R. Raney
CHECKED
APPROVED Albert Hopkins
APPROVED Eldon C Hall
APPROVED MIT W Kupfer
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. 43
SQ REGISTER AND DECODER

CODE IDENT NO. SIZE E DRAWING NO. 2005051

SCALE —— SHEET 2 OF 2



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MWƷG 256
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WA/ 271
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RLG3 207
33258
RLG/ 225
(NC) 204
(NC) 201
33259
(NC) 206
OVDC 112 136 160
TO PIN 5 & UNUSED INPUTS OF 33100 SERIES GATES
OVDC 212 236 260
TO PIN 5 & UNUSED INPUTS OF 33200 SERIES GATES
+4SW 124 148
TO PIN 10 OF 33100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 224 248
TO PIN 10 OF 33200 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
WS/ 245
33237
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WSG/ 242
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MWSG 233
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33243
CSG 235
CT/ 238
WQ/ 228
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33247
WQG/ 230
XB2/ 214
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33249
205 WCHG/
33246
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MWQG 226
CT/ 202
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CQG 203
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SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		REVISIONS 17473				
A		REVISED PER TDRR 18509		RC	24APR65	

MASTER

REF. DWG.
1. SIGNAL WIRING DIAGRAM DWG. NO. 2005152

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
 [XXX] DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG NO. 2005011 FOR LOGIC DESIGN CRITERIA

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
		LIST OF MATERIALS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± —— ± —— ± ——
DO NOT SCALE THIS DRAWING

MATERIAL
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MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	J. F. Walsh	5 Mar 65
CHECKED		11 MAR 65
APPROVED	Albert Hopkins	12 Mar 65
APPROVED	Eldon C. Hall	12 Mar 65
APPROVED MIT	W Kupfer	
APPROVED MSC		3/11/65
		DATE

LOGIC FLOW DIAGRAM
MODULE NO. A7
SERVICE GATES

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2005052
SCALE NONE		SHEET 1 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17473

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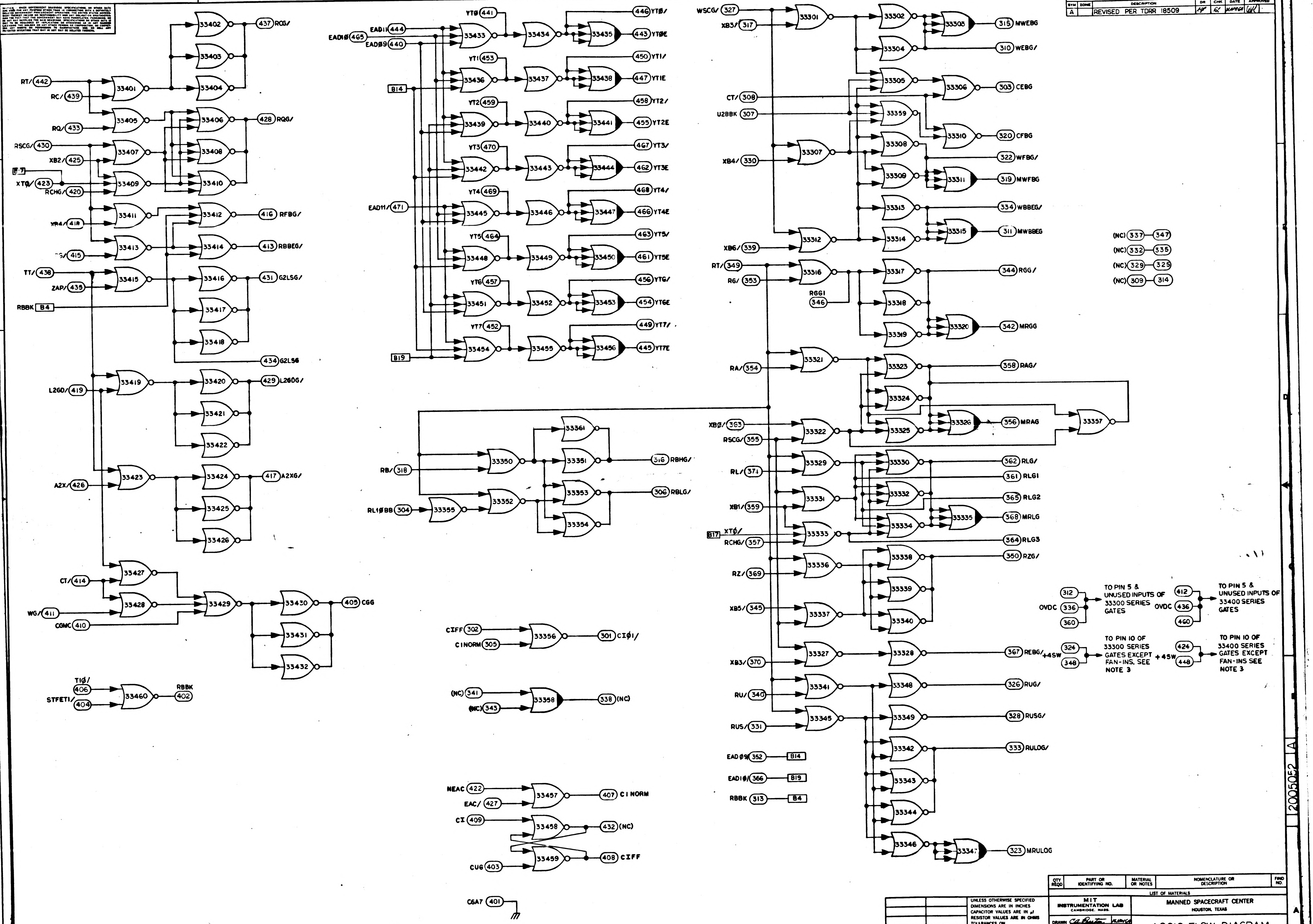
A		REVISED PER TDRR 18509			24APR66	WK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XTØ/ 423
RCHG/ 420
XB4/ 418
RG/ 415
TT/ 438
ZAP/ 435
RBBK B4
L2GD/ 419
A2X/ 426
CT/ 414
WG/ 411
CGMC 410
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416 RFBG/
413 RBBEG/
431 G2LSG/
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429 L2GDG/
417 A2XG/
405 CGG
YTØ 441
EAD11 444
EAD1Ø 465
EADØ9 440
YT1 453
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YT2 459
YT3 470
EAD11/ 471
YT4 469
YT5 464
YT6 457
YT7 452
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446 YTØ/
443 YTØE
450 YT1/
447 YT1E
458 YT2/
455 YT2E
467 YT3/
462 YT3E
468 YT4/
466 YT4E
463 YT5/
461 YT5E
456 YT6/
454 YT6E
449 YT7/
445 YT7E
RB/ 318
RL1ØBB 304
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306 RBLG/
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CINORM 305
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(NC) 343
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338 (NC)
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EAC/ 427
CI 409
CUG 403
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33458
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407 CI NORM
432 (NC)
408 CIFF
C6A7 401
WSCG/ 327
XB3/ 317
CT/ 308
U2BBK 307
XB4/ 330
XB6/ 339
RT/ 349
RG/ 353
RGG1 346
RA/ 354
XBØ/ 363
RSCG/ 355
RL/ 371
XB1/ 359
B17
XTØ/
RCHG/ 357
RZ/ 369
XB5/ 345
XB3/ 370
RU/ 340
RUS/ 331
EADØ9 352 B14
EAD1Ø 366 B19
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311 MWBBEG
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342 MRGG
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356 MRAG
362 RLG/
361 RLG1
365 RLG2
368 MRLG
364 RLG3
350 RZG/
367 REBG/
326 RUG/
328 RUSG/
333 RULOG/
323 MRULOG
(NC) 337 347
(NC) 332 335
(NC) 329 325
(NC) 309 314
OVDC 312 336 360
TO PIN 5 & UNUSED INPUTS OF 33300 SERIES GATES
OVDC 412 436 460
TO PIN 5 & UNUSED INPUTS OF 33400 SERIES GATES
+4SW 324 348
TO PIN 10 OF 33300 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 424 448
TO PIN 10 OF 33400 SERIES GATES EXCEPT FAN-INS SEE NOTE 3

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

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DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN C. A. Burton 15NOV64
CHECKED 11MAR65
APPROVED Albert Hopkins 12Mar65
APPROVED Eldon C. Hall 12Mar65
APPROVED MIT W. Kupfer 16Mar65
APPROVED MSC 3/17/65
DATE

LOGIC FLOW DIAGRAM
MODULE NO. A7
SERVICE GATES

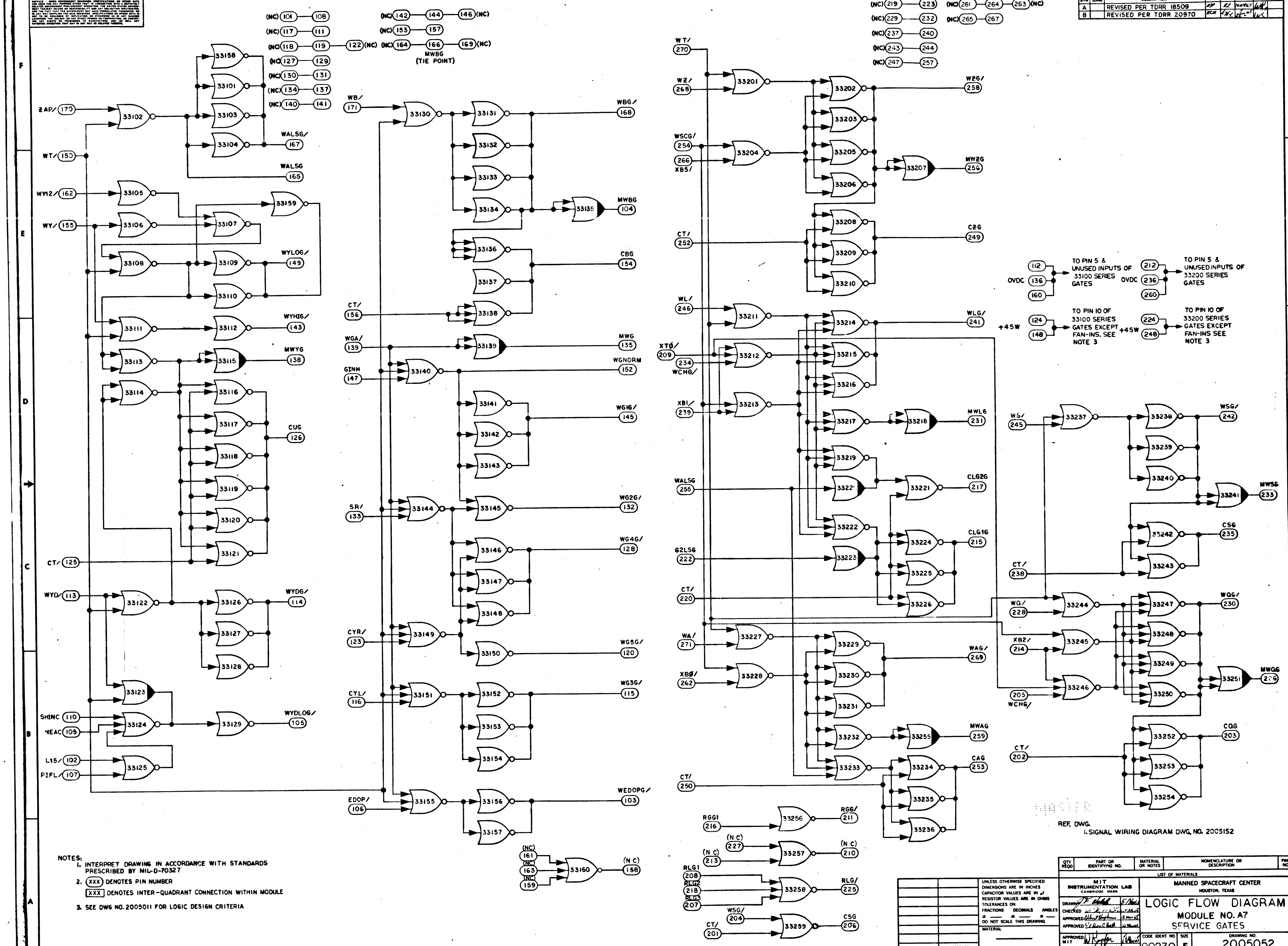
CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005052
SCALE
SHEET 2 OF 2

2005052 A

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17473

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 18509			24APR65	
B		REVISED PER TDRR 20970	KCN			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(NC) 127 — 129
(NC) 130 — 131
(NC) 134 — 137
(NC) 140 — 141
(NC) 142 — 144 — 146 (NC)
(NC) 153 — 157
(NC) 164 — 166 — 169 (NC)
MWBG (TIE POINT)
(NC) 219 — 223
(NC) 229 — 232
(NC) 237 — 240
(NC) 243 — 244
(NC) 247 — 257
(NC) 261 — 264 — 263 (NC)
(NC) 265 — 267
ZAP/ 170
WT/ 150
WY12/ 162
WY/ 155
CT/ 125
WYD/ 113
SHINC 110
NEAC 105
L15/ 102
PIFL/ 107
WALSG/ 167
WALSG 165
WYLOG/ 149
WYHIG/ 143
MWYG 138
CUG 126
WYDG/ 114
WYDLOG/ 105
WB/ 171
CT/ 156
WGA/ 139
GINH 147
SR/ 133
CYR/ 123
CYL/ 116
EDOP/ 106
WBG/ 168
MWBG 104
CBG 154
MWG 135
WGNORM 152
WGIG/ 145
WG2G/ 132
WG4G/ 128
WG5G/ 120
WG3G/ 115
WEDOPG/ 103
(NC) 161
(NC) 163
(NC) 159
(N C) 158
WT/ 270
WZ/ 268
WSCG/ 254
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CT/ 252
WL/ 246
XT0/ 209
234 WCHG/
XB1/ 239
WALSG 255
G2LSG 222
CT/ 220
WA/ 271
XB0/ 262
CT/ 250
RGG1 216
(N C) 227
(N C) 213
RLG1 208
RLG2 218
RLG3 207
WSG/ 204
CT/ 201
WZG/ 258
MWZG 256
CZG 249
WLG/ 241
MWLG 231
CLG2G 217
CLG1G 215
WAG/ 269
MWAG 259
CAG 253
RGG/ 211
(N.C) 210
RLG/ 225
CSG 206
OVDC 112, 136, 160 TO PIN 5 & UNUSED INPUTS OF 33100 SERIES GATES
OVDC 212, 236, 260 TO PIN 5 & UNUSED INPUTS OF 33200 SERIES GATES
+4SW 124, 148 TO PIN 10 OF 33100 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
+4SW 224, 248 TO PIN 10 OF 33200 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
WS/ 245
CT/ 238
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XB2/ 214
205 WCHG/
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WSG/ 242
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CSG 235
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33101 – 33160
33201 – 33259

REF. DWG.
1. SIGNAL WIRING DIAGRAM DWG. NO. 2005152

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
[XXX] DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG NO. 2005011 FOR LOGIC DESIGN CRITERIA

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
			LIST OF MATERIALS	

NEXT ASSY	USED ON
APPLICATION	

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CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J.F. Walsh 5 Mar
CHECKED
APPROVED Albert Hopkins 2 Mar 65
APPROVED E.C. Hall 12 Mar 65
APPROVED MIT W. Kupfer
APPROVED MSC 3/10/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A7
SERVICE GATES

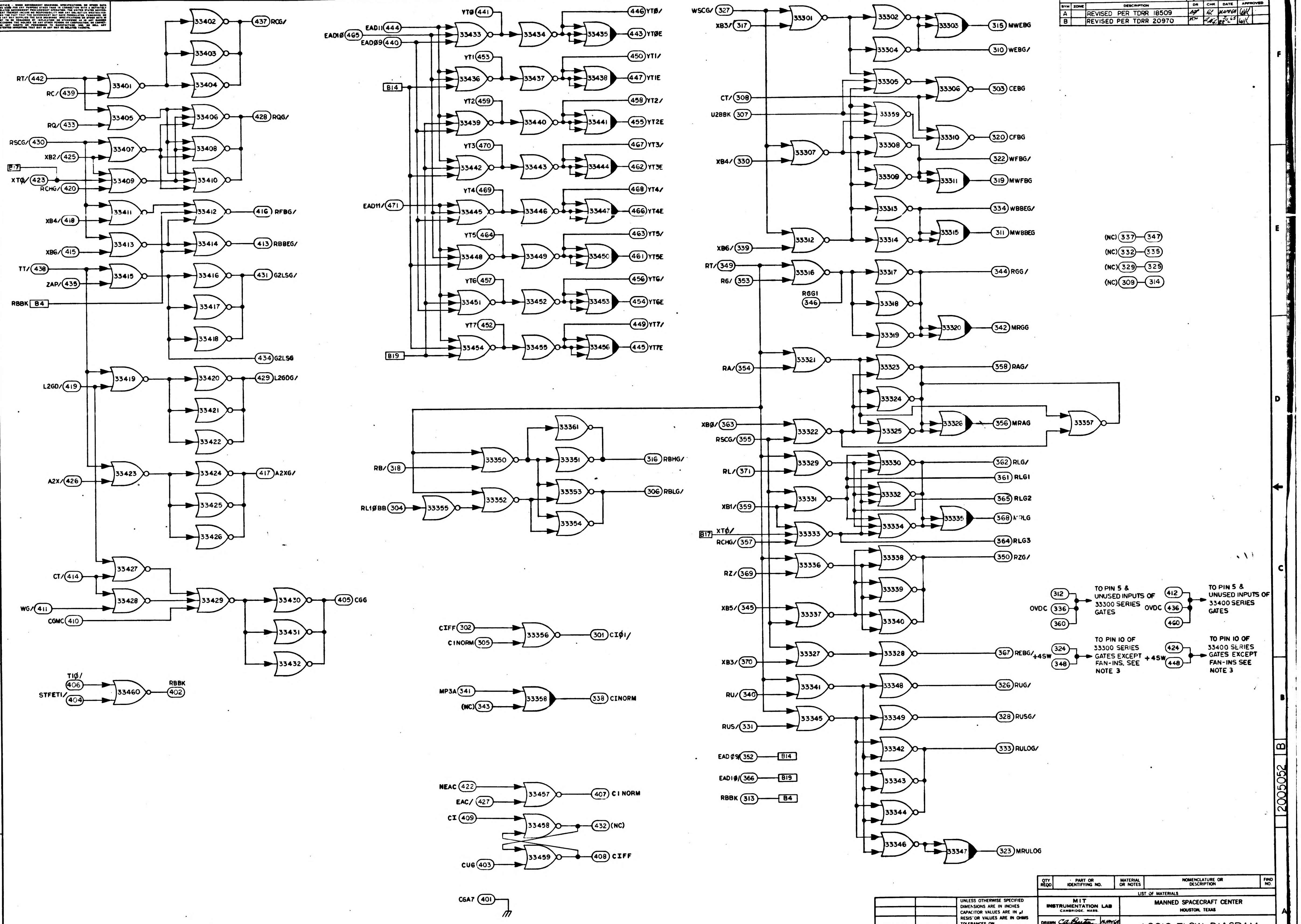
CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005052
SCALE NONE
SHEET 1 OF 2

2005052 B

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17473

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 18509			24 APR 64	WK
B		REVISED PER TDRR 20970	KCH		22 JUL 65	WK



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RQ/ 433
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XB2/ 425
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XT0/ 423
RCHG/ 420
XB4/ 418
XB6/ 415
TT/ 438
ZAP/ 435
RBBK B4
L2GD/ 419
A2X/ 426
CT/ 414
WG/ 411
CGMC 410
TI0/ 406
STFETI/ 404
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RL/ 371
XB1/ 359
B17 XT0/
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XB5/ 345
XB3/ 370
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RUS/ 331
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361 RLG1
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(NC) 309 314
OVDC 312 336 360
TO PIN 5 & UNUSED INPUTS OF 33300 SERIES GATES
OVDC 412 436 460
TO PIN 5 & UNUSED INPUTS OF 33400 SERIES GATES
+4SW 324 348
TO PIN 10 OF 33300 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 424 448
TO PIN 10 OF 33400 SERIES GATES EXCEPT FAN-INS SEE NOTE 3

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

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RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN C.A. Baston 16 NOV 64
CHECKED 11 MAR 65
APPROVED Albert Hopkins 12 Nov 65
APPROVED Eldon C. Hall 12 Mar 65
APPROVED MIT 12 Mar 65
APPROVED MSC 3/11/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A7
SERVICE GATES

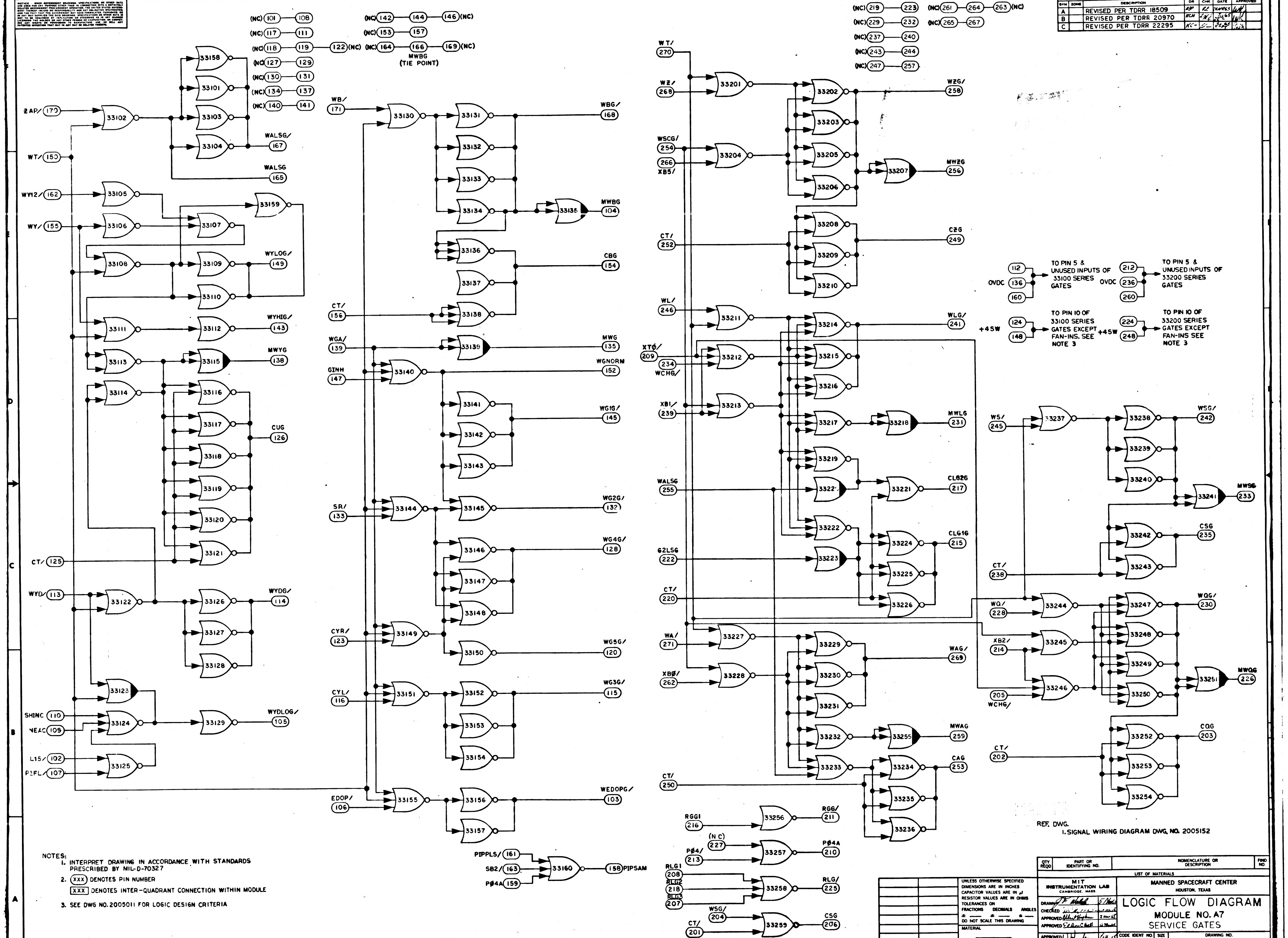
CODE IDENT NO 80230
SIZE E
DRAWING NO. 2005052
SCALE —
SHEET 2 OF 2

2005052 B

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17473

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 18509		RL	24APR65	
B		REVISED PER TDRR 20970	KCH		22 JUL 65	
C		REVISED PER TDRR 22295	KC		3 SEPT 65	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(NC) 127 — 129
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(NC) 142 — 144 — 146 (NC)
(NC) 153 — 157
(NC) 164 — 166 — 169 (NC)
MWBG (TIE POINT)
(NC) 219 — 223
(NC) 229 — 232
(NC) 237 — 240
(NC) 243 — 244
(NC) 247 — 257
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ZAP/ 170
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CT/ 125
WYD/ 113
SHINC 110
NEAC 109
L15/ 102
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WYHIG/ 143
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WG5G/ 120
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SB2/ 163
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XTØ/ 209
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XB1/ 239
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WLG/ 241
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CLG1G 215
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MWAG 259
CAG 253
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RGG/ 211
(NC) 227
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RLG2 218
RLG3 207
RLG/ 225
WSG/ 204
CT/ 201
CSG 206
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OVDC 212 236 260
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+4SW 124 148
TO PIN 10 OF 33100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 224 248
TO PIN 10 OF 33200 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
WS/ 245
CT/ 238
WQ/ 228
XB2/ 214
205 WCHG/
CT/ 202
WSG/ 242
MWSG 233
CSG 235
WQG/ 230
MWQG 226
CQG 203

REF. DWG.
1. SIGNAL WIRING DIAGRAM DWG. NO. 2005152

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
[XXX] DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
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APPLICATION	

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RESISTOR VALUES ARE IN OHMS
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DO NOT SCALE THIS DRAWING

MATERIAL

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INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J.F. Walsh 5 Mar 65
CHECKED
APPROVED Albert Hopkins 2 Mar 65
APPROVED Eldon C. Hall 12 Mar 65
APPROVED MIT W Kupfer
APPROVED MSC 3/10/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

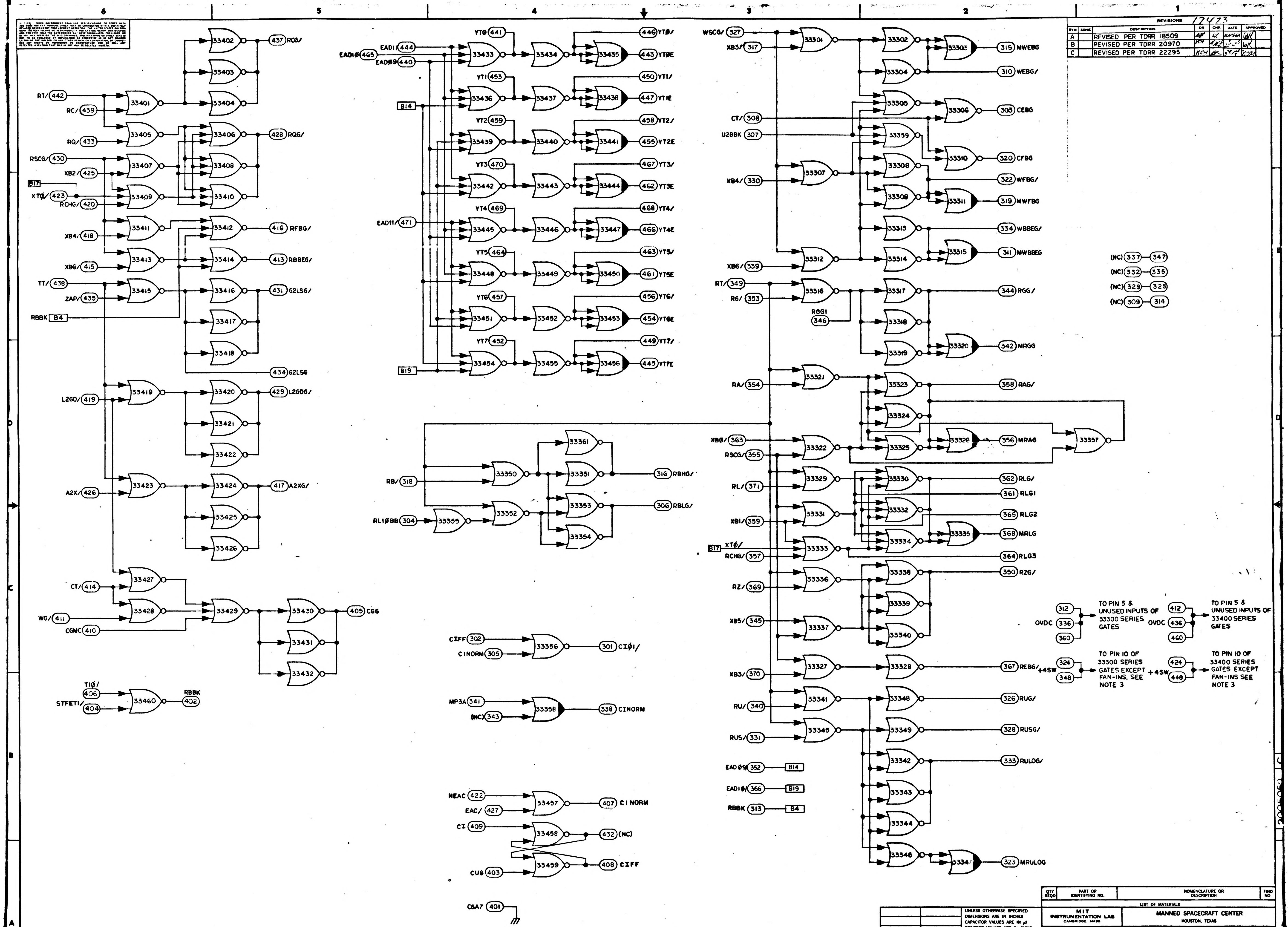
LOGIC FLOW DIAGRAM
MODULE NO. A7
SERVICE GATES

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005052
SCALE NONE
SHEET 1 OF 2

NOTICE WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17473

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 18509				WK
B		REVISED PER TDRR 20970	KCH			WK
C		REVISED PER TDRR 22295	KCH			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CT/ 308
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XB6/ 339
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R6/ 353
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319 MWFBG
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RUS/ 331
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328 RUSG/
333 RULOG/
323 MRULOG
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EAD10 366 B19
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(NC) 332 335
(NC) 329 325
(NC) 309 314
OVDC 312 336 360
TO PIN 5 & UNUSED INPUTS OF 33300 SERIES GATES
OVDC 412 436 460
TO PIN 5 & UNUSED INPUTS OF 33400 SERIES GATES
+4SW 324 348
TO PIN 10 OF 33300 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 424 448
TO PIN 10 OF 33400 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
D
C
B
A

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN CA Barton
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A7
SERVICE GATES

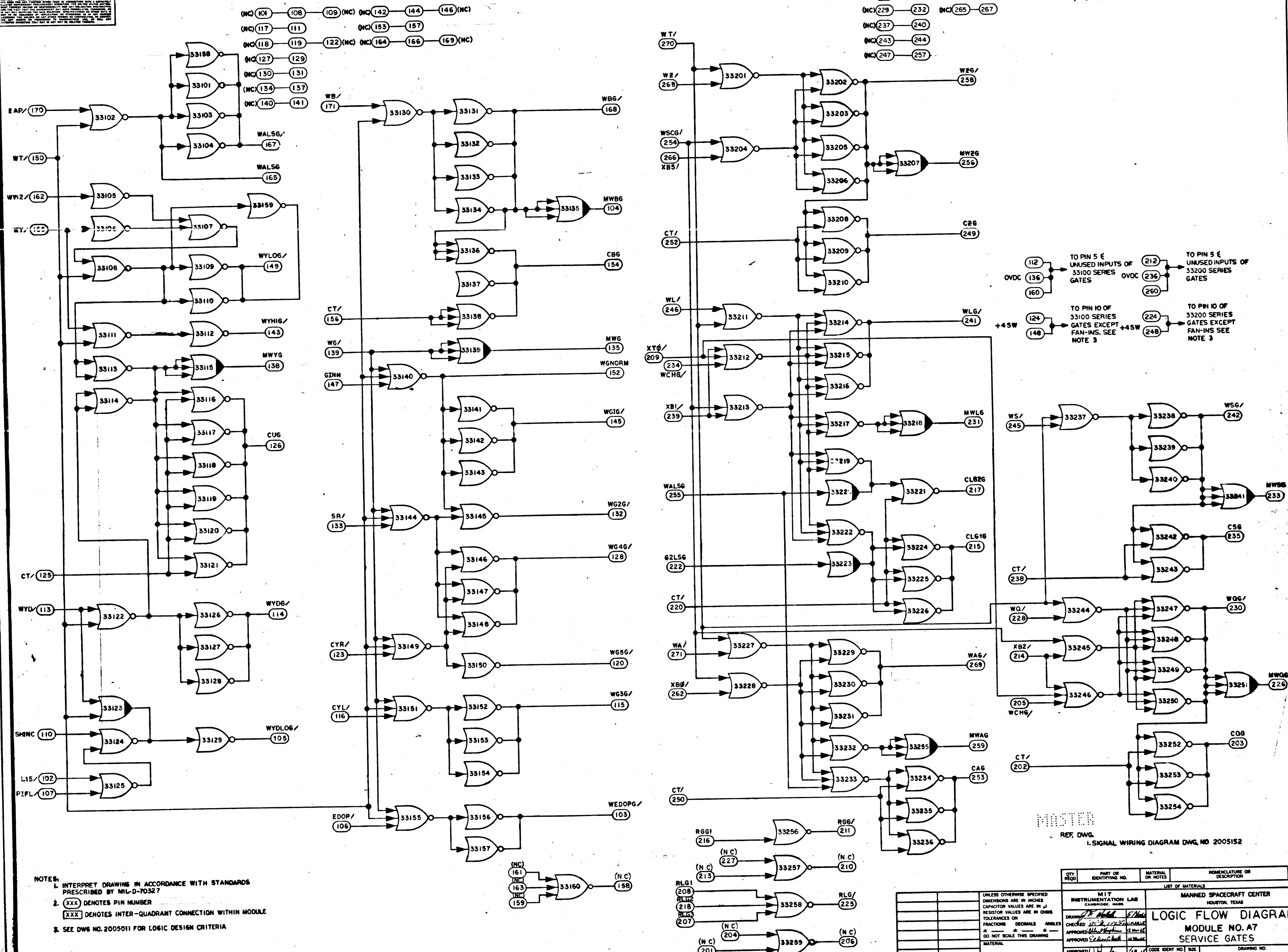
CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2005052

SCALE —
SHEET 2 OF 2

NOTICE WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17473

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



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RLG2 218
RLG3 207
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RLG/ 225
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(N C) 206
OVDC 112 136 160
TO PIN 5 & UNUSED INPUTS OF 33100 SERIES GATES
OVDC 212 236 260
TO PIN 5 & UNUSED INPUTS OF 33200 SERIES GATES
+4SW 124 148
TO PIN 10 OF 33100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 224 248
TO PIN 10 OF 33200 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
WS/ 245
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CQG 203
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MASTER

REF. DWG.
1. SIGNAL WIRING DIAGRAM DWG. NO 2005152

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
XXX DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG NO. 2005011 FOR LOGIC DESIGN CRITERIA

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	J.F. Walsh	5 Mar 65
CHECKED		11 MAR 65
APPROVED	Albert Hopkins	12 Mar 65
APPROVED	Eldon C Hall	12 Mar 65
APPROVED MIT	W Kupfer	
APPROVED MSC		3/10/65
		DATE

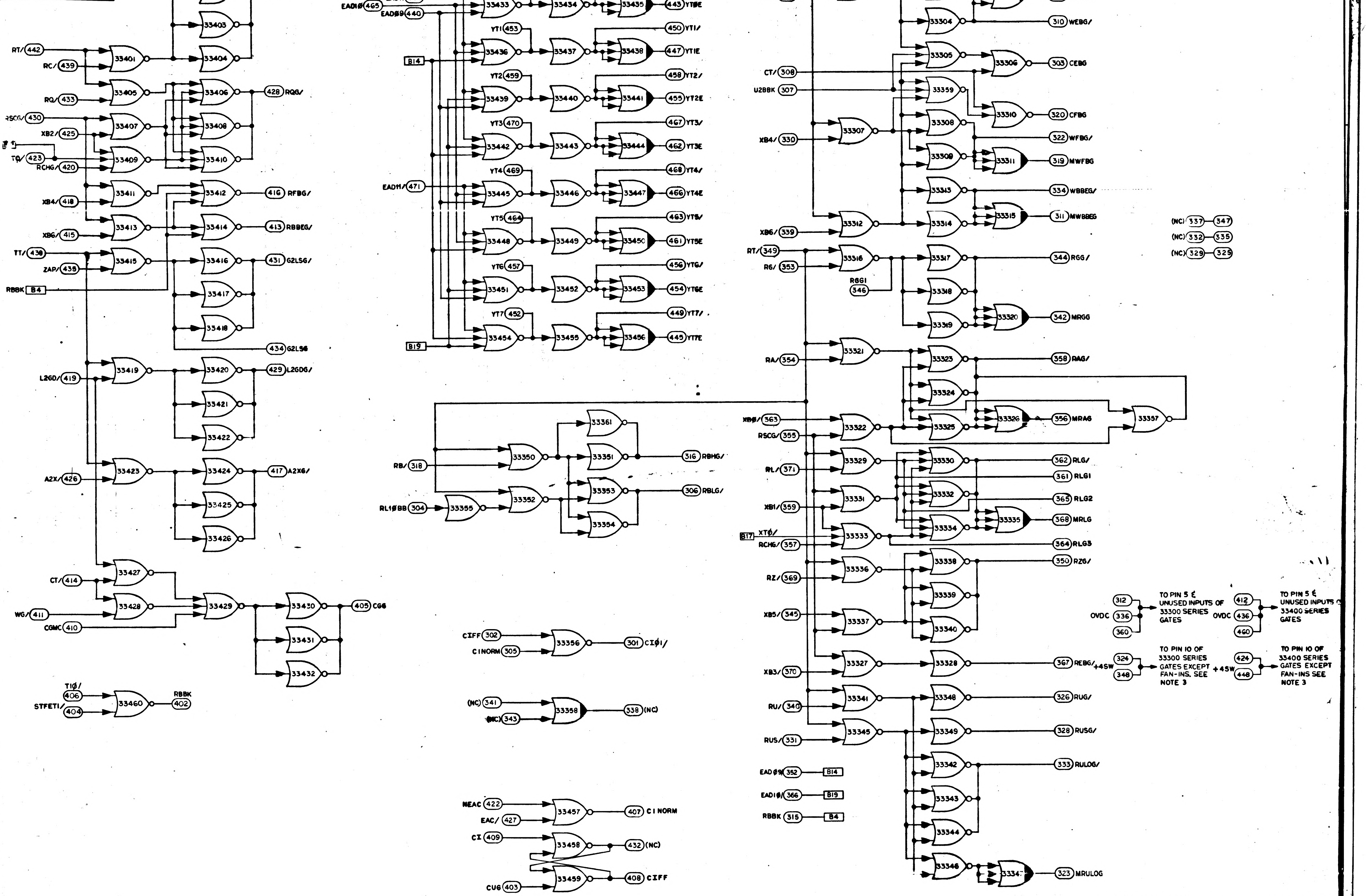
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A7
SERVICE GATES

CODE IDENT NO.	SIZE	DRAWING NO.
—	E	2005052

SCALE NONE
SHEET 1 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.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OVDC 312 336 360
TO PIN 5 & UNUSED INPUTS OF 33300 SERIES GATES
OVDC 412 436 460
TO PIN 5 & UNUSED INPUTS OF 33400 SERIES GATES
+4SW 324 348
TO PIN 10 OF 33300 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 424 448
TO PIN 10 OF 33400 SERIES GATES EXCEPT FAN-INS SEE NOTE 3

SYM	ZONE	REVISIONS DESCRIPTION	DR	CHK	DATE	APPROVED
		17473				

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

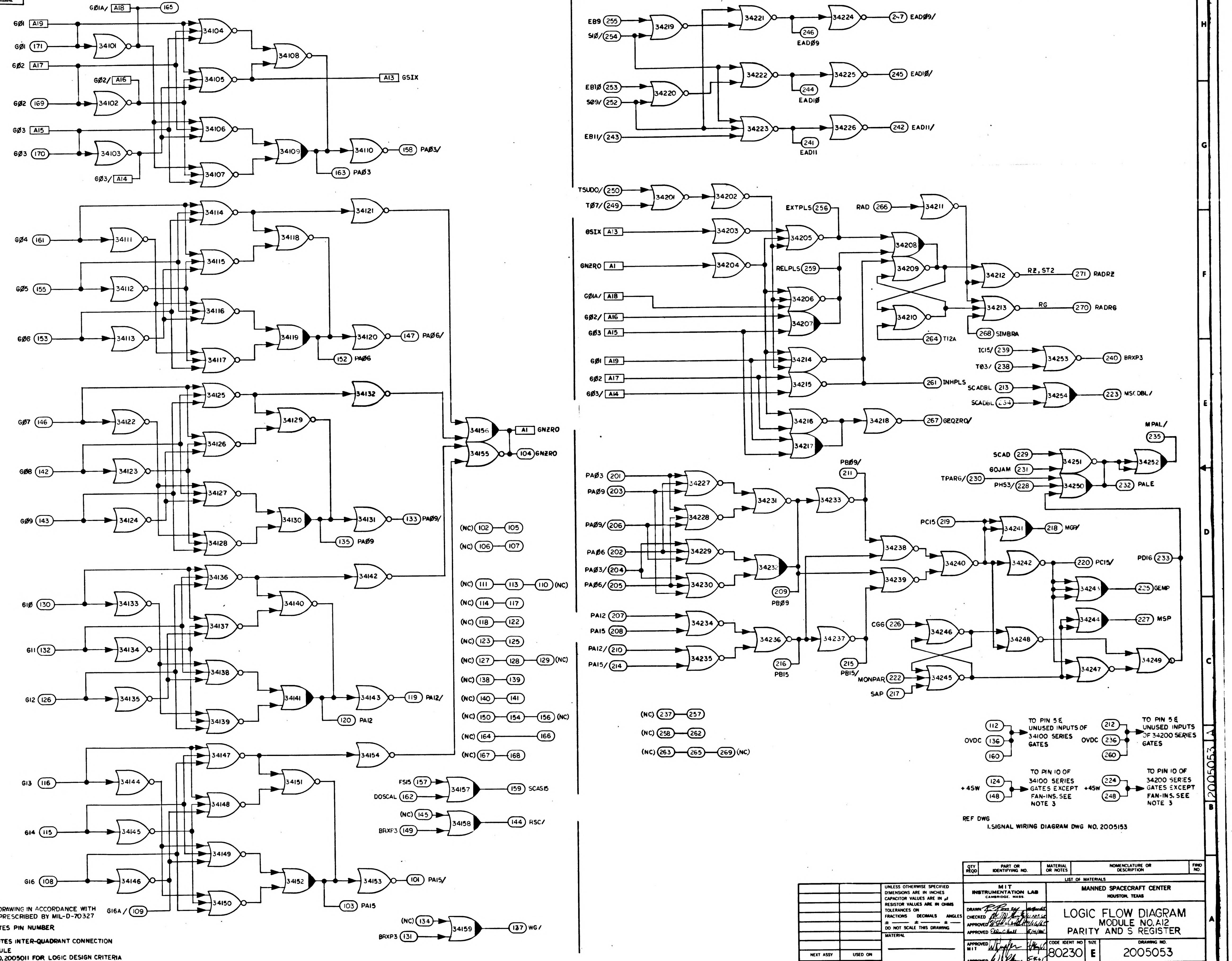
DRAWN C.A. Burton 16 Nov 64
CHECKED 11 Mar 65
APPROVED Albert Hopkins 12 Mar 65
APPROVED Eldon C Hall 12 Mar 65
APPROVED MIT W Kupfer
APPROVED MSC 3/11/65
DATE

LOGIC FLOW DIAGRAM
MODULE NO. A7
SERVICE GATES

CODE IDENT NO. —
SIZE E
DRAWING NO. 2005052
SCALE —
SHEET 2 OF 2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 18797						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20975			7/27/65	



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GNZRO A1
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270 RADRG
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G02 A17
G03/ A14
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TO PIN 5 & UNUSED INPUTS OF 34100 SERIES GATES

TO PIN 5 & UNUSED INPUTS OF 34200 SERIES GATES

TO PIN 10 OF 34100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

TO PIN 10 OF 34200 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

REF DWG
1. SIGNAL WIRING DIAGRAM DWG NO. 2005153

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
[XXX] DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG NO. 2005011 FOR LOGIC DESIGN CRITERIA

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN		
CHECKED		21 APR 65
APPROVED		4/26/65
APPROVED	Ellen C. Hall	5/4/65
APPROVED MIT		
APPROVED MSC		
		DATE

LOGIC FLOW DIAGRAM
MODULE NO. A12
PARITY AND S REGISTER

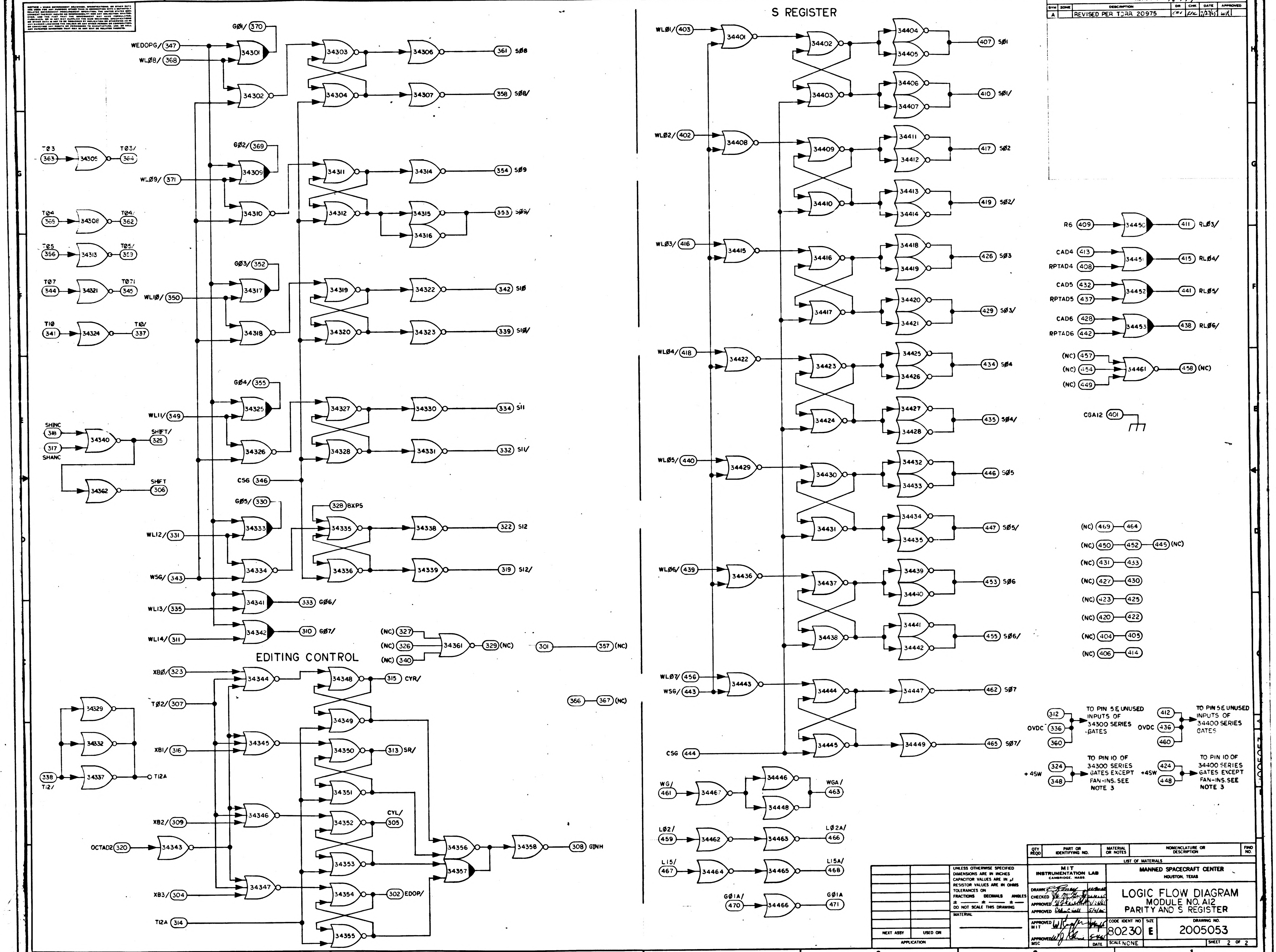
CODE IDENT NO	SIZE	DRAWING NO.
80230	E	2005053
SCALE NONE		SHEET 1 OF 2

2005053 A

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 18797

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20975	EWJ	RFK	7/27/65	WK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T10/ 337
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465 S07/
CSG 444
WG/ 461
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L15A/ 468
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G01A 471
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CAD5 432
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CAD6 428
RPTAD6 442
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OVDC 312 336 360
TO PIN 5 & UNUSED INPUTS OF 34300 SERIES GATES
OVDC 412 436 460
TO PIN 5 & UNUSED INPUTS OF 34400 SERIES GATES
+4SW 324 348
TO PIN 10 OF 34300 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 424 448
TO PIN 10 OF 34400 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN R. Roney
CHECKED W. McGinn
APPROVED
APPROVED Edw. C. Hall 5/4/65
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A12
PARITY AND S REGISTER

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005053
SCALE NONE
SHEET 2 OF 2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
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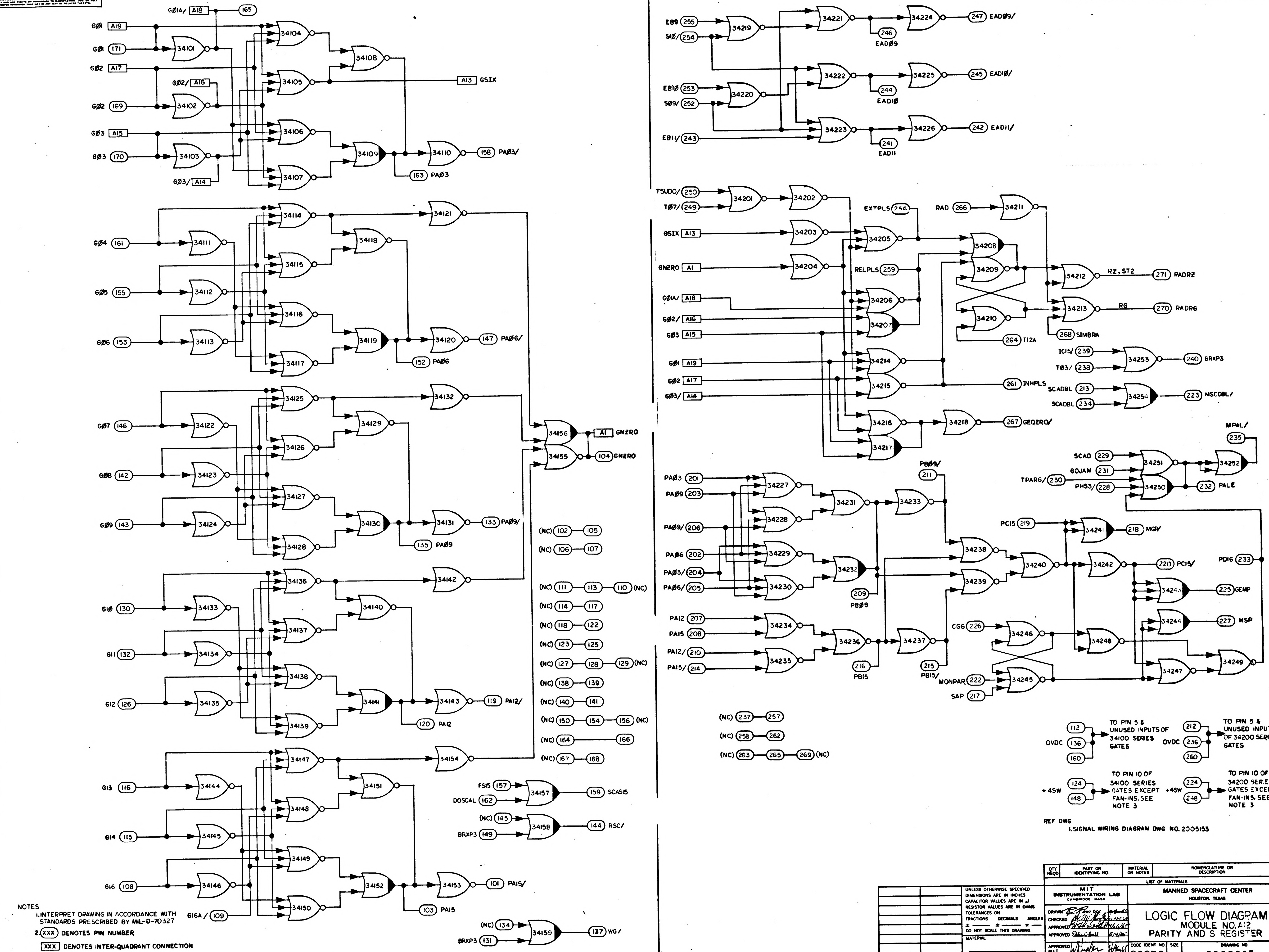
B		REVISED PER TDRR 21404	KCH			



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163 PA03
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G16A/ 109
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103 PA15
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144 RSC/
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BRXP3 131
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S10/ 254
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EB11/ 243
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G03 A15
G01 A19
G02 A17
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RELPLS 259
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RG
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261 INHPLS
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MPAL/ 235
SCAD 229
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PC15 219
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PD16 233
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225 GEMP
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CGG 226
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(NC) 263 265 269 (NC)

OVDC (112) (136) (160) TO PIN 5 & UNUSED INPUTS OF 34100 SERIES GATES

OVDC (212) (236) (260) TO PIN 5 & UNUSED INPUTS OF 34200 SERIES GATES

+4SW (124) (148) TO PIN 10 OF 34100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

+4SW (224) (248) TO PIN 10 OF 34200 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

REF DWG
1. SIGNAL WIRING DIAGRAM DWG NO. 2005153

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
[XXX] DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG NO. 2005011 FOR LOGIC DESIGN CRITERIA

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
			LIST OF MATERIALS	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

NEXT ASSY | USED ON
APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN		
CHECKED		21 APR 65
APPROVED		4/26/65
APPROVED	Ellen C Hall	5/4/65
APPROVED MIT		
APPROVED MSC		
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A12
PARITY AND S REGISTER

CODE IDENT NO. 80230 | SIZE E | DRAWING NO. 2005053
SCALE NONE | SHEET 1 OF 2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

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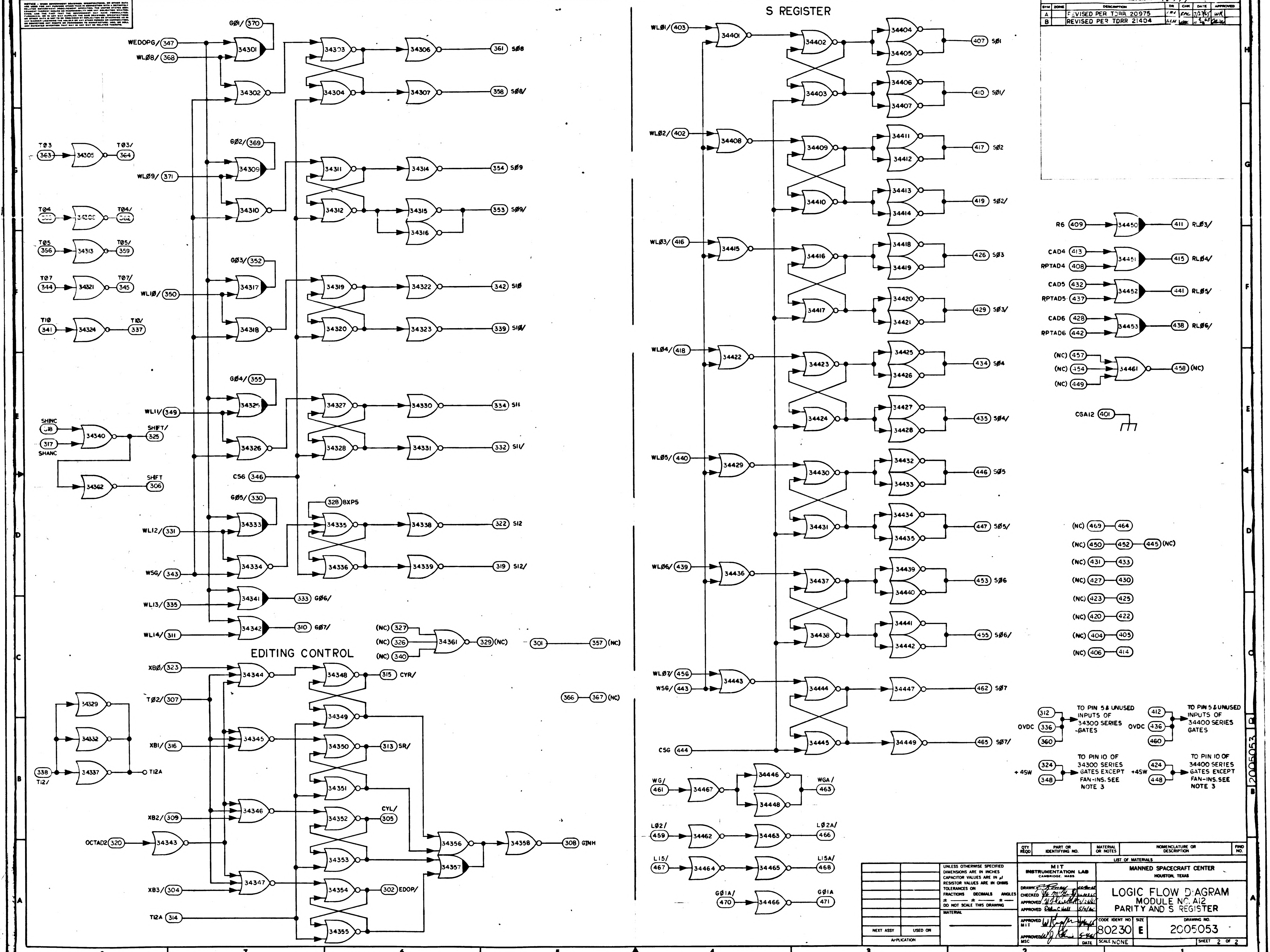
B		REVISED PER TDRR 21404	WCH		11/26/65	



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EDITING CONTROL
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WL08/ 368
G01/ 370
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(NC) 404 405
(NC) 406 414
OVDC 312 336 360
TO PIN 5 & UNUSED INPUTS OF 34300 SERIES GATES
OVDC 412 436 460
TO PIN 5 & UNUSED INPUTS OF 34400 SERIES GATES
+4SW 324 348
TO PIN 10 OF 34300 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 424 448
TO PIN 10 OF 34400 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
2005053

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

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CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN R. Finney 22 Apr 65
CHECKED W. McGinnis 26 Apr 65
APPROVED 4/26/65
APPROVED Eldon C Hall 5/4/65
APPROVED MIT 5-4-65
APPROVED MSC 5-4-65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A12
PARITY AND S REGISTER

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005053
SCALE NONE
SHEET 2 OF 2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

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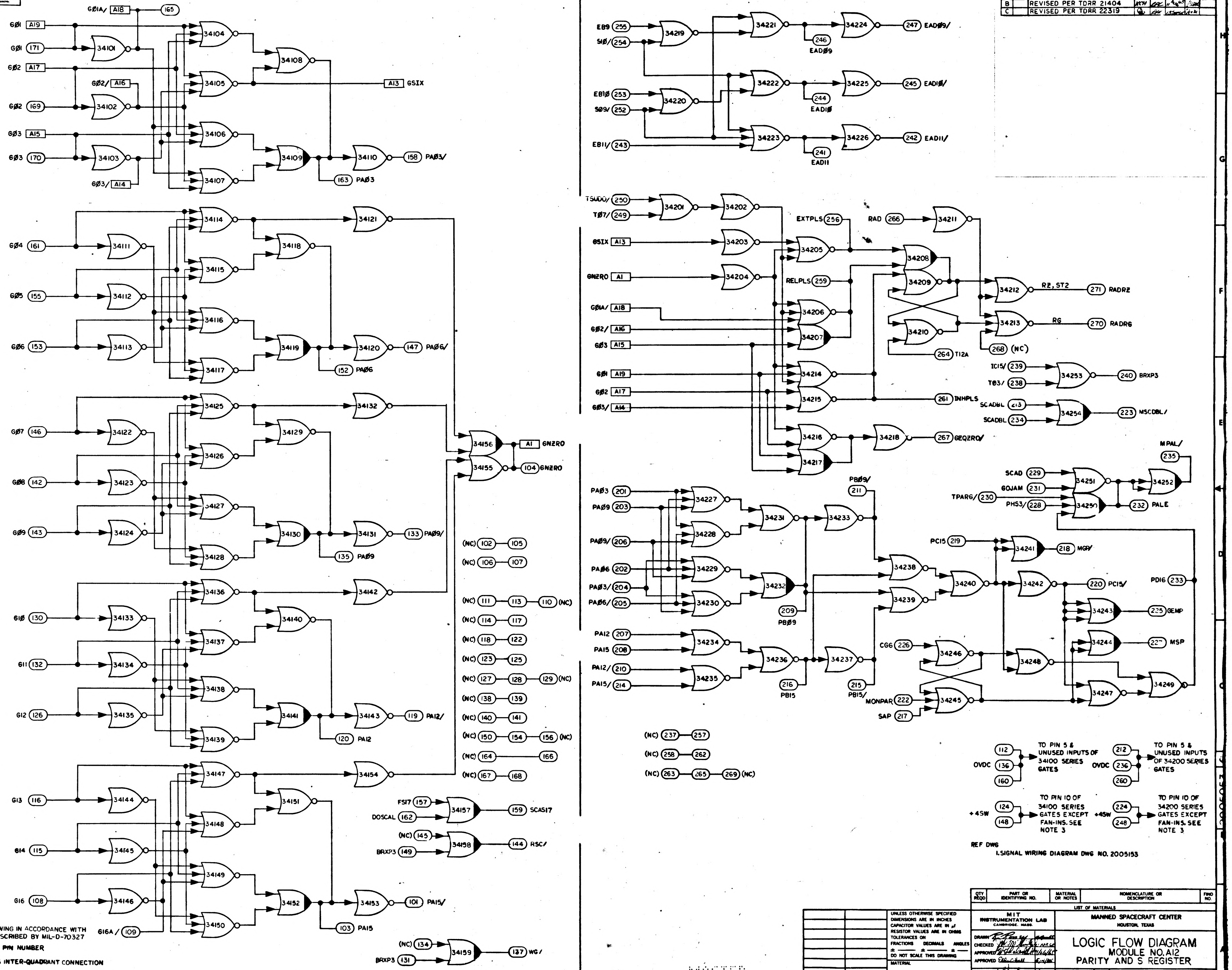
B		REVISED PER TDRR 21404	KCH		11 Aug 65	
C		REVISED PER TDRR 22319				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EB10 253
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GNZRO A1
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G02 A17
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RELPLS 259
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22 MSP
CG6 226
MONPAR 222
SAP 217
OVDC 112 136 160
TO PIN 5 & UNUSED INPUTS OF 34100 SERIES GATES
OVDC 212 236 260
TO PIN 5 & UNUSED INPUTS OF 34200 SERIES GATES
+4.5W 124 148
TO PIN 10 OF 34100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4.5W 224 248
TO PIN 10 OF 34200 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
(NC) 237 257
(NC) 258 262
(NC) 263 265 269 (NC)

REF DWG
1. SIGNAL WIRING DIAGRAM DWG NO. 2005153

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
XXX DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG NO. 2005011 FOR LOGIC DESIGN CRITERIA

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
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CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED
APPROVED
APPROVED Ellen C. Hall
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

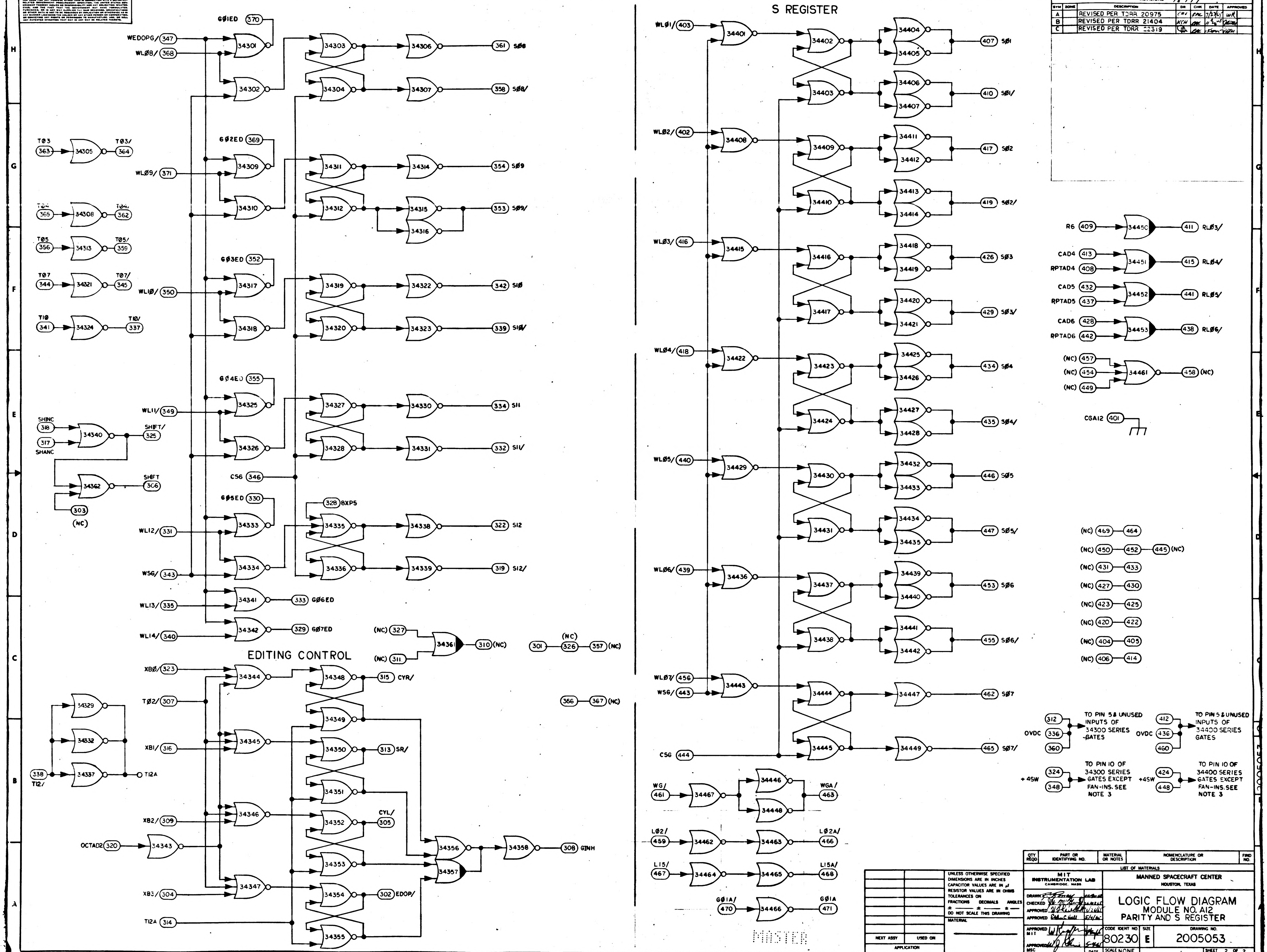
LOGIC FLOW DIAGRAM
MODULE NO. A12
PARITY AND S REGISTER

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005053
SCALE NONE
SHEET 1 OF 2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 18797

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20975	EWJ	RAL	7/27/65	WR
B		REVISED PER TDRR 21404	KCH		11/2/65	
C		REVISED PER TDRR 22319				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313 SR/
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CSG 444
WG/ 461
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(NC) 406 414
OVDC 312 336 360
TO PIN 5 & UNUSED INPUTS OF 34300 SERIES GATES
OVDC 412 436 460
TO PIN 5 & UNUSED INPUTS OF 34400 SERIES GATES
+4SW 324 348
TO PIN 10 OF 34300 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 424 448
TO PIN 10 OF 34400 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

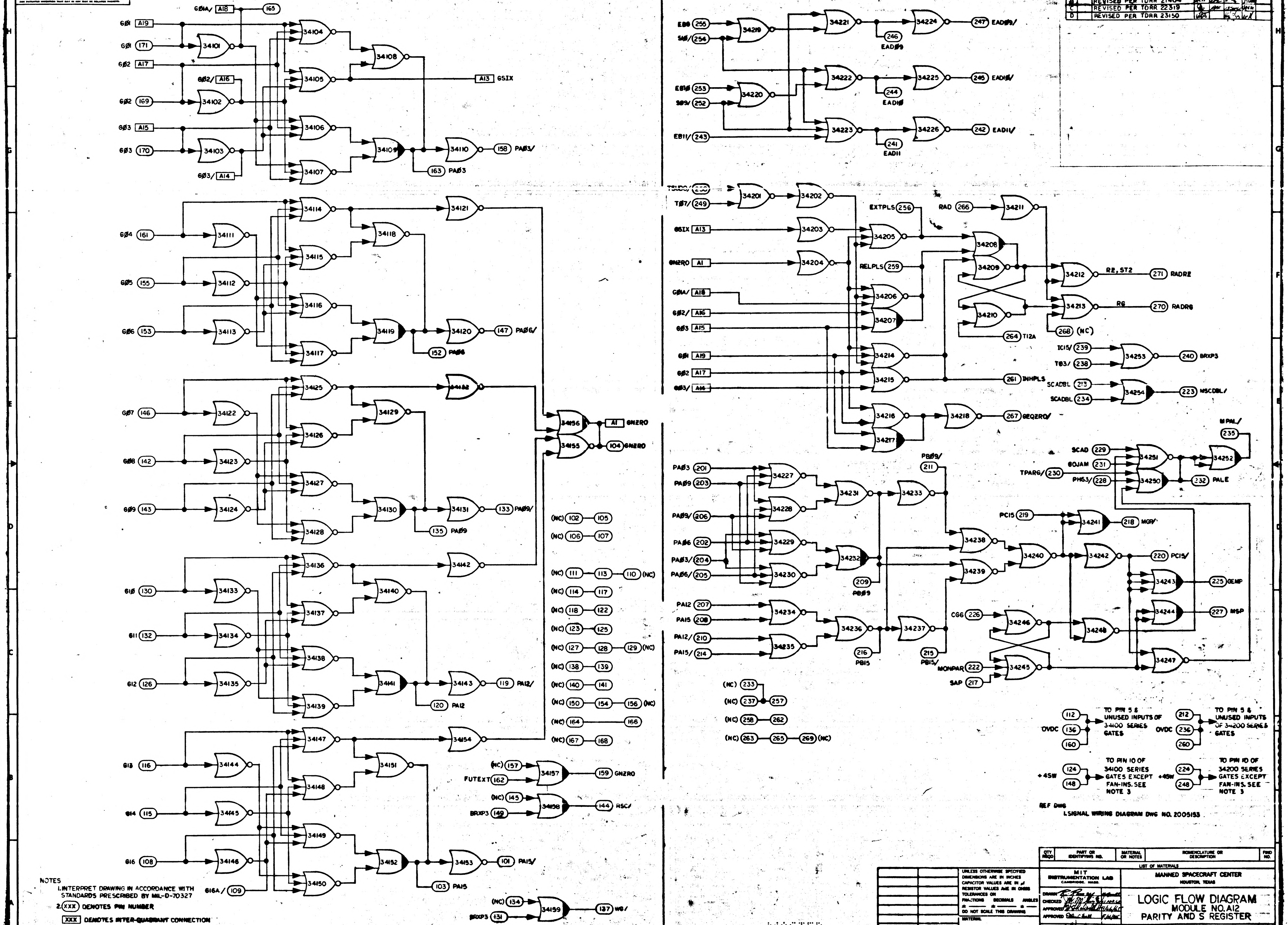
DRAWN
CHECKED
APPROVED
APPROVED Edw. C Hall 5/4/65
APPROVED MIT
APPROVED MSC
DATE

LOGIC FLOW DIAGRAM
MODULE NO. A12
PARITY AND S REGISTER

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005053
SCALE NONE
SHEET 2 OF 2

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 18797						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20975			7/23/65	
B		REVISED PER TDRR 21404	MCH			
C		REVISED PER TDRR 22319				
D		REVISED PER TDRR 23150				



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271 RADRE
RG
270 RADRG
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261 INHPLS
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215 PB15/
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CGG 226
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TO PIN 5 & UNUSED INPUTS OF 34100 SERIES GATES
0VDC 212 236 260
TO PIN 5 & UNUSED INPUTS OF 34200 SERIES GATES
+4SW 124 148
TO PIN 10 OF 34100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 224 248
TO PIN 10 OF 34200 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

REF DWG

1. SIGNAL WIRING DIAGRAM DWG NO. 2005153

NOTES

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
   [XXX] DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG NO. 2005011 FOR LOGIC DESIGN CRITERIA

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED
APPROVED
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A12
PARITY AND S REGISTER

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2005053
SCALE NONE		SHEET 1 OF 1

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 18797

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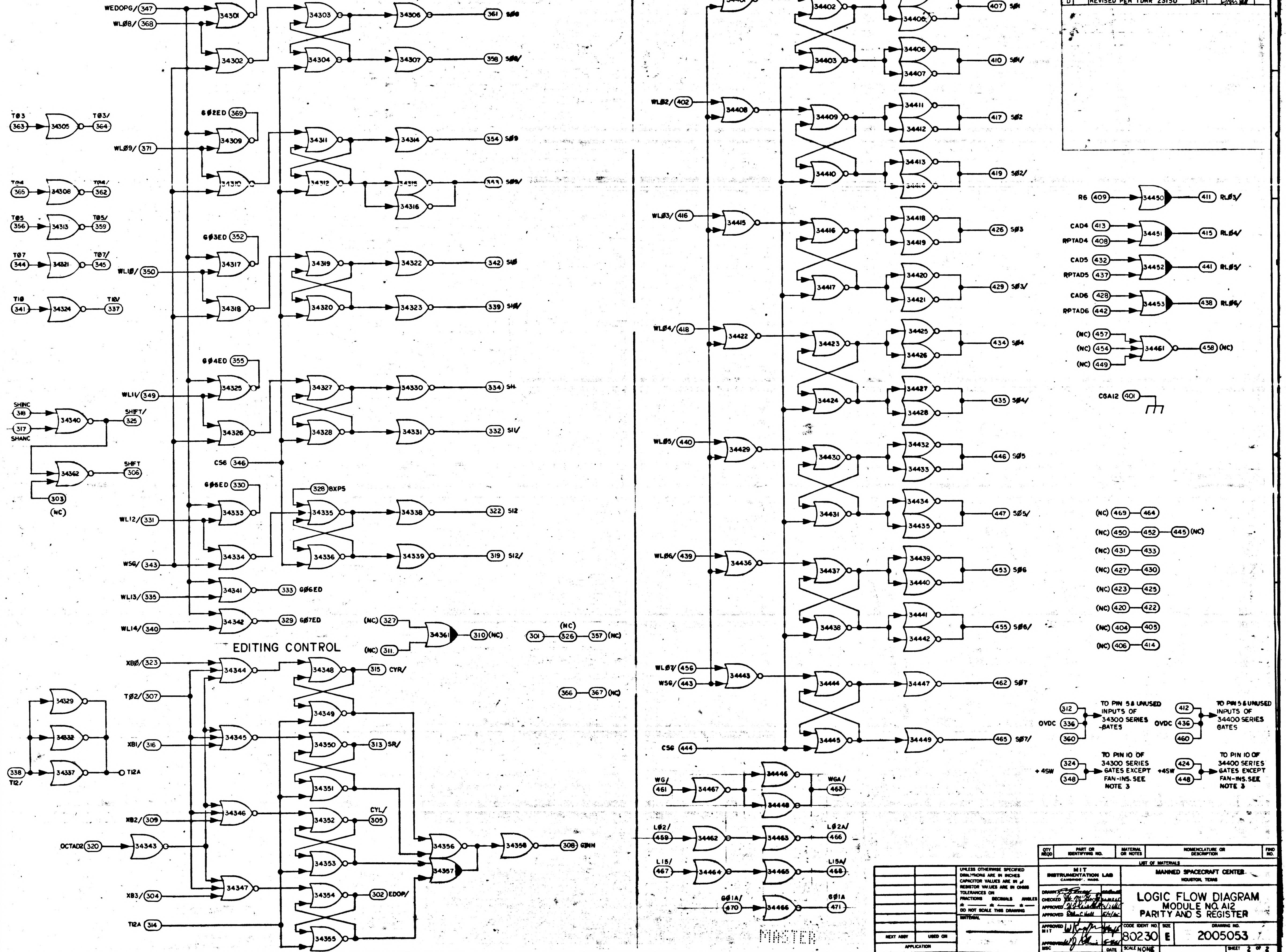
A		REVISED PER TDRR 20975	EWJ	FAL	7/27/65	WR
B		REVISED PER TDRR 21404	KCN	[illegible]	[illegible] 65	[illegible]
C		REVISED PER TDRR 22319	[illegible]	[illegible]	[illegible]	[illegible]
D		REVISED PER TDRR 23150	WSS		[illegible]	WR



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OVDC 312 336 360
TO PIN 5 & UNUSED INPUTS OF 34300 SERIES GATES
OVDC 412 436 460
TO PIN 5 & UNUSED INPUTS OF 34400 SERIES GATES
+4SW 324 348
TO PIN 10 OF 34300 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 424 448
TO PIN 10 OF 34400 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ——— ± ——— ± ———
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN
CHECKED
APPROVED
APPROVED Em C Hall 5/4/6[illegible]
APPROVED MIT
APPROVED MSC
DATE

LOGIC FLOW DIAGRAM
MODULE NO. A12
PARITY AND S REGISTER

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005053
SCALE NONE
SHEET 2 OF 2

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 8797

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
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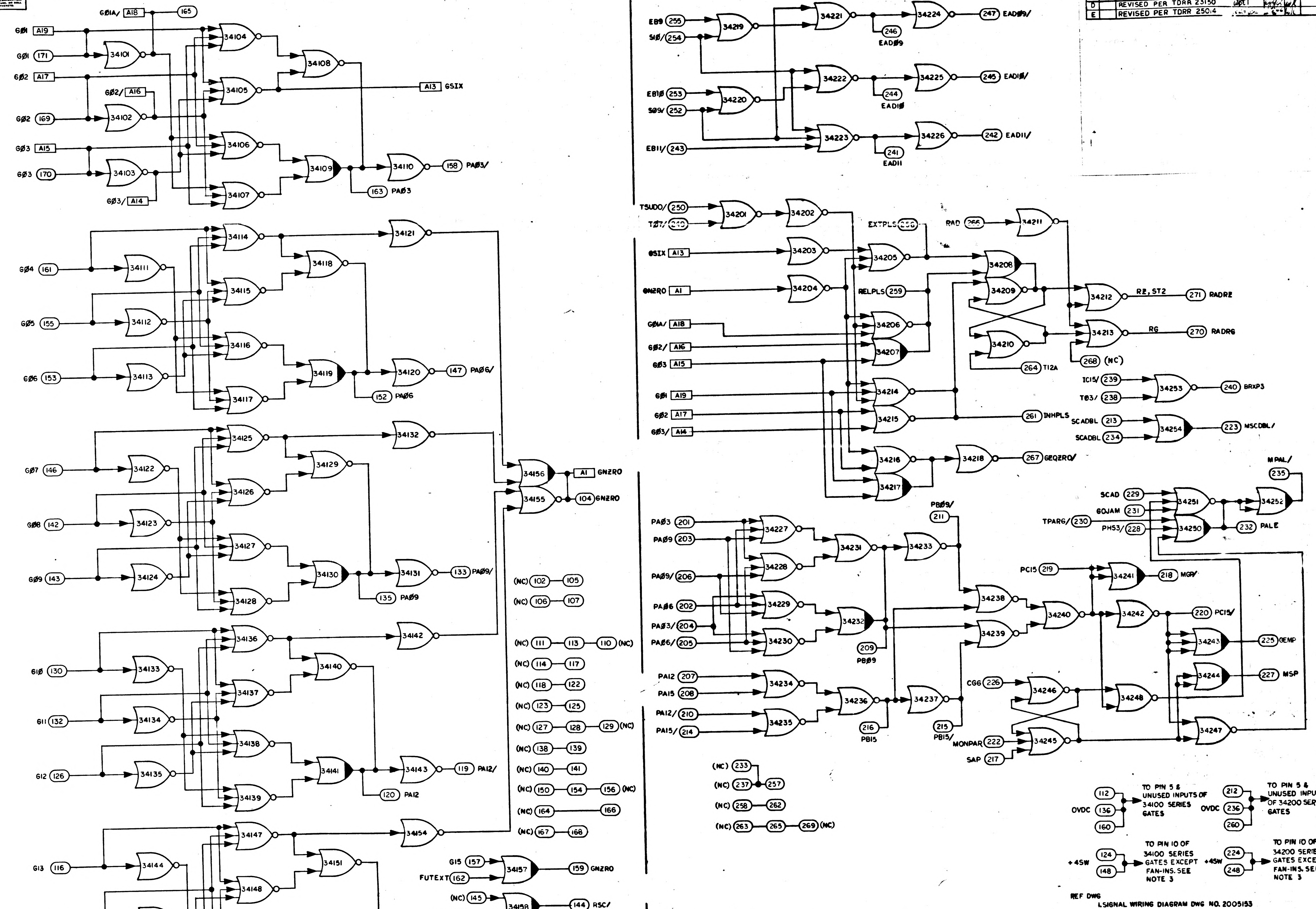
B		REVISED PER TDRR 21404			[illegible]	
C		REVISED PER TDRR 22319			[illegible]	
D		REVISED PER TDRR 23150	WDC		[illegible]	
E		REVISED PER TDRR 25014			[illegible]	



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MONPAR 222
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(NC) 258 262
(NC) 263 265 269 (NC)
OVDC 112 136 160 TO PIN 5 & UNUSED INPUTS OF 34100 SERIES GATES
OVDC 212 236 260 TO PIN 5 & UNUSED INPUTS OF 34200 SERIES GATES
+4SW 124 148 TO PIN 10 OF 34100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 224 248 TO PIN 10 OF 34200 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

REF DWG
1. SIGNAL WIRING DIAGRAM DWG NO. 2005153

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
[XXX] DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG NO. 2005011 FOR LOGIC DESIGN CRITERIA

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED 1 APR 65
APPROVED
APPROVED Ellen C. Hall
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

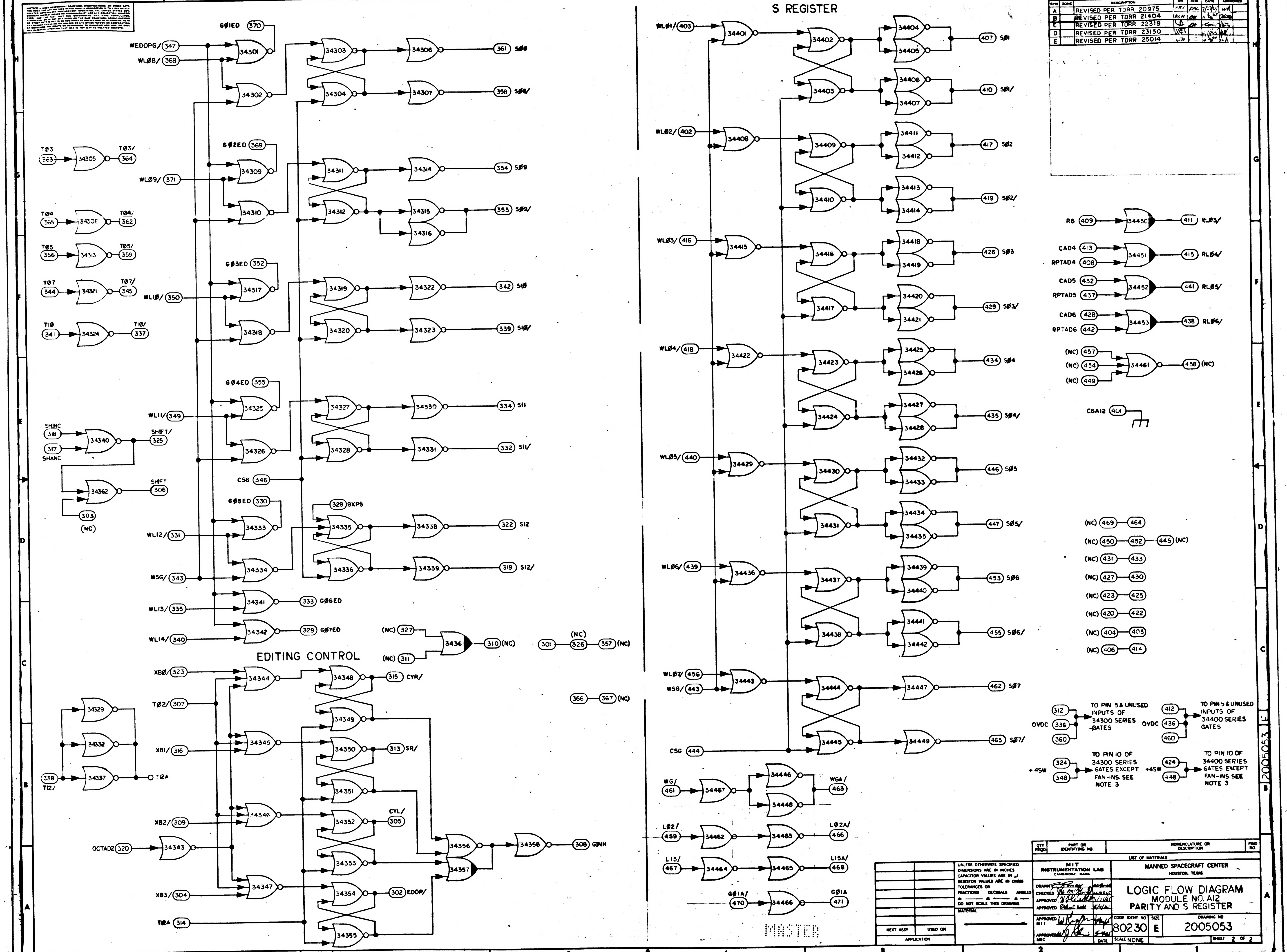
LOGIC FLOW DIAGRAM
MODULE NO. A12
PARITY AND S REGISTER

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005053
SCALE NONE
SHEET 1 OF 2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 18797

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 20975	FWI	RMC	7/27/65	WR
B		REVISED PER TDRR 21404	KCN		11/4/65	
C		REVISED PER TDRR 22319				
D		REVISED PER TDRR 23150	WBT			
E		REVISED PER TDRR 25014				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(NC) 406 414
OVDC 312 336 360
TO PIN 5 & UNUSED INPUTS OF 34300 SERIES GATES
OVDC 412 436 460
TO PIN 5 & UNUSED INPUTS OF 34400 SERIES GATES
+4SW 324 348
TO PIN 10 OF 34300 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 424 448
TO PIN 10 OF 34400 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
MASTER
2005053 E

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN R. Boney
CHECKED W. McGlinn
APPROVED
APPROVED Eldon C. Hall 5/4/65
APPROVED MIT
APPROVED MSC
DATE

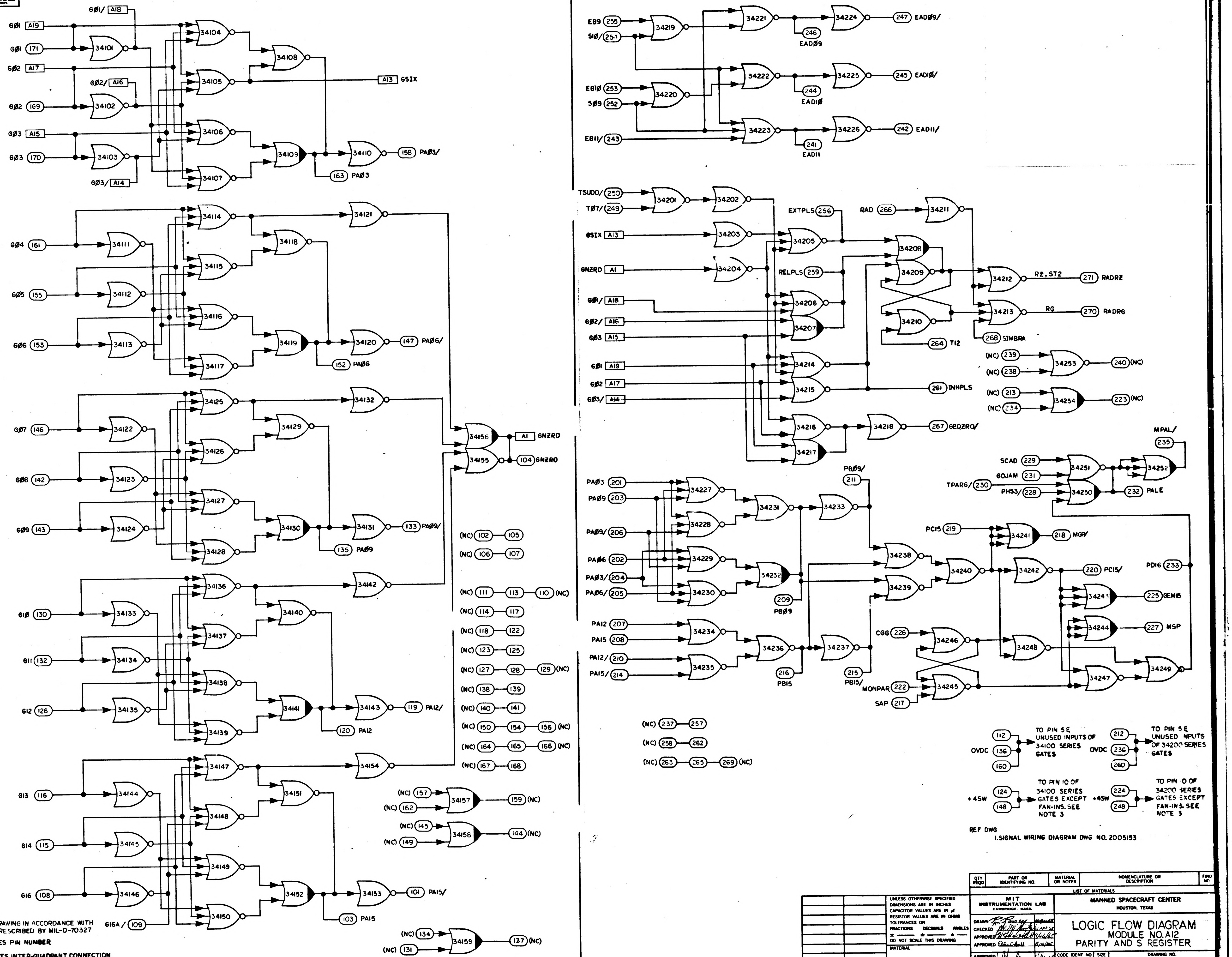
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A12
PARITY AND S REGISTER

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2005053
SCALE NONE		SHEET 2 OF 2

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

SYM	ZONE	REVISIONS 8797 DESCRIPTION	DR	CHK	DATE	APPROVED



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242 EAD11/
241 EAD11
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TO PIN 5E UNUSED INPUTS OF 34100 SERIES GATES
OVDC 212 236 260
TO PIN 5E UNUSED INPUTS OF 34200 SERIES GATES
+4SW 124 148
TO PIN 10 OF 34100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 224 248
TO PIN 10 OF 34200 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

REF DWG
1. SIGNAL WIRING DIAGRAM DWG NO. 2005153

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
[XXX] DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG NO. 2005011 FOR LOGIC DESIGN CRITERIA

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN R. Rosey
CHECKED W. McKinley 21 APR 65
APPROVED 4/26/65
APPROVED Eldon C. Hall 5/4/65
APPROVED MIT 4 May 65
APPROVED MSC 5 May 65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

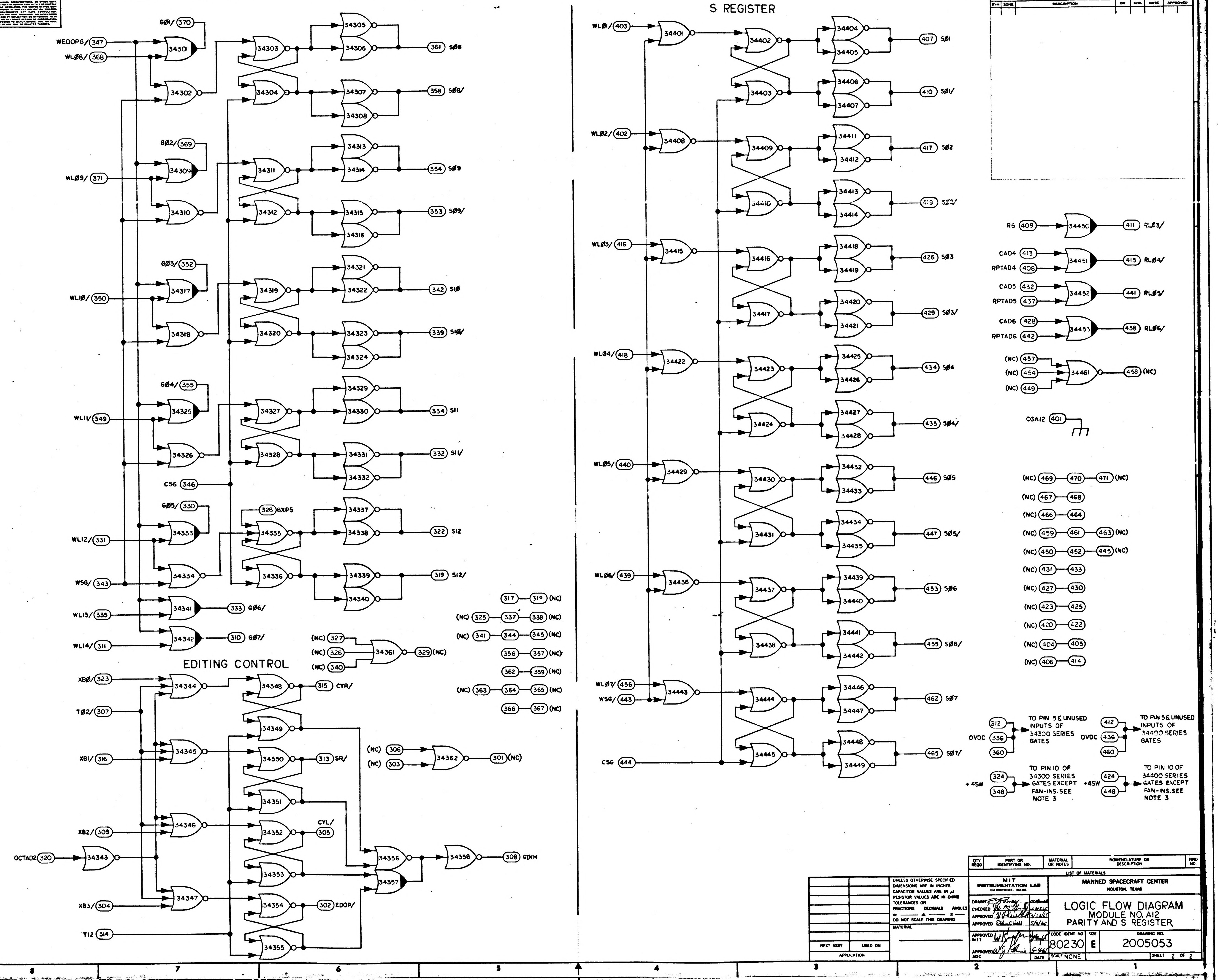
LOGIC FLOW DIAGRAM
MODULE NO. A12
PARITY AND S REGISTER

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005053
SCALE NONE
SHEET 1 OF 2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 18797

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED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OVDC 312 336 360
TO PIN 5 & UNUSED INPUTS OF 34300 SERIES GATES
OVDC 412 436 460
TO PIN 5 & UNUSED INPUTS OF 34400 SERIES GATES
+4SW 324 348
TO PIN 10 OF 34300 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 424 448
TO PIN 10 OF 34400 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± —— ± —— ± ——
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN R. Ramey
CHECKED W. McGinty
APPROVED
APPROVED Eldon C. Hall 5/4/65
APPROVED MIT
APPROVED MSC
DATE

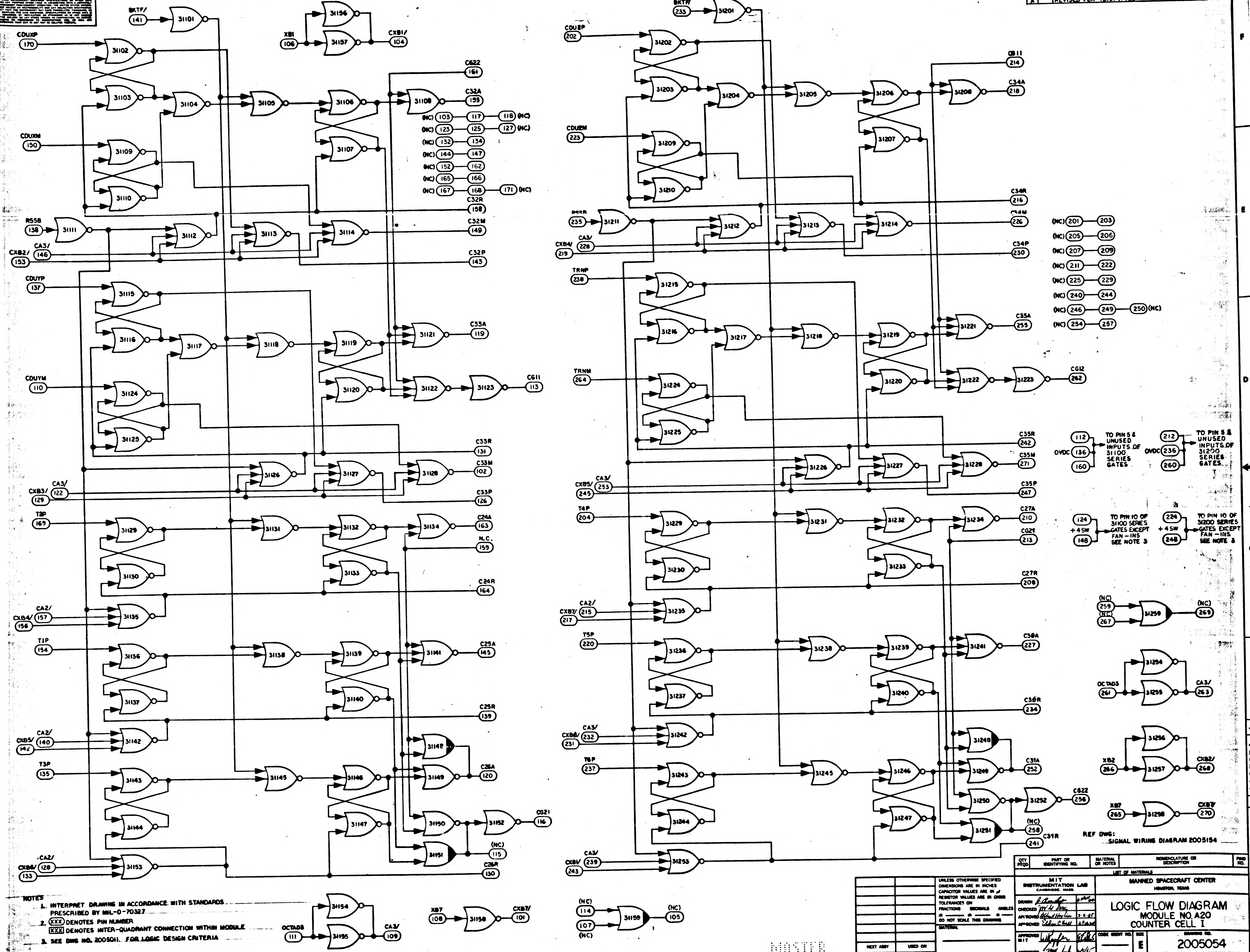
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A12
PARITY AND S REGISTER

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005053
SCALE NONE
SHEET 2 OF 2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 16361						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 17465	LK	al	21 MAR66	WK



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CA2/ 157
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C32M 149
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CG12 262
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OVDC 112 136 160
TO PIN 5 & UNUSED INPUTS OF 31100 SERIES GATES
OVDC 212 236 260
TO PIN 5 & UNUSED INPUTS OF 31200 SERIES GATES
+4SW 124 148
TO PIN 10 OF 31100 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
+4SW 224 248
TO PIN 10 OF 31200 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
31101 31102 31103 31104 31105 31106 31107 31108 31109 31110 31111 31112 31113 31114 31115 31116 31117 31118 31119 31120 31121 31122 31123 31124 31125 31126 31127 31128 31129 31130 31131 31132 31133 31134 31135 31136 31137 31138 31139 31140 31141 31142 31143 31144 31145 31146 31147 31148 31149 31150 31151 31152 31153 31154 31155 31156 31157 31158 31159
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MASTER

REF DWG:
SIGNAL WIRING DIAGRAM 2005154

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
[XXX] DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG NO. 2005011. FOR LOGIC DESIGN CRITERIA

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

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DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	J. Bowley	9 Nov 64
CHECKED	M. W. Box	
APPROVED	Albert Hopkins	3-2-65
APPROVED	Eldon C Hall	3 Feb 65
APPROVED MIT		
APPROVED MSC		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A20
COUNTER CELL I

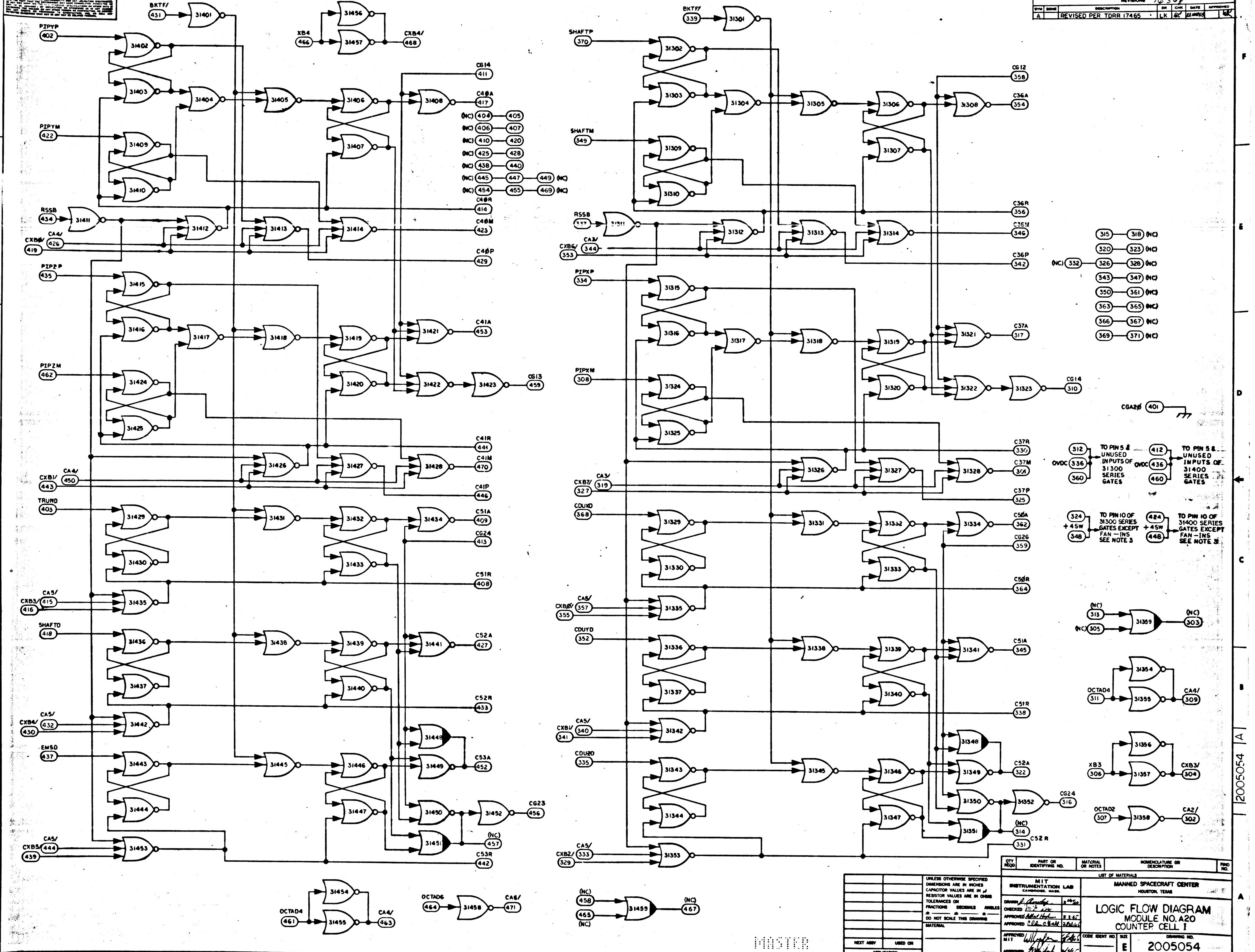
CODE IDENT NO.	SIZE	DRAWING NO.
	E	2005054
SCALE NONE		SHEET 1 OF 2

2005054 A

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 16368

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 17465	LK		22 MAR 65	



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CXB0/ 419
PIP2P 435
PIPZM 462
CXB1/ 443
CA4/ 450
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CA5/ 415
CXB3/ 416
SHAFTD 418
CA5/ 432
CXB4/ 430
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CA5/ 444
CXB5/ 439
XB4 466
CXB4/ 468
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CA4/ 463
OCTAD6 464
CA6/ 471
(NC) 458
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SHAFTM 349
RSSB 337
CA3/ 344
CXB6/ 353
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PIPXM 308
CXB7/ 327
CA3/ 319
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CA5/ 357
CXB0/ 355
CDUYD 352
CA5/ 340
CXB1/ 341
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CA5/ 333
CXB2/ 329
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CG24 316
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350 361 (NC)
363 365 (NC)
366 367 (NC)
369 371 (NC)
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OVDC 312 336 360
TO PIN 5 & UNUSED INPUTS OF 31300 SERIES GATES
OVDC 412 436 460
TO PIN 5 & UNUSED INPUTS OF 31400 SERIES GATES
+4SW 324 348
TO PIN 10 OF 31300 SERIES GATES EXCEPT FAN—INS SEE NOTE 3
+4SW 424 448
TO PIN 10 OF 31400 SERIES GATES EXCEPT FAN—INS SEE NOTE 3
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CA4/ 309
XB3 306
CXB3/ 304
OCTAD2 307
CA2/ 302
MASTER
2005054 A

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

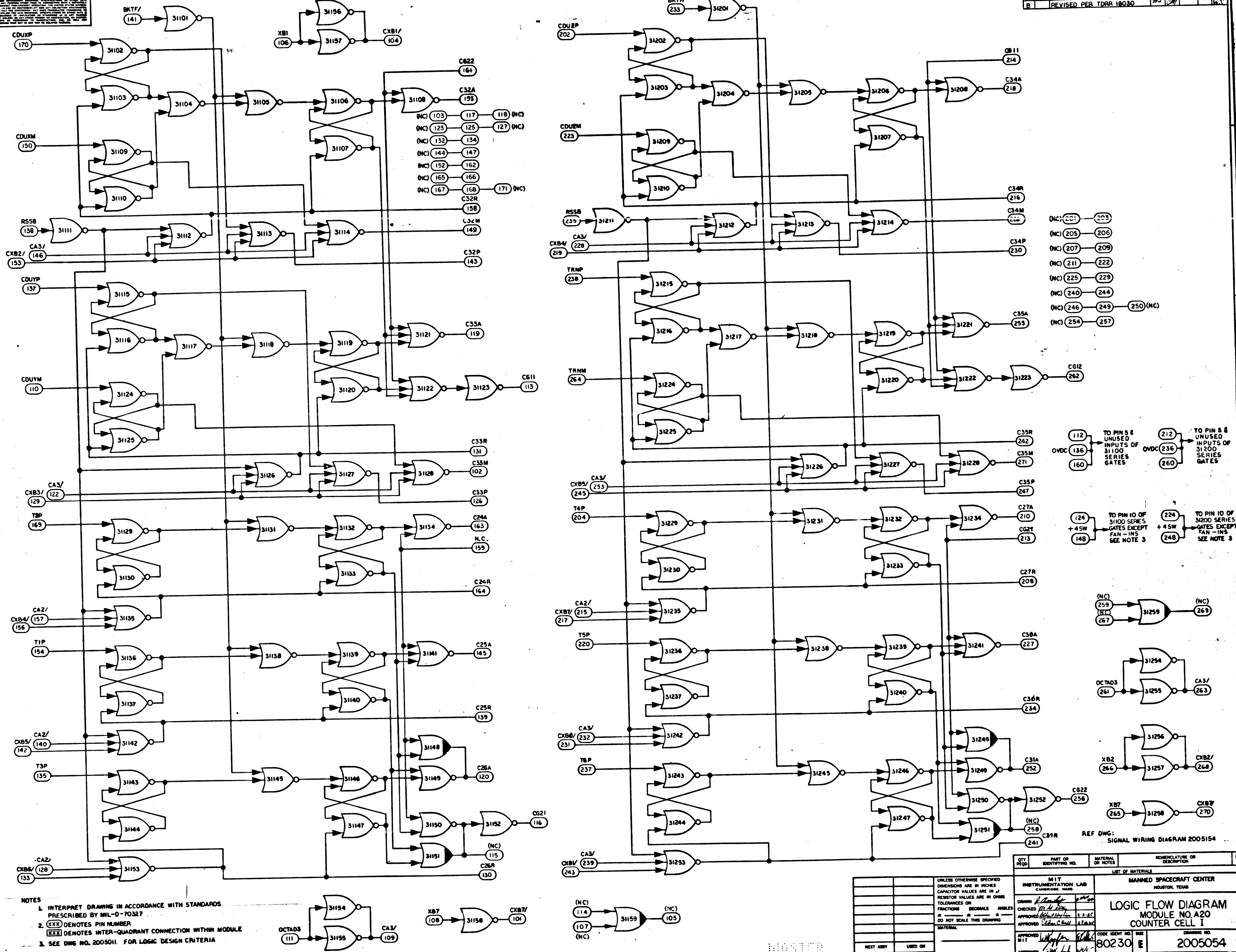
DRAWN J. Bowley 3 Nov 64
CHECKED
APPROVED Albert Hopkins 2-2-65
APPROVED 2-24-65
APPROVED MIT 6 Feb 65
APPROVED MSC 3/8/65
DATE

LOGIC FLOW DIAGRAM
MODULE NO. A20
COUNTER CELL I

CODE IDENT NO.
SIZE E
DRAWING NO. 2005054
SCALE NONE
SHEET 2 OF 2

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED	
		REVISIONS 16361					
A		REVISED PER TDRR 17465	LK		23 MAR 65		
B		REVISED PER TDRR 18030	JFW				

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.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(NC) 123 125 127 (NC)
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(NC) 165 166
(NC) 167 168 171 (NC)
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CA3/ 146
CXB2/ 153
C32P 143
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C33A 119
C611 113
CDUYM 110 31124 31125
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C33M 102
CA3/ 122
CXB3/ 129 31126 31127 31128
C33P 126
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N.C. 159
C24R 164
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CXB4/ 156 31135
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C25R 139
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C35P 247
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124 148 +4SW TO PIN 10 OF 31100 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
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CXB1/ 243 31253

REF DWG:
SIGNAL WIRING DIAGRAM 2005154

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
[XXX] DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG NO. 2005011 FOR LOGIC DESIGN CRITERIA

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

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DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN J. Bowley 3 Nov 64
CHECKED M. L. Roy
APPROVED Albert Hopkins 2.2.65
APPROVED Eldon C Hall 2 Feb 65
APPROVED MIT
APPROVED MSC
DATE

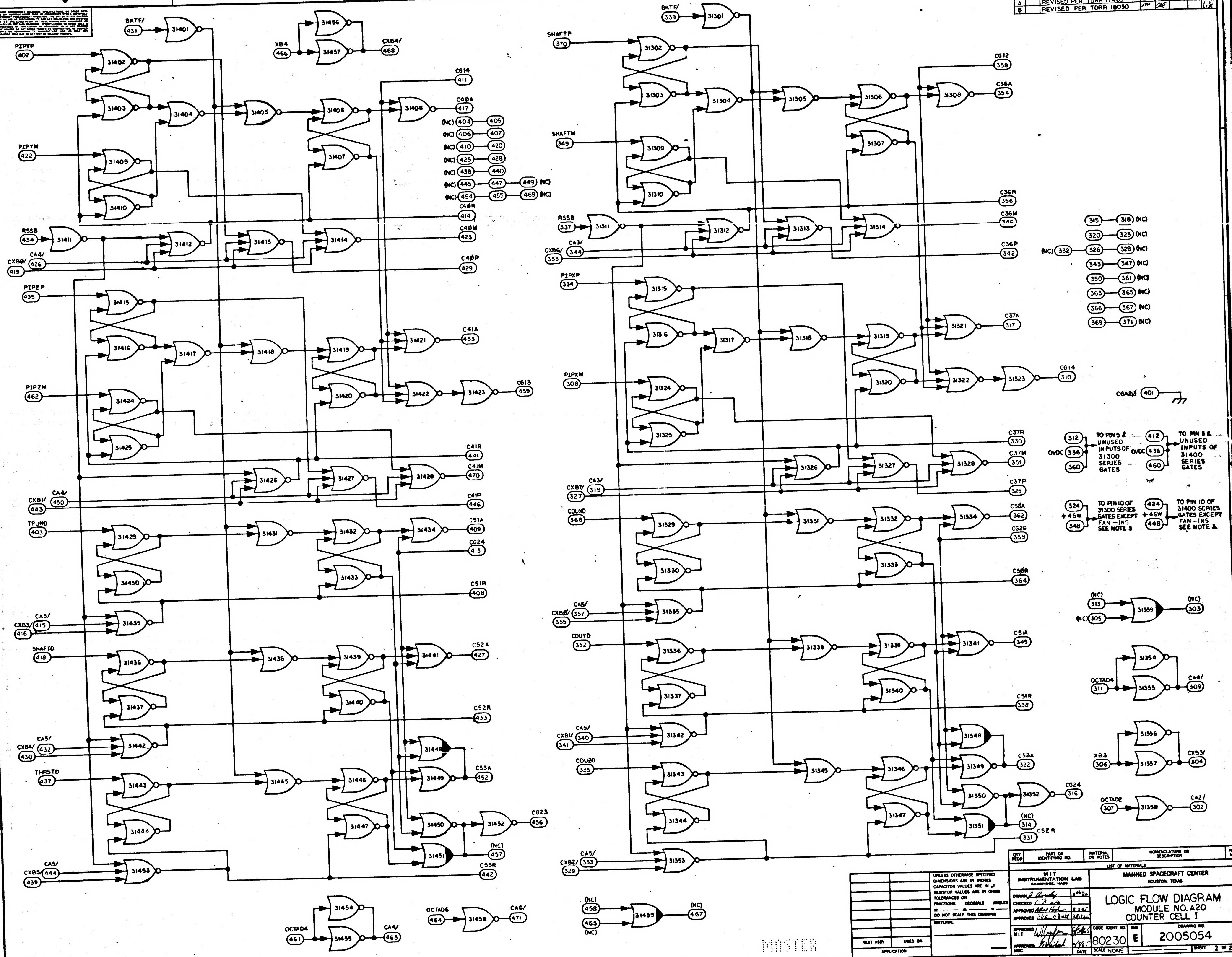
LOGIC FLOW DIAGRAM
MODULE NO. A20
COUNTER CELL I

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005054
SCALE NONE
SHEET 1 OF 2

2005054 B

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		REVISIONS 16361				
A		REVISED PER TDRR 17465	LK		22 MAR 65	
B		REVISED PER TDRR 18030				

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.



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CXB2/ 329
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MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

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DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

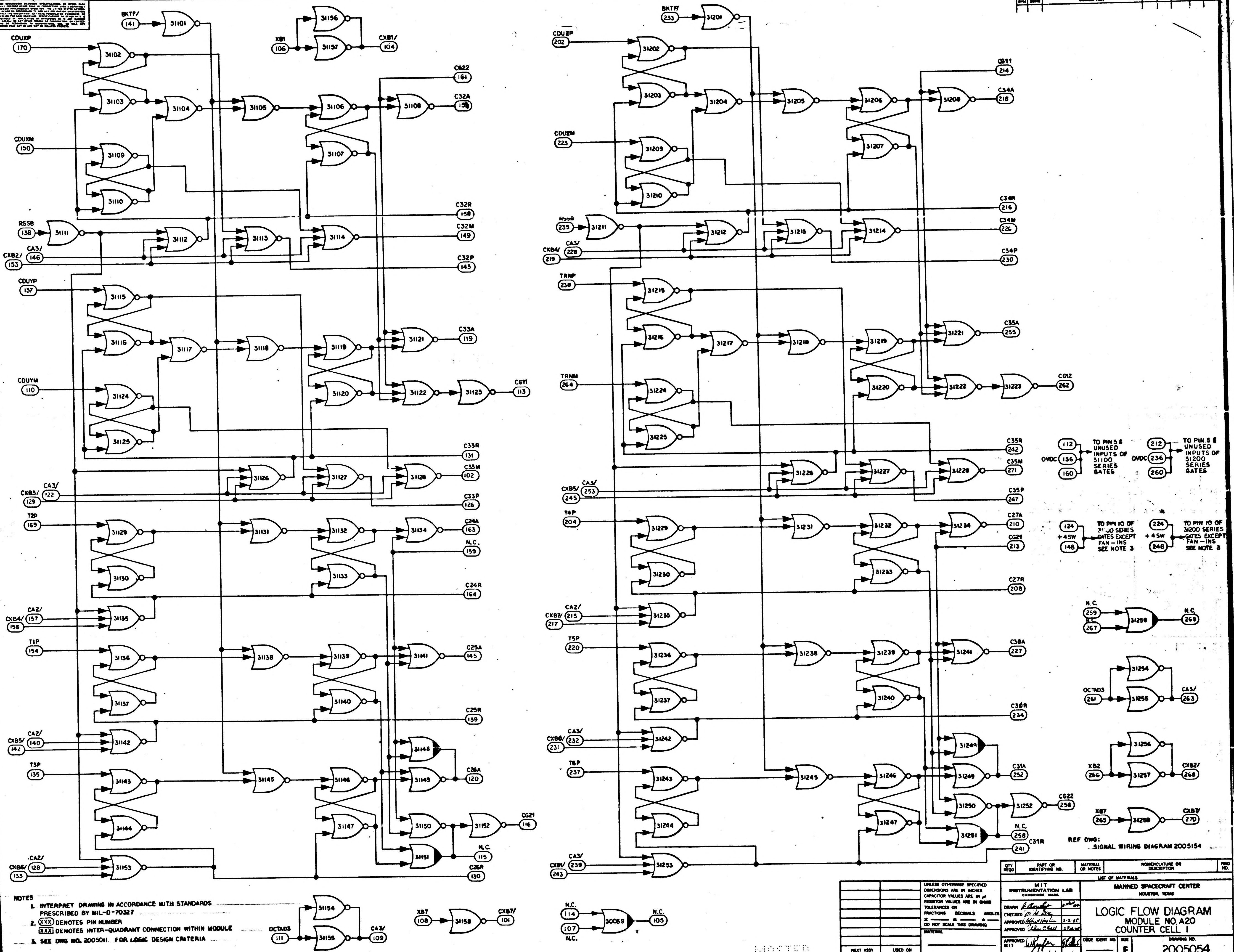
DRAWN J. Crowley 3 Nov 64
CHECKED
APPROVED Albert Hopkins 8-2-65
APPROVED Eldon C Hall 2 Feb 65
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A20
COUNTER CELL I

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005054
SCALE NONE
SHEET 2 OF 2

J03



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TO PIN 10 OF 31100 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
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CXB7/ 270

REVISIONS 1636P

NOTES
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
[XXX] DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG NO. 2005011 FOR LOGIC DESIGN CRITERIA

REF DWG:
SIGNAL WIRING DIAGRAM 2005154

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

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DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J. Bowley 9 Nov 64
CHECKED M. H. Box
APPROVED Albert Hopkins 3.2.65
APPROVED Eldon C Hall 2 Feb 65
APPROVED MIT W. Kupfer
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

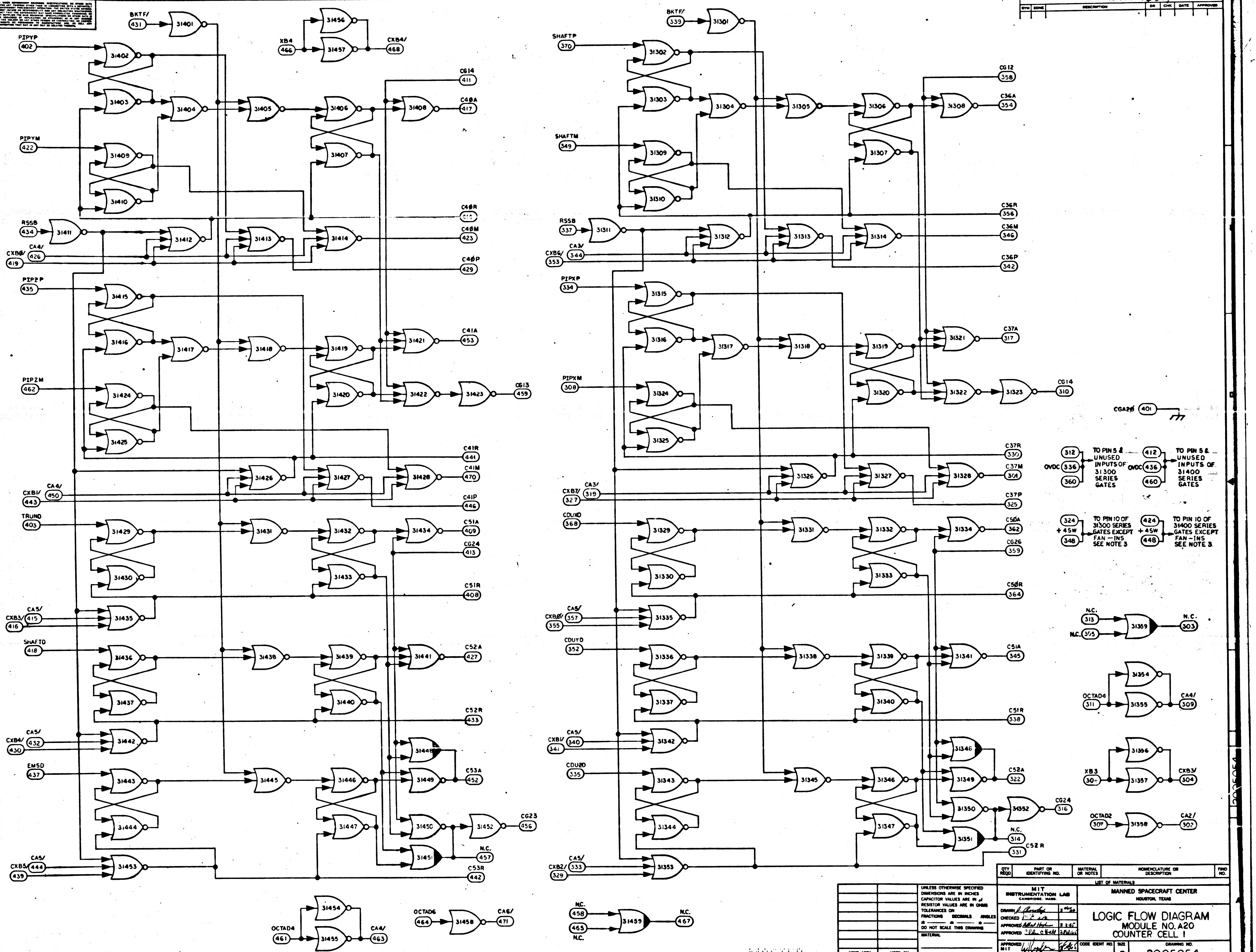
LOGIC FLOW DIAGRAM
MODULE NO. A20
COUNTER CELL I

CODE IDENT NO. SIZE E DRAWING NO. 2005054
SCALE NONE SHEET 1 OF 2

MASTER

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 1634						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



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TO PIN 10 OF 31300 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
424
+4SW
448
TO PIN 10 OF 31400 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
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CA5/ 333
CXB2/ 329
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1
MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J. Bowley 3 Nov 64
CHECKED
APPROVED Albert Hopkins 3 2-65
APPROVED Eldon C Hall 2Feb65
APPROVED MIT 5Feb65
APPROVED MSC 2/5/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

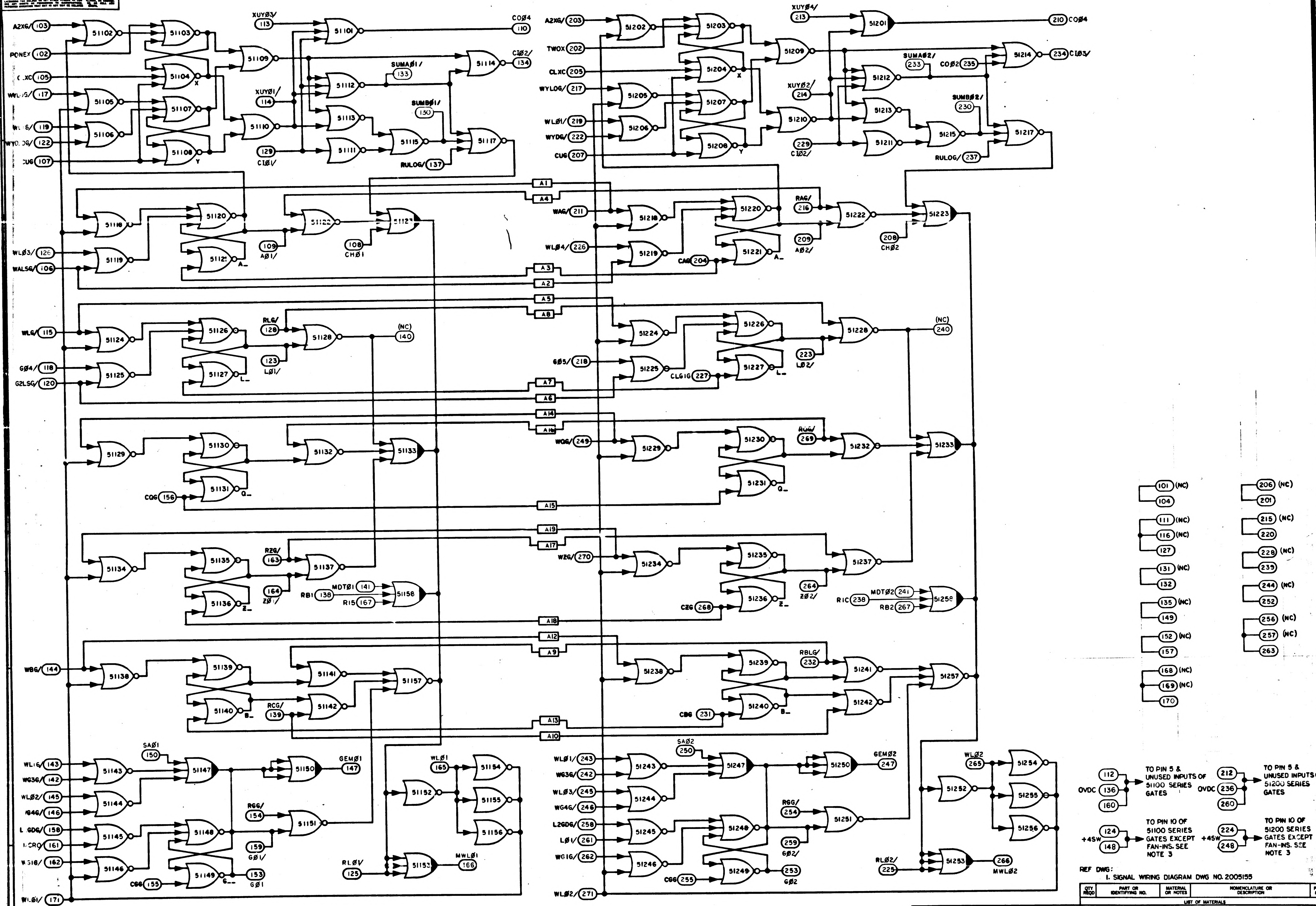
LOGIC FLOW DIAGRAM
MODULE NO. A20
COUNTER CELL 1

CODE IDENT NO. ——— SIZE E DRAWING NO. 2005054
SCALE NONE SHEET 2 OF 2

J#3

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 17469			26MAR65	

REVISIONS 16090



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CLXC 105
WYLOG/ 117
WL06/ 119
WYDOG/ 122
CUG 107
XUY03/ 113
XUY01/ 114
C004 110
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SUMA01/ 133
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108 CH01
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209 A02/
208 CH02
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G04/ 118
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RLG/ 128
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RQG/ 269
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RB1 138
R15 167
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CZG 268
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MDT02 241
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RB2 267
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RL0V 125
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CGG 255
259 G02/
253 G02
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266 MWL02
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215 (NC)
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228 (NC)
239
244 (NC)
252
256 (NC)
257 (NC)
263
OVDC 112 136 160
TO PIN 5 & UNUSED INPUTS OF 51100 SERIES GATES
OVDC 212 236 260
TO PIN 5 & UNUSED INPUTS OF 51200 SERIES GATES
+4SW 124 148
TO PIN 10 OF 51100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 224 248
TO PIN 10 OF 51200 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

REF DWG:
1. SIGNAL WIRING DIAGRAM DWG NO. 2005155

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
[XXX] DENOTES INTER—QUADRANT CONNECTION WITHIN MODULE
3. SEE DRAWING NO. 2005011 FOR LOGIC DESIGN CRITERIA

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

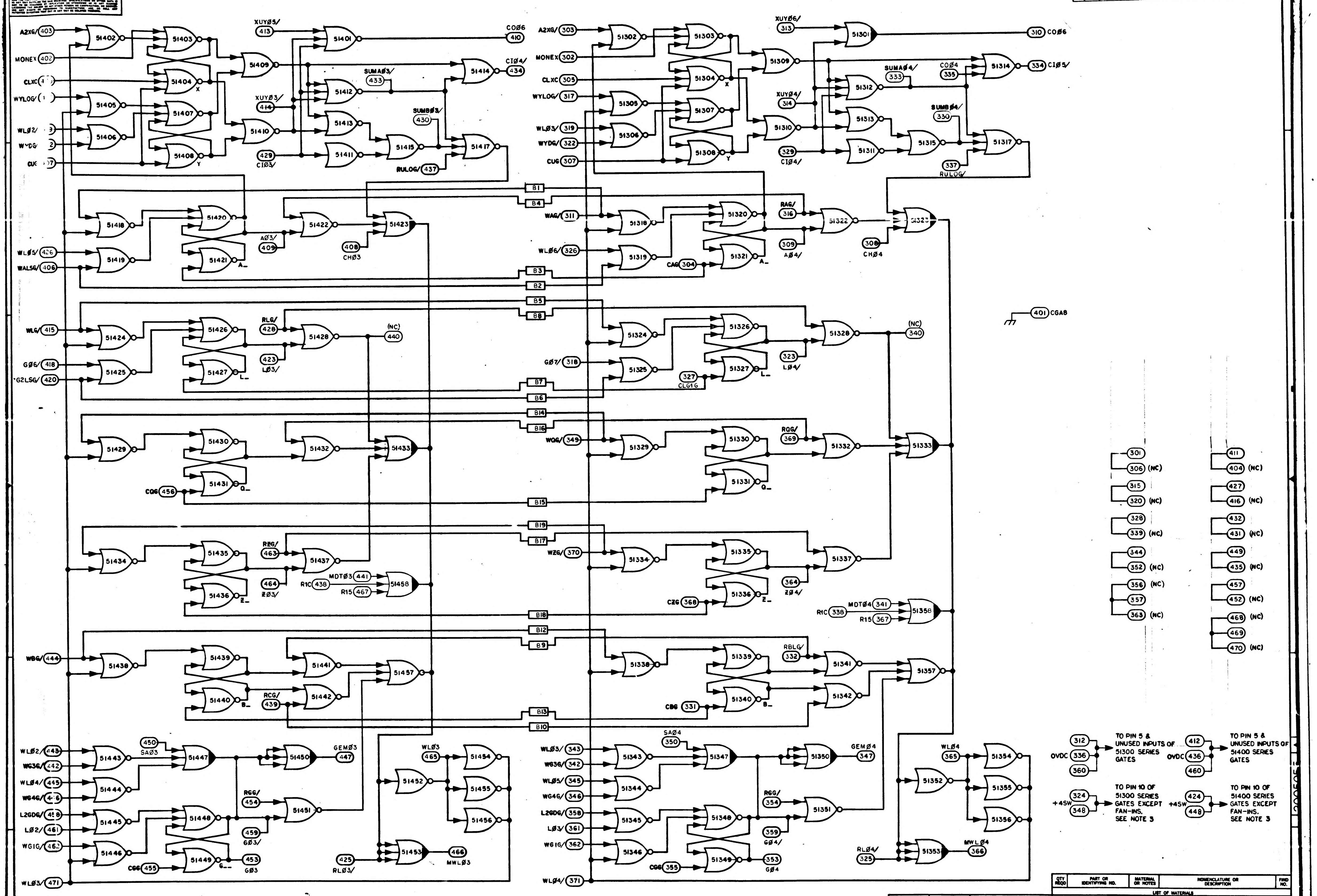
DRAWN Len Healy
CHECKED
APPROVED Albert Hopkins 2-2-65
APPROVED 2Feb65
APPROVED MIT W Kupfer
APPROVED MSC 2/4/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A8
4 BIT MODULE

CODE IDENT NO. —
SIZE E
DRAWING NO. 2005055
SCALE —
SHEET 1 OF 2

REVISIONS /6090						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 17469			25 MAR 65	



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WLØ2/
WYDG/
CUG 407
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404 (NC)
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435 (NC)
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470 (NC)
0VDC 312 336 360
TO PIN 5 & UNUSED INPUTS OF 51300 SERIES GATES
0VDC 412 436 460
TO PIN 5 & UNUSED INPUTS OF 51400 SERIES GATES
+4SW 324 348
TO PIN 10 OF 51300 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 424 448
TO PIN 10 OF 51400 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

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CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Don Healy
CHECKED
APPROVED 2-2-65
APPROVED
APPROVED MIT W Kupfer
APPROVED MSC 2/4/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A8
4 BIT MODULE

CODE IDENT NO. —
SIZE E
DRAWING NO. 2005055
SCALE —
SHEET 2 OF 2

MASTER

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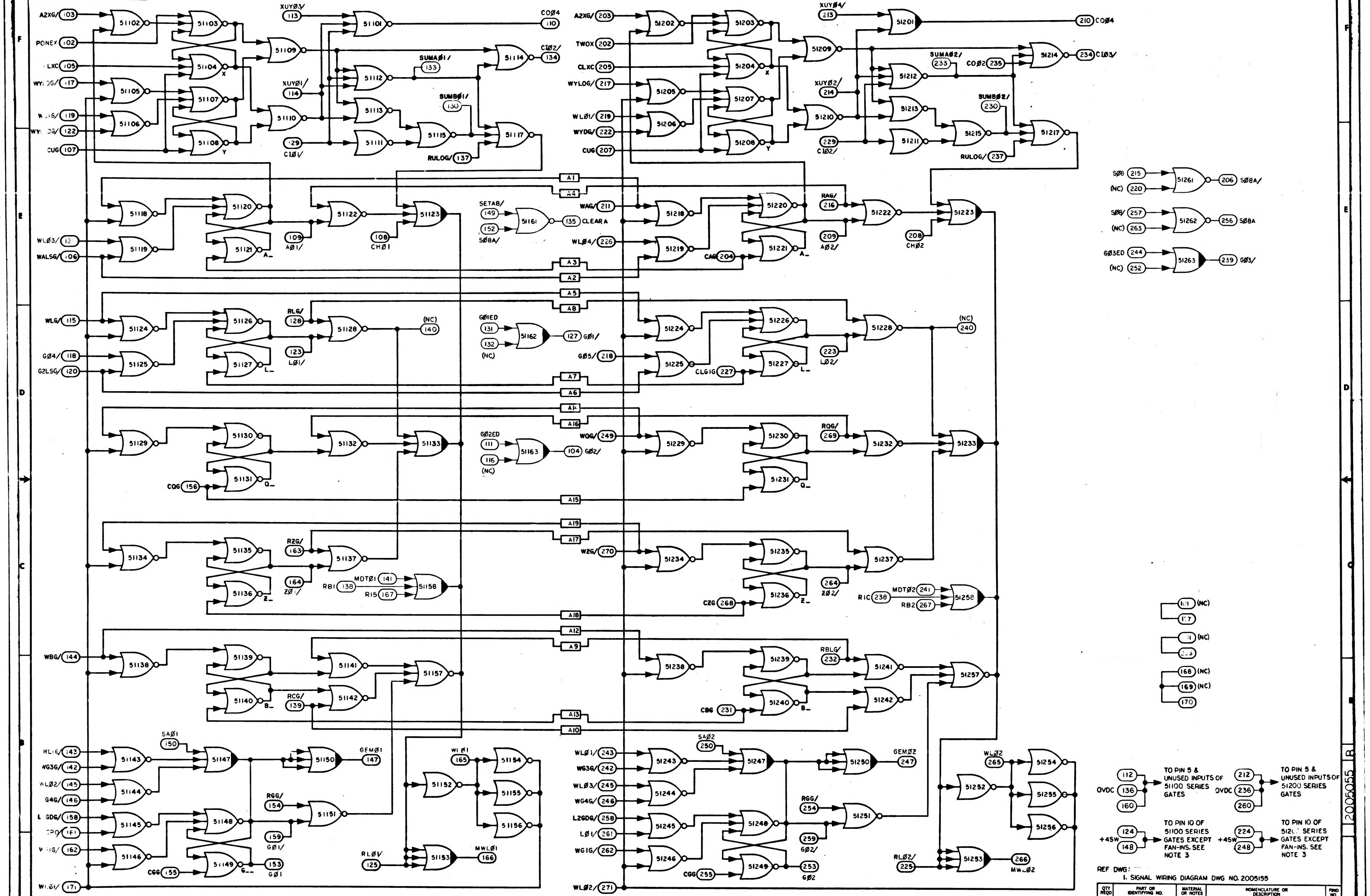
REVISIONS 16090

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 17469			26 MAR 65	
B		REVISED PER TDRR 22346	RHK	GK	15	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GEM02 247
RGG/ 254
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259 G02/
253 G02
WL02 265
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RL02/ 225
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266 MWL02
0VDC 112 136 160
TO PIN 5 & UNUSED INPUTS OF 51100 SERIES GATES
0VDC 212 236 260
TO PIN 5 & UNUSED INPUTS OF 51200 SERIES GATES
+4SW 124 148
TO PIN 10 OF 51100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 224 248
TO PIN 10 OF 5120 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

REF DWG:
1. SIGNAL WIRING DIAGRAM DWG NO. 2005155

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
[XXX] DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DRAWING NO. 2005011 FOR LOGIC DESIGN CRITERIA

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

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APPLICATION	

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CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING
MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

		DATE
DRAWN	Ken Healy	18 Nov 64
CHECKED	RPK	
APPROVED		2 2 65
APPROVED		2 Feb 65
APPROVED MIT	W Kupfer	2 Feb 65
APPROVED MSC		2/4/65

LOGIC FLOW DIAGRAM
MODULE NO. A8
4 BIT MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
—	E	2005055

SCALE — SHEET 1 OF 2

2005055 B

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		REVISIONS 16090				
A		REVISED PER TDRR 17469			25 MAR 65	
B		REVISED PER TDRR 22346				

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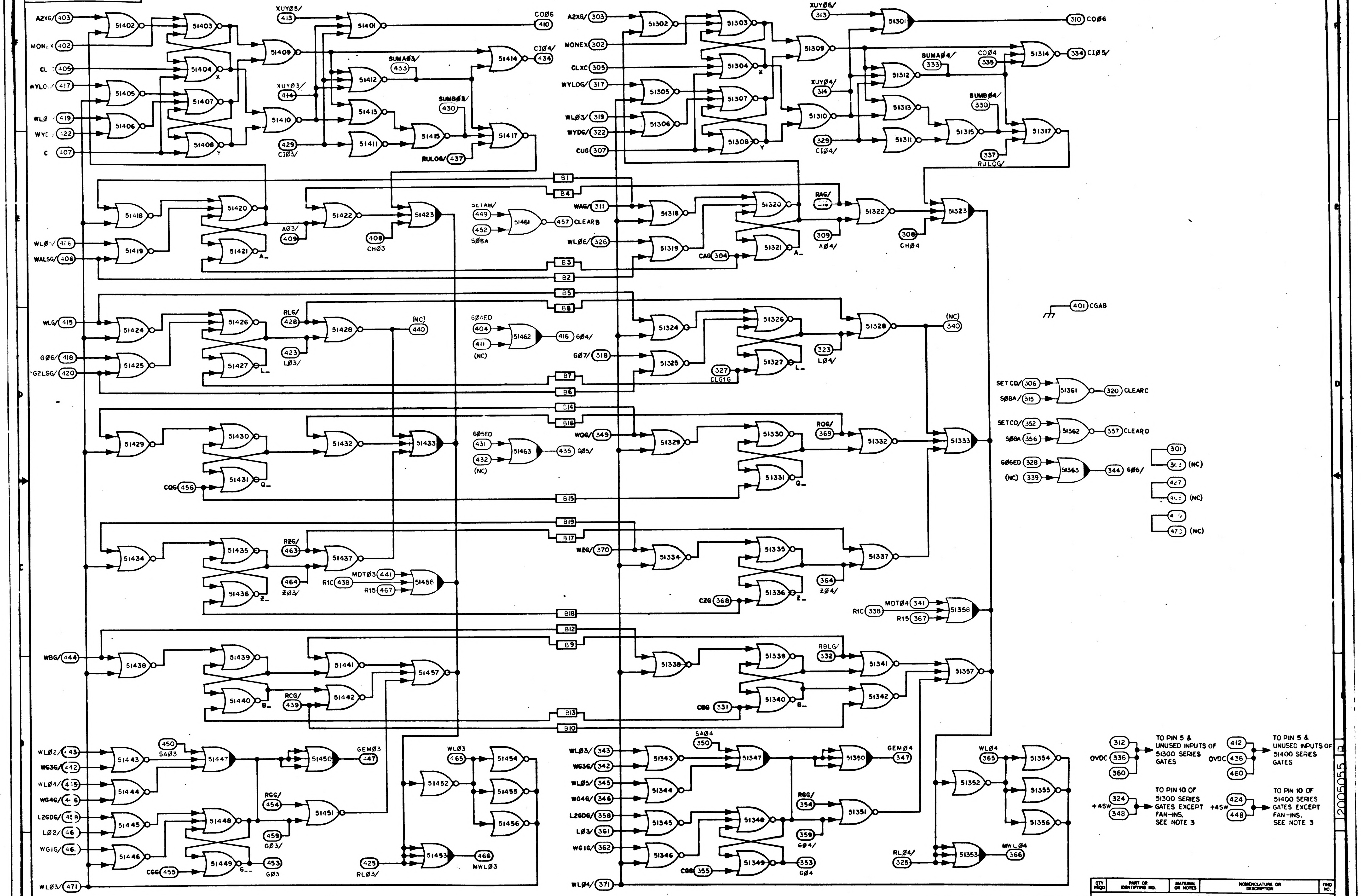

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MDT04 341
R15 367
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CBG 331
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359 G04/
353 G04
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RL04/ 325
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MWL04 366
OVDC 312 336 360
TO PIN 5 & UNUSED INPUTS OF 51300 SERIES GATES
OVDC 412 436 460
TO PIN 5 & UNUSED INPUTS OF 51400 SERIES GATES
+4SW 324 348
TO PIN 10 OF 51300 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 424 448
TO PIN 10 OF 51400 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Ken Healy
CHECKED
APPROVED 2-2-65
APPROVED
APPROVED MIT W Kupfer
APPROVED MSC 2/4/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A8
4 BIT MODULE

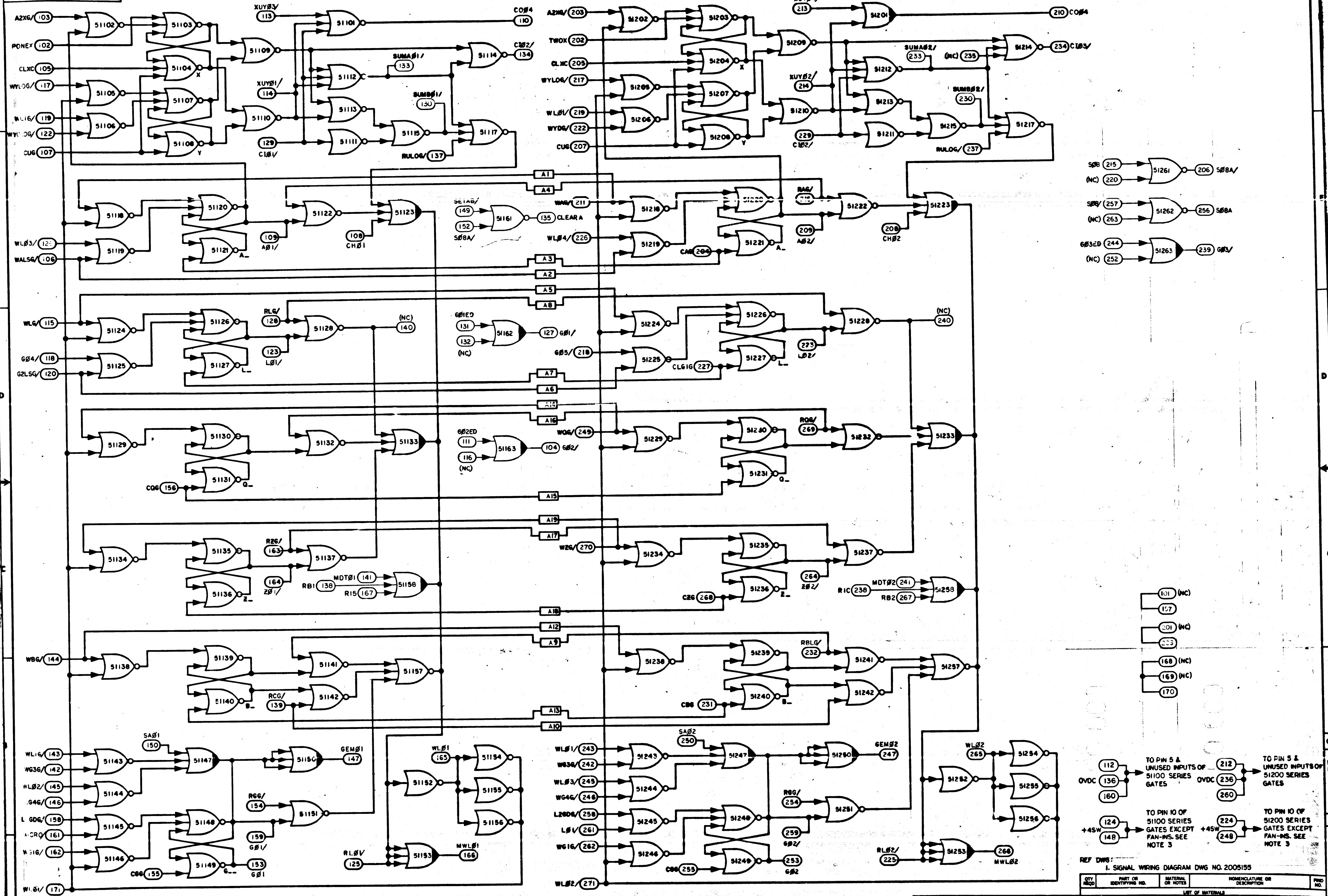
CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005055
SCALE —
SHEET 2 OF 2

2005055 B

MASTER

SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
A		REVISED PER TDRR 17469				
B		REVISED PER TDRR 22346				
C		REVISED PER TDRR 23157				

REVISIONS 16090



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PONEX 102
CLXC 105
WYLOG/ 117
WL16/ 119
WYD0G/ 122
CUG 107
XUY03/ 113
XUY01/ 114
C101/ 129
SUMA01/ 133
SUMB01/ 130
RULOG/ 137
C004 110
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CLXC 205
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208 CH02
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S08 215
(NC) 220
206 S08A/
S08 257
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256 S08A
G03ED 244
(NC) 252
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RLG/ 128
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RQG/ 269
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RBLG/ 232
CBG 231
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201 (NC)
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168 (NC)
169 (NC)
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CGG 155
WL01 165
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MWL01 166
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WG4G/ 246
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L0V/ 261
WG16/ 262
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GEM02 247
RGG/ 254
259 G02/
253 G02
CGG 255
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266 MWL02
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OVDC 112 136 160
TO PIN 5 & UNUSED INPUTS OF 51100 SERIES GATES
OVDC 212 236 260
TO PIN 5 & UNUSED INPUTS OF 51200 SERIES GATES
+4SW 124 148
TO PIN 10 OF 51100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 224 248
TO PIN 10 OF 51200 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
X
Y
A_
L_
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REF DWG:
1. SIGNAL WIRING DIAGRAM DWG NO. 2005155

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
[XXX] DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DRAWING NO. 2005011 FOR LOGIC DESIGN CRITERIA

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Ken Healy
CHECKED
APPROVED 2-2-65
APPROVED
APPROVED MIT
APPROVED MSC 2/4/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A8
4 BIT MODULE

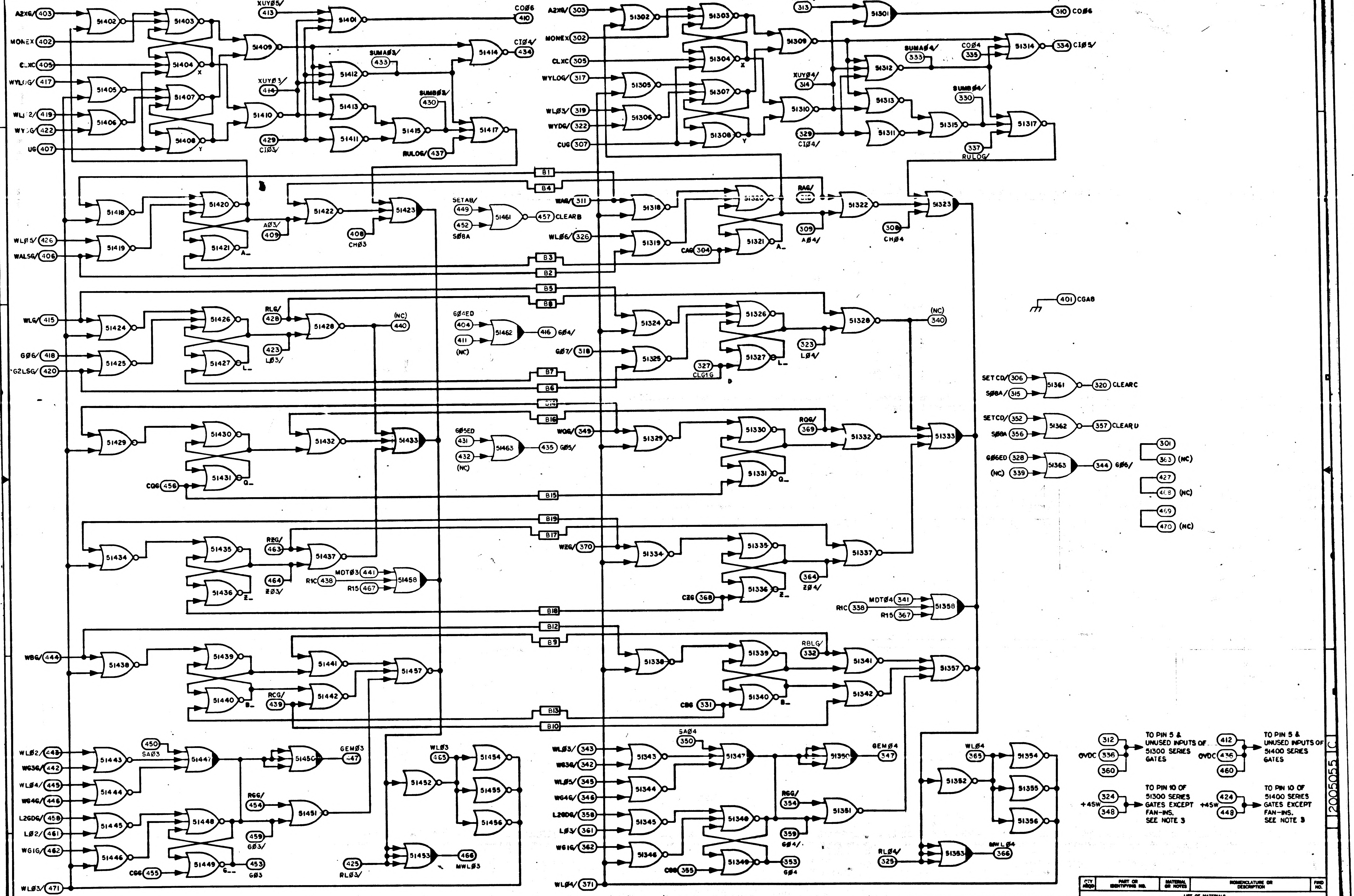
CODE IDENT NO. —
SIZE E
DRAWING NO. 2005055
SCALE —
SHEET 1 OF 2

MASTER

2005055 C

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED	
A		REVISED PER TDRR 17469			25 MAR 66		
B		REVISED PER TDRR 22346					
C		REVISED PER TDRR 23157					

REVISIONS 16090



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CLXC 405
WYLOG/ 417
WL12/ 419
WYDG/ 422
UG 407
XUY05/ 413
XUY03/ 414
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CI04/ 434
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429 CI03/
RULOG/ 437
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A2XG 303
MONEX 302
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310 C006
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C004 335
SUMB04/ 330
329 CI04/
337 RULOG/
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WG4G/ 446
L2GDG/ 458
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359 G04/
353 G04
WL04 365
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OVDC 312 336 360 TO PIN 5 & UNUSED INPUTS OF 51300 SERIES GATES

+4SW 324 348 TO PIN 10 OF 51300 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

OVDC 412 436 460 TO PIN 5 & UNUSED INPUTS OF 51400 SERIES GATES

+4SW 424 448 TO PIN 10 OF 51400 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

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CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED
APPROVED 2-2-65
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A8
4 BIT MODULE

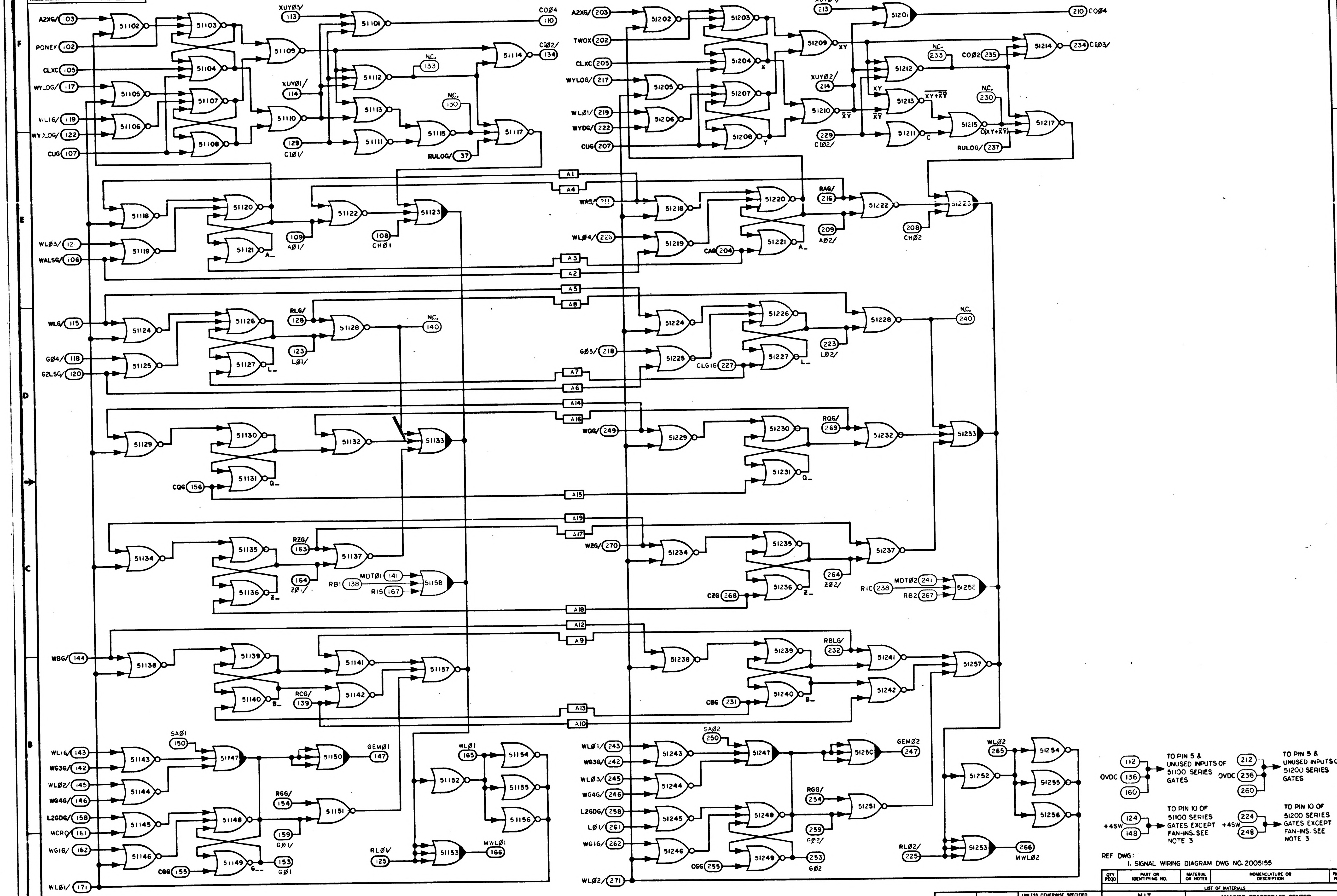
CODE IDENT NO. 80230 SIZE E DRAWING NO. 2005055

SCALE — SHEET 2 OF 2

2005055 C

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED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WL16/ 119
WYDLOG/ 122
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XUYØ2/ 214
229 C1Ø2/
210 CØ4
234 C1Ø3/
N.C. 233
CØ2 235
N.C. 230
RULOG/ 237
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208 CHØ2
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RQG/ 269
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2005055

OVDC 112 136 160 → TO PIN 5 & UNUSED INPUTS OF 51100 SERIES GATES

OVDC 212 236 260 → TO PIN 5 & UNUSED INPUTS OF 51200 SERIES GATES

+4SW 124 148 → TO PIN 10 OF 51100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

+4SW 224 248 → TO PIN 10 OF 51200 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

REF DWG:
1. SIGNAL WIRING DIAGRAM DWG NO. 2005155

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
   [XXX] DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DRAWING NO. 2005011 FOR LOGIC DESIGN CRITERIA

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

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DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	Len Healy	18 Nov 64
CHECKED	RPK R Bunker	
APPROVED	Albert Hopkins	2 2 65
APPROVED		2 Feb 65
APPROVED MIT	W Kupfer	2 Feb 65
APPROVED MSC		2/4/65
		DATE

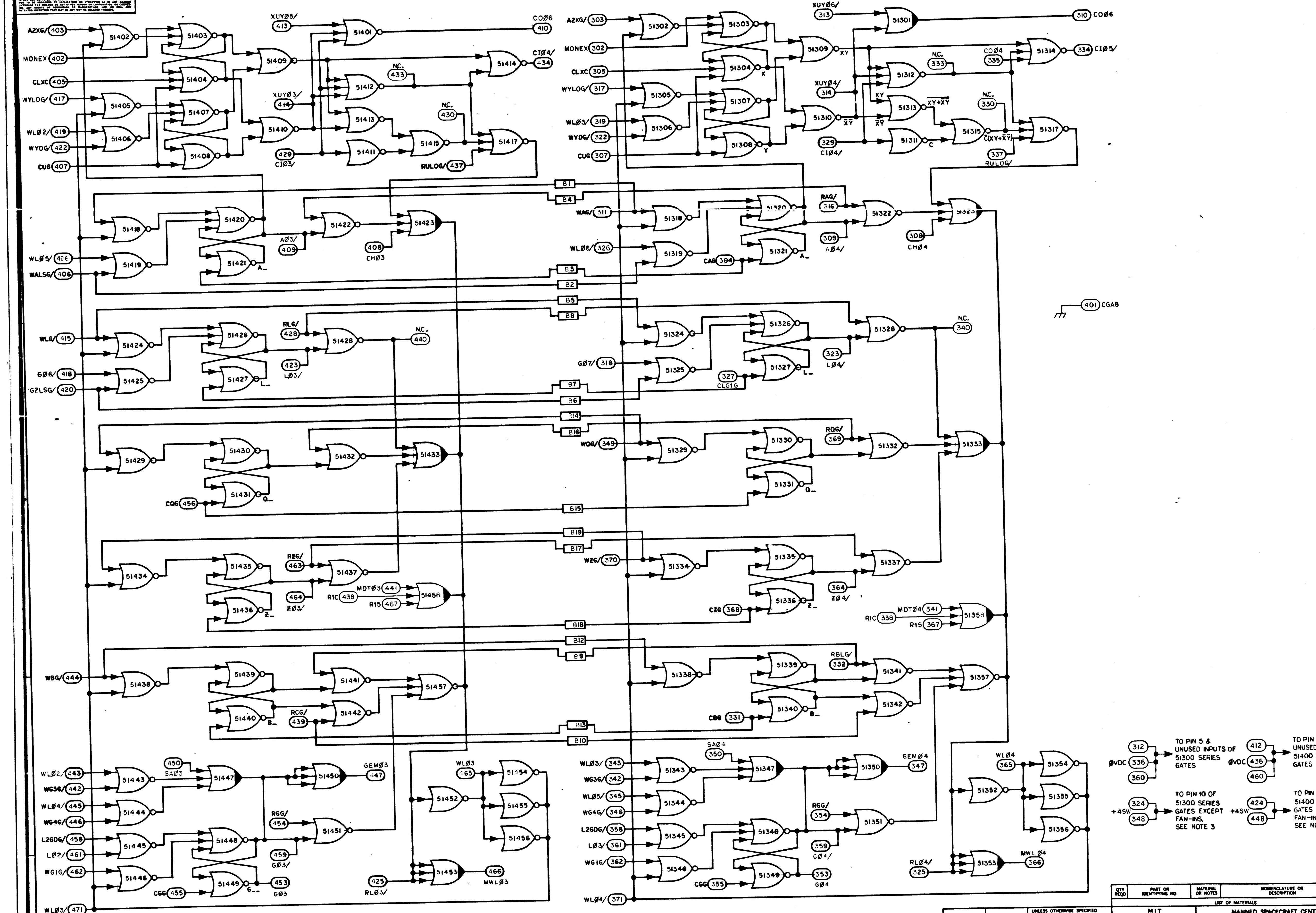
LOGIC FLOW DIAGRAM
MODULE NO. A8
4 BIT MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
—	E	2005055

SCALE — SHEET 1 OF 2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS					
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED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XUYØ3/ 414
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N.C. 430
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CIØ4/ 434
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RULOG/ 437
A2XG/ 303
MONEX 302
CLXC 305
WYLOG/ 317
WLØ3/ 319
WYDG/ 322
CUG 307
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51301
310 COØ6
XUYØ4/ 314
329 CIØ4/
N.C. 333
COØ4 335
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334 CIØ5/
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WLØ6/ 326
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B5
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GØ7/ 318
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323 LØ4/
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RQG/ 369
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B17
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464 ZØ3/
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MDTØ3 441
R1C 438
R15 467
51458
WZG/ 370
51334
51335
51336
Z_
CZG 368
364 ZØ4/
51337
R1C 338
MDTØ4 341
R15 367
51358
B18
B12
B9
WBG/ 444
51438
51439
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51441
RCG/ 439
51442
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B_
CBG 331
RBLG/ 332
51341
51342
51357
B13
B10
WLØ2/ 443
WG3G/ 442
WLØ4/ 445
WG4G/ 446
L2GDG/ 458
LØ?/ 461
WG1G/ 462
WLØ3/ 471
51443
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450 SAØ3
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G_
CGG 455
51450
GEMØ3 447
RGG/ 454
51451
459 GØ3/
453 GØ3
WLØ3 465
51452
51454
51455
51456
425 RLØ3/
51453
466 MWLØ3
WLØ3/ 343
WG3G/ 342
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WG4G/ 346
L2GDG/ 358
LØ3/ 361
WG1G/ 362
WLØ4/ 371
51343
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51346
SAØ4 350
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51349
CGG 355
51350
GEMØ4 347
RGG/ 354
51351
359 GØ4/
353 GØ4
WLØ4 365
51352
51354
51355
51356
RLØ4/ 325
51353
MWLØ4 366
312
ØVDC 336
360
TO PIN 5 & UNUSED INPUTS OF 51300 SERIES GATES
412
ØVDC 436
460
TO PIN 5 & UNUSED INPUTS OF 51400 SERIES GATES
+4SW 324
348
TO PIN 10 OF 51300 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 424
448
TO PIN 10 OF 51400 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Len Healy 18 Nov 64
CHECKED [illegible]
APPROVED Albert Hopkins [illegible]
APPROVED [illegible]
APPROVED MIT W Kupfer [illegible]
APPROVED MSC [illegible] 2/[illegible]
DATE

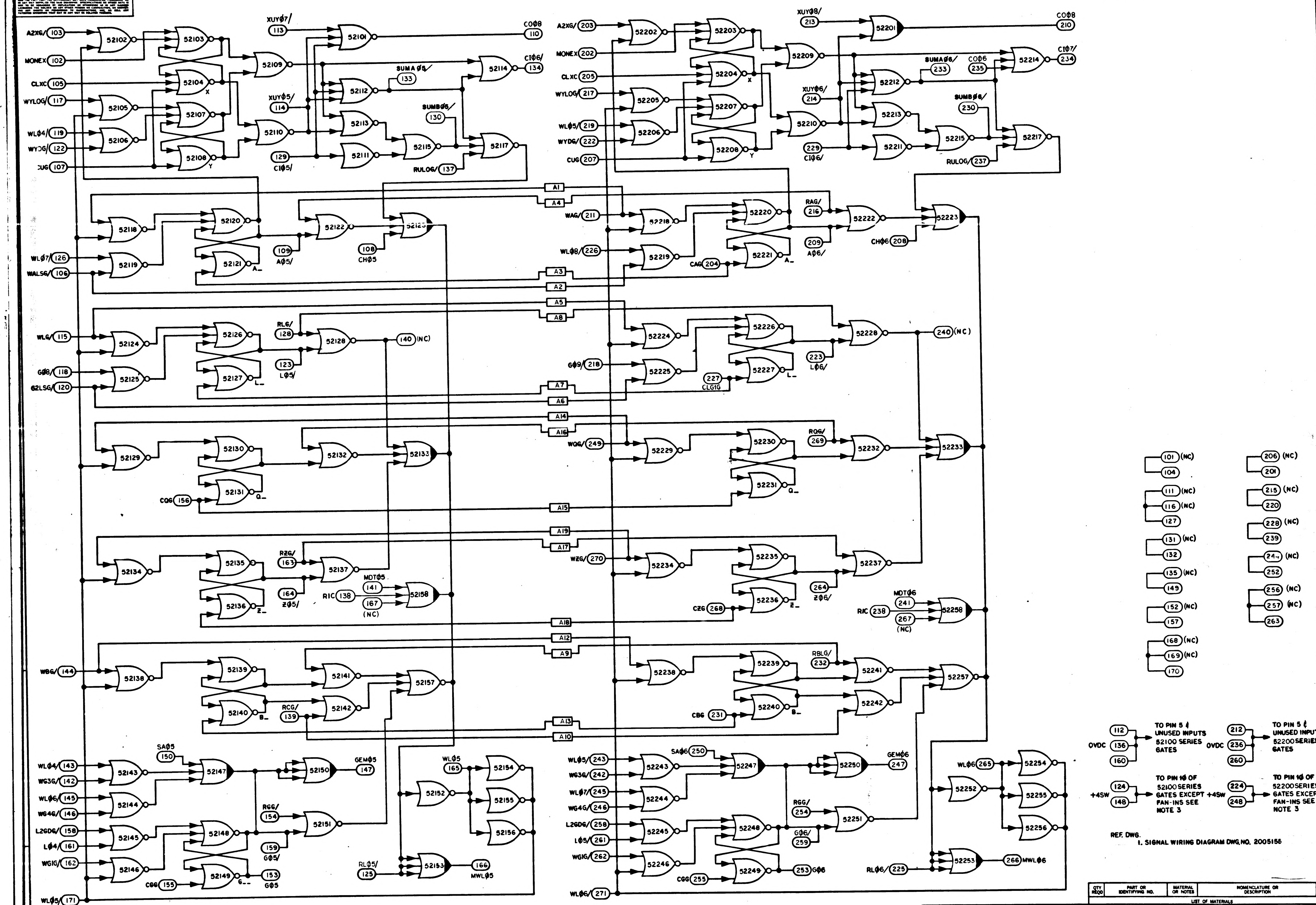
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A8
4 BIT MODULE

CODE IDENT NO. —
SIZE E
DRAWING NO. 2005055
SCALE —
SHEET 2 OF 2

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		REVISIONS 16090				
A		REVISED PER TDRR 17469			26MAR65	

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.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CLXC 105
WYLOG/ 117
WL04/ 119
WYDG/ 122
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52101
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52114
52115
52117
XUY07/ 113
XUY05/ 114
CO06 110
CI06/ 134
SUMA06/ 133
SUMB06/ 130
129 CI05/
RULOG/ 137
X
Y
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A4
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109 A05/
108 CH05
A_
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52127
52128
WLG/ 115
G08/ 118
G2LSG/ 120
RLG/ 128
140 (NC)
123 L05/
L_
52129
52130
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Q_
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RZG/ 163
164 Z05/
MDT05 141
RIC 138
167 (NC)
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WBG/ 144
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52141
52142
52157
RCG/ 139
B_
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WG3G/ 142
WL06/ 145
WG4G/ 146
L2GDG/ 158
L04/ 161
WG1G/ 162
WL05/ 171
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52144
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52153
52154
52155
52156
SA05 150
GEM05 147
RGG/ 154
159 G05/
153 G05
CGG 155
G_
WL05 165
RL05/ 125
166 MWL05
A2XG/ 203
MONEX 202
CLXC 205
WYLOG 217
WL05/ 219
WYDG/ 222
CUG 207
52201
52202
52203
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XUY08/ 213
XUY06/ 214
CO08 210
CI07/ 234
SUMA08/ 233
CO06 235
SUMB08/ 230
229 CI06/
RULOG/ 237
WAG/ 211
WL08/ 226
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RAG/ 216
209 A06/
CH06 208
CAG 204
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52225
52226
52227
52228
G09/ 218
227 CLG1G
223 L06/
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RQG/ 269
WZG/ 270
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264 Z06/
CZG 268
MDT06 241
RIC 238
267 (NC)
52238
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52240
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52242
52257
RBLG/ 232
CBG 231
WL05/ 243
WG3G/ 242
WL07/ 245
WG4G/ 246
L2GDG/ 258
L05/ 261
WG1G/ 262
WL06/ 271
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SA06 250
GEM06 247
RGG/ 254
G06/ 259
253 G06
CGG 255
WL06 265
RL06/ 225
266 MWL06
101 (NC)
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111 (NC)
116 (NC)
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131 (NC)
132
135 (NC)
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152 (NC)
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169 (NC)
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206 (NC)
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215 (NC)
220
228 (NC)
239
244 (NC)
252
256 (NC)
257 (NC)
263
OVDC 112 136 160 TO PIN 5 & UNUSED INPUTS 52100 SERIES GATES
OVDC 212 236 260 TO PIN 5 & UNUSED INPUTS 52200 SERIES GATES
+4SW 124 148 TO PIN 10 OF 52100 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
+4SW 224 248 TO PIN 10 OF 52200 SERIES GATES EXCEPT FAN-INS SEE NOTE 3

REF. DWG.
1. SIGNAL WIRING DIAGRAM DWG. NO. 2005156

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
▭ DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG NO. 2005011 FOR LOGIC DESIGN CRITERIA

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS				

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Don Healy 13 Nov 64
CHECKED 17 Dec 64
APPROVED Albert Hopkins 2.2.65
APPROVED Eldon C. Hall 2 Feb 65
APPROVED MIT W. Cooper 9 Feb 65
APPROVED MSC 4/4/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

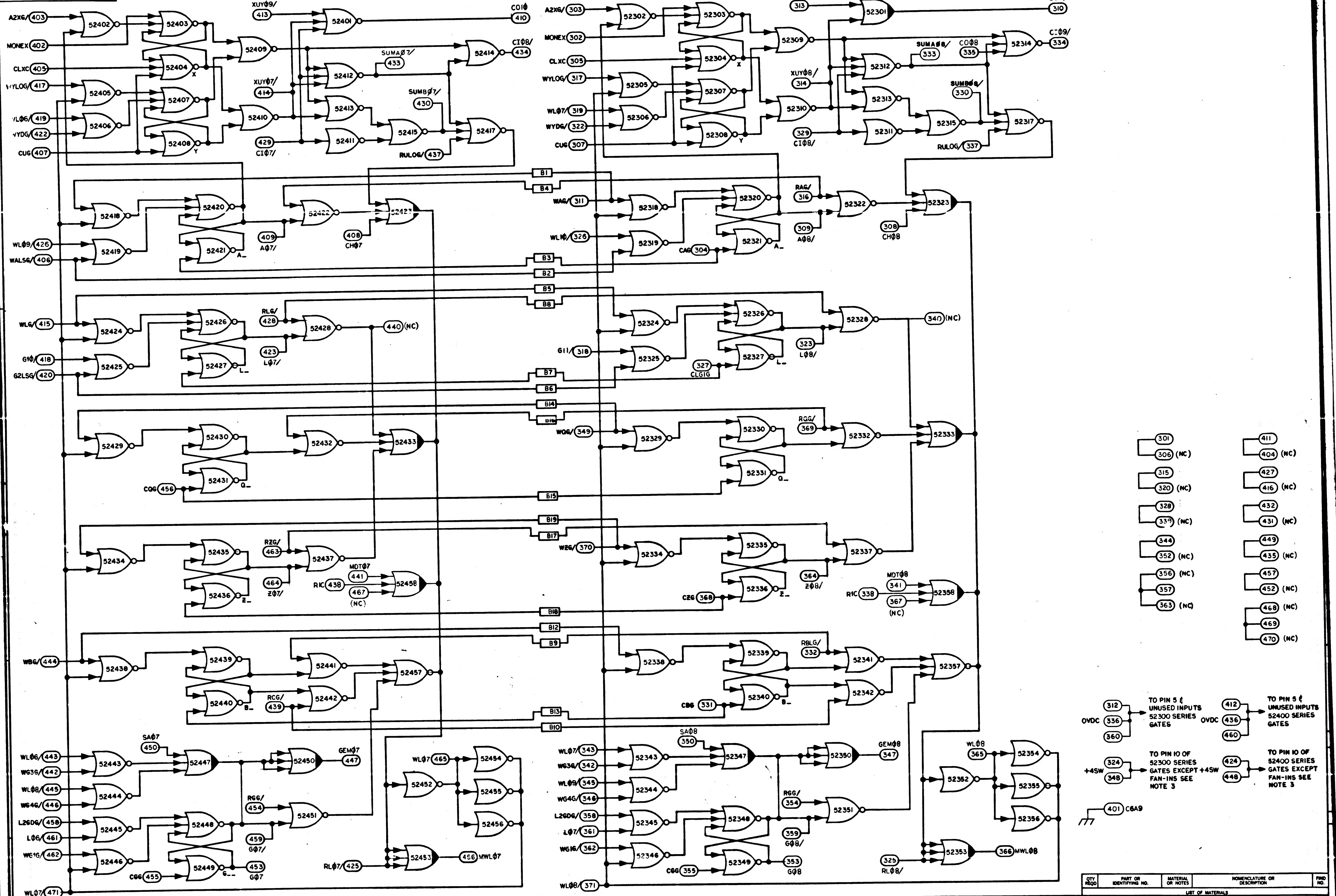
LOGIC FLOW DIAGRAM
MODULE NO. A9
4 BIT MODULE

CODE IDENT NO. —
SIZE E
DRAWING NO. 2005056
SCALE —
SHEET 1 OF 2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 16093

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 17469	9.9.		26MAR65	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WYLOG/ 417
WL06/ 419
WYDG/ 422
CUG 407
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XUY07/ 414
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CI0 410
SUMA07/ 433
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CI08/ 434
SUMB07/ 430
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RULOG/ 437
A2XG/ 303
MONEX 302
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CO10 310
SUMA08/ 333
CO08 335
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CI09/ 334
SUMB08/ 330
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RULOG/ 337
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WL10/ 326
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RAG/ 316
52322
309 A08/
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WLG/ 415
G10/ 418
G2LSG/ 420
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RIC 338
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CBG 331
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WL06/ 443
WG3G/ 442
WL08/ 445
WG4G/ 446
L2GDG/ 458
L06/ 461
WG1G/ 462
WL07/ 471
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GEM07 447
RGG/ 454
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459 G07/
453 G07
WL07/ 465
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RL07/ 425
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WG3G/ 342
WL09/ 345
WG4G/ 346
L2GDG/ 358
L07/ 361
WG1G/ 362
WL08/ 371
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359 G08/
353 G08
WL08 365
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339 (NC)
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352 (NC)
356 (NC)
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404 (NC)
427
416 (NC)
432
431 (NC)
449
435 (NC)
457
452 (NC)
468 (NC)
469
470 (NC)
0VDC
312
336
360
TO PIN 5 & UNUSED INPUTS 52300 SERIES GATES
0VDC
412
436
460
TO PIN 5 & UNUSED INPUTS 52400 SERIES GATES
+4SW
324
348
TO PIN 10 OF 52300 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
+4SW
424
448
TO PIN 10 OF 52400 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
401 C6A9

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	Ken Healy	18 Nov 64
CHECKED		18 Nov 64
APPROVED	Albert Hopkins	2-2-65
APPROVED	Eldon C Hall	2 Feb 65
APPROVED MIT		2 Feb 65
APPROVED MSC		
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A9
4 BIT MODULE

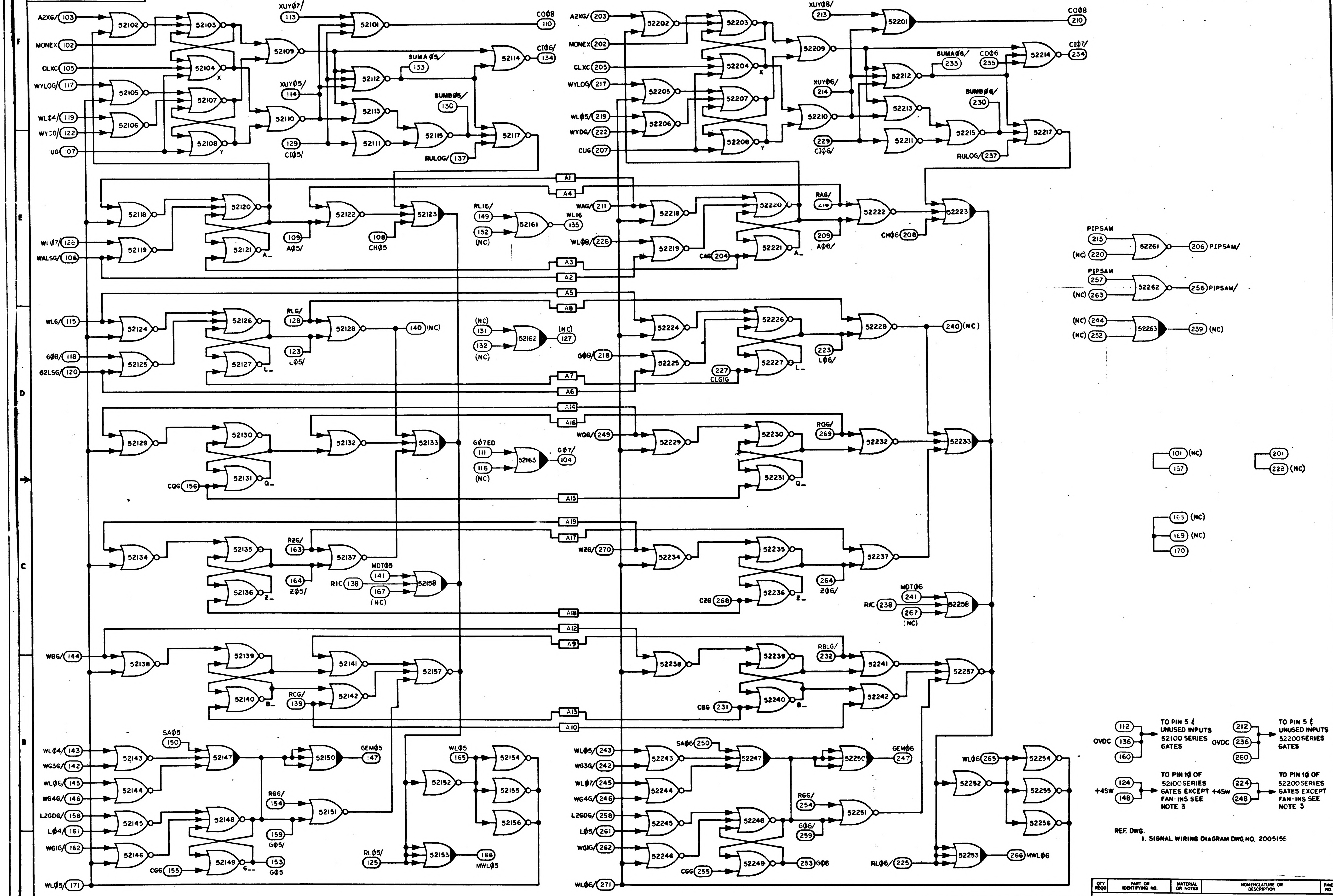
CODE IDENT NO. —
SIZE E
DRAWING NO. 2005056
SCALE —
SHEET 2 OF 2

MASTER

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 16090

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED	
A		REVISED PER TDRR 17469		RL	26 MAR 65		
B		REVISED PER TDRR 22349			14 Sep 65		



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WLØ4/ 119
WYDG/ 122
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XUYØ5/ 114
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SUMAØ5/ 133
SUMBØ5/ 130
RULOG/ 137
COØ8 110
CIØ6/ 134
A2XG/ 203
MONEX 202
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WYLOG/ 217
WLØ5/ 219
WYDG/ 222
CUG 207
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XUYØ6/ 214
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SUMAØ6/ 233
COØ6 235
SUMBØ6/ 230
RULOG/ 237
COØ8 210
CIØ7/ 234
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WLØ8/ 226
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CHØ6 208
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RQG/ 269
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MDTØ5 141
RIC 138
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WZG/ 270
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CZG 268
264 ZØ6/
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MDTØ6 241
RIC 238
267 (NC)
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WBG/ 144
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RCG/ 139
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CBG 231
RBLG/ 232
52241
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WLØ4/ 143
WG3G/ 142
WLØ6/ 145
WG4G/ 146
L2GDG/ 158
LØ4/ 161
WG1G/ 162
WLØ5/ 171
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SAØ5 150
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G_
CGG 155
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GEMØ5 147
RGG/ 154
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159 GØ5/
153 GØ5
WLØ5 165
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RLØ5/ 125
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WLØ5/ 243
WG3G/ 242
WLØ7/ 245
WG4G/ 246
L2GDG/ 258
LØ5/ 261
WG1G/ 262
WLØ6/ 271
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SAØ6 250
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CGG 255
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GEMØ6 247
RGG/ 254
GØ6/ 259
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253 GØ6
WLØ6 265
52252
52254
52255
52256
RLØ6/ 225
52253
266 MWLØ6
OVDC 112 136 160
TO PIN 5 ¢ UNUSED INPUTS 52100 SERIES GATES
OVDC 212 236 260
TO PIN 5 ¢ UNUSED INPUTS 52200 SERIES GATES
+4SW 124 148
TO PIN 10 OF 52100 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
+4SW 224 248
TO PIN 10 OF 52200 SERIES GATES EXCEPT FAN-INS SEE NOTE 3

REF. DWG.
1. SIGNAL WIRING DIAGRAM DWG NO. 2005155

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
▭ DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG NO. 2005011 FOR LOGIC DESIGN CRITERIA

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN Ken Healy 13 Nov 64
CHECKED P.K. Benker 17 Dec 64
APPROVED Albert Hopkins 2-2-65
APPROVED Eldon C. Hall 2 Feb 65
APPROVED MIT W. Cooper 2 Feb 65
APPROVED MSC 2/4/65
DATE

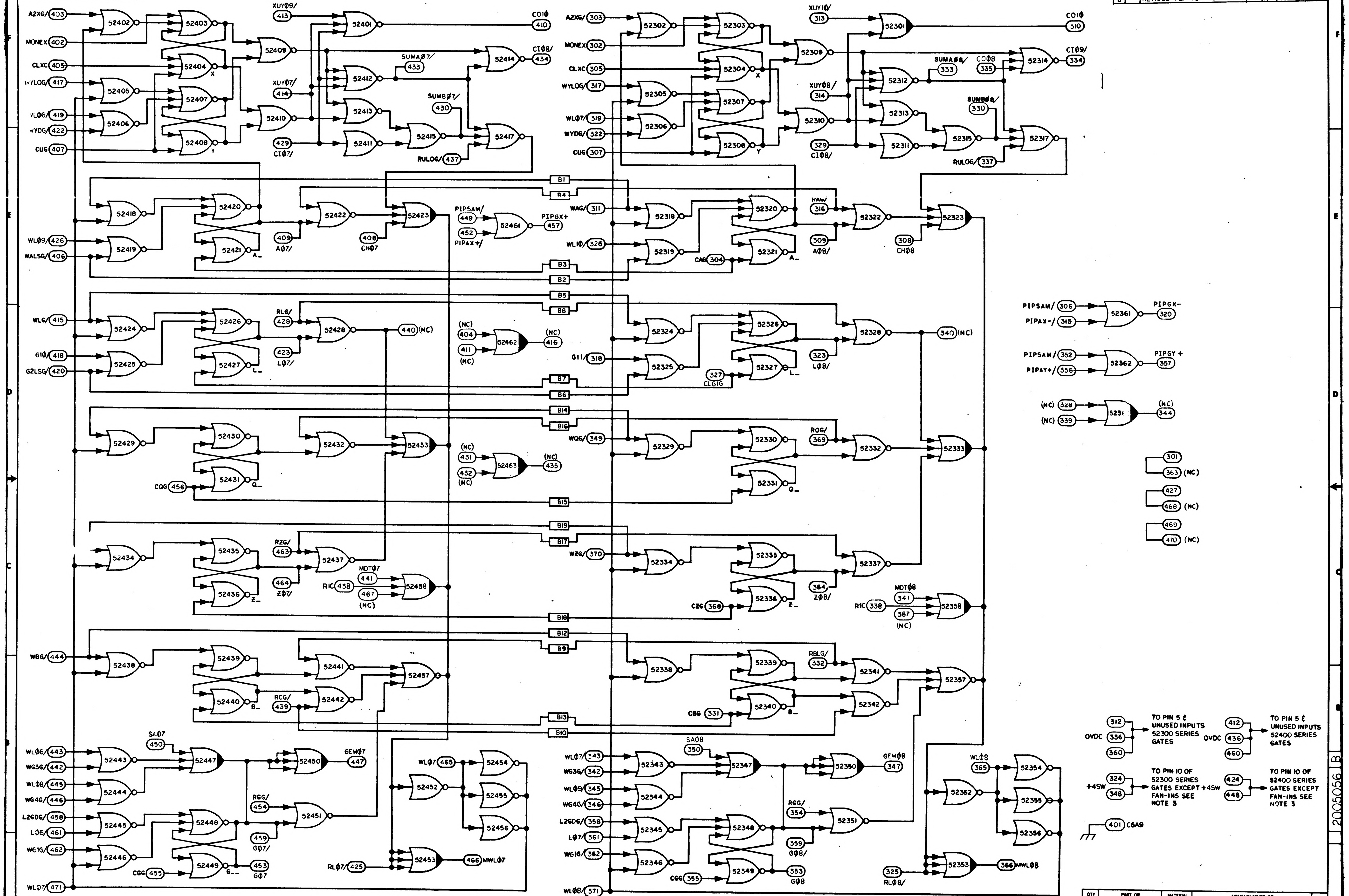
LOGIC FLOW DIAGRAM
MODULE NO. A9
4 BIT MODULE

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005056
SCALE —
SHEET 1 OF 2

2005056 B

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 17469	99	CL	26 MAR 65	
B		REVISED PER TDRR 22349	WFH			

REVISIONS 16090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MONEX 402
CLXC 405
WYLOG/ 417
WL06/ 419
WYDG/ 422
CUG 407
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52417
XUY09/ 413
XUY07/ 414
CI07/ 429
CO10 410
CI08/ 434
SUMA07/ 433
SUMB07/ 430
RULOG/ 437
A2XG/ 303
MONEX 302
CLXC 305
WYLOG/ 317
WL07/ 319
WYDG/ 322
CU6 307
XUY10/ 313
XUY08/ 314
CI08/ 329
CO10 310
CI09/ 334
SUMA08/ 333
CO08 335
SUMB08/ 330
RULOG/ 337
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WALSG/ 406
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52423
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PIPGX+ 457
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B7
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G10/ 418
G2LSG/ 420
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440 (NC)
(NC) 404
411 (NC)
52462
(NC) 416
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52325
52326
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L08/ 323
340 (NC)
PIPSAM/ 306
PIPAX-/ 315
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PIPGX- 320
PIPSAM/ 352
PIPAY+/ 356
52362
PIPGY+ 357
(NC) 328
(NC) 339
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(NC) 344
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(NC) 431
432 (NC)
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(NC) 435
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363 (NC)
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468 (NC)
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470 (NC)
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Z07/ 464
MDT07 441
R1C 438
467 (NC)
WZG/ 370
CZG 368
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Z08/ 364
MDT08 341
R1C 338
367 (NC)
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B13
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RBLG/ 332
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52357
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WL08/ 445
WG4G/ 446
L2GDG/ 458
L06/ 461
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WL07/ 471
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SA07 450
GEM07 447
RGG/ 454
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WG4G/ 346
L2GDG/ 358
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WG1G/ 362
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SA08 350
GEM08 347
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G08/ 359
G08 353
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52351
WL08 365
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52353
RL08/ 325
366 MWL08
OVDC 312 336 360
TO PIN 5 & UNUSED INPUTS 52300 SERIES GATES
OVDC 412 436 460
TO PIN 5 & UNUSED INPUTS 52400 SERIES GATES
+4SW 324 348
TO PIN 10 OF 52300 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
+4SW 424 448
TO PIN 10 OF 52400 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
401 C6A9

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Len Healy 18 Nov 64
CHECKED 18 Jan 65
APPROVED Albert Hopkins 2.2.65
APPROVED Eldon C Hall 2 Feb 65
APPROVED MIT W Kupfer 2 Feb 65
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

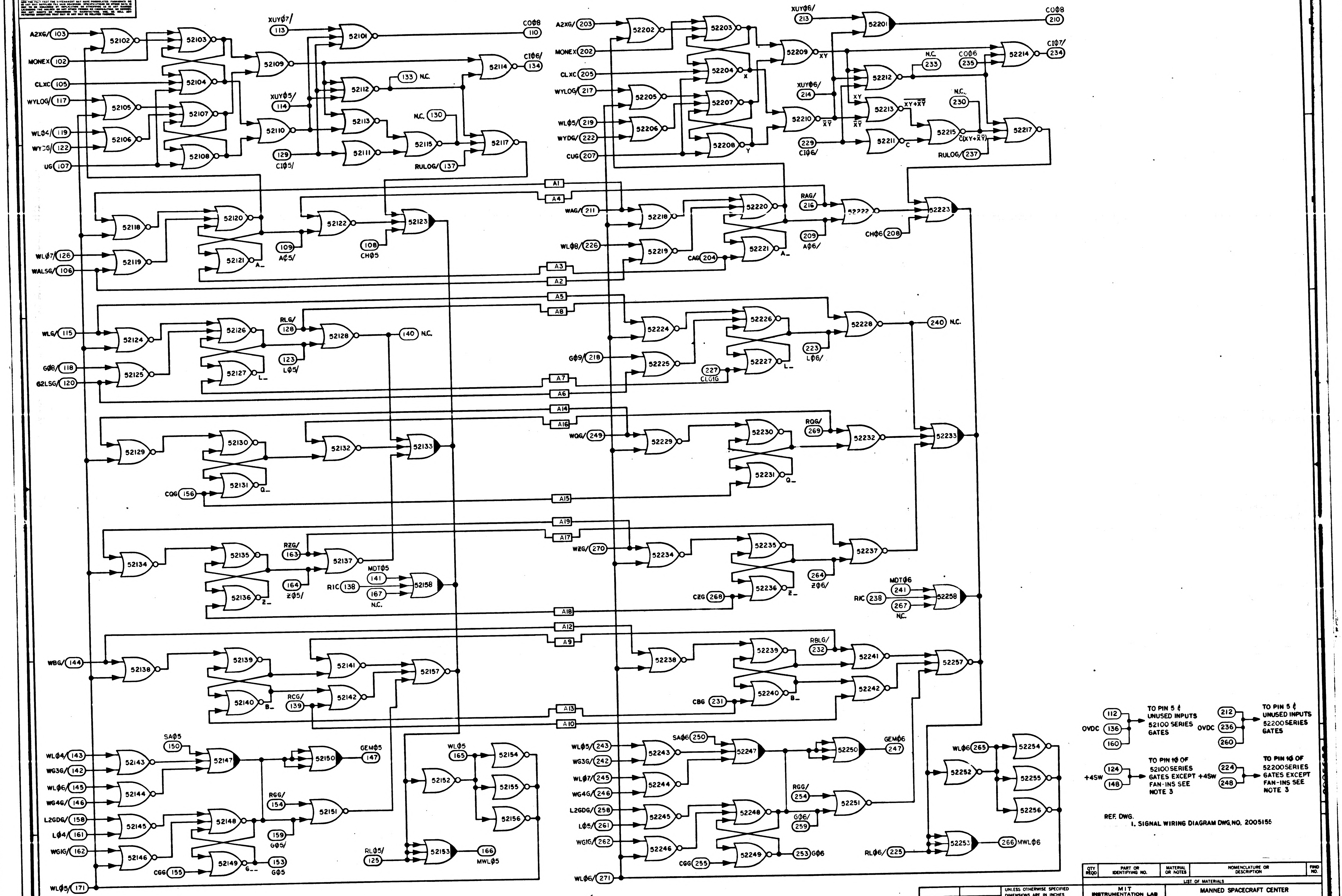
LOGIC FLOW DIAGRAM
MODULE NO. A9
4 BIT MODULE

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005056
SCALE —
SHEET 2 OF 2

2005056 B

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.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CLXC 105
WYLOG/ 117
WLØ4/ 119
WYDG/ 122
UG 107
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52103
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52106
52107
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52109
52110
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52101
COØ8 110
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133 N.C.
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52113
52111
129 CIØ5/
52114
CIØ6/ 134
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52115
RULOG/ 137
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A4
A3
A2
52118
52119
WLØ7/ 126
WALSG/ 106
52120
52121
A–
52122
109 AØ5/
108 CHØ5
52123
A5
A8
A7
A6
WLG/ 115
GØ8/ 118
G2LSG/ 120
52124
52125
52126
52127
L–
RLG/ 128
123 LØ5/
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140 N.C.
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A16
A15
52129
52130
52131
Q–
CQG 156
52132
52133
A19
A17
A18
52134
52135
52136
Z–
RZG/ 163
52137
164 ZØ5/
MDTØ5 141
RIC 138
167 N.C.
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A12
A9
A13
A10
WBG/ 144
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52140
B–
52141
RCG/ 139
52142
52157
WLØ4/ 143
WG3G/ 142
WLØ6/ 145
WG4G/ 146
L2GDG/ 158
LØ4/ 161
WGIG/ 162
WLØ5/ 171
52143
52144
52145
52146
SAØ5 150
52147
52150
GEMØ5 147
RGG/ 154
52151
52148
52149
G–
159 GØ5/
153 GØ5
CGG 155
WLØ5 165
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52154
52155
52156
RLØ5/ 125
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166 MWLØ5
A2XG/ 203
MONEX 202
CLXC 205
WYLOG/ 217
WLØ5/ 219
WYDG/ 222
CUG 207
52202
52203
52204
X
52205
52206
52207
52208
Y
XUYØ6/ 213
52201
COØ8 210
52209
XY
XUYØ6/ 214
52210
X̄Ȳ
229 CIØ6/
N.C. 233
COØ6 235
52212
XY
52213
XY+X̄Ȳ
X̄Ȳ
52211
C
N.C. 230
52215
C(XY+X̄Ȳ)
RULOG/ 237
52214
CIØ7/ 234
52217
WAG/ 211
WLØ8/ 226
52218
52219
52220
52221
A–
CAG 204
RAG/ 216
52222
209 AØ6/
CHØ6 208
52223
GØ9/ 218
52224
52225
52226
52227
L–
227 CLGIG
223 LØ6/
52228
240 N.C.
WQG/ 249
52229
52230
52231
Q–
RQG/ 269
52232
52233
WZG/ 270
52234
52235
52236
Z–
CZG 268
264 ZØ6/
52237
MDTØ6 241
RIC 238
267 N.C.
52258
52238
52239
52240
B–
CBG 231
RBLG/ 232
52241
52242
52257
WLØ5/ 243
WG3G/ 242
WLØ7/ 245
WG4G/ 246
L2GDG/ 258
LØ5/ 261
WGIG/ 262
WLØ6/ 271
52243
52244
52245
52246
SAØ6 250
52247
52250
GEMØ6 247
RGG/ 254
52251
GØ6/ 259
52248
52249
253 GØ6
CGG 255
WLØ6 265
52252
52254
52255
52256
RLØ6/ 225
52253
266 MWLØ6
OVDC 112 136 160
TO PIN 5 & UNUSED INPUTS 52100 SERIES GATES
OVDC 212 236 260
TO PIN 5 & UNUSED INPUTS 52200 SERIES GATES
+4SW 124 148
TO PIN 10 OF 52100 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
+4SW 224 248
TO PIN 10 OF 52200 SERIES GATES EXCEPT FAN-INS SEE NOTE 3

REF. DWG.
1. SIGNAL WIRING DIAGRAM DWG. NO. 2005155

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
☐ DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG NO. 2005011 FOR LOGIC DESIGN CRITERIA

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

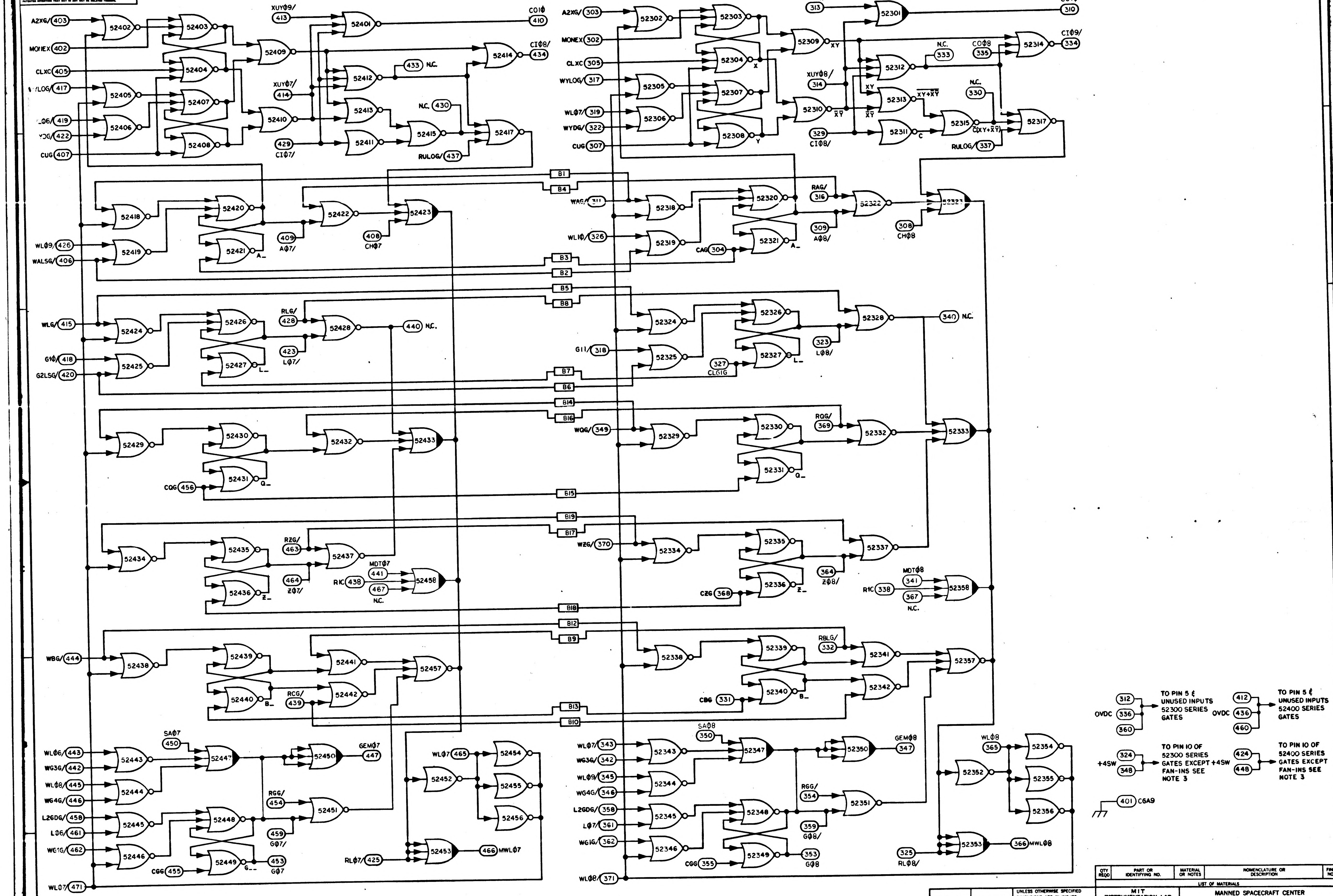
DRAWN	Len Healy	13 Nov 64
CHECKED	R.K.	17 Dec 64
APPROVED	Albert Hopkins	2-2-65
APPROVED	E. Hall	2 Feb 65
APPROVED MIT	W. Copper	3 Feb 65
APPROVED MSC		4/4/65
		DATE

LOGIC FLOW DIAGRAM
MODULE NO. A9
4 BIT MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
—	E	2005056
SCALE —		SHEET 1 OF 2

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 16090						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED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4
3
2
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CLXC 405
WYLOG/ 417
WL0G/ 419
WYDG/ 422
CUG 407
52402
52403
52404
52405
52406
52407
52408
52409
52410
XUY09/ 413
52401
CO10 410
XUY07/ 414
52412
52413
52411
433 N.C.
N.C. 430
52414
CI08/ 434
52415
52417
429 CI07/
RULOG/ 437
B1
B4
52418
52419
52420
52421
A_
52422
409 A07/
408 CH07
52423
WL09/ 426
WALSG/ 406
B3
B2
B5
B8
WLG/ 415
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G2LSG/ 420
52424
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L_
RLG/ 428
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440 N.C.
423 L07/
B7
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B16
52429
52430
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Q_
CQG 456
52432
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B15
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B17
52434
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52436
Z_
RZG/ 463
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464 Z07/
MDT07 441
RIC 438
467 N.C.
52458
B18
B12
B9
WBG/ 444
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B_
52441
RCG/ 439
52442
52457
B13
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WL06/ 443
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WL08/ 445
WG4G/ 446
L2GDG/ 458
L06/ 461
WG1G/ 462
WL07/ 471
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SA07 450
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52449
G_
CGG 455
52450
GEM07 447
RGG/ 454
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459 G07/
453 G07
WL07 465
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RL07/ 425
52453
466 MWL07
A2XG/ 303
MONEX 302
CLXC 305
WYLOG/ 317
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CUG 307
52302
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X
52305
52306
52307
52308
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52309
XY
52310
XY
XUY10/ 313
52301
CO10 310
XUY08/ 314
329 CI08/
N.C. 333
CO08 335
52312
XY
52313
XY+XY
52311
C
N.C. 330
52314
CI09/ 334
52315
C(XY+XY)
52317
RULOG/ 337
WAG/ 311
WL10/ 326
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52319
52320
52321
A_
CAG 304
RAG/ 316
52322
309 A08/
308 CH08
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52324
52325
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52326
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327 CLG1G
323 L08/
52328
340 N.C.
WQG/ 349
52329
52330
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Q_
RQG/ 369
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WZG/ 370
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CZG 368
364 Z08/
52337
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367 N.C.
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CBG 331
RBLG/ 332
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52357
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WG3G/ 342
WL09/ 345
WG4G/ 346
L2GDG/ 358
L07/ 361
WG1G/ 362
WL08/ 371
SA08 350
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52347
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CGG 355
52350
GEM08 347
RGG/ 354
52351
359 G08/
353 G08
WL08 365
52352
52354
52355
52356
325 RL08/
52353
366 MWL08
OVDC 312 336 360
TO PIN 5 & UNUSED INPUTS 52300 SERIES GATES
OVDC 412 436 460
TO PIN 5 & UNUSED INPUTS 52400 SERIES GATES
+4SW 324 348
TO PIN 10 OF 52300 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
+4SW 424 448
TO PIN 10 OF 52400 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
401 C6A9

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

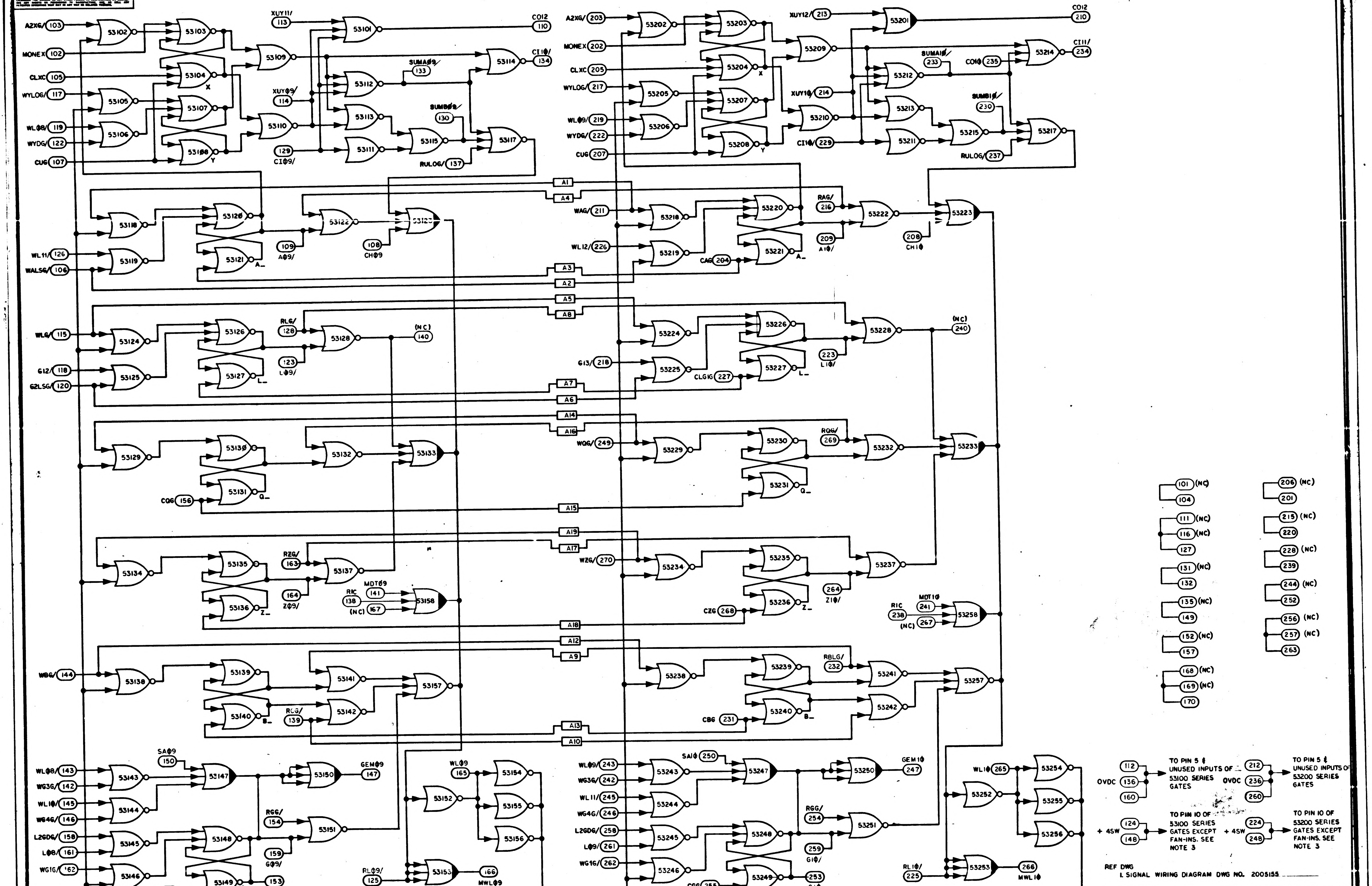
DRAWN Ken Healy 18 Nov 64
CHECKED 18 Nov 64
APPROVED Albert Hopkins 2-2-65
APPROVED Eldon C Hall 2 Feb 65
APPROVED MIT 2 Feb 65
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A9
4 BIT MODULE

CODE IDENT NO. —
SIZE E
DRAWING NO. 2005056
SCALE —
SHEET 2 OF 2

REVISIONS 16090						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 17469		RL	26MAR65	



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CLXC 105
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WL08/ 119
WYDG/ 122
CUG 107
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53106
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53108
X
Y
53109
53110
XUY11/ 113
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CO12 110
XUY09/ 114
53112
53113
53111
129 CI09/
SUMA09/ 133
SUMB09/ 130
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CO12 210
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CO10 235
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53213
SUMB10/ 230
CI10/ 229
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53119
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A_
109 A09/
108 CH09
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RAG/ 216
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WL12/ 226
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209 A10/
208 CH10
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A5
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WLG/ 115
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RLG/ 128
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G12/ 118
G2LSG/ 120
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53127
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(NC) 240
G13/ 218
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CLGIG 227
53227
223 L10/
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A16
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RQG/ 269
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CZG 268
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MDT10 241
(NC) 267
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A9
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RCG/ 139
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RBLG/ 232
53238
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53241
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CBG 231
53240
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A13
A10
WL08/ 143
WG3G/ 142
WL10/ 145
WG4G/ 146
L2GDG/ 158
L08/ 161
WG1G/ 162
WL09/ 171
SA09 150
53143
53147
53150
GEM09 147
53144
RGG/ 154
53151
53145
53148
159 G09/
53146
CGG 155
53149
G_
153 G09
WL09 165
53154
53152
53155
53156
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166 MWL09
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WG3G/ 242
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WG4G/ 246
L2GDG/ 258
L09/ 261
WG1G/ 262
WL10/ 271
SA10 250
53243
53247
53250
GEM10 247
53244
RGG/ 254
53251
53245
53248
259 G10/
53246
CGG 255
53249
253 G10
WL10 265
53254
53252
53255
53256
RL10/ 225
53253
266 MWL10
101 (NC)
104
111 (NC)
116 (NC)
127
131 (NC)
132
135 (NC)
149
152 (NC)
157
168 (NC)
169 (NC)
170
206 (NC)
201
215 (NC)
220
228 (NC)
239
244 (NC)
252
256 (NC)
257 (NC)
263
OVDC
112
136
160
TO PIN 5 & UNUSED INPUTS OF 53100 SERIES GATES
OVDC
212
236
260
TO PIN 5 & UNUSED INPUTS OF 53200 SERIES GATES
+ 4SW
124
148
TO PIN 10 OF 53100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+ 4SW
224
248
TO PIN 10 OF 53200 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

REF DWG
1. SIGNAL WIRING DIAGRAM DWG NO. 2005155

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
   [XXX] DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DRAWING NO. 2005011 FOR LOGIC DESIGN CRITERIA

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS				

NEXT ASSY	USED ON
APPLICATION	

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DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN Don Healy 13 Nov 64
CHECKED 1 Dec 64
APPROVED Albert Hopkins 2-2-65
APPROVED Eldon C. Hall 1 Feb 65
APPROVED MIT 2 Feb 65
APPROVED MSC 2/4/65
DATE

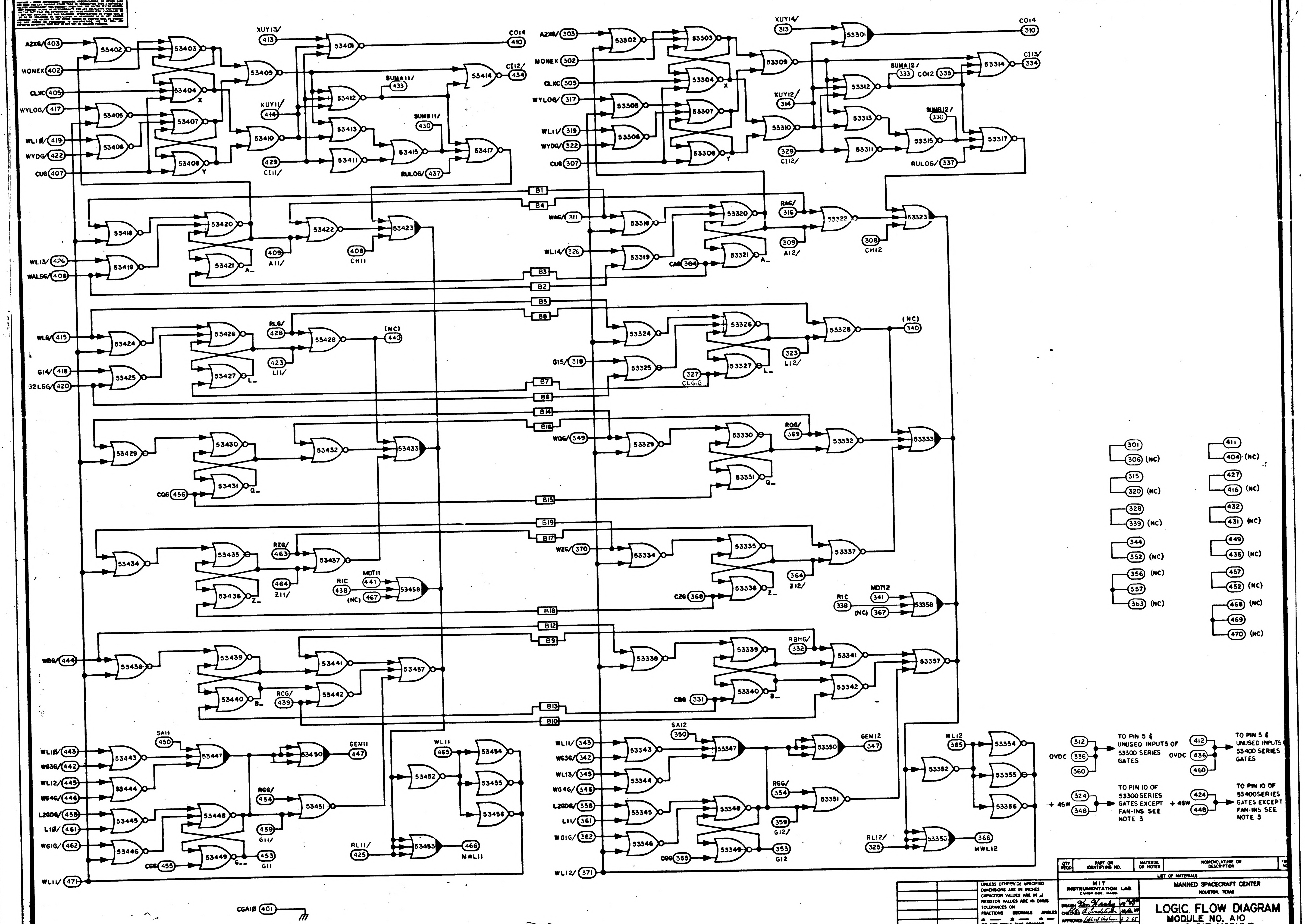
LOGIC FLOW DIAGRAM
MODULE NO. A10
4 BIT MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
—	E	2005057

SCALE — SHEET 1 OF 2

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 17469	a.a.		16MAR65	

16090



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CLXC 405
WYLOG/ 417
WL1Ø/ 419
WYDG/ 422
CUG 407
XUY13/ 413
CO14 410
SUMA11/ 433
CI12/ 434
XUY11/ 414
SUMB11/ 430
429 CI11/
RULOG/ 437
A2X6/ 303
MONEX 302
CLXC 305
WYLOG/ 317
WL11/ 319
WYDG/ 322
CUG 307
XUY14/ 313
CO14 310
SUMA12/ 333
CO12 335
CI13/ 334
XUY12/ 314
SUMB12/ 330
329 CI12/
RULOG/ 337
B1
B4
B3
B2
B5
B8
B7
B6
B14
B16
B15
B19
B17
B18
B12
B9
B13
B10
WL13/ 426
WALSG/ 406
409 A11/
408 CH11
WAG/ 311
WL14/ 326
CAG 304
RAG/ 316
309 A12/
308 CH12
WLG/ 415
G14/ 418
G2LSG/ 420
RLG/ 428
423 L11/
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427 416 (NC)
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449 435 (NC)
457 452 (NC)
468 (NC) 469 470 (NC)
OVDC 312 336 360
TO PIN 5 & UNUSED INPUTS OF 53300 SERIES GATES
OVDC 412 436 460
TO PIN 5 & UNUSED INPUTS OF 53400 SERIES GATES
+ 4SW 324 348
TO PIN 10 OF 53300 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+ 4SW 424 448
TO PIN 10 OF 53400 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Tom Healy
CHECKED A. Lindstrom
APPROVED Albert Hopkins 2.2.65
APPROVED Eldon Hall 2Feb65
APPROVED MIT 2Feb65
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

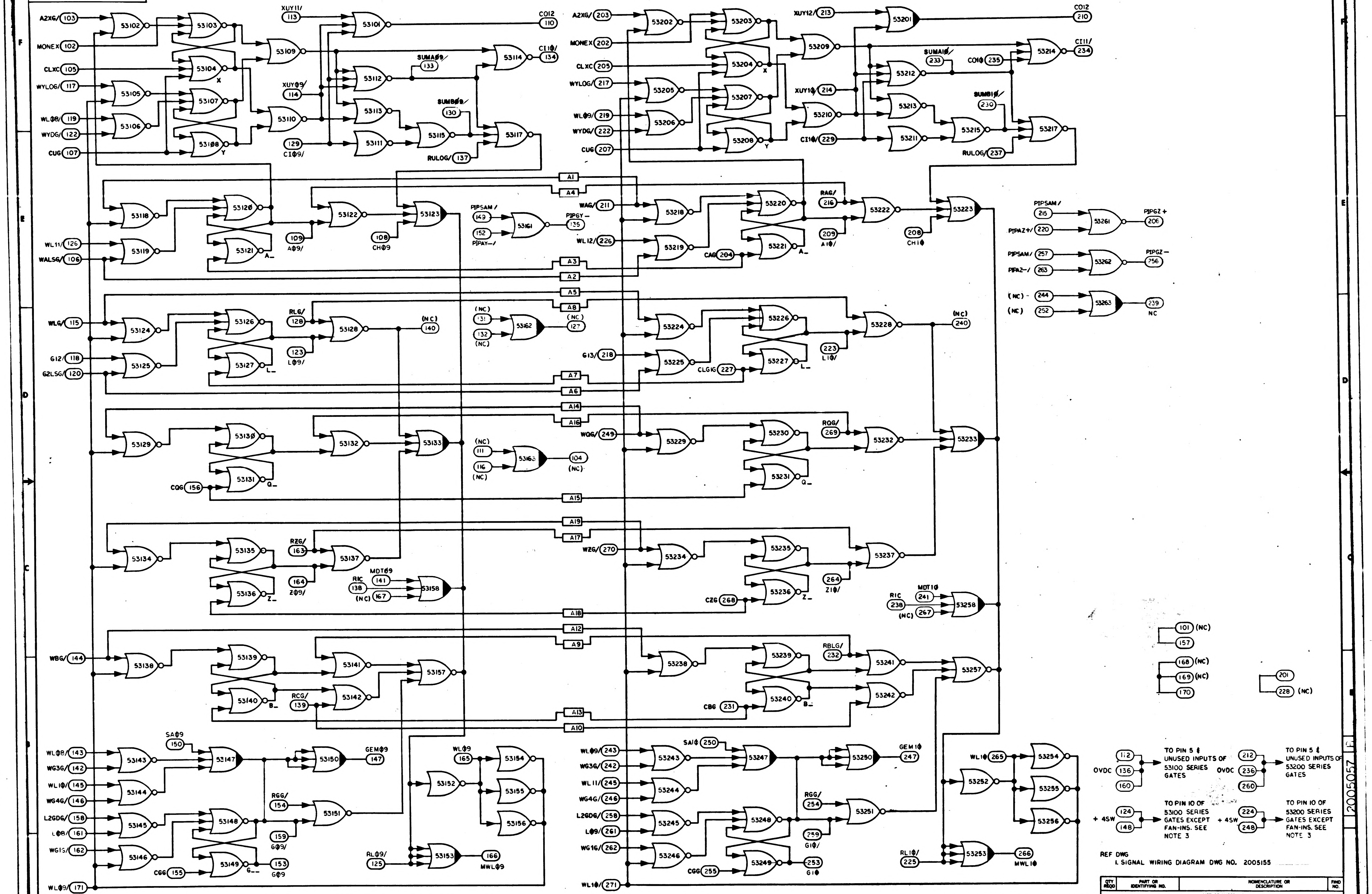
LOGIC FLOW DIAGRAM
MODULE NO. A10
4 BIT MODULE

CODE IDENT NO. —
SIZE E
DRAWING NO. 2005057
SCALE —
SHEET 2 OF 2

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 16090

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 17469		RL	MAR 65	WR
B		REVISED PER TDRR 22347				



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253 G10
WL10 265
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266 MWL10
OVDC 112 136 160
TO PIN 5 & UNUSED INPUTS OF 53100 SERIES GATES
OVDC 212 236 260
TO PIN 5 & UNUSED INPUTS OF 53200 SERIES GATES
+ 4SW 124 148
TO PIN 10 OF 53100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+ 4SW 224 248
TO PIN 10 OF 53200 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

REF DWG
1. SIGNAL WIRING DIAGRAM DWG NO. 2005155

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
XXX DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DRAWING NO. 2005011 FOR LOGIC DESIGN CRITERIA

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

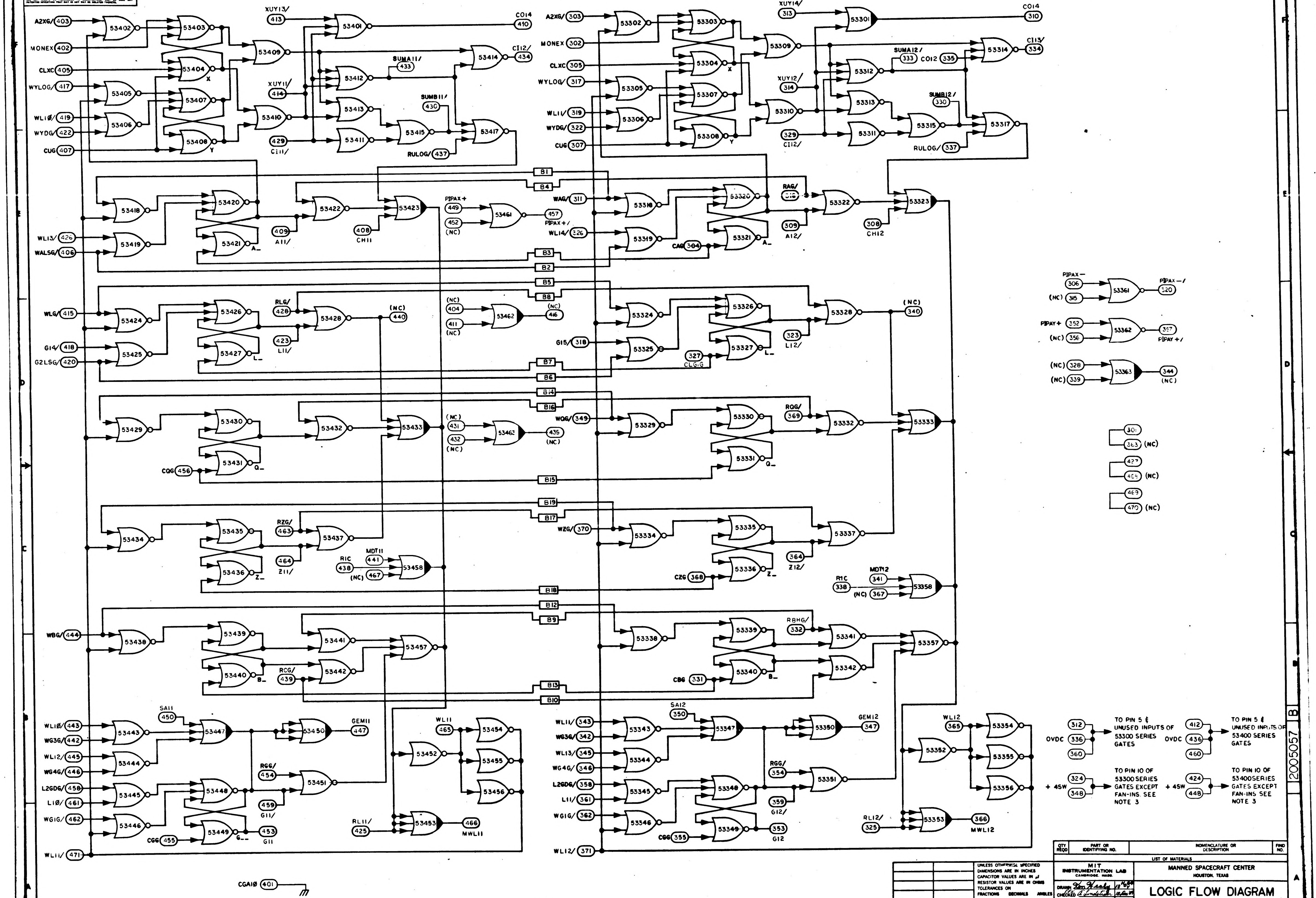
DRAWN Ken Healy
CHECKED
APPROVED Albert Hopkins 2 2 65
APPROVED Eldon C Hall 2 Feb 65
APPROVED MIT W Kupfer
APPROVED MSC

LOGIC FLOW DIAGRAM
MODULE NO. A10
4 BIT MODULE

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005057
SCALE —
SHEET 1 OF 2

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 17469	a.a.		26MAR65	WR
B		REVISED PER TDRR 22347	AA			

REVISIONS 16090



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WL10/ 419
WYDG/ 422
CUG 407
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A2XG/ 303
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CUG 307
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366 MWL12
OVDC 312 336 360
TO PIN 5 & UNUSED INPUTS OF 53300 SERIES GATES
OVDC 412 436 460
TO PIN 5 & UNUSED INPUTS OF 53400 SERIES GATES
+ 4SW 324 348
TO PIN 10 OF 53300 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+ 4SW 424 448
TO PIN 10 OF 53400 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
CGA10 401

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
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CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Ken Healy 18 Nov 64
CHECKED A. Lindstrom 18 Dec 64
APPROVED Albert Hopkins 2 2 65
APPROVED Eldon C Hall 2 Feb 65
APPROVED MIT 2 Feb 65
APPROVED MSC 2/2/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A10
4 BIT MODULE

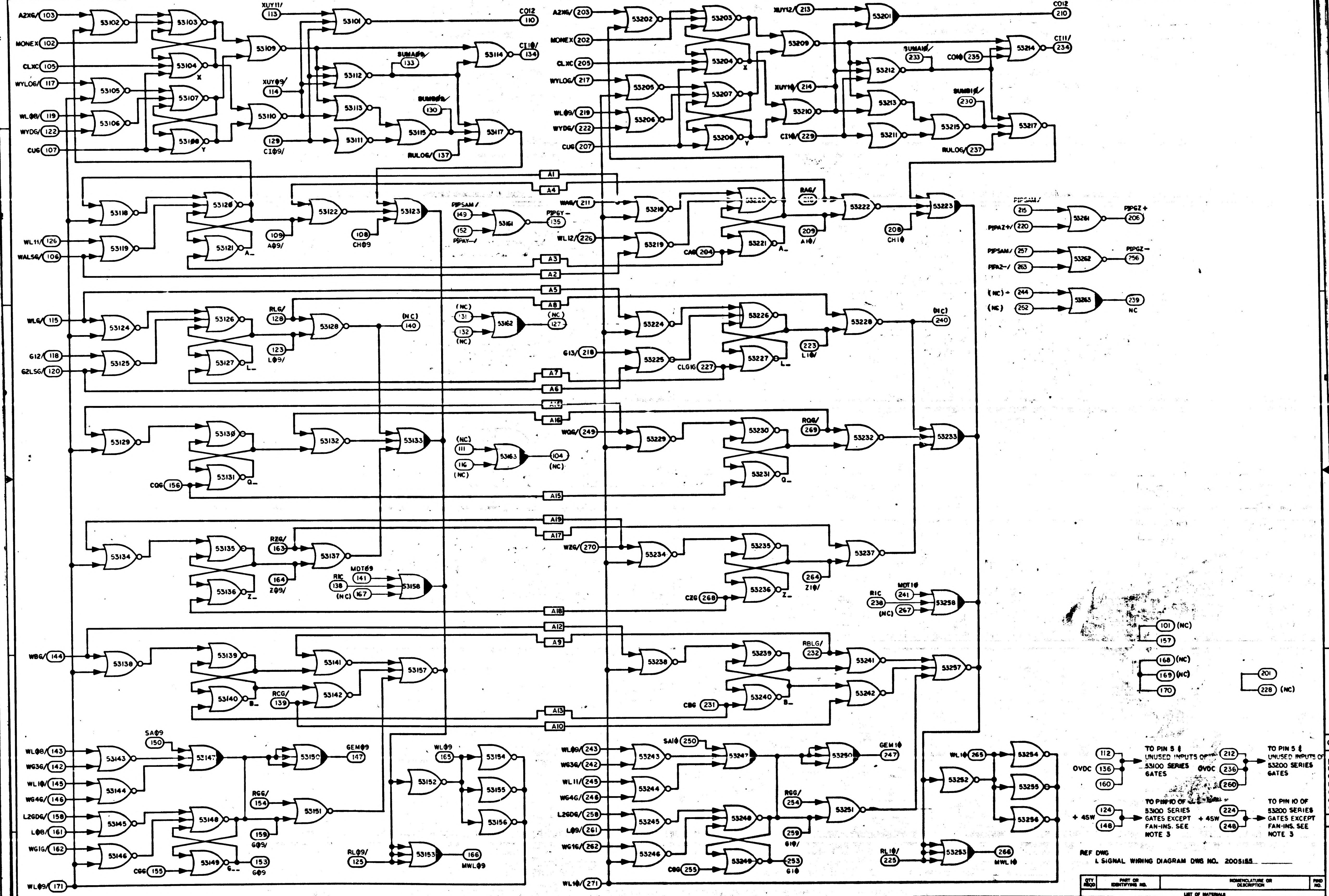
CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2005057

SCALE — SHEET 2 OF 2

2005057 B

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 17469				W.C.
B		REVISED PER TDRR 22347				
C		REVISED PER TDRR 23160				

REVISIONS 16090



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259 G10/
253 G10
CG6 255
WL10 265
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266 MWL10
OVDC 112 136 160
TO PIN 5 & UNUSED INPUTS OF 53100 SERIES GATES
OVDC 212 236 260
TO PIN 5 & UNUSED INPUTS OF 53200 SERIES GATES
+4SW 124 148
TO PIN 10 OF 53100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 224 248
TO PIN 10 OF 53200 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

REF DWG
1. SIGNAL WIRING DIAGRAM DWG NO. 2005155

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
[XXX] DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DRAWING NO. 2005011 FOR LOGIC DESIGN CRITERIA

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

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DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED
APPROVED Albert Hopkins 2-2-65
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A10
4 BIT MODULE

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005057
SCALE —
SHEET 1 OF 2

2005057 C

		REVISIONS 16090				
SYM	ZONE	DESCRIPTION	BY	CHK	DATE	APPROVED
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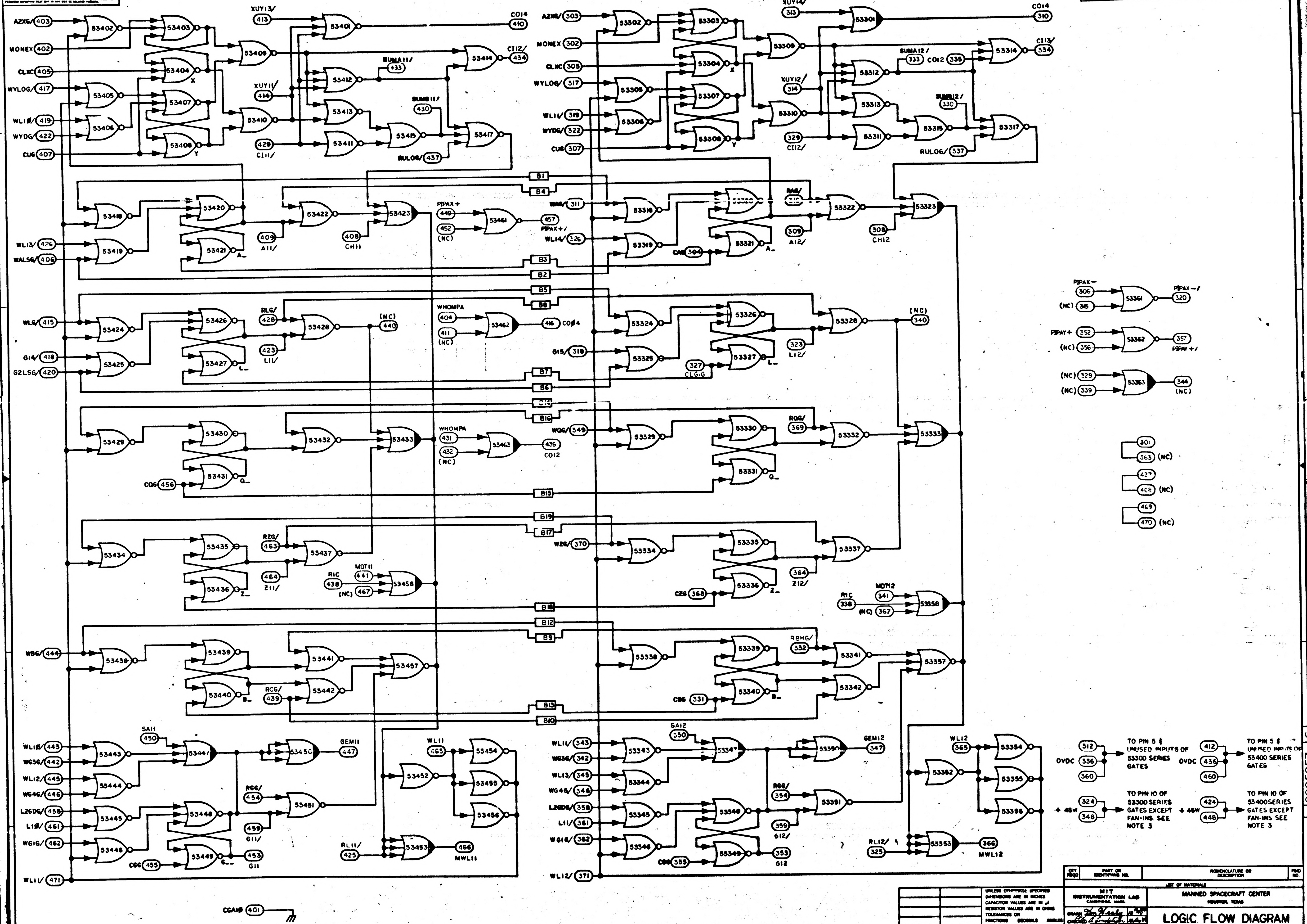
B		REVISED PER TDRR 22347	AA			
C		REVISED PER TDRR 23160				WK



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(NC) 339
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464 Z11/
53437
MDT11 441
RIC 438
(NC) 467
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WZG/ 370
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CZG 368
364 Z12/
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MDT12 341
RIC 338
(NC) 367
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WBG/ 444
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RCG/ 439
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CBG 331
RBHG/ 332
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WG36/ 442
WL12/ 445
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L1Ø/ 461
WG1G/ 462
WL11/ 471
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SA11 450
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459 G11
453 G11
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WG4G/ 346
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L11/ 361
WG1G/ 362
WL12/ 371
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SA12 350
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GEM12 347
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CGG 355
359 G12
353 G12
WL12 365
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RL12/ 325
53353
366 MWL12
CGA1Ø 401
OVDC 312 336 360
TO PIN 5 & UNUSED INPUTS OF 53300 SERIES GATES
OVDC 412 436 460
TO PIN 5 & UNUSED INPUTS OF 53400 SERIES GATES
+4SW 324 348
TO PIN 10 OF 53300 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 424 448
TO PIN 10 OF 53400 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
6
5
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2
1

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Don Healy
CHECKED A. Lindstrom
APPROVED Albert Hopkins 2-2-65
APPROVED
APPROVED MIT
APPROVED MSC

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A10
4 BIT MODULE

CODE IDENT NO. 80230 SIZE E DRAWING NO. 2005057

SCALE — SHEET 2 OF 2

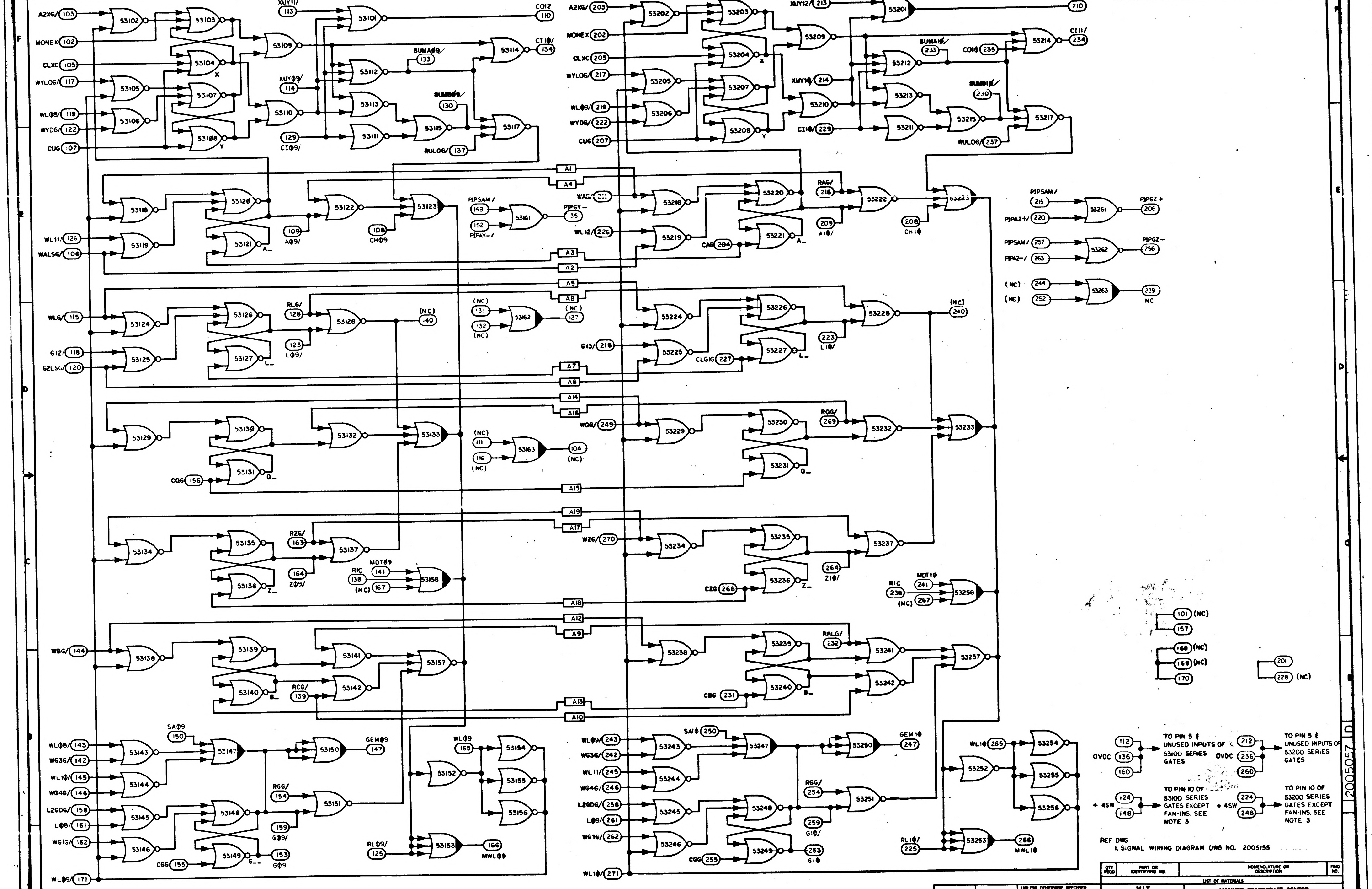
MASTER

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

16090

REVISIONS

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 17469			65	
B		REVISED PER TDRR 22347				
C		REVISED PER TDRR 23160	WBB			
D		REVISED PER TDRR 25011	KCH		5 Jan 66	



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MONEX 102
CLXC 105
WYL0G/ 117
WL08/ 119
WYDG/ 122
CUG 107
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X
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53106
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53108
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CO12 110
53109
XUY09/ 114
53112
SUMA09/ 133
53114
CI10/ 134
53110
53113
SUMB09/ 130
129 CI09/
53111
53115
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RUL0G/ 137
A2XG/ 203
MONEX 202
CLXC 205
WYL0G/ 217
WL09/ 219
WYDG/ 222
CUG 207
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XUY12/ 213
53201
CO12 210
53209
SUMA10/ 233
COI0 235
53214
CI11/ 234
53212
XUY10/ 214
53213
SUMB10/ 230
53210
CI10/ 229
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53217
RUL0G/ 237
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A10
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WALSG/ 106
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109 A09/
108 CH09
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152 PIPAY—/
53161
PIPGY— 135
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WL12/ 226
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53221
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RAG/ 216
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53222
208 CH10
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PIPAZ+/ 220
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PIPGZ+ 206
PIPSAM/ 257
PIPAZ—/ 263
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PIPGZ— 256
(NC) 244
(NC) 252
53263
239 NC
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53125
G12/ 118
G2LSG/ 120
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53127
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RLG/ 128
53128
123 L09/
(NC) 140
(NC) 131
132 (NC)
53162
(NC) 127
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53225
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53227
CLGIG 227
223 L10/
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(NC) 240
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53130
53131
Q_
CQG 156
53132
53133
(NC) 111
116 (NC)
53163
104 (NC)
WQG/ 249
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53230
53231
RQG/ 269
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53233
53134
53135
53136
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RZG/ 163
53137
164 Z09/
MDT09 141
RIC 138
(NC) 167
53158
WZG/ 270
53234
53235
53236
CZG 268
53237
264 Z10/
RIC 238
MDT10 241
(NC) 267
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101 (NC)
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168 (NC)
169 (NC)
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201
228 (NC)
WBG/ 144
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53141
53142
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53257
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WG3G/ 142
WL10/ 145
WG4G/ 146
L2GDG/ 158
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WG1G/ 162
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SA09 150
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53149
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CGG 155
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GEM09 147
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159 G09/
153 G09
WL09 165
53152
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RL09/ 125
166 MWL09
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53155
53156
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WG3G/ 242
WL11/ 245
WG4G/ 246
L2GDG/ 258
L09/ 261
WG1G/ 262
WL10/ 271
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SA10 250
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CGG 255
53250
GEM10 247
RGG/ 254
53251
259 G10/
253 G10
WL10 265
53252
RL10/ 225
53253
266 MWL10
53254
53255
53256
OVDC 112 136 160
TO PIN 5 & UNUSED INPUTS OF 53100 SERIES GATES
OVDC 212 236 260
TO PIN 5 & UNUSED INPUTS OF 53200 SERIES GATES
+4SW 124 148
TO PIN 10 OF 53100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 224 248
TO PIN 10 OF 53200 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

REF DWG
1. SIGNAL WIRING DIAGRAM DWG NO. 2005155

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
   XXX DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DRAWING NO. 2005011 FOR LOGIC DESIGN CRITERIA

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING
MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Ken Healy
CHECKED
APPROVED Albert Hopkins 2-2-65
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

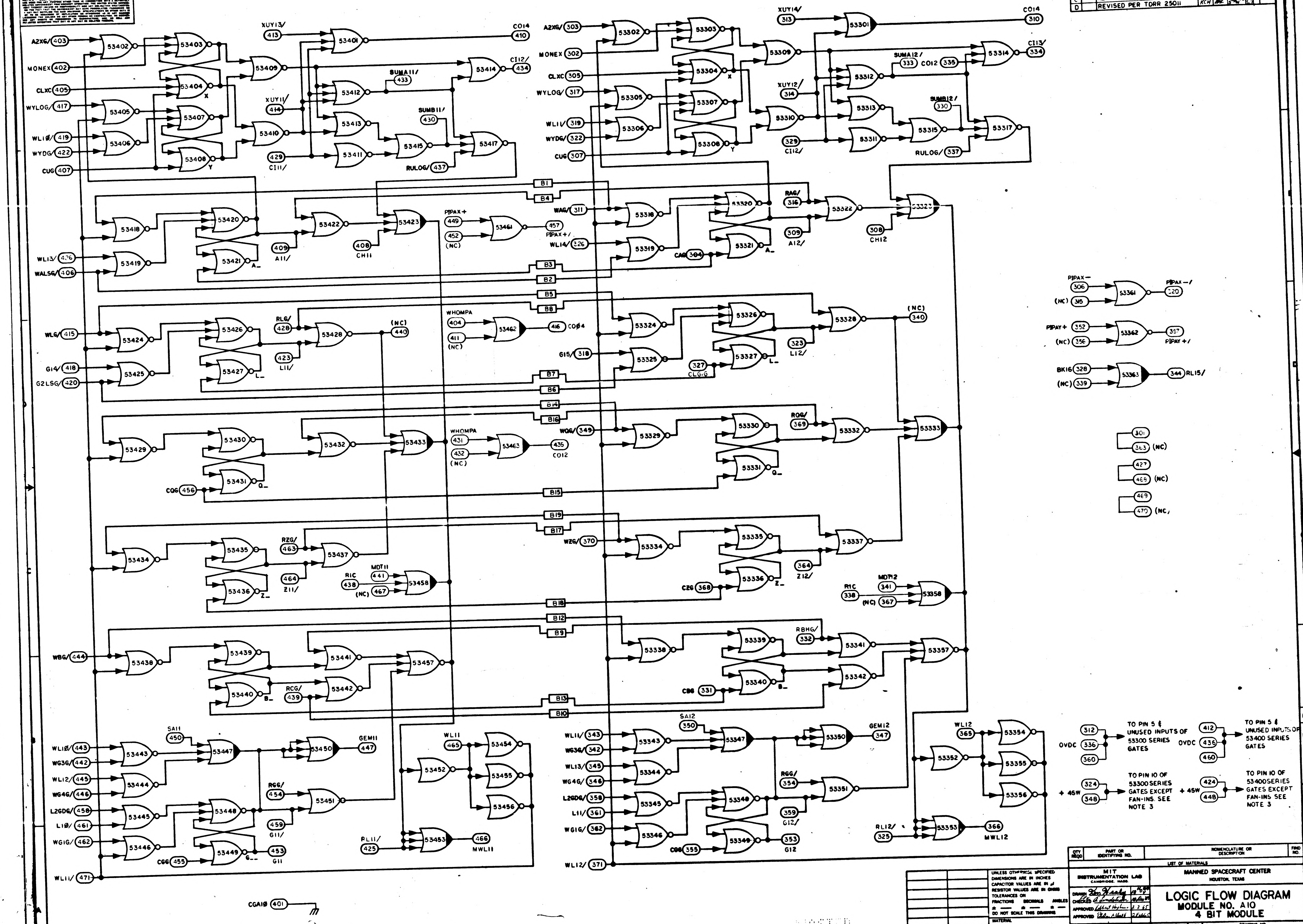
LOGIC FLOW DIAGRAM
MODULE NO. A10
4 BIT MODULE

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005057
SCALE —
SHEET 1 OF 2

2005057 D

16090

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 17469	a.a.	[illegible]	[illegible]	[illegible]
B		REVISED PER TDRR 22347	AA	[illegible]	[illegible]	[illegible]
C		REVISED PER TDRR 23160	WDS		[illegible]	[illegible]
D		REVISED PER TDRR 25011	KCH	[illegible]	5 Jan 66	[illegible]



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A2XG/ 403
MONEX 402
CLXC 405
WYLOG/ 417
WL10/ 419
WYDG/ 422
CUG 407
53402
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53407
53408
X
Y
XUY13/ 413
53401
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CI12/ 434
SUMA11/ 433
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XUY11/ 414
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429 CI11/
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53415
SUMB11/ 430
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RULOG/ 437
A2XG/ 303
MONEX 302
CLXC 305
WYLOG/ 317
WL11/ 319
WYDG/ 322
CUG 307
53302
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53301
CO14 310
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53314
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CO12 335
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XUY12/ 314
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329 CI12/
SUMB12/ 330
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RULOG/ 337
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53423
PIPAX+ 449
452 (NC)
53461
457 PIPAX+/
409 A11/
408 CH11
WL13/ 426
WALSG/ 406
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53320
RAG/ 316
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53323
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CAG 304
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308 CH12
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(NC) 315
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PIPAX-/ 320
PIPAY+ 352
(NC) 356
53362
357 PIPAY+/
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(NC) 339
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416 CO04
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G15/ 318
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327 CLGIG
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WZG/ 370
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364 Z12/
CZG 368
RIC 338
MDT12 341
(NC) 367
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WBG/ 444
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RBHG/ 332
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CBG 331
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WL10/ 443
WG3G/ 442
WL12/ 445
WG4G/ 446
L2GDG/ 458
L10/ 461
WG1G/ 462
WL11/ 471
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WL13/ 345
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L2GDG/ 358
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WG1G/ 362
WL12/ 371
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SA12 350
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GEM12 347
RGG/ 354
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359 G12/
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CGG 355
353 G12
WL12 365
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RL12/ 325
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366 MWL12
CGA10 401
OVDC 312 336 360
TO PIN 5 & UNUSED INPUTS OF 53300 SERIES GATES
OVDC 412 436 460
TO PIN 5 & UNUSED INPUTS OF 53400 SERIES GATES
+ 4SW 324 348
TO PIN 10 OF 53300 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+ 4SW 424 448
TO PIN 10 OF 53400 SERIES GATES EXCEPT FAN-INS SEE NOTE 3

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

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INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Ken Healy [illegible]
CHECKED A. Lindstrom [illegible]
APPROVED Albert Hopkins 2 2 65
APPROVED [illegible] 2 Feb 65
APPROVED MIT [illegible] 3 Feb 65
APPROVED MSC [illegible] [illegible]
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A10
4 BIT MODULE

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005057
SCALE —
SHEET 2 OF 2

2005057 D

MASTER

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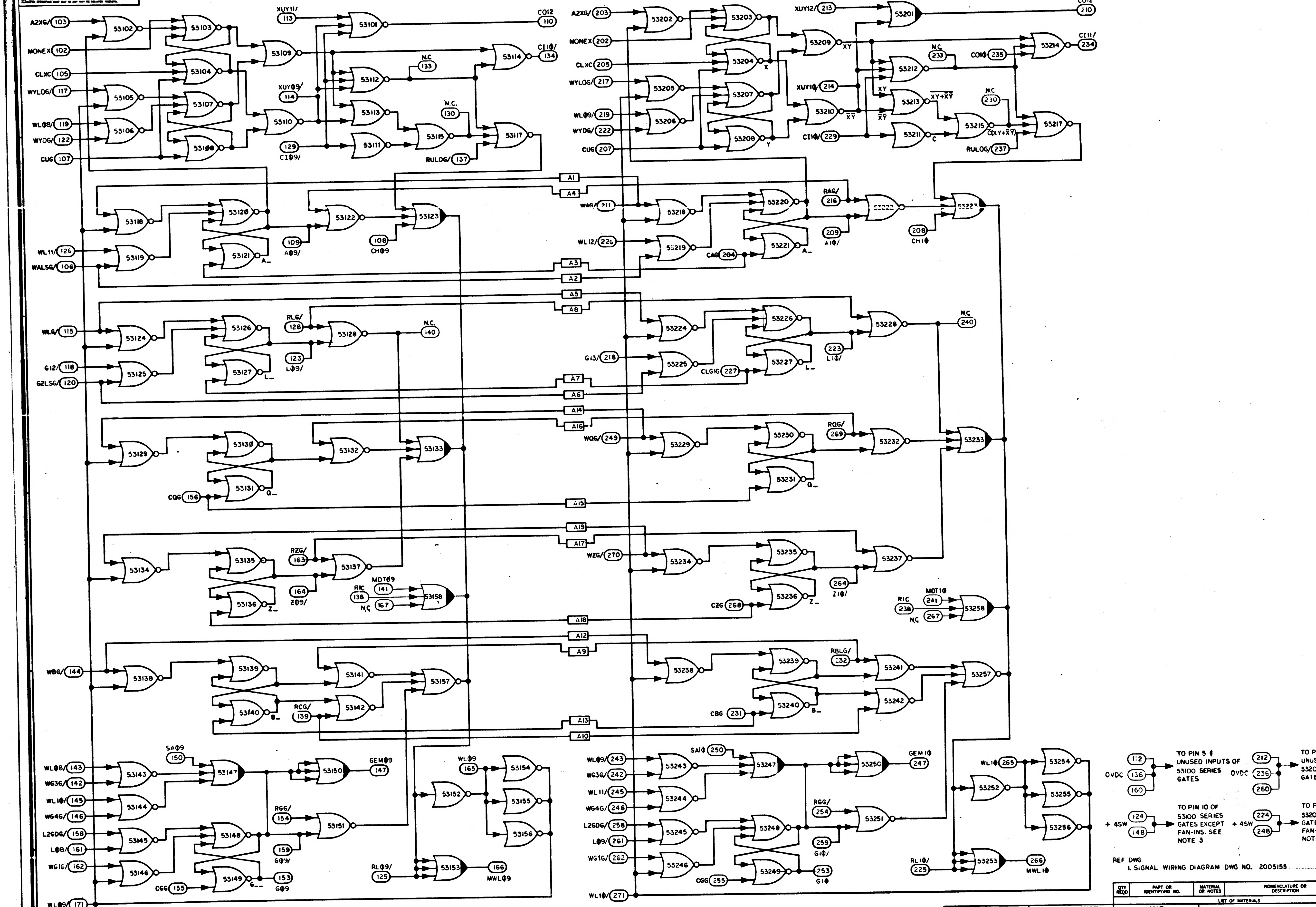
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

REVISIONS


A2XG/ 103
MONEX 102
CLXC 105
WYLOG/ 117
WL08/ 119
WYDG/ 122
CUG 107
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XUY09/ 114
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N.C. 130
RULOG/ 137
CO12 110
CI10/ 134
WL11/ 126
WALSG/ 106
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WLG/ 115
G12/ 118
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RLG/ 128
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N.C. 140
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MDT09 141
RIC 138
N.C 167
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WL08/ 143
WG3G/ 142
WL10/ 145
WG4G/ 146
L2GDG/ 158
L08/ 161
WG1G/ 162
WL09/ 171
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G–
CGG 155
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GEM09 147
RGG/ 154
53151
159 G09/
153 G09
WL09 165
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53154
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RL09/ 125
53153
166 MWL09
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A13
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A2XG/ 203
MONEX 202
CLXC 205
WYLOG/ 217
WL09/ 219
WYDG/ 222
CUG 207
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53203
53204
X
53205
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XUY12/ 213
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CO12 210
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XY
XUY10/ 214
53210
$\overline{X}\,\overline{Y}$
CI10/ 229
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C
53212
N.C 233
53213
XY
$\overline{X}\,\overline{Y}$
$\overline{XY+\overline{X}\,\overline{Y}}$
CO10 235
53214
CI11/ 234
N.C 230
53215
$\overline{C}(XY+\overline{X}\,\overline{Y})$
53217
RULOG/ 237
WAG/ 211
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53220
WL12/ 226
53219
CAG 204
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A–
RAG/ 216
53222
209 A10/
53223
208 CH10
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G13/ 218
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CLGIG 227
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L–
53228
N.C 240
223 L10/
WQG/ 249
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RQG/ 269
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WZG/ 270
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CZG 268
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264 Z10/
RIC 238
MDT10 241
N.C 267
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B–
RBLG/ 232
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CBG 231
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WL09/ 243
WG3G/ 242
WL11/ 245
WG4G/ 246
L2GDG/ 258
L09/ 261
WG1G/ 262
WL10/ 271
SA10 250
53243
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53249
CGG 255
53250
GEM10 247
RGG/ 254
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259 G10/
253 G10
WL10 265
53252
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53255
53256
RL10/ 225
53253
266 MWL10

OVDC (112) (136) (160) → TO PIN 5 & UNUSED INPUTS OF 53100 SERIES GATES

OVDC (212) (236) (260) → TO PIN 5 & UNUSED INPUTS OF 53200 SERIES GATES

+ 4SW (124) (148) → TO PIN 10 OF 53100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

+ 4SW (224) (248) → TO PIN 10 OF 53200 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

REF DWG
1. SIGNAL WIRING DIAGRAM DWG NO. 2005155

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
XXX DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DRAWING NO. 2005011 FOR LOGIC DESIGN CRITERIA

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING
MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN Ken Healy 18 Nov 64
CHECKED 11 Dec 64
APPROVED Albert Hopkins 2-2-65
APPROVED Eldon C Hall 2 Feb 65
APPROVED MIT 2 Feb 65
APPROVED MSC 2/2/65
DATE

LOGIC FLOW DIAGRAM
MODULE NO. A10
4 BIT MODULE

CODE IDENT NO. —
SIZE E
DRAWING NO. 2005057
SCALE —
SHEET 1 OF 2

2005057

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED

REVISIONS 16090

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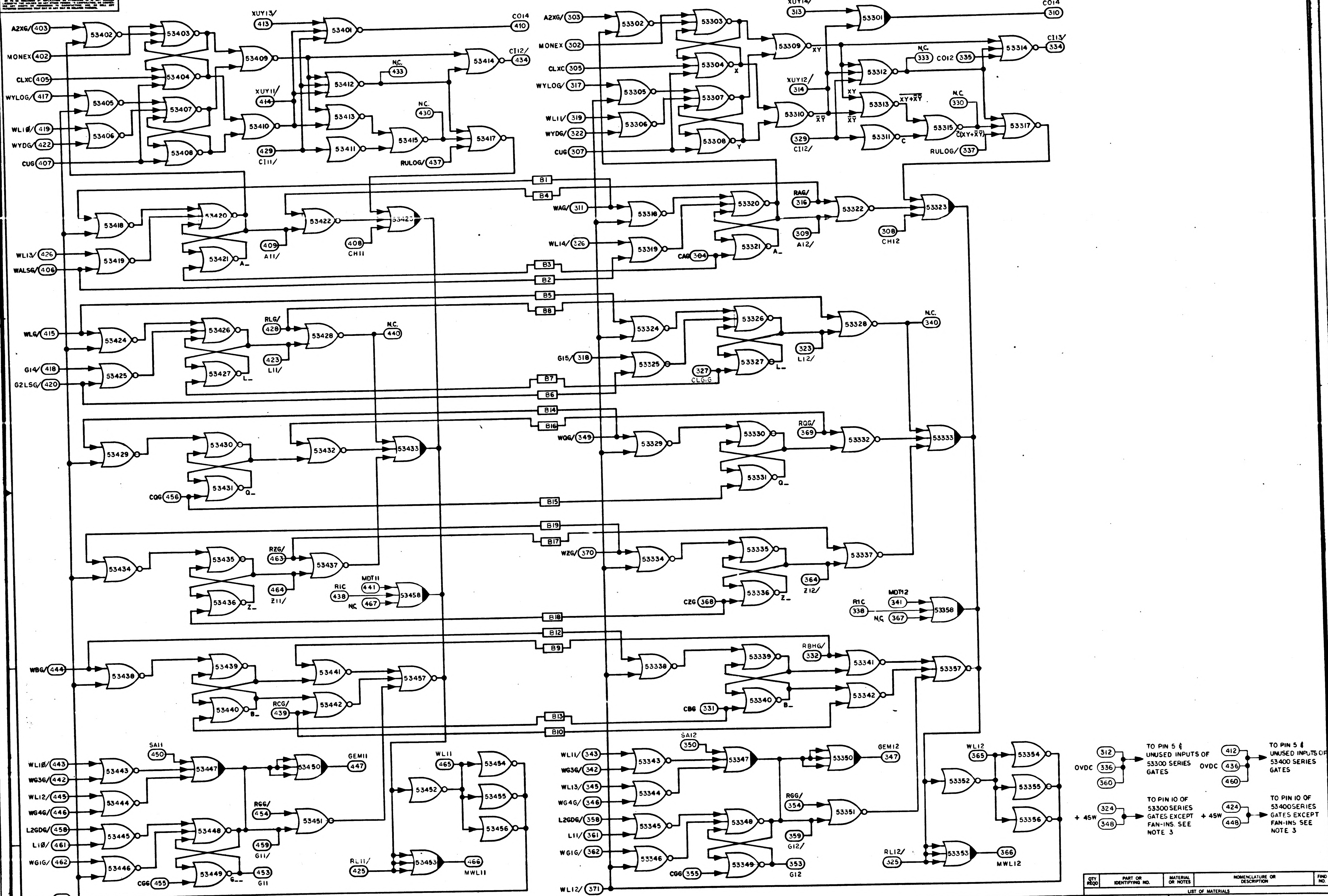

6
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A2XG/ 403
MONEX 402
CLXC 405
WYLOG/ 417
WL10/ 419
WYDG/ 422
CUG 407
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53408
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53415
53417
53401
XUY13/ 413
XUY11/ 414
429 C111/
CO14 410
CI12/ 434
N.C. 433
N.C. 430
RULOG/ 437
A2XG/ 303
MONEX 302
CLXC 305
WYLOG/ 317
WL11/ 319
WYDG/ 322
CUG 307
53302
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53301
X
Y
XY
$\overline{XY}$
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XY
$\overline{XY+\overline{XY}}$
C
C(XY+$\overline{XY}$)
XUY14/ 313
XUY12/ 314
329 CI12/
CO14 310
N.C. 333
CO12 335
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359 G12
353 G12
CGG 355
WL12 365
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RL12/ 325
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366 MWL12
OVDC 312 336 360
TO PIN 5 & UNUSED INPUTS OF 53300 SERIES GATES
OVDC 412 436 460
TO PIN 5 & UNUSED INPUTS OF 53400 SERIES GATES
+ 4SW 324 348
TO PIN 10 OF 53300 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+ 4SW 424 448
TO PIN 10 OF 53400 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
CGA10 401

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN	Ken Healy	18 Nov 64
CHECKED	A. Lindstrom	18 Dec 64
APPROVED	Albert Hopkins	2 2 65
APPROVED	Eldon C. Hall	2 Feb 65
APPROVED MIT		5 Feb 65
APPROVED MSC		2/2/65
		DATE

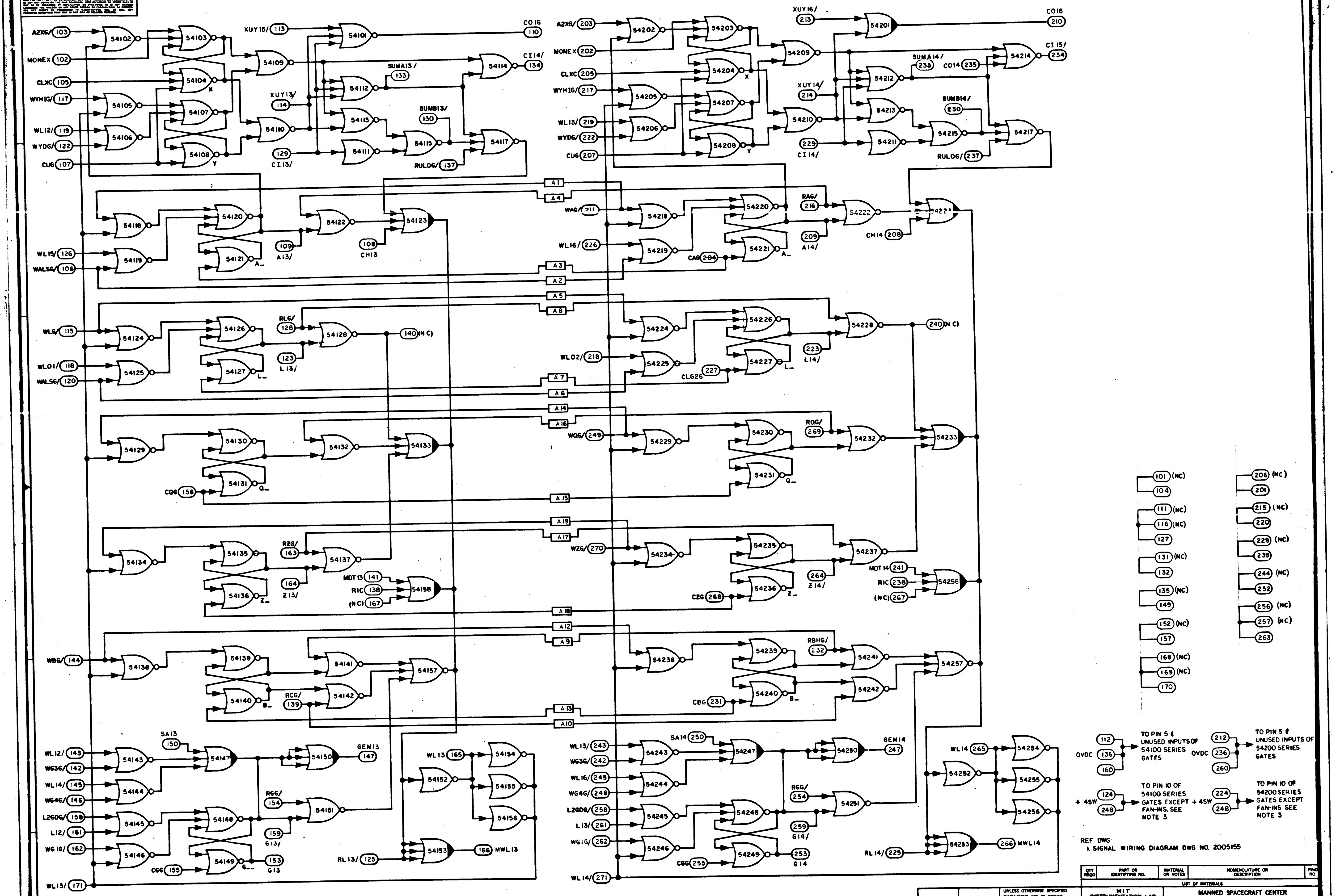
LOGIC FLOW DIAGRAM
MODULE NO. A10
4 BIT MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
—	E	2005057

SCALE — SHEET 2 OF 2

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
REVISIONS 16090						
A		REVISED PER TDRR 17469	99.		25 MAR 65	WJ

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.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MONEX 102
CLXC 105
WYH1G/ 117
WL12/ 119
WYDG/ 122
CUG 107
XUY15/ 113
XUY13/ 114
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CO16 110
CI14/ 134
SUMA13/ 133
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CLXC 205
WYH1G/ 217
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WYDG/ 222
CUG 207
XUY16/ 213
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CI15/ 234
SUMA14/ 233
CO14 235
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WAG/ 211
WL16/ 226
CAG 204
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CH14 208
240 (NC)
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223 L14/
227 CLG26
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RQG/ 269
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(NC) 267
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WG3G/ 242
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WG4G/ 246
L2GDG/ 258
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WL14/ 271
SA14 250
GEM14 247
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CGG 255
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OVDC 112 136 160 TO PIN 5 & UNUSED INPUTS OF 54100 SERIES GATES
OVDC 212 236 260 TO PIN 5 & UNUSED INPUTS OF 54200 SERIES GATES
+ 4SW 124 248 TO PIN 10 OF 54100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+ 4SW 224 248 TO PIN 10 OF 54200 SERIES GATES EXCEPT FAN-INS SEE NOTE 3

REF DWG:
1. SIGNAL WIRING DIAGRAM DWG NO. 2005155

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
[XXX] DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG NO. 2005011 FOR LOGIC DESIGN CRITERIA

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Lon Healy 13 Nov 64
CHECKED T. Lenaghan
APPROVED Albert Hopkins 2 2-65
APPROVED Eldon C Hall 2 Feb 65
APPROVED MIT W Kupfer 2 Feb 65
APPROVED MSC 2/4/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A11
4 BIT MODULE

CODE IDENT NO. —
SIZE E
DRAWING NO. 2005058
SCALE —
SHEET 1 OF 2

REVISIONS 16090

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 17469			26 MAR 65	

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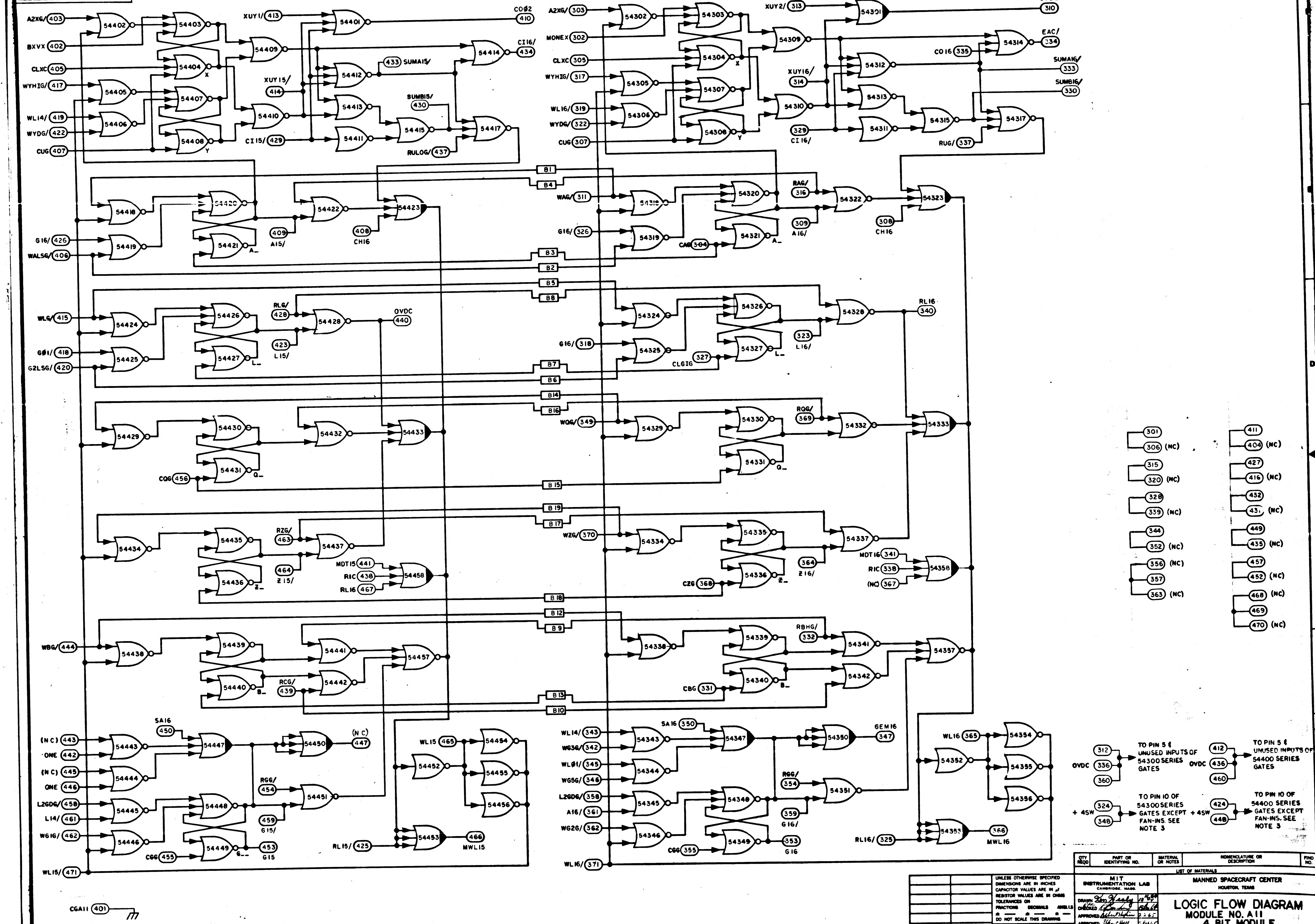
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BXVX 402
CLXC 405
WYHIG/ 417
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WYDG/ 422
CUG 407
XUY1/ 413
XUY15/ 414
CI15/ 429
CO02 410
CI16/ 434
433 SUMA15/
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WYDG/ 322
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G16/ 426
WALSG/ 406
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408 CH16
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G16/ 326
CAG 304
RAG/ 316
309 A16/
308 CH16
WLG/ 415
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G2LSG/ 420
RLG/ 428
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OVDC 440
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RL16 340
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RQG/ 369
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RL16 467
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ONE 446
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452 (NC)
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470 (NC)
OVDC 312 336 360 TO PIN 5 & UNUSED INPUTS OF 54300 SERIES GATES
OVDC 412 436 460 TO PIN 5 & UNUSED INPUTS OF 54400 SERIES GATES
+ 4SW 324 348 TO PIN 10 OF 54300 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+ 4SW 424 448 TO PIN 10 OF 54400 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

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DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Ken Healy 10 Nov 64
CHECKED
APPROVED Albert Hopkins 2-3-65
APPROVED 2 Feb 65
APPROVED MIT 2 Feb 65
APPROVED MSC 3/1/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

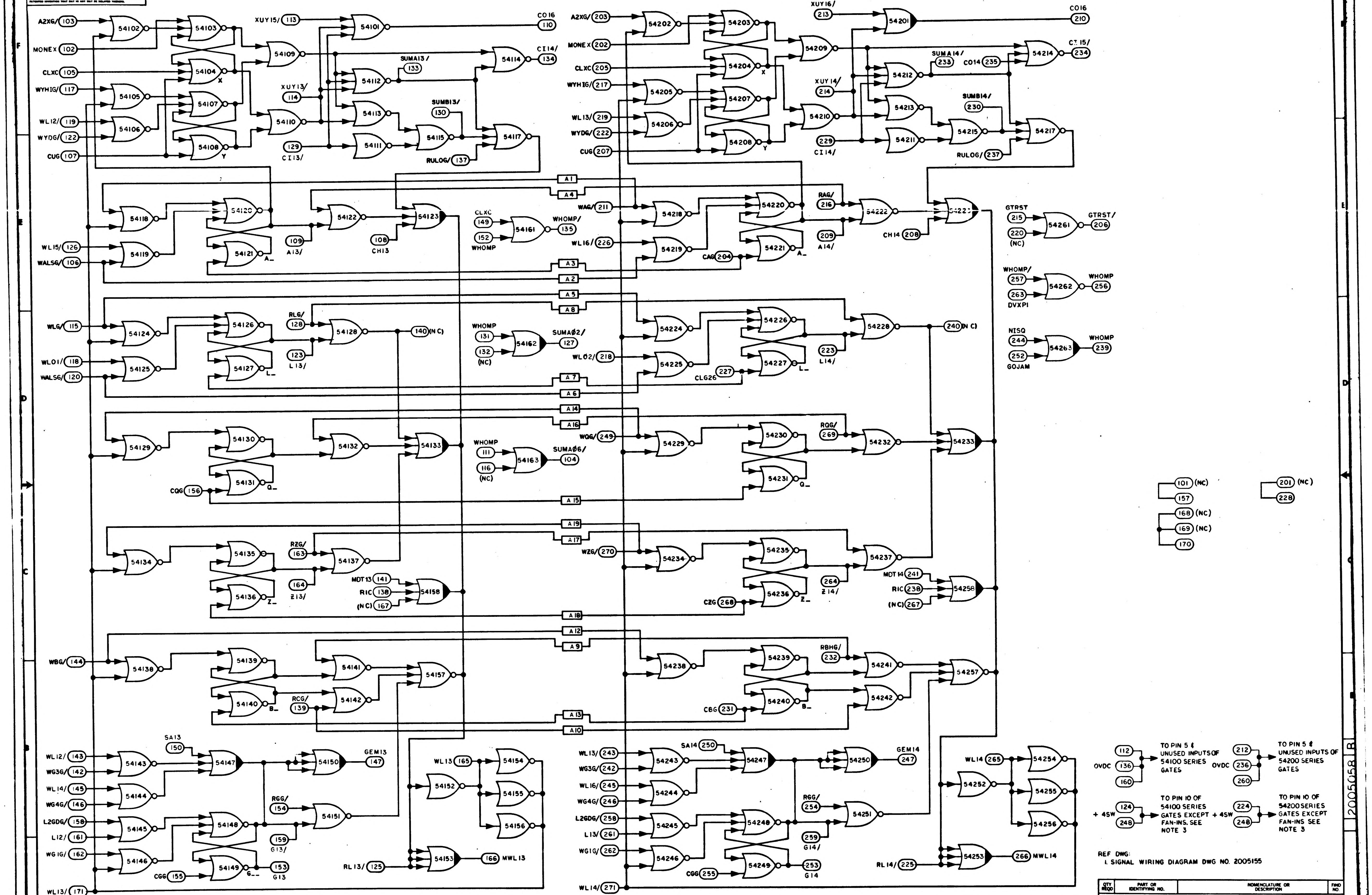
LOGIC FLOW DIAGRAM
MODULE NO. A11
4 BIT MODULE

CODE IDENT NO. —
SIZE E
DRAWING NO. 2005058
SCALE —
SHEET 2 OF 2

2005058 A

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 16090						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 17469	9.9.		25 MAR 65	WH
B		REVISED PER TDRR 22348	KCH		10 SEPT 65	



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TO PIN 5 & UNUSED INPUTS OF 54100 SERIES GATES
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TO PIN 5 & UNUSED INPUTS OF 54200 SERIES GATES
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TO PIN 10 OF 54100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 224
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TO PIN 10 OF 54200 SERIES GATES EXCEPT FAN-INS SEE NOTE 3

REF DWG:
1. SIGNAL WIRING DIAGRAM DWG NO. 2005155

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
[XXX] DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG NO. 2005011 FOR LOGIC DESIGN CRITERIA

MASTER

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CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	Len Healy	18 Nov 64
CHECKED		
APPROVED	Albert Hopkins	2·2·65
APPROVED	Eldon C Hall	2 Feb 65
APPROVED MIT		2 Feb 65
APPROVED MSC		2/2/65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A11
4 BIT MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2005058
SCALE —		SHEET 1 OF 2

2005058 B

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 16090

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED	
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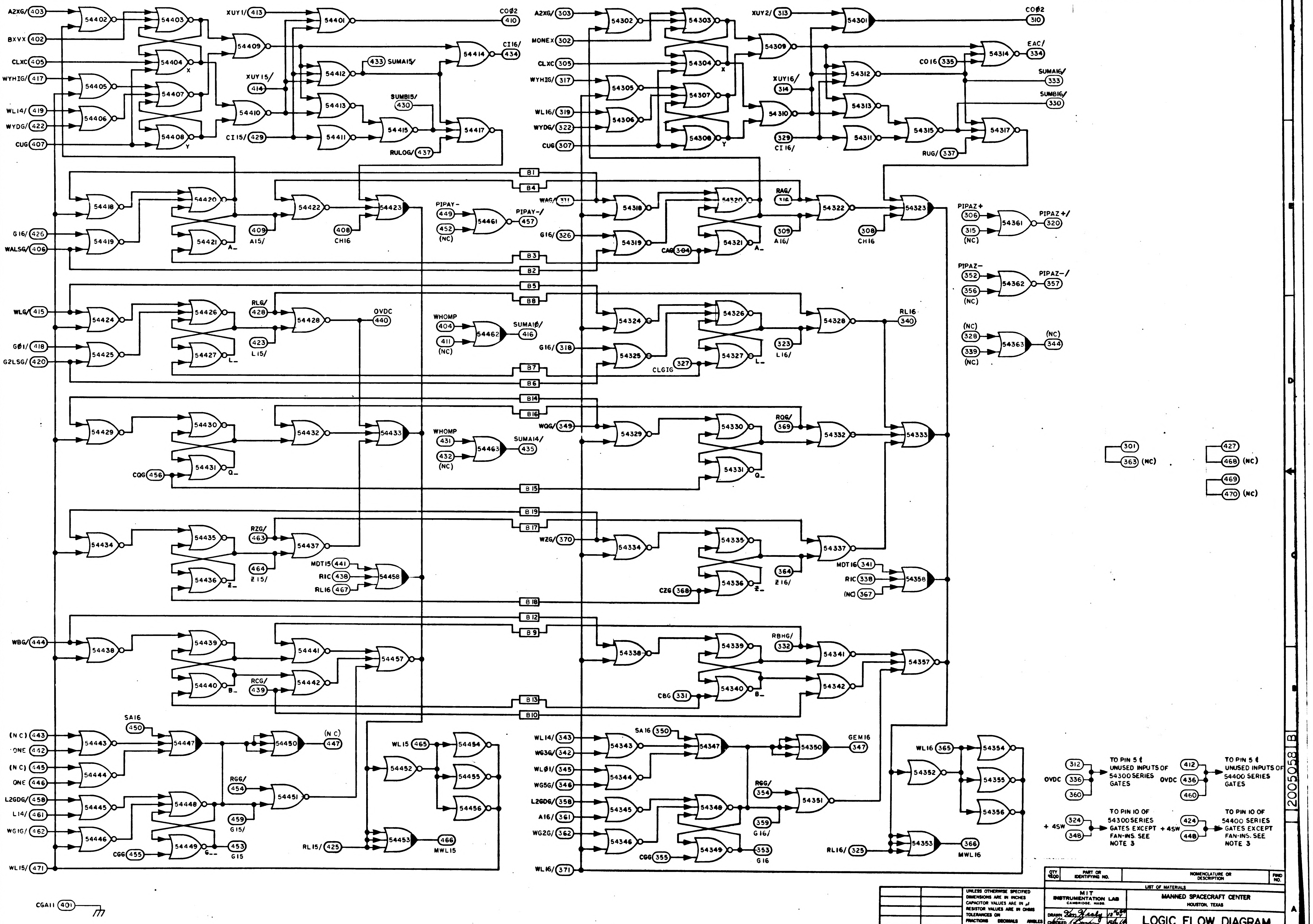
B		REVISED PER TDRR 22348	KCH		10 SEPT 65		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SUMB15/ 430
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RBHG/ 332
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(NC) 445
ONE 446
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L14/ 461
WG1G/ 462
WL15/ 471
SA16 450
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459 G15/
453 G15
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WG5G/ 346
L2GDG/ 358
A16/ 361
WG2G/ 362
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GEM16 347
RGG/ 354
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359 G16/
353 G16
WL16 365
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RL16/ 325
366 MWL16
CGA11 401
OVDC 312 336 360
TO PIN 5 ⊄ UNUSED INPUTS OF 54300 SERIES GATES
OVDC 412 436 460
TO PIN 5 ⊄ UNUSED INPUTS OF 54400 SERIES GATES
+ 4SW 324 348
TO PIN 10 OF 54300 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+ 4SW 424 448
TO PIN 10 OF 54400 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING
MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Ken Healy 18 Nov 64
CHECKED
APPROVED Albert Hopkins 2-65
APPROVED Eldon C Hall
APPROVED MIT 2 Feb 65
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

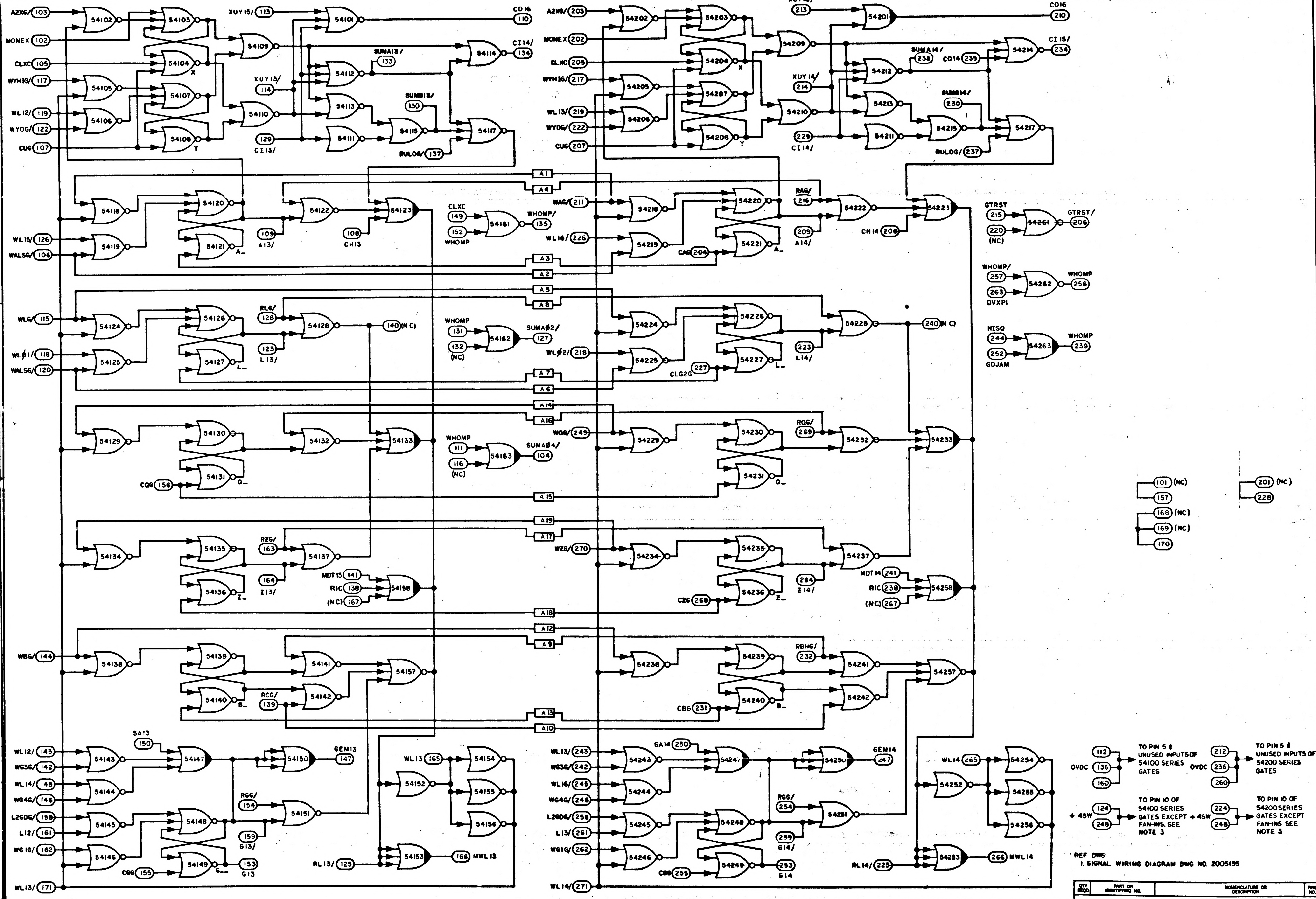
LOGIC FLOW DIAGRAM
MODULE NO. A11
4 BIT MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2005058

SCALE —
SHEET 2 OF 2

2005058 B

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		REVISIONS 16096				
A		REVISED PER TDRR 17469	9Q		25 MAR 65	WH
B		REVISED PER TDRR 22348	KCH		10 SEPT 65	
C		REVISED PER TDRR 23151	BSD			



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MONEX 102
CLXC 105
WYH1G/ 117
WL12/ 119
WYDG/ 122
CUG 107
XUY15/ 113
XUY13/ 114
129 CI13/
CO16 110
CI14/ 134
SUMA13/ 133
SUMB13/ 130
RULOG/ 137
X
Y
A2XG/ 203
MONEX 202
CLXC 205
WYH3G/ 217
WL13/ 219
WYDG/ 222
CUG 207
XUY16/ 213
XUY14/ 214
229 CI14/
CO16 210
CI15/ 234
SUMA14/ 238
CO14 235
SUMB14/ 230
RULOG/ 237
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A10
WL15/ 126
WALSG/ 106
109 A13/
108 CH13
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152 WHOMP
WHOMP/ 135
WAG/ 211
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RAG/ 216
209 A14/
CH14 208
GTRST 215
220 (NC)
GTRST/ 206
WHOMP/ 257
263 DVXPI
WHOMP 256
NISQ 244
252 GOJAM
WHOMP 239
WLG/ 115
WL01/ 118
WALSG/ 120
RLG/ 128
123 L13/
140 (NC)
WHOMP 131
132 (NC)
SUMA02/ 127
WL02/ 218
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WL13 165
RL13/ 125
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TO PIN 5 & UNUSED INPUTS OF 54100 SERIES GATES
OVDC 212 236 260
TO PIN 5 & UNUSED INPUTS OF 54200 SERIES GATES
+ 4SW 124 248
TO PIN 10 OF 54100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+ 4SW 224 248
TO PIN 10 OF 54200 SERIES GATES EXCEPT FAN-INS SEE NOTE 3

REF DWG:
1. SIGNAL WIRING DIAGRAM DWG NO. 2005155

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
[XXX] DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG NO. 2005011 FOR LOGIC DESIGN CRITERIA

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

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CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Ken Healy
CHECKED
APPROVED Albert Hopkins 2-2-65
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

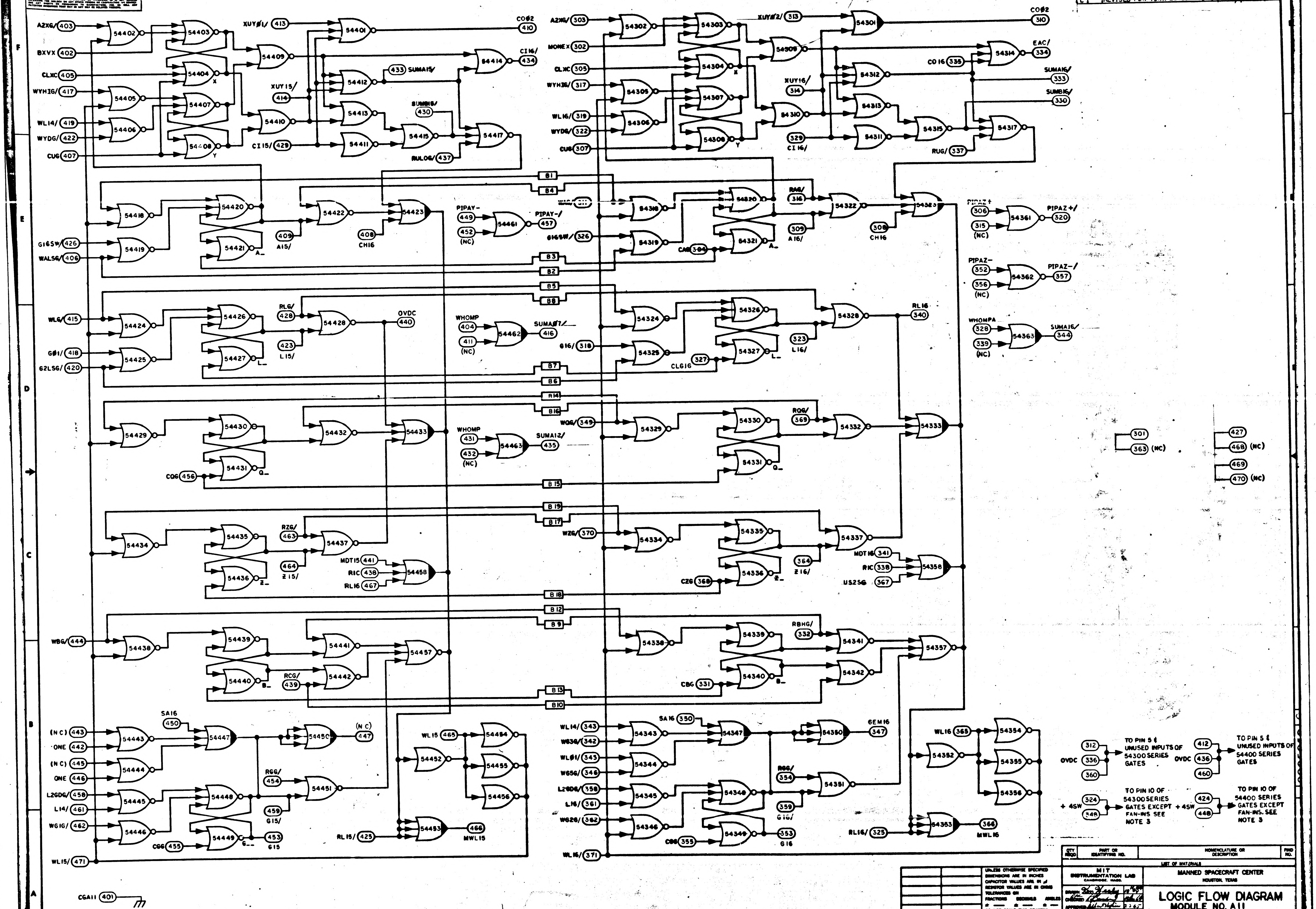
LOGIC FLOW DIAGRAM
MODULE NO. A11
4 BIT MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2005058

SCALE — SHEET 1 OF 2

2005058 C

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		REVISIONS 16390				
A		REVISED PER TDRR 17469				
B		REVISED PER TDRR 22348	KCH			
C		REVISED PER TDRR 23151				



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BXVX 402
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WYHIG/ 417
WL14/ 419
WYDG/ 422
CUG 407
XUY01/ 413
XUY15/ 414
CI15/ 429
CO02 410
CI16/ 434
433 SUMA15/
SUMB15/ 430
RULOG/ 437
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CLXC 305
WYHIG/ 317
WL16/ 319
WYDG/ 322
CUG 307
XUY02/ 313
XUY16/ 314
329 CI16/
CO02 310
EAC/ 334
CO16 335
SUMA16/ 333
SUMB16/ 330
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366 MWL16
OVDC 312 336 360
TO PIN 5 & UNUSED INPUTS OF 54300 SERIES GATES
OVDC 412 436 460
TO PIN 5 & UNUSED INPUTS OF 54400 SERIES GATES
+ 4SW 324 348
TO PIN 10 OF 54300 SERIES GATES EXCEPT FAN-INS SEE NOTE 3
+ 4SW 424 448
TO PIN 10 OF 54400 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
CGA11 401

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING
MATERIAL

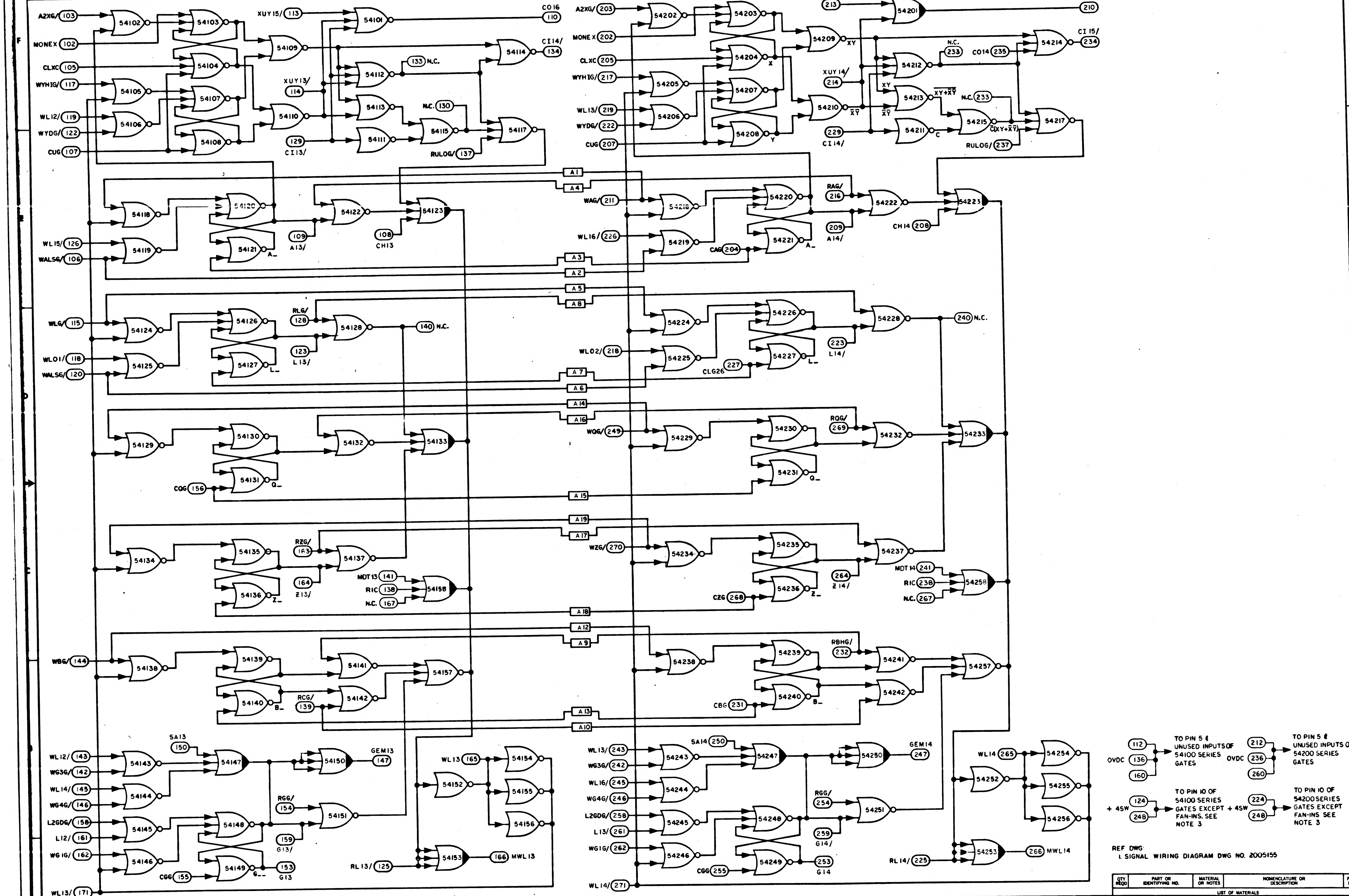
MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN
CHECKED
APPROVED 2-3-65
APPROVED
APPROVED MIT
APPROVED MSC
DATE

LOGIC FLOW DIAGRAM
MODULE NO. A11
4 BIT MODULE

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005058
SCALE —
SHEET 2 OF 2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CO16 110
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133 N.C.
XUY13/ 114
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54110
N.C. 130
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54117
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54111
RULOG/ 137
A2XG/ 203
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CO16 210
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XY
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N.C. 233
CO14 235
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XUY14/ 214
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54213
$\overline{XY+\overline{X}\,\overline{Y}}$
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C(XY+$\overline{X}\,\overline{Y}$)
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CGG 255
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RL14/ 225
266 MWL14
OVDC 112 136 160
TO PIN 5 & UNUSED INPUTS OF 54100 SERIES GATES
OVDC 212 236 260
TO PIN 5 & UNUSED INPUTS OF 54200 SERIES GATES
+ 4SW 124 248
TO PIN 10 OF 54100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+ 4SW 224 248
TO PIN 10 OF 54200 SERIES GATES EXCEPT FAN-INS SEE NOTE 3

REF DWG:
1. SIGNAL WIRING DIAGRAM DWG NO. 2005155

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
[XXX] DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG NO. 2005011 FOR LOGIC DESIGN CRITERIA

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

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CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL —

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	Ken Healy	18 Nov 64
CHECKED	A. Lindstrom	[illegible]
APPROVED	Albert Hopkins	2 2 65
APPROVED	Eldon C Hall	2 Feb 65
APPROVED MIT	W Kupfer	2 Feb 65
APPROVED MSC	[illegible]	2/2/65
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A11
4 BIT MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
—	E	2005058

SCALE — SHEET 1 OF 2

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
		REVISIONS				

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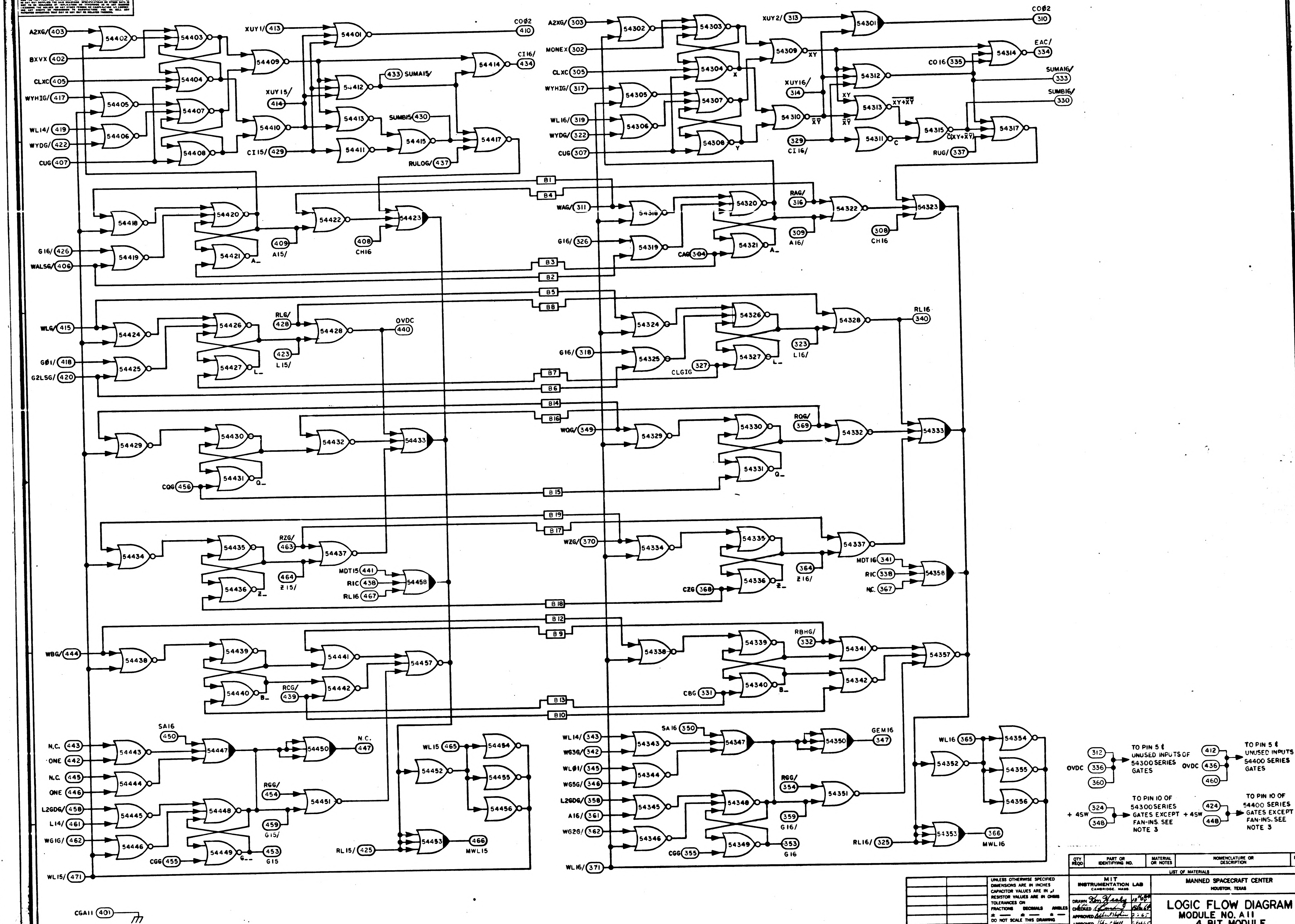

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CO02 310
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SUMB16/ 330
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X
Y
C
$\overline{XY}$
$\overline{XY}+\overline{X}\overline{Y}$
$C(XY+\overline{X}\overline{Y})$
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CGA11 401
OVDC 312 336 360
TO PIN 5 ⊄ UNUSED INPUTS OF 54300 SERIES GATES
OVDC 412 436 460
TO PIN 5 ⊄ UNUSED INPUTS OF 54400 SERIES GATES
+ 4SW 324 348
TO PIN 10 OF 54300 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
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TO PIN 10 OF 54400 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

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NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING

MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN Len Healy 13 Nov 64
CHECKED Blank 64
APPROVED Albert Hopkins 2-2-65
APPROVED Eldon C Hall 2 Feb 65
APPROVED MIT W Kupfer 2 Feb 65
APPROVED MSC 3/1/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A11
4 BIT MODULE

CODE IDENT NO. —
SIZE E
DRAWING NO. 2005058
SCALE —
SHEET 2 OF 2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 15178

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
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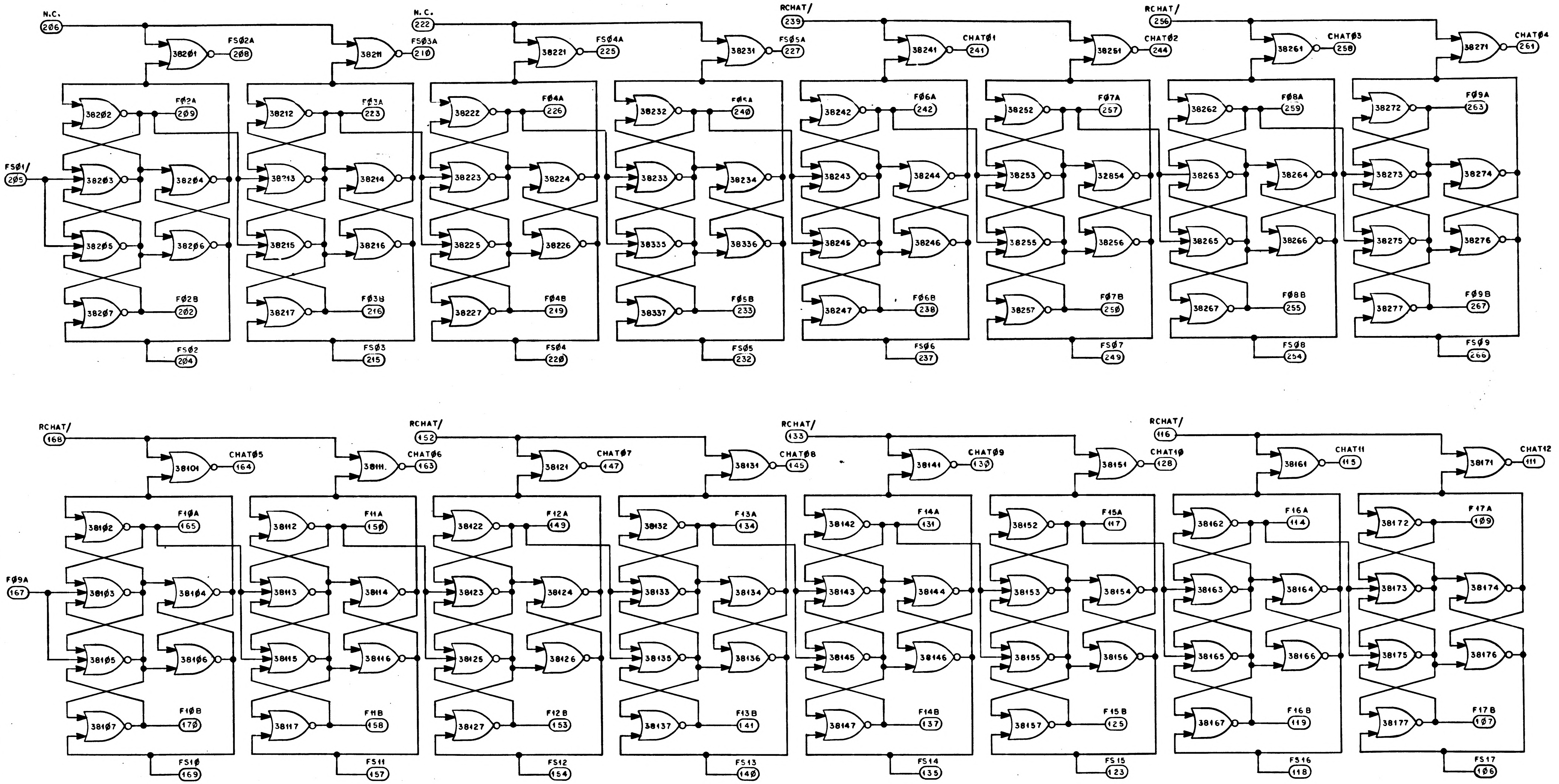
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RCHAT/ 256
38261 CHAT03 258
38271 CHAT04 261
FS01/ 205
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38205
38206
38207 F02B 202
FS02 204
38212 F03A 223
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38217 F03B 216
FS03 215
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38227 F04B 219
FS04 220
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FS05 232
38242 F06A 242
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38245
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38247 F06B 238
FS06 237
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38257 F07B 250
FS07 249
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38265
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FS08 254
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FS09 266
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38111 CHAT06 163
RCHAT/ 152
38121 CHAT07 147
38131 CHAT08 145
RCHAT/ 133
38141 CHAT09 130
38151 CHAT10 128
RCHAT/ 116
38161 CHAT11 115
38171 CHAT12 111
F09A 167
38102 F10A 165
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FS10 169
38112 F11A 150
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FS11 157
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FS12 154
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FS13 140
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38147 F14B 137
FS14 135
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FS15 123
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38167 F16B 119
FS16 118
38172 F17A 109
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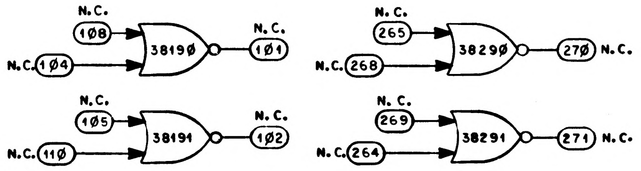
38174
38175
38176
38177 F17B 107
FS17 106

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NO.
   XXX DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DRAWING NO.   FOR LOGIC DESIGN CRITERIA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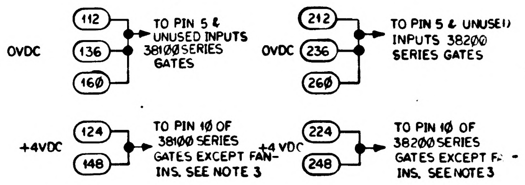
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OVDC
212
236
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+4VDC
124
148
+4 VDC
224
248

TO PIN 5 & UNUSED INPUTS 38100 SERIES GATES

TO PIN 5 & UNUSED INPUTS 38200 SERIES GATES

TO PIN 10 OF 38100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

TO PIN 10 OF 38200 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

REF DWG
1. SIGNAL WIRING DIAGRAM DWG NO. 2005159

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN DEC 1-64
CHECKED
APPROVED Albert Hopkins 12-29-64
APPROVED
APPROVED MIT W. Kupfer
APPROVED MSC 12-29-64
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO.
SCALER MODULE

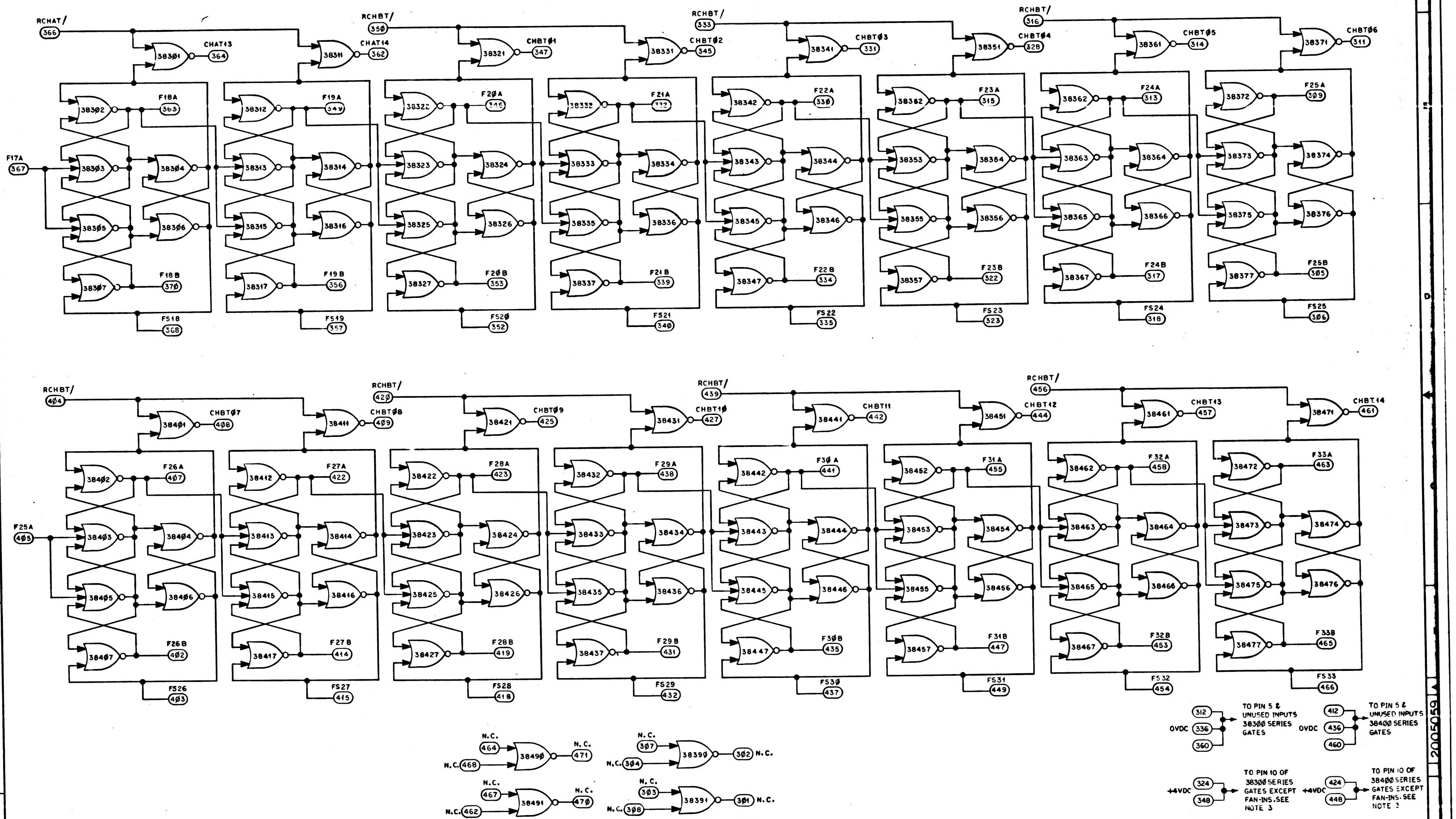
CODE IDENT NO —
SIZE E
DRAWING NO. 2005059
SCALE —
SHEET 1 OF 2

2005059

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 15731	T44		20 JAN 66	

REVISIONS 15178

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.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CHAT14
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38312
F19A
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F19B
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FS19
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FS20
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FS24
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CHBT06
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FS25
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38407
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FS26
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FS27
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CHBT09
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FS33
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N.C. 464
N.C. 468
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N.C. 467
N.C. 462
38491
470 N.C.
N.C. 307
N.C. 304
38390
302 N.C.
N.C. 303
N.C. 308
38391
301 N.C.
0VDC
312
336
360
TO PIN 5 & UNUSED INPUTS 38300 SERIES GATES
0VDC
412
436
460
TO PIN 5 & UNUSED INPUTS 38400 SERIES GATES
+4VDC
324
348
TO PIN 10 OF 38300 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4VDC
424
448
TO PIN 10 OF 38400 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN DEC 1-64
CHECKED
APPROVED Albert Hopkins 12-29-64
APPROVED
APPROVED MIT 12-29-64
APPROVED MSC 12-29-64
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO.
SCALER MODULE

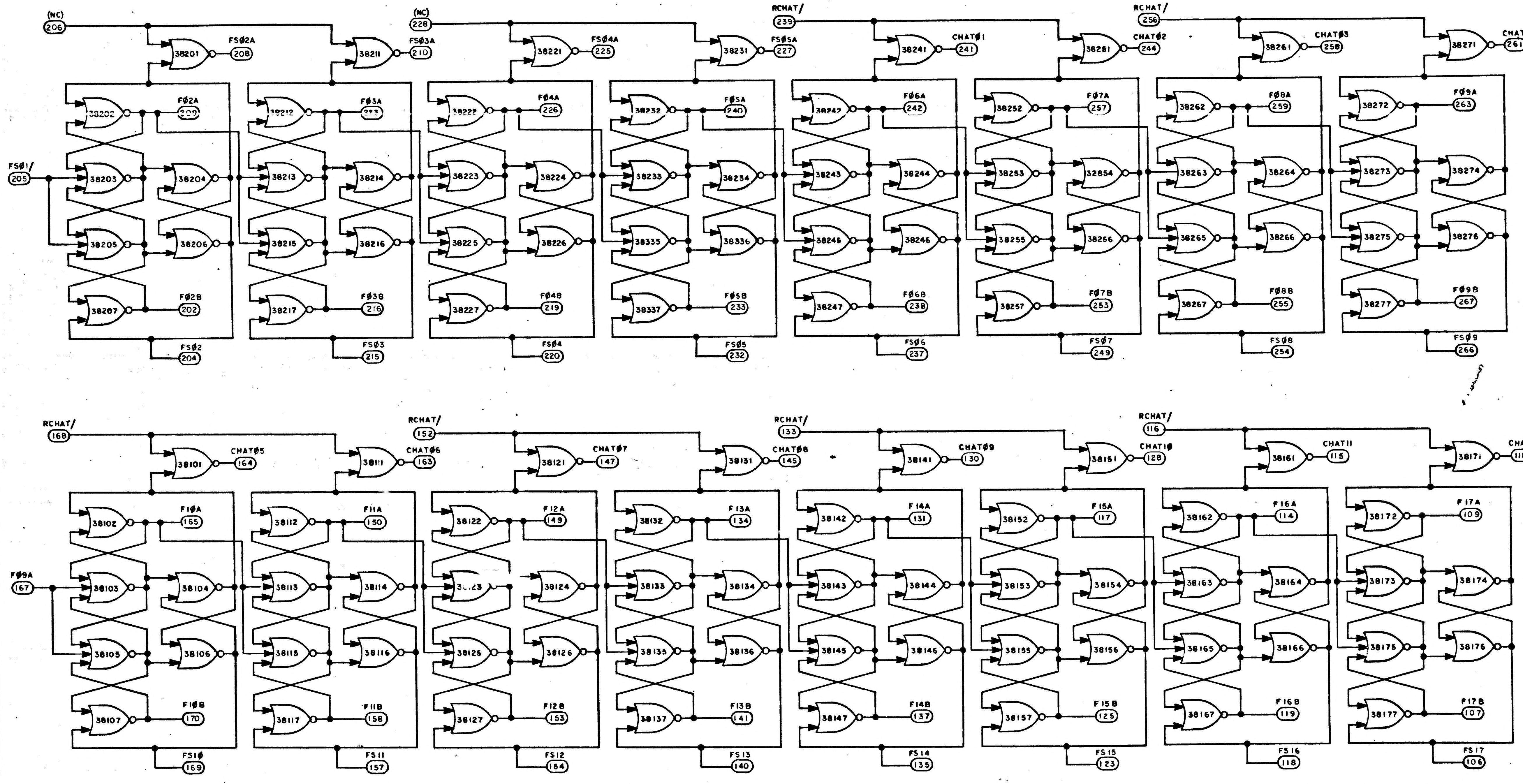
CODE IDENT NO.
SIZE E
DRAWING NO. 2005059
SCALE
SHEET 2 OF 2

2005059 A

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 15178

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED	
A		REVISED PER TDRR 15731	TEL		20 JAN 65	WC	
B		REVISED & UPGRADED TO CLASS A PER TDRR 17466	EG	RL	24 MAR 65		Wk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CHAT04 261
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F03A 223
F04A 226
F05A 240
F06A 242
F07A 257
F08A 259
F09A 263
FS01/ 205
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FS02 204
FS03 215
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FS05 232
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FS07 249
FS08 254
FS09 266
RCHAT/ 168
CHAT05 164
RCHAT/ 152
CHAT06 163
CHAT07 147
RCHAT/ 133
CHAT08 145
CHAT09 130
RCHAT/ 116
CHAT10 128
CHAT11 115
CHAT12 111
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F11A 150
F12A 149
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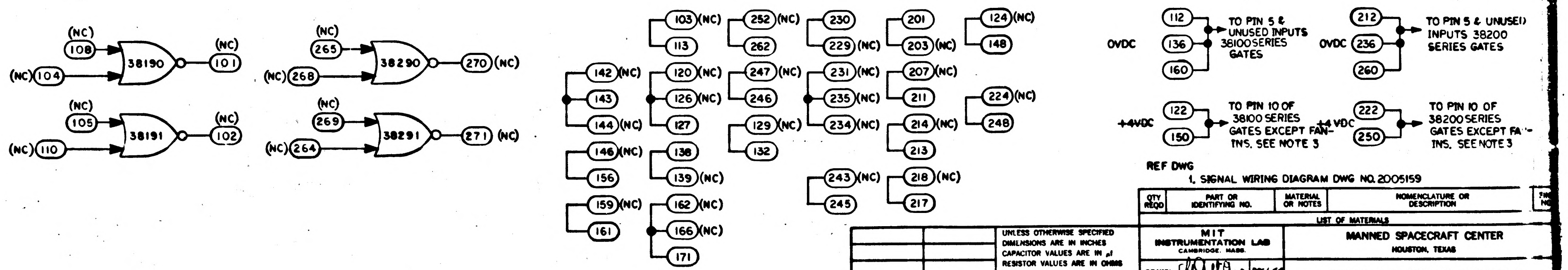
F13B 141
F14B 137
F15B 125
F16B 119
F17B 107
FS10 169
FS11 157
FS12 154
FS13 140
FS14 135
FS15 123
FS16 118
FS17 106

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NO.
   [XXX] DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DRAWING NO. 2005011 FOR LOGIC DESIGN CRITERIA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213
218 (NC)
217
124 (NC)
148
224 (NC)
248
OVDC
112
136
160
TO PIN 5 & UNUSED INPUTS 38100 SERIES GATES
OVDC
212
236
260
TO PIN 5 & UNUSED INPUTS 38200 SERIES GATES
+4VDC
122
150
TO PIN 10 OF 38100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4 VDC
222
250
TO PIN 10 OF 38200 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

REF DWG
1. SIGNAL WIRING DIAGRAM DWG NO. 2005159

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± — ± — ± —
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN DEC 1-64
CHECKED 27 Dec 64
APPROVED 12-29-64
APPROVED
APPROVED MIT
APPROVED MSC 12-29-64
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A1
SCALER MODULE

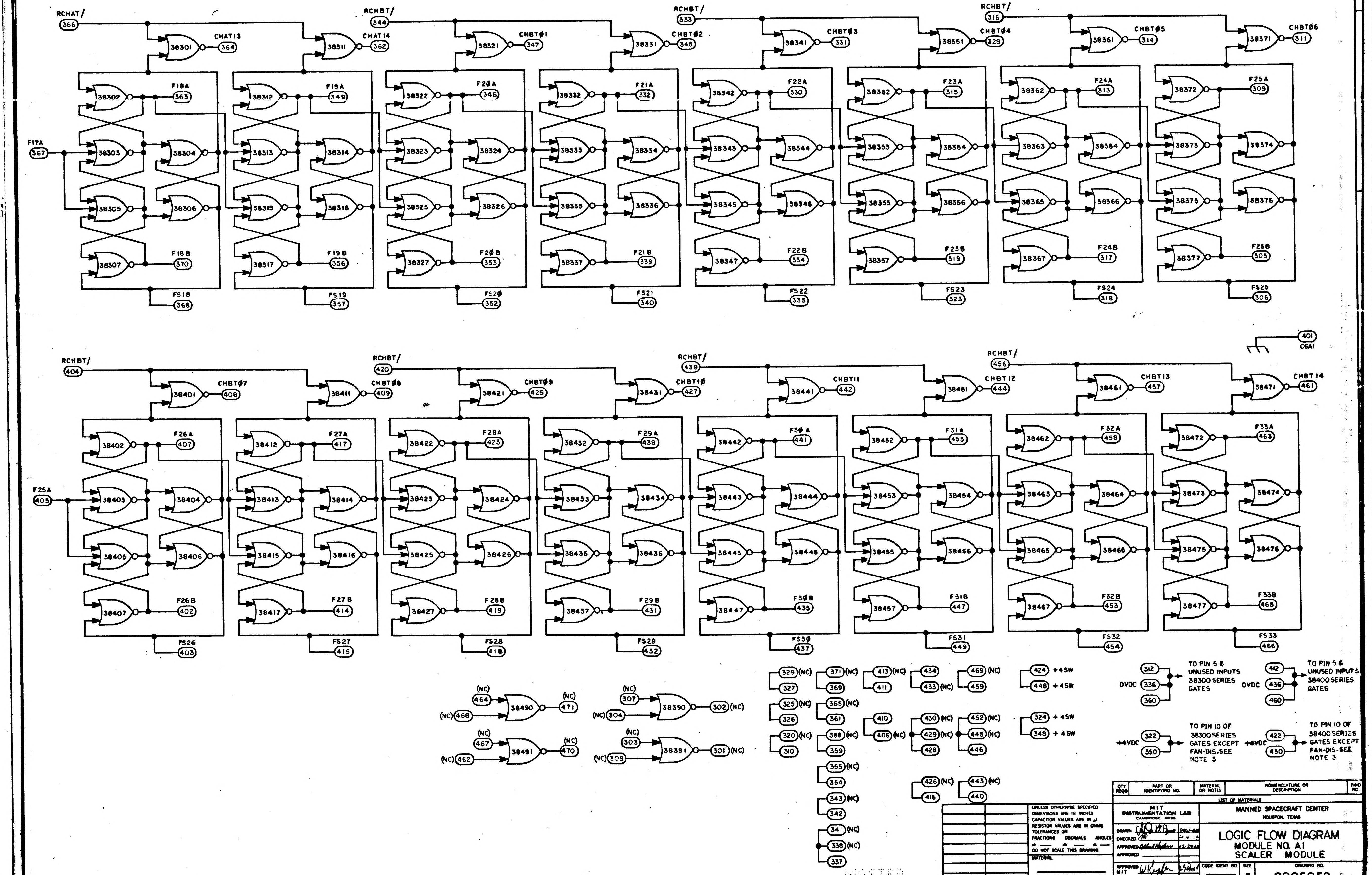
CODE IDENT NO. —
SIZE E
DRAWING NO. 2005059
SCALE —
SHEET 1 OF 2

MASTER

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 15178

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 15731	TAA		20 JAN 65	JR
B		REVISED & UPGRADED TO CLASS A PER TDRR 17466	E.G.	RL	24 MAR 65	WK



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424 +4SW
448 +4SW
324 +4SW
348 +4SW
OVDC
312
336
360
TO PIN 5 & UNUSED INPUTS 38300 SERIES GATES
OVDC
412
436
460
TO PIN 5 & UNUSED INPUTS 38400 SERIES GATES
+4VDC
322
350
TO PIN 10 OF 38300 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4VDC
422
450
TO PIN 10 OF 38400 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN ___ DEC 1-64
CHECKED ___
APPROVED Albert Hopkins 12-29-64
APPROVED

APPROVED MIT W. Cooper
APPROVED MSC 12-29-64

DATE

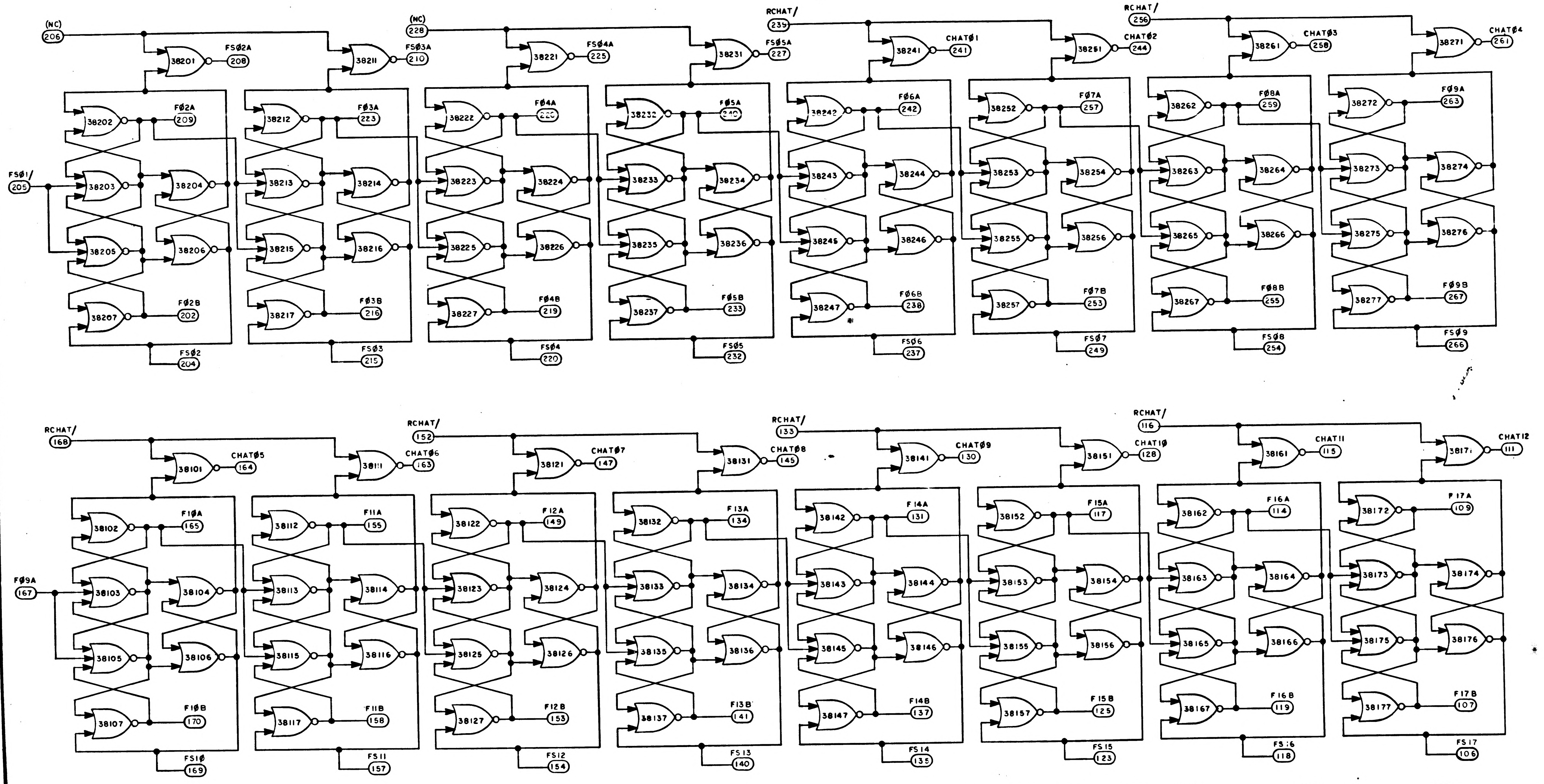
LOGIC FLOW DIAGRAM
MODULE NO. A1
SCALER MODULE

CODE IDENT NO. —
SIZE E
DRAWING NO. 2005059
SCALE —
SHEET 2 OF 2

NOTICE WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 15178.

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 15731	TH		20 JAN 65	WR
B		REVISED & UPGRADED TO CLASS A PER TDRR 17466	EG	RL	24 MAR 65	WR
C		REVISED PER TDRR 18510	TH	R	22 APR 65	WR



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FS05A 227
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FS15 123
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F16A 114
F16B 119
FS16 118
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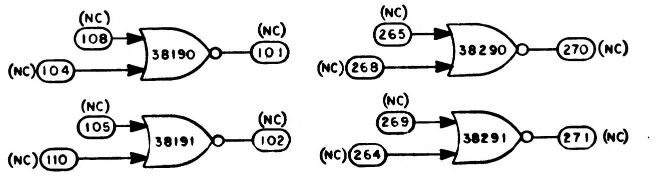
F17A 109
F17B 107
FS17 106

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NO.
$\boxed{XXX}$ DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DRAWING NO. 2005011 FOR LOGIC DESIGN CRITERIA



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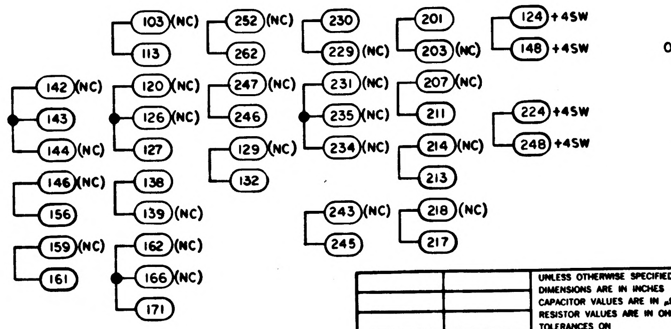

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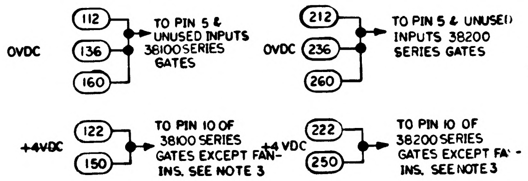


0VDC
112
136
160
TO PIN 5 & UNUSED INPUTS 38100 SERIES GATES
0VDC
212
236
260
TO PIN 5 & UNUSED INPUTS 38200 SERIES GATES
+4VDC
122
150
TO PIN 10 OF 38100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4 VDC
222
250
TO PIN 10 OF 38200 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

REF DWG
1. SIGNAL WIRING DIAGRAM DWG NO. 2005159

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± —— ± —— ± ——
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN DEC 1-64
CHECKED
APPROVED Albert Hopkins 12-29-64
APPROVED
APPROVED MIT W Kupfer
APPROVED MSC 12-29-64
DATE

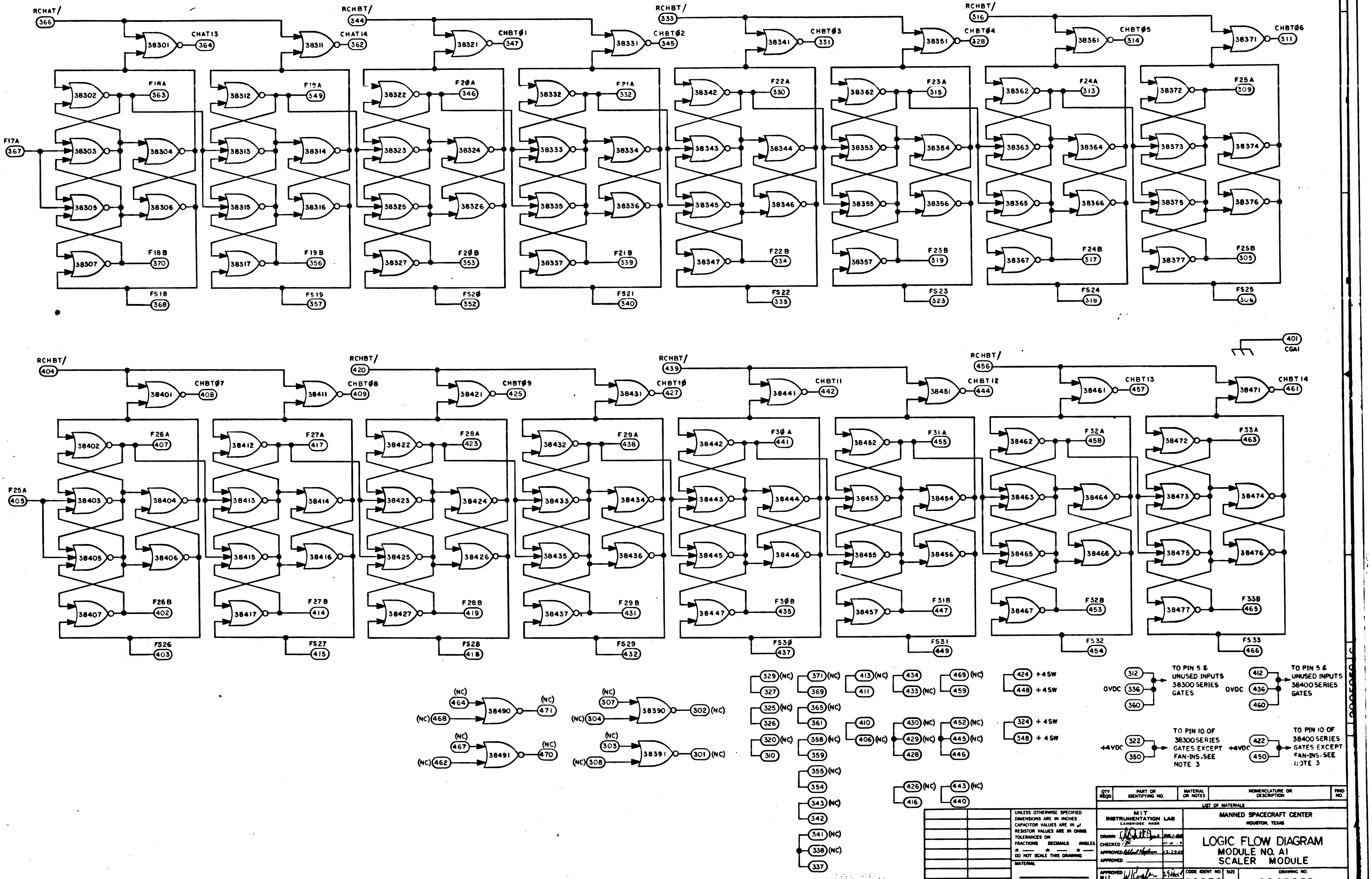
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A1
SCALER MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2005059

SCALE ——
SHEET 1 OF 2

REVISIONS 15178						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 15731	TAA		20 JAN 66	
B		REVISED & UPGRADED TO CLASS A PER TDRR 17466	E.G.	RL	24 MAR 65	
C		REVISED PER TDRR 18510	TAA		22 APR 65	



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RCHBT/ 333
38331 CHBT02 345
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38351 CHBT04 328
38361 CHBT05 314
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FS25 306
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452 (NC) 445 (NC) 446
426 (NC) 416
443 (NC) 440
424 +4SW
448 +4SW
324 +4SW
348 +4SW
OVDC 312 336 360
TO PIN 5 & UNUSED INPUTS 38300 SERIES GATES
OVDC 412 436 460
TO PIN 5 & UNUSED INPUTS 38400 SERIES GATES
+4VDC 322 350
TO PIN 10 OF 38300 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4VDC 422 450
TO PIN 10 OF 38400 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL

NEXT ASSY | USED ON
APPLICATION

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN
CHECKED
APPROVED 12-29-64
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

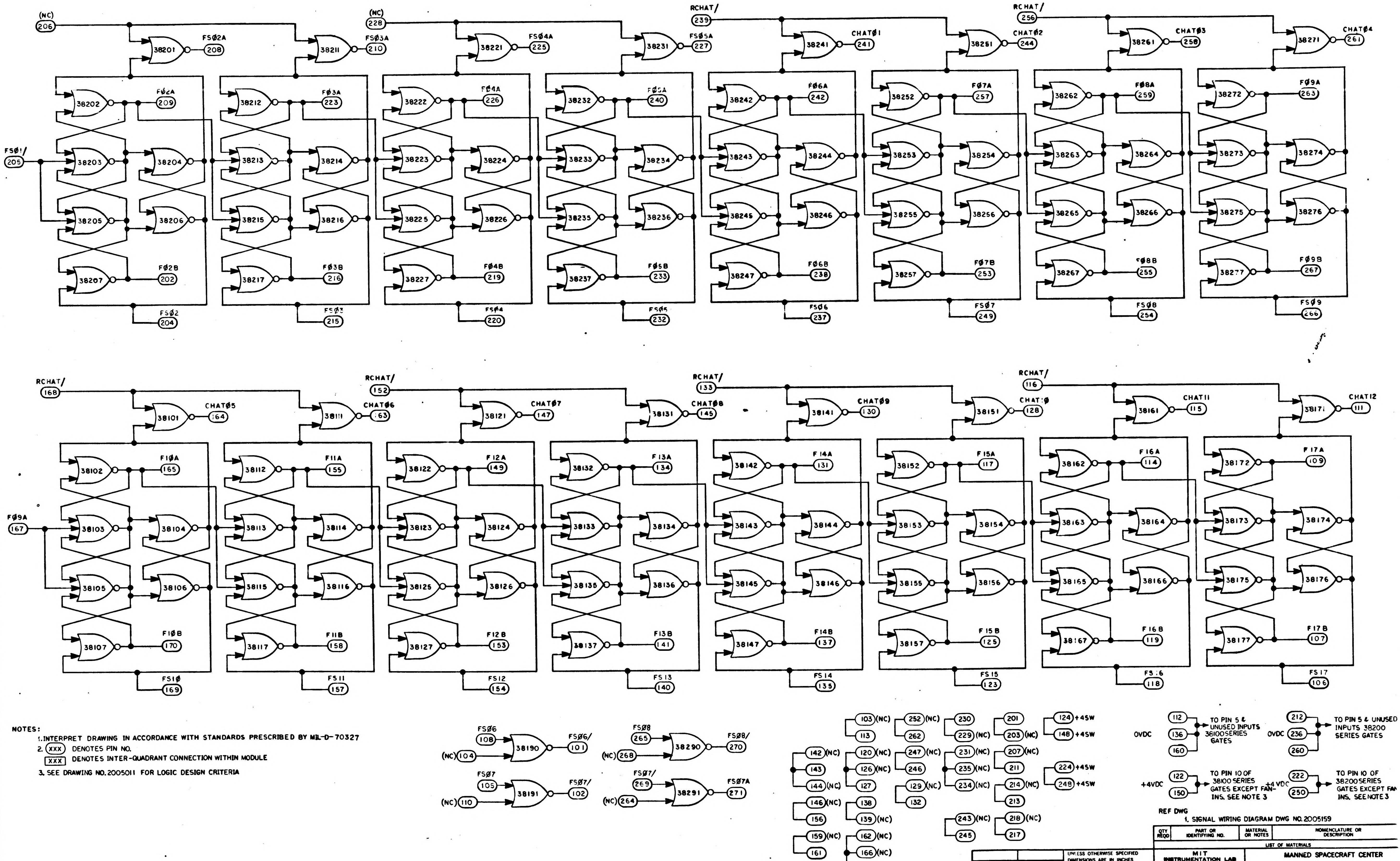
LOGIC FLOW DIAGRAM
MODULE NO. A1
SCALER MODULE

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005059
SCALE —
SHEET 2 OF 2

NOTICE WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 15178

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED	
A		REVISED PER TDRR 15731	TEL		20 JAN 65	WK	
B		REVISED & UPGRADED TO CLASS A PER TDRR 17466	EG	RL	24 MAR 65		
C		REVISED PER TDRR 18510	TEL	U	22 APR 65	WK	
D		REVISED PER TDRR 20980	BP	RK			



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0VDC
212
236
260
TO PIN 5 & UNUSED INPUTS 38200 SERIES GATES
+4VDC
122
150
TO PIN 10 OF 38100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4VDC
222
250
TO PIN 10 OF 38200 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NO.
   [XXX] DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DRAWING NO. 2005011 FOR LOGIC DESIGN CRITERIA

REF DWG
1. SIGNAL WIRING DIAGRAM DWG NO. 2005159

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TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN DEC 1-64
CHECKED
APPROVED 12-29-64
APPROVED
APPROVED MIT W Kupfer
APPROVED MSC 12-29-64
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A1
SCALER MODULE

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2005059

SCALE —— SHEET 1 OF 2

2005059 D

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 15178

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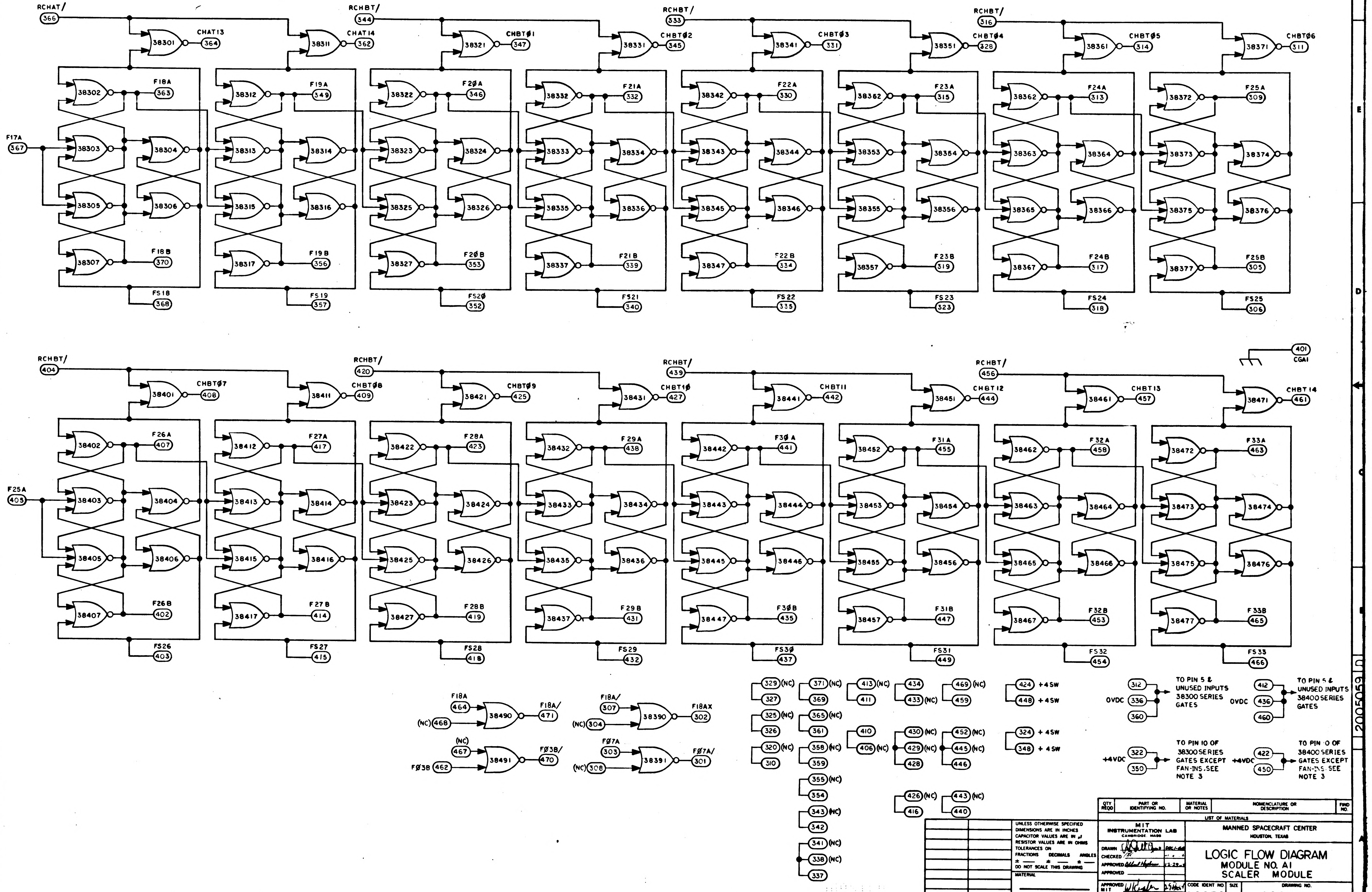
D		REVISED PER TDRR 20980				



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426 (NC) 416
443 (NC) 440
424 + 4 SW
448 + 4 SW
324 + 4 SW
348 + 4 SW
OVDC 312 336 360 TO PIN 5 & UNUSED INPUTS 38300 SERIES GATES
OVDC 412 436 460 TO PIN 5 & UNUSED INPUTS 38400 SERIES GATES
+4VDC 322 350 TO PIN 10 OF 38300 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4VDC 422 450 TO PIN 10 OF 38400 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

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FRACTIONS ± ___ DECIMALS ± ___ ANGLES ± ___
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MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN DEC 1-64
CHECKED
APPROVED Allard Hopkins 12-29-64
APPROVED
APPROVED MIT W Kupfer
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A1
SCALER MODULE

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005059
SCALE ___
SHEET 2 OF 2

2005059 D

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

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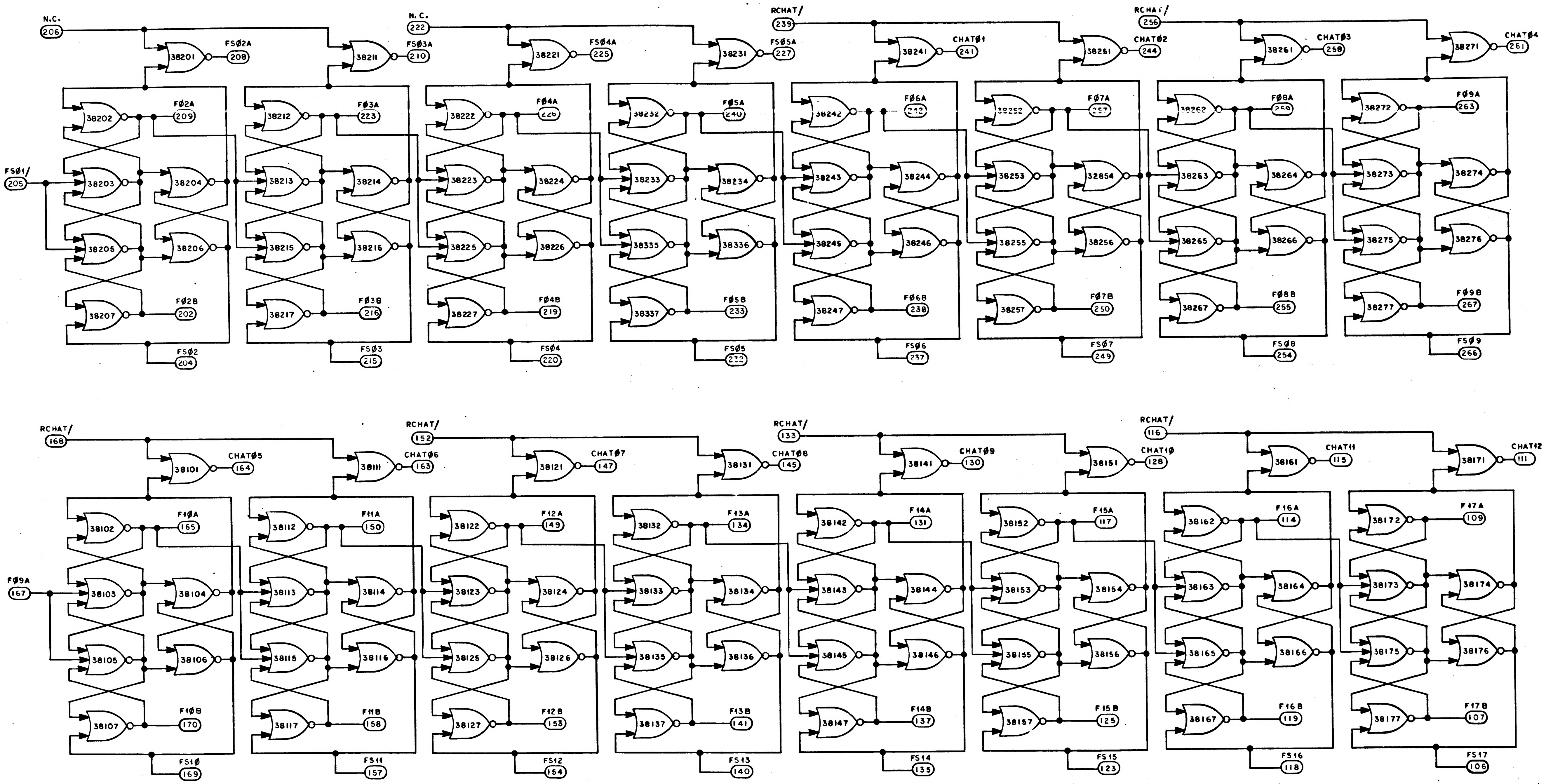
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



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FS03A 210
38221
FS04A 225
RCHAT/ 239
38231
FS05A 227
38241
CHAT01 241
RCHAT/ 256
38251
CHAT02 244
38261
CHAT03 258
38271
CHAT04 261
FS01/ 205
38202 F02A 209
38203 38204
38205 38206
38207 F02B 202
FS02 204
38212 F03A 223
38213 38214
38215 38216
38217 F03B 216
FS03 215
38222 F04A 226
38223 38224
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FS04 220
38232 F05A 240
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38337 F05B 233
FS05 232
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38245 38246
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FS06 237
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38253 32854
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38257 F07B 250
FS07 249
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38273 38274
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38277 F09B 267
FS09 266
RCHAT/ 168
38101
CHAT05 164
RCHAT/ 152
38111
CHAT06 163
38121
CHAT07 147
RCHAT/ 133
38131
CHAT08 145
38141
CHAT09 130
RCHAT/ 116
38151
CHAT10 128
38161
CHAT11 115
38171
CHAT12 111
F09A 167
38102 F10A 165
38103 38104
38105 38106
38107 F10B 170
FS10 169
38112 F11A 150
38113 38114
38115 38116
38117 F11B 158
FS11 157
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38123 38124
38125 38126
38127 F12B 153
FS12 154
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38133 38134
38135 38136
38137 F13B 141
FS13 140
38142 F14A 131
38143 38144
38145 38146
38147 F14B 137
FS14 135
38152 F15A 117
38153 38154
38155 38156
38157 F15B 125
FS15 123
38162 F16A 114
38163 38164
38165 38166
38167 F16B 119
FS16 118
38172 F17A 109
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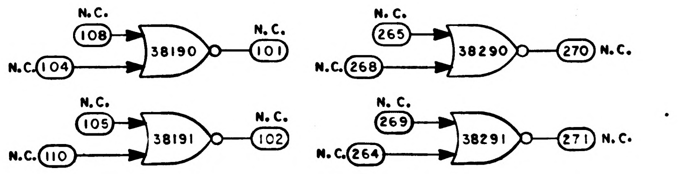
FS17 106

NOTES:

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327



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N.C. 269
N.C. 264
38291
271 N.C.

FOR INFORMATION ONLY

CLASS B RELEASE TDR No. 15178 DATE

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN DEC 1-64
CHECKED
APPROVED Albert Hopkins 12-29-64
APPROVED
APPROVED MIT
APPROVED MSC 12-29-64
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO
SCALER MODULE

CODE IDENT NO. —
SIZE E
DRAWING NO. 2005059
SCALE —
SHEET 1 OF 2

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS

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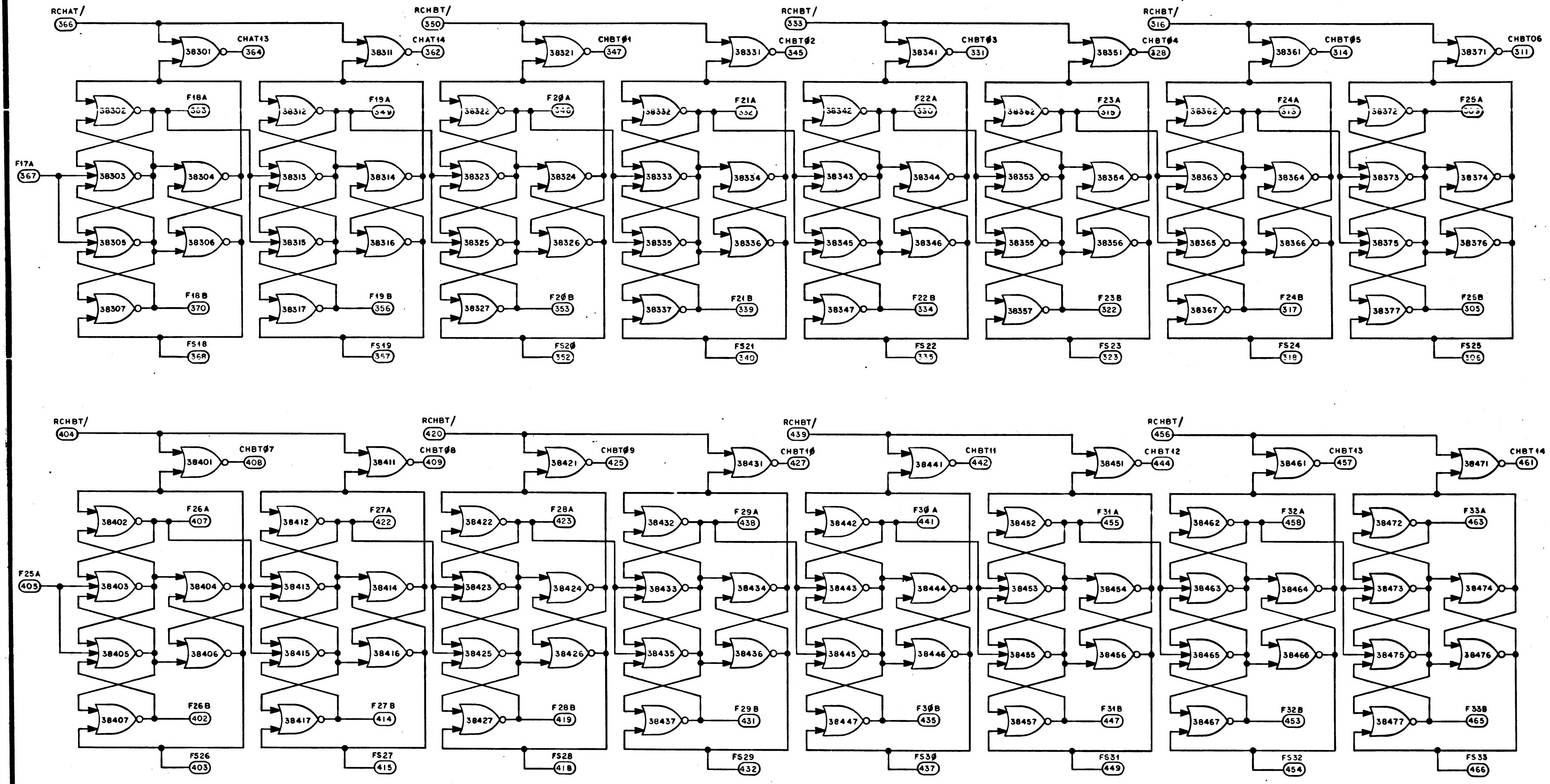
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345
RCHBT/
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CHBT03
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38351
CHBT04
328
RCHBT/
316
38361
CHBT05
314
38371
CHBT06
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38302
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F18B
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FS18
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F24B
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F25B
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FS25
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RCHBT/
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RCHBT/
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CHBT14
461
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FS28
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F30B
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FS30
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F31B
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FS31
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F32B
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FS32
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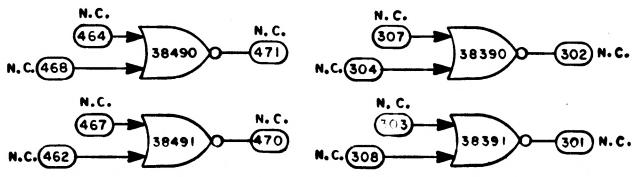
NOTE :

1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327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467
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N.C.
470
N.C.
307
N.C. 304
38390
302 N.C.
N.C.
303
N.C. 308
38391
301 N.C.

FOR INFORMATION ONLY

CLASS B RELEASE TDR No. 15178 DATE

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN DEC 1-64
CHECKED 21 12 64
APPROVED Albert Hopkins 12-29-64
APPROVED
APPROVED MIT W Cooper 29 Dec 64
APPROVED MSC 12-29-64
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO
SCALER MODULE

CODE IDENT NO.
SIZE E
DRAWING NO. 2005059
SCALE
SHEET 2 OF 2

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17473

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
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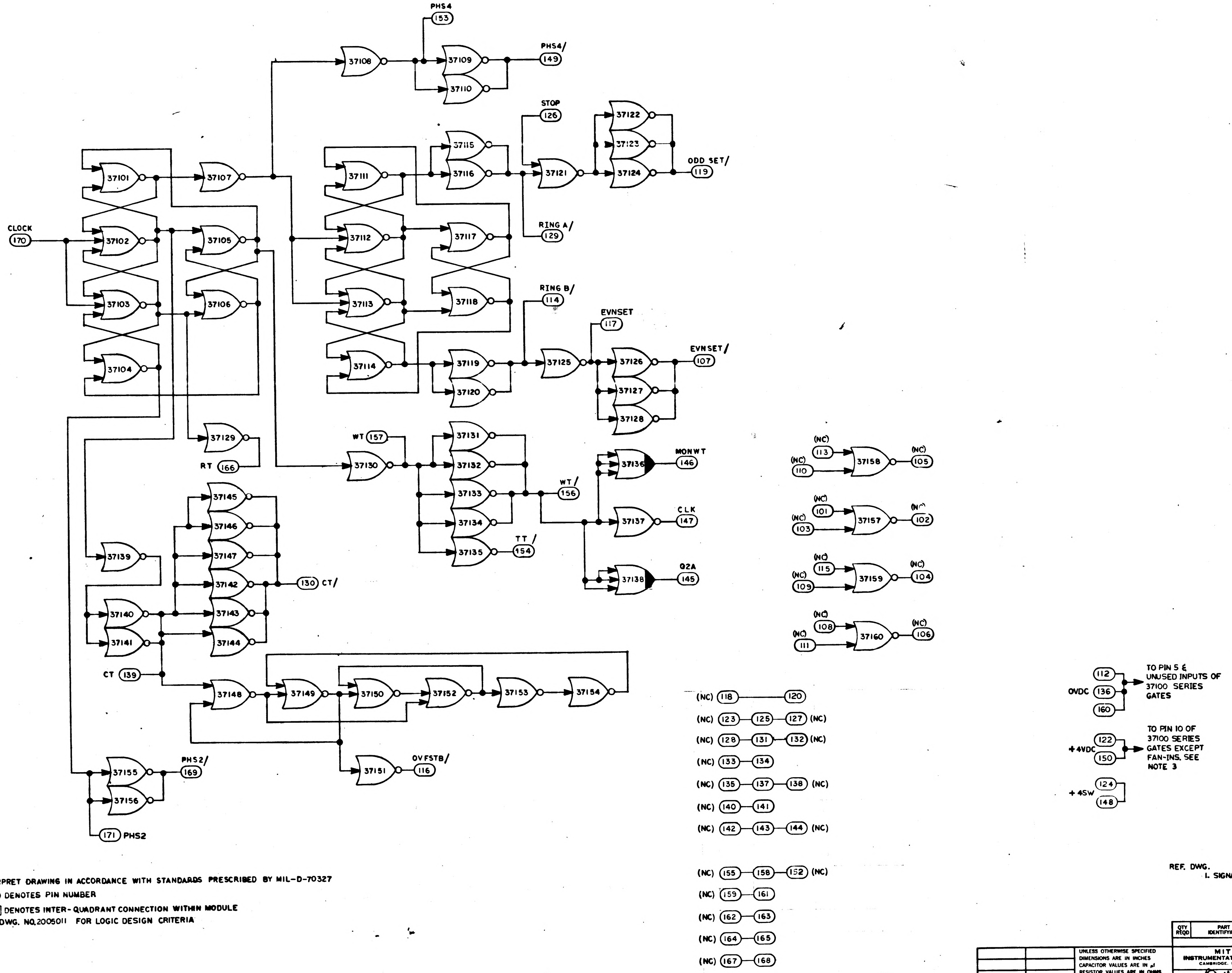
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37109
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ODD SET/
119
CLOCK
170
37101
37102
37103
37104
37105
37106
37107
37111
37112
37113
37114
37117
37118
RING A/
129
RING B/
114
EVNSET
117
37119
37120
37125
37126
37127
37128
EVNSET/
107
37129
RT 166
WT 157
37130
37131
37132
37133
37134
37135
WT/
156
TT/
154
37136
MONWT
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Q2A
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37139
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37142
37143
37144
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37141
130 CT/
CT 139
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37149
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37152
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37151
OVFSTB/
116
37155
37156
PHS2/
169
171 PHS2
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(NC) 110
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37159
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(NC) 111
37160
(NC) 106
(NC) 118 — 120
(NC) 123 — 125 — 127 (NC)
(NC) 128 — 131 — 132 (NC)
(NC) 133 — 134
(NC) 135 — 137 — 138 (NC)
(NC) 140 — 141
(NC) 142 — 143 — 144 (NC)
(NC) 155 — 158 — 152 (NC)
(NC) 159 — 161
(NC) 162 — 163
(NC) 164 — 165
(NC) 167 — 168
OVDC 112 136 160
TO PIN 5 & UNUSED INPUTS OF 37100 SERIES GATES
+4VDC 122 150
TO PIN 10 OF 37100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 124 148

NOTE:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
[XXX] DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG. NO. 2005011 FOR LOGIC DESIGN CRITERIA

REF. DWG.
1. SIGNAL WIRING DIAGRAM DWG NO. 2005160

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY | USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN R Dell
CHECKED 1-9-65
APPROVED Albert Hopkins 1-4-65
APPROVED
APPROVED MIT W Kupfer
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A2
TIMER

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005060
SCALE ——
SHEET 1 OF 3

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17473

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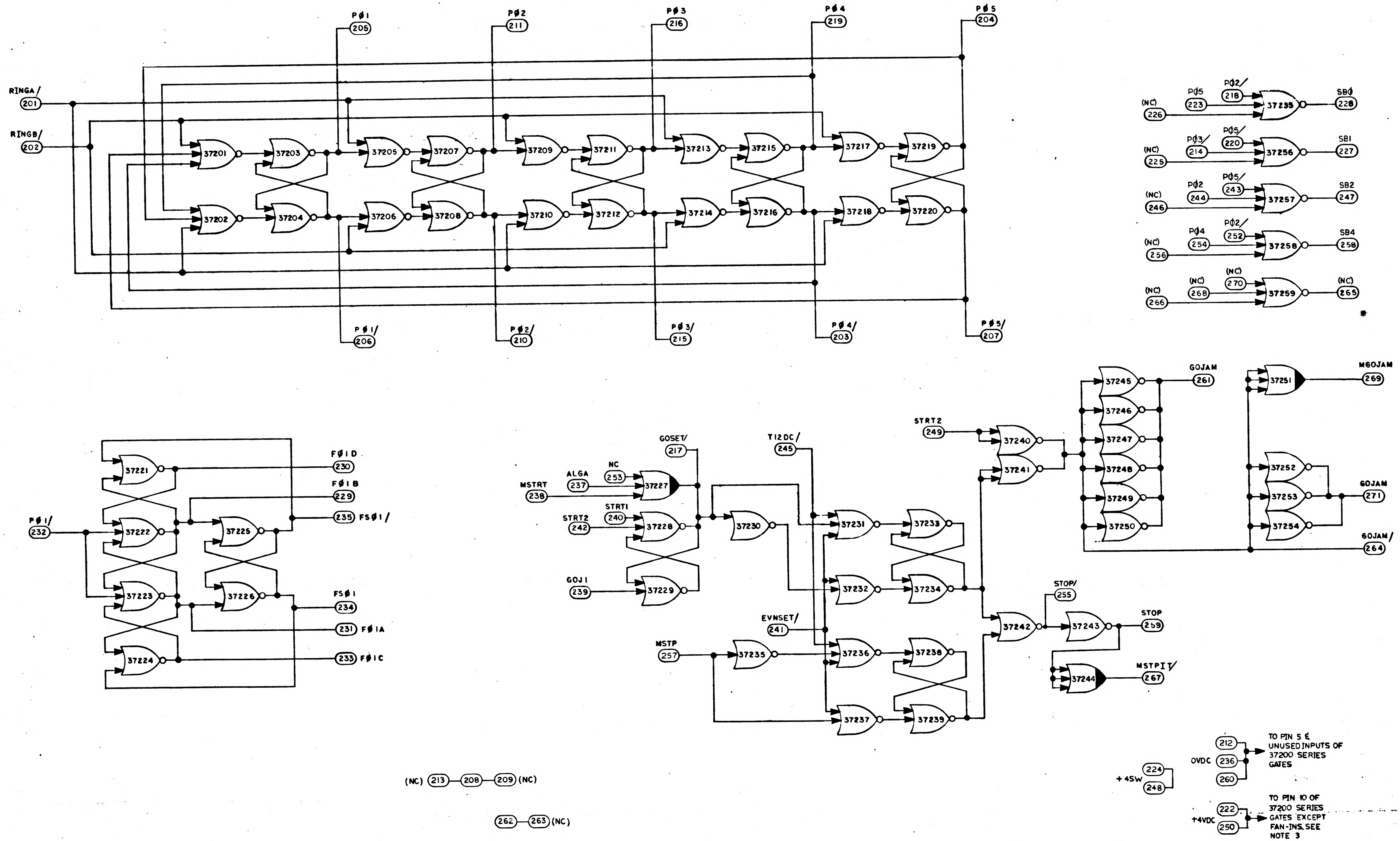
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RINGB/
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37220
PØ1/
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PØ2/
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PØ3/
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PØ4/
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PØ5/
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PØ5
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PØ2/
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SBØ
228
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225
PØ3/
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PØ5/
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SB1
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PØ5/
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SB2
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FØ1B
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PØ1/
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37226
FSØ1
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231 FØ1A
233 FØ1C
GOSET/
217
MSTRT
238
ALGA
237
NC
253
37227
STRT2
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STRT1
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37229
37230
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37242
STOP/
255
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STOP
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37244
MSTPIT/
267
37245
37246
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37248
37249
37250
GOJAM
261
37251
MGOJAM
269
37252
37253
37254
GOJAM
271
GOJAM/
264
(NC) 213 — 208 — 209 (NC)
262 — 263 (NC)
OVDC
212
236
260
TO PIN 5 & UNUSED INPUTS OF 37200 SERIES GATES
+4SW
224
248
+4VDC
222
250
TO PIN 10 OF 37200 SERIES GATES EXCEPT FAN-INS, SEE NOTE 3

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± —— DECIMALS ± —— ANGLES ± ——
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN
CHECKED 1-4-65
APPROVED Albert Hopkins 1-4-65
APPROVED Eldon C. Hall
APPROVED MIT
APPROVED MSC
DATE

LOGIC FLOW DIAGRAM
MODULE NO. A2
TIMER

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005060
SCALE ——
SHEET 2 OF 3

MASTER

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17473

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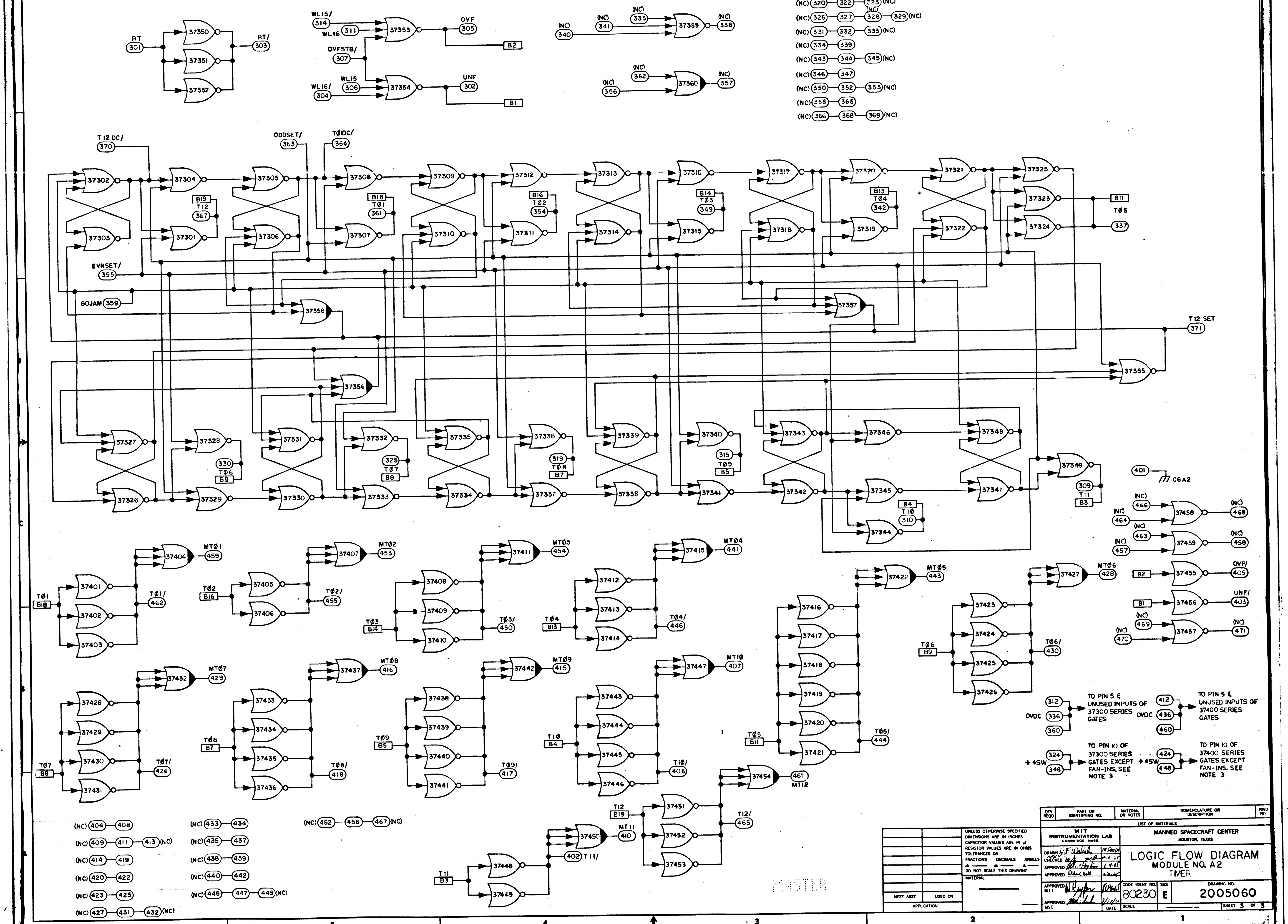

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WL15/ 314
WL16 311
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B2
OVFSTB/ 307
WL15 306
WL16/ 304
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B13 T04 342
B11 T05 337
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T02/ 455
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T07/ 426
T08 B7
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T08/ 418
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MT09 415
T09/ 417
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T10/ 406
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T12/ 465
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(NC) 414 419
(NC) 420 422
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(NC) 452 456 467 (NC)

OVDC 312 336 360 → TO PIN 5 & UNUSED INPUTS OF 37300 SERIES GATES

OVDC 412 436 460 → TO PIN 5 & UNUSED INPUTS OF 37400 SERIES GATES

+4SW 324 348 → TO PIN 10 OF 37300 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

+4SW 424 448 → TO PIN 10 OF 37400 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J.F. Walsh 15 Dec 64
CHECKED 1-4-65
APPROVED 1-4-65
APPROVED Eldon C. Hall
APPROVED MIT
APPROVED MSC 3/11/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

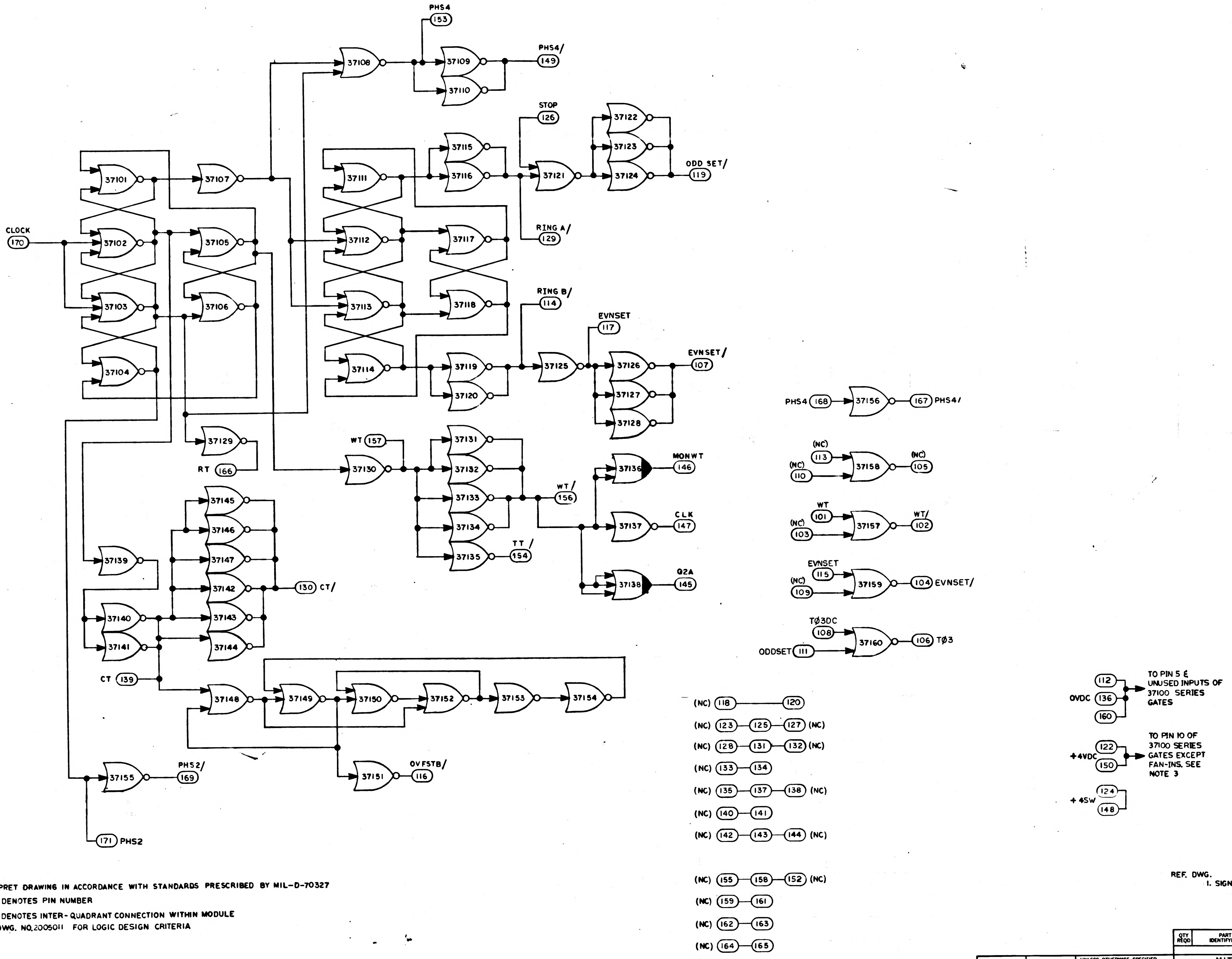
LOGIC FLOW DIAGRAM
MODULE NO. A2
TIMER

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2005060
SCALE		SHEET 3 OF 3

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17473

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 18679	[illegible]	[illegible]	23 Apr 65	WR
B		REVISED PER TDRR 20973	EJM	[illegible]	[illegible]	WR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37125
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EVNSET/
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WT 157
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WT/
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TT/
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37137
CLK
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130 CT/
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CT 139
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37149
37150
37152
37153
37154
37151
OVFSTB/
116
37155
PHS2/
169
171 PHS2
PHS4 168
37156
167 PHS4/
(NC) 113
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WT/ 102
EVNSET 115
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104 EVNSET/
TØ3DC 108
ODDSET 111
37160
106 TØ3
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(NC) 162 — 163
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0VDC 112 136 160
TO PIN 5 & UNUSED INPUTS OF 37100 SERIES GATES
+4VDC 122 150
TO PIN 10 OF 37100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 124 148

NOTE:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
   [XXX] DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG. NO. 2005011 FOR LOGIC DESIGN CRITERIA

REF. DWG.
1. SIGNAL WIRING DIAGRAM DWG NO. 2005160

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN R Dell [illegible]
CHECKED [illegible] 1-4-65
APPROVED Albert Hopkins 1-4-65
APPROVED [illegible] 12 Mar 65
APPROVED MIT [illegible]
APPROVED MSC [illegible]
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A2
TIMER

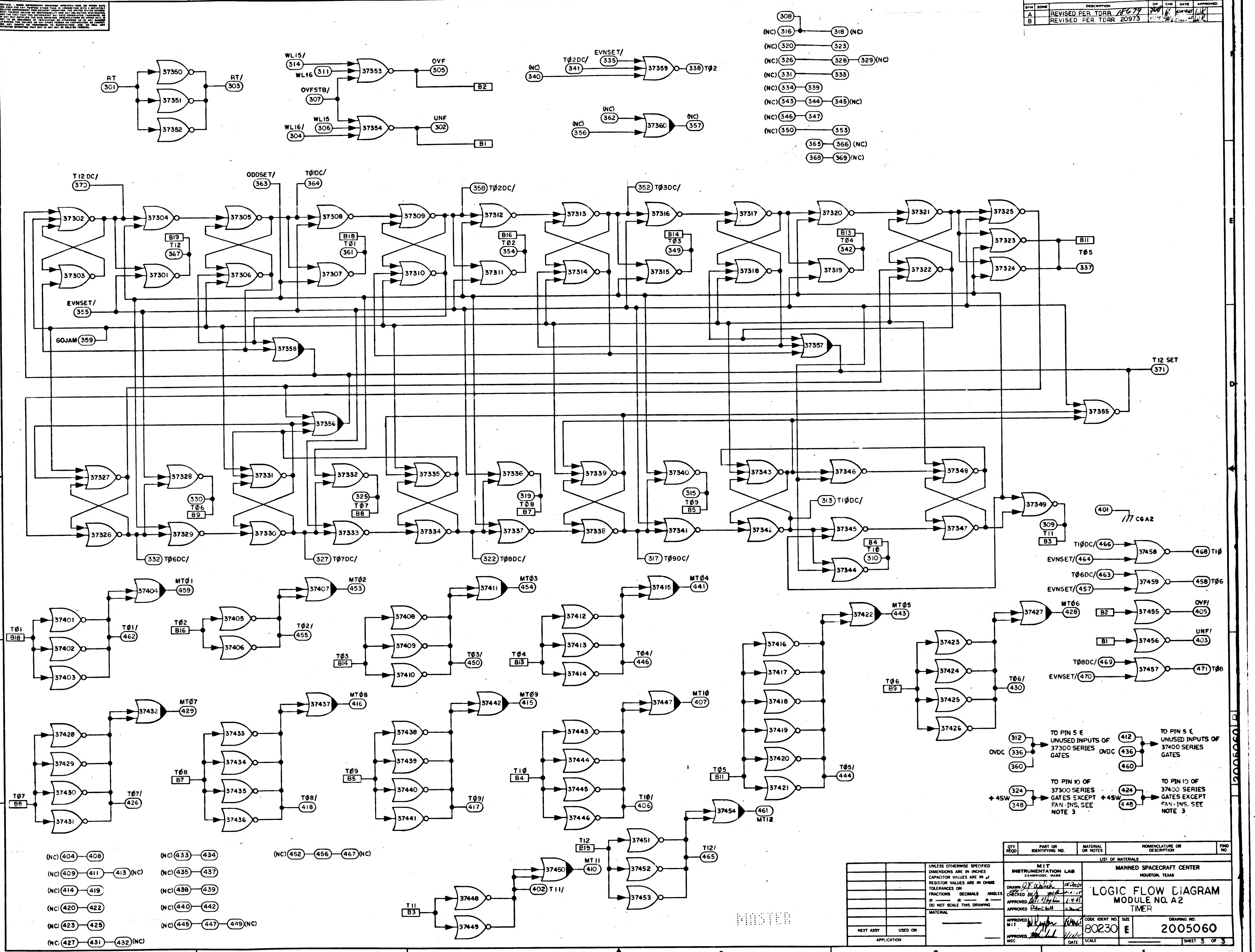
CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005060
SCALE —
SHEET 1 OF 3

2005060 B

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17473

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 18679			23 APR 65	WK
B		REVISED PER TDRR 20973				WK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TØ1DC/ 364
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352 TØ3DC/
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B4 T1Ø 310
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EVNSET/ 464
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T12/ 465
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MT11 410
402 T11/
OVDC 312 336 360
TO PIN 5 E UNUSED INPUTS OF 37300 SERIES GATES
OVDC 412 436 460
TO PIN 5 E UNUSED INPUTS OF 37400 SERIES GATES
+4SW 324 348
TO PIN 10 OF 37300 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 424 448
TO PIN 10 OF 37400 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
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(NC) 409 411 413 (NC)
(NC) 414 419
(NC) 420 422
(NC) 423 425
(NC) 427 431 432 (NC)
(NC) 433 434
(NC) 435 437
(NC) 438 439
(NC) 440 442
(NC) 445 447 449 (NC)
(NC) 452 456 467 (NC)
MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	J.F. Walsh	15 Dec 64
CHECKED		1-4-65
APPROVED	Alex Hopkins	1-4-65
APPROVED	Eldon Hall	
APPROVED MIT	W Kupfer	
APPROVED MSC		3/11/65
	DATE	

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A2
TIMER

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2005060
SCALE		SHEET 3 OF 3

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17473

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A		REVISED PER TDRR 18679			23APR65	WR
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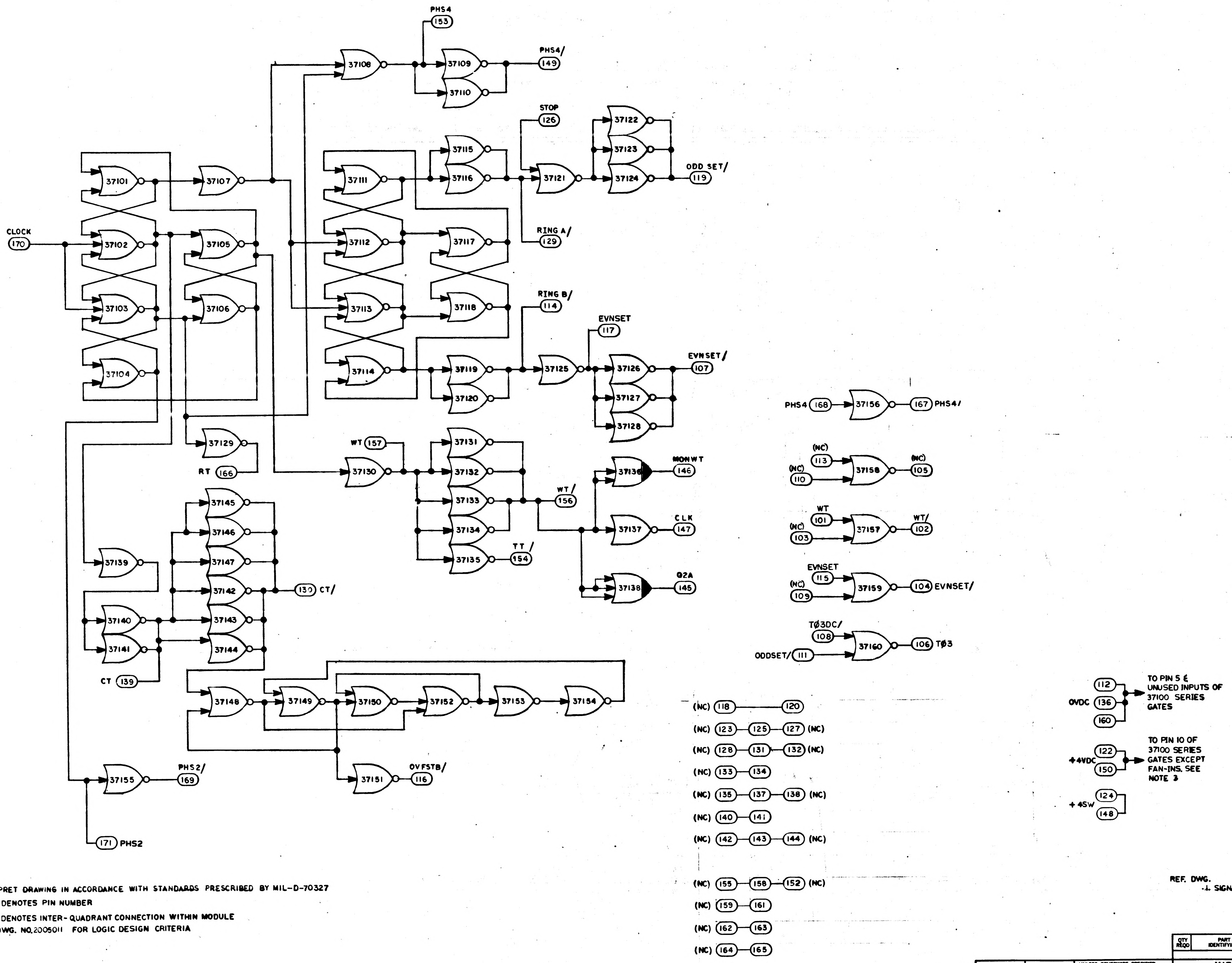
C		REVISED PER TDRR 22353	KCH		9 Sept 65	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171 PHS2
PHS4 168
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+4VDC 122 150
TO PIN 10 OF 37100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 124 148

NOTE:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
[XXX] DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG. NO. 2005011 FOR LOGIC DESIGN CRITERIA

REF. DWG.
1. SIGNAL WIRING DIAGRAM DWG NO. 2005160

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

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TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN R Dell
CHECKED 1-9-65
APPROVED 1-4-65
APPROVED
APPROVED MIT
APPROVED MSC
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A2
TIMER

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005060
SCALE —
SHEET 1 OF 3

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

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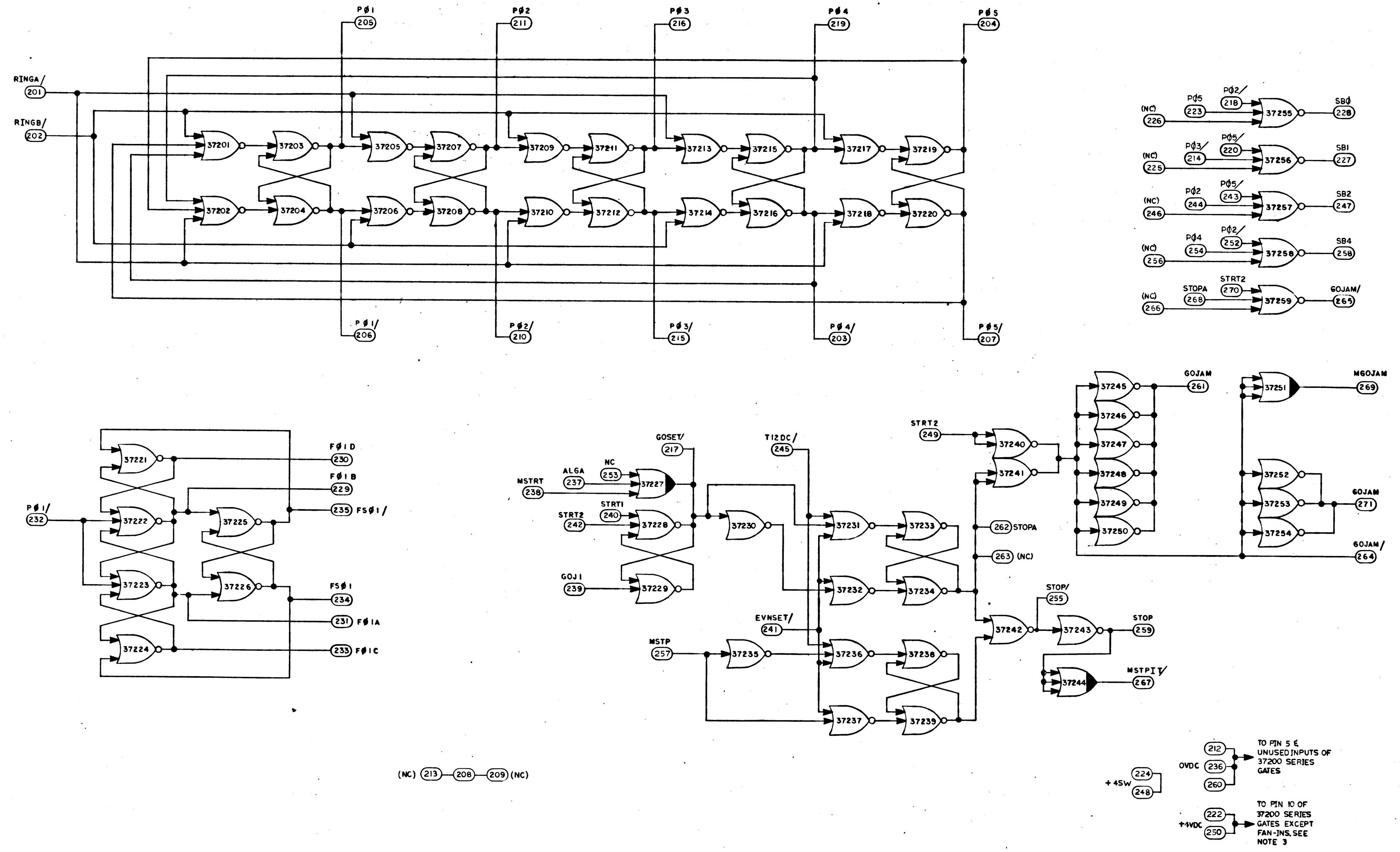
B		REVISED PER TDRR 20973	EJM	[illegible]	22 JULY 65	WR
C		REVISED PER TDRR 22353	KCH	[illegible]	9 SEPT 65	[illegible]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236
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TO PIN 5 & UNUSED INPUTS OF 37200 SERIES GATES
+4SW
224
248
+4VDC
222
250
TO PIN 10 OF 37200 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

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TOLERANCES ON
FRACTIONS ± — DECIMALS ± — ANGLES ± —
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN [illegible]
CHECKED [illegible] 1-4-65
APPROVED Albert Hopkins 1-4-65
APPROVED Ellen C Hall 12 Mar 65
APPROVED MIT WKupfer [illegible]
APPROVED MSC [illegible] 3/11/65
DATE

LOGIC FLOW DIAGRAM
MODULE NO. A2
TIMER

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005060
SCALE —
SHEET 2 OF 3

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

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B		REVISED PER TDRR 20973	EJM			WK
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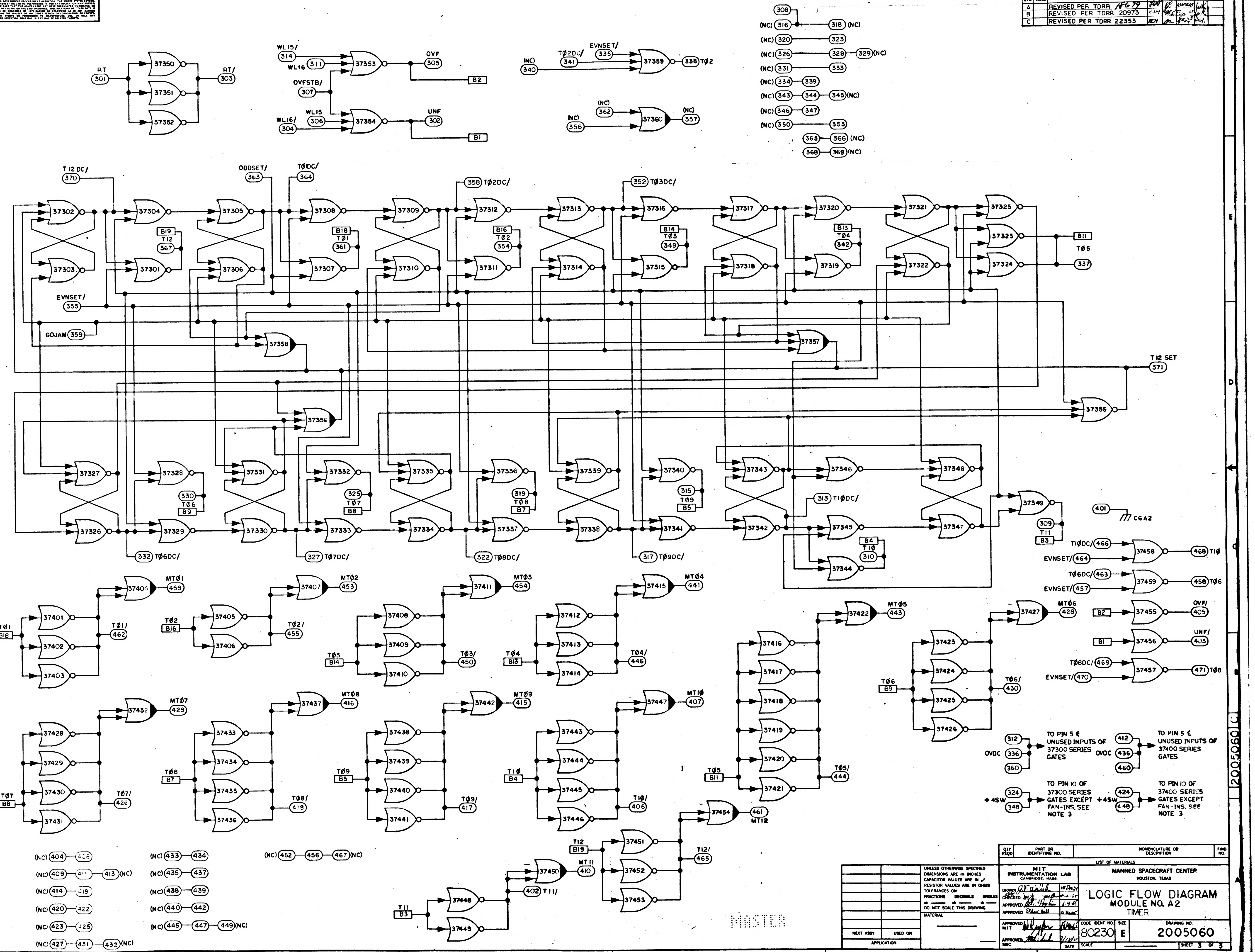
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37448
37449
37450
MT11 410
402 T11/
OVDC 312 336 360
TO PIN 5 & UNUSED INPUTS OF 37300 SERIES GATES
OVDC 412 436 460
TO PIN 5 & UNUSED INPUTS OF 37400 SERIES GATES
+4SW 324 348
TO PIN 10 OF 37300 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 424 448
TO PIN 10 OF 37400 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
(NC) 404 408
(NC) 409 411 413 (NC)
(NC) 414 419
(NC) 420 422
(NC) 423 425
(NC) 427 431 432 (NC)
(NC) 433 434
(NC) 435 437
(NC) 438 439
(NC) 440 442
(NC) 445 447 449 (NC)
(NC) 452 456 467 (NC)
MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN J.F. Walsh 15 Dec 64
CHECKED
APPROVED Alex Hopkins 1-4-65
APPROVED Eldon Hall
APPROVED MIT
APPROVED MSC 3/11/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

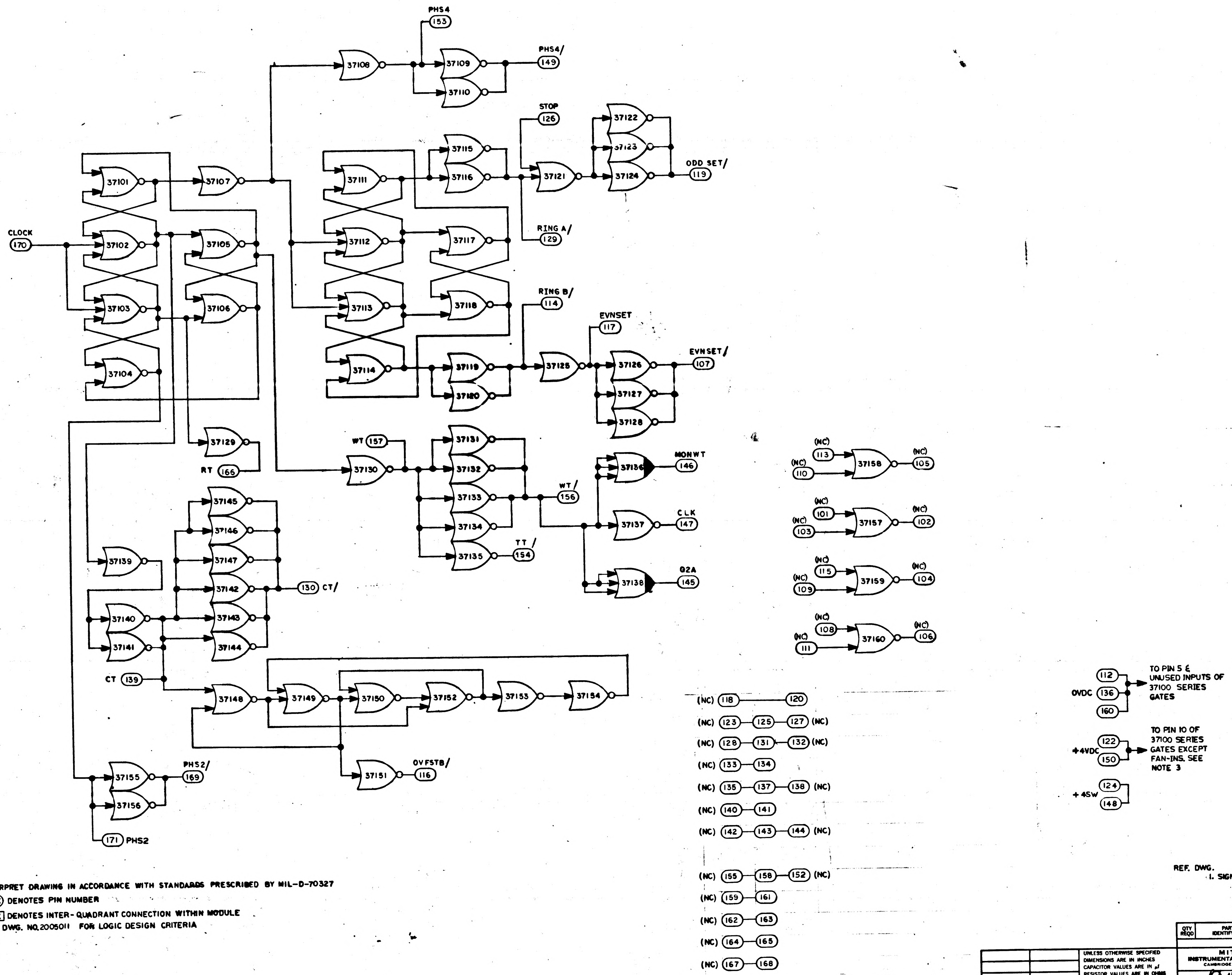
LOGIC FLOW DIAGRAM
MODULE NO. A2
TIMER

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005060
SCALE
SHEET 3 OF 3

2005060 C

REVISIONS 17473

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



PHS4
153
37108
37109
37110
PHS4/
149
STOP
126
37122
37123
37124
37121
ODD SET/
119
37115
37116
37111
37112
37113
37114
37117
37118
37119
37120
RING A/
129
RING B/
114
EVNSET
117
37125
37126
37127
37128
EVNSET/
107
CLOCK
170
37101
37102
37103
37104
37105
37106
37107
37129
RT
166
WT
157
37130
37131
37132
37133
37134
37135
WT/
156
TT/
154
37136
MONWT
146
37137
CLK
147
37138
G2A
145
37139
37140
37141
37142
37143
37144
37145
37146
37147
130
CT/
CT
139
37148
37149
37150
37152
37153
37154
37151
OVFSTB/
116
37155
37156
PHS2/
169
171
PHS2
(NC)
113
110
37158
105
101
103
37157
102
115
109
37159
104
108
111
37160
106
(NC) 118 120
(NC) 123 125 127 (NC)
(NC) 128 131 132 (NC)
(NC) 133 134
(NC) 135 137 138 (NC)
(NC) 140 141
(NC) 142 143 144 (NC)
(NC) 155 158 152 (NC)
(NC) 159 161
(NC) 162 163
(NC) 164 165
(NC) 167 168
0VDC
112
136
160
TO PIN 5 & UNUSED INPUTS OF 37100 SERIES GATES
+4VDC
122
150
TO PIN 10 OF 37100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW
124
148

NOTE:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
$\boxed{XXX}$ DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG. NO.2005011 FOR LOGIC DESIGN CRITERIA

REF. DWG.
1. SIGNAL WIRING DIAGRAM DWG NO. 2005160

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN	R Dell	
CHECKED		1-4-65
APPROVED	Albert Hopkins	1-4-65
APPROVED	Eldon C Hall	12 March
APPROVED MIT		
APPROVED MSC		
		DATE

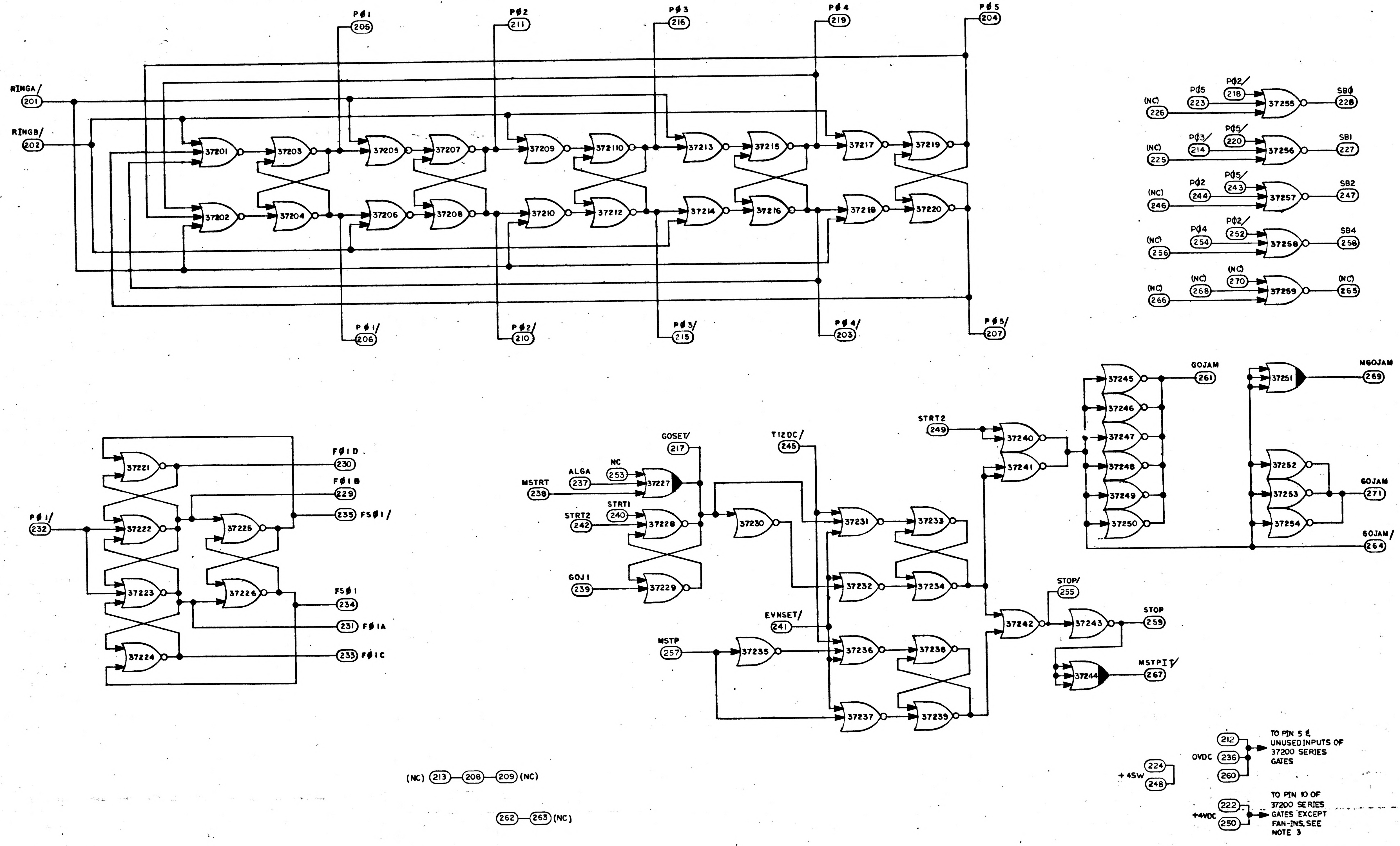
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A2
TIMER

CODE IDENT NO.	SIZE	DRAWING NO.
—	E	2005060
SCALE —		SHEET 1 OF 3

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED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205
PØ2
211
PØ3
216
PØ4
219
PØ5
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RINGA/
201
RINGB/
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37201
37202
37203
37204
37205
37206
37207
37208
37209
37210
372110
37212
37213
37214
37215
37216
37217
37218
37219
37220
PØ1/
206
PØ2/
210
PØ3/
215
PØ4/
203
PØ5/
207
(NC)
226
PØ5
223
PØ2/
218
37255
SBØ
228
(NC)
225
PØ3/
214
PØ5/
220
37256
SB1
227
(NC)
246
PØ2
244
PØ5/
243
37257
SB2
247
(NC)
256
PØ4
254
PØ2/
252
37258
SB4
258
(NC)
266
(NC)
268
(NC)
270
37259
(NC)
265
FØ1D
230
FØ1B
229
235 FSØ1/
PØ1/
232
37221
37222
37223
37224
37225
37226
FSØ1
234
231 FØ1A
233 FØ1C
GOSET/
217
ALGA
237
NC
253
MSTRT
238
37227
STRT2
242
STRT1
240
37228
GOJ1
239
37229
37230
T12DC/
245
37231
37232
37233
37234
EVNSET/
241
MSTP
257
37235
37236
37237
37238
37239
STRT2
249
37240
37241
37242
STOP/
255
37243
STOP
259
37244
MSTPIT/
267
37245
37246
37247
37248
37249
37250
GOJAM
261
37251
MGOJAM
269
37252
37253
37254
GOJAM
271
GOJAM/
264
(NC) 213 — 208 — 209 (NC)
262 — 263 (NC)
212
OVDC
236
260
TO PIN 5 & UNUSED INPUTS OF 37200 SERIES GATES
+4SW
224
248
+4VDC
222
250
TO PIN 10 OF 37200 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN
CHECKED 1-4-65
APPROVED Albert Hopkins 1-4-65
APPROVED Eldon C Hall
APPROVED MIT
APPROVED MSC
DATE

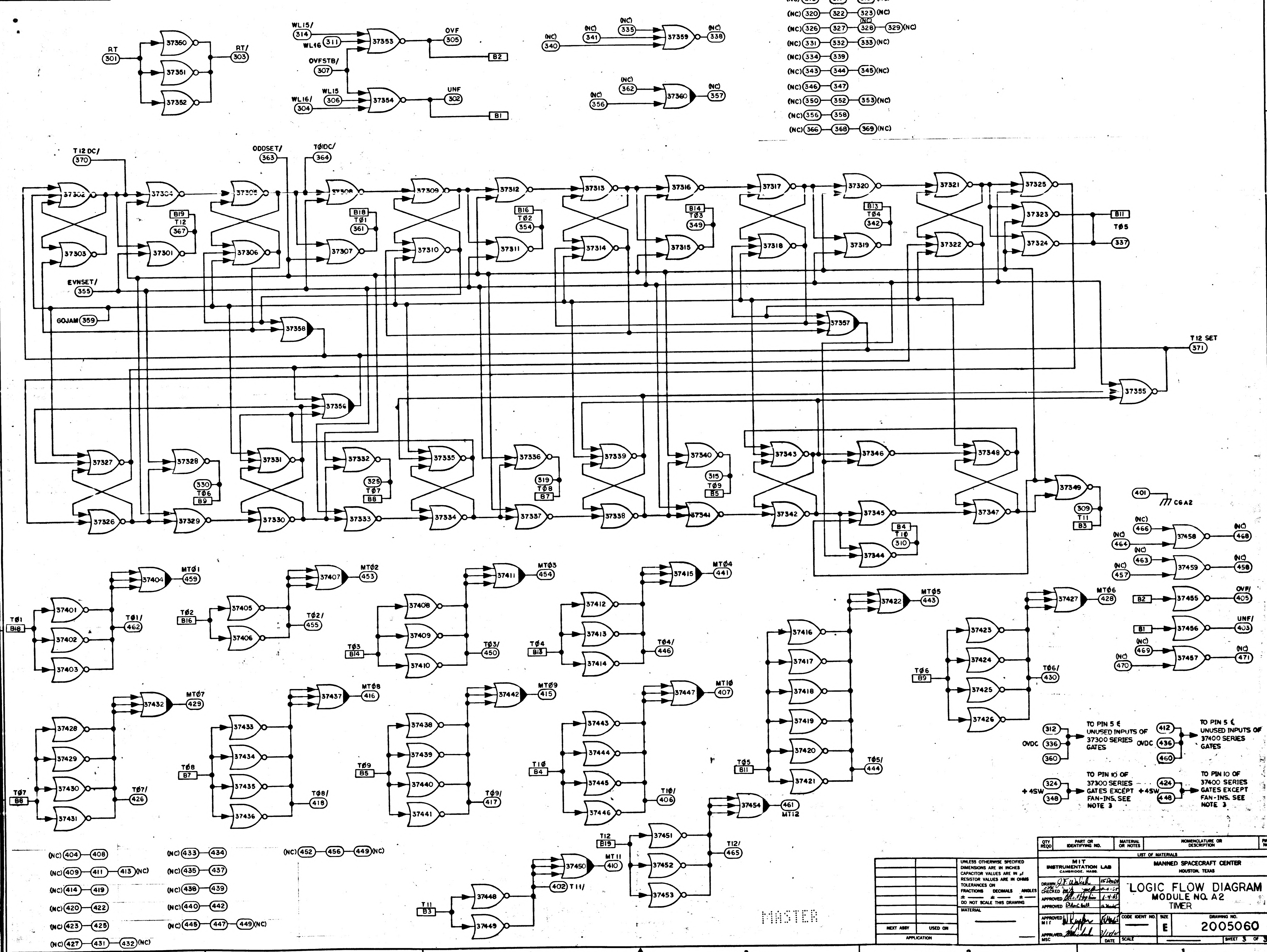
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A2
TIMER

CODE IDENT NO. —
SIZE E
DRAWING NO. 2005060
SCALE —
SHEET 2 OF 3

NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED



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RT/
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WL15/
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WL16
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OVF
305
B2
OVFSTB/
307
WL16/
304
WL15
306
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UNF
302
B1
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(NC) 341
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(NC) 343 344 345 (NC)
(NC) 346 347
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(NC) 356 358
(NC) 366 368 369 (NC)
T12 DC/
370
ODDSET/
363
TØIDC/
364
37302
37303
37304
37301
B19
T12
367
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37306
37308
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37310
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37311
B16
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37315
B14
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B11
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EVNSET/
355
GOJAM 359
37358
37357
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B9
37331
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TØ7
B8
37335
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37337
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TØ8
B7
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B5
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T1Ø
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37403
37404
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B18
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B16
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MTØ3
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B14
TØ3/
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TØ4
B13
TØ4/
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37422
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TØ5
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OVF/
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B1
37456
UNF/
403
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(NC) 471
37428
37429
37430
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37432
MTØ7
429
TØ7
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426
37433
37434
37435
37436
37437
MTØ8
416
TØ8
B7
TØ8/
418
37438
37439
37440
37441
37442
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415
TØ9
B5
TØ9/
417
37443
37444
37445
37446
37447
MT1Ø
407
T1Ø
B4
T1Ø/
406
37454
461
MT12
37451
37452
37453
T12
B19
T12/
465
37450
MT11
410
402 T11/
37448
37449
T11
B3
OVDC
312
336
360
TO PIN 5 & UNUSED INPUTS OF 37300 SERIES GATES
OVDC
412
436
460
TO PIN 5 & UNUSED INPUTS OF 37400 SERIES GATES
+4SW
324
348
TO PIN 10 OF 37300 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW
424
448
TO PIN 10 OF 37400 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
(NC) 404 408
(NC) 409 411 413 (NC)
(NC) 414 419
(NC) 420 422
(NC) 423 425
(NC) 427 431 432 (NC)
(NC) 433 434
(NC) 435 437
(NC) 438 439
(NC) 440 442
(NC) 445 447 449 (NC)
(NC) 452 456 449 (NC)
MASTER

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± ——— DECIMALS ± ——— ANGLES ± ———
DO NOT SCALE THIS DRAWING

MATERIAL ———

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

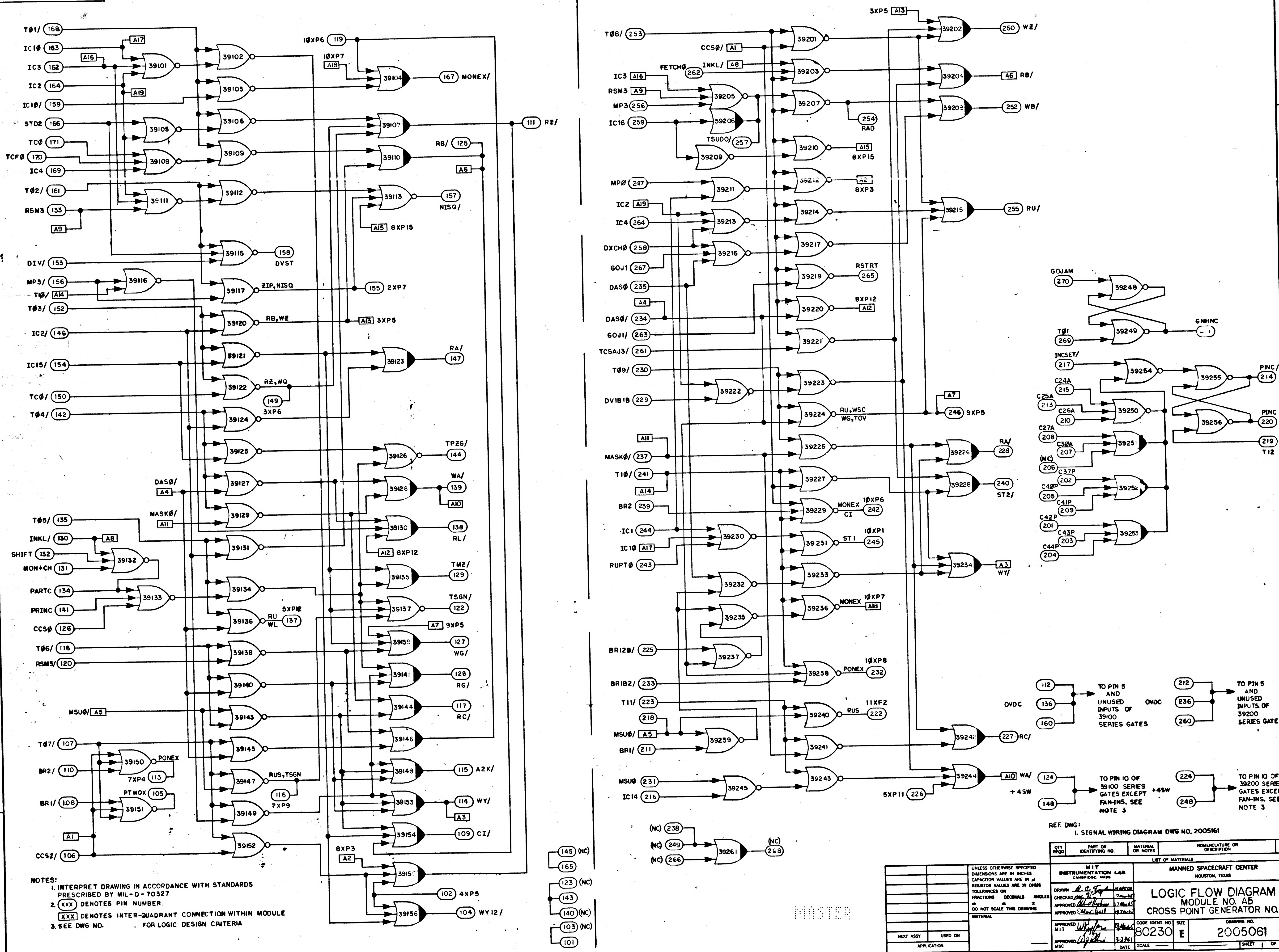
DRAWN J.F. Walsh 15 Dec 64
CHECKED 1-4-65
APPROVED Albert Hopkins 1-4-65
APPROVED Eldon Hall
APPROVED MIT
APPROVED MSC 3/11/65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A2
TIMER

CODE IDENT NO.	SIZE	DRAWING NO.
———	E	2005060
SCALE ———		SHEET 3 OF 3

REVISIONS 17738						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 18033	JFW			



TØ1/ 168
ICIØ 163
IC3 162
IC2 164
ICIØ/ 159
STD2 166
TCØ 171
TCFØ 170
IC4 169
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RSM3 133
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A17
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158 DVST
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IC15/ 154
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155 2XP7
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39122
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39123
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A7 9XP5
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39141
128 RG/
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39144
117 RC/
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BR1/ 108
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39146
39147
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115 A2X/
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39150
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7XP4 113
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PTWOX 105
A1
CCSØ/ 106
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39153
114 WY/
A3
39154
109 CI/
8XP3 A2
39155
102 4XP5
39156
104 WY12/
1ØXP6 119
1ØXP7 A18
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39107
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RB/ 125
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39113
157 NISQ/
A15 8XP15
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123 (NC)
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TØ8/ 253
CCSØ/ A1
INKL/ A8
FETCHØ 262
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RSM3 A9
MP3 256
IC16 259
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39202
3XP5 A13
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39204
A6 RB/
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252 WB/
254 RAD
TSUDO/ 257
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A2 8XP3
MPØ 247
IC2 A19
IC4 264
39213
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39215
255 RU/
DXCHØ 258
GOJ1 267
DASØ 235
A4
DASØ/ 234
GOJ1/ 263
TCSAJ3/ 261
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39217
39219
RSTRT 265
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TØ9/ 230
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A11
MASKØ/ 237
TIØ/ 241
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RA/ 228
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MONEX CI
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ICIØ A17
RUPTØ 243
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STI
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MONEX A18
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BR1B2/ 233
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MSUØ/ A5
BRI/ 211
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39240
RUS 222
11XF2
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39242
227 RC/
MSUØ 231
IC14 216
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39245
A10 WA/
5XP11 226
+4SW
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(NC) 249
(NC) 266
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(NC) 268
GOJAM 270
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TØ1 269
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INCSET/ 217
C24A 215
C25A 213
C26A 210
C27A 208
C3ØA 207
(NC) 206
C37P 202
C4ØP 205
C41P 209
C42P 201
C43P 203
C44P 204
39250
39251
39252
39253
39254
39255
39256
PINC 214
PINC 220
219 T12
OVDC
112
136
160
TO PIN 5 AND UNUSED INPUTS OF 39100 SERIES GATES
212
236
260
TO PIN 5 AND UNUSED INPUTS OF 39200 SERIES GATES
+4SW
124
148
TO PIN 10 OF 39100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
224
248
TO PIN 10 OF 39200 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
MASTER
2005061A

REF. DWG:
1. SIGNAL WIRING DIAGRAM DWG NO. 2005161

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
   [XXX] DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG NO. _ FOR LOGIC DESIGN CRITERIA

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL
—

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

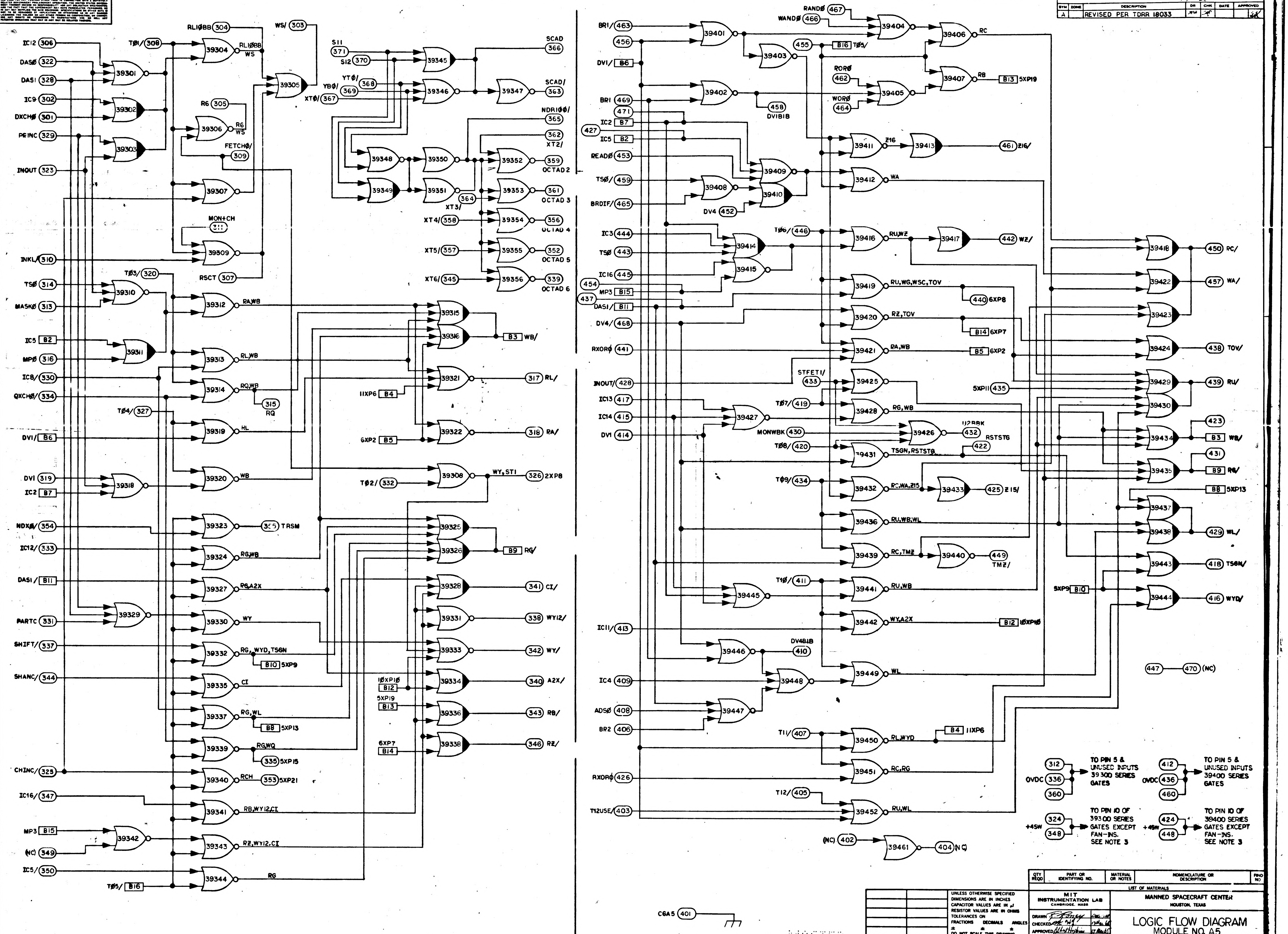
DRAWN R. C. Taylor 15 Mar 65
CHECKED 17 Mar 65
APPROVED Albert Hopkins 17 Mar 65
APPROVED Eldon C. Hall 19 Mar 65
APPROVED MIT 23 Mar 65
APPROVED MSC 3-23-65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A5
CROSS POINT GENERATOR NO.I

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005061
SCALE —
SHEET 1 OF 2

REVISIONS 1773F						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 18033	JFW			



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4
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2
1
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DASØ 322
DAS1 328
IC9 302
DXCHØ 301
PEINC 329
INOUT 323
INKL/ 310
TSØ 314
MASKØ 313
IC5 B2
MPØ 316
IC8/ 330
QXCHØ/ 334
TØ4/ 327
DVI/ B6
DVI 319
IC2 B7
NDXØ/ 354
IC12/ 333
DASI/ B11
PARTC 331
SHIFT/ 337
SHANC/ 344
CHINC/ 325
IC16/ 347
MP3 B15
(NC) 349
IC5/ 350
TØ5/ B16
TØ1/ 308
TØ3/ 320
RL10BB 304
WS/ 303
R6 305
FETCHØ/ 309
MON+CH 311
RSCT 307
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39344
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R6 WS
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RL,WB
RQ,WB
315 RQ
RL
WB
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WY
RG, WYD, TSGN
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CI
RG,WL
B8 5XP13
RG,WQ
335 5XP15
RCH
353 5XP21
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RZ,WY12,CI
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S11 371
S12 370
YTØ/ 368
YBØ/ 369
XTØ/ 367
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39346
39347
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MASTER

TO PIN 5 & UNUSED INPUTS 39300 SERIES GATES

TO PIN 5 & UNUSED INPUTS 39400 SERIES GATES

TO PIN 10 OF 39300 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

TO PIN 10 OF 39400 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO
LIST OF MATERIALS				

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN R. Roney Dec 64
CHECKED 17 Mar 65
APPROVED Albert Hopkins 17 Mar 65
APPROVED Eldon C Hall 19 Mar 65
APPROVED MIT W Kupfer 23 Mar 65
APPROVED MSC 23-3-65
DATE

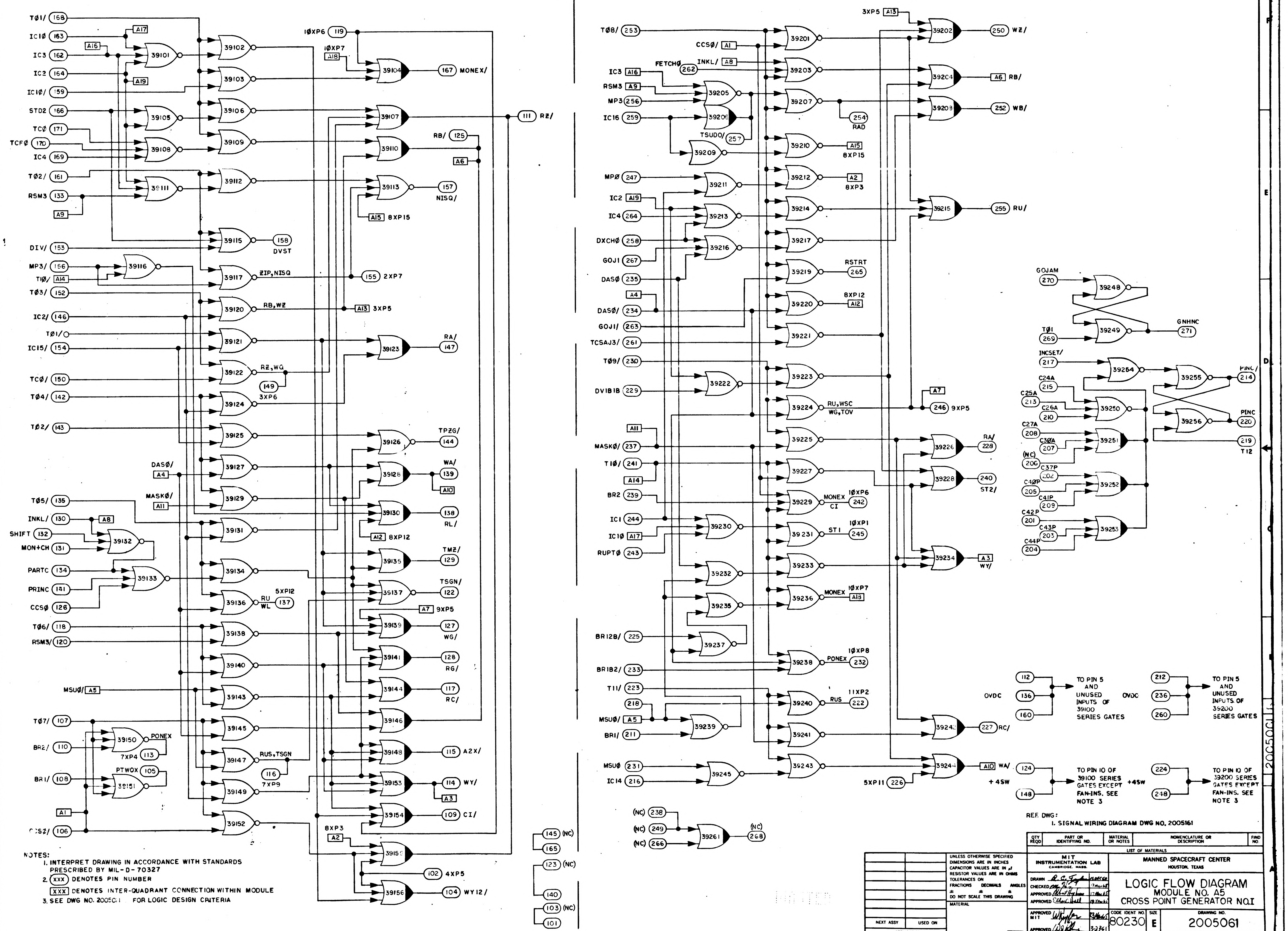
LOGIC FLOW DIAGRAM
MODULE NO. A5
CROSS POINT GENERATOR NO.I

CODE IDENT NO. 80230 SIZE E DRAWING NO. 2005061
SCALE NONE SHEET 2 OF 2

NOTICE – WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 17738

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 18033	TFW			
B		REVISED PER TDRR 20968	AAL			



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NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER

[XXX] DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE

3. SEE DWG NO. 2005011 FOR LOGIC DESIGN CRITERIA

REF. DWG:
1. SIGNAL WIRING DIAGRAM DWG NO. 2005161

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN R. C. Taylor 15 DEC 64
CHECKED 17 Mar 65
APPROVED Albert Hopkins 17 Mar 65
APPROVED Eldon C. Hall 19 Mar 65
APPROVED MIT 23 Mar 65
APPROVED MSC 3-23-65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

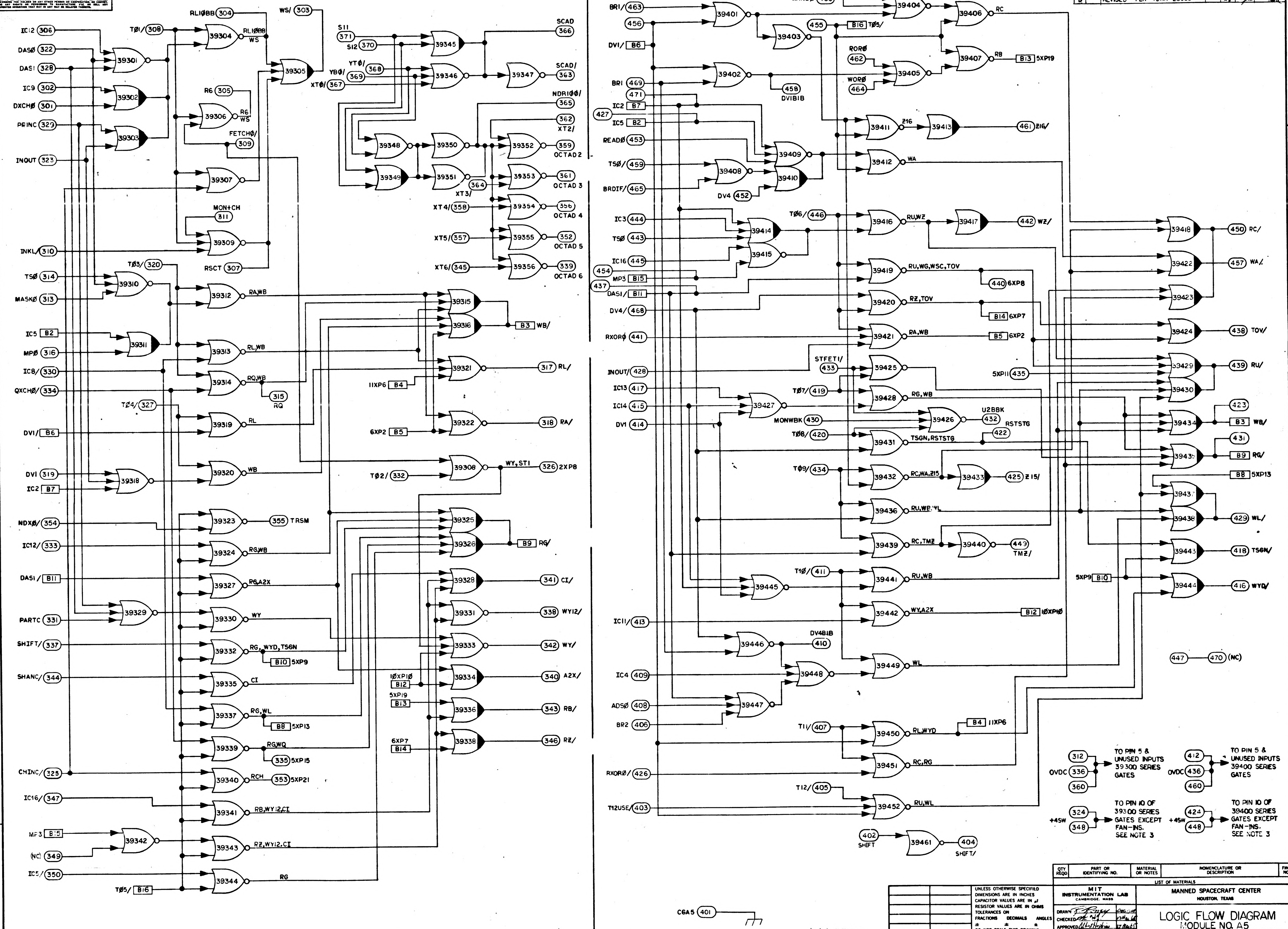
LOGIC FLOW DIAGRAM
MODULE NO. A5
CROSS POINT GENERATOR NO. I

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005061
SCALE —
SHEET 1 OF 2

NOTICE WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 1773F

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 18033	RW			
B		REVISED PER TDRR 20968			65	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IC12 306
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39439 RC,TMZ
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39441 RU,WB
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TO PIN 5 & UNUSED INPUTS 39300 SERIES GATES
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TO PIN 10 OF 39300 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 424 448
TO PIN 10 OF 39400 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
C6A5 401
2005061 B

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

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CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING

MATERIAL

MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS

DRAWN	R. Roney	Dec 64
CHECKED		17 Mar 65
APPROVED	Albert Hopkins	17 Mar 65
APPROVED	Eldon C Hall	19 Mar 65
APPROVED MIT	W Kupfer	23 Mar 65
APPROVED MSC		
		DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A5
CROSS POINT GENERATOR NO.I

CODE IDENT NO.	SIZE	DRAWING NO.
80230	E	2005061

SCALE NONE SHEET 2 OF 2

NOTICE: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS 1773P

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
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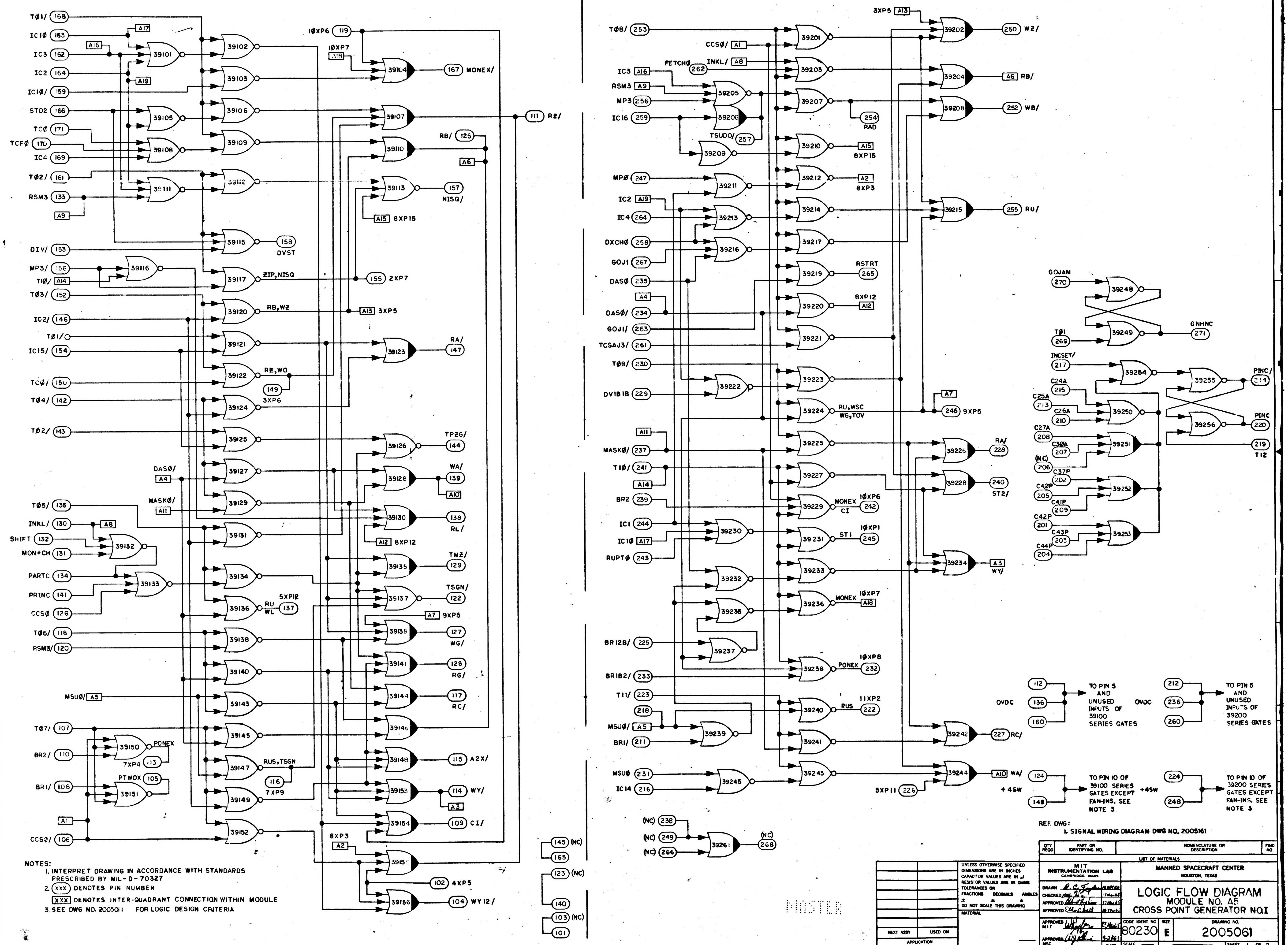
B		REVISED PER TDRR 20968	KAL			
C		REVISED PER TDRR 22296	KCH			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ICIØ 163
IC3 162
IC2 164
IC1Ø/ 159
STD2 166
TCØ 171
TCFØ 170
IC4 169
TØ2/ 161
RSM3 133
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(NC) 268
OVDC 112 136 160
TO PIN 5 AND UNUSED INPUTS OF 39100 SERIES GATES
OVDC 212 236 260
TO PIN 5 AND UNUSED INPUTS OF 39200 SERIES GATES
+4SW 124 148
TO PIN 10 OF 39100 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 224 248
TO PIN 10 OF 39200 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER
XXX DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG NO. 2005011 FOR LOGIC DESIGN CRITERIA

REF. DWG:
1. SIGNAL WIRING DIAGRAM DWG NO. 2005161

MASTER

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN μf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
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MATERIAL

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CAMBRIDGE, MASS.

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN R. C. Taylor
CHECKED 17 Mar 65
APPROVED Albert Hopkins 17 Mar 65
APPROVED Eldon C. Hall 19 Mar 65
APPROVED MIT 23 Mar 65
APPROVED MSC 3-23-65

LOGIC FLOW DIAGRAM
MODULE NO. A5
CROSS POINT GENERATOR NO.I

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005061
SCALE —
SHEET 1 OF 2

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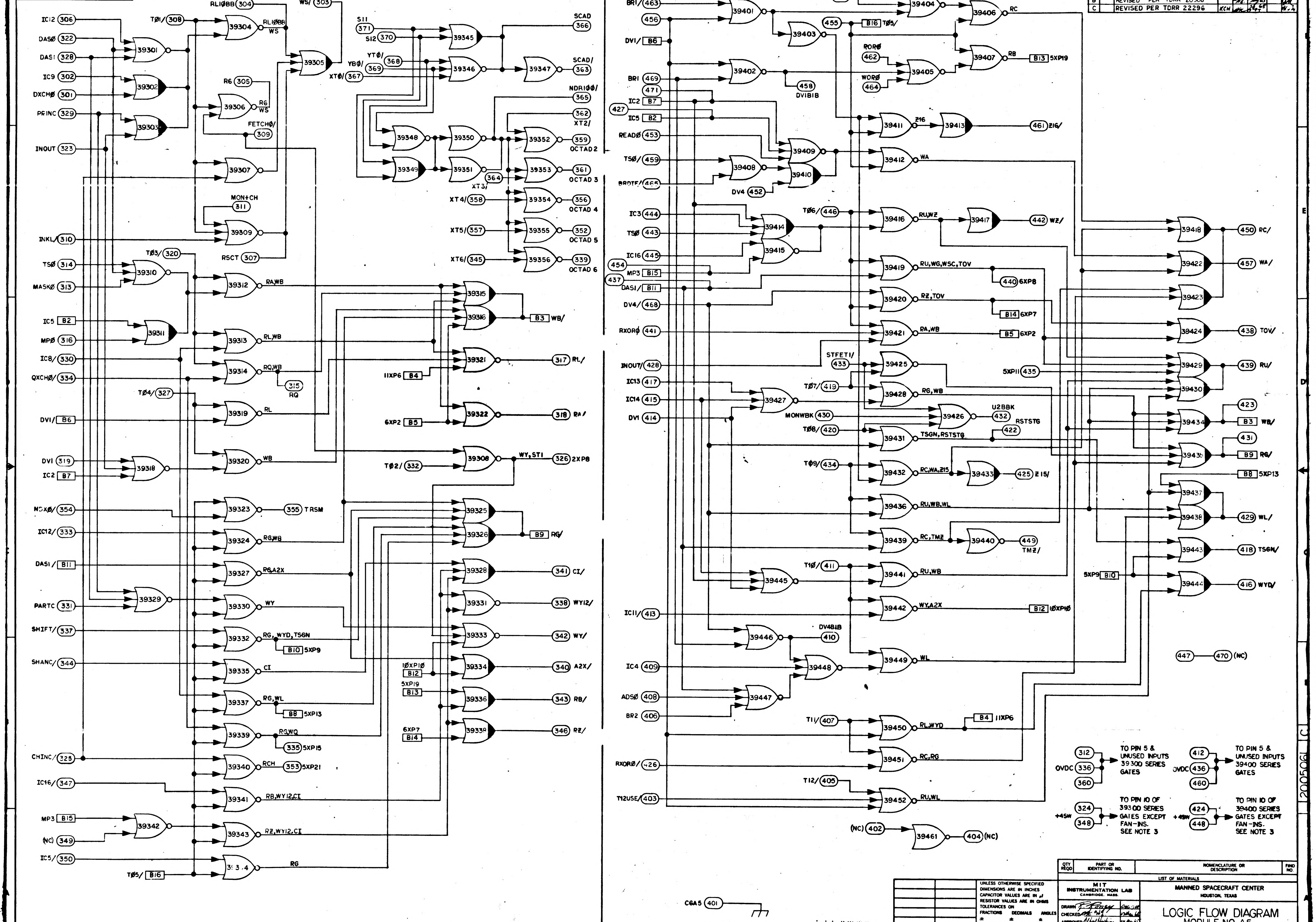
REVISIONS 1773F

SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
A		REVISED PER TDRR 18033	JFW	CAP		WK
B		REVISED PER TDRR 20368	AL		'65	WK
C		REVISED PER TDRR 22296	KCH		5 SEPT 65	



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4
3
2
1
E
D
C
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TO PIN 5 & UNUSED INPUTS 39400 SERIES GATES
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+4SW 424 448
TO PIN 10 OF 39400 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
CGA5 401
MASTER
2005061 C

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
CAPACITOR VALUES ARE IN µf
RESISTOR VALUES ARE IN OHMS
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL

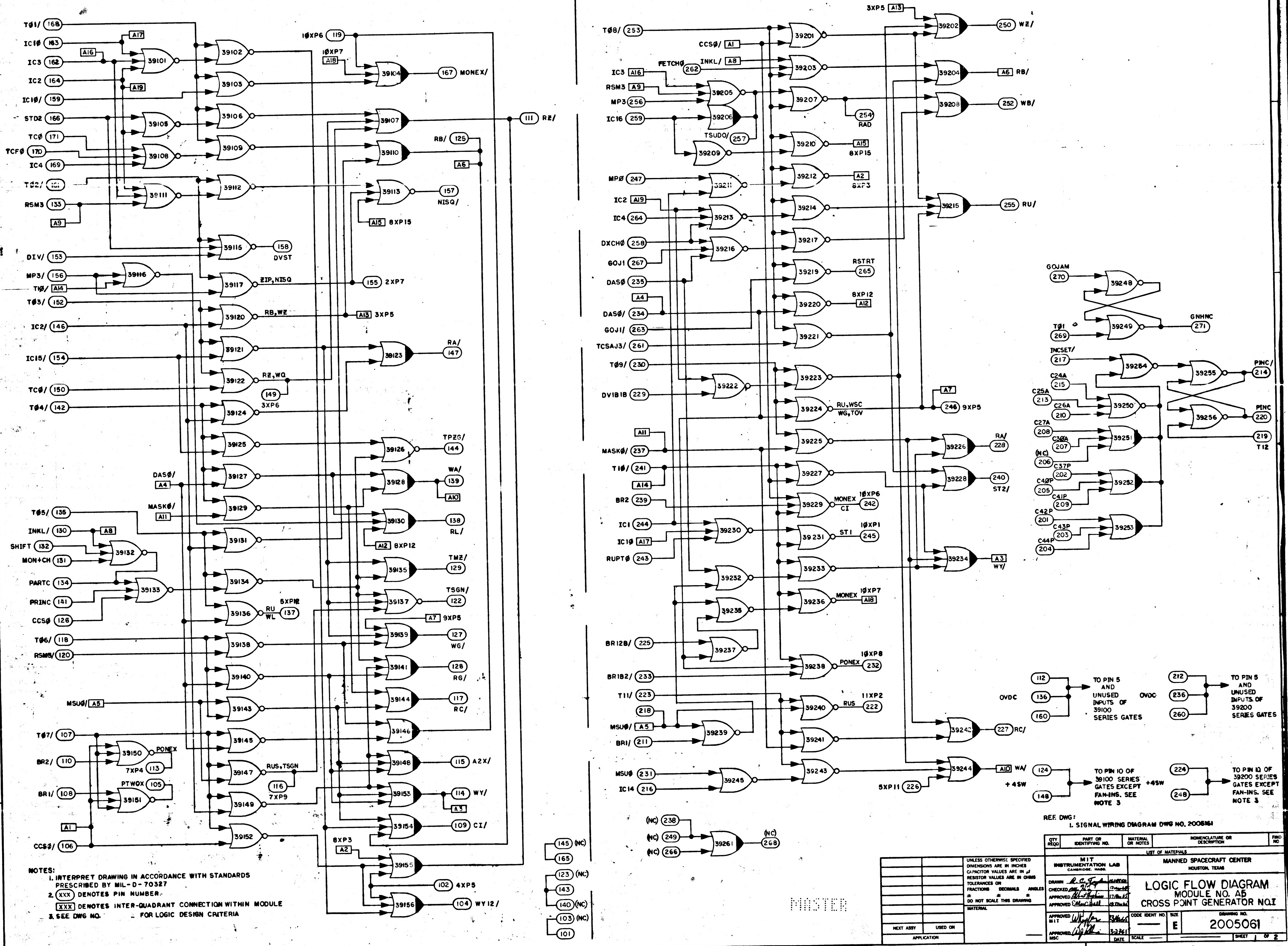
MIT
INSTRUMENTATION LAB
CAMBRIDGE, MASS.

DRAWN R. Raney Dec 1964
CHECKED 17 Mar 65
APPROVED Albert Hopkins 17 Mar 65
APPROVED Eldon C Hall 17 Mar 65
APPROVED MIT W Kupfer 23 Mar 65
APPROVED MSC 23 Mar 65
DATE

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A5
CROSS POINT GENERATOR NO.I

CODE IDENT NO. 80230
SIZE E
DRAWING NO. 2005061
SCALE NONE
SHEET 2 OF 2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+4SW
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248
TO PIN 10 OF 39200 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
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REVISIONS 1773F
SYM
ZONE
DESCRIPTION
DR
CHK
DATE
APPROVED
MASTER

NOTES:
1. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327
2. (XXX) DENOTES PIN NUMBER.
[XXX] DENOTES INTER-QUADRANT CONNECTION WITHIN MODULE
3. SEE DWG NO. ___ FOR LOGIC DESIGN CRITERIA

REF. DWG:
1. SIGNAL WIRING DIAGRAM DWG NO. 2005161

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO

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INSTRUMENTATION LAB
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MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

DRAWN R. C. Taylor 16 Feb 65
CHECKED 17 Mar 65
APPROVED Albert Hopkins 17 Mar 65
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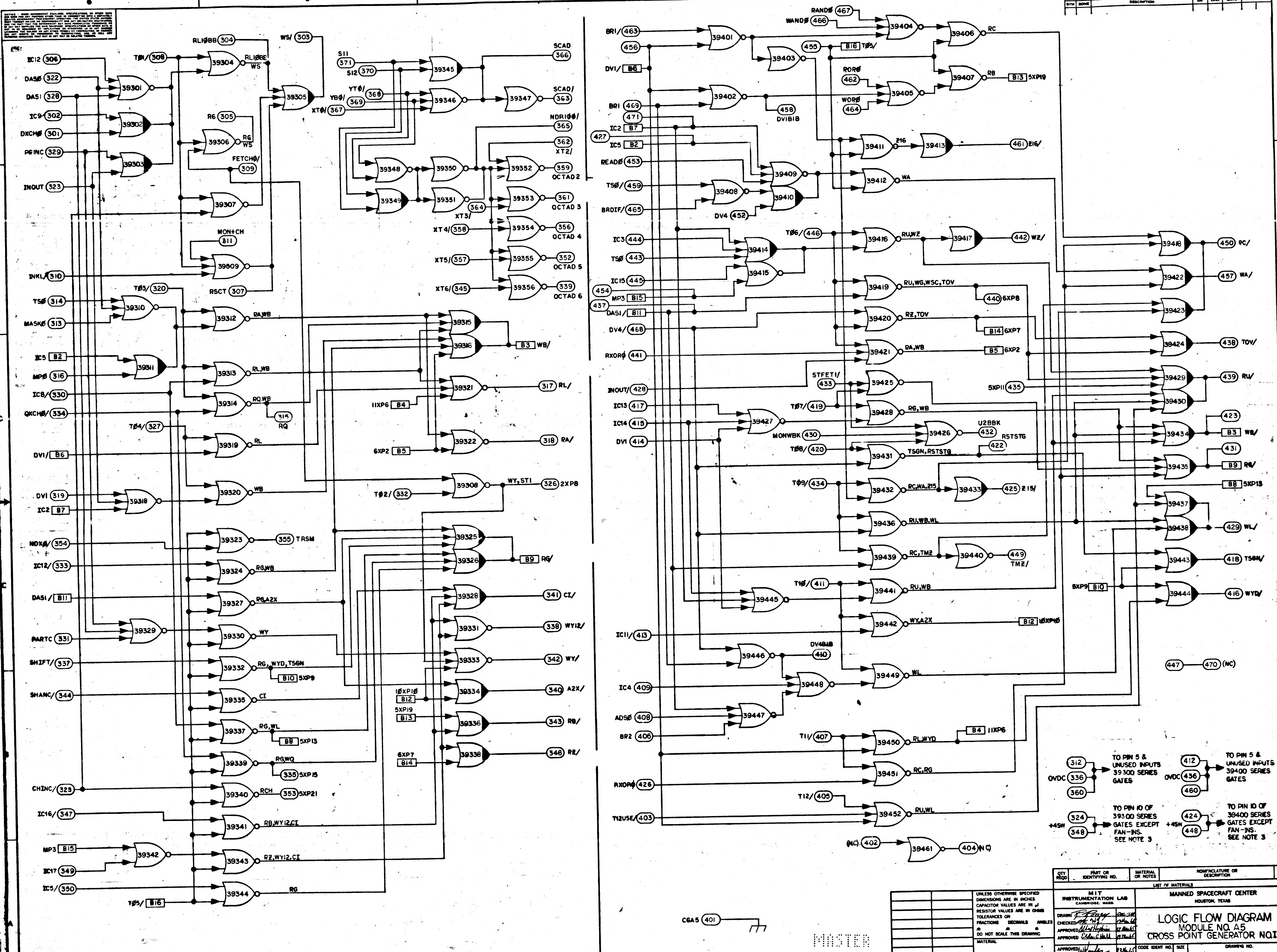
APPROVED MIT 23 Mar 65
APPROVED MSC 3-23-65
DATE

LOGIC FLOW DIAGRAM
MODULE NO. A5
CROSS POINT GENERATOR NO. I

CODE IDENT NO. ——
SIZE E
DRAWING NO. 2005061
SCALE ——
SHEET 1 OF 2


REVISIONS 1773F
SYM ZONE DESCRIPTION DR CHK DATE APPROVED
IC12 306 DASØ 322 DAS1 328 IC9 302 DXCHØ 301 PRINC 329 INOUT 323
TØ1/ 308 RL10BB 304 WS/ 303 R6 305 FETCHØ/ 309 MON+CH 811 RSCT 307
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355 TRSM RG,WB RG,A2X WY RG,WYD,TSGN B10 5XP9 CI RG,WL B8 5XP13 RG,WQ 335 5XP15 RCH 353 5XP21 RB,WY12,CI RZ,WY12,CI RG
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39301 39302 39303 39304 39305 39306 39307 39308 39309 39310 39311 39312 39313 39314 39315 39316 39318 39319 39320 39321 39322 39323 39324 39325 39326 39327 39328 39329 39330 39331 39332 39333 39334 39335 39336 39337 39338 39339 39340 39341 39342 39343 39344 39345 39346 39347 39348 39349 39350 39351 39352 39353 39354 39355 39356
BR1/ 463 456 DV1/ B6 BR1 469 471 IC2 B7 427 IC5 B2 READØ 453 TSØ/ 459 BRDIF/ 465 DV4 452
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IC3 444 TSØ 443 IC15 445 454 MP3 B15 437 DAS1/ B11 DV4 468 RXORØ 441 INOUT/ 428 IC13 417 IC14 415 DV1 414
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450 RC/ 457 WA/ 438 TOV/ 439 RU/ 423 B3 WB/ 431 B9 RG/ B8 5XP13 429 WL/ 418 TSGN/ 416 WYD/
T10/ 411 RU,WB 5XP9 B10 WY,A2X B12 10XP10 IC11/ 413 DV4B1B 410 WL 447 470 (NC) IC4 409 ADSØ 408 BR2 406 T11/ 407 RL,WYD B4 11XP6 RC,RG T12/ 405 RU,WL RXORØ 426 T12USE/ 403 (NC) 402 404 (NC)
39401 39402 39403 39404 39405 39406 39407 39408 39409 39410 39411 39412 39413 39414 39415 39416 39417 39418 39419 39420 39421 39422 39423 39424 39425 39426 39427 39428 39429 39430 39431 39432 39433 39434 39435 39436 39437 39438 39439 39440 39441 39442 39443 39444 39445 39446 39447 39448 39449 39450 39451 39452 39461
OVDC 312 336 360 TO PIN 5 & UNUSED INPUTS 39300 SERIES GATES
OVDC 412 436 460 TO PIN 5 & UNUSED INPUTS 39400 SERIES GATES
+4SW 324 348 TO PIN 10 OF 39300 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
+4SW 424 448 TO PIN 10 OF 39400 SERIES GATES EXCEPT FAN-INS. SEE NOTE 3
CGA5 401
MASTER
1 2 3 4 5 6 A B C D E F

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MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

LOGIC FLOW DIAGRAM
MODULE NO. A5
CROSS POINT GENERATOR NO. I

CODE IDENT NO.
SIZE E
DRAWING NO. 2005061
SCALE NONE
SHEET 2 OF 2

2005061